WORLD METEOROLOGICAL ORGANIZATION

REGIONAL ASSOCIATION II
(ASIA)

TWELFTH SESSION

SEOUL, 19–27 SEPTEMBER 2000

ABRIDGED FINAL REPORT WITH RESOLUTIONS

WMO-No. 924

Secretariat of the World Meteorological Organization - Geneva - Switzerland

REPORTS OF RECENT WMO SESSIONS

Congress and Executive Council

867 — **Executive Council**. Forty-ninth session, Geneva, 10–20 June 1997.
880 — **Twelfth World Meteorological Congress**. Proceedings, Geneva, 30 May–21 June 1995.
883 — **Executive Council**. Fiftieth session, Geneva, 16–26 June 1998.
902 — **Thirteenth World Meteorological Congress**. Geneva, 4–26 May 1999.
903 — **Executive Council**. Fifty-first session, Geneva, 27–29 May 1999.
915 — **Executive Council**. Fifty-second session, Geneva, 16–26 May 2000.

Regional associations

851 — **Regional Association II** (Asia). Eleventh session, Ulaanbaatar, 24 September–3 October 1996.
868 — **Regional Association IV** (North and Central America). Twelfth session, Nassau, 12–21 May 1997.
874 — **Regional Association III** (South America). Twelfth session, Salvador, 17–26 September 1997.
882 — **Regional Association VI** (Europe). Twelfth session, Tel Aviv,18–27 May 1998.
890 — **Regional Association V** (South–West Pacific). Twelfth session, Denpasar, 14–22 September 1998.
891 — **Regional Association I** (Africa). Twelfth session, Arusha, 14–23 October 1998.

Technical commissions

854 — **Commission for Basic Systems**. Eleventh session, Cairo, 28 October—7 November 1996.
860 — C**ommission for Marine Meteorology**. Twelfth session, Havana, 10–20 March 1997.
870 — **Commission for Climatology**. Twelfth session, Geneva, 4–14 August 1997.
879 — **Commission for Atmospheric Sciences**. Twelfth session, Skopje, 23 February–4 March 1998.
881 — **Commission for Instruments and Methods of Observation**. Twelfth session, Casablanca, 4–12 May 1998.
893 — **Commission for Basic Systems**. Extraordinary session, Karlsruhe, 30 September–9 October 1998.
899 — **Commission for Aeronautical Meteorology**. Eleventh session, Geneva, 2–11 March 1999.
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NOTE

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RESOLUTIONS ADOPTED BY THE SESSION

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 the Republic of Korea, the twelfth session of Regional Association II (Asia) was held in Seoul, Republic of Korea, from 19 to 27 September 2000. The session was declared open by Mr Z. Batjargal, president of the Association, in the Conference Room, Olympia Hotel, at 10:00 a.m. on 19 September 2000.

1.2 Mr Z. Batjargal expressed his deep gratitude to the Government of the Republic of Korea represented by the Korea Meteorological Administration (KMA) for hosting the session and for the excellent arrangements made. He mentioned that many NMHSs had made great progress. At the same time almost every Member in the Region was affected by natural disasters including floods, typhoons, drought or severe cold winters. He pointed out that phenomena such as El Niño Southern Oscillation (ENSO), ozone depletion, desertification, and climate change among many others might have significant impacts on the socio-economic development of many countries in the Region. He added that response measures to address these issues were being included in sustainable development strategies of the respective countries. The president thanked all Members for their support in the work of the Association and extended his appreciation to Professor G. O. P. Obasi, the Secretary-General of the World Meteorological Organization (WMO), and to the Secretariat for their valuable contribution to the activities of the Association.

1.3 Mr Sung-Euii Moon, Administrator of the KMA, extended a warm welcome to all participants. He mentioned that, as a result of the cooperation with WMO, the KMA had been able to host this first session of RA II in the new millennium which could be regarded as further step towards strengthening the cooperation between KMA, WMO and its Members. He took the opportunity to highlight recent developments in various areas within KMA, including human resources, the introduction of new technologies in its operations and the emphasis on meteorological applications.

1.4 Mr Moon informed the session on the international cooperation activities of KMA and stated that KMA would take an active role in the programmes and activities of WMO. He stressed the importance of working together to solve global weather and climate-related issues such as climate change. The Administrator of KMA hoped that, as this session was the first to take place at the beginning of the twenty-first century, the decisions would lay the foundation for regional cooperation in the new century.

1.5 Professor G. O. P. Obasi, Secretary-General of WMO, in his address, expressed the deep appreciation of WMO and his own to the Government and people of the Republic of Korea for their kind invitation to host the session as well as the Regional Seminar on Meteorological Services: Opportunities and Challenges in the Twenty-First Century. He extended a warm welcome to all of the participants. He thanked Mr Z. Batjargal, president of the Association, and Mr A. R. B. S. Al-Harmi, the vice-president, for their valuable contribution as well as the chairpersons, rapporteurs and members of the working groups for their valuable services to the Association during the intersessional period.

1.6 The Secretary-General emphasized the most important event since the last session in Ulaanbaatar, the impact of 1997–98 El Niño phenomena, and the rapid development in computer, information and communication technology. He mentioned that Members in Asia were highly vulnerable to natural disasters such as typhoons, tropical cyclones and associated storm surges, floods, droughts and other severe events. WMO would continue to provide the necessary support to the ESCAP/WMO Typhoon Committee and WMO/ESCAP Panel on Tropical Cyclones in their work to develop strategies for coordinated actions to upgrade tropical cyclone forecasts and warning services. WMO would also continue to give high priority to the implementation of the ISDR as it had to the Plan of Action for the IDNDR, which ended in December 1999 and the 1997 United Nations Resolution on International Cooperation to Reduce the Impact of the El Niño phenomenon.

1.7 Professor Obasi encouraged the NMHSs to further strengthen their relevant activities to respond to the future challenges in the field of water resources and urged the Members concerned to continue to enhance their contribution to water-related activities of WMO whilst WMO would continue to strengthen its HWRP.

1.8 The Secretary-General stated that in order to implement many of the regional programmes and activities, it was essential that the WWW operated at an optimum level. In that connection, he urged Members of RA II to continue to keep to the letter and spirit of Regulation 40 of the Twelfth World Meteorological Congress. The Secretary-General stressed the importance of the development of a Strategic Plan for the Enhancement of NMHSs in RA II (Asia) and invited all Members to support the development of an assistance programme for the implementation of the Strategic Plan. He informed the session that in order to further enhance the implementation of WMO Programmes and activities in the Region, a Subregional Office for Asia would be established soon. In looking to the future, the Secretary-General identified some issues in the Region that the Association should consider when planning its future work programme.

1.9 On behalf of the Government of the Republic of Korea, Mr Hee-Yeol Yoo, Assistant Minister of Science

and Technology, Representative of H.E. Dr Jung-Uck Seo, Minister of Science and Technology, extended a warm welcome to all participants. He stated that for half a century, WMO had led the world in international cooperation in meteorology, climatology and hydrology through the scientific programmes and activities of its technical commissions and regional associations and had built an excellent reputation of being productive and effective. He mentioned that all Members were now more than ever aware of the importance of meteorological services in sustainable development.

1.10 The Assistant Minister pointed out that the KMA had been providing specialized meteorological services including numerical weather prediction to various economic sectors and the public. He thanked WMO and its Members for their assistance and cooperation and mentioned that the Republic of Korea was planning to host an increased number of specialized international meetings and seminars related to meteorology and would participate actively in WMO programmes and activities. He wished the Association success in its efforts to advance meteorological science and hoped that it would be a model of cooperation for other Regions.

2. ORGANIZATION OF THE SESSION (agenda item 2)

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

2.1.1 At the first plenary meeting, a list of participants whose credentials were found to be in order was presented by the WMO Secretariat. The list was accepted by the Association and it was, therefore, decided that it would not be necessary to establish a Credentials Committee.

2.1.2 There were 76 participants at the session from 28 Members of the Association, four observers from Members from outside the Region and seven observers from international organizations. A complete list of participants is given in Appendix A to this report.

2.2 ADOPTION OF THE AGENDA (agenda item 2.2)

The provisional agenda for the session was adopted unanimously. It is reproduced in Appendix B to this report.

2.3 ESTABLISHMENT OF COMMITTEES (agenda item 2.3)

The following committees were established for the duration of the session:

NOMINATIONS COMMITTEE

2.3.1 A Nominations Committee was established composed of the principal delegates of China, Japan and Qatar.

WORKING COMMITTEES

2.3.2 Two working committees, A and B, were established to deal with the various agenda items as follows:

(*a*) Working Committee A was assigned agenda items 4, 6, 7.1, 7.3, and 7.4. Messrs Sung-Euii Moon (Republic of Korea) and R. R. Kelkar (India) were elected to serve as co-chairmen of the Committee A;

(*b*) Working Committee B was assigned agenda items 5, 7.2, 8, 9 and 10. Messrs Hung-kwan Lam (Hong Kong, China) and A. Majeed H. Isa (Bahrain) were elected to serve as co-chairmen of the Committee B;

(*c*) It was further decided that agenda items 11, 12, 13, 14 and 15 would be considered by the Committee of the Whole chaired by the president. The remaining agenda items would be considered at the plenary meetings.

COORDINATION COMMITTEE

2.3.3 A Coordination Committee composed of the president, vice-president, the co-chairmen of the two working committees, the representative of the Secretary-General and the secretaries of the working committees was established.

2.4 OTHER ORGANIZATIONAL MATTERS (agenda item 2.4)

2.4.1 The Association decided on the working hours for the duration of the session. It also decided that there would be no minutes of the plenary meetings of the session unless otherwise decided for special items.

2.4.2 The Association agreed to waive Regulation 109 for the duration of the session.

2.4.3 The Association elected Ms M. Al-Mualla, the principal delegate of the United Arab Emirates, as Rapporteur on agenda item 16 — Review of previous resolutions of the Association and of relevant Executive Council resolutions.

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

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

3.2 The Association commended its president, Mr Z. Batjargal (Mongolia), for his dedication, enthusiasm and initiatives with which he had conducted the affairs of the Association, thus contributing to the development of meteorology and hydrology in the Region. The Association also commended the vice-president, Mr A. R. B. S. Al-Harmi (Oman) for his valuable contribution to the work of the Association. It also expressed its appreciation to the chairmen and members of the working groups and rapporteurs, who had effectively collaborated in carrying out the activities of the Association in the Region.

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

3.4 The Association gave its full support for the priorities and future work programme during the thirteenth financial period as presented by the president, in particular those related to WMO's scientific and technical programmes focusing on the specific needs

and requirements of the Region and new priority areas such as climate change and related environmental issues. It requested the Secretary-General to take into consideration the regional needs related to the future work plan of the Association.

3.5 The Association expressed its satisfaction at the level of implementation of the regional components of WMO's scientific and technical programmes. It noted, however, that there were areas that required further attention and improvement, in particular the exchange of data on the GTS.

3.6 The Association noted that the representation of RA II Members in the activities of technical commissions was very low. In this regard, the Association requested the Secretary-General to find ways to assist to the extent possible the developing Member countries in the Region to participate in the work of technical commissions.

3.7 The Association expressed its general support for the Strategic Plan for the Enhancement of the NMHSs in RA II (Asia) and requested that the highest priority be given for its implementation (see also item 13.4).

3.8 The Association noted with appreciation the increasingly close collaboration between IOC and WMO and the excellent working relationship in fields such as WCRP, GCOS and GOOS. The Association encouraged the Regional Office for Asia and the South-West Pacific to establish links with regional IOC offices.

3.9 The Association noted that Professor G.O.P. Obasi was attending the session of the Association for the last time in his capacity as Secretary-General of WMO; therefore, it expressed its appreciation to him for his contribution to the work of WMO and adopted Resolution 1 (XII-RA II).

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

4.1 WWW PLANNING AND IMPLEMENTATION PROGRAMME, INCLUDING THE REPORT OF THE CHAIRMAN OF THE WORKING GROUP ON THE WWW IN REGION II (agenda item 4.1)

4.1.1 The Association received with appreciation the report of Mr K. Prasad (India), chairman of the Working Group on Planning and Implementation of the WWW in Region II (WG-PIW). The Association thanked the Chairman and the Coordinator of the Sub-group on Regional Aspects of the GTS, Messrs A. Gusev (Russian Federation); the Rapporteurs on Regional Aspects of the GOS, Chen Yongqing (China), of the GDPS, Woo-Jin Lee (Republic of Korea); of Data Management, M. Sato and A. Shimazaki (both Japan); and of PWS, A. Ljakhov (Russian Federation), for their valuable contributions to the Working Group. It was noted that the working group addressed various outstanding 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. Those were discussed in greater detail under the relevant agenda items.

4.1.2 Noting that the working group had successfully held its third session in October 1999 in Doha, Qatar, the Association expressed its gratitude to the Qatar Department for Aviation and Meteorology for providing excellent host facilities and services and to the chairman for the work accomplished.

4.1.3 The Association gave particular attention to Resolution 2 (Cg-XIII) — World Weather Watch Programme, as well as the WWW Programme in 5LTP, which confirmed that WWW continued to have the highest priority as the basic WMO Programme on which nearly all other WMO Programmes depended.

4.1.4 It stressed that the Association would continue to play an active role in the implementation and further development of the WWW in Region II to keep the WWW Programme under continuous review and to recommend adjustments in the light of Members' changing requirements and developments in science and technology. It should also identify deficiencies, propose remedial measures and develop system support projects on a regional scale.

4.1.5 When considering the specific activities planned for the thirteenth financial period, the Association agreed that the following issues required particular attention in Region II:

(*a*) Improved coordination and integration of functions and activities of the basic WWW components on the basis of 5LTP;

(*b*) Review the status of the observational networks and activities of the data processing centres, identification of their deficiencies and development proposals for their improvement, including the use of the AMDAR reports in the Region;

(*c*) Review of the implementation of the telecommunication network in the Region and evaluate the possibilities for applying new technologies with a view to developing and implementing an improved RMTN on the basis of new telecommunication techniques, including satellite-based telecommunication services.

4.1.6 The Association considered the results of the annual global monitoring of the operation of the WWW carried out in October 1999. The Secretariat received results from 94 WMO Members, including 20 Members from Region II, 13 of whom provided monitoring results on electronic media.

4.1.7 The availability of SYNOP (82 per cent) was relatively satisfactory, while the availability of parts A of TEMP (52 per cent), of CLIMAT (27 per cent) and of CLIMAT TEMP (24 per cent) was far from satisfactory. The Association noted with particular concern that less than 30 per cent of the TEMP reports expected from 20 countries of the Region was available on the MTN. The average number of TEMP reports received daily on the MTN during the annual global monitoring decreased from 469 in 1995 to 333 in 1999.

4.1.8 The reasons of the low availability of the observational data from RBSN stations in the Region were due to deficiencies in the operations of both observing and telecommunication networks, which were caused by technical and economic problems. In particular, the Association stressed that the deficiencies in upper-air

networks were caused to a large degree by the high costs of consumables, and recommended that all possible measures be taken including assistance provided through VCP projects to increase the availability of upper-air data.

4.1.9 The Association expressed its deep concern at the deterioration in the operation of the upper-air network in the Russian Federation, which has already led to the loss of a significant volume of data over Siberia and the Far East, thus affecting negatively the forecast of severe weather and the quality of regional and global forecast model products. In this connection, it strongly supported the recommendations made by the EC Advisory Panel of Experts on Technical Cooperation (Geneva, 11–13 May 2000) that assistance be provided to ensure the continued operation of selected upper-air stations in the Russian Federation. Japan informed the session that it intended to support the upper-air observing network of the Russian Federation in the framework of its contribution to VCP.

4.1.10 As regards VCP projects, the Association recommended that the highest priority be given to the realization of projects which would have the greatest impact on the WWW implementation on a regional and global scale. It also decided to give high priority to the establishment of GTS connections of NMCs not yet implemented. In this connection, the Association was pleased to note that the plan to implement a 9600 bit/s circuit Bangkok-Vientiane had made good progress with the support from Japan through VCP and invited the Secretary-General to help resolve the remaining technical problems quickly.

4.1.11 The Association stressed that in light of the many deficiencies in the basic systems infrastructure in the Region, it was very important to achieve cooperation among Members in order to overcome the problems. It noted with satisfaction several ongoing, mainly bilateral projects, which helped several developing countries to rehabilitate some of their outdated equipment. The Association urged the Members and the Secretary-General to continue and strengthen this cooperation and to undertake efforts to identify new means and sources of assistance.

4.1.12 The Association agreed that in light of the issues identified above in connection with the implementation of the WWW Programme and taking into account the many tasks related to the basic WWW components, it was necessary to re-establish the WG-PIW. Resolution 2 (XII-RA II) was adopted.

4.2 Observing system, including Instruments and Methods of Observation Programme (IMOP) (agenda item 4.2)

General

4.2.1 The Association recalled that the GOS, as described in the 5LTP, was a composite system comprising the surface- and space-based sub-systems. The former was composed of the RBSN of surface and upper-air stations and other networks of observing stations on land, at sea and in the air, while near-polar orbiting and geostationary environmental observation satellites with associated ground-stations formed the latter.

Regional Basic Synoptic Network

4.2.2 The Association reiterated that the establishment and maintenance of the RBSN combined with real-time meteorological data exchange over the GTS continued to be one of the most important commitments of Members. In this connection, it noted with satisfaction that the level of implementation of RBSN surface and upper-air stations, stood at 97 per cent and 89 per cent, respectively in 1999. It was also pleased to note that the percentage of SYNOP reports actually received at MTN centres increased from 77 per cent in 1998 to 82 per cent in 1999. However, the percentage of upper-air reports actually received at MTN centres decreased noticeably from 65 per cent in 1998 to 52 per cent in 1999. The Association noted with concern that these results reflected the deterioration of upper-air networks in certain areas of the Region, in particular in Central Asia and near-polar regions.

4.2.3 The Association noted with satisfaction that several countries reported on firm plans to rehabilitate or strengthen their upper-air networks in the near future, partially through VCP and bilateral assistance. It appealed to donor countries and the Secretary-General to give a high priority to efforts for providing support and technical assistance to help developing countries to sustain and improve their observing networks and to implement the necessary telecommunication means for exchanging the observations.

4.2.4 The Association stressed that every effort should be made to follow-up the recommendations of Cg-XIII regarding an improvement of the current network performance. It urged its Members concerned to increase the number of upper-air observations to two per day at operational stations and to rehabilitate their 'silent' stations. It requested the Secretariat to take appropriate action in this connection. The Association felt that, based on the analysis of proposals solicited from Members concerned, priority activities should be aimed at remedying deficiencies in the RBSN through coordinated support projects, new joint funding mechanisms, contributions of potential donors, and the VCP channels.

4.2.5 The Association was informed on the progress made in the replacement of the OMEGA-based upper-air observing equipment by alternative systems at the majority of the upper-air stations that depended on the OMEGA system. It noted that Cg-XIII expressed concern on the reliability of the radiosondes based on GPS technology, and that CBS, in close collaboration with CIMO, kept this issue under permanent review. According to the results of the survey conducted by CBS in the first half of 1999 among Members operating GPS-based sondes, about 20 per cent of GPS sonde launches were unreliable. Active collaboration with manufacturers resulted in improvements and indicated that the GPS-derived wind data would soon reach the same level of

quality as the OMEGA-based radiosondes. However, the Association noted that some Members still experienced unacceptably high GPS-based sondes failure rates.

4.2.6 It was recalled that in anticipation of the cessation of the OMEGA radio-navigation system, CIMO had studied the availability of various wind-finding systems and distributed a table of alternative technical systems which could be applied instead of the OMEGA system. In light of the continuing high cost of GPS sondes and their still unsatisfactory reliability, the Association invited CIMO to review and update this table of alternative wind-finding systems and to provide it again to Members as soon as feasible.

4.2.7 The Association recalled that it had requested its WG-PIW to keep the RBSN under review. It appreciated the work done in this regard and endorsed the following principles, which had been applied by the Working Group in compiling and proposing a revised list of RBSN stations:

(*a*) The revised RBSN should have a spatial resolution of 150 km for surface and 250 km for upper-air stations;

(*b*) Special attention should be given to those stations that had been 'silent' including appropriate measures to support their rehabilitation;

(*c*) In data sparse areas, gaps should be filled by existing stations (according to Volume A, WMO-No. 9), although these had previously not been included in the RBSN.

4.2.8 The session noted that a revised list of RBSN stations based on the above principles had been circulated among RA II Members who had supported or amended it accordingly. By adopting Resolution 3 (XII-RA II), the Association approved the new list of RBSN stations as given in the annex to the resolution.

OTHER NETWORKS OF OBSERVING STATIONS

4.2.9 As regards observing stations at sea, the Association noted that, along with a decreasing number of ships recruited by Members of RA II, there was also a noticeable drop of ship reports received at MTN centres in the Region to a daily average of 138 reports in 1999 compared to 532 in 1995. The deployment of drifting and moored buoys with 69 and 26 buoys respectively deployed by Members of the Association in January 2000 remained relatively high. It also noted that reports from most of the automated sea stations were exchanged over the GTS. The Association noted the continued operational availability of upper-air observations provided by one Russian and five Japanese ships. It further noted that although the number of ASAP systems operated on ships worldwide had increased to 15 units, none had so far been deployed in Region II.

4.2.10 Current volume of AMDAR information globally available is estimated to be about 55 000 observations per day. Over the next five to ten years the number of reports is expected to reach around 150 000 per day. The last meeting of the AMDAR Panel held in Geneva in October 1999 noted that the Middle East AMDAR pilot project which could be of benefit to some Asian countries had made little progress since its establishment in 1998. However, Asia was identified as a potential AMDAR programme area, particularly for countries located in the western Pacific Rim. The Association welcomed the news that certain airlines have already been approached to participate in a future AMDAR programme in the Region. Meanwhile, efforts should be increased to facilitate access by NMSs in the Region to AMDAR reports as required.

REGIONAL BASIC CLIMATOLOGICAL NETWORK (RBCN)

4.2.11 The Association noted with concern the poor reporting rate of CLIMAT and CLIMAT TEMP reports within the Region (less than 30 per cent of expected reports in October 1999). It expressed the opinion that using the RBSN as the ideal target network for CLIMAT and CLIMAT TEMP reporting stations, had resulted in the low availability of these reports, in spite of the establishment of the GCOS Surface and Upper-Air Networks (GSN and GUAN), and of the request to Members to provide CLIMAT and CLIMAT TEMP reports from GSN and GUAN stations as high priority. Furthermore, the Association noted that about 20 per cent of GSN stations were not RBSN stations, and were, therefore, not included in the target network for CLIMAT reporting stations.

4.2.12 In order to improve the situation, the WG-PIW had proposed to establish through an appropriate resolution a RBCN similar to the one in vigour in RA IV. Such a resolution would provide a strong justification for maintaining the stations listed in the Annex to Resolution 4 (XII-RA II). The list of stations would also serve as a reference list for WWW monitoring. The proposed RBCN should include the GSN and GUAN stations and be supplemented by other CLIMAT and CLIMAT TEMP reporting stations needed to meet regional climatological requirements. The Association was informed that this proposal received support by the presidents of CBS and CCl and the GCOS Atmospheric Observation Panel for Climate.

4.2.13 The Association noted with appreciation that the proposed list of RBCN stations was compiled by the WG-PIW, using agreed principles and density criteria, i.e., four CLIMAT reporting stations and two CLIMAT TEMP reporting stations for 250 000 km^2. By adopting Resolution 4 (XII-RA II), the Association established the RBCN in RA II.

SPACE-BASED SUB-SYSTEM

4.2.14 The Association noted with great interest information regarding the implementation and future plans for space and ground segments of the space-based subsystem of the GOS. It noted a valuable input to NMS operations of the Region provided by polar-orbiting and geostationary satellites operated by China, EUMETSAT, India, Japan, Russian Federation and the United States. It felt that the EPS Programme with three satellites to be launched in 2003, 2007 and 2012 would be an essential contribution to the implementation of current polar-orbiting satellite programmes. The Association expressed its gratitude to EUMETSAT for maintaining and

prolonging the position of Meteosat-5 at 63°E to provide services over the Indian Ocean.

INSTRUMENTS AND METHODS OF OBSERVATION PROGRAMME (IMOP)

4.2.15 The Association noted with interest the results of the twelfth session of the Commission for Instruments and Methods of Observations 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. It also expressed its appreciation that the sixth edition of the WMO *Guide to Meteorological Instruments and Methods of Observation* (WMO-No. 8) had been issued in all mandated languages. The revised Guide was considered an important basis for the development of improved national guidelines for improving observations.

4.2.16 The Association agreed that the activities of NMHSs in the field of instrumentation should be mainly directed to the long-term stability, maintenance, repair, and calibration of sensors and equipment. Members were encouraged to develop capabilities for the maintenance and servicing of the operationally used instruments should continue to manufacture suitable instruments using endogenous resources. In this connection, the Association was pleased to note that a CIMO Expert Meeting on Capacity Building related to Meteorological Instruments and Methods of Observation Programme (IMOP) was hosted by China in Beijing in 1999.

4.2.17 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.

4.2.18 The Association confirmed the value of RICs for guaranteeing proper calibration of equipment and for training instrument operators. Noting with appreciation the two RICs established in the Region in Beijing, China, and in Tsukuba, Japan, the Association invited these centres to continue enhancing their collaboration. The RICs were encouraged to reach out to the Members to inform them on their services and plans and Members were invited to take advantage of these services, especially for calibration of national standard instruments. In this connection, the Association appreciated that Japan will strengthen the role of its RIC by preparing a brochure to inform Members in the Regions on the capabilities and services available to them in the Tsukuba centre, and by improving the links between the RIC and instrument manufacturers.

4.2.19 The Association reiterated the great value of education and training of instrument operators for achieving the required quality and reliability of observations for various operational and research applications. It was noted with appreciation that a Regional Training Workshop for Instrument Specialists of RA II was held at the Tsukuba RIC, in 1998. All NMHSs were encouraged to train and re-train their staff as necessary and to give consideration to the training facilities of other Members and their RICs if they had sufficient resources. Donors were invited to maintain their strong support to training programmes in instrumentation. The Association also emphasized the value of close links and active exchange of experience with manufacturers and instrument developers. It was noted with satisfaction that representatives of eight manufacturers attended as observers the session of the CIMO Working Group on Ground-based Upper-air Observing Systems hosted by the IMD in New Delhi, India, in December 1999. This collaboration has proven useful in addressing technical problems and questions, such as the reliability of the GPS-based radiosondes.

4.2.20 The Association expressed its appreciation to China for its continuing strong support to IMOP for hosting the WMO/CIMO technical conference TECO-2000 and exhibition METEOREX-2000 in Beijing, in October 2000, and compiling and publishing the CIMO Instrument Catalogue on behalf of WMO. The Association also welcomed similar activities in other countries, such as the instruments exhibitions held periodically in the Russian Federation.

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

4.2.21 The Association noted with appreciation the report of Mr Xu Xiaofeng (China), Rapporteur on Regional Aspects of Instrument Development, Related Training and Capacity Building. It was pleased that he closely collaborated with the Rapporteur on Capacity Building Activities within the CIMO Advisory Working Group, as both activities were seen as complementary and geared to strengthen the instrument networks in the Region. The Association agreed that the numerous needs and activities of the Members in the field of instrumentation and contributions and functions of the RICs, as described above, required continuous attention and coordination and that 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 encouraging the development of cost-effective instruments suitable for operation under extreme weather conditions. The Association agreed that the study all these issues should be coordinated by two Co-Rapporteurs on Regional Aspects of Instrument Development, Related Training and Capacity Building and adopted Resolution 5 (XII-RA II).

4.3 **REGIONAL SATELLITE ACTIVITIES** (agenda item 4.3)

4.3.1 The Association expressed its appreciation to the WMO Members actively engaged in operational satellite programmes and noted with satisfaction the following events and activities:

(*a*) Continued launching and operation of satellite systems within the space-based sub-system of the Global Observing System;

(*b*) Further expansion of the ground segments for satellites; there were now more than 1 382 ground stations located in the Region including 326 in NMHSs that receive direct broadcasts from the environmental satellites;

(*c*) Demonstration of the importance of satellite data in research, climate and environmental monitoring and all aspects of operational meteorology, in particular analyses, nowcasting and very short-, medium- and long-range forecasting.

4.3.2 The Association noted in particular the following operational status and plans which were of direct relevance to the Members in the Region:

(*a*) China: The polar-orbiting FY-1C satellite launched in May 1999 is operational; the geostationary satellite FY-2A, launched in June 1997, is also operational; the second geostationary satellite FY-2B was launched in June 2000 and is positioned at 105ºE and in the check-out phase; it provides VIS, IR and water vapour images, as well as WEFAX and VISSR; it is expected to become operational on 1 January 2001; the next FY-2-series satellites C, D and E are planned for 2003, 2006 and 2009, respectively; among other significant improvements they will replace WEFAX by LRIT.

(*b*) India is making the meteorological images of INSAT available to other Members countries upon bilateral agreement; in order to further improve the access to INSAT data, a Web site has been implemented that offers 3-hourly updated sets of images; India plans to launch a satellite dedicated exclusively to the weather and environment in 2001.

(*c*) Japan: GMS-5 continues to operate at 140°E until 2003; a transmission plan for GMS and MTSAT satellites has been made available to Members concerned; MTSAT-1R will be launched in early 2003; the LRIT mode will become operational in 2003 and WEFAX and LRIT will be broadcast in parallel from MTSAT-1R; WEFAX will be discontinued in 2005; the MTSAT LRIT broadcast will include imagery, NWP products, tropical cyclone advisories and observational data; Japan will organize a series of training seminars on the effective use of satellite data in the next 2 years; a smooth transition is also planned for the change from S-VISSR to HiRID, dual HiRID/HRIT and eventually HRIT; users would need to install new receiving systems or implement substantive upgrades to existing equipment to be able to receive HRIT.

(*d*) Russian Federation: The GOMS-Electra-N1 satellite at 76°E has experienced a technical problem; a new LEO satellite METEOR3M(N1) was launched in 2000; in two to three years a second satellite in the METEOR3M series will be launched; the second satellite in the GOMS series will be launched in 2002/2003; a Web site was developed by ROSHYDROMET called sputnik.Infospace.ru which provides satellite products and reference information in English and Russian.

(*e*) EUMETSAT operates Meteosat-7 as an operational satellite, Meteosat-6 as a back-up satellite, and Meteosat-5 at 63°E for the duration of its lifetime.

4.3.3 The Association urged Members to be fully aware of technological changes in the Japanese MTSAT satellites and accordingly prepare for changes in their ground receiver stations. It was noted with appreciation that Japan offered assistance to Members to help them use effectively data provided from MTSAT satellites. It was noted with interest that the KMA is developing a modified software package for receiving the HRIT data stream.

4.3.4 The Association agreed that the different meteorological satellite systems available in RA II was a great burden for Members, as they have to invest in several corresponding receiving systems if they wished to make use of these satellites. It was therefore felt that possibilities should be studied by the appropriate experts for a standardization of the broadcast formats and a multi-system interface software in the ground receiver. This issue was expected to be raised at the meeting in early 2001 of the new high-level coordination group on satellite matters established between WMO and the satellite operators.

4.3.5 The Association expressed its concern at the uncertain future of Meteosat-5 and the follow-on plan after the end of the operational life of that satellite. It emphasized the great importance of such a satellite over the Indian Ocean and that many NMHSs depended on it, in particular for their severe weather forecasts, warnings and other PWS activities. It noted that this had already been raised with EUMETSAT by the Secretary-General.

4.4 **TELECOMMUNICATION SYSTEM** (agenda item 4.4)

4.4.1 The level of implementation of the GTS point-to-point circuits is not homogeneous in the Region. All RTHs have at least one medium speed GTS circuit (higher than 2.4 kbit/s and 7.2 kbit/s for most of them) to another RTH and 12 NMCs have at least one GTS connection operating at a speed higher than 1.2 kbit/s. Ten NMCs have low speed GTS connections (lower than 1.2 kbit/s), and four NMCs (Baghdad, Phnom Penh, Sana'a and Vientiane) still have no GTS connection.

4.4.2 The Association agreed that highest priority in the RMTN should be given to efforts to establish GTS connections in those NMCs that are still not connected. It urged Members concerned, and in particular donor countries, to pay attention to the important requirement of providing for system redundancy when planning GTS support projects.

4.4.3 The exchange of data on the GTS point-to-point circuits is complemented in most centres by the reception of satellite data-distribution systems, such as ISCS, MDD, SADIS and TV-Inform-Meteo. However, four NMCs (Bishkek, Kabul, Phnom Penh and Yangon), and have low speed or no GTS connections, are not equipped to receive these satellite distribution systems. The Association was pleased to learn of China's plans to establish 9.6 kbps links between Beijing and Hanoi, Pyongyang and Ulaanbaatar. It noted with satisfaction the upgrade of the Tokyo–Hong Kong link from 200 bd to 16 kbps frame relay, which resulted in a significant

increase in throughput and functionality of the link and a 40 per cent reduction in operational costs.

4.4.4 Upon reviewing the RMTN, the Association welcomed the implementation of a new 9.6 kbps link between the RTHs of Bangkok and Beijing and considered it as a major improvement of the GTS. The Association agreed that the links Bangkok–Hong Kong and Bangkok–New Delhi were no longer necessary. The Association therefore approved the corresponding amendments to the RMTN in RA II as regard the inclusion of the Bangkok–Beijing link and the deletion of the Bangkok–Hong Kong and Bangkok–New Delhi links. It requested the Secretary-General to correct the relevant WMO publications accordingly.

4.4.5 Ten centres in the western part of Region II received MDD. This showed that MDD played an important role in the distribution of data in this part of the Region. The Association agreed to integrate the MDD into the RMTN as an inter-regional component and expressed its appreciation to EUMETSAT, the operator of the MDD, for its agreement to also extend to Region II the existing status of MDD in Regions I and VI. The Association further agreed that, in accordance with CBS guidelines, a coordination mechanism should be developed to ensure that requirements of the user WWW centres of MDD in Region II were met to the largest extent possible. The Association requested its WG-PIW to establish the necessary arrangements, to prepare the relevant amendments to the *Manual on the Global Telecommunication System — Volume II — Regional Aspects — Region II (Asia)* — in cooperation with the operator of the MDD and to submit them to the president of the Association for approval.

4.4.6 The SADIS system in the framework of the ICAO WAFS is supported by the United Kingdom Satellite Facilities (UKSF). The Association recalled that the United Kingdom offered to make some capacity within the UKSF available for WWW purposes, and that a pilot project for the UKSF/WWW had been initialized in Region II. Bahrain, Iran (Islamic Republic of); Macao, China; and Sri Lanka were willing to participate in the pilot project. The pilot project will aim at evaluating the level of reception of the information and the adequacy of the transmission programme of the UKSF/WWW. The Association invited the WG-PIW to follow the progress of the pilot project.

4.4.7 The Association underlined the high financial burden of the operation of HF radio broadcasts for the RTHs concerned and their limited efficiency. Each GDPS centre in the Region was located in the area of coverage of one or several satellite data-distribution systems, and the implementation of satellite receiving systems in GTS centres had significantly progressed in recent years. The Association noted that the survey on the requirements for HF broadcasts and alternative means showed that only a few RA II Members expressed remaining requirements for HF broadcasts. The Association agreed that the discontinuation of HF radio broadcasts should be planned for the near future. It noted the continuing requirements for HF broadcasts from the marine community, and concurred with CBS-Ext.(98) that alternative means should be considered to distribute products to ships, such as INMARSAT data-distribution systems within GMDSS or ships' access to databases. JCOMM was in the best position to determine the relevant requirements of the maritime community and to identify the most appropriate systems to meet them. The Association invited JCOMM to keep the WG-PIW informed of the results of its action in this respect, and requested the WG-PIW to plan the discontinuation of Region II HF radio broadcasts.

4.4.8 The Association noted with appreciation the progress made in the implementation of the routeing catalogues by RTHs and of the comprehensive catalogue of meteorological bulletins (WMO-No. 9, Volume C1) by the RTHs located on the MTN, as decided by CBS-Ext.(98). The Association urged all RTHs concerned to complete the implementation of these GTS operational tools in Region II, with a view to facilitating an efficient operation of the GTS.

DEVELOPMENT OF AN IMPROVED RMTN

4.4.9 The Association noted the analysis of the strengths, weaknesses, opportunities and threats of the current RMTN made by its WG-PIW, which showed that the GTS should keep pace with technology in order to effectively meet current and future data exchange requirements. It agreed that the future of the GTS was seriously threatened if it failed to evolve, which could undermine the whole WWW structure and operation. The Association stressed the importance of implementing an improved RMTN in the near future.

4.4.10 The Association took note of the studies on the improved RMTN carried out by the WG-PIW. It endorsed the concept of an improved RMTN using modern cost-effective network services such as Frame Relay network services and MDNS. The improved RMTN would be based on the current organization principles of the RMTN. In view of the geographical extension of the Region, it agreed that the design of the improved RMTN could be based on the implementation of several networks grouping RTHs and NMCs as appropriate, with gateway functions being performed by some RA II RTHs, such as the RTHs on the MTN. In this context the Association took note of the improved MTN project being developed by CBS. The cluster of networks and gateway functions would support the data-communication transport service and the connectivity required for the improved RMTN. A diagram of a possible implementation of the improved RMTN is given in the Annex 1 of this report.

4.4.11 The Association noted that the feasibility study of the improved RMTN had been initiated. The preliminary results showed that Frame Relay network services and MDNS were available and cost-effective in parts of the Region. The implementation of those services would require the development of mechanisms for the selection of the common service providers of the transport networks, the development of the contracts between the providers and Members of the Association and the

operation of the networks. The Association agreed that a practical step-by-step approach for the implementation of the improved RMTN would be required.

4.4.12 The Association requested its WG-PIW to finalize the feasibility study as a matter of urgency and develop options for a step-by-step approach for implementation, with the assistance of the Secretariat. It urged all RA II Members to actively contribute to the feasibility study and to designate focal point experts to facilitate the exchange of information. The Association requested its WG-PIW to proceed with the coordination of the improved RMTN project and to take all necessary action to facilitate the establishment of the new RMTN, through appropriate consultation and agreement of RA II Members, and it requested the Secretary-General to provide support as required.

4.5 **DATA-PROCESSING SYSTEM** (agenda item 4.5)

4.5.1 The session reviewed the present status of implementation of the GDPS in the Region. It noted that the survey of GDPS centres conducted by the rapporteur showed that there had been considerable improvements in the infrastructure and models in several centres. Some centres have introduced up to date computers and operated global/regional numerical weather analysis/forecast systems.

4.5.2 While these developments are encouraging, there are still large gaps in the data-processing capabilities of some developing Members. Some data-processing systems have still not been automated and they still, for example, plot stations and produce charts manually.

4.5.3 As regards the generation and dissemination of products, the session noted that each RSMC in the Region produced a large number of products on a daily basis. The processing of NWP guidance available from major centres at NMCs that do not operate their own NWP models, has become much simpler now with the availability of low-cost workstations. Graphic processing of GPV fields on workstations (WSs) and personal computers (PCs) can be accomplished at many centres in the Region with little investment. The availability on the Internet of high-quality products from advanced high-resolution NWP systems operated by major GDPS centres within and outside the Region has opened up new opportunities for NMHSs to enhance the capability of NMCs in providing weather forecast service to users.

4.5.4 The Association noted with satisfaction that RSMC Tokyo continued to provide GPV products to Members, encouraged the use of GRIB instead of GRID, and was prepared to provide data handling software for decoding GRIB products with a view to assisting other NMCs to make use of such products. It was further pleased to note that GDPS Centre Seoul was prepared to make available high-resolution NWP products upon request.

4.5.5 The Association noted with satisfaction that the eleventh session of the Commission for Basic Systems recommended, and the Executive Council approved, the designation of RSMCs Beijing, Tokyo and the Regional Operational Centre (ROC) Obninsk as RSMCs with activity specialization in transport model products for Region II. The Association was pleased that these RSMCs had successfully participated in the WMO/IAEA emergency response exercise held in June 2000. Furthermore, CBS responded to the requirement of several Members and the UN/OCHA for meteorological support services in case of chemical incidents and other non-nuclear emergencies with transboundary pollution through expanding the Emergency Response Activity Programme accordingly. In this context it was gratifying to learn that RSMC Tokyo was prepared to provide, upon request, existing transport model products also in cases of chemical incidents and large scale forest fires. The Association felt that it would be desirable that RSMCs in the Region take note of this requirement and develop and implement the necessary models. The Association drew the attention of those Members who were not yet properly prepared for environmental emergency responses activities to take measures including establishing facilities for response and the utilization of GPV data for environmental hazards prevention.

4.5.6 The session also noted from a technical survey carried out among RA II Members that although many products were available from major GDPS centres inside and outside the Region as given in Annex 2, there were still several unmet requirements for products produced by other GDPS centres.

4.5.7 The Association noted that in several countries the reception of products was hampered by insufficient telecommunication means. Some Members wanted to receive GPV data through TCP/IP or the Internet instead of GTS circuits, and a few Members wanted to receive GPV data through satellite communication. It invited the WG-PIW to investigate alternative communication means for GPV data exchange such as TCP/IP, Internet and satellite communications and to address the most practical transmission format (i.e. GRIB or GRID).

4.5.8 The Association noted further from the survey that only few Members required severe weather information. The reasons for this was not immediately obvious, and the Association requested WG-PIW to address and clarify the issue.

