

Bogota  
22–29 September  
2010

# Regional Association III (South America)

Fifteenth session



World  
Meteorological  
Organization

WMO-No. 1067

Weather • Climate • Water



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Abridged final report with resolutions

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Meteorological  
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This report contains the text as adopted by Plenary and has been issued without formal editing.

# CONTENTS

	<i>Page</i>
<b>GENERAL SUMMARY OF THE WORK OF THE SESSION</b>	
<b>1. OPENING OF THE SESSION</b> (XV-RA III/PINK 1 and 2).....	1
<b>2. ORGANIZATION OF THE SESSION</b> (XV-RA III/PINK 1 and 2).....	2
2.1 Consideration of the report on credentials .....	2
2.2 Adoption of the agenda (XV-RA III/Doc. 2.2; XV-RA III/PINK 1 and 2).....	3
2.3 Establishment of committees .....	3
2.4 Other organizational matters .....	3
<b>3. REPORT BY THE PRESIDENT OF THE ASSOCIATION</b> (XV-RA III/Doc. 3; XV-RA III/APP_Doc. 3) .....	3
<b>4. PROGRAMME ACTIVITIES – REGIONAL ASPECTS</b> .....	5
4.1 Enhanced capabilities of Members to produce better weather forecasts and warnings (XV-RA III/Doc. 4.1; XV-RA III/APP_Doc. 4.1).....	5
4.2 Enhanced capabilities of Members to provide better climate predictions and assessments (XV-RA III/Doc. 4.2; XV-RA III/PINK 4.2; XV-RA III/PINK 4.2, REV. 1) .....	9
4.3 Enhanced capabilities of Members to provide better hydrological forecasts and assessments (XV-RA III/Doc. 4.3; XV-RA III/APP_Doc. 4.3) .....	13
4.4 Integration of WMO observing systems (XV-RA III/Doc. 4.4; XV-RA III/APP_Doc. 4.4) .....	15
4.5 Development and implementation of the new WMO Information System 26 (XV-RA III/Doc. 4.5; XV-RA III/PINK 4.5; XV-RA III/PINK 4.5, REV. 1) .....	22
4.6 Enhanced capabilities of Members in multi-hazard early warning and disaster prevention and preparedness (XV-RA III/Doc. 4.6; XV-RA III/APP_Doc. 4.6).....	26
4.7 Enhanced capabilities of Members to provide and use weather, climate, water and environmental applications and services (XV-RA III/Doc. 4.7; XV-RA III/PINK 4.7).....	29
4.8 Broader use of weather-, climate- and water-related outputs for decision-making and implementation by Members and partner organizations (XV-RA III/Doc. 4.8; XV-RA III/APP_Doc 4.8).....	35
4.9 Enhanced capabilities of National Meteorological and Hydrological Services in developing countries, particularly least developed countries, to fulfil their mandates (XV-RA III/Doc. 4.9; XV-RA III/APP_Doc 4.9).....	37
<b>5. EFFICIENT MANAGEMENT AND GOOD GOVERNANCE</b> .....	39
5.1 Internal matters of the Association (XV-RA III/G/WP 5.1; XV-RA III/PINK 5.1).....	39
5.2 Effective and efficient management performance and oversight of the Organization (XV-RA III/Doc. 5.2(2); XV-RA III/APP_Doc. 5.2(2) XV-RA III/G/WP 5.2(3); XV-RA III/APP_WP 5.2(3) .....	43
<b>6. EMERGING ISSUES AND SPECIFIC CHALLENGES</b> (XV-RA III/Doc. 6(1); XV-RA III/Doc. 6(2); XV-RA III PINK 6(1); XV-RA III PINK 6(2) .....	44
<b>7. REGIONAL OFFICE FOR THE AMERICAS AND WMO OFFICE FOR SOUTH AMERICA</b> (XV-RA III/Doc. 7; XV-RA III/APP_Doc. 7) .....	47
<b>8. SCIENTIFIC LECTURES AND DISCUSSIONS</b> (XV-RA III/Doc. 8; XV-RA III/PINK 8).....	48

		<i>Page</i>
<b>9.</b>	<b>REVIEW OF PREVIOUS RESOLUTIONS AND RECOMMENDATIONS OF THE ASSOCIATION AND OF RELEVANT EXECUTIVE COUNCIL RESOLUTIONS</b> (XV-RA III/Doc.9; XV-RA III/APP_Doc. 9).....	48
<b>10.</b>	<b>ELECTION OF OFFICERS</b> (XV-RA III/INF. 10; XV-RA III/PINK 10).....	48
<b>11.</b>	<b>DATE AND PLACE OF THE SIXTEENTH SESSION</b> (XV-RA III/PINK 11) .....	48
<b>12.</b>	<b>CLOSURE OF THE SESSION</b> (XV-RA III/PINK 12).....	48

#### RESOLUTIONS ADOPTED BY THE SESSION

<i>Final No.</i>	<i>Session No.</i>		
1	4.2/2	Implementation of a climate watch system.....	50
2	4.2/1	Establishment of Regional Climate Centres.....	51
3	4.4/1	Regional Basic Synoptic Network and Regional Basic Climatological Network in Region III .....	53
4	4.4/2	Amendments to the <i>Manual on the Global Observing System</i> (WMO-No. 544), Volume II – Regional Aspects, Region III (South America) .....	63
5	5.1/1	Management Group and subsidiary bodies of Regional Association III (South America) .....	67
6	9/1	Review of previous resolutions and recommendations of the Association .....	69

#### ANNEXES

I	WMO guiding principles for service delivery (paragraph 4.7.5 of the general summary) .....	70
II	Volunteerism in the work of Regional Association III (paragraph 5.1.13 of the general summary) .....	76

<b>APPENDIX.</b>	List of participants.....	78
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# GENERAL SUMMARY OF THE WORK OF THE SESSION

## 1. OPENING OF THE SESSION (*agenda item 1*)

**1.1** At the kind invitation of the Government of the Republic of Colombia, the fifteenth session of Regional Association III (South America) was held in Bogota, Colombia, at The Bogota Plaza Summit Hotel, from 22 to 29 September 2010.

**1.2** Mr Ricardo José Lozano, Director General of the Colombian IDEAM and Permanent Representative of Colombia with WMO, extended a warm welcome to all participants. He stated that WMO plays a significant role in weather, climate, water and environment issues. He underlined that one of the priorities and concerns of the Colombian Government is the prevention of hydro-meteorological disasters. He recalled that his country is suffering the effects of a heavy rain season coupled with the La Niña event, with flooding in Córdoba, Sucre, Bolivar, Atlantico and Magdalena. He informed that this phenomenon is expected to reach its main development in the next quarter of 2010. He noted that by strengthening cooperation in the Region, the 13 Member countries of RA III will improve their weather forecasts, climate predictions, as well as early warnings for the protection of life and property. He also stressed the importance of Risk management in ongoing climate change.

**1.3** Mr Ramón Viñas García (Bolivarian Republic of Venezuela), president of RA III, welcomed the participants to the session and expressed his appreciation to the Government of the Republic of Colombia for hosting the session in Bogota as well as for having hosted the RA III Technical Conference on NMHSs and the Civil Protection Agencies working together for Disaster Risk Reduction, from 20 to 21 September 2010. He acknowledged this initiative as a sign of the commitment by Colombia to the work of the World Meteorological Organization (WMO) in ensuring the safety of the people of the country in terms of weather-related phenomena.

**1.4** The president extended his gratitude to Ms Myrna Araneda, vice-president of RA III and for her contribution to the work of RA III. He expressed appreciation to Mr Ricardo José Lozano, Director General of Colombia's Institute for Hydrology, Meteorology and Environmental Studies (IDEAM) and his staff for excellent arrangements made. Mr Viñas García thanked the Secretary-General of WMO for his support rendered to the Members of WMO, especially to those of RA III.

**1.5** The president of the Association, underlined the need for human resource Education and Training in the Region as well as the architecture and consolidation of the Telecommunications Network and the reinforcement of Information competencies and services to the users. He stressed that these aims can be attained only through cooperation amongst the NMHSs and strategic alliances with Services of other regions. He thanked the National Meteorological Agency of Spain (AEMET) for its ongoing support in different areas and the National Meteorological Service of the United States of America, especially for the satellite information provided. As regards the Global Framework for Climate Services (GFCS), the president stressed the importance of establishing Regional Climate Centres in RA III.

**1.6** Mr Michel Jarraud, Secretary-General of WMO, in his address, extended a warm welcome to all the participants. He expressed its deep appreciation to the Government of Colombia, through Ms Beatriz Uribe Botero, Minister for Environment, Housing and Territory Development, for hosting the session in Bogota. Mr Jarraud thanked Mr Viñas García, president of RA III, and Ms Myrna Araneda, vice-president of RA III, for their strong leadership in implementation of the programmes and activities of the Association during the intersessional period. He stressed that this session offers a key opportunity to review the regional achievements and to consider any issues that may demand attention in near future. He also expressed his appreciation to chairs, rapporteurs and working groups members for their valuable services. He expressed gratitude to Mr Ricardo Lozano and his staff for the excellent arrangements made to ensure the success of the session.

**1.7** Recalling that this is the last session of RA III to be conducted before the Sixteenth World Meteorological Congress, the work of the session would be aligned to along the new WMO strategic framework, which was adopted by the Fifteenth World Meteorological Congress (May 2007). He stressed that the regional strategic plan to be discussed at the session will provide Members in the Region with the guidance for the implementation of the national programmes and will also build capacity, through enhanced international cooperation for development and transfer of technology and mobilization of resources, among national and regional meteorological service providers in Member countries, whose contributions are essential for improved climate information products at global, regional and national scales.

**1.8** The Secretary-General informed the session that a new WMO Secretariat structure had been implemented in 2008 to better align with the decision of the Fifteenth Congress as well to improve the integration of plans and programmes, optimize the use of resources and streamline management and decision making. He said that it is essential to ensure that observing systems continue to operate optimally, especially in the context of the development of the Global Framework for Climate Services (GCFS), endorsed last year by World Climate Conference-3, to link science-based climate prediction and information with the management of climate-related risks and opportunities to help countries adapt to climate variability and change. A high-level task force is currently developing proposals for the framework to be presented to the Sixteenth World Meteorological Congress. He stressed that before these vital objectives can be fully achieved, it will be necessary to overcome some persistent gaps in terms of data coverage, partially due to deficiencies in the observing and telecommunication networks, but also to the high cost of equipment, consumables and spare parts.

**1.9** In looking to the future, the Secretary-General identified several issues the Association should consider when planning its future work programme, including the further improvement of the forecasting and warning capabilities of NMHSs; the establishment of Regional and Subregional Climate Centres; efforts to incorporate climate change adaptation in the national development strategies. He wished all the participants fruitful discussions and success in the future activities of the Association.

**1.10** Ms Beatriz Uribe Botero, Minister for Environment, Housing and Territory Development, addressed the session on behalf of the Government of Colombia. She welcomed all participants to Bogota and expressed her satisfaction at being able to host the XV Session of Regional Association III. She indicated that Colombia was highly vulnerable to natural disasters, particularly volcanic eruptions and flash flooding. She stressed that meteorology, hydrology and environmental knowledge help to protect the population against weather and climate related threats. She also stressed that various new challenges, including the climate change, oblige her Country to have a dynamic approach to prevention and adaptation. She expressed her strong belief that the decisions and agreements of cooperation to be made during the Session would increase the capacity of NMHSs in Region III. On behalf of the Government of Colombia she wished all delegates an enjoyable stay in Bogota and a most successful, cooperative and productive meeting.

**1.11** The session was declared open by Mr Ramón Viñas García, president of the Association and Permanent Representative of the Bolivarian Republic of Venezuela with WMO, at 10.00 a.m. on Wednesday, 22 September 2010.

## **2. ORGANIZATION OF THE SESSION** (*agenda item 2*)

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

**2.1.1** The representative of the Secretary-General presented reports on credentials taking into account the documents received prior to and during the session. The Association accepted the reports and decided that it would not be necessary to establish a Credentials Committee.

**2.1.2** The session was attended by 26 participants from 13 Members of Regional Association III (South America), 14 observers from 6 Members from outside the Region, 4



observers from regional and international organizations. The list of participants is given in the [appendix to the present report](#).

## **2.2 ADOPTION OF THE AGENDA** (*agenda item 2.2*)

The proposed annotated agenda for the session was unanimously adopted, as contained in XV-RA III/Doc. 2.2(2).

## **2.3 ESTABLISHMENT OF COMMITTEES** (*agenda item 2.3*)

**2.3.1** It was agreed that the work of the session be carried out by all plenary sessions to deal with the various agenda items as follows:

- (a) The General Plenary, chaired by Mr Ramón Viñas García, president of RA III assisted by Mr Miguel Rabiolo, Director of the WMO Regional Office for the Americas, and Mr Oscar Arango, WMO Representative, Office for North America, Central America and the Caribbean;
- (b) The Plenary A, chaired by Mr Divino Moura (Brazil), assisted by Mr Avinash Tyagi, Director of Climate and Water Department, Mr Wenjian Zhang, Director of Observing and Information Systems Department and Mr Andres Orias Bleichner, Programme Officer for the Americas;
- (c) The Plenary B, chaired by Ms Myrna Araneda (Chile), assisted by Mr Geoffrey Love, Director of Weather and Disaster Risk Reduction Services Department and Mr Oscar Arango, WMO Representative, Office for North America, Central America and the Caribbean.

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

### ***Nomination Committee***

**2.3.3** A Nomination Committee was established composed of Mr Rodolfo Pedocchi (Uruguay) and Mr Carlos Naranjo (Ecuador). Mr Naranjo was designated Chair.

### ***Coordination Committee***

**2.3.4** A Coordination Committee was established, comprised of the president, the vice-president, the representative of the Secretary-General, the co-chairs of Plenaries A and B and secretaries of the General Plenary, Plenary A and Plenary B. A representative of the host country was also invited to participate.

## **2.4 OTHER ORGANIZATIONAL MATTERS** (*agenda item 2.4*)

**2.4.1** The Association established its working hours for the duration of the session. The Association agreed that no minutes of the General Plenary sessions would be produced unless a Member specifically requested that it should be done for a particular item.

**2.4.2** The Association designated Mr Wilar Gamarra (Peru) as rapporteur on Agenda item 9 – Review of previous resolutions and recommendations of the Association and of relevant Executive Council resolutions.

**2.4.3** The Association agreed to waive the Regulation 109 during the duration of the session.

## **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 III which provided an overall review and assessment of the major activities of the Association since its

fourteenth session and expressed satisfaction at the effective manner in which the activities of the Association were being undertaken. The president also highlighted the issues that the Association would have to address, such as the development of the Strategic Plan for the Enhancement of NMHSs in South America; the future working mechanism of the Association; and other priority activities.

**3.2** The Association commended its president, Mr Ramón Viñas García (Bolivarian Republic of Venezuela), for the dedication, enthusiasm and initiative with which he had conducted the affairs of the Association, thus contributing to the further development of weather, climate and water services in the Region. The Association also commended the vice-presidents during the period, Mr C. Costa (Colombia) acting until his retirement from the Colombian Service in June 2008, and his successor Mrs Myrna Araneda (Chile), acting thereafter. It also expressed its appreciation to the chairs and members of the working groups and rapporteurs, who had effectively collaborated in carrying out the activities of the Association.

**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** During this period the Association duly took note of the replacement of Directors in several Member countries (Argentina, Plurinational State of Bolivia, Colombia, Ecuador, France, Guyana, Paraguay, Peru and Uruguay) and is still awaiting the official designation of Permanent Representatives for the Plurinational State of Bolivia and Uruguay.

**3.5** The Association noted the implementation of the new telecommunications network (using VPN technology through the Internet) which was a priority for the Region. The network will offer a cost-effective mechanism to exchange large volumes of information available from the Global, Regional and National Forecasting Centres, as well as from Climate Centres, and all the basic weather information on surface and upper-air. In this respect, the Association emphasized that updated telecommunications among RA III Members through the RTHs of Brasilia, Buenos Aires and Maracay using Internet VPN technology are nearly complete and the Region was congratulated for this accomplishment.

**3.6** The Association acknowledged that the measures adopted by the WMO Secretariat for the implementation of the pilot project for locating the WMO Regional Office for South America located in Asunción (Paraguay) are especially important, considering their aim to better support regional technical cooperation and resource mobilization and optimize the use of the budget. Therefore its appreciation was extended to the Secretary-General for this accomplishment and also to the Government of Paraguay for hosting the Office.

**3.7** Considering the request by the Fourteenth WMO Congress for a more efficient role of the field offices, the initiatives and actions taken by the Secretary-General towards a restructuring of the tasks of these field offices in order to serve the Regions in technical cooperation and resource mobilization are appreciated by the Association. The Association is pleased with this development and expects that it will continue an even more productive role of these field offices.

**3.8** During EC-LXII it was noted with appreciation that United States/NOAA has relocated the GOES-12 spacecraft to 60°W, providing improved coverage for South America following the demise of GOES-10.

**3.9** The Association also extended its appreciation to Spain-AEMET for its trust fund for the Cooperation Programme in Meteorology and Hydrology in the Iberoamerican countries, which supported various activities, training courses and equipment acquisition in RA III during the intersessional period. The Association expressed its gratitude to Spain as well as to other Members of WMO, who provided fellowships; arranged for study programmes for several Members of the Region; provided support to a wide range of areas beneficial to the Region; and acted as hosts to many events held in the Region.

#### **4. PROGRAMME ACTIVITIES – REGIONAL ASPECTS** (*agenda item 4*)

##### **4.1 ENHANCED CAPABILITIES OF MEMBERS TO PRODUCE BETTER WEATHER FORECASTS AND WARNINGS** (*agenda item 4.1*)

###### **Global Data-Processing and Forecasting System (GDPFS)**

**4.1.1** The Association noted the importance of the Global Data-Processing and Forecasting System (GDPFS), which includes the function of weather forecasting and the production of alerts and warnings of severe and high impact weather. The System includes a network of operational meteorological centres that produce numerical weather prediction (NWP) guidance products, and forecasters that produce forecasts and warnings, and is a part of a global early warning system for meteorological and environmental hazards. The GDPFS provides a strong basis for weather services provided by Members to an increasing number of socio-economic and environmental sectors. These services are provided to a broad range of users including to the public weather, aviation, marine and oceans, tropical cyclones and environmental emergencies communities.

###### **Severe Weather Forecasting**

**4.1.2** The Association noted that the CBS Severe Weather Forecasting Demonstration Project (SWFDP) had achieved significant results and benefits for developing countries, underpinned by the GDPFS, and delivered improved warning services through the Public Weather Service (PWS), as had been experienced through its regional subprojects in southern Africa (RA I) and in the South Pacific Islands (RA V).

**4.1.3** The Association noted that, in the context of sharing operational weather forecast systems for improving warnings of hazardous weather conditions and weather-related hazards, a Virtual Centre for Disaster Prevention in South America was established in 2009 for the south-eastern part of South America, following a resolution of the Ibero-American Conference of Directors of NMHSs. This concept had also been applied in the development of projects in Central America and in the northern part of South America. The Association requested the relevant RA III working group to consider incorporating into the Virtual Centre concept relevant elements of the SWFDP for enhancing the production of forecasts and warnings and the delivery of forecasting services, therefore further contributing to disaster risk reduction goals in affected countries.

**4.1.4** The Association encouraged its Members to identify areas for improvement in severe weather forecasting to improve warning services, possibly for inclusion in, or in coordination with, the plans for the Virtual Centre. The necessary improvements can then be addressed through capacity and resilience building activities under various regional programmes. It suggested, for example, the establishment of links to National Disaster Management Offices (NDMOs) and the Disaster Risk Reduction Community in order to focus improvements of weather forecasting to better meet the needs of the public safety sector.

**4.1.5** The Association noted that through the Virtual Centre, guidance could be developed on how WIS and WIGOS would better support the severe weather forecasting and warning service delivery functions of the NMHSs, and also to assist RSMCs to fulfil their responsibilities to provide forecasting guidance to NMHSs.

###### **Operational Weather Forecasting, including status of the GDPFS**

**4.1.6** The Association noted that forecasting, as a central component of the end-to-end system for Service Delivery, including warning services, depended heavily on outputs of NWP systems. It further stressed that the accuracy and usefulness of NWP depended critically on the quality and reliability of all observational data and other information for both NWP data-assimilation and for verification of forecast products. The Association therefore requested that efforts be made by all concerned to ensure that meteorological observations be routinely collected and disseminated via the GTS in order to further improve weather forecasting. Members were also encouraged to participate in verification projects, including by contributing with any additional observational data and information related to the impact of severe weather and weather-related hazards.

**4.1.7** The Association noted that in RA III, the number of centres operating NWP systems had increased since the last session. Argentina, Brazil, Chile, Colombia, Ecuador, Peru and Uruguay operated Limited Area Models (LAMs). Additionally, CPTEC (Brazil) had recently been designated as a Global Producing Centre (GPC) for Long-Range Forecasts (LRF).

**4.1.8** The Association noted that a broad range of global and regional products and datasets were available on the Intranet and local servers of individual Members, in addition to those products made freely available on their public Websites. Noting that these products had not been shared within the Region, the Association urged Members to facilitate access to these products by all Members in the Region.

**4.1.9** The Association encouraged Members to increasingly integrate outputs from ensemble prediction systems (EPS) into the process of forecasting to enhance the production of forecasts and warnings, and noted that continuing support for capacity-building in the use of EPS products was needed (for example, as achieved through the SWFDP), especially in developing countries. The Association agreed that the introduction of EPS outputs into the Virtual Centre would be central to demonstrating methods for using probabilistic methods to extending the lead-time for alerting of possible severe weather.

**4.1.10** The Association requested Members to continue to provide status information on their respective NWP forecasting systems to the annual report of the “WMO Technical Progress Report on GDPFS including NWP Research”. It also encouraged Members to include information on areas of specialized NWP-related predictions and applications, such as for sea-state, air quality, and other environmental predictions.

### ***GDPFS – Long-Range Forecasts***

**4.1.11** The Association noted the significant progress made by the designated Global Producing Centres (GPC) of Long-Range Forecasts, including in RA III, GPC CPTEC (Brazil), which was designated as part of the GDPFS by EC-LXII (June 2010). It requested Members to continue to enhance collaboration among regional and national climate information and prediction centres to benefit from the outputs of the GPCs. The Association encouraged GPC CPTEC Brazil to contribute to the Multi-Model Ensembles (MME) efforts at the Lead Centre for Multi-Model Ensembles, jointly operated by GPC Washington and GPC Seoul, which in turn makes available standard MME products to all WMO Members.

**4.1.12** The Association urged its Members to continue to contribute to the joint CBS-CCI efforts, in order to ensure successful implementation and operation of Regional Climate Centres (RCCs) and to foster improved coordination of all relevant aspects of climate information and prediction services (monthly, seasonal and longer-term). The Association urged GPC CPTEC Brazil, to maintain and enhance their products (e.g. data products and predictions, as well as guidance on effective use of these products) that are provided to Regional Climate Centres (RCCs) and Regional Climate Outlook Forums (RCOFs), and to provide verification information and advice.

**4.1.13** The Association noted that following the World Climate Conference-3, and in the context of developing a Global Framework for Climate Services (GFCS), the GPCs and other regional centres would be expected to play a major role in providing global climate predictions from seasonal to longer time-scales. It therefore urged the GPC CPTEC Brazil to be closely involved in the development of the GPC-RCC-NMHS-RCOF network for operational climate prediction and services around the world.

### ***Aeronautical Meteorology – Forecasting Services for Aviation***

**4.1.14** The Association noted the rapid development of many aviation-specific forecast and warning products within the United States NextGen air traffic management project, which necessarily affect aviation stakeholders in the entire Western Hemisphere, with both service users and providers having to assess carefully their need to prepare an interface to this challenging

project. Such products are accessible through the web, and, although they are mainly designed for use over the United States, they also provide guidance for the entire region. The Association welcomed the initiative of the Aeronautical Meteorology Programme (AeMP) in developing new Meteorological Services for the Terminal Area (MSTA), which the Executive Council, at its sixty-second session (June 2010), had emphasized as being of high importance for Members with air traffic linking to the United States. In addition, the Association expressed its appreciation for the on-the-job training provided to forecasters from RA III at the South American Desk of NCEP (United States), and encouraged maintaining and strengthening of this activity.

**4.1.15** The Association noted the severe disruption of aviation recently caused by the Icelandic Volcano Eyjafjallajökull, and further noted the intense volcanic activity in the Region, with recent strong eruptions of Chaiten (Chile) in 2008 and ongoing smaller eruptions of similar volcanoes. The Association welcomed the outcomes of the 5<sup>th</sup> International Workshop on Volcanic Ash, which was held in Santiago de Chile in March 2010, and appreciated the formation, under the auspices of WMO and ICAO, of a new Task Force and Scientific Advisory Group for Volcanic Ash. The Association requested the Secretary-General to be kept informed of these developments, and welcomed the initiative by Chile to support the VAAC Wellington in covering the area west of the South American continent which had hitherto been without coverage in the International Airways Volcanic Watch.

**4.1.16** The Association noted with appreciation that a WMO/ICAO workshop on weather impacts on aviation safety and SIGMET would be held in Guatemala in October 2010. This was an important activity for capacity development and increase of staff competence in this important field. The Association strongly encouraged Members to use the opportunity of this workshop to address the deficiencies noted by ICAO in the issuance in SIGMET as part of the efforts of the AeMP in establishing together with ICAO a pilot project for trial SIGMET advisories. This pilot project had been developed in other WMO Regions, and would likely be expanded to RA III, once those in RA I and RA V had demonstrated the value of such advisories. The roles of modelling, particularly building on regional initiatives, together with increased availability of specialized remote sensing products for volcanic ash, icing and convection were stressed by the Association.

