

WORLD METEOROLOGICAL ORGANIZATION

**REGIONAL ASSOCIATION VI
(EUROPE)**

THIRTEENTH SESSION

GENEVA, 2–10 MAY 2002

ABRIDGED FINAL REPORT WITH RESOLUTIONS

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Congress and Executive Council

- 883 — Executive Council. Fiftieth session, Geneva, 16–26 June 1998.
902 — Thirteenth World Meteorological Congress. Geneva, 4–26 May 1999.
903 — Executive Council. Fifty-first session, Geneva, 27–29 May 1999.
915 — Executive Council. Fifty-second session, Geneva, 16–26 May 2000.
929 — Executive Council. Fifty-third session, Geneva, 5–15 June 2001.
932 — Thirteenth World Meteorological Congress. Proceedings, Geneva, 4–26 May 1999.

Regional associations

- 882 — Regional Association VI (Europe). Twelfth session, Tel Aviv, 18–27 May 1998.
890 — Regional Association V (South–West Pacific). Twelfth session, Denpasar, 14–22 September 1998.
891 — Regional Association I (Africa). Twelfth session, Arusha, 14–23 October 1998.
924 — Regional Association II (Asia). Twelfth session, Seoul, 19–27 September 2000.
927 — Regional Association IV (North and Central America). Thirteenth session, Maracay, 28 March–6 April 2001.
934 — Regional Association III (South America). Thirteenth session, Quito, 19–26 September 2001.

Technical commissions

- 881 — Commission for Instruments and Methods of Observation. Twelfth session, Casablanca, 4–12 May 1998.
893 — Commission for Basic Systems. Extraordinary session, Karlsruhe, 30 September–9 October 1998.
899 — Commission for Aeronautical Meteorology. Eleventh session, Geneva, 2–11 March 1999.
900 — Commission for Agricultural Meteorology. Twelfth session, Accra, 18–26 February 1999.
921 — Commission for Hydrology. Eleventh session, Abuja, 6–16 November 2000.
923 — Commission for Basic Systems. Twelfth session, Geneva, 29 November–8 December 2000.
931 — Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology. First session, Akureyri, 19–29 June 2001.
938 — Commission for Climatology. Thirteenth session, Geneva, 21–30 November 2001.
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WMO issues authoritative publications on scientific and technical aspects of meteorology, hydrology and related subjects. These include manuals, guides, training materials, public information and the WMO *Bulletin*.

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GENERAL SUMMARY OF THE WORK OF THE SESSION

1. OPENING OF THE SESSION (agenda item 1)

1.1 The thirteenth session of Regional Association (RA) VI was held in Geneva, Switzerland, from 2 to 10 May 2002. The opening ceremony took place at the Headquarters of the World Meteorological Organization (WMO) on 2 May 2002 at 10 a.m.

1.2 Mr F. Q. Ribeiro, in his capacity as acting president of Regional Association VI, welcomed the participants and opened the session.

1.3 Professor G. O. P. Obasi, Secretary-General of the World Meteorological Organization, in his opening statement, said that he was honoured to address the opening ceremony of the thirteenth session of Regional Association VI for Europe and extended a warm welcome to all the participants. He also thanked Mr F. Q. Ribeiro, acting president of RA VI, as well as General C. Finizio, former president, and Mr I. Mersich, former vice-president and acting president, for their leadership and contributions towards the successful implementation of the Association's programmes during the intersessional period.

1.4 The Secretary-General remarked that over the last four years, some major events and developments of relevance to the Association had taken place. Some of those included the major policy issues approved by Thirteenth Congress in 1999, including the Geneva Declaration; the continued drive towards globalization, trade liberalization and market-led economies; the frequent occurrence of natural disasters and their negative impact on the socio-economic development of Member countries and the associated United Nations General Assembly Resolution setting up ISDR at the end of IDNDR; the rapid advances in science and technology, especially in satellites, computers and information and communications technology; the United Nations Millennium Summit Declaration; the continued implementation of Agenda 21 of UNCED and its related Conventions on Climate Change, and on Desertification and Biodiversity; and the ongoing global Preparatory Committee sessions for WSSD, to be held in Johannesburg, South Africa during August/September of the present year.

1.5 The Secretary-General emphasized that very high priority had to be given to issues related to the mitigation of natural disasters and to the activities related to the ISDR. In that connection, WMO had been assigned lead agency within the United Nations system for the ISDR Working Group on Climate and Disasters. For those reasons, and given the important role of NMHSs in ensuring the safety of life and property, he encouraged the NMHSs to take the lead, at the national level, in matters related to natural disasters and in the implementation of ISDR-related activities.

1.6 The Secretary-General pointed out that the increasing deterioration of water quality and the incidence

of disastrous floods, the management of international rivers and the weakness of hydrological infrastructure in some parts of the Region, needed to be seriously addressed. WMO had launched WHYCOS, an initiative aimed at addressing some of the challenges. The implementation of the regional components of WHYCOS, namely MED-HYCOS and Baltic-HYCOS as well as those under preparation, such as Black Sea-HYCOS, Danube-HYCOS and Arctic-HYCOS, were of crucial importance to the countries of the Region. He therefore urged Member countries to give their support to those initiatives and to pay more attention to water-related issues.

1.7 To ensure the strengthening of the capacities of NMHSs, human resources development should be assigned high priority. For that purpose, he urged Member countries in the Region, which had the facilities, to assist others in training in basic and specialized fields in meteorology and hydrology. In that context, WMO would continue to enhance its Education and Training Programme so as to meet the increasing needs of Member countries.

1.8 The Secretary-General informed the session that, using extrabudgetary resources provided by some Members from the Region, WMO had been undertaking the activities required of the future Subregional Office for Europe from the WMO Headquarters in Geneva. Through that process, it had been possible to support effectively the activities related to the Association and its Members. He expressed his appreciation to those who provided extrabudgetary resources and said that he had included in WMO's programme and budget a proposal for funding the activities of the Office during the fourteenth financial period.

1.9 The Secretary-General informed the participants that other engagements made it impossible for him to attend fully the entire thirteenth session. For that reason, he had designated Mr M. Jarraud, Deputy Secretary-General of WMO, as his representative to the session, and that he would be available to meet with delegates to discuss matters of interest to them. He wished the participants a successful session and a pleasant stay in Geneva.

1.10 Mr F. Q. Ribeiro, acting president of the Association, welcomed the representatives of the RA VI Members as well as the representatives of Members of WMO outside Region VI and representatives of international organizations. He recalled the heavy agenda in front of the session and the work to be done during the eight working days in reviewing what had been achieved in the implementation of the regional programme during the past four years and what needed to be addressed in the future.

1.11 Mr F. Q. Ribeiro stressed the need to develop expertise in resource mobilization so as to best engage

with funding institutions and bodies such as the European Union and the World Bank in support of the technical cooperation activities within the Region. The role of, when established, the Subregional Office for Europe should be considered in the context of how it could best engage with, and facilitate, the process of cooperation between Members.

1.12 The acting president took the opportunity to thank General C. Finizio and Mr I. Mersich for their leadership and contributions towards the successful implementation of the Association's programmes while serving as the former president and acting president, respectively. He also expressed his gratitude to all Permanent Representatives who had contributed to the work of RA VI, the chairpersons, rapporteurs and members of working groups for their work, and to Members who offered to host the various meetings that had taken place during the intersessional period.

1.13 Mr F. Q. Ribeiro thanked the Secretary-General and all the Secretariat staff for their assistance and collaboration and for the excellent preparations of the working documents and all arrangements which were preconditions for a successful outcome of the session.

2. ORGANIZATION OF THE SESSION (agenda item 2)

2.1 CONSIDERATION OF THE REPORT ON CREDENTIALS (agenda item 2.1)

2.1.1 The representative of the Secretary-General presented reports on credentials, taking into account the documents received prior and during the session. The Association accepted the reports. In accordance with General Regulation 22, it would not be necessary to establish a Credentials Committee. It was so agreed.

2.1.2 The meeting was attended by 128 participants from 44 countries of Regional Association VI (Europe). In addition, four representatives from two WMO Members from other Regions and eight representatives from seven international organizations also participated in the session. The list of participants is given in [Appendix A](#).

2.2 ADOPTION OF THE AGENDA (agenda item 2.2)

The provisional agenda for the session was unanimously adopted as given in [Appendix B](#).

2.3 ESTABLISHMENT OF COMMITTEES (agenda item 2.3)

2.3.1 In accordance with General Regulation 24, the Association established the following committees:

NOMINATION COMMITTEE

2.3.2 A Nomination Committee was established consisting of the principal delegates of Italy, Jordan, Poland and the Russian Federation. The principal delegate of Poland was requested to serve as convener.

WORKING COMMITTEES

2.3.3 Two working committees were set up to consider the various agenda items:

(a) Working Committee A, co-chaired by Messrs M. Ioana (Romania) to consider agenda items 7.1,

7.3 and 8 and by H. Malcorps (Belgium) to consider agenda items 4.1 to 4.5 and 7.4;

(b) Working Committee B, co-chaired by Messrs A. Eliassen (Norway) to consider agenda items 5.1 to 5.5 and 6.1 to 6.5 and by S. Skulec (Slovakia) to consider agenda items 7.2, 9 and 10.

COORDINATION COMMITTEE

2.3.4 As stipulated in General Regulations 24 and 28, a Coordination Committee was set up, comprising of the acting president of RA VI, the co-chairpersons of Working Committees A and B, and the Representative of the Secretary-General.

2.4 OTHER ORGANIZATIONAL MATTERS (agenda item 2.4)

2.4.1 The Association established its working hours for the session.

2.4.2 The Association agreed that no minutes of the plenary meetings would be produced unless a Member specifically requested that it should be done for a particular item.

2.4.3 The Association designated Ms M. F. Kastimardou-Refene (Greece) as Rapporteur to Review the Previous Resolutions and Recommendations of the Association and of Relevant Executive Council Resolutions.

3. REPORT BY THE PRESIDENT OF THE ASSOCIATION (agenda item 3)

3.1 The Association noted with appreciation the report of the acting president of RA VI which provided an overall review and assessment of the major activities of the Association since its twelfth session and expressed satisfaction at the effective manner in which the activities of the Association were being undertaken.

3.2 The Association commended its present acting president, Mr F. Q. Ribeiro (Portugal) for his dedication and his efficiency in conducting the affairs of the Association, thus contributing to the development of meteorology and hydrology in the Region. The Association also commended Mr I. Mersich (Hungary) for his positive contribution to the activities of the Association as vice-president and later as acting president. It also expressed its appreciation to the chairpersons and members of the working groups and rapporteurs, who had actively collaborated in carrying out the activities of the Association in the Region.

3.3 The Association extended its appreciation to Members who hosted various regional events during the intersessional period and encouraged them to continue to provide the necessary support to the activities of the Association.

3.4 The Association gave its full support to the priorities and future work programme as presented by the acting president, in particular those related to the WMO scientific and technical programmes which focused on the specific requirements of the Region and new priority areas such as climate change, natural disasters and related environmental issues. It requested the Secretary-General to take into consideration the regional needs as

reflected in the future work plan of the Association when carrying out activities related to RA VI.

3.5 Several delegates stressed the challenges the Region and its NMHSs faced in addressing some of the major issues affecting the Region. RA VI might be seen as a microcosm of the rest of WMO; it included developed and developing NMSs, both large and small. Although the Region had only 25 per cent of the WMO Members, the contribution was 42 per cent of the WMO budget. Also for that reason, the primary role of RA VI should be for the more developed countries to help the developing countries.

3.6 It was suggested that Members of the Region needed to be clearer about their aims and objectives, and needed to link better those aims to the WMO Long-term Plan and the priorities of the technical commissions.

3.7 In considering natural disaster reduction, it was pointed out that the Region was well prepared to forecast such disasters or to respond to them. That was because others expected it of NMHSs and because Members could demonstrate to their Governments the need for NMHSs, thereby securing funding.

3.8 Several Members recalled the involvement of the private sector in meteorology. Some felt that NMHSs should stress the importance of partnerships, including those between NMHSs and the private sector, but it was also recalled that in many countries of the Region, the situation between NMHSs and the private sector was of competition and not of cooperation.

3.9 The Association urged its Members that NMHSs in the Region should, through better visibility, remind their Governments of the need for funding infrastructure. The acid test was whether NMHSs were delivering the outcomes that their customers sought. The Association agreed that, if that was achieved, then Governments were more likely to continue to fund the underpinning activities and services provided by NMHSs.

4. WORLD WEATHER WATCH PROGRAMME — REGIONAL ASPECTS (agenda item 4)

4.1 WORLD WEATHER WATCH PLANNING AND IMPLEMENTATION PROGRAMME, INCLUDING THE REPORT OF THE CHAIRPERSON OF THE WORKING GROUP ON PLANNING AND IMPLEMENTATION OF THE WORLD WEATHER WATCH IN REGION VI (agenda item 4.1)

REPORT OF THE CHAIRPERSON OF THE WORKING GROUP ON PLANNING AND IMPLEMENTATION OF THE WWW IN REGION VI

4.1.1 The Association noted with appreciation the report of the chairperson, Mr G. Steinhorst (Germany), who was designated chairperson in October 2001 following the retirement of the former chairperson, Mr M. Kurz (Germany). The Association thanked Mr M. Kurz for his excellent leadership of the Working Group and wished him a long and happy retirement. It was noted with satisfaction that several issues and challenges tasked to the group were addressed with significant accomplishment. The Association noted that

special emphasis was put by CBS-Ext.(98) on improving and strengthening the links to the regional associations through ensuring their greater involvement in planning, implementation and coordination of the WWW and, most importantly, through an improved mechanism for providing feedback to CBS. The arrangements implemented for that purpose included the membership of the regional rapporteur or coordinators of subgroups on the WWW component programmes in the corresponding Implementation Coordination Teams. It was agreed to consider specific issues raised in the report of the chairperson and the Working Group conclusions and recommendations under the relevant agenda items.

4.1.2 Based on the report of the chairperson, the Association reviewed and agreed on the following specific major tasks of the Working Group which needed further coordination and attention:

- (a) Keep under review and, when necessary, develop proposals for improvement of the mechanism for continuous monitoring of the performance of the WWW system (observing, telecommunications, data-processing and data management) in the Region, including initiation of remedial actions to correct deficiencies identified;
- (b) Continue to assess the existence of gaps in the RBSN, in close cooperation with Members concerned, and prepare a revised list of stations for inclusion in the RBSN, including automatic stations on land and fixed positions at sea, and questions related to the representativeness of observing stations;
- (c) To develop further the RBCN of stations providing CLIMAT and CLIMAT TEMP reports. Particular attention would be given to the development of criteria for the inclusion of stations, the improvement of the spatial coverage, the adherence to coding procedures, and the inclusion of GCOS network stations;
- (d) Make recommendations on the utilization of integrated observing systems (including satellites) to meet regional requirements for weather analysis, forecasts and warnings;
- (e) Monitor and report on the development and performance of new technology observing systems and, in particular, their impact on the regional network performance, including advanced observational radar networks, profilers, thunderstorm detection networks, AMDAR, ASAP systems and buoys;
- (f) Study and report on the planning and implementation of composite observing networks across the Region and coordinate with relevant organizations and programmes (e.g. COSNA, EUCOS);
- (g) Facilitate the exchange of experience of Members with respect to the acquisition of VOS and work towards increasing the observations of ships through cooperation with appropriate national ship operators;
- (h) Review and monitor, in coordination with other relevant groups, the implementation of the RA VI meteorological telecommunication plan, in particular the expansion of the RMDCN to all parts of the Region and for interregional communication;

- (i) Monitor the development of telecommunication technologies and procedures and make proposals for possible implementation;
- (j) Review the proposal for NMC Ankara (Turkey) to be an RTH and make recommendations;
- (k) Consider use of the RMDCN for dissemination of satellite data and products (e.g. satellite application facilities products);
- (l) Review the requirements for providing data and NWP output, including boundary conditions needed for running limited area models at NMCs, and possibilities for coordinating the related data flow; develop regional procedures for the provision of boundary conditions;
- (m) Review the requirement for maintaining existing and for establishing new RSMCs; study their capabilities for generating environmental quality products and long-range forecasts;
- (n) Review progress and facilitate cooperation in forecasting automation, statistical interpretation, EPS post-processing and enhancements of NWP outputs, in particular, to provide guidance for severe weather forecasting;
- (o) Define training needs and promote the organization of regional workshops to train forecasters in the use of new forecasting products (e.g. severe weather forecasting, EPS);
- (p) Consider the concept of the future WMO information system as it related to RA VI and encourage and monitor trials on feasibility pilot projects among centres;
- (q) Consider the project of the improved MTN and its impact on RA VI Members;
- (r) Provide guidance to Members on national training on table-driven code forms (BUFR and CREX) to promote their full understanding;
- (s) Develop BUFR/CREX templates and descriptors to meet the regional and national requirements;
- (t) Monitor the experience gained in the experimental exchange of data in BUFR and CREX, including development and implementation of encoding and decoding software, analyse problems related to the migration to table-driven code forms and report the results to CBS;
- (u) Study the potential of XML for meteorological data representation and develop proposals, as appropriate;
- (v) Monitor data management-related developments in other forums, such as the EUMETNET UNIDART project, and report on the emergence of standards in that field;
- (w) Monitor the implementation of, and propose improvements to, the regional mechanisms that would contribute to the enhancement of the capability of NMCs to provide severe weather warnings, in cooperation with the PWS Programme;
- (x) Review the progress of PWS implementation in the Region including feedback from users on the guidance material for the preparation of forecasts, procedures of verification and methods for the coordination of warnings and their dissemination through a central Web site and bi/multilateral arrangements;
- (y) Review the establishment of a pilot project for the bilateral exchange of warnings among neighbouring countries;
- (z) Investigate the regional situation on cooperation between the NMHSs and the national disaster management agencies and make proposals for the further development of that cooperation;
- (aa) Identify deficiencies in WWW implementation in Region VI and recommend corresponding priorities in the technical cooperation activities to overcome those deficiencies.

4.1.3 The Association agreed that, taking into account the many tasks indicated above, it was necessary to re-establish the Working Group on Planning and Implementation of the WWW in Region VI. The Association, recognizing that there was a need to strengthen the activities of the subgroups, revised the composition of the Working Group. The new structure was composed of coordinators designated by the Association to lead five subgroups and experts expected to participate actively in the work of the subgroups. The subgroups corresponded to the CBS structure of four Open Programme Area Groups on Integrated Observing Systems, on Information Systems and Services, on Data-processing and Forecasting Systems, and on Public Weather Services, and to the continued need for an ad-hoc group on WWW-related cooperation activities. [Resolution 1 \(XIII-RA VI\)](#) was adopted.

SITUATION AND NEED FOR COOPERATION RELATED TO THE WWW

4.1.4 In recalling that the Association had established in 1998 an ad hoc group on WWW-related cooperation activities, it discussed aspects and proposals resulting from the work of that group. The Association noted the successes in the last few years in terms of international cooperation within RA VI. There were within the Region several examples, within and beyond the framework of WMO, in which such cooperation was achieving substantial outcomes. Those included the development and implementation of the RMDCN project and the AMDAR observing system, part of which had been notably advanced within the context of the EUMETNET-AMDAR programme.

4.1.5 However, there were areas of WWW within the Region with continuing insufficiencies, in particular in the eastern part of the Region.

4.1.6 The Association recognized that WWW activities in the Region, and related prospects for cooperation to support the achievement of the WWW aims in the Region, needed to be seen in the context of the large-scale developments that were occurring. Most noticeable among those were:

- (a) The rapid technological developments taking place;
- (b) The globalization and regionalization in the provision of meteorological services, leading to the need for both rationalization and specialization and the forming of alliances for cost-effective services;

- (c) Increased competition in a commercial environment, leading NMHSs to develop new approaches in their operations and to a change in their status, and their becoming more market oriented;
- (d) Increased economic pressure on NMHSs to reduce costs and improve effectiveness;
- (e) Increased demand for new types of services and for better delivery to users;
- (f) New legislation, in various forms, in Member States on intellectual property issues. Some legislation had direct relevance to the access to, and use of, WWW information and implications — therefore on its availability, exploitation and, ultimately, provision.

4.1.7 The situation regarding the prospects for cooperation in the form of support through existing programmes, such as the TCO Programme, was not static, but nor was it very encouraging. The level of funding support through the established channels — technical cooperation, VCP, UNDP, etc. — had been relatively stable over the last two or three years, although before that there had been a major loss of UNDP support.

4.1.8 With respect to the GOS, the Association agreed that work needed to be continued to optimize the distribution of stations making up the RBSN. The work being done by EUMETNET to improve the design of its Members' observing networks was anticipated with great interest as it could serve as an example to be followed throughout the Region.

4.1.9 As regarded GTS, the Association recalled the remaining deficiencies in the implementation of the point-to-point circuits connecting Albania, Armenia and Azerbaijan and agreed that they should receive high priority. The cooperation project for extending the connectivity of the RMDCN had been given the highest priority within the technical cooperation programme related to the WWW in the Region.

4.1.10 As regarded the NMCs associated to WMC/RTH Moscow, the Association agreed that the projects for the automation of NMCs Baku, Kishenev and Yerevan, should be considered with the highest priority and that the other related projects given in general summary paragraph 4.3.14 should be considered with a high priority.

4.1.11 With respect to the GDPS, the Association urged to promote the access to products on the Internet. Designated RSMCs were encouraged to provide an increasing range of products to Members by such means (if preferred, with an appropriate categorization of such products within the context of Resolution 40 (Cg-XII) — WMO policy and practice for the exchange of meteorological and related data and products including guidelines on relationships in commercial meteorological activities).

4.1.12 The Association agreed that equipment for implementation of data-processing and forecasting system functions and technical support for building operational capabilities in NWP models and pre/post processing should be considered with highest priority.

4.1.13 The Association agreed on the following action plan for the cooperation activities:

- (a) Members should continue to seek out new opportunities for more cost effective sharing of activities within the membership of the Region;
- (b) Members were encouraged to develop expertise in resource mobilization, so as to best engage with bodies such as the European Union. Consideration should be given to joint approaches to the European Union, speaking with one authoritative voice where there was an identified regional or sub-regional requirement to be met;
- (c) New sources of funding, particularly the European Union, the World Bank, and those specific to individual countries, needed to be pursued, because the more traditional sources of funding could not meet the full needs of those requiring support;
- (d) Members seeking technical cooperation support should consider which of their outputs could be realized through cooperation with potential donors — an arrangement that could develop a more partnered relationship than that which currently existed between donor and recipient under programmes such as the VCP;
- (e) The role of the planned Subregional Office for Europe should be considered in the context of how it could best engage with, and facilitate, the process of cooperation between Members;
- (f) Mindful of the increasing ability to transfer information between centres, Members were encouraged to enter into close partnerships with WMCs/RSMCs/NMCs, and other relevant groupings with recognized and forecast production capabilities. Such partnerships should enhance national data-processing and forecasting functions;
- (g) The successful Working Group on Cooperation Between European Forecasters should be continued to facilitate better cooperation between forecasters in several European NMHSs;
- (h) Facilitate cooperation in forecasting automation, statistical interpretation and other enhancements of NWP outputs, in particular EPS products and NWP guidance for severe weather forecasting, flood forecasting and monitoring and forecasting in response to other environmental emergency situations;
- (i) Contribute to the development of the future WMO information systems concept and be prepared to lead the other Regions in adapting to new structures developing from it;
- (j) Monitor the implementation of, and propose improvements to, the regional mechanisms that would contribute to the enhancement of the capability of NMCs to provide severe weather warnings, in cooperation with the PWS Programme.

MONITORING OF THE WWW

4.1.14 The Association noted that the availability of SYNOP and TEMP data from Region VI were relatively satisfactory, while the availability of CLIMAT and CLIMAT TEMP data were insufficient. The availability of reports was not homogeneous within the Region. The Association, in particular, noted with concern the low

availability of observational data in areas in the eastern part of Region VI.

4.1.15 The Association urged, in particular, the Members in eastern Europe to spare no efforts and resources in re-activating their observational activities, data collection and regional and global dissemination programmes for the benefit of their NMSs and WMO Programmes.

4.1.16 There were no significant changes in the total availability of reports from RBSN stations during the period 1996-2001. An increase in the availability of SYNOP reports was noted in the period 1998-2001 compared to the period 1996-1997, together with an increase in the number of RBSN stations. As regarded the timeliness of the reception on the MTN, 91, 92 and 93 per cent of the required SYNOP reports were available on the MTN within one hour, two and six hours, respectively, after the time of observation during the October 2000 annual global monitoring; 71 and 73 per cent of the required TEMP reports were available on the MTN within two and 12 hours, respectively, after the time of observation.

4.1.17 The Association noted that monitoring the availability and quality of observations was an indispensable tool for enhancing network performance. It was felt that, in particular, the remedial action based on monitoring results needed improvement. Also, it was realized that that could be carried out only with cooperation between users and providers. In particular, the monitoring centres in the Region for SYNOP (RTH Offenbach), TEMP (ECMWF) and CLIMAT/CLIMAT TEMP (RTH Toulouse and RTH Offenbach) should be involved.

4.2 OBSERVING SYSTEMS, INCLUDING THE INSTRUMENTS AND METHODS OF OBSERVATION PROGRAMME AND SATELLITE ACTIVITIES (agenda item 4.2)

SURFACE-BASED SUBSYSTEM

REGIONAL BASIC SYNOPTIC NETWORK

4.2.1 The Association noted that, in accordance with Resolution 2 (XII-RA VI) — Regional Basic Synoptic Network, the RBSN in the Region consisted of 726 surface and 143 upper-air stations. It noted with appreciation the efforts of Members to implement the RBSN in compliance with the recommendations on priorities. It also appreciated the work done by the Lead Data Quality Monitoring Centres for improving the procedures for monitoring and for the presentation and distribution of monitoring results on the availability and quality of surface-based observational data. The Association agreed with the proposal of the Working Group on Planning and Implementation of the WWW in Region VI to use the amended criteria for inclusion of stations in the RBSN.

4.2.2 The Association agreed with the proposal of the Working Group to use the amended criteria for inclusion of stations in the RBSN, which are presented in [Annex I](#) to this report. Those criteria should ensure a network with an optimum composition with respect to

the observing programme, reliability of reception and spacing of stations. In particular, the criteria should allow for including stations with reduced observing programmes in data-sparse areas. The Association noted the view expressed by CBS that a change of required spacing for radiosonde stations from 250 to 500 km would be a more realistic goal on a global scale. It also felt, however, that such spacing should be based on observational requirements of not only global NWP, but also meso-scale applications, nowcasting, severe weather warnings, and other applications, such as air quality monitoring, and agreed that a denser network would be desirable for detecting convection phenomena. Finally, the Association agreed with the changes and updates to the existing RBSN as proposed by Members and adopted [Resolution 2 \(XIII-RA VI\)](#).

OTHER OBSERVING SYSTEMS

4.2.3 The Association noted with satisfaction that detailed quantitative criteria regarding measurements provided by automatic stations were being developed by CBS in consultation with other technical commissions. It expressed the need for standardization of algorithms for interpreting AWS measurements of present weather, cloud cover, etc. and Members to provide specific information related to individual AWS performance (e.g. procedures for processing). The Association was in agreement that addressing those issues should be primarily a task for CBS and CIMO. It was noted that lightning detection systems, already constituting a coarse resolution network, had proven very useful in the Region. It was also noted that targeted observing systems would improve the effectiveness of the future GOS in RA VI.

4.2.4 The Association invited the Coordinator of the Subgroup on Regional Aspects of the Integrated Observing Systems and the Rapporteur on Regional Maritime Meteorological Services to interact closely to ensure cross-programme coordination between CBS and JCOMM on maritime observing systems implementation in the regional oceanic basin.

CLIMAT AND CLIMAT TEMP REPORTING

4.2.5 The Association noted that in many countries of RA VI the list of stations providing CLIMAT or CLIMAT TEMP reports was not identical to the national contribution to the RBSN and that timeliness, content and coding procedures for climate messages still had significant problems. Following the positive experience gained in RAs II, III and IV, the Association considered and agreed to the concept of defining a separate RBCN for Region VI based on a proposal developed by the Working Group on Planning and Implementation of the WWW in Region VI in collaboration with the GCOS Programme and in coordination with CBS. The initial list of RBCN stations would also serve as a reference list for the WWW monitoring of CLIMAT and CLIMAT TEMP reports. The proposed RBCN should include the GSN and GUAN stations (of GCOS) and be supplemented by other CLIMAT and CLIMAT TEMP reporting stations needed to meet regional climatological requirements. Accordingly,

Resolution 3 (XIII-RA VI) on establishing the initial RBCN in Region VI was adopted.

INNOVATION IN OBSERVING TECHNIQUES AND SYSTEMS

4.2.6 In discussing the status of the introduction of new observing systems, the Association noted that the main driving force in that area had continued to be the EUCOS programme. The successful deployment and implementation of new and alternative observing systems in the Region like AMDAR, ASAP and wind profilers and the increasing availability of those data on the GTS was much appreciated. The Association was pleased to note that the EUMETNET Council had approved the operational phase of EUCOS. The Association was informed that EUMETNET stressed the importance of close coordination with WMO when carrying out those activities and requested its Working Group on Planning and Implementation of the WWW in Region VI to maintain close contact with the EUCOS Project Management.

COMPOSITE OBSERVING SYSTEM FOR THE NORTH ATLANTIC

4.2.7 The Association was informed that at some point in the near future, probably in 2003, COSNA would be absorbed by EUCOS. It was also informed that in the meantime, the Coordination Group for COSNA should continue to exist, with unchanged terms of reference until:

- (a) EUCOS became an operational system;
- (b) Satisfactory arrangements were made for the marine component of EUCOS;
- (c) Adequate provision was made for the monitoring of the operation of the entire system;
- (d) Arrangements were made for scientific evaluations to be continued under the aegis of WMO/CBS-CAS and/or EUMETNET/EUCOS;
- (e) Contacts and coordination were assured between EUMETNET/EUCOS and other bodies dealing with observing systems and networks.

4.2.8 As regarded the COSNA Scientific Evaluation Group, the Association noted the view of the Coordination Group for COSNA that it could develop into a group which monitored and partially coordinated the work being carried out worldwide on observing system impact studies and observing system evaluation projects, make recommendations to relevant WMO bodies for future work and provide input to CBS expert teams on the further development of an integrated observing system. The Association recommended to incorporate the group in an appropriate way into the working structure of CBS, if possible.

SPACE-BASED SUBSYSTEM

4.2.9 The Association noted that there were three active polar-orbiting satellite series and one geostationary satellite series in operation in RA VI. EUMETSAT continued its geostationary operational satellite Meteosat series. The United States's meteorological satellite programme under NOAA continued the polar-orbiting operational satellites, known as the POES series.

The Russian Federation continued its polar-orbiting satellite series, METEOR-2/3 as did China with its polar-orbiting FY-1 series.

GEOSTATIONARY METEOROLOGICAL SATELLITES

4.2.10 The Association noted that Meteosat-5 had been used to support the IODC Service following EUMETSAT's support to the INDOEX experiment, which commenced in July 1998. No DCP or MDD services were provided via Meteosat-5. Meteosat-6 had been used both as an in-orbit spare at around 9.5°W, to support rapid scan services and validation of the re-engineered Meteosat-6 correction system (in addition to, or in place of, routine weekly imaging). Meteosat-7 had been used to provide the nominal 0° imagery and relay missions. The Association was also informed that Meteosat-7, the last satellite in the Meteosat operational programme series would continue to be operated (in parallel to MSG-1) to assure an orderly transition to the new series. Provided the existing systems could be maintained, EUMETSAT was discussing a plan to continue parallel services until approximately the year 2005. The Association noted that MSG-1 was planned to be launched in August 2002 and would become operational by mid-2003. While the improvements in instrumentation and data transmission would now provide for enhanced operational activities of many NMHSs, they would also render obsolete current ground systems. For that reason, EUMETSAT had foreseen, in cooperation with WMO, the establishment of a cooperative purchase plan for countries wishing to participate.

POLAR-ORBITING METEOROLOGICAL SATELLITES

4.2.11 The Association noted that NOAA-15 launched in 1998 was designated as the operational replacement for NOAA-12. As such, it operated in an orbit with a 7.30 a.m. descending node (morning orbit) and utilized the same set of instruments as NOAA-16 except the SBUV. NOAA-15 had anomalous instrument behaviour in the HIRS and AVHRR and the on-orbit failure of three high gain downlink antennas. The AVHRR was re-phased once a day to assist the scan motor to maintain synchronization. NOAA-16, launched on 21 September 2000, was designated as the operational replacement for NOAA-14. It operated in an orbit with a 13.53 p.m. ascending node (afternoon orbit) and utilized a similar set of instruments as NOAA-14. On 13 November 2000, the VHF transmitter failed which did not allow the broadcast of automatic picture transmission. Data recorder DTR#5 failed on 2 February 2000 and was no longer used. Two satellites of the METEOR-2 and -3 series were currently operated in circular orbit inclined at approximately 82°. Those satellites had operated far beyond their expected lifetimes and their capabilities were limited. The Association noted that the Russian Federation launched on 10 December 2001 the first spacecraft of a new METEOR-3M series of satellites, which after 2002 would become operational and would be operated by Roshydromet. The onboard instruments of METEOR-3M comprised meteorological imagers

(MR-700 and KLIMAT), two Earth-resource scanners with high (~40 m) and medium (~225 m) spatial resolution, a module for temperature/humidity soundings of the atmosphere, a module for integral humidity soundings of the atmosphere (MIVZA), geiogeophysical instruments (KGI-4C, MSGI-5EI) and SEIGE instrument provided by the United States. The polar orbiting three-axis stabilized meteorological satellite FY-1C was launched on 10 May 1999 and had been operating since that time.

GROUND SEGMENT

4.2.12 The Association noted that 36 out of 49 Members were equipped with low resolution polar-orbiting receivers and 21 out of 49 Members were equipped with high resolution polar-orbiting receivers. Thus, the Region had 44 out of 49 Members equipped with at least one polar-orbiting receiver. Most of RA VI was adequately covered for reception of high resolution polar-orbiting received except eastern Europe. The situation was the same for the geostationary satellite receivers. Out of 49 Members, 40 had low resolution WEFAX receivers and 27 had high resolution receivers. Forty-four out of 47 Members had at least one geostationary receiver. Most of RA VI was adequately covered for reception of high resolution geostationary satellite data except in the eastern-most portion of Europe. Forty-three out of 49 Members had at least one polar-orbiting receiver as well as one geostationary receiver, leaving six Members to be equipped.

INSTRUMENTS AND METHODS OF OBSERVATION PROGRAMME

4.2.13 The Association noted with interest the results of the twelfth session of CIMO, held in Casablanca in 1998. The Association was pleased that several experts from the Region were able to attend the technical conference and the exhibition TECO-98/METEOREX-98, which were held in conjunction with CIMO-XII, as well as TECO-2000 and METEOREX-2000, held in Beijing in October 2000.

4.2.14 The Association emphasized the value of close links and active exchange of experience with manufacturers and instrument developers in solving technical problems. It was noted with appreciation that, as a result of the initiative of the Secretary-General, based on the request by Thirteenth Congress to strengthen collaboration between instrument manufacturers and WMO, the constitutional meeting of the Association of the Hydrometeorological Equipment Industry (HMEI) took place at the Fifth European Conference on Applications of Meteorology, held in conjunction with the First Annual Meeting of the European Meteorological Society in Budapest in September 2001. The Association was established and had meanwhile applied for consultative status within WMO. Such a status would greatly facilitate the desirable involvement of the private instrument and equipment sector through HMEI as observer in the work of relevant WMO bodies, which would be specifically important for CIMO.

4.2.15 The Association agreed that the needs of NMHSs in the field of instrumentation should mainly be directed to long-term stability, maintenance and repair, as well as to calibration of sensors and equipment. Members were encouraged to develop capabilities for the maintenance and servicing of the operationally-used instruments. In that connection, the Association welcomed the fact that the president of CIMO, Mr S. K. Srivastava (India) had initiated an Expert Meeting on Capacity Building Related to Meteorological Instruments and Methods of Observation (Beijing, September 1999), at which recommendations for enhancing the collaboration on matters related to the Instruments and Methods of Observation Programme within the Regions and for strengthening the links between CIMO and the regional associations had been developed.

4.2.16 The Association urged Members to carry out regularly inspections of their networks of stations at frequent intervals to ensure the correct functioning and calibration of instruments according to the procedures contained in the *Guide to Meteorological Instruments and Methods of Observation* (WMO-No. 8). Specific attention should be given to the frequent calibration of operationally-used barometers.

4.2.17 The Association confirmed the value of the RICs for the guarantee of proper calibration of equipment and for training of instrument operators. Noting with appreciation that an RIC was established in Trappes, France, the Association invited the Centre to continue and enhance its service for better using the resources available. The RIC was encouraged to reach out to the Members to inform them on its services and plans and Members were invited to take advantage of those services, especially for calibration of national standard instruments and for assisting in the preparation and running of workshops for instrument specialists.

4.2.18 The Association expressed its appreciation to *MétéoSuisse* for hosting the WMO ninth international pyrhelimeter comparison carried out at the World Radiation Centre in Davos, Switzerland, in 2000. The Association noted with satisfaction that the standard pyrhelimeters of all seven European Regional Radiation Centres were calibrated and, in addition, that several instruments operated at National Radiation Centres, as well as at relevant institutes and manufacturers of the pyrhelimeters were compared against the instruments of the World Standard Group. The Association expressed its thanks to the Director and the experts of the World Radiation Centre for their support and the timely preparation of the final report of the ninth international pyrhelimeter comparison, which was distributed to all NMHSs and to the experts concerned.

4.2.19 The Association welcomed the continued efforts in Europe to enhance collaboration between relevant WMO technical commissions as well as bodies outside WMO in the area of meteorological instruments, in particular, the use of AWS for climatological observations, which posed a considerable challenge. The Association noted with interest that the Royal

Netherlands Meteorological Institute hosted a joint CBS/CIMO Expert Meeting on Requirements and Representation of Data from Automatic Weather Stations in De Bilt in April 1999. It was attended by experts from the WMO technical commissions concerned, by EUMETNET and by representatives from relevant manufacturers. The meeting prepared a comprehensive list of users' requirements, among others related to the determination of present weather by AWS, as a basis for further considerations to be used with the BUFR code. Furthermore, Austria had organized two International Conferences on Experiences with AWSs which brought together technicians and users. The Association was also informed on the initiative of Spain to host the next International Conference on Experiences with AWSs in February 2003.

4.2.20 The Association welcomed the fact that an Expert Meeting on Rainfall Intensity Measurements, hosted by the Slovak Hydrometeorological Institute, in Bratislava in April 2001, had developed proposals for rainfall intensity measurement techniques covering the common requirements of various users and for organizing a WMO rainfall intensity intercomparison for obtaining reliable information on the performance characteristics of raingauges used for intensity measurements. It noted that the Expert Meeting had proposed to carry out a trial in selected laboratories of that Region.

4.2.21 In addition to the active collaboration with the ISO relating to meteorological instruments, the Association was informed that close collaboration of WMO with BIPM had been established. The cooperation with that Bureau was expected to underpin WMO's role in defining standards and procedures for instrument technology and measurement techniques. A related draft agreement between BIPM and WMO was approved by the International Committee of Weights and Measures and was submitted to the fifty-fourth session of the Executive Council for approval.

4.2.22 The Association reiterated the great value of education and training of instrument operators for achieving the required high quality and reliability of observations for various operational and research applications. All NMHSs were encouraged to train and re-train their own staff, as necessary, and to give, in that connection, consideration to training facilities of other Members and the RIC, if their own resources were not sufficient. Donors were invited to maintain strong support to training programmes in instrumentation.

4.2.23 The Association expressed its appreciation that the China Meteorological Administration had produced and distributed, the CIMO *Instrument Catalogue* on behalf of WMO. That *Catalogue* should significantly facilitate the work of NMHSs in selecting instruments and equipment for procurement.

4.2.24 As regarded the low reliability and high cost of GPS-based radiosondes, the Association took note of a survey carried out by CIMO among WMO Members using GPS radiosondes, which was posted on the Instruments and Methods of Observation Programme

Web page. The survey indicated that several concerted efforts of CIMO, CBS and relevant manufacturers had improved the reliability of GPS radiosondes, but the failure rates still remained, with 10 to 13 per cent, above the tolerable level. The Association also noted the large spread in the purchase price of GPS radiosondes among the countries that contributed to the survey. The Association noted with satisfaction the WMO global intercomparison of GPS radiosondes carried out in Brazil in 2001, from which it expected recommendations as regarded further improvements in the operation of those systems, and it looked forward to the publication of the report in the near future.

CO-RAPORTEURS ON REGIONAL ASPECTS OF INSTRUMENT DEVELOPMENT, RELATED TRAINING AND CAPACITY BUILDING

4.2.25 The Association thanked the Co-rapporteurs on Regional Aspects of Instrument Development, Related Training and Capacity Building, Ms M. Champagne (France) and Mr V. Vozobule (Czech Republic), for their work during the intersessional period and for the report they had prepared for the session.

4.2.26 The Association noted with pleasure that the Co-rapporteurs had worked closely with the RA VI RIC, operated by *Météo-France* in Trappes, with the objective of enhancing capacity building matters in the field of instruments and methods of observation. The RIC continued its calibration activities and standardization of methods for atmospheric pressure, humidity, temperature as well as solar radiation measurements, the latter being carried out at the Regional Radiation Centre in Carpentras, France. The Association welcomed the collaboration that existed in the field of instrumentation and methods of observation in Europe especially through EUMETNET, which organized the Intercomparison of Severe Weather Sensors in Finland, France and Switzerland.

4.2.27 The Association welcomed the fact that the RIC had carried out calibrations of several types of national standard instruments for Members of RA VI, such as for Belgium, Romania, Slovakia and soon for the United Kingdom. Support for calibration was also given to Members outside the Region, namely to Cameroon, Cuba, Madagascar and Senegal. The Association also noted with gratification that the RIC offered its facilities and staff for carrying out training in instrumentation and workshops related to technology transfer. It had organized annual training courses on pressure, temperature and humidity measurements, and further training events were planned to be held in Slovakia and Nigeria. In addition, experts of the RIC conducted technical missions to various countries.

4.2.28 The Association encouraged its Members to make arrangements for continuously reviewing the performance of the common instruments in use in the Region. Particular attention should be paid to long-term stability, the need for, and ease of, maintenance and repair, the requirement for, and frequency of, calibration, and to encourage the development of cost-effective

instruments suitable for operation under extreme weather conditions. The Association agreed that the work to study all those problems should be continued by a Rapporteur on Regional Aspects of Instrument Development, Related Training and Capacity Building and adopted [Resolution 4 \(XIII-RA VI\)](#).

4.3 INFORMATION SYSTEMS AND SERVICES, INCLUDING OPERATIONAL INFORMATION SERVICE, DATA MANAGEMENT AND REGIONAL CODES (agenda item 4.3)

DATA MANAGEMENT AND CODES

4.3.1 The Association noted with satisfaction that there were no obvious problems in the provision or quality of data and products produced by WMO Members due to year 2000 problems, and no significant disruption of the data flow on the GTS was experienced.

4.3.2 The Association noted that additions to BUFR/CREX tables, in particular for the transmission of AWS observations, would be considered by CBS-Ext.(2002) later in the year.

4.3.3 The Association considered the requirement to harmonize globally the reporting of precipitation and especially the reporting of zero and past 24-hour precipitation. It noted with satisfaction the CBS proposals to make mandatory reporting of zero precipitation (at least by human observers and new AWSs). The Association adopted [Resolution 5 \(XIII-RA VI\)](#), to be implemented on 5 November 2003, changing in regional coding procedures, Regulation 6/12.10, making mandatory the reporting of 24-hour precipitation, and modifying Regulation 6/12.9 to encourage reporting three hours and hourly precipitation amount.

4.3.4 The Association agreed that the wider use of the table-driven code forms depended upon the development of widely available, easy to use software. The availability of "load and go" or commercial quality software would be the single most important component of a strategy to migrate to binary and table-driven formats. The best mechanism to ensure development and ongoing maintenance of quality software for dealing with WMO formats would be the establishment of a centralized office to support software for the WMO formats (BUFR, GRIB and CREX). Members also needed to receive full information on the migration through promotion, training and information on the Web sites.

4.3.5 The Association noted the benefits of the migration as flexibility, expandability and self-description of the codes allowing transmission of any new data types or parameters, especially of all required metadata. It would improve data quality and offered data compression (BUFR). It would also mean the suppression of the costly software modifications required when the traditional alphanumeric codes needed to be changed. It agreed on the necessity of coordination between CBS and the regional association on that difficult issue. It recognized that Members had the freedom to switch to BUFR or CREX when they wanted and when they were

ready to do so. The migration plan should enable every WMO Member to migrate. The plan needed to include encouragement for Member States to migrate.

4.3.6 To ensure access to data for all users, the constitution of the same observation in two types of format at some stage in the WWW data flow (concept of the double transmission or double dissemination) had to be considered. Translation from the BUFR to the CREX code might also be done in some RTHs before distribution to NMCs not supporting binary codes. Concern was expressed by some Members on the burden it might add on telecommunications centres, and therefore the Association agreed that the impacts on the GTS should not be underestimated and the migration should be very carefully planned.

4.3.7 The Association was informed of consultations between WMO and the ECMWF to act as "software house" for all WMO Members to deliver free encoder/decoder software for BUFR, CREX and GRIB edition 2 (on UNIX or LINUX operating systems, in FORTRAN or C). The Association appreciated that initiative and expressed the hope that ECMWF would find some ways and means to take up that activity on a sustainable basis as a contribution to the wider meteorological community. The Association also took note with appreciation, of the initiative taken by EUMETNET, as part of the migration strategy, to make the OPERA BUFR software available to Members.

4.3.8 To prepare for the migration, the Association agreed that Members should update their national training (in NMHS and other institutions) on meteorological codes to put in first priority BUFR and CREX for their full understanding, instead of traditional alphanumeric codes. GRIB edition 2 should also be explained. It agreed that Members should contact and inform manufacturers of automatic observing systems and data-processing systems (e.g. workstations) of the requirement to migrate to table-driven code forms, of their benefits and of the need to:

- (a) Plan resources (staff and finance) for migration to table-driven code forms;
- (b) Nominate a national migration focal point;
- (c) Develop a national migration project and schedule, based on CBS decisions.

STATUS OF IMPLEMENTATION OF THE RMTN IN REGION VI

4.3.9 The point-to-point circuits called for in the RMTN plan included circuits connecting the 49 RA VI Member countries. There were no provisions in the plan to connect Bosnia and Herzegovina, Kazakhstan, Luxembourg and Monaco to the RMTN.

4.3.10 Thirty-three countries were connected to the RMDCN. The RMDCN was based on the use of a shared managed data-communication network provided by EQUANT, to which the 33 countries were connected. The RMDCN provided the transport network service for the virtual circuits between the 33 countries and replaced the network of dedicated point-to-point circuits. The committed information rates of the RMDCN circuits ranged from 8 to 128 kbits s⁻¹. The countries which were

not connected to the RMDCN were connected to the RMTN, by dedicated circuits operating at 2 400 bits s⁻¹ or above, except for Armenia and the Syrian Arab Republic, which were connected at low speed, and Albania and Azerbaijan, which had not yet been connected.

4.3.11 The Association noted with satisfaction that 38 RA VI Member countries were equipped to receive at least one of the satellite distribution systems FAX-E, MDD and RETIM. The Association noted with appreciation that the two satellite-based data-distribution systems of the RMTN, RETIM and FAX-E, were being upgraded based on cost-effective satellite-based DVB transmission techniques. France was implementing the upgrade of RETIM to RETIM-2000, which was planned to be in full operation over the Region by end 2002. In that regard, the Association expressed its gratitude to *Météo-France* for supporting the replacement of RETIM receiving stations at NMCs that were provided by the WMO technical cooperation programme by new RETIM-2000 systems. Germany was also implementing the FAX-Europa improved service, also planned to be in operation by the end of 2002. The Association was pleased to note that *Météo-France*, the DWD and the Met Office, with the participation of EUMETSAT and WMO, had coordinated the technical design and implementation of the satellite-based DVB systems to ensure the best possible compatibility for the users. The Association was of the opinion that the DVB transmission techniques were an efficient and cost-effective solution for the distribution of the full range of meteorological data and products, enabling the use of inexpensive receiving systems. The Association was also informed that Italy was implementing a new satellite-based DVB data-distribution system, called national unified broadcasting Italian system, for the national distribution of meteorological data and products, including satellite images and limited-area model outputs. The access by neighbouring countries in the Mediterranean area would be considered after the initial national implementation phase.