4.5.9 The Association noted that there was a growing interest on EPS in Region II and three Members were running EPS for operation or research in the Region. It therefore agreed on the need to establish an appropriate infrastructure for the dissemination/reception of EPS output. In addition, more effort would be required to provide training on EPS and its utilization. It invited the WG-PIW to address the issues.

4.5.10 WSs or PCs were widely used in the Region for the pre- and/or post-processing as well as for running a NWP model as they are economical and today fast enough to run certain NWP models. It encouraged those Members, who do not yet have their own NWP system, to actively implement a NWP system on WSs or PCs. In this regard, it supported the need to hold an international workshop on the methodology and implementation of limited area model on WSs or PCs in conjunction with other regional associations.

4.5.11 The Association emphasized the need for more cooperation, technical assistance and exchange of expertise through bilateral arrangements and/or international workshops.

4.5.12 In order to improve implementation of the GDPS in the Region, the Association endorsed the following proposals:

(*a*) Arrangements be developed to provide access over the Internet or ISDN to high horizontal resolution NWP products from major centers such as ECMWF, Bracknell, Toulouse, Washington in addition to those of JMA;

(*b*) Training for development and utilization of NWP products be provided to Members as necessary;

(*c*) NWP models and products be provided by advanced centers in compliance with Members' requirements;

(*d*) Meteorological application software should be exchanged between collaborating centres;

(*e*) Well-equipped and capable RSMCs/NMCs should assist other NMCs in the Region to improve their operational capabilities by providing support in communication and software development.

It requested the WG-PIW to address relevant issues on (*a*) and invited its Members to address relevant issues on (*c*), (*d*) and (*e*), and the Secretary-General to organize relevant training events on (*b*).

4.6 DATA MANAGEMENT, INCLUDING REGIONAL CODES (agenda item 4.6)

4.6.1 The Association noted that CBS, at its next session, would consider a proposal for improved procedures to monitor the quantity of data exchanged on the GTS that could have a significant impact on how the Annual Global Monitoring of the WWW is done.

4.6.2 The Association noted that a survey undertaken by the rapporteur had indicated that there was no plan, in general, to introduce the comprehensive use of BUFR/CREX in the Region. More than 75 per cent of respondents pointed out the necessity of guidance material on CREX messages and information on the availability of decoding/encoding software. Furthermore, no respondents opposed the migration from character codes to BUFR/CREX. On the other hand, most expressed difficulty with accepting a quick migration because their telecommunication circuits do not accommodate binary data or the unavailability of decoding/encoding software.

4.6.3 The Association, taking the above survey results into consideration, requested that guidance material on table-driven codes and the characteristics of GRIB, BUFR/CREX be prepared. It strongly encouraged CBS to establish a 'software support office' as proposed by CBS, which would assist Members in acquiring, using and maintaining encoding/decoding software for binary codes. The Association realized that a comprehensive migration to table-driven codes would be connected with substantive cost for the Members. The Association therefore urged CBS to collaborate closely with the Regional Association with a view to pursuing a well coordinated approach to this issue, which must result in a smooth and manageable transition.

4.6.4 The Association noted that the requirement of the NMHSs for accessing and exchanging information for many applications via the Internet was growing rapidly. It was therefore necessary that the WMO Guide on Internet Practices was kept up-to-date as regards new Internet techniques, data formats, etc. and readily accessible to Members.

4.6.5 The Association noted with concern that, although the Region had established regional coding practices aimed at reducing coding errors in CLIMAT and CLIMAT TEMP messages, there were still too many errors. It felt that it was doubtful that more detailed regulations on coding would help diminish the amount of erroneous data. Instead, it recommended that coding examples be included in the manuals as a more effective way to help users apply the regulations and thus decrease the errors made.

4.6.6 The Association considered a proposal for the regional exchange of *in-situ* observations of snow depth over the GTS proposed by the GCOS Atmospheric Observation Panel for Climate. It agreed that in view of the importance of snow depth data for climate monitoring and research and following the policy of other WMO Regions, it adopted Resolution 6 amending the *Manual on Codes* accordingly.

4.7 WWW OPERATIONAL INFORMATION SERVICE (OIS) (agenda item 4.7)

4.7.1 The Association noted that the objective of the OIS was the collection from and distribution to WMO Members and WWW Centres of detailed and up-to-date information on facilities, services and products made available in the day-to-day operation of the WWW. In view of the increasing automation of the centres, the efficient and timely dissemination of this information has become increasingly important to ensure the optimum efficiency in the operation of the WWW.

4.7.2 The Association noted that WMO-No. 9 remains the basic directory of existing WWW facilities and services. The contents and format of this publication which have been progressively modified to better reflect the structure of the various components of the WWW Plan are:

(*a*) WMO-No. 9, Volume A — Stations;

(*b*) WMO-No. 9, Volume B — Data processing;

(*c*) WMO-No. 9, Volume C1 — Catalogue of meteorological bulletins;

(*d*) WMO-No. 9, Volume C2 — Transmission schedules;

(*e*) WMO-No. 9,Volume D — Information for shipping;

In addition, the following publications contain relevant information:

(*a*) WMO-No. 47, *International list of selected, supplementary and auxiliary ships* gives full particulars of equipment on board the mobile ships participating in the WMO Voluntary Observing Ship's Scheme;

(*b*) The Regional Basic Synoptic Networks (RBSNs), published on a web site on the WMO Home page list the designated principal upper-air and surface

stations and their observing programmes which comprise the RBSN;

(*c*) METNO is the weekly telegraphic notification of changes of operational importance in GOS, GTS and GDPS;

(*d*) Operational Newsletter is published bi-monthly in addition to the weekly METNO, providing summary information on the operation of the WWW and in support of the Marine Meteorological Services Programme. The Operational Newsletter is also available on the Internet.

RESTRUCTURING AND OPERATION OF THE OIS

4.7.3 In order to improve data reliability, timeliness of distribution, and provision of additional information to Members major restructuring of OIS has been implemented at the Secretariat, enabling the maintenance of updated data on a near-real-time basis.

4.7.4 Volumes A and C1 are updated weekly and files can be accessed via the WMO home page at the following site: http://www.wmo.ch/web/ddbs/publicat.html. WMO-No. 47 and the RBSN lists are also available on the Internet at the aforementioned site and updated regularly. Data from all the above publications are also available via FTP from:

(*a*) WMO-No. 9 – Volume A: ftp://www.wmo.ch/wmo-ddbs/Pub9volAyymmdd.flatfile

(*b*) WMO-No. 9 – Volume C1: ftp://www.wmo.ch/wmo-ddbs/Pub9volCyymmdd.flatfile

(*c*) WMO-No. 47: ftp://www.wmo.ch/wmo-ddbs/Pub47.ships.yymmdd.data

(*d*) RBSN lists: ftp://www.wmo.ch/wmo-ddbs/rbsn.rax.

The information is also available in printed form and Members can request it through e-mail (PWOI@www.wmo.ch) or by fax.

4.7.5 The Association further noted that CBS-Ext.(98) decided that, as part of their responsibilities, WMCs and RTHs on the MTN are to review the catalogue of meteorological bulletins issued by their relevant zones and notify the Secretariat of changes to be included in Volume C1 by transferring updated files. The Secretariat is charged with maintaining a global database of Volume C1 accessible on its FTP server and regularly issuing updated editions of Volume C1. Work is currently in progress at the Secretariat to implement the appropriate application software tools to maintain the Volume C1 database and process files provided by RTHs. It should be stressed that the objective of the OIS cannot be achieved unless changes to be reflected in relevant publications are communicated to the Secretariat promptly.

4.8 **TROPICAL CYCLONE PROGRAMME (TCP)** (agenda item 4.8)

4.8.1 The Association noted with satisfaction the achievements and further progress accomplished in the implementation of both the general and other regional components of the TCP towards the mitigation of typhoon and tropical cyclone disasters in its Region, especially in association with the IDNDR (1990–1999) and in accordance with decisions of the UNCSD.

4.8.2 The Association invited Members concerned to make full use of reports in the TCP series, such as the recently issued "*Tropical Cyclone-Related NWP Products and their Guidance*" (TCP-41) and "*Estimating the Amount of Rainfall Associated with Tropical Cyclones Using Satellite Techniques*" (TCP-42), which provide guidance and information for tropical cyclone forecasters. It also invited Members affected by tropical cyclones to take advantage of relevant training events such as training workshops or seminars on tropical cyclone forecasting and warning. Special note was taken of the supporting activities in training of personnel through the organization of regional workshops such as those recently held on doppler radar and hurricane forecasting and warning. The Association was pleased to learn that WMO was planning to organize a Regional Technical Conference on Tropical Cyclones and Storm Surges, in Thailand in November 2000, for Members of the Panel on Tropical Cyclones and the Typhoon Committee. The Association requested the Secretary-General to continue providing maximum support for training activities under these programmes within the limits of available funding.

4.8.3 Recognizing that the IWTC serve as a forum for the interaction between forecasters and researchers and encourage the application of research results to operational usage, the Association thanked China for hosting IWTC-IV in Haikou in April 1998. It was pleased to learn that IWTC-V would be held in Region I or Region V in 2002 and urged its Members to seek possible financial assistance to enable as many tropical cyclone forecasters and researchers from the Region as possible to participate. The Association also welcomed the offer of the Republic of Korea to host a Regional Workshop on Tropical Cyclones.

4.8.4 The Association requested JCOMM to undertake measures for developing local numerical models of storm surges and flood prediction in order to improve the predictability of such events in the Region.

4.8.5 The Association recorded its appreciation to the two intergovernmental bodies of the WMO/ESCAP Panel on Tropical Cyclones for the Bay of Bengal and the Arabian Sea and the ESCAP/WMO Typhoon Committee for the excellent work done to promote the reinforcement of tropical cyclone, storm surge and flood warning services and related disaster preparedness and prevention measures in the Region. It was pleased to learn that Oman, Singapore and the United States had joined the Panel and the Typhoon Committee, respectively. It expressed its appreciation to India and Japan for substantially upgrading the facilities, capabilities and services provided by RSMC New Delhi — tropical cyclones and RSMC Tokyo — Typhoon Center as RSMCs with activity specialization in tropical cyclones. The Association commended the Typhoon Committee on establishing a typhoon naming system as of 1 January 2000. It was pleased to note that the Panel was planning to establish a tropical cyclone naming system in the near future.

4.8.6 The Association thanked the Secretary-General for making timely arrangements in accordance with

established procedures for use of the Trust Funds of the Typhoon Committee and the Panel, to provide support to their Members, and to facilitate the implementation of their programmes, aimed at the mitigation of tropical cyclone disasters in the Region. The Association requested the Secretary-General to continue his efforts in further mobilizing resources to support TCP activities in the Region.

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

5.0 REPORT OF THE CHAIRPERSON OF THE WORKING GROUP ON CLIMATE RELATED MATTERS IN REGION II (agenda item 5.0)

5.0.1 The Association received with appreciation the report of the chairman of the Working Group on Climate Related Matters (WG-CRM) in Region II, Mr T. Tokioka. The Association noted that the working group carried out its activities by correspondence, and had addressed various outstanding issues and challenges in the implementation of the WCP in the Region. It had also made good progress towards accomplishing the many tasks assigned in its work programme.

5.0.2 In considering the significant progress in the science and technology of climate information and prediction, the important and urgent environmental problems facing the Members and the diversity in their climate services, the working group had circulated a questionnaire on the status of climate-related services in the Region. The analysis of the replies received from the 19 respondents formed the basis of this report.

5.0.3 The working group noted the importance of data, of converting data into value-added information, and ensuring its accessibility and use. Members identified the following problems and important issues: lack of facilities for calibration of instruments, such as Dobson and Brewer spectrophotometer, and for intercomparison; lack of modern infrastructure for data storage; lack of hardware and software for data processing and, difficulty in accessing observational data from the field stations.

5.0.4 The Association endorsed the recommendations made by the Working Group to Members of RA II, with respect to GCOS: to restore activity of 'silent stations' and raise the quality of observed data at stations; provide transmission on the GTS of CLIMAT and CLIMAT TEMP messages, according to WMO-No. 9, Volume C1, and to encourage *Catalogue of Meteorological Bulletins*, and the implementation of requirements of the telecommunication procedures as prescribed in the *Manual on the Global Telecommunication System*.

5.0.5 The need for CLIPS was clearly expressed in responses to the questionnaire. Some Members have set up CLIPS programme offices in their NMHSs. The Association strongly encouraged Members of RA II to make use of the digital climate databases of other Members available through the Internet, both within and outside the Region.

5.0.6 The Working Group supported WMO activities aimed at defining the infrastructure needed for seasonal to interannual climate prediction, noting in particular the limitations imposed by the variety of scientific understanding, skill and availability from a broad range of institutions with minimal quality assessment, and the attendant perception that the national responsibilities of NMHSs' are being infringed. The Association endorsed the Working Group's recommendations that it work with the CLIPS Project Office in defining a structure for consensus forecasting, and that each NMHS should devote particular attention to ensuring that its climate forecasts and products are delivered to relevant portions of the government sectors and the public.

5.0.7 Recognizing the continuing need to give attention to a wide range of climate-related activities of interest to the Region, the Association adopted Resolution 7 (XII-RA II). The Association requested the Secretary-General to take appropriate action to enable the Working Group to meet during the next intersessional period.

5.1 WORLD CLIMATE DATA AND MONITORING PROGRAMME (WCDMP) (agenda item 5.1)

5.1.1 The Association welcomed the establishment in Moscow of a CLICOM ASC for Newly Independent States (NIS), including those in RA II. It noted that the ASC had made a significant contribution to the development of enhanced CLICOM project software (version 3.1) released in January 2000. The Association furthermore noted that 17 of its Members had responded to an October 1999 questionnaire on the development of a future climate database management systems. Of these responses, 12 expressed some degree of interest in a new system. This indicates that a significant number of the Member countries in the Region are ready for a more advanced climate database management system than the current CLICOM project software and would benefit from the initiative that has been evolving since Twelfth Congress to meet this need. It therefore urged that this project be given a high priority and that options be provided to meet the varying needs of Members in the Region. Noting that no donor has yet been found to fund the establishment of a RA II CLICOM ASC in Bahrain, the Association urged contributions from its own Members towards the required total amount of US$ 50 000.

5.1.2 The Association noted the active involvement of a number of its Members in the Climate System Monitoring Project including the preparation of a book entitled *Climate of the Twentieth Century*. To promote the widespread distribution of the book, WMO Members in the Region are encouraged to help facilitate the book's accessibility by prospective readers in developing countries. Consideration should also be given to facilitating publication in languages other than English.

5.1.3 Noting the establishment in 1999 of the GSN, the Association welcomed the establishment of monitoring centres in Germany and Japan along with the plans to scientifically evaluate the designated stations with regard to their suitability and priority for climate change detection and attribution studies. All Members

in the Region are urged to fully cooperate in the implementation and operation of the GSN by following the established best practices which were endorsed by CBS-Ext.(98). These include routine transmission of monthly CLIMAT messages, in an accurate (e.g. using the proper coding procedures) and timely manner, and making historical monthly and daily data and related metadata available for climate research purposes.

5.1.4 Noting that a number of countries in the Region have expressed an interest in being involved in a data rescue project, the Association welcomed a roving mission of a WMO Scientific Officer to several Member countries earlier in 2000 to assess the condition and status of climate data records. Based on the results of this mission, the Association recommended the establishment of a formal Data Rescue Project in the Region (DARE II) to be modeled after the on-going Data Rescue Project in Region IV (DARE IV).

5.2 World Climate Applications and Services Programme (WCASP), including Climate Information and Prediction Services (CLIPS) (agenda item 5.2)

5.2.1 The Association noted that NMHSs in the Region 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, which should eventually cover all climate issues of interest to NMHSs. Plans for holding a CLIPS Training Workshop for Focal Points in late 2000 were also welcomed. The Association urged all Members to identify Focal Points and to provide them with the facilities necessary to undertake their roles.

5.2.2 The Association further recognized that enhanced benefit would be obtained through regional networking of Focal Points and proposed that these networks be developed around RA II rapporteurs designated to report on CLIPS issues.

5.2.3 Prediction on seasonal to interannual time scales presents challenges in terms of information presentation and interpretation and conversion into decisions within each application area, as well as 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 showcase projects. In particular the Association noted the key role played by forecast verification and encouraged the CLIPS Project Office (CPO) to continue activities to enhance the transparency of verification measures and to improve the relevance of these to applications planning.

5.2.4 The Association noted the activities undertaken to consider the possible roles of RCCs in the provision of climate information and prediction services. RCCs, as such, should be developed in locations serving a region in which requirements on their services should be coherent, and thus, in such a geographically diverse area as RA II, several Centres would be required. Several Members expressed interest in operating RCCs and the Association requested the Secretary-General to continue activities to further elucidate the role of RCCs and to provide a proposal as to how Centres might be developed within RA II.

5.2.5 The Association supported the concept that, in developing climate applications within the context of CLIPS, special attention should be given to the food production, water resources, human health, and energy sectors. This will require building partnerships and cooperative ventures within the Region between WCASP and other WMO Programmes, such as the AMP and the HWRP. It was pleased to note the progress that has already been made in this regard. It would also require similar interactions between WCASP and the programmes of other agencies and institutions with responsibilities within the Region.

5.2.6 The Association affirmed the overall importance of the CLIPS Project to the Region, and requested the Secretary-General to ensure continuing and developing activities within the Region and adopted the Resolution 8 (XII-RA II).

5.2.7 The Association noted the attention that was given to weather, climate and human health as the theme of World Meteorological Day 1999 and in various publications. Noting again that aspects of bioclimatology relating to human health need to be further emphasized in the development of CLIPS, the Association agreed that special focus should be given on conditions in the tropics, especially on the rapidly growing conurbations in which large segments of their populations are already directly affected by climate, its variation and change. The Association noted with appreciation the initiation of development of the CLIPS showcase project 'Shanghai Heat/Health Warning Systems', and requested the Secretary-General to provide assistance in the organization of similar showcase projects as requested by Members.

5.2.8 The Association noted that several developments in the area of Urban and Building Climatology had been in focus in the last few years. The Plan of Action for the Tropical Urban Climate Experiment (TRUCE), as endorsed by the twelfth session of the Commission for Climatology (CCl-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 many of the participants from the Region.

5.2.9 The Association noted the need to promote a broader understanding of the relationship between

climate and energy based on the principle that national and international cross-discipline activities can apply to climate information, including predictions, to improve energy decisions. In this respect, the Association re-emphasized the need for urgent actions to address the issues of declining national climate observing networks and the inadequate infrastructure in many areas of the world. In that regard, the Association urged its Members to increase their initiation of and participation in multi-agency, multi-stakeholder activities, including relevant aspects of the GCOS regional workshops on improving GCOS deficiencies. 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 (traditional and renewable).

5.3 World Climate Impact Assessment and Response Strategies Programme (WCIRP) (agenda item 5.3)

5.3.1 The Association noted the activities carried out by UNEP under the WCIRP in collaboration and coordination with WMO and other organizations including IPCC, UNFCCC and GEF. It noted in particular the involvement of UNEP in mitigating the impacts of the 1997/98 El Niño induced fires in ASEAN countries, the assistance it provided to improve the communications of early warning systems and among key centres in the subregion to coordinate fire fighting operations, to establish an integrated action plan at the local level for coordination among different actors for fire suppression, and to develop a legal framework for the prevention of transboundary haze.

5.3.2 The Association noted the technical and administrative assistance provided by UNEP to several countries in Africa, Asia and Latin America in the preparation of their national communications to the UNFCCC. It also noted the activities initiated with the GEF and the Government of Denmark on 'case studies on climate change impacts and adaptation assessment' in several countries, including Bangladesh and Pakistan.

5.3.3 The Association noted that UNEP was implementing a number of energy-related climate change projects and providing technical assistance and capacity building to a large number of developing countries. It also noted UNEP's activities in promoting information for decision-making and awareness of climate change and the UNFCCC.

5.4 Climate Programme Coordination and Support Activities (agenda item 5.4)

5.4.1 The Association was informed of the overall coordination of the WCP. In this regard, the Association noted with satisfaction the decisions made by Thirteenth Congress and the fifty-first session of the Executive Council (Geneva, May 1999) 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 its reports be made available to the Members of the Association.

5.4.2 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 UNFCCC. The Association requested the Secretary-General's further support in the coordination of the interests of the NMHSs of its Members at sessions of the Conference of the Parties (COP) of the UNFCCC and meetings of its subsidiary bodies. The Association appreciated the information provided by the Secretary-General through regular circular letters to the Members of the Organization on the decisions and activities of the UNFCCC and its bodies on research and systematic observation of the climate system. The Association urged its Members to continue to involve their NMHSs in the various processes related to the UNFCCC at the national, regional and international levels, including the implementation of the relevant COP decisions. Further aspects of WMO involvement in the implementation of the UNFCCC were taken up under sub-item 5.6.

5.5 World Climate Research Programme (WCRP) (agenda item 5.5)

5.5.1 Members of the Association continue to participate actively in many components of the WCRP. A particularly important activity was the GEWEX Asian Monsoon Experiment (GAME). An intensive observing period was conducted in 1998 in coordination with the South China Sea Monsoon Experiment (SCSMEX), the Korean Monsoon Experiment (KORMEX), the Tibetan Plateau Hydrometeorological Experiment and the Huaihe River Basin Experiment in central China, all with wide international participation. Unique high resolution data on energy processes and water cycles during the Asian Summer Monsoon were collected. Enhanced upper-air soundings and surface-based observations were carried out. Special data sources included the Asian Automatic Weather Station Network, especially established for GAME, as well as a series of surface radiation monitoring sites. GAME will also contribute to the GEWEX Coordinated Enhanced Observing Period (CEOP) in the first half of this decade, aimed at evaluating the impact of land and hydrological processes on the predictability of weather and climate on a global scale, with emphasis on application to water resources. The Third International Scientific Conference on the Global Energy and Water Cycle was held in Beijing, China from 16 to 19 June 1999 in conjunction with the fourth Study Conference on GAME.

5.5.2 The Association expressed particular interest in the development of the CLIVAR research study. CLIVAR builds on the success of the WCRP TOGA programme and WOCE to extend understanding of climate variability on seasonal to decadal time-scales and further strengthen the scientific basis for practical climate prediction. The Association also noted the activities being undertaken under the auspices of CLIVAR, and which focused on monsoonal circulations in the Asian/Australian region.

5.5.3 The Association recognized that WCRP research activities must be complemented by systematic, sustained and reinforced observations of all key climate variables, by capacity building involving all nations in climate research activities, and by improving interactions with other climate-related programmes within the framework of the international Climate Agenda. The Association encouraged the NMHSs to participate as fully as possible in national climate research programmes led by other national institutions.

5.6 GLOBAL CLIMATE OBSERVING SYSTEM (GCOS) (agenda item 5.6)

5.6.1 The Association noted with appreciation the progress report on the GCOS. It was informed that the GCOS Steering Group had met the previous week in Beijing for its ninth session and had begun the challenging task of developing an overall implementation strategy. The Association noted that the Initial Operational System (IOS) was 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 GCOS Upper Air Network (GUAN). The results of the GSN monitoring activities would be made available on the Internet, and Members of the Association were encouraged to review the reports and work within the CBS to resolve problems identified in the quality and distribution of GSN data. Members of the Association also agreed to submit historical data and metadata from their GSN stations, as requested in a letter dated 20 September 1999 from the Secretary-General, as well as to provide ongoing support for their GSN and GUAN observations. The Association was gratified by information supplied by several Members on steps they had taken to meet the requirements for GSN and GUAN stations identified within their respective borders, such as the need for GUAN stations to regularly report to heights of 5 hectopascals.

5.6.2 The Association recognized the importance of the decisions from the fifth session of the Conference of Parties (COP) to the UNFCCC regarding meteorological and hydrological observing systems. In particular, it welcomed the regional approach being taken by GCOS to identify and seek to address deficiencies in these observing networks. It requested Members, to the extent possible, to assist the GCOS Secretariat in developing national action plans for observing systems including, where appropriate, the organizing of sub-regional workshops within RA II. The Association was gratified by the offer of Japan to support such a workshop. It also noted that the development of national action plans must address observations in all domains, namely the atmosphere, ocean and land.

5.6.3 The Association was informed of the opportunity presented by the UNFCCC decision to call for national planning to implement GCOS and the need for reports on this planning process to be submitted during 2001. The Association urged Members to ensure that NMHSs become involved in the preparation of these reports. The COP had also adopted decisions with respect to funding support from the GEF for developing countries to participate in activities related to systematic observations. Proposals could include capacity building measures such as participation in regional workshops or requests to improve infrastructure.

5.6.4 The Association, recalling Resolution 3 (EC-LII), encouraged its Members to respond to the GCOS Secretariat when the GCOS Implementation Strategy was released for comment.

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

The Association noted the activities that had taken place within the AREP over the past four years and that its Members had played an active part in many of them. A number of these involved new programmes, e.g. the WWRP, while others involved expansions and extensions of existing programmes, e.g. GAW, and as such required special attention on the part of the Association to ensure that they were being implemented effectively within the Region. The Association noted with satisfaction that three Members had submitted candidates for the WMO Research Award for Young Scientists for 2000.

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

6.1 The Association recalled that the atmospheric composition information provided by the GAW network in the Region was a major contribution to the implementation of a number of UN environmental conventions. With respect to the Vienna Convention for the Protection of the Ozone Layer, the Association noted with satisfaction that its Members were regularly submitting their ozone data to the appropriate WDC, and that this information had confirmed the important stratospheric ozone decline witnessed in northern regions of Siberia, especially in late winter and early spring.

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

6.2.1 The Association noted that a majority of its Members operated GAW stations and that the global station established in China was now fully operational and providing valuable information and research studies. The Republic of Korea had also established a GAW station where special attention was being given to the measurement and monitoring of atmospheric aerosol concentrations. A warm welcome was given to the decision by Japan to create a Quality Assurance/Science Activity Centre (QA/SAC), operating alongside its WDC for Greenhouse Gases to serve Asia and Oceania. These activities guaranteed that major world ecosystems would be adequately represented and that national and international decisions on the environment would have the benefit of high quality information.

6.2.2 The Association recognized the need for the international scientific community and decision-makers to have ready access to information on the chemical

composition of the atmosphere, including aerosols. It therefore urged Members to submit their measurement data in time to the relevant WDCs established for this purpose. The Association stressed, in particular, the need for data on greenhouse gases collected in Member countries to be transmitted to the WDC operated by Japan. The Association urged NMHSs to act on behalf of the WDC to determine the extent of relevant data holdings in their national research institutions.

6.2.3 The Association noted the scope of the training events arranged by WMO were concerned with ensuring that high quality measurement data are available for research and monitoring purposes. It noted in particular the training being made available by the Quality Assurance/Science Activity Centre (QA/SAC) in Japan and encouraged Members to take full advantage of opportunities as they arise.

6.2.4 The Association noted that Beijing (China) and Moscow (Russian Federation) had been selected for pilot projects within the GAW Urban Research Meteorological Environment Project (GURME) to assist local authorities in dealing with urban pollution problems. The Association encouraged Members to follow carefully these projects and to support its expansion to other large urban areas throughout Asia. Uzbekistan expressed interest in hosting a workshop for this purpose.

6.2.5 The Association noted with appreciation the report submitted by its rapporteur Mr S. S. Chicherin (Russian Federation) on GAW which elaborated on its activities in the Region. Despite the progress reported in the Region with respect to GAW activities, the Association recognized the necessity to further develop the GAW network. In this regard, the recurring forest fires in adjacent areas of WMO Region V where smoke plumes affect south-eastern parts of Region II, present an opportunity for NMHSs to become more engaged in the management of regional and urban pollution issues. The Association was informed that activity on the EANET has expanded. Participants at EANET meetings stressed the need and the readiness for close cooperation with the GAW programme regional bodies on Quality Assurance/Science Activity Centre (QA/QC) and on data collection activities.

6.2.6 The Association considered the concept of 'categories' of GAW global and regional stations based on differing sets of requirements. The Association noted that GAW guidelines exist which set down, in some detail, the criteria for global and regional stations, and that any further refinements may make the GAW system impractical to administer.

6.2.7 An increasing number of countries in the Region were experiencing growing economies as well as rapid urbanization. The Association, therefore, urged Members to establish GAW regional stations to monitor the build-up and transport of anthropogenic pollutants in the atmosphere.

6.2.8 Considering the need to be kept fully informed of developments in the Region concerning GAW, the Association decided to appoint two Co-Rapporteurs on the Global Atmosphere Watch and adopted Resolution 9 (XII-RA II).

6.2.9 The Association expressed its appreciation to the Rapporteur on Atmospheric Ozone, Mr Osamu Uchino (Japan) for his report. Noting the continuing need for Members to monitor and study both tropospheric and stratospheric ozone levels and the role of ozone in climate forcing and human health matters, the Association urged Members to maintain and expand, if possible, their ozone observing activities. The Republic of Yemen requested assistance in establishing an ozone monitoring station.

6.2.10 To promote and stimulate regional ozone activities the Association decided to appoint a Rapporteur on Atmospheric Ozone and adopted Resolution 10 (XII–RA II).

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

6.3.1 The Association noted with satisfaction the high level of interest shown by its Members in the activities and programmes of the recently established WWRP. Members from the Region had hosted and participated in meetings and workshops on long-range forecasting and typhoon intensity predictions. The Association stated its satisfaction with the start-up phase of the WWRP and expressed the view that it would be essential in its implementation phase to remain focussed on a well-balanced set of priorities. The Association was informed of the high level of collaboration between CAS, CCl, CBS and the WCRP on both the scientific and technical issues related to long-range forecasting, including the challenging task of developing appropriate and comparable verification measures for a wide range of forecasting techniques.

6.3.2 Members were urged to continue their support to the Programme in general and, in view of its interest to many countries of the region, to remain engaged in the International Tropical Cyclone Landfall Project, currently under development. The International Workshop on Mesoscale Model Intercomparison of Typhoon Intensity Prediction held in Tokyo, Japan in December 1999 was an example of the opportunities where research and operational scientists could interact effectively for mutual benefit. The workshop resulted in the improvement of the services provided by the RSMC, Tokyo Typhoon Centre.

6.3.3 Improvements in nowcasting and short-range forecasting were principal goals of the WWRP and the Association believed that these should be pursued with vigour. Hong Kong, China and the Republic of Korea expressed a willingness to share its experience with other Members of the region in this regard. The Sydney 2000 project conducted during, and in association with, the Olympic Games would also provide valuable experience and information on a number of forecasting techniques and systems for gathering, transmitting and processing data in an intense operating environment.

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

6.4.1 Members of the Association continued to show great interest in activities related to the development of

the TMRP. China successfully hosted the fourth International Workshop on Tropical Cyclones in April 1999 which brought together operational forecasters and research scientists to discuss the current knowledge of the behaviour of tropical cyclones and to identify future research options in order to improve tropical cyclone forecasting. The Association noted the particular emphasis given by the workshop to the need to pursue research in the improvement of numerical modelling of tropical cyclones, with particular attention to the land-falling aspects, and the forecasting of associated strong winds and precipitation which are the main cause of socio-economic damages. Members also participated in the First International Workshop on Monsoon Studies and the meeting of the CAS Working Group on Tropical Meteorology Research (Both held in Indonesia, February/March 1997). The Sixth WMO International Workshop on Limited Area Modelling (United States, November 1999) and the Sixth Regional Workshop on Asian/African Monsoon Emphasizing Training Aspects (Kenya, January 1999) were also well attended by participants from the Region. The Association encouraged its Members to also contribute to the Second International Workshop on Monsoon Studies scheduled to be held in the Region in 2001. SCSMEX, for example, has provided a wealth of data for ongoing and future monsoon studies, as well as for other areas of tropical meteorology research.

6.4.2 The Association commended the work of the Regional Activity Centre for Monsoon Studies, operated by India, for its contributions to data acquisition and analyses, the issuing of annual reports, hosting training workshops and monsoon research. Members were encouraged to continue their support of the TMRP.

6.5 PROGRAMME ON PHYSICS AND CHEMISTRY OF CLOUDS AND WEATHER MODIFICATION RESEARCH (PCCWMR) (agenda item 6.5)

6.5.1 The Association noted the highly successful staging of the Seventh WMO Scientific Conference on Weather Modification in Chiang Mai, Thailand in February 1999, with a strong participation by Members from the Region. The Conference, which attracted 220 participants from 32 countries, presented important progress in several aspects of weather modification and, in particular, promising results obtained in Mexico, South Africa and Thailand on the application of new hygroscopic seeding techniques for precipitation enhancement. The Association furthermore agreed with the comments made by the Thirteenth World Meteorological Congress that more research in basic physics and chemistry were needed to clarify the practical potential of new promising methods.

6.5.2 The Association urged Members to continue their support to the Programme, particularly by providing national reports on their activities for inclusion in the WMO Register of National Weather Modification Projects.

6.5.3 The Association noted with appreciation the report submitted by its Rapporteur Professor Hu Zhijin (China) on the Physics and Chemistry of Clouds and Weather Modification Research. It noted that 12 countries in the Region conducted operational weather modification activities on a regular basis and that nine Members were active in cloud research. The Association stressed that scientific advances in understanding the physics and chemistry of clouds and in remote sensing techniques for measuring microphysical properties of clouds means that the present context was favourable to progress in weather modification and could lead, through new research programmes and experiments, to sound weather modification concepts and programmes.

6.5.4 The Association was gratified with the high level of cooperation and collaboration between countries of the Region. For example, the agreement being developed between the Newly Independent States (NIS) on active weather modification research, provided a basis for setting priorities on a sound scientific basis. The results being achieved in the Region and elsewhere were very promising and should provide a strong incentive for continuing the research and proceeding with further experimentation.

6.5.5 In view of these advances and their possible application to other environmental issues such as the earth's radiation balance, aerosols and climate change, the Association decided to re-appoint a Rapporteur on the Physics and Chemistry of Clouds and Weather Modification Research and adopted Resolution 11 (XII-RA II).

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

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

7.1.1 The Association expressed satisfaction with the continued development of the PWSP and noted the progress made in implementing its objectives.

7.1.2 The Association was informed that following the restructuring of the CBS in 1998, the Open Programme Area Group (OPAG) on PWSP replaced the Working Group on Public Weather Services. Three expert teams and an implementation and coordination team are supporting the work of the Programme. Experts from RA II are serving on all the teams.

7.1.3 The Association welcomed the publication and subsequent distribution in January 2000 of the second edition of the *Guide to Public Weather Services Practices* in English. Versions in other WMO official languages were expected later in the year. This expanded edition stresses the concept of user-focused service provision and delivery. The Guide is complemented by a CD-ROM incorporating examples of national practices to assist Members to improve their public weather services. The Association noted the publication in May 1999, of *Public Weather Services in Focus* (WMO/TD-No. 974), which contained the results of the 1997 WMO survey to assess the state of Members' public weather services. Fifty-nine per cent of Members in RA II responded to the questionnaire.

7.1.4 The Association expressed satisfaction at the ongoing dialogue through the PWSP with international

media representatives as regards topics of 'single official voice' and attribution to NMSs, as these were indispensable to increase the visibility and better recognition of the role of the NMS. The Association underscored the need for consistency between official NMS information and the information disseminated by national and international media. It emphasized that information disseminated by national and international media should identify the source. In this regard, the Association was informed of the development of guidance material on strengthening links and improving relationships with the media, and efforts to improve international media access to official information issued by NMSs. The Association requested CBS to study the possibility of a coordinated exchange on global and regional scales of selected PWS forecasts and warnings between WMO Members in order to avoid inconsistency of information provided for PWS.

7.1.5 The Association noted with appreciation that Hong Kong, China, at the request of CBS, would develop and host a demonstration web site serving as a WMO centralized portal site for tropical cyclone warnings in the western North Pacific and South China Sea for the international media. Ten Members of the ESCAP/WMO Typhoon Committee participated in this pilot project. The Association was pleased to note that a prototype web site had been completed and demonstrated at the Regional Seminar on Meteorological Services: Opportunities and Challenges in the Twenty-first Century held before this session. This prototype would be further developed in consultation with the WMO Secretariat and Typhoon Committee Members concerned for its launch before the next tropical cyclone season.

7.1.6 The Association appreciated the preparation of the following guidance materials, with special emphasis on the needs of NMSs in developing countries:

(*a*) Improving identification and documentation of technical requirements of PWS products;
(*b*) Graphic presentation of PWS products;
(*c*) Service evaluation including forecast and warning verification.

The Association reiterated the importance of collaboration between NMSs and disaster management authorities in preventing loss of life and property during severe weather, and welcomed the development of guidelines on 'best practice' for improving relationships between the two.

7.1.7 The Association concurred that high priority should be given to capacity building for the effective provision of PWS, and appreciated that guidelines were being prepared on PWS training programmes with increasing involvement of RMTCs. The Association noted with appreciation the PWS training activities in the Region since XI-RA II. A two-part Seminar on the Use of GDPS Products and Presentation of Forecasts to the Public was hosted in Seoul, Republic of Korea, from 22 to 29 October 1996. A PWS Workshop as part of the twenty-sixth session of the WMO/ESCAP Panel on Tropical Cyclones was held in Maldives in March 1999. A PWS Workshop dealing mainly with PWS issues at management level was conducted from 29 to 30 November 1999, following the thirty-second session of the WMO/ESCAP Typhoon Committee in Seoul, Republic of Korea. The Association emphasized that the training activities on PWS, in particular on the presentation of weather information on TV, should be given high priority.

7.1.8 The Association agreed that future high priority issues for the PWSP were:

(*a*) Capacity building of NMSs to provide effective public weather services;
(*b*) Improving exchange of PWS products;
(*c*) Enhancing the visibility of NMSs;
(*d*) Improving products and services;
(*e*) Keeping abreast of new technology (e.g. Internet);
(*f*) Service assessment and forecast verification.

7.2 AGRICULTURAL METEOROLOGY PROGRAMME (AgMP) (agenda item 7.2)

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

7.2.2 The Association noted with appreciation the theme adopted by the Commission, 'to promote agrometeorology and agrometeorological applications for efficient, sustainable agriculture, silviculture, and aquaculture for an increasing world population in rapidly changing environments'. It 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 Asia. The Association considered the theme to be of enormous importance to the Region. The Association noted with interest the inter-sessional activities of the CAgM and agreed that they will contribute greatly to the economic development of the countries in Asia.

7.2.3 The Association further noted the main topics discussed at the twelfth session of CAgM which included the applications of seasonal to interannual climate forecasts and the products and services based on these forecasts that are becoming available. The Association supported the decision of the Commission to promote, survey and summarize, using case studies, the current applications of climate forecasts in agriculture, forestry and livestock management and 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 START of the International Geosphere-Biosphere Programme (IGBP), WCRP, and the International Human Dimensions Programme on Global Environmental Change (IHDP) in the CLIMAG project. It congratulated the Secretariat on the successful organization of the

International Workshop on CLIMAG in September 1999 in Geneva.

7.2.4 The Association was pleased to note the conclusion of the CLIMAG workshop that, among others, there are specific areas in Asia-Pacific where CLIMAG demonstration projects could be developed from existing pilot activities, and that multidisciplinary 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, IRI (International Research Institute), APN (Asia Pacific Network for Global Change Research), IAI (Inter-American Institute for Global Change Research), and other relevant programmes and organizations is an essential ingredient underpinning the effort of these multidisciplinary teams, the Association encouraged WMO's continued participation in the activities of the CLIMAG Steering Committee.

7.2.5 The Association noted with satisfaction the workshops, seminars and training events held in the Region and strongly supported the continued organization of such events for the benefit of the participants from the Region. The Association expressed its gratitude to Nepal, India, the Republic of Korea, Bahrain, Qatar and the Islamic Republic of Iran for their support in hosting these events. The Association requested the Secretary-General to continue providing strong support to the roving seminars in agricultural meteorology which are helping to build the much needed capacity to address emerging agrometeorological issues in the Region. The Association agreed that training in agricultural meteorology should receive high priority consideration for meaningful application of meteorological information to agricultural activities.

7.2.6 The Association supported the recommendations of the CAgM Advisory Working Group for two additional activities that need to be promoted. First is the need for submissions of case studies of economically beneficial agrometeorological applications and services, and of success stories in agricultural meteorology for policy matters that the Commission plans to publish in a brochure. Second is the need for contributors to the revised *Guide to Agricultural Meteorology Practices* (WMO-No. 134), which is being coordinated by the Commission. The Association requested its Members to contribute to these important initiatives.

7.2.7 The Association noted WMO's activities on desertification and urged Members to participate actively in the implementation of the UNCCD. The Association requested the Secretary-General to continue 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 complimented the chairman of the RA II Working Group on Agricultural Meteorology, Mr G. A. Kamali (Islamic Republic of Iran) and the members of the group for the activities it carried out and for the final technical report. As requested, the Chairman allocated the following responsibilities for carrying out the tasks set down in the group's terms of reference:

(*a*) Effects of climate change and variability on agriculture, animal husbandry, forestry and fisheries — Mr O. D. Sirotenko and Ms A. I. Strashnaya (Russian Federation);

(*b*) Adaptation strategies in agriculture to cope with the impacts of climate change and climate variability on agriculture — Mr H. P. Das (India);

(*c*) Possible effects of agriculture on climate — Messrs Byong Lyol Lee (Republic of Korea) and Van Viet (Viet Nam);

(*d*) Meteorological aspects of irrigation in arid and semi-arid regions — Ms Wang Shili (China);

(*e*) Developments in agricultural meteorology and desertification of particular interest in the Region — Messrs O. L. Babushkin, A. K. Abdulaev and K. M. Abdulaev (Uzbekistan);

(*f*) Advisor to the president of RA II on all matters concerning agricultural meteorology, including desertification — Ms K. Noohi (Islamic Republic of Iran);

(*g*) Development of a priority list of activities in agricultural meteorology (including desertification) for the Region — Mr D. Dagvadorj (Mongolia).