### **Marine Meteorological Forecasting**

**4.1.17** Noting the difficulties in achieving reliable forecasts of sea state and extreme wave and storm surge events, the Association requested its Members to improve the collection and dissemination through the GTS of wave, sea level and ocean surface meteorological observations to support the assessment of marine-related hazards via numerical modelling and verification. Additionally, the Association was pleased to note the expansion of the wave forecast verification scheme to include validation against remote sensed data, including wave spectra and surface vector wind. This would further improve monitoring and forecasting capabilities of severe events from extreme sea state conditions in data sparse ocean areas where storms are generated and propagated. The Association encouraged its Members to disseminate their data in order to further develop the scheme and to make maximum use of the verification scheme applications for marine forecasting purposes.

**4.1.18** The Association noted that ocean analysis and forecasting had shown rapid progress with the availability of additional ocean observations, and encouraged Members to pursue the outcomes of the OceanObs'09 Conference (Venice, Italy, September 2009).

**4.1.19** The Association recognized that probabilistic forecast of ocean wave height provides early guidance of extreme events, and the combined use of deterministic and probabilistic wave forecast guidance would help the NMHSs in their risk assessment at an early stage in forecasting and improving marine-related decision-making processes. In this context, the Association was pleased to note that the ECMWF had made available EPS products, including probabilistic forecast of ocean wave height exceeding specific thresholds to WMO Members. The Association encouraged its Members to make maximum use of these products and urged the ECMWF to consider providing technical expertise for building capacity of these Members in the use of such products in the marine forecasting process, and to provide feedback. Additionally, it requested the

Secretary-General to ensure that capacity-building activities aimed at promoting and facilitating the access and use of such forecasts be continued and expanded to all Members in the Region.

**4.1.20** The Association noted that the JCOMM/CHy Coastal Inundation Forecast Demonstration Project (CIFDP) had been initiated for building improved operational forecasts and warnings capability for coastal inundation from combined extreme waves, surges and river flooding events. The CIFDP would be initially implemented in the Bay of Bengal and in the Caribbean regions. The Association reinforced the importance of an integrated effort for developing and improving forecasting capabilities and service delivery in coastal risk reduction by strengthening the cooperation among relevant programmes and technical commissions, and making use of existing frameworks or projects. The Association noted that the Executive Council, at its sixty-second session (June 2010), had requested to look for synergies between CIFDP and tsunami inundation mitigation projects that are being carried out.

**4.1.21** Additionally, in the context of cross-cutting capacities, the CIFDP aims at establishing collaboration and constant communication between scientists, forecasters, NMHSs and institutional end-users to meet users' requirements and enhance response to coastal inundation risks, in collaboration with UNESCO/IOC Integrated Coastal Area Management and other relevant bodies.

**4.1.22** The Association noted that met-ocean forecasting systems, as a central component of an end-to-end system for service delivery, including warning services, depended heavily on outputs of numerical ocean prediction (NOP) systems. These systems were being implemented in a number of GOOS Regional Alliances (GRAs), through pilot and demonstration projects. The Association strongly encouraged its Members to strengthen relationships with these bodies in the Region, in order to participate in and benefit from such activities, and also other ocean projects of the GRAs in the Region (e.g. IOCARIBE-GOOS; GRASP and OCEATLAN) of relevance to NMHSs.

**4.1.23** The Association recognized the value of the *Guide to Wave Analysis and Forecasting* (WMO-No. 702) which had been reviewed and the updated version that would be available in 2012, and other relevant technical guidance publications in ensuring the provision of high quality, accurate, consistent and timely operational forecast products. In the same context, the Association noted that the English version of the first edition of the JCOMM Guide to Storm Surge Forecasting had been prepared, and would be published and made available shortly.

### **Research and Development: transition from Research to Operations and Next Generation Systems for Weather Forecasting**

**4.1.24** The Association gratefully acknowledged CPTEC (Brazil) for its role as a data provider in the THORPEX Interactive Grand Global Ensemble (TIGGE) project of WWRP-THORPEX, which had over 730 users worldwide. The Association encouraged TIGGE researchers to focus on improving prediction for phenomena of interest to Region III, including the development of need for products directed to improving the accuracy and extending the range of forecasts of heavy rainfall and other hydrometeorological disasters.

**4.1.25** The Association noted the participation of experts from the Region in establishing a Southern Hemispheric THORPEX Regional Committee and acknowledged the efforts of the Committee to produce a science plan that highlights the forecast commonalities across the hemisphere and identifies the research and capacity-building underpinnings necessary for advancement. The Association urged this THORPEX Regional Committee to highlight a few priority areas for implementation and to work with the Members in RA III to implement these priorities recommendations.

**4.1.26** The Association strongly endorsed recommendations by CAS, at its fifteenth session (CAS-XV, November 2009), urging partnerships in development and implementation of a Research and Development Project (RDP) focusing on advancing the short- and medium-range prediction of heavy rainfall in the Plata River Basin region. The Association further noted that the inclusion of

GDPFS programme in these partnerships would allow this Regional Demonstration Project (RDP) to serve as a pilot project for a subsequent regional implementation in, for example, a Virtual Centre project, and thereby extend the benefits beyond the five nations in the La Plata Basin. The Association requested that the planning and execution of this RDP incorporate existing regional priorities, span the research and operational communities, and include already established regional centres, such as the Virtual Centre. The Association urged that this project be given a high priority in the Region's Strategic planning process to be presented to the sixteenth session of the World Meteorological Congress. The Association urged that this project serve as a focal point for WWRP within this Region, as WWRP efforts that are relevant to the development of this project include THORPEX's TIGGE and TIGGE LAM projects, the mesoscale, nowcasting, verification, tropical and societal and application research efforts within WWRP, and the outcomes of the Year of Tropical Convection, which is jointly sponsored by WCRP and WWRP-THORPEX.

**4.1.27** With over 80 participants from RA III, the Association noted the success of the Intensive Course on Data Assimilation held in Buenos Aires, from 27 October to 7 November 2008, in conjunction with the WWRP/THORPEX Workshop on 4D-VAR and Ensemble Kalman Filter Inter-Comparisons. Such courses are an excellent venue to bring state-of-the-art research concepts to operational staff at NMHSs. The Association therefore gratefully acknowledged the University of Buenos Aires (UBA) and the Research Centre for the Sea and the Atmosphere (CIMA) for hosting this meeting, the role of the Argentine National Weather Service and the Argentine government and the various sponsors, organizers, and lecturers. The Association noted the wide-spread participation of the NMHSs of the Region, as well as the academic community, and urged that this model of bringing research knowledge to operational staff be repeated for key issues in the future including ensemble prediction and TIGGE.

**4.1.28** The Association acknowledged scientists from NMHSs, research institutes and universities that are members of various working groups, Committees, Expert Teams and Panels of WWRP, WGNE and WWRP Working Groups. The Association welcomed the decision of CAS-XV to have a broader regional and gender representation in these expert bodies and encouraged the continued and expanded role of RA III in these efforts.

## **4.2 ENHANCED CAPABILITIES OF MEMBERS TO PROVIDE BETTER CLIMATE PREDICTIONS AND ASSESSMENTS (*agenda item 4.2*)**

### **Introduction**

**4.2.1** The Association recognized that WMO climate activities included observations, research, and specialized knowledge of the treatment and use of climate information (analysis, predictions, products and services, etc.) and the enhancement of the capacity of the Members, as well as close partnerships with many organizations. It therefore noted that, in addition to the Expected Result 2, certain aspects of WMO climate activities may also be reflected in the documents related to Expected Results 4, 5, 6, 7, 8 and 9.

**4.2.2** The Association recognized the need to systematically assess the basic capability of NMHSs in the Region for making observations to monitor climate change and climate variability and for providing long-range forecasts and future projections. The Association agreed that the needs of Members who have not fully developed these capabilities will have to be addressed as an important part of WMO's ER 2 relevant activities in the Region.

### **Coordination and Guidance for Expected Result 2**

**4.2.3** Noting climate activities that fall under ER 2 are guided by a number of WMO and co-sponsored constituent bodies, the Association urged enhanced interaction and coordination between these bodies, including at regional and national levels.

**4.2.4** The Association noted the outcomes of the fifteenth session of CCI at Antalya, Turkey (19–24 February 2010), and the Technical Conference on "Changing Climate and Demands for Climate Services for Sustainable Development" organized immediately prior to the CCI session.

## **World Climate Conference-3 (WCC-3) and its outcome: Global Framework for Climate Services**

**4.2.5** The Association appreciated the successful organization of the World Climate Conference-3 (WCC-3) (Geneva, Switzerland, 31 August–4 September 2009). The Association thanked Members in the Region for their strong support to this important event. The Association appreciated that a number of experts from the Region contributed to the WCC-3 International Organizing Committee (WIOC) and also to the scientific programme of the conference and the development of the Global Framework for Climate Services (GFCS).

**4.2.6** The Association noted the establishment of the High-level Taskforce on GFCS (HLT-GFCS), its Terms of Reference and its ongoing work. The Association noted with satisfaction that the HLT-GFCS included two members from RA III, namely Prof. Eugenia Kalnay (Argentina/United States) and Honourable Mr Ricardo Froilán Lagos Escobar (Chile).

## **Climate Monitoring and Assessment**

**4.2.7** The Association noted with appreciation the continuous contribution of RA III Members to the WMO statements on the status of the global climate system as well as in the WMO climate review publications. It thanked the National Meteorological Service of Argentina for seconding an expert to WMO to assist in the coordination of the statements of 2008 and 2009. The Association urged all Members to contribute by providing relevant climate information based on their monitoring activities to enhance the coverage of WMO annual statements on the status of the global climate system, particularly with respect to extremes.

**4.2.8** The Association noted with satisfaction the organization of the first WMO regional workshop on climate monitoring including the implementation of climate watch systems in RA III, Guayaquil, 8–11 December 2008. It invited Members to support the implementation of climate watch system in the Region and adopted [Resolution 1 \(XV-RA III\) – Implementation of a Climate Watch System](#).

## **Climate Modelling and Prediction Research**

**4.2.9** The Association noted with significant interest the start of the WCRP CMIP5 climate model intercomparison and that the experiment includes both centennial model runs and pilot decadal predictions. It also took note of a possible availability of the downscaled climate products for the Region in the result of implementation of the WCRP Coordinated Regional climate Downscaling Experiment (CORDEX) project. It encouraged its Members to make use of the archived global and regional climate predictions and projections in assessing the impacts of climate variability and change on their regions and areas of activity.

**4.2.10** The Association noted with interest that Year of Tropical Convection (YOTC), a joint WCRP – World Weather Research Programme (WWRP)/THORPEX initiative commenced on 1 August 2008 and encouraged the scientists working in the Region to participate the associated activities.

**4.2.11** The Association recognized the significant contribution of the WCRP Stratospheric Processes and their Role in Climate (SPARC) Project to the series of the WMO/UNEP Scientific Assessments of Ozone Depletion. Taking into account that the predictions of the Stratospheric Ozone Depletion are very important for the Region, the Association noted the results of the SPARC Chemistry-Climate Model Validation Activity, which produced a series of numerical predictions suggesting the recovery of the stratospheric ozone layer in the twenty-first century.

**4.2.12** The Association noted with appreciation that WCRP CLIVAR is sponsoring an International Workshop on ENSO, Decadal Variability and Climate Change in South America (12–14 October 2010, Guayaquil, Ecuador), which will review the latest scientific advances on ENSO, decadal variability and climate change in South America and discuss on the potential climate impacts for the next 10–15 years and their social and economical implications in South America.



**4.2.13** The Association noted the efforts that the Scientific Modelling Centre of the University of Zulia has been making to provide the countries of the western coast of South America with CAM model forecasts for rescaling with mesoscale models and generation seasonal climate projections. In the same manner, the Association recognizes the support that this centre provides to the Meteorological Services in the Region for the implementation and execution of the climate models, and the interest in maintaining an operational web portal for the publication of the seasonal forecasts of the western coast of South America at <http://www.cmc.org.ve/one2/one2.php>.

### **Climate Information and Prediction Services**

**4.2.14** The Association noted with satisfaction the sustained operation of the Western Coast of South America Climate Outlook Forum (WCSACOF) coordinated by Centro Internacional para la Investigación del Fenómeno El Niño (CIIFEN) and the Southeast of South America Climate Outlook Forum (SSACOF) coordinated by each of the participant countries (Argentina, Brazil, Paraguay and Uruguay) by rotation. The Association urged all the concerned Members to sustain these efforts and expand the Regional Climate Outlook Forum (RCOF) process to include cooperative assessments of climate change for the Region. The Association noted the importance of National Climate Outlook Forums (NCOFs) as a logical extension of the RCOF process to address the national needs, and appreciated the efforts of Brazil in successfully organizing the Northeast Brazil Climate Outlook Forum (NEBCOF). The Association urged Members to undertake NCOF development.

**4.2.15** Noting with appreciation the new initiative to extend the CLIPS project to Polar Regions through a WMO WCRP IPY Workshop on CLIPS in Polar Regions, and the agreement to work towards establishment of a Polar Climate Outlook Forum (PCOF), the Association urged all Members with polar interests to actively contribute to the relevant efforts to identify the priority user requirements and the existing capabilities in the Polar Regions for climate information. The Association noted that PCOF could contribute to the proposed Polar Prediction System being developed under the leadership of Executive Council Panel of Experts on Polar Observations, Research and Services (EC-PORS).

**4.2.16** The Association appreciated Members for their contributions to the consensus-based updates of El Niño and La Niña regularly issued by WMO. The Association noted that the CCI-XV has undertaken to develop this concept in the form of a Global Seasonal Climate Update (GSCU), and that EC-LXII encouraged CCI to work with CBS to explore the possibility of such a product. The Association noted that CCI/CBS expert meeting from 12 to 14 October 2010 is being organized at Geneva, Switzerland to scope the GSCU concept and develop the implementation plan for a pilot phase.

**4.2.17** The Association urged all Members in the Region to optimally utilize the products of the network of Global Producing Centres for Long-range Forecasts (GPCs) and the associated Lead Centres, and urged the CCI and CBS to promote and guide the uptake of GPC products within RCC, RCOF and NMHS activities for operational climate prediction.

### **Regional Climate Centres (RCCs)**

**4.2.18** The Association noted the recent progress in the development and the definitions of designation criteria of Regional Climate Centres (RCCs), which culminated as amendments to the *Manual on the Global Data-processing and Forecasting System (GDPFS)*, Volume 1 (Global Aspects), approved by EC-LXI. The Association noted the WMO publication on *How to establish and run a WMO Regional Climate Centre (RCC)* (WCASP No. 80; WMO/TD-No. 1534) which has been made available in Spanish language also.

**4.2.19** The Association reaffirmed its intent to establish RCCs to serve the climate information needs of RA III Members. The Association noted that considerable attention needs to be given to the matter of assessing the needs and capabilities in the Region for climate services, and urged the president of RA III to undertake such an assessment and develop an implementation plan for the establishment of RCCs in the Region. The Association noted that: (i) RCCs can be structured

in one of two ways: as single (multifunctional) centre(s) or as RCC-Network with distributed functions (nodes); and (ii) that it is strongly advised not to mix the two types within the same Region. In this context, the Association recognized the need for all Members of the Region to be served by the full set of mandatory functions of at least one RCC. The Association further noted that more than one single (multifunctional) centre might be established in the Region, each of which might serve the entire Region or a well-defined subregion.

**4.2.20** The Association welcomed the initiatives undertaken by CIIFEN for its designation as WMO Regional Climate Centre (RCC) for the subregion of Western South America, and encouraged Members to support CIIFEN's efforts. The Association also welcomed the offers of Brazil, in collaboration with French Guiana, and Argentina, in collaboration with Brazil, to establish RCCs to serve the subregions of Northern and Southern South America, respectively. It approved the candidature of these RCCs in principle and requested the candidate Centres to submit formal proposals of Pilot Projects through the president of the RA. The Association urged the candidate RCCs to work closely with other research institutions and centres. The Association adopted [Resolution 2 \(XV-RA III\) – Establishment of Regional Climate Centres](#).

**4.2.21** The Association urged all GPCs, particularly the Centro de Previsão de Tempo e Estudos Climáticos (CPTEC) of Brazil which is the only designated GPC in RA III, to reinforce and sustain their contributions to the development of RCCs and also the RCOF operations.

### **Capacity-Building for Improved Climate Prediction and Assessments**

**4.2.22** The Association noted with appreciation that several Members and international organizations had actively contributed to CLIPS related training activities in the Region. Notwithstanding these efforts, Members recognized the special and ongoing technical training needs of developing countries in the Region for provision of a full range of climate predictions and assessments.

**4.2.23** The Association agreed that the current components of the CLIPS Curriculum needed to be further developed into a set of complete, self-contained modules that could be integrated into regular training activities, and urged Members and the concerned bodies of RA III to formulate a coordinated strategy to meet this need.

**4.2.24** The Association appreciated the CCI initiatives to develop a comprehensive strategy on capacity-building for climate services including climate data management, interpretation of seasonal forecast, generation of climate information and products and service provision. It noted that the components of the strategy would comprise the issues of institutional mandates, climate infrastructure evolution, human resource development, qualification and certification of climatologists. The Association urged Members to provide relevant inputs to CCI to adequately address RA III needs in finalizing the strategy and the associated action plan.

### **Climate Risk Management and Adaptation**

**4.2.25** The Association appreciated the partnerships pursued by WMO with the various UN agencies and organizations representing climate-sensitive sectors, for developing sector specific information and products. The Association requested that the Secretary-General and Members further promote and sustain these partnerships, particularly at the regional and national levels.

**4.2.26** The Association was informed of the completion of the draft of "Heat Waves and Health: Guidance on Warning System Development", and that it is proposed to co-publish this Guidance document with WHO. The Association noted the need of RA III Members for information that would facilitate management of risks due to dangerous heat waves, and requested the Secretary-General to facilitate broad distribution to Members of the results of these efforts. The Association was further informed that an intercomparison of models for heat-health warning systems (HHWS) is being conducted with the assistance of the Shanghai Meteorological Bureau, as part WMO's commitment to support a demonstration of Multi-hazard Early Warning Systems during the World EXPO 2010 (Shanghai, China, May to October 2010).

**4.2.27** The Association noted with satisfaction that CCI-XV had considered the vast potential for climate services in support to climate risk management and adaptation, and that in light of the upcoming GFCS, the CCI had decided to develop sector-specific climate indices, methods and tools and guidance to support climate applications in the key socio-economic sectors. Members of RA III encouraged the CCI to place initial priority on products and services, guidance and best practices for the agriculture and water sectors, given the potential and momentum enabled through AgMP and HWRP and their technical commissions CAgM and CHy. In this respect, the Association noted the holding of an International Workshop in addressing the Livelihood crisis of Farmers: Weather Climate Services (Belo Horizonte, Brazil, 12–14 July 2010), and encouraged the Commission for Agrometeorology to jointly consider the recommendations coming out of the workshop, while implementing its activities, particularly in Region III. With respect to development of products and services for other key socio-economic sectors, the Association recognized the importance of continued development of interdisciplinary and interagency efforts under the user-interface component of the GFCS.

**4.2.28** The Association noted the great concern the governments in the Region had on climate change and related environmental issues, and the need for NMHSs to be able to provide relevant advice in these matters to their governments and policy-makers. In this regard, the Association was pleased to note that an Inter-regional Workshop on Policy Aspects of Climate Change had been held in Petaling Jaya, Malaysia (19–21 April 2010), and urged the Secretary-General to disseminate widely the guidance and recommendations from this session. The Association agreed that NMHSs needed to be closely involved in the development of future climate scenarios in a regional context, and to focus on near-term projections.

**4.2.29** The Association noted with appreciation the recent initiatives to develop a Hydrological Outlook Forum based on RCOF principles and in conjunction with WCSACOF. The Association welcomed the active contribution of CHy in this regard and the related workshop in Guayaquil in January 2010, and urged Members to strongly support further development of this initiative as an important mechanism for climate risk management.

### **Guide to Climatological Practices**

**4.2.30** The Association noted with appreciation that CCI had finalized the third edition of the *Guide to Climatological Practices* (WMO-No. 100) and is currently being edited for publication. The Association also noted that a group of selected CCI experts would continue monitoring the content of the publication for regular updates in the fifteenth intersessional period. The Association further noted with satisfaction that EC-LXII approved the publication of the Third Edition of the Guide to Climatological Practices in all WMO languages. However, it encouraged Members to provide voluntary support to the Secretariat for expeditious translation of the Guide.

### **4.3 ENHANCED CAPABILITIES OF MEMBERS TO PROVIDE BETTER HYDROLOGICAL FORECASTS AND ASSESSMENTS (agenda item 4.3)**

**4.3.1** The Association noted that, in general, the needs of Members in the Region were adequately addressed in the activities of the Hydrology and Water Resources Programme given in the WMO Strategic Plan as approved by Fifteenth Congress and in the Secretariat Operating Plan.

**4.3.2** The Association noted with appreciation the report of the current chair of the Working Group on Hydrology and Water Resources (WGHWR), Ms Dora Goniadzki (Argentina). It noted the activities that had been undertaken during the period which had been identified at the previous RA III session in 2006 and the challenges related to hydrological issues in the Region. In particular, it noted with interest the progress on the interaction between RA III-WGHWR and the Commission for Hydrology (CHy); and progress in the implementation of the activities included in the terms of reference of the WGHWR as defined by XIV-RA III. The Association took note that the Chair of the WGHWR resigned in July 2009 and that until this moment he had fulfilled his assignments, including his participation in EC, the preparation of annual reports and the preparation of a comprehensive document on the regional needs to be addressed by the

Commission for Hydrology. In this context he participated in February 2008 in the CHy AWG session immediately before the session of the Commission.

**4.3.3** The Association was pleased to learn that during the meeting of the RA III-WGHWR that took place in Santiago de Chile, Chile; from 22 to 25 March 2010, reports were presented on the following topics as decided by the previous session of the Association:

- (a) Subgroup on Basic Information for Integrated Water Resources Management (coordinated by Ms Dora Goniadzki (Argentina)) which included the following work:
  - Water resource assessment (Ms Claudia Contreras (Colombia));
  - Integrated Flood Management (Ms Silvana Alcoz (Uruguay));
  - Hydrological Impacts of climate variability and change (Ms Olga Umpiérrez (Bolivarian Republic of Venezuela));
  - Institutions and legal framework on water resources management (Mr Luis Noriega (Plurinational State of Bolivia));
  - Hydrological Networks (Mr Héctor Vera (Peru));
  - Participation of NMHSs in the IWRM activities (Mr Aníbal Vaca (Ecuador));
- (b) Subgroup on Promotion and Public Information (coordinated by Brahim Nazarala (Chile));
- (c) Subgroup on HOMS and training (coordinated by Javier Narbona (Chile)).

**4.3.4** The Association also noted the major challenges facing NHSs in the Region, including the training needs identified by the working group in the following order of priorities:

- (a) Streamflow gauging and hydrometric stations, including modern techniques of measurement;
- (b) Instruments and methods for hydrological observation, highlighting remote sensing in Hydrology;
- (c) Operational hydrologic prediction techniques.

**4.3.5** The Association noted the recommendations of the working group for the future regional work in the field of hydrology and water resources.

**4.3.6** The Association also noted that Cg-XV had recognized that the regional Working Groups for Hydrology formed one of the strong mechanisms to project the specific needs of the Regions and that this was echoed by EC-LXI. It also noted that at its last meeting of the RA III WGHWR in March 2010, the participants stressed the need felt by all NHSs in the Region for having a forum for networking, discussing and coordinating their activities as an integral part of RA III activities.

**4.3.7** Recognizing the need to streamline the structure of the working groups in accordance with the Results-based Management (RBM) principles, the Association felt that any change in structure must ensure that the hydrological inputs from NHSs to water management are maintained. The Association took note of the proposal emanating from the WGHWR regarding the reformulation of deliverables in the field of hydrology and water resources.

**4.3.8** The Association was informed about the outcome of the thirteenth session of the Commission for Hydrology (CHy). It took note that the Commission had re-established an Advisory Working Group (AWG) composed of nine members and had identified four Open Panels of CHy Experts (OPACHEs) on four thematic work areas: Basic Systems, Water Resources Assessment, Hydrological Forecasting and Predictions, and Water, Climate and Risk Management. The Association was pleased to note that Mr Bruce Stewart (Australia) was elected as president of CHy and that Mr Antonio Cardoso Neto (Brazil) was appointed AWG member responsible for WIGOS

and WIS. The session encouraged Members to nominate experts to the OPACHes set up for each thematic area, and to contribute actively to the work programme.

**4.3.9** The Association welcomed the launching of the Help Desk for Integrated Flood Management on 17 June 2009 during the Global Platform for Disaster Risk Reduction and noted the broad based support to the initiative provided by several key partners.

**4.3.10** The Association commended the number of manuals and guidelines which have been published or are under development in the framework of the Hydrology and Water Resources Programme and their usefulness in support of day-to-day activities of NHSs. It encouraged the Secretariat to translate these publications into Spanish to ensure wide use and benefits.

**4.3.11** The Association noted the progress on the Seasonal Hydrological Prediction based on the Climate Outlooks, particularly the organization of a workshop held in Guayaquil, Ecuador, in January 2010, on the “Integration of Seasonal Forecasts and Hydrological Information for Water-related sectors in the Western Coast of South America” in collaboration with CIIFEN.

**4.3.12** The Association expressed its appreciation to the Government of Spain for the support provided to training activities in Integrated Flood Management and in Operation of Automatic Hydrometric and Meteorological Stations. The session also recognized the support of Spain to the activities of the Ibero-American Network for the monitoring and forecasting of hydrometeorological phenomena (PROHIMET), including workshops and two demonstration projects, one in Colombia and one in Uruguay as part of the Flood Forecasting Initiative (FFI).

#### **4.4 INTEGRATION OF WMO OBSERVING SYSTEMS** (*agenda item 4.4*)

**4.4.1** The Council discussed and agreed with the proposed actions on observing systems improvements to support WMO Members’ activities in weather, climate and water, and their enhanced integration towards a WMO Integrated Global Observing System (WIGOS).