EVALUATION OF THE IMPLEMENTATION OF THE RMTN

4.3.12 The Association noted with satisfaction that 41 RA VI Member countries were connected to the RMTN at a speed higher than 2 400 bits s⁻¹. Moreover, 38 countries were equipped to receive satellite distribution systems. The RMTN in Region VI had reached a high level of implementation. There were remaining deficiencies in the implementation of the RMTN point-to-point circuits connecting Albania, Armenia, Azerbaijan and the Syrian Arab Republic. However, it was noted that those countries were equipped to receive satellite distribution systems and the Syrian Arab Republic was implementing its connection to the RMDCN via NMC Beirut.

REGIONAL METEOROLOGICAL DATA COMMUNICATION NETWORK

4.3.13 The Association noted the report of the chairperson of the Steering Group on the RMDCN, Mr D. André (France). The Association agreed that the implementation of the RMDCN, as from 15 March 2000, was a successful achievement of the WWW Programme

in the Region. It felt that the coordination of the implementation and operation of the RMDCN by a team of RMDCN Operations Committee working in a unique structure was essential in achieving a successful deployment of the RMDCN. The Association expressed its appreciation and thanks to the ECMWF for its crucial contribution to the implementation and operation of the RMDCN.

4.3.14 The Association noted that the connection via dedicated leased circuits of the NMCs located in the zone of responsibility of RTH Moscow still remained much less expensive than the relevant extension of the RMDCN. The connection to the RMDCN should be envisaged when the costs of the dedicated circuits and the RMDCN services would converge.

4.3.15 The Association was also pleased to note that the introduction of the RMDCN provided more flexibility in the arrangements for the exchange of data and products in the Region. The fact that the centres were connected to a "cloud" facilitated the implementation of the required connectivity between centres. It was also stressed that it was possible to implement asymmetric capacity (committed information rate) on each direction of a virtual circuit. That flexibility made it possible to rationalize the connectivity between the centres and to optimize cost-effectiveness. The implementation of the RMDCN enabled a major change in the implementation of the data-communication protocols on circuits in Region VI. Most of the links were using TCP/IP as the data transport protocol; some links were still operating with X.25 (as XOT – X.25 over TCP/IP), but experience showed operational difficulties. The Association recommended to convert protocols from X.25 (XOT) to TCP/IP as soon as possible.

4.3.16 Experience had shown the importance of testing backup facilities. Most countries were using a dedicated digital circuit for the connection to RMDCN with ISDN backup. The ISDN should take over automatically in the event of failure of the primary circuit. A regular monthly test of the ISDN backup at each RMDCN site had been instigated.

4.3.17 The Association noted that several RA VI Members saw much merit in the possible extension of the RMDCN for further enhancing meteorological data-communication services. The Association agreed that the RMDCN could be extended by the addition of the following types of connections:

- (a) Direct GTS connections between RA VI RTHs/NMCs and RTHs/NMCs in other Regions. Those connections included interregional GTS circuits and circuits of the improved MTN plan being currently developed by CBS;
- (b) Connections between RA VI RTHs/NMCs and NMCs/RTHs in other Regions based on bilateral agreements;
- (c) Connections with organizations involved in the exchange of meteorological and related information as part of WMO Programmes or other international programmes. An example was the RMDCN connection with EUMETSAT.

The addition of non-GTS links would require approval by the ECMWF Council and would only be used for the exchange of meteorological and related data and products, including research activities in the field of meteorology and climatology.

4.3.18 The Association was of the opinion that that extension was fully in compliance with the GTS principles and within the spirit of the WMO/ECMWF agreement on the RMDCN. The Association also noted, with appreciation, that the ECMWF Council supported the RMDCN extension, including the related increase of the implementation and operational management support provided by the ECMWF.

4.3.19 Noting that specific coordination of the RMDCN continued to be needed with respect to the extension of the RMDCN, the inclusion of RA VI centres not yet connected and the review of the contractual arrangements, the Association agreed to maintain the Steering Group on the RMDCN. The Secretary-General would continue to provide information on the development of the RMDCN to all Members of the Region. It also agreed that support for the implementation and operation of the RMDCN should continue to be considered as a priority in the assistance activities for the implementation of the WWW in RA VI. The Association invited Members to continue their contributions to the implementation and operation of the RMDCN and in particular to the WMO RMDCN Trust Fund. The Association adopted [Resolution 6 \(XIII-RA VI\)](#).

AMENDMENTS TO THE REGIONAL METEOROLOGICAL TELECOMMUNICATION PLAN

4.3.20 The Association noted with satisfaction the decisions taken by the president of RA VI on the following amendments to the regional meteorological telecommunication plan during 2000:

- (a) NMC Bratislava associated with RTH Vienna (in place of RTH Prague);
- (b) NMC Budapest associated with RTH Vienna (in place of RTH Prague);
- (c) NMC Vilnius directly connected to RTH Norrköping (rather than indirectly via NMC Riga);
- (d) NMC Amman associated with RTH Offenbach (in place of RTH Sofia).

4.3.21 The Association endorsed the recommendation to include in the RMTN plan the satellite-based distribution system TV-*Inform-Meteo* operated by the Russian Federation, and the circuits Moscow–Baku and Baku–Ankara, and to delete the circuits Minsk–Riga and Moscow–Warsaw, which were not in operation. It also agreed upon the inclusion of the circuit RTH Sofia–RTH Toulouse that was implemented via the RMDCN, into the regional meteorological telecommunication plan as a main regional circuit.

UPGRADING OF THE GTS IN THE EASTERN PART OF THE REGION

4.3.22 The Association noted the recommendations of the Implementation Coordination Meeting on the GTS in Region VI (eastern part) (Moscow, 24–27 April

2001), for improving the GTS in the eastern part of Region VI. The Association endorsed the following action:

- (a) To automate NMCs Baku, Kishenev and Yerevan;
- (b) That TCP/IP be used and digital circuits be preferably implemented, with the possible use of frame relay services;
- (c) That the exchange of data and products on point-to-point circuits be complemented by the reception of satellite-based data distribution systems;
- (d) To put into operation the circuit Moscow–Baku;
- (e) To arrange for the implementation of direct circuits between Moscow and Yerevan, and between Kiev and Kishenev;
- (f) To arrange for the automatic switching of GTS messages on the triangle Moscow–Kiev–Minsk;
- (g) To increase the reliability of the operation of the message switching system in NMCs Almaty and Tbilisi by ensuring a guaranteed power supply;
- (h) To protect NMC Almaty and the relevant part of the GTS from unauthorized access from Internet by installing a router (firewall);
- (i) Within the framework of the upgrade of the RETIM system (RETIM-2000), to consider the possibility of upgrading the hardware and software installed in NMCs Kiev, Minsk, Tbilisi and Yerevan in a LAN version.

The Association supported the establishment of a coordinated cooperation project for the above upgrading of the GTS in the eastern part of Region VI, and France indicated its willingness to contribute to the project.

FUTURE WMO INFORMATION SYSTEM

4.3.23 Noting that CBS, in collaboration with several other technical commissions, was developing a concept for a future WMO information system and that the Executive Council had requested that the concept be further developed, the Association agreed upon its active participation in the future WMO information system. Based on the new concept, centres should participate according to their functions and responsibilities and would include three levels of responsibilities: GISCs, Data Collection or Product Centres and National Centres. GISCs would form the top level. The Association supported the main aim of the future WMO information system to increase the efficiency of arrangements for the collection and dissemination of data and products. It agreed that the concept should be further studied, ensuring to the largest extent possible a smooth transition and coordination between the future WMO information system and the existing WWW structure.

4.3.24 The session noted that the idea of a “virtual GISC” had been proposed as a further development of the GISC concept between the Met Office, the *DWD* and *Météo-France*. A virtual GISC workshop was held at Shinfield, England in July 2001 between experts from the three centres to discuss possible ways to advance that idea.

4.3.25 The Association agreed that the concept of a virtual GISC had merit and requested its Working Group

on Planning and Implementation of the WWW in Region VI, in particular the Subgroup on Regional Aspects of the Information Systems and Services, to develop further the virtual GISC concept as it would apply to the requirements of the Region. The Association asked the Subgroup to consider the following tasks:

- (a) Investigate the "virtual" or "distributed" requirements;
- (b) Involve ECMWF and EUMETSAT as Data Collection or Product Centres;
- (c) Develop and define the processes, services, protocols, catalogues and metadata that would need to be formalized and aligned;
- (d) Define the operational requirements of availability, timeliness and reliability required;
- (e) Adopt industry standard software and technologies wherever possible, and as they matured, and make use of the outcome of other relevant projects, such as the EUMETNET UNIDART activities;
- (f) Develop a process to control the development, creation and operational costs of a virtual GISC;
- (g) Develop ways to make the best and most economical use of the underlying communications cloud of direct links, satellite or ground links available at any one time;
- (h) Ultimately, to propose a way to share costs.

OPERATIONAL INFORMATION SERVICE

4.3.26 The Association noted with satisfaction that several elements of the operational information service were maintained on databases operated on PCs, which facilitated the maintenance of the relevant publications and provided much greater flexibility for dissemination, in particular through the Internet. Information from *Weather Reporting* (WMO-No. 9), Volumes A and C1, the *International List of Selected, Supplementary and Auxiliary Ships* (WMO-No. 47) and RBSN lists were available on the Internet via the WMO Home Page. It also noted with appreciation that interactive access with search tools was also being developed, and was already available on an experimental basis for Volume C1. The production and dispatch of those publications on CD-ROMs were also planned to improve cost-effectiveness and timeliness, as a complementary service to the Web service.

WEATHER REPORTING (WMO-No. 9), VOLUME A

4.3.27 The Association noted that updating Volume A was not always possible in an adequate and timely manner. It fully concurred with the CBS request that Members designate focal points in NMHSs who were authorized to inform the WMO Secretariat directly on changes concerning observing stations. The Association also noted that CBS was developing measures to improve the accuracy of Volume A in order to make the publication more useful to Members with emphasis on completeness, on accuracy of the information and by adding indications of operational performance as derived from monitoring results.

WEATHER REPORTING (WMO-No. 9), VOLUME C1

4.3.28 The Association noted with satisfaction that the Secretariat developed and ran a PC-based application to maintain and update the comprehensive catalogue of meteorological bulletins and to prepare automatically METNO messages, on the basis of the information (advanced notifications and relevant catalogue part) provided by the MTN centres. It was noted that in Region VI, all MTN centres (except RTH Prague) had implemented the new procedures adopted by CBS.

INTERNATIONAL LIST OF SELECTED, SUPPLEMENTARY AND AUXILIARY SHIPS (WMO-No. 47)

4.3.29 The Association was informed that an extensive redesign of that publication was completed to expand the type and to enhance the precision of metadata provided on the size, in order to identify meteorological instrumentation of the mobile ship stations included in the surface-based synoptic network subsystem of the GOS.

4.4 DATA-PROCESSING AND FORECASTING SYSTEMS (agenda item 4.4)

STATUS OF IMPLEMENTATION

4.4.1 The Association noted that, thanks to the use of massive parallel processor technology, advanced GDPS centres had implemented data assimilation systems with three-dimensional and even four-dimensional analysis systems leading to better forecast products. Five RA VI RSMCs (Bracknell, Moscow, Offenbach, Toulouse and ECMWF) were running global models. Four RA VI RSMCs with geographical specialization provided regional products to assist NMCs in the forecasting of small-scale, mesoscale and large-scale meteorological systems. Most RSMC operations had shown sustained improvement and many Centres had enhanced their forecasting systems and computer facilities, thereby improving the accuracy of their products.

4.4.2 The Association noted with satisfaction that at the request of WMO, ECMWF had increased as from May 2001 the set of products disseminated on the GTS and on its Web site. Those included more products in the medium range for the probabilistic forecasting of severe weather and would strengthen ECMWF's role as the designated RSMC for global medium-range forecasting.

4.4.3 The Association noted with satisfaction that most NMCs in Region VI had well-developed computer capabilities. Twelve NMCs in RA VI ran limited-area models with resolution coarser than 35 km and 23 centres ran mesoscale models with resolution finer than 36 km. Some centres had started the operational running of high-resolution non-hydrostatic models. The supply of boundary conditions required for limited-area models was handled through bilateral arrangements between originating centres and receiving centres. Satellite-based dissemination systems enabled NMCs to receive also more products directly and reliably from WMCs and RSMCs. All RA VI GDPS centres now had Internet access to selected GDPS products made available by several GDPS centres.

4.4.4 The monthly exchange of verification scores using agreed standards and procedures had continued among the centres in Bracknell, ECMWF, Melbourne, Montreal, Moscow, Offenbach, Tokyo, Toulouse and Washington. The Association noted with satisfaction that the RA VI NWP centres had generally shown a trend towards improved forecasts in the 72- to 120-hour range.

4.4.5 Ensemble prediction techniques were being applied in all forecast time ranges, and forecasters in all NMCs were progressively learning to use EPS products.

4.4.6 Bracknell, ECMWF and Offenbach had provided lead centre functions for monitoring the quality of global marine and upper-air data and Region VI surface data, respectively. Offenbach and Tokyo had served as monitoring centres for GSN and Bracknell had monitored GUAN.

NWP GUIDANCE ON THE OCCURRENCE OF SEVERE WEATHER AND SEVERE WEATHER FORECASTS

4.4.7 The Association noted that CBS-Ext.(98) had formulated the proposal to implement as a regional arrangement, a "cascading process" for providing guidance on severe weather including preliminary indicative guidance by a large centre with a lead time of more than 48 hours potentially based on probabilistic EPS output, followed by more specific "warning" guidance for periods of less than 48 hours based on EPS and deterministic high-resolution NWP output. Warnings had to be issued by the responsible national centre.

4.4.8 The Association noted that the ECMWF, as an RSMC for global medium-range forecasting, had meanwhile recognized that process in its strategy and had embarked on a programme to develop a test system for the prediction of severe weather based on the requirements of its Member States. It invited centres with regional specialization to examine in which way they could provide more products for the forecasting of severe weather for common use (convective indices for example).

UTILIZING THE PRODUCTION CAPABILITIES OF THE DESIGNATED RSMCs

4.4.9 The Association noted that RSMCs had for many years provided forecasts in accordance with their obligations under such designation. Traditionally, provision had been made for dissemination of forecast products over the GTS (usually at resolutions lower than those of the originating NWP resolution because of telecommunication limitations) via other means such as facsimile. Recent technical developments allowed for a better delivery of such products. Using FTP servers, for example, many NWP outputs were now being made available at full resolution. Furthermore there were, in the major forecasting centres, a variety of post processing, visualization and production systems that could be made available to receiving NMCs. While not proposing any extension of the obligations of RSMCs beyond current definition and practice, the Association agreed with the view of the Working Group on Planning and

Implementation of the WWW that considerable scope existed for the development of partnerships between RSMCs and receiving NMHSs, with the aim of improving the cost effectiveness of forecast production and delivery to end users. Such partnerships would avoid wasteful duplication and would help NMHSs deliver improved services to their users and customers.

4.4.10 The Association noted further that, the Met Office, as an RSMC for geographical specialization, had embarked on a programme of making more of its products available to the NMCs in RA VI, including seasonal forecast products and high resolution global warning products. It had also organized the first in a series of RSMC workshops, to provide feedback from users to help enhancing those products to meet better user requirements in the future.

4.4.11 The Association considered that with the products of global and regional NWP models available within the Region and the prospect that such products could be accessible to most, if not all, Members, individual NMCs in the Region would achieve great benefits by:

- (a) Focusing on the development and implementation of very-short-range forecasting and nowcasting systems and tools;
- (b) Focusing on developing the application of NWP products in short-range forecasting and nowcasting;
- (c) Concentrating on post-processing of imported or locally-produced products and generating value-added products;
- (d) Using NWP model outputs through locally-applied diagnostic tools and objective statistical techniques to derive weather parameters not directly predictable by the NWP models.

4.4.12 As regarded capacity building in the GDPS area, specifically as regarded many countries in the eastern and south-eastern parts of RA VI, the Association agreed on the following priority requirements:

- (a) Equipment for implementation of data-processing and forecasting system functions;
- (b) Technical support for building operational capabilities in NWP models and pre/post-processing;
- (c) Workshops or training for the exchange of information on software development and NWP applications;
- (d) Provision of long-range prediction and seasonal outlook with a verification system to monitor their reliability and improve their accuracy;
- (e) Provision of more grid-point value data or boundary conditions data generated from global models for centres;
- (f) Development and implementation of fine-mesh limited area models.

4.4.13 In that context, the Association expressed its appreciation for the assistance and cooperation already offered by centres such as ECMWF, Bracknell, Offenbach and Toulouse, to some Members in the Region in implementing their GDPS functions. It was hoped that those centres would extend their support to include more NMCs in the Region.

4.4.14 The Association emphasized that the successful development and implementation of GDPS projects depended on the availability of technical expertise in the use of hardware as well as software development and maintenance within an individual centre. Therefore, there was a need for the Region to intensify training programmes including courses and workshops offered at major centres.

4.4.15 The Association noted and emphasized the need for strong collaboration in research and development among centres, institutions and universities active in the field of NWP. In that connection, it agreed that major centres in the Region with NWP capability should continue to provide leadership in developing and implementing collaborative NWP activities.

PROMOTING THE USE OF EPS PRODUCTS

4.4.16 The Association emphasized the need to continue promoting EPS and agreed on several recommendations. The exchange of information between centres running EPS and NMHSs was encouraged. Some NMHSs still required first time access to EPS products; large centres should exchange their products to build super-ensemble. There was the need for collaboration in research and development among centres, institutions and universities active in the field of EPS. Universities should be encouraged by Members to include topics related to EPS in their curricula. Educational material should be available on centres' Web sites. Regional WMO workshops should be organized to explain the EPS approach, its usefulness and limitations, as those workshops would be very useful for those who intended starting to use EPS and products.

EUROPEAN CENTRE FOR ULTRAVIOLET FORECASTS

4.4.17 The Association noted the activities in Europe for forecasting the ultraviolet index and supported the idea that a European Centre for Ultraviolet Forecasts was to be set up to serve as a source of large-scale ultraviolet forecasts that were then adapted locally and presented to the public via the national lines of communication. The Association noted the activities of Germany in that respect and appreciated the fact that the *DWD* was making ultraviolet index forecasts available on a regular basis to all Members of the Association via an FTP server.

4.4.18 The Association believed that those forecasts met the requirements of many Members of the Association and invited the *DWD* to continue research and development efforts in that area and make those forecasts available with a view to establishing an RSMC on ultraviolet index forecasts for the Region.

4.5 EMERGENCY RESPONSE ACTIVITIES (agenda item 4.5)

4.5.1 The two RA VI RSMCs designated for the provision of transport model products for environmental emergency response, Bracknell and Toulouse, had implemented the regional and global arrangements for the provision of specialized transport/dispersion/deposition

model products over Region VI and, under global arrangements, provide support to Region I.

4.5.2 Regional activities focused on EER activities, their impact on the implementation of Amendment 72 to ICAO Annex 3, which came into force in November 2001, related EER INEX exercises and cooperation with the CTBTO. The EER area saw in the last two or three years new players, mainly the OECD/Nuclear Energy Agency (NEA), the European Union and NATO. Also, new aspects relating to socio-economic, legal and health matters had emerged that were taken on in JINEX. The Association commended Mr F. Chavaux (France), member of the Inter-agency Working Group on EER exercises, for his excellent work, guidance and valuable contributions on behalf of WMO.

REGIONAL ARRANGEMENTS ON EER PRODUCTS

DISSEMINATION

4.5.3 The Association was informed that one general objective of the JINEX-1 (2001) exercise was to test new concepts for emergency arrangements including the use of Web sites and transmission means based on the Internet. Some of those tests included the use of the Internet between RSMCs Toulouse and Bracknell and, eventually, between NMHSs in RA VI. The Association agreed that new means of transmission should be progressively enhanced to assure that all participating Members implemented capacity in order to have access to EER products. It was noted that such capabilities should include backup means of transmission in the event of an unavailability of the Internet during a major emergency situation.

NMHS REQUIREMENTS AND RELATIONS WITH IAEA

NATIONAL COMPETENT AUTHORITIES

4.5.4 Another issue for EER activities concerned relations between NMHSs and National Competent Authorities for the IAEA Notification Convention. National Competent Authorities had demonstrated some interest in supplementary products like gridded data that were not part of the basic set of agreed products. The Internet would offer the possibility to them to have direct access to meteorological products, but the role of NMHSs in the emergency response should not be weakened. The Association therefore invited NMHSs to strengthen their relations, assist and examine the needs of IAEA National Competent Authorities for products and expertise, to give relevant feedback to RSMCs.

EER ACTIVITIES AND CTBTO

4.5.5 The Association was informed that a Draft Agreement between the Preparatory Commission for the CTBTO and WMO was endorsed by the fifty-third session of the Executive Council. The agreement provided for formal collaboration arrangements with CTBTO and the basis for the exchange of meteorological observations and transport modelling, technical collaboration activities, which involved EER RSMC and NMHSs. The Draft Agreement would be submitted to Fourteenth Congress.

5. WORLD CLIMATE PROGRAMME — REGIONAL ASPECTS (agenda item 5)

5.0.1 The Association noted with appreciation the report of the Working Group on Climate-related Matters in RA VI presented on behalf of the chairperson, Mr G. Gruza (Russian Federation) by Mr P. Hechler (Germany). The Association agreed with the chairperson that the following major areas addressed by the Working Group needed further coordination and attention:

- (a) Observations, data management, monitoring and provision of data sets, with emphasis on the following areas:
 - (i) Observations including GSN and GUAN, RBCN, phenological observations, satellite data and use of AWSs;
 - (ii) Data management including quality control systems and metadata;
 - (iii) Provision of data sets including climate indices, homogeneity of historical sets and preservation of original data, ECSN climate data set and data set metadata;
 - (iv) Use of remote-sensing data for climate monitoring purposes;
- (b) Services, with emphasis on the following areas:
 - (i) Strategy for service provision, including CLIPS and RCCs;
 - (ii) Tools including those related to work with GIS and to help NMHSs interpret operational forecasts of institutions such as ECMWF for their country and to pass their results to the end-user;
 - (iii) Applications including climate and climate change impact on human health, harmonization of bioclimatic indices, ultraviolet measurements and products, and urban and building climatology;
- (c) NMHS capabilities, including publicizing information on European Union project support activities such as the Framework Project 5, COST, establishing contact with universities and considering the best ways to gather regional-level information concerning national projects/publications and existing concrete problems.

5.0.2 The Association decided to re-establish the Working Group with the specific terms of reference and composition as contained in [Resolution 7 \(XIII-RA VI\)](#). It requested the president to liaise with the president of CCI to ensure appropriate regional representation in the work of the respective CCI Implementation and Coordination Teams.

5.1 WORLD CLIMATE PROGRAMME COORDINATION AND SUPPORT ACTIVITIES (agenda item 5.1)

5.1.1 The Association was informed of the overall coordination of the WCP. In that regard, the Association noted with satisfaction the decisions taken by Thirteenth Congress and the Executive Council relating to the enhancement of the activities within the framework of the Climate Agenda. The Association also noted the establishment of an Executive Council Advisory

Group on Climate and Environment and was pleased to receive the report of its chairperson, Mr A. M. Noorian (Islamic Republic of Iran). The third session of the Advisory Group met in the WMO Headquarters from 30 April to 1 May 2002.

5.1.2 The Group addressed a number of important issues, including the interactions between WMO's climate programmes and non-climate programmes in key areas relating to environmental matters. Those interactions could be categorized as matters relating to infrastructure, including observations, analysis and prediction; services and service delivery to different sectors; technical support and training; and regional implementation.

5.1.3 In addition, the Group noted that there were a number of areas of interest for which there needed to be a coordinated approach across several WMO Programmes. Included here were the development of services for timescales relevant to climate, including the provision and application of seasonal prediction, water resource issues and natural disasters.

5.1.4 The Association noted with satisfaction the actions taken by the Secretary-General to ensure the active participation of WMO and the NMHSs of its Member countries in the work of the UNFCCC. It also noted that WMO, on its own and in collaboration with other organizations and agencies participating in the Climate Agenda, provided scientific and technical reports and information to various sessions of the COP to the UNFCCC and to its SBSTA. The Association appreciated the information provided by the Secretary-General through regular circular letters to the Members of the Organization on the decisions and activities of the UNFCCC and its bodies on research and systematic observation of the climate system. The Association urged its Members to continue to involve their NMHSs in the various processes related to the UNFCCC at the national, regional and international levels, including the implementation of the relevant decisions of the COP.

5.1.5 The Association noted the preparations under way within the United Nations system for the World Summit on Sustainable Development that was planned to take place in Johannesburg in August/September 2002. The Association recognized the importance of the 10-year review of the outcomes of UNCED, held in Rio de Janeiro in 1992. It agreed that the NMHSs of its Members should participate to the fullest extent in their national preparations for the Conference, which included the preparation of national reports and the convening of regional meetings. The Association requested the Secretary-General to keep Members informed of specific activities being planned by the United Nations system and to facilitate the active participation of the meteorological community wherever possible within current budget resources. The Association noted that extensive information about events and activities leading up to the World Summit was available on the Web.

5.1.6 The Association noted the successful outcome of the thirteenth session of CCI (21–30 November 2001)

and the restructuring into OPAGs, Expert Teams and rapporteurs. The Association commended the Commission on the near completion of Part I of the *Guide to Climatological Practices* (WMO-No. 100) and on its efforts to begin work on Part II. The Association was pleased to note the active participation of many Members from RA VI in the session itself and that the chairpersons for various Expert Teams had been selected from RA VI.

5.1.7 The Association was informed that a high level international climate conference would be held in Moscow in October 2003.

5.2 WORLD CLIMATE DATA AND MONITORING PROGRAMME (agenda item 5.2)

5.2.1 The Association recalled the request of Thirteenth Congress for Members to make available historical monthly and daily data for stations designated as part of the GSN to both WDCs A and B for Meteorology. As those data were essential for ongoing monitoring and assessments of global climate change, the Association urged all Members to respond to that request as soon as possible. Regarding current station reporting, the Association recommended that the data available at the German and Japanese monitoring centres be used to analyse overall CLIMAT-reporting performance and that that information should then be made available to Members. It was noted that the RA VI Working Group on Climate-related Matters, at its meeting in Budapest on 2–6 April 2001, expressed concern that only about 60 per cent of the GSN CLIMAT messages from RA VI were currently available. The Association was pleased to note that the availability during the second half of 2001 had risen to 72 per cent, and urged all Members to attempt to continue to improve their transmissions. That information was available on the DWD Web page (http://www.dwd.de/research/klis/gsn_mc/).

5.2.2 The Association noted the progress made by the CCI/CLIVAR Joint Working Group on Climate Change Detection on developing indices and the success of regional workshops held in Kingston, Jamaica (January 2001) and Casablanca, Morocco (February 2001). Those workshops provided practical training on climate indices and statistical techniques and produced data sets of climate monitoring indices based on data provided by participants from their home countries and hence especially relevant for the respective regions.

5.2.3 The Association noted the expanding use of AWS in the meteorological observing networks of many countries and recognized the likely continuation of that trend in both the establishment of new observing sites and the replacement of existing manual observing sites. The Association noted that special attention was required to ensure that the recording and storage of data covered the full range of parameters essential for climate purposes. The Association urged Members to maintain accurate metadata for AWS, noting the importance of applying appropriate calibration practices whenever individual sensors were changed. The Association noted and encouraged the rapid completion of the paper on "AWS for climatology" being prepared by the RA VI

Working Group on Climate-related Matters. It noted with interest the planned Third International Conference on Automatic Weather Stations to be held in Torremolinos, Spain in February 2003.

5.2.4 The Association welcomed the efforts of CCI to develop a questionnaire on homogeneity tests, the homogenization of climatological time series, and on metadata. It noted that the results of the survey would facilitate the development of guidelines to help national Services upgrade their data records and improve the international comparability of climatological time series. The Association noted that the lack of homogeneity in climatological data records was a very important issue and the value of data records for climate change and variability studies in many instances had been severely diminished as a result of insufficiently documented site and instrument changes. The Association noted the role of the Hungarian Meteorological Service in developing the MASH software, which would assist many Members in that effort.

5.2.5 In the context of quality control, the Association noted the Israel Meteorological Services's proposal to the Working Group on Climate-related Matters, to incorporate, into data exchange, a graduated quality control system with well-defined levels. It was noted that the Working Group had decided, based on that proposal, to investigate the feasibility of establishing standards for such a system. The Association noted that a document describing a new quality control system developed by the Israel Meteorological Service was circulated to the Working Group members for comments and further development. That document could serve as an initial step towards investigating the idea of a graduated quality control system.

5.2.6 The Association noted with satisfaction the efforts of the Secretary-General to facilitate access via the WMO Web site to an increasing number of global, regional and national Climate System Monitoring products and expressed its appreciation to those Members who had responded positively to the request to provide Web page addresses for that purpose. In addition to increasing the availability of those products to a huge number of users and increasing the visibility of NMHSs, it also served to stimulate Members in developing the scope and quality of their own sites. The Association recognized the contribution of the DWD in publishing the annual *Bulletin on the Climate in WMO Region VI — Europe and Middle East*. It noted with appreciation the offer made by France to assist in the production of detailed climate monitoring information based on 10-day data and the offer made by the Russian Federation to assist Members in the eastern part of the Region in compiling their observations for analysis and monitoring purposes.

5.2.7 The Association was informed on the activities carried out in the ECSN of EUMETNET. The Association expressed its appreciation to the ECSN Manager, Mr W. Kirchofer (Switzerland), for his leadership and recognized the importance of the projects on European Climate Assessment, European Climate Atlas, Generating

Climate Monitoring Products and European Climate Data Sets. The Association regarded the European Climate Assessment and European Climate Data Sets as the RA VI focus for high quality, high resolution regional climate data series. The Association noted with appreciation the provision of the *European Climate Assessment Report* which had been distributed to all Members by the Royal Netherlands Meteorological Institute. The Association encouraged Members to contribute to the success of the projects in providing data to enable the expansion to the whole RA VI Region. The Association further endorsed the principle of involvement of as many Members as possible to ensure the fullest availability of data for research and monitoring activities.

5.2.8 The Association noted with satisfaction that the evolution to the final generation of the software developed for CLICOM (version 3.1) was well under way in the NMHSs of the many WMO Members using CLICOM. It recognized the significant contributions by France and the Russian Federation in that regard. Although many Members were planning to move to more powerful database systems based on well-tested proprietary software, or had already done so, it was anticipated that the existing CLICOM system software would remain in use for some time to come. The Association noted the work of the CCI Task Team on Future WMO Climate Database Management Systems. As the findings of the Team's work would become available in the summer of 2002, Members would be able to examine which of the systems might best meet their needs and, as necessary, seek funding through the VCP. The Association encouraged potential VCP donors to give a high priority to that activity. The Association noted that the Climate Database Management Systems initiative by CCI was a significant step toward the recommendation of the presidents of technical commissions that an integrated approach to data archiving and data management should be adopted by all concerned in WMO.

5.2.9 The Association expressed its appreciation to the NCDC in Asheville, United States, for its continuing work in compiling the World Weather Records. Recognizing the need for the preparation of the 1991-2000 series, the Association urged Members to cooperate in the timely provision of data to NCDC in digital form. It also recognized the important contribution of WDC-B (Russian Federation) in that regard.

5.2.10 The Association noted the recent efforts to utilize new technology for data rescue, including the pilot project in Region IV (Jamaica and Honduras). The Association welcomed the proposal for an international data rescue meeting to harmonize data rescue initiatives in the different Regions and the trend taken to develop digital archives using new technology. The Association requested the active participation of the Members in supporting the rescue of data from the archives of European countries that held data for their former colonies and welcomed the commitment by the Russian Federation to contribute in that activity.

5.2.11 The Association was informed of activities within the framework of ARCHISS for discovering historical meteorological data in public archives and expressed its support for extending the ARCHISS activities to other Regions. The Association noted that there were potentially significant quantities of historical data relating to the Region and previous colonies, residing in public archives, and supported efforts for its discovery and translation in digital form to national meteorological archives. It welcomed the report by France that it would provide historical data sets in CLICOM format to the relevant African countries.

5.2.12 Concerning the growing importance of satellite data for climate purposes, the Association was informed of the SAF network. Under the umbrella of EUMETSAT, RA VI NMHSs and institutes were developing and implementing decentralized ground segment functionalities to exploit efficiently the capabilities of the new generation of EUMETSAT satellites MSG and METOP. The following satellite application facilities were of special importance for climatology: the ocean and sea ice SAF, hosted by *Météo-France*, the SAF on global receiver for atmospheric sounding meteorology, hosted by Denmark, the SAF on land-surface analysis, hosted by Portugal, the ozone SAF, hosted by Finland and the SAF on climate monitoring, hosted by Germany.

5.3 WORLD CLIMATE APPLICATIONS AND SERVICES PROGRAMME, INCLUDING THE CLIMATE INFORMATION AND PREDICTION SERVICES (agenda item 5.3)

5.3.1 The Association recognized the critical impacts of climate variability on the socio-economic structures of all countries within various regions of the world and noted that several centres in RA VI were now producing climate products. The Association called upon Members to strengthen their activities in that area in view of the encouraging level of predictability that was emerging with respect to hurricane frequencies, climate anomalies and of rainfall totals on seasonal to interannual timescales. In that regard, the Association welcomed the activities being promoted by the Secretary-General to develop a user requirement for seasonal to interannual prediction. That was a prerequisite for further development of an infrastructure for the provision of prediction information and for the support of other activities that would carry substantial benefits for the Region.

5.3.2 The Association noted that the NMHSs should take a pivotal role in the provision of climate information and prediction services and recognized that a key aspect in developing that role lay in the enhancement of expertise within the Services. The Association, thus, welcomed activities to develop expertise levels through the identification of CLIPS Focal Points in combination with the creation of the CLIPS Curriculum. In that regard, it adopted [Resolution 8 \(XIII-RA VI\)](#). The Association urged Members to identify Focal Points and to provide them with the facilities necessary to undertake their roles. The Netherlands informed the Association that the Royal Netherlands Meteorological Institute provided

the water management authorities in the country with regional climate change scenarios, based on IPCC scenarios, and assisted the water management authorities to apply those scenarios.

5.3.3 Prediction on seasonal to interannual timescales presented challenges in information presentation, in terms of information interpretation and conversion into decisions within each application area and in verification of predictions and elucidation to users of inherent levels of prediction skill. The Association welcomed those activities directed at examining and improving capabilities in each of those areas, and requested that benefits be transferred to the Region through training, through the holding of further Regional Climate Outlook Forums and through the development of pilot projects. The Association noted the key role played by verification in the development of understanding and of applications of forecasts. It requested the Secretary-General to continue to provide the necessary support to CLIPS in order to ensure the transparency of verification measures and to improve the relevance of those to applications planning.

5.3.4 The Association noted the activities being undertaken through the Executive Council and technical commissions to consider the possible roles of RCCs in the provision of climate information and prediction services. It was noted that in RA VI, the development of a virtual RCC might be appropriate. The Association requested its Members to support the establishment of RCCs by continuing to provide information on how they might be identified and evolve to the mutual benefit of all countries within RA VI.

5.3.5 The Association noted the attention that had been given to weather, climate and human health as the theme of WMO Day 1999 in various publications. The Association stressed that aspects of bioclimatology relating to human health needed to be emphasized in the development of climate information and prediction services. The Association noted the work of the International Society for Biometeorology and CCI toward determination of a recommended standard for a universal thermal climate index and urged Members to participate appropriately in the CCI's activities to determine the efficacy and validity of such an index.

5.3.6 Noting that the methodology used in the Showcase Projects on Human Health were based on the Heat/Health Warning Systems that were employed in Regions II, IV and VI, the Association requested the Secretary-General to ensure provision of assistance in the organization of similar showcase projects within the Region, as requested by Members. The Association noted that Phase 2 of the project had begun and urged close collaboration and cooperation with CCI in the implementation of the showcase projects on climate and human health within the Region. It encouraged Members from developed countries to join in the showcase projects by pairing with Members from developing countries and Members from countries with economies in transition in a mentoring relationship to implement the system in at-risk cities.

5.3.7 The Association noted the increasing need for climate indices that were health relevant and simple to produce and to interpret. It endorsed the CCI activities to determine indices custom built for alerts on particular health outcomes of climate variations and noted the importance of future climate and health activities within the terms of reference of the re-established Working Group on Climate-related Matters.

5.3.8 The Association noted that several developments in the area of urban and building climatology had been in focus in the last few years. The Plan of Action for TRUCE, as endorsed by CCI-XII, was considered a firm basis for actions in that sector and it was suggested that TRUCE should be considered in the further development of CLIPS-related projects.

5.3.9 The Association noted the importance of promoting a broader understanding of the relationship of climate and energy, based on the principle that national and international cross-discipline activities could apply climate information including predictions to improve energy decisions. There was a need for urgent actions to address the issues of declining national climate observing networks and the inadequate infrastructure for documentary climate variability and its consequences in many areas of the world. The Association recommended that Members conduct case studies to measure the degree of interest and knowledge that existed regarding climate variability and the use of seasonal to interannual predictions, in energy production and use in both traditional and renewable forums.

5.3.10 The Association was informed of the results of the Intercommission Task Team on Regional Climate Centres, established by the fifty-second session of the Executive Council, to develop a systems approach for the provision of seasonal to interannual forecasts to Members and to advise on suitable mechanisms and procedures for the establishment of RCCs. It noted that the requirement for seasonal to interannual forecasts on the global and regional scales were stated by several WMO constituent bodies and by Thirteenth Congress and had subsequently been included in the work plans of CBS, CAS and CCI since four years. Those activities had now reached a stage where responsibilities could be allocated; implementation under the relevant WMO Programmes could be initiated.

5.3.11 The Association noted in particular that the fifty-third session of the Executive Council, when re-establishing the Intercommission Task Team, expanded the group by inviting experts from the Regional Associations in recognition of the specific regional requirements for tailored long-range forecasts, climate analysis and monitoring information and other climate services in addition to predictions. RA VI was represented by the chairperson of the RA VI Working Group on Climate-related Matters, Mr G. Gruza (Russian Federation). The Association was informed that *Météo-France*, the Met Office, the Max Planck Institute for Meteorology in Germany and ECMWF had developed the capability to produce seasonal to interannual forecasts on an operational basis. The Met Office and

ECMWF had made such products available to Members of RA VI for some time, while *Météo-France* and the Max Planck Institute for Meteorology were ready to make those available to Members, as required, in the near future. It also noted that requirements for regional RCC functions had been discussed by its Working Group on Climate-related Matters leaving open for the time being how those should be provided in the Region.

5.3.12 The Association considered both options for service provision by RCCs, namely:

- (a) Concentration of RCC functions in one centre;
- (b) Distributed RCC functions supported by more than one centre might co-exist in Region VI in meeting the differing requirements of Members in parts of the Region. It agreed to start the preparations for the implementation of RCC services by defining the requirements in more detail and by identifying the capabilities in the Region to meet them.

5.3.13 With regard to global seasonal to interannual forecast products, the Association recognized that more than one RSMC in RA VI might offer their products on an operational scale to Members and that the Intercommission Task Team had proposed the establishment of a system for regular production, exchange, evaluation and development of seasonal to interannual products under the relevant WMO Programmes. It agreed to support that systems approach by making use of the existing WWW infrastructures in providing seasonal to interannual products to all Members in the Region who required them.

5.3.14 The Association expressed some concern about the predictability of weather and climate in the seasonal to interannual timescale, especially for RA VI. It agreed that those aspects merited particular attention during the implementation phase. The Association further noted that those issues were not limited to RA VI and required close coordination with the relevant global programmes.

5.3.15 Looking at the outcome of the Intercommission Task Team and its recommendations prepared for adoption by the fifty-fourth session of the Executive Council (see [Annex II](#) to this report), the Association considered that it was now time to proceed with the implementation of a systems approach to provide seasonal to interannual products for RA VI on an operational basis and establish RCC functions as required by Members. It invited its Working Group on Planning and Implementation of the WWW in Region VI, in collaboration with its Working Group on Climate-related Matters, to initiate appropriate follow-up actions to ensure the availability of seasonal to interannual forecast products to RA VI Members and establish relevant RCC functions in the Region. To that end, the Association formed a small implementation team with members from both Working Groups with the task of developing a statement of requirements for RCC functions, of assessing the infrastructure preconditions for service provision and operational production and of advising on the best structural set-up for RCC services in

RA VI. In that regard, the Association adopted [Resolution 9 \(XIII-RA VI\)](#).

5.4 WORLD CLIMATE RESEARCH PROGRAMME (agenda item 5.4)

5.4.1 The Association welcomed the progress in the WCRP in investigating all important physical aspects of climate and climate change. It was noted that Members in the Region continued to support actively the implementation of the WCRP offering substantial contributions to observing and data management activities as well as to the development of climate modelling. In particular, the Region was home to several important WCRP data evaluation and archiving centres: the World Radiation Monitoring Centre (Switzerland), the primary archive for the baseline surface radiation network data; the Global Precipitation Climatology Centre (Germany); and the Global Run-off Data Centre (Germany). The Region also hosted a number of international project offices established to guide the implementation of various WCRP projects, namely those for WOCE and the CLIVAR study (co-located in the United Kingdom); for the ACSYS/CLiC Project (Norway); and SPARC (France). The fourth International Conference on GEWEX was held in Paris, France from 10-14 September 2001. The Global Change Open Science Conference: Challenges of a Changing Earth, sponsored jointly by IGBP, IHDP and WCRP, was held in Amsterdam in July 2001.

5.4.2 The Association expressed particular interest in the development of the CLIVAR study, which included several activities designed to extend understanding of climate variability on seasonal to decadal timescales and to strengthen further the scientific basis for practical climate prediction. In that connection, an important contribution was being made by several European research projects including the DEMETER, the PROVOST and the PROMISE projects. The Association also recalled that several Members had implemented operational climate forecast systems, building on the successful outcome of the earlier WCRP TOGA experiment and on ongoing investigations in CLIVAR.

5.4.3 The Association congratulated Members who participated actively in the successful implementation of the central observational and modelling phase of the BALTEX experiment, a combined atmospheric, oceanographic and hydrological study in the Baltic Region. BALTEX was one of the five continental-scale experiments of GEWEX.

5.4.4 The Association was pleased to be informed of the progress made in the ambitious and comprehensive 40-year reanalysis project at ECMWF, that would provide multi-year homogeneous data sets essential in a wide range of climate diagnostic studies. The Association appreciated the initiative of ECMWF Member States in supporting the reanalysis project. The Association urged Members to continue support for that reanalysis effort.

5.4.5 The Association noted that several Members were playing a major role in GODAE, which was designed to generate globally consistent fields of the

ocean state for use in synoptic ocean analyses and hindcasts, short-range forecasts, reanalyses and initial conditions for climate forecasts by synthesizing multivariate satellite and in situ data. The GODAE operational phase was planned for the period 2003–2005 and was expected to be as far-reaching in observing and modelling the oceans as the First GARP global experiment had been for the atmosphere in 1979. A key component of the observational programme was the global deployment of profiling floats, the ARGO initiative, to which a number of Members of the Association were contributing. Remotely-sensed data, in particular altimetric measurements from satellites such as JASON, were also essential. Developments in oceanographic modelling, both globally and regionally, would be required. In that last respect, the French Mercator project, in which a high resolution (10 km) primitive equation eddy-resolving ocean model had been developed for assimilating both in situ and remotely-sensed data offered exciting prospects. The Association encouraged interested Members to collaborate with France in that activity.

5.4.6 The Association recognized that WCRP research activities must be complemented by systematic, sustained and reinforced observations of all key climate variables and by capacity building involving all nations in climate research activities.

5.5 GLOBAL CLIMATE OBSERVING SYSTEM (agenda item 5.5)

5.5.1 The Association noted with appreciation the progress report on GCOS. It welcomed the developments in implementation of the GSN and GUAN, including the establishment of the Monitoring Centres at the DWD and the Japan Meteorological Agency for GSN, and at the ECMWF for GUAN, while recognizing there had been little improvement in the reporting performance from the GSN and GUAN over the last several years. It welcomed the letter of 15 June 2001 sent by the Secretary-General to all WMO Members advising them of the results of the performance monitoring and encouraging them to take remedial action where necessary. The Association noted with satisfaction the increasing cooperation that existed between GCOS and the WMO Commissions to address those problems, and welcomed in particular the CBS/GCOS Expert Meeting on that issue, to be hosted by the DWD in May 2002. The Association urged Members to make maximum efforts to improve the performance of the GSN and GUAN stations for which they were responsible, including the provision of historical data and station metadata as requested in the Secretary-General's letter of September 1999.

5.5.2 The Association noted that a global climate observing network for hydrology (GTN-H) had been established. Two implementation meetings led by the GCOS/GTOS TOPC were hosted by the DWD and the *Deutsche Bundesanstalt für Gewässerkunde*. A major goal of GTN-H was to produce global products for key hydrological variables.

5.5.3 The Association recognized the importance of the decisions taken at the fifth session of the UNFCCC COP regarding meteorological and hydrological observing systems. In particular, it welcomed the regional approach being taken by GCOS for identifying and seeking to address deficiencies in those observing networks, including the GCOS Regional Workshop Programme. It requested Members, to the extent possible, to assist the GCOS Secretariat in organizing subregional workshops within RA VI. The Association urged Members to participate in preparing detailed reports on systematic observation in conjunction with their country's National Communication to the UNFCCC. It also urged Members to serve on their national delegations to COP or to communicate with them in order to make the observing needs of their NMHS known.

5.5.4 The Association welcomed the proposal of the GCOS Steering Committee, endorsed by SBSTA-15/COP-7 in Marrakesh in November 2001, to prepare the Second Report on the Adequacy of the Global Observing Systems for Climate for submission to the UNFCCC COP. It noted the high priority given to that activity by the tenth session of the GCOS Steering Committee (Farnham, United Kingdom, 15–19 April 2002) and the accelerated schedule for its completion (mid-2003, for consideration by SBSTA-18 and COP-9 in late 2003). The Association confirmed its full support for that activity and urged Members to assist GCOS to the extent possible in leading the preparation of that report.

6. ATMOSPHERIC RESEARCH AND ENVIRONMENT PROGRAMME — REGIONAL ASPECTS (agenda item 6)

6.0.1 The Association noted the activities and initiatives that had taken place in support of AREP since its last session. It recorded its specific comments on the various components in the following paragraphs.

6.0.2 The Association, noting that very few candidates from the Region, especially from those Members with economies in transition, were submitted for consideration of the WMO Research Award for Young Scientists, urged Members to make every effort to nominate eligible scientists from their countries.

6.1 GLOBAL ATMOSPHERE WATCH (agenda item 6.1)

6.1.1 In its consideration of the GAW Programme, the Association noted the continued maturation in the complex structures comprising GAW and required to provide scientists and Governments with credible information on the state of the atmosphere. The Association was pleased that its Members were making very significant contributions to GAW from operating measuring stations, world and regional calibration centres, hosting GAW WDCs, QA/SACs, as well as assisting developing countries in other WMO Regions on a variety of GAW matters. The Association noted with satisfaction that efforts were under way in the Region to develop a new calibration centre for ultraviolet at the Joint European Research Centre in Italy.

6.1.2 In reviewing progress on GURME, the Association noted that the project had had a successful start following its establishment by Thirteenth Congress. The Association noted that the issue of urban pollution and its impact on human health was becoming an urgent issue for many NMHSs and welcomed the continuing implementation of pilot projects within GURME in Beijing and Moscow and the development of guidelines for national authorities wishing to embark on urban environment initiatives. The involvement of the World Health Organization in some of the activities of GURME was viewed as a positive development.

