

WORLD METEOROLOGICAL ORGANIZATION

**REGIONAL ASSOCIATION III
(SOUTH AMERICA)**

THIRTEENTH SESSION

QUITO, 19–26 SEPTEMBER 2001

ABRIDGED FINAL REPORT WITH RESOLUTIONS

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GENERAL SUMMARY OF THE WORK OF THE SESSION

1. OPENING OF THE SESSION (agenda item 1)

1.1 At the kind invitation of the Government of Ecuador, the thirteenth session of Regional Association (RA) III was held in Quito, Ecuador, from 19 to 26 September 2001.

1.2 The official opening ceremony took place at the Hotel Hilton Colón, Quito, at 6 p.m. on 19 September 2001. It was attended by Mr P. Pinto Rubianes, Vice President of the Republic of Ecuador; Professor G.O.P. Obasi, Secretary-General of the World Meteorological Organization (WMO); Mr N. Salazar, President of RA III, Mr P. García, Representative of the Ministry of Foreign Affairs; and others.

1.3 Mr Salazar, in his capacity as president of RA III, expressed his gratitude to the Vice President of the Republic of Ecuador and, through him, to the Government of Ecuador, for hosting the thirteenth session of RA III in Quito. He then extended a warm welcome to the permanent representatives of the countries of Latin America with WMO, to members of the delegations attending the meeting, and to the representatives of the diplomatic corps and international organizations. He stressed that special emphasis would be placed on strengthening regional cooperation so as to face the challenges posed by the elements. He recalled the effects of a number of extreme meteorological events that had occurred in the region and caused loss of human life, economic imbalance, and setbacks in the development process. He said that assertive governmental support was required to ensure the continued and effective functioning of the meteorological and hydrological services. He thanked WMO for its unconditional support in alleviating the impact of the extreme hydrometeorological events in the region which would, without any doubt, strike again in the future. Lastly, he said how happy he was to see Professor Obasi, Secretary-General of WMO, whose presence at the meeting underscored yet again his constant interest in and support for the South American region.

1.4 The Secretary-General said that he was honoured to address the opening ceremony of the thirteenth session of RA III, and extended a warm welcome to all the participants. On behalf of WMO and in his own personal capacity, he thanked the Vice President of the Republic of Ecuador for hosting the meeting in Quito. He pointed out some noteworthy events which had taken place in the four-year period since the twelfth session of RA III in Salvador (Bahia), Brazil in 1997. These included the Thirteenth World Meteorological Congress which, in addition to taking several decisions, adopted the Geneva Declaration; the 1997 Special Session of the United Nations General Assembly to review and appraise progress in the

implementation of Agenda 21 of the United Nations Conference on Environment and Development (UNCED); the Declaration of the Millennium Summit of 2000 and, more recently, the thirteenth session of RA IV (North and Central America), held in March 2001 in Maracay, Venezuela, and the fifty-third session of the Executive Council, held in Geneva in June 2001. The Secretary-General remarked that an assessment of the work undertaken during this period would help define future needs. He said it was important to examine the achievements obtained within the National Meteorological and Hydrological Service (NMHS) strategic development plans because they were a clear indication of the benefits of meteorological and hydrological applications. Additionally, meteorological science faced new and greater challenges every day, such as the impact of disasters caused by extreme natural phenomena, rapid technological advancements, the socio-economic swings of the current age and its ongoing trend towards globalization and market economies. All of these affected the functions of the NMHSs. Therefore, it was ever more important for the NMHSs to step up their cooperation, not only with each other but also with economic groups and organizations in the region, so as to make a scientific contribution and mobilize resources for development programmes associated with their activities. Given the vital role of climate monitoring and studies on climate change, Professor Obasi said that NMHSs required an effective and up-to-date World Weather Watch (WWW). In this regard, the Climate Information and Prediction Services (CLIPS) project was an important WMO initiative. No less vital were the efforts undertaken to improve the Regional Meteorological Telecommunication Network (RMTN) in RA III. He further said that WMO would continue to attach great importance to the implementation of the International Strategy for Disaster Reduction (ISDR) by strengthening its hydrology and water resources programmes and arranging for WMO cooperation with relevant agencies and institutions. In this respect, through WMO's Technical Cooperation Department (TCO) and the Regional Office for the Americas, WMO would continue its support to all Members in the Region. By means of self-management and by making full use of the Organization's programmes, it would strengthen activities that enhance the development of the NMHSs in the region. He thus urged the Members of the Region to continue supporting the work of the Regional Office. Professor Obasi concluded by explaining that prior engagements made it impossible for him to attend the entire thirteenth session. For this reason, he had appointed Mr W. Degefu, WMO's Director Coordinator for Support to Scientific Programmes, to represent him,

with the assistance of Mr R. A. Sonzini, Regional Director for the Americas, and other senior staff from the Secretariat. He wished all the participants a successful meeting, a pleasant stay in Quito and a safe journey home.

1.5 Mr P. P. Rubianes, Vice President of the Republic of Ecuador, expressed his pleasure to address the thirteenth session of RA III, which had convened to discuss important aspects concerning the joint planning and programming of the NMHSs in South America. He spoke of problems that struck globally and indiscriminately, and whose consequences affected people all over the world. Even more serious was the amount of damage caused by natural disasters, and the frequency with which they occurred, leaving hunger, destruction and death in their wake. He remarked that the developing countries were less able to alleviate the impact of such disasters or recover from them, so their socio-economic and environmental consequences were worse there than elsewhere. He said that was precisely why the work of the NMHSs, which contributed to sustainable development, was so crucially important. He stressed the importance of cooperation and exchanges between the NMHSs and related international bodies. For this reason, on 19 September 2001 he had signed a Memorandum of Cooperation with WMO to establish an international centre for research on *El Niño*. Additionally, the countries of the Andean region had set up an Andes Regional Programme for disaster reduction, which was based on regional cooperation so as to avoid duplication of effort and optimize resource management, setting national and sectoral policies for the prevention and mitigation of natural hazards. In declaring the meeting open, he reiterated his country's commitment to the tasks and efforts being carried out on the international level to study meteorological phenomena and prevent natural disasters.

2. ORGANIZATION OF THE SESSION (agenda item 2)

The meeting was attended by 33 participants from 13 countries of RA III. In addition, five representatives of other WMO Members and four representatives of other national, regional and international organizations participated in the session. The list of participants is given in [Appendix A](#).

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

Mr Salazar invited Mr Degefu, Representative of the Secretary-General, to refer to the matter of credentials. Accordingly, Mr Degefu presented the first report, explaining that based on documents received in Geneva and those delivered on the first day of the session, the credentials of the following Members had been found to be in order: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, France, Guyana, Paraguay, Peru, Suriname, Uruguay and Venezuela. Credentials from the following Members outside RA III had also been received: Spain and the United States. The following international organizations had also

submitted credentials: the United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Health Organization (WHO), the Permanent Commission for the South Pacific (CPPS), ISDR and the Instituto Oceanográfico de la Armada del Ecuador (INOCAR). Mr Salazar noted that, in accordance with General Regulation 22, it would not be necessary to establish a Credentials Committee. It was so agreed.

2.2 ADOPTION OF THE AGENDA (agenda item 2.2)

Mr Salazar invited Members to examine Document 2.2(1) (provisional agenda) and reminded them that, under the terms of General Regulation 175, the agenda could be modified at any time during the meeting. The Association expressed its approval and unanimously adopted it as reproduced in [Appendix B](#) to this report.

2.3 ESTABLISHMENT OF COMMITTEES (agenda item 2.3)

In the course of the session, the following committees were established:

NOMINATION COMMITTEE

2.3.1 In accordance with General Regulation 24, the session established a Nomination Committee consisting of the Principal Delegate from Peru as chairperson, and the Principal Delegates from Venezuela, Guyana and Bolivia as members.

WORKING COMMITTEES

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

- (a) Working Committee A, chaired by Mr M. Rabiolo (Argentina), to consider agenda items 4.1, 4.2, 4.3, 4.4, 4.5, 7.1, 7.3 and 7.4.
- (b) Working Committee B, chaired by Mr H. Oliva (Chile), to consider agenda items 5.1, 5.2, 5.3, 5.4, 5.5, 6, 7.2, 8, 9 and 10.

Mr A. Bermeo, the Principal Delegate from Ecuador, acted as vice-chairperson for both working committees.

COORDINATION COMMITTEE

2.3.3 As stipulated by General Regulations 24 and 28, a Coordination Committee was set up, comprising the president and vice-president of RA III, the chairperson of Working Committees A and B and the vice-chairperson of both committees, the Representative of the Secretary-General and, as appropriate, Secretariat staff.

2.4 OTHER ORGANIZATIONAL MATTERS (agenda item 2.4)

2.4.1 The Association established its working hours for the session.

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

2.4.3 The Association designated as rapporteur Mr. H. Valiente (Paraguay) for agenda item 19, Review of 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 satisfaction the report submitted by the President of RA III, who had conducted a thorough analysis and overall review of its major activities since the twelfth session. It also expressed its appreciation to the president for the efficient manner in which he had conducted the affairs of the Association.

3.2 The Association commended its President, Mr N. Salazar (Ecuador) for his efficient management of the Association's affairs, which contributed to the development of meteorology and hydrology in the Region. It also congratulated its vice-president, Mr D. Jaigopaul (Guyana) for his contribution to the Association's work. The Association then expressed its gratitude to the chairmen and members of the working groups and the rapporteurs for the important roles they had played in implementing the activities of the Association.

3.3 The Association extended its thanks to the Members which had hosted various regional meetings during the inter-sessional period, and encouraged them to continue providing the necessary assistance for future regional activities.

3.4 The Association fully endorsed the priorities and future working programme of the thirteenth financial period, as presented by the president in the report. In particular, attention was given to plans related to WMO scientific and technical programmes which focus on the specific needs of the Region and on new priorities such as climate change and environment-related matters. It requested the Secretary-General to consider the needs of the region in conjunction with the future plan of work of the Association.

3.5 The Association requested the Secretary-General to take the priorities identified by the session into account when preparing the programme and budget for the fourteenth financial period, and requested the President to follow up the implementation of the priorities established by the Association.

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

4.1 WWW PLANNING AND IMPLEMENTATION, INCLUDING THE REPORT OF THE CHAIRPERSON OF THE WORKING GROUP ON PLANNING AND IMPLEMENTATION OF THE WWW IN REGION III (agenda item 4.1)

REPORT OF THE CHAIRPERSON OF THE WORKING GROUP ON WWW

4.1.1 The Association received with appreciation the report of the chairperson of the Working Group on Planning and Implementation of the WWW (WG/PIW) in Region III, Mr M. Rabiolo (Argentina). It thanked the

members and, in particular, the chairperson of the working group and the regional rapporteurs, for their valuable contributions to the work of the group. It was noted that the working group had addressed various important issues and challenges in the implementation of the WWW in the Region and had made good progress towards accomplishing the many tasks assigned in its work programme. It was agreed to consider the working results and recommendations made by the working group in detail under the relevant agenda items. Furthermore, the Association appreciated the information documents presented by Argentina on the status and plans pertaining to WWW components in the NMHS of Argentina, in particular:

- (a) The activities and further development of the Regional Telecommunication Hub (RTH) Buenos Aires;
- (b) The operational status of the meteorological satellite receiving systems in Argentina;
- (c) The activities of the Regional Instrument Centre (RIC) Buenos Aires; and
- (d) The activities and plans of the Regional Specialized Meteorological Centre (RSMC) Buenos Aires.

4.1.2 The Association expressed its appreciation to the National Meteorological Service (NMS) of Argentina for hosting the third session of the working group in Buenos Aires in April 2001 and the excellent facilities and support it had provided on that occasion.

4.1.3 The Association gave particular attention to Resolution 2 (Cg-XIII) — World Weather Watch Programme for 2000–2003, as well as the WWW Programme in the Fifth WMO Long-term Plan (SLTP), which confirmed that WWW continued to have the highest priority as the basic WMO programme on which nearly all other WMO programmes depended. It stressed that the Association would continue to play an active role in the implementation and further development of the WWW in Region III, to keep the WWW programme under continuous review, and to recommend adjustments in the light of Members' changing requirements as well as developments in science and technology. It should also identify deficiencies, propose remedial measures, and develop system support projects on a regional scale.

4.1.4 As regards the main WWW activities, the Association agreed that the following issues required particular attention in the Region:

- (a) Review the status of the observational networks, identification of their deficiencies and development proposals for their improvement, including an increased use of Aircraft Meteorological Data Relay (AMDAR) reports in the Region;
- (b) Promotion, development and implementation of the planned Regional Meteorological Data Communication Network (RMDCN).

The Association agreed that, as regards Voluntary Cooperation Programme (VCP) projects, the highest priority be given to the realization of projects under these two main WWW activities.

4.1.5 The Association agreed that, taking into account the many tasks related to the basic WWW components, it was necessary to reestablish the WG/PIW for RA III, and to this end adopted [Resolution 1 \(XIII-RA III\)](#). In this connection, the Association noted with satisfaction that the new Commission for Basic Systems (CBS) working structure adopted by CBS-Ext.(98), Karlsruhe (Germany) in November 1998, and confirmed after a two-year trial by CBS-XII (December 2000, Geneva), strengthened the collaboration and links of the regional associations with CBS. This was, *inter alia*, manifested in the participation of the chairpersons of the Regional WG/PIWs in sessions of CBS as invited experts, and the membership of the regional rapporteurs/coordinators on the WWW component programmes in the corresponding Implementation/Coordination Teams (ICTs) of CBS.¹ It was also welcomed that provisions were made to invite two experts per Region into the ICTs of their choice as a capacity building measure, and the Association requested the chairperson of the WG/PIW, in consultation with the regional president, to coordinate the designation of these two experts.

ANNUAL GLOBAL MONITORING OF THE WWW

4.1.6 The Association reviewed the status of implementation and operation of the WWW in RA III. It noted that the Secretariat had received during the monitoring period from 1 to 15 October 2000 results from six RA III Members. Four Members provided monitoring results on electronic media (diskettes or Internet). The Association encouraged the participation of centres located in Region III in the exchange of monitoring results on electronic media. It urged all National Meteorological Centres (NMCs) to make every effort to participate in the annual monitoring campaign, at least by monitoring their national observational data. It welcomed Brazil's offer to make available to interested NMHSs monitoring data and statistics on a daily basis through the Internet and in the future through the new RMDCN.

4.1.7 The Association noted with appreciation the analysis of the monitoring results prepared by the Secretariat and was satisfied with the good progress made in some areas. It was, however, concerned that the availability of reports was not homogeneous within the

Region and that there were areas from where it was not satisfactory. No SYNOP reports were received from Ecuador and less than 30 per cent of the expected reports were received from Guyana and Suriname. No TEMP reports were received from Bolivia, Ecuador, Guyana, Paraguay and Venezuela and less than 31 per cent of the expected reports were received from Colombia and Peru.

4.1.8 The Association noted an overall increase in October 2000 in the availability of SYNOP reports (from 48 to 64 per cent), which was followed by a decrease to 58 per cent, according to the results of the recent specialized monitoring carried out in the first quarter of 2001. The availability of TEMP reports increased from 21 to 40 per cent in October 2000 and was about 44 per cent in April 2001 (which included increases in TEMP reports in Brazil and Colombia and a decrease in Argentina). As regards the timeliness of the reception on the Main Telecommunication Network (MTN), 61, 63 and 64 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; 29 and 40 per cent of the required TEMP reports were available on the MTN within two and 12 hours, respectively, after the time of observation. The major reasons for the achieved improvements were seen in the prompt coordinated actions taken by the Members concerned, the Secretariat and donor countries, mostly related to the replacement of obsolete equipment and support in provision of consumables and spare parts to certain countries. Further in this connection, the Association noted with satisfaction that Paraguay would soon resume operations of its upper-air station, Peru would install three upper-air stations in 2002, and Venezuela would install six new upper-air stations in 2002.

4.1.9 The availability of SYNOP reports was, with 26 per cent for 06 UTC, low compared to more than 70 per cent for the other hours of observation. The availability of TEMP reports was only 16 per cent for 00 UTC compared to 63 per cent for 12 UTC.

4.1.10 The Association urged Members concerned to check the status of operation of their stations and duly inform the Regional Association through the Secretariat. It was recognized that one reason for discrepancies in monitoring results was that the information on changes related to the implementation of observing stations was not always provided to the Secretariat so that *Weather Reporting* (WMO-No. 9) Volume A could not be updated properly. The Association urged its Members to regularly check the information contained in Volume A pertaining to their own countries, and to send up-to-date information to the associated RTHs (e.g. World Meteorological Centre (WMC) Washington) and to the WMO Secretariat. The Association also stressed the importance of updating the Regional Basic Synoptic Network (RBSN) through agreed procedures (see [Resolution 2 \(XIII-RA III\)](#)), with a view to ensuring that observational reports from the actual RBSN are properly distributed on the GTS. The

¹ CBS-XII re-established the Open Programme Area Groups (OPAG) on the Integrated Observing Systems (IOS) covering all aspects of the Global Observing System (GOS), on the Information Systems and Services (ISS) covering all aspects of the Global Telecommunication System (GTS) and Data Management, on the Data-processing and Forecasting Systems (DPFS) covering all aspects of the Global Data-processing System (GDPS) and the Emergency Response Activities programme, and on the Public Weather Services programme. Each OPAG established several task-oriented Expert Teams (ET) and rapporteurs and one ICT. An ICT includes in its membership the chairpersons of the ETs established under the OPAG and the regional rapporteurs/coordinators of the corresponding WWW component programmes as *ex-officio* members.

Association finally recalled the existing mechanisms in WMO through the Technical Cooperation Programme (TCOP) and the VCP for submitting requests for assistance to strengthen or support WWW operational systems at the national level.

WWW SYSTEMS SUPPORT ACTIVITIES

4.1.11 The Association noted that a pilot project was being implemented between Brazil and Chile for training in the development and use of numerical weather prediction (NWP) models. It noted that technical cooperation projects related to WWW implementation had been mainly concentrated on the automation of NMCs in the Region. Some NMCs received limited support to automate their telecommunication and data processing functions.

4.1.12 The Association agreed that future technical cooperation support in the Region should be focused on the implementation of the new RMDCN, the continuation of the effort to automate all NMCs, and on training activities with a view to optimizing the actual utilization of the new systems and its impact on services provided by NMHSs.

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

REGIONAL BASIC SYNOPTIC NETWORK

4.2.1 The Association noted that the RBSN in Region III, adopted by Resolution 2 (XII-RA III), consisted of 467 surface and 56 upper-air stations, and recalled that it had delegated to the RA III-WG/PIW the task to keep under constant review the composition and operations of the RBSN. It appreciated the work done in this regard and noted that the Working Group had reviewed the RBSN by applying several criteria related to requirements, operational status, network density, station proximity, telecommunications and other infrastructural aspects. The Association agreed with the proposal of the working group that the RBSN should have, in principle, an average distance between stations of 150 km for surface stations and 250 km for upper-air stations, which constituted 507 surface and 58 upper-air stations. The Association adopted [Resolution 2 \(XIII-RA III\)](#).

OTHER NETWORKS OF OBSERVING STATIONS

4.2.2 The Association was informed that the total number of ships recruited by Members has increased from around 350 in 1997 to around 430 in 2000, most of them under the Brazilian flag and one being equipped to make upper-air soundings. This represents about 6 per cent of the global total, from which around 5 000 reports are distributed daily on the GTS. It also noted that there remain, however, large areas in the Southern Hemisphere, especially in the South Pacific and to a lesser extent the South Atlantic away from coastal areas, where ship reports are very sparse.

4.2.3 While ship reports reasonably adequately cover the major shipping lanes, moored and drifting buoys play an important role in providing observations from the remaining large, data-void ocean areas. The Association noted with satisfaction that the International South Atlantic Buoy Programme (ISABP), coordinated through the Drifting Buoy Cooperation Panel (DBCP), has, since its formation in 1995, succeeded in substantially increasing the deployment of drifting buoys in the South Atlantic and hence the availability of data from these platforms on the GTS. At the same time, the Pilot Research Moored Array in the Tropical Atlantic (PIRATA) project has deployed a network of moored buoys in the equatorial Atlantic, which is providing meteorological and oceanographic data in support of global climate studies and operational meteorology. During the past 10 years, the number of reports from global and regional drifting and moored buoy programmes distributed on the GTS has increased from approximately 40 000 to 270 000 per month with an adequate coverage of RA III waters, especially the South Atlantic south of 30°S.

4.2.4 The Association noted that the implementation of automatic meteorological data observing and reporting systems aboard aircraft with the aircraft to satellite data acquisition and relay (ASDAR) programme, began 15 years ago, and it is now gradually declining as operators decommission old aircraft. Yet, there are currently 11 units operational, including those being operated by Argentina that are considered to have a high priority and should be kept operating until at least the end of 2002. These units still provide valuable upper-air data in relatively data-sparse areas.

4.2.5 The Association was informed that the ASDAR system is being increasingly replaced by the more cost-effective Aircraft Meteorological Data Relay (AMDAR) system. Globally, about 1 000 aircraft from 10 participating countries are providing more than 100 000 observations daily for distribution on the GTS. A number of flights from visiting aircraft from Australia, the United States and Europe operating in RA III now provide timely, accurate and cost-effective profiles of temperature and wind at several major airports, as well as measurements at cruise level. The data are distributed on the GTS. The Association felt that more observations could be obtained from additional visiting aircraft if a way could be found to pay for the modest transmission costs for the data from these aircraft. It therefore urged Members to further study this issue and initiate appropriate arrangements.

4.2.6 The Association welcomed Chile's plan to establish a national and eventually, a regional AMDAR programme using its national carrier. It is anticipated that it will take several years before the system becomes fully operational. It further noted that Brazil also has an aircraft appropriately equipped to collect AMDAR data, but availability of such data at any of the NMHSs requires additional consideration. The Association agreed that the best way forward would be through a regionally coordinated joint AMDAR project similar to the one implemented in Europe (E-AMDAR). This would

eventually ensure a common approach to standards, aircraft selection, as well as software and hardware development, and would thus achieve financial economies and an effective management of the project. The Association welcomed that technical advice would be available from the AMDAR Panel, and that the United States offered to provide technical guidance on the access and use of AMDAR data.

CLIMAT AND CLIMAT TEMP REPORTING STATIONS

4.2.7 The Association was informed that as compared with previous assessments made by the WG/PIW, the availability of CLIMAT and CLIMAT TEMP reports originating in the Region continued to be disappointing. Despite appeals by the Association for many more of the synoptic stations to prepare such reports, the number of reports received remained less than half of the expected. Only 184 (39 per cent) CLIMAT reports received out of 467 reports expected from the RBSN stations for CLIMAT and 25 (45 per cent) CLIMAT TEMP reports received out of 56 reports expected from the RBSN stations for CLIMAT TEMP in the Region. Furthermore, it noted that out of the 467 stations which are indicated in Volume A as producing CLIMAT reports, only 332 (71 per cent) were received in the monitoring period. Similarly, the number of CLIMAT TEMP reports received during the monitoring period was 43, constituting 77 per cent of the 56 stations indicated in Volume A as preparing such reports.

4.2.8 The Association reiterated with concern the problem of the low availability of CLIMAT and CLIMAT TEMP reports within the Region. It also noted that with the establishment of the Global Climate Observing System (GCOS) Upper-Air Network (GUAN) in 1996 and GCOS Surface Network (GSN) in 1999, the existing list of CLIMAT and CLIMAT TEMP reporting stations was not consistent with the GCOS requirements.

4.2.9 The Association noted with interest the establishment of a Regional Basic Climatological Network (RBCN) in Region II and Region IV to enhance the availability of climate data on the regional scale. It agreed that a newly established RBCN should include GSN and GUAN stations and be supplemented by other CLIMAT and CLIMAT TEMP reporting stations to meet regional climatological requirements. It also noted the statement of CBS-XII (Geneva, 29 November–8 December 2000) that such a network would provide valuable justification for maintaining a minimum number of CLIMAT reporting stations and could also serve as a target list for WWW monitoring.

4.2.10 The Association reviewed a list of RBCN stations in Region III proposed by the Secretariat based on the above principles. The list included the GSN and GUAN stations as well as those CLIMAT and CLIMAT TEMP reporting stations listed in *Weather Reporting* (WMO-No. 9) Volume A, which, in accordance with monitoring results and information provided by Members, carry out observations at synoptic hours. The Association therefore, adopted [Resolution 3 \(XIII-RA III\)](#) on establishing a RBCN in Region III.

PAC-SONET

4.2.11 The Association was informed about a research project entitled PAC-SONET underway in Regions III and IV, which is coordinated and funded by National Oceanographic and Atmospheric Administration (NOAA) to collect PILOT data from 12 stations during the period of about three years to support studies of precipitation climatology in the western coast of Central and South America. The data was being transmitted via the Internet and would soon be distributed over the GTS. The Association felt that the considerable amount of data being collected would be very useful for RA III NMHSs and requested the three RTHs of the Region to approach RTH Washington to include the mentioned data in their respective switching directories. The RTHs would then forward the received data to the associated NMCs.

INSTRUMENTS AND METHODS OF OBSERVATION PROGRAMME (IMOP)

4.2.12 The Association noted with interest the results of the twelfth session of the Commission for Instruments and Methods of Observations (CIMO), held in Casablanca, Morocco, in May 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, China, in October 2000. The Association also expressed its appreciation that the sixth edition of the WMO *Guide to Meteorological Instruments and Methods of Observation* (WMO-No. 8) was issued in all languages. The revised *Guide* was considered an important basis for development of improved national guidelines for obtaining more accurate and reliable observations.

4.2.13 The Association also emphasized the value of close links and active exchange of experience with manufacturers and instrument developers in solving technical problems. It was welcomed that representatives of eight manufacturers attended as observers the session of the CIMO Working Group on Ground-based Upper-air Observing Systems (New Delhi, India, December 1999), which contributed significantly to the progress made on the reliability of observations obtained from Global Positioning System (GPS)-based radiosondes. It was noted that, as a result of a recent initiative of the Secretary-General based on the request by Thirteenth Congress to strengthen collaboration between instrument manufacturers and WMO, plans are materializing to establish an international association of the hydro-meteorological equipment industry that would apply to the Executive Council for the granting of a "consultative status". The Association noted that such a status would greatly facilitate the desirable involvement of the private instrument and equipment sector as observers in the work of WMO bodies and looked forward to the establishment of such an association in the near future.

4.2.14 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 this connection, the Association welcomed that the president of CIMO, Mr S. K. Srivastava, India, initiated an Expert Meeting on Capacity Building related to Meteorological Instruments and Methods of Observation (Beijing, China, September 1999) at which recommendations for enhancing the collaboration on matters related to IMOP within the Regions, in particular through RICs, and strengthening of the links between CIMO and the regional associations, have been developed.

4.2.15 Members were urged to carry out 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 *WMO Guide to Meteorological Instruments and Methods of Observation* (WMO-No. 8). Special attention should be given to the frequent calibration of operationally used barometers.

4.2.16 The Association confirmed the value of RICs for guaranteeing proper calibration of equipment and for training of instrument operators. Noting with appreciation the work of the RIC operated in Buenos Aires, Argentina, 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 are invited to take advantage of these services, especially for calibration of national standard instruments.

4.2.17 The Association expressed its appreciation to the National Meteorological Institute of Brazil (INMET) for hosting the WMO Intercomparison of GPS Radiosondes, held in May/June 2001 in Alcantara, Brazil. The test was prepared by an International Organizing Committee set up by the president of CIMO, which held its initial meeting in Brasilia in August 2000. The Association noted with satisfaction that the four major manufacturers of GPS sonde systems participated at the test, which was aimed to determine the performance characteristic of this type of sondes under tropical conditions. The Association invited Brazil to prepare the final report of the intercomparison at the earliest convenience and invited WMO to publish it within the Instruments and Observing Methods (IOM) report series.

4.2.18 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 retrain their own staffs as necessary and to give in this connection consideration to training facilities of other Members and the RIC if their own resources are not sufficient. Donors were invited to maintain strong support to training programmes in instrumentation.

4.2.19 The Association expressed its appreciation that the China Meteorological Administration (CMA) had, on behalf of WMO, compiled, published, and distributed on CD-ROM the CIMO Instrument Catalogue. This Catalogue would significantly facilitate the work of NMHSs in selecting instruments and equipment for procurement.

RAPporteur ON SOLAR RADIATION

4.2.20 The Association noted with appreciation the report of the Rapporteur on Solar Radiation, Mr J. A. Cardenas, Permanent Representative of Chile with WMO. The Rapporteur developed a working plan and circulated it to all Members for comments. Furthermore, with a view to implementing the plan, a survey was carried out to obtain information on the actual status concerning radiation instruments, quality control of data, availability of charts, etc. Replies were received from nine countries which all supported the proposed work plan. The Association agreed on the activities developed from the evaluation of the replies, as follows:

Short-term activities:

- (a) Calibrate and maintain radiometers regularly; and
- (b) Encourage Members to transfer technology and to enhance activities in the field of solar radiation measurements.

Medium-term activities:

- (a) Stimulate the design and extension of the ultraviolet (UV) radiometric network; and
- (b) Take efforts on the development and homogenization of UV radiation indices.

4.2.21 Resulting from the inquiry, the Association noted with appreciation that the national radiation networks had generally been improved, although some countries were not able to maintain the necessary level of implementation, mainly due to economic constraints. The Association, therefore, urged Members, where appropriate, to extend and modernize their radiation networks and to establish, where not yet already established, National Radiation Centres (NRCs) that would be equipped with at least one absolute pyrheliometer maintained as national radiation standard instrument.

4.2.22 The Association was pleased to note that the regional standard pyrheliometers of the two regional radiation centres (RRCs) for RA III (operated by Chile and Argentina) as well as the national standard pyrheliometer of Colombia and Peru had been recalibrated against the World Standard Reference at the Ninth International Pyrheliometer Comparison (IPC-IX), which was conjointly held with the Fourth Regional Pyrheliometer Comparison (RPC) of RA III at the World Radiation Centre (WRC) in Davos, Switzerland, in September/October 2000. It recognized that besides its main objective to calibrate regional and national standard instruments, the IPC/RPC was also an excellent forum for the exchange of experience between the radiation experts, through the scientific symposia as well as the training in radiation measurements and calibration held during the IPC/PRC. The final report of

the IPC-IX will be published in 2001 and the Association requested its Members to apply the latest calibration factors once they were published.

4.2.23 The Association reiterated the importance of the regular calibration of operationally used radiation instruments against the national or regional standard instruments. In this connection, it invited Members which have established NRCs and especially Argentina and Chile, operating the two RRCs, to offer their facilities for the calibration of national standard instruments, and to provide support in the training of personnel involved in radiation measurements.

4.2.24 The Association recognized that there was an increased need for making available more reliable and accurate solar radiation data sets for a variety of users within the meteorological community and beyond. Radiation data are nowadays not only used for operational and scientific applications, but there is also an enhanced requirement for application in the fields of social and economic activities. The Association noted in particular that:

- (a) Various agencies as well as private bodies require solar radiation data on different timescales for different applications, such as in the industry and architecture, as well as for projects using solar energy;
- (b) UV, and especially UVB, radiation data were of increased interest to carry out epidemiological studies, such as skin cancer;
- (c) *El Niño*-related research asked for an enhanced solar radiation climatology to better estimate the impacts of *El Niño* on the economy and agriculture; and
- (d) Energy balance models require solar radiation data.

4.2.25 The Association stressed the need for continuing the activities related to solar radiation measurements, and underscored the increased importance of solar radiation data for many applications. The Association agreed that the proposed activities should be tackled and implemented in close cooperation with the WMO Regional Office for the Americas supported by a Rapporteur on Solar Radiation. [Resolution 4 \(XIII-RA III\)](#) was adopted.

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

4.2.26 The Association noted the difficulties in coordinating the work of the Rapporteurs on Regional Aspects of Instrument Development, Related Training and Capacity Building carried out by the Permanent Representatives of Ecuador and Venezuela with WMO. Therefore, some of the tasks allocated had to be pursued in the future work programme.

4.2.27 The Association noted that the Rapporteurs contacted the RIC of the Region operated by Argentina in Buenos Aires, with the objective to draw more attention to capacity building matters in the field of instruments and methods of observation, as requested by the president of CIMO. They also felt that more efforts were still needed in relation to the operational application of well calibrated and maintained

instrumentation for guaranteeing observations of high quality. In addition, they felt that Member countries of RA III should be made more aware of the services that can be provided by the RIC so that all Members can better benefit from these services.