The Working Group highlighted the following recommendations from its report for future consideration in the work of the Association in the field of Agricultural Meteorology:

(*a*) 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 Asia and to suggest appropriate coping strategies for droughts;

(*b*) To assess the social and economic impacts of extreme climatic events other than drought on agriculture, animal husbandry, forestry and fisheries, and the long term and short term remedial measures to deal with them;

(*c*) To review the current understanding of the science of seasonal to interannual climate forecasts for Asia and recommend ways and means of promoting their applications for a more productive and sustainable agriculture in Asia;

(*d*) 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; and,

(*e*) To review and summarize the status of applications of new methods such as GIS, EIS and remote sensing in agrometeorology in Asia.

The Association recommended that the report be published by WMO and distributed widely.

7.2.9 The Association agreed that the application of meteorology to agriculture, including animal husbandry, continues to be of high importance to the Region. The activities of the Working Group on Agricultural Meteorology should therefore be continued taking into account developments in the Region, such as the need for improved adaptation strategies to climate

variability and climate change, methods to cope with extreme meteorological events such as droughts and floods, and the potential for developing improved agrometeorological applications using tools such as GIS. The Association therefore re-established a Working Group on Agricultural Meteorology with renewed terms of reference and adopted Resolution 12 (XII-RA II).

7.3 **AERONAUTICAL METEOROLOGY PROGRAMME (AeMP)** (agenda item 7.3)

7.3.1 The Association noted with appreciation the re-emphasis placed by the Thirteenth Congress on an expanded and vigorous AeMP. It also noted that Congress requested the Secretary-General to assist in the implementation of the AeMP and, in particular, to give high priority to training requirements.

7.3.2 The Association noted with satisfaction that seven Members from Region II attended the annual United Kingdom/WMO Aviation Seminar held in Reading, United Kingdom, in July 1999 and 14 Members attended both the Training Seminar in Aeronautical Meteorology with emphasis on the processing, manipulation and display of World Area Forecast System (WAFS) Data and Products held in Kuala Lumpur, Malaysia, in November 1999, jointly organized by WMO and the United States National Weather Service. Another 14 Members also attended the Training Seminar on Cost Recovery on Aeronautical Meteorological Service held in Bali, Indonesia in November 1999. The Association urged its Members to organize, in cooperation with WMO, other training events in the Region on WAFS data and products as well as on cost recovery issues.

7.3.3 The Association welcomed the progress made towards the final phase of WAFS including the establishment of transition plans for the handover of responsibilities of RAFCs, New Delhi and Tokyo respectively, to the two WAFCs in London and Washington. It was pleased to note that the RAFC in Tokyo was prepared to transfer its responsibility as from 1 March 2001. The Association expressed its satisfaction with progress achieved on the implementation of the WAFS, particularly the installation to date of over 110 Very Small Aperture Terminal equipment (SADIS VSAT) in over 70 countries, the computer generation of high level significant weather (SIGWX) charts in coded facsimile (T.4) format, and the successful trials for the generation, transmission and decoding of SIGWX forecasts in the BUFR code format. The Association was informed that BUFR coded SIGWX forecast transmission trials would resume during the year 2000 to ascertain that the system was robust enough to meet operational requirements.

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 and noted with satisfaction the participation of WMO at Volcanic Ash Warnings Study Group (VAWSG) meetings. The Association welcomed the provision of transport model products by the various WMO RSMCs. The Association noted the need to extend areas of responsibility of VAACs to areas in the Region not covered by VAACs. In this context, it was pleased to learn that Australia had kindly offered to extend the current area of responsibility of the Darwin VAAC to include the volcanoes on Barren Islands and western Sumatra. It also noted with appreciation the offer of Japan to extend the area of responsibility of Tokyo VAAC to the 90°E, as well as the offer of the United States to extend the area of responsibility of the Anchorage VAAC to cover the eastern part of Siberia and the adjacent Pacific Ocean that have intense air traffic.

7.3.5 The Association welcomed the adoption by the eleventh session of the Commission for Aeronautical Meteorology 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 requested CBS to continue its work regarding clarification of the weather phenomena for the codes to meet the requirements of CAeM.

7.3.6 The Association noted with satisfaction the positive role played by the CAeM Working Group on the Provision of Meteorological Information to Civil Aviation (PROMET) which had worked closely with relevant CBS and CIMO Working Groups and ICAO in developing various amendments to ICAO Annex 3/WMO Technical Regulations. The Association noted with satisfaction that these amendments were included in amendment 71 which became applicable on 5 November 1998.

7.3.7 The Association welcomed the establishment by ICAO of Aerodrome Meteorological Observing Systems Study Group (AMOSSG) to examine operational requirements for automated observing systems at aerodromes in which WMO would participate actively.

7.3.8 The Association recognized the positive role played by the AMDAR Panel since its establishment in March 1998. It noted with great interest the importance of the AMDAR Programme had resulted in the availability of an effective upper-air observing system especially over data sparse areas. The Association noted with satisfaction that the availability of timely, accurate and high resolution AMDAR reports contributed to increased forecast accuracy. It welcomed the participation of Saudi Arabia to the second meeting of the AMDAR Panel held in October 1999 and encouraged it to vigorously pursue the implementation of the high priority AMDAR pilot project on the Middle East. The Association was pleased to note that Hong Kong, China would join the AMDAR Programme in the near future and would initiate a pilot project with support from the United States. The Association urged all Members of the Region to contribute to the early implementation of the AMDAR Programme which provided significant benefit to various operational products.

7.3.9 The Association congratulated the Working Group on ATEAM for the updated publication of the WMO Technical Note No. 195 — *Methods of Interpreting Numerical Weather Prediction Output for Aeronautical Meteorology* (WMO-No. 770). The Association welcomed the publication in 1999 of the *Guide on Aeronautical*

Meteorological Services Cost Recovery: Principles and Guidance (WMO-No. 904). 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.

7.3.10 The Association was informed on the results of the ICAO Conference on the Economics of Airports and Air Navigation Services held in Montreal, Canada from 19 to 28 June 2000. It noted with concern the IATA position presented at the Conference that aeronautical users were burdened with an unduly large share of meteorological service costs. IATA believed that these meteorological service costs should be limited to the costs for facilities and services serving exclusively aeronautical users, and it proposed the revision of ICAO regulations which would exclude core services (i.e. synoptic and upper-air stations, satellite and radar facilities) from cost recovery from aviation. The Association noted that WMO had submitted a document to the Conference stressing that the vital contribution of the WWW components and WAFS to the provision of safety of air navigation must remain the highest priority even when economic efficiency is compromised. WMO's position was that existing ICAO regulation setting out its policy with regard to the recovery of costs of providing aeronautical meteorological service should be retained.

7.3.11 The Association noted with satisfaction that the WMO position was supported by 30 countries and that the conference had agreed to retain existing regulations. The Association encouraged Members to continue to provide the best possible service to the airlines and to cooperate with IATA and airlines in addressing any grievances that they may have regarding the quality of the services provided and the transparency of meteorological costs. The Association urged Members to ensure closer contacts between NMSs and aviation authorities at future national level to avoid any misunderstanding regarding the vital role of meteorological services to air navigation.

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

7.4.1 The Association noted with interest that Thirteenth Congress had approved the MMAOP as part of the 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 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 twentieth assembly of the IOC held in Paris in July 1999. As agreed by Congress and the Assembly, JCOMM will now be the coordinating and reporting body for all operational marine activities of WMO and IOC, and the primary implementation mechanism for an ocean observing system for climate in support of GOOS and GCOS. The Association recognized the potential importance of JCOMM to its Members and to WMO and offered its strong support. Further specific action in this regard is recorded in paragraph 7.4.7.

7.4.2 With regard to the implementation of marine meteorological services, specifically in Region II, the Association noted with appreciation the comprehensive report of the Rapporteur on Regional Marine Meteorological Services, Mr M. Saiki (Japan). 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 13 (XII-RA II).

MARINE METEOROLOGICAL AND OCEANOGRAPHIC SERVICES

7.4.3 The Association noted that the new WMO marine broadcast system under the GMDSS (forming a part of the SOLAS Convention) was fully implemented, as planned, on 1 February 1999. It recalled that details of the system were formally adopted by the eleventh session of the Commission for Marine Meteorology 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 four Metareas covering the Region were now operational, and expressed its considerable appreciation to all the NMSs concerned (China, India, Japan, Pakistan and the Russian Federation). 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 VOS to participate actively in the various MMSs monitoring exercises being undertaken.

7.4.4 The Association recalled that a new, globally coordinated 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.

7.4.5 The Association noted with appreciation that the MCSS, the Global Digital Sea-Ice Data Bank (GDSIDB) and the Global Temperature Salinity Pilot Project (GTSPP) were all being continually developed to meet requirements for various types of marine climate data to support global climate studies, GCOS and the provision of marine services. It therefore urged Members concerned in the Region to participate actively in these projects, which now all formed part of the JCOMM data management programme area. The Association expressed its particular appreciation to Japan for the extensive and valuable on-going work being undertaken to digitize historical ship meteorological reports in the 'Kobe Collection', as well as for eventually making these data available to Members on CD-ROM.

SYSTEMS FOR MARINE OBSERVATIONS AND DATA COLLECTION

7.4.6 The Association noted with appreciation that, following the agreement of Eleventh Congress that WMO will cooperate with IOC in the development of GOOS. WMO was now a full co-sponsor of GOOS, along with ICSU, IOC and 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 NMHSs, 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 therefore adopted Resolution 14 (XII-RA II) on the subject.

7.4.8 The Association noted with satisfaction that several RA II Members had actively participated in the implementation of the NEAR-GOOS. The operational data bases for both real-time and delayed mode oceanographic data has been established and would be expanded in future. Two training courses were held with support of the Japan Oceanographic Data Centre. The Association urged Members concerned to enhance cooperation among agencies participating in the programme.

7.4.9 The Association agreed that the VOS, the SOOP, the GLOSS, the ASAP programme, ocean data buoys and oceanographic satellites formed key components of both existing and future ocean observing systems. They will 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. In this context, the Association noted with appreciation for the support of VOS observations in the Region. Japan had produced a training video for a voluntary observing ship. The copies of the video were distributed through WMO Secretariat to RA II Members operating VOSs. The Association urged its Members to:

(*a*) Recruit more ships to the VOS programme; improve data quality and timeliness; strengthen their Port Meteorological Officers' (PMO) networks; and participate where possible in the VOS Climate Project, the ASAP programme and the work of the ASAP Panel;

(*b*) Participate whenever possible in the implementation and long-term maintenance of the operational SOOP plan;

(*c*) Develop and operate drifting buoy programmes in data-sparse ocean areas; participate in the work of the DBCP and its regional action groups such as the International Buoy Programme for the Indian Ocean (IBPIO).

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 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 appreciation the efforts being made jointly by WMO and IOC to inform Members/Member States of Argo float deployments, to facilitate access to Argo data (which would be freely available in real time on the GTS) and information, and also to facilitate participation in the project. It agreed that an effective way of implementing these actions, as well as 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 could work in close collaboration with the existing DBCP/SOOP coordinator. It therefore, urged Members of the Association to make appropriate financial contributions to enable the rapid establishment and long-term maintenance of this position. The Association expressed its appreciation to Japan for hosting an Argo Implementation Planning Meeting for the Pacific (Tokyo, 13–14 April 2000), which was co-sponsored by WMO, IOC and the United States and included the participation of Australia, Canada, France, the Republic of Korea, PICES and SOPAC. The Association supported the statement adopted by this meeting, in particular regarding the need for a global implementation strategy for Argo, as well as for broad regional participation in, and support for, this implementation.

7.4.11 The Association noted that 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 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 12 (X-RA II) on the subject. With regard to maritime telecommunications, the Association recalled that its WG-PIW, at its third session (Qatar, October 1999), requested JCOMM to investigate the requirements of the maritime community for meteorological broadcasts via HF (coastal) radio. In this context, it noted that the former CMM had been keeping this issue under review (in particular through surveys of user requirements) for some time, and that:

(*a*) The meteorological requirements of shipping covered by the SOLAS Convention were fully satisfied through the broadcast facilities under the GMDSS (specifically INMARSAT-C, NAVTEX and VHF);

(*b*) The requirements of other marine users for voice/text information could generally be satisfied through new communications facilities other than HF radio;

(*c*) Nevertheless, there remained a substantial requirement on the part of marine users for the receipt of meteorological information in graphic form, in

particular synoptic analysis and forecast charts. There was thus considerable concern at the gradual decline in the number and coverage of radiofacsimile broadcasts for shipping. WMO, through JCOMM, was currently holding discussions with Inmarsat on the development of a facility, as part of SafetyNET, for the transmission to shipping through INMARSAT-C of graphic information in digital form.

7.4.12 The Association noted with interest that some VOS had used the Internet through INMARSAT to access web sites of NMHSs to obtain weather information in graphic form. The Association encouraged Members to provide graphic weather information of use to shipping on their web sites and publicized this among the marine community. It felt that it would be an efficient and cost-effective way for ships to obtain weather information as and when required without following a fixed broadcast schedule.

PROGRAMME SUPPORT ACTIVITIES

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

7.4.14 The Association noted with appreciation that a number of experts from the Region had participated in an International Workshop on Numerical Wave Analysis and Forecasting (Miami, USA, April-May 1997). Experts from several maritime Members of the Association had also participated in the International Workshop for PMOs from RA II/RA V (Melbourne, November 1999). The Association further recognized the value to members of CMM of the full day of scientific lectures, on the theme of marine pollution, which had taken place at the twelfth session of the Commission for Marine Meteorology (Havana, March 1997).

7.4.15 The Association noted with appreciation the further refinement, jointly with IOC, of the project proposal for the SEACAMP Project. This project aims for the cooperative development and enhancement of marine observing systems, data exchange, modelling and services in the South-East Asia region. It expressed its ongoing support for the project concept, and urged that every effort be made to secure the funds necessary for its implementation.

7.4.16 The Association was informed on current activity carried out in the framework of an Integrated Programme on Hydrometeorology and Pollution Monitoring of the Caspian Sea Region (CASPAS). It noted with interest that the Memorandum of Understanding between WMO and Coordinating Committee on Hydrometeorology and Pollution Monitoring of the Caspian Sea (CASPCOM) had been developed at its fifth session held in September 2000 in Almaty, Kazakhstan. The Association learnt that a series of roving seminars would be organized in the framework of the programme and some assistance from WMO was required.

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

8.0.1 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 WMO's 5LTP. It examined those topics in the Plan which were new or required more emphasis and recommended that the following aspects, considered to be of particular interest to countries in Asia, be taken into account as appropriate in the future work of the WGH:

(*a*) Drought, climate and water related issues;
(*b*) Mathematical models for flood forecasting;
(*c*) Assessment of surface water and groundwater resources (quantity/quality);
(*d*) Watershed management and sedimentation in rivers;
(*e*) WHYCOS in Asia; and,
(*f*) HOMS, recommended practices and hydrological services

8.0.2 In particular, the Association fully shared the view of Iraq, that the impact of drought on socio-economic development and poverty is frequently underestimated and recognized the need to strengthen efforts to alleviate the impact of drought by improved prediction capability and associated extension services to the affected population in close collaboration with meteorological services.

8.0.3 In this regard, the Association noted with concern the segregated activities of meteorological and hydrological services in the Region and urged its Members to undertake appropriate steps to ensure closer cooperation in issues related to climate and water. In this respect, the Association was informed that the WCP-Water has the potential to serve as a platform to foster closer cooperative links between hydrological and meteorological services.

8.0.4 The Association noted that the development and adaptation of mathematical models for flood forecasting using real-time data is crucial to alleviate the impacts of floods in major river basins of the Region and recommended that appropriate activities are undertaken to make these models available to Members through HOMS and in close cooperation with the professional staff of the hydrological services.

8.0.5 Water quality was also seen as a key issue for sustainable development and consequently the Association urged the Secretariat to undertake steps to raise the profile of water quality activities in the HWRP.

8.0.6 The Association noted with concern the information presented by Bangladesh, that over-exploitation and pollution of shallow aquifers has risen to dramatic proportions not only in Bangladesh, but also in other countries in the region. The Association concluded that water resources assessment should be extended to groundwater, including the quality of groundwater as an important source for water supply.

8.0.7 Excessive sedimentation in rivers is closely associated with progressive degradation of land in many

countries of RA II. Consequently, the Association decided to put this issue on its agenda for future work.

8.0.8 The HWRP has continued to be implemented in accordance with the 4LTP and, more recently, the 5LTP as adopted by Twelfth and Thirteen Congress respectively (see reference 1). Emphasis has been on bringing the tasks set by CHy-X to a satisfactory conclusion and responding to the many new and urgent demands for cooperation originating from outside the Organization.

8.0.9 The Association noted with appreciation the report of the chairperson of the WGH, Mr Z. D. Kopaliani (Russian Federation). It noted the progress made in carrying out studies on aspects of particular concern to Members through its seven rapporteurs who had been given specific assignments. In particular, it noted with interest the technical reports on:

	Title	*Rapporteur*
(*a*)	Flood forecasting — Efficiency of flood forecasting systems for major rivers in the Region	Mr M. M. Sheikh (Pakistan)
(*b*)	Management of international rivers — Strategies for better management of international rivers in the Region	Mr N. R. Afshar (Islamic Republic of Iran)
(*c*)	Water resources assessment — Regional water resources assessment	Mr Ngo Trong Thuan (Viet Nam)
(*d*)	Hydrological Services — Analysis of statistics on hydrological services and stations in Member countries, including the updating of INFOHYDRO	Messrs D. S. Upadhyay (India) and N. Y. Apte (India)
(*e*)	HOMS — The challenge to HOMS under new conditions; environmental degradation and population explosion	Mr Zhiyu Liu (China)
(*f*)	WHYCOS — Towards Asian components of WHYCOS	Mr V. G. Konovalov (Uzbekistan)
(*g*)	Water quality — Water quality problems in the Region	Mr D. Lavrov (Turkmenistan)

The Association was informed that the reports of the rapporteurs would be available on request from the Secretariat; however, the Association noted with regret that the report on 'Water Quality-Water Quality Problems in the Region' had not been submitted by the rapporteur.

8.0.10 The Association was pleased to note that its WGH had made significant inputs to the activities within the HWRP and, as required by Congress, its activities were well coordinated with those of CHy. The Association endorsed the future programme of work of the WGH, which conforms closely to the 5LTP and included it in the group's terms of reference.

8.0.11 On the basis of the recommendations by the working group, and taking into account the decisions of Thirteenth Congress and the recommendations of the tenth session of the Commission for Hydrology, the Association adopted Resolution 15 (XII-RA II) re-establishing the WGH, open to all Members of the Region, with a core of seven members who were to undertake specific work on different aspects of the group's terms of reference. With respect to the group's membership, the Association requested its Members to ensure an adequate representation of the Hydrological Services of Members. It further recommended that at least one session of the working group should be arranged during the next intersessional period and that financial assistance be provided by WMO to allow the core rapporteurs to attend that session.

8.1 PROGRAMME ON BASIC SYSTEMS IN HYDROLOGY (BSH) (agenda item 8.1)

WATER RESOURCES ASSESSMENT

8.1.1 The Association noted that the Secretariat had continued its efforts to promote the use of the methodology contained in the WMO/UNESCO Handbook on *Water Resources Assessment — Review of National Capabilities*. A series of regional workshops have been planned for this purpose. So far, three have been held: in Southern Africa (Malawi, July 1998); the Pacific Islands (Fiji, September 1999) and the Arab States (Cairo, December 1999). A fourth workshop for Central Asian States will be held in Tashkent in September 2000. In consultation with UNESCO, work is underway to make the English, French, Spanish and Russian versions of the handbook available on the Internet. The Association expressed strong interest that a fifth Workshop on Water Resources Assessment — Review of National Capabilities would be planned and conducted in the Region with specific emphasis on critical issues of countries in South and South-East Asia.

TECHNOLOGY IN OPERATIONAL HYDROLOGY

8.1.2 The Association noted that the International Workshop on HOMS in the Twenty-first Century was held in Geneva in September 1999. The Workshop developed an Implementation Plan for HOMS in the Twenty-first Century, which was then reviewed and adopted by the second session of the Advisory Working Group of CHy, in its capacity as the Steering Committee for HOMS. The Plan, which clearly sets the guidelines for the further development and updating of the System, has been distributed to all existing HNRCs.

8.1.3 The Association noted with appreciation that the process of updating the HOMS Reference Manual had advanced according to schedule. In the first phase, HNRCs were asked to review the components for which they were responsible with a view to updating their descriptions or withdrawing them if they were out-of-date. As expected, this led to a temporary reduction in the total number of components, making it a priority for the HOMS Office to obtain new contributions in those technical areas where the user community has the greater need for technology transfer. The Association expressed its commitment to further develop HOMS

through submission of specific components to the Office for HOMS and pledged Members to make available suitable components in all aspects of the HWRP. The Association noted with appreciation the information given by China, which has developed a new design procedure for PMP and PMF. The Association welcomed this effort and encouraged China to publish essential parts of the new methodology with the assistance of WMO and to propose changes in the *Guide to Hydrological Practices* (WMO-No. 168).

WORLD HYDROLOGICAL CYCLE OBSERVING SYSTEM (WHYCOS)

8.1.4 The Association was pleased to note that the WHYCOS programme continued to generate considerable interest in hydrological communities around the world. The Association noted the need to elaborate the technical, financial and organizational aspects of WHYCOS in more detail so as to reflect its global concept. The Association also noted with appreciation that plans for four new HYCOS components were now developed in RA II.

8.1.4.1 ARAL-HYCOS, with participation of the relevant rapporteurs of the WGH of RA II, has prepared a project description of ARAL-HYCOS; a second draft project document for ARAL-HYCOS will be discussed by five participating countries in Tashkent in September 2000. The Association noted the concern of Uzbekistan that the hydrological services of Central Asia do not have the resource capacity to solve the ecological crisis in the Aral Sea Basin because of the economic situation and obsolete technical equipment. The Association supported the request of Uzbekistan for technical assistance in the framework of ARAL-HYCOS from developed countries, especially Asian countries, in the improvement of the environmental and hydrological monitoring system in the Aral Sea basin.

8.1.4.2 The development of an ARCTIC-HYCOS project is being considered and will be further studied at the Steering Group of the ACSYS/CLIC project in October 2000. At the same time, the Secretariat will have consultations with Arctic countries in relation to the feasibility of that project.

8.1.4.3 HIMALAYAN-HYCOS (HKH-HYCOS) is in its early stage of planning with the possible participation of Bangladesh, China, India, Nepal and Pakistan. The Association was informed that funding had been secured to hold a regional meeting of these countries in February 2001 to discuss the feasibility of establishing an HKH-HYCOS project. The Association noted with appreciation the offer of Nepal to host the HKH-HYCOS centre in Nepal, if the project materialized. The Association further recognized that the largest river systems in the Hindu Kush Himalaya region are strongly influenced by snow and glacier melt, which has to be taken under consideration in the formulation and implementation of the planned HKH-HYCOS project.

8.1.4.4 MEKONG-HYCOS could offer the opportunity to improve the development and dissemination of real-time hydrological products such as forecasting on the basis of an already proven concept of regional cooperation in the management of the Mekong river. In this respect, the Association noted the suggestion of Lao People's Democratic Republic for improved flood management, including forecasting in the Mekong basin in collaboration with WMO, and the need for training of hydrological staff in all aspects of flood forecasting and flood management.

8.1.4.5 The Association was informed by the Russian Federation that CASPAS would be further developed by five Caspian Sea countries. At the core of this programme is the re-establishment of the network to monitor the inflow of water in the Caspian Sea and to optimize the regional exchange of data. In this respect, the Association appreciated the support of WMO. Furthermore, the Association noted with appreciation the support of this Programme by the Islamic Republic of Iran, as it chairs the CASPCOM.

8.1.4.6 The Association took note of the view of the Russian Federation that WHYCOS should maintain its global character by providing observations suitable to calculate the flow of rivers into the world's oceans. The Association was assured by the Secretariat of the validity of the global concept of WHYCOS and was informed that the present implementation of regional HYCOS projects need to be responsive to regional and national needs; to receive acceptance by Members; and to attract donors to fund large parts of the different HYCOS projects.

8.2 PROGRAMME ON FORECASTING AND APPLICATIONS IN HYDROLOGY (agenda item 8.2)

HYDROLOGICAL ASPECTS OF DISASTERS

8.2.1 The Association was pleased to note that within the framework of the GWP, WMO and the IAHR had been active in the preparation of the GWP Associated Programme on Flood Management. A flood initiative was prepared and WMO participated in a meeting in Dhaka, Bangladesh in December 1999 to discuss a proposal on 'Joint Activities to Strengthen Flood Management in South Asia'. Bangladesh, India, Nepal, Pakistan and Sri Lanka are involved. The proposal is seen as an example to other regions. The Association noted the direct link between the flood initiative, the meeting in Bangladesh and the plans to establish an HKH-HYCOS in the Region. The Association urged all concerned Members to coordinate activities in these important initiatives to avoid overlap and duplication of work, and to ensure optimum consensus in the implementation of the proposed activities. Special attention is being paid to flood management as part of integrated water resources management. At a global level, WMO together with IAHR presented in May 2000 a proposal for a Global Coordination Mechanism on Floods.

8.2.2 The Association was informed that WMO had published the report on 'Comprehensive Risk Assessment for Natural Hazards' as a contribution of the HWRP to the IDNDR, in July 1999. The Association welcomed the publication of this report. It noted however, that the hydrological aspects of disasters were not given the priority they deserve in the activities of the Association. In this regard, the

Association recognized the need for improved cooperation of meteorological and hydrological services and urged Members to develop cooperative mechanisms to improve this situation with assistance from the Secretariat. The future of STEND was being discussed with the seismological and volcanological communities.

HYDROLOGY IN THE CONTEXT OF GLOBAL ENVIRONMENTAL ISSUES

8.2.3 The Association noted that COP 4 had urged countries to undertake programmes of systematic observations based on the information developed by GCOS. Hydrological data and information are explicitly mentioned in the call to support the collection, exchange and preservation of terrestrial data according to the GCOS and GTOS priorities. In this connection, the GCOS TOPC was requested to develop a strategy for the establishment of a Global Hydrological Network for Climate. The Panel highlighted the need for the participation of organizations and initiatives already involved in such activities, for example GRDC, WHYCOS and FRIEND. The Association was informed of a meeting held in June 2000 in Offenbach, Germany on the establishment of a Global Hydrological Network for Climate. The meeting with major UN agencies and all Global Observing Systems represented recommended an initial observing system of approximately 200 hydrological stations to be operational within two years. The system would be built on existing stations close to the mouth of rivers into the world oceans with the objective of providing real-time data for global climate model calibration and verification. This system is seen to be complementary to WHYCOS. The Association noted the data requirements of the GRDC, operating under the auspices of WMO. Updates and additional discharge data are required to enable GRDC to further provide valuable services to major programmes of WMO such as WCP and WCRP, as well as for regional and global water resources assessments.

8.2.4 The Association noted with appreciation the Russian Federation's intention to establish a global data centre on lakes and reservoirs which it viewed as an extremely valuable initiative to improve the information on local and regional water resources, the retardation of flows within river basins, effect of these water bodies on the regulation of floods and lowflows, and the improved accuracy in modelling lateral flows in global circulation models. The Association further shared the view of the Russian Federation for the need of comprehensive efforts towards the long-term storage of hydrological data and related information to be assisted by the Secretariat. The Association was informed of plans of the Government of the Netherlands to establish an International Groundwater Assessment Centre (IGRAC). It is expected that this initiative will be discussed in detail during the upcoming session of CHy-XI in Abuja, Nigeria, in November 2000.

8.3 **PROGRAMME ON SUSTAINABLE DEVELOPMENT OF WATER RESOURCES (SDW)** (agenda item 8.3)

8.3.1 The Association noted that on the basis of recommendations of CHy-X (Koblenz, 1996), a number of priority activities were grouped together into proposals for two new component programmes on SDW and on CBH. Thirteenth Congress approved these new component programmes and agreed that the areas identified by CHy-X were important in advancing the capabilities of NMHSs in sustainable development of water resources and capacity building. In so doing, Congress considered it important that WMO work within its area of expertise and responsibility to support sustainable development through the provision of relevant hydrological data, products and information as a contribution to policy and decision-making in water resources management. The Association was informed about the implementation plan for this programme, namely planned and on-going activities in the areas of use and replenishment of groundwater, small islands and low-lying areas, river basin management, urban areas and semi-arid and arid areas.

8.3.2 The Association noted with concern that there were limited financial resources available to implement this Programme under the 5LTP and so CHy-XI (November 2000) will be requested to consider further the priorities that have been proposed and advise on a clear long-term strategy for the implementation of the Programme.

8.4 **PROGRAMME ON CAPACITY BUILDING IN HYDROLOGY AND WATER RESOURCES (CBH)** (agenda item 8.4)

8.4.1 The Association was informed that, as with the previous component programme, available resources were limited but a number of on-going activities support the aims of this new programme. The WMO/UNESCO *Handbook on Water Resources Assessment* referred to above provides guidance on the development of NHSs, as does the material being prepared by the CHy AWG on the role and operation of these services. The Association was informed about the planned and ongoing implementation of this programme, namely in the areas of the organization and development of hydrological services, product deliveries of hydrological services and education and training activities in the field of forecasting, sediment transport and GIS in close cooperation with the ETRP.

8.4.2 The Association was informed that WMO also organized or co-sponsored some training events, in particular those supported by UNESCO such as the:

(*a*) Workshop on Aspects and Impacts of a Changing Sediment Regime, Bangkok, Thailand, 12–20 November 1998;

(*b*) Workshop on MOFFS (Management Overview of Flood Forecasting Systems), Seoul, Republic of Korea, 18–21 March 1997.

8.4.3 The first meeting of the Editorial Task Force for the preparation of Volume II — Hydrology of the new Publication WMO-No. 258 *Guidelines for the Education and Training of Personnel on Meteorology and Operational Hydrology* took place in Geneva from 8 to 10 May 2000.

8.4.4 The Association was invited to provide regional perspectives and inputs for the development of the SDW and the CBH. The Association recommended that the priorities of the future work of the WGH contribute significantly to programme components of the SDW, namely through activities foreseen in the areas of drought, climate and water

related issues, water quality, assessment of surface water and groundwater resources, as well as watershed management and sedimentation in rivers.

8.4.5 The Association recommended that the CBH is crucial for the improvement of the ability of hydrological services to provide support to planners, decision-makers and the general public in the development of water resources, as well as for the alleviation of water-related disasters. In this regard, the Association noted with appreciation the efforts of several Members of the region, namely China, India, Republic of Korea, Thailand and Viet Nam which have provided valuable training, education and technical assistance to Members of the region. The Association requested the Secretariat to explore possible avenues for cost-effective training and education in hydrology and water resources management, which is focused on identified priorities of Members of the RA II.

8.5 PROGRAMME ON WATER-RELATED ISSUES (WRI) (agenda item 8.5)

8.5.1 The Association noted that the international environment within which WMO implements the HWRP remains as dynamic as ever, demanding significant commitments of time and funds on the part of the Secretariat, but offering many opportunities for the Organization to contribute to the on-going high-level debate over what is often referred to as the pending water crisis.

8.5.2 The ACC Subcommittee on Water Resources met for its twentieth session in Geneva in October 1999 and developed its plans for producing a World Water Development Report (WWDR). WMO will chair this ACC Subcommittee for two years from October 2000.

8.5.3 The Association noted that at the initiative of the World Water Council (WWC), The Netherlands organized the Second World Water Forum held in The Hague in March 2000 and included a Ministerial Conference on 21 and 22 March. WMO was involved in a number of events during the Forum and contributed to the WWC's 'Vision for the Twenty-first Century' and the draft 'Framework for Action of the GWP', both of which were discussed at the Forum. WMO's inputs to the Vision were also directed to sessions on Water in Rivers, with Japan and the International Association for Hydraulic Research (IAHR), and Water and Knowledge, with the International Association of Hydrological Sciences (IAHS). The Association requested the Secretariat to provide timely updates on important developments specifically related to the GWP. This information should be sent to all hydrological advisors. Likewise, the Association requested the Secretariat to inform its Members of progress made in new initiatives such as the WWDR and other new initiatives and programmes such as HELP. For this, all adequate media should be utilized including the use of the Internet.

JOINT UNESCO/WMO CONFERENCE ON HYDROLOGY

8.5.4 The Association was informed that the Fifth UNESCO/WMO International Conference on Hydrology was convened in accordance with the long-standing working agreement between the UNESCO and WMO Secretariats and in accordance with recommendations of the respective intergovernmental specialized bodies of both organizations in the field of hydrology and water resources.

8.5.5 The Association noted that a major purpose of the Conference was to consider the future joint activities of the two organizations in the field of hydrology and water resources, including their joint projects. The Conference therefore considered the detailed proposals for activities under the HWRP, as contained in the draft of the 5LTP and made comments thereon.

8.5.6 The Association noted that, in particular, the Conference expressed its satisfaction with the close cooperation on the *Comprehensive Assessment of the Freshwater Resources of the World*, that was submitted to the fifth session of the United Nations Commission for Sustainable Development in 1997, the publication of the second edition of the *International Glossary of Hydrology* and the WCP-Water initiatives. Particular mention was made of the success of the WHYCOS project.

8.5.7 The Association was informed that the fifth meeting of the WMO/UNESCO Standing Committee on Terminology was held in Cairo, Egypt, in February 2000. The Committee is assisting the Secretariats of WMO and UNESCO to prepare the third edition of the *International Glossary of Hydrology*. The new edition will include hydrological terms related to the following main themes: surface water, groundwater, water resources, water quality, subsurface water, hydrological models and hydrometry.

8.5.8 Long-standing cooperation with IAHS, IAHR, ISO and other bodies, such as the international rivers commissions has been maintained, often in the context of a broader involvement in international and regional activities. The Association noted the concern of Iraq, that a technical assessment on the availability of water resources in major river systems is paramount for the sustainable development of riparian countries in shared river basins. In particular, the effects of planned upstream projects and developments need to be technically analysed with riparian countries and an information exchange institutionalized.

8.5.9 The Association noted with appreciation the participation of experts from the Region as members and rapporteurs of CHy working groups, namely: Ms Yang Xiaoqing (China), expert on Sediment of the Working Group on Basic Systems, Mr A. Terakawa (Japan), expert on Data Management of the Working Group on Basic Systems, Ms L. Borovikova (Uzbekistan), expert on Medium to Long-term Forecasting of the Working Group on Applications and Mr Vu Van Tuan (Socialist Republic of Viet Nam), expert on Climate Variability and Water Resources of the Working Group on Applications.

8.5.10 The Association designated Mr Z. D. Kapliani (Russian Federation) as Regional Hydrological Advisor to the president of RA II.

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 (2000–2009) 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 re-affirmed 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 the training needs of Members. In this respect the Association noted that 60 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 in WMO/TD-No. 946 *Education and Training Requirements in Meteorology and Operational Hydrology*.

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 22 training events and participated in the organization of another 23 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. These events which were listed in 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 are 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. The Association expressed its appreciation to the Islamic Republic of Iran Meteorological Organization for the excellent arrangements and facilities provided.

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 II. 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 International Conference on CAL and Distance Learning in Meteorology which was held in Helsinki, Finland, from 14 to 18 June 1999 and organized by the SCHOTI Working Group on Computer-Assisted Learning (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 RMTCs and other training institutions together.

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

REGIONAL METEOROLOGICAL TRAINING CENTRES (RMTCS)

9.11 The Association noted with appreciation that RMTCs in RA II continued to satisfactorily carry out 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 focussed 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 was pleased to note that a meeting of Directors/Principals of WMO RMTCs was 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 RMTCs Web pages and requested Members to explore eventual external support for the provision of hardware and software to establish such Internet connections.

9.14 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 the SCHOTI.

NEW WMO CLASSIFICATION OF METEOROLOGICAL AND HYDROLOGICAL PERSONNEL

9.15 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) and would be effective as of 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.

9.16 The Association also noted that education and training curricula given in WMO-No. 258 — *Guidelines for the Education and Training of Personnel in Meteorology and Operational Hydrology* — were completed by an Editorial Task Force to reflect the new Classification and the actual needs of Members in view of the rapid changes in subject areas and technologies.

EDUCATION AND TRAINING FELLOWSHIPS

9.17 The Association noted with appreciation that many donor Members in RA II and in other Regions, in particular China, Hong Kong (China), India, Islamic Republic of Iran, Japan, Republic of Korea and the Russian Federation have continued to provide training fellowships and to arrange study programmes and tours for the benefit of the Members of the Regions.

9.18 The Association also noted with appreciation the generous contributions of several VCP donor Members who continue 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 (namely WMO RMTCs) in the Region, and by strengthening cooperation between countries through bilateral and multilateral schemes, in particular through TCDC arrangements.

9.19 The Association noted the effective cooperation between WMO, the UNDP and the KMA in the implementation of the project related to the capacity building in the field of meteorology.

RAPPORTEUR ON EDUCATION AND TRAINING

9.20 In view of continued pressing needs by Members for capacity building and human resources development in meteorology and specialized subjects essentials 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 in-depth study of regional needs.

9.21 The Association, accordingly, adopted Resolution 16 (XII-RA II), 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 thirteenth session of the Association.

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

10.1 The Association reviewed the technical cooperation activities carried out during the reporting period and expressed its thanks to the Secretary-General, UNDP and other donors and Members for the support provided to NMHSs. The Association noted that these activities continued to be carried out within the framework of the UNDP, WMO-VCP, Trust Funds, GEF, Banks, WMO's Regular Budget and others.

10.2 The Association noted that during the period 1996–1999, due to the reduction in donor contribution, limited UNDP assistance was provided at the national level (as there was no regional project). A total of six national projects were completed and only five national projects with government cost-sharing were approved and are under implementation. These projects have contributed, and are continuing to do so, in the development of NMSs through the provision of experts/consultants services, equipment and manpower development. As emphasized by Thirteenth Congress, the Association reiterated the importance of the role of the Permanent Representatives of Member countries in mobilizing resources from UNDP and requested the Secretary-General to continue collaborating with the UNDP to enhance its funding for meteorological and hydrological services.

10.3 The Association noted that a number of Member countries in the Region had benefited from the allocations made by UNDP for sectoral support missions

in 1996. The Association also noted that, as from January 1997, the sectoral support fund was accessible to countries through the UNDP offices and the Regional Bureaus for Asia and for Arab States, respectively, and encouraged Members to make use of this facility.

10.4 The Association noted the satisfactory completion of implementation of the GEF-financed project 'Global Monitoring of Greenhouse Gases including Ozone' within the framework of which a GAW station was established on Waliguan mountain in China. The Association also noted the establishment of the UNFIP, an interface with the United Nations Foundation established by R. E. Turner, Co-Chairperson of Time Turner, Inc., to support projects under four themes including: environment, including climate change/sustainable energy; environmentally sound management of water resources; and ecosystem conservation. The Association encouraged Members to continue efforts in seeking support from these funds.

10.5 The Association noted that several Trust Fund projects had been implemented or were being implemented in several countries particularly for the procurement of equipment. The Association encouraged Members to make use of such arrangements, which have proved to be cost-effective for their NMHSs.

10.6 The Association was pleased to note that, within the framework of the VCP, 19 countries in RA II received support for a total of 33 VCP projects (training projects excluded) during the period 1996-1999, in particular for strengthening WWW operational facilities, for climatological activities, and for aeronautical meteorological activities through the provision of satellite-based distribution systems for WAFS data and products. The Association expressed its appreciation to Members who are contributing to the VCP and urged other Members to actively participate in the Programme.

10.7 The Association expressed its satisfaction on the number of short- and long-term fellowships that were awarded through UNDP, VCP, Trust Fund and WMO Regular Budget, which will contribute towards human resources development of NMHSs in the Region, and expressed its appreciation to the contributors. It requested the Secretary-General to continue his efforts to secure more funding under the VCP in order to meet the increasing demand of Member countries for training of meteorological and hydrological staff for the development of their Services.

10.8 The Association re-iterated the importance of TCDC as a means of promoting regional and international cooperation. The Association was pleased to note that a number of activities in the form of expert missions, familiarization visits, study tours, and training were implemented during the reporting period. The Association urged Members to take an active part in this important activity. In addition, the Association encouraged close cooperation between developing and developed countries in order to reduce the gap between NMHSs of the countries concerned and ensure regional integration and harmony.

10.9 The Association also noted that NMHSs have benefited from support through bilateral and multilateral arrangements in the promotion of their Services and urged Members to provide the WMO Secretariat with relevant information on such assistance, as requested by the WMO Executive Council.

10.10 The Association noted with satisfaction that a Memorandum of Understanding (MOU) was concluded between the World Bank and the Organization. The main objective of the MOU is to strengthen cooperation in areas of common interest between the two institutions, particularly natural disaster prevention and mitigation, climate change and water resources management. The development and implementation of joint projects are initiated and followed up through WMO liaison mechanisms established for this purpose. The Association also noted that the Secretary-General was negotiating similar arrangements with other Banks, including the Asian Development Bank (ADB). The Association encouraged Members to participate in national and regional initiatives related to Bank funded programmes.