#### **Atmospheric Observations**

##### ***Regional Basic Synoptic Network (RBSN) and Regional Basic Climatological Network (RBCN)***

**4.4.2** The Association noted that owing to Members’ efforts, the RBSN has demonstrated slightly improved performance. It appreciated the work done by the Working Group on Planning and Implementation of the WWW in Region III (RA III WG-PIW) to identify and address deficiencies in the observing programmes. However, the Association recognized that the sustainability of basic networks in RA III and the low availability of data from those networks remain an area of concern. Great efforts by Members should be made to further improve the data sustainability and availability performance to a satisfactory level to meet service requirements.

**4.4.3** The Association noted with satisfaction that the RBCN in the Region continued to assure effective and consistent monitoring of the availability of climatological data. This progress is in part due to the GCOS Technical Support Projects, the CBS Lead Centres for GCOS, the WWW and GCOS Network Monitoring activities, and the GCOS system improvement programme. It stressed that in order to increase the availability of CLIMAT messages, further efforts by Members should be made to ensure that their operational observing stations compile and transmit the climate-related messages according to existing WMO Regulations.

**4.4.4** The Association agreed to the revisions of the RBSN and RBCN compiled by the WMO Secretariat in consultation with the Rapporteur on the Regional Aspects of the GOS and circulated among RA III Members. By adopting [Resolution 3 \(XV-RA III\) – Regional Basic Synoptic Network and Regional Basic Climatological Network in Region III](#), the Association approved the new list of RBSN and RBCN stations in Region III as given in Annexes I and II to this resolution.

**4.4.5** The Association noted problems exist in the mechanism of updating the designated National Focal Points (NFP) on both the RBSN/RBCN (GSN and GUAN) and *Weather Reporting Publication*, No. 9, Volume A (Observing Stations). It recalled the concept of establishing the lists of NFPs for the relevant observational programmes in the Region and urged Members to ensure an update of their designated NFPs in a timely and regular manner. The Association also requested Members, through their NFP, to ensure that Volume A correctly describes national observing stations.

#### ***Aircraft observations***

**4.4.6** The Association welcomed the discussion by the twelfth AMDAR Panel meeting (Toulouse, France, November 2009) regarding the further promotion of AMDAR in the Region. It supported the proposal that national and regional AMDAR Programmes consider additional coverage of AMDAR outside their national territories to be provided to the GTS as a contribution to the WWW Programme. The Association noted the recent developments of the WVSS-II water vapour sensor currently under test in the United States and Europe and that the United States AMDAR Programme will provide a draft report on the evaluation testing being performed on the WVSS-IIv3 water vapour sensor to the AMDAR community to allow for a decision on its worldwide implementation.

**4.4.7** The Association also noted that a Regional AMDAR Technical Workshop covering areas of RA III and RA IV will be hosted by the Mexican Meteorological Service aimed at promoting AMDAR in these Regions. The Association encouraged operational AMDAR Programmes and those Members that are considering establishing their own operational AMDAR Programme in the Region and those operational AMDAR Programmes that could provide support to the Region by extending their national AMDAR coverage to include additional areas in the RA III.

#### **Atmospheric Chemical Composition and UV Measurements**

**4.4.8** The Association noted that a global precipitation assessment had been undertaken by GAW and that there were very few data available from South America. The Association encouraged Members to take up these measurements in order to provide global coverage.

**4.4.9** The importance of ozone and UV measurements was recognized by the Association and continuing these measurements was encouraged. The measurements from South America are very important for use in the WMO/UNEP Scientific Assessment of Ozone Depletion, for satellite validation and in the annual WMO Antarctic Ozone Bulletins.

**4.4.10** The Association appreciated the efforts by Argentina in hosting the Regional Dobson Calibration Centre and in organizing Dobson and UV broadband intercomparisons in 2006 and in 2010. The Association expressed its thankfulness to the United States Government for support to the Regional Dobson Calibration Centre and to the Canadian Government for support to calibration of Brewer spectrophotometers.

**4.4.11** Regarding reactive gases, the Association appreciated the organization of the surface ozone instrument intercomparison in 2006 and the one planned for 2010. The association recommended that surface ozone measurements be enhanced in the Region and be accompanied by measurements of other reactive gases (CO, nitrogen oxides and VOCs), which are important for assessment of the regional air quality.

**4.4.12** The Association appreciated the efforts of South American countries to extend the greenhouse gas and aerosol measurements in the Region, especially in connection with GFCS. These observations are essential for validation of satellite products and substantial efforts are needed to establish proper greenhouse gas observations, especially in the context of climate change. Efforts by Brazil to establish greenhouse gas observations are very much appreciated due to the importance of the Amazonian region in the global greenhouse gas budget.

## **Marine and Oceanographic Observations**

**4.4.13** The association recalled that in situ ocean observing systems are demonstrating the utility of ocean data for climate forecasting and operational meteorology. They also contribute to the prediction of hurricanes, especially those providing upper ocean thermal profiles, sea surface temperature, and sea level pressure.

**4.4.14** The Association is contributing to the global effort through contributions by its Members in the following networks: (i) the Argo profiling float programme (sustained at a level of 3000 global units); (ii) the Tropical Moored buoy array in the Equatorial Pacific Ocean (TAO, 67 buoys) and the Equatorial Atlantic Ocean (PIRATA, 18 buoys); (iii) the global surface drifter network (1250 global units, half of them with barometers), including those deployed as part of the International South Atlantic Buoy Programme (ISABP); and (iv) the Ship of Opportunity Programme (4 sampling lines in the equatorial Atlantic ocean). The Association noted with appreciation that two Members of the Association are participating in the Voluntary Observing Ships (VOS) with more than 200 recruited vessels, and encouraged these Members to take necessary steps to ensure the observations from those vessels are being received on the GTS.

**4.4.15** The Association noted the recommendations from the third Session of JCOMM (JCOMM-III, Marrakech, Morocco, 4–11 November 2009), including priority activities for this JCOMM intersessional period, and agreed to directly contribute to those in the following way:

- (a) Members to work closely with the Data Buoy Cooperation Panel (DBCP), and Argo, and to commit resources to permit sustainability of the drifter, and Argo profiling float arrays including addition of barometers on all newly deployed drifters, and the provision of ship-based and air-based opportunities for the deployment of drifters and floats in data sparse areas;
- (b) Members to consider offering WMO-IOC Regional Marine Instrument Centres (RMICs – Recommendation 1, JCOMM-III) facilities for the RA III in order to assist Members in developing their ocean observing system capabilities according to WMO standards as a contribution to the development of WIGOS;
- (c) Members to contribute to the evaluation of wave observations from moored buoys by participating in the DBCP Pilot Project for Wave Evaluation and Test from Moored Buoys (PP-WET);
- (d) Members to participate in the DBCP Iridium and Argos-3 Pilot Projects by purchasing and/or deploying drifters equipped with the Iridium or Argos-3 technology;
- (e) Members to consider hosting capacity-building workshops modelled on the Partnership for New GEOSS Applications (PANGEA) concept, and to contribute to the partnership by assisting with regard to the implementation of the global ocean observing system in areas of interest to RA III;
- (f) Members providing regional support to the JCOMMOPS function through regularly providing to JCOMMOPS information on the operational status of ocean observation platforms operated by Members of the regional association.

## **Polar and Cryosphere Observations**

### ***Polar Observations***

**4.4.16** The Association urged Members to provide EC-PORS information on deficiencies in the implementation and operation of polar networks (terrestrial, atmosphere, cryosphere and oceans) and to define possible measures to close gaps by identifying priorities.

### ***Global Cryosphere Watch***

**4.4.17** The Association urged interested Members to provide EC-PORS a contact for Global Cryosphere Watch (GCW) activities in the Region, and in Antarctica, and to review and provide EC-PORS with information on how GCW could assist, including recommendations for establishment of cryospheric reference sites and development of a regional GCW project for the Andes.

### **Cross-cutting Aspects**

#### ***Space-based observation***

**4.4.18** The Association welcomed the relocation of GOES-12 at 60°W by the United States to provide full geostationary coverage of South America as a complement to the nominal operation of GOES-East (75°W) and GOES-West (135°W) by the United States, and Meteosat (0°) by EUMETSAT. The Association looked forward to benefiting from the enhanced capabilities of new generation of GOES satellites and noted that steps are required by the user community to prepare for its use. It urged its Working Group on Planning and Implementation of the World Weather Watch to work with NOAA and the WMO Space Programme Office to support user preparedness in Region III. The Association also appreciated the Low-Earth orbit coverage provided by the United States with NOAA-19, EUMETSAT with METOP-A, and China with FY-3A, and complemented by secondary or back-up satellites.

**4.4.19** The Association welcomed the work initiated by the RA III/RA IV Satellite Data Requirements Task Team endorsed by EC-LXI in July 2009, and the subsequent workshop held in Brazil on 1–3 February 2010, with the support of Instituto Nacional de Pesquisas Espaciais (INPE), NOAA, EUMETSAT and the WMO Space Programme. This initiative enabled the review of requirements for access to satellite data products by WMO Members in South and Central America and the Caribbean, to suggest actions to improve data access taking into account the existing and planned data dissemination means including direct broadcast from GOES satellites (LRIT and GVAR); DVB-S retransmission (GEONETCAST-America, EUMETCAST America, NOAAPORT); and other services such as ISCS, EMWIN, RANET and Internet access to FTP servers. In July 2010, an initial effort of revisions, monitored by NOAA, EUMETSAT and INPE-CPTEC, resulted in an updated version of the RA III/RA IV Satellite Data Requirements Table. This initially revised Table has been placed at the Web page, to be downloaded and further revised by any of RA III Members or the RA III/RA IV Satellite Data Requirements Task Team Members. INPE-CPTEC shall be responsible to organize and compile the different feedbacks onto a final-draft version that shall be submitted back to WMO Members prior to be submitted to the CBS, for final considerations. The Association supported the view that the Satellite Data Requirements Task Team should be maintained in order to monitor the evolving data needs and to update the requirements on a two-year basis. It encouraged the Task Team, in coordination with NOAA, EUMETSAT, INPE and the WMO Space Programme to prepare recommendations on future dissemination solutions in order to provide a sustainable response to regional needs in the longer term.

#### ***Instrument Standards and Best Practices***

**4.4.20** The Association noted that the EC had adopted revised Terms of Reference (ToRs) for Regional Instrument Centres (RICs) and Regional Radiation Centres (RRCs) and that the WMO Congress and EC had requested regional associations to further strengthen RICs/RRCs and to initiate the process of continuous evaluation of RICs and RRCs under their responsibility to verify their capabilities and performance. It further noted that an evaluation scheme had been developed for RICs and that EC-LXII had recommended its use. The Association requested its Members who operated RICs to declare their level of capability under the new ToRs and those who operated RICs and RRCs to carry out periodic evaluations, in liaison with CIMO if appropriate, and to report their outcomes to the next session of the Association and to the Secretariat. The Association also recommended its RICs and RRCs advertise their capabilities on their website to improve support to the Region.



**4.4.21** Noting that the revised ToRs of RICs and RRCs had been published in the CIMO Guide, the Association concurred with their removal from the *Manual on the Global Observing System* (WMO-No. 544), Part II, Regional Aspects and to refer to the CIMO Guide. The Association highlighted the importance of carrying out instrument intercomparisons, as they provide comparable information on the performance of instrument types, improving the calibration of instruments and fostering the development of instruments. The Association therefore encouraged Members to support, organize and participate in future instrument intercomparisons. The Association noted that some RRCs in the Region have planned to take part in the eleventh International Pyrheliometer Comparisons to be held in Davos, Switzerland from 27 September to 15 October 2010.

### ***Radio-Frequency Coordination***

**4.4.22** Recalling the continuing threat to radio frequency bands allocated to meteorological systems and environmental satellites, the Association urged all Members to ensure continuous coordination with their national radio communication administrations and to participate actively in the national, regional and international activities involving radio communication regulatory issues for meteorological and related activities, using as a reference the new joint ITU-WMO Handbook *Use of Radio Spectrum for Meteorology: Weather, Water and Climate Monitoring and Prediction*. The Association stressed the importance of continued coordination of the WMO activities at the regional and international level for the defence of the radio frequency bands essential for the implementation of the WMO Programmes and meteorological activities.

**4.4.23** The Association noted that three RA III Members attended a joint WMO/ITU Seminar on the Use of Radio Spectrum for Meteorology (Geneva, WMO Headquarters, from 16–18 September 2009), which constituted an excellent open forum for the exchange of views and information between representatives of meteorological and radio communication communities. Discussions focused on the use of radio spectrum, space orbits and radio-based meteorological tools and systems for weather monitoring, mitigation and adaptation to climate change.

**4.4.24** The Association also expressed its concern at the emerging threats to 1.675 to 1.710 GHz bands allocated on a co-primary basis for Meteorological Aids Services and the Meteorological Satellite Service (space to earth). This band is used, for example, for the Direct Broadcast Services from satellites world-wide. It noted with appreciation that the Secretary-General is addressing this issue with urgency. The Association requested the Secretary-General to ensure the continuous coordination on this issue and to support all the activities on radio-frequency coordination as a matter of priority.

### ***Evolution of the GOS***

**4.4.25** The Association recognized a need to identify gaps in the current global observing system and to guide Members in the evolution of the observing systems. It welcomed that CBS, through the Rolling Review of Requirements process, regularly review Statements of Guidance (SoGs) for 11 application areas.

**4.4.26** The Association noted that steps have been taken towards a new Implementation Plan for Evolution of global observing systems, as a response to the new Vision for the GOS in 2025 and WIGOS, and requested RA III Members to cooperate with CBS in its preparation.

### ***Observing System Experiments (OSEs)***

**4.4.27** The Association noted that actions have been initiated to prepare for the 5<sup>th</sup> WMO Workshop on “The impact of various observing systems on numerical weather prediction” due in 2012. The Association also noted that the Sixth Session of the CBS OPAG on Integrated Observing Systems’ Implementation and Coordination Team (ICT-IOS-6, 28 June to 2 July 2010, Geneva) welcomed the participation of THORPEX in the Workshop organizing committee and encouraged the committee to look at the impact of observations beyond 10 days up to monthly and seasonal scales.

## **Coordination of Observations for Climate**

### ***Global Climate Observing System***

**4.4.28** The Association noted the release of the 2010 update of the *Implementation Plan for the Global Observing System for Climate in Support of the UNFCCC* (IP-10) in August 2010 and of its submission to the UNFCCC for consideration by Parties at COP-16 in Cancun, Mexico. It urged its Members to take note of the Key Needs identified in the Plan and to take steps, where they are identified as agents of implementation, to implement the Actions in the Plan.

**4.4.29** The Association reminded its Members of the Regional Action Plan for South America that was developed by them in 2004 with the assistance of the GCOS Secretariat. It urged its Members collectively to review the status of the plan and to seek ways to implement the projects in it. It also requested Members to designate GCOS National Coordinators and to establish appropriate national coordination mechanisms.

**4.4.30** The Association noted with appreciation the activities undertaken in the GCOS System Improvement Programme in the Region, in particular the Technical Support Project for the Americas, and to Chile for serving as the CBS Lead Centre for GCOS Data in the Region. These activities have led to improved performance of RBCN, GSN, and GUAN stations through station renovation, training of operators, and improved data management and dissemination.

**4.4.31** Noting that none of the fifteen initial candidate GCOS Reference Upper-Air Network (GRUAN) sites is located in South America, the Association encouraged its Members to identify potential sites and the necessary support so as to meet GRUAN network requirements, instrumentation, data management and dissemination practices, international coordination, and scientific expertise.

**4.4.32** The Association noted with appreciation the Global Terrestrial Observing System (GTOS) report entitled *Assessment of the Status of the Development of Standards for Essential Climate Variables in the Terrestrial Domain and Development of a Framework for Climate-Related Terrestrial Observations: Update on Progress*, which was endorsed by the fifteenth Conference of the Parties (COP-15) to UNFCCC in December 2009.

### ***Climate Observations – CCI and WCP***

**4.4.33** The Association recognized that one of recurring challenges for climate data is the changes that occur in observing networks, either planned or forced. It further stressed that Members ought to continuously adopt effective management of these changes as an essential element of Member's strategy for the national observing networks and to meet the new and evolving requirements of high quality climate data which are emerging as a response to the demand for improved climate services.

**4.4.34** The Association welcomed the steps taken by WMO and CCI to publish useful guidelines for managing changes in climate observation programmes (WCDMP-No. 62 / WMO-TD No. 1378). It urged Members to take benefit from this publication as a good reference for an effective management of the changes that affect climate observing networks.

**4.4.35** The Association, noting Resolution 8 (CCI-XV), welcomed the inclusion of several deliverables related to climate observations. The Association urged Members to support CCI to improve climate data and related collection, management and, quality control and assurance.

## **WMO Integrated Global Observing System (WIGOS)**

### ***Status of Implementation of the WIGOS concept***

**4.4.36** The Association took into account the strategy towards enhanced integration between the WMO observing systems adopted by Cg-XV and considered the status of the

WIGOS development and implementation with respect to the Association current and future mandates.

**4.4.37** In this regard, the Association noted with appreciation the updated version of the WIGOS Concept of Operations (CONOPS) and the WIGOS Development and Implementation Strategy (WDIS) endorsed by EC-LXII and to be presented to Cg-XVI for approval.

**4.4.38** The Association expressed its strong support for the further development of the WIGOS concept and its implementation in collaboration with WMO's partner organizations and their observing systems.

**4.4.39** The Association noted with appreciation the WIGOS Demonstration Project (WDP) System for Meteorological Information and Quality Control conducted by Brazil. However, the Association expressed concern that lessons learned from the project might not be generalized to the entire Region.

**4.4.40** The Association requested that the new working group responsible for WIGOS collaborate closely with Brazil in the implementation of its WDP. The Association also requested that Brazil regularly inform the president of the Association on the implementation and progress of its WDP and lessons learned.

#### ***WIGOS Development and Implementation Strategy***

**4.4.41** The Association underlined the importance of the active collaboration of Members and appropriate regional working bodies in developing, testing and implementing the WIGOS concept. In accordance with the request of EC-LXII, it requested its Management Group to develop the regional WIGOS implementation plan, coordinate WIGOS implementation activities, establish WIGOS-related working group, and to initiate regionally focused WIGOS-WIS activities. Further, it requested its working bodies to include the relevant tasks and activities in their work programmes, reflecting regional aspects of implementation and further development of the WIGOS initiative.

**4.4.42** The Association recognized the need for a broader regional WIGOS demonstration project to be conducted as a priority for the benefit of the whole Region and requested its Management Group to initiate such a project.

**4.4.43** The Association also noted the dependence of WIGOS on WIS and recommended that attention be paid to the coordination of WIGOS and WIS. In this regard, the Association recommended that a project was needed in the Region to demonstrate WIS capability in a small developing NMHS.

**4.4.44** The Association emphasized the value of active engagement of agencies and organizations co-sponsoring component observing systems and programmes (in particular GCOS, GOOS and GTOS), and also involvement in GEOSS, recognizing the opportunities for cooperation and mutual benefit and the need to respect individual mandates and policies. Contributions from both GEOSS and WIGOS will help advance the development of the Global Framework for Climate Services (GFCS).

#### ***Regulatory Material***

**4.4.45** The Association noted the activities undertaken on updating the regional entry to the *Manual on the Global Observing System* (WMO-No. 544), Volume II – Regional Aspects, Region III (South America), in response to evolving requirements and adopted [Resolution 4 \(XV-RA III\) – Amendments to the Manual on the Global Observing System \(WMO-No. 544\), Volume II – Regional Aspects, Region III \(South America\)](#).

**4.4.46** The Association noted the modification of the Mandatory WMO Publication No. 9, *Weather Reporting*, Volume A (Observing stations) to accommodate station coordinates with

higher precision. Recognizing the importance of this new development, the Association encouraged its Members to provide the Secretariat with updated information in accordance to the new specifications.

#### **4.5 DEVELOPMENT AND IMPLEMENTATION OF THE NEW WMO INFORMATION SYSTEM** (*agenda item 4.5*)

##### **WIS Development and Implementation Strategy**

###### ***WIS Implementation Plan***

**4.5.1** The Association recalled that Fifteenth Congress (Cg-XV) emphasized that the WIS would provide three fundamental types of services to meet the different requirements, as follows:

- (a) Routine collection and dissemination service for time-critical and operation-critical data and products;
- (b) Data Discovery, Access and Retrieval service;
- (c) Timely delivery service for data and products.

Cg-XV also agreed that the WIS implementation should build upon existing WMO information systems in a smooth and evolutionary process. The WIS Implementation Plan has two parts that would be developed in parallel:

- Part A: the continued consolidation and further improvements of the Global Telecommunication System (GTS) for time-critical and operation-critical data, including its extension to meet operational requirements of WMO Programmes in addition to the World Weather Watch (WWW), including improved management of services;
- Part B: an extension of the information services through flexible data discovery, access and retrieval services to authorized users, as well as flexible timely delivery services; it would be implemented essentially through the Internet.

**4.5.2** The Association further recalled that the sixty-second session of the Executive Council emphasized that as an increasing number of Members are committed to the implementation of WIS, special attention should be paid to data and metadata standardization to ensure data interoperability and accessibility for WIGOS, GFCS and other WMO Programmes and initiatives; that the data and metadata issues are especially critical in many small meteorological services and that efforts within those NMHSs should be intensified to achieve the required standardization. The Association noted that the Council encouraged the Secretariat and relevant working bodies to ensure that every Member could equally enjoy the benefit from WIS, for example by developing easy-to-understand documents on the value of WIS, to be used for budget negotiations for implementation of meteorological information system in each Member.

##### **Progress in the improvement to the GTS (Part A of WIS)**

**4.5.3** With regards to Part A, the Association noted that the Region was using Open Source IP-VPN technology, via the Internet, around RTHs Brasilia, Buenos Aires and Maracay. It also noted that two Members of the Region, Guyana and Suriname, remained to be connected to the network, but actions were taken for an expert from RTH Brasilia to visit those countries immediately to complete the IP-VPN implementation in the Region. The Region is also covered by the NOAA ISCS and NOAA GEONETCAST-America, although some contents of NOAA GEONETCAST-America has been agreed and provided, additional contents are being developed by a user group.

**4.5.4** The Association noted that in addition to the Internet-based IP-VPN connections mentioned above, RTH Brasilia had finished a tender to select a telecommunication provider to replace and renew its connection to the improved Main Telecommunication Network of GTS,

which is becoming the core network of WIS. The Association emphasized the importance of further enhancing the Regional Meteorological Telecommunication Network, and encouraged the Regional Telecommunication Hubs in the Region to lead this effort, toward the WIS Area Meteorological Data Network (AMDCN). The Association was informed that the United States Federal Aviation Administration will terminate the ISCS broadcast on 30 June 2012. After that date, WAFS and OPMET data (TAFS, METARs, SIGMETs, etc.) will be made available by the ICAO WAFS Provider State (the United States) to ISCS-WAFS registered users over the public Internet using file servers known as the WAFS Internet File Service (WIFS). WIFS is implemented by the United States NOAA/NWS Aviation Weather Center and is operational. The Association noted that termination of the ISCS broadcast will mean that after 30 June 2012, the RMTN will not be able to use the ISCS to disseminate and exchange products supporting GTS data requirements. The RA IV RTH Washington is engaged in the planning process to identify a capable method or service to replace the ISCS satellite broadcast for continued support of the GTS data requirements.

**4.5.5** The Association noted with concern that the Annual Global Monitoring of the WWW showed significant lack of data from the Region. It urged Members to perform a full revision of relevant reference files, and requested the Secretariat, in collaboration with CBS, to provide more support to Regional technical training on the GTS operational management.

#### ***Operational Information Service (OIS)***

**4.5.6** The Association noted that the operational information is posted on the WMO server under <http://www.wmo.int/pages/prog/www/ois/ois-home.html>. The document "[Best practices for the management of the operational information](#)" available from this Web page provides information on why, when and how to update the operational information, and how to be kept informed of the updating of the operational information. The Association emphasized that the overall efficiency of the OIS is dependent on the prompt notification of changes and updated information from NMHSs. It urged NMHSs to ensure that all changes to Vol. C1 will reach the RTHs and the Secretariat without delay, and thus Members benefit from the improved OIS for access to up-to-date information required for operations.

#### ***Implementation of the new functionality of WIS (Part B of WIS)***

**4.5.7** The Association recalled that the Fifteenth Congress endorsed in principle WIS procedures for the designation of Global Information System Centres (GISCs) and Data Collection or Production Centres (DCPCs) and encouraged Members to adhere to them. It noted that, upon the request from the sixtieth session of the Executive Council, the Secretariat had requested Members to identify potential GISCs and DCPCs centres with supporting information. Members' contribution on identified GISC and/or DCPC(s) was reviewed by an ad-hoc ICG-WIS task group, and by CBS-XIV, and consolidated for presentation to the sixty-first session of the Executive Council. The Association noted with appreciation that as of May 2010, two Region III Members (Brazil and Argentina) have identified collectively one potential GISC and 5 potential DCPCs associated with RA III Centres. These will fulfil, within specific WMO Programmes, an international responsibility for the collection/generation and provision of data, forecast products, processed or value-added information. The Association fully supported the candidate GISC and DCPCs, and invited the Members operating these centres to make their best implementation and preparatory efforts towards demonstrations of capabilities of candidate WIS centres at the CBS extraordinary session (November 2010), with a view to a formal designation by Cg-XVI in May 2011.

**4.5.8** The Association expressed its appreciation that RTH Brasilia had offered to be a GISC serving RA III, and that RTH Buenos Aires had offered to be a DCPC–Data Collection and Production Centre. It noted with satisfaction that Brazil participated in the WIS new functionality demonstration during the sixty-second session of the Executive Council, together with Germany, China and Japan.