4.2.28 The Association noted with satisfaction that a CIMO Expert Meeting on Capacity Building related to Meteorological Instruments and Methods of Observation was organized in Beijing, China, in September 1999 which developed recommendations on pertinent collaboration in the Regions.

4.2.29 The Association encouraged 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 these issues should be continued by a Rapporteur on Regional Aspects of Instrument Development, Related Training and Capacity Building, and adopted [Resolution 5 \(XIII-RA III\)](#).

SPACE-BASED SUB-SYSTEM

4.2.30 The Association was informed on the status of the space-based subsystem of the GOS and noted that full details were contained in the *World Weather Watch — Twentieth Status Report on Implementation* (WMO-No. 922) published in June 2001. The Association was further informed by Brazil that a new high-resolution ground receiving system has been installed which has the capability to receive the new satellite data formats. It was offered to make the received images available to other Members in the Region if the data exchange capabilities were available in their centres.

UPCOMING CHANGES TO NOAA SATELLITE SYSTEMS

4.2.31 The meeting was informed of the status of NOAA geostationary and polar-orbiting operational environmental satellites and plans for satellite data continuity, including changes in both satellite series that will require technological upgrades by all users to continue to access data. Members were informed that in 2002, low resolution geostationary data (WEFAX) will begin the transition from analog to digital formats requiring new satellite receiving and processing capabilities. High resolution geostationary data will remain relatively unchanged until geostationary operational environmental satellite (GOES)-R in 2012 when substantive changes will be required to ground systems. Regarding data from polar-orbiting satellites, Members were informed that significant changes will begin to occur in 2005 with low resolution and high resolution satellites data. Recognizing that national government budgeting requires long lead time, Members were strongly encouraged to become familiar with the changes and work with their financial

ministries to secure the appropriate funding to make the necessary changes to their ground systems in order to continue to receive satellite data.

CURRENT AND UPCOMING CHANGES TO THE GOES DATA COLLECTION SYSTEM (DCS)

4.2.32 Members were informed of the changes that have started with the ground segment of the GOES DCS system. In 2001 transmitters that transmit at 300 and 1 200 bps were approved for use on the GOES DCS. The current 100 bps transmitters will be supported for up to 10 years, but users are encouraged to phase over as soon as possible. After 1 May 2002, no new 100 bit per second channels or time slots will be allowed to be added. The National Environmental Satellite, Data and Information Services (NESDIS) is investigating other technologies to improve system capacity and efficiency. Users will be kept informed.

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

STATUS OF IMPLEMENTATION OF THE GTS IN RA III

4.3.1 The Association reviewed the status of implementation of the GTS in Region III and noted that significant progress was reached specially by RTHs Brasilia and Buenos Aires, but some old shortcomings persisted. The lack of automation and the low speed of telecommunication circuits preclude several NMCs from accessing the significant amount of data and products available at the RTHs of the Region. The diagram of the current GTS plan and its implementation for RA III is included in the [annex to this paragraph](#).

4.3.2 The Association noted that significant improvement has been achieved with the implementation of the 64 kbps digital point-to-point circuits between RTHs Brasilia and Buenos Aires and RTH Washington. Some telecommunication functions of some RA III NMCs were upgraded thanks to the donation of equipment and software, and technical visits of experts seconded by Members. However, in spite of the indicated progress, serious shortcomings still exist, which are mainly due to budget constraints in some countries. The circuit Brasilia/Maracay operates at 9 600 bps using the Public Packet Switching Data Network. The circuit between RTH Buenos Aires and NMC Lima would be upgraded from 75 Baud to 9 600 bps in the beginning of 2002. The circuits Maracay/Cayenne, Maracay/Georgetown, Maracay/Lima and Porto Alegre/Montevideo have not been implemented.

4.3.3 The Association was also informed about tests carried out between centres in the Region to assess the feasibility of using FTP via Internet to exchange meteorological information where GTS circuits are not operational. The Association also discussed the possibilities of using the Internet to collect data from the climate stations. It noted further that tests were being

carried out between Brazil and Ecuador to exchange data via FTP, and welcomed the offer of the United States to use the existing FTP services at the RTH Washington to send information (such as observation reports) to that RTH.

4.3.4 The Association noted that besides the three RTHs of the Region, NMCs Santiago and Cayenne and some of the GTS functions of NMCs Asunción and Montevideo are automated. The other NMCs are still using manual telecommunication operations. It expressed serious concerns about the deteriorating situation of the RA III RMTN especially in the northern part of the Region.

THE NEW RA III RMDCN

4.3.5 The Association reviewed the project for the modernization of its RMTN, which was established at its twelfth session (Salvador, Brazil, September 1997). It noted that the Secretariat had organized and supported several related meetings to prepare and coordinate the project plan including the documents required for the calling of the International Invitation to Bid (ITB). The Association was pleased that, in particular, the Specification of Requirements document had been submitted for comments to the 13 Members of RA III and received supportive responses from all Members.

4.3.6 It was the wish of the RA III Members to entrust the WMO Secretariat with the ITB, the subsequent conclusion of the framework contract with the company to be selected and the coordination of the implementation phase of the project. A corresponding proposal had been consequently developed, approved by the Secretary-General and submitted to RA III Members.

4.3.7 The Association was informed about the circular letter sent by the Secretary-General in July 2000 to all Members of RA III seeking their concurrence with the proposed project management framework and the corresponding course of action for the development of the RA III RMDCN Project. The letter also invited the Members to consider their participation in the implementation and operation of the new RA III RMDCN, especially as regards their commitment or willingness to participate in the first or subsequent phases of the RMDCN. Twelve Members had responded of which eight had indicated their willingness to participate in the initial phase of the project and four were willing to participate in subsequent phases. Some Members indicated that expert services, hardware and software support may be required for facilitating implementation in their respective NMCs.

4.3.8 The first session of the Working Group on Internal Matters of RA III (Santiago, Chile, November 2000) reviewed the project and made suggestions and recommendations. It had identified the following factors that were fundamental for the success of the project:

- (a) The support from the Secretariat;
- (b) The number of Members committed to participate from the beginning of the project;

- (c) The services of a data-communication consultant, who would be needed to assist in the evaluation of bids, to coordinate the installation and to manage acceptance activities.

4.3.9 The Association noted with concern the difficulty in identifying an appropriate funding mechanism for the consultant. It welcomed the suggestion that data-communication networking experts from the Region, in particular from RTHs Brasilia and Buenos Aires, could assist NMCs during the installation and commissioning of the new system. The Association was further grateful to note the offers of France and the United States to provide expertise to help the implementation of the RMDCN.

4.3.10 The Association welcomed that as a follow-up to the recommendations of the meeting of the Working Group on Internal Matters, the president of RA III had requested the Secretary-General to proceed with the project on behalf of RA III Members. It also noted with satisfaction that the Secretariat intends to establish an internal Project Management Committee (PMC) to monitor and guide the activities related to the project.

4.3.11 The Association discussed the establishment of a project trust fund, in the framework of the WMO TCOP with a view to supporting and facilitating the RMDCN project. This mechanism, which it is hoped would be supported by the cooperation, assistance and contribution from Members, would provide resources for data-communication consultant services and facilitate project-related meetings as necessary, as well as implementation assistance at NMCs.

4.3.12 In view of the importance of the RMDCN project for the Region, the Association decided to adopt [Resolution 6 \(XIII-RA III\)](#).

4.3.12.1 The Association noted that despite the progress made towards the implementation of the new RMDCN, interim arrangements should be implemented urgently to improve the exchange of data and products within the Region. These arrangements should aim at maintaining the operational characteristics of the GTS in the Region.

4.3.12.2 The Association established an open ad hoc group to develop appropriate proposals.

4.3.12.3 The Association noted with appreciation the offer from RTHs Brasilia and Buenos Aires to make available FTP access on their servers for RA III Members to access data and products as well as to inject data into the GTS. It also noted the capability of RTH Buenos Aires to improve connectivity with associated NMCs through the use of a national VSAT system. The Association was informed that RTH Maracay had already purchased a new MSS with TCP/IP capability.

4.3.12.4 The Association agreed to the following arrangements submitted by the ac hoc group, which would be a cost-effective solution and promptly address the current RMTN shortcomings until the new RMDCN would be implemented:

- (a) NMCs with Internet capability and equipped with up-to-date PCs should connect with RTHs Brasilia and/or Buenos Aires using FTP via the Internet.

When RTH Maracay upgrades its MSS with TCP/IP capabilities, the concerned NMCs may re-establish their connections using equivalent arrangements. Venezuela reaffirmed the previous offer to donate through VCP hardware and software to Guyana and Suriname for the automation of their NMCs;

- (b) The VSAT system in use by RTH Buenos Aires may be implemented by associated NMCs where adequate Internet connectivity is not available. RTH Buenos Aires would provide the technical details, and both centres concerned should agree upon the costs involved;

- (c) The detailed requirements for data and products of the NMCs concerned should be established.

4.3.12.5 The Association invited concerned Members, with the assistance and support of the involved RTHs and the WMO Secretariat to facilitate an early implementation of this plan. The Rapporteur on Regional Aspects on the GTS/Data Management will distribute as soon as possible through the WMO Secretariat technical instructions for the implementation of the Internet/FTP solutions.

GTS PROCEDURES

4.3.13 The Association stressed that NMCs should fully comply with the procedures as given in the *Manual on the Global Telecommunication System* (WMO-No. 386), in order to ensure that their messages and observational reports are not rejected, and thus lost, by the automated computer facilities at RTHs Brasilia, Buenos Aires and Maracay. The importance of complying with the agreed format and principles for the abbreviated heading line of the messages was particularly stressed. Any new abbreviated heading should also be notified to the above-mentioned RTHs in advance of its actual use to ensure its appropriate routing.

RADIO FREQUENCIES

4.3.14 The Association noted with appreciation the favourable outcome of the World Radiocommunication Conference 2000 (WRC-2000) as regards meteorology. Nonetheless, the Association stressed that the threat on the full range of radio frequency bands allocated to meteorological systems and environmental satellites would continue with the increasing development and expansion of new commercial radiocommunication systems. It noted with appreciation the active coordination role of the Secretariat and that several NMHSs in the Region had followed up the appeal to WMO Members to take up the matter. The Association emphasised the importance of continuing contacts between NMHSs and their respective national telecommunication administrations to ensure that they are fully aware of the prime importance of radio frequency allocations for meteorological operations and research, including safety of life and properties aspects. Particular attention should be given to radio frequency allocations to radiosondes and meteorological satellites, weather radars and space-borne passive remote sensing.

4.3.15 The Association was pleased to note that CBS activities and WMO's participation in International Telecommunication Union-Radiocommunication Sector (ITU-R) had already resumed with a view to preparing WRC-2003. It also noted that the fifty-third session of the Executive Council had requested CBS, with the support from the Secretariat, to pursue as a matter of high priority the coordination and protection of radio-frequency allocations, and to further assess the potential financial and operational implications on meteorological systems.

OPERATIONAL INFORMATION SERVICE (OIS)

4.3.16 The Association recalled that the objective of the OIS was to collect from and distribute to WMO Members and WWW Centres detailed and up-to-date information on facilities, services and products made available in the day-to-day operation of the WWW. This Service included *Weather Reporting* (WMO-No. 9), Volumes A, B, C1, C2 and D; the *International List of Selected, Supplementary and Auxiliary Ships* (WMO-No. 47), METNO messages; and the WWW Operational Newsletter.

4.3.17 The Association noted with appreciation that in order to improve data reliability, timeliness of distribution, and provision of additional information to Members, significant progress was made in the operation of the OIS, which had been implemented at the Secretariat. WMO-No. 9 and WMO-No. 47 are maintained on databases operated on PCs, enabling the Secretariat to maintain and update the data promptly, as far as updated information is notified to the Secretariat, and to provide much greater flexibility in the evaluation and dissemination of the information. WMO-No. 9 Volumes A and C1, WMO-No. 47, and the RBSN lists were available on the Internet via the WMO home page or from the FTP server. The information is also available in printed form and Members can request it by e-mail or by fax. In addition, access to the expanded diskette service and printed editions has been improved by eliminating long delays. For rapid access, the WWW Operational Newsletter was also available on the Internet.

4.3.18 The Association noted with concern that despite repeated appeals made to Members to notify the Secretariat of the changes in their observation networks, there were discrepancies in the information contained in WMO-No. 9, Volume A and the real operation of the observing stations. The Association noted with appreciation that CBS was reviewing Volume A with respect to its contents and updating procedures, and was considering a possible master reference operational catalogue of observing stations.

4.3.19 The Association recalled that CBS-Ext.(98) had decided that as part of their responsibilities, WMCs and RTHs on the MTN were to review the catalogue of meteorological bulletins as regards bulletins issued by their relevant zones, and notify the Secretariat by transferring updated files, of changes to be included in Volume C1. The Secretariat was charged with

maintaining a global database of Volume C1 accessible on its FTP server, and regularly issuing the updated editions of Volume C1. The Secretariat has developed a system to update Volume C1 and to automatically prepare METNO (Volume C1) messages. Under the new system, participating RTHs are expected to transfer the advanced notifications related to RA III in the form of a file, and at least twice per year its part of Volume C1 on the WMO FTP server, and inform the Secretariat of the transfer by an Internet message. The Association urged all its Members to participate in the new Volume C1 mechanism and provide the relevant information to their RTHs in the Region.

4.3.20 The Association further noted that a redesign of WMO-No. 47 was under way to expand the type and enhance the precision of metadata provided by the publication on the size, identity and meteorological instrumentation of the mobile ship stations included in the surface-based synoptic network subsystem of the GOS. WMO-No. 47 metadata was increasingly being incorporated into various ocean observation and climate research programmes, including in a new Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM) programme.

DATA REPRESENTATION

4.3.21 The Association noted that the fifty-third session of the Executive Council adopted Edition 2 of FM 92 GRIB for operational use as from 7 November 2001, and emphasized that Edition 1 of GRIB was still a valid code and would remain in use, for example, for aviation purposes. Edition 2 of GRIB enables the coding of new products, such as the output of ensemble prediction systems, long-range forecasts, climate predictions, ensemble wave forecasts, transport models products, cross-section and time section products.

4.3.22 The Association followed the fifty-third session of the Executive Council and CBS-XII in recognizing that the self-description, flexibility and expandability of table-driven codes such as BUFR and CREX would be the solution to the frequent demands of the rapidly evolving science and technology for representation of new data types and metadata. Table-driven codes would also substantially contribute to improving data quantity and quality. The Association noted that CBS had considered a well coordinated phased approach that would comprise a progressive transition to the use of table-driven codes. The Association noted with appreciation that the Council felt such a transition, to be successful, would need to include support projects for training and decoding/encoding software distribution. The Association noted that the Council requested CBS to develop further this plan and to submit a report to its next session. The Association took note with appreciation of the proposal of several Members and of the European Centre for Medium-Range Weather Forecasts (ECMWF) to make available to all WMO Members encoder/decoder software for the WMO binary codes. The Association stressed the need for training to prepare the NMHSs in time for the use of BUFR and

CREX, as well as GRIB Edition 2, and welcomed, in this connection, the offer of the United States to help in providing and supporting training courses for this purpose.

DISTRIBUTED DATABASES CONCEPT AND THE INTERNET

4.3.23 The Association recalled that the Distributed Database (DDB) concept had been developed in response to the GDPS requirement to issue ad hoc requests for meteorological information. It was pleased to note that recommended procedures and implementation guidance were being developed for the use of Internet type protocols (TCP/IP, FTP) on the GTS, including operational security aspects. It noted that the use of these industry standard techniques was facilitating the cost-effective upgrade of the GTS and information systems for both developed and developing countries. Operational procedures as well as operational GTS management information (e.g. new catalogue of meteorological bulletins) were also further developed to facilitate the exchange and routing of information on the GTS. The Association noted with satisfaction that CBS included in its high-priority tasks the development of relevant mechanisms for handling information files (file naming, metadata) for enhancing GTS services. The Association underlined that due consideration should be given to adequate security measures to ensure efficient and safe operations of WWW centres and the GTS, and to possible implications related to data exchange policy, in particular in the case of the Internet.

4.3.24 The Association was pleased to note that all NMHSs in the Region are now connected to the Internet and nine NMHSs (75 per cent) operate Web servers. The connection speeds of the NMHSs in the Region are as follows: two NMHSs have access with speeds higher than 512 kbps; five NMHSs operate with speeds between 64–256 kbps; four have connections with speed lower than 64 kbps; and three have dial-up connections.

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

4.4.1 The Association noted that several Members of the Region run NWP models and several others use NWP products from GDPS centres in their daily forecasting activities. The installation at NMCs of PCs and UNIX workstations have improved the capability for data and product handling, objective interpretation of NWP products from WMC and RSM Centres, and preparation of derived products using local and imported data. The Association stressed the importance of cooperation between Members of the Region to improve the regional models. Members were requested to update the information available at the Secretariat to facilitate this cooperation.

REGIONAL SPECIALIZED METEOROLOGICAL CENTRES

4.4.2 The Association noted that the two RA III RSMCs with geographical specialization, Brasilia and Buenos Aires, provide regional products to assist NMCs in the forecasting operations. RSMC Buenos Aires runs a

limited area model (LAM) with 150 km, 10 levels up to 36 hours. A new model with 32 levels covering the area of responsibility of RSMC Buenos Aires will soon be operational and dissemination of products is planned.

4.4.3 RSMC Brasilia runs a mesoscale model with a horizontal resolution of 25 km, 31 levels and for a 78 hours forecast range. This model (called MBAR) was an adaptation of the HRM developed by the German Weather Service (DWD). The same model, with a resolution of 40 km, is used by the Navy Hydrographic Service to support the activities in Metarea V. The Brazilian Institute for Space Research (INPE) in Sao Paulo runs a Global Model (GM-T126L28) up to seven days, a LAM (40 km resolution, 38 levels, up to 60 hours, over South America), and an Ensemble System (T62L28 coupled) with 25 ensemble members up to six months.

4.4.4 RSMCs Montreal and Washington designated for the provision of transport model products in case of nuclear emergencies and other emergencies with significant transboundary air pollution have implemented the global arrangements for the provision of products to RA III. RSMC Buenos Aires is a lead centre for monitoring land surface observations in RA III. The lead centres generate monthly and six-monthly summary reports on the results of data quality monitoring, which are distributed to concerned Members to initiate remedial action with respect to the suspect stations detected by the lead centres.

4.4.5 Through the International Satellite Communications System (ISCS), WMC in Washington disseminates World Area Forecast System (WAFS) products and some additional products. Washington and INPE run a coupled ocean-atmosphere model and provide long-range predictions and seasonal outlooks, in particular related to *El Niño* predictions. These predictions are available on the Internet.

NATIONAL METEOROLOGICAL CENTRES

4.4.6 The Association noted with satisfaction that the NMCs Santiago, Quito, and Lima in the Region have started to run NWP models. French Guyana is using model outputs from Toulouse, France. In general, RA III centres are making extensive use of the NWP generated inside and outside the Region.

4.4.7 Some NMCs in RA III have now been equipped with a system based on inexpensive PCs together with meteorological application software developed by Argentina and Brazil. Most of the NMCs in RA III can effectively use products from advanced GDPS centres, which are available at RTHs or received through satellite-based distribution systems.

ENSEMBLE PREDICTION SYSTEMS (EPS)

4.4.8 The Association was informed that CBS-XII had addressed several issues concerning EPS with a view to making EPS products more widely available. A basic list of EPS products to be distributed should at least include probability of precipitation, ensemble mean at 500 hPa and some indication of variability (e.g. spaghetti plots,

spread) with forecast ranges from D4 (96 h) to D7 (168 hours). The session was informed about the consultations between the Secretary-General and the ECMWF, which resulted in the ECMWF council approving dissemination of additional products including EPS products in GRIB. These products would be made available soon. The session stressed the importance of training for effective use of these products and was pleased to learn that a series of seminars in this field is being planned.

SEVERE WEATHER FORECASTING

4.4.9 The Association noted that CBS-XII had proposed an action plan to facilitate coordinated implementation of procedures for assuring availability and use of NWP guidance on the occurrence of severe weather at NMHSs including exchange of visits of forecasters from centres that deal with forecasting of severe weather.

4.4.10 The Association noted that despite the progress made towards the implementation of the new RMDCN, interim arrangements should be implemented urgently to improve the exchange of data and products within the Region. These arrangements should aim at maintaining the operational characteristics of the GTS in the Region.

4.4.11 The Association established an open ad hoc group to develop appropriate proposals.

4.4.12 The Association noted with appreciation the offer from RTHs Brasilia and Buenos Aires to make available FTP access on their servers for RA III Members to access data and products as well as to inject data into the GTS. It also noted the capability of RTH Buenos Aires to improve connectivity with associated NMCs through the use of a national very small aperture terminal (VSAT) system. The Association was informed that RTH Maracay had already purchased a new message switching service (MSS) with TCP/IP capability.

4.4.13 The Association agreed to the following arrangements submitted by the ac hoc group, which would be a cost-effective solution and promptly address the current RMTN shortcomings until the new RMDCN would be implemented:

- (a) NMCs with Internet capability and equipped with up-to-date PCs should connect with RTHs Brasilia and/or Buenos Aires using FTP via Internet. When RTH Maracay upgrades its MSS with TCP/IP capabilities, the concerned NMCs may reestablish their connections using equivalent arrangement. Venezuela reaffirmed the previous offer to donate through VCP hardware and software to Guyana and Suriname for the automation of their NMCs;
- (b) The VSAT system in use by RTH Buenos Aires may be implemented by associated NMCs where adequate Internet connectivity is not available. RTH Buenos Aires would provide the technical details, and both centres concerned should agree upon the costs involved;
- (c) The detailed requirements for data and products of the NMCs concerned should be established.

4.4.14 The Association invited concerned Members, with the assistance and support of the involved RTHs and the WMO Secretariat to facilitate an early implementation of this plan. The Rapporteur on Regional Aspects on the GTS/Data Management will distribute as soon as possible through the WMO Secretariat technical instructions for the implementation of the Internet/FTP solutions.

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

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 made 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 requested that the Members of the Association be kept informed.

5.1.2 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 United Nations Framework Convention on Climate Change (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 Conference of the Parties (COP) to UNFCCC and to its Subsidiary Body for Scientific and Technological Advice (SBSTA). The Association appreciated the information provided by the Secretary-General through regular circular letters to Members 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 COP.

5.1.3 The Association noted the preparations under way within the United Nations System for the World Summit on Sustainable Development that is planned to take place in Johannesburg, South Africa in September 2002. The Association recognized the importance of this 10-year review of the outcomes of the United Nations Conference on Environment and Development (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 is available on the Internet. The Association urged that WMO work to ensure that concrete results, which were relevant at the regional and national level, emerged from the preparatory process and from the summit itself.

5.1.4 The Association examined the report submitted by the Rapporteur on the Climatic Atlas, Mr J. Hoffmann (Argentina), and congratulated him on his more than 25 years' work on behalf of the Region in preparing the Surface Climatic Atlas. The Association agreed that it was important to complete the work on the atlas as soon as possible, including its upper air sections. It was also important that the atlas be reproduced in forms that would make the information readily accessible to NMHSs and other users in the Region. The Association was pleased to accept the offers of support in this regard from Argentina and Brazil, as well as from Colombia, which agreed to act as the focal point for the project.

5.1.5 The Commission noted the wide range of climate activities that were being carried out in the Region and agreed that enormous benefits could accrue from better coordination on these activities amongst its Members and between the Association and the Commission for Climatology (CCI) and other WMO Commissions. The Association therefore adopted [Resolution 7 \(XIII-RA III\)](#), establishing a Working Group on Climate Activities.

5.2 WORLD CLIMATE DATA AND MONITORING PROGRAMME (WCDMP) (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 the World Data Centres A and B for Meteorology. As these data are essential for ongoing monitoring and assessments of global climate change, the Association urged all Members to respond to this request as soon as possible. Regarding current GSN station reporting, the Association recommended that the data available at the German and Japanese monitoring centres be used to analyse the CLIMAT-reporting performance of the GSN stations and that this information should then be made available to Members.

5.2.2 The Association noted the progress made by the CCI/Climate Variability and Predictability (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). These 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. The Association was pleased to note the interest from Peru

and Bolivia in conducting similar workshops for the Region and requested the Secretary-General to facilitate the necessary support.

5.2.3 The Association urged Members to maintain an adequate level of coverage of observing stations to meet their national needs for climate data. Further, the Association urged Members to prepare monthly summaries of CLIMAT messages from these networks to ensure that regional and international needs, as identified by the UNFCCC and other environmental conventions were also met. The Association urged Members, in consultation with CBS and CCI, to identify RBCNs for these purposes (see agenda item 4.2).

5.2.4 The Association noted the expanding use of Automatic Weather Stations (AWS) in the meteorological observing networks of many countries and recognized the likely continuation of this trend in both the establishment of new observing sites and the replacement of existing manual observing sites. The Association noted that special attention is required to ensure that the recording and storage of data covers the full range of parameters essential for climate purposes. The Association urged Members to maintain accurate metadata for AWSs, noting that the importance of applying appropriate calibration practices whenever individual sensors were changed. The Association was informed of the recent amendment to the *Manual on the Global Observing System* (WMO-No. 544) regarding best practices for GSN stations (Part III, Section 2.10.3.17), especially that whenever a change in site characteristics was being proposed, every effort should be made to programme an overlapping observation period to facilitate the construction of a relatively homogeneous data set from the combined records. The Association was informed of an AWS training course in Brazil in 2002 and agreed that this would provide an excellent opportunity for Members to learn from the experiences of others in establishing AWS networks.

5.2.5 The Association welcomed the efforts of the 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 NMHSs 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 is a very important issue and the value of data records for climate change and variability studies in many instances has been severely diminished as a result of insufficiently documented site and instrument changes.

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 (CSM) products, and expressed its appreciation to those Members who had responded positively to the request to provide Web page addresses for this purpose. In addition to increasing the availability of CSM 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.

5.2.7 The Association noted progress on the WMO initiative to produce a book on the climate of the 20th century and welcomed the objective to have it published in time for the World Summit on Sustainable Development. It requested the Secretary-General to explore the possibility of obtaining support from its Members in the Region in preparing a Spanish language version of the book.

5.2.8 The Association noted with satisfaction that the evolution to the final generation of the software developed specifically for Climate Computing (CLICOM) (Version 3.1) is well under way in the NMHSs of the many WMO Members using CLICOM. 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 (CDMS). As the findings of the team's work become available, Members will be able to examine which of the systems evaluated 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 this activity. The Association noted that this CDMS 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 be adopted by all concerned in WMO.

5.2.9 The Association expressed its appreciation to the National Climatic Data Center in Asheville (NCDC), 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.

5.2.10 The Association noted 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 (DARE) meeting to harmonize initiatives in the different Regions and the trend taken to develop digital archives using new technology.

5.2.11 The Association was informed of activities within the framework of the Archival Climatic History Survey Project (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 residing in public archives and supported efforts for its discovery and translation in digital form to national meteorological archives.

5.2.12 Argentina presented an information document covering the activities carried out since the last meeting of the Association with special emphasis on probability-based climate forecasts.

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

5.3.1 The Association recalled the objectives of the CLIPS Project as agreed by Thirteenth Congress, which were:

- (a) To demonstrate the value and eventual socio-economic benefits of climate information and prediction services;
- (b) To provide an international framework to enhance and promote climate information and prediction, including the establishment of criteria to measure forecast quality and to permit model intercomparison;
- (c) To encourage the development of operational climate prediction;
- (d) To facilitate the definition, development and strengthening of a global network of regional/national climate centres.

5.3.2 The Association recognized the critical impacts of climate variability on the socio-economic structures of all countries within the Region. Such variability is linked to changes in ocean surface temperatures over the Pacific *El Niño*/Southern Oscillation (ENSO) and Atlantic Oceans, which can result in interannual adjustments to tropical atmospheric forcing and hence in rainfall amounts in many parts of the Region. These adjustments can in turn lead to changes in tropical storm frequencies, intensities and tracks in both the Pacific and Atlantic oceans. The Association called upon Members to strengthen their activities in this area in view of the encouraging level of predictability that was emerging with respect to hurricane frequencies and of rainfall totals on seasonal to interannual timescales. In this regard the Association welcomed the activities being promoted by the Secretary-General to develop a user requirement for seasonal to interannual prediction. This 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. Recognizing that management strategies for dealing with climate variability and change could improve with the increased use of climate information in addition to predictions, the Association called for the further development of the use of climate information alongside the improvement of forecast services.

5.3.3 The Association noted that the Regional NMHSs should take a pivotal role in the provision of CLIPS and recognized that a key aspect in developing this role lies 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. The Association urged all Members to identify focal points and to provide them with the facilities necessary to undertake their roles.

5.3.4 The Association further recognized that enhanced benefit will be obtained through regional

networking of focal points and proposed that these networks be developed around rapporteurs to RA III designated to report on CLIPS issues. These regional focal points would also facilitate interactions with the CCI on CLIPS issues. The Association therefore adopted [Resolution 8 \(XIII-RA III\)](#) through which three CLIPS rapporteurs were nominated with responsibilities respectively for the southern cone, north-eastern and North-western areas of the Region.

5.3.5 Prediction on seasonal to interannual timescales presents challenges in terms of 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 activities directed at examining and improving capabilities in each of these 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. Noting, however, that the forums are costly to run and that outputs for end users from the forums need to be improved, the Association welcomed the holding of the International Expert Meeting on Regional Climate Outlook Forums, which involved representatives from RA III. In view of the high cost of maintaining an ongoing programme of forums, such as that operating for the countries of the Southern Common Market (MERCOSUR) region, the Association urged that alternative methods of communication between participants be explored within CLIPS, for example, through Internet or Regional intranet-based forums. The Association noted the key role played by verification in the development of understanding and 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 these to applications planning.

5.3.6 The Association noted the activities being undertaken through the Executive Council and technical commissions to consider the possible roles of Regional Climate Centres (RCCs) in the provision of climate information and prediction services. RCCs could be developed in locations serving a sub-region throughout which there would be common needs for services, and thus more than one such centre might be required within RA III. In that regard, the Association noted the decisions taken since its previous session within the United Nations, including the General Assembly and the Economic and Social Council (ECOSOC) with respect to the establishment of an *El Niño* centre in Guayaquil, Ecuador. The Association was informed of an agreement between WMO and the Government of Ecuador to further investigate the scope and implementation schedule of the centre, and requested its Members to support these investigations by providing information on how the centre might evolve to the mutual benefit of all countries within RA III, especially those in the Andean region (see also Agenda Item 10).

5.3.7 The Association noted the attention that had been given to weather, climate and human health as the theme of World Meteorological Day 1999 and in various publications. The Association stressed that aspects of bioclimatology relating to human health need to be emphasized in the development of CLIPS. A special focus should be on conditions in the tropics, especially on the rapidly growing conurbations in which large sectors of the populations are already directly affected by climate, its variation and change.

5.3.8 Noting that the methodology used in the Showcase Projects in Human Health is based on the Heat/Health Warning Systems that are increasingly employed in cities in the United States as well as in Regions II and VI, the Association requested the Secretary-General to ensure provision of assistance in the organizing of similar showcase projects within the Region as requested by Members. The Association urged close collaboration and cooperation with the CCI in the implementation of showcase projects on climate and human health within the Region.

5.3.9 The Association noted with appreciation the activities in climate and health that are relevant to the interests of the Region. The Association urged Members to participate in the Workshop on Impacts of Climate Variability and Change on the Environment and Human Health being planned for a location in the Caribbean area in coming months.

5.3.10 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 the Tropical Urban Climate Experiment (TRUCE), as endorsed by CCI-XII, was considered a firm basis for actions in this sector and it was suggested that TRUCE should be considered in the further development of CLIPS-related projects. The Association was satisfied with the results of the International Conference on Urban Climates (ICUC'99) that was held jointly with the International Congress of Biometeorology (ICB'99) in Sydney, Australia, in November 1999, and expressed its gratitude to the Secretary-General for the support of several of the participants from the Region.

5.3.11 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 can apply climate information including predictions to improve energy decisions. The Association noted 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. In this regard, the Association urged Members to increase their initiation of and participation in multi-agency, multi-stakeholder activities, including relevant aspects of the GCOS regional workshops on improving deficiencies in global climate observing systems. The Association also recommended that Members conduct case studies to illuminate the decision value of knowledge of climate

variability and the use of seasonal to interannual predictions, in energy production and use in both traditional and renewable forums.