6.1.3 The Association noted that the GAW programme was successfully reaching out to other external programmes. The Association was pleased that WMO was able to provide input into EMEP through co-chairing the sessions of the EMEP's Task Force on Monitoring and Modelling and that the European Environment Agency and GAW regularly exchanged information. The Association urged that WMO/GAW continue to seek collaboration with other international programmes and organizations in view of the global nature of GAW activities.

6.1.4 The Association noted with satisfaction the Strategy for the Implementation of the GAW Programme (2001–2007) prepared by the Secretariat with the help of a number of atmospheric chemistry experts and thoroughly reviewed and endorsed by the Executive Council Panel of Experts/CAS Working Group on Environmental Pollution and Atmospheric Chemistry. It fully supported the proposed GAW strategic goals and implementation strategies as related to the programme as a whole, as well as to its individual measurement parameters, quality assurance, data management and application and other major activities.

6.1.5 The Association welcomed the active participation of WMO in the multi-agency IGOS as an effective way to integrate the major satellite and ground-based systems to provide highly accurate global observation of the atmosphere, oceans, cryosphere and land. In that regard, it expressed satisfaction with the *Report on a Strategy for Integrating Satellite and Ground-based Observations of Ozone* (GAW Report No. 140, WMO/TD-No. 1046) prepared by WMO and the CEOS. The further participation of GAW in, and contributions to, IGOS was recommended, in particular with regard to the developing IGOS Theme on Integrated Global Atmospheric Chemistry Observations.

REPORT OF THE RAPporteur ON THE GLOBAL ATMOSPHERE WATCH

6.1.6 The Association congratulated the Rapporteur on the Global Atmosphere Watch, Mr G. Müller (Switzerland) for his very informative report on the substantial contributions made by NMHSs and other institutions in the Region to GAW.

6.1.7 The Association noted that the network of GAW stations operated by Members comprised about half of all designated GAW stations. In addition, Members supported two QA/SACs (Germany and

Switzerland), a WCC for surface ozone, carbon monoxide and methane, WCCs for nitrous oxide, VOC and physical characteristics of aerosols (Germany), planned to begin operating in 2002, an RCC for surface ozone (Czech Republic), an RCC for total ozone (Germany), the WDC for aerosols (European Union-Italy), the WRDC (Russian Federation) and the WDC for surface ozone (Norway). The Association commended Members for providing those essential GAW facilities that had helped GAW achieve credibility within the scientific community.

6.1.8 The Association strongly supported continued intercomparisons of regional ozone instruments, both ground and balloon-based, as a means of ensuring high quality ozone data for use in the quadrennial assessments. It also approved the plans to improve the data flow with respect to surface ozone, carbon monoxide and methane within the Region. It also gave its support to the need to operationalize quickly the new WCC for nitrous oxide and VOC in Germany and for that facility to develop standard operating procedures for those parameters and to conduct station audits.

6.1.9 The Association welcomed the initiation of the GAW station information system which would provide up-to-date information about the operation of GAW stations and their data, and expressed appreciation to *MétéoSuisse* and the Japan Meteorological Agency for their support to its development.

6.1.10 The Association emphasized that the training and education needs in developing countries should continue to be a high priority for the GAW programme. In that connection, many of the Association's GAW centres and collaborating national organizations were commended for their substantial efforts in providing training to GAW station personnel from developing countries. Particular appreciation was expressed to the State Government of Bavaria (Germany) and the *DWD* for establishing the GAW Training and Education Centre and to the Czech Republic for conducting annual training for Dobson spectrophotometers on the Solar and Ozone Observatory.

6.1.11 In view of the considerable efforts being expended by Members with respect to atmospheric composition monitoring in the Region and the importance of the programme to national, regional and global pollution matters, the Association decided to re-appoint a Rapporteur on the Global Atmosphere Watch with terms of reference as given in [Resolution 10 \(XIII-RA VI\)](#).

6.2 WORLD WEATHER RESEARCH PROGRAMME (agenda item 6.2)

6.2.1 The Association noted that Members from the Region had maintained an active interest in, and contributed to, the implementation of the WWRP, a CAS initiative which received Executive Council endorsement in 1998. It was recalled that that programme offered the prospect of much improved weather predictions on all timescales, focusing on high impact events and socio-economic applications. Members were encouraged to continue to provide input to the annual WMO progress

reports on NWP and long-range forecasting as a mean of reaching all WMO Member countries with information on the latest developments.

6.2.2 The Association noted with satisfaction that a number of Members had continued their strong involvement in WWRP's MAP. MAP was aimed at understanding extreme weather over the Alps which should lead to better operational predictions. The Association was pleased that the MAP community had developed a data policy consistent with the spirit of Congress decisions on data access and exchange.

6.2.3 The Association noted that MEDEX had received approval as a WWRP research and development project. MEDEX aimed at better understanding high impact weather events such as strong winds and heavy rain episodes in the Mediterranean region. The Association urged the MEDEX community to incorporate fully a societal impacts research component in the study programme for MEDEX to facilitate socio-economic applications of expected research results. It also urged Members to provide MEDEX with meteorological surface data that were historically unavailable via the GTS.

6.2.4 The Association was informed that an FDP surrounding the staging of the Athens Olympics in 2004 was under development. Two options were being pursued, one dealing with temperature and wind forecasts and the other focusing on nowcasting thunderstorm-related weather. The Association expressed its strong support for a second WWRP FDP following the success of the Sydney 2000 FDP. It stressed the need for the project to establish activities that would verify, interpret and quantify the end-user benefits associated with the use of new systems.

6.2.5 The Association strongly encouraged the continued development of THORPEX, which aimed at demonstrating that additional high quality observations in critical areas of extratropical and subtropical oceans could improve the performance of one to 10-day numerical weather forecasts. Members were urged to give their active support to the further development of THORPEX. The Association also felt that THORPEX would benefit from the involvement of EUCOS and ECMWF.

6.2.6 The Association recognized that weather forecasting remained the central activity for NMSs and urged Members to become more involved in their support of WWRP projects in order to speed the development of improved and cost-effective techniques.

6.3 TROPICAL METEOROLOGY RESEARCH PROGRAMME (agenda item 6.3)

6.3.1 While primarily of interest to tropical countries, the Association nevertheless had made important contributions to that programme by both individual scientists and advanced meteorological centres. In recent years, the programme had organized a number of international workshops on monsoons, forecasting tropical systems, tropical cyclones and limited-area modelling. The Association fully supported those events in that they were focused on technology transfer to developing countries in tropical regions.

6.3.2 The Association, noting that the CAS Working Group on Tropical Meteorology Research had called for centres making tropical cyclone predictions (intensities and tracks) to make their predictions widely available, urged such centres in the Region to comply with that request.

6.4 PROGRAMME ON PHYSICS AND CHEMISTRY OF CLOUDS AND WEATHER MODIFICATION RESEARCH (agenda item 6.4)

6.4.1 In line with the call by Thirteenth Congress that NMHSs should provide advice on the possibilities offered by precipitation enhancement, the Association noted with interest that Italy, in cooperation with WMO, was preparing two project proposals, funded by the European Commission, on that matter. Those concerned:

- (a) A regional pilot application programme that would establish an inventory of cloud climatologies and planning criteria for precipitation enhancement in MEDSEEME countries;
- (b) A purely research project — Precipitation Enhancement Research for Euro-Mediterranean Partnership — which would focus on the research aspects of cloud characterization and the micro-physical effects of seeding interventions.

The ultimate objective of the initiative was to contribute to alleviating partially water shortages caused by insufficient natural precipitation in the MEDSEEME region through a programme of well-designed precipitation enhancement experiments which would complement other tools of water management.

6.4.2 The Association was also informed that countries of the Arab League, in collaboration with WMO and Italy, were planning a first regional seminar for the Middle East on the possibilities of precipitation enhancement. That seminar would be held in Damascus in October 2002.

6.4.3 The Association advised Members to make reference to the new WMO Statement on the status of weather modification as well as to the Guidelines for advice and assistance related to the planning of weather modification activities, approved by the Executive Council in 2001, before responding to questions or when contemplating weather modification experiments or activities.

6.5 SUPPORT TO OZONE AND OTHER ENVIRONMENT-ORIENTED CONVENTIONS (agenda item 6.5)

6.5.1 With regard to support to a number of environmental conventions, the Association noted that WMO's GAW programme continued to provide fundamental information underpinning assessments of the measures agreed by Governments to address stratospheric ozone destruction (Vienna Convention and Montreal Protocol and subsequent amendments), long-range transport of pollution in Europe (Convention on Long-range Transboundary Air Pollution) and the build up of greenhouse gases (notably carbon dioxide and methane) in the atmosphere (UNFCCC and Kyoto Protocol).

6.5.2 With respect to ozone destruction, the Association noted with satisfaction that Members had continued to assign high priority to maintaining the integrity of the global ground-based ozone measurement network through a combination of regular intercomparisons of Dobson spectrophotometers, the comparisons of various types of ozonesondes and quadrennial ozone assessments assisted by the excellent work of the World Ozone and Ultraviolet Data Centre. The Association strongly supported the staging of regular WMO Dobson intercomparisons in the Region. In addition, the Association also supported Members' participation in the periodic assessments of the state of the ozone layer and the issuing of periodic bulletins on seasonal polar ozone losses.

6.5.3 The Association noted that the Region had an adequate coverage of ozonesonde stations, but recognized the paucity of information on the vertical distribution of ozone from tropical and subtropical areas of the world without which a complete understanding of the physics, chemistry and transport processes of atmospheric ozone remained difficult. It therefore urged Members to explore options to increase the number of ozonesonde stations in those data-sparse areas. In that regard, the assistance given by Switzerland to the operation of the ozonesonde station in Kenya was gratefully acknowledged. The Association was pleased that Germany had played a pivotal role in helping to establish a set of standard operating procedures for ozonesondes and which were currently being finalized, thus facilitating interpretation of ozone data from the various types of sonde.

6.5.4 With respect to the UNFCCC and the work of the IPCC, the Association emphasized the important atmospheric information on greenhouse gas trends from GAW global and regional stations for conducting assessments and climate projections and for identifying mitigation/adaptation strategies. It was noted that the six new GAW global stations recently established in developing countries continued to need assistance if they were to reach their full capacity to contribute to our understanding of climate change. That information would be viewed as crucial when implementing the Kyoto Protocol. The Association therefore urged those Members with the necessary expertise to consider providing resources to those stations to maintain their operations. In that regard, the Association noted that WMO had established a Trust Fund, uniquely dedicated to maintaining operations at those six GAW stations. It strongly encouraged Members to consider making contributions to that Fund.

6.5.5 The Association was strongly supportive of the links that had been established between EMEP and GAW. It noted with satisfaction that GAW had been invited to co-chair the EMEP Task Force on Modelling. The Association also noted that EMEP was beginning a major project to assess the implementation of the European Convention on Long-range Transboundary Air Pollution over the last 20 years and recommended that GAW take an active role in that initiative.

6.5.6 In connection with the cooperation of WMO with the Barcelona Convention for the Protection of the Mediterranean Sea against Pollution, the Association acknowledged the valuable contribution of experts from the Region to the Convention's MED POL as it related to monitoring, modelling and assessment of pollution of the Mediterranean Sea from land-based sources through the atmosphere. Of particular importance were the assessments of the atmospheric inputs of heavy metals, including mercury and persistent organic pollutants, which entered the marine environment mainly through the atmosphere and a manual for monitoring atmospheric deposition, prepared under the leadership of GAW. The Association invited Members in the Mediterranean region to participate actively in corresponding MED POL activities coordinated by GAW.

REPORT OF THE RAPPORTEUR ON ATMOSPHERIC OZONE

6.5.7 The Association noted with satisfaction the report of the Rapporteur on Atmospheric Ozone, Mr H. Bacanli (Turkey), in which he provided information on regional activities concerning ozone and ozone-related matters. Referring to the report, the Association noted that in the Region there were about 50 active total ozone monitoring stations, most of which submitted their data to the WOUDC for unrestricted use in scientific studies. Total ozone data from RA VI groundstations and TOMS, SBUV/2 and occasional TOVS satellite observations were made available in near-real-time to the WMO Daily Ozone Mapping Centre at the University of Thessaloniki (Greece), where maps of the northern hemisphere total ozone distribution were routinely produced and made widely available during the winter-spring period. It was also noted that the European GOME instrument on the ERS II satellite had also been producing global ozone distribution maps.

6.5.8 The Association realized that the quite dense network of approximately 25 ozone sounding stations in the Region constituted an important source of information on vertical ozone distribution. That was particularly true for the troposphere and lower stratosphere, regions where satellite measurements were less accurate. The Association acknowledged the utility of those soundings for trend assessments.

6.5.9 The Association welcomed the increasing number of LIDAR and microwave instruments being used for highly precise ozone measurements in the upper stratosphere. LIDAR instruments, especially, were also very useful for tropospheric ozone measurements. However, there were only two or three stations where regular measurements were being conducted (e.g. Hohenpeissenberg, Haute Provence). The Association therefore urged all LIDAR stations to conduct regular measurements, where possible.

NORTHERN LATITUDE RESEARCH CAMPAIGNS

6.5.10 The Association was informed that, over the last few years, the European Community had been funding a series of ozone-related programmes such as the European Arctic Stratospheric Ozone Experiment, the

European Stratospheric Monitoring Stations, and the Second European Stratospheric Arctic and Mid-latitude Experiment. Those had mostly focused on investigating the causes of stratospheric ozone loss during the winter-spring season. The Association noted that, as a result, a reasonable understanding of the dramatic ozone losses occurring in the polar vortex had been achieved.

WMO SPONSORED INTERCALIBRATIONS

6.5.11 The Association emphasized that data and instrument validation played important roles in ozone trend assessment. Only data of high and known quality could form the basis for such studies. For measurements from Dobson spectrophotometers, it therefore strongly supported continued systematic data re-evaluations, which together with instrument comparisons would ensure that the needs of Member countries and the accuracy of GAW ozone data were satisfied. Support was also expressed for the regular exchange of operational experience between Brewer operators and for filter ozonometer calibrations by the Main Geophysical Observatory in St Petersburg.

DATA SUBMISSION AND DATA POLICY

6.5.12 The increasing pressure to commercialize weather and other geophysical data had led to considerable debate on data policy. The Association recalled that Twelfth Congress had adopted Resolution 40 (Cg-XII) — WMO policy and practice for the exchange of meteorological and related data and products including guidelines on relationships in commercial meteorological activities. Subsequently, the forty-ninth session of the Executive Council had agreed that a set of general principles should be developed which were consistent with Resolution 40 (Cg-XII) and reviewed a preliminary set of such guidelines for WMO WDCs. In that regard, the Association was therefore pleased that all GAW Data Centres operated in such a way that allowed unrestricted access to their data holdings.

6.5.13 The Association was pleased that most ozone stations in the Region regularly submitted their data to the WOUDC or the GAW WDC for surface ozone, thus making the data available to the international scientific community. It was noted that the WOUDC, operated by the Meteorological Service of Canada, had 40 years of ozone data from over 300 stations around the world, including information on total column ozone and vertical profile data. The Association urged all stations in the Regions to continue submitting their data to those two Data Centres on a regular basis.

THE FUTURE

6.5.14 The Association noted that plans for upgrades of NWP models at several weather prediction centres incorporated stratospheric ozone. The assimilation in real-time of total and vertically-resolved ozone data in those models was expected to improve medium-range forecasts by providing better analysis of stratospheric winds, as well as by improved analyses and forecasts of the three-dimensional ozone field. The Association

recognized both the importance of those steps towards producing Europe-wide ultraviolet forecasts and the fact that including ozone in NWP might also help to improve the medium-range weather forecast skill.

6.5.15 In view of the continuing international interest in both tropospheric and stratospheric ozone, and the many ozone activities being conducted by Members, the Association decided to re-appoint a Rapporteur on Atmospheric Ozone with terms of reference as given in [Resolution 11 \(XIII-RA VI\)](#).

7. APPLICATIONS OF METEOROLOGY

PROGRAMME — REGIONAL ASPECTS (agenda item 7)

7.1 PUBLIC WEATHER SERVICES PROGRAMME (agenda item 7.1)

7.1.1 The Association expressed satisfaction with the continuing development and advancement of the PWS Programme since XII-RA VI. It noted especially the progress made in achieving the Programme's objectives and observed that the Programme priorities focused on issues that coincided with Members' concerns.

7.1.2 The Association recalled that the OPAG on PWS replaced the original Working Group on PWS following the restructuring of CBS in 1998. The Programme's functions were now coordinated through three Expert Teams and an Implementation Coordination Team, all of which benefited from active participation and contributions from the Region's experts.

7.1.3 The Association reiterated the view that the staff of NMSs must be provided with the best available training and technology to enable the Service to deliver high quality public weather services in response to the investment of Governments and in matching the expectations of the public. It appreciated that the Regional Training Seminar on Public Weather Forecasting and WAFS Product Applications was held in Prague in June 1998. The Association welcomed the information that the Regional Seminar on Interpretation of GDPS Products and the Impact of Public Weather Services was planned for 2002 which would enable the participation of NMSs from the eastern and southern areas of the Region. Furthermore, the Association was pleased to note that, in order to ensure optimum use of available resources, the training events of the PWS Programme were being held in collaboration with other WMO scientific and technical programmes.

7.1.4 The Association recalled that a major task of the PWS Programme was to promote the use of official NMS forecasts and warnings, and thus enhance the image of the NMSs as the single official source of information. In that regard, it strongly endorsed the continuing dialogue, through the PWS Programme, with international media representatives on issues of single official voice and attribution for the role that WMO and NMSs played in the forecast and warning process. The Association asserted that those issues impacted both on the visibility and status of the NMSs and on public safety, by eliminating possible confusion through the

availability of consistent, official information. It appreciated the publication of guidelines on improving media relationships to assist NMSs with their media skills. In a related issue, the Association welcomed the participation of the International Association of Broadcast Meteorology as observers at meetings of several WMO constituent bodies and felt that such participation could be beneficial to Members.

7.1.5 The Association welcomed the reports that two pilot projects dealing with information exchange and utilizing the Internet were progressing satisfactorily. The first pilot project on the Severe Weather Information Centre Web site that would facilitate media access to warnings had progressed to a fully functional Web site on an operational trial basis with the participation of Members of the ESCAP/WMO Typhoon Committee in the first phase. It was anticipated that the concept would expand globally and evolve to cover other types of severe weather. The second pilot project on the World City Forecasts Web site aimed at providing an integrated product of world city forecasts in an attempt to counter the unofficial forecasts broadcast internationally and available on the Internet. The first phase of the project was launched in December 2001 with the participation of more than 50 per cent of WMO Members providing climate information. The second phase would cater for city forecasts and was expected to be complete by the end of 2002. Both Web sites would clearly indicate the contributing NMSs as the authoritative sources of information. The Association expressed appreciation to Hong Kong, China for taking the lead role in the design, development and testing of the projects.

7.1.6 The Association welcomed the following publications of the PWS Programme:

- (a) The second edition of *Guide to Public Weather Services Practices* (WMO-No. 834), published in 1999, emphasizing user-focused service delivery, which was distributed along with a set of four complementary CD-ROMs containing additional examples of national practices and guidance to Members for developing their own country programmes;
- (b) *Public Weather Services in Focus* (WMO/TD-No. 974), published in May 1999, containing the report and analysis of a WMO global survey on the status of Members' public weather services; 32 of the Region's 47 Members had participated.

WMO technical documents prepared by experts within the PWS Programme on specialized topic areas, especially for small and developing countries included:

- (a) The *Technical Framework for Data and Products in Support of Public Weather Services* (WMO/TD-No. 1054), which provided detailed information on supporting hardware and software necessary for the collection, processing, storage, product design and presentation and dissemination of public weather services;
- (b) The *Guidelines on Graphical Presentation of Public Weather Services Products* (WMO/TD-No. 1080), which provided information on the technical as

well as design aspects of a graphical presentation system and included key training issues for specialist meteorological staff;

- (c) The *Guidelines on Performance Assessment of Public Weather Services* (WMO/TD-No. 1023), where the emphasis was on forecast and warnings, without provision of hard and fast rules on standardized verification techniques;
- (d) *Weather on the Internet and Other New Technologies* (WMO/TD-No. 1084), which focused on issues related to the provision of public weather services products via the Internet and other emerging technologies;
- (e) The *Guidelines on the Improvement of NMSs — Media Relations and Ensuring the Use of Official Consistent Information* (WMO/TD-No. 1088), which aimed at assisting Members with guidelines on meteorology and improving partnerships and relationships with the media;
- (f) The *Public Weather Services in Region VI (Europe) — Report of Survey* (WMO/TD-No. 1100), which reported the results of a survey conducted among the NMHSs of Members of RA VI.

7.1.7 The Association agreed that effective coordination and communication between the NMSs and emergency management were essential in the dissemination of timely warnings to mitigate life and property losses caused by natural disasters. The Association noted with appreciation that within the PWS Programme, guidelines were being developed for NMSs for "best practice" on relationships with emergency managers.

7.1.8 The Association agreed with the level of priority being given to assisting Members on quantification of forecast uncertainty, on conducting verification of warnings and forecasts and on service evaluation. It concurred that user-based service assessment was a basic requirement that served as input into the design and development of new and appropriate public weather products and services. The Association supported the focus of the PWS Programme on improved delivery of effective public weather services by stressing the use of new technology and the adoption of advanced techniques in presentation and dissemination.

7.1.9 The Association noted with appreciation the progress of the Subgroup on Regional Aspects of Public Weather Services that was established by Resolution 1 (XII-RA VI) — Working Group on Planning and Implementation of the WWW in Region VI, and tasked with advising on regional aspects of the PWS Programme. The Subgroup was charged mainly with developing proposals for coordination of warnings, education and training, and heightening the visibility of NMSs. In order to gather the necessary information on those subjects, the Subgroup developed and distributed a questionnaire to Members in the Region. The Association was informed that almost 80 per cent of Members responded to the questionnaire. The responses were analysed at a meeting of the Subgroup in Lisbon in October 2001 and the report containing the analysis and results of the questionnaire evaluation would be

published as a WMO technical document. The conclusions and recommendations resulting from the analysis of the questionnaire, and in particular those concerning education and training programmes, coordination with the media and the overall performance assessment would be used in the further development of PWS in the Region.

7.1.10 As regarded increased bilateral and/or regional cooperation and agreements to develop and expand arrangements for the cross-border exchange of warnings, forecasts and information, the Association welcomed the proposal by the Subgroup for the establishment of a pilot project aimed at setting up simple procedures for the bilateral exchange of warnings among neighbouring countries, taking into consideration language differences. It noted that some Members which were already engaged in such bilateral exchange found it very beneficial. The Association welcomed the offer by RSMC Offenbach to act as the Severe Weather Exchange Centre, the monitoring and coordinating hub for the pilot project that would be limited in the first phase to the participation of NMSs in south-west and central Europe. The proposal was to create a network of bilateral agreements for warning exchanges based on those already existing and to use a simple form that could be faxed or e-mailed. It was expected that after the test phase, recommendations for streamlining the exchange would be made and the project would expand to incorporate other regional Members.

7.1.11 The Association was pleased to note that the letter addressed by the acting president of RA VI to WMO and the Permanent Representatives of Members of WMO of the Region, in November 2001, endorsed the above proposal and requested that Members participate in the project and submit reports on relevant, existing or planned bilateral agreements.

7.1.12 The Association was informed of the European Mutiservice Meteorological Awareness Project. That project was being implemented by the NMHS' members of EUMETNET. Its aim was to produce a European-wide graphical information to be delivered to the general public in order to make it aware of potential meteorological hazards. That project might receive the support of the European Union within the framework of the Global Monitoring Environment Security. The Association also noted the efforts of the Subgroup to had training modules on meteorology and public weather services included in the EUMETNET Euromet Computer-aided Learning Programme and agreed that the proposal would assist in the development of national public weather services.

7.1.13 The Association recognized that changes in social, political and economic factors on the national and global scales affected the role and operation of NMSs. Services were being increasingly challenged to prove that they should be recipients of continuing government support. The Association agreed that NMSs could benefit from harnessing the opportunities provided by public focus on environmental issues, new technological developments, advances in meteorological

science and improved accuracy of NWP to contribute effectively toward national development. In that way, the NMS would be enhancing its own visibility while improving its national status.

7.1.14 The Association considered the results of the survey conducted among Members in the Region as well as impacts that the various current forces and influences would had on the ability of Members to continue to provide high quality public weather services to satisfy the growing demand and requested that the future work of the PWS Programme focus on the following issues:

- (a) Capacity building and transfer of technology;
- (b) Application of new technology in NMS systems and operations and the use of research to design, develop and disseminate new/improved PWS products;
- (c) Encouraging bilateral arrangements in the Region to help Members who required assistance in achieving more efficient and developed PWS in their respective NMSs;
- (d) Increasing the adoption of verification and user-based service assessment;
- (e) Raising the level of public awareness, understanding and response to weather warnings as part of natural disaster mitigation efforts and increasing cooperation with national disaster reduction committees or focal points;
- (f) Raising the level of governmental awareness, understanding and response to weather warnings and advice as part of natural disaster mitigation efforts;
- (g) Improving relationships and coordination with Members' state emergency management systems and the media;
- (h) Promoting and enhancing the cross-border exchange of warnings;
- (i) Improving the use of official, consistent information, facilitating the international exchange of public weather products and making weather information available on the Internet.

7.1.15 The Association accordingly adopted [Resolution 12 \(XIII-RA VI\)](#).

7.2 AGRICULTURAL METEOROLOGY PROGRAMME (agenda item 7.2)

7.2.1 The Association complimented the Secretary-General and CAgM for the progress made in the field of agricultural meteorology, including the publication of a large number of technical notes and CAgM reports.

7.2.2 The Association noted with appreciation the theme adopted by the Commission "to promote agrometeorology and agrometeorological applications for efficient, sustainable agriculture, silviculture and aquaculture for an increasing world population in rapidly changing environments" and stressed the need to increase the awareness of the users to the economic, environmental and health benefits of the application of meteorological, climatological and hydrological information to agriculture to meet the food, fodder and fuel needs of the growing populations in Europe. The Association considered the theme to be very important

to the Region. The Association noted with interest the intersessional activities of CAgM and agreed that they would contribute greatly to the economic development of the countries in Europe.

7.2.3 The Association further noted the main topics discussed at the twelfth session of CAgM among which were the applications of seasonal to interannual climate forecasts and the products and services that were becoming available based on those forecasts. The Association supported the decision of the Commission to promote, survey and summarize, using case studies, the current applications of climate forecasts in agriculture, forestry and livestock management and recommended ways and means to use more optimally climate forecasts in operational agriculture with emphasis on user needs especially in the developing countries. In that context, the Association was pleased to note the initiative taken by CAgM to collaborate closely with the System for Analysis, Research and Training of IGBP, WCRP and the International Human Dimensions Programme in the CLIMAG Project. It congratulated the Secretariat on the successful organization of the International Workshop on Climate Prediction and Agricultural Production in September 1999 in Geneva. The Association was pleased to note that the Institute of Agrometeorology and Environmental Analysis for Agriculture in Florence was able to obtain funding for the project entitled A Network for Harmonization of Climate Prediction for Mitigation of Global Change Impact in Sudano-Sahelian West Africa (CLIMAG-West Africa) from the European Union in the framework of the specific research and technological development programme Energy, Environment and Sustainable Development. The Association encouraged WMO's continued participation in the activities of the CLIMAG Steering Committee.

7.2.4 The Association was pleased to note that a number of experts from the Region had participated in international workshops organized by WMO in other Regions. The Association considered that such opportunities for the exchange of experiences between the Regions would help strengthen the agrometeorological activities in the Region and urged the Secretary-General to continue to enhance interregional cooperation in agrometeorology.

7.2.5 The Association noted with satisfaction that preparations were under way for the organization of the thirteenth session of CAgM and for the International Workshop on Reducing the Vulnerability of Agriculture and Forestry to Climate Variability and Climate Change, to be held in Ljubljana, Slovenia in October 2002. The Association encouraged the active participation of all Members in those two important events.

7.2.6 The Association was pleased to note that two Roving Seminars: the first on Data Management for Applications to Agriculture (October 1998) and the second on Crop-Yield Weather Modelling (September 1999) were held in Ljubljana, Slovenia and that several participants from central and south-east European countries participated in those two Seminars. The Association noted with satisfaction that a CD-ROM on crop-yield

weather modelling with a summary of all exercises was produced and that some other material had been put on the Web site <ftp://hydrolab.arsusda.gov/pub> for downloading. The Association complemented the Secretariat for arranging those training events and strongly supported the continued organization of such events, for the benefit of the participants from the Region, especially those from countries with economies in transition of eastern and central Europe.

7.2.7 The Association expressed its appreciation with the excellent collaboration established between WMO, the RMTC at the Israel Meteorological Service and the National Research Council/IATA in Florence for the preparation of training manuals and the organization of joint training activities. The RMTC in Israel conducted annual training and postgraduate courses for developing countries. The Association encouraged the Members to take advantage of training programmes offered in RMTCs, as well as those in other countries, with a view to meeting their training needs.

7.2.8 The Association noted the WMO activities on combating desertification and urged Members to participate actively in the implementation of the United Nations Convention to Combat Desertification. The Association requested the Secretary-General to provide appropriate guidelines to Members in that regard. The Association further urged Members, who might need it, to benefit from the support by the Global Mechanism of the Convention for projects in that area. The Association was informed that the thirteenth session of the Interstate Council on Hydrometeorology of the Countries of the Commonwealth of Independent States (Obninsk, 1-2 October 2001) had decided to establish an Interstate Council on Hydrometeorology Drought Monitoring Centre and that it adopted a statute on that Centre. That Centre was created on the basis of the All Russian Research Institute on Agricultural Meteorology.

7.2.9 The Association noted with satisfaction WMO's participation in the COST Action 718 on Meteorological Applications for Agriculture of the Commission of the European Communities. It encouraged WMO to continue to participate actively in the COST Action Projects.

7.2.10 The Association complimented the chairperson and the members of the RA VI Working Group on Agricultural Meteorology for the activities carried out and for the final technical report. The Association recommended that the report be published by WMO and distributed widely.

7.2.11 The Association agreed that the application of meteorology to agriculture continued to be of high importance to the Region. Hence, the activities of the Working Group on Agricultural Meteorology should be continued taking into account the developments in the Region, such as the need for environmental conservation, increased educational facilities in agrometeorology and assessment of the impacts of climate variability/climate change on agriculture across Europe. The Association therefore re-established the Working Group

on Agricultural Meteorology with renewed terms of reference. In that connection, the Association adopted [Resolution 13 \(XIII-RA VI\)](#). In view of the limited budget available for meetings of the Working Groups, the Association suggested that efforts should be made to minimize the expenses for the Working Group meeting through such measures as combining the meeting with other events organized in the Region, e-mail correspondence, etc.

7.3 AERONAUTICAL METEOROLOGY PROGRAMME (agenda item 7.3)

7.3.1 The Association noted with satisfaction that Thirteenth Congress re-emphasized the importance it attached to an expanded and vigorous Aeronautical Meteorology Programme to meet the needs of the worldwide aviation community and that it had decided that the Programme should be further strengthened. Furthermore, it was pleased to note that Congress requested the Secretary-General to assist in the implementation of the Programme and, in particular, to give high priority to training requirements.

7.3.2 The Association welcomed the advances made in the implementation of WAFS thanks to the WWW Programme essential support, to efforts deployed by the WAFS Provider States, WMO/ICAO cooperation and training on WAFS-related subjects.

7.3.3 It was recalled that during the final phase of WAFS, expected by the end of 2004, each of the two WAFCs would provide wind and temperature forecasts in GRIB format and SIGWX forecasts from FL 250 to FL 630 in BUFR-coded format. Those forecasts would be combined into two global files that would be available on both the ISCS and SADIS broadcasts. Wind and temperature and SIGWX forecast charts would be produced locally from those data sets since no T.4 charts would be provided by the WAFCs in the final phase. Each Member would need to install the equipment and relevant software and to train staff to be able to receive and use the GRIB and BUFR-coded WAFS data set. The Association noted with interest that the assessment of needs of SADIS users was undertaken to establish a methodology on how to migrate from T.4 charts to BUFR and GRIB-formatted SIGWX and wind and temperature forecasts.

7.3.4 The Association complimented the London WAFc, for achieving, in particular, the computer generation of high-level SIGWX forecasts in BUFR-coded format for all ICAO standard areas and for the positive results obtained from the series of trials conducted for the transmission of the forecasts in BUFR code. It noted the addition of two extra aviation WAFS model runs per day to the WAFS satellite broadcasts and the broadcast of GRIB relative humidity fields up to 500 hPa to meet aviation operational requirements.

7.3.5 The Association was pleased to note that following the hand-over of responsibility of all European RAFCs to the London WAFc in 1997, all RAFCs would have transferred their responsibilities to London and Washington WAFCs by July 2002. However, a Member

expressed the need for operating regional area forecast centres to meet national requirements. The ICAO observer indicated that such centres could indeed be operated by Members to meet national needs but there was no stated aeronautical requirement for such centres and that under no circumstances could they be part of WAFS. The Association noted that the two WAFCs had improved backup procedures to ensure the continued global availability of aviation data and products to users in case of a WAFc failure.

7.3.6 The Association was grateful to the Met Office for having conducted jointly with WMO during the intersessional period four annual Seminars on the Application and Interpretation of NWP Products in Aviation which were attended by operational forecasters from Europe, Africa, the Middle East and Asia. The Association thanked the Czech Republic and France for having kindly hosted, respectively, the WMO Seminar on Public Weather Forecasting and WAFS Products held in Prague in June 1998, and the Workshop on Volcanic Ash, in Toulouse in May 1998. The Association noted with appreciation the kind offer by *Météo-France* to host a second Workshop on Volcanic Ash that would be organized by WMO in collaboration with ICAO during 2003. The Association was pleased to note the information provided by the ICAO observer at the session about the planned convening of a cost-recovery workshop focused on aeronautical meteorological service in the eastern part of the European Region to be organized in 2003 by ICAO in coordination with WMO.

7.3.7 The Association noted with satisfaction the development of various amendment proposals to ICAO Annex 3/WMO Technical Regulation [C.3.1] in close cooperation with ICAO and relevant CBS and CIMO bodies. Those proposals were included in Amendments 71 and 72 that became applicable respectively on 5 November 1998 and 1 November 2001. It noted with interest the introduction of quality assurance in the WMO *Technical Regulations* (WMO-No. 49) and welcomed the establishment of a PROMET Subgroup in October 2001 tasked to study that issue and to present a report to the next CAeM session in September 2002.

7.3.8 The Association was informed that, in line with the decision of CAeM, the CAeM TREND and PROMET Working Groups that met, respectively, in October 2000 and 2001, discussed progress so far achieved in TAF verification. Both Groups asked the Expert Group on Task Verification to continue its work with a view to presenting a report to the next session of CAeM in 2002. The Association noted with interest the proposal for developing a single internationally-agreed method that would be tested by two pilot projects on TAF verification. The Association was pleased that France would take the lead in conducting one of those projects with the participation of six other European Members.

7.3.9 A Member reported that the introduction of automated observing systems at aerodromes led to improved services to aviation by providing meteorological observation when and where economic constraints

did not allow the presence of human observers. In that respect, the Association was informed that, at the last CAeM session in 1999, ICAO offered to take the lead in addressing that issue in close collaboration with WMO because of the need to define first the aeronautical requirements for such systems. As a result of that, ICAO had established AMOSSG, which met three times with the active participation of WMO between 2000 and 2002 to address among other issues, automated observing systems at aerodromes. The Association was also informed that the PROMET meeting held in 2001 noted a report on progress achieved by AMOSSG in identifying aeronautical requirements as well as the operational experience of Members in using those automated systems and their related observation coding practices. Although PROMET recognized that work was still needed to ensure that existing automated observing systems fully met aeronautical requirements, those systems were reported to have undeniable advantages in terms of performance, continuity and uniformity of measurements which made them very useful when continuous human presence was not possible. It was indicated that the results of the work of AMOSSG would be presented at the next Conjoint CAeM/Meteorology Divisional Meeting (Montreal, 9–27 September 2002). In view of the importance of the issues that would be addressed, European Members were urged to participate actively at that meeting.

7.3.10 The Association noted with appreciation the large volume of training material related to aeronautical meteorology available in the Aeronautical Meteorology Programme redesigned Web site and the effort made in providing guidance material to help the training process. The material included, in particular, the *Guide on Aeronautical Meteorological Services Cost Recovery: Principles and Guidance* (WMO-No. 904), published and distributed to Members in 1999, the *Methods of Interpreting Numerical Weather Prediction Output for Aeronautical Meteorology* (Technical Note No. 195, WMO-No. 770), updated in 1999, and the *Aerodrome Reports and Forecasts: A User's Handbook to the Codes* (WMO-No. 782), updated and distributed to Members in July 2001. The Association welcomed the distribution to all WMO RMTCs of copies of the booklet developed by the Met Office from the proceedings of the annual United Kingdom/WMO seminars held from 1997 to 2001. Furthermore, the Association noted with interest the work being undertaken to update the *Guide to Practices for Meteorological Offices Serving Aviation* (WMO-No. 732) and to prepare a booklet on the impact of aviation on the environment.

7.3.11 The Association recognized the positive role played by the AMDAR Panel in enhancing the upper-air component of the WWW GOS. The Association was pleased to note that Messrs A. T. F. Grooters (Netherlands) and J. Dibbern (Germany) were, respectively, the chairpersons of the AMDAR Panel and the ASDAR Subgroup of the AMDAR Panel. An AMDAR Trust Fund was established to assist with the work of the Panel and was reliant on voluntary contributions from Panel

members. A Technical Coordinator appointed to help facilitate the work of the Panel started his work in April 1999 kindly hosted by the Met Office and a consultant was hired in April 2000 to address the important issue of data exchange and quality control. The Association noted with satisfaction that over 130 000 AMDAR observations per day were being exchanged currently over the GTS, representing over 2.5-fold increase in AMDAR reports compared to 1998.

7.3.12 The Association was pleased to note that national AMDAR programmes in Europe had become a very successful coordinated regional programme under EUMETNET, known as E-AMDAR. Developed to avoid the duplication of efforts and wasted resources, the E-AMDAR programme had become a cost-effective programme that met regional and national requirements. The Association noted with interest that the Russian Federation was keen to develop an AMDAR programme that could cover some of the larger upper-air data-sparse areas in the Region. The Association further noted with interest that an AMDAR *Reference Manual* that contained a description of AMDAR systems, observation requirements, the science behind the measurements, discussions on error sources, downlink message details, communication systems, ground-based processing, coding for the GTS, data management, quality control and system performance monitoring had been prepared. The Association was pleased that that *Manual* was approved by the AMDAR Panel in September 2001 and would be published in the near future.

7.3.13 The Association concurred with the fifty-third session of the Executive Council that a synergy should be developed between the WMO AMDAR and E-AMDAR programmes to achieve enhanced efficiency of AMDAR activities. The Association further concurred with the appeal by the Council to Members already contributing to the AMDAR Trust Fund to continue to contribute to the Fund and strongly urged others to do the same to ensure that the current AMDAR technical support continued to be available.

7.3.14 The Association noted with concern the request by IATA to the ICAO Conference on the Economics of Airports and Air Navigation Services, held in June 2000, to limit cost recovery to services and facilities exclusively serving aviation, therefore excluding core meteorological services. Many Members from the Region that participated at that ICAO Conference actively supported the WMO position that existing ICAO guidance on cost recovery setting out policy with regard to meteorological cost recovery should be retained. The Association noted with satisfaction that the WMO position was endorsed by the Conference. The Association encouraged Members to cooperate with IATA and the airlines in establishing consultation processes that would enable discussions of both the quality of the services provided to aviation and the transparency of meteorological costs. Noting that ICAO had reactivated the Panel tasked to review the current guidance on cost recovery for air navigation services, the Association invited European members of the Panel and the WMO

Secretariat to collaborate to address future proposed amendments to the current material.

7.3.15 The Association was informed that there were some indications that the issue of the provision of air navigation services, including aeronautical meteorological services, and rules related to the manner in which those services would be delivered within the European Economic Area could be re-examined. Recommendations and proposals of future air navigation systems and the provision of aeronautical meteorological services should be developed in close consultation with the NMHSs of Region VI. The production and provision of meteorological information by NMHSs in accordance with WMO and ICAO regulatory documents were currently being defined as public duties. Due to technical, meteorological and economic reasons, aeronautical meteorology was usually an integral part of the activities of NMHSs. The future concept proposed by the European Union for providing regulatory meteorological service to aviation should remain a matter solely for States to decide and should be regarded as equally important as air traffic services, and should include consideration of best value for money for users. It was pointed out that that would have an impact not only on cost recovery but also on the role and responsibility of the Meteorological Authority as currently defined by ICAO.

7.3.16 The Association noted with satisfaction the joint ICAO/WMO letter sent in September 2000 to ICAO Contracting States and WMO Members asking for enhanced cooperation at the national level to ensure that the provision of aeronautical meteorological services continued to contribute effectively towards the safety, regularity and efficiency of international air navigation. The Association was pleased to note that a WMO letter sent to IATA in December 2000 resulted in the establishment of focal points by the two Organizations tasked with addressing relevant issues of concern to either party, in particular the recovery of costs from the airline industry.

7.3.17 In view of the vital importance of the Aeronautical Meteorology Programme for the Region, the Association decided to appoint Rapporteurs on Regional Aspects of the Aeronautical Meteorology Programme and adopted [Resolution 14 \(XIII-RA VI\)](#).

7.4 MARINE METEOROLOGY AND ASSOCIATED OCEANOGRAPHIC ACTIVITIES PROGRAMME (agenda item 7.4)

7.4.1 The Association noted with interest that Thirteenth Congress had approved the Marine Meteorology and Associated Oceanographic Activities Programme as part of the 5LTP. That Programme provided overall objectives as well as detailed guidelines for Members, Regional Associations and WMO in that field. The Association further noted with interest that Congress had approved the establishment, primarily through the merger of the former CMM and the Joint IOC/WMO Committee for IGOSS, of the new JCOMM. JCOMM had subsequently also received the formal approval of the twentieth Assembly of the IOC (Paris,

July 1999). The first session of JCOMM took place in Akureyri, Iceland on 19–29 June 2001. As agreed by Congress and the Assembly, and confirmed during the session, JCOMM was now the coordinating and reporting body for all operational marine activities of WMO and IOC and the primary implementation mechanism for an ocean observing system for climate in support of GOOS and GCOS. The Association recognized the potential importance of JCOMM to its Members and to WMO, noted that delegates from a number of countries in RA VI had participated in JCOMM-I, and offered its strong and ongoing support. The Association expressed its appreciation for the excellent cooperation that existed between WMO and IOC, manifest through JCOMM, and stressed the value of the Commission in encouraging and assisting cooperation and joint activities at the national level between meteorological and oceanographic agencies. Further specific action in that regard was recorded in the paragraph below.

7.4.2 With regard to the implementation of marine meteorological services, specifically in Region VI, the Association noted with appreciation the report of the Rapporteur on Regional Marine Meteorological Services, Mr M. Weiss (Israel). Actions taken on various points raised in the report were recorded in the paragraphs below. The Association agreed that the further development of marine meteorological and oceanographic services and marine observing systems in the Region, particularly in the light of the opinions of Thirteenth Congress on the matter, should be an ongoing activity. It also agreed on the need to maintain close liaison with JCOMM. It therefore decided to re-appoint a rapporteur and adopted [Resolution 15 \(XIII-RA VI\)](#).

SYSTEMS FOR MARINE OBSERVATIONS AND DATA COLLECTION

7.4.3 The Association shared the view of Thirteenth Congress that the development and implementation of GOOS was of considerable importance to WMO and to NMSS, in view of the need for enhanced ocean data to support meteorological and oceanographic services and global climate studies, and also because of their existing experience and facilities in that field. It recognized that a major initial task for JCOMM would be the implementation, international coordination and regulation of an operational ocean observing system for climate, in support of GOOS and GCOS. For that task, JCOMM would require the enhanced, active support of all maritime Members. The Association therefore adopted [Resolution 16 \(XIII-RA VI\)](#) on the subject.

7.4.4 The Association shared the view of JCOMM-I that coordinated physical, biological and chemical measurements of the ocean and atmosphere were needed to obtain a comprehensive view of the behaviour of coastal seas and their responses to natural and anthropogenic forcing, in support of sustainable development. JCOMM-I also recognized that virtually all marine data users were now requiring highly integrated data streams including meteorological and oceanographic, physical and non-physical data. The Association noted with interest that JCOMM would assess the

requirements for implementation of non-physical measurements and work to prepare for, and contribute to, implementation of the coastal component of GOOS, considering, as appropriate, the inclusion of required non-physical measurements, products and services in JCOMM activities.

7.4.5 The Association noted with interest the work already under way to implement the VOSclim Project to provide high quality marine meteorological data and associated metadata, to serve as a reference data set to support global climate studies. It agreed that high quality marine meteorological data, as well as a good observational infrastructure, were of paramount importance to global climate studies, and therefore strongly endorsed that important project. The Association also noted that WRAP had been initiated to provide much needed upper-air sounding data from the Southern Ocean in particular. The first WRAP voyage began in April 2000, with support from Australia, the United Kingdom, the United States and EUMETNET. In addition, two new ASAP lines in the Mediterranean and North Atlantic had been initiated through the EUMETNET ASAP project, while Spain was also operating a new ASAP line in the North Atlantic. The Association expressed its appreciation to those of its Members participating, for their valuable contribution to those important projects. The Association further recognized the valuable contribution being made to global and regional data buoy observation programmes, including EUCOS, through the work of EGOS, an action group of the DBCP.

7.4.6 The Association agreed that the VOS scheme, SOOP, ASAP, GLOSS, ocean data buoys and oceanographic satellites formed key components of both existing and future ocean observing systems. They would be coordinated under JCOMM and would contribute directly to GOOS and GCOS. It therefore agreed on the importance of continued support by Members of the Association for those activities. The Association in particular urged its Members to:

- (a) Recruit more ships to the VOS scheme, improve data quality and timeliness, strengthen their PMO networks and participate, where possible, in the VOSclim Project;
- (b) Participate whenever possible in the implementation and long-term maintenance of the operational SOOP plan;
- (c) Participate in, and support, the implementation of the ASAP programme including WRAP and E-ASAP, and the work of the ASAP Panel, wherever possible;
- (d) Develop and operate drifting buoy programmes in data-sparse ocean areas and participate in the work of the DBCP and its regional action groups such as EGOS and ISABP.

7.4.7 The Association endorsed the establishment of a JCOMM in situ Observing Platform Support Centre based initially upon the existing DBCP, SOOP and Argo international coordination mechanisms. It urged Members of the Association to commit the resources required to support that important centre.

7.4.8 The Association noted that the satellite system of the International Mobile Satellite Organization (Inmarsat Ltd.), as well as being a key element in the GMDSS and, thus, in the new WMO marine broadcast system, was also now the primary means for transmitting meteorological and oceanographic reports from the VOS, SOOP and ASAP ships from ship to shore. The Association agreed that continuing efforts were required to ensure that the most efficient and cost-effective use was made of Inmarsat, for the benefit of all Members. It therefore decided to keep in force Resolution 11 (XI-RA VI) — Use of Inmarsat for the collection of ships' meteorological and oceanographic reports, on the subject.