**4.5.9** Noting the availability of WIS reference documentation, including the WIS Project and Implementation Plan, the WIS Functional Architecture and the WIS Compliance Specifications, the

Association noted that the WIS User Requirements have progressed little during 2009. It highlighted the request from ICG-WIS for Members to provide the necessary information to support the WIS Rolling Review of Requirements (RRR) process. The Association urged its relevant working groups to actively pursue their contributions to the refinement of WIS User Requirements to ensure that the regional programmes requirements on WIS are taken into account.

**4.5.10** The Association emphasized the importance of appropriate regulatory and guidance documentation on the WIS. It noted and supported the important building blocks that were developed towards the future "Manual on WIS" including the WIS Compliance Specifications and the WIS Functional Architecture. It noted that CBS re-affirmed the high-priority need for the development of the Manual on WIS, based on the experience gained through early WIS implementation.

**4.5.11** The Association was aware that WIS information Discovery, Access and Retrieval (DAR) services, based on request/reply "pull" mechanism operated essentially through the Internet, are the key extensions of services that will be provided by WIS. The Association agreed that CBS and the ICG-WIS should urgently develop recommended procedures and practices, based on international standards and current technologies, for adequate authentication and authorization mechanisms to enable and manage the use of the service, at national and international levels, by authorized users. It especially requested that guidance and training be provided on the creation, management and use of metadata that underlies the DAR services.

**4.5.12** The Association emphasized the need for capacity-building in developing countries to enable them to participate in WIS, taking into account the capabilities, opportunities and constraints of the NMHSs of developing countries. Noting the high value of WIS pilot projects, the Association urged its relevant working groups, with the support and coordination of the ICG-WIS, to develop and promote pilot projects that facilitate the introduction of WIS functions and services. It invited NMHSs from developed countries, and in particular those participating in the early phase of WIS implementation, to support and assist in these initiatives. In particular it supported the recommendation of the RA III Working Group on Planning and Implementation of the World Weather Watch that the Region should take advantage of the support of the Secretariat's Jump Start offer to establish the new functionality of WIS at some RA III centres.

**4.5.13** The Association noted that WIGOS is crucially dependant upon effective WIS support and services, e.g., the specialized data collection means, the generation, collection, management and handling of related metadata and the distribution, of and access to, the data. It invited RA III Members to contribute, in coordination with ICG-WIS, the EC Working Group on WIGOS-WIS and relevant technical commissions activities, to ensure that the WIS elements and components required respectively for the implementation of the WIGOS pilot projects are developed and coordinated to meet the respective projects' aims and requirements. The Association noted with appreciation the survey on telecommunications that the United States (NOAA) is conducting in cooperation with WMO Regional Associations III and IV and encouraged Members to participate in the assessment. The Association recognized that the results of this survey will be used to inform future decisions on alternatives to the ISCS broadcast. The Association requested that the Secretary-General direct the Regional Office for the Americas to play a facilitating role in this effort.

## **Other Implementation Coordination and Support Activities**

### ***Data Representation and Codes***

**4.5.14** With regards to the Migration to the Table-driven Code Forms, the Association noted with appreciation positive progress on migration made by RTH Brasilia, with a view to the migration in Region III. However, it emphasized that complete migration to TDCF will need forecasting tools used in smaller centres to be upgraded to support TDCF. It encouraged the developed centres to continue to assist those less developed centres in the migration to ensure no degradation to their services by converting between TAC and TDCF when required. The Association invited CBS to consider measures with a view to ensuring that all Members continue

accessing the observational data available on the GTS in the appropriate format as well as to facilitate and foster the migration from TAC to TDCF.

### ***Climate Data Management***

**4.5.15** The Association considered the ongoing efforts by CCI and CBS in promoting, developing and adopting modern solutions for climate data management systems. It noted with appreciation the development of a useful questionnaire for assessing the current status of CDMs in the Member countries. The assessment of the questionnaire by the newly established CCI Expert Team on Climate Data Base Management Systems would lead to develop new requirements and functionalities in compliance with the International Standards for Data management. It noted however the low rate of responses from the Region: 3 in total. It urged Members to make the necessary efforts to expedite the process in providing feedback to this questionnaire; this would ensure better consideration of RA III concerns and requirements in these efforts.

**4.5.16** The Association recognized the need to accelerate the migration from CLICOM, which has become obsolete and difficult to maintain, to modern Climate Data Management Systems. This should enable NMHSs to achieve modern and more robust climate data management including adoption of international standards for data and metadata discovery, access and retrieval through WIS. This should also allow NMHSs to benefit from the increased capacity and functionalities of modern data management technology, allowing henceforth improved services.

**4.5.17** The Association recognized the importance of the work undertaken by CCI in providing guidance for the implementation of the World Climate Data and Monitoring Programme activities at country level. It welcomed the online publication of three essential guidelines relevant to climate data in several languages including in Spanish: WCDMP-No. 62 / WMO/TD-No. 1378, WCDMP-No. 61 / WMO/TD-No. 1377, WCDMP-No. 60 / WMO/TD-No. 1376. It urged Members to benefit from these publications which provide useful information on best practices relevant, inter-alia, to managing changes in the observing networks, the role of climatological normals in a changing climate and the organizational and system aspects of climate data management.

### ***Climate Data Rescue, Digitization and Modernization***

**4.5.18** The Association reiterated the importance of the WMO Data Rescue (DARE) project in safeguarding, digitizing and making available historical climate archives for the benefit of the Members in the Region, as well as globally. It welcomed the efforts by the Members in the region and the WMO, through VCP, in making progress in DARE. It urged all Members to continue their efforts in accelerating the digitization process of old climate records available on paper format and modernising obsolete electronic archives, such as those available on old magnetic tapes and floppy disks.

### ***Need for new strategy for Climate Data in the Region***

**4.5.19** The Association recognized that new and evolving requirements in the quantity, quality, space-time resolution and availability of climate data, are emerging as a response to the demand for useful and enhanced quality of climate data applications and services in the Region. It further agreed that efforts to meet these requirements should seek improved synergy and harmonization amongst the Members to achieve cost effective and adequate technological and organizational solutions for the Region.

**4.5.20** The Association recognized the need to establish a Task Team to develop a Strategy for climate data modernization in the Region with the following Terms of Reference:

- (a) Identification of gaps and needs in the Region for the modernization of climate data, including preservation and rescue of old climate records, archiving and data services; and the use of data from other sources, e.g. remote sensing, reanalysis and proxy data;

- (b) Assess the existing regional facilities and capabilities to set up regional databank which would serve for constituting high quality data sets required for climate studies, assessment, research applications and services;
- (c) Assess the potential for developing regional data rescue initiative similar to MEDARE initiative which is being implemented in the greater Mediterranean region;
- (d) Provide report, including a strategy towards implementing/developing modern climate data management and related systems, software and applying best practices for Data Rescue based on CCI and CBS guidance in this domain;
- (e) Submit regular progress reports, at least quarterly to the president of the regional association.

**4.5.21** The Association urged Members to further develop their collective efforts in identifying the gaps and needs with regards to climate data in the Region; and setting up priorities for capacity-building relevant to Data Rescue and modernization of Climate Data Management Systems in the Region.

#### **4.6 ENHANCED CAPABILITIES OF MEMBERS IN MULTI-HAZARD EARLY WARNING AND DISASTER PREVENTION AND PREPAREDNESS** (*agenda item 4.6*)

##### **Disaster Risk Reduction (DRR) Programme Strategy and Implementation Framework**

**4.6.1** The Association noted with satisfaction the DRR Programme's progress with the development of a systematic approach engaging WMO Programmes, constituent bodies, Members and external partners to implement WMO DRR strategic priorities through national projects with a strong regional cooperation framework. The Association further noted that a clear DRR Management Framework with criteria for initiation of projects and a resource mobilization strategy were developed, which are being used for the initiation of two types of DRR model projects in several WMO Regions and subregions, with strong connection to the regional associations (RAs) DRR structures. In light of these major developments, the Association recommended the RA III Management Group to establish a cross-cutting DRR Task Team. The Task Team would: (i) provide advice, technical expertise, peer review and identify good practices in the Region to support development of (sub-)regional early warning system (EWS) cooperation programmes in RA III; (ii) identify mechanisms for strengthening consultations and cooperation across national meteorological and hydrological services (NMHSs) and disaster risk management (DRM) agencies through relevant national/regional mechanisms; and (iii) provide advice to the RA III president and Management Group on lessons learnt from these projects and recommendations for scaling up as relevant to other countries in RA III.

**4.6.2** The Association recalled the outcomes of the country-level fact-finding DRR survey conducted in 2006 and stressed that implementation of the DRR Programme requires not only a better understanding of capacity needs of the NMHSs, but also identification of various DRM stakeholders, their institutional capacities and opportunities for partnerships with the NMHSs. The Association requested the Secretary-General to leverage partnerships with agencies working with national DRM mechanisms such as UN-ISDR, UNDP and the World Bank to analyse national DRM capacities and coordination mechanisms and identify opportunities for NMHSs partnerships.

##### **WMO DRR Project Management Framework and national and regional DRR projects**

**4.6.3** The Association acknowledged that implementation of the DRR Programme through regional and national projects, as requested by Cg-XV, was supported by: (i) the six-phased result-based WMO DRR Project Management Framework that includes a clear criteria for project initiation; and (ii) the DRR Programme's Resource Mobilization Strategy. The Association strongly endorsed the use of the DRR Project Management Framework and the Resources Mobilization Strategy for initiation of projects in RA III.



**4.6.4** The Association noted that two types of DRR national/regional cooperation projects were underway in a number of WMO Regions to demonstrate the benefits of integrated programming across WMO technical programmes and technical commissions in collaboration with regional associations (RAs) and external partners for development of capacities of NMHSs to support DRM and Multi-Hazard EWS. The Association requested the Secretary-General to pursue development of DRR national/regional cooperation projects in RA III and stressed that success in implementation of these projects would be critical for scaling up for other Regions.

**4.6.5** The Association stressed the critical role of the RAs in the implementation of the DRR Programme at national and regional levels by providing input on the needs and priorities of the Members and the Region and encouraged the president of the RA to facilitate collaboration with the regional inter-governmental DRM organizations. The Association urged the participation of NMHSs and the RA in the national and regional DRM platforms as this could lead to strengthened partnerships and cooperation for identification and implementation of the DRR projects. In this regard, the Association requested the Secretary-General to: (i) facilitate participation of the NMHSs and the RA in the DRM coordination processes at the national and regional levels; and (ii) further strengthen WMO partnerships with the UN–ISDR system partners for the implementation of national and regional DRR projects.

**Technical capacity development and training activities of technical programmes and technical commissions to support DRR Projects**

**4.6.6** The Association stressed the need for utilizing relevant training materials, guidelines and capacity-building activities developed (or being developed) by various technical programmes, technical commissions, DRR Programme and partners for implementation of DRR projects. The Association requested technical programmes and technical commissions to develop such capacities and materials in relation to the needs and requirements identified through the DRR multi-stakeholder processes, engaging not only the NMHSs but also their stakeholders in DRM.

***Provision of hazard information and analysis for risk assessment and optimized planning***

**4.6.7** The Association recalled the outcomes of the country-level survey in RA III, which indicated that over 89 per cent of NMHSs that responded to the survey require guidelines for meteorological-, hydrological- and climate-related hazard analysis, mapping and forecasting tools. The Association noted the initiatives of technical commissions in developing “best practice” guidelines for floods, drought, storm surges and other meteorological hazards. In this regard, the Association:

- (a) Noted the development of guidelines on meteorological-, hydrological-, and climate-related hazards as identified in the WMO National DRR Survey in 2006 by WMO Technical Commissions, and urged the NMHS in the Region to test and operationalize these as appropriate;
- (b) Encouraged Members to ensure that their NMHSs establish mechanisms and methodologies for the provision and sharing of meteorological, hydrological and climate data and metadata, analysis, value-added information and technical expertise;
- (c) Stressed the need to improve understanding of the linkages between climate variability and climate change, with a strong focus on the impacts on the cycles and characteristics of El Niño/Southern Oscillation (ENSO) and linkages to hydrometeorological extreme events in the Region;
- (d) Agreed to work with technical commissions and other relevant agencies in matters related to hazard analysis to support risk assessment in RA III.

**4.6.8** The Association noted the initiatives of the World Bank in developing risk assessment and modelling tools as in the Central America Probabilistic Risk Assessment (CAPRA) Programme and that of UNDP Global Risk Identification Programme (GRIP) for national assessment of risks as

the basis for the design of national risk reduction strategies, as in Costa Rica, Colombia and Ecuador. The Association urged its Members to participate actively in the World Bank and GRIP pilot projects and initiatives in risk assessment through the provision of hazard data, analysis, mapping, in which the contributions of NMHSs to effective disaster risk management could be demonstrated.

**4.6.9** The Association noted that the sixty-second session of the WMO Executive Council approved Resolution 15 (EC-LXII) – Use of the Standardized Precipitation Index (SPI) for characterizing meteorological droughts by all National Meteorological and Hydrological Services, which stated that the Standardized Precipitation Index (SPI) should be used to characterize meteorological droughts by all NMHSs, in addition to other drought indices that are already in use in their Service. This resolution will be submitted to the Sixteenth WMO Congress in 2011 for approval. The Association urged its Members to explore using the SPI for meteorological droughts.

### ***Multi-Hazard Early Warning Systems (MH-EWS) and Emergency Response Operations***

**4.6.10** The Association recalled that 87 per cent of disasters caused by natural hazards in RA III were linked to meteorological-, hydrological-, and climate-related events including floods (river flooding, flash floods and coastal flooding), strong winds, drought, forest and wild fires, thunderstorms and lightning, hailstorms, landslides and mudslides and cold waves. In this regard, the Association endorsed the WMO DRR systematic approach engaging various stakeholders to document good practices in multi-hazard early warning systems (MH-EWS), develop and deliver MH-EWS training workshops, as platform for: (i) sharing of these good practices; and (ii) providing a multi-stakeholder coordinated approach for identifications of gaps and needs and development of an EWS project, engaging not only NMHSs, but also DRM stakeholders at national and regional levels. The Association noted with satisfaction the completion of documentation of seven good practices in MH-EWS and a “Guideline on Institutional Partnerships and Coordination in MH-EWS”, based on lessons learned from these practices and that these would be published in 2010. The Association urged its Members not only to utilize these guidelines but also in light of the RA III Technical Cooperation on MH-EWS Workshop to evaluate and document the good practices in the Region in coordination with the WMO Secretariat and share these experiences through WMO DRR publications and DRR regional cooperation projects and training programmes.

**4.6.11** The Association re-emphasized the continued need to improve NMHSs technical capacities and methodologies for the generation of warnings related to severe weather, vector-borne diseases and health-related hazards, riverine and flash floods, marine meteorological and environmental hazards and drought, noting the importance of linking technical capacity development activities systematically to DRR national/regional projects for the benefit of more Members.

**4.6.12** The Association noted with interest the proposed WMO-WHO joint publication on “Heat waves and health: Guidance on Warning System Development”, currently under review by WMO and WHO experts. The Guidance will assist decision makers around the world, in agencies that deal with the health effects of heat, emergency response and hazards groups, the media and communities, to better manage their risks due to deadly heat waves. It will be of practical use to NMSs in setting up and communicating early warnings, not only to the public, but to the specialized user communities in the health sector. The Association agreed that heat waves pose a significant hazard in the Region, and urged Members to consider Heat-Health Warning Systems as an integral component of national risk management strategies.

**4.6.13** The Association recognized the important part that air pollution plays in health problems during heat waves and encouraged Members to pay special attention to offering appropriate air quality services and advice to the officials and the public during these episodes.

**4.6.14** The Association recognized the value of the Shanghai MH-EWS project in building capacity for MH-EWS in megacities. It recommended Members to consider developing similar activities in the large cities that exist in the Region, building on collaboration between agencies. Using the experiences gained from the Shanghai MH-EWS, the Association encouraged Members

to develop and improve strategies for megacities to deal with weather, climate and environmental problems that will result in safety of lives, economical and health benefits and improved living conditions for the population.

***Catastrophe insurance and weather risk management within financial risk transfer markets***

**4.6.15** The Association noted that the risks of economic losses associated with hydrometeorological and climate-related hazards can be hedged through weather-indexed and catastrophe insurance markets. The Association stressed the importance of these new opportunities for NMHSs and particularly appreciated the WMO expert meeting held in December 2007 on “Requirements of Catastrophe Insurance and Weather Risk Management Markets” to identify potential contributions of NMHSs to these markets. These activities would, among others, require from NMHSs the provision of reliable historical and near real-time observations of hydrometeorological parameters, related metadata and other relevant information and services. The Association considered that this would lead to new challenges as well as opportunities for strengthening the observing networks, data rescue and management systems for NMHSs, as demonstrated in other countries such as Ethiopia, India and Malawi. In this regard, the Association:

- (a) Requested its Members to support the emerging requirements associated with these markets as an opportunity to build services through collaboration and provide relevant information to the Secretary-General, as appropriate, to assist in determining further activities of WMO in this field;
- (b) Stressed the importance of WMO collaboration with agencies such as the World Bank and the World Food Programme (WFP) to develop an action plan to assist NMHSs with serving these markets;
- (c) Acknowledged that Cg-XV requested the Secretary-General to: (i) document experiences of NMHSs around the world serving these markets; and (ii) facilitate relevant fora and mechanisms for NMHSs to share their experiences and transfer their knowledge. In this regard, the Association was informed that guidance documents are being developed and will be published in the 2010 time frame.

**4.7 ENHANCED CAPABILITIES OF MEMBERS TO PROVIDE AND USE WEATHER, CLIMATE, WATER AND ENVIRONMENTAL APPLICATIONS AND SERVICES (*agenda item 4.7*)**

**4.7.1** This section concerns WMO Expected Result (ER) 7, which addresses WMO functions in enhancing the capacities of Members to provide and use weather, climate, water and environmental applications and services. It covers the period since XIV-RA III (Lima, Peru, September 2006) and focuses on the following service delivery-related issues: user focus; improved products and services; delivery of services; socio-economic issues related to weather, climate and environmental applications; quality management; and capacity-building and training. Content was provided by the Public Weather Services (PWS); Agricultural Meteorology (AgM); Marine Meteorology and Oceanography (MMO); and Aeronautical Meteorology (AeM); Programmes, as well as by Atmospheric Environment Research (AER) Division of WMO. This document also includes a section on Quality Management System (QMS).

**Public Weather Services (PWS) Programme**

**4.7.2** The Association reiterated the importance of user-focus as part of quality management in service delivery. It requested the Secretary-General to assist National Meteorological and Hydrological Services (NMHSs) equip their staff with the necessary skills to effectively interact with users for the purpose of assessing user requirements, and gain feedback regarding satisfaction and perception of the services the users receive from NMHSs.

**4.7.3** The Association welcomed the recommendations of the “International Symposium on Public Weather Services: A Key to Service Delivery” (Geneva, December 2007), and requested

that the Members use them as guidance for the future evolution of the public weather services in the Region. The recommendations included among others: focusing on assisting NMHSs develop capacities in key areas of service delivery to ensure availability, dependability, usability, and credibility of their services to users; assisting NMHSs to develop capacities for resource mobilization through the creation of partnerships; and focusing on training managers of NMHSs in effective communication with policy-makers and leaders in the different user sectors. The Association was pleased to note that the Symposium Proceedings had been sent to Members and were also made available on the Web ([www.wmo.int/pages/prog/amp/pwsp/documents/Symposium\\_Proceedings\\_Final.pdf](http://www.wmo.int/pages/prog/amp/pwsp/documents/Symposium_Proceedings_Final.pdf)).

**4.7.4** The Association commended the success of the Severe Weather Forecasting Demonstration Project (SWFDP) in Southern Africa (RA I) and the South Pacific Islands (RA V), where Global Data-processing and Forecasting Systems (GDPFS) and PWS Programmes are partnering to improve delivery of severe weather services. Although a draft implementation plan for SWFDP, including the PWS component, in RA III had been developed in 2006, and a training workshop on forecasting and PWS aspects was conducted in 2008, the Project had not yet been implemented. The Association agreed that PWS concepts of the Project could be incorporated into the newly established Virtual Centre for Disaster Prevention in South America. The PWS component of the SWFDP seeks to equip NMHSs with skills for enhanced delivery of severe weather warnings and forecast services and addresses user focus, communication, public education and outreach, and user-based assessments. In this regard, the Association requested the Secretary-General to develop a strategy involving NMHSs and relevant regional programmes, for incorporation of SWFDP aspects, including the PWS component into the Virtual Centre.

**4.7.5** The Association agreed that the high priority given to service delivery by WMO was reflected in the WMO “Guiding Principles on Service Delivery” (see [Annex I to the present report](#)), which had been endorsed by EC-LXII. The Executive Council articulated a role for PWS in the Global Framework for Climate Services (GFCS), as a vehicle to promote seamless service delivery across timescales through user engagement and creating a common understanding between users and providers of products and services. The Association endorsed the *Guiding Principles* and agreed with the request by EC-LXII that Public Weather Services Programme (PWSP) takes lead in the further development and implementation of the *Principles*. The *Guiding Principles* will be presented to the Sixteenth Session of WMO Congress (Cg-XVI). It requested the Secretary-General to assist the RA III Members to develop approaches for mainstreaming the Principles into their service delivery strategies and activities.

**4.7.6** The Association expressed satisfaction with the substantial progress of the Learning-Through-Doing (LTD) Projects being implemented through PWSP in RA III. It thanked the Agencia Estatal de Meteorología de España (AEMET, Spanish State Meteorological Agency) for partnering with WMO in their implementation. The LTD Projects had been implemented in the Region as follows:

- (a) Chile: The First Workshop on LTD Projects was held in Santiago, Chile, June 2008, leading to the establishment of a structure put in place by the Chilean Meteorological Service to enhance dialogue between the NMHSs and the users. The LTD Projects in Chile have focused on enhanced services to fisheries and transport sectors;
- (b) Peru: LTD Projects provide products and services to agriculture in support of agricultural exports and subsistence farming activities; and to health services in warning communities living in high altitudes against low temperatures, through the dissemination of daily forecasts and warnings.

Details regarding LTD Projects are provided at: [http://www.wmo.int/pages/prog/amp/pwsp/LearningThroughDoing\\_en.html](http://www.wmo.int/pages/prog/amp/pwsp/LearningThroughDoing_en.html).

**4.7.7** The Association expressed its full support for the LTD Pilot Projects and agreed to implement the recommendation of EC-LXII that economists from academic institutions be integrated into the Projects as soon as possible to assist in evaluating and developing the

economic benefits of the Projects. It requested the Secretary-General to continue supporting LTD initiatives with a view to initiating similar projects in other RA III Members.

**4.7.8** The Association noted that as of March 2010, 10 out of 13 Members of RA III supplied official weather forecasts and climatological data for the WMO World Weather Information Service (WWIS) Website. It supported the continuous enhancement and expansion of this valuable resource and encouraged its three Members who had not yet joined WWIS to do so. In expressing satisfaction with the newly revamped WWIS Website, which includes the Google Map application to facilitate navigating and accessing city forecasts information, the Association urged its Members to increase their contribution to, and promote the usage of, the Website. It commended Hong Kong, China, for providing leadership in the development, coordination and operation of the Website, and Spain and Portugal for coordinating the Spanish and Portuguese versions of the Website.

**4.7.9** The Association emphasized the important role of the full cross-section of media options, in service delivery, including: electronic media (television and radio), print, mobile technology, Internet and social media networks. It stressed that with the continuously emerging technologies and media options, NMHSs in the Region could benefit from PWS guidance to assist NMHSs to adopt such technologies for communication of weather forecasts and warnings. It requested the Secretary-General to ensure that training activities in this principal domain of PWS was provided to the Region.

**4.7.10** The Association welcomed the Madrid Action Plan (MAP) that was produced by the WMO International Conference on Social and Economic Benefits of Weather, Climate and Water Services (Madrid, Spain, March 2007). It supported the action taken by the Secretary-General to establish the "WMO Forum: Social and Economic Applications and Benefits of Weather, Climate, and Water Services" to help implement the MAP. The Association appreciated the fact that the Forum provided guidelines and know-how to assist NMHSs evaluate and demonstrate, in a quantifiable manner, the socio-economic benefits of their work. This would attract more public and governmental recognition of their roles, which could result in institutional and financial support to NMHSs. In this regard, the Association requested the Secretary-General to implement projects to assist NMHSs in RA III to enhance their capacities to demonstrate the value of their services to the public and governmental authorities.

**4.7.11** The Association noted that the WMO Website "Socio-Economic Benefits of Weather, Climate and Water Services (SEB)", which arose from the work of the Forum, is accessible at <http://www.wmo.int/socioec>. It agreed that the Website served as a resource for decision-support tools and case studies, examples of lessons learnt and good practices by NMHSs and other institutions. It urged its Members to use those examples in developing their own decision-support tools.

**4.7.12** The Association welcomed the action taken by the Secretary-General of establishing the "Register of WMO Members of Alerting Authorities" (<http://www-db.wmo.int/alerting/authorities.html>). It stressed the importance of the Register as a tool that enabled disseminators and users of alerts and warnings to determine the single authoritative voice with the alerting responsibility, in a particular jurisdiction. It requested the Members to ensure that they kept the Register updated, and that they informed the disaster community and the media of its existence so that they could refer to it routinely in their operations.

**4.7.13** The Association noted that PWS capacity-building events had taken place in the Region to improve aspects of NMHSs work related to service delivery. It expressed appreciation to Chile and Brazil for hosting those events, thanked the Secretary-General for organizing them and requested that similar training activities be organized in future.

**4.7.14** The Association welcomed the guidelines that the PWSP had produced since the fourteenth session of RA III (Lima, Peru, September 2006) on: Communicating forecast uncertainty; Best practices in communicating weather information; Meteorology and air quality forecasts; Capacity-building strategies in PWS; and Public education and outreach. It especially

commended the five summarised guides based on PWS guidelines produced as practical tools to help NMHSs' staff with Service Delivery methodologies. The Association thanked the Secretary-General for making all PWS Guidelines, available to the Members on the Website ([http://www.wmo.int/pages/prog/amp/pwsp/publicationsguidelines\\_en.htm](http://www.wmo.int/pages/prog/amp/pwsp/publicationsguidelines_en.htm)). It encouraged its Members to make maximum use of these guidelines to enhance the skills and capabilities of their staff in Service Delivery.