5.4 WORLD CLIMATE RESEARCH PROGRAMME (WCRP) (agenda item 5.4)

5.4.1 Members of the Association continue to participate actively in many components of the WCRP. A particularly important activity is the Large-scale Biosphere-Atmosphere Experiment in Amazonia (LBA), a comprehensive continental-scale Global Energy and Water Cycle Experiment (GEWEX). The LBA is one of the largest coordinated scientific endeavours in the humid tropics. LBA is intended to determine how Amazonia currently functions as a regional entity and how will changes in land use and climate affect the biological, chemical and physical functions of the region, including the sustainability of development in the Region and the influence of Amazonia on global climate.

5.4.2 The Association noted that the field phase of LBA started at the end of 1998. The first Intensive Observing Period (IOP) occurred during January/February 1999 in the form of two closely coupled experiments, a wet season atmospheric mesoscale campaign and a ground validation experiment for the Tropical Rainfall Measuring Mission (TRMM). A 100-km grid box over the Southwest Amazonia region (Rondonia) was heavily instrumented for atmospheric and land surface monitoring. Eleven long-term, continuously monitoring flux/climate/ecological sites have been established over the LBA region. An IOP campaign designed to study the transition from dry to wet seasons is to take place during the second half of 2002 in Southwest Amazonia.

5.4.3 The Association was informed that since conversion of tropical forest would alter the exchanges of energy, water, carbon, trace gases and nutrients through the atmospheric, terrestrial and river systems of Amazonia at all scales, the primary scientific issue is to predict what impact deforestation will have on the ecological, climatological and hydrological functioning of Amazonia and how it may affect the region's long-term sustainability. Recent results have indicated that Amazonia forests may be taking up carbon at a low but significantly important rate, in terms of the global carbon budget. The research indicates, however, that the rate of uptake may be highly sensitive to temperature so that the region may change from being a sink to being a source of carbon with only an average temperature rise of a degree or less.

5.4.4 The Association urged Members to continue to participate actively in planning and implementation of the LBA, and to establish points of contact to effect closer communications between the LBA and their national activities.

5.4.5 The Association expressed particular interest in the development of the CLIVAR research study to extend understanding of climate variability on seasonal to decadal timescales and further strengthen the scientific basis for practical climate prediction. The Association

also noted the activities undertaken under the auspices of CLIVAR and GEWEX focused on monsoonal circulations in the Region.

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 (GCOS) (agenda item 5.5)

5.5.1 The Association noted with appreciation the progress report on GCOS. It noted that the GCOS Networks were being implemented in accordance with approved plans and that a data monitoring activity was in place for both the GSN (carried out jointly by the Japan Meteorological Agency and the Deutscher Wetterdienst) and the GUAN. Members of the Association agreed to submit historical data and metadata from their GSN stations, as requested by the letter of 20 September 1999 from the WMO Secretary-General, as well as to provide ongoing support for their GSN and GUAN observations.

5.5.2 The Association recognized the importance of the decisions from the fifth session of the UNFCCC's 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 these observing networks. It requested Members, to the extent possible, to assist the GCOS Secretariat in organizing subregional workshops within RA III. The Association also urged Members to participate in preparing detailed reports on systematic observation and to serve on their national delegations to COP in order to make the observing needs of their NMHSs known.

5.5.3 The Association appreciated the opportunity to review the GCOS Implementation Strategy and asked Members to provide comments on this strategy to the GCOS Secretariat as appropriate.

5.5.4 The Association noted the letter of 15 June 2001 sent by the Secretary-General to all WMO Members in which he advised them of the latest results of the performance monitoring of GSN and GUAN stations and the future availability of such results on a regular basis. It also noted the low level of availability of the expected observations in RA III and encouraged Members to take the actions needed to identify and rectify the problems at individual stations operated by them.

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

6.0.1 The Association noted the activities and initiatives that had taken place with the AREP since its last session and that Members had taken an active role in many of them. It recorded its specific comments on the various components in the following paragraphs. The Association noted that in 1999 the WMO Research

Award for Young Scientists was awarded, jointly, to a scientist from the Region. It urged all Members to make every effort to nominate eligible scientists from their countries for consideration for this award.

6.1 SUPPORT TO OZONE AND OTHER ENVIRONMENT-ORIENTED CONVENTIONS (agenda item 6.1)

6.1.1 The Association recalled that the atmospheric composition information provided by the Global Atmosphere Watch (GAW) network in the Region constitute a major contribution to the implementation of the UNFCCC and the Vienna Convention for the Protection of the Ozone Layer. In this regard, the Association noted that its Members operate a number of GAW stations that provide atmospheric ozone and greenhouse gas information for use by both scientists and government policy makers. The Association also noted with satisfaction that in the continuous efforts to maintain high quality global ozone data sets, the Association had staged an intercomparison for regionally-based Dobson spectrophotometers in late 1999. In line with sentiments expressed by the Executive Council, the Association recommended that similar intercomparisons be held in the Region every few years.

6.1.2 The Association was pleased that Members had made substantial contributions to the 1998 international Scientific Assessment of Ozone Depletion. Members were urged to continue their active support of the next assessment due in 2002. These quadrennial assessments underpin the discussions of the Parties to the Montreal Protocol and its amendments.

6.2 GLOBAL ATMOSPHERE WATCH (GAW) (agenda item 6.2)

6.2.1 The Association noted with satisfaction the considerable support provided by its Members to the GAW Programme and that it remains a priority activity in the Region. Members were urged to continue their support for GAW, and those with no current involvement were encouraged to consider participating, particularly in view of the increasing pollution problems in some of the quickly expanding urban centres. In this regard, the Association recalled that Thirteenth Congress had endorsed the establishment of a GAW Urban Research and Meteorological Environment (GURME) project and that pilot projects were already under way in both Beijing and Moscow. The Association felt that the holding of a GURME workshop on urban pollution forecasting would be of great interest to many of its Members.

6.2.2 The Association expressed its appreciation to the scientific community outside the NMHSs for their close interaction with GAW, especially the support given by the Commission on Atmospheric Chemistry and Global Pollution (CACGP) of the International Association of Meteorology and Atmospheric Physics (IAMAP), the International Geosphere-Biosphere Programme (IGBP) of the International Council for Science (ICSU), the International Ozone Commission (IOC) of IAMAP and, equally important, interactions with various national institutions. In addition, the close

collaboration between WMO/GAW and WHO on the health-related aspects of urban and regional pollution was also recognized. In this regard, the Association was pleased with the outcome of the WMO/WHO Task Force Meeting on Forest Fires (Peru, 1998) which had resulted in the issue of Guidelines for use by Members to address environmental aspects of regional forest burning.

6.2.3 The Association acknowledged the importance for GAW to provide high quality atmospheric data to its various user communities. Members have made significant contributions in this matter by effectively working through the Quality Assurance/Science Activity Centre (QA/SAC) for the Americas at the State University of New York in Albany, United States. The Association noted with satisfaction that the Region hosted the Regional Calibration Centre for Dobson spectrophotometers and solar radiation instruments in Argentina, and that it performed vital functions in maintaining the integrity of regional data with respect to these instruments.

6.2.4 Completing the essential international infrastructure of GAW are a number of World Data Centres (WDCs) where information is stored and made freely available to scientists and decision makers. The Association was pleased that GAW stations in the Region made a substantial contribution to this vital activity by regularly submitting their measurements to the appropriate Data Centres. The Association urged Members to ensure that this data flow is maintained in the future.

6.2.5 In this regard the Association noted with gratitude the report presented by Argentina on the activities carried out by NMSs in the area of the AREP. It was pleased to note in particular that NMSs were implementing a wide range of the studies of ozone layer over the southern part of the continent in collaboration with other Members as well as over the Antarctic. These activities included total ozone and UV radiation measurements as well as ozone vertical profile measurements. All collected data were submitted to the appropriate Data Centres.

6.2.6 The Association noted with concern difficulties experienced by some Members in the operating of GAW stations due to lack of spare parts and inadequate reaction of the manufacturers to their requests. It requested the Regional Calibration Centre in collaboration with the Secretariat to assist Members in improving the current situation.

6.2.7 The Association was aware of the tremendous training requirements to maintain such a complex system. It expressed its deep appreciation to those institutions and Member countries, both within and outside the Region, who have provided capacity building initiatives to address the issue. The Association strongly urged Members to take advantage of all opportunities for further training, for example through twinning arrangements with individual scientists and appropriate institutions, and through seeking attendance on courses at the GAW Training and Education Centre (GAW-TEC) established in Germany.

6.3 WORLD WEATHER RESEARCH PROGRAMME (WWRP) (agenda item 6.3)

6.3.1 The Association noted that Members from the Region have maintained an interest in and contributed to the implementation of the WMO WWRP, a new Commission for Atmospheric Sciences (CAS) initiative that was endorsed by the Executive Council in 1998. It was recalled that this programme offered the prospect of much improved weather predictions on all timescales and emphasized high impact events and socio-economic applications. Members' contributions included participation in WMO workshops as well as providing input to the annual WMO progress reports on NWP and long-range forecasting.

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

6.4 TROPICAL METEOROLOGY RESEARCH PROGRAMME (TMRP) (agenda item 6.4)

6.4.1 The Association was pleased that its Members continued to cooperate in the development of TMRP, that consists of a number of components dealing with tropical droughts and rain producing systems, tropical limited area modelling, interactions between tropical and mid-latitude weather systems, and tropical meteorology and climate. The Region was represented at the Fourth WMO International Workshop on Tropical Limited Area Modelling held in Florida, United States in November 1999. The Association urged Members to identify candidates able to attend the next in this series of workshops, tentatively scheduled for 2002.

6.4.2 The Association took note of the numerical modelling activities that have been developed by RA III Members, particularly in the countries located in the tropical zone, and encouraged them to continue supporting TMRP in view of its benefits to the majority of countries of the Association who are affected by tropical weather systems.

6.5 EXECUTIVE COUNCIL PANEL OF EXPERTS ON PHYSICS AND CHEMISTRY OF CLOUDS AND WEATHER MODIFICATION RESEARCH (PCCWMR) (agenda item 6.5)

6.5.1 The Association was aware of the interesting hygroscopic seeding results reported in experiments in Mexico, South Africa and Thailand in recent years. It strongly urged Members to remain current with future scientific developments in this area which hold the potential for effective warm cloud precipitation enhancement. The Association encouraged its Members to continue to support other components of the programme and participate in the organized events. In that regard, it noted that the experts from the Region attended the two International Conferences on Fog and Fog Collection in 1998 and 2001 and the seventh WMO Scientific Conference on Weather Modification

(Thailand, February 1999) and that the Eighth WMO Scientific Conference on Weather Modification will be held in 2003.

6.5.2 When responding to questions or when contemplating weather modification experiments or activities in their countries, Members were advised to make reference to the new WMO Statement on the Status of Weather Modification as well as the Guidelines for Advice and Assistance Related to the Planning of Weather Modification Activities, both of which had been revised by the relevant panel and approved by the Executive Council in 2001.

7. APPLICATIONS OF METEOROLOGY PROGRAMME (AMP) — REGIONAL ASPECTS (agenda item 7.)

7.1 PUBLIC WEATHER SERVICES (PWS) PROGRAMME (agenda item 7.1)

7.1.1 The Association expressed satisfaction with the accomplishments and continuing development of the PWS programme and welcomed the steady progress made in achieving its outlined objectives. It also noted with appreciation the information presented by Argentina on the activities of NMSs in that area.

7.1.2 The Association was reminded that the OPAG on PWS had replaced the Working Group on PWS following the restructuring of CBS in 1998. The work of the PWS programme is now coordinated by three ETs and an ICT. The ETs benefit from participation of experts from the Region.

7.1.3 The Association welcomed the publication of the second edition of the *Guide to Public Weather Services Practices* (WMO-No. 834), in January 2000. This updated version stresses service delivery based on strong user-focus, and was distributed with a set of four complementary CD-ROMS containing additional examples of national PWS practices, to assist Members to develop their own country programmes. The Association was also pleased to note the May 1999 publication of *Public Weather Services in Focus* (WMO/TD-No. 974), which contains the results of the WMO 1997 global survey to assess the status of Members' PWS. The Region posted the highest global return percentage with nine of 12 Members responding.

7.1.4 The Association welcomed publication of the following WMO Technical Documents prepared by PWS experts and dealing with specialized topic areas, particularly for small and developing countries:

- (a) *Technical Framework for Data and Products in Support of Public Weather Services* (WMO/TD-No. 1054);
- (b) *Guidelines on Graphical Presentation of Public Weather Services Products* (WMO/TD-No. 1080); and
- (c) *Guidelines on Performance Assessment of Public Weather Services* (WMO/TD-No. 1023).

7.1.5 The Association noted that discussions have been held with the media, particularly international broadcasters, on issues of strengthening partnerships, "single official voice" and "on-air attribution" for the role of NMSs in the forecast and warning process, since they impact on the status and visibility of NMSs. It

welcomed the development of guidance on improving media relationships, and proposals to improve international media access to official NMS forecasts and warnings.

7.1.6 The Association expressed satisfaction with the effort made by WMO to promote the establishment of prototype Web sites for the distribution of tropical cyclone warnings, and the display of official forecasts for major cities around the world. The former project will allow users, particularly the international media, access to official NMS warnings through a centralized Web site, whereas the latter is part of a proposed solution to enhance the role of NMSs in the preparation of official forecasts. The Association was pleased that these pilot projects were in an advanced state of development and looked forward to their operational implementation.

7.1.7 The Association agreed that there was a need for bilateral and/or regional cooperation and agreements to develop and expand arrangements for cross-border exchange of forecasts, warnings and information concerning hazardous phenomena, based on local requirements. It stressed that quality and timeliness of warnings were extremely important to provide national emergency authorities, municipalities and the public with correct information on the hazardous phenomena. The Association welcomed the preparation of relevant guidelines on this subject by PWS ETs.

7.1.8 The Association was pleased to note that the PWS programme continued to place high priority on capacity building activities and transfer of knowledge and technology, so as to assist Members to strengthen and improve their PWS programme. It was advised that special emphasis has been placed on training and education and proposals have been made to increase the involvement of Regional Meteorological Training Centres (RMTCs) in the training programme. The Association was informed that the PWS ICT, in an effort to build on the benefits of previous workshops while expanding training activities, has made proposals and identified syllabus contents for roving seminars in each Region.

7.1.9 The Association noted with appreciation the information presented by representatives of regional international bodies (Pan American Health Organization (PAHO), Permanent Commission for South Pacific on their activities related to PWS and natural disaster reduction. It felt that close cooperation between WMO and other international organizations in these areas, in particular with respect to *El Niño* events, would benefit all Members in the Region.

7.1.10 The Association recognized that social, political and economic changes on the local, regional and global scales, as well as developments in science and technology, and the stress on environmental issues pose increasing challenges to Members to continue to provide effective PWS to meet the increasing demands of users. Against this background, a vital role of the PWS programme is to continue to assist Members to strengthen their capacity to face the new challenges and to maximize the benefits of the opportunities offered in these changing circumstances. In this regard, the

Association recommended that future high priority issues for the PWS programme in the Region include:

- (a) Assisting Members to enhance their status and improve their visibility by increasing public and user awareness of the economic benefits of meteorological services, especially of the important role in ensuring the safety of life and protection of property, as well as in national development;
- (b) Capacity building activities such as workshops and seminars, and transfer of knowledge and technology;
- (c) Assisting Members to develop user-focused service provision and delivery, as well as to access new technologies and techniques for product development and design, and effective presentation and dissemination;
- (d) Performance evaluation, and including verification of forecasts and warnings;
- (e) Assisting Members in developing/expanding their coordination and relationships with the media and emergency management, as well as programmes for cross-border exchange of forecasts, warnings and information.

7.1.11 The Association agreed that the further development of PWS activities in the Region, particularly in the light of the above-mentioned high priority issues should be an ongoing activity. It therefore decided to re-appoint a rapporteur on Regional Aspects of PWS.

7.2 AGRICULTURAL METEOROLOGY PROGRAMME (AGMP) (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. The Association also thanked the Rapporteur on Agricultural Meteorology for his report, which was presented by the representative of Peru.

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 South America. The Association considered the theme to be very important to the Region. The Association noted with interest the intersessional activities of the CAgM and agreed that they would contribute greatly to the economic development of the countries in South America. The Association was also pleased to hear of the experiences of several of its Members in their development and delivery of modern meteorological services to agriculture, noting that these services were generally considered to be of a very high priority.

7.2.3 The Association commended Peru for the adequate management of the Regional Agrometeorological Bibliographic Center of RA III. It also expressed its gratitude to the Secretary-General of WMO for his continuous financial support to the centre and asked him to continue providing support.

7.2.4 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 are becoming available based on these forecasts. The Association supported the decision of the Commission to promote surveys and summarize, using case studies, the current applications of climate forecasts in agriculture, forestry and livestock management and recommend ways and means to more optimally use climate forecasts in operational agriculture with emphasis on user needs, especially in the developing countries. In this context, the Association was pleased to note the initiative taken by the programme to collaborate closely with the System for Analysis, Research and Training (START) of IGBP, WCRP and the International Human Dimensions Programme (IHDP) in the Climate Prediction and Agriculture (CLIMAG) project. It congratulated the Secretariat on the successful organization of the International Workshop on CLIMAG in September 1999 in Geneva. The Association was pleased to note the conclusion of the CLIMAG workshop. There are specific areas in South America where CLIMAG demonstration projects could be developed from existing pilot activities and that multi-disciplinary teams including experts in climate, crop and economic modeling as well as agronomic expertise at various levels, including local farmers, would be involved in these regional CLIMAG demonstration projects. Noting that the partnership between START, WMO, the International Research Institute for Climate Prediction (IRI), the Asia-Pacific Network (APN), the Inter-American Institute for Global Change Research (IAI) and other relevant organizations is an essential ingredient underpinning the effort of these multi-disciplinary teams, the Association encouraged WMO's continued participation in the activities of the CLIMAG Steering Committee.

7.2.5 The Association was pleased to note that a number of experts from the Region had participated in the international workshops organized by WMO in other Regions. The Association considered that such opportunities for exchange of experiences between the Regions would help strengthen the agrometeorological activities in the Region and urged the Secretary-General to continue to enhance inter-regional cooperation in agrometeorology. In this respect, the Association took note of the forthcoming workshop in Barbados on improving the effectiveness and distribution of agricultural meteorological bulletins issued by NMHSs. The Association noted in particular the needs of small farmers, who typically did not have direct access to advanced electronic methods for obtaining information. Improving the availability of information to small farmers

could often be assisted through collaborative efforts with local and regional agricultural extension services. The Association requested the Secretary-General to distribute the report of this workshop as quickly as possible.

7.2.6 The Association was pleased to note that an RA III/IV Expert Group Meeting on Extreme Events was organized in Caracas, Venezuela, from 12 to 14 July 1999, and that the meeting had resulted in a very fruitful exchange of information, ideas, and scientific support to formulate suggestions to cope with extreme events more efficiently. The Association complimented the Secretariat for timely publication of the Proceedings of this Meeting and urged the Members to use the information provided in the Proceedings in their strategies to cope with extreme events in the Region.

7.2.7 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 (UNCCD). The Association requested the Secretary-General to provide appropriate guidelines to Members in this regard. The Association further urged Members to benefit from the support by the Global Mechanism of the Convention for projects in this area.

7.2.8 The Association agreed that the application of meteorology to agriculture continues to be of high importance to the Region. The Association also noted the recommendation of the CAgM Advisory Working Group (AWG) to strengthen regional activities in agricultural meteorology and agreed such activities should be continued taking into account the developments in the Region. Among others, these activities should include evaluation of the impact of ENSO on agriculture and forestry; the potential benefit of using seasonal to interannual climate forecasts; improved adaptation strategies to climate variability and climate change; methods to cope with extreme meteorological events, e.g., droughts and floods; and the potential for developing improved agrometeorological applications using tools such as the Geographic Information Systems (GIS). To help accomplish these activities, the Association established a Working Group on Agricultural Meteorology (see [Resolution 9 \(XIII-RA III\)](#)).

7.3 AERONAUTICAL METEOROLOGY (AEM) PROGRAMME (agenda item 7.3)

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

7.3.2 The Association was pleased to note that participants from 10 and 11 countries of the Region attended respectively the Training Seminars on the Processing, Manipulation and Display of WAFS Data and Products and on Cost Recovery for Aeronautical

Meteorological Service held in Mexico City, Mexico, in October 2000. The Association was grateful to WMO and the International Civil Aviation Organization (ICAO) for jointly organizing the two events and to the United Kingdom Met Office for providing a resource person for the cost recovery seminar. The Association noted with appreciation that the United States NWS provided the services of two lecturers for the WAFS seminar and financial support to participants at both training events. The Association was pleased to learn that a seminar on Air Traffic Services (ATS)/MET Coordination and Volcanic Ash was planned to be held in November 2001 in Colombia for participants from RAs III and IV Member countries. It expressed its appreciation to Colombia for its kind offer to host the seminar and to the United States for the financial support provided for the organization of this important event. The Association was pleased to note the proposal made by the fifth meeting of the Aeronautical Meteorology Subgroup (AERMET/5) of the ICAO CAR/SAM Planning and Implementation Group (GREPECAS) in April 2001 for ICAO to study the possibility of carrying out a joint project with WMO to train personnel in aeronautical meteorology.

7.3.3 The Association noted with satisfaction that as of 1 March 2001, all operational production responsibilities for high level significant weather (SIGWEX) areas A, B1, F, H, I and J previously at the Brasilia, Buenos Aires, Melbourne, Tokyo, Washington and Wellington RAFCs have moved to the World Area Forecast Center (W AFC) — Washington. The Association welcomed the progress made towards the final phase of WAFS including continued work on transition plans to transfer responsibility for Medium Level production from RAFCs Brasilia and Buenos Aires to the Washington W AFC. The Association noted that the two WAFCs had improved back-up procedures to ensure the continued global availability of aviation data and products to users in case of a W AFC failure. Other measures implemented by the two WAFCs included the addition of two extra aviation NWP model runs per day, the broadcast of GRIB relative humidity fields up to 500 hPa to meet aviation operational requirements and the successful BUFR coded SIGWX forecast transmission trials. The Association noted that, although almost all RA III Members had access to WAFS satellite broadcasts data through the United States ISCS broadcasts, some operational problems, e.g. the use of the VSAT/Satellite Telecommunication and Analysis for Region IV (STAR 4), missing products and noted delays in receiving GRIB data, still remained to be addressed. The Association was informed that following the demise of the primary contractor for the STAR 4 workstation, the United States entered into a new agreement with Global Science and Technology Inc. (GST) to provide maintenance and repair of existing workstations. It also noted the information provided by the Representative of United States that network of new workstations should be established by December 2004 to meet new format requirements proposed by ICAO. The Association also

urged Members to ensure that, as current facsimile charts would cease to be broadcast through WAFS satellites during the final phase of the WAFS format changes, adequate facilities and trained staff were available to receive, decode and use GRIB- and BUFR-coded WAFS products to prepare these charts locally.

7.3.4 The Association recognized that significant progress had been made in recent years on the establishment of the ICAO International Airways Volcano Watch (IAVW) and welcomed the provision of transport model products depicting volcanic ash by various WMO RSMCs that are also Volcanic Ash Advisory Centres (VAACs). It noted with appreciation the information document presented by Argentina on the activities in the area of aeronautical meteorology carried out by its NMS, in particular its contribution to the IAVW. The Association noted with satisfaction that the *Handbook on International Airways Volcanic Watch* had been recently published by ICAO.

7.3.5 The Association welcomed the adoption by CAeM-XI in March 1999 of the definition of visibility for aeronautical purposes and the guidance material for precipitation intensity and well-developed dust/sand whirls (dust devils) and funnel clouds. It noted with satisfaction the positive role played by the CAeM Working Group on the Provision of Meteorological Information Required by Civil Aviation (PROMET) in developing various amendments to ICAO Annex 3/ WMO Technical Regulations [C.3.1] in close cooperation with ICAO and relevant CBS and CIMO Working Groups. Some of these amendments were included in amendment 71 that became applicable on 5 November 1998. Other amendments, such as WAFS operational requirements, definition of visibility, information on volcanic ash, turbulence reporting, SIGMET information and the global exchange of OPMET information, would be implemented as part of Amendment 72 in November 2001.

7.3.6 The Association welcomed the establishment by ICAO of the Aerodrome Meteorological Observing Study Group (AMOSSG) to examine operational requirements for automated observing systems at aerodromes in which WMO was actively involved. The Association noted with interest that the group held its first meeting in Montreal, Canada, in May 2000, and a second meeting in De Bilt, Netherlands, in February 2001. The Association noted with satisfaction the progress made by the Group in updating the current requirements for meteorological observations and reports at aerodromes, as contained in WMO Technical Regulations [C.3.1] that would form part of Amendment 73 to be implemented around 2004. The Association noted with interest the Group assessment of current capability of automated observing stations to meet the future requirements and welcomed the Group proposal to develop a Manual on Automated Meteorological Observing Systems.

7.3.7 The Association was informed that in line with the decision of the CAeM, a Terminal Aerodrome Forecast (TAF) Verification Expert Group has been

established within the CAeM Working Group on Training, the Environment and New Developments (TREND). The Association was pleased to note that the TREND session held in Hong Kong, China in October 2000, discussed progress so far achieved on TAF verification. It noted with satisfaction that a report on progress on this matter would be discussed by PROMET in October 2001 and subsequently considered by the CAeM session planned to be held in September 2002.

7.3.8 The Association recognized the positive role played by AMDAR Panel established in March 1998 in enhancing the upper-air component of the GOS. The Association noted with satisfaction that there had been globally about a 100 per cent increase in AMDAR reports per day since the panel was established in 1998 and that over 100 000 AMDAR observations per day were being exchanged now over the GTS. The Association noted with interest that one RA III Member, Argentina, is participating actively to implement the ASDAR programme that has been functioning for nearly 11 years providing timely and accurate upper-air observations particularly over data-sparse areas of South America and the Atlantic Ocean. The Association urged RA III Members to support the implementation of the WMO AMDAR Programme that was providing significant benefits to various WMO Programmes including the AEM. In view of the high costs of the equipment and transmission of AMDAR data the Association agreed that the establishment of an AMDAR project in the Region should be done by joint efforts of RA III Members. This would reduce individual contributions of Members participating in the project (see also agenda item 4.2).

7.3.9 The Association congratulated the CAeM advanced techniques applied to aeronautical meteorology (ATEAM) Working Group for the updated publication of the WMO Technical Note No. 195 — *Method of Interpreting Numerical Weather Prediction Output for Aeronautical Meteorology* (WMO-No. 770). The Association was pleased to note that the Spanish and French versions of the Technical Note were published in the second half of 2000 and that all Members in the Region would now benefit from this publication. The Association welcomed the publication in 1999 of the *Guide on Aeronautical Meteorological Services Cost Recovery — Principles and Guidance* (WMO-No. 904) in English, French, Spanish and Russian. The Association was informed that the preparation of the Compendium on Tropical Meteorology was at a very advanced stage and that the WMO Secretariat expected to publish it in the near future. Moreover, the Association was pleased to learn that the WMO publication *Aerodrome Reports and Forecasts: A User's Guide to the Codes* (WMO-No. 782), was being updated to include the provisions of Amendment 72 and that it would be distributed to Members prior to the implementation date of 1 November 2001.

7.3.10 The Association was informed about the results of the ICAO Global Conference on the Economics of Airports and Air Navigation Services held in June 2000. It noted with concern the request by the International Air Transport Association (IATA) to the

Conference to limit cost recovery for aeronautical meteorological service to facilities and services exclusively serving aviation, therefore excluding the core services (i.e. synoptic, upper-air stations, satellite and radar facilities). The Association noted with satisfaction that the WMO proposal to retain the existing ICAO guidance material on meteorological cost recovery was supported by 30 countries including countries from RA III, and was endorsed by the Conference. Noting that the issue of aeronautical meteorological cost recovery would be raised again, the Association requested the WMO Secretariat and CAeM to monitor development in this area and to report to relevant WMO bodies including this regional association. The Association encouraged Members to cooperate with IATA and the airlines in addressing any grievances they may have regarding the quality of service provided to aviation and to continue to enhance transparency in the identification of meteorological costs. The Association urged Members to ensure closer contacts with the aviation authorities at the national level to avoid any misunderstanding regarding the vital role played by NMSs in the provision of meteorological service to air navigation.

7.3.11 The Association felt that in view of the vital importance of the AEM for the Region, it was necessary to designate a focal point who would be closely involved with aeronautical meteorology activities in the Region with the terms of reference given in the [Annex to this paragraph](#). The Association decided to nominate Mr F. Hidalgo (Columbia) as the focal point on Regional Aspects of the AEM.

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

7.4.1 The Association noted with interest that Thirteenth Congress (Cg-XIII) had approved the Marine Meteorology and Associated Oceanographic Activities Programme (MMAOAP) as part of 5LTP. This programme provided overall objectives as well as detailed guidelines for Members, regional associations and WMO in this 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 Integrated Global Ocean Services System (IGOSS), of a new Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM). JCOMM had subsequently also received the formal approval of the 20th Assembly of the IOC (Paris, July 1999). The first session of JCOMM took place in Akureyri, Iceland, 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 Global Ocean Observing System (GOOS) and GCOS. The Association recognized the potential importance of JCOMM to its Members and to WMO,

noting that delegates from a number of countries in RA III had participated in JCOMM-I, and offered its strong and ongoing support. Further specific action in this regard is recorded in a subsequent paragraph.

7.4.2 With regard to the implementation of marine meteorological services, specifically in Region III, the Association noted with appreciation the reports of the Rapporteurs on Regional Marine Meteorological Services. Actions taken on various points raised in this report are recorded in subsequent paragraphs. The Association agreed that the further development of marine meteorological services, together with 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 therefore decided to re-appoint a rapporteur and adopted [Resolution 10 \(XIII-RA III\)](#).

MARINE METEOROLOGICAL AND OCEANOGRAPHIC SERVICES

7.4.3 The Association noted that the new WMO marine broadcast system under the Global Maritime Distress and Safety System (GMDSS) (forming a part of the International Convention for the Safety of Life at Sea (SOLAS)) had been fully implemented, as planned, on 1 February 1999. It recalled that details of the system were formally adopted by the eleventh session of CMM and approved by the forty-fifth session of the Executive Council as part of the *Manual on Marine Meteorological Services* (WMO-No. 558). In particular, the Association noted with satisfaction that meteorological services through SafetyNET for the six Metareas covering the Region were now operational, and expressed its considerable appreciation to all the NMSs concerned (Argentina, Brazil, Chile and the United States). At the same time, it recognized the need to continually review these services, including in particular the views of users, and therefore urged Members in the Region operating Voluntary Observing Ships (VOSs) to participate actively in the various marine meteorological services monitoring exercises being undertaken. In this regard the Association noted with appreciation the information document presented by Argentina on the status of marine meteorological services provided by the NMSs.

7.4.4 The Association recalled that a new, globally coordinated Marine Pollution Emergency Response Support System (MPERSS) had been adopted by CMM-XI and, with the approval of the forty-fifth session of the Executive Council, implemented on a trial basis as from 1 January 1994. The Association urged Members with agreed responsibilities under the MPERSS to make every effort to contribute to the trials and to report the results of these trials to JCOMM. It expressed its appreciation to Australia for hosting the International Seminar/Workshop on MPERSS in Townsville, Australia, July 1998, which it considered had provided an important stimulus to MPERSS implementation.

7.4.5 The Association noted with appreciation that the Marine Climatological Summaries Scheme (MCSS),

the Global Digital Sea Ice Data Bank (GDSIDB) and the Global Temperature Salinity Profile Programme (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 concerned Members in the Region to participate actively in these projects, which now all formed part of the JCOMM data management programme area.

SYSTEMS FOR MARINE OBSERVATIONS AND DATA COLLECTION

7.4.6 The Association noted with appreciation that, following the agreement of Eleventh Congress that WMO would cooperate with IOC in the development of GOOS, WMO was now a full co-sponsor of GOOS, along with ICSU, IOC and the United Nations Environment Programme (UNEP).

7.4.7 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 this field. It further noted 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 this task, JCOMM would require the enhanced, active support of all maritime Members. The Association felt that active participation of RA III Members in the JCOMM activities would ensure further development of marine observational infrastructure, promotion of international exchange of oceanographic data and the enhancement of capacity building activities in the Region. It therefore adopted [Resolution 11 \(XIII-RA III\)](#) on the subject.