7.4.9 The Association noted and endorsed the support of Congress and the Executive Council for the new Argo project to implement a global network of autonomous, sub-surface, profiling ocean floats and to provide temperature and salinity profiles of vital importance to climate monitoring and prediction. In that context, it recognized that Argo constituted a component of the WCRP, GOOS and GCOS, and that it would also become part of an integrated operational ocean observing system coordinated and regulated through JCOMM. The Association noted with approval the efforts being made, jointly by WMO and IOC, to inform Members/Member States of Argo float deployments, to facilitate access to Argo data (which would be freely available in real time on the GTS) and information, and to facilitate participation in the project. It agreed that an effective way of implementing those actions, as well as of addressing technical aspects of data distribution and of assisting in the integration of Argo with other ocean observation networks, would be through the Argo technical coordinator, who worked in close collaboration with the DBCP/SOOP coordinator. In particular, the Argo Information Centre, operated by the Argo coordinator and an integral part of the JCOMM in situ Observing Platform Support Centre, was specifically responding to the requirement, expressed by the IOC Assembly in 1999, that coastal States should be given prior notification of Argo floats which might drift into exclusive economic zones or territorial waters, in conformity with the requirements of the United Nations Convention on the Law of the Sea. More generally, IOC was addressing the overall question of routine ocean monitoring in exclusive economic zones, within the context of the United Nations Convention on the Law of the Sea, through its Advisory Body of Experts on the Law of the Sea, work to which WMO was contributing as appropriate. The Association recalled that an Argo Atlantic Implementation Meeting had taken place in Paris in July 2000, at the invitation of the French Research Institute for Exploitation of the Sea. In addition, two meetings dealing with data management were held in Brest, France in October 2000 and in October 2001; the second one was also the first session of the newly established Argo Data Management Subcommittee. The Association expressed its appreciation to all its Members either currently or planning to

contribute to Argo, including Denmark, France, Germany, the Russian Federation, Spain and the United Kingdom.

7.4.10 The Commission noted that EuroROSE was a project which had been undertaken by a consortium of six European institutions in four countries to develop operational tools for ocean analysis and forecasting in support of coastal marine operations and construction and the protection of the marine environment. The project was centred around two operational field experiments, the first in collaboration with the VTS Centre on Fedje Island, near Bergen, Norway (mid-February to end-March 2000), and the second with the VTS Centre near Gijon in northern Spain (mid-October 2000 to end-March 2001). Both experiments clearly demonstrated that the assimilated observational data greatly enhanced model performance and output quality and that the operational products were increasingly accepted and relied on by the VTS operators and ship pilots. The Association recognized that the success of that project could lead to important commercial, integrated ocean systems development and operational spin-offs within Europe. It agreed that it was essential that all maritime Members should be kept informed of the results of the project and of the potential for application in other parts of the world of the tools which it had developed and tested.

MARINE METEOROLOGICAL AND OCEANOGRAPHIC SERVICES

7.4.11 The Association noted that the new WMO marine broadcast system under the GMDSS (forming a part of the International Convention for the Safety of Life at Sea) had been fully implemented, as planned, on 1 February 1999. In particular, the Association noted with satisfaction that meteorological services through SafetyNET for the three Metareas covering the Region were operational, and expressed its considerable appreciation to all the NMSs concerned (France, Greece and the United Kingdom). At the same time, it recognized the need to review continually those services, including in particular the views of users, and therefore urged Members in the Region operating VOS to participate actively in the various marine meteorological services monitoring exercises being undertaken. In that connection, the Association noted with appreciation that the first session of the JCOMM Expert Team on Maritime Safety Services would take place in Lisbon in September 2002, hosted by the NMS of Portugal.

7.4.12 The Association noted with interest and appreciation a report presented on the successful work undertaken by France, Morocco, Portugal and Spain, coordinated by *Météo-France*, to develop a common set of forecast sub-areas within Metarea II. Consequent on that work within Metarea II, the United Kingdom had also slightly adjusted its sub-areas within Metarea I. The Association noted that the new marine forecast areas in Metarea II had been used in operational forecasts since 4 February 2002 at 1200 UTC. The Association expressed its appreciation to all concerned for the success of that difficult but essential work, and adopted [Resolution 17](#)

(XIII-RA VI) on the subject. The Association also noted that new marine sub-areas within Metarea III (W) had been used in operational forecasts since 1992 for France, 1997 for Morocco, October 1998 for Spain. It recognized that that work should also be formally agreed and reflected in the relevant WMO publications. The Association therefore adopted [Resolution 18 \(XIII-RA VI\)](#). In doing so, it recognized that a similar harmonization might also be required in other Metareas, including in Metarea III (E). It therefore recommended to the Issuing Services concerned to review the situation and to endeavour to coordinate the work necessary to effect such harmonization, as appropriate.

7.4.13 The Association noted that a system for the international coordination of meteorological broadcasts for the Baltic Sea region through the international NAVTEX service had been developed by the Rapporteur on NAVTEX Services in the Baltic Sea Region, Mr M. Ziemiński (Poland), and his contact group of national focal points. The guidelines for the system had been implemented and operated on a trial basis since April 1998. On the basis of those trials, the guidelines were now in the process of finalization. The Association noted that the first session of JCOMM had agreed that, once the guidelines had been approved by the Permanent Representatives of the countries concerned, they should be included in Volume II of the *Manual on Marine Meteorological Services* (WMO-No. 558). The Association congratulated and expressed its considerable appreciation for all concerned in that project, especially the Rapporteur, for the difficult and detailed work which they had so successfully accomplished, which would be of great benefit to all maritime users in the Baltic region.

7.4.14 The Association recalled that a globally coordinated MPERSS had been adopted by CMM-XI and, with the approval of the forty-fifth session of the Executive Council, had been implemented on a trial basis as from 1 January 1994. The Association noted that JCOMM-I emphasized that a capability for operational response and the operational delivery of data and products was an essential criteria in the provision of meteorological and oceanographic support to many types of marine environmental protection in coastal waters and regional seas, as it was in high seas areas, and agreed that the MPERSS trials should continue during the coming JCOMM intersessional period. The Association urged Members with agreed responsibilities under the MPERSS to continue to make every effort to contribute to the trials and to report the results of those trials to JCOMM.

7.4.15 The Association noted with appreciation that the MCSS, GDSIDB and GTSP were all being continually developed to meet requirements for various types of marine climate data to support global climate studies, GCOS and the provision of marine services. It therefore urged Members concerned in the Region to participate actively in those projects, which now all formed part of the JCOMM Data Management Programme Area. With regard to the MCSS, the Association expressed its appreciation to Germany and the United Kingdom for their substantial contributions in operating the two Global

Collecting Centres for the system and for preparing an annual report on the operation of the system, which was distributed to Members through the Secretariat. Germany also issued a monthly climate review, based in part on ship observational data collected through the MCSS. The Association further noted with interest and appreciation the CLIWOC project being undertaken jointly by the Netherlands, Spain and the United Kingdom within the framework of the European Union. That project involved the rescue of historical marine climatological data through digitization of ship logbooks from France, the Netherlands, Spain and the United Kingdom for the period 1750–1850. Those data would eventually be a significant historical contribution to COADS.

PROGRAMME-SUPPORT ACTIVITIES

7.4.16 The Association agreed that specialized seminars, workshops and similar events were of considerable value to Members involved in the operation of marine observing systems and in the provision of marine services, and should be continued. It requested its Members to consider the possibilities for hosting such activities in the future.

7.4.17 The Association noted with interest and appreciation the projects now being developed to enhance marine observing systems, communications and services in Lebanon and the Syrian Arab Republic. It recognized the importance of those projects, not just to the countries concerned, but also to the provision of marine services throughout the eastern Mediterranean, and urged other Members of the Association to assist in their implementation wherever possible. In that context, it noted with appreciation the assistance already provided by France to Greece for the development of marine modelling capabilities, as well as the offer by France to extend that assistance to other countries.

7.4.18 The Association noted with interest a proposal to commemorate, in some substantive way, the 150th anniversary, in 2003, of the Brussels Conference of 1853. It recognized that that Conference, which had addressed the standardization of meteorological and oceanographic observations from ships and the provision of meteorological services to shipping in return, had been a significant step in the development of international meteorological coordination and cooperation. It therefore welcomed the decision of the Executive Council that WMO should be directly involved in that important commemorative event. The Association also noted that the Conference might be merged with the proposed second CLIMAR Workshop. It noted with appreciation the offer of Belgium to host the Conference in Brussels.

8. HYDROLOGY AND WATER RESOURCES PROGRAMME — REGIONAL ASPECTS (agenda item 8)

GENERAL

8.1 The Association was pleased to note that, in general, the needs of Members in the Region were

adequately reflected in the priority activities of WMO in hydrology and water resources given in the 5LTP.

8.2 The Association noted with appreciation the report of the chairperson of the Working Group on Hydrology, Mr F. Nobilis (Austria), which was presented to the session on his behalf by Mr K. Hofius (Germany). It noted the progress made in carrying out studies of particular concern to Members through the work of the nine rapporteurs of the Group who had been given specific assignments. In particular, it noted with interest the following reports presented by the rapporteurs on their subjects, which were a good overview of hydrological activities in the Region:

- (a) Hydrological networks, by Messrs A. Snorrason (Iceland) and M. Puupponen (Finland);
- (b) Integration and coupling of hydrological models with water quality models, by Ms B. Arheimer (Sweden);
- (c) GIS applications in hydrology, by Mr J. Fürst (Austria);
- (d) Regional aspects of HOMS, by Mr J. Hladný (Czech Republic);
- (e) Climate and water, by Mr O. Varis (Finland);
- (f) Extreme floods, by Mr H. Engel (Germany);
- (g) Operational hydrological reference basins (OHRB), by Mr M. Spreafico (Switzerland);
- (h) Sediment transport, by Ms Z. Buzás (Hungary).

8.3 The Association also noted the work carried out under the other items of the workplan of the Working Group on Hydrology, namely the joint hydrology liaison group, the World Wide Web and hydrology hypertext links and hydrological data exchange. Good contacts had been established with other European organizations working in the area of hydrology and water resources, such as Euraqua. A Web site on hyperlinks in hydrology for Europe and the wider world had been established and linked to the HWRP Homepage.

8.4 The Association further noted that the Coordination Subgroup for Flood Forecasting and Warning, established at the last session in Tel Aviv in 1998, had carried out a survey on the present status and plans for improvement of flood forecasting and warning system in European countries and formulated recommendations for the improvement of flood forecasting and warning system, at both short and long term. The Association endorsed those recommendations, recognizing that further work on that subject was required and should be based on close cooperation between hydrologists and meteorologists.

8.5 The Association was pleased to note that its Working Group on Hydrology had made significant inputs to the HWRP and that its activities were well coordinated with those of CHy.

8.6 It further noted that, at its ninth session in Berlin (15–20 February 2002), and having considered the needs of the Region in the areas of hydrology and water resources, the Working Group on Hydrology had identified a number of areas where future activities might be undertaken. The Association appreciated the fact that

the session of the Working Group had been conducted in parallel with a meeting of the representatives of UNESCO's International Hydrological Programme National Committees of Electoral Regions I and II, and that the two bodies had met together to discuss matters of common interest. It suggested that consideration be given to coordinating the meetings of those two bodies again in the future.

8.7 On the basis of the recommendations of the Working Group on Hydrology, and taking into account the decisions of Thirteenth Congress and the recommendations of CHy-XI, the Association decided to re-establish the Working Group, open to all the Members of the Region, with a chairperson and vice chairperson. The Association requested its Members to ensure an adequate representation of the NHSs and other institutions working in the field of water. The Association also endorsed the future programme of work proposed by the Working Group, which conformed closely to the SLTP and included it when adopting [Resolution 19 \(XIII-RA VI\)](#). It further recommended that at least one session of the Working Group should be arranged during the intersessional period and that financial assistance be provided by WMO so that the Members could attend that session. If necessary, other meetings of the Working Group could be held during the intersessional period on an informal basis and without financial support from WMO. The Association noted the valuable role that the Working Group might play in assisting Members in the implementation of the European Water Framework Directive.

8.8 In accordance with General Regulation 167, the Association designated its Regional Hydrological Adviser through its [Resolution 19 \(XIII-RA VI\)](#).

8.9 The Association noted that Thirteenth Congress had recognized the increasing pressure being put on the world's limited resources of fresh water and had considered that WMO would have a major long-term role to play in responding to ensuing problems through the HWRP and associated activities.

COMMISSION FOR HYDROLOGY

8.10 The Association was informed that Thirteenth Congress had adopted revised terms of reference for CHy providing for a broader approach to hydrology and water resources problems in the context of socio-economic development and environmental protection.

8.11 The Association was informed of the outcome of CHy-XI. CHy had emphasized that future activities of the HWRP needed to consider more output-oriented objectives. The Commission had also expressed concern that Regional and Subregional Offices, as presently constituted, did not include the hydrological expertise needed to serve the hydrology and water resources communities in the Regions.

8.12 The Association also noted the proposal of CHy to establish national committees which could serve as a platform for hydrological data-collecting agencies to coordinate their activities. Such committees could eventually be followed by the formation of joint committees

with those of UNESCO's International Hydrological Programme to coordinate water-related activities of WMO and UNESCO at the national level.

8.13 The Association noted the number of experts from the Region that were designated as members of CHy working groups.

EXCHANGE OF HYDROLOGICAL DATA

8.14 The meeting was informed that Thirteenth Congress had adopted [Resolution 25 \(Cg-XIII\)](#) — Exchange of hydrological data and products, which was seen as being of particular importance not only for flood protection, but also for low flow regulation and water-resources management. The meeting welcomed the publication of a brochure entitled *Exchanging Hydrological Data and Information: WMO Policy and Practice* (WMO-No. 925) explaining the background and the intent of the resolution and noted that the Commission advised that a mechanism should be established for the systematic sampling of data transfer at the national, regional and international levels to monitor the response to its implementation.

GUIDE TO HYDROLOGICAL PRACTICES (WMO-NO. 168) AND TECHNICAL REGULATIONS (WMO-NO. 49)

8.15 The Association was informed that the fifth edition of the *Guide to Hydrological Practices* (WMO-No. 168) had been published in four languages (English, French, Russian and Spanish) and that it had also been translated into national languages by some Members, notably Germany, Hungary and Italy. It appreciated that a CD-ROM containing the English and French version had been issued in September 2001 and that the preparation of the Russian and Spanish versions in electronic format was under way. The Secretariat was encouraged to consider combining a number of those language versions on one CD-ROM.

8.16 CHy-XI had agreed on the preparation of the sixth edition of the *Guide* and recommended that it should consist of two parts: a first part containing basic and well established methodologies to be updated every five-to-six years and possibly made available for free downloading from the Internet, and a second part containing new and state-of-the-art methodologies, to be released more frequently.

8.17 The Association noted that [Recommendation 3 \(CHy-X\)](#) — Amendments to the *WMO Technical Regulations, Volume III — Hydrology*, had been approved by Thirteenth Congress. The proposals comprised mainly a few new additions and replacement of definitions.

8.18 The Association noted the results of a survey that had been carried out by the Secretariat to assess the use and benefits of the Technical Regulations to the NHSs.

PROGRAMME ON BASIC SYSTEMS IN HYDROLOGY

WATER RESOURCES ASSESSMENT

8.19 The Association noted the continued efforts of the WMO Secretariat to promote the use of the

methodology contained in the WMO/UNESCO *Handbook on Water Resources Assessment: Review of National Capabilities*. The *Handbook* was available in English, French, Spanish and Russian, and also in pdf format freely downloadable from the WMO or UNESCO Web sites. To promote the use of the *Handbook*, WMO had organized a series of regional workshops on that subject, in Regions I, II and V.

DATA RESCUE

8.20 The Association stressed the importance of maintaining comprehensive archives of hydrological data in electronic form for use in water resources and flood management and related climate studies. It noted the success of data rescue projects undertaken in Africa and recommended that consideration be given to launching similar projects for countries in RA VI.

WORLD HYDROLOGICAL CYCLE OBSERVING SYSTEM

8.21 The Association was informed of the continuing progress in the development and implementation of the WHYCOS programme. The Association noted that MED-HYCOS project was scheduled to be terminated in 2001 and that a proposal for a second phase was being submitted for funding to the European Commission. A project proposal for Baltic-HYCOS had been developed and would be submitted for funding to the European Commission to be considered within the Sixth Framework Programme. Other HYCOS projects were under preparation in the Region, for example Danube-HYCOS and Black Sea-HYCOS.

8.22 The Association recognized that efforts should be increased to secure extrabudgetary sources of funding for those projects.

8.23 The Association noted that the WHYCOS coordination mechanism established by the Secretary-General continued to serve as a most valuable vehicle to review the programme activities and to develop future plans.

TECHNOLOGY IN OPERATIONAL HYDROLOGY

8.24 The Association noted with interest that the first phase of updating the *HOMS Reference Manual*, which was initiated in 1998, had culminated in July 2000 when the version 2000 became available online (<http://www.wmo.ch/web/homs/homshome.html>).

8.25 The Association was informed that an International Workshop on HOMS in the Twenty-first Century had been held in September 1999 in Geneva, with the participation of 29 representatives of HOMS National Reference Centres. The Workshop developed an Implementation Plan for HOMS in the twenty-first century, which was then reviewed and adopted by the Steering Committee and distributed to all HOMS National Reference Centres. The Workshop was followed by a meeting on the implementation and coordination of HOMS in RA VI.

8.26 The meeting recognized as a priority the need to replenish the *HOMS Reference Manual* with new contributions in those technical areas identified in the

Implementation Plan for HOMS in the twenty-first century as being the ones where the user community had the greatest need for technology transfer.

PROGRAMME ON FORECASTING AND APPLICATIONS IN HYDROLOGY

HYDROLOGICAL ASPECTS OF DISASTERS

8.27 The Association noted that, within the framework of the GWP, a WMO/GWP Associated Programme on Flood Management — Global Coordination had been launched in August 2001, funded by Japan and the Netherlands and that a project technical support unit had been established in the WMO Headquarters.

HYDROLOGY IN THE CONTEXT OF GLOBAL ENVIRONMENTAL ISSUES

8.28 The Association noted that the Expert Meeting on Global Hydrology Data for Climate, held in Geisenheim, Germany from 26 to 30 June 2000, had proposed the establishment of a global network of networks, in association with GCOS. A subsequent meeting on the subject was held in Koblenz, Germany from 21 to 22 June 2001. That network was currently being developed under the title Global terrestrial network — hydrology to respond to the needs of the climate and hydrology communities. It was being linked with existing data centres and observing programmes such as WHYCOS, GRDC, GPCC and FRIEND, and potentially with IGRAC (see general summary paragraph 8.30).

8.29 The Association was advised that WMO and UNESCO had convened the first meeting of the restructured WCP-Water Steering Committee in Geneva from 23 to 25 October 2000. It had revised the programme objective and identified priority areas for future action. That was seen as an important development in strengthening collaboration between the hydrological and climatological communities, in particular with the aim of providing the water community with relevant climatological information.

8.30 The Association was informed of the proposal emanating from WMO and UNESCO to establish IGRAC. CHy-XI had recognized the role of WMO in that project and had endorsed it, requesting the Secretary-General to cooperate with the Director General of UNESCO in facilitating the establishment of such a Centre. IGRAC was expected to be formally established in the near future. The Netherlands had expressed interest in hosting the Centre. The Association welcomed the steps being taken by Russia to establish a Global Data Centre on Lakes and Reservoirs in the State Hydrological Institute in St Petersburg. That Centre would complement the existing data centres on fresh water, such as GRDC.

PROGRAMMES ON SUSTAINABLE DEVELOPMENT OF WATER RESOURCES AND ON CAPACITY BUILDING IN HYDROLOGY AND WATER RESOURCES

8.31 The Association noted that budget provisions to implement activities under both the Programme on

Sustainable Development of Water Resources and the Programme on Capacity Building in Hydrology and Water Resources were very limited. Accordingly, the Association encouraged the WMO Secretariat to investigate ways of augmenting the present budget including extrabudgetary sources of funds.

8.32 The Association noted that plans had been laid to hold a conference on computer-aided learning in the field of hydrology and water resources, based on proposals of the CHy Advisory Working Group and discussions at the most recent session of the Executive Council Panel of Experts on Education and Training.

8.33 The above-mentioned Executive Council Panel had established an Editorial Task Force on Hydrology to provide input in the preparation of the fourth edition of the *Guidelines for the Education and Training of Personnel in Meteorology and Operational Hydrology* (WMO-No. 258), Volume II — Hydrology.

PROGRAMME ON WATER-RELATED ISSUES

8.34 It was recorded that the ACC Subcommittee on Water Resources had met in October 2000 and September 2001, on both occasions with WMO in the chair. Attention had concentrated on the preparation of the first edition of the *World Water Development Report* which would be the major preoccupation of a World Water Assessment Programme, the Secretariat of which was hosted and funded by UNESCO from extrabudgetary sources.

8.35 It was noted that Germany had convened a very successful International Conference on Freshwater in Bonn from 3 to 7 December 2001 with the purpose of developing recommendations for action for submission to the World Summit on Sustainable Development. A preliminary draft of the *World Water Development Report* had been presented to the Conference.

8.36 The Association noted that WMO maintained its membership in the World Water Council and its Board of Governors under whose auspices the third World Water Forum would be held in March 2003.

8.37 In October 2001, WMO co-convened with IAEA the third meeting of the Scientific Steering Committee for the Global Network of Isotopes in Precipitation which was developing new links with the climate community based on recent research findings.

8.38 The Association reviewed in particular the cooperation of WMO with UNESCO on matters concerning fresh water. It noted that that focused on activities in water resources assessment, the preparation of the *International Glossary of Hydrology*, WCP-Water, and education and training in hydrology and water resources. The Association was informed of the outcome of the fifth UNESCO/WMO International Conference on Hydrology, held in Geneva in February 1999.

8.39 The Council was informed that WMO continued to co-sponsor relevant scientific meetings of non-governmental organizations and that it had co-sponsored the IAHS Sixth Scientific Assembly, held in July 2001 in Maastricht, Netherlands.

8.40 The Association also noted that WMO had maintained its long-standing cooperation with IAHS and ISO and that it had recently strengthened its links with IAHR.

9. EDUCATION AND TRAINING PROGRAMME — REGIONAL ASPECTS (agenda item 9)

GENERAL

9.1 The Association examined the information on the implementation of the Education and Training Programme in the Region since its last session. In noting with appreciation the progress achieved and the assistance provided to Members in developing their trained manpower resources, the Association stressed that education and training activities were fundamental for the success of all WMO Programmes.

9.2 The Association was pleased to note Subchapter 6.6 — Education and Training Programme of the *Fifth WMO Long-term Plan (2000–2009)* (WMO-No. 908) as adopted by Thirteenth Congress and urged its Members to ensure that all necessary actions were taken to meet the objectives of the *Plan*.

EXECUTIVE COUNCIL PANEL OF EXPERTS ON EDUCATION AND TRAINING

9.3 The Association noted the views and recommendations of the Executive Council Panel of Experts on Education and Training on the activities of the WMO regional associations in education and training. It also noted the Panel's views on the need to strengthen the communication between the Secretariat/Panel and the technical commissions and regional associations, in particular through the identification of education and training priorities in their specific areas of responsibility.

HUMAN RESOURCES DEVELOPMENT

9.4 The Association reaffirmed the importance of the human resources development programme in assisting the Secretariat and NMHSs, particularly in developing countries, to plan and mobilize the financial and other resources to meet Members' training needs. With respect to the global survey of Members' training requirements planned for 2002, the Association expressed the hope that an active participation of Members in the next survey of training requirements would allow a proper assessment of regional training needs and would be a basis for modifications and improvements in the Education and Training Programme. The Association recommended that the requirements of Members in new subject areas and technologies should be properly identified.

9.5 The Association felt that there was a need for the cooperation and coordination of education and training activities in the Region to meet better the expressed requirements and to use available capabilities effectively.

TRAINING ACTIVITIES

9.6 The Association noted that since its last session, 11 training events covering a wide range of subject areas of its interest, were organized by WMO and held in the Region. It also noted that its Members benefited from other training events organized and hosted by national or international institutions, with WMO acting as co-sponsor or providing partial financial support.

9.7 The Association noted with satisfaction that the quadrennial WMO Symposium on Continuing Education and Training in Meteorology and Operational Hydrology was successfully held in Tehran, Islamic Republic of Iran in November 1999. The Association agreed that the recommendations of the Symposium were of considerable value as a guide to Members in their efforts to strengthen their human resources by improving the staff's skills and knowledge through continuing education and training.

9.8 The Association expressed its gratitude to those of its Members, as well as to Members from other Regions, which had made their national training facilities available for the training of meteorological and operational hydrological personnel of RA VI. The Association invited its Members to participate actively in the provision of training services to Members from other Regions and to WMO RMTCs.

9.9 The Association was pleased to note the offer of Spain to host the next WMO Symposium on New Perspectives of Education and Training in Meteorology and Hydrology in Madrid in April 2003 and encouraged its Members to participate in such an important training event. The Association also noted with satisfaction the offer from the United Kingdom to make available quality management training (ISO 9000) in the near future.

9.10 The Association noted with appreciation the activities of SCHOTI, in particular, the Seventh International Conference on Computer-aided Learning and Distance Learning in Meteorology, held in Brazil from 1 to 18 July 2001, organized by the SCHOTI Working Group on computer-aided learning. The Association noted with appreciation that the fifth meeting of SCHOTI endorsed the creation of a new working group to assist and promote the initiation of a Web-based network that would link the WMO RMTCs and other training institutions together.

9.11 The Association also noted that the meeting of Directors of WMO RMTCs had nominated a representative and an alternate to serve as a member of the Coordinating Committee of SCHOTI.

9.12 The Association noted with satisfaction the information on the activities of the Training Library and the use made of its services by the Members. It also appreciated the continuous updating of the Virtual Training Library in an effort to provide the latest and most suitable available training material through Internet and recommended that those actions should be encouraged and continued.

REGIONAL METEOROLOGICAL TRAINING CENTRES

9.13 The Association was pleased to note that following the recommendation of the previous session of

the Association, the fifty-first session of the Executive Council recognized the training facilities of the Anatolian Meteorological Technical High School located in Ankara, Turkey, as a WMO RMTC.

9.14 The Association noted with appreciation that WMO RMTCs in RA VI were, in general, functioning satisfactorily and contributed significantly to the training of personnel from the Region as well as from other Regions. In urging its Members to make the maximum use of the training programmes offered by the RMTCs, the Association agreed with the need, stressed by Thirteenth Congress, for more emphasis to be placed by RMTCs on regional training requirements for specialized courses in various subject areas. In that connection, Members were requested to assist RMTCs in organizing courses, using such ways and means as the provision of instructors for short-term assignments, the provision of relevant training materials and other sorts of assistance under bilateral or multilateral arrangements.

9.15 The Association was pleased to note that a meeting of Directors of WMO RMTCs had been held on 11 November 1999 in Tehran, Islamic Republic of Iran. The Association encouraged Members to strengthen the interaction both among RMTCs and with other training and educational centres, particularly from advanced countries, to bridge the present scientific and technological gap. The Association endorsed the establishment and maintenance of the RMTC's Web pages on the Internet and requested Members to explore eventual external support for the provision of hardware and software to establish such Internet connections.

NEW WMO CLASSIFICATION OF METEOROLOGICAL AND HYDROLOGICAL PERSONNEL

9.16 The Association noted that Thirteenth Congress endorsed the new classification and agreed that its actual implementation should be gradual, recognizing that some Members might require a longer transition period, but that it should not exceed four years.

9.17 The Association noted the release of the new edition of the *Guidelines for the Education and Training of Personnel in Meteorology and Operational Hydrology* (WMO-No. 258), Volume I — Meteorology. It also noted that Volume II — Hydrology, was under way and that it was expected to be reviewed and prepared for distribution by the end of 2002.

EDUCATION AND TRAINING FELLOWSHIPS

9.18 The Association noted with appreciation the generous contributions of several VCP donor Members in the Region who continued to provide VCP fellowships to the satisfaction of all concerned. The Association appealed to the traditional VCP Members in the Region to increase their VCP contributions to the fellowship programme and solicited other Member countries in the Region who had not contributed to the VCP fellowship programme to do so.

9.19 The Association noted the emerging new needs for education and training in the fields of satellite meteorology, information technology, new communication

systems, computer technology and modern data-processing systems, as well as in other fields such as management, in particular for personnel from countries in the Region with economies in transition. It urged donor Members in the Region to arrange for relevant training at all levels, giving emphasis to graduate and post-graduate levels, to enable such personnel to utilize more effectively the new technologies in those specialized fields.

9.20 The Association noted with appreciation the cost-sharing tripartite arrangements for optimizing the use of limited VCP and regular budget fellowship resources where the host country would waive or meet tuition fees, the beneficiary country would meet the cost of international travel of its candidates and WMO and VCP donors would meet the stipend or living expenses of the fellows concerned. The Association considered those arrangements cost-effective and requested the Secretary-General to continue to promote further the implementation of those arrangements for the benefit of all concerned.

9.21 The Association noted with satisfaction that the Secretary-General had approached several new potential donors and international development funding agencies soliciting voluntary contributions for the fellowship programme and requested the Secretary-General to continue his efforts to increase the traditional fellowships financial resources by tapping extrabudgetary resources and new potential sources of funding for the fellowships programme.

10. TECHNICAL COOPERATION PROGRAMME — REGIONAL ASPECTS (agenda item 10)

GENERAL

10.1 The Association noted with satisfaction the assistance provided to NMHSs of countries in the Region. During the period 1998–2001, WMO continued developing initiatives and projects responding to national and regional requirements of NMHSs of RA VI countries. The Association expressed its appreciation to RA VI donor Members and agencies that had contributed to the funding of technical cooperation activities in the Region.

10.2 The Association noted that WMO continued the promotion of technical cooperation activities with RA VI Members, taking into account the new global context, including policies and procedures of funding agencies, the increased requirements of NMHSs, as well as areas in which WMO had unique experience and advantages. Several innovative approaches for the mobilization of resources for the Programme had been developed, including:

- (a) Agreements between WMO and development banks;
- (b) The promotion of trust fund projects;
- (c) The establishment of systematic contacts with development agencies; and
- (d) Enhancement of relationships with UNDP and other United Nations agencies.

10.3 The Association noted with satisfaction that a Memorandum of Understanding was concluded between the World Bank and the Organization. The main objective of the Memorandum of Understanding was to strengthen cooperation in areas of common interest between the two institutions, particularly natural disaster prevention and mitigation, climate change and water resources management. The development and implementation of joint projects were initiated and followed up through the WMO liaison mechanisms established for that purpose. The Association also noted that WMO was negotiating similar arrangements with the European Commission to strengthen collaboration and develop joint initiatives and projects in the areas of natural disaster prevention and mitigation, climate change, water resources management and others. The cooperation with the European Commission would lead to the development of a portfolio of projects, as well as other activities of mutual interest to the European Commission and to WMO. The Association encouraged Members to participate in national and regional initiatives related to funded programmes of the European Commission.

10.4 The Association welcomed WMO's continued efforts to assist the NMHSs and Governments through coordinated efforts from the Secretariat, in the mobilization of resources for the development of meteorological and hydrological services in support of various economic and social sectors. The Association also noted that 13 Members received assistance in the development of new projects in support of national and regional meteorological and hydrological projects. In that context, the Association encouraged Members to provide information to WMO, on a regular basis, on planned and ongoing bilateral or multilateral projects concerning NMHSs in the Region, thus allowing the Secretariat to assist donors and recipients in coordinating their efforts.

ASSISTANCE PROVIDED DURING THE PERIOD 1998–2001

10.5 The Association noted with satisfaction that a number of regional initiatives had been developed and were now either being finalized or under consideration by respective countries and/or the European donor community. The Association requested the Secretary-General to assist Members in securing the required resources in order to enable the implementation of the projects proposal as early as possible. The following were among the projects implemented or under proposal:

- (a) Through trust fund arrangements, the Czech Republic was financing annually a project for assistance in meteorology, hydrology and air pollution for countries in transition, countries of the Commonwealth of Independent States and African countries. WMO and the Swiss Agency for Development and Cooperation implemented a project for the provision of low cost, low resolution satellite data receivers to countries with economies in transition including Armenia, Azerbaijan, Estonia, Georgia, the Republic of Moldova, Romania

- and the Ukraine. That project was terminated by the training session provided to each participating country;
- (b) Within the framework of the MED-HYCOS project, 31 data collection platforms for 13 countries were purchased for the project and training was provided to experts from the participating countries on its operation and maintenance. The Baltic-HYCOS was implemented on an autonomous basis. The Danube and Black Sea-HYCOS were under the project proposal phase;
 - (c) The Integrated Programme on Hydrometeorology and Monitoring of Environment in the Caspian Sea Region (CASPAS): That programme, with the participation of Azerbaijan, the Islamic Republic of Iran, Kazakhstan, the Russian Federation and Turkmenistan, would provide a cooperation mechanism for the development of a strategy in hydrometeorology and monitoring of the environment in the Caspian Sea region. The sixth session of CASPCOM decided to conclude a Memorandum of Understanding between CASPCOM and WMO, and CASPCOM and the Caspian Environment Programme; the CASPCOM Secretariat was presently, on a rotational basis, located in Teheran. WMO submitted to the European Union and other interested donors the Integrated Project for a Monitoring and Information System in the Caspian Sea Region prepared by CASPCOM, Italy and WMO;
 - (d) Following the initiative of several European and Asian countries to create a new transport corridor between Europe-Caucasus-Asia (TRACECA), Members of WMO involved in the project prepared, with the assistance of WMO, a draft project proposal for the provision of specialized hydrometeorological services to the proposed transport corridor called HYMES-TRACECA. WMO had been requested to assist Members concerned in organizing and carrying out preparatory activities and in mobilizing resources for that project. A booklet entitled *Operational Provision for the Hydrometeorological Safety of the Transport Corridor Europe-Caucasus-Asia (TRACECA)* (WMO-No. 917) was published to that effect.

10.6 In addition to the above, the Association noted with appreciation that WMO, in collaboration with EUMETSAT, was making efforts to ensure that concerned RA VI Members were in a position to acquire timely satellite ground-receiving facilities compatible with the Meteosat second generation satellite. The Association also noted that EUMETSAT would negotiate with several industrial partners a contractual frame by which Members who so wished would be able to procure by bilateral agreement or through WMO, Meteosat second generation ground-receiving stations for a fixed price. In that respect, the Association encouraged Members who needed assistance, as well as any other Members interested, to make use of the WMO Meteosat second generation-Europe Trust Fund for European countries which had been established for that purpose.

10.7 Within the framework of the WMO VCP, during the period 1998–2001, 78 VCP project requests were submitted by 16 Members of the Association. Fifty-five VCP projects were related to the implementation of the WWW Programme: 11 of them concerned the improvement of the upper-air observing stations, 11 the improvement of the surface observing stations, 26 the enhancement of telecommunication systems, six for the data-processing system and one for satellite-receiving system. Three projects were related to climatological activities, two for aeronautical meteorological activities, three for marine meteorological activities, two for agricultural meteorological services, six were related to GAW activities, and seven for hydrological activities. Thirteen Members received support for a total of 25 VCP projects for equipment during 1998–2001. Of those projects, 15 were completed and 10 were in the process of being implemented. Five supported projects were aimed at strengthening upper-air observing stations, three at strengthening surface observing stations, nine at improving the GTS, two at improving data-processing systems, one at improving climatological activities, two at strengthening hydrological activities, one for marine meteorological activities and one for agricultural meteorology activities. In spite of the support obtained during 1998–2001, 53 valid projects had not received support as of 31 December 2001.

10.8 Annex III to this report shows the fellowships implemented during the period 1998–2001 under VCP funds.

10.9 The Association noted that within the framework of the Secretariat review process, a WMO Secretariat task force on natural disasters, EDRG, was established in August 2000. The terms of reference of EDRG included: to assess preliminary information on the emergency or disaster; to determine the need to assemble an EDRT and, as appropriate, activate an EART, the concept of which was endorsed by the fifty-second session of the Executive Council; and to provide policy advice to EDRT and EART. For a particular disaster or emergency, an EDRT would be assembled with a view to ensuring effective lines of communication to be established between WMO Headquarters, relevant Regional and Subregional Offices, NMHSs and RSMCs for the duration of the event; establishing contact with other relevant agencies and authorities within the United Nations system and other interested parties; arranging for the preparation of bulletins for distribution through NMHSs and Regional Centres; and media interactions.

10.10 The Association noted that the Executive Council agreed that the mission of EART would be to assist the meteorological and hydrological infrastructure restoration process by advising and consulting with the NMHSs, WMO and other organizations. EART would be activated by EDRG established within the WMO Secretariat and would be composed of an EART coordinator, WMO Secretariat representatives, the subregional (or regional) representative closest to the scene of disaster, NMHS focal point in each country, donor representatives, regional organizations and related

experts needed. The Association encouraged Members to participate and to contribute to the Emergency Assistance Fund for the implementation of EART activities for timely and coordinated assistance in response to disasters.

10.11 The Association discussed the future needs of the Region and endorsed its support to the TCO Programme as a high priority programme and as an integral part of the Organization's mandate, which supported the implementation of the scientific and technical programmes. The Association agreed that the future needs in terms of technical cooperation activities could be the regional priorities described in the 6LTP with special emphasis on:

- (a) Maintenance, operations and improvement of the crucial WWW facilities, including the RMDCN facilities;
- (b) The development of climate-related products and services in support of socio-economic activities;
- (c) The enhancement of disaster prevention and preparedness, capabilities of NMHSs;
- (d) The continued development of human resources of NMHSs.

10.12 In that regard, the Association noted with concern the present critical condition of the NMS of Palestine and therefore requested the WMO Secretariat to take all the necessary measures, in cooperation with the partners concerned, to assist in the rehabilitation and development of the meteorological and hydrological facilities as well as in the training and specialization of the staff required.

10.13 The Association recognized that a regional strategic plan needed to be prepared to reflect the actual needs for the development of NMHSs in the Region.

10.14 The Association endorsed the following proposed future actions:

- (a) As recommended by the Executive Council, WMO would develop stronger partnerships with NMHSs for the development and implementation of joint projects and programmes and for resource mobilization from bilateral and multilateral agencies and for further collaboration with the private sector, foundations and non-governmental organizations;
- (b) A more constant and systematic contact with development funding agencies to support requirements made by NMHSs would be developed keeping updated the areas supported by those agencies, as well as the procedures to follow when submitting requests for funding; and countries should send to WMO timely information concerning any technical assistance provided by Members to the NMHSs of the Region through bilateral agreements.

11. INFORMATION AND PUBLIC AFFAIRS PROGRAMME — REGIONAL ASPECTS (agenda item 11)

11.1 The Association recalled that Resolution 22 (Cg-XIII) — Information and Public Affairs Programme, had underlined the need for greater visibility of the Organization and NMHSs. That could be achieved by

giving increased importance to communication aspects in mitigating the devastating impact of extreme weather and climate events and by the establishment of a WMO Global Communication Strategy to guide and enhance the process of making NMHSs and WMO more visible and better appreciated.

11.2 The Association noted with satisfaction the number of public information products developed and distributed to all Members in support of national plans for the celebration of the WMO Fiftieth Anniversary including a message of the Secretary-General, a calendar, a series of posters, a brochure on World Meteorological Day 2001, an information kit containing media briefs on WMO Programmes, a WMO Fiftieth Anniversary video, a WMO radio programme, public service announcement spots and a comprehensive brochure for youngsters. The Association noted with appreciation the contributions of Members of the Region to the celebration of the Fiftieth Anniversary and follow up celebrations of World Meteorological Day 2001 and World Water Day 2001 through the organization of commemorative events and the production of commemorative items.

11.3 The Association took note of the 2001 World Meteorological Day theme "Volunteers for weather, water and climate" and the 2001 World Water Day theme on "Water and health" and their celebration among a large number of NMHSs and at the WMO Secretariat in collaboration with the United Nations Volunteers. The Association noted with appreciation WMO's participation in the ISDR and in the global launch of its campaign on International Day for Disaster Reduction on 17 October 2001. That contributed also to the preparation for the celebration of the 2002 World Meteorological Day with its theme "Reducing vulnerability to weather and climate extremes" and the 2002 World Day for Water theme "Water and development". The Association welcomed the inclusion of WMO media products in the global campaign of the ISDR. The Association noted that the United Nations General Assembly had proclaimed 2002 as the International Year of Mountains and 2003 as the International Year for Fresh Water. The Association took note of the theme for 2003 World Meteorological Day, "Our future climate". The theme for the 2003 World Water Day was "Water for the future" and that for 2004 was "Water and disasters". The Association invited its Members to celebrate those events in a way that would promote the NMHSs and enhance their visibility towards the public, the decision makers and the media. In the celebration of those events, the Association noted that joint efforts with non-governmental bodies had proved to be fruitful and therefore recommended that Members should pursue such cooperation, wherever possible. In addition, the Association noted that the European Climate Assessment Report, which was launched during the session, could serve as an example of how the NMHSs could inform policy makers about the climate of Europe, with emphasis on extreme climate events. That was in line with the theme of 2002 World Meteorological Day.

11.4 The Association welcomed the emphasis on media training to reflect the current trends in climate change, climate variability and other phenomena such as *El Niño/La Niña*, ozone layer depletion and increasing water scarcity. The Association expressed satisfaction with Information and Public Affairs media training efforts such as the organization of media training workshops and requested the Secretary-General, in collaboration with Members and other relevant bodies, to continue to organize similar events in the future.

11.5 The Association noted with appreciation the development of a special WMO Fiftieth Anniversary Web site and Homepage with linkages to the Homepages of Members' NMHSs. The Association further called for the establishment of specific pages on public information activities of the Regions as part of the Information and Public Affairs Homepage and the establishment of direct links to Homepages of Members' NMHSs to the WMO Web site.

11.6 The Association welcomed the initiative taken by the Secretary-General to develop a WMO Secretariat External Communications Strategy. The communication strategy included a comprehensive model plan for action and an outline of guidelines for NMHSs in order to reach maximum synergy between the Secretariat and the Members. The Association noted the WMO vision with the following so-called 'strap-line' "*WMO: bringing the world's communities together in weather, water and climate*" that was meant to ensure the promotion of WMO, the NMHSs and their work through a comprehensive key message to be communicated at a variety of events and activities at all levels.

11.7 The Association noted with appreciation the expressed support for the Information and Public Affairs Programme. In that respect, it welcomed a significant number of replies received from NMHSs of the Region to the questionnaire on the External Communications Strategy. The information submitted on communications policies at the regional and national levels was important for the appropriate formulation of the External Communications Strategy, its model plan of action and its outline of guidelines to ensure a unified communications policy. The Association took note of the draft guidelines for WMO Members (see [Annex IV](#) to this report).

11.8 The Association invited its Members to ensure mutual assistance and support in matters related to public information and communication, including partnerships and constituency-building, resource mobilization and closer cooperation with the media, non-governmental organizations, meteorological and hydrological societies, advocacy groups, academic institutions, parliamentarians, the private sector and corporate foundations and other civil society institutions and public entities. The Association welcomed the collaboration that the Secretariat proposed to initiate among national Meteorological and Hydrological Societies. In particular, the Association invited Members to collaborate with, and take an active part in, the activities of the European Meteorological Society. In that respect, the Association was informed of the ongoing

collaboration between WMO and the Issy-les-Moulineaux Festival in France and the International Association of Broadcast Meteorology.

11.9 In order to enhance WMO's Information and Public Affairs Programme in the Region, the Association requested its Members to strengthen further their cooperation among themselves and with the Secretariat in that area. The Association invited its Members to update their list of Information and Public Affairs Focal Points which served as a useful link with the WMO Secretariat and to provide it with relevant audiovisual and other public information material prepared by them for their own public information activities.

12. LONG-TERM PLANNING — REGIONAL ASPECTS (agenda item 12)

12.1 The Association noted the adoption by Thirteenth Congress of the 5LTP covering the period 2000–2009. It further noted that regional associations, among others, were requested to adhere to the policies and strategies set forth in the Plan and to organize their activities to achieve the main long-term objectives as defined in the Plan.

12.2 The Association expressed its appreciation for the publication of the 5LTP and a separate summary for decision makers which focused on the benefits to countries that would accrue from the successful implementation of the Plan.

12.3 The Association recalled that Thirteenth Congress had decided that the 6LTP should be prepared. In so doing, Thirteenth Congress requested the regional associations:

- (a) To provide a forum for consideration of the Plan and, in particular, to provide an integrated view of their respective activities and priorities within the context of the 6LTP;
- (b) To coordinate, as necessary, national contributions to regional aspects of the Plan.

12.4 The Association also recalled that the Executive Council had established both its Working Group on Long-term Planning to assist it in connection with long-term planning and the Task Team on WMO Structure and that both had reported to the Council.

PREPARATION OF THE 6LTP

VISION, DESIRED OUTCOMES, STRATEGIES/ASSOCIATED STRATEGIC GOALS

12.5 The Association endorsed the view of the Council that the vision, desired outcomes, strategies and associated goals, as well as the programme structure of the 6LTP, provided a suitable framework for the elaboration of the 6LTP. Also, that framework would serve as a clear basis for the programme and budget. The achievement of expected results defined in the programme and budget would contribute to the realization of 6LTP strategies and associated goals. Those established the meaningful link between the 6LTP and the programme and budget. In connection with the desired outcomes, it was suggested to include also a reference to adequate

and sustainable availability of drinking water under “enhanced quality of life”.

REGIONAL AREAS OF CONCERN

12.6 On the basis of the draft 6LTP framework, the Association identified the following as areas of concern of particular interest to the Region:

- (a) Improvement and optimization of the global systems for observing, recording and reporting on the weather, water resources, ocean, climate and the related natural environment in the most effective and efficient manner, including the standardization of techniques for observing data and planning networks on regional basis, with emphasis on:
- (i) The operational implementation of the RBSN Plan and HYCOS;
 - (ii) The promotion of the introduction and performance assessment of appropriate observing technology, taking account of new systems and their suitability;
 - (iii) The full implementation of RMDCN to provide a high level of service throughout the Region;
 - (iv) The development and implementation of end-to-end real-time monitoring of the operation and performance of the WWW and, in particular, of availability and quality of data;
 - (v) Development and implementation of hydrological observing systems for real-time flood forecasting applications and water resources assessments;
 - (vi) The enhancement of an implementation of transition from traditional character data representation and exchange to binary data representation and exchange;
 - (vii) The implementation, where appropriate, of the concepts of joint operation, joint funding and burden sharing in the context of the WWW to assist Members in achieving the most effective and efficient implementation and sustainable operation of WWW system components;
- The above would be in support of Strategy 6 in the draft 6LTP, which supported the basic Strategies 1 and 2;
- (b) Improvement of the accuracy and reliability of the analysis, forecasts, warnings and risk assessments of natural hazards such as floods, strong winds, droughts, forest fires, severe storms, avalanches, pollution events and periods of intense relative heat and cold. That should include improving seasonal and longer-term predictions of changes in the timing, severity or frequency of such severe events. That would be in support of Strategy 5 of the draft 6LTP, which supported the basic Strategies 1 and 2;
- (c) Enhancement of capacity building, especially for the developing countries and those with economies in transition. In that connection:
- (i) Capacity building should particularly address the needed basic meteorological and

supporting infrastructure and equipment, especially in the areas of telecommunication and upper-air sounding, as well as the education and training of staff;

- (ii) Technical cooperation should ensure optimal benefits and take into account the overall situation of countries to be assisted;
- (iii) Sustainable capacity building should be aimed for, and not just, ad hoc palliative measures;
- (iv) To realize capacity building, areas of strategic cooperation, including regional/subregional collaboration, should be explored.

The above will be in support of Strategy 7 of the draft 6LTP.

MONITORING AND EVALUATION OF THE 6LTP

12.7 The Association noted that the Executive Council recalled that in the preparation of the 6LTP, the monitoring and evaluation approach, including performance indicators and milestones, should be clearly outlined to facilitate its subsequent monitoring and evaluation and that the Council had also recognized the need to identify at what level(s) and how the monitoring and/or evaluation had to be carried out, and who would have responsibility for the related tasks (e.g. role of Members, Congress, Executive Council, regional associations, technical commissions, Secretary-General). The goal was to have the guidelines for the monitoring and evaluation of the 6LTP be considered at the same time as the 6LTP itself.

12.8 The Association recognized that it had a role to play in the implementation of the 6LTP as well as in its monitoring and evaluation. In that connection, it requested its president to ensure the Association’s active participation.

MONITORING AND EVALUATION OF THE 5LTP

12.9 The Association took note that the monitoring and evaluation on the first four years (2000–2003) of the 5LTP would be considered by the fifth-fourth session of the Executive Council and subsequently by Fourteenth Congress. It requested its president to continue to ensure the provision of the appropriate contribution in that connection. With respect to the implementation of the 5LTP, the Association emphasized the importance of ensuring the implementation of the Region’s priorities, in particular, those relating to the improvement of the basic systems, the provision of services and regional cooperation.