10.11 The Association noted with appreciation that following the approval of Thirteenth Congress, the Secretary-General has established a Trust Fund for Technical Cooperation Programme Development activities for assisting Members in the identification of their requirements, and in the formulation of meteorological development plans and project proposals. Members were encouraged to contribute to the Fund.

10.12 The Association noted with satisfaction that a number of regional initiatives have been developed and are now either being finalized or under consideration by respective countries and/or the donor community. Some of the proposals are:

(*a*) Storm surge disaster reduction for the northern part of the Indian Ocean;

(*b*) Improved monitoring and prediction of dust and sand storms in the Arab countries intended to improve the prediction of dust and sand storms through high quality data collection, diagnostic studies and numerical modelling;

(*c*) Integrated system for the mitigation of typhoon, flood and environmental disaster in western North Pacific areas to build capabilities of NMSs to provide timely warning of severe atmosphere, water and marine-related natural hazards; and,

(*d*) Integrated Programme on Hydrometeorology and Monitoring of Environment in the Caspian Sea Region (CASPAS).

The Association requested the Secretary-General to assist Members in securing the required resources from different financial schemes in order to enable the implementation of these proposals as early as possible. In addition, the Association noted that several Members in Europe and Asia have initiated, in collaboration with the WMO Secretariat, the preparation of a draft project proposal concerning the provision of specialized hydrometeorological information and services to TRACECA, a new transport corridor from Europe to Asia. It requested the Secretariat to assist Members concerned in organizing and carrying our preparatory activities and in mobilizing resources for this project.

10.13 The Association noted with satisfaction the successful cooperation of WMO and hydrometeorological/meteorological services of the Caspian Sea countries in the development of the sub-regional CASPAS. In this connection the Association supported the decision of the fifth session of the CASPCOM to conclude a MOU between CASPCOM and WMO, as well as a proposal to organize in the Caspian Sea countries, with the assistance of WMO, a number of roving seminars with NMHSs, WMO and oil companies working on the Caspian Sea, with the objective to develop measures on the restoration and development in the Region of a system for receiving and exchanging hydrometeorological and related data and information. The Association requested the WMO Secretariat to assist in these exercises, and to submit to the European Union and other interested donors the following two projects prepared by CASPCOM:

(*a*) Integrated Project on Monitoring and Information System in the Caspian Sea Region (IPM & IS); and,

(*b*) Combining efforts of the state and the private sector in protecting the unique and vulnerable ecosystem of the Caspian Sea.

10.14 The Association discussed the future needs of the Region and endorsed its support to TCOP as a high priority programme which forms an integral part of the Organization's mandate, which supports the implementation of the scientific and technical programmes. The Association agreed that future needs will be based on requirements in major areas such as observing systems, telecommunications and data processing facilities and other priority areas such as: disaster prevention and preparedness; climate change and monitoring; climate information and prediction; meteorological applications; and human resources development. In this regard, the Association agreed that the needs analysis which will be derived from the Strategic Plan for Development of NMSs in the Region would be useful in the future.

10.15 The Association requested the Permanent Representatives of Member countries with WMO and other senior officials of NMHSs to play a more important role in resource mobilization for the implementation of the future requirements through strong partnerships with possible sources of funding, including Government agencies, bilateral/multilateral sources, the private sector and United Nations programmes such as UNDP. The Association also requested the Secretary-General to continue assisting Members in the mobilization of resources for this purpose.

10.16 The Association noted that a few affected countries in the Region received support within the framework of the Disaster Assistance Fund for Meteorological and Hydrological Services, as well as donations of Member countries and private companies, for rehabilitating networks of stations and associated facilities destroyed by natural disasters. The Association urged Members to contribute to the Fund.

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

11.1 The Association recalled that Resolution 22 (Cg-XIII) underlined the need for greater visibility of the Organization and NHMSs, and the importance of communications in mitigating the devastating impact of the current trends of extreme climatic variability as well as the necessity of a WMO Global Communication Strategy to guide and enhance the process of making WMO and NMHSs more visible and better appreciated.

11.2 The Association welcomed the new Global Communication Strategy of the Organization which was comprised of five basic elements: the need for NHMSs to identify themselves as an integral part of the WMO system; constituency-building both at national and regional levels; development of effective key messages giving a local voice to a global undertaking and vision; fostering strategic alliances with the media; and promoting a communication culture through which to demonstrate the great relevance of WMO and NHMSs to the daily lives of all citizens of the world. In this context, the Association noted with appreciation, the production of the video prepared for WMD 1999 which showed, as an example from China, the vital role played by the China Meteorological Administration in saving lives and mitigating property damages as a result of early warnings against the 1998 floods.

11.3 In response to Resolution 22 (Cg-XIII), the Association invited its Members to ensure mutual assistance and support in matters related to public information and communication, including partnerships and constituency-building, resource mobilization and closer cooperation with the media, non-governmental organizations and advocacy groups, academic circles, 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 WMD in 2001 with the theme 'Volunteers for Weather, Climate and Water'. It underlined that the theme gives NMHSs the possibility to honour their volunteers and their Region's multiple and fruitful volunteering experiences, and to take advantage of WMO's collaboration with the United Nations Volunteers (UNV) in commemorating 2001, as the International Year of Volunteers, and also to network and enhance collaboration with civil society at large. It noted with interest the plans of some Members to participate actively in these events.

11.4 The Association welcomed the new emphasis on enhancing the WMO Media Alliance Initiative launched in 1995, in particular the expansion of WMO's outreach to television networks and communication professionals around the world with a view to fostering greater public awareness of the role and services provided by WMO and the NMHSs and their indispensable contribution to the socio-economic development and progress of all nations. It noted with satisfaction the increasing participation of weather broadcasters from the Region in the International Weather Festival, particularly the tenth edition held at WMO headquarters in Geneva to mark the organization's fiftieth Anniversary. The Association welcomed the initiative of bringing the media closer to WMO and the NMHSs through media

events such as scientific media and broadcast meteorology conferences.

11.5 The Association welcomed the increasing emphasis on media training, particularly broadcast media, to reflect current trends of climatic change and variability and other abnormal events such as global warming, El Niño, the depletion of the ozone layer, and growing water scarcity. The Association welcomed the IPA training programme for the current financial period which includes a training workshop for Region II and expressed appreciation for the participation of some Members of the Region in the Media Training Workshop held in Cairo, Egypt, in 1998.

11.6 The Association noted with appreciation the number of public information products developed and distributed to all Members in support of national plans for the celebration of the fiftieth WMO Anniversary. These included a message from the Secretary-General, a calendar for the year 2000, a series of posters, a WMO brochure on the theme of the World Meteorological Day, a special information kit with a series of media briefs on WMO programmes, the WMO50 video and other materials, which were under development including a radio programme, public service announcement video spots and a special brochure for teenagers. A UK Publisher, also published a special publication entitled *Weather, Climate and Water* in conjunction with WMO50, including several contributions from the Region. The Association noted with appreciation the substantial contributions of Members of the Region to the celebration of the fiftieth Anniversary through the organization of special commemorative events and production of commemorative items such as stamps and calendars. The Association invited all Members of the Region to provide information and materials to WMO in this respect.

11.7 The Association also noted with appreciation the development of a special WMO50 Website, the WMO50 Homepage, with links to the homepages of Members' NMHSs. The Association further called upon the Secretariat to establish specific pages for the activities of the public information activities of the Regions on the IPA homepage.

11.8 The Association called upon Members to take appropriate measures to support the IPA, to develop an active public information programme at the national and regional levels and to implement the WMO Global Communication Strategy, giving a local voice to a global vision.

11.9 The Association noted with satisfaction the efforts of the Regional Office for Asia and the South-West Pacific as an information focal point in the WMO Secretariat for the Region. In order to enhance WMO's Information and Public Affairs Programme in the Region, it requested the Regional Office to further strengthen its links with the Members of the Association.

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

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

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

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

(*a*) To provide a forum for consideration of the Plan and, in particular, to provide an integrated view of their respective activities and priorities within the context of the 6LTP; and,

(*b*) To coordinate, as necessary, national contributions to regional projects of the Plan.

12.4 The Association also recalled the deliberations and decisions made by the Executive Council at its fifty-second session.

PREPARATION OF THE 6LTP

12.5 The Association noted the general approach, period of coverage, overall structure and contents of the Plan, as approved by the Executive Council. In this connection, it expressed the view that the 6LTP should be flexible and should serve as practical guidance for WMO and its Members.

12.6 The Association also noted that the Executive Council agreed that work should proceed to define the vision, strategic goals and desired outcomes, and subsequently the objectives of the Organization. The Association considered that the visibility and role of NMHSs are amongst the major issues for WMO and its Members to be addressed in the 6LTP.

12.7 The Association agreed that on a global perspective, priorities should be given to:

(*a*) Develop effective public weather services;
(*b*) Strengthen and maintain the basic WWW systems;
(*c*) Capacity building, including human resources development;
(*d*) Effective use of new technology, including new and other emerging technology, in operations and services;
(*e*) Natural disaster mitigation and preparedness;
(*f*) Development of long-term and seasonal forecast;
(*g*) Climate change assessment and monitoring;
(*h*) Water resources assessment; and,
(*i*) Enhancing regional and international cooperation.

12.8 In terms of its regional priorities, the Association agreed to give the highest priorities to the following:

(*a*) Maintenance and further development of existing observing and telecommunications systems and data processing facilities, as well as the development of alternative data source such as AMDAR;

(*b*) Free and unrestricted international exchange of data and products among National Meteorological, Hydrological and related Services;

(*c*) Natural disasters mitigation and prevention through the implementation of improved detection, prediction and warning systems;
(*d*) Development of effective public weather services to ensure a better understanding and appreciation of the value of, and increased benefit from, weather and climate information;
(*e*) Capacity building, including human resources development and the effective use of web technology, to bridge the gap between NMHSs of developing and developed countries;
(*f*) Planning and management of water resources; and,
(*g*) Climate monitoring, research and application, including regional climate prediction.

LONG-TERM PLANNING PROCESS

12.9 The Association recognized that the Long-term Plan should form the basis for the preparation of the relevant programme and budget. It noted that the draft 6LTP would be prepared for the consideration and endorsement of fifty-third session of the Executive Council in 2001. With respect to the long-term planning process, the Association agreed that all efforts should be made by the Association and its subsidiary bodies to provide timely inputs for the formulation of the Plan.

MONITORING AND EVALUATION OF THE 6LTP

12.10 The Association concurred that in the preparation of the 6LTP, the monitoring and evaluation approach, including performance indicators and milestones, should be clearly outlined to facilitate its subsequent monitoring and evaluation.

MONITORING AND EVALUATION OF THE 5LTP

12.11 It noted that an evaluation report covering the early part of the 5LTP will be eventually prepared for the consideration by Fourteenth Congress. The Association requested its president to ensure the provision of the relevant contribution expected from RA II in the pertinent evaluation process.

REVIEW OF WMO STRUCTURE

12.12 The Association noted the views of the Executive Council concerning the review of WMO structure. The Association further noted that Thirteenth Congress endorsed a number of measures to encourage and promote overall participation in, and cooperation among, the technical commissions and regional associations, and requested the presidents of regional associations, among others, to implement them, as appropriate, within available resources.

GENERAL CONSIDERATION

12.13 In connection with the above, the Association called on its Members to participate in the implementation and monitoring of the 5LTP and particularly its regional components. It also requested Members of the Association to contribute to the formulation of the 6LTP, as required.

13. OTHER REGIONAL ACTIVITIES (agenda item 13)

13.1 ROLE AND OPERATION OF NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICES (NMHSS) (agenda item 13.1)

13.1.1 The Association recalled that Thirteenth Congress had extensive discussions on the role and operation of NMHSs, including:
(*a*) The National Meteorological Service and alternative service delivery;
(*b*) Legal instruments;
(*c*) Status and visibility of NMHSs;
(*d*) Capacity building;
(*e*) Provision of aeronautical meteorological services;
(*f*) Partnership and cooperation (with the media, private sector and academia).

13.1.2 It 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.

13.1.3 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.

13.1.4 The Association noted that Congress requested the Executive Council to keep this matter under review. The Executive Council established the Advisory Group on the Role and Operation of NMHSs which held its first meeting in January/February 2000.

13.1.5 The Association also noted the discussions and decisions made by the Executive Council on the role and operation of NMHSs during its fifty-second session. 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; and,
(*f*) Role and operation of NMSs.

13.1.6 The Association noted that the following were expected to be produced in due course and agreed that these would be useful tools for NMHSs:
(*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 upon 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 also agreed that similar tasks in respect of the role and operation of NHSs would be carried out.

13.1.7 Members of the Association expressed their views and shared their relevant experiences. Among others, the Association recognized that NMSs should continue their efforts toward responding to major challenges such as globalization, market economy, modernization, alternative services delivery, international data exchange and cooperation with the media and the private sector, in order for them to continue playing an active and meaningful role at national, regional and international levels. The Association considered that attention should be given to retaining the individual identity of NMSs and to ensuring that they are recognized and designated as the single authoritative national source of meteorological warnings during major weather related disasters, such as tropical cyclones and floods. In this respect, the Association recognized that effective Public Weather Services would be fundamental to the survival of NMSs.

13.1.8 In connection with the various related topics such as those identified in paragraph 13.1.5 above, the Association welcomed the Executive Council's initiative to organize a conference targeted at high ranking officials to promote the concept of NMSs being 'public goods', and to appreciate the work of NMSs in both social and economic terms. The Association agreed that there was a need for NMSs to remain involved in a range of activities to meet the increasing requirements of the users. In addition, the Association recognized the value of evaluating economic impacts and costs of meteorological services provided through the development of appropriate indicators. The Association also emphasized the need for capacity building in NMSs, including through the use of RMTCs in the Region to facilitate specialized transfer in various areas and in management in particular.

13.1.9 The Association recognized the need to develop and/or enhance cooperation with related data and service providers as well as with the media, the private sector and academia. In this regard, the Association highlighted the need to further develop the concept of a professional code of conduct on these activities and, in particular, to explore ways of ensuring that the source of data and information is systematically identified.

13.1.10 The Association agreed that for the Region, the relevant priority areas of concern presenting challenges and opportunities to its Members are:

(*a*) The emergence of the Internet which has giving rise to numerous alternative sources of meteorological information other than NMSs;
(*b*) The rapid pace of technological changes leading to equally rapid changes in user demands and expectations;
(*c*) The widening gap between developing and developed Members, developing countries being increasingly left behind by technological development;
(*d*) Emergence of commercial competitors; and,
(*e*) Shortage of resources.

13.1.11 The Association recognized that there were opportunities to meet these challenges, including the use of low-cost Internet technology and the more cost-effective and improved RMTN to access prognostic and other information as well as forecasting tools from data servers operated by some RA II Members. This would provide an immediate affordable quantum jump to bridge the gap among Members in forecasting skills, allowing time for developing Members to build the necessary capacity to meet local needs. The Association recognized that a second opportunity for NMSs to maintain a high profile for the international media. This could be done by publicizing official forecasts and warnings through a centralized portal site on the Internet.

13.1.12 The Association requested the Executive Council and the Secretary-General to give high priorities to these challenges and opportunities in funding and *vis a vis* other support considerations.

13.2 INTERNATIONAL EXCHANGE OF DATA AND PRODUCTS (agenda item 13.2)

13.2.1 The Association recalled the discussions, which took place during Thirteenth Congress in connection with the topic of international exchange of data and products and included the following areas:

(*a*) Implementation of Resolution 40 (Cg-XII);
(*b*) Data access policy for meteorological research;
(*c*) Data access policy for WDCs;
(*d*) Database protection mechanism and the WIPO;
(*e*) Report of the Executive Council Advisory Group on the International Exchange of Meteorological and Related Data and Products;
(*f*) Placing of additional data and products on the Internet;
(*g*) Questions on certain conditions in connection with the provision of additional data expressed by some countries;
(*h*) Methodology for assessing any increase in data availability related to the adoption of Resolution 40 (Cg-XII);
(*i*) Mechanism to handle concerns between countries;
(*j*) Hydrological data and products;
(*k*) Exchange of climate data and products; and,
(*l*) International exchange of meteorological information for aviation.

13.2.2 It noted that Congress was pleased to recognize that the experience with Resolution 40 (Cg-XII) had been largely positive and that there was generally a strong commitment to make it work. Congress recognized that better mutual understanding of the various associated views was to be encouraged. The Association re-iterated and underlined the request by Congress that Members should continue to observe the letter and spirit of Resolution 40 (Cg-XII), and 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.

13.2.3 The Association was also pleased to note that Congress had adopted Resolution 25 (Cg-XIII) — Exchange of Hydrological Data and Products. It urged the Members, in this connection, to make available on a free and unrestricted basis, data on water quality together with data on discharge and water levels.

13.2.4 The Association recalled that Congress had noted the issue of international exchange of data and products related to NMHSs' cost recovery and other commercial activities. In this connection, Congress recognized the merits of a strategy, guidelines and training on these matters. Congress encouraged NMHSs to share relevant experience concerning the provision of meteorological data, products and services on a commercial basis with other NMHSs.

13.2.5 The Association recalled also that the Executive Council established its Advisory Group on the International Exchange of Data and Products to assist it in its work, including serving as a mechanism to address concerns as well as differences of views and interpretations that might arise and provide advice.

13.2.6 The Association noted the discussions and decisions of the fifty-second session of the Executive Council on the international exchange of meteorological (including climatological), hydrological, oceanographic and related data and products.

13.2.7 Members of the Association expressed their views and shared relevant experiences. The Association recognized that there was a need to continue to pay attention to the data policy of satellite operators, as some elements thereof were not fully congruent with the requirements of many of its Members. It stressed the importance of free and unrestricted access of NMHSs to all data and products needed for activities related to the reduction and mitigation of natural disasters including related warning services. The free and unrestricted access to data and products for research, education and training purposes was also underlined. Furthermore, the Association pointed to the close interconnection between WMO's policy on the international exchange of data and products and the future role of the NMHSs.

13.2.8 In noting the actions underway in the IOC towards a restatement and further elaboration of the IOC policy and practice on the international exchange of oceanographic and related data and products, the Association encouraged Members to seek ways and means through their respective governmental channels to work actively with the intergovernmental ad hoc IOC Working Group on Oceanographic Data Exchange Policy. It was seen as an important goal to achieve fully harmonized data exchange policies within the meteorological/climatological, oceanographic and hydrological communities based on the letter and spirit of the Resolutions 40 (Cg-XII) and 25 (Cg-XIII). Finally, the Association drew attention to discussions at the fifty-second session of the Executive Council and elsewhere as regards a review and modification of the WMO Convention that has been unchanged in over 50 years. It was the view of the session that it was desirable to also explore the idea of expressing in a revised WMO Convention the firm commitment of WMO to the principle of free and unrestricted exchange of data and products.

13.3 INTERNATIONAL STRATEGY FOR DISASTER REDUCTION (ISDR) (agenda item 13.3)

13.3.1 The Association noted with appreciation the report on activities and efforts to meet the goals of the IDNDR in the last four years. The IDNDR came to an end in December 1999 having successed 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.

13.3.2 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, and preparedness against, natural disasters of meteorological and hydrological origin. The Association was informed that an IDNDR Programme Forum had been successfully held in July 1999 as the consolidation and closing event of the Decade under the title 'A Safer World in the Twenty-first Century: Disaster and Risk Reduction'. The Association noted with satisfaction that WMO and UNESCO, as the two principal United Nations agencies concerned with the scientific and technological aspects of disaster reduction, convened a '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 II, came from both the natural and social sciences and had 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; and,
(*c*) Preparedness and education programmes.

The Sub-Forum reviewed recent progress and discussed the future prospects in each of these three aspects of the application of science and technology to the reduction of the impacts of tropical cyclones, extratropical storms, storm surges, severe local storms and tornadoes, sand and dust storms, drought, extreme and persistent temperatures, fire weather, floods, landslides, avalanches, volcanoes, earthquakes and tsunamis.

13.3.3 The Association was informed that the IDNDR had been succeeded by the ISDR, a new substantive programme that included an Inter-Agency Task Force and an Inter-Agency Secretariat. On 23 December 1999, the United Nations General Assembly adopted resolution 54/219, which provides specific guidance for the future work of the 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 function 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

13.3.4 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 (54/220). The Association recalled the important role that WMO 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.

13.3.5 The Association noted that WMO had been designated a member of the Inter-Agency Task Force 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 Administrative Committee on Coordination of the United Nations (ACC) and the UN Secretary-General on the structure of the ISDR to ensure a prominent role of science and technology and the operational activities of NMHSs in the implementation of the strategy.

13.3.6 The Association was informed that at its first meeting the ISDR Inter-Agency Task Force had established three ad hoc working groups to initiate its programme of work, WMO is a member of all three groups. The first would take over the responsibilities of the United Nations Task Force on El Niño and with an expanded mandate to consider all climate-related aspects of disasters; the group would be led by WMO. The second working group with UNEP as the lead agency would consider early warning systems for disasters. UNDP would take the lead on the third working group dealing with vulnerability and risk assessment. The Association encouraged its Members to contribute to the work of these groups and to regional activities initiated under the ISDR.

13.3.7 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 representations to senior government officials, the preparation of promotional material and the organization of forums in which the experiences of different countries in the preparation and dissemination of early warnings could be exchanged. The Association noted that disasters with long durations and extensive impacts, especially those that severely affected less developed regions of the world, frequently became the subject 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.

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

13.3.9 The Association recalled that several of its Members had responsibilities for seismic warning systems and it requested the assistance of the Secretary-General in informing those Members of relevant activities being planned and implemented under the ISDR.

13.4 STRATEGIC PLAN FOR THE ENHANCEMENT OF NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICES (NMHSS) IN RA II (ASIA)

(agenda item 13.4)

13.4.1 The Association considered the Strategic Plan for the Enhancement of NMHSs in RA II (Asia) covering the period from 2001–2004 which was prepared in accordance with the recommendation of the Expert Meeting on Enhancement of NMHSs in Asia (Jeddah, Kingdom of Saudi Arabia, 29 November – 1 December 1999). It expressed its appreciation to the Secretary-General for the timely initiative and also thanked the Government of the Kingdom of Saudi Arabia for hosting the Expert Meeting.

13.4.2 The Association expressed its appreciation to all those involved in the development and preparation of the Strategic Plan including the participants of the Expert Meeting for their commendable efforts to provide the guidelines to develop the Strategic Plan. It also thanked the Secretary-General and his staff for their valuable efforts, in preparing a comprehensive Strategic Plan. It noted with satisfaction that the draft Strategic Plan was developed in the context of the 5LTP covering the period from 2000 to 2009.

13.4.3 The Association examined in detail the Strategic Plan and noted that it reflected the challenges, problems, needs and possible solutions for NMSs; therefore it decided that the plan was to be called the 'Strategic Plan for the Enhancement of NMSs In RA II (Asia)'. In this connection,

the Association adopted Resolution 17 (XII-RA II). In addition, it requested WMO to prepare a separate Strategic Plan for the Enhancement of NHSs in RA II.

13.4.4 The Association also endorsed the steps of the implementation of the Strategic Plan as mentioned in the Plan. In this connection, the Association agreed that a needs analysis for the development of NMSs in Asia should be carried out to identify the requirement of NMSs at national, subregional and regional levels for the enhancement of their Services.

13.4.5 The Association requested the chairpersons of its subsidiary bodies and rapporteurs to provide reports in six months (by April 2001) on the status of the NMSs in their fields or specialities. These reports together with available materials would be analysed so as to effectively commence experts visits and needs analysis.

13.4.6 The Association encouraged Members to make available some of their experts to carry out visits and needs analysis on a voluntary basis and/or on cost sharing basis taking into consideration the availability of limited fund.

13.4.7 The Association noted with appreciation that a Trust Fund was established by WMO for the development and implementation of the Strategic Plan. It expressed its appreciation to Hong Kong, China; Japan; Mongolia and Saudi Arabia for their contributions to the Trust Fund. In this regard, the Association encouraged other Members in RA II to contribute to the Fund.

13.5 THIRD TECHNICAL CONFERENCE ON MANAGEMENT OF METEOROLOGICAL AND HYDROLOGICAL SERVICES IN REGIONAL ASSOCIATION II (ASIA) (agenda item 13.5)

13.5.1 The Association expressed its appreciation to the Secretary-General in assisting Members in developing their NMHSs particularly by organizing regional events including technical conferences on management to enable them to exchange views on, and share experience in the management and operation of the Services.

13.5.2 The Association noted with satisfaction that the Thirteenth World Meteorological Congress had made budgetary provision for the organization of the Third Technical Conference on Management of Meteorological and Hydrological Services in Asia to be held in the second biennium (2002–2003) of the thirteenth financial period. Considering that constant improvement in management techniques and practices is needed for NMHSs to increase efficiency of the Services and to improve the ability to address challenges in the face of financial and other constraints, the Association agreed that the following topics should be discussed at the Conference:

(*a*) Management of NMHSs;
(*b*) The role and operation of NMHSs, challenges and opportunities;
(*c*) Alternative services delivery;
(*d*) Cooperation among NMHSs;
(*e*) Science and technology, use of new technology in meteorological and hydrological fields; and,
(*f*) Implementation of the Strategic Plan for the Enhancement of Meteorological Services in RA II (Asia).

13.5.3 The Association requested the Secretary-General in consultation with the president of the Association to establish a general 'theme' for the Conference.

13.5.4 The Association welcomed with appreciation the invitation of the United Arab Emirates to host the Third Technical Conference. It requested the Secretary-General to convene the Conference in 2002 and explore the possibility of providing simultaneous interpretation in some of the working languages of the Association.

13.5.5 In considering the organization of such a technical conference on management in the future, the Association recommended that the fourth Technical Conference on Management of Meteorological and Hydrological Services in Asia should be held during the fourteenth financial period.

13.5.6 The Association also expressed its appreciation to the Secretary-General in planning to organize a Regional Seminar on Cost Recovery and Administration for the Directors of NMHSs during the first biennium (2000–2001) of the thirteenth financial period. It agreed that the topics of the seminar could include the following:

(*a*) Institutional issues including the structure and organization of NMHSs;
(*b*) Planning and budgeting;
(*c*) Cost recovery and commercial services;
(*d*) Human resources management and development;
(*e*) Financial resources and their mobilization; and,
(*f*) International and public relations.

13.5.7 The Association expressed its appreciation to the Government of the Republic of Korea for hosting the Regional Seminar on Meteorological Services: Opportunities and Challenges in the Twenty-first Century, which was held in Seoul from 17 to 18 September 2000 and thanked the Secretary-General for organizing this seminar. The Association noted that the seminar was attended by Directors and senior officers of NMHSs in the Region and was a useful forum for exchanging views and sharing experiences. In this regard, the Association requested the Secretary-General to consider arranging such a seminar in conjunction with the thirteenth session of RA II (Asia).

13.6 INTERNAL MATTERS OF THE ASSOCIATION (agenda item 13.6)

SUBSIDIARY BODIES OF THE ASSOCIATION

13.6.1 The Association noted with appreciation the report of its president on the subsidiary bodies of the Association. It further noted the guidance given by the Executive Council on the establishment of the subsidiary bodies of regional associations. It therefore agreed that working groups and rapporteurs should be established to address issues of concern to the Region and to undertake specific and achievable tasks; the established working groups should be able to meet, and the rapporteurs should be able to participate in the Organization's activities relevant to their work. The Association further agreed that the terms of reference of its subsidiary bodies should include some aspects of education and training and technical cooperation.

13.6.2 The Association examined the reestablishment of relevant working groups and rapporteurs, and guided by the above principles, recorded its decisions under the relevant agenda items.

13.6.3 The Association, in recognizing the importance of coordinating its activities, agreed to establish an Advisory Working Group of RA II and adopted Resolution 18 (XII-RA II).

14. WMO REGIONAL OFFICE FOR ASIA AND THE SOUTH-WEST PACIFIC (agenda item 14)

14.1 The Association examined the activities of the Regional Office for Asia and the South-West Pacific since its eleventh session. It noted that the Regional Office continued to carry out its functions and responsibilities as an integral part of the Secretariat. It noted also the assistance provided by the Office to the president, vice-president, various working groups and rapporteurs of the Association in discharging their responsibilities. It expressed its appreciation to the Secretary-General and to the staff of the Regional Office for their continued support to the activities of the Association during the intersessional period.

14.2 The Association noted with satisfaction the increasing role of the Regional Office as a focal point and an information centre for regional activities and in assisting Members to develop their NMHSs and implement WMO Programmes and other activities that had a regional focus. It recognized the efforts of the Regional Office to contribute to the new high priority areas in the Region.

14.3 The Association expressed satisfaction at the commendable efforts of the Regional Office in maintaining close contact with Members through visits and in supporting regional events in order to ensure the strengthening of WMO activities in the fields of meteorology and operational hydrology in the Region. The Association agreed that the staff of the Regional Office should continue to make every effort to further strengthen contact with Member countries and to facilitate the implementation of regional activities.

14.4 The Association recognized the efforts of the Regional Office in maintaining close liaison and collaborating with regional intergovernmental bodies such as the ESCAP, ESCWA and ASCMG. It invited the Regional Office to continue this type of activity and to use these regional fora to promote meteorology, operational hydrology, related environmental issues and to increase the awareness of policy-makers of the role of NMHSs as well as WMO in contributing to sustainable development.

14.5 The Association noted that the biannual newsletter provided a vehicle for the exchange and dissemination of regional news and a means of maintaining close liaison between the Regional Office and Members of RA II and RA V. The Association requested the Regional Office to continue issuing the newsletter and urged Members to actively contribute news items and articles to the Newsletter on a regular basis.

14.6 With regard to the Subregional Office for Asia, the Association noted that Twelfth Congress had agreed to establish Subregional Offices on a trial basis and without long-term obligation to the WMO. It also noted that Thirteenth Congress considered the importance of establishing a Subregional Office for Asia to serve Members of Region II and some Members in the South-East Asia in RA V and requested the Secretary-General to make the necessary arrangements to establish a Subregional Office for Asia. The Office would be located in one of the Member countries in RA II, taking into consideration the geographical balance and the vast area of Asia and South-East Asia. The Congress further requested the Secretary-General to invite all Members in RA II to consider the possibility of hosting a Subregional Office for Asia. In that connection, the Congress requested the Secretary-General, in consultation with the presidents of RA II and RA V to decide on the location of the Subregional Office.

14.7 The Association noted that the Executive Council at its fifty-second session agreed that the Subregional Offices had made significant contribution in support of NMHSs of their respective subregions by being closer to Members and by enhancing the visibility of WMO in the Regions. In this regard, the Executive Council supported the establishment of a Subregional Office for Asia.

14.8 The Association noted that an invitation had been sent by the Secretary-General to all the RA II Members in August 2000 to consider hosting the WMO Subregional Office for Asia. The criteria and requirements for hosting such an office were attached to the invitation. In this regard, the Association was informed that the Secretariat had already received some replies and that the deadline for submission of proposals was the end of October 2000. The Association further noted with interest the offers made during the session by the Islamic Republic of Iran and Nepal.

14.9 The Association noted that, as recommended by the twelfth session of RA II and the study carried out by the Secretary-General on the various implications of relocating the Regional Office for Asia and the South-West Pacific to one of the Member countries of RA II or RA V as requested by the eleventh session of RA II, Thirteenth Congress decided that the Regional Office for Asia and the South-West Pacific should continue to be located at the WMO Headquarters in Geneva during the thirteenth financial period 2000-2003. Several Members expressed the desire to relocate the Regional Office to one of the countries of the Region in view of increasing activities expected as a result of the implementation of the Strategic Plan for the Enhancement of Meteorological Services in RA II. Several other Members felt that the Office should remain in Geneva and that this issue would be addressed after the establishment of the Subregional Office for Asia.

15. SCIENTIFIC LECTURES AND DISCUSSIONS (agenda item 15)

15.1 The following scientific lectures were presented during the session:

(*a*) 'Diagnosis of typhoon spiral cloud band at sea with SSM/I image' presented by Professor Xu Jianmin (China);

(*b*) 'Development in numerical prediction of high impact weather' presented by Mr Jun-ichi Shiino (Japan);

(*c*) 'Climate Change, Climate Variation and its Impacts in RA II' presented by Mr Chung-Kyu Park (Republic of Korea).

15.2 The lectures were followed by fruitful discussions in which delegates participated.

15.3 The Association expressed its appreciation to the lecturers for their informative and interesting papers. It requested the Secretary-General, in consultation with the president of RA II to make the necessary arrangements for scientific lectures to be presented at the next session, taking into account the desirability to have a lecture on a hydrological subject and that the lectures should be related to the implementation of the Strategic Plan for the Enhancement of NMSs in RA II.

16. **REVIEW OF PREVIOUS RESOLUTIONS AND RECOMMENDATIONS OF THE ASSOCIATION AND OF RELEVANT EXECUTIVE COUNCIL RESOLUTIONS** (agenda item 16)

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

16.2 The Association noted that most of its past resolutions had been replaced by new resolutions adopted during the session. It 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.

16.3 The Association accordingly adopted Resolution 19 (XII-RA II).

16.4 The Association considered that Resolution 1 (EC-XLIX) on the report of the eleventh session of the Association need not be kept in force.

17. **ELECTION OF OFFICERS** (agenda item 17)

The Association unanimously elected Messrs Sung-Euii Moon (Republic of Korea) as president and A. Majeed H. Isa (Bahrain) as vice-president of RA II (Asia).

18. **DATE AND PLACE OF THE THIRTEENTH SESSION** (agenda item 18)

18.1 In accordance with Regulation 170 of the WMO General Regulations, the president of the Association should determine the date and place of the thirteenth session in agreement with the President of the World Meteorological Organization and after consultation with the Secretary-General.

18.2 The Association noted with appreciation the offer from Hong Kong, China to host the thirteenth session of the Association in the year 2004. The Association, however, noted that the actual date and place of the next session would be finalized following the procedures mentioned in paragraph 18.1.

19. CLOSURE OF THE SESSION (agenda item 19)

19.1 The principal delegates of Bangladesh; China; Hong Kong, China; India; Islamic Republic of Iran; Japan; Macao, China; Maldives; Myanmar; Nepal; Pakistan; Republic of Yemen; Russian Federation; Sri Lanka; Thailand; United Arab Emirates and Viet Nam expressed their gratitude to the Government of the Republic of Korea, in particular the KMA, for hosting the session in an admirable way with excellent arrangements made and generous hospitality extended to all participants. Thanks were expressed to Mr Z. Batjargal and Mr A.R.B.S. Al-Harmi, the outgoing president and vice-president of the Association on their leadership and contributions in supporting the activities of the Region. Mr Sung-Euii Moon and Mr A. Majeed H. Isa were congratulated on their election as president and vice-president of the Association respectively, and were wished every success in discharging their new duties. Appreciation was also expressed to the WMO Secretariat and the local secretariat for the support that had helped the smooth running of the session, including interpretation of WMO official languages provided at the session.

19.2 The representative of the Secretary-General thanked the Government of the Republic of Korea and the KMA for the excellent arrangements and the hospitality provided. He extended his appreciation to all delegates for their fruitful contributions and the high spirit of cooperation and understanding in the course of the session. He thanked the outgoing president and vice-president, and co-chairmen of the working committees for the efficient way in which they carried out their tasks which led to the success of the session. He also thanked Dr Sung-Euii Moon, Administrator of the KMA, and his staff for their valuable support which was one of the major factor of the success of the session. He congratulated the newly elected president and vice-president and looked forward to working with them closely in the coming years.

19.3 Mr Sung-Euii Moon, the principal delegate of the Republic of Korea, on behalf of his Government congratulated the participants for the success of the session. He expressed his appreciation to all delegates for their high spirit of cooperation and understanding. He thanked the president, vice-president, co-chairmen of the working committees for their contributions to the session. He also thanked the Secretary-General of WMO and the staff of the Secretariat for the support provided by them.

19.4 On behalf of all participants, Mr Z. Batjargal, the outgoing president of the Association, expressed his appreciation to the people and the Government of the Republic of Korea for hosting the session in Seoul. He thanked all delegates and hoped that the programmes and activities of the Association would be further strengthened and the resolutions adopted would be implemented. He also thanked Prof. G.O.P. Obasi, Secretary-General of WMO and his staff, in particular those of Regional Office for Asia and the South-West Pacific, for their close cooperation and valuable support to the work of the Association. He congratulated the newly elected president and vice-president and wished them every success in the coming years.

19.5 The twelfth session of Regional Association II (Asia) closed at 11.10 a.m. on 27 September 2000.

RESOLUTIONS ADOPTED BY THE SESSION

RESOLUTION 1 (XII-RA II)

APPRECIATION TO PROFESSOR G.O.P. OBASI, SECRETARY-GENERAL

REGIONAL ASSOCIATION II (ASIA),

NOTING:

(1) Resolution 1 (XI-RA II) — Promotion of Meteorological and Operational Hydrology in the Region,

(2) Resolution 30 (Cg-XI) — Development of national Meteorological and Hydrological Services,

(3) Resolution 38 (Cg-XIII) — Review of previous Congress resolutions,

AWARE that the twelfth session of Regional Association II (Asia) is the last session of RA II to be attended by Professor G.O.P. Obasi in his capacity as the Secretary-General of WMO,

RECOGNIZING the contributions and distinguished service which he has rendered in his role as the Secretary-General,

NOTING WITH APPRECIATION the changes which he has brought to the work of the World Meteorological Organization and in support of the development of National Meteorological and Hydrological Services in particular in developing countries in Region II,

ACKNOWLEDGING the support which he has given to the further strengthening of regional and subregional cooperation among the Members of WMO, as well as the promotion of meteorology and operational hydrology in the Region,

ACKNOWLEDGING FURTHER his efforts to promote close collaboration with UN agencies in the geosciences,

WISHES to pay a profound tribute to him for his contributions to the work of the Secretariat during his tenure as Secretary-General of WMO,

EXPRESSES its deep gratitude for the assistance that his leadership has given towards development of National Meteorological and Hydrological Services in the Region;

REQUESTS the president of the Regional Association to bring this Resolution to the attention of the Executive Council and to the Fourteenth World Meteorological Congress.

RESOLUTION 2 (XII-RA II)

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

REGIONAL ASSOCIATION II (ASIA),

NOTING:

(1) Resolution 2 (Cg-XIII) — World Weather Watch Programme for 2000–2003),

(2) Resolution 23 (Cg-XIII) — Fifth WMO Long-term Plan,

(3) The report of the chairman of the Working Group on Planning and Implementation of the WWW in Region II,

(4) The recommendation by EC-XLVI to involve the regional Working Group on Planning and Implementation of the WWW in the development and implementation of the Public Weather Services Programme,

CONSIDERING:

(1) That World Weather Watch (WWW) data and products are of vital importance to Members of RA II to meet existing and new requirements for meteorological services,

(2) That the implementation of the WWW in the Region needs to be kept under constant review,

(3) That the introduction of the new concepts and technology into the WWW 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 II and constant evaluation of the related projects,

DECIDES:

(1) To establish a Working Group on Planning and Implementation of the WWW in Region II with the following terms of reference:

   (*a*) To monitor the progress made in the implementation and operation of the WWW in the Region and advise on possible improvements and priorities for appropriate action to be carried out under the WWW Programme and on the need for external support, where required;

   (*b*) To keep under review the action taken under the Fifth WMO Long-term Plan with a view to updating and further developing the WWW Programme relating to RA II;

(*c*) To develop proposals for the further development and full integration of the WWW components and functions with a view to achieving a cost-effective operation and a better supply of WWW data and products throughout the Region;

(*d*) To keep abreast of new developments in the field of meteorological data processing, observing techniques, telecommunications and codes and to make recommendations for their application as appropriate in the Region;

(*e*) To identify and keep under review regional requirements for the exchange of observational data and processed products and to propose measures and procedures as appropriate to meet those needs for information from within and outside the Region;

(*f*) To develop proposals for implementation of the Public Weather Services Programme in the Region;

(*g*) To advise the president of the Association on all matters concerning the WWW;

(2) That the working group should be composed of the following core members:

(*a*) A coordinator of a Subgroup on Regional Aspects of the Global Telecommunication Systems;

(*b*) A Rapporteur on Regional Aspects of the Global Observing System;

(*c*) A Rapporteur on Regional Aspects of the Global Data-processing System;

(*d*) A Rapporteur on Regional Aspects of Data Management;

(*e*) A Rapporteur on Regional Aspects of Public Weather Services;

with the terms of reference of the subgroup and rapporteurs as indicated in the annex to this resolution;

(3) To designate in accordance with Regulation 32 of the WMO General Regulations Mr P. Rajesh Rao (India) as chairman of the working group and Mr Alexander Gusev (Russian Federation) as coordinator of the subgroup;

(4) To invite:

(*a*) Mr Cheng Yongqing (China) to serve as Rapporteur on the Regional Aspects of the Global Observing System;

(*b*) Mr Lee Woo-Jin (Republic of Korea) to serve as Rapporteur on the Regional Aspects of the Global Data-processing System;

(*c*) Mr Atsushi Shimazaki (Japan) to serve as Rapporteur on the Regional Aspects of Data Management;

(*d*) Wr Wing-lui Edwin Ginn (Hong Kong, China) to serve as Rapporteur on the Regional Aspects of Public Weather Services;

(5) To invite Members to nominate experts to serve on the group and on the subgroup;

(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 thirteenth session of the Association.