7.4.8 The Association agreed that the VOSs, the Ships-of-Opportunity Programme (SOOP), the Global Sea-level Observing System (GLOSS), the Automated Shipboard Aerological Programme (ASAP), ocean data buoys and oceanographic satellites formed key components of both existing and future ocean observing systems. They would be coordinated under JCOMM and 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 programme, improve data quality and timeliness, strengthen their Port Meteorological Officers' (PMOs) networks, and participate where possible in the VOS Climate Project, the ASAP and the work of the ASAP panel;
- (b) Participate whenever possible in the implementation and long-term maintenance of the operational SOOP plan; and
- (c) 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

the ISABP. In this context, the Association noted with interest and appreciation the projects now underway in Chile, Ecuador and Peru to implement networks of moored buoys in the eastern Pacific Ocean, in particular to support seasonal to interannual climate monitoring and prediction.

7.4.9 The Association noted that the satellite system of the International Mobile Satellite Organization (Inmarsat), 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 10 (XII-RA III) on the subject.

7.4.10 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 ocean floats to provide temperature and salinity profiles of vital importance to climate monitoring and prediction. In this 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 of Argo float deployments, to facilitate access to Argo data (which would be freely available in real time on the GTS) and information, and also to facilitate participation in the project. It agreed that an effective way of implementing these actions, as well as of addressing technical aspects of data distribution and assisting in the integration of Argo with other ocean observation networks, would be through a technical coordinator, who worked in close collaboration with the existing DBCP/SOOP coordinator. It therefore urged Members of the Association to make appropriate financial contributions to enable the long-term maintenance of this position. The Association recalled that Argo implementation planning meetings had taken place for the Pacific Ocean in Tokyo in April 2000 and for the Atlantic Ocean in Paris in July 2000. These meetings had included participants from some Members of the Association. It expressed the desire that a similar meeting, directed towards the South Atlantic Ocean, might take place in the near future. It was proposed that the agenda of this meeting should include the items related to interaction of RA III Members with Argo Science Team, the legal aspects of deployment of Argo floats in the Exclusive Economic Zones and provision of training components required for Members, participating in the Argo project.

PROGRAMME SUPPORT ACTIVITIES

7.4.11 The Association agreed that specialized seminars, workshops and similar events were of

considerable value to Members involved in the operation of marine observing systems, data management 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. In this regard the Association noted with satisfaction the plans of Ecuador to host a meeting on oceanographic data exchange late in 2001 as well as the information provided by France concerning the oceanographic data comparison to be organized in 2003 by French research institutes within the framework of the Global Ocean Data Assimilation Experiment (GODAE).

7.4.12 The Association noted with appreciation that experts from most maritime Members of the Association had participated in an International Workshop for PMOs from RA III/RA IV (Valparaiso, Chile, September 1998). The Association expressed its appreciation to Chile for hosting this workshop and to NWS/NOAA, United States, for providing support. The Association recognized the value to members of JCOMM of the scientific lectures, on the theme of operational oceanography, which had taken place at JCOMM-I (Akureyri, Iceland, June 2001). Finally, the Association noted with satisfaction that a workshop on wind wave and storm surge forecasting was planned to take place for countries in and around the Caribbean, possibly in 2002.

8. HYDROLOGY AND WATER RESOURCES PROGRAMME (HWRP) — 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 5LTP. It examined those topics in the Plan which were new or require more emphasis and recommended that the following aspects, considered to be of particular interest to countries in South America, be taken into account as appropriate in the future work of the Working Group on Hydrology (WGH):

- (a) Maintaining networks;
- (b) Expanding and modernizing networks;
- (c) Prediction and warning of critical conditions; and
- (d) Water network (creation of links between the Web sites of the institutions responsible for hydrology and water resources in the RA III countries).

8.2 The Association noted with appreciation the report of the chairperson of WGH, Mr R. Coimbra (Brazil). It noted the progress made in carrying out studies of particular concern to Members through the four coordinators and eight rapporteurs of the subgroups who had been given specific assignments and were supported by other members of the WGH. In particular, it noted with interest the work carried out for the preparation of the reports, including project proposals, on:

Title	Coordinators – [Rapporteurs]
Follow-up to the Action Plan of the Costa Rica Conference	A. Arcelus (Uruguay) [V. Pochat (Argentina) L. Rodriguez (Ecuador)]
HOMS and training	J. Narbona (Chile) [B. Denis (Paraguay) J. Yerren (Peru)]
El Niño	E. Colon (Venezuela) O. Umpierrez (Venezuela) [C. Cadier (France) M. Amatali (Suriname)]
Promotion, Dissemination and Commercialization	M. Garcia (Colombia) [J. Cortez (Bolivia) B. Nazarala (Chile)]

8.3 The Association congratulated the Working Group for its excellent work, and requested that maximum effort be made by all to implement the projects proposed and that the subgroups continue working with this objective. The Association noted that the support needed is now much higher than in the past when the Working Group concentrated its work in preparing reports. The Association endorsed and expressed its satisfaction with the new modality adopted. In relation to the Project on *El Niño*, the Association was informed that the Regional Andean Programme for Risk Prevention and Mitigation (PREANDINO) from Corperación Andina de Fomento (CAF) is at present analysing its financial support. With respect to the results of the subgroup on training, the meeting was informed that the group not only has identified the needs of the members, but has also prepared a proposal to fulfill these needs. With respect to this, an offer from Chile to organize a course was received.

8.4 The Association was pleased to note that its WGH had made significant inputs to the activities within HWRP and, as required by Congress, the Association's activities were well coordinated with those of CHy.

8.5 On the basis of the recommendations of the WGH, and taking into account the decisions of Thirteenth Congress, and the recommendations of the eleventh session of CHy, the Association decided to reestablish the group, open to all member of the Region. With respect to the group's membership, 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 WGH, which conformed closely to the SLTP and included it in [Resolution 12 \(XIII-RA III\)](#). 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 core members could attend the session.

8.6 In accordance with General Regulation 167, the Association designated its Regional Hydrological Adviser (RHA) through its Resolution 12 (XIII-RAIII).

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

REGIONAL IMPLEMENTATION OF THE HWRP

8.8 The Association was informed of the technical and administrative support that had been provided by the Secretariat to the six WGHs of the regional associations in the implementation of their activities and in the organization of their sessions. It noted that, for some Associations, hydrology and water resources was one of the major areas of interest and concern. During their last sessions all the regional associations had reestablished their WGHs, which are open to experts of Members. The collective membership of these groups stands at 170, of which 44 have been assigned specific tasks as rapporteurs or subregional/subgroup coordinators. These groups had developed work programmes, which have become increasingly project oriented. The Association considered that due to the importance of this programme for the Region, more time be dedicated during their meetings in future when appropriate, and that more support be given by WMO to activities in the field of hydrology and water resources. The Association was informed on the importance that is being given to hydrology and water resources in the process of preparation of the Sixth Long-term Plan (6LTP).

8.9 The Association was informed on the discussions held during CHy-XI in relation to organizational matters and that CHy had considered that the structure and the organization of WMO has an important impact on how it is viewed by its various constituent communities, of which the hydrological community is one. Also important is the corresponding organizational structure at the national level, which can aid or hinder contacts and cooperation with WMO. WMO Regional and Subregional Offices, as presently constituted, do not include the hydrological expertise needed to serve the hydrology and water resources communities in the Regions, something that has been noted by the Executive Council in the past. The Association considered that it would be convenient to have a hydrologist working for the Regional Office.

8.10 The Association was pleased to note that a number of activities had been carried out in the Regions. These included a series of regional workshops to promote the use of the methodology contained in the WMO/UNESCO Publication *Water Resources Assessment – Handbook for Review of National Capabilities*. The Association noted that CHy-XI had considered this handbook as a valuable contribution to WMO's regional activities.

8.11 The Association reviewed in particular the cooperation of WMO with UNESCO in matters concerning freshwater. It noted that this was based on an inter-secretariat agreement established in 1972 and 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 on the outcome of the Fifth UNESCO/WMO International Conference on Hydrology held in Geneva in February 1999. In relation to cooperation between UNESCO and WMO at the regional level, the Association recognized the difficulty posed by the different regional divisions used by the two organizations. However, a new opportunity for cooperation may soon be offered by the meetings of UNESCO's International Hydrological Programme (IHP) National Committees that will be convened in all UNESCO regions. The Association therefore recommended that WMO participate in these meetings whenever possible. The Association requested to strengthen the cooperation with UNESCO and the Organization of American States (OAS) at the regional level.

8.12 The Association noted that, following the recommendations of the Steering Committee for the Hydrological Operational Multipurpose System (HOMS) and the Fifth UNESCO/WMO Conference on Hydrology, an International Workshop on HOMS in the 21st Century, had been held in Geneva in September 1999. The Workshop developed an Implementation Plan for HOMS in the 21st Century, which was then reviewed and adopted by the Steering Committee for HOMS. The plan, which clearly sets the guidelines for the further development and update of the system, has been distributed to all HOMS National Reference Centres (HNRCs).

8.13 The Association was informed that WMO has organized or co-sponsored a number of courses and workshops in hydrology and water resources during the past intersessional period which were of particular interest to the Region. These activities included: a course on sedimentology in fluvial streams (Montevideo, Uruguay, November 1997) and two courses on hydrometry and telemetry (Itajuba, Brazil, November/December 1998). Two of the three regular courses supported by WMO had participants from the Region, their most recent venues and dates being:

- (a) Latin American Course on Operational Hydrology (Caracas, Venezuela, March 2000); and
- (b) Course on Hydrological Forecasting (Silver Springs, United States, October 2000).

8.14 The Association considered that support should continue to be given to the course in Caracas. Under item 9 additional information is provided on the proposed new modality foreseen for running it. The meeting was informed on the support given by the NWS of the United States to participants in the Silver Springs course, and that the next course is foreseen for 2002 with a duration of two weeks. Support in training in hydrology in the English-speaking Caribbean was requested because of the importance of having reliable hydrological information for water resources management, in particular related to topics of interest to coastal states, such as salt intrusion and sea level rise. In addition, the Association was informed on the plans of Brazil to organize a meeting on modernization of networks in April 2002, in which also the experiences of Argentina and Chile could be presented.

8.15 The Association was informed of the work carried out by the expert on Hydrological Models for Forecasting appointed by CHy-X with respect to the organization of a workshop related to a flash flood threshold pilot project, planned in coordination with representatives of the RA III and RA IV Working Groups on Hydrology. The Association was further informed that, during the last session of its WGH, the Hydrological Adviser to the Permanent Representative of Colombia offered to make the necessary arrangements to host the workshop in Bogota. The Association noted that the workshop is planned to take place from 16 to 20 October 2001. The Association requested the organizers of the Workshop to include in its programme a discussion on the project proposal on *El Niño* prepared by the Working Group.

8.16 The Association noted that WMO co-sponsored a Symposium on Flood Forecasting for the Americas held in Brasilia, Brazil, from 16 to 19 November 1999.

8.17 The Association was informed on the development of various Hydrological Cycle Observing System (HYCOS) components. The Association was informed that a new proposal on CARIB-HYCOS had been prepared in December 2000, and that there are first drafts on Amazon-HYCOS and on La Plata-HYCOS. The Association was informed on the installation of 115 automatic hydrometeorological stations and three radars in La Plata Basin that could be used for forecasting and hydrological warning. It was also informed on a similar project in the Amazon Basin. The Association stressed the importance of defining the objectives of any hydrological network as the first step in its design and requested the working group to coordinate with the Region III WG/PIW.

8.18 The Association welcomed the adoption of Resolution 25 (Cg-XIII) — Exchange of Hydrological Data and Products, as the basis for increased cooperation between countries, noting that it could help in the growing need to assess and manage water resources on a regional basis involving, in particular, rivers and other bodies of freshwater which extend across international borders.

8.19 The Association was informed on Resolution 1 (CHy-XI) — Working Groups and Experts of the Commission for Hydrology. The Association noted that the RA III WGH should coordinate its activities with these CHy bodies.

8.20 The Association was informed that WMO was cooperating with the Secretariat of the UNCCD in the organization of a Workshop on Watershed Management for Latin America and the Caribbean. WMO has prepared a report on transboundary water resources management, which will be discussed during the Workshop. The Association was informed that its Regional Hydrological Adviser represented WMO in this workshop and that the report prepared by WMO had been distributed to all participants.

8.21 The Association requested WMO to prepare more material related to the World Water Day, to promote its activities in the field of water.

8.22 In relation to cooperation with non-governmental organizations (NGOs), the Secretariat advised the Association of developments since its last session as regards the Global Water Partnership (GWP). The Association noted the new dimension that this body and others, such as the World Water Council (WWC), brought to international activities. The Association also noted that the Organization had maintained its long-standing cooperation with the International Association of Hydrological Sciences (IAHS) and the International Organization for Standardization (ISO), and had recently strengthened its links with the International Association of Hydraulic Engineering and Research (IAHR). The Association was informed on the GWP Associated Programme on Flood Management which started in August 2001 in the WMO Secretariat and from which the Secretariat was to send very soon information to all PRs and Hydrological Advisers (HAs).

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

GENERAL

9.1 The Association examined the information on the implementation of the ETRP 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 are fundamental for the success of all WMO Programmes.

9.2 The Association was pleased to note Chapter 6.6 of the 5LTP as adopted by Thirteenth Congress, and urged its Members to ensure that all necessary actions were taken to meet the objectives of the Plan.

HUMAN RESOURCES DEVELOPMENT

9.3 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. In this respect the Association noted that 83 per cent of its Members responded to the survey questionnaire and that the results of the 1998 survey of Members' training requirements for the thirteenth financial period (2000–2003) were published as *Education and Training Requirements in Meteorology and Operational Hydrology: WMO Survey 1998* (WMO/TD-No. 946).

9.4 Noting the identified increase in the number of personnel to be trained, the Association encouraged its Members to make every effort to become self-reliant in the basic training of meteorological and operational hydrological personnel. The Association also felt that there was a need for the cooperation and coordination of education and training activities in the Region to better meet the expressed requirements and to use available capabilities effectively.

9.5 With respect to the next 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 ETRP. The Association recommended that the requirements of Members in new subject areas and technologies should be properly identified.

TRAINING ACTIVITIES

9.6 The Association noted that since its last session, WMO had organized 10 training events held in the Region. The Members of the Association also had the opportunity to benefit from other training events organized and hosted by national or international institutions, with WMO acting as co-sponsor or providing partial financial support. Those events, which were listed in the WMO Annual Reports, covered a wide range of subject areas of interest to the Region.

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 III. The Association invited its Members to participate actively in the provision of training services to Members from other Regions and to WMO RMTCs. The Association agreed that it would be necessary to attract additional financial, manpower and other resources to enable the various identified training requirements to be met.

9.9 The Association noted with appreciation the activities of the Standing Conference of Heads of Training Institutions of National Meteorological Services (SCHOTI), in particular, the Fourth and Fifth International Conferences on Computer-Aided Learning (CAL) and Distance Learning in Meteorology which were held in Helsinki, Finland, from 14 to 18 June 1999 and in Recife, Pernambuco, Brazil from 9 to 13 July 2001, respectively, both organized by the SCHOTI Working Group on CAL. 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.

9.10 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 (VTL) in an effort to provide the latest and most suitable available training material through

the Internet and recommended that those actions should be encouraged and continued.

REGIONAL METEOROLOGICAL TRAINING CENTRES (RMTCs)

9.11 The Association noted with appreciation that WMO RMTCs in RA III continued to carry out satisfactorily their routine training programmes and to organize specialized courses in response to the needs of Members in the Region as well as other Regions. In urging its Members to make the maximum use of the training programmes offered by the RTMCs, 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 areas. In this 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.

9.12 The Association further recommended that for the RMTC network in the Region to become more efficient and focused on the highest priority needs of the WMO community, Members hosting RMTCs should make every effort towards bearing the responsibilities and obligations in accordance with the criteria laid down by the Executive Council for the designation of WMO RMTCs.

9.13 The Association welcomed the offer of Venezuela to include the Technical School of Aviation in Maracay as an additional component of the RMTC for training at technical level and considered that this component would suitably contribute to satisfy part of the region's training needs. It requested the Secretariat to continue the necessary steps for the recognition of this new component in agreement with the procedures approved by the Executive Council. In addition, the Association was informed that the Latin American Course on Hydrology, which had been offered by the RMTC located in Caracas, had been redesigned and would take advantage of the new distance learning technologies. The Association welcomed this development and requested the WMO Secretariat to continue supporting this course.

9.14 The Association was informed of the pilot project *MeteoForum*, creating a network between the RMTCs of Regions III and IV, and of the initiative launching the Virtual Laboratory (VL) for Satellite Data Utilization with the participation, among other centers, of RMTCs from Central America and the Caribbean. In this respect, the Association requested the Secretariat to support these initiatives and to promote the highest possible participation of the region's RMTCs.

9.15 The Association noting the high costs of training, encouraged RMTCs to make available to trainees from other countries, at modest cost, housing and food. In this regard, the Association expressed its appreciation to Venezuela for offering to provide free of charge, food and lodging to future trainees at the

Technical School of Aviation and encouraged other RMTCs to provide similar facilities.

9.16 The Association also noted with appreciation the information provided by Argentina on the activities carried out, and the capabilities available at the RMTC Buenos Aires.

9.17 The Association was pleased to note that a meeting of Directors/Principals of WMO RMTCs had been held on 11 November 1999 in Tehran, Islamic Republic of Iran. The Association encouraged Members to strengthen the interaction 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 RMTCs' Web pages and requested Members to explore eventual external support for the provision of hardware and software to establish Internet connections.

9.18 The Association also noted that the meeting of Directors/Principals of WMO RMTCs had nominated a representative and an alternate to serve as a member of the Coordinating Committee (CO-COM) of SCHOTI.

NEW WMO CLASSIFICATION OF METEOROLOGICAL AND HYDROLOGICAL PERSONNEL

9.19 The Association noted that in accordance with the recommendation of Twelfth Congress, the new WMO classification of personnel in meteorology and operational hydrology, comprising the two broad categories common to meteorological and operational hydrological personnel, had been approved by the fiftieth session of the Executive Council (Geneva, June 1998) to be effective from 1 January 2001. Thirteenth Congress endorsed the new classification and agreed that its actual implementation should be gradual, recognizing that some Members may require a longer transition period, but that it should not exceed four years.

9.20 The Association further noted that a preliminary issue of the new edition of the WMO publication *Guidelines for the Education and Training of Personnel in Meteorology and Operational Hydrology* (WMO-No. 258), Volume I – Meteorology, was issued in June 2000. It was distributed to WMO Members, members of the Executive Council Panel on Education and Training, Directors of RMTCs, as well as to a number of recognized trainers and educational institutions. The aim of this action was to facilitate a worldwide consultation on the new WMO classification of personnel in meteorology and operational hydrology, and related curricula before a formal final publication was released by the end of 2001. The Association also noted that preparation of WMO-No. 258, Volume II – Hydrology was under way, and it was planned that educational experts worldwide would review the consolidated text by the first quarter of 2002.

EDUCATION AND TRAINING FELLOWSHIPS

9.21 The Association noted with appreciation that many donor Members in RA III and in other Regions have continued to provide training fellowships and to

arrange study programmes and tours for the benefit of the Members of the Regions. In particular, the Association expressed its appreciation to Spain and to the United States for making available fellowships and training in their countries.

9.22 The Association also noted with appreciation the generous contributions of several VCP donor Members who continued to provide VCP fellowships to the satisfaction of all concerned and appealed to other Member countries who have not already contributed to the VCP fellowship programme to do so. However, in noting that available financial resources did not allow for all the needs of the Region to be met, in particular for long-term fellowships, the Association requested Members to consider possibilities of meeting their requirements by using to the maximum the available facilities in the Region (namely WMO RMTCs) and by strengthening cooperation between countries through bilateral and multilateral schemes, in particular through technical cooperation among developing countries (TCDC) arrangements. The Association requested the Secretariat to continue providing full support for fellowships, even if in a limited number, and to assist Members in implementing bilateral cooperation training arrangements such as those being carried out between Brazil and Chile.

9.23 The Association requested that special attention be given to the training of hydrologists in the Region through the provision of fellowships and the organization of relevant training courses/workshops in RMTCs and universities in the Region. The Association noted that in the field of hydrology and water resources, courses were being organized by UNESCO and OAS, and fellowships provided by these organizations.

RAPPORTEUR ON EDUCATION AND TRAINING

9.24 The Association noted with satisfaction the report submitted by the Rapporteur on Education and Training in RA III, Ms S. Bello (Uruguay), and congratulated her on her valuable contribution. Furthermore, taking into account the proposals made by the Rapporteur, the Association decided that in view of the training requirements of the Region, priority would be given to the following areas:

- (a) Maintenance of state-of-the-art meteorological instruments (automated stations, radar, optical and acoustic sensors, etc.)
- (b) Medium-term and long-term numerical forecasting;
- (c) Operation of new weather forecast technologies (radar, remote sensing, high resolution satellite images);
- (d) Communications, managed data networks;
- (e) Flash floods, hydrologic forecast models; and
- (f) Workshop on modernization of hydrological networks.

9.25 The Association encouraged Members to develop closer links with the RMTCs of Argentina, Brazil, Venezuela and Costa Rica in order to:

- (a) Promote technology transfer and provide any training that may be required for their correct use;
- (b) Provide expert assistance in specific areas;

- (c) Organize roving workshops or seminars which may provide wide-ranging benefits;
- (d) Foster exchange of on-the-job traineeships; and
- (e) Examine any other possibility which may improve technical expertise, with the possibility of including distance learning.

9.26 The Association also requested the Secretariat to provide RMTCs with the necessary support for obtaining the equipment and resources they require for an efficient and effective exchange of assistance and training modules with the latest technologies.

9.27 In view of continued pressing needs by Members for capacity building and human resources development in meteorology and specialized subjects essential to economic and social development in the Region, the Association agreed to nominate a Rapporteur on Education and Training Matters in order to coordinate and carry out an in-depth study of regional needs.

9.28 The Association, considering the convenience of nominating a Rapporteur on Education and Training Matters from the RMTCs, adopted [Resolution 13 \(XIII-RA III\)](#), which established the terms of reference of the rapporteur and requested him to submit annual progress reports and a final report to the president of the Association, not later than six months prior to the fourteenth session of the Association.

10. TECHNICAL COOPERATION PROGRAMME (TCOP) — 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 1997–2000 WMO continued developing initiatives and projects responding to national and regional requirements of NMHSs of RA III countries. The Association expressed its appreciation to donor Members and agencies who have 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 III 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 has unique experience and advantages. Several innovative approaches for the mobilization of resources for the programme have been developed, including:

- (a) Agreements between WMO and development banks;
- (b) Promotion of trust fund projects;
- (c) Establishment of systematic contacts with development agencies; and
- (d) Enhancement of relationships with the United Nations Development Programme (UNDP) and other UN agencies.

10.3 The Association noted that WMO has concluded Memorandum of Understanding with the

World Bank and with the Inter-American Development Bank (IDB) to 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 IDB will lead to the development of a portfolio of projects based on the results of the already concluded Feasibility Study of the Ibero-American Climate Project and the on-going ENSO Study, as well as other activities of mutual interest to the Bank and to WMO.

10.4 The Association welcomed WMO's continued efforts to assist the NMHSs and governments through coordinated efforts from the Secretariat, especially the TCO Department and the Regional Office for the Americas 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 several Members received assistance in the development of new projects in support of national and regional meteorological and hydrological projects. In this context, the Association encouraged Members to provide information to the WMO Regional Office, on a regular basis, on planned and ongoing bilateral or multilateral projects concerning NMHSs in the Region, thus allowing the Office to assist donors and recipients in coordinating their efforts.

ASSISTANCE PROVIDED DURING THE PERIOD 1997–2000

10.5 The Association expressed its satisfaction with the results obtained in the implementation of various projects in RA III, such as the feasibility studies completed for Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay and Venezuela which may be used as basic studies for future projects to modernize the NMHSs of these countries. In this regard, the Association requested the Secretariat to continue assisting interested Members in the mobilization of the necessary resources with the funding agencies, the IDB in particular, to implement the projects.

10.6 The Association noted that the feasibility study for prediction and amelioration of socio-economic impacts of *El Niño* in Latin America and the Caribbean region funded by the IDB is ongoing. The study foresees the design of feasible regional/subregional early warning systems to ameliorate the socio-economic impacts of ENSO. IRI, NOAA/Office of Global Programs (OGP) and the International Food Policy Research Institute (IFPRI) are assisting WMO in the implementation of the study.

10.7 The Association further noted that the above mentioned study should be coordinated with the efforts being made by Ecuador, WMO and the international community to initiate the implementation of the International Centre for the Research on *El Niño* Phenomenon in Guayaquil, Ecuador (CIIFEN). In this regard, the Association noted with appreciation that the Government of Ecuador and WMO had concluded a Memorandum of Cooperation to establish a trust fund to allow the contribution of the feasibility study already

carried out to create the Centre. The Association endorsed the establishment of the Centre as a regional and international facility to foster research on *El Niño* and encouraged Members to participate actively in the foreseen actions. The Association requested the Secretary-General to continue assisting in this initiative and to liaise closely with interested regional and international institutions and organizations such as the PREANDINO, CPPS, the ISDR Secretariat, the OAS and funding agencies such as the CAF and the IDB.

10.8 The Association was informed that WMO had continued providing technical assistance to Brazil on large-scale projects with the National Agency for Electrical Energy (ANEEL) and the Brazilian Institute for the Environment (IBAMA), funded by the government. It was noted that while one of the projects with IBAMA came to an end, another major initiative is under negotiation with the recently created National Agency for Water (ANA), under the framework of PRO-AGUA, funded from the World Bank. The Association was further informed that the ANA initiative is expected to start by the end of the year and that an important component may provide a potential horizontal cooperation with the countries sharing the Amazon Basin.

10.9 The Association noted with appreciation that the implementation of the WMO/IAI/Global Environment Facility (GEF), RLA/92/G34 Project "Regional Cooperative Activities in Support of Climate Change Research in IAI Countries" had been completed in 1998. Participating countries in the Project of RA III included Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay and Venezuela. Activities carried out in most participating countries included the support for the installation of the workstations and GIS-SPRING software, international and national training seminars as well as formal training through fellowships.

10.10 The Association recognized the important role of the VCP in the Region, under which most Members received assistance aimed at facilitating their effective participation in WWW and other scientific and technical programmes. It noted with appreciation that 12 Members received support for a total of 19 VCP projects for equipment during 1997–2000. Of these projects, 17 were completed and two are in the process of being implemented. Four projects were aimed at strengthening upper-air observing stations, two for data processing systems, 12 related to aeronautical meteorology activities for the upgrading of WAFS STAR 4 systems and one for agricultural meteorology activities. In spite of the support obtained during 1997–2000, seven valid projects had not received support as of 31 December 2000.

10.11 The Association was informed that 69 fellowships had been awarded to candidates from the Region, under WMO regular budget and the VCP. At present, seven fellows continue their studies.

10.12 The Association noted that within the framework of the Secretariat review process, a WMO Secretariat Task Force on Natural Disasters called

“Emergency and Disaster Response Group” (EDRG) was established in August 2000. The terms of reference of EDRG include: to assess preliminary information on the emergency or disaster; to determine the need to assemble an Emergency and Disaster Response Team (EDRT) and, as appropriate, activate an Emergency Assistance Response Team (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 will be assembled with the 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.

10.13 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 will be activated by EDRG, established within the WMO Secretariat, and will be composed of an EART coordinator, WMO Secretariat representatives, subregional (or regional) representative closest to the scene of disaster, NMHS focal point in each country, donor representatives, regional organizations and related experts as needed. The Association encouraged Members to participate and contribute to the Emergency Assistance Fund for the implementation of EART activities for timely and coordinated assistance in response to disasters.

10.14 The Association endorsed the following proposed future actions:

- (a) Efforts will be made to ensure the continuation with the mobilization of resources for already formulated projects or under formulation such as the Ibero-American Climate Feasibility Study and the ENSO Study;
- (b) WMO will continue supporting the implementation of the ENSO Study, the Brazilian projects and also the development of new projects and joint initiatives with the IDB, the World Bank, GEF, UNDP and other sources of funding;
- (c) As recommended by the Executive Council, WMO will 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 NGOs;
- (d) A more constant and systematic contact with development funding Agencies to support requirements made by NMHSs will be developed keeping updated the areas supported by these Agencies, as well as the procedures to follow when submitting requests for funding. Likewise countries

should send to WMO timely information concerning any technical assistance provided by Members to the NMHSs of the Region through bilateral agreements.

10.15 The Association, considering the various requirements of the Region, agreed that there was a need to develop a strategic approach to major issues such as the observing networks, the telecommunication facilities, and the provision of services to the user community, modelled on similar plans developed in Regional Associations II and V. The Association requested the WMO Secretariat to assist NMHSs in the development of their national plans and to assist the Region in the development of a regional strategy plan for the enhancement of the NMSs

11. INFORMATION AND PUBLIC AFFAIRS (IPA) ACTIVITIES (agenda item 11)

11.1 The Association recalled that Resolution 22 (Cg-XIII) had underlined the need for greater visibility of WMO and NHMSs for giving increased importance to communication aspects in mitigating the devastating impact of extreme weather and climate events and for 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 participation of television weathercasters from the Region in the Weather Festival, the Press Conference, the Round Table Discussions and the Scientific Media Conference on Climate Change held at WMO Headquarters during the celebration of WMO's 50th Anniversary in March 2000. The Association also noted that a number of additional events were organized at WMO Headquarters during the week of 18–23 March 2000 with a view to enhancing the image of WMO and NMHSs, including open days and school visits. The Association noted with appreciation WMO's participation in the ISDR and the inclusion of WMO media products in the global campaign of ISDR to be launched in due course culminating with the International Day for Disaster Reduction on 17 October 2001.

11.3 The Association welcomed the emphasis on media training to reflect the current emphasis on climate change, weather variability and other phenomena such as *El Niño/La Niña*, ozone layer depletion and increasing water scarcity. The Association expressed satisfaction with IPA's media training efforts such as the organization of a Media Training Workshop for Region III with the participation of weather presenters of the CNN Weather Center, the Spanish Canal Meteo and the Argentinian Canal 7, that was hosted by the NMS of Argentina in Buenos Aires from 27 November to 2 December 2000. Thirty-three participants learnt how to improve their communication skills in television weather forecast presentation.

11.4 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 50th anniversary of WMO, including a message from the Secretary-General, a calendar, a series of posters, a brochure on World Meteorological Day 2000, an information kit containing media briefs on WMO Programmes, a WMO50 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 50th Anniversary through the organization of commemorative events and production of commemorative items.

11.5 The Association also noted with appreciation the development of a special WMO50 Web site, the WMO50 Home page, with links to home pages of Members' NMHSs. The Association further called for the establishment of specific pages on the activities of public information activities of the Regions as part of the IPA home page.

11.6 The Association welcomed the initiative taken by the Secretary-General to develop a WMO Secretariat External Communications Strategy (SECS) aimed at building an overall framework for the Secretariat's communications strategy action plan and for a set of guidelines for NMHSs. For this purpose it is planned to review present arrangements and existing proposals, and to identify the main elements of the most appropriate and cost-effective external communications; to develop a framework communication strategy required as a basis for the development of a comprehensive action plan and a set of guidelines for NMHSs; to identify mechanisms and skills required at the Secretariat; to identify target groups; and to propose mechanisms to reach out to these groups and to propose a concrete and comprehensive action plan with required mechanisms to support the implementation of the framework external communication strategy.

11.7 The Association called upon Members to actively support the IPA and to review their own communication plans and/or strategies and provide relevant information to the Secretariat for its use in the formulation of the WMO SECS. 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 has to ensure a comprehensive promotion of WMO, the NMHSs and their work via a mainstream active public information programme at national and regional levels.

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, NGOs and advocacy groups, academic institutions, parliamentarians, the private sector and corporate foundations and other civil society institutions and public entities. Within this context, the Association welcomed the decision of the fifty-second session of the Executive Council to celebrate World Meteorological Day 2002 with the theme "Reducing Vulnerability to

Weather and Climate Extremes" which will allow the Organization to increase the visibility of its work next to its participation in the ISDR. The Association noted the theme for World Meteorological Day 2003: "Our Future Climate" and that for World Day for Water 2002 "Water and Development".

11.9 The Association noted with satisfaction the efforts of the Regional Office for the Americas as an information focal point in the WMO Secretariat for the Region. In order to enhance WMO's IPA in the Region, it requested the Regional Office to further strengthen its links with the Members of the Association in this area.