GENERAL CONSIDERATION

12.10 The Association recalled that the Council had recognized that the role of regional associations should be strengthened and that collaboration between technical commissions and regional associations should be improved. Particular attention should be given to ensuring that the intersessional activities of the regional associations were effectively carried out. In that connection, the Association emphasized that its participation

and contribution in the long-term planning process during the intersessional period was a matter of utmost importance.

13. ROLE AND OPERATION OF NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICES (agenda item 13)

13.1 The Association recalled that Thirteenth Congress had extensive discussions on the role and operation of NMHSs and requested the Executive Council to keep that matter under review, and that the Executive Council, in turn, established its Advisory Group on the Role and Operation of NMHSs to assist it in that area. Congress, among others issues, considered:

- (a) The NMS and alternative service delivery;
- (b) Legal instruments;
- (c) Status and visibility of NMHSs;
- (d) Capacity building;
- (e) Provision of aeronautical meteorological services;
- (f) Partnership and cooperation (with the media, private sector and academia).

13.2 The Association noted that the Executive Council had provided guidelines on the role and operation of NMSs, and that on the basis of that guidance, Congress had adopted Resolution 26 (Cg-XIII) — Role and operation of National Meteorological Services, which invited Members to take relevant actions to enhance the role and operation of NMSs.

13.3 The Association also recalled that Thirteenth Congress felt the need to draw the attention of States and Governments to various areas of concern relating to the functioning of NMSs and adopted the Geneva Declaration of the Thirteenth World Meteorological Congress. All the Members of RA VI were provided with copies of the Geneva Declaration.

13.4 The Association also noted the discussions and decisions made by the Executive Council on the role and operation of NMHSs during its fifty-second and fifty-third sessions. Those covered the following areas:

- (a) Major issues facing NMSs;
- (b) Cooperation with related data and service providers;
- (c) Involvement of the media, the private sector and academia in the work of WMO and the NMHSs;
- (d) Cooperation with other international organizations and representatives;
- (e) Definition of relevant terms;
- (f) Questionnaire on the role and operation of NMSs;
- (g) High-level conference;
- (h) Role and operation of NHSs;
- (i) Policy statement on weather and climate forecasting;
- (j) Possible changes in the WMO Convention;
- (k) Aeronautical meteorological services;
- (l) WMO standards for weather forecasts;
- (m) Quality management certification.

13.5 The Association was informed that the following were expected to be produced in due course:

- (a) A WMO policy statement on the role and operation of NMSs which either confirmed, updated and/or refined the Executive Council Statement of April

1999 on the NMS and alternative service delivery which elaborated the Geneva Declaration adopted by Thirteenth Congress;

- (b) A consolidated set of guidelines on the role and operation of NMSs, making use when possible of relevant WMO materials already available;
- (c) A comprehensive Executive Council report to Fourteenth Congress on action taken in response to Resolution 26 (Cg-XIII), possibly including proposals for modification of the WMO Convention and the Regulations to represent more clearly the essential role and primary responsibilities of NMSs in carrying out the purposes of WMO.

The Association was also informed that the Council agreed that similar tasks in respect of the role and operation of NHSs would be carried out. The Association noted the recent developments arising from the second session of the Executive Council Advisory Group on the Role and Operation of NMHSs which recently met (Geneva, April 2002). It was further noted that the work being undertaken in connection with that topic related to the WMO long-term planning process and other pertinent activities.

13.6 The Association recalled that in order to provide an adequate factual database for its analysis of the many issues affecting the role and operation of NMSs, a questionnaire had been sent to all the Members. The Association expressed appreciation for the analysis undertaken which proved vital information about the role and operation of NMSs in RA VI, such as:

- (a) The level of awareness/visibility of NMSs;
- (b) Relative importance of national goals served by NMSs' operation;
- (c) Main issues currently facing NMSs;
- (d) Funding-related issues;
- (e) Assessment of WMO support.

13.7 Members of the Association expressed their views and shared their relevant experiences on the role and operation of NMSs. Among other things, the Association recognized that NMSs should continue their efforts toward responding to major challenges, such as the process of globalization, the introduction of market-led economies, the rapid advances in science and technology, commercialization, alternative services delivery, regional cooperation and capacity building. The Association re-emphasized that NMSs should be the single official national voice in issuing warnings for tropical cyclones and severe/extreme weather phenomena, as well as being an authoritative scientific voice in relevant issues such as aeronautical and marine meteorology, climate change and natural disaster mitigation.

13.8 In connection with the various related topics such as those identified in general summary paragraph 13.4 above, the Association expressed the following views:

- (a) The Association considered the topic of the provision of aeronautical meteorological services as a main issue currently facing the NMSs in RA VI (see also agenda item 7.3). It requested its president and the Secretary-General to keep Members of the

- Region informed of relevant developments especially on the cost recovery of meteorological services provided for aeronautical activities;
- (b) Another major issue facing NMSs of the Region was governmental financing and support. The Association agreed that NMSs should establish close working arrangements and promote strategic alliances and cooperation with relevant institutions within their respective countries and between NMSs in the Region;
 - (c) The Association considered of vital importance the holding of a high-level conference that would highlight the role and contribution to society of the NMSs. That could help to enhance their visibility and demonstrate to decision makers their irreplaceable contribution to national sustainable development goals. The Association requested the Secretary-General to make all efforts necessary to ensure the participation of the largest number of high-level government officials. It also noted the challenges, including financial considerations, associated with holding a high-level segment during Fourteenth Congress;
 - (d) The Association recognized that the involvement of the media, the private sector and academia in the work of WMO and the NMHSs was of importance to the Organization and the Association; clear directives should be evolved. It also recognized that for certain Members, the possible competition from private meteorological service providers posed an area of concern;
 - (e) The Association also agreed that it was important to intensify the cooperation with the international representatives of the different relevant sectors and that the sectors in which cooperation should be intensified should be defined. In that regard, the Association agreed that the future subregional office for Europe could take a very active role;
 - (f) The Association took note of the preparation of a draft WMO statement on the scientific basis for, and limitation of, weather and climate forecasting and asked that it be provided to the Members as soon as it was completed;
 - (g) The Association considered with great interest the topic of possible changes in the WMO Convention and noted that the fifty-third session of the Executive Council requested the Task Team to Explore and Assess the Possible Changes to the WMO Convention to study the matter and to report to the fifty-fourth session of the Executive Council;
 - (h) The Association considered that the topic of WMO standards for weather forecasts was very important, albeit complex, given the differences among NMHSs and the possible difficulty in reaching satisfactory agreements;
 - (i) The Association expressed interest in the topic of quality management certification as the process of certification might be a possible approach to the improvement in the management of NMSs. The

Association recognized that, in general, it was a process that involved significant investment.

13.9 The Association agreed that for the Region, the relevant priority areas of concern which provided challenges and opportunities to its Members related to the improvement and optimization of the global systems for observing, recording and reporting on the weather, water resources, ocean, climate and the related natural environment; improvement of the accuracy and reliability of the analysis, forecasts and warnings of natural hazards; and capacity building. Details relating to those areas of concerns were reflected in the RA VI priorities to be included in the 6LTP (see general summary paragraph 12.6).

14. NATURAL DISASTER REDUCTION — REGIONAL ASPECTS (agenda item 14)

14.1 The Association noted with appreciation the report on activities and efforts to meet the goals of the IDNDR during the last four years. The IDNDR came to an end in December 1999 with success in achieving substantial progress in natural disaster reduction at all levels. The Association was informed of the closing events of the IDNDR and the new structure for continuing natural disaster reduction activities beyond the Decade.

14.2 The Association particularly expressed its appreciation to the Secretary-General for the leading role played by WMO through its major scientific and technical programmes in support of the IDNDR efforts as regarded mitigation of natural disasters and preparedness for the effects of natural hazards of meteorological and hydrological origin. The Association was informed that an IDNDR Programme Forum had been successfully held in July 1999 as the consolidation and closing event of the Decade under the title "A safer world in the twenty-first century: disaster and risk reduction". The Association noted with satisfaction that WMO and UNESCO, as the two principal United Nations agencies concerned with the scientific and technological aspects of disaster reduction, convened a Subforum on Science and Technology in Support of Natural Disaster Reduction as a special contribution to the IDNDR Programme Forum. The participants at the Subforum, which included several experts from RA VI, came from both the natural and social sciences and with both research and operational backgrounds in developing and developed countries. The Subforum reviewed the various ways in which science and technology contributed to the disaster reduction process in particular, through:

- (a) Assessment of vulnerability and enhancement of community awareness of the nature of the risk;
- (b) Operation of integrated warning systems;
- (c) Preparedness and education programmes.

The Subforum reviewed recent progress and discussed future prospects in each of those three aspects of the application of science and technology to the reduction of the impacts of tropical cyclones, extratropical storms, storm surges, severe local storms and tornadoes, sand and dust storms, drought, extreme and persistent

temperatures, fire weather, floods, landslides, avalanches, volcanoes, earthquakes and tsunamis.

14.3 The Association was informed that the IDNDR had been succeeded by a new substantive programme, the ISDR, which included an Inter-agency Task Force and an Inter-agency Secretariat. On 23 December 1999, the United Nations General Assembly adopted Resolution 54/219 — International Decade for Natural Disaster Reduction: successor arrangements, which provided specific guidance for the future work of the ISDR. The main objectives of ISDR were to enable communities to become resilient to natural hazards and to proceed with an approach from protection against hazards through to the management of risk. It was structured around four main themes for action: public awareness, community and public authorities commitment, disaster resilient communities and the reduction of socio-economic loss. The primary function of the Task Force would be to devise strategies and policies for the reduction of natural hazards; identify gaps in existing policies and programmes; ensure complementary action by agencies; provide policy guidance; and convene ad hoc meetings of experts on issues relating to disaster reduction.

14.4 The Association also noted that the United Nations General Assembly had passed, in the context of natural disaster reduction, a further resolution relating to international cooperation to reduce the impact of the *El Niño* phenomenon (United Nations General Assembly Resolution 56/194 — International cooperation to reduce the impact of *El Niño* phenomenon). The Association recalled the important role that WMO had played in the work of the United Nations Task Force on *El Niño* in reviewing the effects of the 1997–1998 *El Niño* event and in the implementation of earlier United Nations General Assembly Resolutions (52/200, 53/185 and 54/220 — International cooperation to reduce the impact of *El Niño* phenomenon).

14.5 The Association noted that WMO had been designated a member of the Inter-agency Task Force for the ISDR and endorsed a lead role for WMO in the Task Force. It was also noted that the Secretary-General had taken various initiatives, including those at the level of the United Nations Systems's Chief Executives Board for Coordination (formerly the United Nations Administrative Committee on Coordination) and the United Nations Secretary-General, on the structure of the ISDR to ensure a prominent role for science and technology and the operational activities of NMHSs in the implementation of the Strategy.

14.6 The Association was informed that the ISDR Inter-agency Task Force, as part of its Framework for Action, had established four ad hoc working groups to initiate its programme of work. WMO was a member of all four groups. The first working group on climate and disasters had taken over the responsibilities of the United Nations Task Force on *El Niño* with an expanded mandate to consider all climate-related aspects of disasters; the group was led by WMO. The second working group considered early warning systems for

disasters with UNEP as the lead agency. UNDP led the third working group dealing with risk, vulnerability and impact assessment. The fourth working group dealt with the problem of wildland fires. The Association encouraged its Members to contribute to the work of those groups and to regional activities initiated under the ISDR. In that respect, the Association noted that there was ongoing activity in the Region related to disaster preparedness and mitigation within the framework of the ISDR and agreed that there would be considerable advantages for NMHSs in developing close relationships with relevant regional groups, including the collaboration on joint projects to mitigate the effects of natural disasters.

14.7 The Association was pleased to note the establishment of the subregional Central European Forum for Disaster Prevention, formed by National Disaster Reduction Committees of the Czech Republic, Germany, Hungary, Poland and Slovakia, and active at both the national and regional levels. The Association was informed that the Central European Forum for Disaster Prevention, whose Secretariat was based in Prague, would hold its fourth meeting in Bonn in July 2002.

14.8 The Association noted the decisions of the Executive Council with respect to the incorporation of natural disaster issues into the WMO Long-term Plan and the programme and budget, and urged its Members to contribute to those forward-planning processes. The Association requested the Secretary-General to continue to promote the role of NMHSs in disaster preparedness and mitigation through a variety of means. Such means might include the reation of awareness among senior government officials, the preparation of promotional material and the organization of forums in which experiences of different countries in the preparation and dissemination of early warnings could be exchanged. The Association noted that disasters of long duration and extensive impacts and, especially, those that severely affected less developed regions of the world, frequently became issues of worldwide attention. It was common, in such cases, for several agencies of the United Nations system and non-governmental aid agencies to become involved. The Association noted that that globalization of disaster response activities was making increasing demands on WMO and it agreed that it was appropriate for the Organization to develop modalities to respond to the challenges.

14.9 The Association also commended the initiative of the Secretary-General in establishing the EDRG within the WMO Secretariat to assist, in particular, in the rehabilitation of meteorological and hydrological infrastructure in Member countries following a disaster.

14.10 The Association was informed on the international activities and effort in the field of landslide research, landslide risk mitigation and protection and on the establishment of an International Consortium on Landslides. In that regard, the Association requested the Secretary-General to maintain WMO's high profile and leading role in major aspects of disaster reduction, including landslides.

14.11 The Association was informed on new initiatives related to a possible coordination role for WMO in the field of seismology. It was noted that that initiative was being given support not only from many NMHSs but also from regional groupings, such as the ASEAN Subcommittee on Meteorology and Geophysics.

14.12 The Association also noted that disasters could occur on a wide range of timescales and could be initiated by many forms of severe or unusual weather and climate-related events. Early warning systems, therefore, needed to be tailored to meet particular circumstances. However, it was essential that different systems work together effectively when necessary, for example flood warning systems and tropical cyclone warning systems. The Association took note of the increasing value in the field of disaster preparedness that could accrue from early warnings on longer timescales derived from seasonal to interannual climate predictions. It agreed that the sub-regional forums that were now being regularly convened to develop outlooks for various seasons provided an excellent opportunity for cooperation between NMHSs and user communities. The Association requested the Secretary-General to continue his support for improving the scope and effectiveness of those forums, which were being implemented within the framework of CLIPS.

14.13 The Association recognized, when planning regional activities within the context of natural disasters, that priority attention should be given to the preparation of realistic regional scenarios related to possible climate change and to the assessment of regional consequences of those changes for climate-sensitive sectors such as agriculture, water resources, forestry and energy. The emphasis should be given to the development of policies in that area, which were mutually beneficial to countries in the Region and which could also contribute positively to addressing global problems.

14.14 Since natural disaster reduction would be an important item at the World Summit on Sustainable Development (Johannesburg, August/September 2002), the Association requested the Secretary-General to ensure that the potential for WMO to contribute to discussions on that issue would be fully realized. The Association also invited NMHSs to ensure that national delegations to the Summit were briefed on their critical role and that of WMO in disaster reduction activities.

14.15 The Association took note of the work done in the Russian Federation on the preparation of the *Atlas of Natural Hydrometeorological Disasters*, and an appropriate *Reference Book*, as well as of the work done on the development of methods to calculate the risk of natural hydrometeorological disaster damage and the prediction of those disasters on the Russian territory up to 2005, based on the analysis of connections between natural hydrometeorological disaster and anomalous cold and warm winters and anomalous dry and wet summers.

15. INTERNATIONAL EXCHANGE OF DATA AND PRODUCTS (agenda item 15)

15.1 The Association recalled the discussions which took place at Thirteenth Congress in connection with

the topic of international exchange of data and products. It was aware that the Executive Council Advisory Group on the International Exchange of Data and Products was addressing those developments and other related issues.

15.2 The Association noted that Congress had recognized that the experience with Resolution 40 (Cg-XII) — WMO policy and practice for the exchange of meteorological and related data and products including guidelines on relationships in commercial meteorological activities, had been largely positive and that there was generally a strong commitment to make it work. It further noted that the fifty-third session of the Executive Council concurred that the policy and practice on the free and unrestricted exchange of meteorological and related data and products as contained in Resolution 40 (Cg-XII) had continued to be applied in a generally satisfactory manner, despite some difficulties encountered.

15.3 The Association requested its Members to continue to observe the letter and spirit of Resolution 40 (Cg-XII) and to help increase the volume of data and products being exchanged, consistent with the WMO principle of free and unrestricted international exchange of meteorological and related data and products.

15.4 The Association recalled that every April and October, circular letters had been disseminated, when necessary, concerning the implementation of Resolution 40 (Cg-XII) and that information provided by Members and relevant international organizations on their additional data and products was also published in the *WWW Operational Newsletter* and the WMO Web site. The Association requested its Members to provide the WMO Secretariat with information relating to the implementation of Resolution 40 (Cg-XII).

15.5 The Association noted that the Council agreed that it had not been easy to establish a direct link between the quantity of data and products being exchanged (as measured by the monitoring of the bulletin headers in the GTS) and Resolution 40 (Cg-XII), and that there was no perceivable signal that Resolution 40 (Cg-XII) had influenced, either in a positive or negative manner, the flow of data and products measured in the above way at the time following the adoption of Resolution 40 (Cg-XII) in 1995. None the less, there had been some indication of increased willingness to make more data and products available in the period after the adoption of Resolution 40 (Cg-XII). In the case of RA VI, the Association felt that there was indeed an increase in essential and additional data and products made available, and received, by its Members.

15.6 The Association was informed that in relation to the free and unrestricted access to all data and products exchanged for the research and education communities, for their non-commercial activities, certain experiences had resulted in difficulties for some NMSs while others had indicated the development of opportunities, which were also beneficial to NMSs. In that connection, the Association considered that a dialogue that would involve the broader non-governmental sector could be helpful. In that respect, the role of the

Permanent Representatives of Members of WMO, whose responsibilities encompassed the interests of the larger meteorological community in his/her country, was emphasized.

15.7 The Association discussed relevant experiences in connection with the relationship between NMSs and the private sector pertinent to the exchange of data and products between Members. The Association underscored the importance of clarifying areas where cooperation might indeed be pursued between NMSs and the private sector, and where cooperation might not be feasible. The Association noted the relevant discussions that took place at the recent Third Technical Conference on Management of Meteorological and Hydrometeorological Services in Region VI (Geneva, 29 April to 1 May 2002).

15.8 Overall, the Association agreed with the Council that Resolution 40 (Cg-XII) should be maintained in force for the present time, given the prevailing circumstances. It was felt that Resolution 40 (Cg-XII), which was adopted unanimously, embodied an appropriate compromise. The principle of free and unrestricted exchange was upheld while providing ample practical safeguards and guidance. Relevant concerns should be addressed in some other way, e.g. separate Congress resolutions, declarations or guidelines.

15.9 The Association also recognized that there had been political, legal, economic, social, scientific and technological developments which had a bearing on the implementation of Resolution 40 (Cg-XII) and that those should be taken into account in the review of Resolution 40 (Cg-XII) and in the consideration of relevant action in the future. Those included globalization, alternative services delivery, commercialization, cost recovery and the Internet.

15.10 Regarding the possibility of putting the principle of free and unrestricted exchange of meteorological and related data and products on a firmer legal basis such as by incorporating it in the WMO Convention, the Association noted that the chairperson of the Executive Council Advisory Group on the International Exchange of Data and Products had been requested to keep that topic under review and that that was also being considered in the context of the review of the WMO Convention being facilitated by the Executive Council Task Team to Explore and Assess the Possible Changes to the WMO Convention. In that connection, the Association was of the view that any consideration should take fully into account the policy and practice given in Resolution 40 (Cg-XII), including its annexes.

15.11 It recommended that the Executive Council Advisory Group on the International Exchange of Data and Products continue to monitor and assess the relevant situation and provide recommendations, as appropriate. It was further recommended that consideration should be given to the re-establishment of the Advisory Group or equivalent group after Fourteenth Congress to serve as a mechanism to address concerns as well as differences of views that might arise and provide advice.

15.12 As regarded Resolution 25 (Cg-XIII) — Exchange of hydrological data and products, the Association urged the Members to make available, on a free and unrestricted basis, data on water quality together with data on discharge and water levels. It welcomed the fact that a brochure entitled *Exchanging Hydrological Data and Information: WMO Policy and Practice* (WMO-No. 925) had been prepared explaining the background and intent of Resolution 25 (Cg-XIII), similar to that issued for Resolution 40 (Cg-XII) (entitled *Exchanging Meteorological Data: Guidelines on Relationships in Commercial Meteorological Activities — WMO Policy and Practice* (WMO-No. 837)), together with the publication *The Role and Operation of National Hydrological Services* (Technical Reports in Hydrology and Water Resources No. 72, WMO/TD-No. 1056) describing the types of hydrological data exchanged.

15.13 The Association also recalled the discussions and decisions of the fifty-third session of the Executive Council on the international exchange of climate data and products. In that connection, the Association noted that the Council adopted a statement that would be helpful in clarifying the status of climatological data and products exchanged.

15.14 The Association also took note that the Council agreed that the distinction between data exchanged before and after the adoption of Resolution 40 (Cg-XII) should not result in a discontinuity in the availability or distribution of climatological data to meet the needs of WMO Programmes and those of the UNFCCC and other environmental conventions.

15.15 Following Thirteenth Congress, the Secretary-General conveyed the concerns of WMO to ICAO regarding the potential impact of ICAO data distribution policy on all WMO Members and invited ICAO to address the international exchange of aeronautical meteorological information in cooperation with WMO. In view of the interest of both ICAO and WMO regarding the issue, aeronautical meteorological data exchange had been included as an agenda item for the forthcoming conjoint CAeM/Meteorology Divisional Meeting to be held in September 2002.

15.16 The Association noted that the fourth meeting of the AMDAR Panel (Melbourne, September 2001), discussed the issue of AMDAR data vulnerability and that that matter had been raised at the session of the Executive Council Advisory Group on the International Exchange of Data and Products. The vulnerability of AMDAR data resulted from non-authorized access to the AMDAR data in text format by a global network of eavesdroppers who exchanged the data on the Internet. In that regard, several proposals were being considered to develop an encryption system to be adopted as an aviation industry standard to prevent future eavesdropping of AMDAR data; such a system could be in place within two years.

15.17 The Association also recalled the discussions and decisions of the fifty-third session of the Executive Council on the international exchange of oceanographic data and products, on the exchange of aeronautical

data and products and on the exchange of agrometeorological data and products.

16. OTHER REGIONAL ACTIVITIES (agenda item 16)

16.1 INTERNAL MATTERS OF THE ASSOCIATION (agenda item 16.1)

16.1.1 The Association noted the information provided by its acting president on the subsidiary bodies of the Association. It also noted the guidance given by the Executive Council on the establishment of the subsidiary bodies of regional associations. It therefore agreed that working groups and rapporteurs should be established to address issues of concern to the Region and to undertake specific and achievable tasks. Their tasks should be specific and achievable; the established working groups should be able to meet and the rapporteurs should be able to participate in the Organization's activities relevant to their work.

16.1.2 The Association considered a proposal by the acting president for the establishment of an Advisory Working Group of RA VI and adopted [Resolution 20 \(XIII-RA VI\)](#).

16.1.3 The Association also agreed on the establishment of Working Groups on Planning and Implementation of the WWW in Region VI, on Climate-related Matters, on Agricultural Meteorology and on Hydrology. However, the Association was informed that the budget proposals for the fourteenth financial period contained provision for meetings of only four working groups in RA VI. In that regard, the Association requested the Secretary-General to organize meetings of some of the working groups, including the Advisory Working Group of RA VI, in conjunction with other events in the Region in order to minimize costs and enable the working groups to meet at least once during the intersessional period.

16.2 COOPERATION WITH REGIONAL AND INTERNATIONAL ORGANIZATIONS (agenda item 16.2)

16.2.1 During the intersessional period, the Association noted the increasing collaboration of WMO with international organizations, including those of the United Nations system. In addition, WMO had been collaborating actively with a number of regional organizations such as EUMETSAT, ECMWF and COST. The Association noted with satisfaction that such collaboration provided a suitable framework for further interaction among the NMHSs of the Region, and in particular, with relevant regional socio-economic and scientific groupings. Such interaction contributed to the enhancement of their image and visibility among decision makers, the public, the media, educational institutions, the private sector, non-governmental organizations and other relevant national institutions. Therefore, the Association encouraged its Members to strengthen further their cooperation with relevant regional bodies. It also invited the NMHSs to strengthen and, as necessary, develop their external communication activities to promote further the image and visibility of NMHSs and WMO.

16.2.2 The Association requested the Secretary-General to continue his efforts to promote cooperation with other relevant regional and international organizations, such as CASPCOM, EUMETNET, the European Environmental Agency and COST, as well as with non-governmental organizations. It also encouraged Members to cooperate with existing meteorological and hydrological societies and consider the opportunity of establishing new cooperation arrangements with relevant national and regional institutions.

16.2.3 The Association noted the increasing range of activities being undertaken by the European Union which were relevant to the fields of responsibilities of the WMO, such as policy development and policy implementation pertaining to public sector information, transport, satellite activities, water resources management, climate and other environmental issues, among other things. It recognized the importance of monitoring closely the developments within the European Union and its related bodies so as to ensure that the needs of WMO and its Members were taken into account in the European Union considerations, as well as other matters of mutual interest. The latter included the scientific and technical contribution that WMO could provide in support of regional and global cooperation. The Association recognized further the value of interaction with the European Union for RA VI as a whole and, indeed, to the global community. It welcomed the initiative taken by the Secretary-General to promote closer collaboration with the European Union. In that connection, the Association requested the Secretary-General to undertake a continuing review and evaluation of European Union developments and documentation pertinent to major issues of interest to WMO. That would lead to the identification of priority areas of concern which WMO and its Members, in particular those in RA VI, would have to address. It also noted that cooperation with institutions in the Region having related activities might be explored. The Association urged its Members to assist, as appropriate. It also requested its president to ensure the consideration of that matter during the intersessional period.

16.2.4 The Association expressed its appreciation and support to the actions being undertaken by the Secretary-General to establish appropriate working arrangements with the European Union and requested the Secretary-General to develop further his efforts in that respect.

17. WMO SUBREGIONAL OFFICE FOR EUROPE (agenda item 17)

17.1 The Association reviewed the activities carried out since its twelfth session regarding the status of the establishment of the Subregional Office for Europe. The Association expressed its appreciation to the Secretary-General for his support for making arrangements in carrying out activities related to RA VI by an assigned expert since the beginning of 2001 in the WMO Secretariat, pending the Office's eventual establishment.

17.2 The Association also expressed its appreciation to the United Kingdom for providing financial assistance to enable the Secretariat to carry out RA VI-related activities by an assigned expert in 2001. It also expressed its appreciation to Members that already pledged financial contributions towards the operation of the nucleus of a Subregional Office for Europe in 2002 and 2003, namely France, Portugal, Switzerland and the United Kingdom and to those who announced their intention to contribute, namely Germany, Italy and Spain.

17.3 The Association noted that WMO Subregional Offices already established in other Regions provided significant support to NMHSs in formulating their development plans, in identifying their requirements, in formulating projects and in mobilizing resources. Those Offices also played an increasing role in advising NMHSs in developing their services and in enhancing their visibility as well as in supporting the implementation of the WMO Regional Programme in the respective subregions.

17.4 In view of the importance of a Subregional Office for Europe in support of Members of RA VI, the Association requested Fourteenth Congress to allocate adequate budgetary resources for the establishment of the Office as of 2004. It also requested the Secretary-General to arrange for the establishment and continuous operation of the Office in Geneva.

18. SCIENTIFIC LECTURES AND DISCUSSIONS
(agenda item 18)

18.1 The following scientific lectures were presented during the session:

- (a) Mesoscale Alpine Programme, by Dr Philippe Bougeault (*Météo-France*);
- (b) Improvements in global/regional forecasting, by Dr Pedro Viterbo (ECMWF).

18.2 The president expressed the appreciation of the Association to the lecturers for their excellent presentations which had been of great interest and high quality and which were followed by stimulating discussions.

19. REVIEW OF PREVIOUS RESOLUTIONS AND RECOMMENDATIONS OF THE ASSOCIATION AND OF RELEVANT EXECUTIVE COUNCIL RESOLUTIONS (agenda item 19)

19.1 The Association examined those of its resolutions which were still in force at the time of the thirteenth session.

19.2 The Association noted that most of its past resolutions had been replaced by new ones adopted during the session. It was further noted that while a few resolutions had been incorporated in the appropriate WMO publications, some of the previous resolutions were still required to be kept in force.

19.3 The Association accordingly adopted [Resolution 21 \(XIII-RA VI\)](#).

19.4 The Association considered that Resolution 2 (EC-L) — Report of the twelfth session of Regional Association VI (Europe), did not need to be kept in force.

20. ELECTION OF OFFICERS (agenda item 20)

Messrs F. Quintas Ribeiro (Portugal) and P. Korkutis (Lithuania) were elected president and vice-president, respectively, of the Association.

21. DATE AND PLACE OF THE FOURTEENTH SESSION
(agenda item 21)

Some delegations expressed concern that the meetings of constituent bodies were not distributed evenly during the financial period, creating unnecessary pressure during preparation of sessions, as well as leaving little room for inputs to be made by those bodies on the WMO Long-term Plan and other important issues. The Association, therefore, requested the Secretary-General to investigate the possibility of holding the fourteenth session of Regional Association VI around the last quarter of 2005, at a place and date to be decided later.

22. CLOSURE OF THE SESSION (agenda item 22)

The thirteenth session of Regional Association VI closed at 4.45 p.m. on 9 May 2002.

RESOLUTIONS ADOPTED BY THE SESSION

RESOLUTION 1 (XIII-RA VI)

WORKING GROUP ON PLANNING AND IMPLEMENTATION OF THE WORLD WEATHER WATCH IN REGION VI

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) Resolution 2 (Cg-XIII) — World Weather Watch Programme for 2000–2003,
- (2) The WWW Programme for the period 2000–2009,
- (3) That major developments in science and technology have taken place which need to be introduced into the WWW system,
- (4) That WWW data and products are of vital importance to Members in Region VI for meeting the increasing requirements of users for meteorological services,

CONSIDERING that:

- (1) The implementation of the WWW in the Region should be kept under constant review,
- (2) The introduction of the new WWW concepts will be of great benefit to all Members in the Region,
- (3) Full integration of the WWW functional components requires careful coordination among Members of RA VI and constant evaluation of the related projects,
- (4) The WMO Long-term Plan needs regular updating from the point of view of regional requirements,

DECIDES:

- (1) To establish a Working Group on Planning and Implementation of the World Weather Watch in Region VI with the following terms of reference:
 - (a) Monitor the progress made in the implementation and operation of the WWW in the Region and advise on possible improvements and priorities for appropriate action to be carried out under the WWW Programme and on the need for external support, where required;
 - (b) Maintain and, when necessary, improve the mechanism for continuous monitoring of the performance of the WWW system (observing, telecommunication, data-processing and data management) in the Region. The mechanism should include the capability to initiate, where possible, remedial action to correct deficiencies identified;
 - (c) Keep under review the action taken under the required WWW implementation programme of the Fifth WMO Long-term Plan with a view to update and develop further the programme

relating to Region VI and to propose an action programme for inclusion in the Sixth WMO Long-term Plan;

- (d) Keep abreast of developments in the fields of meteorological data-processing and forecasting, observing techniques, telecommunications, data management, emergency response activities and public weather services and make recommendations for their application in the Region;
- (e) Study the possible impact of new methods and techniques, including data management, on the regional structure and functions of the WWW with a view to developing proposals for optimizing the Global Data-processing and Forecasting Systems, the Global Observing System and the Global Telecommunication System in the Region;
- (f) Maintain close liaison and cooperate with the relevant activity areas of the Commission for Basic Systems and their expert groups with a view to ensure effective coordination between the WWW Programme on the global and regional scales;
- (g) Maintain programmes for the improved exchange of WWW data and products on the basis of stated regional requirements which would include provisions for the generation of high-quality products by Global Data-processing System Centres in the Region as well as for making available data and products from other Regions;
- (h) Develop proposals for the full integration of the WWW components and functions with a view to achieving a cost-effective operation and a better supply of WWW data and products throughout the Region, in particular to undertake further studies of the requirements of the RBSN;
- (i) In collaboration with the EUCOS project, study and report on requirements for, and means of, resourcing observing networks in RA VI;
- (j) Keep under review the regional meteorological telecommunication plan and its implementation;
- (k) Develop proposals and guidance on the regional aspects of public weather services and, in particular, to propose mechanisms and

- activities to enhance the efficiency of NMCs and to strengthen regional coordination in the provision of severe weather warnings;
- (l) Study questions of data and product sets and related technical provisions which might be needed to satisfy the implications of commercialization issues;
 - (m) Identify deficiencies in the implementation of WWW components and promote technical cooperation activities to overcome them;
 - (n) Develop proposals for ensuring that adequate training and education are provided to Members regarding all aspects of the WWW;
 - (o) Advise the president of the Association on all matters concerning the WWW;
 - (p) To maintain close liaison with the Working Group on Climate-related Matters and the Working Group on Hydrology, especially its Coordination Subgroup on Flood Forecasting and Warning;
- (2) That the Working Group should be composed of the following core members:
- (a) The chairperson;
 - (b) A co-coordinator for western and central Europe and a co-coordinator for central and eastern Europe of the Subgroup on Regional Aspects of the Information Systems and Services;
 - (c) The coordinator of the Subgroup on Regional Aspects of the Integrated Observing Systems;
 - (d) The coordinator of the Subgroup on Regional Aspects of the Data-processing and Forecasting Systems;
 - (e) The coordinator of the Subgroup on Regional Aspects of Public Weather Services;
 - (f) The co-coordinators of the Ad Hoc Group on WWW-related Cooperation Activities, and other experts committed to serve actively in the Subgroups as nominated by Members;

- The terms of reference of the Subgroups and the Ad Hoc group are indicated in the annex to this resolution;
- (3) To designate, in accordance with General Regulation 32, Mr G. Steinhorst (Germany) as chairperson of the Working Group;
 - (4) To designate:
 - (a) Ms P. Dickinson (United Kingdom) as co-coordinator for western and central Europe and Mr L. Bezruk (Russian Federation) as co-coordinator for central and eastern Europe of the Subgroup on Regional Aspects of the Information Systems and Services;
 - (b) Mr K. Groves (United Kingdom) as coordinator of the Subgroup on Regional Aspects of the Integrated Observing Systems;
 - (c) Mr F. Chavaux (France) as coordinator of the Subgroup on Regional Aspects of the Data-processing and Forecasting Systems;
 - (d) Mr W. Kusch (Germany) as coordinator of the Subgroup on Regional Aspects of Public Weather Services;
 - (e) Messrs V. Ivanovici (Romania) and G. Pankiewicz (United Kingdom) as coordinators of the Ad Hoc Group on WWW-related Cooperation Activities;
 - (5) To invite Members to nominate experts who are committed to serve actively on the Subgroups;
 - (6) To request the coordinators of the Subgroups to submit a progress reports at yearly intervals to the chairperson of the Working Group and a final report not later than six months before the fourteenth session of the Association;
 - (7) To request the chairperson to submit a biennial progress report to the president of the Association and a final report not later than six months before the fourteenth session of the Association.

NOTE: This resolution replaced Resolution 1 (XII-RA VI), which is no long in force.

ANNEX TO RESOLUTION 1 (XIII-RA VI)

WORKING GROUP ON PLANNING AND IMPLEMENTATION OF THE WORLD WEATHER WATCH IN REGION VI

The terms of reference of the subgroups established under Resolution 1 (XIII-RA VI) are as follows:

- (a) Subgroup on Regional Aspects of the Integrated Observing Systems:
 - (i) Monitor, report and make recommendations on the capability and utilization of an integrated system of different observing networks (including satellites) to meet regional requirements for weather analysis, forecasts and warnings;
 - (ii) Review and make proposals regarding the design of the RBSN in the light of requirements stipulated in the WMO Long-term Plan;

- (iii) Continue to assess the existence of gaps in the RBSN, in close cooperation with Members concerned, to prepare a revised list of stations for inclusion in the RBSN and to identify automatic stations on land and fixed positions at sea to be included in the RBSN;
- (iv) To develop further the RBCN of stations providing CLIMAT and CLIMAT TEMP reports in close cooperation with the Working Group on Climate-related Matters and the GCOS Programme, with respect to spatial coverage, adherence to coding procedures and the inclusion of GCOS network stations;

<ul style="list-style-type: none"> (v) Keep abreast of, and advise on, developments in observing systems, e.g. automatic weather stations, wind and temperature profilers, thunderstorm detection techniques, AMDAR including ASDAR and ACARS systems, ASAP systems and data buoys; (vi) Keep abreast of developments in weather radars and radar networks with a view to their role in an integrated observing system and advise on coordinated implementation of new techniques and end products; (vii) Report on the regional use of data from, and operational experience with, new observing systems and formulate recommendations based on these assessments; (viii) Report on new developments in observing techniques, including instruments and sensors, in the operational systems, to organize special consultations and arrangements between Members concerned on coordination of implementation of automated observing systems and to support the development and implementation of standardization of observing practices, methods and procedures and standard procedures for assuring the quality of observational data with monitoring of the quality; (ix) Advise and report to the chairperson of the Working Group on problem areas in the regional observing systems; (x) Advise the president of the Association and the chairperson of the working group on proposed changes in the RBSN; (xi) Advise and report to the chairperson of the Working Group and to the Association on all matters concerning the regional aspects of the global observing system activities in the Region; (xii) Represent the Region at sessions of the relevant CBS Implementation Coordination Teams on the Integrated Observing Systems through the participation of its coordinator; <p>(b) Subgroup on Regional Aspects of the Information Systems and Services (Global Telecommunication System and data management):</p> <ul style="list-style-type: none"> (i) Keep under review the status of implementation and operation of the RMTN, including the RMDCN, and maintain an up-to-date statement of requirements for the exchange of observational data, processed information and related data in the Region; (ii) Work with the Steering Group on the RMDCN (including its Contract Advisory Committee and RMDCN Operations 	<p>Committee) to assist RA VI Members who have not joined the RMDCN to do so;</p> <ul style="list-style-type: none"> (iii) Keep under review the organizational and planning aspects of the GTS in the Region and formulate recommendations for its further development, in particular for the coordinated implementation of information and communication facilities, techniques and services at WWW centres; (iv) Keep under review data and information representation including character and bit-oriented codes, and syntax conversion between formats and codes (binary, character and graphics); (v) Keep under review implementation of real-time exchange of observations, including high-resolution data in the boundary layer, in table-driven codes format, working towards phasing out traditional alphanumeric codes; coordinate the necessary relevant actions, monitor implementation of encoding and decoding software and impacts on meteorological operations; (vi) Keep under review data and product dissemination, selection and presentation to recipients (NMCs), including storage and retrieval of data and products and recovery procedures in case of major outages of key facilities; (vii) Keep abreast of developments in information and communication techniques, procedures, services and equipment, including in particular data-communication networks, satellite-based systems, the Internet and other international telecommunication facilities, data management applications and evaluate their relevance and applicability to the Region; (viii) Participate in the development of the concept of the future WMO information system and further develop the virtual GISC concept, particularly with respect to the requirements of the Region; (ix) Keep under review and coordinate real-time and non-real-time monitoring of the WWW Programme in the Region, including quantity and quality aspects; (x) Identify the training requirements of Members in the Region relating to relevant information and communication techniques; (xi) Keep under review and advise on telecommunication support provided by the RMTN to other WMO and international programmes; (xii) Advise and report to the chairperson of the Working Group and the Association all matters concerning regional aspects of the global telecommunication system and data management;
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<p>(xiii) Represent the Region on the CBS Implementation Coordination Team on Information Systems and Services, through participation of its coordinator;</p> <p>(c) Subgroup on Regional Aspects of the Data-processing and Forecasting Systems:</p> <p>(i) Keep abreast of developments in data-processing and forecasting systems equipment and techniques which could be beneficially introduced at national and regional centres to improve their operational capability both within the WWW system and in related areas;</p> <p>(ii) Review needs for maintaining/establishing RSMCs and their capabilities and responsibilities including those related to new fields of activity specialization and develop recommendations, as appropriate;</p> <p>(iii) Examine the requirements for processed products of general interest for the Region;</p> <p>(iv) Review periodically the requirements for providing data, including boundary conditions needed for running limited-area models at NMCs and possibilities for coordinating the related data flow;</p> <p>(v) Advise the Association, where appropriate, on the use of observational data in meteorological data processing and forecasting;</p> <p>(vi) Formulate recommendations for coordinated implementation of data-processing and forecasting facilities and techniques;</p> <p>(vii) Propose, where appropriate, the training requirements for the implementation, operation and maintenance of the data-processing and forecasting systems in Region VI;</p> <p>(viii) Advise and report to the chairperson of the Working Group and to the Association on all matters concerning the data-processing and forecasting systems activities in the Region;</p> <p>(ix) Represent the Region at sessions of the relevant CBS Implementation Coordination Teams on Data-processing and Forecasting Systems through participation of its coordinator.</p> <p>(d) Subgroup on Regional Aspects of Public Weather Services:</p> <p>(i) Develop documentation and advise on the regional aspects of the PWS Programme and its implementation, containing information:</p> <p>a. On the formulation, content and quality of public weather forecasts and warnings;</p> <p>b. On liaison between NMHSs and the media and others involved in the dissemination of public weather forecasts and warnings;</p> <p>(ii) Keep abreast of, and evaluate, technical and scientific developments related to the formulation, presentation and dissemination</p>	<p>techniques and make recommendations on a regional scale;</p> <p>(iii) Further develop procedures for the coordination of the warning activities of the Members for the exchange of warnings between them and for the monitoring of the provision of these warnings through the media;</p> <p>(iv) Develop proposals on education and training requirements related to the PWS Programme;</p> <p>(v) Develop guidance material on, and prepare common procedures for, verification of public forecasts and warnings;</p> <p>(vi) Develop guidance material for improving the presentation of forecasts;</p> <p>(vii) Elaborate proposals for demonstrating the benefits of PWS and heightening the visibility of NMHSs;</p> <p>(viii) Advise and report to the chairperson of the Working Group and to the Association on all matters concerning public weather service in the Region;</p> <p>(ix) Represent the Region at sessions of the relevant CBS Implementation Coordination Teams on Public Weather Services through participation of its coordinator.</p> <p>(e) Ad Hoc Group on WWW-related Cooperation Activities: The Ad Hoc Group will consist of senior experts selected from Members, assisted by the Working Group on Planning and Implementation of the WWW in RA VI Subgroup coordinators with the following terms of reference:</p> <p>(i) On the basis of deficiencies, potential problems and future plans concerning WWW components in RA VI countries identified by relevant Subgroup coordinators of the Working Group on Planning and Implementation of the WWW in RA VI, formulate and consolidate priorities in terms of emergency (short term), consolidation (medium term) and development (long term) requirements;</p> <p>(ii) Review, assess and consolidate available information on requirements of RA VI Members for WWW-related technical cooperation activities;</p> <p>(iii) Recommend to the chairperson appropriate actions to meet the identified requirements, particularly those urgent/ emergency requirements at the national and regional levels, while ensuring that the identified requirements are consistent with, and linked to, national/regional WWW plans;</p> <p>(iv) Assist and advise in identifying possible resources to meet these requirements from within each country, through bilateral/</p>
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<p>multilateral arrangements among RA VI Members as well as from international funding institutions in Europe and elsewhere, and to promote actions to access such resources;</p>	<p>(v) Formulate and recommend a specific and integrated action plan;</p> <p>(vi) Submit regular reports through the established mechanisms.</p>
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RESOLUTION 2 (XIII-RA VI)

REGIONAL BASIC SYNOPTIC NETWORK

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) Resolution 2 (XII-RA VI) — Regional basic synoptic network,
- (2) The *Manual on the Global Observing System* (WMO-No. 544), Volume I, Part III, Regulations 2.1.4, 2.1.5 and 2.1.6 and the definition of the Regional basic synoptic network,
- (3) The *Manual on the Global Telecommunication System* (WMO-No. 386), Volume I, Part I, Attachment 1-3, Section 3,

CONSIDERING that the establishment and maintenance of a regional basic synoptic network of surface and upper-air synoptic stations, adequate to meet the requirements of Members and of the WWW, constitute one of the most important obligations of Members under Article 2 of the WMO Convention,

DECIDES that the stations and the observational programmes listed in the annex to this resolution constitute the regional basic synoptic network in Region VI;

URGES Members:

- (1) To spare no effort in their endeavours to secure, at the earliest date possible, full implementation of the network of the stations and observational programmes set forth in the annex to this resolution;
- (2) To comply fully with the standard times of observation, the global and regional coding procedures and data collection standards, as laid down in the *WMO Technical Regulations* (WMO-No. 49) and the *Manuals on the GOS* (WMO-No. 544), *on Codes* (WMO-No. 306) and *on the GTS* (WMO-No. 386);

AUTHORIZES the president of the Association to approve, at the request of the Members concerned and in consultation with the Secretary-General, minor amendments to the list of stations in accordance with the procedures laid down in the *Manual on the Global Observing System* (WMO-No. 544), Volume II — Regional aspects, Region VI (Europe).

NOTE: This resolution replaces Resolution 2 (XII-RA VI), which is no longer in force.