### **Agricultural Meteorology (AgM) Programme**

**4.7.15** The Association agreed that climate change and extreme climatic events are a major production risk and uncertainty impacting upon agricultural systems performance and management. It therefore welcomed the strategies proposed at the International Workshop on Agrometeorological Risk Management: Challenges and Opportunities in New Delhi, India (October 2006), and encouraged its Members to use a combination of locally adapted traditional farming technologies, seasonal weather forecasts and warning methods for improving yields and incomes.

**4.7.16** The Association appreciated the contributions of the RA III experts who served on the Implementation and Coordination Teams (ICT) and expert teams of the Commission for Agricultural Meteorology. It noted that the Fifteenth Session of the Commission for Agricultural Meteorology was held in Belo Horizonte, Brazil (July 2010). The Association requested the Secretary-General to organize more meetings of the expert teams in the Region in future.

**4.7.17** The Association noted that the World Agrometeorological Information Service (WAMIS) Website (<http://www.wamis.org/>) continued to assist institutions in 50 Members in disseminating their products. It stressed that the electronic dissemination of agricultural meteorological products through websites such as WAMIS is an efficient dissemination method used to communicate weather and climate information to the agricultural community. It urged Members to take advantage of WAMIS to disseminate their products.

**4.7.18** Noting the success of the Roving Seminars on Weather, Climate and Farmers that had been held in RA I, the Association urged Members to fund similar seminars in Region III. It noted that objectives of the seminars were to secure farmers' self reliance and to increase the interaction and feedback between farming communities and NMHSs.

**4.7.19** The Association appreciated the training activities that had been held in the Region and requested the Secretary-General to organize more such events. It was encouraged that the regional project entitled "Climate Information Applied to Agricultural Risk Management in the Andean Countries" was developed based on conclusions and recommendations of WMO meetings. The Association expressed its appreciation to the International Research Centre for the El Niño Phenomenon (CIIFEN) for organizing the project, and the Inter-American Development Bank for funding it.

**4.7.20** The Association noted that the WMO Secretariat had been able to participate and sometimes provide financial support for the various regional and national agrometeorology meetings in the Region. It requested the Secretary-General to support future similar meetings.

### **Marine Meteorology and Oceanography (MMO) Programme**

**4.7.21** The Association recognized the importance of direct interaction, with and feedback from, the marine users and welcomed the results of the JCOMM survey on monitoring the effectiveness of the marine meteorological and oceanographic information produced and transmitted by NMHSs. The results demonstrated increased demand for user-focused, high quality and timely marine meteorological and oceanographic products and services with good coverage. The Association urged Members concerned to take the appropriate actions to improve marine meteorological and oceanographic services within their areas of responsibility in order to meet marine user requirements.

**4.7.22** The Association recalled that forecasts of ocean wave period and probabilistic forecasts of wave height were essential tools in the generation of warnings of remotely generated swells. It therefore urged Members in the region, to make maximum use of these products in fulfilling their duties in support of the requirements of users.

**4.7.23** The Association noted the importance of mariners at sea receiving graphical products. It also noted the gradual demise of HF radiofax as a means of disseminating those products, and the continuing research on methods for transmitting high-quality graphical products to mariners. It requested the Secretary-General to promote resource mobilization to develop activities and partnerships to assist NMHSs in this area.

**4.7.24** The Association noted the request by JCOMM-III (Marrakech, November 2009) to develop standards for various met-ocean variables, based on experience and knowledge gained of product specification for sea ice information in Electronic Navigation Chart Systems (ENC), and the guidance from the International Maritime Organization (IMO) through its E-Navigation strategy. The Association urged its Members to participate in the work of JCOMM and its relevant expert teams, in order to meet marine user requirements.

**4.7.25** The Association commended WMO Members for their contributions to and participation in the GMDSS-Weather Website, which is managed and hosted by Météo-France. Noting the current expansion of this Website to include products prepared for International NAVTEX dissemination, the Association urged its Members to disseminate these products through the Global Telecommunication System (GTS) and to provide the WMO Secretariat and Météo-France with the appropriate metadata, including the bulletin headers, in compliance with the WMO Information System (WIS).

**4.7.26** The Association stressed the need to improve marine meteorological services in Antarctic waters and requested JCOMM to cooperate closely with the Executive Council Working Group on Polar Observations, Research and Services (EC-PORS), the Antarctic Treaty Consultative Meeting (ATCM), and its Members concerned, in the development of met-ocean services in Antarctic waters, including specialized services in support of national interests such as ship routing, as well as in the training of specialized personnel for that purpose.

**4.7.27** Noting that the IMO resolution A.705(17) stated that common standards and procedures be applied to the collection, editing and dissemination of maritime safety information, the Association recognized the need for the development of a Quality Management System (QMS) for the provision of marine meteorological services for international navigation. The Association therefore urged its Members to implement QMS for the provision of marine meteorological services for international navigation and to document the processes with a view to facilitating and expanding QMS implementation. The Association was pleased to note that a workshop on maritime safety services, including quality management procedures, had been held in Melbourne, Australia (May 2010), with the participation of three issuing Services in the Region: Argentina, Brazil and Chile.

**4.7.28** In 2006 the WMO International Workshop on Tropical Cyclones was tasked to update the publication; "Global Perspectives on Tropical Cyclones", 2<sup>nd</sup> Edition. In this book there is a chapter that might be of particular interest to members of the Association dealing with the modelling of storm surge. Work in progress in Australia, Canada, India and the United States is presented in this chapter.

### **Quality Management System (QMS)**

**4.7.29** The special emphasis of WMO on service delivery, including climate services requires a renewed effort in ensuring that all relevant processes from physical measurements in observations to forecasts and warnings issued to all user and customer groups are subject to a rigorous quality management. The Association noted the recommendation by EC-LXII to establish a Pilot Project for QMS implementation in the WMO Secretariat and agreed that it could bring potential benefits in terms of more cost effective and responsive Secretariat services and processes.

**4.7.30** In view of the need for easily accessible guidance material, the Association noted the plans to update the *Guide on the Quality Management System for the Provision of Meteorological Service for International Aviation* (WMO-No. 1001) and to turn it into a “generic guide” fit for all WMO Programmes, with additional sections to define the procedural and organizational requests. Additional attachments to this volume could include, among others, NMHSs Quality Manuals as best practice examples. The Association thus strongly encouraged its Members to cooperate closely on a regional basis and with the Secretariat in exchanging and using such examples.

**4.7.31** In the context of the implementation of QMS, the Association strongly recommended that Members operating a mature QMS form twinning partnerships with Members currently planning or developing a QMS, based on the following steps:

- (a) Identify Members in each Region commencing or contemplating adopting a QM approach;
- (b) Establish whether or not assistance from WMO would be required, and, if so, whether or not a twinning partnership would be welcomed;
- (c) Identify suitable Members with a mature QMS prepared to enter into a twinning partnership by Region;
- (d) Develop a comprehensive protocol for engagement of partners.

**4.7.32** The Association welcomed the Quality Management Framework (QMF) Website for the exchange of existing resource material on Quality Management. It thus welcomed the initiative of the Secretary-General to review and enhance the current WMO-QMF Website and provide a comprehensive resource list for use by Members.

**4.7.33** The Association further welcomed Resolution 16 (EC-LXII) – Publication of Volume IV of the WMO *Technical Regulations* (WMO-No. 49): Quality Management which was adopted by EC-LXII. (See [http://www.wmo.int/pages/prog/amp/QMF-Web/Reports/ICTT-QMF3\\_oct2008.pdf](http://www.wmo.int/pages/prog/amp/QMF-Web/Reports/ICTT-QMF3_oct2008.pdf); <http://www.wmo.int/pages/prog/amp/QMF-Web/Documentation.html>.)

### **Aeronautical Meteorology (AeM) Programme**

**4.7.34** The Association noted with concern that Amendment 75 to the Annex 3, recently approved by the International Civil Aviation Organization (ICAO), declares the requirement for the implementation of a recognized QMS in the provision of meteorological services to international civil aviation, a Standard with applicability date of November 2012. The Association, recognizing the urgency of the matter, concurred with the recommendation by the Fourteenth Session of Commission for Aeronautical Meteorology (CAeM-XIV, Hong Kong, China, February 2010), which strongly reminded all Members to take the necessary steps towards the implementation of QMS if they had not already done so. It expressed its appreciation that the outcomes of the successful WMO pilot project on QMS implementation by the Tanzania Meteorological Agency, had been made available on the Website and had been presented at a workshop held with the support of AEMET at the facilities of AEMET in Santa Cruz de la Sierra, Plurinational State of Bolivia, April 2010.

**4.7.35** The Association noted the progress in new aeronautical meteorological services for the terminal area. It also encouraged increased user consultation through various mechanisms, including the new CAeM Task Team on User Needs. Given the strong links of aviation between the RA III and North America, where the NextGen Air Traffic Management Project of the United States is expected to have a high impact on the requirements for meteorological services to aviation in the wider region including Central and South America, the Association requested the Secretary-General to maintain a close liaison with all relevant user and partner organizations in the Region. These would include the regional offices of ICAO, the International Air Transport Association (IATA), International Federation of Airline Pilots' Associations (IFALPA), and regional Airline Associations.



**4.7.36** The Association welcomed the creation of the multi-disciplinary Inter-commission Scientific Advisory Group, comprising experts in volcanology, transport and dispersion modelling and aerosol observations as proposed by the 5th WMO/ICAO International Workshop on Volcanic Ash (Santiago, March 2010). This group, reporting to the Commission for Aeronautical Meteorology (CAeM), Commission for Atmospheric Sciences (CAS), Commission for Basic Systems (CBS), and Commission for Instruments and Methods of Observation (CIMO) and cooperating closely with relevant bodies of the International Union of Geodesy and Geophysics (IUGG), would provide consolidated advice to the relevant ICAO groups and task forces. The Association was informed that the Terms of Reference (TORs) for this group were being developed in close collaboration with the ICAO International Volcanic Ash Task Force. The Association noted that the experiences learnt during events such as the eruption of the Chaiten (Chile) and other events that had affected aviation locally and regionally in Guatemala and Ecuador as well as the major disruption following the Eyjafjallajökull volcanic eruption would be reflected in future guidelines for all aviation stakeholders.

**4.7.37** The Association supported the offer by Chile to provide information to the New Zealand VAAC which has recently expanded its area of responsibility towards the coast of Chile, closing a longstanding gap in advisory coverage. The Association agreed with EC-LXII on the need for strengthened coordination at national, regional and international levels especially between the Volcanic Ash Advisory Centres, to ensure a greater consistency of approach. It emphasized the important roles of WMO as it worked together with ICAO and other aviation stakeholders, which included coordination, expansion of the research base and integrating and transferring research into operations.

**4.7.38** The Association expressed concerns about the continuing deficiencies in the issuance and content of Significant Meteorological Information (SIGMET), including those for Volcanic Ash (see EC-LXII, general summary, paragraphs 3.1.20 and 3.1.21). It requested that CAeM and CBS address this issue with some urgency, in coordination with ICAO. The Association welcomed the planned SIGMET training workshop to take place in Guatemala in October 2010 conjointly organized by WMO and ICAO and encouraged Members of the Region to ensure participation by senior forecasters/trainers of their aviation meteorological services at this important event. Where the services to international civil aviation were not provided by the NMHS, the Members were requested to liaise with the relevant organizations.

**4.7.39** The Association expressed concern about the development and implementation of any new operational requirements particularly in relation to the derivation of ash concentration (as opposed to “ash”/“no ash”) based products. It observed that this would require the continued engagement of all relevant aviation stakeholders, including Volcano Observatories, VAAC’s, NMHS, regulators, Air Navigation Service Providers and Operators.

## **Atmospheric Environment Research (AER) Division**

**4.7.40** The Association noted with pleasure that the Global Atmosphere Watch (GAW) Urban Research Meteorology and Environment (GURME) Training Workshop on Air Quality Forecasting for Latin American Countries, held very successfully in Lima, July 2006, has served as a basis for similar courses held in other parts of the world. It also noted that an air quality forecasting system, including a suite of measurements, was being developed for Lima in collaboration with other South American countries and encouraged similar developments to be taken up in other cities.

## **4.8 BROADER USE OF WEATHER-, CLIMATE- AND WATER-RELATED OUTPUTS FOR DECISION-MAKING AND IMPLEMENTATION BY MEMBERS AND PARTNER ORGANIZATIONS (agenda item 4.8)**

### **Cooperation between WMO and the regional bodies of the United Nations system and regional organizations**

**4.8.1** The Association reviewed the cooperation between WMO and the various regional and subregional economic and technical organizations in RA III for the development and

implementation of programmes and projects related to meteorology and hydrology. These included the International Centre for Research on El Niño (CIIFEN); the Centre for Weather Forecasting and Climate Studies (CPTEC); the Permanent Commission for the South Pacific (CPPS); the Economic Commission for Latin America and the Caribbean (ECLAC); the Organization of American States (OAS); and the Andean Community of Nations (CAN). The Association also recognized the collaboration of some RA III countries with subregional organizations based in the Caribbean, such as the Association of Caribbean States (ACS); CARICOM; IO-CARIBE and the Caribbean Meteorological Organization (CMO). The Association invited the Secretary-General to continue to collaborate with these intergovernmental bodies.

**4.8.2** The Association was pleased to learn of the collaboration between WMO and CIIFEN and the progress made by the Centre which continued providing seasonal surface analysis, seasonal forecasts for western South America, including ENSO, and climate information for agriculture and health to a large number of institutions and users in the Andean Region. The Association appreciated the information and support provided by CIIFEN and requested the Secretary-General and the Members of the Region concerned to continue the collaboration leading to the consolidation of CIIFEN as a subregional centre for the provision of climate services.

**4.8.3** The Association noted the participation of NMHSs and Civil Protection Agencies of the Plurinational State of Bolivia, Peru, Ecuador, Colombia and the Bolivarian Republic of Venezuela in the Andean Committee for Disaster Prevention and Relief (CAPRADE) in activities including disaster risk reduction and telecommunications directed to communities that are highly vulnerable to natural hazards. The Association encouraged these Members to continue this positive collaboration and suggested other Members examine this model as the basis for collaboration with the Civil Protection Agencies in their countries.

**4.8.4** The Association noted with satisfaction the progress made to activate the Joint Working Group IOC-WMO-CPPS-CIIFEN on El Niño research considering the close links among these organizations and their relationship with oceanographic and meteorological matters of all South America.

## **Communication and Public Affairs**

**4.8.5** The Association was pleased with the numerous activities and products implemented under the WMO Global Communication Strategy that has the objective of projecting a unified and consolidated image of WMO and NMHSs, strengthening constituencies at national and regional levels; spreading key messages that give a local voice to a global undertaking and vision; fostering strategic alliances with the media; and promoting a communication culture throughout WMO. The Association urged Members and the Secretary-General to further implement the Strategy with the aim to position WMO and NMHSs in a manner which plays to their unique strengths and raises the Organization's visibility as a key player in international cooperation and in contributing to sustainable development of Members.

**4.8.6** The Association indicated that the redesigned WMO Website had enhanced WMO communications. It called on Members to establish a link to the WMO Website, to identify themselves as an integral part of the WMO system and to make full use thereof. The Association was pleased with the concept of featuring a WMO front-page link to the NMHS of an area struck by natural disaster, to create more awareness and provide relief organizations with critical meteorological data. In this context, it invited Members to provide the Secretariat with timely notifications of extreme weather events and other newsworthy activities for attracting the attention of the international media and the public. It further encouraged Members to continue to develop NMHSs Websites, with reference to WMO and linked to the WMO Website, and highlight major WMO events with appropriate linkage.

**4.8.7** The Association expressed its appreciation to the Secretary-General for assisting NMHSs in the celebration of World Meteorological Day as a significant instrument for increasing the visibility of NMHSs.

**4.8.8** The Association recalled that Fifteenth Congress called for a greater involvement of NMHSs in developing strategic alliances with the national media for the purpose of disseminating key messages and providing greater visibility for all activities of the NMHSs, and further called on NMHSs for a closer interaction with United Nations Offices in the field in order to increase recognition of NMHSs' contribution to disaster prevention and mitigation and other areas.

**4.8.9** The Association noted that the joint WMO-China Meteorological Administration (CMA) Pavilion "Meteo World" at the World Expo 2010 "Better City, Better Life" (Shanghai, China, May–October 2010) enhanced public awareness of the work undertaken by WMO and NMHSs and their contribution to people's daily life.

**4.8.10** The Association noted with satisfaction the efforts of the WMO Office for South America 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 Office to further strengthen its links with the Members of the Association.

**4.9** **ENHANCED CAPABILITIES OF NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICES IN DEVELOPING COUNTRIES, PARTICULARLY LEAST DEVELOPED COUNTRIES, TO FULFIL THEIR MANDATES** (*agenda item 4.9*)

**4.9.1** The Association recognized the progress that NMHSs in the Region were making to better fulfil their mandates. This progress has been assisted by the improved coordination within the Secretariat, resulting from the restructuring of the WMO Secretariat and the establishment of the Development and Regional Activities (DRA) Department, better engagement of key development partners and donors and greater focus on capacity-building.

**Resource mobilization, development cooperation and partnerships**

**4.9.2** The Association welcomed the establishment of strategic partnerships with key funding and development institutions including, AECID, the World Bank, the Inter-American Development Bank (IDB), and also with WMO donor Members in particular Finland, Spain and United States for the delivery of regional and national NMHS development projects. Noting that these development activities were not only of great benefit to the NMHSs but also helped them raise their political and public profiles in the national context, the Association urged to Secretariat and the Resource Mobilization Office to increase efforts in this regard and to continue to focus on developing regional initiatives that support collaboration between NMHSs in the Region.

**4.9.3** Considering the initiatives undertaken to demonstrate the socio-economic value of NMHS products and services, in particular for the NMHSs of the Plurinational State of Bolivia, Colombia, Ecuador, Paraguay and Uruguay, the Association requested that additional studies of this nature be undertaken so that a comprehensive series of case studies is available for advocacy purposes and to assist in securing additional financial resources.

**4.9.4** The Association expressed its appreciation to the Secretary-General for the continued support and assistance to NMHSs through the VCP Programme. The Association noted that a total of seven VCP projects were supported benefiting seven countries, namely, the Plurinational State of Bolivia, Colombia, Ecuador, Guyana, Paraguay, Suriname and Uruguay. VCP projects aimed at supporting the improvement and enhancement of NMHSs in RA III covered the following areas: GTS communications, improving upper-air systems, meteorological network observing systems; and climate database management systems.

**4.9.5** The Association expressed its appreciation to its Members for their support to these projects. The Association supported the proposal to increase the extrabudgetary resources available to the WMO VCP Fund and noted that these funds supplemented assessed contributions and directly assisted in achieving results.

**4.9.6** The Association stressed that, in addition to enhancing the technical capabilities of NMHSs, support was also required to strengthen their abilities in advocacy and in the marketing of

their products and services to users, including government officials, decision-makers and funding agencies. Noting that this would contribute towards enhancing their visibility and access to funding both from internal and external sources, the Association requested the Secretary-General to give priority to assisting RA III Members to train senior and middle level managers of NMHSs concerned in social-marketing and communicating effectively with government officials, decision-makers and development partners.

### **Infrastructure and operational facilities**

**4.9.7** The Association expressed its appreciation for the significant results of the partnership established between WMO and the Spanish Agency for Meteorology (AEMET). The achievements reached through this Programme of Cooperation for the RA III Spanish-speaking Members include among others: (i) the creation of the Virtual Centre for forecasting extreme events in the Southern Cone; (ii) the updating of the telecommunications system in RA III using Virtual Private Network (VPN) connections via the Internet; (iii) pilot projects on socioeconomic benefits of hydrometeorological information and services in the NMHSs of Chile and Peru, as follow up of the Madrid Action Plan; (iv) installation and training on the use of EUMETCast Reception Stations in the NMHSs of Argentina, the Plurinational State of Bolivia, Brazil, Chile, Colombia, Chile, Ecuador, Paraguay, Peru and the Bolivarian Republic of Venezuela; (v) development of a hydrometeorological database for NMHSs of the Region, already installed and in operation in Uruguay; (vi) organization of workshops on operation and maintenance of AWS in various countries; (vii) development of capacity-building projects (CLIBER project) for the NMHSs of the Plurinational State of Bolivia, Ecuador, Paraguay, Uruguay and Colombia; (viii) training course for trainers on integrated management of floods with participation of experts from Argentina, Brazil, Chile, Peru, Uruguay and Bolivarian Republic of Venezuela; and (ix) training courses on climate change regional scenarios, satellite meteorology, disaster risk reduction, numerical forecasting and seasonal climate prediction. The Association urged the Secretariat to continue working in this way and to encourage other WMO Members to consider supporting such regional development programmes through the WMO and/or bi-lateral or other mechanisms.

**4.9.8** The Association noted the commendable efforts made by RA III Members and the Secretary-General to assist NMHSs in the Region (Plurinational State of Bolivia, Colombia, Ecuador, Paraguay and Uruguay), in comprehensive needs analysis/assessment, management skill building, preparation of NMHS development plans and emergency assistance. Noting that further efforts were required in these areas, the Association requested the Secretary-General to pursue strategies for raising the profiles of NMHSs concerned through sharing best practices in the integration of weather-, climate- and water-related information and services into national and regional development planning frameworks.

**4.9.9** Noting with concern that some NMHSs in the Region still do not have the comprehensive infrastructure, operational facilities and human resources necessary for providing meteorological information, products and services in support of the socio-economic development of their respective countries, the Association urged the Secretary-General, RA III Members and development partners to address these priority areas, in particular observing systems, telecommunications and information technology, through coordinated capacity-building initiatives and aid projects.

### **Human capacity development**

**4.9.10** The Association strongly supported the offer by Peru to host a WMO Regional Training Centre at Universidad Nacional Agraria La Molina, Lima, Peru and requested the Secretary-General to resource the processes required to implement the RTC. In supporting the offer to host the RTC the Association noted the opportunity of hosting an additional RTC and indicated that the cost structure of attending courses at the RTC and the demand from Members for courses at this RTC more than offset the costs of supporting the RTC. The Association encouraged the University and SENAMHI to work with the other RTC and training institutions in the area (Argentina, Brazil, Costa Rica and the Bolivarian Republic of Venezuela) to develop a mix of face-to-face and online courses to meet the high priority education and training demands within

Central and Southern America (qualified and competent aeronautical meteorological personnel, equipment maintenance, repair and calibration personnel, climate, severe weather and hydrology personnel).

**4.9.11** The Association expressed its appreciation to WMO Members (in particular Spain and the United States) for their direct and indirect contributions to the WMO Fellowship Programme and encouraged its Members to continue, if not increase, their support for this important long-term aspect of human capacity development. In addition to increased financial contributions to the VCP(F) Programme or secondment opportunities and support, the Association requested its Members to liaise with the aid agencies in their countries to seek opportunities for fellowship funded through other Government and aid agencies through National Missions and other facilities.

### **Enhancing voluntary cooperation activities**

**4.9.12** The Association recalled the discussion by EC-LXII on enhancing voluntary cooperation activities and noted that a number of RA III Members were active in supporting development projects inside the Region. The Association recognized that the Voluntary Cooperation Programme VCP(F) and VCP(ES) mechanisms are valuable in terms of capacity to provide short-term support to countries for specific actions or procurements to maintain operations while also moving towards the development of strategic plans for longer-term development. Noting the generally constant level of support to these mechanisms, the Association expressed concern that these mechanisms not be abandoned by donor Members and urged its Members to take more active roles in and contribute to the VCP through increased funds, equipment and services, including fellowships; which are a necessary complement to broader development activities supported through major projects and regional initiatives. As approved in the informal meeting of Directors of Ibero-American NMHSs held in Mexico in July 2010, AEMET, in collaboration with WMO and Spanish universities, will launch a training course for meteorologists that will replace the present international course for meteorologists Class II. Fellowships will be provided for trainees from the Ibero-American Region.

### **Country Profile Data Base**

**4.9.13** The Association reviewed the progress towards the development of an integrated Country Profile Data Base (CDB) and noted the request of EC-LXII that one "module" (perhaps an interactive version of WMO Publication 5) be developed and launched before the end of 2010. The Secretary-General would then evaluate Members' responsiveness to consider the utility of such a system. Noting further that EC requested that a fully costed plan be presented to Sixteenth Congress for further deliberation on any future investment, the Association requested all its Members to participate in the trial when it is ready to ensure that their updated details were available for general use and access.

## **5. EFFICIENT MANAGEMENT AND GOOD GOVERNANCE (agenda item 5)**

### **5.1 INTERNAL MATTERS OF THE ASSOCIATION (agenda item 5.1)**

#### **Internal matters of WMO**

**5.1.1** The Association took advantage of the Secretary-General's presence at the session to hold a discussion on internal matters of WMO of concern to Members of the Region, particularly in connection with reorganization of the WMO Secretariat and budget preparation for the sixteenth financial period.

**5.1.2** In the context of the WMO Strategic Plan for 2012–2015, the Association noted the proposed key priorities of WMO for 2012–2015: the Global Framework for Climate Services (GFCS); capacity-building; development of the WMO Integrated Observations and Information System (WIGOS/WIS); Disaster Risk Reduction; and Aviation Meteorology. With reference to the WMO budget evolution from 1996 to 2015, the Secretary-General introduced a possible integrated

budget strategy with enhanced regular budget complemented by voluntary contributions. The strategy is similar to that of other UN organizations, which allows members to pledge funding to specific high priority initiatives beyond assessed contributions.