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 5LTP and a separate summary for decision makers which focused on the benefits to countries that will accrue from the successful implementation of the Plan.

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

- (a) Play a decisive role in the preparation of the Plan and, in particular, to provide an integrated view of their respective activities and priorities within the context of the 6LTP;
- (b) Coordinate, as necessary, national contributions to regional aspects of the Plan.

12.4 The Association also recalled that the Executive Council had established 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 groups had held a second joint session from 12 to 16 March 2001. The fifty-third session of the Executive Council (June 2001) had considered the report of the joint session. The Association noted that no Members from the Region had participated in that session. It requested the president of RA III to assure the Region's participation in future meetings. It also requested that the Regional Rapporteur on Long-term Planning collaborate with the groups' work.

PREPARATION OF THE SIXTH WMO LONG-TERM PLAN (6LTP)

VISION, DESIRED OUTCOMES, STRATEGIES/ASSOCIATED STRATEGIC GOALS

12.5 The Association considered the WMO Vision, the set of desired outcomes and the set of strategies and associated strategic goals that was agreed on by the fifty-third session of the Executive Council. It expressed the view that proposals in this context should take into

account trends and developments of the NMHSs in the Region insofar as they relate to long-term plans.

REGIONAL AREAS OF CONCERNS

12.6 On the basis of the draft 6LTP, the Association supported the WMO Vision, set of desired outcomes and the set of strategies and associated strategic goals that had been drawn up. In this connection, it said that the regional priorities defined in 5LTP should be modified as follows:

- (a) To strengthen all WWW components, especially through the modernization of the RA III telecommunications system and use of new, complementary technology such as the Internet;
- (b) To strengthen the water resources sector, with a view to incorporating meteorology and hydrology into the national planning process and environmental management;
- (c) To promote professional education and training in meteorology and hydrology so that the next generation is qualified to work in these fields, and so as to ensure the continuity of projects and programmes and the ongoing quality of services;
- (d) To enhance the image of the NMHSs and upgrade their ability to produce warnings and alerts that prevent or reduce the harmful effects of weather- or climate-related natural disasters such as floods, drought, forest fires, volcanic eruptions, landslides, mudslides and other phenomena;
- (e) To promote studies and research on climate variability and climate change and the ways in which they affect the region, including the socio-economic and environmental impact of the ENSO phenomenon and other extreme events, with special emphasis on numerical modelling of the climate; and to further studies on the role played by polar regions in regional climate; all of which is to be achieved by injecting new scientific and research abilities into the NMHSs in the region;
- (f) To upgrade the region's surface and upper-air climatological network, enabling it to provide timely and high-quality information for the purpose of monitoring climate variability and climate change in the region;
- (g) To improve meteorological applications and services for the purposes of agriculture, air and maritime transport, and the protection of human life;
- (h) To increase knowledge and the monitoring of environmental indicators such as air and water quality, decrease of the ozone layer, and other factors;
- (i) To strengthen the role played by meteorology and hydrology in the socio-economic development of countries insofar as these fields provide data, information and knowledge, and to develop awareness of climate among planners, decision makers and the general public; and
- (j) To foster participation in and coordination of WMO regional projects, and projects of other international agencies conducting operations and research in the region.

MONITORING AND EVALUATION OF THE SIXTH WMO

LONG-TERM PLAN

12.7 The Association noted that the Executive Council had recalled that in the preparation of 6LTP, the monitoring and evaluation approach, including performance indicators and milestones, should be clearly outlined to facilitate its subsequent monitoring and evaluation. In addition, the Council had recognized the need to identify at what level(s) and how the monitoring and/or evaluation should 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 6LTP be considered at the same time as 6LTP itself.

12.8 The Association recognized that it had a role to play in the implementation of 6LTP, as well as in its monitoring and evaluation. In this connection, it requested the president, in coordination with the RA III Rapporteur on Long-Term Planning, to monitor 6LTP and to submit a report of his findings at the fourteenth session of RA III.

MONITORING AND EVALUATION OF THE FIFTH WMO

LONG-TERM PLAN (5LTP)

12.9 The Association noted that the monitoring and evaluation on the first four years (2001-2003) of the 5LTP would be considered by the fifty-fourth session of the Executive Council and subsequently by Fourteenth Congress. The Association requested its president, in coordination with the RA III Rapporteur on LTP, to ensure that RA III make an appropriate contribution to the evaluation process. In this context, the Rapporteur on Long-Term Planning submitted a report on the monitoring of 5LTP at the RA III meeting on internal matters in Santiago de Chile in November 2000, and the group agreed that RA III Members were on the way to achieving the goals defined in 5LTP.

GENERAL CONSIDERATIONS

12.10 The Association recalled that the Executive Council had recognized that the role of regional associations should be strengthened, and that collaboration between Technical Commissions and Regional Associations should be stepped up. Particular attention had been given to ensuring that the intersessional activities of the Regional Associations be effectively carried out. In this connection, the Association emphasized that its participation in and contribution to 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 (NMHSs) (agenda item 13)

13.1 The Association recalled that Thirteenth Congress had extensive discussions on the role and operation of NMHSs and requested Executive Council to

keep this matter under review, and Executive Council, in turn, established its Advisory Group on the Role and Operation of NMHSs to assist it in this 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; and
- (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 this guidance, Congress adopted Resolution 26 (Cg-XIII), 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 III 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. These 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 conferences;
- (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; and
- (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 confirms, updates and/or refines the Executive Council Statement of April 1999 on the NMS and Alternative Service Delivery and elaborates 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; and
- (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 Regulations to more clearly represent 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.

13.6 The Association recalled that in order to provide an adequate factual database for its analysis for the many issues affecting the role and operation of NMSs, a questionnaire had been sent to all the Members and noted that the advisory group would examine more fully the results of the questionnaire during its second session in 2002.

13.7 Members of the Association expressed their views and shared their relevant experiences on the role and operation of NMSs. Among others, the Association recognized that NMSs should continue their efforts toward responding to major challenges such as improving regional telecommunication, modernization, commercialization, market economy, alternative services delivery, globalization, international data exchange, regional cooperation and capacity building. The Association considered that attention should be given to ensuring that NMSs are recognized and designated as the single authoritative national source of meteorological warnings during major meteorological or hydrological related disasters.

13.8 In connection with the various related topics such as those identified in paragraph 13.5 above, the Association expressed the following views:

- (a) A major issue facing the NMHS of RA III is governmental financing and support. The Association agreed that strategic alliances and cooperation between NMHSs in the Region should be encouraged and facilitated;
- (b) The Association noted that it is important to take into account the role the media and the private sector may have for the development of WMO and NMHSs, and that consequently it would be advisable to strengthen the interaction between WMO, NMHSs, the media and the private sector;
- (c) The Association also agreed that it is important to intensify the cooperation with the international representatives of the different sectors and that the sectors in which cooperation should be intensified should be defined. In this regard, the Association requested that the Regional and Subregional Offices should take a very active role;
- (d) The Association considered of vital importance the holding of a high-level conference, showcasing the contribution of NMHSs. The Association requested the Secretary-General to make all efforts necessary to obtain funding to finance the participation of the largest number of high-level government officials. (see Appendix B, paragraphs 12.1.9 to 12.1.11);
- (e) The Association took note of the preparation of a draft WMO policy 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 is completed;
- (f) 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 for possible changes/amendments to the WMO legal base to study the matter and report to the fifty-fourth session of the Executive Council;
 - (g) The Association considered the topic of provision of aeronautical meteorological services and requested its president to keep Members of the Region informed of relevant developments;
 - (h) The Association considered that the topic of WMO standards for weather forecasts is very important albeit complex, given the differences among NMHSs, and the possible difficulty in reaching satisfactory agreements; and
 - (i) The Association expressed interest in the topic of quality management certification. It noted that the Brazil Instituto Nacional de Meteorología (INMET) was one of the first NMHSs to obtain such a certification. The Association recognized that, in general, it is a process that involves significant investment.

13.9 The Association agreed that priorities are those indicated under agenda item 12.

14. INTERNATIONAL STRATEGY FOR DISASTER REDUCTION (ISDR), INCLUDING RELATED WMO ACTIVITIES IN THE REGION (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 International Decade for Natural Disaster Reduction (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 regards 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 21st 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

"Sub-forum on Science and Technology in Support of Natural Disaster Reduction" as a special contribution to the IDNDR Programme Forum. The participants at the Sub-forum, which included several experts from RA III, came from both the natural and social sciences, with both research and operational backgrounds in developing and developed countries. The Sub-forum reviewed the various ways in which science and technology contribute 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 Sub-forum reviewed recent progress and discussed future prospects in each of these three aspects of the application of science and technology to the reduction of the impacts of tropical cyclones, extra-tropical 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, ISDR that included an Inter-Agency Task Force and an Inter-Agency Secretariat. On 23 December 1999, the United Nations adopted General Assembly Resolution 54/219, which provides specific guidance for the future work of ISDR. The main objectives of ISDR are 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 is 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 functions of the task force will 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 (UNGA 54/220). Further consideration had also been given to the issue at the recent ECOSOC session in Geneva (A/56/76-E/2001/54). 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 1997/98 *El Niño* event and in the implementation of earlier United Nations General Assembly resolutions (52/200 and 53/185). The Association agreed that WMO should continue to take a central role in providing scientific guidance and technical support in the implementation of United Nations General Assembly resolutions relating to the *El Niño* phenomenon. The Association recalled that the proposal for the *El Niño* centre in Guayaquil had been formulated in the context of these resolutions

(see also agenda items 5.3 and 10). The *El Niño* and its related phenomena were clearly of prime interest to all Members in the Region and the Association requested that WMO work to ensure that due recognition is given within the ISDR to the high level of cooperation in the Region, such as that operating within the CPPS/Regional Study of the *El Niño* phenomenon (ERFEN) framework. The Association was also informed that its WGH was currently formulating a project related to the effects of *El Niño*.

14.5 The Association noted that WMO had been designated a member of the Inter-Agency Task Force for 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 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. The Association recalled that its Working Group on Internal Matters had considered the matter of natural disaster reduction at its previous session. It also recalled the discussions within the Executive Council on the involvement of the NMHSs of many Members, including some in RA III, in the provision of warning systems relating to seismic activity. The Association therefore agreed that it should continue to give high priority to activities related to natural disaster reduction.

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 is a member of all four groups. The first would take 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 would be led by WMO. The second working group would consider early warning systems for disasters with UNEP as the lead agency. UNDP would take the lead on the third working group dealing with vulnerability and risk assessment. The fourth working group would deal with the problem of wildland fires. The Association encouraged its Members to contribute to the work of these groups and to regional activities initiated under the ISDR. In this respect, the Association noted that there was ongoing activity in the Region related to disaster preparedness and mitigation within the framework of the ISDR, such as that being carried out by PAHO and CAF in the PREANDINO Project. It was agreed that there would be considerable advantages for NMHSs in developing close relationships with such groups, including collaboration on joint projects to prepare for and mitigate the effects of a broad range of natural disasters.

14.7 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 Budget and urged its Members to contribute to these 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 training 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 this 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.

14.8 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 Subregional forums that were now being regularly convened to develop outlooks for various seasons provided an excellent opportunity for cooperation between NMHSs and with user communities. The Association requested the Secretary-General to continue his support for improving the scope and effectiveness of these forums, which could be implemented within the framework of CLIPS.

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

15.1 The Association recalled the discussions which took place at Thirteenth Congress on 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 (EC/AGE) was addressing these developments and other related issues. It noted that the first session of this group was held in Geneva from 29 January to 1 February 2001 and that the fifty-third session of the Executive Council had considered its report.

15.2 The Association noted that Twelfth Congress had recognized that the experience with Resolution 40 (Cg-XII) had been largely positive and that there was 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) have continued to be applied in a satisfactory

manner, despite some difficulties. 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.

15.3 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 (related to Annex 1, Res. 40 (Cg-XII)) was also published in the WWW Newsletter and the WMO Web site.

15.4 The Association noted that the Council agreed that it had not been easy to establish the 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 at present that Resolution 40 (Cg-XII) has influenced, either in a positive or negative manner, the flow of data and products measured in the above manner. Nonetheless, 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).

15.5 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 difficulties have been perceived by some NMSs, while others indicated the development of opportunities, which were also beneficial to NMSs. The Association considered that a dialogue that would involve the broader non-governmental sector could be helpful. In this respect, the role of the PRs of Members of WMO, whose responsibilities encompass the interests of the larger meteorological community in his/her country, was emphasized.

15.6 The Association noted that in several countries in the Region, agreements had been reached between NMSs and private companies regarding the data and products exchanged, and that in general there were no significant problems. The Association requested its Regional Office, through the Secretary-General, to compile the experiences of the countries in this regard and to disseminate them to the countries in the Region.

15.7 Overall the Association agreed with the Council that Resolution 40 (Cg-XII) should be maintained in force and relevant concerns should be addressed in some other way, e.g. separate Congress resolutions, declarations or guidelines.

15.8 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 EC/AGE had been requested to keep this topic under review.

15.9 As regards Resolution 25 (Cg-XIII) — Exchange of Hydrological Data and Products, the Association urged Members to make available, on a free and unrestricted basis, data on water quality together with data on discharge and water levels. It welcomed that a brochure had been prepared explaining the background and intent of Resolution 25 (Cg-XIII), similar to that issued for Resolution 40 (Cg-XII).

15.10 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 this connection, the Association noted that the Council adopted a statement that would be helpful in clarifying the status of climatological data and products exchanged. 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.

15.11 The Association finally recalled the discussions and decisions of the fifty-third session of the Executive Council on the international exchange of oceanographic data and products, exchange of aeronautical data and products and exchange of agrometeorological data and products. The Association requested the Secretary-General to keep track of relevant developments and inform and advise Members, as appropriate.

16. OTHER REGIONAL ACTIVITIES (agenda item 16)

16.1 TECHNICAL CONFERENCE FOR RA III/RA IV (agenda item 16.1)

16.1.1 The Association noted the successful organization of Technical Conferences during previous financial periods which served to increase the management skills of the Directors of Meteorological Services in the Region. The Association was also informed that a joint Technical Conference for Regional Associations III and IV was planned for the year 2002.

16.1.2 In that connection, the Association noted that XIII-RA IV had endorsed the main subject of the forthcoming Technical Conference, "Meteorology and Hydrology in the Americas — Linked to Economic Prosperity and Sustained Development". The Association agreed on the theme proposed by XIII-RA IV for the next Joint Technical Conference for both regions for the year 2002.

16.2 WORKING GROUP ON INTERNAL MATTERS OF RA III (agenda item 16.2)

16.2.1 The Association expressed its thanks to Mr N. Salazar (Ecuador), the chairperson of the Working Group on Internal Matters of RA III, for the report of the first session of the Working Group on Internal Matters (Santiago de Chile, from 2 to 4 November

2000), and congratulated the group on the important tasks undertaken during this period which provided the president of the Association with effective guidance.

16.2.2 The Association decided to reestablish the working group and adopted [Resolution 14 \(XIII-RA III\)](#).

17. WMO REGIONAL OFFICE FOR THE AMERICAS (agenda item 17)

17.1 The Association reviewed the activities of the WMO Regional Office for the Americas since the twelfth session. It noted that the Office was continuing to fulfil its functions and responsibilities as an integral part of the Secretariat. It also noted that the Regional Office assisted the president, vice-president, various working groups and rapporteurs of the Association in their tasks. It further noted the support given by the Office to assisted RA III Member countries. The Association expressed its appreciation to the Secretary-General for his continued support to the Association's activities during the intersessional period.

17.2 The Association noted with satisfaction the increasing role of the Office as a focal point and information centre for regional activities and collaboration with Members on developing the NMHSs in Member countries and implementing programmes to contribute to WMO's new priority areas in the Region.

17.3 The Association expressed its satisfaction at the successful execution of two important regional projects: the Ibero-American Climate Project, implemented from the Regional Office in Paraguay (the feasibility study was completed in 1999) and the feasibility study for the prediction and reduction of the socio-economic impacts of *El Niño*, which was initiated in March 2000, with the Subregional Office for North and Central America and the Caribbean as the implementing office, in coordination with WMO's TCOP and the Regional Office for the Americas.

17.4 The Association expressed its satisfaction at the effort by the Regional Office to remain in close contact with Members through support to regional events to strengthen WMO activities in the fields of meteorology and operational hydrology in the Region. It also expressed satisfaction at the close links with regional intergovernmental organizations. It invited the Office to continue working with regional intergovernmental organizations. It invited the Office to use those forums to promote meteorology and operational hydrology and environmental issues, and to raise policy-makers' awareness of the role of the NMHSs and WMO in contributing to sustainable development.

17.5 The Association noted that the biannual Newsletter of the Regional Office was a useful vehicle for the exchange and dissemination of information on regional activities and a mechanism for maintaining close links between the Regional Office, the Subregional Office and the Members of Regions III and IV. The

Association requested the Regional Office to continue publishing the Newsletter and urged Members to participate actively by contributing news and articles. The Association acknowledged the efforts made to improve the Newsletter's presentation in order to make it more attractive and easier to read.

17.6 The Association acknowledged the measures being taken by the Secretary-General to optimize the operation of the Regional Office and requested him to continue his efforts to strengthen the Office in order to meet the needs of the Region's Members.

17.7 The Association expressed its appreciation to the Government of Paraguay for having hosted the WMO Regional Office for the Americas for more than 20 years.

17.8 The Association considered the study made by the Secretary-General on the financial implication that a possible transfer of the Regional Office might have for WMO and to evaluate the functioning of the Regional Office to strengthen it, as requested by Thirteenth Congress. It noted that the fifty-second session of the Executive Council was informed that the study would be submitted for consideration by Members of RAs III and IV. It further noted that the XIII-RA IV did not consider the matter since at the time of the session the study was not completed.

17.9 During the discussion, the Association noted the views of Members on this matter. In this regard, Paraguay reiterated the importance that it gives to the work of WMO, as it was expressed to the Secretary-General in the letter sent by the Foreign Minister of Paraguay. The Government maintained the interest to keep the Regional Office in Paraguay, reiterating its commitment to work together with WMO for the growth and modernization in the technical, scientific and human aspects of meteorology and hydrology with the purpose of facing the challenges of the 21st century. It also expressed that the Government as well as WMO have complied faithfully with all the terms and conditions mentioned in the host country agreement, which won the trust of the Members of the Region. Paraguay further noted that the cost of moving the Regional Office would imply annual savings in recurrent expenditure. However, the time to recover the one-time cost of moving the Office would take many decades. The facilities related to office space, personnel and general services are the same for both countries. Paraguay said that the cost of travelling to and from Asunción offered better comparative advantage. In addition, Paraguay noted that the technical and scientific conditions of any country in both Regions III and IV should not be a condition to locate the Regional Office. Brazil reiterated its offer to host the Regional Office for the Americas in Brasilia, Brazil. It indicated that the technical conditions of this country would be a benefit to the functioning of the Regional Office.

17.10 Several Members were of the view that, aside from the financial implication foreseen, locating the Office in Brasilia would have the possibility of tapping the scientific and technical capabilities of INMET. Few

Members, while supporting the transfer, felt that further consideration should be given to seeing the benefits that would be obtained by relocating the Office to Brasilia.

17.11 The Association, after considering the various views, agreed that the Regional Office be transferred from Asunción to Brasilia. It therefore requested the Secretary-General to consult with Members of RA IV on this matter and take appropriate action in due course.

17.12 The Association noted with satisfaction the steps taken by the Secretary-General to strengthen the operation of the Regional Office within the context of the Secretariat review exercise carried out by the Secretary-General and requested him to continue his efforts in this regard.

18. SCIENTIFIC LECTURES AND DISCUSSIONS

(agenda item 18)

18.1 In the course of the meeting, the following scientific lectures were given:

- (a) Evidencia de Cambio Climático en la Región Austral de Chile y Península Antártica (Evidence of Climate Change in the Southern Region of Chile and the Antarctic Peninsula), Mr H. Oliva (Chile);
- (b) Modelos numéricos de mesoescala (Meso-scale Numerical Models), Mr E. Palacios (Ecuador); and
- (c) Modelación Hidrológica de Cuenca Alta del Río Cebollatti (Hydrological Modelling of the Cebollatti River Upper Basin), Mr A. Arcelus (Uruguay).

18.2 The Association considered that the lectures had been of great interest and high quality, and expressed its thanks to those who had given them.

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 15 \(XIII-RA III\)](#).

19.4 The Association considered that Resolution 1 (EC-L) on the report of the twelfth session of Regional Association III (South America) need not be kept in force.

20. ELECTION OF OFFICERS (agenda item 20)

20. Mr N. Salazar (Ecuador) was re-elected president while Mr H. Valiente (Paraguay) was elected vice-president of RA III.

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

21.1 The Association noted with appreciation the offer of Peru to host its fourteenth session in 2005.

22. CLOSURE OF THE SESSION (agenda item 22)

22. The thirteenth session of the Regional Association III closed at 12:17 p.m. on 26 September 2001.

RESOLUTIONS ADOPTED BY THE SESSION

RESOLUTION 1 (XIII-RA III)

WORKING GROUP ON PLANNING AND IMPLEMENTATION OF THE WWW IN REGION III

REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) Resolution 2 (Cg-XIII) — World Weather Watch Programme for 2000–2003,
- (2) Resolution 23 (Cg-XIII) — Fifth WMO Long-term Plan,
- (3) 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) The report of the chairman of the Working Group on Planning and Implementation of the WWW in RA III and its rapporteurs,
- (5) The necessity to involve the regional Working Group on Planning and Implementation of the WWW in the development and implementation of the Public Weather Services Programme (PWSP),

CONSIDERING:

- (1) That World Weather Watch (WWW) data and products are of vital importance to Members in Region III for meeting the increasing requirements of users for meteorological services,
- (2) That the implementation of the WWW in the Region should be kept under constant review,
- (3) That the introduction of the new WWW concepts will be of great benefit to all Members in the Region,
- (4) That full integration of the WWW functional components requires careful coordination among Members of RA III and constant evaluation of the related projects,
- (5) That the WMO Long-term Plan needs regular updating from the point of view of regional requirements,

DECIDES:

- (1) To re-establish the Working Group on the Planning and Implementation of the WWW in Region III with the following terms of reference:
 - (a) To monitor the implementation and operation of the WWW in the Region and advise on possible improvements and priorities and appropriate actions to be carried out under the WWW Programme and on the need for external support, where required;
 - (b) To keep under review the actions taken under the Fifth Long-term Plan (5LTP) with a view to updating and further developing the WWW Programme in RA III;

- (c) To develop proposals for further development and full integration of the WWW components with a view to achieving a cost-effective operation of the WWW and better supply of data and products in the Region;
 - (d) To keep abreast of new developments, guidelines and decisions of the Commission for Basic Systems (CBS) and its working groups in the field of meteorological data processing, observing techniques, telecommunications, data management and applications of meteorological satellites and to make recommendations for their regional use;
 - (e) To identify and keep under review regional requirements for the exchange of observational data and products and to propose measures and procedures as appropriate to meet those needs for information from within and outside the Region;
 - (f) To advise the president of the Association on all matters concerning the WWW, and in particular on the annual work carried out by the respective rapporteurs;
 - (g) To keep under constant review regional operational practices, in particular the Regional Meteorological Telecommunication Plan (RMTP) and its implementation, including developments in the use of satellites for data collection and distribution;
- (2) That the working group should be composed of the following core members:
 - (a) A Rapporteur on Regional Aspects of the Global Observing System (GOS);
 - (b) A Rapporteur on Regional Aspects of the Global Data-processing System (GDPS);
 - (c) A Rapporteur on Regional Aspects of the Global Telecommunication System (GTS) and Data Management (DM);
 - (d) A Rapporteur on Regional Aspects of Public Weather Services (PWS);

The terms of reference of the rapporteurs are given in the annex to this resolution;

- (3) To designate in accordance with Regulation 32 of the WMO General Regulations Mr M.A. Rabiolo (Argentina) as chairperson and Mr L. Poveda (Ecuador) as vice-chairperson of the working group;
- (4) (a) To invite Mr I. Plaza (Chile) to serve as Rapporteur on the Regional Aspects of the GOS;

- (b) To invite Mr J.M. Afonso (Argentina) to serve as Rapporteur on Regional Aspects of the GDPS;
 - (c) To invite Mr J.M. Rezende (Brazil) to serve as Rapporteur on Regional Aspects of the GTS and DM;
 - (d) To invite Mr A.M. Dall'Antonia (Brazil) to serve as Rapporteur on Regional Aspects of PWS;
- (5) To invite Members to nominate experts to serve on the group;

- (6) To request the chairman of the working group to submit progress reports at yearly intervals 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 1 (XII-RA III) which is no longer in force.

ANNEX TO DRAFT RESOLUTION 1 (XIII-RA III)

WORKING GROUP ON THE PLANNING AND IMPLEMENTATION OF THE WWW IN REGION III

The terms of reference for the rapporteurs nominated under Resolution 1 (XIII-RA III) are as follows:

- (a) The Rapporteur on Regional Aspects of the GOS:
 - (i) To keep abreast of developments in new observing systems, e.g. surface-based remote sensors and profilers, Aircraft Meteorology Data Relay (AMDAR), Aircraft Satellite Data Acquisition and Relay (ASDAR), Automated Shipboard Aerological Programme (ASAP) and drifting buoys;
 - (ii) To review and advise on the design and implementation of the Regional Basic Synoptic Network (RBSN) of surface and upper-air stations;
 - (iii) To follow up the operational experience of Members in the Region on the use of new observing systems and formulate recommendations;
 - (iv) To identify the training requirements of Members in the Region for the successful implementation, operation and maintenance of the observing system;
 - (v) To advise the chairman of the working group in matters concerning the regional observing systems and new developments in observing techniques, including information on instruments and sensors in the operational systems;
 - (vi) To represent the Region at the Implementation/Coordination Team (ICT) of the CBS Open Programme Area Group (OPAG) on Integrated Observing Systems (IOS), as required;
 - (vii) To submit an annual activity report to the chairperson of the working group on 1 September each year and a comprehensive report not later than three months before the scheduled meeting of the working group.
- (b) The Rapporteur on Regional Aspects of the GDPS:
 - (i) To keep abreast of developments in data-processing equipment and techniques

which could be beneficially introduced at National Meteorological Centres (NMCs) or Regional Specialized Meteorological Centres (RSMCs) to improve their operational capability both within the WWW system and in related areas;

- (ii) To formulate recommendations for coordinated implementation of data-processing facilities and techniques at GDPS, GTS and other centres and, if required, for multi-purpose use;
 - (iii) To identify the training requirements of Members in the Region for the successful implementation, operation and maintenance of the data-processing system;
 - (iv) To advise the chairman of the working group in all matters concerning data-processing activities;
 - (v) To represent the Region at the ICT of the CBS OPAG on Data Processing and Forecasting System, as required;
 - (vi) To submit an annual activity report to the chairperson of the working group on 1 September each year and a comprehensive report not later than three months before the scheduled meeting of the working group.
- (c) The Rapporteur on Regional Aspects of the GTS and DM:
 - (i) To keep abreast of developments in new telecommunication technology and equipment and to study their possible adaptation to the requirements of the Regions, as well as opportunities to be derived from commercial or meteorological space-based communication systems;
 - (ii) To keep under review the regional meteorological telecommunication plan, particularly as regards the design and development of the proposed managed services network;
 - (iii) To keep under review data and information representation, including character and

<p>bit-oriented codes and take action on regional coding problems;</p> <p>(iv) To keep under review data and product recovery procedures in case of major outages of key facilities;</p> <p>(v) To keep under review and advise on monitoring of the integrated WWW operations in the Region;</p> <p>(vi) To identify the training requirements of Members in the Region relating to relevant information and communication techniques;</p> <p>(vii) To advise and report to the chairman of the working group on all matters concerning regional aspects of the GTS and DM;</p> <p>(viii) To represent the Region on the ICT of the CBS OPAG on Information Systems and Services, as required;</p> <p>(ix) To submit an annual activity report to the chairperson of the working group on 1 September each year and a comprehensive report not later than three months before the scheduled meeting of the working group.</p>	<p>(d) The Rapporteur on Regional Aspects of PWS:</p> <p>(i) To keep under review the implementation of the PWSP in Region III;</p> <p>(ii) To advise the chairman of the working group on matters relating to formulation, presentation and dissemination of forecasts and warnings and establishing good relations with the media and the private sector;</p> <p>(iii) To keep under review education and training requirements related to the PWSP;</p> <p>(iv) To keep under review, in coordination with the Rapporteur on the Regional Aspects of the GDPS, aspects relating to exchange and coordination of hazardous weather information among neighbouring countries;</p> <p>(v) To represent the Region at the ICT of the CBS OPAG on PWS, as required;</p> <p>(vi) To submit an annual activity report to the chairperson of the working group on 1 September each year and a comprehensive report not later than three months before the scheduled meeting of the working group.</p>
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RESOLUTION 2 (XIII-RA III)

REGIONAL BASIC SYNOPTIC NETWORK

REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) Resolution 2 (XII-RA III) — 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 Networks (RBSNs),
- (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 an RBSN of surface and upper-air synoptic stations, adequate to meet the requirements of Members and of the World Weather Watch (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 RBSN in Region III;

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*, Volume II — Regional Aspects, Region III (South America).