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

ANNEX TO RESOLUTION 2 (XII-RA II)

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

The terms of reference of the subgroup and rapporteurs nominated under Resolution 2 (XII-RA II) are as follows:

(*a*) Subgroup on Regional Aspects of the Global Telecommunication System

(i) To keep under review the organizational, technical and procedural aspects of the Global Telecommunication System (GTS) in the Region;

(ii) To keep under review the status of implementation and operation of the Regional Meteorological Telecommunication Network (RMTN), including in particular routing arrangements for the exchange of observational data and processed information within the Region and with other Regions;

(iii) To keep under review WWW monitoring activities pertaining to the GTS in the Region;

(iv) To keep abreast of developments in telecommunication techniques, procedures and equipment, including in particular satellite-based telecommunication services, and to study their applicability, as appropriate, to the RMTN;

(v) To formulate recommendations for the further development and upgrading of the RMTN;

(vi) To formulate recommendations for the coordination of the implementation of telecommunication facilities and techniques;

(vii) To advise and report to the chairman of the working group on all matters concerning the regional aspects of the GTS in the Region;

(viii) To represent the Region on the CBS Implementation/Coordination Team on Information Systems and Services.

(*b*) Rapporteur on Regional Aspects of the Global Observing System

(i) To review and advise on the observational data requirements of Members of Regional Association II in the context of the WWW Programme in the Fifth WMO Long-term Plan;

(ii) To review and advise on the design and implementation of the RBSN and RBCN;

(iii) To keep abreast of matters related to the development and introduction of new observing systems, particularly space-based and surface-based remote sensing, and advise on their application in the Region and to review the exchange of weather radar data within the Region;

(iv) To advise and report to the chairman of the working group on all matters concerning regional aspects of the Global Observing System;

(v) To represent the Region on the CBS Implementation/Coordination Team on Integrated Observing Systems.

(*c*) Rapporteur on Regional Aspects of the Global Data-processing System

(i) To keep abreast of developments in data-processing equipment and techniques which could be beneficially introduced at national and regional centres to improve their operational capability both within the WWW system and in related areas;

(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 advise and report to the chairman of the working group on all matters concerning data-processing activities in the Region;

(iv) To represent the Region on the CBS Implementation/Coordination Team on Data-processing and Forecasting Systems.

(*d*) Rapporteur on Regional Aspects of Data Management

(i) To keep under review data and information presentation, including exchange formats and codes and conversion between formats and codes;

(ii) To keep under review and make recommendations related to regional meteorological codes for Region II as required;

(iii) To keep under review data and product selection and presentation to recipients (NMCs);

(iv) To collect information on the level of quality control of data and products;

(v) To review WWW data and product recovery procedures in case of major outages of key facilities;

(vi) To conduct both real-time and non-real-time monitoring of the WWW in the Region;

(vii) To advise and report to the chairman of the working group on problem areas in data management issues and activities in the Region;

(viii) To represent the Region on the CBS Implementation/Coordination Team on Information Systems and Services.

(*e*) Rapporteur on Regional Aspects of Public Weather Services

(i) To keep under review the implementation of the Public Weather Services Programme in Region II;

(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;

(iii) To keep under review education and training requirements related to the Public Weather Services Programme;

(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;

(v) To represent the Region on the CBS Implementation Coordination Team on Public Weather Services.

RESOLUTION 3 (XII-RA II)

REGIONAL BASIC SYNOPTIC NETWORK

REGIONAL ASSOCIATION II (ASIA),

NOTING:

(1) Resolution 3 (XI-RA II) — Regional Basic Synoptic Network,

(2) The *Manual on the Global Observing System*, Volume I, Part III, Regulations 2.1.4, 2.1.5 and 2.1.6 and the definition of the Regional Basic Synoptic Networks,

(3) The *Manual on the Global Telecommunication System*, Volume I, Part I, Attachment 1-3, Section 3,

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

DECIDES that the stations and the observational programmes listed in the annex to this resolution constitute the Regional Basic Synoptic Network in Region II;

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 and the Manuals on the GOS, on Codes and on the GTS;

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 II (Asia).

Note: This resolution replaces Resolution 3 (XI-RA II) which is no longer in force.

ANNEX TO RESOLUTION 3 (XII-RA II)

LIST OF STATIONS COMPRISING THE RBSN IN REGION II

Index	Name of station	Country	Type of observation	Status of station
20046	POLAR GMO IM ET KRENKELY	RUS	S	CN
20046	POLAR GMO IM ET KRENKELY	RUS	R	CN
20069	OSTROV VIZE	RUS	S	CN
20087	OSTROV GOLOMJANNYJ	RUS	S	CN
20292	GMO IM EK FEDOROVA	RUS	S	CN
20292	GMO IM EK FEDOROVA	RUS	R	CN
20667	STANCIJA IM MV POPOVA	RUS	S	CN
20674	OSTROV DIKSON	RUS	S	CN
20674	OSTROV DIKSON	RUS	R	CN
20744	MALYE KARMAKULY	RUS	S	CN
20744	MALYE KARMAKULY	RUS	R	CN
20891	HATANGA	RUS	S	CN
21432	OSTROV KOTEL'NYJ	RUS	S	CN
21432	OSTROV KOTEL'NYJ	RUS	R	CN
21647	MYS SHALAUROVA	RUS	S	CN
21647	MYS SHALAUROVA	RUS	R	CN
21802	SASKYLAH	RUS	S	CN
21824	TIKSI	RUS	S	CN
21824	TIKSI	RUS	R	CN
21908	DZALINDA	RUS	S	CN
21921	KJUSJUR	RUS	S	CN
21931	JUBILEJNAJA	RUS	S	CN
21946	CHOKURDAH	RUS	S	CN
21946	CHOKURDAH	RUS	R	CN
21965	OSTROV CHETYREHSTOLBOV	RUS	S	CN
21982	OSTROV VRANGELJA	RUS	S	CN
21982	OSTROV VRANGELJA	RUS	R	CN
23022	AMDERMA	RUS	S	CN
23022	AMDERMA	RUS	R	CN
23032	MARESALE	RUS	S	CN
23074	DUDINKA	RUS	S	CN
23205	NAR'JAN MAR	RUS	S	CN
23205	NAR'JAN MAR	RUS	R	CN
23219	HOSEDA HARD	RUS	S	CN
23256	TAZOVSKOE	RUS	S	CN
23274	IGARKA	RUS	S	CN
23330	SALEHARD	RUS	S	CN
23330	SALEHARD	RUS	R	CN
23331	RA IZ	RUS	S	CN
23383	AGATA	RUS	S	CN
23405	UST' CIL'MA	RUS	S	CN
23412	UST' USA	RUS	S	CN
23418	PECHORA	RUS	S	CN
23418	PECHORA	RUS	R	CN
23426	MUZI	RUS	S	CN
23472	TURUHANSK	RUS	S	CN
23472	TURUHANSK	RUS	R	CN
23552	TARKO SALE	RUS	S	CN
23552	TARKO SALE	RUS	R	CN
23606	UHTA	RUS	S	NS
23625	SOSVA	RUS	S	CN
23631	BEREZOVO	RUS	S	CN
23678	VERHNEIMBATSK	RUS	S	CN
23711	TROICKO PECHERSKOE	RUS	S	CN
23724	NJAKSIMVOL'	RUS	S	CN
23734	OKTJABR'SKOE	RUS	S	CN
23803	UST' KULOM	RUS	S	CN
23804	SYKTYVKAR	RUS	S	CN
23804	SYKTYVKAR	RUS	R	CN
23849	SURGUT	RUS	S	CN
23884	BOR	RUS	S	CN
23884	BOR	RUS	R	CN
23891	BAJKIT	RUS	S	CN
23909	GAJNY	RUS	S	CN
23914	CHERDYN'	RUS	S	CN
23921	IVDEL'	RUS	S	CN
23921	IVDEL'	RUS	R	CN
23933	HANTY MANSIJSK	RUS	S	CN
23933	HANTY MANSIJSK	RUS	R	CN
23955	ALEKSANDROVSKOE	RUS	S	CN
23955	ALEKSANDROVSKOE	RUS	R	CN
23966	VANZIL' KYNAK	RUS	S	CN
23973	VOROGOVO	RUS	S	CN
23975	SYM	RUS	S	CN
23987	JARCEVO	RUS	S	CN
24105	ESSEJ	RUS	S	CN
24125	OLENEK	RUS	S	CN
24125	OLENEK	RUS	R	CN
24143	DZARDZAN	RUS	S	CN
24266	VERHOJANSK	RUS	S	CN
24266	VERHOJANSK	RUS	R	CN
24329	SELAGONCY	RUS	S	CN
24343	ZHIGANSK	RUS	S	CN
24343	ZHIGANSK	RUS	R	CN
24382	UST' MOMA	RUS	S	CN
24507	TURA	RUS	S	CN
24507	TURA	RUS	R	CN
24639	NJURBA	RUS	S	CN
24641	VILJUJSK	RUS	S	CN
24641	VILJUJSK	RUS	R	CN

Index	Name of station	Country	Type of observation	Status of station
24652	SANGARY	RUS	S	CN
24656	BATAMAJ	RUS	S	CN
24671	TOMPO	RUS	S	CN
24688	OJMJAKON	RUS	S	CN
24688	OJMJAKON	RUS	R	CN
24724	CHERNISHEVSKIJ	RUS	S	CN
24726	MIRNVY	RUS	R	CN
24738	SUNTAR	RUS	S	CN
24768	CURAPCA	RUS	S	CN
24817	ERBOGACEN	RUS	S	CN
24817	ERBOGACEN	RUS	R	CN
24908	VANAVARA	RUS	S	CN
24908	VANAVARA	RUS	R	CN
24923	LENSK	RUS	S	CN
24944	OLEKMINSK	RUS	S	CN
24944	OLEKMINSK	RUS	R	CN
24951	ISIT'	RUS	S	CN
24959	JAKUTSK OBS	RUS	S	CN
24959	JAKUTSK	RUS	R	CN
24962	AMGA	RUS	S	CN
24966	UST' MAJA	RUS	S	CN
24988	ARKA	RUS	S	CN
25123	CHERSKIJ	RUS	S	CN
25173	MYS SHMIDTA	RUS	S	CN
25173	MYS SHMIDTA	RUS	R	CN
25248	ILIRNEJ	RUS	S	CN
25325	UST' OLOJ	RUS	S	CN
25378	EGVEKINOT	RUS	S	CN
25399	MYS UELEN	RUS	S	CN
25399	MYS UELEN	RUS	R	CN
25400	ZYRJANKA	RUS	S	CN
25400	ZYRJANKA	RUS	R	CN
25428	OMOLON	RUS	S	NS
25428	OMOLON	RUS	R	CN
25538	VERHNEE PENZINO	RUS	S	CN
25551	MARKOVO	RUS	S	CN
25563	ANADYR'	RUS	S	CN
25563	ANADYR'	RUS	R	CN
25621	KEDON	RUS	S	CN
25703	SEJMCHAN	RUS	S	CN
25703	SEJMCHAN	RUS	R	CN
25744	KAMENSKOE	RUS	S	CN
25913	MAGADAN	RUS	S	CN
25913	MAGADAN	RUS	R	CN
25954	KORF	RUS	S	CN
25954	KORF	RUS	R	CN
25956	APUKA	RUS	S	CN
28009	KIRS	RUS	S	CN
28044	SEROV	RUS	S	CN
28049	GARI	RUS	S	CN
28064	LEUSI	RUS	S	CN
28076	DEM'JANSKOE	RUS	S	CN
28116	KUDYMKAR	RUS	S	CN
28144	VERHOTUR'E	RUS	S	CN
28214	GLAZOV	RUS	S	CN
28225	PERM'	RUS	R	NS
28240	NIZHNYJ TAGIL	RUS	S	CN
28255	TURINSK	RUS	S	CN
28275	TOBOL'SK	RUS	S	CN
28275	TOBOL'SK	RUS	R	CN
28319	NOZOVKA	RUS	S	CN
28321	OHANSK	RUS	S	CN
28334	SAMARY	RUS	S	CN
28367	TJUMEN'	RUS	S	CN
28382	UST' ISIM	RUS	S	CN
28411	IZHEVSK	RUS	S	CN
28419	JANAUL	RUS	S	CN
28434	KRASNOUFIMSK	RUS	S	CN
28440	EKATERINBURG	RUS	S	CN
28445	VERHNEE DUBROVO	RUS	R	CN
28481	VIKULOVO	RUS	S	CN
28491	BOL'SIE UKI	RUS	S	CN
28493	TARA	RUS	S	CN
28506	ELABUGA	RUS	S	CN
28552	SADRINSK	RUS	S	CN
28573	ISIM	RUS	S	CN
28593	BOL'SHERECH'E	RUS	S	CN
28621	BIRSK	RUS	S	CN
28642	CHELJABINSK BALANDINO	RUS	S	CN
28661	KURGAN	RUS	S	CN
28661	KURGAN	RUS	R	CN
28666	MAKUSINO	RUS	S	CN
28679	PETROPAVLOVSK	KAZ	S	CN
28698	OMSK	RUS	S	CN
28698	OMSK	RUS	R	CN
28711	BUGUL'MA	RUS	S	CN
28722	UFA	RUS	S	CN
28722	UFA	RUS	R	CN
28748	TROIZK	RUS	S	CN
28766	BLACOVESCHENKA	KAZ	S	CN
28786	POLTAVKA	RUS	S	CN
28797	ODESSKOE	RUS	S	CN
28799	CERLAK	RUS	S	CN
28807	SAMARA SNYSLJAEVKA	RUS	S	CN
28825	STERLITAMAK	RUS	S	CN
28838	MAGNITOGORSK	RUS	S	CN
28867	URICKY	KAZ	S	CN
28879	KOKSHETAY	KAZ	S	CN
28952	KUSTANAI	KAZ	S	CN
28952	KUSTANAI	KAZ	R	CN
28966	RUZAEVKA	KAZ	S	CN
29023	NAPAS	RUS	S	CN
29111	SREDNY VASJUGAN	RUS	S	CN
29122	KARGASOK	RUS	S	CN
29209	MAJSK	RUS	S	CN
29231	KOLPASEVO	RUS	S	CN
29231	KOLPASEVO	RUS	R	CN
29253	LOSINOBORSKOE	RUS	S	CN
29263	ENISEJSK	RUS	S	CN
29263	ENISEJSK	RUS	R	CN
29282	BOGUCANY	RUS	S	CN
29282	BOGUCANY	RUS	R	CN
29313	PUDINO	RUS	S	CN
29328	BAKCHAR	RUS	S	CN
29348	PERVOMAJSKOE	RUS	S	CN
29405	KYSTOVKA	RUS	S	CN
29418	SEVERNOE	RUS	S	CN
29430	TOMSK	RUS	S	CN
29471	BOL'SHAJA MURTA	RUS	S	CN
29481	DZERZHINSKOE	RUS	S	CN
29524	KRESCHENKA	RUS	S	CN
29551	MARIINSK	RUS	S	CN
29553	BOGOTOL	RUS	S	CN
29562	KEMCHUG	RUS	S	CN
29570	KRASNOJARSK OPYTNOE	RUS	S	CN
29572	EMEL'JANOVO	RUS	R	CN
29581	KANSK	RUS	S	CN
29594	TAJSHET	RUS	S	CN
29602	CHANY	RUS	S	CN
29605	TATARSK	RUS	S	CN
29612	BARABINSK	RUS	S	CN
29612	BARABINSK	RUS	R	CN
29631	KOLYVAN'	RUS	S	CN
29634	NOVOSIBIRSK	RUS	S	CN
29634	NOVOSIBIRSK	RUS	R	CN
29636	TOGUCHIN	RUS	S	CN
29653	UZUR	RUS	S	CN
29654	CENTRAL'NYJ RUDBIK	RUS	S	CN
29675	KOLBA	RUS	S	CN
29676	AGINSKOE	RUS	S	CN
29698	NIZHNEUDINSK	RUS	S	CN
29698	NIZHNEUDINSK	RUS	R	CN
29706	KUPINO	RUS	S	CN
29712	ZDVINSK	RUS	S	CN
29724	KOCHKI	RUS	S	CN
29726	ORDYNSKOE	RUS	S	CN
29736	MASLJANINO	RUS	S	CN
29759	KOMMUNAR	RUS	S	CN
29766	IDRINSKOE	RUS	S	CN
29789	VERHNJAJA GUTARA	RUS	S	NS
29807	IRTYSHSK	KAZ	S	CN
29814	KARASUK	RUS	S	CN
29827	BAEVO	RUS	S	CN
29838	BARNAUL	RUS	S	CN

Index	Name of station	Country	Type of observation	Status of station
29839	BARNAUL	RUS	R	CN
29846	NOVOKUZNETSK	RUS	S	CN
29862	HAKASSKAJA	RUS	R	CN
29864	UYBAT	RUS	S	CN
29869	ERMAKOVSKOE	RUS	S	CN
29923	REBRIHA	RUS	S	CN
29937	ALEJSKAJA	RUS	S	CN
29939	BIJSK ZONAL'NAJA	RUS	S	CN
29956	TASTYP	RUS	S	CN
29998	ORLIK	RUS	S	NS
30635	UST' BARGUZIN	RUS	R	CN
30650	ROMANOVKA	RUS	S	CN
30664	TUNGOKOCEN	RUS	S	CN
30669	ZILOVO	RUS	S	CN
30673	MOGOCA	RUS	S	CN
30054	VITIM	RUS	S	CN
30054	VITIM	RUS	R	CN
30117	UST' ILIMSK	RUS	S	CN
30230	KIRENSK	RUS	S	CN
30230	KIRENSK	RUS	R	CN
30253	BODAJBO	RUS	S	CN
30309	BRATSK	RUS	S	CN
30309	BRATSK	RUS	R	CN
30328	ORLINGA	RUS	S	NS
30337	KAZACHINSK	RUS	S	CN
30372	CHARA	RUS	S	CN
30372	CHARA	RUS	R	CN
30385	UST' NJUKZHA	RUS	S	CN
30393	CUL'MAN	RUS	S	CN
30405	TANGUJ	RUS	S	CN
30433	NIZHNEANGARSK	RUS	S	CN
30455	UAKIT	RUS	S	CN
30469	KALAKAN	RUS	S	CN
30493	NAGORNYJ	RUS	S	CN
30499	TYNDA	RUS	S	CN
30504	TULUN	RUS	S	CN
30521	ZHIGALOVO	RUS	S	CN
30521	ZHIGALOVO	RUS	R	CN
30542	TASSA	RUS	S	CN
30549	KARAFTIT	RUS	S	CN
30554	BAGDARIN	RUS	S	CN
30554	BAGDARIN	RUS	R	CN
30603	ZIMA	RUS	S	CN
30612	BALAGANSK	RUS	S	CN
30622	KACUG	RUS	S	CN
30627	BAJANDAJ	RUS	S	CN
30635	UST' BARGUZIN	RUS	S	CN
30635	UST' BARGUZIN	RUS	R	CN
30650	ROMANOVKA	RUS	S	CN
30664	TUNGOKOCEN	RUS	S	CN
30669	ZILOVO	RUS	S	CN
30673	MOGOCA	RUS	S	CN
30673	MOGOCA	RUS	R	CN
30683	EROFEJ PAVLOVIC	RUS	S	CN
30692	SKOVORODINO	RUS	S	CN
30692	SKOVORODINO	RUS	R	CN
30695	DZALINDA	RUS	S	CN
30703	INGA	RUS	S	CN
30710	IRKUTSK	RUS	S	CN
30715	ANGARSK	RUS	R	CN
30731	GORJACINSK	RUS	S	CN
30739	HORINSK	RUS	S	CN
30741	ZAMOKTA	RUS	S	CN
30745	SOSNOVO OZERSKOE	RUS	S	CN
30758	CHITA	RUS	S	CN
30758	CHITA	RUS	R	CN
30764	USUGLI	RUS	S	CN
30781	URJUPINO	RUS	S	CN
30802	MONDY	RUS	S	CN
30823	ULAN UDE	RUS	S	CN
30829	NOVOSELENGINSK	RUS	S	CN
30838	PETROVSKIJ ZAVOD	RUS	S	CN
30844	HILOK	RUS	S	CN
30846	ULETY	RUS	S	CN
30859	AGINSKOE	RUS	S	CN
30862	SHILKA	RUS	S	CN
30879	NERCHINSKIJ ZAVOD	RUS	S	CN
30925	KJAHTA	RUS	S	CN
30935	KRASNYJ CHIKOJ	RUS	S	CN
30935	KRASNYJ CHIKOJ	RUS	R	CN
30949	KYRA	RUS	S	CN
30957	AKSA	RUS	S	CN
30965	BORZJA	RUS	S	CN
30965	BORZJA	RUS	R	CN
30967	SOLOV'EVSK	RUS	S	CN
30975	PRIARGUNSK	RUS	S	CN
31004	ALDAN	RUS	S	CN
31004	ALDAN	RUS	R	CN
31054	UST' JUDOMA	RUS	S	CN
31088	OHOTSK	RUS	S	CN
31088	OHOTSK	RUS	R	CN
31123	CJUL'BJU	RUS	S	CN
31137	TOKO	RUS	S	CN
31168	AJAN	RUS	S	CN
31168	AJAN	RUS	R	CN
31174	BOL'SOJ SANTAR	RUS	S	CN
31199	UNAHA	RUS	S	CN
31253	BOMNAK	RUS	S	CN
31263	LOKSAK	RUS	S	CN
31295	MAGDAGACI	RUS	S	CN
31300	ZEJA	RUS	S	CN
31300	ZEJA	RUS	R	CN
31329	EKIMCHAN	RUS	S	CN
31329	EKIMCHAN	RUS	R	CN
31348	BURUKAN	RUS	S	CN
31369	NIKOLAEVSK NA AMURE	RUS	S	CN
31369	NIKOLAEVSK NA AMURE	RUS	R	CN
31371	CHERNJAEVO	RUS	S	CN
31388	NORSK	RUS	S	CN
31416	IM POLINY OSIPENKO	RUS	S	CN
31418	VESELAJA GORKA	RUS	S	CN
31439	BOGORODSKOE	RUS	S	CN
31442	SIMANOVSK	RUS	S	CN
31445	SVOBODNYJ	RUS	S	CN
31459	VERHNJAJA TOM'	RUS	S	CN
31474	UST' UMAL'TA	RUS	S	CN
31478	SOFIJSKIJ PRIISK	RUS	S	CN
31484	HULARIN	RUS	S	CN
31489	GORIN	RUS	S	CN
31510	BLAGOVESCENSK	RUS	S	CN
31510	BLAGOVESCENSK	RUS	R	CN
31521	BRATOLJUBOVKA	RUS	S	CN
31527	ZAVITAJA	RUS	S	CN
31532	CEKUNDA	RUS	S	CN
31534	SEKTAGLI	RUS	S	CN
31538	SUTUR	RUS	S	CN
31587	POJARKOVO	RUS	S	CN
31594	ARHARA	RUS	S	CN
31632	KUR	RUS	S	CN
31655	TROICKOE	RUS	S	CN
31702	OBLUC'E	RUS	S	CN
31707	EKATERINO NIKOL'SKOE	RUS	S	CN
31713	BIROBIDZHAN	RUS	S	CN
31725	SMIDOVICH	RUS	S	CN
31735	HABAROVSK	RUS	S	CN
31736	HABAROVSK	RUS	R	CN
31754	TIVJAKU	RUS	S	CN
31801	GVASJUGI	RUS	S	CN
31825	AGZU	RUS	S	CN
31829	ZOLOTOJ	RUS	S	CN
31845	KRASNYJ JAR	RUS	S	CN
31866	SOSUNOVO	RUS	S	CN
31873	DAL'NERECHENSK	RUS	S	CN
31873	DAL'NERECHENSK	RUS	R	CN
31878	KIROVSKIJ	RUS	S	CN
31909	TERNEJ	RUS	S	CN
31909	TERNEJ	RUS	R	CN
31915	POGRANICHNYJ	RUS	S	CN
31921	ASTRAHANKA	RUS	S	CN
31959	RUDNAJA PRISTAN'	RUS	S	CN
31960	VLADIVOSTOK	RUS	S	CN
31969	POS'ET	RUS	S	CN
31977	VLADIVOSTOK SAD GOROD	RUS	R	CN
31981	ANUCINO	RUS	S	CN

Index	Name of station	Country	Type of observation	Status of station
31987	PARTIZANSK	RUS	S	CN
31989	PREOBRAZHENIE	RUS	S	CN
32027	POGIBI	RUS	S	CN
32053	NOGLIKI	RUS	S	CN
32061	ALEKSANDROVSK SAHALINSKI	RUS	S	CN
32061	ALEKSANDROVSK SAHALINSKI	RUS	R	CN
32069	PIL'VO	RUS	S	CN
32076	POGRANICHNOE	RUS	S	CN
32098	PORONAJSK	RUS	S	CN
32121	ILYINSKIY	RUS	S	CN
32150	JUZHNO SAHALINSK	RUS	S	CN
32150	JUZHNO SAHALINSK 2	RUS	R	CN
32165	JUZHNO KURIL'SK	RUS	S	CN
32195	SIMUSIR	RUS	S	CN
32207	MATUA	RUS	S	CN
32215	SEVERO KURIL'SK	RUS	S	CN
32215	SEVERO KURIL'SK	RUS	R	CN
32252	UST' VOJAMPOLKA	RUS	S	CN
32389	KLJUCHI	RUS	S	CN
32389	KLJUCHI	RUS	R	CN
32408	UST' KAMCHATSK	RUS	S	CN
32411	ICA	RUS	S	CN
32509	SEMJACHIK	RUS	S	CN
32540	PETROPAVLOVSK KAMCHATSKI	RUS	R	CN
32583	PETROPAVLOVSK KAMCHATSKI	RUS	S	CN
32594	OZERNAJA	RUS	S	CN
32618	NIKOL'SKOE	RUS	S	CN
32618	NIKOL'SKOE	RUS	R	CN
35026	ZILAIR	RUS	S	CN
35067	ESIL'	KAZ	S	CN
35078	ATBASAR	KAZ	S	CN
35085	AKKOL'	KAZ	S	CN
35108	URALSK	KAZ	S	CN
35121	ORENBURG	RUS	S	CN
35121	ORENBURG	RUS	R	CN
35188	AKMOLA ASTANA	KAZ	S	CN
35217	DZHAMBEJTY	KAZ	S	CN
35229	AKTJUBINSK	KAZ	S	CN
35229	AKTJUBINSK	KAZ	R	CN
35302	CHAPAEVO	KAZ	S	CN
35376	BERLIK	KAZ	S	CN
35394	KARAGANDA	KAZ	S	CN
35394	KARAGANDA	KAZ	R	CN
35406	TAIPAK	KAZ	S	CN
35416	UIL	KAZ	S	CN
35426	TEMIR	KAZ	S	CN
35497	ZHARYK	KAZ	S	CN
35532	MUGODZARSKAJA	KAZ	S	CN
35671	ZHEZKAZGAN	KAZ	S	CN
35671	ZHEZKAZGAN	KAZ	R	NS
35700	ATYRAN	KAZ	S	CN
35700	ATYRAN	KAZ	R	CN
35746	ARALSKOE MORE	KAZ	S	CN
35796	BALHASH	KAZ	S	CN
35849	KAZALINSK	KAZ	S	CN
35925	SAM	KAZ	S	CN
35953	DZHUSALY	KAZ	S	CN
35969	ZLIKHA	KAZ	S	CN
36003	PAVLODAR	KAZ	S	CN
36003	PAVLODAR	KAZ	R	NS
36021	KLJUCI	RUS	S	CN
36022	VOLCIHA	RUS	S	CN
36034	RUBCOVSK	RUS	S	CN
36038	ZMEINOGORSK	RUS	S	CN
36058	CEMAL	RUS	S	CN
36061	TUROCAK	RUS	S	CN
36096	KYZYL	RUS	S	NS
36096	KYZYL	RUS	R	CN
36152	SEMIJARKA	KAZ	S	CN
36177	SEMIPALATINSK	KAZ	S	CN
36208	LENINOGORSK	KAZ	S	CN
36397	ZHANGIZTOBE	KAZ	S	CN
36428	BOL'SHE NARYMSKOE	KAZ	S	CN
36535	KOKPEKTY	KAZ	S	CN
36639	URDZHAR	KAZ	S	CN
36821	BAKANAS	KAZ	S	CN
36859	ZHARKENT	KAZ	S	CN
36864	OTAR	KAZ	S	CN
36870	ALMATY	KAZ	S	CN
36870	ALMATY	KAZ	R	CN
36911	TOKMOK	KGZ	S	CN
36974	NARYN	KGZ	S	NS
36982	TIAN SHAN'	KGZ	S	CN
38001	FORT SHEVCHENKO	KAZ	S	CN
38062	KYZYLORDA	KAZ	S	NS
38069	CIILI	KAZ	S	CN
38141	JASLYK	UZB	S	NS
38149	KUNGRAD	UZB	S	CN
38178	AK BAJTAL	UZB	S	CN
38196	ACHISAJ	KAZ	S	CN
38222	TOLE BI	KAZ	S	CN
38232	AKKUDUK	KAZ	S	CN
38262	CHIMBAJ	UZB	S	CN
38264	NUKUS	UZB	S	CN
38264	NUKUS	UZB	W	NS
38328	SHYMKENT	KAZ	S	CN
38334	AUL TURARA RYSKULOVA	KAZ	S	CN
38341	ZHAMBYL	KAZ	S	CN
38341	ZHAMBYL	KAZ	R	CN
38343	KOOLAN	KAZ	S	CN
38345	TALAS	KGZ	S	CN
38353	BISHKEK	KGZ	S	CN
38388	YEKEJE	TKM	S	CN
38392	DASHOGUZ	TKM	S	CN
38396	URGENCH	UZB	S	CN
38396	URGENCH	UZB	W	NS
38403	BUZAUBAJ	UZB	S	CN
38413	TAMDY	UZB	S	CN
38439	CARDARA	KAZ	S	CN
38457	TASHKENT	UZB	S	CN
38457	TASHKENT	UZB	R	CN
38462	PSKEM	UZB	S	CN
38507	TURKMENBASHI	TKM	S	CN
38511	CHAGYL	TKM	S	NS
38545	DARGANATA	TKM	S	CN
38565	NURATA	UZB	S	CN
38579	DZIZAK	UZB	S	CN
38583	SYR DAR'JA	UZB	S	CN
38599	KHUDJAND	TJK	S	CN
38609	ISFARA	TJK	S	CN
38611	NAMANGAN	UZB	S	CN
38616	KARA SUU	KGZ	S	CN
38618	FERGANA	UZB	S	CN
38647	BEREKET	TKM	S	CN
38656	YERBENT	TKM	S	CN
38683	BUHARA	UZB	S	CN
38683	BUHARA	UZB	W	NS
38687	TURKMENABAT	TKM	S	CN
38696	SAMARKAND	UZB	S	CN
38713	URA TYUBE	TJK	S	CN
38750	ESENGULY	TKM	S	CN
38763	SERDAR	TKM	S	CN
38774	BAKHERDEN	TKM	S	CN
38799	UCHADJI	TKM	S	CN
38806	BURDALYK	TKM	S	CN
38812	KARSHI	UZB	S	CN
38812	KARSHI	UZB	W	NS
38836	DUSHANBE	TJK	S	CN
38836	DUSHANBE	TJK	R	CN
38880	ASHGABAT	TKM	S	CN
38886	TEDJEN	TKM	S	CN
38895	BAYRAMALY	TKM	S	CN
38911	ATAMURAT	TKM	S	CN
38915	KOYTENDAG	TKM	S	CN
38927	TERMEZ	UZB	S	CN
38933	KURGAN TYUBE	TJK	S	CN
38937	SHAARTUZ	TJK	S	NS
38943	KULYAB	TJK	S	CN
38944	PARKAR	TJK	S	NS
38947	PYANDJ	TJK	S	NS
38954	KHOROG	TJK	S	CN
38954	KHOROG	TJK	R	CN
38974	SARAGT	TKM	S	CN
38987	SERHETABAT	TKM	S	CN

Index	Name of station	Country	Type of observation	Status of station
40356	TURAIF	SAU	S	CN
40357	ARAR	SAU	S	CN
40360	GURIAT	SAU	S	CN
40361	AL JOUF	SAU	S	CN
40362	RAFHA	SAU	S	CN
40369	HAQL	SAU	S	NS
40373	AL QAISUMAH	SAU	S	CN
40373	AL QAISUMAH	SAU	R	CN
40375	TABUK	SAU	S	CN
40375	TABUK	SAU	R	CN
40377	HAFR AL BATIN	SAU	S	CN
40386	AL HULAIFAH	SAU	S	NS
40394	HAIL	SAU	S	CN
40394	HAIL	SAU	R	CN
40400	WEJH	SAU	S	CN
40405	GASSIM	SAU	S	CN
40416	DHAHRAN	SAU	S	CN
40417	DAMMAN AP KING FAHD	SAU	R	NS
40420	AL AHSA	SAU	S	CN
40430	MADINAH	SAU	S	CN
40430	MADINAH	SAU	R	CN
40432	UQLAT AL SUQR	SAU	S	NS
40435	AL DAWADAMI	SAU	S	CN
40437	RIYADH AP KING KHALED	SAU	S	CN
40437	RIYADH AP KING KHALED	SAU	R	CN
40438	RIYADH OBS	SAU	S	CN
40439	YENBO	SAU	S	CN
40570	AL SALMI	KWT	S	CN
40582	KUWAIT AP	KWT	S	CN
40582	KUWAIT AP	KWT	R	CN
40608	MOSUL	IRQ	S	CN
40608	MOSUL	IRQ	R	CN
40621	KIRKUK	IRQ	S	CN
40634	HADITHA	IRQ	S	CN
40637	KANAQIN	IRQ	S	CN
40642	RUTBAH	IRQ	S	CN
40650	BAGHDAD	IRQ	R	CN
40658	NUKAIB	IRQ	S	CN
40665	KUT AL HAI	IRQ	S	CN
40672	DIWANIYA	IRQ	S	CN
40676	NASIRIYA	IRQ	S	CN
40676	NASIRIYA	IRQ	W	NS
40684	AL SALMAN	IRQ	S	CN
40686	BUSSAYA	IRQ	S	CN
40689	BASRAH	IRQ	W	CN
40700	PARS ABAD MOGHAN	IRN	S	CN
40701	MAKKO	IRN	S	CN
40703	KHOY	IRN	S	CN
40704	AHAR	IRN	S	CN
40706	TABRIZ	IRN	S	CN
40706	TABRIZ	IRN	R	CN
40708	ARDEBIL	IRN	S	CN
40710	SARAB	IRN	S	CN
40712	OROMIEH	IRN	S	CN
40713	MARAGHEH	IRN	S	CN
40716	MEYANEK	IRN	S	CN
40718	ANZALI	IRN	S	CN
40719	RASHT	IRN	S	CN
40721	MARAVE-TAPPEH	IRN	S	NS
40723	BOJNOURD	IRN	S	CN
40726	MOHABAD	IRN	S	CN
40727	SAGHEZ	IRN	S	CN
40729	ZANJAN	IRN	S	CN
40731	GHAZVIN	IRN	S	CN
40732	RAMSAR	IRN	S	CN
40734	NOSHAHR	IRN	S	CN
40736	BABULSAR	IRN	S	CN
40737	GHARAKHIL	IRN	S	CN
40738	GORGAN	IRN	S	NS
40739	SHAHRUD	IRN	S	CN
40740	GHUCHAN	IRN	S	CN
40741	SARAKHS	IRN	S	NS
40743	SABZEVAR	IRN	S	CN
40745	MASHHAD	IRN	S	CN
40745	MASHHAD	IRN	R	CN
40747	SANANDAJ	IRN	S	CN
40754	TEHRAN MEHRABAD	IRN	S	CN
40754	TEHRAN MEHRABAD	IRN	R	CN
40757	SEMNAN	IRN	S	CN
40762	TORBAT HEYDARIEH	IRN	S	CN
40763	KASHMAR	IRN	S	CN
40766	KERMANSHAH	IRN	S	CN
40766	KERMANSHAH	IRN	R	CN
40768	HAMEDAN	IRN	S	CN
40769	ARAK	IRN	S	CN
40780	ILAM	IRN	S	CN
40782	KHORRAM ABAD	IRN	S	CN
40783	ALI-GOODARZ	IRN	S	CN
40785	KASHAN	IRN	S	CN
40789	KHOR	IRN	S	CN
40791	TABAS	IRN	S	CN
40792	FERDOUS	IRN	S	CN
40794	SAFI ABAD DEZFUL	IRN	S	CN
40798	SHAHRE KORD	IRN	S	CN
40800	ESFAHAN	IRN	S	CN
40800	ESFAHAN	IRN	R	CN
40809	BIRJAND	IRN	S	CN
40809	BIRJAND	IRN	R	CN
40811	AHWAZ	IRN	S	CN
40812	MASJED SOLEYMAN	IRN	S	CN
40818	ABADEH	IRN	S	CN
40821	YAZD	IRN	S	CN
40827	NEHBANDAN	IRN	S	CN
40829	ZABOL	IRN	S	CN
40831	ABADAN	IRN	S	CN
40833	OMIDIEH	IRN	S	CN
40835	GACH SARAN DU GUNBADAN	IRN	S	CN
40836	YASOGE	IRN	S	CN
40841	KERMAN	IRN	S	CN
40841	KERMAN	IRN	R	CN
40848	SHIRAZ	IRN	S	CN
40848	SHIRAZ	IRN	R	CN
40851	SIRJAN	IRN	S	CN
40853	BAFT	IRN	S	CN
40854	BAM	IRN	S	CN
40856	ZAHEDAN	IRN	S	CN
40856	ZAHEDAN	IRN	W	NS
40857	BUSHEHR	IRN	S	CN
40859	FASA	IRN	S	CN
40872	BANDAR DAYYER	IRN	S	NS
40875	BANDARABBASS	IRN	S	CN
40875	BANDARABBASS	IRN	R	CN
40877	KAHNUJ	IRN	S	NS
40878	SARAVAN	IRN	S	CN
40879	IRANSHAHR	IRN	S	CN
40882	KISH ISLAND	IRN	S	CN
40883	BANDAR LENGEH	IRN	S	CN
40889	SIRI ISLAND	IRN	S	CN
40890	ABU MUSA ISLAND	IRN	S	CN
40893	JASK	IRN	S	NS
40897	KONARAK	IRN	S	CN
40898	CHAHBAHAR	IRN	S	CN
40904	FAIZABAD	AFG	S	CN
40913	KUNDUZ	AFG	S	CN
40922	MIMANA	AFG	S	CN
40938	HEART	AFG	S	CN
40938	HEART	AFG	R	CN
40942	CHAKHCHARAN	AFG	S	CN
40945	BAMIYAN	AFG	S	CN
40948	KABUL AP	AFG	R	CN
40954	JALALABAD	AFG	S	CN
40971	KHOST	AFG	S	CN
40974	FARAH	AFG	S	CN
40977	TIRIN KOT	AFG	S	NS
40988	BUST	AFG	S	CN
40990	KANDAHAR AP	AFG	S	CN
40996	DESHOO	AFG	S	NS
41006	MUWAIH	SAU	S	CN
41010	LAYLA	SAU	S	CN
41014	OBAYLAH	SAU	S	CN
41016	SHAWALAH	SAU	S	CN
41024	JEDDAH AP KING ABDUL AZIZ	SAU	S	CN
41024	JEDDAH AP KING ABDUL AZIZ	SAU	R	CN
41036	TAIF	SAU	S	CN