**5.1.3** The Association was further informed by the Director of the Development and Regional Activities (DRA) Department that, within the process of reorganization of the Secretariat, the DRA Department was restructured to implement programme activities towards Expected Results 7 (Enhanced capabilities of Members to provide and use weather, climate, water and environmental applications and services) and 9 (Enhanced capabilities of NMHSs in developing countries, particularly Least Developed Countries, to fulfil their mandates). The DRA Department includes the Resource Mobilization Office (RMO), the Office for the Least Developed Countries (LDCs); the Regional Offices; and the Education and Training Office.

**5.1.4** The Association was pleased to note the emphasis which the restructured DRA has provided for capacity-building and expressed its appreciation to the Secretary-General for the renewed efforts to organize the Secretariat in line with the approved WMO Strategic Plan. The Association welcomed the further harmonized approach for capacity development activities for Members including technical cooperation, regional activities and human resources development activities expected to be carried out by the Regional Offices.

### **Report of the Working Group on Internal Matters of RA III**

**5.1.5** The Association noted with appreciation the reports of the 3<sup>rd</sup> session of the RA III Working Group on Internal Matters (WGIM). The Association complimented Mr Ramón Viñas García, president of the Association and chair of the RA III WGIM, and members of the Group for the activities carried out according to its terms of reference, in particular for guiding the development of the Strategic Plan for the Enhancement of NMHSs in RA III, for monitoring the work of RA III working groups and rapporteurs, as well as for the advancement of the WMO Programmes and activities in the Region. The WGIM also provided guidance for the restructuring of the subsidiary bodies of the Association and for the organization of the fifteenth session of RA III in an efficient and cost-effective manner.

**5.1.6** The Association, in recognizing the importance of coordinating its activities, agreed to re-establish the RA III Working Group on Internal Matters but under the new denomination of RA III Management Group (MG) (refer to paragraphs 5.1.7–5.1.10 below). The RA III MG is expected to deal with areas covered by the Expected Results of the WMO Strategic Plan 2008–2011, including capacity-building, partnership and strategic planning issues, through the transition to the new WMO Strategic Plan for 2012–2015. The MG would monitor the activities of the subsidiary bodies of the Association taking into consideration the optimal use of resources that need to be allocated in accordance with the agreed work programmes and deliverables. The Group should consider proposals from chairs of working groups and make decisions for the establishment of task teams to address specific priority tasks. The Association emphasized that the MG should be active with a strategic and coordinated approach throughout the intersessional period and ensure the effective and efficient functioning of its subsidiary bodies.

### **Review of the Subsidiary Bodies of the Association**

**5.1.7** The Association noted with appreciation the information provided by the president on the activities of the RA III subsidiary bodies during the intersessional period. It expressed its satisfaction with the activities performed by the working groups and rapporteurs, but noted with concern that some had not been able to perform satisfactorily for various reasons. The Association encouraged Members to provide necessary support to the designated members of working groups and other subsidiary bodies to allow them to discharge their responsibilities efficiently. The Association agreed on the need to allocate adequate financial resources for the MG and other subsidiary bodies to conduct their works effectively, noting the potential for cost-saving through tele-video conferencing.

**5.1.8** With regard to the future working mechanism of the Association, the Association considered the following general managing principles:

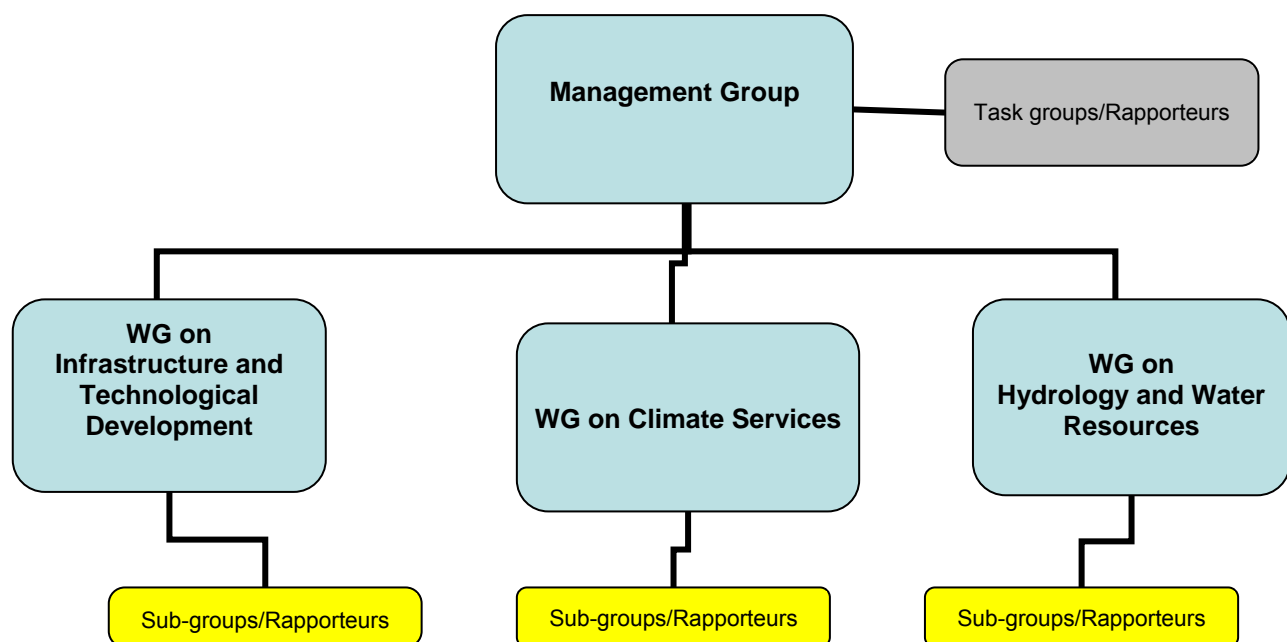
- (a) The work structure of the Association should be simplified and aligned with the new Expected Results of the WMO Strategic Plan for 2012–2015, to ensure a consistent approach in the implementation of the WMO Programmes;
- (b) The overall goal of the established work structure should be the implementation of the Regional Strategic Plan. Therefore, the resources should be used in accordance with the established key regional priorities and expected results;
- (c) The new structure should consist of working groups, rapporteurs and Task groups, as appropriate, with Terms of Reference focused on a sub-set of regional expected results and related deliverables;
- (d) The work programmes of the working groups should consist of specific tasks designed to implement the Regional Strategic Plan over the intersessional period. The working groups should be given the flexibility to propose to the MG the establishment of a manageable number of task teams to address specific tasks, as necessary, for the progress of the work programmes;
- (e) Cross-cutting issues should be addressed through coordination and collaboration between the working groups, each of them providing the necessary expertise. The MG would facilitate the coordination process.

**5.1.9** The Association supported the need to align the working mechanism of the Association to the Strategic Thrusts and Expected Results of the WMO Strategic Plan as well as Expected Results of the RA III Strategic Plan, and agreed to establish the following RA III subsidiary bodies:

- (a) A Management Group (MG), comprising:
  - (i) The president of RA III;
  - (ii) The vice-president of RA III;
  - (iii) Members of the Executive Council (EC) from the Region;
  - (iv) The hydrological adviser for RA III;
- (b) A Working Group on Infrastructure and Technological Development, comprising:
  - (i) The chair of the Working Group;
  - (ii) The vice-chair of the Working Group;
  - (iii) A Sub-group on Competences in Telecommunications;
  - (iv) A Sub-group on Competences in Data Management;
  - (v) A Sub-group on Integrated Observing Systems;
  - (vi) A Sub-group on Regional Aspects of the Global Data-processing and Forecasting System;
  - (vii) a Sub-group on Regional Aspects of Public Weather Services;
- (c) A Working Group on Climate Services, comprising:
  - (i) The chair of the Working Group;
  - (ii) The vice-chair of the Working Group;
  - (iii) A Sub-group on Climate and Data Management;
  - (iv) A Sub-group on Forecasting and Application Services;
  - (v) A Sub-group on Agricultural Meteorology;
- (d) A Working Group on Hydrology and Water Resources, comprising:
  - (i) The chair of the Working Group and the Regional hydrological adviser;
  - (ii) The vice-chair of the Working Group;
  - (iii) Sub-groups to be determined by the Management Group according to its terms of reference.

**5.1.10** It was agreed that the Management Group, through the chair, should distribute among all the Members in the Region the terms of reference of the established groups so that they could implement any additions and changes they deem relevant and, accordingly, identify the profile of the future candidates and submit a proposal to fill the posts of Chair, Vice-Chair and members of the Sub-groups already identified, together with their Personal Histories. The core of the RA III Working Groups and Task Groups will include a selected number of those candidates, who will be reviewed by the Management Group with a view to maintaining a regional balance in the nominations to the extent possible.

**5.1.11** The Association agreed to establish the terms of reference and composition of the newly established bodies according to the provisions of paragraphs 5.1.9 and 5.1.10 and approved [Resolution 5 \(XV-RA III\) – Management Group and subsidiary bodies of Regional Association III \(South America\)](#), which establishes the Management Group of Regional Association III.



### Volunteerism in the work of the Regional Association III

**5.1.12** The Association recalled that the Executive Council at its sixtieth session (June 2008) agreed in principle with the suggestions of the presidents of the Commission for Basic Systems (CBS) and the Commission for Hydrology (CHy) to award recognition to the experts who volunteered to devote their time to undertake the activities planned by technical commissions and regional associations. It urged the Secretary-General to propose a common scheme for awarding such recognition. The Council also urged Permanent Representatives to facilitate the participation and voluntary contribution of experts, not only from the NMHSs but also from other institutions, to the activities of WMO.

**5.1.13** In that regard, the Association decided that volunteerism in the work (nomination, performance monitoring and recognition) of the working groups and task teams should receive the required attention as portrayed in [Annex II to the present report](#).

**5.1.14** In this context, the Association expressed its deep appreciation to the chairs and members of the working groups and rapporteurs, who had effectively collaborated in carrying out the activities of the Association during the intersessional period, by giving recognition to their valuable work for the Regional Association.



## **5.2 EFFECTIVE AND EFFICIENT MANAGEMENT PERFORMANCE AND OVERSIGHT OF THE ORGANIZATION (*agenda item 5.2*)**

### **WMO Strategic Planning – Regional Aspects**

**5.2.1** The Association noted the decision of EC-LXII to endorse the draft WMO Strategic Plan 2012–2015 and recommend it to the Congress for approval. The Association appreciated that the Global Societal Needs (GSNs) endorsed by EC-LXI as the drivers of the strategic planning for the period 2012–2015 and the Strategic Thrusts (STs) together with the Expected Results (ERs) addressed the interests of the Region.

**5.2.2** The Association also noted the decisions of EC-LXII on the WMO Strategic Plan (SP) and Operating Plan (OP), and Monitoring and Evaluation. It decided that in order to effectively contribute to the SP, it will have its activities included in the OP, and contribute to the Monitoring and Evaluation process.

**5.2.3** The Association noted that its involvement in the WMO strategic planning process ensured the Plan captured the needs of the Region and encouraged its Management Group to remain actively involved in the further development of the OP.

**5.2.4** The Association reviewed the draft RA III Strategic Plan and agreed on the approach and approval process for its full development and implementation.

### **Strategic Plan for the Enhancement of National Meteorological and Hydrological Services (NMHSs) in Regional Association III (South America)**

#### ***Implementation of the Strategic Plan for the Enhancement of National Meteorological and Hydrological Services (NMHSs) in Regional Association III (South America) (2006–2009)***

**5.2.5** The Association recalled that during the fourteenth session of RA III (Lima, Peru, September 2006) the Regional Strategic Plan for the Enhancement of the National Meteorological and Hydrological Services in South America (2006–2009) had been discussed and agreed on priority issues that were of specific concern to the Region and should be addressed in the draft Regional Strategic Plan for 2010–2013.

**5.2.6** The Association expressed its appreciation and gratitude to all those Members who provided technical and expert support for the implementation of the Strategic Plan.

**5.2.7** Recalling that the Association encouraged Members to consider the Strategic Plan, as appropriate, in the development of their respective national plans, the Association was pleased to note that some developing countries had reported successful enhancement of their weather, climate and water services in line with the Strategic Plan.

#### ***Development of the Strategic Plan for the Enhancement of National Meteorological and Hydrological Services (NMHSs) in Regional Association III (South America) (2010–2013)***

**5.2.8** The Association recalled that the Executive Council at its sixtieth session urged regional associations to complete the development of their Regional Strategic Plans taking into account the WMO strategic planning cycle and specific regional needs and requirements; and to prepare related Regional Operating Plans, that would feed into the WMO Strategic Plan.

**5.2.9** In this respect, the Association was pleased to note that a draft Strategic Plan for the Enhancement of NMHSs in RA III (2010–2013) was developed in consultation with Members. The draft Strategic Plan has taken into account the previous Strategic Plan for NMSs (2006–2009), the *WMO Strategic Plan* (WMO-No. 1028), the *WMO Secretariat Operating Plan 2008–2011* (WMO/TD-No. 1417), and suggestions from Members of the Region. In particular, the WMO Secretariat Operating Plan addresses the interaction among the WMO Programmes and other regional and international programmes in support of NMHSs in the various Regions, under the context of WMO's top-level objectives, Strategic Thrusts and corresponding Expected Results.

**5.2.10** The Association noted that the Strategic Plan has been developed by analysing the likely trends, developments, evolving needs and deficiencies of the Region, to identify a set of deliverables. These deliverables are action-oriented and categorized under Regional Expected Results in accordance with WMO's set of Expected Results.

**5.2.11** The Association reviewed the draft Strategic Plan for the Enhancement of National Meteorological and Hydrological Services (NMHSs) in Regional Association III (South America) 2010–2013 and agreed on the approach and approval process for the development of the integrated Regional Strategic Plan for RA III. It requested the Secretariat to finalize the Strategic Plan on behalf of the Association based on the discussions during the session and requested the president of RA III to approve the Plan in due course in consultation with the Members of the Association.

### **Sixth Technical Conference on Management of Meteorological Services in Regional Association III (South America)**

**5.2.12** The Association expressed its appreciation to the Secretary-General for 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. The Association noted that the Fifth Technical Conference on Management of Meteorological Services in RA III and RA IV had been held in Brasilia, Brazil, from 11 to 14 July 2006 at the kind invitation of the Government of Brazil. The Conference was attended by Directors and/or senior officials of NMHSs in Regions III and IV, one representative from a regional organization, and seven invited lecturers. Many Directors and senior officials of NMHSs, as well as invited users, had presented lectures or case studies on social and economic benefits of weather, climate and water services.

**5.2.13** Considering that constant improvement on management techniques and practices is needed for NMHSs to increase efficiency of their Services and to improve the ability to address challenges facing them under financial and other constraints, the Association agreed that the Sixth Technical Conference on Management of Meteorological Services in Regional Associations III and IV will be held in Costa Rica during the first quarter of 2011 covering the following topics, after consultation for final approval with the Members and the President of RA IV:

- (a) The importance of WIGOS/WIS in both Regions III and IV;
- (b) Severe weather events in Regions III and IV and their connection to climate change.

**5.2.14** The Association noted that the budgetary provisions should be included for the sixteenth financial period for the organization of a Regional Seminar and the seventh RAs III and IV Joint Technical Conference to be held during said financial period.

## **6. EMERGING ISSUES AND SPECIFIC CHALLENGES** (*agenda item 6*)

### **Sustainable operation of observing systems to support weather, climate and water services**

**6.1** The Association noted that a lack of traceability of meteorological instrument calibration and measurements to international standards had been revealed by a WMO survey on Calibration and Maintenance. The Association was concerned that the quality of observations would not be appropriate to support activities such as climate variability, climate change monitoring and disaster risk reduction. Quality observations are indeed the basic building blocks of all the services provided by Members to user communities. The Association noted that improvements in the meteorological instrument calibration and measurement traceability could be expected from the broader use of instrument travelling standards that can be purchased at reasonable prices and regularly calibrated at the Regional Instrument Centres (RICs). The Association therefore urged its Members to do their utmost to improve the traceability of their meteorological instrument calibration and measurements to international standards and to set up and maintain calibration laboratories.

The Association requested its RICs to improve their communication with Members in the Region informing them on the support they could provide and sensitizing them to the importance of meteorological instrument calibration and measurement traceability as well as carrying out relevant capacity-building activities.

**6.2** The Association requested Members to conform strictly to the WMO regulatory material, such as the Manual and Guide on the GOS and the CIMO Guide, follow the Statements of Guidance (gap analysis in the observing systems) provided by CBS and make available the information needed for the preparation of the new Implementation Plan for evolution of the global observing systems, as a response to the new Vision for the GOS in 2025 and WIGOS. The Association urged that the new version of the CIMO Guide (WMO-No. 8) be translated into Spanish, as well as all the other official languages of WMO.

**6.3** The Association noted the updated versions of the WIGOS Development and Implementation Plan (WDIP), the WIGOS Concept of Operations (CONOPS) and the Development and Implementation Strategy (WDIS) elaborated by EC-WG/WIGOS-WIS-3 (Geneva, 24–26 March 2010) for EC-LXII approval (see <http://www.wmo.int/pages/prog/www/WIGOS-WIS/reports.html>). In this regard, the Association agreed that WIGOS implementation activities be incorporated into the strategic plan/work programme of the Association. The Association also agreed to develop and coordinate with Members their regional WIGOS implementation plans, including the WIGOS Pilot Implementation Projects as specified by WDIS.

**6.4** Noting the progress on WIS, in particular the work being done in Brazil in implementing a GISC, the Association encouraged all Members to work together to establish regional pilot projects that will facilitate the rapid uptake and benefits of the new functionality of WIS across the Region. It further noted that such projects will contribute to the successful development and implementation of WIGOS, the GFCS and other initiatives that are dependant on the successful implementation of WIS.

### **Aeronautical forecasts competency definition and assessment**

**6.5** The Association was informed that the Executive Council Panel of Experts on Education and Training (EC Panel) at its twenty-fourth session (Boulder, Colorado, March 2010), had created an Editorial Task Force to develop the successor publication to the fourth edition of *Guidelines for the Education and Training of Personnel in Meteorology and Operational Hydrology* (WMO-No. 258) Volume I – Meteorology. Given the critical shortfall of suitably qualified personnel in the Region, the Association learnt that the EC Panel had discussed the current structure and content of the publication and the proposed rewording that EC-LXII had recommended to Congress for the definition of a WMO Meteorologist.

**6.6** The Association welcomed that EC-LXII, after due deliberation, had adopted Resolution 18 (EC-LXII) – WMO definition of a meteorologist, and agreed with the proposal of the EC Panel to split WMO Publication No. 258 into two separate new publications: the first one dealing with classifications and qualifications of personnel; and, the second aimed at educators and trainers. The Association also supported the notion that, when the technical commissions developed competencies and education and training requirements for their areas of interest, these requirements should appear in publications produced and maintained by the Commissions. Consequently, the Association agreed with the proposal to make the new publication on classifications and qualifications a mandatory publication in place of WMO Publication No. 258. To facilitate both planning and continuity of operations, the Association expressed its concurrence with EC-LXII, which had requested that the new edition of WMO Publication No. 258 be published as soon as practical after Sixteenth Congress.

**6.7** Concerning the development of an assessment methodology, the Association appreciated the creation of a Task Team for the Competency Assessment Toolkit (TT-CAT) by the fourteenth session of the Commission for Aeronautical Meteorology and congratulated the TT-CAT for making significant progress in developing the competency assessment toolkit. The Association noted that the TT-CAT was seeking expressions of interest from RA III Members to trial the

procedures, or host a training workshop, to assist Members in developing their local competency assessment procedures, noting further the opportunity afforded by the forthcoming SIGMET workshop to be held in Guatemala in October 2010.

**6.8** In light of the worsening staffing situation of many aeronautical meteorological service providers of the Region, where imminent retirement of some key staff would further aggravate a chronic shortage of qualified staff in the professional category, the Association regretted the limited time before the implementation date (November 2013) for competency compliance required by ICAO.

**6.9** In order to initiate relevant training and assessment programmes in line with the policies expressed and adopted by EC-LXII, the Association requested the Commission for Aeronautical Meteorology to release the Competency Assessment Toolkit as soon as possible. An early version of this publication could be used to design assessment tools and procedures for the different Members of the Region in accordance with their requirements and conditions.

### **Mainstreaming climate change adaptation into disaster risk reduction**

**6.10** The Association noted that the World Climate Conference-3 (WCC-3) had established a Global Framework for Climate Services (GFCS), which will enable better management of the risks associated with climate variability, change and adaptation at all levels, through development and incorporation of science based climate information and predictions into planning, policy and practice. The Association stressed that the GFCS represents an opportunity for the development of climate services for disaster risk reduction (DRR) and the insurance sector driven by legislative requirements in an increasing number of countries, with governments requesting the insurance sector to report on and manage their climate risk. In this regard, the Association encouraged Members to be actively involved in the implementation of the GFCS and support the operationalization of climate forecasting technologies to address DRR Service Delivery and provision of relevant information to different DRR stakeholders.

**6.11** The Association noted that climate information is critical for the analysis of hazard patterns and trends, which must be augmented with socio-economic data for quantification of risks. Changing patterns of climate hazards pose challenges with longer-term disaster risk management and investments. In light of climate variability and change, the Association stressed the need for research to improve understanding of climate variability and change and their linkages to changing cycles and characteristics of the El Niño/Southern Oscillation (ENSO) and its impacts on hydrometeorological hazards in the Region. The Association further stressed the need for the development, through the coordinated framework of the GFCS and Regional Climate Centres (RCC), of tools and climate products and services to address disaster risk reduction at different timescales, from short-term (for emergency preparedness) to seasonal (for coordination and emergency preparedness planning) and decadal (for strategic and long term-investments in areas such as land zoning, infrastructure development and retrofitting, etc.) timescales.

**6.12** In reference to the fifteenth session of the WMO Commission for Climatology (CCI) (Antalya, Turkey, 19–24 February 2010) the Association noted that CCI had undertaken a reinforced and refocused commitment to a number of priorities relevant to the GFCS, including climate watches, development of user-targeted climate information, predictions, products and services, with a particular focus on climate risk management, and the use of climate information in decisions related to risk management and adaptation (see item 4.2). The Association urged relevant entities, along with the CCI, to collaborate closely in the identification of and making provisions for adequately addressing the requirements for climate information, predictions, products and services for disaster risk reduction, as a key component of WMO's contribution to the GFCS.

**6.13** The Association was informed that in view of the potential increase in hydrometeorological disasters associated with climate variability and change, a number of international development agencies such as the UNDP were initiating national disaster and climate

risk management and adaptation programmes, and requested the Secretary-General to explore opportunities for the development of national climate services targeted at DRR applications within the framework of the Global Framework for Climate Services (GFCS) through these national programmes in collaboration with Regional Climate Centres in the Region.

## **7. REGIONAL OFFICE FOR THE AMERICAS AND WMO OFFICE FOR SOUTH AMERICA** (*agenda item 7*)

**7.1** The Association requested the Secretary-General to continue his efforts to strengthen the regional and technical cooperation in order to cover the needs of the Members of the Region. The Association expressed its satisfaction in connection with a series of measures taken by the Secretary-General to improve the structure of the Secretariat, particularly those regarding WMO Regional Offices and the Development and Regional Activities Department (DRA) oriented to improve the delivery of services to the Members and intensify the collaboration with the national and regional institutions and organizations. In this regard, this Department had been restructured to guarantee that the activities initiated in the framework of the Regional Programme and Technical Cooperation Programme be carried out in an efficient manner.

**7.2** The Association outlined what was said in the sixty-second session of the Executive Council, where the measures adopted by the Secretary-General were acknowledged to launch a pilot project so that the Director of the Regional Office for the Americas could keep carrying out his activities directly from the WMO Office in Asunción, Paraguay. This kind of project is meant to grant adequate support to the technical cooperation needs of the Region, to help the resource mobilization and to optimize the operation and budgetary resources, as well as personnel resources of the WMO Offices in Regions III and IV.

**7.3** Likewise, the Association gladly took note of the accomplishment of the advances made in the implementation of the new telecommunications network of RA III, where the Regional Telecommunication Centres (RTCs) of Brasilia, Buenos Aires and Maracay with their respective national centres in the Region, using internet VPN technology are already connected. Also, the national centres from Guyana and Suriname will be connected soon through a mission from the technical personnel.

**7.4** The Association acknowledged the effort of the Government of Spain through AEMET. The continuity of the trust fund created by Spain allowed the fulfilment of the planned activities by the Iberoamerican Cooperation Programme during the last four years.

**7.5** The Association outlined the contribution and support of the United States of America to the NMHSs of RA III, in particular the development of the project regarding the satellite meteorological applications for South America, as well as the relocation of the GOES-12 satellite to the position at which satellite GOES-10 (which was turned off) was placed, allowing an excellent image coverage in the different reception bands of the South American continent and with the continuity of images even during the hurricane season in the northern hemisphere.

**7.6** The Association outlined the important outcomes of the of technical cooperation projects implemented in RA III, supporting the functioning of NMHSs in the Region. During the period 2006–2009, WMO kept developing initiatives and projects to cover the national and regional needs of NMHSs in RA III.

**7.7** The Association confirmed the important role of the WMO Voluntary Cooperation Programme in the Region, making it possible for several NMHSs in the Region to receive assistance from WMO to facilitate their effective participation in the World Weather Watch and in other scientific and technical WMO Programmes. The Association requested the Secretary-General to continue to help the NMHSs of the Region in capacity-building and professional training, noting that during 2006–2009 about 390 staff/months of fellowships were granted under the VCP and regular budget of WMO.

**8. SCIENTIFIC LECTURES AND DISCUSSIONS** (*agenda item 8*)

**8.1** The following scientific lectures were presented during the session:

- (a) Short- and Long-Term Forecasting and Climate Change: What is scientifically possible?, by Dr Eugenia Kalnay, Distinguished University Professor, University of Maryland, United States of America;
- (b) Revision of WMO No. 258 and its implications, with emphasis on aeronautical meteorology, by Dr Bob Riddaway, ECMWF, United Kingdom of Great Britain and Northern Ireland;
- (c) AVNHEWS “Aburr Valley Natural Hazard Early Warning System”, by Dr Mauricio Faciolince, Director of AMVA (Autoridad Metropolitana del Valle de Aburrá, Colombia), Aburr Valley Metropolitan Authority, Colombia.