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

ANNEX TO RESOLUTION 2 (XIII-RA III)

LIST OF STATIONS COMPRISING THE REGIONAL BASIC SYNOPTIC NETWORK IN REGION III

<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>	<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>
ARGENTINA					
87007	La Quiaca Observatorio	S	87563	Las Flores Aero	S
87016	Oran Aero	S	87576	Ezeiza Aero	S
87022	Tartagal Aero	S	87576	Ezeiza Aero	W R
87046	Jujuy Aero	S	87582	Aeroparque Bs. As. Aero	S
87047	Salta Aero	S	87593	La Plata Aero	S
87047	Salta Aero	W R	87596	Punta Indio B.A.	S
87065	Rivadavia	S	87623	Santa Rosa Aero	S
87078	Las Lomitas	S	87623	Santa Rosa Aero	W R
87097	Iguazu Aero	S	87640	Bolivar Aero	S
87121	Tucuman Aero	S	87641	Azul Aero	S
87129	Santiago Del Estero Aero.	S	87645	Tandil Aero	S
87155	Resistencia Aero.	S	87648	Dolores Aero	S
87155	Resistencia Aero.	W R	87659	Faro Punta Medanos	S
87162	Formosa Aero	S	87679	Pigue Aero	S
87171	General Paz	S	87688	Tres Arroyos	S
87178	Posadas Aero.	S	87692	Mar Del Plata Aero	S
87211	Tinogasta	S	87715	Neuquen Aero	S
87217	La Rioja Aero.	S	87715	Neuquen Aero	W R
87222	Catamarca Aero.	S	87736	Rio Colorado	S
87244	Villa De Maria Del Rio Seco	S	87743	Faro El Rincon	S
87257	Ceres Aero	S	87750	Bahia Blanca Aero	S
87270	Reconquista Aero	S	87765	Bariloche Aero	S
87286	Curuzu Cuatia Aero	S	87774	Maquinchao	S
87289	Paso De Los Libres Aero	S	87784	San Antonio Oeste Aero	S
87305	Jachal	S	87791	Viedma Aero	S
87311	San Juan Aero	S	87803	Esquel Aero	S
87320	Chamical Aero	S	87814	Paso De Indios	S
87322	Chepes	S	87828	Trelew Aero	S
87328	Villa Dolores Aero	S	87852	Perito Moreno Aero	S
87344	Cordoba Aero	S	87860	Comodoro Rivadavia Aero	S
87344	Cordoba Aero	W R	87860	Comodoro Rivadavia Aero	W R
87349	Pilar Observatorio	S	87880	Gobernador Gregores Aero	S
87371	Sauce Viejo Aero	S	87896	Puerto Deseado Aero	S
87374	Parana Aero	S	87903	Lago Argentino Aero	S
87385	Villaguay Aero	S	87909	San Julian Aero	S
87393	Monte Caseros Aero	S	87912	Santa Cruz Aero	S
87395	Concordia Aero	S	87925	Rio Gallegos Aero	S
87412	San Carlos	S	87928	Faro Cabo Virgenes	S
87416	San Martin	S	87934	Rio Grande B.A.	S
87418	Mendoza Aero	S	87938	Ushuaia Aero	S
87418	Mendoza Aero	W R	BOLIVIA		
87436	San Luis Aero	S	85033	Guayaramerin	S
87448	Villa Reynolds Aero	S	85041	Cobija	S
87453	Rio Cuarto Aero	S	85043	Riberalta	S
87467	Marcos Juarez Aero	S	85104	San Joaquin	S
87480	Rosario Aero	S	85114	Magdalena	S
87506	Malargue Aero	S	85123	Santa Ana	S
87509	San Rafael Aero	S	85141	Rurrenabaque	S
87532	General Pico Aero	S	85151	Apolo	S
87534	Laboulaye	S	85152	San Borja	S
87544	Pehuajo Aero	S	85154	Trinidad	S
87548	Junin Aero	S	85175	Ascencion De Guarayos	S

<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>	<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>
83332	Posse	S	83746	Galeao	S
83339	Caetite	S	83766	Londrina	S
83344	Vitoria Da Conquista	S	83779	Marte	W R
83349	Ilheus (Aeroporto)	S	83780	Sao Paulo (Aeroporto)	S
83358	Poxoreo (Poxoreu)	S	83783	Campo Mourao	S
83362	Cuiaba (Aeroporto)	S	83811	Ivai	S
83368	Aragarcas	S	83818	Santos	S
83374	Goias	S	83821	Iguape	S
83378	Brasilia (Aeroporto)	S	83827	Foz Do Iguacu (Aeroporto)	S
83378	Brasilia (Aeroporto)	W R	83836	Irati	S
83384	Arinos	S	83840	Curitiba (Aeroporto)	S
83386	Januaria	S	83840	Curitiba (Aeroporto)	W R
83388	Monte Azul	S	83844	Paranagua	S
83393	Pedra Azul	S	83881	Irai	S
83398	Canavieiras	S	83887	Campos Novos	S
83405	Caceres	S	83899	Florianopolis (Aeroporto)	S
83423	Goiania	S	83907	Sao Luiz Gonzaga	S
83437	Montes Claros	S	83914	Passo Fundo	S
83442	Aracuai	S	83919	Bom Jesus	S
83470	Rio Verde	S	83925	Santa Marta	S
83479	Paracatu	S	83927	Uruguaiana	S
83483	Pirapora	S	83928	Uruguaiana (Aeroporto)	W R
83492	Teofilo Otoni	S	83931	Alegrete	S
83497	Caravelas (Aeroporto)	S	83936	Santa Maria	S
83497	Caravelas (Aeroporto)	W R	83948	Torres	S
83526	Catalao	S	83964	Encruzilhada Do Sul	S
83531	Patos De Minas	S	83970	Mostardas	S
83538	Diamantina	S	83971	Porto Alegre (Aeroporto)	S
83550	Sao Mateus	S	83971	Porto Alegre (Aeroporto)	W R
83552	Corumba	S	83980	Bage	S
83565	Paranaiba	S	83995	Rio Grande	S
83566	Confins (Aeroporto)	S	83997	St.Vitoria Do Palmar	S
83566	Confins (Aeroporto)	W R			
83574	Frutal	S			
83579	Araxa	S	CHILE		
83582	Bambui	S	85406	Arica	S
83592	Caratinga	S	85418	Iquique	S
83595	Aimores	S	85432	Calama	S
83597	Linhares	S	85442	Antofagasta	S
83612	Campo Grande (Aeroporto)	S	85442	Antofagasta	W R
83612	Campo Grande (Aeroporto)	W R	85460	Chanaral	S
83618	Tres Lagoas	S	85469	Isla De Pascua	S
83623	Votuporanga	S	85469	Isla De Pascua	W R
83630	Franca	S	85470	Copiapo	S
83649	Vitoria (Aeroporto)	S	85486	Vallenar	S
83650	Trindade (Ilha)	S	85488	La Serena	S
83650	Trindade (Ilha)	W R	85543	Quintero	S
83676	Catanduva	S	85574	Pudahuel	S
83687	Lavras	S	85585	Juan Fernandez	S
83692	Juiz De Fora	S	85585	Juan Fernandez	W R
83695	Itaperuna	S	85586	Santo Domingo	S
83698	Campos	S	85586	Santo Domingo	W R
83702	Ponta Pora	S	85629	Curico	S
83704	Ivinhema	S	85672	Chillan	S
83716	Presidente Prudente	S	85682	Concepcion	S
83718	Cordeiro	S	85682	Concepcion	W R
83726	Sao Carlos	S	85743	Temuco	S
83738	Resende	S	85766	Valdivia	S

<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>	<i>Index No.</i>	<i>Station name</i>	<i>Observations</i>
85799	Puerto Montt	S	84239	Cuenca Aeropuerto	S
85799	Puerto Montt	W R	84265	Catamayo Aeropuerto (La Toma)	S
85834	Isla Huafo	S			
85864	Coyhaique	S	FRENCH GUYANA		
85892	Cochrane	S	81401	Saint-Laurent-Du-Maroni	S
85930	Faro Evangelistas	S	81405	Rochambeau	S
85934	Punta Arenas	S	81405	Rochambeau	W R
85934	Punta Arenas	W R	81408	Saint Georges De L'oyapock	S
85972	Isla Diego Ramirez	S	81415	Maripasoula	S
	COLOMBIA			GUYANA	
80009	Santa Marta/Simon Bolivar	S	81002	Timehri/Cheddi Jagan International	S
80022	Cartagena/Rafael Nunez	S	81002	Timehri/Cheddi Jagan International	W R
80028	Barranquilla/Ernesto Cortisoz	S	81005	Kamarang	S
80035	Riohacha/Almirante Padilla	S	81006	Lethem	S
80035	Riohacha/Almirante Padilla	W R	81010	Ebini	S
80036	Valledupar/Alfonso Lopez	S	81080	Kaieteur Falls	S
80063	Monteria/Los Garzones	S	81100	Mabaruma	S
80084	Apartado/Los Cedros	S		ISLANDS (88: 800)	
80089	Otu	S	88889	Mount Pleasant Airport	S
80094	Bucaramanga/Palonegro	S	88889	Mount Pleasant Airport	W R
80099	Arauca/Santiago Perez	S	88903	Grytviken, South Georgia	S
80112	Rionegro/J.M.Cordova	S		PARAGUAY	
80139	Puerto Carreno/A.Guauquea	S	86011	Base 5 Gral A.Jara	S
80144	Quibdo/El Carano	S	86033	Bahia Negra	S
80210	Pereira/Matecana	S	86065	Prats-Gil	S
80214	Ibague/Perales	S	86068	Mariscal Estigarribia	S
80222	Bogota/Eldorado	S	86086	Puerto Casado	S
80222	Bogota/Eldorado	W R	86097	Pedro Juan Caballero	S
80234	Villavicencio/Vanguardia	S	86125	Pozo Colorado	S
80241	Las Gaviotas	S	86134	Concepcion	S
80252	Buenaventura	S	86170	Gral. Bruguez	S
80259	Cali/Alfonso Bonilla Aragon	S	86185	San Pedro	S
80308	Popayan/Machangara	S	86192	San Estanislao	S
80315	Neiva/Benito Salas	S	86210	Salto Del Guaira	S
80322	San Jose Del Guaviare	S	86218	Asuncion/Aeropuerto	S
80337	Tumaco	S	86218	Asuncion/Aeropuerto	W R
80342	Pasto/Antonio Narino	S	86233	Villarrica	S
80361	Mitu	S	86246	Aeropuerto Int. Guarani	S
80372	Puerto Asis	S	86255	Pilar	S
80398	Leticia/Vasquez Cobo	S	86260	San Juan Bautista Misiones	S
80398	Leticia/Vasquez Cobo	W R	86285	Capitan Meza	S
	ECUADOR		86297	Encarnacion	S
84001	Seymour Aeropuerto (Galapagos)	S		PERU	
84008	San Cristobal (Galapagos)	S	84331	Andoas	S
84008	San Cristobal (Galapagos)	W R	84370	Tumbes	S
84018	Esmeraldas Aeropuerto (Tachina)	S	84377	Iquitos	S
84071	Quito Aeropuerto	S	84377	Iquitos	W R
84099	El Coca Aeropuerto	S	84390	Talara	S
84101	Bahia Del Caraquez Aeropuerto	S	84396	Requena	S
84132	Nuevo Rocafuerte	S	84401	Piura	S
84140	Pichilingue	S	84405	Huancabamba	S
84179	Puyo	S	84425	Yurimaguas	S
84200	Salinas Aeropuerto	S	84440	Rioja	S
84203	Guayaquil Aeropuerto	S			
84203	Guayaquil Aeropuerto	W R			

RESOLUTION 3 (XIII-RA III)

REGIONAL BASIC CLIMATOLOGICAL NETWORK IN REGION III

REGIONAL ASSOCIATION III (SOUTH AMERICA),

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 (XII-RA IV) Regional Basic Climatological Network in Region IV,
- (4) The approval of lists of GCOS Surface Network (GSN) and GCOS Upper-Air Network (GUAN) stations by the president of the Association,

CONSIDERING that the 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 Regional Basic Climatological Network (RBCN) in Region III;

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 procedures laid down in *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 list of RBCN stations;

REQUESTS the Secretary-General:

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

ANNEX TO RESOLUTION 3 (XIII-RA III)

REGIONAL BASIC CLIMATOLOGICAL NETWORK IN REGION III

<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>
ARGENTINA											
87007	La Quiaca Observatorio	X		X		87257	Ceres Aero	X		X	
87016	Oran Aero			X		87270	Reconquista Aero	X		X	
87022	Tartagal Aero			X		87289	Paso De Los Libres Aero			X	
87046	Jujuy Aero			X		87305	Jachal	X		X	
87047	Salta Aero	X		X	X	87311	San Juan Aero			X	
87065	Rivadavia	X		X		87320	Chamical Aero			X	
87078	Las Lomitas	X		X		87322	Chepes			X	
87097	Iguazu Aero			X		87328	Villa Dolores Aero			X	
87121	Tucuman Aero			X		87344	Cordoba Aero	X		X	X
87129	Santiago Del Estero Aero	X		X		87345	Cordoba Observatorio			X	
87148	Presidencia Roque Saenz Pena Aero	X		X		87349	Pilar Observatorio			X	
87155	Resistencia Aero.	X	X	X	X	87374	Parana Aero	X		X	
87162	Formosa Aero			X		87393	Monte Caseros Aero	X		X	
87163	B.De Irigoyen Aero			X		87395	Concordia Aero	X		X	
87166	Corrientes Aero.			X		87418	Mendoza Aero	X		X	X
87178	Posadas Aero.	X		X		87420	Mendoza Observatorio			X	
87213	Chilecito Aero			X		87436	San Luis Aero			X	
87217	La Rioja Aero.	X		X		87448	Villa Reynolds Aero	X		X	
87222	Catamarca Aero.			X		87453	Rio Cuarto Aero			X	
87244	Villa De Maria	X		X		87467	Marcos Juarez Aero			X	
	Del Rio Seco					87480	Rosario Aero			X	
						87497	Guauguaychu Aero			X	
						87506	Malargue Aero			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>
87509	San Rafael Aero			X		85268	Robore			X	
87532	General Pico Aero			X		85283	Sucre			X	
87534	Laboulaye	X		X		85289	Puerto Suarez	X		X	
87544	Pehuajo Aero	X		X		85315	Camiri			X	
87548	Junin Aero			X		85364	Tarija	X		X	
87550	Nueve De Julio			X		85365	Yacuiba	X		X	
87563	Las Flores Aero			X							
87576	Ezeiza Aero	X		X	X	BRAZIL					
87582	Aeroparque Buenos Aires Aero			X		82024	Boa Vista	X		X	
87585	Buenos Aires Observatorio			X		82098	Macapa			X	
87593	La Plata Aero			X		82106	Sao Gabriel Da Cachoeira	X		X	
87596	Punta Indio B.A.			X		82113	Barcelos	X		X	
87616	Victoria	X				82191	Belem			X	
87623	Santa Rosa Aero	X		X	X	82193	Belem (Aeroporto)	X	X		X
87640	Bolivar Aero			X		82212	Fonte Boa			X	
87641	Azul Aero	X		X		82246	Belterra			X	
87645	Tandil Aero			X		82280	Sao Luiz			X	
87648	Dolores Aero			X		82287	Parnaiba			X	
87679	Pigue Aero			X		82326	Codajas			X	
87688	Tres Arroyos			X		82331	Manaus	X		X	
87692	Mar Del Plata Aero	X		X		82332	Manaus (Aeroporto)		X		X
87715	Neuquen Aero	X		X	X	82336	Itacoatiara			X	
87736	Rio Colorado			X		82397	Fortaleza		X	X	X
87750	Bahia Blanca Aero	X		X		82400	Fernando De Noronha	X			X
87765	Bariloche Aero	X		X		82410	Benjamin Constant	X		X	
87774	Maquinchao			X		82425	Coari	X		X	
87784	San Antonio Oeste Aero			X		82445	Itaituba			X	
87791	Viedma Aero			X		82460	Bacabal			X	
87800	El Bolson Aero			X		82533	Manicore			X	
87803	Esquel Aero	X		X		82562	Maraba			X	
87814	Paso De Los Indios			X		82571	Barra Do Corda	X		X	
87823	Puerto Madryn Aero			X		82578	Teresina			X	
87828	Trelew Aero	X		X		82583	Crateus			X	
87852	Perito Moreno Aero			X		82586	Quixeramobim	X		X	
87860	Comodoro Rivadavia Aero	X	X	X	X	82598	Natal			X	
87880	Gobernador Gregores Aero			X		82599	Natal (Aeroporto)				X
87896	Puerto Deseado Aero			X		82678	Florianopolis			X	X
87904	El Calafato Aero	X		X		82704	Cruzeiro Do Sul	X		X	
87909	San Julian Aero			X		82723	Labrea			X	
87925	Rio Gallegos Aero	X		X		82765	Carolina			X	X
87934	Rio Grande B.A.			X		82784	Barbalha			X	
87938	Ushuaia Aero			X		82791	Patos			X	
	BOLIVIA					82824	Porto Velho				X
85041	Cobija	X		X		82825	Porto Velho	X		X	
85043	Riberalta	X		X		82900	Recife			X	X
85104	San Joaquin			X		82915	Rio Branco			X	
85114	Magdalena	X		X		82965	Alta Floresta				X
85141	Rurrenabaque	X		X		82983	Petrolina			X	X
85152	San Borja			X		83064	Porto Nacional	X		X	
85154	Trinidad			X		83096	Aracaju			X	
85175	Ascencion De Guarayos			X		83186	Jacobina			X	
85201	La Paz/Alto			X		83208	Vilhena			X	X
85207	San Ignacio De Velasco	X		X		83229	Salvador	X		X	X
85223	Cochabamba	X		X		83235	Taguatinga			X	
85230	Charana	X		X		83236	Barreiras	X		X	
85244	Viru-Viru			X		83242	Lencois			X	
85245	Santa Cruz/El Trompillo			X		83264	Gleba Celeste	X		X	
						83288	Bom Jesus Da Lapa			X	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>
83332	Posse			X		85585	Juan Fernandez	X		X	
83344	Vitoria Da Conquista			X		85586	Santo Domingo				X
83358	Poxoreu			X		85629	Curico	X		X	
83361	Cuiaba	X		X		85672	Chillan			X	
83362	Cuiaba	X			X	85682	Concepcion			X	
83377	Brasilia			X		85743	Temuco	X		X	
83378	Brasilia (Aeroporto)		X		X	85766	Valdivia			X	
83423	Goiania			X		85782	Osorno			X	
83437	Montes Claros			X		85799	Puerto Montt	X	X	X	X
83481	Joao Pinheiro	X		X		85874	Balmaceda	X		X	
83492	Teofilo Otoni			X		85934	Punta Arenas	X	X	X	X
83498	Caravelas	X		X	X						
83550	Sao Mateus			X							
83552	Corumba			X		COLOMBIA					
83565	Paranaiba			X		-----	Carmen Bolivar	X		X	
83566	Confins	X			X	80009	Santa Marta/Simon Bolivar			X	
83579	Araxa			X		80022	Cartagena/Rafael Nunez			X	
83587	Belo Horizonte			X		80028	Barranquilla/Ernesto Cortissoz			X	
83592	Caratinga			X		80035	Rio Hacha/Almirante Padilla			X	X
83612	Campo Grande (Aeroporto)				X	80084	Apartado/Los Cedros			X	
83618	Tres Lagoas	X		X		80091	Barrancabermeja/Yariguies			X	
83623	Votuporanga			X		80094	Bucaramanga/Palonegro			X	
83630	Franca			X		80112	Rionegro/J.M.Cordova			X	
83648	Vitoria			X		80139	Puerto Carre No/A.Guauquea			X	
83650	Trindade (Ilha)	X			X	80144	Quibdo/El Carano			X	
83676	Catanduva			X		80210	Pereira/Matecana			X	
83698	Campos			X		80211	Armenia/El Eden			X	
83702	Ponta Pora			X		80214	Ibague/Perales			X	
83704	Ivinhema			X		80222	Bogota/Eldorado	X	X	X	X
83716	Presidente Prudente			X		80234	Villavicencio/Vanguardia			X	
83726	Sao Carlos			X		80241	Las Gaviotas	X		X	X
83738	Resende			X		80259	Cali/Alfonso Bonilla Aragon	X		X	
83746	Galeao	X			X	80315	Neiva/Benito Salas			X	
83766	Londrina			X		80342	Pasto/Antonio Narino	X		X	
83779	Marte				X	80370	Ipiales/San Luis			X	
83781	Sao Paulo	X		X		80398	Leticia/Vasquez Cobo			X	X
83783	Campo Mourao			X							
83827	Foz Do Iguacu (Aeroporto)	X			X	ECUADOR					
83836	Irati			X		84008	San Cristobal (Galapagos)	X	X	X	X
83840	Curitiba Ap				X	84071	Quito Aeropuerto			X	
83842	Curitiba Bacacheri	X		X		84088	Izobamba	X		X	
83881	Irai	X		X		84135	Portoviejo			X	
83897	Florianopolis			X		84140	Pichilingue	X		X	
83928	Uruguaiiana (Aeroporto)				X	84203	Guayaquil Aeropuerto			X	
83967	Porto Alegre			X		84270	Loja/La Argelia	X		X	
83971	Porto Alegre Aeroporto				X	84279	Macara Aeropuerto	X		X	
83980	Bage			X							
83997	St.Vitoria Do Palmar			X		FRENCH GUYANA					
						81401	Saint-Laurent-Du-Maroni			X	
						81405	Rochambeau	X	X	X	X
						81408	Saint Georges De L'oyapock			X	
						81415	Maripasoula			X	
CHILE											
85406	Arica	X		X		GUYANA					
85418	Iquique			X		81002	Timehri/Cheddi Jagan International			X	
85442	Antofagasta	X	X	X	X						
85448	La Serena			X		ISLANDS (88800-88998)					
85469	Isla De Pascua	X	X	X		88889	Mount Pleasant Airport		X	X	X
85470	Copiapo			X							
85488	La Serena	X		X							
85574	Pudahuel			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>
PARAGUAY						SURINAME					
86011	Base 5 Gral A.Jara			X		81202	Nickerie	X		X	
86033	Bahia Negra			X		URUGUAY					
86065	Prats-Gil			X		86330	Artigas	X		X	
86068	Mariscal			X		86350	Rivera			X	
86086	Puerto Casado	X		X		86360	Salto			X	
86097	Pedro Juan Caballero			X		86370	Tacuarembó			X	
86134	Concepcion			X		86430	Paysandu			X	
86185	San Pedro			X		86440	Melo	X		X	
86210	Salto Del Guaira			X		86460	Paso De Los Toros			X	
86218	Asuncion/Aeropuerto			X		86490	Mercedes	X		X	
86233	Villarrica			X		86500	Treinta Y Tres			X	
86246	Aeropuerto Int. Guarani			X		86560	Colonia			X	
86255	Pilar			X		86565	Rocha	X		X	
86260	San Juan Bautista Misiones			X		86580	Carrasco			X	
86297	Encarnacion	X		X		VENEZUELA					
PERU						-----	Caracas Cagigal Obs	X		X	
84370	Tumbes			X		80403	Coro			X	
84377	Iquitos	X		X		80405	La Orchila	X		X	
84390	Talara			X		80407	Maracaibo-La Chinita			X	
84401	Piura			X		80410	Barquisimeto			X	
84405	Huancabamba			X		80413	Maracay - B.A. Sucre			X	X
84425	Yurimaguas			X		80416	Caracas/La Carlota			X	
84435	Moyobamba			X		80418	Caracas/ Gacigal Obs	X		X	
84444	Chachapoyas	X		X		80419	Barcelona			X	
84452	Chiclayo			X		80421	Porlamar (Aerop Int. Del Caribe)			X	
84455	Tarapoto	X		X		80423	Guiria	X		X	
84472	Cajamarca			X		80425	Mene Grande	X		X	
84474	Juanjui			X		80426	Valera			X	
84501	Trujillo			X		80427	Acarigua			X	
84515	Pucallpa			X		80428	Guanare			X	
84531	Chimbote			X		80432	Carrizal			X	
84534	Tingo Maria			X		80434	Valle De La Pascua			X	
84542	Anta (Huaraz)			X		80435	Maturin			X	
84564	Huanuco			X		80437	El Vigia			X	
84628	Lima-Callao/Aero. Int. Jorge Chavez		X	X	X	80438	Merida	X		X	
84658	Puerto Maldonado			X		80440	Barinas			X	
84670	Quillabamba			X		80442	Calabozo			X	
84673	Ayacucho			X		80444	Ciudad Bolivar			X	
84677	Quincemil			X		80447	San Antonio Del Tachira			X	X
84680	Castrovirreyna (Sinto)			X		80448	Guasdalito			X	
84686	Cuzco			X		80450	San Fernando De Apure	X		X	
84691	Pisco			X		80453	Tumeremo	X		X	
84721	San Juan	X		X		80457	Puerto Ayacucho			X	
84735	Juliaca			X		80462	Santa Elena De Uairen	X		X	X
84752	Arequipa	X		X		80478	Temblador			X	
84773	Ilo			X		80479	Palmichal			X	

RESOLUTION 4 (XIII-RA III)

RAPPORTEUR ON SOLAR RADIATION

REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) *Regional Association III (South America), Twelfth Session (1997) — Abridged Final Report with Resolutions* (WMO-No. 874), especially Resolution 4 (XII-RA III) — Rapporteur on Solar Radiation,
- (2) Resolution 4 (EC-L) — Report of the twelfth session of the Commission for Instruments and Methods of Observation,
- (3) Resolution 13 (EC-XXXIV) — Development and comparison of radiometers,

CONSIDERING:

- (1) The requirements for high quality radiation measurements for meteorological and related environmental applications, for the development of renewable sources of energy and food production, as well as for research in the field of climate change,
- (2) The need for regular maintenance and calibration of radiation instruments and to apply consistent quality control procedures to the measured data, and regional cooperation in the processing of radiation data,
- (3) The need for technology transfer among Members, related to radiation measurements,
- (4) The need for updating the information on the status of instrumentation used in national networks and on maintenance and calibration of instruments,
- (5) The need to coordinate education and training activities for observers and technicians in the field of operation, maintenance and calibration of radiation instruments,
- (6) The need to assist Members in the planning and implementation of radiation networks,

DECIDES:

- (1) To appoint a Rapporteur on Solar Radiation with the following terms of reference:
 - (a) To update the information on radiation instrumentation and national radiation networks as well as on maintenance and calibration;
 - (b) To provide guidance to Members on radiation instrumentation, techniques and their effective application and on archiving and presentation of data in better fulfilling the needs for various applications;
 - (c) To advise the president of the Association on issues related to National and Regional Radiation Centres and the radiation station network in the Region;
 - (d) To assist in the preparation and execution of National and Regional Pyrheliometer Comparisons of RA III and in the evaluation of the results and their presentation;
 - (e) To support an enhanced collaboration with the Baseline Surface Radiation (BSRN) Network operators;
 - (f) To support the coordination of measures in the field of radiation measurement, including UV-B, in calibration of radiation instrumentation, as well as in education and training;
 - (g) To initiate a closer collaboration with the related rapporteur of RA IV in fields of common concern.
- (2) To invite Mr G. Torres (Chile) to serve as Rapporteur on Solar Radiation;
- (3) To request the rapporteur to submit annual progress reports and a final report to the president of RA III at least six months before the next session of the Association.

RESOLUTION 5 (XIII-RA III)

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

REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) *Regional Association III (South America), Twelfth Session (1997) — Abridged Final Report with Resolutions* (WMO-No. 874), especially Resolution 3 (XII-RA III) — Rapporteurs on Regional Aspects of Instrument Development, Related Training and Capacity Building and,
- (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 Regional

Instrument Centres (RICs) and the WMO Secretariat;

- (e) To facilitate communications between the Commission for Instruments and Methods of Observation (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 Co-rapporteurs on Capacity Building.
- (2) To invite Mr E. Viotti (Argentina) 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 III, with a copy to the president of CIMO, at least six months before the next session of the Association.

RESOLUTION 6 (XIII-RA III)

REGIONAL METEOROLOGICAL DATA COMMUNICATION NETWORK (RMDCN)

REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) The requirements of RA III Members for a cost-effective and reliable regional telecommunication network in support of their meteorological and hydrological operations,
- (2) The deficiencies of the existing Regional Meteorological Telecommunication Network (RMTN),
- (3) The high operating costs and technical limitations of the existing RMTN,
- (4) The increasing demands on the RMTN for the exchange of more voluminous data and products sets,

REAFFIRMING the agreement of its twelfth session (Salvador, Brazil, 1997) to jointly develop and implement a modern and cost-effective Regional Managed Data-communication Network (RMDCN),

FURTHER NOTING:

- (1) That the study phase of the RMDCN had been completed and the Specification of Requirements had been endorsed by the Permanent Representatives,
- (2) That the Working Group on Internal Matters of RA III (Santiago, Chile, November 2000) endorsed the management framework for the development and implementation of the RMDCN project,
- (3) That the technical preconditions are now available for establishing a RMDCN which would enable all Members in the Region to reach a high performance level in meteorological telecommunications,

EMPHASIZING that cooperative efforts are needed to facilitate development and implementation of the RMDCN project,

ENDORSES the request from the president of RA III to the Secretary-General to undertake the process leading to the selection of a suitable provider of the RMDCN services;

DECIDES:

- (1) To proceed with the implementation of the RMDCN based on the technical and legal/administrative concept given in the Annex to this Resolution;
- (2) To re-establish the RA III RMDCN Steering Group, reporting to the president of the Association, to coordinate the RMDCN activities in collaboration with the Working Group on Planning and Implementation of the WWW (WG-PIW), with the following terms of reference:
 - (a) To carry out necessary studies concerning technical/administrative issues related to the RA III RMDCN project;
 - (b) To coordinate the activities necessary to implement and operate the RMDCN;
 - (c) To advise the president on actions to be taken in the framework of the project;
- (3) That the Steering Group should be composed of the following core members:

One expert from each Member operating a Regional Telecommunication Hub (RTH), i.e.:

 - Argentina
 - Brazil
 - Venezuela

One expert from two Members operating a National Meteorological Centre (NMC), i.e.:

 - Chile
 - Colombia;

In addition the Steering Group may comprise experts from other Members willing to provide a major contribution;

- (4) That the core membership of the Steering Group complemented by a data-communication consultant, as appropriate, should act as the Contract Advisory Committee (CAC) to advise on the selection of RMDCN services provider;
- (5) To designate, in accordance with Regulation 32 of the WMO General Regulations, Mr A.C.V. Athayde (Brazil) as chairperson of the Steering Group;

INVITES RA III Members to cooperate and assist in all possible ways and means with a view to facilitating the successful implementation of the RMDCN and the participation of all RA III Members in the new network as early as possible;

REQUESTS the Secretary-General:

- (1) To provide coordination and support to the RMDCN plan;
- (2) To establish a coordinated cooperation project, including a Trust Fund, in the framework of the Technical Cooperation Programme (TCOP) of WMO with a view to supporting and facilitating the further development and implementation of the RMDCN project, including support to consultant services, meetings of the Steering Group and the CAC as necessary, and implementation at NMCs;
- (3) To invite RA III Members and other Members as appropriate, to contribute to the project and Trust Fund for the RA III RMDCN;
- (4) To carry out the international tender, and, if so requested by the president of RA III, sign the framework contract with the selected provider.

ANNEX TO RESOLUTION 6 (XIII-RA III)

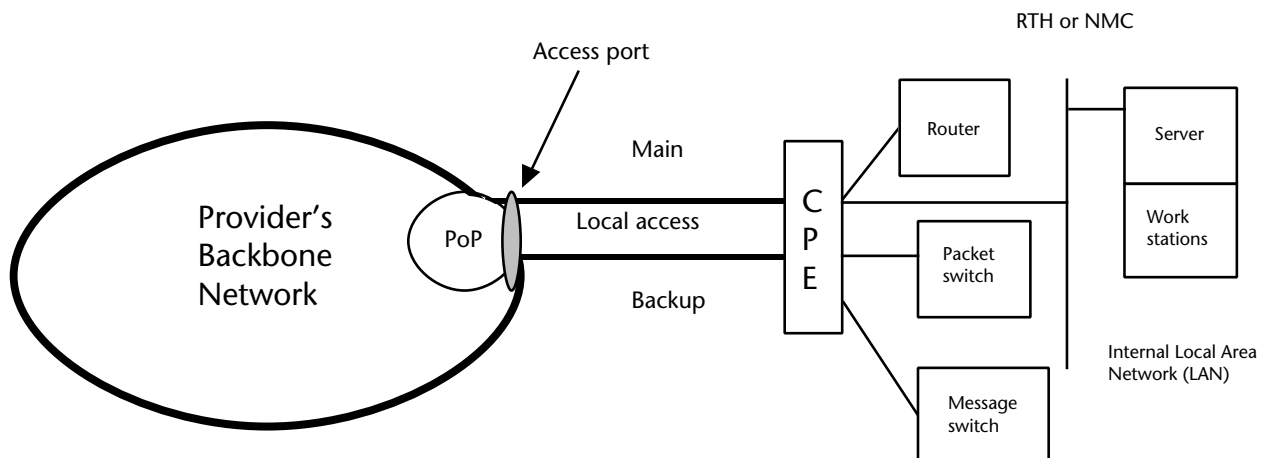
SUMMARY DESCRIPTION OF THE RA III RMDCN PROJECT

Technical concept

1. The RA III RMDCN will be a homogeneous network in which the selected provider will support a Managed Datacommunication Network Service (MDNS), consisting essentially of a data transport service. The supplier will provide:
 - (a) All circuits, hardware and software necessary for connectivity;
 - (b) The management of third parties, such as platform transmitter terminals (PTTs);
 - (c) The provision of help-desk facilities;
 - (d) The central management and supervision of all network functions;
 - (e) Change management as required during the period of the contract; and
 - (f) The provision of traffic statistics.
2. The main components of the network of the selected supplier are the backbone network, the

customer premises equipment (CPE), the points-of-presence (PoP) in the countries served and the Local Access circuits which connect the CPE to the PoP, usually over a leased line provided by the national telephone supplier.