Index	Name of station	Country	Type of observation	Status of station
41061	WADI AL DAWASSER AP	SAU	S	NS
41080	AL-QUNFUDAH	SAU	S	NS
41084	BISHA	SAU	S	CN
41112	ABHA	SAU	S	CN
41112	ABHA	SAU	R	CN
41114	KHAMIS MUSHAIT	SAU	S	CN
41128	NAJRAN	SAU	S	CN
41136	SHARORAH	SAU	S	CN
41140	GIZAN	SAU	S	CN
41150	BAHRAIN AP	BHN	S	CN
41170	DOHA AP	QAT	S	CN
41170	DOHA AP	QAT	R	CN
41184	RAS AL KHAIMAH AP	UAE	S	CN
41194	DUBAI AP	UAE	S	CN
41196	SHARJAH AP	UAE	S	CN
41198	FUJAIRAH	UAE	S	NS
41216	ABU DHABI AP BATEEN	UAE	S	CN
41217	ABU DHABI AP	UAE	S	CN
41217	ABU DHABI AP	UAE	R	CN
41218	AL AIN INTER. AIRPORT	UAE	R	NS
41240	KHASSAB	OMN	S	CN
41242	DIBA	OMN	S	NS
41244	BURAIMI	OMN	S	CN
41246	SOHAR MAJIS	OMN	S	CN
41253	RUSTAQ	OMN	S	NS
41254	SAIQ	OMN	S	CN
41255	NIZWA	OMN	S	NS
41256	SEEB AP	OMN	S	CN
41256	SEEB AP	OMN	R	CN
41257	SAMAIL	OMN	S	NS
41258	MINA SULTAN QABOOS	OMN	S	CN
41262	FAHUD	OMN	S	NS
41263	BAHLA	OMN	S	NS
41264	ADAM	OMN	S	NS
41265	IBRA	OMN	S	NS
41267	QALHAT	OMN	S	NS
41268	SUR	OMN	S	CN
41275	QARN ALAM	OMN	S	NS
41288	MASIRAH	OMN	S	CN
41304	MARMUL	OMN	S	NS
41312	MINA SALALAH	OMN	S	NS
41314	THUMRAIT	OMN	S	CN
41315	QAIROON HARITI	OMN	S	NS
41316	SALALAH	OMN	S	CN
41316	SALALAH	OMN	R	CN
41372	SAADA	YEM	S	CN
41396	SEIYOUN =GHURAF	YEM	S	CN
41398	AL GHAIDAH	YEM	S	CN
41404	SANA'A	YEM	S	CN
41404	SANA'A	YEM	R	CN
41407	MARIB	YEM	S	CN
41416	KAMARAN	YEM	S	CN
41431	HODEIDAH	YEM	S	CN
41437	ATAQ	YEM	S	CN
41443	RIYAN	YEM	S	CN
41443	RIYAN	YEM	W	NS
41466	TAIZ	YEM	S	CN
41480	ADEN	YEM	S	CN
41480	ADEN	YEM	R	CN
41494	SOCOTRA	YEM	S	CN
41494	SOCOTRA	YEM	R	NS
41504	GUPIS	PAK	S	CN
41506	CHITRAL	PAK	S	CN
41508	DIR	PAK	S	CN
41515	DROSH	PAK	S	CN
41516	GILGIT	PAK	S	CN
41517	SKARDU	PAK	S	CN
41518	BUNJI	PAK	S	CN
41519	CHILAS	PAK	S	CN
41520	ASTORE	PAK	S	CN
41523	SAIDU SHARIF	PAK	S	CN
41530	PESHAWAR	PAK	S	CN
41530	PESHAWAR	PAK	R	CN
41532	MUZAFFARABED	PAK	S	CN
41533	RISALPUR	PAK	S	CN
41535	KAKUL	PAK	S	CN
41536	BALAKOT	PAK	S	CN
41560	PARACHINAR	PAK	S	CN
41564	KOHAT	PAK	S	CN
41565	CHERAT	PAK	S	CN
41568	MINHAS	PAK	S	CN
41570	DHAMIAL ARMY	PAK	S	CN
41571	ISLAMABAD AP	PAK	S	CN
41573	MURREE	PAK	S	CN
41577	ISLAMABAD SRRC	PAK	S	CN
41592	MIANWALI	PAK	S	CN
41594	SARGODHA	PAK	S	CN
41594	SARGODHA	PAK	R	CN
41598	JHELUM	PAK	S	CN
41600	SIALKOT	PAK	S	CN
41620	ZHOB	PAK	S	CN
41624	DERA ISMAIL KHAN	PAK	S	CN
41630	FAISALABAD	PAK	S	CN
41640	LAHORE PBO	PAK	R	CN
41641	LAHORE AP	PAK	S	CN
41660	QUETTA AP	PAK	S	CN
41661	QUETTA SHEIKH MANDA	PAK	R	CN
41672	RAFIQUI	PAK	S	CN
41675	MULTAN	PAK	S	CN
41675	MULTAN	PAK	R	CN
41678	BAHAWALNAGAR	PAK	S	CN
41685	BAR KHAN	PAK	S	CN
41700	BAHAWALPUR	PAK	S	CN
41710	NOKKUNDI	PAK	S	CN
41712	DAL BANDIN	PAK	S	CN
41715	JACOBABAD	PAK	S	CN
41715	JACOBABAD	PAK	W	CN
41718	KHANPUR	PAK	S	CN
41739	PANJGUR	PAK	S	CN
41739	PANJGUR	PAK	W	NS
41744	KHUZDAR	PAK	S	CN
41749	NAWABSHAH	PAK	S	CN
41756	JIWANI	PAK	S	CN
41756	JIWANI	PAK	W	CN
41768	CHHOR	PAK	S	CN
41768	CHHOR	PAK	W	NS
41780	KARACHI AP	PAK	S	CN
41780	KARACHI AP	PAK	R	CN
43533	GARHI DUPATTA	PAK	S	CN
43563	KOTLI	PAK	S	CN
41859	RANGPUR	BGD	S	CN
41883	BOGRA	BGD	S	CN
41883	BOGRA	BGD	R	CN
41886	MYMENSINGH	BGD	S	CN
41891	SYLHET	BGD	S	CN
41907	ISHURDI	BGD	S	CN
41923	DHAKA	BGD	S	CN
41923	DHAKA	BGD	R	CN
41936	JESSORE	BGD	S	CN
41950	BARISAL	BGD	S	CN
41978	CHITTAGONG PATENGA	BGD	S	CN
41992	COX'S BAZAR	BGD	S	CN
42027	SRINAGAR	IND	S	CN
42027	SRINAGAR	IND	R	CN
42071	AMRITSAR	IND	S	CN
42101	PATIALA	IND	S	CN
42101	PATIALA	IND	R	CN
42111	DEHRADUN	IND	S	CN
42131	HISSAR	IND	S	CN
42165	BIKANER	IND	S	CN
42182	NEW DELHI SAFDARJUNG	IND	S	CN
42182	NEW DELHI SAFDARJUNG	IND	R	CN
42189	BAREILLY	IND	S	CN
42260	AGRA	IND	S	CN
42309	N LAKHIMPUR	IND	S	CN
42314	DIBRUGARH MOHANBARI	IND	S	CN
42314	DIBRUGARH MOHANBARI	IND	R	CN
42328	JAISALMER	IND	S	CN
42339	JODHPUR	IND	S	CN
42339	JODHPUR	IND	R	CN
42348	JAIPUR SANGANER	IND	S	CN
42361	GWALIOR	IND	S	CN
42361	GWALIOR	IND	R	CN
42369	LUCKNOW AMAUSI	IND	S	CN

Index	Name of station	Country	Type of observation	Status of station
42369	LUCKNOW AMAUSI	IND	R	CN
42379	GORAKHPUR	IND	S	CN
42379	GORAKHPUR	IND	R	CN
42397	SILIGURI	IND	R	CN
42398	SILIGURI	IND	S	CN
42410	GAUHATI	IND	S	CN
42410	GAUHATI	IND	R	CN
42415	TEZPUR	IND	S	CN
42452	KOTA AD	IND	S	CN
42452	KOTA AD	IND	W	NS
42475	ALLAHABAD BAMHRAULI	IND	S	CN
42492	PATNA	IND	S	CN
42492	PATNA	IND	R	CN
42559	GUNA	IND	S	CN
42571	SATNA	IND	S	CN
42587	DALTONGANJ	IND	S	NS
42591	GAYA	IND	S	CN
42591	GAYA	IND	W	NS
42623	IMPHAL	IND	S	CN
42623	IMPHAL	IND	W	NS
42634	BHUJ RUDRAMATA	IND	S	CN
42634	BHUJ RUDRAMATA	IND	W	NS
42647	AHMADABAD	IND	S	CN
42647	AHMADABAD	IND	R	CN
42667	BHOPAL BAIRAGARH	IND	S	CN
42667	BHOPAL BAIRAGARH	IND	R	CN
42675	JABALPUR	IND	S	CN
42675	JABALPUR	IND	W	NS
42701	MO RANCHI	IND	S	CN
42701	MO RANCHI	IND	R	CN
42706	BANKURA	IND	S	CN
42724	AGARTALA	IND	S	CN
42724	AGARTALA	IND	R	CN
42734	JAMNAGAR	IND	W	NS
42737	RAJKOT	IND	S	CN
42874	PBO RAIPUR	IND	R	CN
42886	JHARSUGUDA	IND	S	CN
42895	BALASORE	IND	S	CN
42909	VERAVAL	IND	S	CN
42909	VERAVAL	IND	W	NS
42920	NASIK OZAR	IND	S	NS
42934	AKOLA	IND	S	CN
42971	BHUBANESWAR	IND	S	CN
42971	BHUBANESWAR	IND	R	CN
42977	SANDHEADS	IND	S	CN
43003	BOMBAY SANTACRUZ	IND	S	CN
43003	BOMBAY SANTACRUZ	IND	R	CN
43014	AURANGABAD CHIKALTHAN AD	IND	S	CN
43014	AURANGABAD CHIKALTHAN AD	IND	R	CN
43041	JAGDALPUR	IND	S	CN
43041	JAGDALPUR	IND	R	CN
43063	POONA	IND	S	CN
43086	RAMGUNDAM	IND	S	CN
43110	RATNAGIRI	IND	S	CN
43117	SHOLAPUR	IND	S	CN
43128	HYDERABAD AP	IND	S	CN
43128	HYDERABAD AP	IND	R	CN
43150	CWC VISHAKHAPATNAM WALTA	IND	S	CN
43150	CWC VISHAKHAPATNAM WALTA	IND	R	CN
43185	MACHILIPATNAM	IND	S	CN
43185	MACHILIPATNAM	IND	R	CN
43189	KAKINADA	IND	S	CN
43192	GOA PANJIM	IND	S	CN
43198	BELGAUM SAMBRA	IND	S	CN
43201	GADAG	IND	S	CN
43213	KURNOOL	IND	S	CN
43226	HONAVAR	IND	S	NS
43233	CHITRADURGA	IND	S	CN
43237	ANANTAPUR	IND	S	CN
43245	NELLORE	IND	S	CN
43279	MADRAS MINAMBAKKAM	IND	S	CN
43284	MANGALORE BAJPE	IND	S	CN
43285	MANGALORE PANAMBUR	IND	R	CN
43295	BANGALORE	IND	S	CN
43295	BANGALORE	IND	R	CN
43311	AMINI DIVI MO	IND	S	CN
43314	KOZHIKODE	IND	S	CN
43321	COIMBATORE PEELAMEDU	IND	S	CN
43329	CUDDALORE	IND	S	CN
43333	PORT BLAIR	IND	S	CN
43333	PORT BLAIR	IND	R	CN
43344	TIRUCHCHIRAPALLI	IND	S	CN
43346	KARAIKAL	IND	S	CN
43346	KARAIKAL	IND	R	CN
43353	COCHIN WILLINGDON	IND	S	CN
43369	MINICOY	IND	S	CN
43369	MINICOY	IND	R	CN
43371	THIRUVANANTHAPURAM	IND	S	CN
43371	THIRUVANANTHAPURAM	IND	R	CN
43415	VAVUNIYA	LKA	S	NS
43418	TRINCOMALEE	LKA	S	CN
43424	PUTTALAM	LKA	S	CN
43436	BATTICALOA	LKA	S	CN
43450	KATUNAYAKE	LKA	S	CN
43466	COLOMBO	LKA	S	NS
43473	NUWARA ELIYA	LKA	S	CN
43495	GALLE	LKA	S	NS
43497	HAMBANTOTA	LKA	S	CN
43555	MALE	MDV	S	CN
43555	MALE	MDV	W	CN
43577	KADHDHOO	MDV	S	CN
43599	GAN	MDV	S	CN
43599	GAN	MDV	W	CN
44203	RINCHINLHUMBE	MNG	S	CN
44207	HATGAL	MNG	S	CN
44212	ULAAN GOM	MNG	S	CN
44212	ULAAN GOM	MNG	R	CN
44213	BARUUNTURUUN	MNG	S	CN
44214	UIGI	MNG	S	CN
44215	OMNO GOBI	MNG	S	CN
44218	HOVD	MNG	S	CN
44230	TARIALAN	MNG	S	CN
44231	MUREN	MNG	S	CN
44231	MUREN	MNG	R	CN
44232	HUTAG	MNG	S	CN
44239	BULGAN	MNG	S	CN
44241	BARUUNKHARAA	MNG	S	CN
44256	DASHBALBAR	MNG	S	CN
44259	CHOIBALSAN	MNG	S	CN
44259	CHOIBALSAN	MNG	R	CN
44265	BAITAG	MNG	S	CN
44272	ULIASTAI	MNG	S	CN
44277	ALTAI	MNG	S	CN
44277	ALTAI	MNG	R	CN
44282	TSETSERLEG	MNG	S	CN
44284	GALUUT	MNG	S	CN
44285	HUJIRT	MNG	S	CN
44287	BAYANHONGOR	MNG	S	CN
44288	ARVAIHEER	MNG	S	CN
44288	ARVAIHEER	MNG	R	CN
44292	ULAAN BAATOR	MNG	S	CN
44292	ULAAN BAATOR	MNG	R	CN
44294	MAANTI	MNG	S	CN
44298	CHOIR	MNG	S	CN
44302	BAYAN OVOO	MNG	S	CN
44304	UNDERKHAAN	MNG	S	CN
44305	BARUUN URT	MNG	S	CN
44313	KHALKH GOL	MNG	S	CN
44314	MATAD	MNG	S	CN
44336	SAIKHAN OVOO	MNG	S	CN
44341	MANDALGOVI	MNG	S	CN
44347	TSOGT OVOO	MNG	S	CN
44352	BAYANDELGER	MNG	S	CN
44373	DALANZADGAD	MNG	S	CN
44416	SURKHET	NPL	S	CN
44424	JUMLA	NPL	S	CN
44438	BHAIRAWA AP	NPL	S	CN
44454	KATHMANDU AP	NPL	S	CN
44454	KATHMANDU AP	NPL	R	CN
44477	DHANKUTA	NPL	S	CN
44478	BIRATNAGAR AP	NPL	S	CN
45004	KING'S PARK	CHN	R	CN
45007	HONG KONG INTER. AIR.	CHN	S	NS
45011	TAIPA GRANDE	CHN	S	CN

Index	Name of station	Country	Type of observation	Status of station
47003	SENBONG	PRK	S	CN
47005	SAMJIYON	PRK	S	CN
47008	CHONGJIN	PRK	S	CN
47014	JUNGGANG	PRK	S	CN
47016	HYESAN	PRK	S	CN
47020	KANGGYE	PRK	S	CN
47022	PUNGSAN	PRK	S	CN
47025	KIMCHAEK	PRK	S	CN
47028	SUPUNG	PRK	S	CN
47031	CHANGJIN	PRK	S	CN
47035	SINUIJU	PRK	S	CN
47037	KUSONG	PRK	S	CN
47039	HUICHON	PRK	S	CN
47041	HAMHEUNG	PRK	S	CN
47041	HAMHEUNG	PRK	R	CN
47046	SINPO	PRK	S	CN
47050	ANJU	PRK	S	CN
47052	YANGDOK	PRK	S	CN
47055	WONSAN	PRK	S	CN
47058	PYONGYANG	PRK	S	CN
47058	PYONGYANG	PRK	R	CN
47060	NAMPO	PRK	S	CN
47061	CHANGJON	PRK	S	CN
47065	SARIWON	PRK	S	CN
47067	SINGYE	PRK	S	CN
47068	RYONGYON	PRK	S	CN
47069	HAEJU	PRK	S	CN
47070	KAESONG	PRK	S	CN
47075	PYONGGANG	PRK	S	CN
47101	CHUNCHON	KOR	S	CN
47105	KANGNUNG	KOR	S	CN
47108	SEOUL	KOR	S	CN
47115	ULLUNGDO	KOR	S	CN
47122	OSAN AB	KOR	R	CN
47133	TAEJON	KOR	S	CN
47138	POHANG	KOR	S	CN
47158	KWANGJU AB	KOR	R	CN
47159	PUSAN	KOR	S	CN
47165	MOKP'O	KOR	S	CN
47168	YOSU	KOR	S	CN
47184	CHEJU	KOR	S	CN
47185	CHEJU UR	KOR	R	CN
47401	WAKKANAI	JPN	S	CN
47401	WAKKANAI	JPN	R	CN
47407	ASAHIKAWA	JPN	S	CN
47409	ABASHIRI	JPN	S	CN
47412	SAPPORO	JPN	S	CN
47412	SAPPORO	JPN	R	CN
47418	KUSHIRO	JPN	S	CN
47420	NEMURO	JPN	S	CN
47420	NEMURO	JPN	R	CN
47421	SUTTSU	JPN	S	CN
47426	URAKAWA	JPN	S	CN
47430	HAKODATE	JPN	S	CN
47570	WAKAMATSU	JPN	S	CN
47575	AOMORI	JPN	S	CN
47582	AKITA	JPN	S	CN
47582	AKITA	JPN	R	CN
47585	MIYAKO	JPN	S	CN
47590	SENDAI	JPN	S	CN
47590	SENDAI	JPN	R	CN
47598	ONAHAMA	JPN	S	CN
47600	WAJIMA	JPN	S	CN
47600	WAJIMA	JPN	R	CN
47602	AIKAWA	JPN	S	CN
47605	KANAZAWA	JPN	S	CN
47618	MATSUMOTO	JPN	S	CN
47624	MAEBASHI	JPN	S	CN
47636	NAGOYA	JPN	S	CN
47646	TATENO	JPN	R	CN
47648	CHOSHI	JPN	S	CN
47655	OMAEZAKI	JPN	S	CN
47662	TOKYO	JPN	S	CN
47663	OWASE	JPN	S	CN
47675	OSHIMA	JPN	S	CN
47678	HACHIJOJIMA	JPN	S	CN
47678	HACHIJOJIMA OMURE	JPN	R	CN
47740	SAIGO	JPN	S	CN
47741	MATSUE	JPN	S	CN
47744	YONAGO	JPN	R	CN
47746	TOTTORI	JPN	S	CN
47750	MAIZURU	JPN	S	CN
47755	HAMADA	JPN	S	CN
47772	OSAKA	JPN	S	CN
47778	SHIONOMISAKI	JPN	S	CN
47778	SHIONOMISAKI	JPN	R	CN
47800	IZUHARA	JPN	S	CN
47807	FUKUOKA	JPN	S	CN
47807	FUKUOKA	JPN	R	CN
47815	OITA	JPN	S	CN
47817	NAGASAKI	JPN	S	CN
47827	KAGOSHIMA	JPN	S	CN
47827	KAGOSHIMA	JPN	R	CN
47830	MIYAZAKI	JPN	S	CN
47837	TANEGASHIMA	JPN	S	CN
47843	FUKUE	JPN	S	CN
47887	MATSUYAMA	JPN	S	CN
47891	TAKAMATSU	JPN	S	CN
47898	SHIMIZU	JPN	S	CN
47899	MUROTOMISAKI	JPN	S	CN
47909	NAZE	JPN	S	CN
47909	NAZE FUNCHATOGE	JPN	R	CN
47918	ISHIGAKIJIMA	JPN	S	CN
47918	ISHIGAKIJIMA	JPN	R	CN
47927	MIYAKOJIMA	JPN	S	CN
47936	NAHA	JPN	S	CN
47936	NAHA	JPN	R	CN
47945	MINAMIDAITOJIMA	JPN	S	CN
47945	MINAMIDAITOJIMA	JPN	R	CN
47971	CHICHIJIMA	JPN	S	CN
47971	CHICHIJIMA	JPN	R	CN
47991	MINAMITORISHIMA	JPN	S	CN
47991	MINAMITORISHIMA	JPN	R	CN
48001	PUTAO	MMR	S	CN
48004	HKAMTI	MMR	S	CN
48008	MYITKYINA	MMR	S	CN
48008	MYITKYINA	MMR	R	CN
48010	HOMALIN	MMR	S	CN
48018	KATHA	MMR	S	CN
48019	BHAMO	MMR	S	CN
48024	KALEMYO	MMR	W	NS
48025	KALEWA	MMR	S	CN
48035	LASHIO	MMR	S	CN
48037	MONYWA	MMR	S	CN
48042	MANDALAY	MMR	S	CN
48045	MINDAT	MMR	S	CN
48053	MEIKTILA	MMR	S	CN
48053	MEIKTILA	MMR	R	CN
48057	TAUNGGYI	MMR	S	CN
48060	KENGTUNG	MMR	S	CN
48060	KENGTUNG	MMR	W	CN
48062	SITTWE	MMR	S	CN
48062	SITTWE	MMR	R	CN
48064	MINBU	MMR	S	NS
48071	KYAUKPYU	MMR	S	CN
48077	PROME	MMR	S	CN
48078	TOUNGOO	MMR	S	CN
48080	SANDOWAY	MMR	S	CN
48094	PATHEIN	MMR	S	CN
48094	PATHEIN	MMR	W	CN
48096	MINGALADON	MMR	S	CN
48097	YANGON	MMR	R	CN
48099	HPA AN	MMR	S	CN
48107	YE	MMR	S	CN
48108	DAWEI	MMR	S	CN
48109	COCO ISLAND	MMR	S	CN
48109	COCO ISLAND	MMR	W	CN
48110	MERGUI	MMR	S	CN
48300	MAE HONG SON	THA	S	CN
48303	CHIANG RAI	THA	S	CN
48325	MAE SA RIENG	THA	S	NS
48327	CHIANG MAI	THA	S	CN
48327	CHIANG MAI	THA	R	CN
48328	LAMPANG	THA	S	CN

Index	Name of station	Country	Type of observation	Status of station
48330	PHRAE	THA	S	CN
48331	NAN	THA	S	CN
48351	UTTARADIT	THA	S	CN
48353	LOEI	THA	S	CN
48354	UDON THANI	THA	S	CN
48354	UDON THANI	THA	W	NS
48356	SAKON NAKHON	THA	S	CN
48375	MAE SOT	THA	S	CN
48376	TAK	THA	S	CN
48377	BHUMIBOL DAM	THA	S	CN
48378	PHITSANULOK	THA	S	CN
48378	PHITSANULOK	THA	W	NS
48379	PHETCHABUN	THA	S	CN
48381	KHON KAEN	THA	S	CN
48383	MUKDAHARN	THA	S	NS
48400	NAKHON SAWAN	THA	S	CN
48405	ROI-ED	THA	S	NS
48407	UBON RATCHATHANI	THA	S	CN
48407	UBON RATCHATHANI	THA	R	CN
48421	THONG PA POOM	THA	S	NS
48426	LOPBURI	THA	S	NS
48431	NAKHON RATCHASIMA	THA	S	CN
48431	NAKHON RATCHASIMA	THA	W	NS
48432	SURIN	THA	S	CN
48455	BANGKOK	THA	S	CN
48455	BANGKOK	THA	R	CN
48456	DON MUANG	THA	S	CN
48462	ARANYAPRATHET	THA	S	CN
48475	HUA HIN	THA	S	CN
48477	SATTAHIP	THA	S	CN
48477	SATTAHIP	THA	W	NS
48480	CHANTHABURI	THA	S	CN
48480	CHANTHABURI	THA	W	CN
48500	PRACHUAP KHIRIKHAN	THA	S	CN
48500	PRACHUAP KHIRIKHAN	THA	W	NS
48501	KLONG YAI	THA	S	NS
48517	CHUMPHON	THA	S	CN
48532	RANONG	THA	S	CN
48551	SURAT THANI	THA	S	CN
48551	SURAT THANI	THA	W	CN
48552	NAKORNSRITHAMARAT	THA	S	NS
48565	PHUKET AP	THA	S	CN
48567	TRANG	THA	S	CN
48568	SONGKHLA	THA	R	CN
48569	HAT YAI	THA	S	CN
48583	NARATHIWAT	THA	S	CN
48803	LAO CAI	VNM	S	CN
48806	SON LA	VNM	S	CN
48808	CAO BANG	VNM	S	CN
48820	HA NOI	VNM	S	CN
48820	HA NOI	VNM	R	CN
48823	NAM DINH	VNM	S	CN
48826	PHU LIEN	VNM	S	CN
48830	LANG SON	VNM	S	CN
48839	BACH LONG VI	VNM	S	CN
48840	THANH HOA	VNM	S	CN
48845	VINH	VNM	S	CN
48848	DONG HOI	VNM	S	CN
48852	HUE	VNM	S	CN
48855	DA NANG	VNM	S	CN
48855	DA NANG	VNM	R	CN
48860	HOANG SA (PATTLE)	VNM	S	CN
48870	QUY NHON	VNM	S	CN
48877	NHA TRANG	VNM	S	CN
48887	PHAN THIET	VNM	S	CN
48892	SONG TU TAY	VNM	S	CN
48900	HO CHI MINH	VNM	S	CN
48900	HO CHI MINH	VNM	R	CN
48914	CA MAU	VNM	S	CN
48914	CA MAU	VNM	W	NS
48916	THO CHU	VNM	S	CN
48917	PHU QUOC	VNM	S	CN
48918	CON SON	VNM	S	CN
48919	HUYEN TRAN	VNM	S	CN
48920	TRUONG SA	VNM	S	CN
48924	LUANG NAMTHA (M. SING)	LAO	S	CN
48926	HOUEI-SAI	LAO	S	CN
48927	VIENGSAY	LAO	S	CN
48930	LUANG-PRABANG	LAO	S	CN
48935	PLAINE DES JARRES (XIENGKHOUANG)	LAO	S	CN
48940	VIENTIANE	LAO	S	CN
48940	VIENTIANE	LAO	R	CN
48947	SAVANNAKHET	LAO	S	CN
48952	SARAVANE	LAO	S	CN
48955	PAKSE	LAO	S	CN
48957	ATTOPEU	LAO	S	CN
48966	SIEMREAP	KHM	S	CN
48972	STUNG TRENG	KHM	S	CN
48978	SEN MONOROM	KHM	S	CN
48982	KOS KONG	KHM	S	CN
48983	KOMPONG SOM/VILLE (EX SIHANOUK VILLE)	KHM	S	CN
48991	PHNOM-PENH/POCHENTONG	KHM	S	CN
48991	PHNOM-PENH/POCHENTONG	KHM	R	CN
48998	SVAY RIENG	KHM	S	CN
50557	NENJIANG	CHN	S	CN
50557	NENJIANG	CHN	R	CN
50603	XIN BARAG YOUQI	CHN	S	CN
50632	BUGT	CHN	S	CN
50727	ARXAN	CHN	S	CN
50745	QIQIHAR	CHN	S	CN
50756	HAILUN	CHN	S	CN
50774	YICHUN	CHN	S	CN
50774	YICHUN	CHN	R	CN
50788	FUJIN	CHN	S	CN
50915	ULIASTAI = DONG UJIMQIN QI	CHN	S	CN
50949	QIAN GORLOS	CHN	S	CN
50953	HARBIN	CHN	S	CN
50953	HARBIN	CHN	R	CN
50963	TONGHE	CHN	S	CN
50978	JIXI	CHN	S	CN
51076	ALTAY	CHN	S	CN
51076	ALTAY	CHN	R	CN
51087	FUYUN	CHN	S	CN
51133	TACHENG	CHN	S	CN
51156	HOBOKSAR	CHN	S	CN
51243	KARAMAY	CHN	S	CN
51288	BAYTIK SHAN	CHN	S	CN
51334	JINGHE	CHN	S	NS
51431	YINING	CHN	S	CN
51431	YINING	CHN	R	CN
51463	URUMQI	CHN	S	CN
51495	SHISANJIANFANG	CHN	S	NS
51542	BAYANBULAK	CHN	S	NS
51573	TURPAN	CHN	S	CN
51644	KUQA	CHN	S	CN
51644	KUQA	CHN	R	CN
51656	KORLA	CHN	S	CN
51709	KASHI	CHN	S	CN
51709	KASHI	CHN	R	CN
51716	BACHU	CHN	S	CN
51730	ALAR	CHN	S	NS
51747	TAZHONG	CHN	S	NS
51765	TIKANLIK	CHN	S	CN
51777	RUOQIANG	CHN	S	CN
51777	RUOQIANG	CHN	R	CN
51811	SHACHE	CHN	S	CN
51828	HOTAN	CHN	S	CN
51828	HOTAN	CHN	R	CN
51839	MINFENG	CHN	R	CN
51886	MANGNAI	CHN	S	CN
52203	HAMI	CHN	S	CN
52203	HAMI	CHN	R	CN
52267	EJIN QI	CHN	S	CN
52267	EJIN QI	CHN	R	CN
52323	MAZONG SHAN	CHN	S	CN
52323	MAZONG SHAN	CHN	R	CN
52418	DUNHUANG	CHN	S	CN
52418	DUNHUANG	CHN	R	CN
52495	BAYAN MOD	CHN	S	CN
52533	JIUQUAN	CHN	S	CN
52533	JIUQUAN	CHN	R	CN
52602	LENGHU	CHN	S	CN

Index	Name of station	Country	Type of observation	Status of station
52652	ZHANGYE	CHN	S	CN
52681	MINQIN	CHN	S	CN
52681	MINQIN	CHN	R	CN
52713	DA QAIDAM	CHN	S	CN
52754	GANGCA	CHN	S	CN
52818	GOLMUD	CHN	S	CN
52818	GOLMUD	CHN	R	CN
52836	DULAN	CHN	S	CN
52866	XINING	CHN	S	CN
52866	XINING	CHN	R	CN
52889	LANZHOU	CHN	S	CN
52889	LANZHOU	CHN	R	CN
53068	ERENHOT	CHN	S	CN
53068	ERENHOT	CHN	R	CN
53083	NARAN BULAG	CHN	S	NS
53149	MANDAL	CHN	S	CN
53192	ABAG QI	CHN	S	CN
53231	HAILS	CHN	S	CN
53276	JURH	CHN	S	CN
53336	HALIUT	CHN	S	CN
53391	HUADE	CHN	S	CN
53463	HOHHOT	CHN	S	CN
53463	HOHHOT	CHN	R	CN
53502	JARTAI	CHN	S	NS
53513	LINHE	CHN	S	CN
53513	LINHE	CHN	R	CN
53529	OTOG QI	CHN	S	CN
53543	DONGSHENG	CHN	S	CN
53564	HEQU	CHN	S	CN
53588	WUTAI SHAN	CHN	S	CN
53614	YINCHUAN	CHN	S	CN
53614	YINCHUAN	CHN	R	CN
53646	YULIN	CHN	S	CN
53723	YANCHI	CHN	S	CN
53772	TAIYUAN	CHN	S	CN
53772	TAIYUAN	CHN	R	CN
53798	XINGTAI	CHN	S	CN
53845	YAN AN	CHN	S	CN
53845	YAN AN	CHN	R	CN
53915	PINGLIANG	CHN	S	CN
53915	PINGLIANG	CHN	R	CN
53959	YUNCHENG	CHN	S	CN
54012	XI UJIMQIN QI	CHN	S	CN
54026	JARUD QI	CHN	S	CN
54027	LINDONG	CHN	S	CN
54094	MUDANJIANG	CHN	S	CN
54102	XILIN HOT	CHN	S	CN
54102	XILIN HOT	CHN	R	CN
54135	TONGLIAO	CHN	S	CN
54161	CHANGCHUN	CHN	S	CN
54161	CHANGCHUN	CHN	R	CN
54208	DUOLUN	CHN	S	CN
54218	CHIFENG	CHN	S	CN
54218	CHIFENG	CHN	R	CN
54236	ZHANGWU	CHN	S	CN
54273	HUADIAN	CHN	S	NS
54292	YANJI	CHN	S	CN
54292	YANJI	CHN	R	CN
54337	JINZHOU	CHN	S	CN
54337	JINZHOU	CHN	R	CN
54342	SHENYANG	CHN	S	CN
54342	SHENYANG	CHN	R	CN
54374	LINJIANG	CHN	S	CN
54374	LINJIANG	CHN	R	CN
54377	JI'AN	CHN	S	NS
54401	ZHANGJIAKOU	CHN	S	CN
54423	CHENGDE	CHN	S	CN
54471	YINGKOU	CHN	S	CN
54497	DANDONG	CHN	S	CN
54497	DANDONG	CHN	R	CN
54511	BEIJING	CHN	S	CN
54511	BEIJING	CHN	R	CN
54539	LETING	CHN	S	CN
54618	POTOU	CHN	S	CN
54662	DALIAN	CHN	S	CN
54662	DALIAN	CHN	R	CN
54753	LONGKOU	CHN	S	CN
54776	CHENGSHANTOU	CHN	S	CN
54823	JINAN	CHN	S	CN
54823	JINAN	CHN	R	CN
54843	WEIFANG	CHN	S	CN
54857	QINGDAO	CHN	S	CN
54857	QINGDAO	CHN	R	CN
54909	DINGTAO	CHN	S	CN
55228	SHIQUANHE	CHN	S	CN
55279	BAINGOIN	CHN	S	NS
55299	NAGQU	CHN	S	CN
55299	NAGQU	CHN	R	CN
55472	XAINZA	CHN	S	NS
55578	XIGAZE	CHN	S	CN
55591	LHASA	CHN	S	CN
55591	LHASA	CHN	R	CN
55664	TINGRI	CHN	S	CN
55696	LHUNZE	CHN	S	NS
55773	PAGRI	CHN	S	CN
56004	TUOTUOHE	CHN	S	CN
56018	ZADOI	CHN	S	NS
56021	QUMARLEB	CHN	S	NS
56029	YUSHU	CHN	S	CN
56029	YUSHU	CHN	R	CN
56033	MADOI	CHN	S	CN
56046	DARLAG	CHN	S	CN
56079	RUO'ERGAI	CHN	S	NS
56080	HEZUO	CHN	S	CN
56080	HEZUO	CHN	R	CN
56096	WUDU	CHN	S	CN
56106	SOG XIAN	CHN	S	NS
56116	DENGQEN	CHN	S	CN
56137	QAMDO	CHN	S	CN
56137	QAMDO	CHN	R	CN
56146	GARZE	CHN	R	CN
56152	SERTAR	CHN	S	NS
56172	BARKAM	CHN	S	CN
56182	SONGPAN	CHN	S	NS
56247	BATANG	CHN	S	CN
56294	CHENGDU	CHN	S	CN
56294	CHENGDU	CHN	R	CN
56312	NYINGCHI	CHN	S	CN
56444	DEQEN	CHN	S	CN
56462	JIULONG	CHN	S	CN
56492	YIBIN	CHN	S	CN
56571	XICHANG	CHN	S	CN
56571	XICHANG	CHN	R	CN
56651	LIJING	CHN	S	CN
56691	WEINING	CHN	S	CN
56691	WEINING	CHN	R	CN
56739	TENGCHONG	CHN	S	CN
56739	TENGCHONG	CHN	R	CN
56778	KUNMING	CHN	S	CN
56778	KUNMING	CHN	R	CN
56951	LINCANG	CHN	S	CN
56964	SIMAO	CHN	S	CN
56964	SIMAO	CHN	R	CN
56969	MENGLA	CHN	S	NS
56985	MENGZI	CHN	S	CN
56985	MENGZI	CHN	R	CN
57036	XI'AN	CHN	S	CN
57036	XI'AN	CHN	R	CN
57067	LUSHI	CHN	S	CN
57083	ZHENGZHOU	CHN	S	CN
57083	ZHENGZHOU	CHN	R	CN
57127	HANZHONG	CHN	S	CN
57127	HANZHONG	CHN	R	CN
57178	NANYANG	CHN	S	CN
57245	ANKANG	CHN	S	CN
57265	GUANGHUA	CHN	S	CN
57297	XINYANG	CHN	S	CN
57328	DA XIAN	CHN	S	CN
57411	NANCHONG	CHN	S	CN
57447	ENSHI	CHN	S	CN
57447	ENSHI	CHN	R	CN
57461	YICHANG	CHN	S	CN

Index	Name of station	Country	Type of observation	Status of station
57461	YICHANG	CHN	R	CN
57494	WUHAN	CHN	S	CN
57494	WUHAN	CHN	R	CN
57516	CHONGQING	CHN	S	CN
57516	CHONGQING	CHN	R	CN
57633	YOUYANG	CHN	S	CN
57662	CHANGDE	CHN	S	CN
57679	CHANGSHA	CHN	R	CN
57687	CHANGSHA	CHN	S	CN
57745	ZHIJIANG	CHN	S	CN
57749	HUAIHUA	CHN	R	CN
57799	JI'AN	CHN	S	CN
57816	GUIYANG	CHN	S	CN
57816	GUIYANG	CHN	R	CN
57866	LINGLING	CHN	S	CN
57902	XINGREN	CHN	S	CN
57957	GUILIN	CHN	S	CN
57957	GUILIN	CHN	R	CN
57972	CHENZHOU	CHN	S	CN
57972	CHENZHOU	CHN	R	CN
57993	GANZHOU	CHN	S	CN
57993	GANZHOU	CHN	R	CN
58027	XUZHOU	CHN	S	CN
58027	XUZHOU	CHN	R	CN
58040	GANYU	CHN	S	CN
58102	BOXIAN	CHN	S	CN
58144	QINGJIANG	CHN	S	CN
58150	SHEYANG	CHN	S	CN
58150	SHEYANG	CHN	R	CN
58203	FUYANG	CHN	S	CN
58203	FUYANG	CHN	R	CN
58221	BENGBU	CHN	S	CN
58238	NANJING	CHN	S	CN
58238	NANJING	CHN	R	CN
58251	DONGTAI	CHN	S	CN
58265	LUSI	CHN	S	CN
58314	HUOSHAN	CHN	S	CN
58362	SHANGHAI	CHN	S	CN
58362	SHANGHAI	CHN	R	CN
58424	ANQING	CHN	S	CN
58424	ANQING	CHN	R	CN
58457	HANGZHOU	CHN	S	CN
58457	HANGZHOU	CHN	R	CN
58472	SHENGSI	CHN	S	CN
58477	DINGHAI	CHN	S	CN
58527	JINGDEZHEN	CHN	S	CN
58606	NANCHANG	CHN	S	CN
58606	NANCHANG	CHN	R	CN
58633	QU XIAN	CHN	S	CN
58633	QU XIAN	CHN	R	CN
58659	WENZHOU	CHN	S	CN
58665	HONGJIA	CHN	R	CN
58666	DACHEN DAO	CHN	S	CN
58725	SHAOWU	CHN	S	CN
58725	SHAOWU	CHN	R	CN
58847	FUZHOU	CHN	S	CN
58847	FUZHOU	CHN	R	CN
58921	YONG'AN	CHN	S	CN
58968	TAIBEI	CHN	S	CN
58968	TAIBEI	CHN	R	CN
58974	PENGJIA YU	CHN	S	CN
59007	GUANGNAN	CHN	S	NS
59023	HECHI	CHN	S	CN
59082	SHAOGUAN	CHN	S	CN
59117	MEI XIAN	CHN	S	CN
59134	XIAMEN	CHN	S	CN
59134	XIAMEN	CHN	R	CN
59211	BAISE	CHN	S	CN
59211	BAISE	CHN	R	CN
59265	WUZHOU	CHN	S	CN
59265	WUZHOU	CHN	R	CN
59280	QING YUAN	CHN	R	CN
59287	GUANGZHOU	CHN	S	CN
59293	HEYUAN	CHN	S	CN
59316	SHANTOU	CHN	S	CN
59316	SHANTOU	CHN	R	CN
59358	TAINAN	CHN	S	CN
59417	LONGZHOU	CHN	S	CN
59431	NANNING	CHN	S	CN
59431	NANNING	CHN	R	CN
59501	SHANWEI	CHN	S	CN
59559	HENGCHUN	CHN	S	CN
59644	BEIHAI	CHN	S	CN
59663	YANGJIANG	CHN	S	CN
59758	HAIKOU	CHN	S	CN
59758	HAIKOU	CHN	R	CN
59792	DONGSHA DAO	CHN	S	CN
59838	DONGFANG	CHN	S	CN
59948	YAXIAN	CHN	S	CN
59981	XISHA DAO	CHN	S	CN
59981	XISHA DAO	CHN	R	CN
59985	SANHU DAO	CHN	S	CN
59995	YONGSHUJIAO	CHN	S	CN
59997	NANSHA DAO	CHN	S	CN

Type of station	Number	Status of station in RBSN
S: Surface station	(1198)	CN: Station in current RBSN
R: Radiosonde station	(298)	NS: New station proposed for inclusion in RBSN
W: Radiowind station	(35)	

RESOLUTION 4 (XII-RA II)

REGIONAL BASIC CLIMATOLOGICAL NETWORK IN REGION II

REGIONAL ASSOCIATION II (ASIA),

NOTING:

(1) The WMO Technical Regulations, Regulation (B.1) 3.1.1.2,

(2) The report of the third session of the Working Group on Planning and Implementation of the WWW in Region II,

(3) The approval of lists of GSN and GUAN stations by the president of the Association,

CONSIDERING that the Thirteenth WMO Congress stressed the important role of regional associations in evolving of the 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 II;

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 the WMO Technical Regulations and the Manuals on the GOS, on Codes, and on the GTS when operating 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, of 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 4 (XII-RA II)