**8.2** The lectures were followed by fruitful discussions in which delegates participated. The Association expressed its appreciation to the lecturers for their interesting and informative presentations. It requested the Secretary-General, in consultation with the president of RA III, to make the necessary arrangements for scientific lectures during the next session of the Association.

**9. REVIEW OF PREVIOUS RESOLUTIONS AND RECOMMENDATIONS OF THE ASSOCIATION AND OF RELEVANT EXECUTIVE COUNCIL RESOLUTIONS** (*agenda item 9*)

**9.1** The Association examined those of its resolutions which were still in force at the time of the fifteenth session.

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

**9.3** The Association accordingly adopted [Resolution 6 \(XV-RA III\) – Review of previous resolutions and recommendations of the Association](#).

**9.4** The Association recommended to the Executive Council that Resolution 12 (EC-LIX) on the report of the fourteenth session of the Association did not need to be kept in force.

**10. ELECTION OF OFFICERS** (*agenda item 10*)

The Association elected Ms Myrna Araneda Fuentes (Chile) as president and Mr Julian Báez Benítez (Paraguay) as vice-president of Regional Association III.

**11. DATE AND PLACE OF THE SIXTEENTH SESSION** (*agenda item 11*)

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

**12. CLOSURE OF THE SESSION** (*agenda item 12*)

**12.1** Mr Robert O. Masters, the representative of the Secretary-General thanked the Government of Colombia, as well as Mr Ricardo Lozano, Permanent Representative of Colombia with WMO and his staff for the excellent arrangements and their warm hospitality. He noted with appreciation that the activities during the session were conducted with a spirit of consensus which

had allowed the delegates to tackle controversial issues. He also underlined the real willingness of Members to work together as a region. Mr Robert Masters thanked all delegates for their active participation in the work of the fifteenth session and assured them that the Secretariat would do its best to support the implementation of the decisions taken by the session.

**12.2** Mr Ricardo Lozano, on behalf of the host country, congratulated all delegates for the excellent work done by the session. He highlighted that the session discussed several issues of priority in his country as regards risk management, Disaster Risk Reduction, early warnings to population, and climate and weather services. He informed that his Government is strengthening the Colombian IDEAM through the acquisition of high technology equipment and capacity-building with the support of WMO. He expressed his thanks to all those who had done their part to ensure the success of the session.

**12.3** Mr Ramón Viñas García, the outgoing president of RA III, in his closing remarks expressed his appreciation to participants, the host country and co-chairs for their valuable contributions. He stressed that the new work structure adopted by the session, with fewer working groups, smaller number of core members and the possibility to form task teams to tackle specific tasks, would provide the necessary flexibility to address all emerging issues. There would be also more responsibility on the president and the management group who would have to adjust priorities according to changing environment and requirements. Mr Ramón Viñas García congratulated the new president, Mrs Myrna Araneda and the new vice-president, Mr Julián Báez Benítez and wished them success in their tasks. He expressed his belief that they would manage the important job of running the Association activities with the newly adopted RA III Strategic plan and work structure with extra energy and innovation. Mr Ramón Viñas García expressed his gratitude to all those who supported his work during his tenure as president of the Association. He expressed also his satisfaction of being able to serve the Members of RA III and contribute to the common goal of improving safety and well being of the people in RA III and all over the world.

**12.4** The fifteenth session of Regional Association III (South America) closed at 1.15 p.m. on 28 September 2010.

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# RESOLUTIONS ADOPTED BY THE SESSION

## Resolution 1 (XV-RA III)

### IMPLEMENTATION OF A CLIMATE WATCH SYSTEM

REGIONAL ASSOCIATION III (SOUTH AMERICA),

#### Noting:

- (1) Resolution 12 (Cg-XV) – World Climate Data and Monitoring Programme, of the Fifteenth World Meteorological Congress in 2007, deciding on priorities for the World Climate Data and Monitoring Programme including, inter alia, the implementation of climate watches,
- (2) The conclusions of the first WMO workshop on climate monitoring including implementation of a climate watch system in RA III (Guayaquil, Ecuador, 8–11 December 2008),
- (3) The decision of the Executive Council at its sixty-second session urging Members to implement climate watches,

#### Considering:

- (1) The role of National Meteorological and Hydrological Services (NMHSs) in the provision of timely weather and climate advisories for warning against extreme weather and climate events,
- (2) The WMO and Commission for Climatology (CCI) efforts in promoting the provision of climate watches based on CCI guidelines and brochure as a mechanism to heighten awareness among the users of ongoing or foreseen climate anomalies and related extreme weather and climate events and their negative impacts,
- (3) The increasing demand from government, semi-public and private agencies for climate advisories covering time ranges from a week to seasonal timescales that would allow an improved time frame for preparation against extreme climate events,

#### Recognizing:

- (1) That extreme climate events may extend beyond the boundaries of a single nation and the need to coordinate the climate watch system activities among neighbouring countries,
- (2) That important progress has been achieved in the development of useful and timely climate monitoring and prediction products at the national, regional and global scales,
- (3) The need for involving users in the definition of the content and thresholds which frame climate advisories depending on sectoral requirements and needs,

**Decides** to start the implementation of a climate watch system in Region III enabling NMHSs in the Region to issue climate advisories at the national level based on:

- (a) The general recommendations and guidelines provided by the relevant WMO technical documents, for example, guidelines on climate watches and the WMO brochure on climate watch systems, as well as other WMO publications to support design and implementation of a climate watch system;
- (b) Global and regional infrastructure and mechanisms such as Regional Climate Outlook Forums for the generation of climate products;



- (c) Climate monitoring and prediction at the national level;

**Urges** Members to strengthen their cooperation on the climate watch system and related topics, to ensure a harmonized climate watch system implementation, interoperable systems and timely exchange of related data and products;

**Requests:**

- (1) The RA III Working Group dealing with climate matters to coordinate the activities of the climate watch system in the Region under the guidance of the president of the Association and to work together with other relevant working groups of the Region;
- (2) The Secretary-General to facilitate the implementation of a climate watch system in the Region.

**Resolution 2 (XV-RA III)**

**ESTABLISHMENT OF REGIONAL CLIMATE CENTRES**

REGIONAL ASSOCIATION III (SOUTH AMERICA),

**Noting:**

- (1) The *Abridged Final Report with Resolutions of the Fifteenth World Meteorological Congress* (WMO-No. 1026),
- (2) The *Abridged Final Report with Resolutions and Recommendations of the Fourteenth Session of the Commission for Basic Systems* (WMO-No. 1040),
- (3) The *Abridged Final Report with Resolutions of the Sixty-first Session of the Executive Council* (WMO-No. 1042),
- (4) The *Abridged Final Report with Resolutions of the Sixty-second Session of the Executive Council* (WMO-No. 1059),
- (5) The *Abridged Final Report with Resolutions and Recommendations of the Fifteenth Session of the Commission for Climatology* (WMO-No. 1054),

**Recognizing:**

- (1) The enhanced worldwide attention to climate change, the associated vulnerabilities in the Region and the need to support decision-making for adaptation to climate change and variability with more detailed regional climate information,
- (2) The endorsement by the Executive Council at its sixty-first session in 2009 of the amendment to the *Manual on the Global Data-processing and Forecasting System* (WMO-No. 485), Volume 1 – Global Aspects, embedding the process for formal WMO designation of Regional Climate Centres (RCCs) and RCC Networks in WMO Technical Regulations,

**Decides:**

- (1) To conduct a needs and gap analysis for the establishment of RCCs in Regional Association III, through assessment of the Region's requirements and capabilities vis-à-vis

the mandatory and highly recommended RCC functions, and to mandate the RA III Working Group on Climate Services under the guidance of the president of RA III to initiate this process;

- (2) To develop and implement RCCs in the Region on a pilot basis with the guidance and support provided from time to time by the presidents of the Region, the Commission for Climatology (CCI), the Commission for Basic Systems (CBS) and the Secretary-General;
- (3) To keep the RA III RCC operational activities flexible during the pilot phase, allowing them to evolve based on the requirements of Members and in compliance with WMO regulations;
- (4) That the implementation of RA III RCCs, as well as the pilot phase prior to formal designation, be coordinated by the RA III Working Group on Climate Services under the overall guidance of the president of RA III;
- (5) To seek formal WMO designation of the RA III RCCs through the process described in the *Manual on the Global Data-processing and Forecasting System* and to mandate the president of RA III to initiate this process, following satisfactory evaluation of the requirements of the Region as well as capability to fulfil the mandatory functions and demonstration of this capability to CCI and CBS;
- (6) To regularly review RA III Members' requirements for climate information, products and services, and to ensure a state-of-the-art service provision to Members to meet their priority needs;

#### **Urges:**

- (1) The Secretary-General to ensure that the Members are informed of the latest designation criteria for the establishment and designation of WMO RCCs;
- (2) The RA III Working Group on Climate Services to use the WMO template and questionnaire on climate services in assessment of the needs of the Region and invite Members to provide information on the RCC-related functions they are performing;
- (3) RCC proponents to undertake a self-appraisal prior to submitting their proposals in order to determine their capabilities to fulfil the requirements of RCC designation criteria, develop implementation plans and submit these to the concerned subsidiary body of RA III for their assessment and advice on commencing a pilot phase;
- (4) RCCs in the pilot phase to submit activity reports on an annual basis to the concerned subsidiary body of RA III, and to undertake recommended remedial actions during the pilot phase, to ensure fulfilment of WMO designation criteria;
- (5) RCCs to additionally include as many as possible of the highly recommended functions, defined in the *Manual on the Global Data-processing and Forecasting System*, in their activities, particularly those related to downscaling and climate change;
- (6) RCCs to actively support the further development and operation of Regional Climate Outlook Forums in the Region;
- (7) The president of RA III to consult with CCI, CBS and the WMO Secretariat in the effective implementation of RCCs and in determining the eligibility of new RCC proponents;
- (8) All Global Producing Centres for Long-range Forecasts (GPCs) to support the efforts of and collaborate with the RA III RCCs;
- (9) All RA III Members to support RA III RCC activities, use the products and provide feedback to RCCs and GPCs on their effectiveness for further improvement and tailoring to user needs;

**Requests:**

- (1) The presidents of CCI and CBS and the Secretary-General to provide the necessary support to ensure the success of RCC establishment in RA III, and effective collaboration with the RCCs in other Regions;
  - (2) The president of the Association to facilitate coordination within RA III on all matters related to RCC implementation;
  - (3) The RA III Working Group on Climate Services to work in close collaboration with relevant climate-related institutions and centres in the Region, such as the International Research Centre on El Niño and the Centre for Weather Prediction and Climate Studies.
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**Resolution 3 (XV-RA III)****REGIONAL BASIC SYNOPTIC NETWORK AND REGIONAL BASIC CLIMATOLOGICAL NETWORK IN REGION III**

REGIONAL ASSOCIATION III (SOUTH AMERICA),

**Noting:**

- (1) Resolution 2 (XIV-RA III) – Regional Basic Synoptic Network,
- (2) Resolution 3 (XIV-RA III) – Regional Basic Climatological Network in Region III,
- (3) The *Manual on the Global Observing System* (WMO-No. 544), Volume I, Part III, Regulations 2.1.3.1–2.1.3.5, and the definition of the Regional Basic Synoptic and Climatological Networks,
- (4) The *Manual on Codes* (WMO-No. 306),
- (5) The *Manual on the Global Telecommunication System* (WMO-No. 386),

**Considering:**

- (1) That the establishment and maintenance of a Regional Basic Synoptic Network (RBSN) 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,
- (2) That the Fourteenth World Meteorological Congress welcomed the establishment of the Regional Basic Climatological Network (RBCN) in all WMO Regions and the Antarctic and urged Members to ensure that their operational observing stations compiled and transmitted the CLIMAT and CLIMAT TEMP messages according to existing regulations,

**Decides:**

- (1) That the stations and the observational programmes listed in Annex I to the present resolution constitute the RBSN in Region III;
- (2) That the stations listed in Annex II to the present resolution constitute the RBCN in Region III;

**Urges Members:**

- (1) To secure, at the earliest date possible, full implementation of the network of RBSN and RBCN stations and observational programmes set forth in Annexes I and II to the present resolution;
- (2) To comply fully with the standard times of observation, the global and regional coding procedures and data collection standards as laid down in the *WMO Technical Regulations* (WMO-No. 49), the *Manual on the Global Observing System* (WMO-No. 544), the *Manual on Codes* (WMO-No. 306) and the *Manual on the Global Telecommunication System* (WMO-No. 386);

**Authorizes** the president of the Association to approve, at the request of the Members concerned and in consultation with the Secretary-General, minor amendments to the list of RBSN and RBCN stations in accordance with the procedures laid down in the *Manual on the Global Observing System* (WMO-No. 544), Volume II – Regional Aspects, Region III (South America).

**Note:** This resolution replaces Resolution 2 (XIV-RA III) and Resolution 3 (XIV-RA III), which are no longer in force.

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### Annex I to Resolution 3 (XV-RA III)

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

INDEX	STATION NAME	OBSERVATIONS
<b>ARGENTINA</b>		
87007	LA QUIACA OBSERVATORIO	S
87022	TARTAGAL AERO	S
87046	JUJUY AERO	S
87047	SALTA AERO	S
87047	SALTA AERO	R
87097	IGUAZU AERO	S
87121	TUCUMAN AERO	S
87129	SANTIAGO DEL ESTERO AERO.	S
87148	PCIA. ROQUE SAENZ PENA AERO	S
87155	RESISTENCIA AERO.	S
87155	RESISTENCIA AERO.	R
87162	FORMOSA AERO	S
87166	CORRIENTES AERO	S
87178	POSADAS AERO.	S
87217	LA RIOJA AERO.	S
87222	CATAMARCA AERO.	S
87257	CERES AERO	S
87270	RECONQUISTA AERO	S
87289	PASO DE LOS LIBRES AERO	S
87311	SAN JUAN AERO	S
87320	CHAMICAL AERO	S

INDEX	STATION NAME	OBSERVATIONS
87328	VILLA DOLORES AERO	S
87344	CORDOBA AERO	S
87344	CORDOBA AERO	R
87349	PILAR OBSERVATORIO	S
87371	SAUCE VIEJO AERO	S
87374	PARANA AERO	S
87395	CONCORDIA AERO	S
87418	MENDOZA AERO	S
87418	MENDOZA AERO	R
87436	SAN LUIS AERO	S
87448	VILLA REYNOLDS AERO	S
87453	RIO CUARTO AERO	S
87467	MARCOS JUAREZ AERO	S
87480	ROSARIO AERO	S
87497	GUALEGUAYCHU AERO	S
87506	MALARGUE AERO	S
87509	SAN RAFAEL AERO	S
87532	GENERAL PICO AERO	S
87534	LABOULAYE	S
87548	JUNIN AERO	S
87576	EZEIZA AERO	S
87576	EZEIZA AERO	R

INDEX	STATION NAME	OBSERVATIONS
87582	AEROPARQUE BS. AS. AERO	S
87585	BUENOS AIRES OBSERVATORIO	S
87593	LA PLATA AERO	S
87623	SANTA ROSA AERO	S
87623	SANTA ROSA AERO	R
87641	AZUL AERO	S
87645	TANDIL AERO	S
87648	DOLORES AERO	S
87692	MAR DEL PLATA AERO	S
87715	NEUQUEN AERO	S
87750	BAHIA BLANCA AERO	S
87765	BARILOCHE AERO	S
87784	SAN ANTONIO OESTE AERO	S
87791	VIDMA AERO	S
87800	EL BOLSON AERO	S
87803	ESQUEL AERO	S
87828	TRELEW AERO	S
87860	COMODORO RIVADAVIA AERO	S
87860	COMODORO RIVADAVIA AERO	R
87904	EL CALAFATE AERO	S
87909	SAN JULIAN AERO	S
87925	RIO GALLEGOS AERO	S
87938	USHUAIA AERO	S
<b>BOLIVIA (PLURINATIONAL STATE OF)</b>		
85033	GUAYARAMERIN	S
85041	COBIJA	S
85043	RIBERALTA	S
85104	SAN JOAQUIN	S
85109	SAN RAMON	S
85114	MAGDALENA	S
85123	SANTA ANA	S
85139	SANTA ROSA	S
85140	REYES	S
85141	RURRENABAQUE	S
85151	APOLO	S
85152	SAN BORJA	S
85154	TRINIDAD	S
85175	ASCENCION DE GUARAYOS	S
85195	SAN JAVIER	S
85196	CONCEPCION	S
85201	LA PAZ/ALTO	S
85201	LA PAZ/ALTO	R
85207	SAN IGNACIO DE VELASCO	S
85210	SAN MATIAS	S
85223	COCHABAMBA	S
85230	CHARANA	S
85242	ORURO	S
85244	VIRU VIRU SANTA CRUZ	W

INDEX	STATION NAME	OBSERVATIONS
85245	SANTA CRUZ/EL TROMPILLO	S
85245	SANTA CRUZ/EL TROMPILLO	R
85247	SAN JOSE DE CHIQUITOS	S
85264	VALLEGRANDE	S
85268	ROBORE	S
85283	SUCRE	S
85289	PUERTO SUAREZ	S
85293	POTOSI	S
85312	MONTEAGUDA	S
85315	CAMIRI	S
85345	VILLAMONTES	S
85364	TARIJA	S
85365	YACUIBA	S
85394	BERMEJO	S
<b>BRAZIL</b>		
82022	BOA VISTA (AEROPORTO)	S
82042	CARACARAI	S
82098	MACAPA	S
82106	SAO GABRIEL DA CACHOEIRA	S
82113	BARCELOS	S
82141	SOURE	S
82143	SALINOPOLIS	S
82145	TRACUATEUA (BRAGANCA)	S
82181	MONTE ALEGRE	S
82184	PORTO DE MOZ	S
82193	BELEM (AEROPORTO)	S
82193	BELEM (AEROPORTO)	R
82198	TURIACU	S
82212	FONTE BOA	S
82240	PARINTINS	S
82246	BELTERRA	S
82281	SAO LUIZ (AEROPORTO)	S
82287	PARNAIBA	S
82317	TEFE	S
82332	MANAUS (AEROPORTO)	S
82332	MANAUS (AEROPORTO)	R
82336	ITACOATIARA	S
82353	ALTAMIRA	S
82361	TUCURUI	S
82392	SOBRAL	S
82397	FORTALEZA	R
82398	FORTALEZA (AEROPORTO)	S
82400	FERNANDO DE NORONHA	S
82400	FERNANDO DE NORONHA	R
82410	BENJAMIN CONSTANT	S
82425	COARI	S
82445	ITAITUBA	S
82460	BACABAL	S

INDEX	STATION NAME	OBSERVATIONS
82476	CAXIAS	S
82533	MANICORE	S
82562	MARABA	S
82571	BARRA DO CORDA	S
82579	TERESINA (AEROPORTO)	S
82583	CRATEUS	S
82586	QUIXERAMOBIM	S
82594	MACAU	S
82599	NATAL AEROPORTO	S
82599	NATAL AEROPORTO	R
82610	EIRUNEPE	S
82678	FLORIANO	S
82678	FLORIANO	R
82683	TAUA	S
82704	CRUZEIRO DO SUL	S
82723	LABREA	S
82765	CAROLINA	S
82765	CAROLINA	R
82780	PICOS	S
82784	BARBALHA	S
82789	TRIUNFO	S
82791	PATOS	S
82795	CAMPINA GRANDE	S
82807	TARAUACA	S
82824	PORTO VELHO (AEROPORTO)	S
82824	PORTO VELHO (AEROPORTO)	R
82861	CONCEICAO DO ARAGUAIA	S
82863	PEDRO AFONSO	S
82879	S.JOAO DO PIAUI	S
82893	GARANHUNS	S
82899	RECIFE (AEROPORTO)	S
82900	RECIFE	R
82917	RIO BRANCO	S
82965	ALTA FLORESTA (AEROPORTO)	S
82965	ALTA FLORESTA (AEROPORTO)	R
82979	REMANSO	S
82983	PETROLINA	S
82983	PETROLINA	R
82986	PAULO AFONSO	S
82993	MACEIO (AEROPORTO)	S
83064	PORTO NACIONAL	S
83096	ARACAJU	S
83179	BARRA	S
83182	IRECE	S
83186	JACOBINA	S
83192	CIPO	S
83208	VILHENA (AEROPORTO)	S
83208	VILHENA (AEROPORTO)	R

INDEX	STATION NAME	OBSERVATIONS
83214	MATUPA	S
83228	PEIXE	S
83229	SALVADOR	R
83235	TAGUATINGA	S
83236	BARREIRAS	S
83242	LENCOIS	S
83248	SALVADOR (AEROPORTO)	S
83264	GLEBA CELESTE	S
83270	CANARANA	S
83288	BOM JESUS DA LAPA	S
83288	BOM JESUS DA LAPA	R
83309	DIAMANTINO	S
83319	NOVA XAVANTINA	S
83332	POSSE	S
83339	CAETITE	S
83344	VITORIA DA CONQUISTA	S
83349	ILHEUS (AEROPORTO)	S
83358	POXOREO (POXOREU)	S
83362	CUIABA (AEROPORTO)	S
83362	CUIABA (AEROPORTO)	R
83368	ARAGARCAS	S
83374	GOIAS	S
83378	BRASILIA (AEROPORTO)	S
83378	BRASILIA (AEROPORTO)	R
83384	ARINOS	S
83386	JANUARIA	S
83388	MONTE AZUL	S
83393	PEDRA AZUL	S
83398	CANAVIEIRAS	S
83405	CACERES	S
83423	GOIANIA	S
83437	MONTES CLAROS	S
83442	ARACUAI	S
83470	RIO VERDE	S
83479	PARACATU	S
83483	PIRAPORA	S
83492	TEOFILO OTONI	S
83497	CARAVELAS (AEROPORTO)	S
83498	CARAVELAS	R
83526	CATALAO	S
83531	PATOS DE MINAS	S
83538	DIAMANTINA	S
83550	SAO MATEUS	S
83565	PARANAIBA	S
83566	CONFINS (AEROPORTO)	S
83566	CONFINS (AEROPORTO)	R
83574	FRUTAL	S
83579	ARAXA	S

INDEX	STATION NAME	OBSERVATIONS
83582	BAMBUI	S
83592	CARATINGA	S
83595	AIMORES	S
83597	LINHARES	S
83612	CAMPO GRANDE (AEROPORTO)	S
83612	CAMPO GRANDE (AEROPORTO)	R
83618	TRES LAGOAS	S
83623	VOTUPORANGA	S
83630	FRANCA	S
83649	VITORIA (AEROPORTO)	S
83650	TRINDADE (ILHA)	S
83650	TRINDADE (ILHA)	R
83676	CATANDUVA	S
83687	LAVRAS	S
83692	JUIZ DE FORA	S
83695	ITAPERUNA	S
83698	CAMPOS	S
83702	PONTA PORA	S
83704	IVINHEMA	S
83716	PRESIDENTE PRUDENTE	S
83718	CORDEIRO	S
83726	SAO CARLOS	S
83738	RESENDE	S
83746	GALEAO	S
83746	GALEAO	R
83766	LONDRINA	S
83779	MARTE	R
83780	SAO PAULO (AEROPORTO)	S
83783	CAMPO MOURAO	S
83811	IVAI	S
83818	SANTOS	S
83821	IGUAPE	S
83827	FOZ DO IGUACU (AEROPORTO)	S
83827	FOZ DO IGUACU (AEROPORTO)	R
83836	IRATI	S
83840	CURITIBA (AEROPORTO)	S
83840	CURITIBA (AEROPORTO)	R
83844	PARANAGUA	S
83881	IRAI	S
83887	CAMPOS NOVOS	S
83899	FLORIANOPOLIS (AEROPORTO)	S
83907	SAO LUIZ GONZAGA	S
83914	PASSO FUNDO	S
83919	BOM JESUS	S
83925	SANTA MARTA	S
83927	URUGUAIANA	S
83928	URUGUAIANA (AEROPORTO)	R
83936	SANTA MARIA	S

INDEX	STATION NAME	OBSERVATIONS
83948	TORRES	S
83964	ENCRUZILHADA DO SUL	S
83970	MOSTARDAS	S
83971	PORTO ALEGRE (AEROPORTO)	S
83971	PORTO ALEGRE (AEROPORTO)	R
83980	BAGE	S
83995	RIO GRANDE	S
83997	ST.VITORIA DO PALMAR	S
<b>CHILE</b>		
85406	ARICA	S
85418	IQUIQUE	S
85432	CALAMA	S
85442	ANTOFAGASTA	S
85442	ANTOFAGASTA	R
85469	ISLA DE PASCUA	S
85469	ISLA DE PASCUA	R
85470	COPIAPO	S
85488	LA SERENA	S
85574	PUDAHUEL	S
85585	JUAN FERNANDEZ	S
85586	SANTO DOMINGO	S
85586	SANTO DOMINGO	R
85629	CURICO	S
85672	CHILLAN	S
85682	CONCEPCION	S
85743	TEMUCO	S
85766	VALDIVIA	S
85799	PUERTO MONTT	S
85799	PUERTO MONTT	R
85834	ISLA HUAFO	S
85864	COYHAIQUE	S
85892	COCHRANE	S
85930	FARO EVANGELISTAS	S
85934	PUNTA ARENAS	S
85934	PUNTA ARENAS	R
85972	ISLA DIEGO RAMIREZ	S
<b>COLOMBIA</b>		
80009	SANTA MARTA/SIMON BOLIVAR	S
80022	CARTAGENA/RAFAEL NUNEZ	S
80028	BARRANQUILLA/ERNESTO CORTISSOZ	S
80035	RIOHACHA/ALMIRANTE PADILLA	S
80035	RIOHACHA/ALMIRANTE PADILLA	R
80036	VALLEDUPAR/ALFONSO LOPEZ	S
80063	MONTERIA/LOS GARZONES	S
80084	APARTADO/LOS CEDROS	S
80094	BUCARAMANGA/PALONEGRO	S
80097	CUCUTA/CAMILO DAZA	S