3. The backbone network is a private international network operated by the supplier and shared among many customers. The backbone will have a high capacity and be constructed to be resilient in the event of any failures of circuits or network equipment. Frame Relay networks are becoming very popular and cost-effective. To further enhance the availability of this network, the supplier will typically have at least two network control centres in different locations.
4. The CPE is the equipment which the supplier provides to interface to the customer's equipment. The CPE would support, on the customer's side,



(Note: Some boxes may not exist at some centres)

Figure — Typical RMDCN connection at RTH/NMC

<p>connections to computers operated by the NMHS, including message switching systems and other applications.</p> <p>5. The suppliers have one or more PoPs in the countries they serve. This enables customers to connect to the their network via a node in their own country, often in their own city.</p> <p>6. A typical connection of a GTS centre to the supplier's backbone network is indicated in the figure below.</p> <p>Legal and administrative concept</p> <p>7. There will be two types of contracts, namely:</p> <p>(a) A Framework Contract to be concluded between the Secretary-General of WMO and the selected service provider, containing:</p> <p>(i) Service specifications and conditions for the RA III RMDCN;</p> <p>(ii) The provider's commitment to cover all of RA III;</p>	<p>(iii) The ceiling cost for access to the RMDCN by each RA III Member;</p> <p>(iv) The ceiling costs for additional services such as higher bandwidth, service level, etc.;</p> <p>(v) A specification of the guaranteed service level; and</p> <p>(vi) No financial commitment for the WMO Secretariat or any Member of RA III;</p> <p>(b) An individual accession contract between a Member and the service provider, which should contain at least:</p> <p>(i) Bandwidth (e.g. Committed information Rate) to be provided and other technical features;</p> <p>(ii) Service level to be provided;</p> <p>(iii) Payment modalities.</p> <p>8. Members would join the RMDCN Framework Contract under National Contracts as and when appropriate.</p>
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RESOLUTION 7 (XIII-RA III)

WORKING GROUP ON CLIMATE ACTIVITIES

REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) The Fourth WMO Long-term Plan, Part II, Volume 2, The World Climate Programme 1996–2005,
- (2) Resolution 7 (Cg-XII) — World Climate Programme and its Coordination,
- (3) Resolution 9 (Cg-XII) — Climate Information and Prediction Services (CLIPS),
- (4) Resolution 10 (Cg-XII) — World Climate Research Programme,
- (5) Resolution 11 (Cg-XII) — Global Climate Observing System,

CONSIDERING:

- (1) That climate variations, such as those related to *El Niño*, affect all Members of the Region, and that human activities in the Region may be contributing to climate change,
- (2) That climate applications and services and impact studies have a large potential benefit for the economic and social activities in the Region for sustainable development,
- (3) That the climate of the Region is complex and that climate data related to the Region are of great value for regional and global climate studies and services,
- (4) That Regional Association III plays an important and active role in the implementation of WMO regional activities under the World Climate Programme, and as part of the WMO participation in the Climate Agenda,

- (5) That the RA III climate activities should be coordinated closely,

DECIDES:

- (1) To establish a Working Group on Climate Activities with the following terms of reference:
 - (a) To keep abreast of developments in the World Climate Programme (WCP) and other international climate related programmes under the Climate Agenda and to advise the president of the Association on measures that may be taken to promote relevant activities in the Region;
 - (b) To follow the development of projects under the World Climate Data and Monitoring Programme and the World Climate Applications (WCDMP) and Services Programme (WCASP) with special attention to:
 - (i) Development and exchange of regional climate data and products, including a comprehensive climate atlas for the Region;
 - (ii) Development of national and regional climate system monitoring products;
 - (iii) Establishment and maintenance of a regional baseline climatological station network;
 - (iv) Development of national Climate Information and Prediction Services (CLIPS), including climate data management systems, provision of climate information and predictions to users;

- (v) Promoting and initiating, as appropriate, activities on climate data, rescuing and the search for climate data in national archives with the view to establishing regional Data Rescue (DARE) and Archival Climate History Survey (ARCHISS) projects.
 - (vi) Development of climate and human health projects at the national and regional levels.
 - (c) To advise Members on the development, expansion or improvement of effective climate services, including data, applications, impact studies and research;
 - (d) To cooperate with the Commission for Climatology (CCI) and other technical commissions involved in climate-related activities;
 - (e) To promote collaboration between meteorology and other disciplines involved in climate activities through the formation of National Climate Programme (NCP) Committees.
- (2) To invite the following experts to serve on the working group:
- Mr E. Cadier (France)
 - Mr H. Fuenmayor (Venezuela)
 - Mr L.F. Garek (Venezuela)
 - Mr E. Imaña (Bolivia)
 - Ms S. Nuñez (Argentina)
 - Mr D. Pabon (Colombia)
 - Mr M. Vasquez (Paraguay)
 - Mr M. Bidegain (Uruguay)
- (3) To designate, in accordance with Regulation 32 of the WMO General Regulations, Mr J. Garrasco (Chile) as chairperson of the working group;
- REQUESTS** the chairperson of the working group:
- (1) To identify from within the membership of the working group a Rapporteur on the Climate Agenda and experts in the fields of climate networks, climate data management, data sets and climate atlases, climate system monitoring, CLIPS, and climate and human health.
 - (2) To submit a report to the president of the Association by 1 November of each year and a final report at least six months before the fourteenth session of the Association.

RESOLUTION 8 (XIII-RA III)

CLIMATE INFORMATION AND PREDICTION SERVICES (CLIPS)

REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) Resolution 8 (Cg-XIII) — Climate Information and Prediction Services Project,
- (2) That Members of RA III are contributing to a range of CLIPS activities,
- (3) The climatic anomalies, and their impacts, associated with the 1997/98 *El Niño* event and the subsequent *La Niña* event,

CONSIDERING:

- (1) That interannual climate variability, including, but not restricted to, variability linked to ENSO, substantially impacts 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 three 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 the World Climate Research Programme/Climate Variability and Prediction (WCRP/CLIVAR);
 - (d) To keep abreast of applications research pertaining to climate information and prediction services;
- (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 XIV-RA III;
- (3) To invite Mr H. Hordij (Argentina) to serve as the Rapporteur on CLIPS for the Southern Cone of the Region (Argentina, Bolivia, Southeast Brazil, Chile, Paraguay and Uruguay), Mr H. Enriquez (Ecuador) to serve as the Rapporteur on CLIPS for the North-western Areas of the Region (Amazonian Brazil, Colombia, Ecuador, Peru, Venezuela), and Mr E. Rebello (Brazil) to serve as the Rapporteur on CLIPS for the North-eastern Areas of the Region (North-east Brazil, Guyana, French Guyana, Suriname.)

URGES:

- (1) All Members to appoint national Focal Points for CLIPS 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 III)**WORKING GROUP ON AGRICULTURAL METEOROLOGY**

REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) Resolution 12 (Cg-XIII) — Agricultural Meteorology Programme,
- (2) The *Abridged Final Report with Resolutions and Recommendations of the Twelfth Session of the Commission for Agricultural Meteorology* (WMO-No. 900),
- (3) Resolution 8 (XII-RA III) — Rapporteur on Agricultural Meteorology,
- (4) The recommendations made by the session of the Advisory Working Group of the Commission for Agricultural Meteorology (CAGM) held in Florence, Italy, from 2 to 5 April 2001,

CONSIDERING:

- (1) The economic importance of agriculture to the countries in Region III (South America),
- (2) The impact of *El Niño*/Southern Oscillation (ENSO) on agriculture and forestry in the Region,
- (3) The need for development of appropriate adaptation strategies to cope with climate variability and climate change,
- (4) That drought and deforestation continue to impact the sustainability of agriculture in the Region,
- (5) That meteorological extreme events continue to increase in frequency and affect the productivity of agriculture, forestry and fisheries in the Region,
- (6) The potential for improved applications of Geographical Information Systems (GIS) and Environmental Information Systems (EIS) in the development and dissemination of products to meet the user requirements for agrometeorological services,

URGES Members:

- (1) To undertake studies on applications of seasonal to interannual climate forecasts in developing sustainable agricultural strategies;
- (2) To assess the impacts of extreme meteorological events on sustainable agriculture in the Region and develop appropriate strategies to mitigate such impacts;

DECIDES:

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

- (a) To review and summarize the effects of climate change and climate variability on agriculture, animal husbandry, forestry and fisheries (food aspects);
 - (b) To promote the more active use of seasonal to interannual climate forecasts for sustainable agriculture in South America;
 - (c) To review and evaluate the impacts of ENSO on agriculture, forestry and fisheries in South America;
 - (d) To review and summarize the current understanding of the physical mechanisms of droughts as well as the existing systems of drought monitoring and prediction in South America and suggest appropriate coping strategies for droughts;
 - (e) To review and evaluate the socio-economic impacts of extreme climatic events on agriculture, forestry and fisheries and the long-term and short-term remedial measures to deal with them;
 - (f) Review and summarize the status of applications of new methods such as GIS, EIS and remote sensing in agrometeorology in South America;
 - (g) To evaluate the current procedures for the provision of agrometeorological advisories and services for farmers and end users and suggest the ways and means to improve them;
- (2) (a) To invite the following experts to serve as members of the working group:

Ms A. Cortés (Venezuela)

Ms G. Salaberry (Uruguay)

Mr E. Imaña (Bolivia)

Mr G. Hugo (Chile)

Mr S. Berro Caceres (Argentinian)

Ms M.Y. Tanaka de Assunção (Brazil)

Mr G. Garcia (Ecuador)

Mr E. Mayereger (Paraguay)

- (b) To invite Mr C. Alarcon (Peru) to act as chairman of the Working Group on Agricultural Meteorology;
- (3) (a) To request the chairman to allocate responsibilities in consultation with the members of

- the group for the various tasks contained in the terms of reference;
- (b) To request the chairman to submit a final report comprising individual reports of the

members to the president of the Regional Association not later than six months before the next session of the Association.

RESOLUTION 10 (XIII-RA III)

RAPPORTEUR ON REGIONAL MARINE METEOROLOGICAL SERVICES

REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING the report of the Rapporteurs on Regional Marine Meteorological Services;

CONSIDERING:

- (1) The need for continued development of marine meteorological and oceanographic services in Region III,
- (2) The need to continue close liaison with the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (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 Services with the following terms of reference:
 - (a) To continuously review the status of the implementation of marine meteorological services and marine observing systems in

Region III and to formulate suggestions for their further development;

- (b) To take action on marine meteorological matters assigned by the president of RA III;
- (c) To liaise with the appropriate JCOMM working groups and subgroups, in particular within the programme area of Capacity Building, on specific matters concerning Region III;
- (2) To invite Mr M. Adrioli (Argentina) to serve as the Rapporteur on Regional Marine Meteorological 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 III) which is no longer in force.

RESOLUTION 11 (XIII-RA III)

SUPPORT FOR JCOMM

REGIONAL ASSOCIATION III (SOUTH AMERICA),

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 (J-COMM),
- (3) The final report of the first session of JCOMM (Akureyri, Iceland, June 2001),

CONSIDERING that oceanographic and marine meteorological observations not only make a significant contribution to operational meteorology and the provision of marine services, but also are 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 the Global Telecommunication System (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 World Weather Watch (WWW), Global Climate Observing System (GCOS) and Global Ocean Observing System (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 International Maritime Satellite System (INMARSAT) and Argos systems;

REQUESTS the president of the Association to take necessary steps to ensure active involvement of RA III Members in the JCOMM activities, in particular with regard of marine observing systems, data management and capacity building;

REQUESTS FURTHER 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 III) which is no longer in force.

RESOLUTION 12 (XIII-RA III)

WORKING GROUP ON HYDROLOGY

REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

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

CONSIDERING:

- (1) That Regional Association III 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 (WGH) of RA III has developed an important work on the framework of the various RA III working groups, participating actively during the last intersessional period,
- (4) That the WGH proposed at its eighth session continuing with the same activities during the next intersessional period,

DECIDES:

- (1) To re-establish the WGH with the following terms of reference:
 - (a) To provide assistance and advice to the president of the Regional Association on all issues relating to the regional aspects of HWRP;
 - (b) To determine the best way to meet the Region's needs in terms of hydrology and water resources;
 - (c) To carry out the HWRP-related activities listed in the annex to the resolution in close

cooperation with the Commission for Hydrology (CHy) experts;

- (d) To cooperate with CHy and other WMO bodies on projects relating to hydrology and water resources;
- (e) To collaborate on the creation and development of Hydrological Cycle Observing System (HYCOS) components in RA III;
- (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 Hydrological Operational Multipurpose System (HOMS) national reference centers 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 appoint Mr R. Coimbra (Brazil) as Regional Hydrological Advisor and chairperson of the working group and Mr C. Arcelus (Uruguay) as vice-chairperson of the working group;
- (4) To appoint the following as members of the working group:
 - Mr E. Heredia (Ecuador)
 - Ms O. Umpierrez (Venezuela)
 - Ms C. Fermín (Venezuela)
 - Mr J. Cortes Ontiveros (Bolivia)
 - Mr E. Cadier (France)
 - Mr C. Damboriana (Argentina)
 - Ms S. Gordillo (Argentina)

Mr J. Yerren Suarez (Peru)
 Mr H. Vera Arevalos (Peru)
 Mr J. Jafferally (Guyana)
 Ms M. García (Colombia)
 Mr M. Amatali (Suriname)
 Ms M.L. Bernasconi (Uruguay)
 Ms M.C. Aramburú (Uruguay)
 Mr L.F. Chamorro (Paraguay)
 Mr B.A. Denis S. (Paraguay)
 Mr J. Narvona (Chile)

- (5) To establish sub-groups to carry out the work mentioned in the annex to this resolution;

INVITES the Regional Hydrological Adviser and chairperson of the working group:

- (1) To prepare detailed terms of reference for the established sub-groups, complementing the annex to the present resolution;
- (2) To propose to the president of RA III nominations for coordinators of the sub-groups;
- (3) 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 within the sub-groups;

- (4) In conjunction with the coordinators of the sub-groups, to propose to the president of RA IV those who should become core members of the sub-groups;
- (5) To participate in EC sessions, if invited, representing the regional interests in relation to hydrology and water resources and to coordinate the WGH activities with CHy and other regional WGH;
- (6) To submit to the president of the regional association an annual report on 31 December every year and a final report no later than six months before the fourteenth session of RA III;

REQUESTS the Members concerned to give their full support to their country core members so that they may carry out the tasks entrusted to them;

INVITES the Secretary-General 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 III WGH.

ANNEX TO RESOLUTION 12 (XIII-RA IV)

TERMS OF REFERENCE OF THE SUBGROUPS

1. Follow-up to the Action Plan of the Costa Rica Conference and other conferences, forums and meetings connected with water resources management

Water resources assessment

To cooperate in organizing a workshop on comprehensive water resources assessment, including application of the Water Resources Assessment Handbook for Review of National Capabilities. The workshop's participants will be encouraged to apply the handbook in their own countries, at least in pilot form.

Preparation of projects

To identify and develop documents with project profiles connected to the principal themes of the Costa Rica Action Plan (emphasizing water and groundwater quality) and other similar events held at regional and global levels in the future. To follow up the profiles presented, introducing modifications where needed and cooperate in identifying sources of finance for their implementation.

2. Promotion, dissemination and commercialization

To identify mechanisms for the implementation of hydrological, meteorological and water-resources documentation centres.

To cooperate in organizing a workshop on promotion, dissemination and commercialization of

hydrometeorological data, products and services and water resources, including publication of the workshop's proceedings. On the basis of the results of the study and the work carried out during the preceding period, the workshop will be targeted and developed to emphasize the following:

- (a) User needs;
- (b) Institutional capacities for meeting those needs;
- (c) Service modernization processes;
- (d) Forms and means of dissemination and promotion; and
- (e) Cost recovery schemes.

3. HOMS and training

To identify the real capacity of the Region's countries to offer training in hydrology and water resources management and to plan short practical courses and traineeships on specific subjects. In the first stage, particular importance will be attached to evaluating methodologies in order to optimize, modernize and redesign hydrological networks and data management.

To develop a regional education and training programme for professionals and technicians, in close cooperation with the WMO Hydrology and Water Resources Department and Education and Training Department.

To strengthen HOMS in the Region by publicizing it and encouraging the incorporation of new, regionally oriented elements.

4. El Niño

To identify each country's problems relating to the phenomenon and the actions taken to solve them.

To create a dedicated database, containing data for each country from a basic network selected for its quality and representativeness. To that end, the solutions adopted for the various HYCOS components will be considered.

To activate links and information exchange mechanisms, which could include setting up and maintaining a Web site and distributing hydrological and forecast bulletins.

The above will be achieved by establishing a technical group to include, in addition to members of the working group staff from organizations working in the field of hydrology.

RESOLUTION 13 (XIII-RAIII)**RAPPORTEUR ON EDUCATION AND TRAINING MATTERS**

REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) Resolution 17 (Cg-XIII) — Education and Training Programme,
- (2) Resolution 12 (XII-RA III) — Rapporteur on Education and Training Matters,
- (3) Paragraph 8.6 of the general summary of EC-XLVIII on the role of rapporteurs appointed by regional associations on education and training matters,

CONSIDERING that there continues to be a pressing need by Members for staff to be trained at all levels so that they can plan, direct, organize and carry out programmes in meteorology and related fields essential to economic and social development,

DECIDES:

- (1) To designate a Rapporteur on Education and Training Matters with the following terms of reference:
 - (a) To keep under review and provide advice on priority subject requirements for regional and specialized education and training;
 - (b) To examine the feasibility of introducing specialized training courses at the WMO Regional Meteorological Training Centres (RMTCs);

- (c) To advise on the application of a technology-intensive approach to the education and training process;
- (d) To identify and prioritize requirements for training materials and initiate the preparation of new training publications;
- (e) To assess the needs in the training of instructors at national training institutions and WMO RMTCs;
- (f) To explore innovative ways to enable training institutions and WMO RMTCs to access the Internet;
- (g) To assist in the development of WMO Long-term Plans for the implementation of the Education and Training Programme (ETP);
- (2) To invite Mr E. Valenzuela (Chile) to serve as Rapporteur on Education and Training Matters;
- (3) To request the rapporteur to consult and collaborate with RMTCs in the Region in carrying out his activities;
- (4) To request the rapporteur to submit to the president of the Association annual activity reports and to submit to him a final report six months prior to the fourteenth session of the Association.

RESOLUTION 14 (XIII-RA III)**WORKING GROUP ON INTERNAL MATTERS OF REGIONAL ASSOCIATION III**

REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING the abridged final report of the first session of the Working Group on Internal Matters of RA III,

CONSIDERING:

- (1) That the Members agree on the importance of continuing the activities of the Working Group on Internal Matters of the Association,
- (2) That there is growing need for greater coordination of the activities of RA III,

- (3) That a periodical review should be made of the activities of the working groups and rapporteurs of RA III,

DECIDES:

- (1) To re-establish the Working Group on Internal Matters of RA III;
- (2) That the working group will be composed of all the Permanent Representatives of RA III Members, or

- their designated representatives, and will be chaired by the president of the Association;
- (3) The working group will meet at least once during the intersessional period;
- (4) The working group will follow up all the decisions and studies of the session of RA III, as well as the decisions taken by Congress and the Executive Council, as required. Special attention should be given to the follow-up to the activities of the working groups and rapporteurs;
- REQUESTS** the president of the Association to report to the fourteenth session of RA III (XIV-RA III) on the activities and recommendations of the working group;
- REQUESTS** the Secretary-General to give the greatest possible support to the working group, so that it can meet its objectives to the maximum possible extent.

RESOLUTION 15 (XIII-RA III)

REVIEW OF PREVIOUS RESOLUTIONS AND RECOMMENDATIONS OF THE ASSOCIATION

REGIONAL ASSOCIATION III (SOUTH AMERICA),
NOTING paragraph 3.7.1 of the general summary of EC-IX;

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 Resolutions 22 and 23 (VIII-RA III); Resolutions 4 and 21 (IX-RA III), Resolutions 4, 5, 7 and 15 (X-RA III); Resolutions 3 and 10 (XI-RA III); Resolutions 5, 6, 10 and 14 (XII-RA III);
- (2) Not to keep in force the other resolutions adopted before its thirteenth session.

ANNEX TO RESOLUTION 15 (XII-RA III)

REVIEW OF PREVIOUS RESOLUTIONS AND RECOMMENDATIONS OF THE ASSOCIATION

Resolution 22 (VIII-RA III)

AGROMETEOROLOGICAL BIBLIOGRAPHY CENTRE

THE REGIONAL ASSOCIATION FOR SOUTH AMERICA,

NOTING:

- (1) Resolution 19 (Cg-VII) — Agrometeorological activities in aid of food production,
- (2) Resolution 7 (CAgM-VII) — Working Group on the Effects of Meteorological Factors on Maize Development and Yield (**CONSIDERING** (2)),
- (3) Resolution 9 (CAgM-VII) — Working Group on Agrometeorological Services in Developing Countries (**DECIDES** (1)(a)),
- (4) Resolution 15 (VII-RA III) — Working Group on Agrometeorology (**DECIDES** (1)(a-c)),
- (5) The Recommendations of the Technical Conference on the Application of Meteorology and Climatology to Agriculture (Bogotá, Colombia, July 1978),
- (6) The decisions adopted by the first session of the Working Group on Agricultural Meteorology and Climatology (Lima, Peru, 1975),
- (7) The Recommendations proposed by the second joint session of the Working Groups on Agrometeorology of RA III and RA IV (Bogotá, Colombia, July 1978),
- (8) The agreement by the seventh session of RA III (Brasilia, Brasil, September 1978) on the establishment of a regional agrometeorological bibliography centre for the collection and distribution of information to all Members of RA III on publications related to the agrometeorological problems of the Region,
- (9) Recommendation 10 of the third joint session of the Working Groups on Agrometeorology of RA III and RA IV (Mexico, September 1981),

CONSIDERING:

- (1) That the Regional Agrometeorological Bibliography Centre is at present in operation and fulfilling its objectives, although on a restricted basis,
- (2) That the activities of the regional bibliography centre require greater development and coordination in order to satisfy Members' requests,
- (3) That the regional bibliography centre must assume responsibility for the dissemination of the results of studies, research and other activities on agrometeorology in the Region,

INVITES the Members of Regional Association III to cooperate with the Regional Agrometeorological Bibliography Centre by supplying the necessary information and promoting its dissemination;

REQUESTS the Secretary-General to support RA III by authorizing the Regional Director for Latin America to take the necessary steps to fulfil the objectives of the Regional Agrometeorological Bibliography Centre,

Resolution 23 (VIII-RA III)

AGROMETEOROLOGICAL SERVICES AND TRAINING

THE REGIONAL ASSOCIATION FOR SOUTH AMERICA,

NOTING Resolution 13 (VII-RA III) — Agrometeorological services and training,

RECOGNIZING:

- (1) That in most countries of the Region agriculture continues to be the main sector of the national economy,
- (2) That, for the efficient development and expansion of agricultural activities, meteorological advice and information are indispensable,

CONSIDERING:

- (1) That the recommendations of the Technical Conference on the Application of Meteorology and Climatology to Agriculture, held in Bogotá (1978), are essential for the development of agrometeorology in a given country,
- (2) That training of professional and technical personnel in agricultural meteorology is essential to meet the demands for advice and assistance from agriculturalists, foresters and decision makers,
- (3) The need to organize agrometeorological professional training in such a way that both meteorologists and agronomists have a sound knowledge of agrometeorology,
- (4) The importance for the Region of the development of studies based on the series of meteorological data available,

URGES Members:

- (1) To establish and maintain networks of agrometeorological stations in accordance with the provisions of the WMO *Technical Regulations* and the *Guide to Agricultural Meteorological Practices*;
- (2) To develop, coordinate and promote basic research in agrometeorology for carrying out operational programmes and for providing better services for agriculture, forestry and animal husbandry;
- (3) To coordinate with representatives from agriculture, animal husbandry, forestry, and planning bodies, as appropriate, and to establish national coordinating committees and/or working arrangements with them;
- (4) To make use of training facilities available in the Region and, if possible, outside the Region, including universities, both for professional and technical personnel;

REQUESTS the Secretary-General:

- (1) To organize training seminars in agrometeorology in the Region to complement the training facilities available in the Region;
- (2) To assist Members, through the Director-General of FAO, in improving the coordination between Meteorological Services and FAO field experts in the countries concerned and in including agrometeorological activities in the programmes which FAO develops in the countries of the Region.

Resolution 4 (IX-RA III)

ESTABLISHMENT OF ADDITIONAL NATIONAL AND REGIONAL RADIATION CENTRES IN RA III
REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) That only one Regional Radiation Centre exists in RA III, i.e. Buenos Aires,
- (2) That only a few National Radiation Centres exist in RA III,

CONSIDERING:

- (1) The great need for more National and Regional Radiation Centres in RA III,
- (2) That the increase of the present number of National and Regional Radiation Centres is indispensable for the improvement of the standardization of solar radiation measurements and the quality of radiation data in RA III,
- (3) The Specification of World, Regional and National Radiation Centres in Annex 9.C of the WMO *Guide to Meteorological Instruments and Methods of Observation*,
- (4) That the National Radiation Centre, Lima, meets the requirements for a Regional Radiation Centre,

DECIDES to designate Lima as a Regional Radiation Centre of RA III;

INVITES Members to consider the establishment of additional National Radiation Centres.

Resolution 21 (IX-RA III)

PORT METEOROLOGICAL SERVICES IN REGION III

REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING Resolution 17 (VIII-RA III) — Port meteorological services in Region III,

CONSIDERING:

- (1) That there is a need for strengthening marine meteorological services at the main ports and harbour approaches in Region III,
- (2) That the establishment of port meteorological services will be of particular importance in obtaining increased observations' especially from the tropics and the southern hemisphere,
- (3) That the port meteorological officer (PMO) can play an important role in encouraging ships to report from data-sparse areas,

URGES Members concerned to establish or expand port meteorological services for all major ports and, in particular, for those ports which are visited by ships operating in the tropics and the southern ocean areas;
REQUESTS the Secretary-General to assist Members of Region III in the implementation of this resolution, particularly as regards the training aspects.

Resolution 4 (X-RA III)

ESTABLISHMENT OF A REGIONAL AND NATIONAL RADIATION CENTRE IN CHILE
 REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) That two Regional Radiation Centres exist in Region III (Buenos Aires (Argentina) and Huancayo (Peru)),
- (2) That only two National Radiation Centres exist in Region III (Brazil and Uruguay),

CONSIDERING:

- (1) That an increase in the present number of National and Regional Radiation Centres is indispensable for the improvement of the standardization of radiation measurements and the quality of radiation data in Region III,
- (2) The specification of World, Regional and National Radiation Centres in Annex 9.C of the WMO *Guide to Meteorological Instruments and Methods of Observation*,
- (3) That Chile satisfies the WMO requirements for a WMO Regional Radiation Centre,

DECIDES to designate Santiago (Chile) as a WMO Regional Radiation Centre;

URGES Members in RA III to make every effort to satisfy progressively the requirements for National Radiation Centres.

Resolution 5 (X-RA III)

STANDARDIZATION OF PYRANOMETER CALIBRATIONS
 REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) That the quality of global radiation data is dependent on the accurate calibration of pyranometers,
- (2) The diversity of calibration techniques employed at National and Regional Centres,
- (3) Discrepancies of up to 10 per cent between calibrations by different institutions on identical pyranometers as has been shown in work by the International Energy Agency (IEA), and the RA VI pyranometer comparison in Budapest in 1984,
- (4) That these discrepancies have occurred despite the much higher accuracies achieved in the calibration of pycheliometers in international and regional pyr heliometer comparison activities,

CONSIDERING:

- (1) The need for high-quality radiation data in many fields and WMO programmes,

- (2) The need for greater standardization in radiation measurements,

REQUESTS Members of RA III to promote the standardization of pyranometer calibration by organizing a project in which a number of pyranometers are circulated between the Regional and National Radiation Centres of the Region;

INVITES Members of the Regional Association to encourage research into the calibration of reference pyranometers.

Resolution 7 (X-RA III)

THE FURTHER DEVELOPMENT OF THE GLOBAL OBSERVING SYSTEM
 REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) Resolution 25 (Cg-X) — Second WMO Long-term Plan, including the WWW Implementation Programme for RA III (1988–1997),
- (2) The progress being made in the implementation of the ASDAR, ASAP and drifting buoy programmes,

CONSIDERING:

- (1) That large parts of the Region are data-sparse areas,
- (2) The importance of an effective Regional Basic Synoptic Network and the essential need to integrate the RBSN with the overall GOS,
- (3) 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 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;

ENCOURAGES Members to seek VCP assistance for the installation of satellite-data ground receiving stations, weather radar and new observing system such as ASDAR, ASAP and buoys;

URGES Members to:

- (1) Provide additional surface observations 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;

REQUESTS the Rapporteur 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 next session of the Association.

Resolution 15 (X-RA III)

RECRUITMENT OF MOBILE SHIPS

REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) Resolution 19 (IX-RA III) — Recruitment of mobile ships,
- (2) Recommendation 6 (CMM-X) — The WMO Voluntary Observing Ships (VOS) scheme,
- (3) Resolution 11 (EC-XII) — Development of a global operational ocean observing system,

CONSIDERING that ships of the VOS scheme remain an essential source of surface meteorological and oceanographic data from the oceans in support of the WWW, WCRP and marine meteorological services,

CONSIDERING FURTHER:

- (1) That the merchant fleet of Members of RA III possesses the potential for a substantial increase in observing ships,
- (2) That data coverage in the Pacific Ocean part of Region III will greatly improve if selected fishing vessels are recruited as VOSs,
- (3) That qualification for VCP assistance covers the provision of meteorological instruments for VOSs,
- (4) That port meteorological officers are essential for the recruitment and maintenance of VOSs,

URGES:

- (1) Members which already participate in the VOS scheme to make additional efforts to increase the number of observing ships amongst those on their national registers and, if possible, on other countries' national registers;
- (2) Other Members to initiate action towards recruiting ships from their national registers as observing ships, if necessary using the external assistance available for the provision of meteorological instruments for observing ships;
- (3) Members concerned to consider, in cooperation with appropriate national authorities, the possibility of recruiting a selected number of suitably equipped and manned fishing vessels as VOSs;
- (4) Members to establish or increase the services of Port Meteorological Officers so that they develop in an effective manner the duties specified in the *Guide to Marine Meteorological Services* (WMO-No. 471);

REQUESTS Members to keep the president of the Association and the Secretary-General informed of any action taken and of progress in matters mentioned above.

NOTE: This resolution replaces Resolution 19 (IX-RA III) and Resolution 21 (IX-RA III), which are no longer in force.

Resolution 3 (XI-RA III)

CONTINUOUS EVALUATION OF UV RADIATION

REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) The growing importance of UV radiation measurements for studying the behaviour of the ozone layer and the urgent need to obtain those data,
- (2) The GAW/GEF project for setting up the "Network for monitoring and analysing ozone and greenhouse gases" in countries in southern South America, in the final text of which, signed by the Governments of Argentina, Brazil, Chile, Paraguay and Uruguay, it was proposed that Argentina serve as the data centre for the network, and also as the training centre for radiation and ozone measurements,

CONSIDERING:

- (1) That many countries either do not have the necessary instruments for monitoring UV radiation and associated parameters or have such instruments but do not transmit their data to the World Data Centres,
- (2) The offer by the Republic of Argentina to expand the activities stemming from paragraph **NOTING** (2) to the rest of RA III,

URGES the Members of RA III to make every effort to acquire instruments and to establish national programmes for the continuous evaluation of UV radiation and associated parameters and to transmit their data to the World Data Centres;

DECIDES:

- (1) To assign to the Buenos Aires Regional Radiation Centre the task of collecting and distributing ozone and UV radiation measurement data within RA III;
- (2) To assign to the Regional Meteorological Training Centre, Buenos Aires, the task of providing technical training in ozone and radiation in support of the activities of the Buenos Aires Regional Radiation Centre;
- (3) To assign to the Working Group on Solar Radiation the task of formulating the proposals and coordinating the activities necessary to give effect to the tasks established in **DECIDES** (1) and (2).

Resolution 10 (XI-RA III)

USE OF INMARSAT FOR THE COLLECTION OF SHIPS' METEOROLOGICAL AND OCEANOGRAPHIC REPORTS

REGIONAL ASSOCIATION III (SOUTH AMERICA),

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 III,

- (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 III,
- (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,

BEING CONCERNED:

- (1) That, as yet, none of the CES located within the Region have arrangements with their national Meteorological Services to collect ships' meteorological and oceanographic reports free of charge to the ships,
- (2) 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 arrangements with their CES for the collection of ships' meteorological and oceanographic reports, free of charge to the ships;
- (2) 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;

- (3) All Members in the Region operating VOS equipped with INMARSAT-C to make every effort for these 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.

Resolution 5 (XII-RA III)

NEW CALIBRATION FACTORS FOR STANDARD PYRHELIOMETERS

REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) The results of the Third Regional Pyrheliometer Intercomparison of RA III, held in Santiago, Chile, in 1997, as published by the national Meteorological Service of Chile and distributed by the WMO Secretariat to Members of RA III,
- (2) The report of the chairman of the RA III Working Group on Solar Radiation,

CONSIDERING the need to keep the calibration factors of the standard reference pyrheliometers used as national standards to read according to the World Radiometric Reference (WRR), and the need for WRR reduction factors for absolute radiometers,

APPROVES the set of calibration factors given in the annex to this resolution to remain valid until replacement becomes necessary.