REGIONAL BASIC CLIMATOLOGICAL NETWORK IN REGION II

Index Number	Station Name	GSN	GUAN	CLIMAT	CLIMAT TEMP
Afghanistan, Islamic State of					
40930	North Salang	X		X	
40938	Heart			X	X
40942	Chakhcharan			X	
40948	Kabul Aeroport				X
40990	Kandahar Aeroport			X	
Bahrain					
41150	Bahrain Int. Airport	X		X	
Bangladesh					
41859	Rangpur			X	
41883	Bogra			X	X
41891	Sylhet			X	
41923	Dakka				X
41936	Jessore			X	
41950	Barisal			X	
41992	Cox's Bazar			X	
Cambodia					
48966	Siemreap			X	
48991	Phnom-Penh			X	X
China					
50527	Hailar	X	X	X	X
50745	Qiqihar	X		X	
50963	Tonghe			X	
51076	Altay	X		X	X
51243	Karamay			X	
51431	Yining			X	X
51463	Urumqi	X		X	X
51644	Kuqa			X	
51656	Korla			X	
51709	Kashi	X	X	X	X
51747	Tazhong			X	
51777	Ruoqiang	X		X	X
51828	Hotan	X		X	X
52203	Hami	X		X	X
52267	Ejin Qi			X	
53323	Mazong Shan			X	
52418	Dunhuang			X	
52495	Bayan Mod			X	
52533	Jiuquan	X		X	X
52681	Minqin		X	X	X
52818	Golmud				X
52836	Dulan	X		X	
52866	Xining			X	
52889	Lanzhou	X		X	X
53068	Erenhot	X	X	X	X
53336	Haliut			X	
53463	Hohhot			X	X
53614	Yinchuan	X		X	X
53772	Taiyan	X		X	X
53845	Yan An			X	
54026	Jarud Qi			X	
54102	Xilin Hot			X	X
54161	Changchun			X	X
54218	Chifeng			X	
54292	Yanji			X	
54342	Shenyang	X		X	X
54511	Beijing	X		X	X
54662	Dalian			X	X
54823	Jinan			X	X
54857	Qingdao	X		X	X
55228	Shiquanhe			X	
55299	Nagqu		X		X
55472	Xainza			X	
55591	Lhasa	X		X	X
56004	Tuotuone			X	
56029	Yushu			X	X
56046	Darçag			X	
56079	Ruo'ergai			X	
56106	Sog Xian			X	
56137	Qamdo	X		X	
56294	Chengdu	X		X	X
56444	Deqen			X	
56571	Xichang	X		X	
56739	Teng chong	X		X	X
56778	Kunming		X	X	X
56964	Simao			X	
56985	Mengzi	X		X	
57036	Xi'an	X		X	X
57083	Zhengzhou	X		X	X
57127	Hanzhong			X	
57461	Yichang	X	X	X	X
57494	Wuhan			X	X
57516	Chongqing			X	
57687	Changsha			X	
57745	Zhijiang	X		X	
57749	Huaihua				X
57816	Guiyang			X	X
57993	Ganzhou	X		X	
58027	Xuzhou			X	
58238	Nanjing			X	X
58362	Shanghai	X		X	X
58606	Nanchang	X		X	
58633	Qu Xian			X	X
58666	Dachen Dao			X	
58847	Fuzhou			X	X

Index Number	Station Name	GSN	GUAN	CLIMAT	CLIMAT TEMP
58968	Taibei			X	X
59211	Baise			X	
59280	Qing Yuan				X
59287	Guangzhou	X		X	
59316	Shantou	X		X	
59358	Tainau			X	
59431	Nanning	X		X	X
59758	Haikou	X		X	X
59792	Dongsha Dao			X	
59948	Yaxian			X	
59981	Xisha Dao			X	X
DPR of Korea					
47014	Chunggang	X		X	
47016	Hyesan			X	
47025	Kimchaek			X	
47035	Sinuiju			X	
47055	Wonsan			X	
47058	Pyongyang			X	X
47069	Haeju			X	
Hong Kong, China					
45004	King's Park		X	X	X
India					
42027	Srinagar	X		X	X
42071	Amritsar			X	
42083	Shimla	X		X	
42147	Mukteswar			X	
42165	Bikaner	X		X	
42182	New Delhi/Sardarjung	X		X	X
42295	Darjeeling	X		X	
42309	Veraval			X	
42314	Dibrugarh			X	
42339	Jodhpur			X	X
42369	Luckhow/Amausi				X
42379	Gorakhpur			X	
42410	Guwahati	X		X	X
42452	Kota Aerodrome			X	
42475	Allahabad/Bamhrauli			X	
42492	Patna				X
42515	Cherrapunji	X		X	
42539	Deesa	X		X	
42587	Daltonganj	X		X	
42619	Silchar			X	
42647	Ahmadabad			X	X
42671	Sagar	X		X	
42731	Dwarka	X		X	
42754	Indore			X	
42779	Pendra Road	X		X	
42798	Jamshedpur			X	
42807	Calcutta/Alipore			X	
42809	Calcutta/Dum Dum				X
42867	Nagpur Sonega			X	X
42933	Akola			X	
42971	Bhubaneswar			X	X
42977	Sandheads			X	
43003	Bombey/Santacruz				X
43041	Jagdalpur	X		X	
43057	Bombay/Colaba			X	
43063	Poona	X		X	
43128	Hyderabad Airport	X		X	X
43149	Vishakhapatnam			X	
43150	CWC Vishakhapatnam				X
43185	Machilipatnam			X	
43192	Goa/Panjim			X	X
43198	Belgaum/Sambra			X	
43279	Madras/Minambakkam	X		X	X
43285	Mangalore/Panambur				X
43295	Bangalore	X		X	
43311	Amini Divi			X	
43314	Koshikode			X	
43333	Port Blair	X		X	X
43339	Kodaikanal	X		X	
43346	Karaikal				X
43363	Pamban	X		X	
43369	Minicoy	X		X	X
43371	Thiruvananthapuram			X	X
Iran, Islamic Republic of					
40706	Tabriz	X		X	X
40712	Oromieh			X	
40718	Anzali			X	
40745	Mashhad	X		X	X
40754	Tehran-Mehrabad			X	
40766	Kermanshah			X	
40800	Esfahan			X	
40827	Nehbandan			X	
40831	Abadan			X	
40841	Kerman	X		X	X
40848	Shiraz	X		X	
40879	Iranshahr			X	
Iraq					
40608	Mosul			X	
40621	Kirkuk			X	
40634	Haditha			X	
40637	Kanaqin			X	
40642	Rutban			X	
40650	Baghdad				X
40665	Kut-Al-Hai	X		X	
40676	Nasiria			X	
Japan					
47401	Wakkanai			X	X
47407	Asahikawa			X	
47409	Abashiri			X	
47412	Sapporo		X	X	X
47418	Kushiro			X	
47420	Nemuro	X		X	X
47421	Suttsu	X		X	
47426	Urakawa			X	
47430	Hakodate			X	
47570	Wakamatsu			X	
47575	Aomori			X	
47582	Akita			X	X
47585	Miyako	X		X	
47590	Sendai			X	X
47598	Onahama			X	
47600	Wajima	X		X	X
47602	Aikawa			X	
47605	Kanazawa			X	
47618	Matsumoto			X	
47624	Maebashi			X	
47636	Nagoya			X	
47646	Tateno		X		X
47648	Choshi	X		X	
47655	Omaezaki			X	
47662	Tokyo			X	
47663	Owase			X	
47675	Oshima			X	
47678	Hachijojima/Omure	X		X	X
47740	Saigo	X		X	
47741	Matsue			X	
47744	Yonago				X
47746	Tottori			X	
47750	Maizuru			X	
47755	Hamada			X	
47772	Osaka			X	
47778	Shionomisaki	X		X	X
47800	Izuhara	X		X	
47807	Fukuoka			X	X
47815	Oita			X	
47817	Nagasaki			X	
47827	Kagoshima	X	X	X	X
47830	Miyazaki			X	
47837	Tanegashima			X	
47843	Fukue			X	

Index Number	Station Name	GSN	GUAN	CLIMAT	CLIMAT TEMP
47887	Matsuyama			X	
47891	Takamatsu			X	
47898	Shimizu			X	
47899	Murotomisaki			X	
47909	Naze/Funchatoge	X		X	X
47918	Ishigakijima	X		X	X
47927	Miyakojima			X	
47936	Naha	X	X	X	X
47945	Minamidaitojima	X		X	X
47971	Chichijima	X	X	X	X
47991	Minamitorishima	X	X	X	X
Kazakhstan					
28679	Petropavlovsk			X	
28766	Blagoves'chensk			X	
28879	Kokshetav			X	
28952	Kustanai	X		X	X
28966	Rusaevka			X	
29807	Irtyshsk	X		X	
35067	Esie'			X	
35078	Atbasar	X		X	
35108	Uralsk	X		X	
35188	Astana			X	
35217	Dzhambejty			X	
35229	Aktjubinsk			X	X
35376	Berlik			X	
35394	Karaganda	X		X	X
35406	Taipak			X	
35416	Uil	X		X	
35426	Temir			X	
35671	Zhezkazgan				X
35700	Atyran			X	X
35746	Aralskoe More			X	
35796	Balhash	X		X	
35849	Kazalinsk	X		X	
35925	Sam	X		X	
35953	Dzhysaly			X	
36003	Pavlodar			X	X
36177	Semipalatinsk	X		X	
36208	Leninogorsk			X	
36428	Bol'she Narymskoe			X	
36535	Kokpekty	X		X	
36859	Zharkent	X		X	
36870	Almaamy	X		X	X
38062	Kyzylorda			X	
38069	Ciili			X	
38328	Shymkent			X	
38334	Aul Turara			X	
38341	Zhambyl			X	X
38343	Koolan			X	
38439	Cardara			X	
Kuwait					
40582	Kuwait Int'l Airport	X		X	X
Kyrgyzstan					
36911	Tokmok			X	
36974	Naryn	X		X	
36982	Tian-Shan			X	
38345	Talas			X	
38353	Bishkek				X
38616	Kara-Suu			X	
Lao PDR					
48930	Luang-Prabang			X	
48940	Vientiane			X	X
48947	Savannakhet			X	
48955	Pakse			X	
Macau, China					
45011	Taipa Grande			X	
Maldives					
43555	Male	X		X	X
43599	Gan			X	

Index Number	Station Name	GSN	GUAN	CLIMAT	CLIMAT TEMP
Mongolia					
44203	Rinchinlhumb			X	
44207	Hatgal			X	
44212	Ulaan-Gom	X		X	X
44213	Baruunturuun			X	
44214	Uigi			X	
44215	Omno-Gobi			X	
44218	Hovd	X		X	
44230	Tarialan			X	
44231	Muren	X		X	X
44232	Hutag			X	
44239	Bulgan	X		X	
44241	Baruunkharaa			X	
44256	Dashbalbar			X	
44259	Choibalsan	X		X	X
44265	Baitag			X	
44272	Uliastai	X		X	
44277	Altai			X	X
44282	Tsetserleg			X	
44284	Gaiuut			X	
44285	Hujirt			X	
44287	Bayanhongor			X	
44288	Arvaiheer	X		X	X
44292	Ulaan-Baator			X	X
44294	Maanti			X	
44298	Choir			X	
44302	Bayan-Ovoo			X	
44304	Underkhaan			X	
44305	Baruun-Urt			X	
44313	Khaekh-Gol			X	
44314	Matad			X	
44317	Erdene-Tsagaan	X		X	
44336	Saikhan-Ovoo			X	
44341	Mandalgovi	X		X	
44347	Tsogt-Ovoo			X	
44352	Bayandelger			X	
44373	Dalanzadgad	X		X	
Myanmar					
48008	Myitkyina			X	
48042	Mandalay	X		X	
48053	Meiktila				X
48062	Sittwe	X		X	
48097	Yangon	X		X	X
48112	Victoria Point			X	
Nepal					
44454	Kathmandu Airport			X	X
44477	Dhankuta			X	
Oman					
41246	Majis (Sohar)			X	
41253	Rustaq			X	
41254	Saiq	X		X	
41256	Seeb, Int'l Airport			X	X
41262	Fahud			X	
41264	Adam			X	
41265	Ibra			X	
41268	Sur			X	
41288	Masirah	X		X	
41304	Marmul			X	
41314	Thumrait			X	
41316	Salalah	X		X	X
Pakistan					
41515	Drosh			X	
41530	Peshawar			X	X
41560	Parachinar	X		X	
41571	Islamabad Airport			X	
41594	Sargodha			X	X
41598	Jhelum			X	
41600	Sialkot			X	
41620	Zhob	X		X	
41624	Dera Ismail Khan			X	
41640	Lahore City	X		X	
41660	Quetta Airport			X	

Index Number	Station Name	GSN	GUAN	CLIMAT	CLIMAT TEMP
41675	Multan			X	X
41685	Bar Khan			X	
41710	Nokkundi			X	
41712	Dal Bandin	X		X	
41715	Jacobabad			X	
41718	Khanpur			X	
41739	Panjgur			X	
41744	Khuzdar			X	
41749	Nawabshah			X	
41756	Jiwani			X	
41759	Pasni	X		X	
41764	Hyder Abad	X		X	
41768	Chhor			X	
41780	Karachi Airport			X	X
Qatar					
41170	Doha Int'l Airport			X	X
Republic of Korea					
47101	Chunchon			X	
47105	Kangnung			X	
47108	Seoul			X	
47112	Inchon	X		X	
47115	Ullungdo	X		X	
47122	Osan AB				X
47133	Taejon			X	
47138	Pohang			X	X
47158	Kwangju AB				X
47159	Pusan			X	
47165	Mokp'O	X		X	
47168	Yosu			X	
47184	Cheju			X	
47185	Cheju upper/radar				X
Russian Federation					
20046	Polar GMO im. E.T. Krenkelja	X		X	X
20069	Ostrov Vize	X		X	
20087	Ostrov Golomjannyj	X		X	
20292	GMO im. E.K. Fedorova	X		X	X
20667	Im. M.V. Popova	X		X	
20674	Ostrov Dikson	X	X	X	X
20744	Malye Karmakuly	X		X	
20891	Hatanga	X		X	X
21432	Ostrov Kotel'nyj	X		X	X
21647	Mys Shalaurova	X		X	
21802	Saskylah			X	
21824	Tiksi				X
21921	Kjusjur	X		X	
21931	Jubilejnaja	X		X	
21946	Chokurdah	X		X	
21982	Ostrov Vrangelja	X	X	X	X
23074	Dudinka	X		X	
23146	Mys Kamennyj			X	
23205	Nar'Jan-Mar	X		X	X
23219	Hoseda-Hard			X	
23330	Salehard	X		X	X
23405	Ust'-Cil'ma	X		X	
23472	Turuhansk	X	X	X	X
23552	Tarko-Sale	X		X	
23631	Berezovo	X		X	
23711	Troicko-Pecerskoe	X		X	
23724	Njaksimvol'	X		X	
23804	Syktyvkar	X		X	X
23884	Bor	X		X	X
23891	Bajkit	X		X	
23914	Cherdyn'	X		X	
23933	Hanty-Mansijsk	X		X	X
23955	Aleksandrovskoe	X		X	X
24105	Essej	X		X	
24125	Olenek	X		X	X
24143	Dzardzan	X		X	
24266	Verhojansk	X	X	X	X
24329	Selagoncy	X		X	
24343	Zhigansk	X		X	X

Index Number	Station Name	GSN	GUAN	CLIMAT	CLIMAT TEMP
24382	Ust'-Moma	X		X	
24507	Tura	X		X	X
24641	Viljujsk	X		X	
24671	Tompo	X		X	
24688	Ojmjakon	X		X	
24738	Suntar	X		X	
24817	Erbogacen	X		X	
24908	Vanavara	X		X	X
24944	Olekminsk	X		X	
24959	Jakutsk	X		X	X
24966	Ust'-Maja	X		X	
25173	Mys Shmidta	X		X	X
25248	Ilirnej	X		X	
25325	Ust'-Oloj	X		X	
25399	Mys Uelen	X		X	
25400	Zyrjanka	X		X	X
25551	Markovo	X		X	
25563	Anadyr'	X		X	X
25621	Kedon			X	
25703	Sejmchan	X		X	X
25913	Magadan	X		X	X
25954	Korf	X		X	X
28009	Kirs			X	
28064	Leusi	X		X	
28138	Biser	X		X	
28224	Perm'			X	
28275	Tobol'sk	X		X	
28411	Izhevsk			X	
28440	Ekaterinburg			X	
28445	Verhnee Dubrovo				X
28493	Tara	X		X	
28661	Kurgan	X		X	
28698	Omsk	X	X	X	X
28711	Bugul'ma			X	
28722	Ufa	X		X	
28838	Magnitogorsk			X	
29231	Kolpasevo	X		X	X
29263	Enisejsk	X		X	
29282	Bogucany	X		X	
29570	Krasnojarsk			X	
29572	Emel'janovo				X
29612	Barabinsk	X		X	
29634	Novosibirsk				X
29654	Central'nyi Rudnik			X	
29698	Nizhneudinsk	X		X	
29838	Barnaul	X		X	
29866	Minusinsk	X		X	
30054	Vitim	X		X	
30230	Kirensk	X	X	X	X
30309	Bratsk			X	
30372	Chara	X		X	X
30393	Cul'man	X		X	
30469	Kalakan			X	
30521	Zhigalovo			X	
30554	Bagdarin	X		X	
30635	Ust'-Barguzin	X		X	
30673	Mogoga	X		X	
30692	Skovorodino	X		X	
30710	Irkutsk	X		X	
30758	Chita			X	X
30879	Nerchinskij Zavod	X		X	
30925	Kjahta	X		X	
30949	Kyra	X		X	
30965	Borzja	X		X	
31004	Aldan	X		X	X
31088	Ohotsk	X		X	X
31123	Cjul'bju			X	
31168	Ajan	X		X	X
31253	Bomnak	X		X	
31329	Ekimchan	X		X	
31369	Nikolaevsk-na-Amure	X		X	
31416	Im Poliny Osipenko	X		X	
31510	Blagovescensk			X	X
31538	Sutur			X	
31707	Ekaterino-Nikol'skoe	X		X	

Index Number	Station Name	GSN	GUAN	CLIMAT	CLIMAT TEMP
31735	Habarovsk	X		X	
31736	Habarovsk				X
31829	Zolotoj	X		X	
31909	Ternej	X		X	
31960	Vladivostok	X		X	X
32061	Aleksandrovsk-Sahalinskij			X	X
32098	Poronajsk	X		X	
32150	Juzhno-Sahalinsk			X	X
32195	Simusir	X		X	
32215	Severo-Kuril'sk			X	X
32252	Ust-Vojampolka	X		X	
32389	Kljuchi	X		X	X
32411	Ica	X		X	
32540	Petropavlovsk-Kamchatchij		X		X
32583	Petropavlovsk-Kamchatskij			X	
32618	Nicol'skoe	X		X	
35121	Orenburg	X	X	X	X
36061	Turosak			X	
Saudi Arabia					
40356	Turaif			X	
40357	Arar			X	
40360	Guriat			X	
40361	Al-Jouf	X		X	
40362	Rafha			X	
40373	Al-Qaisumah			X	X
40375	Tabuk			X	X
40377	Hafr Al-Batin			X	
40394	Hail	X		X	X
40400	Al-Wejh			X	
40405	Gassim			X	
40410	Khayber			X	
40416	Dhahran			X	
40417	King Fahad Int'l Aeroport				X
40420	Al-Ahsa			X	
40430	Al-Madinah	X		X	X
40435	Al-Dawadami			X	
40437	King Khaled Aeroport			X	X
40438	Riyadh Obs.	X		X	
40439	Yenbo			X	
41006	Muwaih			X	
41024	Jeddah	X		X	X
41030	Makkah			X	
41036	Al-Taif			X	
41055	Al-Baha			X	
41061	Wadi Al-Dawasser Airport			X	
41084	Bisha			X	
41112	Abha		X	X	X
41114	Khamis Musha It			X	
41128	Najran			X	
41136	Sharorah			X	
41140	Gizan			X	
41141	Gizan	X		X	
Sri Lanka					
43418	Trincomalee			X	
43424	Puttalam			X	
43466	Colombo			X	X
43473	Nuwara Eliya	X		X	
43497	Hambantota	X		X	
Tajikistan					
38599	Khudjand			X	
38836	Dushanbe			X	X
38933	Kurgan-Tyube	X		X	
38954	Khorog	X		X	
Thailand					
48303	Chiang Rai	X		X	
48327	Chiang Mai			X	X
48354	Udon Thani			X	
48378	Phitsanulok			X	
48400	Nakhon Sawan	X		X	
48407	Ubon Ratchathani	X		X	X
48431	Nakhon Ratchasima			X	
48455	Bangkok		X	X	X
48462	Aranyaprathet	X		X	
48480	Chanthaburi			X	
48500	Prachuap Khirikhan	X		X	
48517	Chumphon			X	
48568	Songkhla	X	X	X	X
Turkmenistan					
38388	Yekeje			X	
38392	Dashoguz			X	
38507	Turkmenbashi	X		X	
38511	Chagyl			X	
38545	Darganata			X	
38656	Yerbent			X	
38687	Turkmenabat			X	
38750	Esenguly	X		X	
38763	Serdar	X		X	
38880	Ashgabat		X	X	X
38895	Bayramaly	X		X	
38915	Koytendag	X		X	
38974	Saragt			X	
United Arab Emirates					
41194	Dubai Int'l Airport			X	
41196	Sharjah Int'l Airport	X		X	
41216	Abu Dhabi Bateen Airport			X	
41217	Abu Dhabi Int'l Airport		X	X	X
Uzbekistan					
38178	Ak-Bajtal			X	
38262	Chimbaj	X		X	
38396	Urgench			X	
38403	Buzaubaj			X	
38413	Tamdy	X		X	
38457	Tashkent	X		X	X
38611	Namangan			X	X
38618	Fergana			X	
38683	Buhara			X	
38696	Samarkand			X	
38812	Karshi			X	
38927	Termez			X	X
Viet Nam					
48806	Son La			X	
48808	Cao Bang			X	
48820	Ha Noi			X	X
48826	Phu Lien			X	
48830	Lang Son			X	
48840	Thanh Hoa			X	
48845	Vinh			X	
48848	Dong Hoi			X	
48852	Hue			X	
48855	Da Nang	X		X	X
48870	Ouy Nhon			X	
48877	Nha Trang			X	
48887	Phan Thiet			X	
48892	Song Tu Tay			X	
48900	Ho Chi Minh	X		X	
48914	Ca Mau			X	
48920	Truong Sa			X	
Yemen					
41407	Marib			X	
41443	Riyan	X		X	
41480	Aden	X		X	X
41494	Socotra			X	X

RESOLUTION 5 (XII-RA II)

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

REGIONAL ASSOCIATION II (ASIA),

NOTING:

(1) The abridged final report of XI-RA II (WMO-No. 851),

(2) Resolution 4 (EC-L) — Report of the twelfth session of the Commission for Instruments and Methods of Observation (WMO-No. 883),

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 coodinating education and training activities for observers, station inspectors and technicians in the field of operation, maintenance and calibration of meteorological instruments,

(4) The need to strengthen and coordinate the role of the Regional Instrument Centres (RICs) established in the Region,

DECIDES:

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

(*a*) To update information on instrumentation operated at meteorological stations and on its maintenance and calibration;

(*b*) To prepare guidance for the best effective use of meteorological instrumentation;

(*c*) To keep abreast of all matters related to instrument development;

(*d*) To provide guidelines for coordination of education and training activities for instrument technicians in collaboration with the RICs and the WMO Secretariat;

(e) To facilitate coordination between CIMO, in particular the CIMO Co-Rapporteur on Capacity Building and the regional association on matters pertaining to capacity building in the field of instruments and methods of observation;

(*f*) To maintain close contact with the RICs with a view to assisting in enhancing the role of the RICs for the benefit of the Members in the Region;

(2) To invite Messrs Xu Xiaofeng (China) and Koji Kawashima (Japan) to serve as Co-Rapporteurs on Regional Aspects of Instrument Development, Related Training and Capacity Building;

REQUESTS the co-rapporteurs to submit annual progress reports and a final report to the president of RA II with a copy to the president of CIMO at least six months before the next session of the Association.

RESOLUTION 6 (XII-RA II)

AMENDMENT TO REGULATION 2/12.10.2 IN WMO *MANUAL ON CODES* VOLUME II, REGIONAL CODING PROCEDURES, INTERNATIONAL CODE FORMS, FM-12 SYNOP

REGIONAL ASSOCIATION II (ASIA),

NOTING:

(1) The final report of the third session of the Working Group on Planning and Implementation of the WWW in RA II,

(2) The requirements expressed by GCOS with a view to performing climate diagnostic and simulation studies,

CONSIDERING that there is an urgent need to introduce modifications to the regional practice referring to the inclusion of group on state and depth of snow or ice in SYNOP,

REPLACES regulation 2/12.10.2 with the following text: 'The group 4E'sss shall be included at least once daily, preferably at 000 UTC (the morning observation time over most of Region II)',

REQUESTS the Secretary-General to arrange for the inclusion of this amendment in Volume II of the Manual on Codes.

RESOLUTION 7 (XII-RA II)

WORKING GROUP ON CLIMATE RELATED MATTERS INCLUDING CLIPS IN REGION II

REGIONAL ASSOCIATION II (ASIA),

NOTING:

(1) Resolution 7 (Cg-XIII) — Global Climate Observing System,

(2) Resolution 8 (Cg-XIII) — Climate Information and Prediction Services Project,

(3) Resolution 23 (Cg-XIII) — Fifth WMO Long-term Plan,

(4) The report of the chairman of the Working Group on Climate Related Matters in Region II,

CONSIDERING the need for the Association to expand its activities on climate-related matters of special importance to the Region,

DECIDES:

(1) To establish a Working Group on Climate Related Matters including Climate Information and Prediction Services (CLIPS) in Region II with the following terms of reference:

(*a*) To keep abreast of climate-related national and international activities, in particular those undertaken by Members in Region II and within the World Climate Programme and other climate-related programmes;

(*b*) To advise on the improvement of climate data exchange and on the development of regional climate observing networks, and to liaise with relevant GCOS bodies and make recommendations on its implementation in the Region;

(*c*) To address problems faced by Members in collecting, processing and archiving climatological observations and facilitate transfer of advice on the climate database management systems to meet the varying needs of Members in the Region;

(*d*) To keep under review the development of climate data sets, in particular reference data sets for climate change detection, especially on the regional scale;

(*e*) To promote the implementation of CLIPS with particular reference to the establishment and training of Focal Points for CLIPS*;

(*f*) To review the progress in research and implementation of predictive capability on seasonal to interannual timescales, including verification, information interpretation and conversion into decisions within each application area, as well as the arrangements necessary to ensure that this capability is channelled effectively through the NMHSs;

(*g*) To promote the implementation of climate applications, with special attention to the food production, water resources, human health, and energy sectors;

(*h*) To keep under review the development of climate change assessments under IPCC and the implementation of the UNFCCC, and to make recommendations on relevant action which may be required in the Region;

(*i*) To advise the president of the Association on all matters concerning the WCP;

(2) To select the following experts to serve on the working group in the capacities indicated:

(*a*) Mr Shingo Osano — Chairman;

(*b*) Mr Pradeep Shah (Nepal) — Rapporteur on Regional Climate Observing Networks, including liaison with CBS and GCOS;

(*c*) Ms F. Rahimzada (Iran, Islamic Republic of) — Rapporteur on Regional Climate Data Management, including data rescue

(*d*) Mr Damdin Dagvadorj (Mongolia) — Rapporteur on Climate Impact Assessments;

(*e*) Messrs Nguyen Van Thang (Viet Nam) and Saad Mohlafi (Saudi Arabia) — Co-Rapporteurs on Climate Change issues, including UNFCCC;

(*f*) Mr Muhammad Musleh-Uddin (Pakistan) — Core Member;

(*g*) Mr Park Chung-Kyu (Republic of Korea) — Core Member;

(*h*) Mr Roman Vilfand (Russian Federation) — Core Member;

AUTHORIZES the president of the Association, in accordance with General Regulation 32, to select the chairman of the working group;

REQUESTS the chairman of the working group to submit annual progress reports to the president of the Association and a final report not later than six months before the thirteenth session of the Association.

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* See also Resolution 8 (XII-RA II).

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

RESOLUTION 8 (XII-RA II)

CLIMATE INFORMATION AND PREDICTION SERVICES (CLIPS) PROJECT

REGIONAL ASSOCIATION II (ASIA),

NOTING:

(1) Resolution 8 (Cg-XIII) — Climate Information and Prediction Services Project,

(2) That Members of the RA II 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 El Niño Southern Oscillation (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 science and technology of seasonal to interannual climate prediction are 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) That the following specific terms of reference will apply for the members of the Working Group on Climate Related Matters Including CLIPS with respect to the implementation of the CLIPS Project in the Region:

(*a*) To act in support of all CLIPS activities within the Region;

(*b*) To act as Coordinators of regional networks of national CLIPS Focal Points;

(*c*) To keep abreast of research activities on Asian climate variability, including in relation to the activities and plans of WCRP/CLIVAR;

(*d*) To keep abreast of research and development activities appertaining to the application of climate information and prediction services, including in relation to activities such as those under START/CLIMAG;

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 rapporteurs to submit annual progress reports to the president of the Association, and final reports not later than six months before RA II-XIII;

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 Focal Points for CLIPS;

(2) To bring this resolution to the attention of all concerned.

RESOLUTION 9 (XII-RA II)

CO-RAPPORTEURS ON THE GLOBAL ATMOSPHERE WATCH

REGIONAL ASSOCIATION II (ASIA),

NOTING Resolution 10 (Cg-XIII) — Atmospheric Research and Environment Programme,

CONSIDERING:

(1) The wide interest in monitoring of and research on atmospheric composition and environmental pollution in the Region,

(2) The continuing international concern about global change and implementation of environmental conventions on climate change and protection of the ozone layer,

(3) The adverse effects of pollution on human health and environmental resources,

(4) The need to strengthen further and improve the operation of GAW,

(5) The rapid industrialization and urbanization leading to increased pollution concerns in the Region,

DECIDES:

(1) To appoint two Co-Rapporteurs on the Global Atmosphere Watch with the following terms of reference:

(*a*) To liaise with agencies based both within and outside the Region undertaking atmospheric composition and environmental pollution monitoring and research programmes, including the meteorological aspects of atmospheric pollution;

(*b*) To encourage coordination of agencies' atmospheric monitoring and research programmes and to encourage cooperation between agencies and National Meteorological Services in these fields;
(*c*) To advise on the further development of the GAW network in the Region with special emphasis on data quality;
(*d*) To assist Members in the exchange of information and experience;
(*e*) To assist development of cooperative research projects in this field in the Region;

(2) To invite Messrs Sergei Chicherin (Russian Federation) and Toru Sasaki (Japan) to serve as Co-Rapporteurs on the Global Atmosphere Watch;
(3) To request the co-rapporteurs to keep the president of the Association and the Secretariat informed of relevant events and problems and to submit to the president of the Association a final report six months before the next session of the Association.

NOTE: This resolution replaces Resolution 8 (XI-RA II) which is no longer in force.

RESOLUTION 10 (XII-RA II)

RAPPORTEUR ON ATMOSPHERIC OZONE

REGIONAL ASSOCIATION II (ASIA),
NOTING the report of the Rapporteur on Atmospheric Ozone appointed by Resolution 9 (XI-RA II),
CONSIDERING:
(1) The requirement of periodic scientific reviews mandated by the Montreal Protocol on Substances that Deplete the Ozone Layer (1987),
(2) That there is a continuing need for keeping under review the regional activities in ozone monitoring and research, with a view to extending and improving the ozone observing system and strengthening the coordination of research activities,
DECIDES:
(1) To appoint a Rapporteur on Atmospheric Ozone with the following terms of reference:
(*a*) To keep under review the network of ozone stations in the Region and their programmes and to coordinate the regional activities in this field, in accordance with the plans for the implementation of the GAW ozone network;
(*b*) To comply with requests from Members of the Association for advice and to promote, within the Region, an exchange of information and publications relating to ozone;
(*c*) To promote Umkehr and other (e.g. microwave, Lidar, balloonsonde, rockets, ozonesonde) vertical ozone measurements;
(*d*) To promote calibrations and comparisons of instruments and publication of the results of such comparisons;
(*e*) To promote the rapid submission of data with appropriate calibration for publication by the World Ozone and Ultraviolet Radiation Data Centre;
(*f*) To stimulate appropriate ozone research projects within the Region;
(2) To invite Mr S.K. Peshin (India) to serve as Rapporteur on Atmospheric Ozone;
(3) To request the Rapporteur on Atmospheric Ozone to submit a final report not later than six months before the next session of the Association.

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

RESOLUTION 11 (XII-RA II)

RAPPORTEUR ON THE PHYSICS AND CHEMISTRY OF CLOUDS AND WEATHER MODIFICATION RESEARCH

REGIONAL ASSOCIATION II (ASIA),
NOTING Resolution 10 (Cg-XIII) — Atmospheric Research and Environment Programme,
RECOGNIZING the growing importance of physics and chemistry of clouds to many sub-disciplines of atmospheric science and the increasing scientific basis for weather modification as well as the associated chemical-related considerations,
CONSIDERING:
(1) That many areas of Asia experience chronic natural water deficiencies or damage caused by hail,
(2) That applications of physics and chemistry of clouds and weather modification offer potential benefits to the Region,
(3) That the Region should be kept informed of developments in the physics and chemistry of clouds

and research as well as in operational aspects of weather modification,

DECIDES:

(1) To appoint a Rapporteur on the Physics and Chemistry of Clouds and Weather Modification Research with the following terms of reference:
   (*a*) To survey and summarize existing knowledge of weather modification as it relates to interests within the Region;
   (*b*) To prepare and periodically update surveys on ongoing activities in physics and chemistry of clouds and weather modification in the Region;
   (*c*) To advise Members that seek help in developing studies on the physics and chemistry of clouds and weather modification;
   (*d*) To make proposals on the needs of the Region with respect to guidance material suitable for governments and the public, international workshops and experiments;
   (*e*) To collaborate with national as well as international research institutes and other organizations;
(2) To invite Mr Myoung-Hwan Ahn (Republic of Korea) to serve as Rapporteur on the Physics and Chemistry of Clouds and Weather Modification Research;
(3) To request the rapporteur to submit interim reports to the president of the Association as progress in the field suggests and a final report six months before the thirteenth session of the Association.

NOTE: This resolution replaces Resolution 10 (XI-RA II) which is no longer in force.

RESOLUTION 12 (XII-RA II)

WORKING GROUP ON AGRICULTURAL METEOROLOGY

REGIONAL ASSOCIATION II (ASIA),

NOTING:

(1) Resolution 12 (Cg-XIII) — Agricultural Meteorology Programme,
(2) The abridged final report of the twelfth session of the Commission for Agricultural Meteorology (WMO-No. 900),
(3) Resolution 11 (XI-RA II) — Working Group on Agricultural Meteorology,
(4) The recommendations made by the session of the RA II Working Group on Agricultural Meteorology held in Tehran, Islamic Republic of Iran, from 4 to 6 September 1999,

CONSIDERING:

(1) The economic importance of agriculture to the countries in Region II (Asia),
(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, animal husbandry, 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 inter-annual climate forecasts for sustainable agriculture in Asia;
   (*c*) To review and evaluate the impacts of ENSO on agriculture, forestry and fisheries in Asia;
   (*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 Asia and suggest appropriate coping strategies for droughts;
   (*e*) To study the effect of deforestation on the severity of flood occurrence in the Region and suggest appropriate strategies to combat desertification;
   (*f*) To review and evaluate the socio-economic impacts of extreme climatic events on agriculture, animal husbandry, forestry and

fisheries and the long-term and short-term remedial measures to deal with them;

(*g*) Review and summarize the status of applications of new methods such as GIS, EIS and remote sensing in agrometeorology in Asia;

(*h*) 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 Wang Shili (China)
Mr Peiyzkhan Kozhakhmetov (Kazakstan)
Ms Anna Strashnaia (Russian Federation)
Mr Nguyen Van Viet (Viet Nam)
Mr H.P. Das (India)
Ms Bold Bolortsetseg (Mongolia)

(*b*) To invite Mr Gholam Ali Kamali (Iran, Islamic Republic of) to act as chairperson of the Working Group on Agricultural Meteorology;

(3) (*a*) To request the chairperson 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 chairperson 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 13 (XII-RA II)

RAPPORTEUR ON REGIONAL MARINE METEOROLOGICAL SERVICES

REGIONAL ASSOCIATION II (ASIA),

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

CONSIDERING:

(1) The need for continued development of marine meteorological and oceanographic services in Region II,

(2) The need to continue close liaison with JCOMM, in particular through its programme area on education, training and implementation support, 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 II and to formulate suggestions for their further development;

(*b*) To take action on marine meteorological matters assigned by the president of RA II;

(*c*) To liaise with the appropriate JCOMM working groups and subgroups, in particular within the programme area of Education, Training and Implementation Support, on specific matters concerning Region II;

(2) To invite Mr Masaro Saiki (Japan) 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 thirteenth session of the Association;

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

NOTE: This resolution replaces Resolution 12 (XI-RA II) which is no longer in force.

RESOLUTION 14 (XII-RA II)

SUPPORT FOR JOINT WMO/IOC TECHNICAL COMMISSION FOR OCEANOGRAPHY AND MARINE METEOROLOGY (JCOMM)

REGIONAL ASSOCIATION II (ASIA),

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),

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 main body within WMO 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 WWW, GCOS and GOOS and with international coordination effected through JCOMM;
(2) To participate actively in the planning and implementation of these systems and in the work of JCOMM;
(3) To coordinate with appropriate national oceanographic agencies and institutions to ensure the long-term operational maintenance of oceanographic observing systems;
(4) To coordinate with appropriate national oceanographic agencies and institutions in developing oceanographic data management capabilities and oceanographic services;
(5) To enhance two-way ship-shore telecommunication arrangements for oceanographic data and products, in particular through the greater use of satellite-based telecommunications facilities such as the INMARSAT and Argos systems;

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

NOTE: This resolution replaces Resolution 13 (XI-RA II) which is no longer in force.

RESOLUTION 15 (XII-RA II)

WORKING GROUP ON HYDROLOGY

REGIONAL ASSOCIATION II (ASIA),

NOTING:
(1) The report of its Working Group on Hydrology,
(2) Resolution 16 (Cg-XIII) — Hydrology and Water Resources Programme,
(3) Resolution 25 (Cg-XIII) — Exchange of Hydrological Data and Products,
(4) Resolution 14/1 (XI-RA II) — Working Group on Hydrology,

CONSIDERING that Regional Association II plays an important and active role in the implementation of WMO regional activities in the field of hydrology and water resources,

DECIDES:
(1) To re-establish the Working Group on Hydrology with the following Terms of Reference:
   (*a*) To provide assistance and advice to the president of the Association on all questions pertaining to the regional aspects of the Hydrology and Water Resources Programme (HWRP);
   (*b*) To identify the best means of meeting the hydrological needs in the Region;
   (*c*) To undertake activities relating to the Hydrology and Water Resources Programme as listed in the Annex to this resolution;
   (*d*) To cooperate with CHy and other WMO bodies on projects related to hydrology and water resources;
(2) To invite all Members of the Region to designate national hydrological experts to serve on the working group and attend its meetings. The following experts were nominated during the twelfth session:
   (*a*) Mr M.Y. Apte (India) — Rapporteur on Drought, Climate and Water related issues;
   (*b*) Mr Liu Jinping (China) —Rapporteur on Mathematical Models for Flood Forecasting;
   (*c*) Mr Makoto Kaneki (Japan) — Rapporteur on Assessment of Surface Water and Ground Water Resources(Quantity/Quality);
   (*d*) Mr Ngo Trong Thuan (Viet Nam) — Rapporteur on Watershed Management and Sedimentation in Rivers;
   (*e*) Mr Anh Akhtar Hossain (Bangladesh) — Rapporteur on WHYCOS in Asia;
   (*f*) Ms Zhanna Balonishnikova (Russian Federation) — Rapporteur on HOMS, Recommended Practices and Hydrological Services;
(3) To designate Mr A.P. Pokhrel (Nepal) as chairman of the Working Group on Hydrology;

REQUESTS the chairman of the Working Group on Hydrology to prepare an implementation plan and accordingly designate, in consultation with the president of the Association, rapporteurs from the working group to undertake work on special aspects of the terms of reference;

URGES Members concerned to provide full support to the rapporteurs nominated from their countries in order to ensure that they are able to fulfil the tasks assigned to them.

ANNEX TO RESOLUTION 15 (XII-RAII)

In accordance to Resolution 15 (XII-RA II) Working Group on Hydrology, the Regional Association for Asia decided that the following activities related to the Hydrology and Water Resources Programme should be covered in the intersessional period:

(*a*) Drought, Climate and Water related Issues
(*b*) Mathematical Models for Flood Forecasting
(*c*) Assessment of surface water and groundwater resources (quantity/quality)
(*d*) Watershed Management and Sedimentation in Rivers
(*e*) WHYCOS in Asia
(*f*) HOMS, INFOHYDRO, Recommended Practices and Hydrological Services

RESOLUTION 16 (XII-RAII)

RAPPORTEUR ON EDUCATION AND TRAINING MATTERS

REGIONAL ASSOCIATION II (ASIA),

NOTING:

(1) Resolution 17 (Cg-XIII) — Education and Training Programme,
(2) Resolution 15 (XI-RA II) — Rapporteur on Education and Training Matters,
(3) Paragraph 8.6 of the general summary of EC-XLVI-II 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 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 Internet;
   (*g*) To assist in the development of WMO Long-term Plans for the implementation of the Education and Training Programme;
(2) To invite Mr J.B. Jamali (Iran, Islamic Republic of) to serve as Rapporteur on Education and Training Matters;
(3) 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 thirteenth session of the Association.