ANNEX TO RESOLUTION 2 (XIII-RA VI)

LIST OF STATIONS COMPRISING THE RBSN IN REGION VI

<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>	<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>
ARMENIA					
37682	AMASIA	S	11157	AIGEN IM ENNSTAL	S
37717	SEVAN OZERO	S	11231	KLAGENFURT	S
37788	YEREVAN ZVARTNOTS	S	11240	GRAZ THALERHOF AP	S
37789	YEREVAN	W R	AZERBAIJAN		
AUSTRIA					
11010	LINZ HOERSCHING AP	S	37575	ZAKATALA	S
11035	WIEN HOHE WARTE	S	37675	GUBA	S
11035	WIEN HOHE WARTE	W R	37735	GANDJA	S
11120	INNSBRUCK AP	S	37749	GOYCHAY	S
11150	SALZBURG AP	S	37756	MARAZA	S
			37864	BINA	S
			37985	LANKARAN	S

<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>	<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>
BELARUS			04202	PITUFFIK THULE	W R
26554	VERHNEDVINSK	S	04203	KITSISSUT CAREY	S
26666	VITEBSK	S	04207	HALL LAND	S
26850	MINSK	S	04208	KITSISSORSUIT EDDER	S
26863	MOGILEV	S	04211	MITTARFIK UPERNAVIK	S
26941	BARANOVICHI	S	04213	QAARSUT MITTARFIA	S
26951	SLUTSK	S	04214	NUUSSUAATAA NUSSUAQ	S
33008	BREST	S	04221	ILULISSAT	S
33019	PINSK	S	04224	AASIAAT MITTARFIA	S
33036	MOZYR'	S	04228	KITSISSUT ATTU	S
33041	GOMEL'	S	04231	KANGERLUSSUAQ	S
BELGIUM			04234	SISIMIUT MITTARFIK	S
06407	OOSTENDE AP	S	04241	MANITSOQ MITTARFIA	S
06447	UCCLE	S	04250	NUUK	S
06447	UCCLE	W R	04253	UKIIVIK	S
06476	ST HUBERT	W R	04260	PAAMIUT	S
BOSNIA AND HERZEGOVINA			04266	NUNARSUIT	S
14542	BANJA LUKA	S	04270	NARSARSUAQ	S
14648	MOSTAR	S	04270	NARSARSUAQ	W R
14654	SARAJEVO BEJELAVE	S	04272	QAQORTOQ	S
BULGARIA			04285	ANGISOQ	S
15502	VIDIN	S	04301	KAP MORRIS JESUP	S
15525	LOVETCH	S	04312	NORD AUT	S
15549	RAZGRAD	S	04313	HENRIK KROEYER HOLME	S
15552	VARNA	S	04320	DANMARKSHAVN	S
15614	SOFIA OBS	S	04320	DANMARKSHAVN	W R
15614	SOFIA OBS	W R	04330	DANEBOG	S
15640	SLIVEN	S	04339	ILLOQQORTOORMIUT	S
15655	BURGAS	S	04339	ILLOQQORTOORMIUT	W R
15712	SANDANSKI	S	04351	APUTTITEEQ	S
15730	KURDJALI	S	04360	TASIILAQ	S
CROATIA			04360	TASIILAQ	W R
14240	ZAGREB MAKSIMIR	S	04373	IKERMIIT	S
14240	ZAGREB MAKSIMIR	W R	04382	IKERMIUARSUK	S
14258	DARUVAR	S	04390	PR CHRISTIAN SUND	S
14307	PULA/AERODROM	S	04416	SUMMIT	S
14330	GOSPIC	S	06011	TORSHAVN	S
14370	SLAVONSKI BROD	S	06011	TORSHAVN	W R
14445	SPLIT MARJAN	S	06030	AALBORG	S
14474	DUBROVNIK CILIPi	S	06060	KARUP	S
CYPRUS			06070	TIRSTRUP	S
17600	PAPHOS AP	S	06120	ODENSE BELDRINGE	S
17607	ATHALASSA	W R	06180	KOEBENHAVN KASTRUP	S
17609	LARNACA AP	S	06181	KOEBENHAVN JAEGERSB	W R
CZECH REPUBLIC			06193	HAMMER ODDE	S
11423	PRIMDA	S	ESTONIA		
11487	KOCELOVICE	S	26038	TALLINN	S
11518	PRAHA RUZYNE	S	26038	TALLINN	W R
11520	PRAHA LIBUS	W R	26045	KUNDA	S
11603	LIBEREC	S	26115	RISTNA	S
11659	PRIBYSLAV	S	26135	TURI	S
11723	BRNO TURANY	S	26231	PARNU	S
11782	OSTRAVA MOSNOV	S	26242	TARTU	S
DENMARK			26247	VALGA	S
04201	QAANAAQ	S	FRANCE		
04202	PITUFFIK THULE	S	07005	ABBEVILLE	S
			07015	LILLE	S
			07020	LA HAGUE	S
			07027	CAEN CARPIQUET	S

<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>	<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>
07037	ROUEN	S	02935	JYVASKYLA AIRPORT	WR
07070	REIMS	S	02939	ILOMANTSI MEKRIJARVI	S
07110	BREST GUIPAVAS	S	02944	TAMPERE PIKKALA AIRPORT	S
07110	BREST GUIPAVAS	W R	02947	MIKKELI AIRPORT	S
07117	PLOUMANACH	S	02952	PORI AIRPORT	S
07130	RENNES	S	02963	JOKIOINEN OBSERVATORY	S
07139	ALENCON	S	02963	JOKIOINEN OBSERVATORY	W R
07145	TRAPPES	W R	02971	JOMALA SODERSUNDA	S
07149	PARIS ORLY	S	02974	HELSINKI VANTAA AIRPORT	S
07168	TROYES	S	02976	KOTKA RANKKI	S
07180	NANCY ESSEY	W R	02981	KORPPOO UTO	S
07181	NANCY OCHEY	S	02982	HANKO RUSSARO	S
07190	STRASBOURG ENTZHEIM	S		FORMER YUGOSLAV REPUBLIC OF MACEDONIA	
07207	POINTE DU TALUT	S	13579	OHRID AD	S
07222	NANTES	S	13585	PRILEP	S
07240	TOURS	S	13586	SKOPJE PETROVEC	S
07255	BOURGES	S	13586	SKOPJE PETROVEC	W R
07280	DIJON LONGVIC	S		GEORGIA	
07299	BALE MULHOUSE	S	37549	TBILISI	S
07314	CHASSIRON	S		GERMANY	
07335	POITIERS	S	10004	LV TW EMS	S
07434	LIMOGES BELLEGARDE	S	10015	HELGOLAND ISL	S
07460	CLERMONT FERRAND	S	10020	LIST SYLT	S
07471	LE PUY	S	10035	SCHLESWIG	S
07481	LYON SATOLAS	S	10035	SCHLESWIG	W R
07481	LYON SATOLAS	W R	10055	WESTERMARKELSDORF	S
07510	BORDEAUX MERIGNAC	S	10147	HAMBURG FUHLBUTTEL	S
07510	BORDEAUX MERIGNAC	W R	10162	SCHWERIN	S
07535	GOURDON	S	10184	GREIFSWALD	S
07558	MILLAU	S	10184	GREIFSWALD	W R
07577	MONTELMAR	S	10200	EMDEN FP	S
07591	EMBRUN	S	10200	EMDEN FP	W R
07607	MONT DE MARSAN	S	10224	BREMEN	S
07621	TARBES OSSUN	S	10238	BERGEN	W R
07627	ST GIRONS	S	10270	NEURUPPIN	S
07630	TOULOUSE BLAGNAC	S	10338	HANNOVER	S
07643	MONTPELLIER	S	10361	MAGDEBURG	S
07645	NIMES COURBESSAC	W R	10393	LINDENBERG	S
07650	MARSEILLE MARIGNANE	S	10393	LINDENBERG	W R
07661	CAP CEPET	S	10400	DUESSELDORF	S
07690	NICE	S	10410	ESSEN	W R
07747	PERPIGNAN RIVESALTE	S	10438	KASSEL	S
07761	AJACCIO	S	10468	OPPIN	W R
07761	AJACCIO	W R	10469	LEIPZIG SCHKEUDITZ	S
07790	BASTIA	S	10488	DRESDEN KLOTZSCHE	S
	FINLAND		10506	NUERBURG BARWEILER	S
02755	YLIVIESKA AIRPORT	S	10548	MEININGEN	S
02805	UTSJOKI KEVO	S	10548	MEININGEN	W R
02807	INARI / IVALO	S	10618	IDAR OBERSTEIN	W R
02836	SODANKYLA	S	10637	FRANKFURT MAIN AP	S
02836	SODANKYLA	W R	10685	HOF	S
02845	ROVANIEMI AIRPORT	S	10738	STUTTGART ECHTERDING	S
02849	SALLA KK	S	10739	STUTTGART SCHNARREN	W R
02866	PUDASJARVI AIRPORT	S	10763	NUERNBERG	S
02897	KAJAANI PALTANIEMI	S	10771	KUEMMERSBRUCK	W R
02913	KAUHAVA AIRPORT	S	10788	STRAUBING	S
02917	KUOPIO AIRPORT	S	10852	AUGSBURG	S
02924	AHTARI MYLLYMAKI	S	10868	MUENCHEN OBERSCHLEI	W R
02935	JYVASKYLA AIRPORT	S	10946	KEMPTEN	S

<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>	<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>
GIBRALTAR			03976	BELMULLET	S
08495	GIBRALTAR	S	03980	MALIN HEAD	S
08495	GIBRALTAR	W R	ODAS		
GREECE			62090	ODAS BUOY M1	S
16614	KASTORIA AP	S	ISRAEL		
16622	THESSALONIKI AP	S	40155	SDE HAIFA	S
16622	THESSALONIKI AP	W R	40179	BET DAGAN	W R
16627	ALEXANDROUPOLI AP	S	40180	BEN GURION AP	S
16641	KERKYRA AP	S	40199	EILAT	S
16643	AKTION AP	S	ITALY		
16648	LARISSA AP	S	16008	SAN VALENTINO ALLA M	S
16650	LIMNOS AP	S	16021	PASSO ROLLE	S
16667	MYTILINI AP	S	16022	PAGANELLA	S
16675	LAMIA	S	16033	DOBBIACO	S
16682	ANDRAVIDA AP	S	16044	UDINE CAMPOFORMIDO	W R
16684	SKYROS AP	S	16061	TORINO BRIC DELLA CROCE	S
16710	TRIPOLIS AP	S	16080	MILANO LINATE	S
16716	ATHINAI AP HELLINIK	S	16080	MILANO LINATE	W R
16716	ATHINAI AP HELLINIK	W R	16084	PIACENZA S.DAMIANO	S
16732	NAXOS	S	16090	VERONA VILLAFRANCA	S
16734	METHONI	S	16098	TREVISO ISTRANA	S
16738	MILOS	S	16110	TRIESTE	S
16743	KYTHIRA	S	16120	GENOVA SESTRI	S
16746	SOUDA AP	S	16134	MONTE CIMONE	S
16749	RHODES AP PARA	S	16138	FERRARA	S
16754	HERAKLION AP	S	16144	BOLOGNA S PIETRO CA	W R
16754	HERAKLION AP	W R	16148	CERVIA	S
HUNGARY			16153	CAPO MELE	S
12772	MISKOLC	S	16158	PISA S GIUSTO	S
12822	GYOR	S	16168	M. ARGENTARIO	S
12843	BUDAPEST LORINC	S	16172	AREZZO	S
12843	BUDAPEST LORINC	W R	16191	FALCONARA	S
12882	DEBRECEN	S	16219	MONTE TERMINILLO	S
12925	NAGYKANIZSA	S	16230	PESCARA	S
12942	PECS POGANY	S	16232	TERMOLI	S
12982	SZEGED	S	16245	PRATICA DI MARE	S
12982	SZEGED	W R	16245	PRATICA DI MARE	W R
ICELAND			16252	CAMPOBASSO	S
04005	BOLUNGAVIK	S	16253	GRAZZANISE	S
04013	STYKKISHOLMUR	S	16258	MONTE SAN'T ANGELO	S
04018	KEFLAVIK AP	S	16263	TREVICO	S
04018	KEFLAVIK AP	W R	16270	BARI PALESE MACCHIE	S
04048	VESTMANNAEYJAR	S	16280	PONZA	S
04056	HVERAVELLIR	S	16294	CAPRI	S
04063	AKUREYRI	S	16310	CAPO PALINURO	S
04064	KIRKJUBAEJARKLAUSTUR	S	16320	BRINDISI AB CASALE	S
04077	RAUFARHOFN	S	16320	BRINDISI AB CASALE	W R
04082	AKURNES	S	16325	MARINA DI GINOSA	S
04097	DALATANGI	S	16344	MONTESCuro	S
IRELAND			16360	S MARIA DI LEUCA	S
03953	VALENTIA OBS	S	16400	USTICA	S
03953	VALENTIA OBS	W R	16420	MESSINA	S
03955	CORK AP	S	16429	TRAPANI BIRGI	S
03957	ROSSLARE	S	16429	TRAPANI BIRGI	W R
03962	SHANNON AP	S	16434	PRIZZI	S
03969	DUBLIN AP	S	16450	ENNA	S
03973	CONNAUGHT AP	S	16459	CATANIA SIGONELLA	S
			16470	PANTELLERIA	S

<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>	<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>
16480	COZZO SPADARO	S	NORWAY		
16522	CAPO CACCIA	S	01001	JAN MAYEN	S
16531	OLBIA	S	01001	JAN MAYEN	W R
16539	CAPO FRASCA	S	01003	HORNSUND	S
16546	DECIMOMANNU	S	01004	NY ALESUND II	W R
16550	CAPO BELLAVISTA	S	01007	NY ALESUND	S
16560	CAGLIARI ELMAS	W R	01008	SVALBARD AP	S
JORDAN			01010	ANDOYA	S
40250	H 4 'RWAISHED'	S	01026	TROMSO	S
40265	MAFRAQ	S	01028	BJORNOYA	S
40265	MAFRAQ	W R	01028	BJORNOYA	W R
40296	GHOR EL SAFI	S	01047	KAUTOKEINO	S
40310	MA'AN	S	01049	ALTA AD	S
KAZAKHSTAN			01055	FRUHOLMEN LH	S
34398	ZHALPAKTAL	S	01062	HOPEN	S
34691	NOVYJ USHTOGAN	S	01078	SLETTNES LH	S
34798	GANJUSHKINO	S	01098	VARDO	S
LEBANON			01102	SKLINNA LH	S
40100	BEYROUTH AP	S	01115	MYKEN	S
40100	BEYROUTH AP	W R	01152	BODO VI	S
40103	TRIPOLI	S	01152	BODO VI	W R
LATVIA			01160	SKROVA AD	S
26313	KOLKA	S	01205	SVINOY LH	S
26346	ALUKSNE	S	01212	ONA II	S
26406	LIEPAJA	S	01218	TAFJORD	S
26416	SALDUS	S	01238	FOKSTUA II	S
26422	RIGA	S	01241	ORLAND III	S
26422	RIGA	W R	01241	ORLAND III	W R
26544	DAUGAVPILS	S	01271	TRONDHEIM VAERNES	S
LITHUANIA			01300	GULLFAKS C	S
26509	KLAIPEDA	S	01317	BERGEN FLORIDA	S
26518	LAUKUVA	S	01338	VANGSNES	S
26524	SIAULIAI	S	01367	FAGERNES	S
26531	BIRZAI	S	01384	OSLO GARDERMOEN	S
26629	KAUNAS	S	01389	RENA HAUGEDALEN	S
26629	KAUNAS	W R	01400	EKOFISK	S
26633	UTENA	S	01400	EKOFISK	W R
26730	VILNIUS	S	01403	UTSIRA LH	S
LUXEMBOURG			01415	STAVANGER SOLA	S
06590	LUXEMBOURG	S	01415	STAVANGER SOLA	W R
MALTA			01448	OKSOY LH	S
16597	LUQA	S	01482	FERDER LH	S
NETHERLANDS			01492	OSLO BLINDERN	W R
06235	DE KOOY	S	*****	SHIP M	S
06239	PLATFORM F3	S	*****	SHIP M	W R
06240	AMSTERDAM AP SCHIPH	S	POLAND		
06252	PLATFORM K13	S	12105	KOSZALIN	S
06260	DE BILT	W R	12120	LEBA	S
06270	LEEWARDEN	S	12120	LEBA	W R
06290	TWENTHE	S	12160	ELBLAG	S
06321	PLATFFORM EURO	S	12195	SUWALKI	S
06375	VOLKEL	S	12205	SZCZECIN	S
06380	BEEK	S	12235	CHOJNICE	S
			12250	TORUN	S
			12270	MLAWA	S
			12280	MIKOLAJKI	S
			12295	BIALYSTOK	S
			12300	GORZOW WLKP	S
			12330	POZNAN	S
			12374	LEGIONOWO	W R

<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>	<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>
26781	SMOLENSK	W R	34560	VOLGOGRAD	S
26882	ROSLAVL'	S	34560	VOLGOGRAD	W R
26997	TRUBCEVSK	S	34579	VERHNIJ BASKUNCAK	S
27008	BABAEVO	S	34730	ROSTOV NA DONU	S
27037	VOLOGDA	S	34731	ROSTOV NA DONU	W R
27037	VOLOGDA	W R	34824	PRIMORSKO AHTARSK	S
27051	TOT'MA	S	34838	TIHORECK	S
27066	NIKOL'SK	S	34858	DIVNOE	S
27083	OPARINO	S	34858	DIVNOE	W R
27113	CEREPOVEC	S	34866	JASKUL'	S
27199	KIROV	S	34880	ASTRAHAN'	S
27199	KIROV	W R	34880	ASTRAHAN'	W R
27208	MAKSATIKHA	S	34929	KRASNODAR	S
27225	RYBINSK	S	37018	TUAPSE	S
27242	BUJ	S	37031	ARMAVIR	S
27252	NIKOLO POLOMA	S	37054	MINERAL'NYE VODY	S
27271	SAR'JA	S	37054	MINERAL'NYE VODY	W R
27329	ROSTOV	S	37061	BUDENNOVSK	S
27355	JUR'EVEC	S	37085	KOCUBEJ	S
27369	KRASNYE BAKI	S	37171	ADLER	S
27373	SAKUN'JA	S	37228	VLADIKAVKAZ	S
27393	NOLINSK	S	37472	MAHACKALA	S
27402	TVER'	S			
27459	NIZNIJ NOVGOROD	S	SLOVAKIA		
27459	NIZNIJ NOVGOROD	W R	11826	PIESTANY	S
27479	KOZ'MODEM'JANSK	S	11903	SLIAC	S
27532	VLADIMIR	S	11934	POPRAD TATRY	S
27595	KAZAN'	S	11952	POPRAD GANOVCE	W R
27595	KAZAN'	W R	11968	KOSICE	S
27612	MOSKVA	S			
27612	MOSKVA DOLGOPRUDNYJ	W R	SLOVENIA		
27648	ELAT'MA	S	14015	LJUBLJANA BEZIGRAD	S
27665	LUKOJANOV	S	14015	LJUBLJANA BEZIGRAD	W R
27679	ALATYR'	S	14026	MARIBOR SLIVNICA	S
27707	SUHINICI	S			
27719	TULA	S	SPAIN		
27730	RJAZAN'	S	08001	LA CORUNA	S
27730	RJAZAN'	W R	08001	LA CORUNA	W R
27786	ULYANOVSK	S	08015	OVIEDO	S
27823	PAVELEC	S	08023	SANTANDER	S
27857	ZAMETCINO	S	08023	SANTANDER	W R
27906	OREL	S	08027	SAN SEBASTIAN IGUELDO	S
27928	ELEC	S	08045	VIGO PEINADOR	S
27947	TAMBOV	S	08055	LEON VIRGEN DEL CAMINO	S
27962	PENZA	S	08075	BURGOS VILLAFRIA	S
27962	PENZA	W R	08084	LOGRONO AGONCILLO	S
27983	SYZРАН'	S	08141	VALLADOLID	S
34009	KURSK	S	08160	ZARAGOZA AEROPUERTO	S
34009	KURSK	W R	08160	ZARAGOZA AEROPUERTO	W R
34122	VORONEZ	W R	08171	LERIDA	S
34123	VORONEZ	S	08181	BARCELONA AEROPUERTO	S
34152	BALASOV	S	08184	GERONA COSTA BRAVA	S
34172	SARATOV	S	08202	SALAMANCA MATACAN	S
34186	ERSOV	S	08221	MADRID BARAJAS	S
34247	KALAC	S	08221	MADRID BARAJAS	W R
34247	KALAC	W R	08231	CUENCA	S
34336	BOGUCAR	S	08235	TERUEL	S
34357	SERAFIMOVIC	S	08238	TORTOSA	S
34363	KAMYSIN	S	08261	CACERES	S
34391	ALEKSANDROV GAJ	S	08280	ALBACETE LOS LLANOS	S
34545	MOROZOVSK	S	08284	VALENCIA AEROPUERTO	S

<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>	<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>
08301	PALMA DE MALLORCA	W R	02562	LINKOPING MALMSLAET	S
08306	PALMA DE MALLORCA/SON SAN JUAN	S	02563	HARSTENA	S
08314	MENORCA MAHON	S	02566	MALILLA	S
08348	CIUDAD REAL	S	02584	GOTSKA SANDON	S
08360	ALICANTE EL ALTET	S	02590	VISBY AD	S
08373	IBIZA ES CODOLA	S	02591	VISBY AS	W R
08410	CORDOBA AEROPUERTO	S	02620	TORUP	S
08419	GRANADA AEROPUERTO	S	02664	RONNEBY KALLINGE	S
08430	MURCIA	S	02680	HOBURG	S
08430	MURCIA	W R			
08451	JEREZ DE LA FRONTERA/AEROPUERTO	S		SWITZERLAND AND LIECHTENSTEIN	
08482	MALAGA AEROPUERTO	S	06610	PAYERNE	S
08487	ALMERIA AEROPUERTO	S	06610	PAYERNE	W R
	SYRIA		06670	ZURICH AP KLOTEN	S
40001	KAMISHLI	S	06700	GENEVE AP COINTRIN	S
40007	ALEPPO AP	S	06720	SION	S
40022	LATTAKIA	S	06762	LOCARNO MAGADINO	S
40030	HAMA	S	06794	ROBBIA	S
40039	RAQQA	S	06990	VADUZ LIECHTENSTEIN	S
40045	DEIR EZZOR	S		TURKEY	
40061	PALMYRA	S	17022	ZONGULDAK	S
40072	ABUKMAL	S	17024	INEBOLU	S
40080	DAMASCUS AP	S	17026	SINOP	S
	SWEDEN		17030	SAMSUN	W R
02020	KATTERJAKK	S	17031	CARSAMBA SAMSUN	S
02080	KARESUANDO	S	17034	GIRESUN	S
02096	PAJALA	S	17038	TRABZON	S
02104	HEMAVAN	S	17042	HOPA	S
02120	KVIKKJOKK ARRENJ	S	17050	EDIRNE	S
02124	ARJEPLUG	S	17056	TEKIRDAG	S
02128	GUNNARN	S	17060	ISTANBUL ATATURK	S
02151	JOKKMOKK FPL	S	17062	ISTANBUL GOZTEPE	W R
02185	LULEA KALLAX	W R	17067	GOLCUK DUMLUPINAR	S
02186	LULEA KALLAX	S	17070	BOLU	S
02196	HAPARANDA	S	17074	KASTAMONU	S
02206	STORLIEN	S	17084	CORUM	S
02222	GADDEDE	S	17086	TOKAT	S
02226	OSTERSUND FROSON	S	17088	GUMUSHANE	S
02244	JUNSELE	S	17090	SIVAS	S
02269	SKAGSUDDE	S	17092	ERZINCAN	S
02288	HOLMOGADD	S	17096	ERZURUM	S
02297	BJUROKLUBB	S	17098	KARS	S
02308	TANNAS	S	17112	CANAKKALE	S
02324	SVEG	S	17115	BANDIRMA	S
02355	KUGGOREN	S	17116	BURSA	S
02365	SUNDSVALL HARNOSAND	W R	17124	ESKISEHIR	S
02366	TIMRA MIDLANDA	S	17128	ANKARA ESENBOGA	S
02410	MALUNG	S	17130	ANKARA CENTRAL	W R
02418	KARLSTAD FLYGPLATS	S	17140	YOZGAT	S
02435	BORLANGE	S	17150	BALIKESIR	S
02440	AMOT	S	17155	KUTAHYA	S
02452	KILSBERGEN SUTRARBO	S	17160	KIRSEHIR	S
02456	FILM	S	17170	VAN	S
02469	STOCKHOLM AB TULLINGE	S	17184	AKHISAR	S
02496	SVENSKA HOGARNA	S	17188	USAK	S
02518	NIDINGEN	S	17190	AFYON	S
02520	SATENAS	S	17195	KAYSERI ERKILET	S
02527	GOTEBORG LANDVETTER	W R	17199	MALATYA BOLGE	S
02550	JONKOPING AXAMO	S	17202	ELAZIG	S
			17203	BINGOL	S

<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>	<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>
17210	SHIRT	S	33946	SIMFEROPOL'	S
17219	IZMIR A MENDERES	S	33946	SIMFEROPOL'	W R
17220	IZMIR GUZELYALI	W R	33983	KERCH	S
17234	AYDIN	S	34300	KHARKIV	S
17237	DENIZLI	S	34300	KHARKIV	W R
17240	ISPARTA	S	34415	IZIUM	S
17240	ISPARTA	W R	34504	DNIPROPETROVS'K	S
17244	KONYA	S	34519	DONETS'K	S
17248	KONYA EREGLI	S	34523	LUHANS'K	S
17250	NIGDE	S	34601	ZAPORIZHZHIA	S
17260	GAZIANTEP	S	34712	MARIUPOL'	S
17270	SANLIURFA	S			
17280	DIYARBAKIR	S	UNITED KINGDOM		
17280	DIYARBAKIR	W R	03005	LERWICK	S
17290	BODRUM	S	03005	LERWICK	W R
17292	MUGLA	S	03026	STORNOWAY	S
17295	DALAMAN	S	03026	STORNOWAY	W R
17300	ANTALYA	S	03037	SKYE LUSA	S
17310	ALANYA	S	03066	KINLOSS	S
17320	ANAMUR	S	03075	WICK	S
17330	SILIFKE	S	03091	ABERDEEN DYCE AP	S
17350	ADANA INCIRLIK	S	03100	TIREE	S
17351	ADANA BOLGE	W R	03117	OBAN	S
17370	ISKENDERUN	S	03136	PRESTWICK RNAS	S
17375	FINIKE	S	03162	ESKDALEMUIR	S
			03171	LEUCHARS	S
UKRAINE			03204	ISLE OF MAN RONALDS	S
33088	SARNY	S	03240	BOULMER	S
33135	CHERNIHIV	S	03246	ALBEMARLE	W R
33177	VOLODYMYR VOLYNS'KY	S	03257	LEEMING	S
33261	KONOTOP	S	03292	BRIDLINGTON MRSC	S
33275	SUMY	S	03302	VALLEY	S
33301	RIVNE	S	03334	MANCHESTER AP	S
33317	SHEPETIVKA	S	03354	NOTTINGHAM	W R
33317	SHEPETIVKA	W R	03377	WADDINGTON	S
33325	ZHYTOMYR	S	03414	SHAWBURY	S
33345	KYIV	S	03462	WITTERING	S
33345	KYIV	W R	03495	COLTISHALL	S
33377	LUBNY	S	03502	ABERPORTH	S
33393	L'VIV	S	03590	WATTISHAM	S
33393	L'VIV	W R	03716	ST ATHAN	S
33415	TERNOPIL'	S	03740	LYNEHAM	S
33429	KHMEL'NYTS'KYI	S	03772	LONDON HEATHROW AP	S
33466	MYRONIVKA	S	03796	LANGDON BAY	S
33506	POLTAVA	S	03808	CAMBORNE	S
33526	IVANO FRANKIVS'K	S	03808	CAMBORNE	W R
33562	VINNYTSIA	S	03853	YEOVILTON	S
33587	UMAN'	S	03874	SOLENT MRSC	S
33614	SVITLOVODS'K	S	03882	HERSTMONCEUX	S
33631	UZHGOROD	S	03882	HERSTMONCEUX	W R
33658	CHEARNIVTSI	S	03917	BELFAST ALDERGROVE	S
33658	CHEARNIVTSI	W R	03920	HILLSBOROUGH	W R
33663	MOHYLIV PODIL'S'KYI	S			
33711	KIROVOHRAD	S	ODAS		
33761	LIUBASHIVKA	S	62026	ODAS BUOY K17	S
33791	KRYVYI RIH	S	62029	ODAS BUOY K1	S
33791	KRYVYI RIH	W R	62081	ODAS BUOY K2	S
33837	ODESA	S	62105	ODAS BUOY K4	S
33837	ODESA	W R	62106	ODAS BUOY RAHR	S
33902	KHERSON	S	62108	ODAS BUOY K3	S
33924	CHORNOMORS'KE	S	62109	ODAS BUOY K16	S

<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>	<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>
62112	ODAS PF BRAE	S	13285	VELIKO GRADISTE	S
64045	ODAS BUOY K5	S	13289	CRNI VRH	S
COOPERATION BY UNITED KINGDOM AND FRANCE			13363	PLEVLJA	S
62163	ODAS BUOY BRITTANNY	S	13376	KRALJEVO	S
YUGOSLAVIA			13388	NIS	S
13160	SOMBOR	S	13462	PODGORICA GOLUBOVCI	S
13262	LOZNICA	S	13489	VRANJE	S
13272	BEOGRAD SURCIN	S	Legend:		
13275	BEOGRAD KOSUTNJAK	W R	S = Surface observations		
			W = Radiowind observations		
			R = Radiosonde observations		

RESOLUTION 3 (XIII-RA VI)

REGIONAL BASIC CLIMATOLOGICAL NETWORK IN REGION VI

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) The WMO *Technical Regulations* (WMO-No. 49), Regulation [B.1.] 3.1.1.2,
- (2) Resolution 4 (XII-RA II) — Regional basic climatological network in Region II,
- (3) Resolution 3 (XIII-RA IV) — Regional basic climatological network in Region IV,
- (4) Resolution 3 (XIII-RA III) — Regional basic climatological network in Region III,
- (5) The approval of lists of GSN and GUAN stations by the president of the Association,

CONSIDERING that Thirteenth Congress stressed the important role of regional associations in the evolution of networks of stations necessary to provide a good representation of climate on the regional scale, in addition to global scale,

DECIDES that the stations listed in the annex to this resolution constitute the initial RBCN in Region VI;

URGES Members:

- (1) To spare no effort in their endeavours to ensure, at the earliest date possible, full implementation of

the network of RBCN stations set forth in the annex to this resolution;

- (2) To comply fully with the global and regional coding procedures and data collection standards in accordance with the procedures laid down in the WMO *Technical Regulations* (WMO-No. 49) and the *Manuals on the GOS* (WMO-No. 544), *on Codes* (WMO-No. 306), and *on the GTS* (WMO-No. 386) when operating the RBCN;

AUTHORIZES the president of the Association to approve, at the request of Members concerned and in consultation with the Secretary-General, minor amendments to the initial list of RBCN stations;

REQUESTS the Secretary-General:

- (1) To arrange for the inclusion in *Weather Reporting* (WMO-No. 9), Volume A, the information concerning the CLIMAT and CLIMAT TEMP stations;
- (2) To bring the changes to this network, as approved by the president of the Association, to the attention of all WMO Members.

ANNEX TO RESOLUTION 3 (XIII-RA VI)

LIST OF STATIONS COMPRISING THE RBCN IN REGION VI

<i>Index No.</i>	<i>Station name</i>	<i>GSN</i>	<i>GUAN</i>	<i>CLIMAT</i>	<i>CLIMAT TEMP</i>	<i>Index No.</i>	<i>Station name</i>	<i>GSN</i>	<i>GUAN</i>	<i>CLIMAT</i>	<i>CLIMAT TEMP</i>
ARMENIA						ARMENIA					
37682	AMASIA			X		15614	SOFIA OBS			X	
37717	SEVAN OZERO			X		15614	SOFIA OBS				X
37789	YEREVAN	X		X		15730	KURDJALI			X	
AUSTRIA						CROATIA					
11012	KREMSMUNSTER	X		X		14236	ZAGREB GRIC			X	
11035	WIEN HOHE WARTE	X		X		14240	ZAGREB MAKSIMIR				X
11035	WIEN HOHE WARTE		X		X	14445	SPLIT MARJAN			X	
11120	INNSBRUCK AP			X		CYPRUS					
11146	SONNBLICK	X		X		17607	ATHALASSA				X
11150	SALZBURG AP			X		17609	LARNACA AP			X	
11155	FEUERKOGEL			X		CZECH REPUBLIC					
11212	VILLACHERALPE			X		11423	PRIMDA			X	
11231	KLAGENFURT			X		11464	MILESOVKA	X		X	
11240	GRAZ THALERHOF AP			X		11487	KOCELOVICE			X	
AZERBAIJAN						11520	PRAHA LIBUS			X	
37661	SHEKI			X		11520	PRAHA LIBUS				X
37735	GANDJA			X		11603	LIBEREC			X	
37747	YEVLAKH	X		X		11659	PRIBYSLAV			X	
37860	MASHTAGA			X		11723	BRNO TURANY			X	
37936	NAKHCHIVAN			X		11782	OSTRAVA MOSNOV			X	
37989	ASTARA	X		X		11787	LYSA HORA			X	
BELARUS						GREECE					
26554	VERHNEDVINSK			X		16622	THESSALONIKI AP			X	
26666	VITEBSK			X		16641	KERKYRA AP	X		X	
26825	GRODNO			X		16648	LARISSA AP			X	
26850	MINSK			X		16714	ATHENS OBSERVATORY			X	
26863	MOGILEV			X		16719	ZAKINTHOS			X	
26941	BARANOVICHI			X		16726	KALAMATA			X	
26951	SLUTSK			X		16746	SOUDA AP	X		X	
33008	BREST			X		16754	HERAKLION AP			X	
33019	PINSK			X		16754	HERAKLION AP				X
33036	MOZYR			X		DENMARK					
33038	VASILEVICHI	X		X		04210	UPERNAVIK	X		X	
33041	GOMEL'			X		04220	AASIAAT			X	
BELGIUM						04220	AASIAAT				X
06447	UCCLE			X		04250	NUUK	X		X	
06447	UCCLE				X	04270	NARSARSUAQ		X		X
BOSNIA AND HERZEGOVINA						04312	NORD AUT			X	
14542	BANJA LUKA			X		04320	DANMARKSHAVN	X		X	
14562	BIJELINA			X		04320	DANMARKSHAVN				X
14648	MOSTAR			X		04339	ILLOQQORTOORMIUT			X	
14652	BJELASNICA	X		X		04339	ILLOQQORTOORMIUT				X
14654	SARAJEVO BEJELAVE			X		04360	TASIILAQ	X		X	
14656	CEMerno			X		04360	TASIILAQ				X
BULGARIA						04390	PR CHRISTIAN SUND			X	
15502	VIDIN			X		06011	TORSHAVN	X		X	
15552	VARNA			X		06011	TORSHAVN				X
						06030	AALBORG			X	
						06181	KOEBENHAVN JAEGERSB				X

<i>Index No.</i>	<i>Station name</i>	<i>GSN</i>	<i>GUAN</i>	<i>CLIMAT</i>	<i>CLIMAT TEMP</i>	<i>Index No.</i>	<i>Station name</i>	<i>GSN</i>	<i>GUAN</i>	<i>CLIMAT</i>	<i>CLIMAT TEMP</i>
06186	KOEBENHAVN LHS	X			X	FINLAND					
06190	ROENNE			X		02801	ENONTEKIO KILPISJARVI			X	
ESTONIA						02805	UTSJOKI KEVO			X	
26038	TALLINN			X		02836	SODANKYLA	X		X	
26214	VILSANDI			X		02836	SODANKYLA				X
26242	TARTU	X		X		02875	OULU AIRPORT			X	
FRANCE						02897	KAJAANI PALTANIEMI			X	
07005	ABBEVILLE			X		02935	JYVASKYLA AIRPORT	X		X	
07015	LILLE			X		02935	JYVASKYLA AIRPORT				X
07020	LA HAGUE			X		02942	KANKAANPAA NIINISALO			X	
07027	CAEN CARPIQUET			X		02958	LAPPEENRANTA AIRPORT			X	
07037	ROUEN			X		02963	JOKIOINEN OBSERVATORY	X		X	
07070	REIMS			X		02963	JOKIOINEN OBSERVATORY				X
07110	BREST GUIPAVAS			X		02972	TURKU AIRPORT			X	
07110	BREST GUIPAVAS				X	02974	HELSINKI VANTAA AIRPORT			X	
07117	PLOUMANACH			X		FORMER YUGOSLAV REPUBLIC OF MACEDONIA					
07130	RENNES	X		X		13577	LAZAROPOLE	X		X	
07139	ALENCON			X		13585	PRILEP			X	
07145	TRAPPES				X	13586	SKOPJE PETROVEC				X
07149	PARIS ORLY			X		13588	SKOPJE ZAJCEV RID			X	
07168	TROYES			X		13591	STIP			X	
07180	NANCY ESSEY				X	GEORGIA					
07181	NANCY OCHEY			X		37549	TBLISI	X		X	
07190	STRASBOURG ENTZHEIM	X		X		GERMANY					
07207	POINTE DU TALUT			X		10015	HELGOLAND ISL			X	
07222	NANTES			X		10020	LIST SYLT			X	
07240	TOURS			X		10035	SCHLESWIG			X	
07255	BOURGES	X		X		10035	SCHLESWIG				X
07280	DIJON LONGVIC			X		10055	WESTERMARKELSDORF			X	
07299	BALE MULHOUSE			X		10091	ARKONA			X	
07314	CHASSIRON			X		10131	CUXHAVEN			X	
07335	POITIERS			X		10147	HAMBURG FUHLBUTTEL	X		X	
07434	LIMOGES BELLEGARDE			X		10162	SCHWERIN			X	
07460	CLERMONT FERRAND			X		10170	ROSTOCK WARNEMUNDE			X	
07471	LE PUY			X		10184	GREIFSWALD			X	
07481	LYON SATOLAS			X		10184	GREIFSWALD				X
07481	LYON SATOLAS				X	10200	EMDEN FP			X	
07510	BORDEAUX MERIGNAC			X		10200	EMDEN FP				X
07510	BORDEAUX MERIGNAC				X	10224	BREMEN			X	
07535	GOURDON			X		10235	SOLTAU			X	
07560	MONT AIGOUAL	X		X		10238	BERGEN				X
07577	MONTLIMAR			X		10253	LUECHOW			X	
07591	EMBRUN			X		10270	NEURUPPIN			X	
07607	MONT DE MARSAN			X		10280	NEUBRANDENBURG			X	
07621	TARBES OSSUN			X		10317	OSNABRUECK			X	
07627	ST GIRONS			X		10338	HANNOVER			X	
07630	TOULOUSE BLAGNAC	X		X		10361	MAGDEBURG			X	
07643	MONTPELLIER			X		10393	LINDENBERG	X		X	
07645	NIMES COURBESSAC				X	10393	LINDENBERG				X
07650	MARSEILLE MARIGNANE	X		X		10400	DUESSELDORF			X	
07661	CAP CEPET			X		10410	ESSEN				X
07690	NICE			X		10427	KAHLER ASTEN			X	
07747	PERPIGNAN RIVESALTE			X		10430	BAD LIPPSRINGE			X	
07761	AJACCIO			X		10438	KASSEL			X	
07761	AJACCIO				X	10469	LEIPZIG SCHKEUDITZ			X	
07790	BASTIA			X		10488	DRESDEN KLOTZSCHE			X	
						10506	NUERBURG BARWEILER			X	

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10526	BAD MARIENBERG			X		40179	BET DAGAN				X
10548	MEININGEN			X		40180	BEN GURION AP			X	
10548	MEININGEN				X	40199	EILAT	X		X	
10554	ERFURT BINDERSLEBEN			X							
10578	FICHTELBERG			X		ITALY					
10637	FRANKFURT MAIN AP			X		16008	SAN VALENTINO ALLA M			X	
10655	WUERZBURG			X		16033	DOBBIACO			X	
10685	HOF			X		16044	UDINE CAMPOFORMIDO				X
10708	SAARBRUECKEN ENSHEIM			X		16045	UDINE RIVOLTO			X	
10724	WEINBIET			X		16052	PIAN ROSA			X	
10738	STUTTGART ECHTERDING			X		16064	NOVARA CAMERI			X	
10739	STUTTGART SCHNARREN		X		X	16090	VERONA VILLAFRANCA			X	
10742	OEHRINGEN			X		16098	TREVISO ISTRANA			X	
10763	NUERNBERG			X		16110	TRIESTE	X		X	
10788	STRAUBING			X		16134	MONTE CIMONE	X		X	
10791	GROSSER ARBER			X		16148	CERVIA			X	
10838	ULM			X		16153	CAPO MELE			X	
10852	AUGSBURG			X		16158	PISA S GIUSTO			X	
10868	MUENCHEN OBERSCHLEI				X	16206	GROSSETO			X	
10870	MUENCHEN AP			X		16219	MONTE TERMINILLO			X	
10895	FURSTENZELL			X		16232	TERMOLI	X		X	
10908	FELDBERG SCHWARZW			X		16245	PRATICA DI MARE			X	
10961	ZUGSPITZE			X		16245	PRATICA DI MARE		X		X
10962	HOHENPEISSENBERG	X		X		16252	CAMPOBASSO			X	
10980	WENDELSTEIN			X		16253	GRAZZANISE			X	
	GIBRALTAR					16310	CAPO PALINURO			X	
08495	GIBRALTAR			X		16320	BRINDISI AB CASALE				X
08495	GIBRALTAR	X			X	16325	MARINA DI GINOSA			X	
	HUNGARY					16344	MONTESCURO			X	
12772	MISKOLC			X		16360	S MARIA DI LEUCA			X	
12843	BUDAPEST LORINC			X		16420	MESSINA			X	
12843	BUDAPEST LORINC				X	16429	TRAPANI BIRGI			X	
12882	DEBRECEN			X		16429	TRAPANI BIRGI				X
12925	NAGYKANIZSA			X		16450	ENNA			X	
12942	PECS POGANY	X		X		16459	CATANIA SIGONELLA			X	
12982	SZEGED			X		16480	COZZO SPADARO			X	
12982	SZEGED				X	16522	CAPO CACCIA			X	
	ICELAND					16546	DECIMOMANNU			X	
04013	STYKKISHOLMUR	X		X		16550	CAPO BELLAVISTA	X		X	
04018	KEFLAVIK AP			X		16560	CAGLIARI ELMAS				X
04018	KEFLAVIK AP		X		X		JORDAN				
04048	VESTMANNAEYJAR	X		X		40250	H 4 'IRWAISHED'			X	
04063	AKUREYRI	X		X		40265	MAFRAQ			X	
04097	DALATANGI			X		40265	MAFRAQ				X
	IRELAND					40296	GHOR EL SAFI			X	
03953	VALENTIA OBS	X		X		40310	MA'AN			X	
03953	VALENTIA OBS		X		X		KAZAKHSTAN				
03955	CORK AP			X		34398	ZHALPAKTAL			X	
03957	ROSSLARE			X		34691	NOVYJ USHTOGAN			X	
03962	SHANNON AP			X			LATVIA				
03969	DUBLIN AP			X		26314	VENTSPILS			X	
03973	CONNAUGHT AP			X		26346	ALUKSNE			X	
03976	BELMULLET			X		26406	LIEPAJA	X		X	
03980	MALIN HEAD	X		X		26422	RIGA				X
	ISRAEL					26544	DAUGAVPILS			X	
40155	SDE HAIFA			X			LEBANON				
						40100	BEYROUTH AP			X	

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40100	BEYROUTH AP				X	PORTUGAL AND AZORES					
40103	TRIPOLI			X		08501	FLORES			X	
LITHUANIA						08506	HORTA	X		X	
26509	KLAIPEDA			X		08508	LAJES SANTA RITA		X		X
26524	SIAULIAI			X		08509	LAJES			X	
26531	BIRZAI			X		08513	PONTA DELGADA OBS	X		X	
26629	KAUNAS			X		08515	SANTA MARIA			X	
26629	KAUNAS				X	08535	LISBOA GEOFISICA	X		X	
26730	VILNIUS			X		08546	PORTO SERRA DO PILA			X	
LUXEMBURG						08548	COIMBRA CERVACHE			X	
06590	LUXEMBOURG			X		08554	FARO AP			X	
MALTA						08558	EVORA C COORD			X	
16597	LUQA	X		X		08570	CASTELO BRANCO			X	
NETHERLANDS						08575	BRAGANCA			X	
06235	DE KOOY			X		08579	LISBOA GAGO COUTINH				X
06260	DE BILT	X		X		REPUBLIC OF MOLDOVA					
06260	DE BILT				X	33815	CHISINAU			X	
06310	VLISSINGEN			X		33883	KOMRAT			X	
06380	BEEK			X		ROMANIA					
NORWAY						15023	SUCEAVA SALCEA			X	
01001	JAN MAYEN	X		X		15085	BISTRITA	X		X	
01001	JAN MAYEN		X		X	15090	IASI			X	
01008	SVALBARD AP	X		X		15120	CLUJ NAPOCA			X	
01026	TROMSO	X		X		15120	CLUJ NAPOCA				X
01028	BJORNOYA	X		X		15247	TIMISOARA			X	
01028	BJORNOYA				X	15260	SIBIU			X	
01098	VARDO	X		X		15280	VF OMU	X		X	
01152	BODO VI	X		X		15292	CARANSEBES			X	
01152	BODO VI				X	15310	GALATI			X	
01212	ONA II	X		X		15350	BUZAU			X	
01238	FOKSTUA II	X		X		15360	SULINA	X		X	
01241	ORLAND III			X		15420	BUCURESTI IMH BANES			X	
01241	ORLAND III				X	15420	BUCURESTI IMH				X
01317	BERGEN FLORIDA			X		15450	CRAIOVA			X	
01400	EKOFISK				X	15480	CONSTANTA			X	
01403	UTSIRA LH	X		X		15480	CONSTANTA				X
01415	STAVANGER SOLA			X		RUSSIAN FEDERATION					
01415	STAVANGER SOLA				X	22113	MURMANSK			X	
01465	TORUNGEN LH	X		X		22113	MURMANSK				X
01492	OSLO BLINDERN			X		22165	KANIN NOS	X		X	
*****	SHIP M				X	22550	ARHANGEL'SK	X		X	
POLAND						22550	ARHANGEL'SK		X		X
12120	LEBA	X		X		22602	REBOLY	X		X	
12120	LEBA				X	22837	VYTEGRA	X		X	
12160	ELBLAG			X		26063	ST PETERBURG	X		X	
12205	SZCZECIN			X		26063	ST PETERBURG				X
12295	BIALYSTOK			X		26359	PUSKINSKIE GORY			X	
12330	POZNAN			X		27037	VOLOGDA			X	
12374	LEGIONOWO				X	27037	VOLOGDA				X
12375	WARSZAWA OKECIE			X		27199	KIROV			X	
12385	SIEDLCE	X		X		27595	KAZAN'	X		X	
12424	WROCLAW II STRACHOW			X		27595	KAZAN'				X
12425	WROCLAW I				X	27612	MOSKVA	X		X	
12497	WLODAWA			X		27612	MOSKVA				X
12566	KRAKOW BALICE			X		34123	VORONEZ			X	
						34172	SARATOV			X	
						34730	ROSTOV NA DONU			X	
						34730	ROSTOV NA DONU		X		X
						34880	ASTRAHAN'			X	

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SPAIN						11952	POPRAD GANOVCE				X
08001	LA CORUNA			X		11968	KOSICE			X	
08001	LA CORUNA				X	SLOVENIA					
08015	OVIEDO			X		14015	LJUBLJANA BEZIGRAD			X	
08023	SANTANDER			X		SYRIA					
08023	SANTANDER				X	40001	KAMISHLI	X		X	
08025	BILBAO SONDICA			X		40007	ALEPPO AP			X	
08027	SAN SEBASTIAN IGUELDO	X		X		40022	LATTAKIA	X		X	
08045	VIGO PEINADOR			X		40030	HAMA			X	
08048	ORENSE			X		40045	DEIR EZZOR			X	
08053	PONFERRADA			X		40061	PALMYRA	X		X	
08055	LEON VIRGEN DEL CAMINO			X		40080	DAMASCUS AP			X	
08075	BURGOS VILLAFRIA			X		SWEDEN					
08084	LOGRONO AGONCILLO			X		02080	KARESUANDO			X	
08085	PAMPLONA NOAIN			X		02120	KVIKKJOKK ARRENJ			X	
08130	ZAMORA			X		02128	GUNNARN			X	
08141	VALLADOLID			X		02185	LULEA KALLAX				X
08148	SORIA			X		02196	HAPARANDA	X		X	
08160	ZARAGOZA AEROPUERTO			X		02226	OSTERSUND FROSON	X		X	
08160	ZARAGOZA AEROPUERTO				X	02288	HOLMOGADD	X		X	
08171	LERIDA			X		02365	SUNDSVALL HARNOSAND				X
08175	REUS AP			X		02366	TIMRA MIDLANDA			X	
08181	BARCELONA AEROPUERTO	X		X		02410	MALUNG	X		X	
08184	GERONA COSTA BRAVA			X		02418	KARLSTAD FLYGPLATS			X	
08202	SALAMANCA MATACAN	X		X		02435	BORLANGE			X	
08215	NAVACERRADA	X		X		02452	KILSBERGEN SUTTARBO			X	
08221	MADRID BARAJAS			X		02485	STOCKHOLM			X	
08221	MADRID BARAJAS				X	02500	NORDKOSTER			X	
08231	CUENCA			X		02512	GOTEBORG SAVE			X	
08235	TERUEL			X		02527	GOTEBORG LANDVETTER				X
08238	TORTOSA			X		02550	JONKOPING AXAMO			X	
08261	CACERES			X		02584	GOTSKA SANDON	X		X	
08272	TOLEDO			X		02590	VISBY AD			X	
08280	ALBACETE LOS LLANOS	X		X		SWITZERLAND AND LIECHTENSTEIN					
08284	VALENCIA AEROPUERTO			X		06610	PAYERNE				X
08286	CASTELLON ALMAZORA			X		06660	ZURICH CITY			X	
08301	PALMA DE MALLORCA			X		06680	SAENTIS	X		X	
08306	PALMA DE MALLORCA/ SON SAN JUAN			X		06700	GENEVE AP COINTRIN			X	
08314	MENORCA MAHON			X		06717	GRAND ST. BERNARD	X		X	
08330	BADAJOS TALAVERA LA			X		06770	LUGANO			X	
08348	CIUDAD REAL			X		TURKEY					
08360	ALICANTE EL ALTET			X		17022	ZONGULDAK			X	
08373	IBIZA ES CODOLA			X		17026	SINOP			X	
08383	HUELVA			X		17030	SAMSUN			X	
08391	SEVILLE SAN PABLO			X		17030	SAMSUN				X
08410	CORDOBA AEROPUERTO	X		X		17034	GIRESUN			X	
08417	JAEN			X		17040	RIZE	X		X	
08419	GRANADA AEROPUERTO			X		17045	ARTVIN			X	
08430	MURCIA			X		17050	EDIRNE			X	
08430	MURCIA				X	17056	TEKIRDAG			X	
08451	JEREZ DE LA FRONTERA/ AEROPUERTO			X		17062	ISTANBUL GOZTEPE	X		X	
08482	MALAGA AEROPUERTO			X		17062	ISTANBUL GOZTEPE				X
08487	ALMERIA AEROPUERTO			X		17069	ADAPAZARI			X	
SLOVAKIA						17070	BOLU			X	
11826	PIESTANY			X							
11858	HURBANOVO			X							
11903	SLIAC			X							
11934	POPRAD TATRY	X		X							

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17074	KASTAMONU	X		X		33317	SHEPETIVKA	X		X	
17080	CANKIRI			X		33345	KYIV	X		X	
17084	CORUM			X		33345	KYIV		X		X
17086	TOKAT			X		33377	LUBNY	X		X	
17088	GUMUSHANE			X		33393	L'VIV			X	
17090	SIVAS	X		X		33415	TERNOPIL'			X	
17092	ERZINCAN			X		33429	KHMEL'NYTS'KYI			X	
17096	ERZURUM			X		33506	POLTAVA			X	
17098	KARS			X		33526	IVANO FRANKIVS'K			X	
17099	AGRI			X		33562	VINNYTSIA			X	
17112	CANAKKALE			X		33587	UMAN'	X		X	
17116	BURSA			X		33631	UZHGOROD			X	
17123	ESKISEHIR			X		33658	CHERNIVTSI			X	
17130	ANKARA CENTRAL			X		33711	KIROVOHRAD			X	
17130	ANKARA CENTRAL		X		X	33777	VOZNESENS'K			X	
17140	YOZGAT			X		33791	KRYVYI RIH			X	
17150	BALIKESIR			X		33837	ODESA			X	
17155	KUTAHYA			X		33889	IZMAIL			X	
17160	KIRSEHIR			X		33902	KHERSON			X	
17170	VAN	X		X		33915	ASKANIYA NOVA	X		X	
17188	USAK			X		33946	SIMFEROPOL'			X	
17190	AFYON			X		33998	AI PETRI	X		X	
17193	NEVSEHIR			X		34300	KHARKIV			X	
17196	KAYSERI/CITY			X		34415	IZIUM			X	
17199	MALATYA BOLGE			X		34519	DONETS'K			X	
17202	ELAZIG			X		34523	LUHANS'K			X	
17203	BINGOL			X		34607	PRYSHYB			X	
17204	MUS			X		34712	MARIUPOL'			X	
17210	SIIRT			X			UNITED KINGDOM				
17220	IZMIR GUZELYALI			X		03005	LERWICK	X		X	
17220	IZMIR GUZELYALI				X	03005	LERWICK		X		X
17234	AYDIN			X		03017	KIRKWALL AP			X	
17237	DENIZLI			X		03026	STORNOWAY	X		X	
17240	ISPARTA	X		X		03066	KINLOSS			X	
17240	ISPARTA				X	03091	ABERDEEN DYCE AP			X	
17244	KONYA			X		03100	TREE			X	
17250	NIGDE			X		03162	ESKDALEMUIR	X		X	
17255	KAHRAMANMARAS			X		03171	LEUCHARS			X	
17260	GAZIANTEP			X		03257	LEEMING			X	
17265	ADIYAMAN			X		03302	VALLEY	X		X	
17270	SANLIURFA			X		03334	MANCHESTER AP			X	
17280	DIYARBAKIR			X		03377	WADDINGTON	X		X	
17280	DIYARBAKIR				X	03414	SHAWBURY			X	
17282	BATMAN			X		03502	ABERPORTH			X	
17285	HAKKARI			X		03590	WATTISHAM			X	
17292	MUGLA			X		03740	LYNEHAM			X	
17300	ANTALYA			X		03772	LONDON HEATHROW AP			X	
17340	MERSIN			X		03797	MANSTON			X	
17351	ADANA BOLGE			X		03808	CAMBORNE	X		X	
17351	ADANA BOLGE				X	03808	CAMBORNE		X		X
17370	ISKENDERUN			X		03862	BOURNEMOUTH AP			X	
17375	FINIKE	X		X		03917	BELFAST ALDERGROVE			X	
	UKRAINE						YUGOSLAVIA				
33213	OVRUCH			X		13272	BEOGRAD SURCIN			X	
33275	SUMY			X		13275	BEOGRAD KOSUTNJAK				X
33301	RIVNE			X		13363	PLEVLJA			X	
						13462	PODGORICA GOLUBOVCI			X	

RESOLUTION 4 (XIII-RA VI)

RAPPORTEUR ON REGIONAL ASPECTS OF INSTRUMENT DEVELOPMENT, RELATED TRAINING AND CAPACITY BUILDING

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) The *Abridged Final Report with Resolutions of the Twelfth Session of Regional Association VI* (WMO-No. 882), especially Resolution 3 (XII-RA VI) — Rapporteur on Regional Aspects of Instrument Development, Related Training and Capacity Building,
- (2) Resolution 4 (EC-L) — Report of the twelfth session of the Commission for Instruments and Methods of Observation,

CONSIDERING:

- (1) The importance of information on instrument development as guidance for improving the equipment of surface-based observing stations with sensors and automatic weather stations,
- (2) The need for updating information on the status of instrumentation used at meteorological stations and on maintenance and calibration of instruments,
- (3) The need for coordinating education and training activities for observers, station inspectors and technicians in the field of operation, maintenance and calibration of meteorological instruments,

DECIDES:

- (1) To appoint a Rapporteur on Regional Aspects of Instrument Development, Related Training and Capacity Building with the following terms of reference:

- (a) To update information on instrumentation operated at meteorological stations and on its maintenance and calibration;
 - (b) To prepare guidance for the best effective use of meteorological instrumentation;
 - (c) To keep abreast of all matters related to instrument development;
 - (d) To provide guidelines for coordination of education and training activities for instrument technicians in collaboration with the RICs and the WMO Secretariat;
 - (e) To facilitate communications between CIMO and the regional association on matters pertaining to capacity building in the field of instruments and methods of observation;
 - (f) To collaborate with the CIMO Rapporteur on Capacity Building;
- (2) To invite Mr I. Zahumenský (Slovakia) to serve as Rapporteur on Regional Aspects of Instrument Development, Related Training and Capacity Building;
 - (3) To request the Rapporteur to submit annual progress reports and a final report to the president of RA VI with a copy to the president of CIMO at least six months before the next session of the Association.