ANNEX TO RESOLUTION 5 (XII-RA III)

FINAL RESULTS OF THE THIRD REGIONAL PYRHELIOMETER INTERCOMPARISON (RPC-3) OF RA III

1	2	3	4	5	6	7	8	9	10	11
<i>Instrument type and number</i>	<i>Calib. factor used in RPC</i>	<i>WRR used in RPC</i>	<i>Total values</i>	<i>Filtered values</i>	<i>Per cent of rejection</i>	<i>Mean quotient</i>	<i>Standard deviation</i>	<i>Recommended WRR</i>	<i>Recommended calib. factor</i>	<i>Unit</i>
PMO5	31.615	1.000 91	120	120	0.0	1.000 000	0.000 000	-	-	-
PMO6	0.121 07	1.001 8	118	103	12.7	0.995 484	0.001 017	-	-	-
TMI 67915	100.000	0.999 14	115	62	46.1	0.995 017	0.005 334	-	-	-
NIP 27820 E6	115.606 9	-	118	86	27.1	0.981 806	0.002 607	1.018 531	117.75	W m ⁻² V ⁻¹
NIP 27820 E***	115.606 9	-	101	74	26.7	0.982 826	0.002 106	1.017 474	117.63	W m ⁻² V ⁻¹
ANGS 27821	124.223 6	-	100	66	34.0	0.981 591	0.003 096	1.018 755	126.55	W m ⁻² V ⁻¹
ANGS 25783	0.005 700 24	-	92	69	25.0	0.999 229	0.002 645	1.000 772	0.005 706 8	W m ⁻² m A ⁻²
ANGS 18018	0.004 454	-	97	74	23.7	0.993 463	0.002 672	0.999 700	0.004 452 7	W m ⁻² m A ⁻²
ANGS 18020	0.004 582	-	97	71	26.8	1.000 000	0.002 551	1.006 580	0.004 612 1	W m ⁻² m A ⁻²
ANGS 14068	0.004 132	-	64	50	21.9	0.960 550	0.012 061	1.041 070	0.004 301 7	W m ⁻² m A ⁻²
ANGS 19324	0.004 487	-	96	66	31.3	0.997 762	0.002 719	1.002 243	0.004 497 1	W m ⁻² m A ⁻²

Remarks:

1. Pyrheliometers 27820 E6 and 27820 E6*** are identical except that the former uses a voltmeter operated by the participant, whereas the latter simultaneously uses an RRC datalogger.
2. Irradiance can be measured in two ways:
 - Using the old factor (Column 2) multiplied by the recommended WRR (Column 9);
 - Directly using the recommended factor (Column 10).

Resolution 6 (XII-RA III)
AMENDMENTS TO THE MANUAL ON THE GLOBAL TELECOMMUNICATION SYSTEM (WMO-No. 386), VOLUME II, REGIONAL ASPECTS, REGION III (SOUTH AMERICA)

REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) Resolution 2 (Cg-XII) — World Weather Watch Programme,
- (2) The *Manual on the Global Telecommunication System* (WMO-No. 386), Volume II, Regional Aspects, Region III (South America),

CONSIDERING the need to update the RMTN for Region III (South America) to meet the data exchange requirements of Members of Region III,

DECIDES that the *Manual on the Global Telecommunication System* (WMO-No. 386), Volume II, Regional Aspects, Region III (South America) be amended as given in the annex to this resolution,

AUTHORIZES the president of the Association to approve, in consultation with the Secretary-General, minor amendments to the *Manual on the Global Telecommunication System* (WMO-No. 386), Volume II, Regional Aspects, Region III (South America);

REQUESTS the Secretary-General of WMO to include the amended text given in the annex to this resolution in

Part I of the *Manual on the Global Telecommunication System* (WMO-No. 386), Volume II, Regional Aspects, Region III (South America).

ANNEX TO RESOLUTION 6 (XII-RA III)
AMENDMENTS TO THE MANUAL ON THE GLOBAL TELECOMMUNICATION SYSTEM (WMO-No. 386), VOLUME II, REGIONAL ASPECTS, REGION III (SOUTH AMERICA)

PART I. ORGANIZATION OF THE REGIONAL METEOROLOGICAL TELECOMMUNICATION PLAN FOR REGION III (SOUTH AMERICA) FOR THE WORLD WEATHER WATCH (WWW)

Amend paragraph 4 to read:

4. INTERREGIONAL EXCHANGES

The interregional exchanges with the neighbouring Regions should be made through:

- (a) The Main Telecommunication Network: Brasilia-Washington;
- (b) The Main Telecommunication Network: Buenos Aires-Washington;
- (c) The interregional circuit: Cayenne-Washington;
- (d) The interregional circuit Georgetown-Washington.

Replace Figure 1 by the attached new Figure 1.

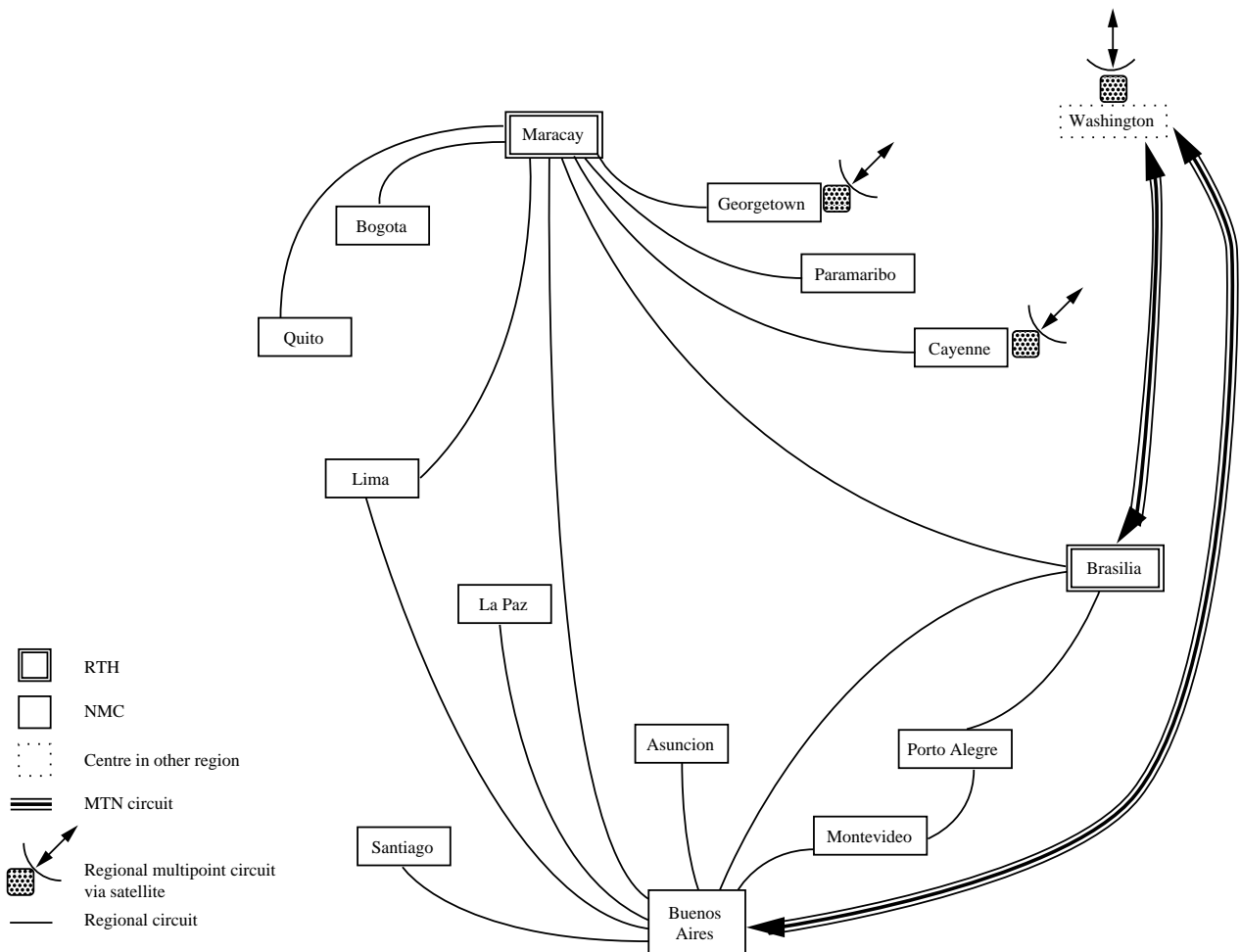


Figure 1 — Regional meteorological telecommunication network for Region III (South America) point-to-point and multipoint circuits.

PART II. TELECOMMUNICATION PROCEDURES FOR REGION III (SOUTH AMERICA)

Delete paragraphs 1.5 and 2, and renumber following paragraphs subsequently.

Add the following sentence to (former) paragraph 3:

Data Communication protocols:

The TCP/IP (Transmission Control Protocol/Internet Protocol) could be used on the RMTN

PART III. ENGINEERING OF CENTRES AND CIRCUITS IN REGION III (SOUTH AMERICA)

Replace the text of paragraph 2.2 by the following:

2.2 For data transmission at data-signalling rates of 2 400, 4 800, and 9 600 bit/s on telephone-type dedicated circuits, preference should be given to use of modems in accordance with ITU-T Recommendation V.29, including multiplexing. For data-signalling rates from 14 400 to 64 000 bit/s, preference should be given to use of devices in accordance with ITU-T Recommendation V.35.

Delete paragraph 3 and the whole Annex.

Resolution 10 (XII-RA III)

INVOLVEMENT IN OPERATIONAL OCEANOGRAPHY REGIONAL ASSOCIATION III (SOUTH AMERICA),

NOTING:

- (1) Resolution 16 (Cg-XII) — WMO's involvement in operational oceanography,
- (2) Resolution 2 (EC-XLVIII) — Report of the seventh session of the Joint IOC/WMO Committee for the Integrated Global Ocean Services System (IGOSS),
- (3) Resolution 11 (XI-RA III) — Participation in the Joint IOC/WMO Integrated Global Ocean Services System (IGOSS),

CONSIDERING that oceanographic observations not only make a significant contribution to operational meteorology and to the provision of marine services, but are also essential to global climate studies generally, and more particularly to understanding and predicting interannual and seasonal events such as *El Niño*,

RECOGNIZING:

- (1) That many 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,
- (2) That many Members of the Association are also increasingly being required to provide coordinated meteorological and oceanographic services for a large variety of marine user groups,
- (3) That the 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, to expand their existing operational ocean observing system facilities and activities, as contributions to the WWW, IGOSS and GOOS;
- (2) To participate actively in the planning and implementation of these systems;
- (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 system;

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 IGOSS and GOOS.

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

Resolution 14 (XII-RA III)

WORKING GROUP ON INTERNAL MATTERS OF REGIONAL ASSOCIATION III

REGIONAL ASSOCIATION III (SOUTH AMERICA),

CONSIDERING:

- (1) That there is a growing need for greater coordination of the activities of RA III,
- (2) That a periodical review should be made of the activities of the working groups and rapporteurs of RA III,
- (3) That eight Permanent Representatives of Members of RA III have been appointed as rapporteurs on subjects which are of the greatest importance for the Association,

DECIDES:

- (1) To establish a Working Group of Regional Association III on Internal Matters of the Association;
- (2) That the Working Group will be composed of all the Permanent Representatives of Members, or their designated representatives, of RA III. It will be chaired by the president of the Association;
- (3) The Working Group will meet at least once during the inter-sessional period;
- (4) The Working Group will follow up all the decisions and studies of the session of RA III, as well as the decisions taken by Congress and the Executive

Council, as required. Special attention should be given to the follow-up of the actions of the working groups and rapporteurs;
REQUESTS the president of the Association to report to the next session of this working group and to the

thirteenth session of RA III on the activities and recommendations of the Working Group;
REQUESTS the Secretary-General to give the greatest possible support to the Working Group, so that it can meet its objectives to the maximum possible extent.

ANNEXES

ANNEX I

Annex to paragraph 4.3.1 of the general summary

THE GLOBAL TELECOMMUNICATION SYSTEM IN REGION III — THE REGIONAL METEOROLOGICAL TELECOMMUNICATIONS NETWORK

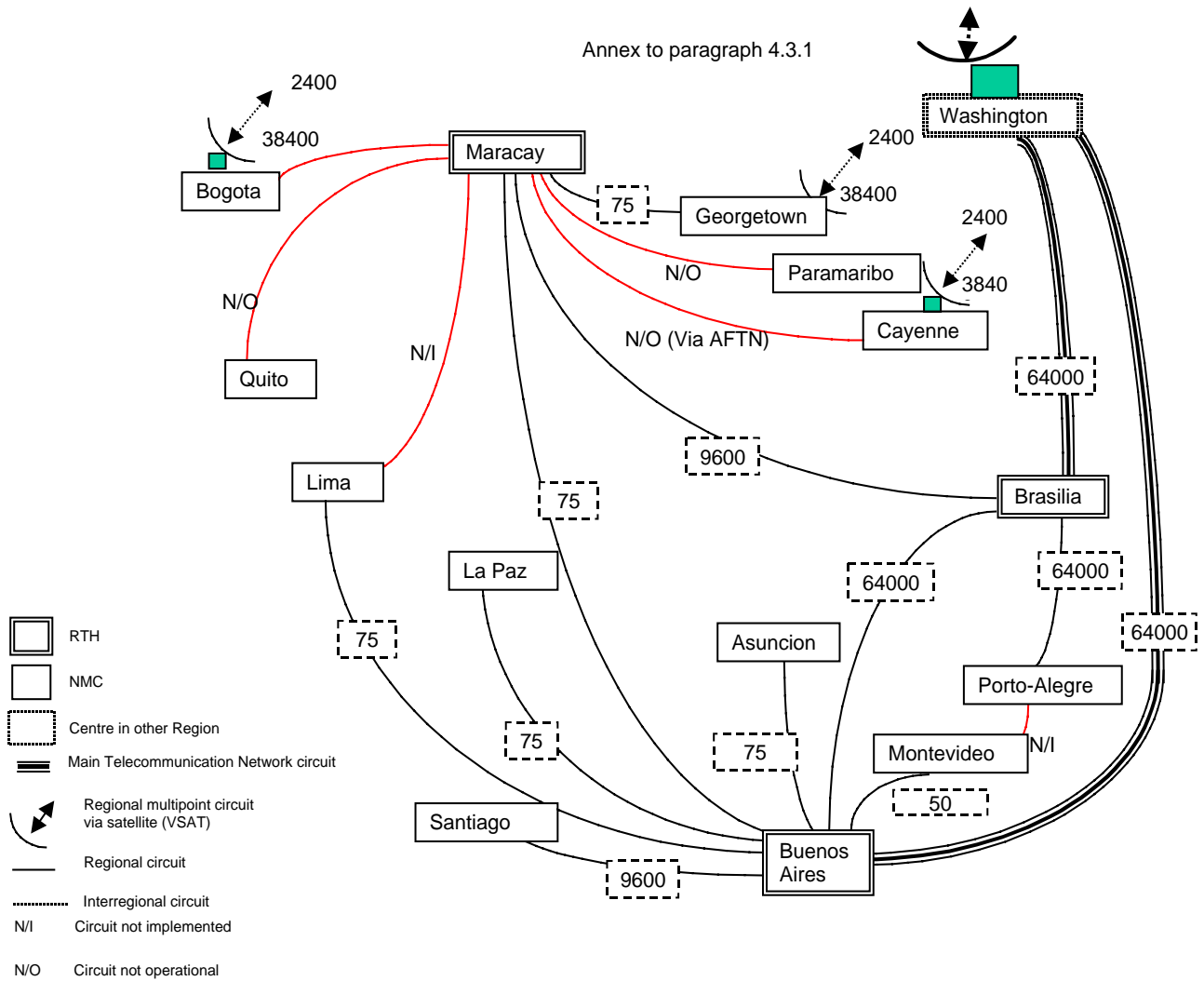


Figure 1 — Regional Meteorological Network for Region III (South America)
(Transmission speed in bit/sec)

ANNEX II

Annex to paragraph 7.3.11 of the general summary

TERMS OF REFERENCE FOR THE FOCAL POINT ON REGIONAL ASPECTS OF THE AERONAUTICAL METEOROLOGY PROGRAMME IN REGION III

1. To review and advise on observational data and product requirements of Subregion countries in the context of the Aeronautical Meteorology Programme (AEM).
 2. To review the status of the implementation of AEM in the Subregion, including observing system at aerodromes, aircraft data collection, as well as services provided by WAFS and VAACs and formulate proposals for their future development and implementation.
 3. To monitor and promote capacity building activities related to the AEM area within the Subregion and to identify training requirements.
 4. To keep abreast of matters related to the implementation of AMDAR project(s) in the Subregion.
 5. To liaise by correspondence with CAeM Working Groups and ICAO AERMET Subgroups and Study Groups through the respective secretariats on specific matters concerning the Subregion, in particular regarding matters on cost recovery of aeronautical meteorological services.
 6. To provide advice to the president of RA III on aeronautical meteorology matters and to take actions in this regard.
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APPENDIX A

LIST OF PERSONS ATTENDING THE SESSION

1. OFFICERS OF THE SESSION

N. Salazar President
D. Jaigopaul Vice-president

2. REPRESENTATIVES OF WMO MEMBERS

<i>Member</i>	<i>Name</i>	<i>Capacity</i>
Argentina	M.A. Rabiolo	Principal delegate
	F.P. Requena	Alternate
	C. A. Damboriana	Delegate
Brazil	A.C.V. Athayde	Principal delegate
	A.M. Dall'Antonia Junior	Delegate
	J. M. Rezende	Delegate
	C. E. C. Gomes	Delegate
	J.C. de Oliveira Moregola	Delegate
Bolivia	A. Tunes	Delegate
	C. Díaz	Principal delegate
Chile	H.H. Oliva	Principal delegate
	G. Torres	Alternate
Colombia	C. Castaño Uribe	Principal delegate
	D. Pobon	Alternate
	G. Martinez-Pelaez	Delegate
Ecuador	A. Bermeo	Principal delegate
	M. Silva	Alternate
	M. Morales (Ms)	Delegate
	G. Gómez	Delegate
	G. García D.	Delegate
France	J-P. Beysson	Principal delegate
	D. Dago	Alternate
	L. Finaud	Delegate
Guyana	D. Jaygopaul	Principal delegate
Paraguay	Ing. H. Valiente	Principal delegate
	Lic. M. Vázquez	Alternate
	E. Rojas Arteta (Ms)	Delegate
Peru	R.C. Cruzado	Principal delegate
	J.Y. Suarez	Alternate
	S. Pricto Hemminssin	Delegate
	C.A. Velazco	Delegate
	J.C. Lara	Delegate
Suriname	I.T. Varillas	Delegate
	E.J.I. Gerad	Principal delegate
Uruguay	S. Bello	Principal delegate
	C. A. Arcelus	Delegate
Venezuela	A.E. Mijares	Principal delegate
	T. Carballo Gutiérrez	Alternate
	O. Umpierrez (Ms)	Delegate

<i>Member</i>	<i>Name</i>	<i>Capacity</i>
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3. REPRESENTATIVES OF WMO MEMBERS OUTSIDE REGION III

Spain	J. Segovia de la Torre	Observer
United States of America	K. Weston (Ms)	Observer
	D. Winter	Observer
	R. Brooks	Observer
	K. Metcalf	Observer

4. LECTURERS

A. Arcelus
H.H. Oliva
E. Palacio

5. REPRESENTATIVES OF INTERNATIONAL ORGANIZATIONS

<i>Organization</i>	<i>Name</i>
United Nations Educational, Scientific and Cultural Organization (UNESCO)	O. García (Ms)
World Health Organization/ Pan-American Health Organization (WHO/PAHO)	E. Ortiz
Permanent Commission for the South Pacific (PCSP)	M.F. Palomina
International Strategy for Natural Disaster Reduction (ISDR)	E. Palm (Ms)
World Health Organization (WHO)	C.R. Ugarte

6. LOCAL SECRETARIAT

M. Ayabaca
J. Bahamonde
J. de la Cruz
M. Rosas
M. Tejada
L. Poveda
M. Reyes
P. Beltrán
M. Vera
M. Pinto
M.A. Vargas
F. Acevedo
J. Munzon

7. WMO SECRETARIAT

Secretary-General	G.O.P. Obasi	Acting Director World Weather Watch – Applications Department	E. Sarukhanian
Director Coordinator, Support to Scientific Programmes (Representative of the Secretary-General)	W. Degefu	WMO Representative, Subregional Office for North America, Central America and the Caribbean	O. Arango
Director Coordinator, Climate Activities Programme	M. Coughlan	Scientific Officer, Telecommunications and Monitoring Unit	J. Arimatea
Director, Regional Office for the Americas	R. Sonzini	Scientific Officer, Hydrology and Water Resources Department	G. Arduino
Director, World Weather Watch – Basic Systems Department	D. Schiessl	National Programme Officer, WMO Regional Office for the Americas	C. Casacia
Director, Technical Cooperation Department	H. Diallo	Chief, Conferences Unit (Conference Officer)	E. Dar-Ziv (Ms)
		Translator	J. Gomez

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, president of RA III	
2. ORGANIZATION OF THE SESSION		2, president of RA III	
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, president of RA III	
4. WORLD WEATHER WATCH PROGRAMME — REGIONAL ASPECTS	4(1)	4, chairperson Committee A	
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 III	4(1); 4.1(1)		1
4.2 Observing systems, including the Instruments and Methods of Observation Programme and satellite activities	4(1); 4.2(1); 4.2(2)		2; 3;
Report of the Rapporteur on Solar Radiation	4.2(3)		4
Report of the Rapporteurs on Regional Aspects of Instrument Development, Related Training and Capacity Building	4.2(4)		5
4.3 Information systems and services, including operational information service, data management and regional codes	4(1)		6
4.4 Data-processing and forecasting systems	4(1)		
5. WORLD CLIMATE PROGRAMME — REGIONAL ASPECTS	5	5, chairperson, Committee B	
5.1 World Climate Programme coordination and support activities	7		
Report by the Rapporteur on the Climatic Atlas	5.1(2)		7
5.2 World Climate Data and Monitoring Programme	5		
5.3 World Climate Applications and Services Programme, including the Climate Information and Prediction Services	5		8
5.4 World Climate Research Programme	5.4	5.4, chairperson, Committee B	
5.5 Global Climate Observing System	5.5; 5,5, ADD.1	5.5, chairperson, Committee B	
6. ATMOSPHERIC RESEARCH AND ENVIRONMENT PROGRAMME — REGIONAL ASPECTS	6	6, chairperson, Committee B	
6.1 Support to ozone and other environment- oriented conventions	6		
6.2 Global Atmosphere Watch	6		
6.3 World Weather Research Programme	6		
6.4 Tropical Meteorology Research Programme	6		
6.5 Programme on Physics and Chemistry of Cloud and Weather Modification Research	6		

<i>Agenda item</i>	<i>Document No.</i>	<i>PINK No., submitted by</i>	<i>Resolutions adopted</i>
7. APPLICATIONS OF METEOROLOGY PROGRAMME — REGIONAL ASPECTS			
7.1 Public Weather Services Programme	7.1	7.1, chairperson, Committee A	
7.2 Agricultural Meteorology Programme	7.2(1)	7.2, chairperson, Committee B	9
Report of the Rapporteur on Agricultural Meteorology	7.2(2)		
7.3 Marine Meteorology and Associated Oceanographic Activities Programme	7.4	7.4, chairperson, Committee A	10; 11
Report by the Rapporteur on Regional Marine Meteorological Services	7.4(2)		
8. HYDROLOGY AND WATER RESOURCES PROGRAMME — REGIONAL ASPECTS	8(1)	8, chairperson, Committee A	12
Report by the chairperson of the Working Group on Hydrology	8(2)		
9. EDUCATION AND TRAINING PROGRAMME — REGIONAL ASPECTS	9; 9(2)	9, chairperson, Committee B	13
10. TECHNICAL COOPERATION PROGRAMME — REGIONAL ASPECTS	10	10, chairperson, Committee B	
11. INFORMATION AND PUBLIC AFFAIRS ACTIVITIES	11	11, president of RA III	
12. LONG-TERM PLANNING — REGIONAL ASPECTS	12	12, president of RA III	
13. ROLE AND OPERATION OF NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICES	13	13, president of RA III	
14. INTERNATIONAL STRATEGY FOR DISASTER REDUCTION, INCLUDING RELATED WMO ACTIVITIES IN THE REGION	14	14, president of RA III	
15. INTERNATIONAL EXCHANGE OF DATA AND PRODUCTS	15	15, president of RA III	
16. OTHER REGIONAL ACTIVITIES			
16.1 Technical Conference for RAs III and IV	16.1	16.1, president of RA III	
16.2 Internal matters of the Association	16.2	16.2, chairperson, Working Group	14
Working Group on Internal Matter of RA III			
17. WMO REGIONAL OFFICE FOR THE AMERICAS	17(1); 17(2)	17, president of RA III	
18. SCIENTIFIC LECTURES AND DISCUSSIONS	18	18, president of RA III	
19. REVIEW OF PREVIOUS RESOLUTIONS AND RECOMMENDATIONS OF THE ASSOCIATION AND OF RELEVANT EXECUTIVE COUNCIL RESOLUTIONS	19	19, president of RA III	15
20. ELECTION OF OFFICERS		20, president of RA III	
21. DATE AND PLACE OF THE FOURTEENTH SESSION		21, president of RA III	
22. CLOSURE OF THE SESSION		22, president of RA III	

APPENDIX C

LIST OF ABBREVIATIONS

5LTP	Fifth WMO Long-term Plan
6LTP	Sixth WMO Long-term Plan
AeMP	Aeronautical Meteorological Programme
AgMP	Agricultural Meteorology Programme
AMDAR	Aircraft Meteorological Data Relay
AMOSSG	Aerodrome Meteorological Observing Systems Study Group
ANEEL	Agencia Nacional de Energia Eléctrica (Brazil)
ARCHISS	Archival Climate History Project
AREP	Atmospheric Research and Environment Programme
ASDAR	Aircraft to Satellite Data Acquisition and Relay
AWG	Advisory Working Group
AWS	Automatic Weather Station
bps	bits per second
CACGP	Commission on Atmospheric Chemistry and Global Pollution (IAMAP)
CAeM	Commission for Aeronautical Meteorology
CAF	Corporation Andina de Fomento
CagM	Commission for Agricultural Meteorology
CAL	Computer-aided learning
CAS	Commission for Atmospheric Sciences
CBS	Commission for Basic Systems
CCI	Commission for Climatology
CDMS	Climate Database Management System
CHy	Commission for Hydrology
CIMO	Commission for Instruments and Methods of Observation
CLICOM	Climate Computing
CLIPS	Climate Information and Prediction Services
CLIVAR	World Climate Variability and Predictability
Co-Com	Coordinating Committee (of SCHOTI)
COP	Conference of the Parties
CPPS	Permanent Commission for the South Pacific
CSM	Commission for Synoptic Meteorology
DARE	Data Rescue
DCS	Data Collection System
DDB	Distributed Database
DPFS	Data-processing and Forecasting Systems
DWD	Deutscher Wetterdienst
EART	Emergency Assistance Response Team
EC	Executive Council
EC/AGE	Executive Council Advisory Group on the Exchange of Meteorological and Related Data and Products
ECMWF	European Centre for Medium Range Weather Forecasts
ECOSOC	Economic and Social Council (UN)
EDRG	Emergency and Disaster Response Group
ENSO	<i>El Niño</i> /Southern Oscillation
EPS	Ensemble Prediction System
ERA	Emergency Response Activities
ET	Expert Team
ETRP	Education and Training Programme

GAW	Global Atmosphere Watch
GCOS	Global Climate Observing System
GDSIDB	Global Digital Sea-Ice Data Bank
GIS	Geographical Information System
GLOSS	Global Sea-level Observing System
GMDSS	Global Maritime Distress and Safety System
GODAE	Global Ocean Data Assimilation Experiment
GOOS	Global Ocean Observing System
GOS	Global Observing System
GPS	Global Positioning System
GSN	GCOS Surface and Upper-Air Networks
GTS	Global Telecommunication System
GTSP	Global Temperature Salinity Profile Programme
GUAN	GCOS Upper-Air Network
GWP	Global Water Partnership
HA	Hydrological Advisor
HNRC	HOMS National Reference Centre
HOMS	Hydrological Operational Multipurpose System
HWRP	Hydrology and Water Resources Programme
HYCOS	Hydrological Cycle Observing System
IAHR	International Association of Hydraulic Engineering and Research
IAHS	International Association of Hydrological Sciences
IAMAP	International Association of Meteorology and Atmospheric Physics
IATA	International Air Transport Association
IAVW	International Airways Volcano Watch
IBAMA	Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (Brazil)
ICAO	International Civil Aviation Organization
ICB	International Congress on Biometeorology
ICSU	International Council for Science
ICT	Implementation/Coordination Team
ICUC	International Conference on Urban Climates
IDB	Inter-American Development Bank
IDNDR	International Decade for Natural Disaster Reduction
IFPRI	International Food Policy Research Institute
IGBP	International Geosphere-Biosphere Programme (ICSU)
IGOSS	Integrated Global Ocean Station System
IHP	International Hydrological Programme (UNESCO)
IMOP	Instruments and Methods of Observation Programme
INMARSAT	International Maritime Satellite System
INMET	National Meteorological Institute of Brazil (original Portuguese)
INPE	Brazilian Institute for Space Research
IOC	Intergovernmental Oceanographic Commission (UNESCO)
IOM	Instruments and Observing Methods
IOS	IGOSS Observing System
IPA	Information and Public Affairs (WMO)
ISABP	International South Atlantic Buoy Programme
ISCS	International Satellite Communication Systems
ISDR	International Strategy for Disaster Reduction
ISO	International Organization for Standardization
ISS	Integrated WWW System Study
JCOMM	Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology
kbps	kilobytes per second
LBA	Large-scale Biosphere-Atmosphere Experiment in Amazonia
MCSS	Marine Climatological Summaries Scheme
MERCOSUR	Southern Common Market

MMAOAP	Marine Meteorology and Associated Oceanographic Activities Programme
MPERSS	Marine Pollution Emergency Response Support System
MTN	Main Telecommunication Network
NCDC	National Climatic Data Center (USA)
NESDIS	National Environmental Satellite, Data and Information Service
NGO	non-governmental organization
NMC	National Meteorological Centre
NMHS	National Meteorological and Hydrological Service
NMS	National Meteorological or Hydrometeorological Service
NOAA	National Oceanic and Atmospheric Administration
NRC	National Radiation Centres
OAS	Organization of American States
OIS	Operational Information Service
OPAG	Open Programme Area Group
PC	Personal Computer
PCCWMR	Physics and Chemistry of Clouds and Weather Modification Research
PMO	Port Meteorological Officer
PREANDINO	Regional Andean Programme for Risk Prevention and Mitigation
PROMET	Provision of Meteorological Information Required by Civil Aviation
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
RHA	Regional Hydrological Advisor
RIC	Regional Instrument Centre
RMDCN	Regional Meteorological Data Communication Network
RMTC	Regional Meteorological Training Centre
RMTN	Regional Meteorological Telecommunication Network
RPC	Regional Pyrheliometer Comparison
RRC	Regional Radiation Centre
RSMC	Regional Specialized Meteorological Centre
RTH	Regional Telecommunication Hub
SBSTA	Subsidiary Body for Scientific and Technological Advice
SCHOTI	Standing Conference of Heads of Training Institutions of National Meteorological Services
SECS	Secretariat External Communications Strategy
SIGWX	Significant Weather
SOOP	Ship-of-Opportunity Programme
STAR 4	Satellite Telecommunication and Analysis for Region IV
START	SysTem for Analysis, Research and Training
TAF	Terminal Aerodrome Forecast
TCO	Technical Cooperation Department
TCOP	Technical Cooperation Programme
TCP/IP	Transmission Control Protocol/Internet Protocol
TMRP	Tropical Meteorology Research Programme
TREND	Training, the Environment and New Developments
TRMM	Tropical Rainfall Measuring Mission
TRUCE	Tropical Urban Climate Experiment
UBC	Urban and Building Climatology
UNCCD	United Nations Convention to Combat Desertification

UNCED	UN 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
UNGA	United Nations General Assembly
UTC	universal time coordinated
UV	Ultraviolet
VAACS	Volcanic Ash Advisory Centres
VCP	Voluntary Cooperation Programme
VOS	Voluntary Observing Ship
VSAT	Very Small Aperture Terminal
VTL	Virtual Training Library
WAFC	World Area Forecast Centre
WAFS	World Area Forecast System
WCASP	World Climate Applications and Services Programme
WCDMP	World Climate Data and Monitoring Programme
WCP	World Climate Programme
WCRP	World Climate Research Programme
WDC	World Data Centre
WGH	Working Group on Hydrology
WG-PIW	Working Group on Planning and Implementation of the WWW
WMC	World Meteorological Centre
WMO	World Meteorological Organization
WWC	World Water Council
WWRP	World Weather Research Programme
WWW	World Weather Watch