RESOLUTION 17 (XII-RA II)

STRATEGIC PLAN FOR THE ENHANCEMENT OF NATIONAL METEOROLOGICAL SERVICES IN REGIONAL ASSOCIATION II (ASIA)

REGIONAL ASSOCIATION II (ASIA),

NOTING:

(1) Resolution 23 (Cg-XIII) — Fifth WMO Long-term Plan,
(2) Resolution 24 (Cg-XIII) — Preparation of the Sixth WMO Long-term Plan,
(3) Abridged final report with resolutions of the eleventh session of the Regional Association II (Asia), (WMO-No. 851), paragraphs 12.4 to 12.13,
(4) The Report of the Expert Meeting on Strategic Plan for Enhancement of NMHSs in RA II (Asia),

NOTING WITH SATISFACTION the successful outcome of the Expert Meeting on a Strategic Plan for Enhancement of NMHSs in RA II held in Saudi Arabia from 29 November to 1 December 1999,

REITERATING the strong interest of Members of RA II (Asia) in participating in the cooperative activities that will emerge from the Strategic Plan and in contributing to these activities,

RECOGNIZING:

(1) The purpose of NMSs and the essential role of the NMSs in meteorology and related disciplines as well as their applications in environmental and natural resources management, food security, agricultural system, capacity building, natural disaster reduction

and sustainable development planning towards improving the quality of life,

(2) The inadequacy that exists in the networks of observations, in particular upper-air networks, telecommunications, data-processing facilities and information technology in several NMSs,

(3) The wide gap between the developed NMSs with very advanced facilities and the capacity of less developed NMSs with limited budgets, shortage of observation equipment, spare parts, and consumables, lack of data collection and processing facilities and lack of qualified staff,

CONSIDERING the overall objectives of the Strategic Plan, which is to strengthen the capabilities of the NMSs in RA II in providing appropriate meteorological and related services in support of national needs for protection of life and property, safeguarding the environment, contributing to the sustainable social and economic development, and to fulfil commitments and obligations under regional and international agreements and conventions,

ADOPTS the Strategic Plan for Enhancement of National Meteorological Services in Regional Association II (Asia) (2001–2004);

URGES Members of RA II to participate actively in the implementation of the Strategic Plan including through the initiation of implementation at national level;

URGES FURTHER Members of RA II to take the Strategic Plan into consideration in the advancement of their Services;

INVITES the Members of Regional Association II (Asia) to contribute to the Trust Fund established by WMO for the development and the implementation of the Strategic Plan;

REQUESTS the Secretary-General:

(1) To take the initiatives to invite institutions and programmes concerned in the United Nations system, multilateral donors and international agencies, to provide technical and financial support for the implementation of the Strategic Plan based on the needs analysis to be carried out by a team of experts from the Region;

(2) To accord due priority to the activities proposed in the Strategic Plan;

(3) To mobilize resources for technical cooperation activities in line with the Strategic Plan;

(4) To report to Regional Association II (Asia) at its thirteenth session on the progress made on the implementation of the Strategic Plan.

RESOLUTION 18 (XII-RA II)

ADVISORY WORKING GROUP OF THE REGIONAL ASSOCIATION FOR ASIA

REGIONAL ASSOCIATION II (ASIA),

NOTING:

(1) The abridged final report of EC-XLIX;

(2) The report to EC-L of the EC Working Group on Long-term Planning;

(3) The Abridged final report of EC-L;

(4) The Cg-XII and Cg-XIII abridged final reports;

(5) The Report of Expert Meeting on the Strategic Plan for the Enhancement of NMHSs in RA II;

CONSIDERING the proposal of the president of the Association;

RECOGNIZING that due to budgetary constraints the number of working groups to be established or re-established by the Association would have to be limited:

RECOGNIZING FURTHER the need to have a mechanism to address issues not handled by other working groups or rapporteurs;

DECIDES:

(1) To establish an Advisory Working Group of the Regional Association II (Asia) with the following terms of reference:

(*a*) To advise the president on matters related to the work of the Association, in particular, on matters requiring actions which cannot await the next regular session of the Association;

(*b*) To assist the president in planning and coordinating the work of the Association and its subsidiary bodies;

(*c*) To review the structure and working of the subsidiary bodies of the Association, including implementation of their recommendations;

(*d*) To examine the possibility of merging the Working Group on Agricultural Meteorology with the Working Group on Climate Related Matters including CLIPS or the Working Group on Hydrology;

(*e*) To address other issues not covered by working groups or rapporteurs;

(*f*) To coordinate and monitor the implementation of the Regional Strategic Plan for the Enhancement of NMHSs in Asia;

(*g*) To assess and evaluate the implementation of the Regional Programme related to the activities of RA II as per the WMO Long-term Plan;

(*h*) To advise the president on the requirements and priorities of events to be organized in the Region;

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

REQUESTS the president to ensure that sub-regions are represented on the Advisory Working Group;

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

RESOLUTION 19 (XII-RAII)

REVIEW OF PREVIOUS RESOLUTIONS AND RECOMMENDATIONS OF THE ASSOCIATION

REGIONAL ASSOCIATION II (ASIA),

NOTING paragraph 3.7.1 of the general summary of EC-IX,

CONSIDERING:

(1) That a number of its resolutions adopted before its twelfth session have been revised and incorporated in resolutions of the twelfth 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 1 (III-RA II), 9 (V-RA II), 9 (VII-RA II), 11 (VII-RA II), 4 (X-RA II), 5 (XI-RA II) and 13 (XI-RA II);

(2) Not to keep in force the other resolutions adopted before its twelfth session;

(3) To publish the text of the resolutions kept in force in the annex to this resolution.

ANNEX TO RESOLUTION 19 (XII-RA II)

RESOLUTIONS OF RA II ADOPTED PRIOR TO ITS ELEVENTH SESSION AND MAINTAINED IN FORCE

Resolution 1 (III-RA II)

REGIONAL STANDARD BAROMETER

THE REGIONAL ASSOCIATION FOR ASIA,

NOTING:

(1) That there exists in India a standard barometer at Calcutta,

(2) That comparisons with this barometer have already been carried out by a number of Members of the Association,

DECIDES to designate this Indian barometer at Calcutta as a reference standard barometer for the Region.

Resolution 9 (V-RA II)

INTERCHANGE VISITS OF PERSONNEL ENGAGED IN DATA-PROCESSING ACTIVITIES

THE REGIONAL ASSOCIATION FOR ASIA,

NOTING Resolution 16 (Cg-VI) – World Weather Watch,

CONSIDERING that there is a necessity for exchange of information on the methods of preparation of analysis and prognosis of interest to the Region,

URGES Members of Regional Association II to encourage interchange visits of meteorological personnel between the NMCs/RMCs and the associated RMCs/WMCs to study and evaluate the analysis and forecast methods in use in order to achieve efficient preparation and use of the output products of these centres;

REQUESTS the Secretary-General to assist in promoting this form of co-operation.

Resolution 9 (VII-RA II)

INCLUSION OF INFORMATION ON WAVES AND PRESSURE SYSTEMS IN WEATHER AND SEA BULLETINS

THE REGIONAL ASSOCIATION FOR ASIA,

NOTING WMO Technical Regulations (C.1)2.3.2, (C.1)2.4.1 and (C.1)2.4.2,

CONSIDERING:

(1) That in response to a recent inquiry shipmasters have stated that wind data alone do not always suffice in providing the necessary information for safe navigation,

(2) That a specific requirement has been expressed for information on sea conditions, particularly swell waves, and on movements of significant pressure systems,

URGES Members:

(1) To follow strictly the provisions of WMO Technical Regulations Chapter C.1, in respect of the format and contents of weather and sea bulletins issued for the high seas;

(2) To include in weather and sea bulletins, as appropriate, information on height and direction of waves above a particular threshold value (say two metres), along with an indication of areas where such waves occur or are expected to occur, as well as on direction and speed of movement of significant pressure systems;

(3) To maintain close contact with users with a view to ensuring that the information issued keeps up with their requirements.

Resolution 11 (VII-RA II)

PROVISION OF MARINE METEOROLOGICAL SERVICES FOR COASTAL AND OFF-SHORE ACTIVITIES

THE REGIONAL ASSOCIATION FOR ASIA,

NOTING that coastal and off-shore activities such as coastal fisheries, shore mining operations, harbour development, coastal development and engineering works have been on the increase in recent years,

CONSIDERING:

(1) That the increasing coastal and off-shore activities call for corresponding expansion of marine

meteorological services for the safety and economy of these activities,
(2) That the services should include, where necessary, information on storm surges, in addition to gale and storm warnings and warnings on high waves,
(3) That an adequate forecast service to coastal and off-shore areas would need the backing of observational data from these areas and that, in addition, these data would be helpful in building up the statistics for studies on coastal climatology,
(4) That application of satellite products to coastal and off-shore services has proved highly useful,

URGES Members:
(1) To provide marine meteorological services for coastal and off-shore areas, if such services do not already exist and to develop the services to meet the specific requirements of the users, taking advantage, where possible, of available satellite products;
(2) To issue, where necessary, warnings on storm surges;
(3) To give full consideration to increasing by all possible means the observations from coastal and off-shore areas by including in the observing programmes of coastal stations and off-shore platforms such sea parameters as waves, sea-surface temperature, sea ice, ice accretion, etc. and by establishing data buoy stations.

Resolution 4 (X-RA II)
THE FURTHER DEVELOPMENT OF THE GLOBAL OBSERVING SYSTEM
REGIONAL ASSOCIATION II (ASIA),

NOTING:
(1) Resolution 2 (Cg-XI) – World Weather Watch Programme for 1992–1995,
(2) Resolution 3 (Cg-XI) – World Weather Watch Systems Support Activities,
(3) Resolution 28 (Cg-XI) – The Third WMO Long-term Plan, which includes the WWW Programme for 1992–2001,

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 systems such as ASDAR, ASAP, buoys, and wind profilers;

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 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.

Resolution 5 (XI-RA II)
REGIONAL INSTRUMENT CENTRE
THE REGIONAL ASSOCIATION FOR ASIA,

NOTING:
(1) The abridged final report of X-RA II;
(2) Recommendation 19 (CIMO-IX) – Establishment of Regional Instrument Centres;

CONSIDERING:
(1) The need for regular calibration and maintenance of meteorological instruments to meet increasing needs for high quality meteorological and hydrological data;
(2) The need for international instrument intercomparisons and evaluations;

NOTING with appreciation the offers made by China, and Japan to provide/commit the facilities of the National Meteorological Instrument Centres to perform the functions of Regional Instrument Centres;

DESIGNATES the National Meteorological Instrument Centre Beijing, China, and the Meteorological Instruments Centre Tsukuba, Japan as the Regional Instrument Centres for RAII with the following functions:
(a) To keep a set of meteorological standard instruments linked with recognized international or national standards and to log their performance and elements of comparison;
(b) To assist Members of the Region in calibrating their national standard meteorological instruments or in comparing them with the standard instruments mentioned in (c) and to keep the Members of the Region and the WMO Secretariat informed on the available standard instruments;
(c) To be prepared to certify the instruments' conformity with the standards with reference to WMO recommendations;
(d) To organize instrument evaluations and comparisons;
(e) To advise Members of the Region concerned on their enquiries regarding instrument performance and the availability of relevant guidance material;

(f) To assist WMO in organizing regional symposia, seminars or workshops on the maintenance, calibration and comparison of meteorological instruments by providing laboratory and field installations, as well as assistance with regard to demonstration equipment and expert advice;
(g) To keep a library of books and periodicals on instrument theory and practices;
(h) To cooperate with other Regional Instrument Centres to provide standardization of meteorological instruments;

REQUESTS the Secretary-General to include the content of this resolution in the Manual on the Global Observing System, Volume II, Regional Aspects, Region II (Asia).

Resolution 13 (XI-RA II)
INVOLVEMENT IN OPERATIONAL OCEANOGRAPHY
THE REGIONAL ASSOCIATION FOR ASIA,
NOTING:
(1) Resolution 16 (Cg-XII) – WMO's involvement in operational oceanography,
(2) Resolution X (EC-XLVIII) – Report of the seventh session of the Joint IOC/WMO Committee for IGOSS,
(3) Resolution 13 (X-RA II) – Participation in the Joint IOC/WMO Integrated Global Ocean Services System (IGOSS),
(4) Relevant decisions of the IOC Assembly and Executive Council and of its Sub-Commission for the Western Pacific,

CONSIDERING that oceanographic observations not only make a significant contribution to operational meteorology and the provision of marine meteorological and oceanographic services, but are also essential to the World Climate Research Programme (WCRP) and Global Climate Observing System (GCOS), and to global climate studies generally,
RECOGNIZING:
(1) That many Members of the Association are actively involved, and have been for many years, 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 co-ordinated meteorological and oceanographic services for a large variety of marine user groups,
(3) 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 WWW, IGOSS and GOOS;
(2) To participate actively in the planning and implementation of these systems through participation in the work of the Joint IOC/WMO Committee for IGOSS, the IOC/WMO/UNEP Committee for GOOS and the Data Buoy Cooperation Panel (DBCP);
(3) To coordinate with appropriate national oceanographic agencies and institutions to ensure the long-term operational maintenance of relevant elements of oceanographic observing systems established under large-scale oceanographic research programmes, in support of the requirements of GOOS and GCOS;
(4) To strengthen their contributions to specific existing operational components of IGOSS and to operational components of GOOS as they are implemented;
(5) To co-ordinate with appropriate national oceanographic agencies and institutions in developing oceanographic data management capabilities and oceanographic services to support national user communities;
(6) 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;

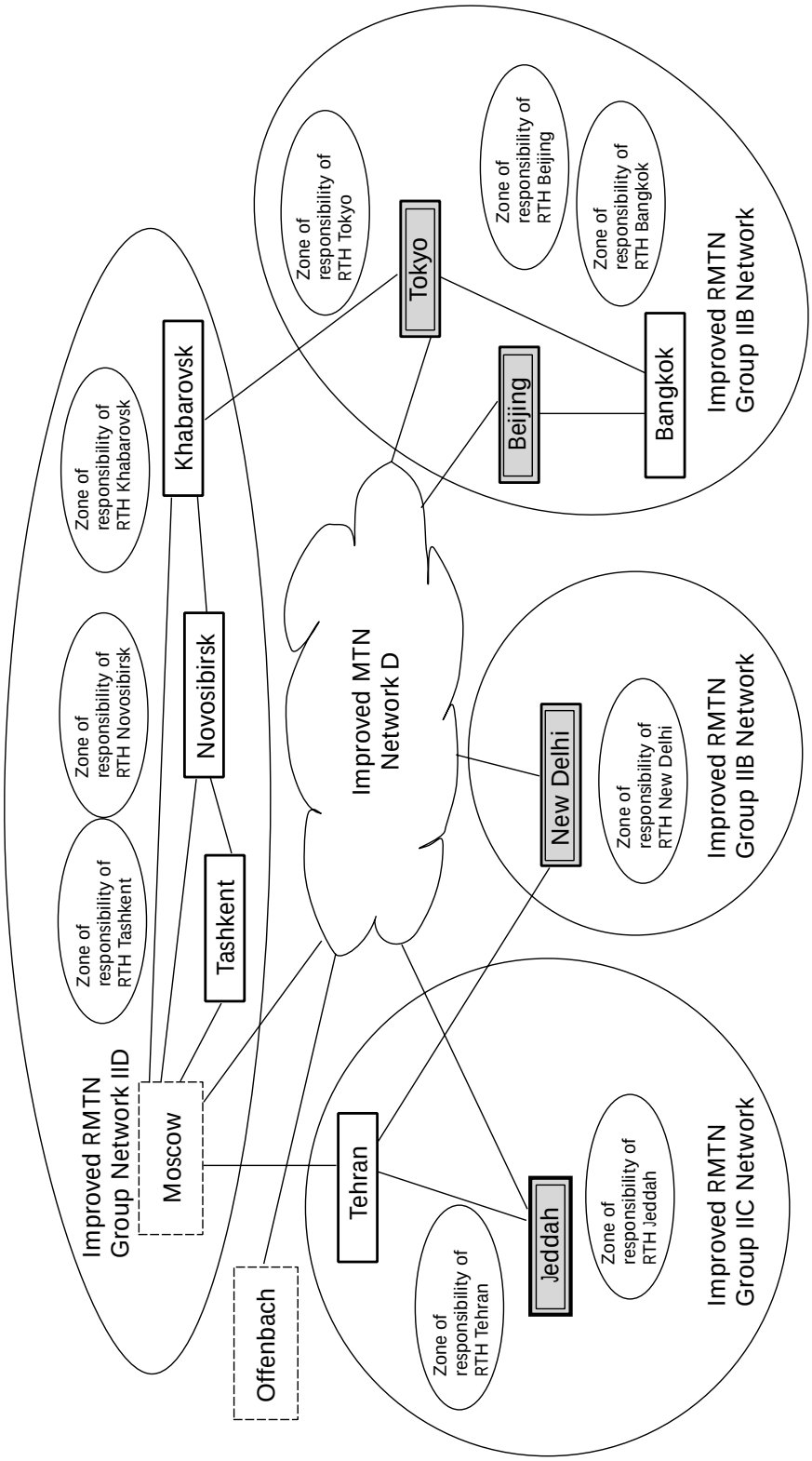
REQUESTS the Secretary-General to take any action considered necessary, and within the available budgetary resources, to assist Members to participate in the development and maintenance of IGOSS and GOOS.

ANNEXES

ANNEX I

Annex to paragraph 4.4.10 of the general summary

EXAMPLE OF POSSIBLE IMPLEMENTATION OF THE IMPROVED RMTN



ANNEX II

Annex to paragraph 4.5.6 of the general summary

OUTPUT PRODUCTS REQUIRED FROM OTHER GDPS CENTRES

Producer (1)	Product species (2)	Time of ref (UTC)	Parameters (element & level) (3)	Range (forecast hours)	Area	Used for (4)	Method of transmission (5)	Code form (6)
Bahrain	Bracknell		CAPE VWS	12-24 36-48	Global		ST or GTS	GRID or GRIB
Iran, Islamic Republic of	Washington, MDD	F, A	00,12	Z,T,U,V	12,24,36,48,72, 96,120 hrs	07004 00–90E 20N–90N	R, AV, EH, MR, AG	PP, ST, IT, RF	GRID, FAX
Kazakstan	Tokyo	A & F	00,12	Psea, T850, U, V850, H500	00,24,48,72,96	Northern Hemisphere	Forecast	IC, PP	GRID
Korea (Rep.)	Beijing, Tokyo	A & F		Z, T, Precip	00-48		VR	IT	
Kuwait	MDD	A & F		PoP	12,24,36,48,72, 96,120	0-90E, 0-60N	EH, HD, AG, BN, EA, EP	ST	A/N, GRID
Kyrgyzstan	Washington	F	00,12	Psea, Z500	24, 36, 48, 72, 96, 120, 144		R	IT	FTP
Maldives	Tokyo	A & F	00,12	(Z,U,V,T,TTD) (850,700,500,300)	00,24,48,72	S.E. Asia	R, TC,AV	IC, IT, ST	GRID
	Washington	A & F	00,12	(Psea,Z,T) (850,500)	00,24,48,72	S.E. Asia	R, TC, MR	IC	GRID
Pakistan	Beijing, Tokyo	EA		(T,U,V) (700-300)	24		AV	IT	GRID
Qatar	Tokyo, New Delhi	R, F, EM		Psea, Z, T, U, V, VOR, OMG, PoP, Z5	12-24 36-48	Gulf	R, VR, MR, AV, BN	IC, PP, IT	GRID
Sri Lanka	Washington KWBC	F	00,12	(Z,U,V,T,TTD,OMG) (850 – 100)	24,48	Global	R, AV	PP	GRID GRIB
Uzbekistan	Bracknell, Washington, Moscow	A & F	near to 00,12	P, Z, T, U, V	00-24 00-120 00-120		R	IC	GRID
Yemen	Tokyo	A & F	00,12	(Z,U,V,T,TTD) (surface, 850,700, 500,400,300)	12,24	Asia	R, AV	ST	GRID

(1) Center at which product is produced. MDD=Meteorological data distribution (Meteosat mission)

(2) A=Analysis, F=Forecast. For ensemble prediction system output, EA=All ensemble information, EM=Ensemble mean.

(3) Meteorological Elements such as CAPE=Convective available potential energy, OMG=Vertical wind velocity, others and pressure levels, for example Z500, T850, OMG700 etc. or (Z,U,V,T,TTD), PoP=Probability of precipitation, Psea=Pressure at sea level, T=Temperature, TTD=(T-Td), U,V=Wind components, VOR=Vorticity, Z=Geopotential height.

(4) R=Routine weather forecast, TC=Tropical cyclone, EH=Environmental hazards, VR=Verification, MR=Marine, AV=Aviation, HD=Hydrology, AG=Agrometeorology, BN=Boundary values of limited area models, others.

(5) IC=International circuit on lease (GTS), PP=Point to point communication excluding GTS, IT=Internet or TCP/IP, ST=Satellite communications, RF=Radio fax, others.

(6) A/N, GRID, GRIB, FAX, others.

APPENDIX A

LIST OF PERSONS ATTENDING THE SESSION

1. OFFICERS OF THE SESSION

Z. Batjargal	President
A.R.B.S. Al-Harmi	Vice-president

2. REPRESENTATIVES OF WMO MEMBERS

Member	*Name*	*Capacity*
Bahrain	A. Majeed H. lsa	Principal delegate
	A. Samad M. Al Muhandis	Delegate
Bangladesh	A. N. H. Akhtar Hossain	Principal Delegate
China	Wen Kegang	Principal Delegate
	Yan Hong	Alternate
	Deng Yong	Delegate
	Liu Jinping	Delegate
	Ruan Shuigen	Delegate
	Wang Caifang	Delegate
	Yu Yong	Delegate
Hong Kong, China	H. K. Lam	Principal Delegate
	K. H. Yeung	Delegate
India	R. R. Kelkar	Principal Delegate
Iran, Islamic Republic of	A. M. Noorian	Principal Delegate
	G. H. Kamali	Alternate
	M. Jurabchi	Delegate
	L. Salimabadi (Ms)	Delegate
Iraq	S. A. A. Abdulla	Principal Delegate
Japan	K. Yamamoto (19-24/09)	Principal Delegate
	Jun-ichi Shiino (15-27/09)	Principal Delegate
	H. Sasaki	Alternate
	T. Manabe (Ms)	Delegate
Kazakstan	T. Kudekov	Principal Delegate
Lao People's Democratic Republic	T. Vongsiprasom	Principal Delegate
Macao, China	Fong Soi Kun	Principal Delegate
	Ku Chi Meng	Delegate
Maldives	Ismail Zahir	Principal Delegate
Mongolia	Z. Batjargal	Principal Delegate
	D. Dagvadorj	Delegate
	B. Enkhjargal (Ms)	Delegate
	L. Natsagdorj	Delegate
Myanmar	San Hla Thaw	Principal Delegate
Nepal	A. P. Pokhrel	Principal Delegate
	N. H. Rajbhandari	Alternate
Oman	A. R. S. Al-Harmi	Principal Delegate
	N. Saif Al-Ryami	Delegate
	S. Yarub Al-Saifi	Delegate
Pakistan	T. Hyder	Principal Delegate
	M. R. Effendi	Delegate
	A. A. Sher	Delegate
Qatar	Ali Al-Mulla	Principal Delegate
Republic of Korea	Sung-Euii Moon	Principal Delegate
	Hyo-Sang Chung	Alternate
	Sung-Nam Oh	Delegate
	Byong-Lyol Lee	Delegate
	Woo-Jin Lee	Delegate
	Hyun-Joo Oh (Ms)	Delegate
	Jai-Ho Oh	Delegate
	Chung-Kyu Park	Delegate
	Kwang-Joon Park	Delegate
	Nam-Jin Zeon	Delegate
	Jae-Choon Lee	Delegate
	Byeong-Kuk Jeon	Delegate
	Chang-do Lee	Delegate
Republic of Yemen	A. A. Almakaleh	Principal Delegate
Russian Federation	A. I. Bedritsky	Principal Delegate
	A. A. Maksimov	Alternate
	L. M. Lurie	Delegate
	Z. D. Kopaliani	Delegate
	A. I. Gusev	Delegate
Saudi Arabia	N. I. Tawfiq	Principal Delegate
	S. A. Bukhari	Alternate
	S. O. Baazim	Delegate
	S. Mohalfi	Delegate
	M. S. Al-Zahari	Delegate
Sri Lanka	N. A. Amaradasa	Principal Delegate
Thailand	A. Thensathit	Principal Delegate
Turkmenistan	S. Baimarov	Delegate
United Arab Emirates	Mouza Ali Hamad Al Mualla (Ms)	Principal Delegate
	Kamal Adam Ahmad	Delegate
	Mohamed A. Al Abri	Delegate
Uzbekistan	T. Nigmanov	Principal Delegate
	I. Zaytseva (Ms)	Delegate
Viet Nam	Nguyen Cong Thanh	Principal Delegate
	Tran Duc Hai	Alternate
	Vu Van Mien	Delegate

Member	*Name*	*Capacity*

3. REPRESENTATIVES OF MEMBERS OF WMO OUTSIDE REGION II

Australia	J.W. Zillman	Observer
France	J.-P. Beysson	Observer
Paraguay	F.N. Acosta (Ms)	Observer
United States of America	M.C. Yerg, Jr.	Observer

4. LECTURES

Xu Jianmin
Jun-ichi Shiino
Chung-Kyu Park

5. REPRESENTATIVES OF INTERNATIONAL ORGANIZATIONS

Organization	*Name*
United Nations Development Programme (UNDP)	Sewoo Kim
Intergovernmental Oceanographic Commission (IOC)	Moon-Sik Suk Sang-Kyung Byun
International Astronautical Federation (IAF)	Ok-Kyu Lee
International Commission on Irrigation and Drainage (ICID)	Chae-Soo Kim Yongsu Kim
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)	P. Singh

6. LOCAL SECRETARIAT

Eui-jae Kim
Woon-hee Cho
Yun-ang Chung
Jeong-gyoo Park
Se-won Kim
Seong-heon Kim
Jun-hak Cha
Yong-seong Kang
Youn-sug Chae (Ms)
Boram Lee (Ms)
Youn-ok Park (Ms)
Mi-young Kim (Ms)

7. WMO SECRETARIAT

Secretary-General	G. O. P. Obasi
Director Coordinator, Climate Activities Programme	M. J. Coughlan
Chief, Fellowship Division	M. E. Hassan
Chief, Water Resources Division	W. Grabs
Deputy Secretary-General	M. J. P. Jarraud
Regional Director, Asia and the South-West Pacific	E. H. Al-Majed
Director, World Weather Watch — Basic System Department	D. C. Schiessl
Director, Technical Cooperation Department	H. M. Diallo
Acting Director, World Weather Watch — Applications Department	E. L. Sarukhanian
Chief, Conference Unit	E. Dar-Ziv (Ms)
Programme Manager, Regional Office for Asia and the South-West Pacific	J. Sun
Junior Professional Officer, Regional Office for Asia and the South-West Pacific	J. S. Lee

APPENDIX B

AGENDA

	Agenda item	*Document Nos.*	*PINK Nos. and person submitting*	*Resolutions adopted*
1.	OPENING OF THE SESSION		1, President of RA II	
2.	ORGANIZATION OF THE SESSION			
2.1	Consideration of the report of the credentials		2, President of RA II	
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 II	1
4.	WORLD WEATHER WATCH PROGRAMME (WWW) — REGIONAL ASPECTS			
4.1	WWW Planning and Implementation Programme, including the report of the chairman of the Working Group on the WWW in Region II	4.1(1) 4.1(2)	4.1, Co-Chairperson, Committee A	2
4.2	Observing system, including Instruments and Methods of Observation Programme (IMOP)	4.2(1); ADD 1; ADD 2; 4.2(2)	4.2, Co-Chairperson, Committee A	3; 4; 5
4.3	Regional satellite activities	4.3	4.3, Co-Chairperson, Committee A	
4.4	Telecommunication system	4.4	4.4, Co-Chairperson, Committee A	
4.5	Data-processing system	4.5	4.5, Co-Chairperson, Committee A	
4.6	Data management, including regional codes	4.6	4.5, Co-Chairperson, Committee A	6
4.7	WWW Operational Information Service (OIS)	4.7	4.7, Co-Chairperson, Committee A	
4.8	Tropical Cyclone Programme (TCP)	4.8	4.8, Co-Chairperson, Committee A	
5.	WORLD CLIMATE PROGRAMME (WCP) — REGIONAL ASPECTS			
5.1	World Climate Data and Monitoring Programme (WCDMP)	5; 5.1(2)	5, REV, Co-Chairperson, Committee B	7
5.2	World Climate Applications and Services Programme, including Climate Information and Prediction Services (CLIPS)	5		8
5.3	World Climate Impact Assessment and Response Strategies Programme (WCIRP)	5		
5.4	Climate programme coordination and support activities	5		
5.5	World Climate Research Programme (WCRP)	5.5	5.5, Co-Chairperson, Committee B	
5.6	Global Climate Observing System (GCOS)	5.6	5.6, Co-Chairperson, Committee B	
6.	ATMOSPHERIC RESEARCH AND ENVIRONMENT PROGRAMME — REGIONAL ASPECTS		6, Co-Chairperson, Committee A	
6.1	Support to ozone and other environment-oriented conventions	6		
6.2	Global Atmospheric Watch (GAW)	6; 6.2(1); 6.2(2)		9; 10
6.3	World Weather Research Programme (WWRP)	6		
6.4	Tropical Meteorological Research Programme (TMRP)	6		
6.5	Programme on Physics and Chemistry of Clouds and Weather Modification Research (PCCWMR)	6; 6.5(1)		11

	Agenda item	*Document Nos.*	*PINK Nos. and person submitting*	*Resolutions adopted*
7.	APPLICATIONS OF METEOROLOGY PROGRAMME (AMP) — REGIONAL ASPECTS			
7.1	Public Weather Services (PWS) Programme	7.1	7.1, Co-Chairperson, Committee A	
7.2	Agricultural Meteorology Programme (AgMP)	7.2(1); 7.2(2)	7.2, Co-Chairperson, Committee B	12
7.3	Aeronautical Meteorology Programme (AeMP)	7.3	7.3, Co-Chairperson, Committee A	
7.4	Marine Meteorology and Associated Oceanographic Activities Programme (MMAOAP)	7.4(1); 7.4(2)	7.4, Co-Chairperson, Committee A	13; 14
8.	HYDROLOGY AND WATER RESOURCES PROGRAMME (HWRP) — REGIONAL ASPECTS	8(1); 8(2)	8, Co-Chairperson, Committee B	15
8.1	Progamme on Basic Systems in Hydrology (BSH)			
8.2	Programme on Forecasting and Applications in Hydrology			
8.3	Programme on Sustainable Development of Water Resources (SDW)			
8.4	Programme on Capacity Building in Hydrology and Water Resources (CBH)			
8.5	Programme on Water-related Issues (WRI)			
9.	EDUCATION AND TRAINING PROGRAMME (ETRP) — REGIONAL ASPECTS	9(1)	9, Co-Chairperson, Committee B	16
10.	TECHNICAL COOPERATION PROGRAMME (TCOP) — REGIONAL ASPECTS	10	10, Co-Chairperson, Committee B	
11.	INFORMATION AND PUBLIC AFFAIRS PROGRAMME (IPA) — REGIONAL ASPECTS	11	11, President of RA II	
12.	LONG-TERM PLANNING — REGIONAL ASPECTS	12	12, President of RA II	
13.	OTHER REGIONAL ACTIVITIES			
13.1	Role and operation of National Meteorological and Hydrological Services (NMHSs)	13.1	13.1, President of RA II	
13.2	International exchange of data and products	13.2	13.2, President of RA II	
13.3	International Strategy for Disaster Reduction (ISDR)	13.3	13.3, President of RA II	
13.4	Strategic Plan for the Enhancement of National Meteorological and Hydrological Services (NMHSs) in Regional Association II (Asia)	13.4	13.4, President of RA II	17
13.5	Third Technical Conference on Management of Meteorological and Hydrological Services in Regional Association II (Asia)	13.5	13.5 President of RA II	
13.6	Internal Matters of the Association	13.6	13.6, President of RA II	18
14.	WMO REGIONAL OFFICE FOR ASIA AND THE SOUTH-WEST PACIFIC	14	14, President of RA II	
15.	SCIENTIFIC LECTURES AND DISCUSSIONS		15, President of RA II	
16.	REVIEW OF PREVIOUS RESOLUTIONS AND RECOMMENDATIONS OF THE ASSOCIATION AND OF RELEVANT EXECUTIVE COUNCIL RESOLUTIONS	16	16, Rapporteur on Previous Resolutions	19
17.	ELECTION OF OFFICERS		17, REV; Chairperson, Nomination Committee 17 (2), President of RA II	

Agenda item	*Document Nos.*	*PINK Nos. and person submitting*	*Resolutions and adopted*
18 DATE AND PLACE OF THE THIRTEENTH SESSION		18, President of RA II	
19. CLOSURE OF THE SESSION		19, President of RA II	

APPENDIX C

LIST OF ABBREVIATIONS

5LTP	Fifth WMO Long-term Plan
6LTP	Sixth WMO Long-term Plan
ACC	United Nations Administrative Committee on Coordination
ACSYS	Arctic Climate System Study
ADB	Asian Development Bank
AeMP	Aeronautical Meteorological Programme
AgMP	Agricultural Meteorology Programme
AMDAR	Aircraft Meteorological Data Relay
AMOSSG	Aerodrome Meteorological Observing Systems Study Group
AMP	Applications of Meteorology Programme
APN	Asia-Pacific Network for Global Change Research
ARAL-HYCOS	Aral Sea Basin Hydrological Cycle Observing System
AREP	Atmospheric Research and Environment Programme
ASAP	Automated Shipboard Aerological Programme
ASC	Area Support Centre
ASCMG	ASEAN Sub-committee on Meteorology and Geophysics
ASEAN	Association of South-East Asian Nations
ATEAM	Advanced Techniques Applied to Aeronautical Meteorology
AWG	Advisory Working Group
BUFR	Binary universal form for the representation of meteorological data
CAeM	Commission for Aeronautical Meteorology
CAgM	Commission for Agricultural Meteorology
CAS	Commission for Atmospheric Sciences
CASPAS	Integrated Programme on Hydrometeorology and Monitoring of Environment in the Caspian Sea Region
CASPCOM	Coordination Committee on Hydrometeorology and Pollution Monitoring of the Caspian Sea
CBH	Programme on Capacity Building in Hydrology and Water Resources
CBS	Commission for Basic Systems
CCl	Commission for Climatology
CEOP	Coordinated Enhanced Observing Period (GEWEX)
CHy	Commission for Hydrology
CIMO	Commission for Instruments and Methods of Observation
CLIC	Climate and Cryosphere Programme
CLIMAG	Climate Prediction and Agriculture
CLIPS	Climate Information and Prediction Services
CLIVAR	World Climate Variability and Predictability
CMM	Commission for Maritime Meteorology
CO-COM	Coordinating Committee (of SCHOTI)
COP	Conference of the Parties
CPO	CLIPS Project Office
CREX	Character form for the representation and exchange of data
DBCP	Data Buoy Cooperation Panel
EANET	Acid Deposition Monitoring Network in East Asia
EC	Executive Council
EIS	Environmental Information System
ENSO	El Niño/Southern Oscillation
EPS	EUMETSAT Polar System
ESCAP	Economic and Social Commission for Asia and the Pacific
ESCWA	Economic and Social Commission for Western Asia
ETRP	Education and Training Programme
EUMETSAT	European Organization for the Exploitation of Meteorological Satellites

FRIEND(S)	Flow Regimes from International Experimental and Network Data Sets
GAME	GEWEX Asian Monsoon Experiment
GAW	Global Atmosphere Watch
GCOS	Global Climate Observing System
GDPS	Global Data-processing System
GDSIDB	Global Digital Sea-Ice Data Bank
GEF	Global Environment Facility
GEWEX	Global Energy and Water Cycle Experiment
GIS	Geographical Information System
GLOSS	Global Sea-level Observing System
GMDSS	Global Maritime Distress and Safety System
GMS	Geostationary Meteorological Satellite
GOOS	Global Ocean Observing System
GOS	Global Observing System
GPS	Global Positioning System
GPV	Grid Point Value
GRDC	Global Runoff Data Centre
GRIB	Processed data in the form of grid-point value expressed in binary form
GRID	Processed data in the form of grid point values
GSN	GCOS Surface and Upper-Air Networks
GTOS	Global Terrestrial Observing System
GTS	Global Telecommunication System
GTSPP	Global Temperature Salinity Profile Programme
GUAN	GCOS Upper-Air Network
GURME	GAW Urban Research Meteorological Environment Project
GWP	Global Water Partnership
HELP	Hydrology for Environment, Life and Policy
HiRID	High Resolution Image Data
HKH-HYCOS	HIMALAYAN-HYCOS
HNRC	HOMS National Reference Centre
HOMS	Hydrological Operational Multipurpose System
HRIT	High Rate Information Transmission
HWRP	Hydrology and Water Resources Programme
HWRP	Hydrology and Water Resources Programme
HYCOS	Hydrological Cycle Observing System
IAEA	International Atomic Energy Agency
IAF	International Astronautical Federation
IAHR	International Association of Hydraulic Engineering and Research
IAI	Inter-American Institute for Global Change Research
IAHS	International Association of Hydrological Sciences
IATA	International Air Transport Association
IBPIO	International Buoy Programme for the Indian Ocean
ICAO	International Civil Aviation Organization
ICID	International Commission on Irrigation and Drainage
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICSU	International Council for Science
IDNDR	International Decade for Natural Disaster Reduction
IGBP	International Geosphere-Biosphere Programme (ICSU)
IGOSS	Integrated Global Ocean Station System
IGRAC	International Groundwater Assessment Centre
IHDP	International Human Dimensions Programme on Global Environmental Change
IMD	Indian Meteorological Department
INFOHYDRO	Hydrological Information Referral Service
INMARSAT	International Mobile Satellite Organization
INSAT	Indian National Satellite
IOC	Intergovernmental Oceanographic Commission (UNESCO)
IPM & IS	Integrated Project on Training and Information System in the Caspian Sea Region
IRI	International Research Institute

ISCS	International Satellite Communication Systems
ISDN	Integrated Services Digital Network
ISDR	International Strategy for Disaster Reduction
ISO	International Organization for Standardization
IWTC	International Workshops on Tropical Cyclones
JCOMM	Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology
JMA	Japan Meteorological Agency
KMA	Korea Meteorological Administration
KORMEX	Korean Monsoon Experiment
LRIT	Low Rate Information Transmission
LTP	Long-term Plan
MCSS	Marine Climatological Summaries Scheme
MDD	Meteorological Data Distribution
MDNS	Managed Data-Communication Network Services
MEKONG-HYCOS	Mekong river Hydrological Cycle Observing System
MMAOAP	Marine Meteorology and Associated Oceanographic Activities Programme
MMS	Marine Meteorological Services
MOFFS	Management Overview of Flood Forecasting Systems
MOU	Memorandum of Understanding
MPERSS	Marine Pollution Emergency Response Support System
MTN	Main Telecommunication Network
MTSAT	Multi-functional Transport Satellite
NEAR-GOOS	North-East Asian Regional GOOS
NHS	National Hydrological Service
NIS	Newly Independent States
NMC	National Meteorological Centre
NMHS	National Meteorological and Hydrological Service
NMS	National Meteorological or Hydrometeorological Service
NWP	Numerical Weather Prediction
OIS	Operational Information Service
PCCWMR	Physics and Chemistry of Clouds and Weather Modification Research
PICES	North Pacific Marine Science Organization
PMF	Probable Maximum Flood
PMP	Probable Maximum Precipitation
PROMET	Provision of Meteorological Information Required by Civil Aviation
PWS	Public Weather Services
PWSP	Public Weather Services Programme
QA/QC	Quality Assurance and Quality Control
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
RIC	Regional Instrument Centre
RMTC	Regional Meteorological Training Centre
RMTN	Regional Meteorological Telecommunication Network
ROSHYDROMET	Russian Federation Service for Hydrometeorology and Environmental Monitoring
RSMC	Regional Specialized Meteorological Centre
RTH	Regional Telecommunication Hub
SADIS	Satellite Distribution

SCHOTI	Standing Conference of Heads of Training Institutions of National Meteorological Services
SCSMEX	South China Sea Monsoon Experiment
SDW	Programme on Sustainable Development of Water Resources
SEACAMP	South East Asian Centre for Atmospheric and Marine prediction
SIGWX	Significant weather
SOLAS	International Convention for the safety of Life at Sea
SOOP	Ship-of-Opportunity Programme
SOPAC	South Pacific Applied Geoscience Commission
START	SysTem for Analysis, Research and Training
STEND	System for Technology Exchange for Natural Disasters
TCDC	Technical Cooperation among Developing Countries
TCOP	Technical Cooperation Programme
TCP	Tropical Cyclone Programme
TMRP	Tropical Meteorology Research Programme
TOGA	Tropical Ocean and Global Atmosphere Programme
TOPC	Terrestrial Observation Panel on Climate
TRACECA	Transport Corridor Europe Caucasus Asia
TRUCE	Tropical Urban Climate Experiment
UKSF	United Kingdom Satellite Facilities
UNCCD	United Nations Convention to Combat Desertification
UNCSD	United Nations Commission on Sustainable Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNFIP	United Nations Fund for International Partnership
UNV	United Nations Volunteers
VAAC	Volcano Ash Advisory Centre
VCP	Voluntary Cooperation Programme
VISSR	Visible and Infra-red Spin Radiometer
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
WCIRP	World Climate Impact Assessment and Response Strategies Programme
WCP	World Climate Programme
WCP-Water	WCP-Water
WCRP	World Climate Research Programme
WDC	World Data Centre
WEFAX	Weather Facsimile
WG-CRM	Working Group on Climate Related Matters
WGH	Working Group on Hydrology
WG-PIW	Working Group on Planning and Implementation of the WWW
WHYCOS	World Hydrological Cycle Observing System
WIPO	World Intellectual Property Organization
WMC	World Meteorological Centre
WMD	World Meteorological Day
WMO	World Meteorological Organization
WOCE	World Ocean Circulation Experiment
WRA	Water Resources Assessment
WWAP	World Water Assessment Programme
WWC	World Water Council
WWDR	World Water Development Report
WWRP	World Weather Research Programme
WWW	World Weather Watch