NOTE: This resolution replaces Resolution 3 (XII-RA VI), which is no longer in force.

RESOLUTION 5 (XIII-RA VI)

GLOBAL HARMONIZATION OF THE REPORTING OF PRECIPITATION

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) General summary paragraph 6.3.18 of the *Abridged Final Report with Resolutions and Recommendations of the Twelfth Session of the Commission for Basic Systems* (WMO-No. 923) on the feasibility of quality control of amounts of precipitation in synoptic reports,
- (2) The report of the Working Group on Planning and Implementation of the WWW in Region VI (paragraph 5.5.6),

CONSIDERING:

- (1) The requirement to harmonize globally the reporting of precipitation and especially the reporting of zero and past 24 hours precipitation,

- (2) The need to make mandatory the reporting of zero precipitation (at least by human observers and new automatic weather stations),
- (3) The need to encourage reporting three hours and hourly precipitation amounts,

DECIDES that the amendments as listed in the annex to this resolution to the *Manual on Codes* (WMO-No. 306), Volume II, Region VI — Europe, A — Regional coding procedures, A.1 — International code forms, notes and regulations, FM 12 SYNOP and FM 13 SHIP, be adopted for implementation on 5 November 2003;

REQUESTS the Secretary-General to arrange for the inclusion of these amendments in Volume II of the *Manual on Codes* (WMO-No. 306).

ANNEX TO RESOLUTION 5 (XIII-RA VI)

**AMENDMENTS TO THE *MANUAL ON CODES* (WMO-No. 306), VOLUME II, REGION VI — EUROPE,
A — REGIONAL CODING PROCEDURES, A.1 — INTERNATIONAL CODE FORMS, NOTES AND
REGULATIONS, FM 12 SYNOP AND FM 13 SHIP**

Amend Regulation 6/12.10 from to read:

- 6/12.10 Group(7)
- 6/12.10.1 In the form 7R₂₄R₂₄R₂₄R₂₄, this group shall be included in Section 3 at 0600 UTC.
- 6/12.10.2 The inclusion of group 7R₂₄R₂₄R₂₄R₂₄ at 0000, 1200 and 1800 UTC and at intermediate observation times shall be left to national decision.
- 6/12.10.3 If the group is included, the precipitation amount for the preceding 24 hours shall be reported for R₂₄R₂₄R₂₄R₂₄.

Amend Regulations 6/12.9.2 and 6/12.9.3 to read:

- 6/12.9.2 This group may be used at all observation times.
- 6/12.9.3 The inclusion of this group in Section 3 shall be left to national decision. When included, at both main and intermediate observation times RRR should be used to report the precipitation amount over the preceding three hours; at the other observation times, RRR should be used to report the precipitation amount over the preceding hour.

RESOLUTION 6 (XIII-RA VI)

REGIONAL METEOROLOGICAL DATA COMMUNICATION NETWORK

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) Resolution 5 (XI-RA VI) — Regional Meteorological Data Communication Network,
- (2) Resolution 4 (XII-RA VI) — Regional Meteorological Data Communication Network,
- (3) The WMO/ECMWF agreement on the RMDCN,
- (4) The date of 15 March 2000 for the beginning of the RMDCN service,
- (5) The major upgrading of the GTS in Region VI as a result of the implementation of the RMDCN and the large number of RA VI Member countries connected to the RMDCN,
- (6) The high level of operation of the RMDCN,
- (7) That the WMO RMDCN Trust Fund and its Members' contributions were instrumental in assisting several countries in joining the RMDCN and in coordinating matters related to the RMDCN,

CONSIDERING:

- (1) The need to ensure that the RMDCN continues satisfying the GTS requirements in Region VI,
- (2) The need to prepare possible changes in the RMDCN, in particular taking into account the rapid development of the telecommunication technology and the services proposed by telecommunication providers, as well as evolving data exchange requirements,
- (3) The need to review, in association with the ECMWF, RMDCN contractual arrangements, as required, and in particular prepare a new procurement and implementation, according to the current RMDCN contract and the WMO/ECMWF agreement on the RMDCN,

- (4) The need to continue assisting Members in implementing their connection to the RMDCN and in coordinating matters related to the implementation and operation of the RMDCN,

DECIDES:

- (1) To re-establish the Steering Group on the Regional Meteorological Data Communication Network, reporting to the president of the Association with the following terms of reference:
 - (a) To ensure coordination between all RA VI Member countries connected to the RMDCN;
 - (b) To review the matters related to the operation of the transport service of the GTS provided by the RMDCN;
 - (c) To maintain close liaison with the Subgroup on Regional Aspects of the Information Systems and Services of the Working Group on Planning and Implementation of the WWW in Region VI and the CBS Open Programme Area Group/Information Systems and Services, in particular to keep abreast of the GTS requirements in Region VI;
 - (d) To address problems related to the satisfaction of GTS requirements in Region VI through the RMDCN;
 - (e) To prepare, in collaboration with ECMWF, possible changes in the RMDCN, in particular a new procurement and implementation in accordance with the RMDCN contract;
 - (f) To coordinate the RA VI Member countries not connected to the RMDCN to join the RMDCN and to implement their connection;

- (g) To coordinate the utilization of the WMO RMDCN Trust Fund;
- (2) That the Steering Group should be composed of representatives from the following countries: Austria, Bulgaria, Czech Republic, Germany, Italy, Lebanon, Lithuania, Russian Federation, Sweden, United Kingdom and the ECMWF as observer;
- (3) To designate, in accordance with General Regulation 32, Mr D. André (France) as chairperson of the Group;

REQUESTS the chairperson to submit a report in December of each year to the president of the

Association and to submit a report to the Association six months before its next session;

INVITES Members to continue contributing to the implementation and operation of the RMDCN, in particular by contributing to the WMO RMDCN Trust Fund;

REQUESTS the Secretary-General to arrange for Secretariat support for the implementation and operation of the RMDCN.

NOTE: This resolution replaces Resolution 5 (XI-RA VI), which is no longer in force.

RESOLUTION 7 (XIII-RA VI)

WORKING GROUP ON CLIMATE-RELATED MATTERS

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) The reports of the rapporteurs and chairperson of its Working Group on Climate-related Matters,
- (2) The Fifth WMO Long-term Plan,
- (3) The *Abridged Final Report with Resolutions and Recommendations of the Thirteenth Session of the Commission for Climatology* (WMO-No. 938),
- (4) The discussions on climate-related issues in the *Abridged Final Report with Resolutions of the Thirteenth World Meteorological Congress* (WMO-No. 902) and in the *Abridged Final Report with Resolutions of the Fifty-third Session of the Executive Council* (WMO-No. 929), with particular reference to the CLIPS Project and the policy and practice for the exchange of meteorological and related data and products,

CONSIDERING the need for the Association to maintain its activities in climate-related matters of particular importance to the Region,

DECIDES:

- (1) To re-establish the Working Group on Climate-related Matters with the following terms of reference:
- (a) To provide advice on methods to strengthen and improve climate observations, data management, climate monitoring and provision of data sets;
- (b) To cooperate closely with the coordinator of the RA VI Subgroup on Regional Aspects of the GOS in the revision of the RBCN;
- (c) To provide advice on, and assist in, the implementation of various climate data and climate application projects, including CLIPS and data rescue;
- (d) To examine and report on the use of GIS in the provision of climate services;
- (e) To report on EuroCLIPS activities and ECSN and to encourage cooperation on CLIPS

activities, and especially as related to climate outlooks and forecasts;

- (f) To report on EuroCLIVAR activities with special regard to climate extremes and indices and indicators for climate change detection in RA VI;
- (g) To provide advice on, and assist in, the implementation of various climate applications in RA VI, especially in the development of bioclimatic indices and urban and building climatology;
- (h) To provide a report on the climatological requirements for, and assist in, the implementation of RCC functionalities within RA VI;
- (2) To select the following experts to serve on the Working Group in the capacities indicated:
- Mr A. Van Engelen (Netherlands) to serve as Rapporteur on Observations and Data Management;
- Mr A. U. Komuscu (Turkey) to serve as Rapporteur on Climate System Monitoring and Analysis;
- Ms A. Gocheva (Bulgaria) to serve as Rapporteur on Applications and CLIPS;
- Mr P. Hechler (Germany) to serve as Rapporteur on Coordination and Implementation of RCC Activities;
- Messrs A. Furshpan (Israel), N. Karatarakis (Greece) and Ms F. Coelho (Portugal) to serve as experts, with tasks to be determined by the chairperson;
- (3) To select Mr G. Gruza (Russian Federation) to act as chairperson of the Working Group;
- (4) That Members may nominate other experts to serve on the Working Group, as required;

REQUESTS the chairperson of the Working Group to submit annual progress reports to the president of the Association and a final report not later than six months before the fourteenth session of the Association.

NOTE: This resolution replaces Resolution 5 (XII-RA VI), which is no longer in force.

RESOLUTION 8 (XIII-RA VI)

CLIMATE INFORMATION AND PREDICTION SERVICES

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) Resolution 8 (Cg-XIII) — Climate Information and Prediction Services Project,
- (2) That Members of RA VI are contributing to a range of CLIPS activities,
- (3) The climatic anomalies, and their impacts, associated with the 1997–1998 *El Niño* event and the subsequent *La Niña* event,

CONSIDERING:

- (1) That interannual climate variability, including, but not restricted to, variability linked to *El Niño*/Southern Oscillation, substantially impacts the socio-economic activities in the Region,
- (2) That effective use of current seasonal to interannual climate prediction technology can provide substantial benefit in socio-economic planning,
- (3) That improved use of climate information, in addition to, or in combination with, climate predictions, can provide further socio-economic benefit,
- (4) That the technology of seasonal to interannual climate prediction is developing rapidly,
- (5) That effective application of climate prediction and information services requires capacity building and development of correctly-designed projects,
- (6) That the implementation of CLIPS in the Region should be kept under constant review,
- (7) That there is a need for close coordination in the implementation of CLIPS in the Region,

DECIDES:

- (1) To appoint Rapporteurs on the Implementation of the CLIPS Project in the Region, with the following terms of reference:

- (a) To act in support of all CLIPS activities within the Region;
 - (b) To act as coordinators of defined subregional networks of national CLIPS Focal Points;
 - (c) To keep abreast of research activities on climate variability in the Region, including especially the activities and plans of WCRP/CLIVAR;
 - (d) To keep abreast of applications research pertaining to climate information and prediction services;
 - (e) To liaise with relevant CCI Expert Teams;
- (2) To request the Rapporteurs to submit annual progress reports to the president of the Association, and final reports not later than six months before the fourteenth session of the Association;
 - (3) To request the president of RA VI to designate the Rapporteurs at an appropriate time;

URGES:

- (1) All Members to appoint national CLIPS Focal Points and to provide them with the facilities necessary to undertake their roles;
- (2) Members to supplement through extrabudgetary contributions the resources required for the further development and implementation of the CLIPS Project;

REQUESTS the Secretary-General:

- (1) To provide the necessary support, within available resources, to the Rapporteurs on the Implementation of CLIPS in the Region and to the national CLIPS Focal Points;
- (2) To bring this resolution to the attention of all concerned.

RESOLUTION 9 (XIII-RA VI)

PROVISION OF SEASONAL TO INTERANNUAL FORECAST AND REGIONAL CLIMATE SERVICES

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) The conclusions and recommendations of the Intercommission Task Team on Regional Climate Centres and the relevant decisions of the fifty-third session of the Executive Council,
- (2) The offers of several Members and centres in RA VI to participate in the establishment of operational seasonal to interannual forecast services,
- (3) The offers of Members to provide RCC services to other Members in the Region,

CONSIDERING:

- (1) The requirements for long-range forecast products to be provided operationally under the WMO Programmes,
- (2) That a number of GDPS centres and institutes outside the framework of the WWW are making available their seasonal to interannual forecast products on an experimental scale,
- (3) That Members are increasingly using such products to provide services to their end-users,

CONCLUDES:

- (1) That the preconditions for the provision and operational use of seasonal to interannual forecasts and the establishment of relevant RCC functions in RA VI are ready for implementation;
- (2) That appropriate action should be taken by RA VI in close collaboration with the relevant global planning and implementation groups of CBS and CCI;

DECIDES:

- (1) To establish a small task team on seasonal to interannual forecast and RCC services for RA VI with the following terms of reference:
 - (a) To compile a statement of requirements for seasonal to interannual forecast and related RCC services for RA VI;
 - (b) To identify the capabilities of Members/centres to provide seasonal to interannual forecast products as required by Members in the Region;
 - (c) To advise on suitable infrastructures and organizational settings for meeting Member's requirements for seasonal to interannual forecasts and RCC services;
 - (d) To advise on aspects relating to questions of seasonal to interannual forecast quality, verification, ethics and capacity building for Members in RA VI to make the best use of seasonal to interannual products;
 - (e) To liaise closely with the Regional Implementation and Coordination Groups for

WWW and the Working Group on Climate-related Matters and the CCI OPAG on Climate Applications, Information and Prediction Services in dealing with the above tasks;

- (f) To propose a mechanism to the president of RA VI leading to the implementation of seasonal to interannual forecast and RCC services during the next intersessional period;
- (2) That the composition of the Task Team should be as follows:
 - (a) The RA VI Coordinator of the Subgroup on Regional Aspects of the Data-processing and Forecasting Systems of the RA VI Working Group on Planning and Implementation of the WWW in Region VI;
 - (b) The Rapporteur on Coordination and Implementation of RCC Activities of the RA VI Working Group on Climate-related Matters;
 - (c) Experts from the centres in RA VI committed to provide global seasonal to interannual products;

INVITES:

- (1) Mr S. Mildner (Germany) to act as the chairperson of the Task Team;
- (2) The chairperson to liaise closely with the relevant CBS and CCI OPAGs dealing with the implementation of seasonal to interannual forecast and RCC services;

REQUESTS the president of RA VI to take into account any additional instructions from the fifty-fourth session of the Executive Council.

RESOLUTION 10 (XIII-RA VI)

RAPPORTEUR ON THE GLOBAL ATMOSPHERE WATCH

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) Resolution 10 (Cg-XIII) — Atmospheric Research and Environment Programme,
- (2) WMO *Technical Regulations* (WMO-No. 49), Volume I, Chapter B.2 — Global Atmosphere Watch (GAW),

CONSIDERING:

- (1) The ever increasing awareness of a number of environmental issues which are being addressed through the GAW,
- (2) That WMO has a long history of facilitating and coordinating activities concerning the monitoring and assessment of atmospheric chemical composition and related physical characteristics of the background atmosphere,
- (3) The approval by the forty-first session of the Executive Council of GAW,
- (4) That Eleventh Congress stated that GAW should be a major component of GCOS,

- (5) The need to keep fully abreast of developments related to GAW in the Region, including activities such as the central facilities established, the preparations for assessments and the exchange of experience in research and monitoring,

DECIDES:

- (1) To appoint a Rapporteur on the Global Atmosphere Watch with the following terms of reference:
 - (a) To survey and report on Members' efforts in operating GAW stations;
 - (b) To advise on the further development of the GAW network in the Region with special emphasis on data quality, data reporting and application to regional and national environmental issues and on integrating ground- and satellite-based observation systems;
 - (c) To assist Members in the exchange of information and experience and in the development of cooperative research projects in the field of atmospheric chemistry and pollution in the Region;

- | | |
|--|---|
| <p>(d) To promote and advise on the establishment of new improvements in the work of existing calibration and quality assurance centres and related activities, including calibration of various monitoring instruments;</p> <p>(e) To liaise with the Regional Rapporteur on Atmospheric Ozone on matters of mutual interest;</p> <p>(2) To invite Ms U. Pechinger (Austria) to serve as the Rapporteur on the Global Atmosphere Watch;</p> | <p>(3) To request the Rapporteur to submit an annual report on activities for distribution to Members of the Region and a final report six months before the next session of the Association.</p> |
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NOTE: This resolution replaces Resolution 6 (XII-RA VI), which is no longer in force.

RESOLUTION 11 (XIII-RA VI)

RAPPORTEUR ON ATMOSPHERIC OZONE

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) Resolution 11 (EC-XXIX) — Atmospheric ozone measurements,
- (2) Resolution 7 (EC-XXXIX) — Global ozone research and monitoring,
- (3) The Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer,

CONSIDERING:

- (1) The recognized threat to the depletion of stratospheric ozone;
- (2) That WMO has a long history of facilitating and coordinating ozone activities,
- (3) The approval by the forty-first session of the Executive Council of GAW with one of its main components being ozone,
- (4) That Eleventh Congress stated that GAW should be a major component of GCOS,
- (5) The necessity for continued encouragement of activities related to ozone in the Region, including activities such as arrangements for instrument intercomparisons, re-evaluation of past records, preparations for assessments and the exchange of experience in ozone research and monitoring,

DECIDES:

- (1) To appoint a Rapporteur on Atmospheric Ozone with the following terms of reference:
 - (a) To survey and report on Members' efforts in operating GAW ozone stations in the Region;

- (b) To assist, in collaboration with the Secretariat, in the conduct of comparisons and calibrations of Dobson, Brewers, ultraviolet-B measuring and other instruments in RA VI and other Regions;
 - (c) To advise on the establishment of new ozonesonde stations in the Region and on matters relating to the monitoring of ozone by satellites;
 - (d) To assess regional interest in matters relating to, and encourage the monitoring of, tropospheric and surface ozone including ultraviolet-B monitoring;
 - (e) In collaboration with the Secretariat, to keep in contact with cooperative research projects on stratospheric and tropospheric ozone within the Region and to assist Members in the exchange of information and experience;
 - (f) To maintain liaison with the Regional Dobson Calibration Centre and the World Calibration Centre for surface ozone;
- (2) To invite Mr K. Vaníček (Czech Republic) to serve as the Rapporteur on Atmospheric Ozone;
 - (3) To request the Rapporteur to submit an annual report on his activities to the president of the Association and a final report six months before the next session of the Association.

NOTE: This resolution replaces Resolution 7 (XII-RA VI), which is no longer in force.

RESOLUTION 12 (XIII-RA VI)

PILOT PROJECT FOR BILATERAL EXCHANGE OF SEVERE WEATHER WARNINGS IN REGION VI

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) Resolution 2 (Cg-XIII) — World Weather Watch Programme for 2000–2003,
- (2) The report of the chairperson of the Working Group on Planning and Implementation of the WWW in Region VI,

CONSIDERING:

- (1) The need for increased bilateral and/or regional cooperation and agreements to develop and expand arrangements for cross-border exchange of severe weather warnings,
- (2) That a pilot project is an effective way to initiate, test and develop procedures for the coordination of the warning activities of Members and for the exchange of warnings among them,
- (3) That the differences of language and stress on warning parameters can be overcome by the use of a standard form for exchanging severe weather warnings via facsimile or electronic mail,
- (4) That several Members of the Association are implementing the European Multiservice Meteorological Awareness Project which aims at producing a European-wide graphical information to make the public aware of potential meteorological hazards,

URGES:

- (1) Member countries to participate actively in cross-border exchange of severe weather warnings;

- (2) Member countries to identify and update existing exchange agreements and mechanisms and to work to conclude agreements where none currently exist;

REQUESTS:

- (1) That a pilot project be started to create a network for the bilateral exchange of severe weather warnings between neighbouring countries;
- (2) That RA VI (through the Subgroup on Regional Aspects of Public Weather Services) undertake to organize the pilot project;
- (3) That the chairperson of the Working Group on Planning and Implementation of the WWW in RA VI take appropriate action to facilitate the project;
- (4) That RSMC Offenbach serves as the Severe Weather Exchange Centre for the test phase of the project, to coordinate the exchange of severe weather warnings, register and organize the network of bilateral agreements and mechanisms for exchange, and report to Members on the status and progress of the pilot project;
- (5) That all Members of RA VI give support to the pilot project;
- (6) That those RA VI Members which will take part in the European Multiservice Meteorological Awareness Project properly coordinate this activity with their participation in the severe weather exchange pilot project.

RESOLUTION 13 (XIII-RA VI)

WORKING GROUP ON AGRICULTURAL METEOROLOGY

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) Resolution 12 (Cg-XIII) — Agricultural Meteorology Programme,
- (2) The *Abridged Final Report with Resolutions and Recommendation of the Twelfth Session of the Commission for Agricultural Meteorology* (WMO-No. 900),
- (3) Resolution 8 (XII-RA VI) — Working Group on Agricultural Meteorology,
- (4) The report of the Working Group submitted to the thirteenth session of the Association, including its recommendations,

RECOGNIZING:

- (1) The increased awareness for environmental aspects of agriculture and of the importance of the quality of agricultural products Region VI (Europe),
- (2) The impact of droughts and floods on agriculture and forestry in the Region,

- (3) The need to develop appropriate adaptation strategies to cope with climate variability and climate change,
- (4) That maintenance of phenological observation networks is crucial for crop modelling and yield forecasting,
- (5) The use of new technologies such as remote sensing in agrometeorological applications,

RECOGNIZING FURTHER:

- (1) The need for collaboration for early warning and detection,
- (2) That educational facilities in agrometeorology at various levels are insufficient in the Region and that lack of facilities creates a bottleneck for the progress of agrometeorology in the Region,

DECIDES:

- (1) To re-establish the Working Group on Agricultural Meteorology with the following terms of reference:

- (a) To summarize recent developments in drought and flood management and promote greater collaboration for early warning and detection keeping in mind the user needs for this information;
 - (b) To review the current status and recommend ways of strengthening phenological observation networks;
 - (c) To encourage and identify specialized training facilities across Europe with a group of specialists to develop and conduct a unique agricultural meteorology training programme;
 - (d) To assess the impact of climate variability/ climate change on agriculture across Europe;
 - (e) To review the effective use of remote-sensing applications in agricultural meteorology;
 - (f) To provide advice on, and assist in, the application of agricultural climatology in order to enhance food production;
- (2) To invite the following experts to serve as core members of the Working Group:

- Mr H. Friesland (Germany);
 Mr Z. Dunkel (Hungary);
 Mr R. Jilderda (Netherlands);
 Ms A. Marica (Romania);
 Mr A. Kleschenko (Russian Federation);
 Mr J. D. Corredera (Spain);
 Mr S. Cinar (Turkey);
- (3) To invite Mr G. Maracchi (Italy) to act as chairperson of the Working Group on Agricultural Meteorology;
 - (4) To request the chairperson to allocate responsibilities in consultation with the members of the Working Group for the various tasks contained in the terms of reference;
 - (5) To request the chairperson to submit a final report comprising individual reports of the members to the president of the Association not later than six months before the next session of the Association.

NOTE: This resolution replaces Resolution 8 (XII-RA VI), which is no longer in force.

RESOLUTION 14 (XIII-RA VI)

RAPPORTEURS ON REGIONAL ASPECTS OF THE AERONAUTICAL METEOROLOGY PROGRAMME

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) The need for monitoring and keeping under review developments in aeronautical meteorology in the Region,
- (2) The need for coordination among RA VI Members of activities related to aeronautical meteorology and for reporting these activities to the Region and to CAeM,

CONSIDERING that the monitoring, review and coordination of aeronautical meteorological issues would be of great benefit to Members in the Region,

DECIDES:

- (1) To appoint two Co-rapporteurs on Regional Aspects of the Aeronautical Meteorology Programme with the following terms of reference:
 - (a) To review and advise on observational data and product requirements of countries in the Region in the context of the Programme;
 - (b) To review the status of the implementation of the Programme in the Region, including observing systems at aerodromes, aircraft data collection, as well as services provided by WAFS and VAACs and to formulate proposals through the WMO Secretariat to the appropriate ICAO bodies for their future developments and implementation;

- (c) To monitor and promote capacity building activities related to the Programme area within the Region and to identify training requirements;
 - (d) To keep abreast of matters related to the implementation of AMDAR project(s) in the Region;
 - (e) To liaise by correspondence with the WMO CAeM Working Groups and the ICAO aeronautical meteorological working groups in the European and Middle Eastern Regions of ICAO through the respective Secretariats on specific matters concerning the Region, in particular on matters related to cost recovery of aeronautical meteorological services;
 - (f) To provide advice to the president of RA VI on aeronautical meteorology matters and to take actions in this regard;
- (2) To invite Ms S. Petrova (Russian Federation) and Mr D. Lambergeon (France) to serve as Co-rapporteurs on Regional Aspects of the Aeronautical Meteorology Programme;
 - (3) To request the Co-rapporteurs to submit an annual report on their activities to the president of the Association and a final report six months before the next session of the Association.

RESOLUTION 15 (XIII-RA VI)

RAPPORTEUR ON REGIONAL MARINE METEOROLOGICAL AND OCEANOGRAPHIC SERVICES

REGIONAL ASSOCIATION VI (EUROPE),

NOTING the report of the Rapporteur on Regional Marine Meteorological Services,

CONSIDERING:

- (1) The need for continued development of marine meteorological and oceanographic services in Region VI,
- (2) The need to continue close liaison with JCOMM, in particular through its programme area on capacity building, with regard to matters affecting the Region,

DECIDES:

- (1) To appoint a Rapporteur on Regional Marine Meteorological and Oceanographic Services with the following terms of reference:
 - (a) To review continuously the status of the implementation of marine meteorological and oceanographic services and marine observing systems in Region VI and to formulate suggestions for their further development;
 - (b) To take action on marine meteorological and oceanographic matters assigned by the president of RA VI;

(c) To liaise with the appropriate JCOMM subsidiary bodies, in particular within the Education, Training and Capacity Building Programme Area, on specific matters concerning Region VI;

(d) To liaise with the Subgroup on the Regional Aspects of the GOS of the RA VI Working Group on Planning and Implementation of the WWW;

(2) To invite Mr H. Savina (France) to serve as the Rapporteur on Regional Marine Meteorological and Oceanographic Services;

(3) To request the Rapporteur to submit annual reports, as appropriate, to the president of the Association with a final report to be presented six months prior to the fourteenth session of the Association;

REQUESTS the Secretary-General to assist the Rapporteur in his work, as appropriate.

NOTE: This resolution replaces Resolution 9 (XII-RA VI), which is no longer in force.

RESOLUTION 16 (XIII-RA VI)

SUPPORT FOR THE JOINT WMO/IOC TECHNICAL COMMISSION FOR OCEANOGRAPHY AND MARINE METEOROLOGY

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) Resolution 14 (Cg-XIII) — Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM),
- (2) IOC Assembly Resolution XX-12 — The Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM),
- (3) The *Abridged Final Report with Resolutions and Recommendations of the First Session of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology* (WMO-No. 931),

CONSIDERING that oceanographic and marine meteorological observations not only make a significant contribution to operational meteorology and the provision of marine services, but are also essential to global climate studies generally,

RECOGNIZING:

- (1) That JCOMM is now the appropriate and sole WMO body for the international coordination and regulation of a global operational ocean observing, data management and services system,
- (2) That some Members of the Association are actively involved in the deployment and maintenance of a

variety of ocean observation facilities, for both operational and research purposes,

(3) That Members of the Association are also increasingly being required to provide coordinated meteorological and oceanographic services for a large variety of marine user groups,

(4) That GTS will continue to be essential for the operational collection and exchange of many types of ocean data,

RECOGNIZING FURTHER that a substantial increase in the amount of ocean data available operationally is needed to satisfy the requirements of operational meteorology, oceanographic services and research and global climate studies for such data,

URGES Members:

(1) To continue and, where possible, expand their existing operational ocean observing system facilities and activities, as contributions to the WWW, GCOS and GOOS and with international coordination effected through JCOMM;

(2) To participate actively in the planning and implementation of these systems and in the work of JCOMM;

(3) To coordinate with appropriate national oceanographic agencies and institutions to ensure the

- long-term operational maintenance of oceanographic observing systems;
- (4) To coordinate with appropriate national oceanographic agencies and institutions in developing oceanographic data management capabilities and oceanographic services;
- (5) To enhance two-way ship-shore telecommunication arrangements for oceanographic data and products, in particular through the greater use of

satellite-based telecommunications facilities such as the Inmarsat and Argos systems;

REQUESTS the Secretary-General to take any action considered necessary, and within the available budgetary resources, to assist Members to participate in the development and maintenance of JCOMM.

NOTE: This resolution replaces Resolution 10 (XII-RA VI), which is no longer in force.

RESOLUTION 17 (XIII-RA VI)

COORDINATED COMMON SYSTEM FOR THE DESIGNATION OF MARINE FORECAST AREAS IN METAREA II

REGIONAL ASSOCIATION VI (EUROPE),

NOTING the report by France on coordinated common systems for the designation of marine forecast areas for Metarea II and Metarea III (W),

CONSIDERING that the designation of common forecast areas in Metarea II will enhance the coordination of marine meteorological support to marine activities, particularly shipping, fisheries, marine pollution

emergency response and maritime search and rescue operations, in Metarea II,

DECIDES to formally adopt the coordinated common system for the designation of marine forecast areas in Metarea II as given in the annex to this resolution;

REQUESTS the Secretary-General to include the substance of the annex to this resolution in *Weather Reporting* (WMO-No. 9), Volume D and in the *Manual on Marine Meteorological Services* (WMO-No. 558).

ANNEX TO RESOLUTION 17 (XIII-RA VI)

COORDINATED COMMON SYSTEM FOR THE DESIGNATION OF MARINE FORECAST AREAS IN METAREA II

Considering that the designation of common forecast areas in Metarea II will enhance the coordination of marine meteorological support to various marine activities, Regional Association VI has adopted the coordinated common system of marine forecast areas as described below.

The basis for the uniform system is a two-level division of the forecast areas, main areas and sub-areas.

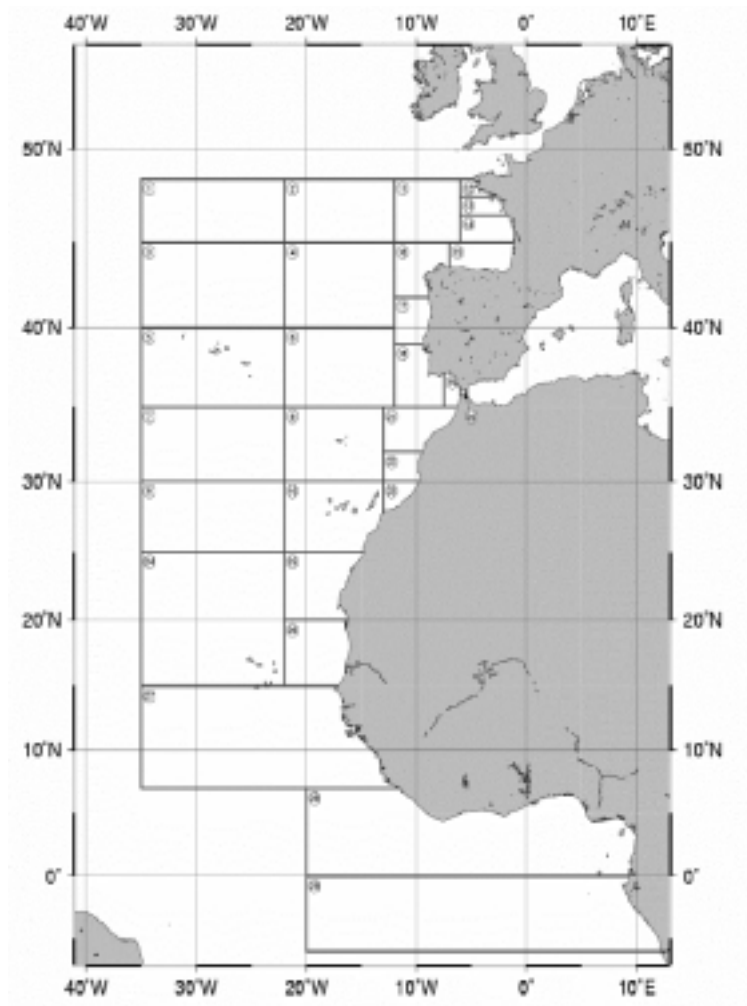
Sub-areas within the main area are described, in general, according to the point of compass, e.g. eastern part, southern part, etc.

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Common GMDSS sub-areas for Metarea II



Name list of METAREA II marine areas

- | | |
|---|---|
| 1 - FARADAY: between 45°N and 48°27'N, between 22°W and 35°W | 16 - FINISTERRE: between 41°50'N and 45°N, between 7°W and 12°W |
| 2 - ROMEO: between 45°N and 48°27'N, between 12°W and 22°W | 17 - PORTO: between 39°N and 41°50'N, from the coast of Portugal to 12°W |
| 3 - ALTAIR: between 40°N and 45°N, between 22°W and 35°W | 18 - S. VICENTE: between 35°N and 39°N, between 7°30'W to 12°W |
| 4 - CHARCOT: between 40°N and 45°N, between 12°W and 22°W | 19 - CADIZ: from 35°N to the coast of Spain, between 6°W and 7°30'W |
| 5 - ACORES: between 35°N and 40°N, between 22°W and 35°W | 20 - GIBRALTAR STRAIT/ESTRECHO: between line Gibraltar/Ceuta and 6°W, from the coast of Morocco to the coast of Spain |
| 6 - JOSEPHINE: between 35°N and 40°N, between 12°W and 22°W | 21 - CASABLANCA: between 32°N and 35°N, from the coast of Morocco to 13°W |
| 7 - IRVING: between 30°N and 35°N, between 22°W and 35°W | 22 - AGADIR: between 30°N and 32°N, from the coast of Morocco to 13°W |
| 8 - MADEIRA: between 30°N and 35°N, between 13°W and 22°W | 23 - TARFAYA: from the coast of Morocco to 30°N, from the coast of Morocco to 13°W |
| 9 - METEOR: between 25°N and 30°N, between 22°W and 35°W | 24 - CAPE VERDE : between 15°N and 25°N, between 22°W and 35°W |
| 10 - CANARIAS: between 25°N and 35°N, between 13°W and 22°W | 25 - CAP BLANC: between 20°N and 25°N, from the coast of Africa to 22°W |
| 11 - PAZENN: between 45°N and 48°27'N, between 6°W and 12°W | 26 - CAP TIMIRIS: between 15°N and 20°N, from the coast of Africa to 22°W |
| 12 - IROISE: between 47°30'N and 48°27'N, from the coast of France to 6°W | 27 - SIERRA LEONE: between 7°N and 15°N, from the coast of Africa to 35°W |
| 13 - YEU: between 46°30'N and 47°30'N, from the coast of France to 6°W | 28 - GULF OF GUINEA: between the Equator and 7°N, from the coast of Africa to 20°W |
| 14 - ROCHEBONNE: between 45°N and 46°30'N, from the coast of France to 6°W | 29 - POINTE NOIRE: between 6°S and the Equator, from the coast of Africa to 20°W |
| 15 - CANTABRICO: from the coast of Spain to 45°N, from the coast of France to 7°W | |

RESOLUTION 18 (XIII-RA VI)

COORDINATED COMMON SYSTEM FOR THE DESIGNATION OF MARINE FORECAST AREAS IN METAREA III (W)

REGIONAL ASSOCIATION VI (EUROPE),

NOTING the report by France on coordinated common systems for the designation of marine forecast areas for Metarea II and Metarea III (W),

CONSIDERING that the designation of common forecast areas in Metarea III (W) will enhance the coordination of marine meteorological support to marine activities, particularly shipping, fisheries, marine pollution

emergency response and maritime search and rescue operations, in Metarea III (W),

DECIDES to adopt formally the coordinated common system for the designation of marine forecast areas in Metarea III (W) as given in the annex to this resolution;

REQUESTS the Secretary-General to include the substance of the annex to this resolution in *Weather Reporting* (WMO-No. 9), Volume D and in the *Manual on Marine Meteorological Services* (WMO-No. 558).

ANNEX TO RESOLUTION 18 (XIII-RA VI)

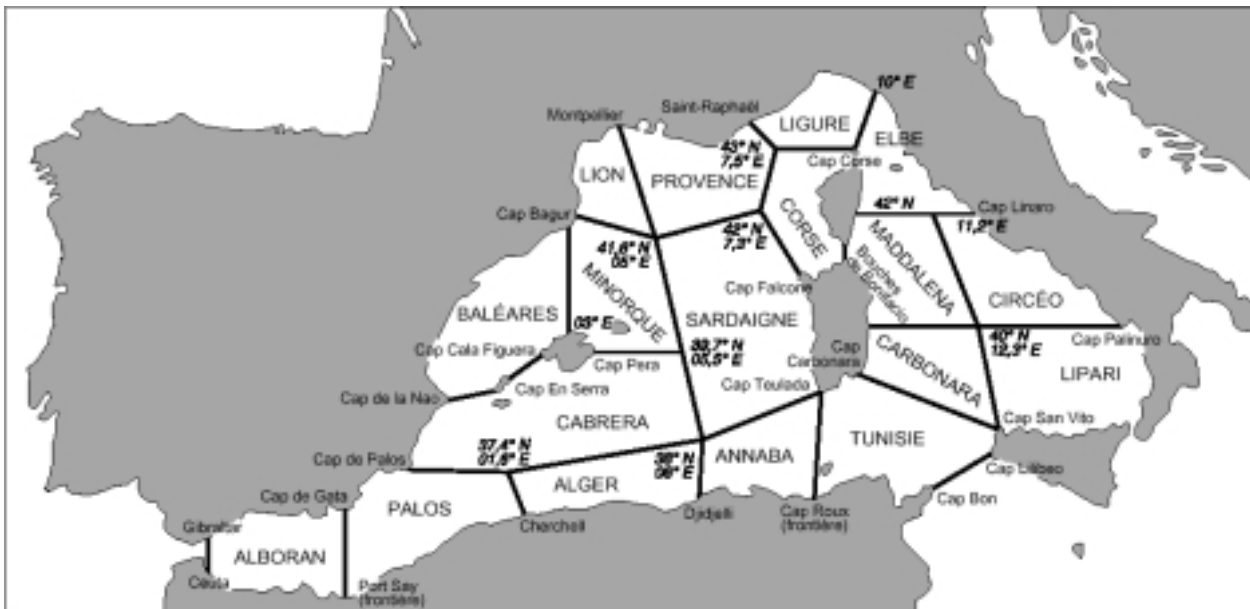
COORDINATED COMMON SYSTEM FOR THE DESIGNATION OF MARINE FORECAST AREAS IN METAREA III (W)

Considering that the designation of common forecast areas in Metarea III (W) will enhance the coordination of marine meteorological support to various marine activities, Regional Association VI has adopted the coordinated common system of marine forecast areas as described below.

The basis for the uniform system is a two-level division of the forecast areas, main areas and sub-areas.

Sub-areas within the main area are described, in general, according to the point of compass, e.g. eastern part, southern part, etc.

Coordinated common system for the designation of marine forecast areas for Metarea III (W)



*

*

*

<i>Characteristic points</i>	<i>Latitude in degrees/minutes</i>	<i>Longitude in degrees/minutes</i>
GIBRALTAR	36°09'N	005°21'W
CAP DE GATA	36°44'N	002°16'W
CAP DE PALOS	37°38'N	000°40'W
CAP DE LA NAO	38°44'N	000°14'E
CAP EN SERRA	38°54'N	001°36'E
CAP GALA FIGUERA	39°20'N	003°10'E
CAP PERA	39°43'N	003°28'E
CAP BAGUR	41°57'N	003°12'E
MONTPELLIER	43°36'N	003°53'E
SAINT RAPHAEL	43°26'N	006°46'E
CAP CORSE	43°00'N	009°21'E
BOUCHES DE BONIFACIO	41°23'N	009°10'E
CAP TEULADA	38°52'N	008°38'E
CAP CARBONARA	39°07'N	009°33'E
CAP FALCONE	40°57'N	008°12'E
CAP LINARO	42°01'N	011°52'E
CAP PALIMURO	40°02'N	015°15'E
CAP SAN VITO	38°12'N	012°43'E
CAP LILIBEO	37°48'N	012°26'E
CAP BON	37°01'N	011°08'E
CAP ROUX	36°57'N	008°47'E
DJIDJELLI	36°50'N	005°43'E
CHERCHEL	36°36'N	002°11'E
PORT SAY	35°04'N	002°30'W
CEUTA	35°53'N	002°15'W

RESOLUTION 19 (XIII-RA VI)

WORKING GROUP ON HYDROLOGY

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) The report of its Working Group on Hydrology,
- (2) Resolution 16 (Cg-XIII) — Hydrology and Water Resources Programme,
- (3) Resolution 37 (Cg-XIII) — Terms of reference of the technical commissions,
- (4) The Fifth WMO Long-term Plan, 2000–2009,

CONSIDERING:

- (1) That RA VI plays an important and active role in conducting regional WMO activities relating to hydrology and water resources,
- (2) That HWRP is a priority programme for the Region,
- (3) That the Working Group on Hydrology proposed at its ninth session that it continue its activities during the next intersessional period,

DECIDES:

- (1) To re-establish the Working Group on Hydrology and that the future activities be undertaken by the Group in the areas listed below, and according to the detailed description given in the annex to this regulation, and to establish Subgroups on

Institutional Aspects of Monitoring and Assessment and on Flood Forecasting and Warning to address areas (f) and (g) below, respectively:

- (a) Public relations and visibility of NHSs;
 - (b) Climate and water;
 - (c) Water quality assessment;
 - (d) Potential extreme floods;
 - (e) Drought assessment and forecasting;
 - (f) Institutional aspects of monitoring and assessment;
 - (g) Flood forecasting and warning;
- (2) To invite all Members in the Region to designate experts in hydrology and water resources — preferably including the Hydrological Advisors to the Permanent Representatives and representatives of the HOMS National Reference Centres and of other bodies working in the field of water — to participate in the Working Group on an ongoing basis and attend its meetings. In selecting such participants, Members should take into account that they will have to devote time and effort to the Working Group's activities;

- (3) To invite Members in the Region to designate experts in meteorology to participate in the Coordination Subgroup on Flood Forecasting and Warning;
- (4) To designate Messrs J. Kubát (Czech Republic) as Regional Hydrological Advisor and chairperson of the Working Group and P. Givone (France) as vice-chairperson of the Working Group and Rapporteur on Public Relations and Visibility of NHSs;
- (5) To designate Messrs A. Snorrason (Iceland) as coordinator of the Subgroup on Institutional Aspects of Monitoring and Assessment and I. Karro (Sweden) as coordinator of the Subgroup on Flood Forecasting and Warning;
- (6) To designate:
 - (a) Mr O. Varis (Finland) as Rapporteur on Climate and Water;
 - (b) Mr P. Rončák (Slovakia) as Rapporteur on Water Quality Assessment;
 - (c) Mr B. Ozga-Zielinski (Poland) as Rapporteur on Potential Extreme Floods;
 - (d) Ms G. Monacelli (Italy) as Rapporteur on Drought Assessment and Forecasting;

INVITES the Regional Hydrological Adviser and chairperson of the Working Group:

- (1) To prepare an implementation plan and designate, in consultation with the president of the regional association, appropriate members from the

Working Group to conduct activities on the various aspects of the terms of reference;

- (2) To participate in Executive Council sessions, when invited, representing the regional interests in relation to hydrology and water resources and to coordinate the Working Group's activities with CHy and other regional Working Groups on Hydrology;
- (3) To submit to the president of the Association an annual report on 31 December every year and a final report no later than six months before the fourteenth session of RA VI;

REQUESTS the Members concerned to give their full support to the members of the Working Group from their countries so that they may carry out the tasks entrusted to them;

INVITES the Secretary-General:

- (1) To provide assistance to hydrological activities in the Region, including seeking sources of finance and implementing the projects that could be prepared as part of the activities of the RA VI Working Group on Hydrology;
- (2) To publish in the technical document series selected technical reports prepared by the Working Group and distribute them to all concerned.

NOTE: This resolution replaces Resolution 11 (XII-RA VI), which is no longer in force.

ANNEX TO RESOLUTION 19 (XIII-RA VI)

TERMS OF REFERENCE OF THE WORKING GROUP ON HYDROLOGY

1. Public relations and visibility of NHSs

Considering the need to enhance the visibility of the NHSs and the recognition of their role by national authorities, as well as their involvement in the formulation of new international policy tools concerning water:

- (a) To collect, analyse and disseminate information on the activities undertaken by NHSs in the area of public relations, and on tools and approaches used to enhance their visibility and recognition;
- (b) To develop and expand the existing Web site on hyperlinks in hydrology as an operational tool for the activities of the Working Group, in particular as concerns the exchange of information, the establishment of an address book, the publication of reports, the provision of links for the hydrological community, including in particular information on the current activities of the NHSs;
- (c) To produce a concept for a European yearbook of water resources for selected basins and observation sites;
- (d) To formulate suggestions for the presentation to the public at large, through communication

media, of daily hydrological bulletins and forecasts for a country or large river basins.

2. Climate and water

Considering the potential impacts of climate variability and change on water resources as well as the uncertainties of the outputs of climatological models:

- (a) To study and report on the experiences gained in RA VI countries in addressing climate and water-related issues, mainly:
 - (i) The evolution and changes of the operational practices of NHSs in response to the developing demand for information on, and need of, monitoring and assessment of climate change impacts on water resources;
 - (ii) Cooperation with the other national and international organizations and institutions on climate and water-related issues;
- (b) To liaise with, and provide advice to, those experts of the Association working on potential extreme floods and drought assessment, forecasting and warning (see also point 4 and 5 below).

3. Water quality assessment

Considering the present and anticipated responsibilities of the NHSs in the area of water quality assessment:

- (a) To evaluate current methods used for the assessment of surface and ground water quality;
- (b) To prepare a review of, and proposals on:
 - (i) Criteria for the classification of the state of rivers and groundwater bodies, according to different water quality parameters;
 - (ii) Monitoring frequency requirements for the assessment of surface and groundwater quality parameters.

4. Potential extreme floods

Considering the importance of hydrological design data for the security of hydraulic structures (e.g. dams and bridges) and safety of people:

- (a) To undertake a brief literature review of research carried out on hydrological design data for extreme flood occurrences;
- (b) To undertake an international survey on best available practices and on national standards in the estimation of hydrological design data for extreme flood occurrences;
- (c) To carry out an investigation on methods of probable maximum precipitation/probable maximum flood derivation and other methods for extreme flood estimation;
- (d) To contact key individuals or research groups to canvass opinion and comments on future research priorities;
- (e) To prepare a catalogue of extreme floods that have occurred in the Region since the year 2000;
- (f) To liaise with, and provide advice to, the experts of the Association working on climate and water (see also point 2 above).

5. Drought assessment and forecasting

In consideration of the increase of water stress during a period of drought and with a view to ensuring the proper management of water resources during such conditions:

- (a) To review and evaluate meteorological and hydrological medium- and long-term drought forecasting systems in RA VI countries;
- (b) To assess the use of satellite data in drought monitoring and assessment;
- (c) To identify ways of promoting the exchange of data and products as well as of forecasts and warnings during low flow situations in RA VI countries;
- (d) To propose ways for ensuring effective cooperation with other international and regional bodies involved in drought assessment and mitigation;
- (e) To review and evaluate the activities undertaken by, or in cooperation with, NHSs to mitigate the impacts of drought in RA VI countries;
- (f) To liaise with, and provide advice to, the experts

of the Association working on climate and water (see also point 2 above).

6. Institutional aspects of monitoring and assessment (surface water, groundwater, quality and quantity)

In consideration of the problem posed by the insufficient standardization of data-collection and processing procedures, even at the national level between various agencies, and of the requirements for monitoring established by the European Union Water Framework Directive:

- (a) To investigate the institutional and organizational aspects of hydrological monitoring and assessment by means of a mapping of the monitoring actors and programmes;
- (b) To assess the needs for hydrological information to contribute to the formulation of standards on measurements and data processing and to formulate proposals for integrated monitoring network design and assessment;
- (c) To support RA VI member countries in the application of river basin management plans and of the European Union Water Framework Directive;
- (d) To establish and maintain collaborative contacts with the main bodies (NHSs, the European Commission, the European Environment Agency, etc.) in this area with a view to increasing the role and visibility of NHSs with international conventions and the European Commission, also by means of attendance to, or organization of, workshops involving the key bodies for cooperation and active participation in the planning of the Conference on Hydrological Monitoring foreseen for 2005 in the Netherlands.

7. Flood forecasting and warning

To improve the capability of NHSs in flood forecasting and warning of different types of floods:

- (a) To study the present applications of:
 - (i) Radar data, satellite data and other data, including outputs of numerical models, for integrated meteorological information;
 - (ii) An integrated approach to quantitative precipitation forecasting;
 - (iii) Calibration and testing of hydrological models using outputs from meteorological models, preferably in gridded form;
 - (iv) The development of common probabilistic and ensemble forecasts;
 - (v) Methodologies and criteria for the evaluation of quantitative precipitation forecasts and hydrological forecasts;
- (b) To review existing practices and make proposals on effective ways of disseminating meteorological and hydrological information and warnings for floods.

RESOLUTION 20 (XIII-RA VI)

ADVISORY WORKING GROUP OF REGIONAL ASSOCIATION VI (EUROPE)

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) The report to the fiftieth session of the Executive Council of the Task Team on the Structure of WMO established by Twelfth Congress,
- (2) The report to the fiftieth session of the Executive Council of the Executive Council Working Group on Long-term Planning,
- (3) The *Abridged Final Report with Resolutions of the Fiftieth Session of the Executive Council* (WMO-No. 883),

CONSIDERING a proposal by the president of the Association,

DECIDES:

- (1) To establish an Advisory Working Group of Regional Association VI (Europe) with the following terms of reference:
 - (a) To advise the president on matters related to the work of the Association, in particular, on matters requiring actions which cannot await the next regular session of the Association;
 - (b) To assist the president in planning and coordinating the work of the Association and its subsidiary bodies;

- (c) To review the structure and work of the subsidiary bodies of the Association, including implementation of their recommendations;
- (d) To address other issues not covered by working groups or rapporteurs;
- (e) To monitor the implementation of the Regional Programme in relation to the WMO Long-term Plan;
- (f) To advise the president on ways and means of enhancing technical assistance to members in the Region for the implementation of national and regional meteorological and hydrological programmes and projects;

- (2) To invite the president to act as chairperson of the Advisory Working Group which is composed of the president, the vice-president, the Regional Hydrological Adviser to the president and four Directors of NMHSs to be invited by the president;

REQUESTS the president to report to the Association at its next regular session on the activities of the Advisory Working Group.

RESOLUTION 21 (XIII-RA VI)

REVIEW OF PREVIOUS RESOLUTIONS AND RECOMMENDATIONS OF THE ASSOCIATION

REGIONAL ASSOCIATION VI (EUROPE),

NOTING general summary paragraph 3.7.1 of the *Abridged Final Report with Resolutions of the Ninth Session of the Executive Committee* (WMO-No. 67.RC.14),

CONSIDERING:

- (1) That a number of its resolutions adopted before its thirteenth session have been revised and incorporated in resolutions of the thirteenth session,
- (2) That others of its previous resolutions have been incorporated in appropriate WMO publications or have become obsolete,

- (3) That some of the previous resolutions are still to be implemented,

DECIDES:

- (1) To keep in force the following past resolutions; 3 (X-RA VI); 6 (XI-RA VI) and 11 (XI-RA VI);
- (2) Not to keep in force the other resolutions adopted before its thirteenth session;
- (3) To publish the text of the resolutions kept in force in the annex to this resolution.

NOTE: This resolution replaces Resolution 14 (XII-RA VI), which is no longer in force.

ANNEX TO RESOLUTION 21 (XIII-RA VI)

RESOLUTIONS OF RA VI ADOPTED PRIOR TO ITS THIRTEENTH SESSION AND MAINTAINED IN FORCE

Resolution 3 (X-RA VI)

THE FURTHER DEVELOPMENT OF THE GLOBAL OBSERVING SYSTEM

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) Resolution 25 (Cg-X) — Second WMO Long-term Plan, including the WWW Implementation Programme for Region VI (1988–1997),

- (2) The progress being made in the implementation of the ASDAR, ASAP and drifting buoy programmes,

- (3) The final report on OWSE-North Atlantic,

CONSIDERING:

- (1) The importance of an effective Regional Basic Synoptic Network and the need to integrate the RBSN within the overall GOS,

- (2) The need to have comprehensive and realistic information on the value of new observing systems, their costs and their interfaces with other parts of the regional programme,

INVITES:

- (1) Members to participate in the deployment and use of new observing systems and, individually or collectively, to evaluate the effectiveness of these systems and their integration in the WWW;
- (2) Members to support as far as possible the programmes of the space agencies responsible for the planning and operation of satellite systems with a view to ensuring continuity and improvement of satellite services;
- (3) Members bordering the North Sea and the Mediterranean Sea to consider the joint establishment of upper-air stations (on fixed platforms or using ASAP) in these sea areas;

URGES Members to:

- (1) Provide additional surface observational systems in ocean areas using the Voluntary Observing Ship Scheme, buoys and suitable fixed platforms;
- (2) Consider the possibility of deploying ASAP systems on ships and ASDARs or other automated data collection systems on aircraft flying suitable routes over the ocean;
- (3) Examine the communication facilities and data quality-control procedures to ensure that the data are of high quality and received at the data-processing centres in a timely fashion;
- (4) Examine the existing observing systems and, where appropriate, implement improvements in data quality, quantity and timeliness;
- (5) Consider all possibilities to support the continued operation of Ocean Weather Ship C;

REQUESTS the coordinator of the Subgroup on the Regional Aspects of the Global Observing System to keep abreast of developments in the implementation of this resolution by Members and to report to the Working Group on Planning and Implementation of the WWW in Region VI.

Resolution 6 (XI-RA VI)

DATA REQUIREMENTS FOR EMERGENCY RESPONSE ACTIVITIES

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) Resolution 4 (Cg-X) — Meteorological and hydrological aspects concerning accidental release of hazardous materials with potential transboundary effects,
- (2) Resolution 3 (EC-XL) — WMO activities related to the accidental release of hazardous materials,
- (3) Resolution 4 (EC-XLV) — Report of the tenth session of the Commission for Basic Systems,
- (4) The results of the WMO/IAEA Workshop on User Requirements for the Provision of Atmospheric

Transport Model Products, Montreal, September 1993,

CONSIDERING that:

- (1) Regional Specialized and National Meteorological Centres are responsible for the provision of emergency response services, e.g. in the form of transport model output products to the delegated authorities in case of an emergency,
- (2) Atmospheric transport dispersion/deposition models are directly connected with the operational NWP models and their performance,
- (3) The performance of numerical trajectory and dispersion models depends crucially on the timely availability of observational meteorological data of high horizontal and vertical resolution, especially from the neighbouring area where an emergency has occurred,

EXPRESSES STRONG CONCERN that:

- (1) The availability on a regular basis of meteorological data from large areas of eastern Europe has recently been greatly reduced due to financial difficulties of national Meteorological and Hydrological Services;
- (2) Due to the lack of adequate data, the quality of the transport model output has decreased;

URGES Members:

- (1) To give high priority to funding the regular operation of the Regional Basic Synoptic Network stations;
- (2) To approach national, regional and international funding agencies requesting them to provide assistance for the operation and upgrading of the relevant parts of the observing networks;
- (3) To ensure availability of upper-air data from the vicinity of each nuclear power plant which should also include vertical soundings of the radioactivity in the atmosphere as required;

REQUESTS the Secretary-General:

- (1) To bring this resolution to the attention of other regional associations and CBS inviting them to take similar action within the Regions concerned, as appropriate;
- (2) To assist Members in approaching international funding agencies, as required.

Resolution 11 (XI-RA VI)

USE OF INMARSAT FOR THE COLLECTION OF SHIPS' METEOROLOGICAL AND OCEANOGRAPHIC REPORTS

REGIONAL ASSOCIATION VI (EUROPE),

NOTING:

- (1) Resolution 19 (Cg-XI) — The collection and dissemination of marine meteorological and oceanographic information using INMARSAT,
- (2) The operation of Coast Earth Stations (CES) of INMARSAT in Region VI,

- (3) The equipping of an increased number of ships participating in the WMO Voluntary Observing Ships (VOS) scheme with Ship Earth Stations (SES) of INMARSAT, in particular with the INMARSAT-C facility,

CONSIDERING:

- (1) The need to increase the number of ships' meteorological and oceanographic reports from most of the sea areas of Region VI,
- (2) The considerable improvements to be expected in the receipt of marine meteorological and oceanographic observations from ships at sea through the enhanced use of the INMARSAT system,
- (3) The cost-savings which will accrue to those Members collecting such reports through INMARSAT by the increased use of the new INMARSAT-C facility for this purpose,

RECOGNIZING WITH APPRECIATION that certain Members operating INMARSAT CES have already arranged through their CES to accept ships' meteorological and

oceanographic reports that are of general value to all Members of WMO,

BEING CONCERNED, however, that problems continue to be related to the timely redistribution to the countries closest to the geographical origin of reports collected through INMARSAT,

URGES:

- (1) Members concerned to make every effort to ensure the timely redistribution of reports collected through INMARSAT to countries in the areas of the geographical origins of those reports;
- (2) All Members in the Region operating VOS equipped with INMARSAT-C to make every effort for those ships to be supplied with the new software package for the compilation and transmission of meteorological reports through INMARSAT-C, to ensure the maximum efficiency and cost-effectiveness of such an operation;

REQUESTS the Secretary-General to assist Members in the implementation of this resolution.

ANNEXES

ANNEX I

Annex to [paragraph 4.2.2 of the general summary](#)

CRITERIA FOR INCLUSION OF STATIONS IN THE REGIONAL BASIC SYNOPTIC NETWORK

1. Introduction

The rules for the establishment of RBSNs are laid down in the *Manual on the Global Observing System* (WMO-No. 544), as follows:

- (a) The decision on the composition of the network lies with the regional association concerned;
- (b) The requirements for stations in the network are provided in terms of performance: parameters, times of observations, etc.

A decision is taken at every session of the Regional Association based on a proposal, which is prepared by the Regional Working Group on Planning and Implementation of the WWW.

During the preparations for this session of the Association, it was felt that there was the need for more objective criteria to be included. This refers to, inter alia,

spatial distribution and availability of data according to monitoring results. Also, the requirements for the observing programme in the *Manual* are more an example of perfect performance than a criterion for including or excluding stations.

2. Criteria

For the definition of criteria, two types of requirements are distinguished:

- (a) Target requirements (TRQ's) refer to desired characteristics of network stations;
- (b) Minimum requirements (MRQ's) refer to threshold characteristics which are decisive for inclusion or exclusion of a station.

The inclusion of a station in the network implies a clear commitment of the Member concerned to make

	<i>TRQ surface stations</i>	<i>MRQ surface stations</i>	<i>TRQ upper-air stations</i>	<i>MRQ upper-air stations</i>
Parameters	Pressure Temperature Wind Humidity Land stations Precipitation Amount Present weather Visibility Cloud cover Cloud base Marine stations SST Significant wave height	Pressure Land stations Temperature Wind Humidity Marine stations SST	Pressure/geopotential Temperature Wind Humidity	Pressure/geopotential Temperature Wind Humidity
Level	—	—	Up to 10 hPa	Up to 100 hPa
Observations at main hours	4	3	2 (at 0000 and 1200)	1
Observations at main and intermediate hours (3-hourly)	8	5	—	—
Availability of data	95–100%	50%	95–100%	25%

NOTE: The availability percentage refers to the data amount required as a TRQ. For example, if a station makes five observations per day, but on average only three are available, then it yields an availability of 37.5 per cent, not 60 per cent.

fair efforts for (maintaining) compliance with the TRQ's.

In the table below, TRQ's and MRQ's for RBSN stations are recorded.

Stations are classified according to their performance with reference to the above requirements:

- (a) Those stations meeting all TRQ's are classified as OK;
- (b) Those stations meeting all MRQ's are classified as IP (incomplete programme);
- (c) Operational stations are classified as BC (below criteria);
- (d) Silent stations are classified as NO (not operating).

Spatial distribution for surface stations:

OK stations are acceptable if at a distance of at least 60 km from the nearest network station. IP stations are acceptable if at a distance of at least 90 km from the nearest network station. BC stations and NO stations are not acceptable as network station.

3. Remarks

3.1 TRQ's and MRQ's

The TRQ's are defined in accordance with the requirements set out in the *Manual on the Global Observing System* (WMO-No. 544). These should be regarded as the level of performance that should be aimed at for all stations.

The MRQ's have been defined as corresponding to the policy that has been applied in practice in the last years. The definitions are such that these will not imply major changes in the current RBSN.

The MRQ's form the minimum threshold for inclusion or exclusion.

3.2 Buoys

At its twelfth session, Regional Association VI decided to include some moored buoys in the RBSN surface network. As a consequence, a difference was made in the MRQ's for this type of stations.

3.3 Silent stations

Silent stations should not be included in the network unless there are clear indications for planned restoration of operations on the short term. The same holds for BC stations.

3.4 Application of the criteria

The criteria are developed and revised periodically by each session of the Regional Association, which takes place every four years. If, during the intersessional period, a station performance drops below the MRQ, no automatic withdrawal is anticipated. In such cases, the continuation of the station in the network should be discussed by the president of the Association with the rapporteur and the Member concerned, and appropriate action should be taken.

ANNEX II

Annex to [paragraph 5.3.15 of the general summary](#)

RESULTS OF THE INTERCOMMISSION TASK TEAM ON REGIONAL CLIMATE CENTRES

Terms of reference

- (a) Concept for RCCs and procedure for designation
- (b) Consider user requirements for seasonal to interannual and RCC products defined by CCI
- (c) Review existing methods for seasonal to interannual forecasting
- (d) Propose infrastructure for seasonal to interannual forecast and RCC services

Results of the Intercommission Task Team

- Confirmed need for RCC functions, list of RCC functions, adaptation of the RSMC designation procedure contained in the *Manual on the GDPS* (WMO-No. 485).
- Considered and included in the list of RCC functions and seasonal to interannual products.
- Presentations by seasonal to interannual producers, list of global and regional seasonal to interannual product requirements.
- Rely on existing WWW basic systems, including the CBS concept of future information systems for all WMO Programmes, involve competent centres outside the GDPS, use Internet standards and technology where appropriate, support the Integrated Observing Strategy including GCOS components for ocean and terrestrial data.

*Terms of reference**Results of the Intercommission Task Team*

- | | |
|---|---|
| (e) Evaluate existing infrastructures in light of requirements | Existing infrastructures leave room for improvement, joint efforts needed to close gaps. |
| (f) Initiate regional action to create RCCs and global seasonal to interannual production | Potential global seasonal to interannual producing centres (Executive Council list) were approached for commitments, first workshop planned later in 2002, Regional Association experts attended the second session of the Intercommission Task Team, presentation of the Intercommission Task Team results at the upcoming sessions of RAs and invitation to establish regional implementation mechanisms, specify the requirements for seasonal to interannual and RCC services and identify the capabilities of potential service providers in the Region with a view to initiating the designation process as defined in the <i>Manual on the GDPS</i> (WMO-No. 485). |
| (g) Establish cooperation mechanisms on various levels | Initial identification of cooperation needs by the Intercommission Task Team, further elaboration by workshops and regional planning meetings involving providers and users. |
| (h) Advise on the need for workshops and implementation groups | Workshop for global seasonal to interannual service providers planned later in 2002, organization of Regional Climate Outlook Forums and workshops focusing on seasonal to interannual product post processing, interpretation and evaluation is recommended, RCCs to take initiative to arrange systematic capacity building and training measures. |
| (i) Advise on the development of RCC functions | List of RCC functions for consideration by the Regional Association programme implementation teams, further development of ideas emerging from Regional Climate Outlook Forums. |
| (j) Advise on cross-programme cooperation | Technical commissions and other WMO Programme bodies have been involved in the Intercommission Task Team, others are informed through the meetings of the presidents of Technical Commission and the Secretariat, terms of reference of relevant OPAGs in CBS, CCI and CAgM will be expanded, expert teams from other bodies like CAS and WCRP will be invited to contribute. |
| (k) Report through the president of CCI to the Executive Council | The president of CCI reports to the fifty-third and fifty-fourth sessions of the Executive Council. The latter will decide in June 2002 on the proposal of the Intercommission Task Team that after completion of its tasks it can now be disbanded. |
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ANNEX III

Annex to paragraph 10.8 of the general summary

FELLOWSHIPS AWARDED IN REGION VI (1998–2001)**FELLOWSHIPS AWARDED**

Source of funding	1998		1999		2000		2001		TOTAL	
	No	man-months	No	man-months	No	man-months	No	man-months	No	man-months
UNDP	–	–	–	–	–	–	–	–	–	–
VCP	25	241	22	38	13	21	20	53	80	353
Trust Funds	–	–	–	–	–	–	–	–	–	–
Regular budget	17	9	35	95	22	150	10	3	84	257
TOTAL	42	250	57	133	35	171	30	56	164	610

FELLOWSHIPS AWARDED ACCORDING TO DURATION

Source of funding	1998		1999		2000		2001		TOTAL	
	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term
UNDP	–	–	–	–	–	–	–	–	–	–
VCP	21	4	1	21	13	–	18	2	53	27
Trust Funds	–	–	–	–	–	–	–	–	–	–
Regular budget	17	–	29	6	11	11	10	–	67	17
TOTAL	38	4	30	27	24	11	28	2	120	44

NOTE: The above shows the statistics of the fellowships awarded during the period 1998–2001 under all programmes. It can be seen that during the period under review, 164 fellows from Member countries of RA VI were awarded a total of about 610 man-months of training. It is noted that there is no fellowships awarded under Trust Funds nor UNDP projects for RA VI during the period 1998–2001.

ANNEX IV

Annex to paragraph 11.7 of the general summary

DRAFT GUIDELINES FOR WMO MEMBERS ON A COMMUNICATION STRATEGY

In developing their own communications strategies, Members are encouraged to incorporate the following guidelines as far as possible:

(a) Take account of, and conform with, the WMO Communications Strategy, including:

- (i) Using the WMO logo;
- (ii) Using the key message;
- (iii) Aiming to build awareness about WMO;
- (iv) Conveying information about WMO;
- (v) Establishing the relevance of WMO;

(b) Develop an integrated approach through communications plans for key target audiences, including:

- (i) The general public and civil society;
 - (ii) WMO Members, key influencers and decision makers in Governments;
 - (iii) United Nations system and intergovernmental organizations;
 - (iv) Non-governmental organizations;
 - (v) The private sector;
 - (vi) The media;
 - (vii) The scientific community;
- (c) Each communication plan will include a mix of approaches through various mediums, including:
- (i) The Internet and e-mail;
 - (ii) The media (press, radio, TV, etc.);

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|--|--|
| <ul style="list-style-type: none">(iii) Brochures and posters;(iv) Events and conferences;(v) Information and Public Affairs focal points;(vi) United Nations Development Programme country offices and United Nations Information Centres;(vii) Joint statements and activities with other organizations;(viii) Merchandising;(d) Capitalize on “free publicity” and the “multiplier effect”; | <ul style="list-style-type: none">(e) Focus carefully on key activities and avoid unnecessary ones;(f) Have a clear and simple communications strategy;(g) Have a clear and simple message;(h) Identify potential resources to capitalize on new opportunities;(i) Train relevant staff to gain the skills necessary for successful implementation (e.g. media training);(j) Obtain and analyse feedback on the implementation and effectiveness of communications plans. |
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APPENDIX A

LIST OF PERSONS ATTENDING THE SESSION

A. OFFICERS OF THE SESSION

F. Quintas Ribeiro Acting president

B. REPRESENTATIVES OF WMO MEMBERS

<i>Member</i>	<i>Name</i>	<i>Capacity</i>
Armenia	G. Kodjoyan	Principal delegate
Austria	P. Steinhäuser F. Neuwirth	Principal delegate Alternate
Azerbaijan	S. Khalilov I. Asadov	Principal delegate Delegate
Belarus	V. Malevich Y. M. Pokumeiko I. Egorova (Ms)	Principal delegate Delegate Delegate
Belgium	H. Malcorps G. R. Demarée A. Quinet J. Zikmundova (Ms)	Principal delegate Delegate Delegate Delegate
Bosnia and Herzegovina	E. Sarac M. Muminovic D. Trkulja	Principal delegate Alternate Delegate
Bulgaria	K. Tzankov	Principal delegate
Croatia	B. Gelo C. Grbeša	Principal delegate Delegate
Cyprus	H. Mina (Ms)	Principal delegate
Czech Republic	I. Obrusnik M. Wolek J. Kubát J. Nemeč M. Suranová (Ms)	Principal delegate Alternate Delegate Delegate Adviser
Denmark	L. P. Prahm L. Wester-Andersen (Ms)	Principal delegate Alternate
Estonia	J. Saar	Principal delegate
Finland	E. Jatila M. Hurtola (Ms) P. Seuna M. Heikinheimo	Principal delegate Alternate Delegate Delegate
France	J.-P. Beysson F. Duvernet L. Finaud P. Givone A. de Billy (Ms) D. André	Principal delegate Delegate Delegate Delegate Adviser Adviser
Georgia	N. I. Beradze	Principal delegate

<i>Member</i>	<i>Name</i>	<i>Capacity</i>
Germany	U. Gärtner D. Frömming S. Mildner W. Kusch G. Steinhorst V. Vent-Schmidt P. Hechler K. Hofius G.-R. Hoffmann	Principal delegate Alternate Alternate Delegate Delegate Delegate Delegate Delegate Adviser
Greece	M. F. Katsimardou-Refene (Ms)	Principal delegate
Hungary	I. Mersich Z. Dunkel S. Nagy P. Bakonyi Z. Buzas (Ms)	Principal delegate Alternate Delegate Delegate Observer
Iceland	M. Jónsson	Principal delegate
Ireland	D. Murphy	Principal delegate
Israel	H. Berkovich (Ms)	Principal delegate
Italy	R. Sorani P. Pagano S. Pasquini	Principal delegate Alternate Adviser
Jordan	A. Saleh	Principal delegate
Kazakhstan	T. Kudakov O. Abramenko (Ms)	Principal delegate Delegate
Latvia	A. Leitass	Principal delegate
Lebanon	A. Bejjani I. Barakat-Diab	Principal delegate Delegate
Lithuania	P. Korkutis	Principal delegate
Monaco	B. Fautrier J.-P. Bertani A. Medecin (Ms)	Principal delegate Alternate Alternate
Netherlands	J. de Jong A. Kattenberg P. M. M. Warmerdam H. Daan A. van Engelen	Principal delegate Alternate Delegate Delegate Delegate
Norway	A. Eliassen J. Sunde	Principal delegate Alternate
Poland	J. Zielinski K. Rozdzynski B. Cygan (Ms) A. Kruczala A. Dubicki P. Kowalczak	Principal delegate Alternate Adviser Adviser Adviser Adviser

<i>Member</i>	<i>Name</i>	<i>Capacity</i>	<i>Member</i>	<i>Name</i>	<i>Capacity</i>
Portugal	F. Quintas Ribeiro	Principal delegate	Turkey	H. Bacanli	Principal delegate
	A. Matos Saraiva	Alternate		Ukraine	V. Lipinsky
	T. Abrantes (Ms)	Delegate	S. Homanovska (Ms)		Delegate
	M. F. Espirito Santo	Delegate	United Kingdom of Great Britain and Northern Ireland	P. Ewins	Principal delegate
	Coelho (Ms)			G. Pankiewicz	Alternate
	R. A. da Costa Carvalho	Delegate	E. McCallum	Delegate	
A. Botao	Delegate	P. Dickinson (Ms)	Delegate		
Romania	M. Ioana	Principal delegate	C. Jones	Delegate	
			T. Andersen	Adviser	
Russian Federation	A. I. Bedritsky	Principal delegate	P. Mason	Adviser	
	A. A. Maximov	Alternate			
	A. I. Gusev	Delegate			
	N. Sikachev	Delegate			
	M. Shaimardanov	Delegate			
Slovakia	S. Skulec	Principal delegate	C. REPRESENTATIVES OF WMO MEMBERS OUTSIDE REGION VI		
	V. Pastircak	Alternate	Eritrea	B. Woldeyohannes	Observer
	I. Zahumenský	Delegate	Iran, Islamic Republic of	A. M. Noorian	Observer
	P. Rončák	Delegate		G. Ali Kamali	Observer
Slovenia	J. Roskar	Principal delegate	A. M. Bodaghi	Observer	
	J. Jerman	Alternate			
Spain	E. M. Martín-Cabrera	Principal delegate	D. REPRESENTATIVES OF NON-WMO MEMBERS		
	J. Segovia	Alternate	Palestine	Y. O. A. Al-Qawasma	Observer
	R. Riosalido	Delegate			
	A. Rodríguez-Fontal	Delegate			
Sweden	H. Sandebring	Principal delegate	E. LECTURERS		
	E. Liljas	Delegate	P. Bougeault		
	G. Wennerberg (Ms)	Delegate	P. Viterbo		
Switzerland	D. K. Keuerleber-Burk	Principal delegate	F. REPRESENTATIVES OF INTERNATIONAL ORGANIZATIONS		
	A. Rubli	Delegate	<i>Organization</i>		
	T. Frei	Delegate	<i>Name</i>		
	D. Ulrich	Delegate	International Civil Aviation Organization (ICAO)	B. Hellroth	
	W. Kirchhofer	Delegate	International Atomic Energy Agency (IAEA)	J. Knesl (Ms)	
	M. Spreafico	Delegate	European Centre for Medium-range Weather Forecasts (ECMWF)	D. Burridge	
	P. Viatte	Adviser	European Commission	I. Troen	
	P. Jeannot	Adviser	European Meteorological Services Network (EUMETNET) (EUCOS)	J. Caughey	
			European Organization for the Exploitation of Meteorological Satellites (EUMETSAT)	T. Mohr	
Syrian Arab Republic	N. Al-Shalabi	Principal delegate	International Astronautical Federation (IAF)	L. Adame	
The former Yugoslav Republic of Macedonia	I. Panov	Principal delegate			
	S. Alcinova-Monevska (Ms)	Delegate			

APPENDIX B

AGENDA

<i>Agenda item</i>	<i>Document No.</i>	<i>PINK No., submitted by</i>	<i>Resolutions adopted</i>
1. OPENING OF THE SESSION		1 and 2, acting president of RA VI	
2. ORGANIZATION OF THE SESSION		1 and 2, acting president of RA VI	
2.1 Consideration of the report on credentials			
2.2 Adoption of the agenda	2.2(1); 2.2(2)		
2.3 Establishment of committees			
2.4 Other organizational matters			
3. REPORT BY THE PRESIDENT OF THE ASSOCIATION	3	3, acting president of RA VI	
4. WORLD WEATHER WATCH PROGRAMME — REGIONAL ASPECTS	4		
4.1 World Weather Watch planning and implementation programme, including the report of the chairperson of the Working Group on Planning and Implementation of the World Weather Watch in Region VI		4(1), co-chairperson, Committee A	1
4.2 Observing systems, including the Instruments and Methods of Observation Programme and satellite activities	4, ADD. 1	4(1), co-chairperson, Committee A	2; 3; 4
Report of the Rapporteur on Regional Aspects of Instrument Development, Related Training and Capacity Building	4.2		
4.3 Information systems and services, including operational information service, data management and regional codes		4(1), co-chairperson, Committee A	5; 6
Report of the chairperson of the Steering Committee on the Regional Meteorological Data Communication Network	4.3(1)		
Implementation of RETIM 2000	4.3(2)		
Development of a Virtual Global Information System Centre for Region VI	4.3(3)		
Implementation of FAX-Europa improved service	4.3(4)		
4.4 Data-processing and forecasting systems	4.4(1)	4(2), co-chairperson, Committee A	
4.5 Emergency response activities		4(2), co-chairperson, Committee A	
5. WORLD CLIMATE PROGRAMME — REGIONAL ASPECTS	5		7
5.1 World Climate Programme coordination and support activities		5, co-chairperson, Committee B	
5.2 World Climate Data and Monitoring Programme		5, co-chairperson, Committee B	
5.3 World Climate Applications and Services Programme, including the Climate Information and Prediction Services	5, REV. 1	5, co-chairperson, Committee B	8; 9
Results of the Intercommission Task Team on Regional Climate Centres	5, ADD. 1		

<i>Agenda item</i>	<i>Document No.</i>	<i>PINK No., submitted by</i>	<i>Resolutions adopted</i>
5.4 World Climate Research Programme	5.4	5.4, co-chairperson, Committee B	
5.5 Global Climate Observing System	5.5	5.5; 5.5, REV. 1, co-chairperson, Committee B	
6. ATMOSPHERIC RESEARCH AND ENVIRONMENT PROGRAMME — REGIONAL ASPECTS	6	6, co-chairperson, Committee B	
6.1 Global Atmosphere Watch		6; 6.1, co-chairperson, Committee B	10
Report of the Rapporteur on the Global Atmosphere Watch	6.1		
6.2 World Weather Research Programme			
6.3 Tropical Meteorology Research Programme			
6.4 Programme on Physics and Chemistry of Clouds and Weather Modification Research			
6.5 Support to ozone and other environment oriented conventions		6; 6.5, co-chairperson, Committee B	11
Report of the Rapporteur on Atmospheric Ozone	6.5		
7. APPLICATIONS OF METEOROLOGY PROGRAMME — REGIONAL ASPECTS			
7.1 Public Weather Services Programme	7.1; 7.1, ADD. 1	7.1, co-chairperson, Committee A	12
7.2 Agricultural Meteorology Programme	7.2(1)	7.2, co-chairperson, Committee B	13
Report of the chairperson of the RA VI Working Group on Agricultural Meteorology			
7.3 Aeronautical Meteorology Programme	7.3	7.3, co-chairperson, Committee A	14
7.4 Marine Meteorology and Associated Oceanographic Activities Programme	7.4(1)	7.4, co-chairperson, Committee A	15; 16; 17; 18
Report of the Rapporteur on Regional Marine Meteorological Services	7.4(2)		
Coordinated common systems for the designation of marine forecast areas for Metareas II and III (W)	7.4(3)		
8. HYDROLOGY AND WATER RESOURCES PROGRAMME — REGIONAL ASPECTS	8(1); 8(1), REV. 1	8, co-chairperson, Committee A	19
Report of the chairperson of the Working Group on Hydrology	8(2)		
Report of the chairperson of the Coordination Subgroup on Flood Forecasting and Warning	8(3)		
9. EDUCATION AND TRAINING PROGRAMME — REGIONAL ASPECTS	9	9, co-chairperson, Committee B	
10. TECHNICAL COOPERATION PROGRAMME — REGIONAL ASPECTS	10	10, co-chairperson, Committee B	
11. INFORMATION AND PUBLIC AFFAIRS PROGRAMME — REGIONAL ASPECTS	11	11, acting president of RA VI	
12. LONG-TERM PLANNING — REGIONAL ASPECTS	12	12, chairperson, Committee of the Whole	

<i>Agenda item</i>	<i>Document No.</i>	<i>PINK No., submitted by</i>	<i>Resolutions adopted</i>
13. ROLE AND OPERATION OF NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICES	13	13, chairperson, Committee of the Whole	
14. NATURAL DISASTER REDUCTION — REGIONAL ASPECTS	14	14, acting president of RA VI	
15. INTERNATIONAL EXCHANGE OF DATA AND PRODUCTS	15	15, chairperson, Committee of the Whole	
16. OTHER REGIONAL ACTIVITIES			
16.1 Internal matters of the Association	16.1	16.1, acting president of RA VI	20
16.2 Cooperation with regional and international organizations	16.2	16.2; 16.2, REV. 1, acting president of RA VI	
17. WMO SUBREGIONAL OFFICE FOR EUROPE	17	17, acting president of RA VI	
18. SCIENTIFIC LECTURES AND DISCUSSIONS	18	18, acting president of RA VI	
19. REVIEW OF PREVIOUS RESOLUTIONS AND RECOMMENDATIONS OF THE ASSOCIATION AND OF RELEVANT EXECUTIVE COUNCIL RESOLUTIONS	19	19, Rapporteur on this item	21
20. ELECTION OF OFFICERS		20, chairperson, Nomination Committee 20(2), acting president of RA VI	
21. DATE AND PLACE OF THE FOURTEENTH SESSION		21, acting president of RA VI	
22. CLOSURE OF THE SESSION		22, acting president of RA VI	

APPENDIX C

LIST OF ABBREVIATIONS

ACC	Advisory Committee on Coordination
ACSYS	Arctic Climate System Study
AMDAR	Aircraft Meteorological Data Relay
AMOSG	Aerodrome Meteorological Observing Systems Study Group
ARCHISS	Archival Climate History Survey Project
AREP	Atmospheric Research and Environment Programme
ARGO	Array for Real-time Geostrophic Oceanography
ASAP	Automated Shipboard Aerological Programme
ASDAR	Aircraft-to-satellite Data Relay
ASEAN	Association of South-East Asian Nations
AVHRR	Advanced Very-high Resolution Radiometer
AWS	Automatic Weather Station
BALTEX	Baltic Sea Experiment
BIPM	International Bureau of Weights and Measures
CAeM	Commission for Aeronautical Meteorology
CAGM	Commission for Agricultural Meteorology
CAS	Commission for Atmospheric Sciences
CASPAS	Integrated Programme on Hydrometeorology and Monitoring of Environment in the Caspian Sea Region
CASPCOM	Coordination Committee on Hydrometeorology and Pollution Monitoring of the Caspian Sea
CBS	Commission for Basic Systems
CCI	Commission for Climatology
CEOS	Committee on Earth Observation Satellites
CHy	Commission for Hydrology
CIMO	Commission for Instruments and Methods of Observation
CLiC	Climate and Cryosphere
CLICOM	Climate Computing
CLIMAG	Climate Prediction for Agriculture
CLIMAR	Workshop on Advances in Marine Climatology
CLIPS	Climate Information and Prediction Services
CLIVAR	Climate Variability and Predictability
CLIWOC	Climate of the World Oceans
CMM	Commission for Marine Meteorology
COADS	Comprehensive Ocean-Atmosphere Data Set
COP	Conference of the Parties
COSNA	Composite Observing System for the North Atlantic
COST	European Cooperation in the Field of Technical Research
CTBTO	Comprehensive Nuclear-Test-Ban Treaty Organization
DBCP	Data Buoy Cooperation Panel
DCP	Data-collection Platform
DEMETER	Development of a European Multimodel Ensemble System for Seasonal to Interannual Prediction
DVB	Digital Video Broadcast
DWD	<i>Deutscher Wetterdienst</i>
EART	Emergency Assistance Response Team
ECMWF	European Centre for Medium-range Weather Forecasts
ECSN	European Climate Support Network
EDRG	Emergency and Disaster Response Group
EDRT	Emergency and Disaster Response Team
EER	Environmental Emergency Response
EGOS	European Group on Ocean Stations

EMEP	Cooperative Programme for the Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe
EPS	Ensemble Prediction System
ESCAP	Economic and Social Commission for Asia and the Pacific
EUCOS	EUMETNET Composite Observing System
EUMETNET	European Meteorological Services Network
EUMETSAT	European Organization for the Exploitation of Meteorological Satellites
5LTP	Fifth WMO Long-term Plan
FDP	Forecast Demonstration Project
FRIEND	Flow Regime from International Experimental and Network Data Set
GARP	Global Atmospheric Research Programme
GAW	Global Atmosphere Watch
GCOS	Global Climate Observing System
GDPS	Global Data-processing System
GDSIDB	Global Digital Sea-Ice Data Bank
GEWEX	Global Energy and Water Cycle Experiment
GIS	Geographical Information System
GISC	Global Information System Centre
GLOSS	Global Sea-level Observing System
GMDSS	Global Maritime Distress and Safety System
GODAE	Global Ocean Data Assimilation Experiment
GOME	Global Ozone Monitoring Experiment
GOOS	Global Ocean Observing System
GOS	Global Observing System
GPCC	Global Precipitation Climatology Centre
GPS	Global Positioning System
GRDC	Global Runoff Data Centre
GSN	GCOS Surface Network
GTN-H	Global Terrestrial Network-Hydrology
GTOS	Global Terrestrial Observing System
GTS	Global Telecommunication System
GTSP	Global Temperature Salinity Profile Programme
GUAN	GCOS Upper-air Network
GURME	GAW Urban Research Meteorological Environment
GWP	Global Water Partnership
HIRS	High Resolution Infrared Sounder
HMEI	Association of the Hydrometeorological Equipment Industry
HOMS	Hydrological Operational Multipurpose System
HWRP	Hydrology and Water Resources Programme
HYCOS	Hydrological Cycle Observing System
HYMES	Hydrometeorological Safety of TRACECA
IAEA	International Atomic Energy Agency
IAHR	International Association of Hydraulic Engineering and Research
IAHS	International Association of Hydrological Sciences
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IDNDR	International Decade for Natural Disaster Reduction
IGBP	International Geosphere-Biosphere Programme
IGOS	Integrated Global Observing Strategy
IGOSS	Integrated Global Ocean Services System
IGRAC	International Groundwater Resources Assessment Centre
IHDP	International Human Dimensions Programme on Global Environmental Change
INDOEX	Indian Ocean Experiment
IOC	Intergovernmental Oceanographic Commission
IODC	Indian Ocean Data Coverage
IPCC	Intergovernmental Panel on Climate Change

ISABP	International South Atlantic Buoy Programme
ISCS	International Satellite Communication System
ISDN	Integrated Services Digital Network
ISDR	International Strategy for Disaster Reduction
ISO	International Organization for Standardization
JCOMM	Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology
JINEX	Joint International Nuclear Emergency Exercise
LIDAR	Light Detection and Ranging
MAP	Mesoscale Alpine Programme
MCSS	Marine Climatological Summaries Scheme
MDD	Meteorological Data Distribution
MEDEX	Mediterranean Experiment on Cyclones that Produce High Impact Weather in the Mediterranean
MED-HYCOS	Mediterranean Hydrological Cycle Observing System
MED POL	Mediterranean Pollution Monitoring Programme
MEDSEEME	Mediterranean, South-east Europe and Middle East
METEOREX	Exhibition of Meteorological Instruments, Equipment and Services
MPERSS	Marine Pollution Emergency Response Support System
MRQ	Minimum Requirement
MTN	Main Telecommunication Network
NATO	North Atlantic Treaty Organization
NCDC	National Climatic Data Center
NEA	Nuclear Energy Agency
NHS	National Hydrological Service
NMC	National Meteorological Centre
NMHS	National Meteorological and Hydrological Service
NMS	National Meteorological Service
NOAA	National Oceanic and Atmospheric Administration
NWP	Numerical Weather Prediction
OECD	Organization for Economic Cooperation and Development
OHRB	Operational Hydrological Reference Basins
OPAG	Open Programme Area Group
PMO	Port Meteorological Officer
PROMET (formerly)	Provision of Meteorological Information Required Before and During Flight
PROMET (presently)	Provision of Meteorological Information Required by Civil Aviation
PROMISE	Predictability and Variability of Monsoons and the Agricultural and Hydrological Impacts of Climate Change
PROVOST	Prediction of Climate Variations on Seasonal to Interannual Timescales
PWS	Public Weather Services
QA/SAC	Quality Assurance/Science Activity Centre
RA	Regional Association
RAFC	Regional Area Forecast Centre
RBCN	Regional Basic Climatological Network
RBSN	Regional Basic Synoptic Network
RCC	Regional Climate Centre
RETIM	Réseau européen de transmission d'information météorologique
RIC	Regional Instrument Centre
RMDCN	Regional Meteorological Data Communication Network
RMTC	Regional Meteorological Training Centre
RMTN	Regional Meteorological Telecommunication Network
RSMC	Regional Specialized Meteorological Centre
RTH	Regional Telecommunication Hub

6LTP	Sixth WMO Long-term Plan
SADIS	Satellite Distribution System
SAF	Satellite Application Facility
SBSTA	Subsidiary Body for Scientific and Technical Advice
SBUV	Solar Backscatter Ultraviolet Instrument
SCHOTI	Standing Conference of Heads of Training Institutions of National Meteorological Services
SIGWX	Significant Weather
SOOP	Ship-of-opportunity Programme
SPARC	Stratospheric Processes and their Role in Climate
TCO	Technical Cooperation
TCP/IP	Transmission Control Protocol/Internet Protocol
TECO	Technical Conference on Meteorological and Environmental Instruments and Methods of Observation
THORPEX	The Hemispheric Observing System Research and Predictability Experiment
TOGA	Tropical Ocean and Global Atmosphere Programme
TOMS	Total Ozone Mapping Spectrometer
TOPC	Terrestrial Observation Panel for Climate
TOVS	TIROS Operational Vertical Sounder
TRACECA	Transport Corridor Europe-Caucasus-Asia
TREND	CAeM Working Group on Training, the Environment and New Developments in Aeronautical Meteorology
TRQ	Target Requirement
TRUCE	Tropical Urban Climate Experiment
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
VAAC	Volcanic Ash Advisory Centre
VCP	Voluntary Cooperation Programme
VHF	Very High Frequency
VOC	Volatile Organic Compound
VOS	Voluntary Observing Ship
VTS	Vessel Traffic Services
WAFC	World Area Forecast Centre
WAFS	World Area Forecast System
WCC	World Calibration Centre
WCP	World Climate Programme
WCRP	World Climate Research Programme
WDC	World Data Centre
WEFAX	Weather Facsimile
WHYCOS	World Hydrological Cycle Observing System
WMC	World Meteorological Centre
WMO	World Meteorological Organization
WOCE	World Ocean Circulation Experiment
WOUDC	World Ozone and Ultraviolet Radiation Data Centre
WRAP	Worldwide Recurring ASAP Project
WRDC	World Radiation Data Centre
WSSD	World Summit on Sustainable Development
WWRP	World Weather Research Programme
WWW	World Weather Watch
XML	Extensible Markup Language