INDEX	STATION NAME	OBSERVATIONS
80099	ARAUCA/SANTIAGO PEREZ	S
80110	MEDELLIN/OLAYA HERRERA	S
80112	RIONEGRO/J.M.CORDOVA	S
80139	PUERTO CARRENO/A.GUAUQUEA	S
80144	QUIBDO/EL CARANO	S
80210	PEREIRA/MATECANA	S
80214	IBAGUE/PERALES	S
80222	BOGOTA/ELDORADO	S
80222	BOGOTA/ELDORADO	R
80234	VILLAVICENCIO/VANGUARDIA	S
80252	BUENAVENTURA	S
80259	CALI/ALFONSO BONILLA ARAGON	S
80315	NEIVA/BENITO SALAS	S
80342	PASTO/ANTONIO NARINO	S
80372	PUERTO ASIS	S
80398	LETICIA/VASQUEZ COBO	S
80398	LETICIA/VASQUEZ COBO	R
<b>ECUADOR</b>		
84001	BALTRA AEROPUERTO (GALAPAGOS)	S
84008	SAN CRISTOBAL (GALAPAGOS)	S
84008	SAN CRISTOBAL (GALAPAGOS)	R
84010	SAN CRISTOBAL AEROPUERTO (GALAPAGOS)	S
84018	ESMERALDAS AEROPUERTO (TACHINA)	S
84027	TULCAN AEROPUERTO	S
84036	SAN GABRIEL	S
84043	IBARRA AEROPUERTO	S
84045	INGUINCHO	S
84050	LA CONCORDIA	S
84056	TOMALON	S
84063	NUEVA LOJA AEROPUERTO	S
84069	SANTO DOMINGO AEROPUERTO	S
84071	QUITO AEROPUERTO	S
84072	INAQUITO	S
84076	LA TOLA	S
84088	IZOBAMBA	S
84099	EL COCA AEROPUERTO	S
84101	SAN VICENTE AEROPUERTO	S
84105	PUERTO ILA	S
84117	MANTA AEROPUERTO	S
84123	LATACUNGA AEROPUERTO	S
84132	NUEVO ROCAFUERTE	S
84135	PORTOVIEJO	S
84137	PORTOVIEJO AEROPUERTO	S
84140	PICHILINGUE	S
84143	RUMIPAMBA	S

INDEX	STATION NAME	OBSERVATIONS
84147	AMBATO AEROPUERTO	S
84149	TENA AEROPUERTO	S
84160	QUERO CHACA	S
84163	SHELL MERA AEROPUERTO	S
84176	RIOBAMBA AEROPUERTO	S
84179	PUYO	S
84200	SALINAS AEROPUERTO	S
84202	MILAGRO	S
84203	GUAYAQUIL AEROPUERTO	S
84204	GUAYAQUIL INAMHI	S
84217	MACAS AEROPUERTO	S
84226	CANAR	S
84239	CUENCA AEROPUERTO	S
84252	SANTA ROSA AEROPUERTO	S
84265	TOMA CATAMAYO AEROPUERTO	S
84270	LOJA ARGELIA	S
<b>FRENCH GUIANA</b>		
81401	SAINT-LAURENT-DU-MARONI	S
81405	ROCHAMBEAU	S
81405	ROCHAMBEAU	R
81408	SAINT GEORGES DE L'OYAPOCK	S
81415	MARIPASOULA	S
<b>GUYANA</b>		
81002	TIMEHRI/CHEDDI JAGAN INTERNATIONAL	S
81002	TIMEHRI/CHEDDI JAGAN INTERNATIONAL	R
81005	KAMARANG	S
81006	LETHEM	S
81010	EBINI	S
81080	KAIETEUR FALLS	S
81100	MABARUMA	S
<b>ISLANDS (88: 800 – 998)</b>		
88889	MOUNT PLEASANT AIRPORT	S
88889	MOUNT PLEASANT AIRPORT	R
88903	GRYTVIKEN, SOUTH GEORGIA	S
<b>PARAGUAY</b>		
86011	BASE A. GRAL ADRIAN JARA	S
86033	BAHIA NEGRA	S
86065	PELAYO PRATS-GIL	S
86068	MARISCAL ESTIGARRIBIA	S
86086	PUERTO CASADO	S
86097	PEDRO JUAN CABALLERO	S
86128	POZO COLORADO	S
86134	CONCEPCION	S
86170	GRAL. BRUGUEZ	S
86185	SAN PEDRO	S
86192	SAN ESTANISLAO	S



INDEX	STATION NAME	OBSERVATIONS
86210	SALTO DEL GUAIRA	S
86218	ASUNCION/AEROPUERTO	S
86233	VILLARRICA	S
86246	AEROPUERTO INT. GUARANI	S
86255	PILAR	S
86260	SAN JUAN BAUTISTA	S
86285	CAPTAN MEZA	S
86297	ENCARNACION	S
<b>PERU</b>		
84331	ANDOAS	S
84370	TUMBES	S
84377	IQUITOS	S
84377	IQUITOS	R
84390	TALARA	S
84401	PIURA	S
84401	PIURA	R
84425	YURIMAGUAS	S
84440	RIOJA	S
84444	CHACHAPOYAS	S
84452	CHICLAYO	S
84455	TARAPOTO	S
84472	CAJAMARCA	S
84474	JUANJUI	S
84501	TRUJILLO	S
84515	PUCALLPA	S
84531	CHIMBOTE	S
84534	TINGO MARIA	S
84542	ANTA (HUARAZ)	S
84564	HUANUCO	S
84593	ATALAYA	S
84628	LIMA-CALLAO/AEROP. INTERNACIONAL JORGE CHAVEZ	S
84658	PUERTO MALDONADO	S
84673	AYACUCHO	S
84686	CUZCO	S
84691	PISCO	S
84720	NAZCA	S
84735	JULIACA	S
84752	AREQUIPA	S
84773	ILO	S
84782	TACNA	S
<b>SURINAME</b>		
81202	NICKERIE	S
81209	STOELMANSEILAND	S

INDEX	STATION NAME	OBSERVATIONS
81225	ZANDERIJ	S
81250	TAFELBERG	S
81251	SIPALIWINI	S
81253	COEROENI	S
81260	KABALEBO	S
<b>URUGUAY</b>		
86330	ARTIGAS	S
86350	RIVERA	S
86360	SALTO	S
86565	ROCHA	S
86580	CARRASCO	S
86586	LAGUNA DEL SAUCE	S
<b>VENEZUELA (BOLIVARIAN REPUBLIC OF)</b>		
80403	CORO	S
80405	LA ORCHILA	S
80410	BARQUISIMETO	S
80413	MARACAY - B.A. SUCRE	S
80413	MARACAY - B.A. SUCRE	R
80415	CARACAS/MAIQUETIA AEROP. INTL. SIMON BOLIVAR	S
80419	BARCELONA	S
80421	PORLAMAR (AEROPUERTO INT. DEL CARIBE)	S
80423	GUIRIA	S
80425	MENE GRANDE	S
80428	GUANARE	S
80434	VALLE DE LA PASCUA	S
80435	MATURIN	S
80438	MERIDA	S
80442	CALABOZO	S
80444	CIUDAD BOLIVAR	S
80447	SAN ANTONIO DEL TACHIRA	S
80447	SAN ANTONIO DEL TACHIRA	R
80450	SAN FERNANDO DE APURE	S
80453	TUMEREMO	S
80457	PUERTO AYACUCHO	S
80462	SANTA ELENA DE UAIREN	S
80462	SANTA ELENA DE UAIREN	R
80476	LA CANADA	S
80476	LA CANADA	R
80478	TEMLADOR	S

**LEGEND:**

S = Surface observations

W = Radiowind observations

R = Radiosonde observations including radiowind observations

**Note:** An up-to-date list of Regional Basic Synoptic Network stations is available at <http://www.wmo.int/pages/prog/www/ois/rbsn-rbcn/rbsn-rbcn-home.htm>.

**Annex II to Resolution 3 (XV-RA III)****LIST OF STATIONS COMPRISING THE REGIONAL BASIC CLIMATOLOGICAL NETWORK IN REGION III**

INDEX	STATION NAME	CLIMAT	GSN	GUAN
<b>ARGENTINA</b>				
87007	LA QUIACA OBSERVATORIO	X	X	
87016	ORAN AERO	X		
87022	TARTAGAL AERO	X		
87046	JUJUY AERO	X		
87047	SALTA AERO	X	X	
87065	RIVADAVIA	X	X	
87078	LAS LOMITAS	X	X	
87097	IGUAZU AERO	X		
87121	TUCUMAN AERO	X		
87129	SANTIAGO DEL ESTERO AERO.	X	X	
87148	PCIA. ROQUE SAENZ PENA AERO	X		
87155	RESISTENCIA AERO.	X	X	X
87162	FORMOSA AERO	X		
87178	POSADAS AERO.	X		
87217	LA RIOJA AERO.	X	X	
87222	CATAMARCA AERO.	X		
87244	VILLA DE MARIA DEL RIO SECO	X		
87257	CERES AERO	X	X	
87270	RECONQUISTA AERO	X	X	
87289	PASO DE LOS LIBRES AERO	X		
87305	JACHAL	X	X	
87311	SAN JUAN AERO	X		
87320	CHAMICAL AERO	X		
87328	VILLA DOLORES AERO	X		
87344	CORDOBA AERO	X	X	
87349	PILAR OBSERVATORIO	X		
87374	PARANA AERO	X	X	
87393	MONTE CASEROS AERO	X		
87395	CONCORDIA AERO	X		
87418	MENDOZA AERO	X	X	
87436	SAN LUIS AERO	X		
87448	VILLA REYNOLDS AERO	X		
87453	RIO CUARTO AERO	X		
87467	MARCOS JUAREZ AERO	X		
87480	ROSARIO AERO	X		
87497	GUALEGUAYCHU AERO	X		
87506	MALARGUE AERO	X		
87509	SAN RAFAEL AERO	X		
87532	GENERAL PICO AERO	X		
87534	LABOULAYE	X	X	
87544	PEHUAJO AERO	X	X	
87548	JUNIN AERO	X		

INDEX	STATION NAME	CLIMAT	GSN	GUAN
87576	EZEIZA AERO	X		X
87623	SANTA ROSA AERO	X	X	
87640	BOLIVAR AERO	X		
87641	AZUL AERO	X		
87645	TANDIL AERO	X		
87648	DOLORES AERO	X		
87688	TRES ARROYOS	X		
87692	MAR DEL PLATA AERO	X	X	
87715	NEUQUEN AERO	X	X	
87750	BAHIA BLANCA AERO	X	X	
87765	BARILOCHE AERO	X		
87784	SAN ANTONIO OESTE AERO	X		
87791	VIEDMA AERO	X		
87803	ESQUEL AERO	X	X	
87828	TRELEW AERO	X	X	
87852	PERITO MORENO AERO	X		
87860	COMODORO RIVADAVIA AERO	X	X	X
87896	PUERTO DESEADO AERO	X		
87904	EL CALAFATE AERO	X		
87909	SAN JULIAN AERO	X		
87925	RIO GALLEGOS AERO	X	X	
87938	USHUAIA AERO	X		
<b>BOLIVIA (PLURINATIONAL STATE OF)</b>				
85041	COBIJA	X	X	
85043	RIBERALTA	X	X	
85104	SAN JOAQUIN	X		
85114	MAGDALENA	X	X	
85141	RURRENABAQUE	X	X	
85152	SAN BORJA	X		
85154	TRINIDAD	X		
85175	ASCENCION DE GUARAYOS	X		
85201	LA PAZ/ALTO	X		
85207	SAN IGNACIO DE VELASCO	X	X	
85223	COCHABAMBA	X	X	
85230	CHARANA	X	X	
85244	VIRU-VIRU	X		
85245	SANTA CRUZ/EL TROMPILLO	X		
85268	ROBORE	X		
85283	SUCRE	X		
85289	PUERTO SUAREZ	X	X	
85315	CAMIRI	X		
85364	TARIJA	X	X	
85365	YACUIBA	X	X	

INDEX	STATION NAME	CLIMAT	GSN	GUAN
<b>BRAZIL</b>				
82024	BOA VISTA	X	X	
82098	MACAPA	X		
82106	SAO GABRIEL DA CACHOEIRA	X	X	
82113	BARCELOS	X	X	
82191	BELEM	X		
82193	BELEM (AEROPORTO)		X	X
82212	FONTE BOA	X		
82246	BELTERRA	X		
82280	SAO LUIZ	X		
82287	PARNAIBA	X		
82326	CODAJAS	X		
82331	MANAUS	X	X	
82332	MANAUS (AEROPORTO)			X
82336	ITACOATIARA	X		
82353	ALTAMIRA	X	X	
82397	FORTALEZA	X		X
82400	FERNANDO DE NORONHA	X	X	
82410	BENJAMIN CONSTANT	X	X	
82425	COARI	X	X	
82445	ITAITUBA	X		
82460	BACABAL	X		
82533	MANICORE	X		
82562	MARABA	X		
82571	BARRA DO CORDA	X	X	
82578	TERESINA	X		
82583	CRATEUS	X		
82586	QUIXERAMOBIM	X	X	
82598	NATAL	X		
82678	FLORIANO	X		
82704	CRUZEIRO DO SUL	X	X	
82723	LABREA	X		
82765	CAROLINA	X		
82784	BARBALHA	X		
82791	PATOS	X		
82825	PORTO VELHO	X	X	
82900	RECIFE	X		
82915	RIO BRANCO	X		
82983	PETROLINA	X		
83064	PORTO NACIONAL	X	X	
83096	ARACAJU	X		
83186	JACOBINA	X		
83208	VILHENA (AEROPORTO)	X		
83229	SALVADOR	X	X	
83235	TAGUATINGA	X		
83236	BARREIRAS	X	X	
83242	LENCOIS	X		
83264	GLEBA CELESTE	X	X	

INDEX	STATION NAME	CLIMAT	GSN	GUAN
83288	BOM JESUS DA LAPA	X		
83332	POSSE	X		
83344	VITORIA DA CONQUISTA	X		
83358	POXOREO (POXOREU)	X		
83361	CUIABA	X	X	
83377	BRASILIA	X		
83378	BRASILIA (AEROPORTO)			X
83423	GOIANIA	X		
83437	MONTES CLAROS	X		
83481	JOAO PINHEIRO	X	X	
83488	ITAMARANDIBA	X	X	
83492	TEOFILO OTONI	X		
83498	CARAVELAS	X	X	
83550	SAO MATEUS	X		
83552	CORUMBA	X		
83565	PARANAIBA	X		
83566	BELO HORIZONTE (CONFINES)	X	X	
83579	ARAXA	X		
83587	BELO HORIZONTE	X		
83592	CARATINGA	X		
83618	TRES LAGOAS	X	X	
83623	VOTUPORANGA	X		
83630	FRANCA	X		
83648	VITORIA	X		
83650	TRINDADE (ILHA)	X	X	
83676	CATANDUVA	X		
83698	CAMPOS	X		
83702	PONTA PORA	X		
83704	IVINHEMA	X		
83716	PRESIDENTE PRUDENTE	X		
83726	SAO CARLOS	X		
83738	RESENDE	X		
83746	GALEAO	X	X	
83766	LONDRINA	X		
83779	MARTE			X
83781	SAO PAULO	X	X	
83783	CAMPO MOURAO	X		
83827	FOZ DO IGUACU (AEROPORTO)	X	X	
83836	IRATI	X		
83842	CURITIBA BACACHERI	X	X	
83881	IRAI	X	X	
83897	FLORIANOPOLIS	X		
83967	PORTO ALEGRE	X		
83980	BAGE	X		
83997	ST.VITORIA DO PALMAR	X		
<b>CHILE</b>				
85406	ARICA	X	X	
85418	IQUIQUE	X		

INDEX	STATION NAME	CLIMAT	GSN	GUAN
85442	ANTOFAGASTA	X	X	X
85469	ISLA DE PASCUA	X	X	X
85470	COPIAPO	X		
85488	LA SERENA	X	X	
85574	PUDAHUEL	X		
85577	QUINTA NORMAL	X	X	
85585	JUAN FERNANDEZ	X	X	
85586	SANTO DOMINGO			X
85629	CURICO	X	X	
85672	CHILLAN	X		
85682	CONCEPCION	X		
85743	TEMUCO	X	X	
85766	VALDIVIA	X		
85782	OSORNO	X		
85799	PUERTO MONTT	X	X	X
85874	BALMACEDA	X	X	
85934	PUNTA ARENAS	X	X	X
<b>COLOMBIA</b>				
80009	SANTA MARTA/SIMON BOLIVAR	X		
80022	CARTAGENA/RAFAEL NUNEZ	X		
80028	BARRANQUILLA/ERNESTO CORTISSOZ	X		
80035	RIOHACHA/ALMIRANTE PADILLA	X		
80084	APARTADO/LOS CEDROS	X		
80091	BARRANCABERMEJA/YARIGUIES	X		
80094	BUCARAMANGA/PALONEGRO	X		
80097	CUCUTA/CAMILO DAZA	X		
80099	ARAUCA/SANTIAGO PEREZ	X		
80112	RIONEGRO/J.M.CORDOVA	X		
80139	PUERTO CARRENO/A.GUAUQUEA	X		
80144	QUIBDO/EL CARANO	X		
80210	PEREIRA/MATECANA	X		
80214	IBAGUE/PERALES	X		
80222	BOGOTA/ELDORADO	X	X	X
80234	VILLAVICENCIO/VANGUARDIA	X		
80259	CALI/ALFONSO BONILLA ARAGON	X	X	
80315	NEIVA/BENITO SALAS	X		
80342	PASTO/ANTONIO NARINO	X	X	
80370	IPIALES/SAN LUIS	X		
<b>ECUADOR</b>				
84008	SAN CRISTOBAL RADIOSONDA (GALAPAGOS)	X	X	X
84036	SAN GABRIEL	X		
84050	LA CONCORDIA	X		
84088	IZOBAMBA	X	X	
84132	NUEVO ROCAFUERTE	X		
84135	PORTOVIEJO	X		
84140	PICHILINGUE	X	X	
84179	PUYO	X		
84203	GUAYAQUIL AEROPUERTO	X		

INDEX	STATION NAME	CLIMAT	GSN	GUAN
84226	CANAR	X		
84270	LOJA/LA ARGELIA	X	X	
<b>FRENCH GUIANA</b>				
81401	SAINT-LAURENT-DU-MARONI	X		
81405	ROCHAMBEAU	X	X	X
81408	SAINT GEORGES DE L'OYAPOCK	X		
81415	MARIPASOULA	X		
<b>GUYANA</b>				
81002	TIMEHRI/CHEDDI JAGAN INTERNATIONAL	X		
<b>ISLANDS (88: 800 - 998)</b>				
88889	MOUNT PLEASANT AIRPORT	X	X	X
<b>PARAGUAY</b>				
86011	BASE A. GRAL ADRIAN JARA	X		
86033	BAHIA NEGRA	X		
86065	PELAYO PRATS-GIL	X		
86068	MARISCAL ESTIGARRIBIA	X		
86086	PUERTO CASADO	X	X	
86097	PEDRO JUAN CABALLERO	X		
86134	CONCEPCION	X		
86185	SAN PEDRO	X		
86210	SALTO DEL GUAIRA	X		
86218	ASUNCION/AEROPUERTO	X		
86233	VILLARRICA	X		
86246	AEROPUERTO INT. GUARANI	X		
86255	PILAR	X		
86260	SAN JUAN BAUTISTA	X		
86297	ENCARNACION	X	X	
<b>PERU</b>				
84370	TUMBES	X		
84377	IQUITOS	X	X	
84390	TALARA	X		
84401	PIURA	X		
84405	HUANCABAMBA	X		
84425	YURIMAGUAS	X		
84435	MOYOBAMBA	X		
84444	CHACHAPOYAS	X	X	
84452	CHICLAYO	X		
84455	TARAPOTO	X	X	
84472	CAJAMARCA	X		
84474	JUANJUI	X		
84501	TRUJILLO	X		
84515	PUCALLPA	X		
84531	CHIMBOTE	X		
84534	TINGO MARIA	X		
84542	ANTA (HUARAZ)	X		
84564	HUANUCO	X		
84628	LIMA-CALLAO/AEROP. INTERNACIONAL JORGE CHAVEZ	X		X
84658	PUERTO MALDONADO	X		

INDEX	STATION NAME	CLIMAT	GSN	GUAN
84670	QUILLABAMBA	X		
84673	AYACUCHO	X		
84677	QUINCEMIL	X		
84680	CASTROVIRREYNA (SINTO)	X		
84686	CUZCO	X		
84691	PISCO	X		
84721	SAN JUAN	X		
84735	JULIACA	X		
84752	AREQUIPA	X	X	
84773	ILO	X		
<b>SURINAME</b>				
81202	NICKERIE	X	X	
<b>URUGUAY</b>				
86330	ARTIGAS	X	X	
86350	RIVERA	X		
86360	SALTO	X		
86370	TACUAREMBO	X		
86430	PAYSANDU	X		
86440	MELO	X	X	
86490	MERCEDES	X	X	
86565	ROCHA	X	X	
86580	CARRASCO	X		
<b>VENEZUELA (BOLIVARIAN REPUBLIC OF)</b>				
80403	CORO	X		
80405	LA ORCHILA	X	X	
80407	MARACAIBO-LA CHINITA	X		
80410	BARQUISIMETO	X		
80413	MARACAY - B.A. SUCRE	X		

INDEX	STATION NAME	CLIMAT	GSN	GUAN
80416	CARACAS/LA CARLOTA	X		
80418	CARACAS/ GACIGAL OBS	X		
80419	BARCELONA	X		
80421	PORLAMAR (AEROPUERTO INT. DEL CARIBE)	X		
80423	GUIRIA	X	X	
80425	MENE GRANDE	X	X	
80426	VALERA	X		
80427	ACARIGUA	X		
80428	GUANARE	X		
80432	CARRIZAL	X		
80434	VALLE DE LA PASCUA	X		
80435	MATURIN	X		
80437	EL VIGIA	X		
80438	MERIDA	X	X	
80440	BARINAS	X		
80442	CALABOZO	X		
80444	CIUDAD BOLIVAR	X		
80447	SAN ANTONIO DEL TACHIRA	X		
80448	GUASDUALITO	X		
80450	SAN FERNANDO DE APURE	X	X	
80453	TUMEREMO	X	X	
80457	PUERTO AYACUCHO	X		
80462	SANTA ELENA DE UAIREN	X	X	
80478	TEMLADOR	X		
80479	PALMICHAL	X		

**Note:** An up-to-date list of Regional Basic Climatological Network stations is available at <http://www.wmo.int/pages/prog/www/ois/rbsn-rbcn/rbsn-rbcn-home.htm>.

#### Resolution 4 (XV-RA III)

#### AMENDMENTS TO THE *MANUAL ON THE GLOBAL OBSERVING SYSTEM (WMO-No. 544)*, VOLUME II – REGIONAL ASPECTS, REGION III (SOUTH AMERICA)

REGIONAL ASSOCIATION III (SOUTH AMERICA),

#### Noting:

- (1) The *Manual on the Global Observing System (WMO-No. 544)*, Volume II – Regional Aspects, Region III (South America),
- (2) The fifth session of the Working Group on Planning and Implementation of the World Weather Watch in Region III,

**Considering** that there is a need to regularly update the regional entry for the *Manual on the Global Observing System* (WMO-No. 544), Volume II, in response to evolving requirements,

**Decides** that the amended text of section 3 of the *Manual on the Global Observing System* (WMO-No. 544), Volume II – Regional Aspects, Region III (South America), as listed in the annex to the present resolution, be adopted with immediate effect;

**Requests** the Secretary-General:

- (1) To arrange for the inclusion of the amendment in the *Manual on the Global Observing System* (WMO-No. 544), Volume II – Regional Aspects, Region III (South America);
- (2) To bring this modification to the attention of Members of Regional Association III.

### Annex to Resolution 4 (XV-RA III)

#### AMENDMENTS TO THE *MANUAL ON THE GLOBAL OBSERVING SYSTEM* (WMO-No. 544), VOLUME II – REGIONAL ASPECTS, REGION III (SOUTH AMERICA)

*REPLACE the text of section 3 – Region III – South America to read:*

### **3.1 REGIONAL BASIC SYNOPTIC NETWORK OF SURFACE AND UPPER-AIR OBSERVING STATIONS**

#### **3.1.1 Composition of the Regional Basic Synoptic Network (RBSN)**

3.1.1.1 The RBSN of surface and upper-air observing stations is reviewed and revised at each session of the Association. The list of stations constituting the current RBSN is given in the report of the most recent session of the Association. Changes are announced in the monthly “Operational Newsletter” issued by the Secretariat (see paragraph 3.1.4 below).

3.1.1.2 Manned surface land stations included in the RBSN shall conform to the specifications laid down for land stations in Volume I of this Manual.

#### **3.1.2 Criteria for inclusion of stations in the RBSN**

For the definition of criteria, two types of requirements are distinguished:

- (a) Target requirements (TRQs) refer to desired characteristics of network stations;
- (b) Minimum requirements (MRQs) refer to threshold characteristics which are decisive for inclusion or exclusion of a station.

The inclusion of a station in the network implies a clear commitment of the Member concerned to make fair efforts for (maintaining) compliance with the TRQs.

	<b>TRQ Surface</b>	<b>MRQ Surface</b>	<b>TRQ Upper-air</b>	<b>MRQ Upper-air</b>
Parameters (measured and recorded)	Pressure; Temperature; Wind; Humidity; Weather; Visibility; Cloud cover; Cloud base.	Pressure Temperature; Wind; (not for buoys) Humidity; (not for buoys).	Pressure / geopotential; Temperature; Wind; Humidity.	Pressure / geopotential; Temperature; Wind; Humidity.
Level	Surface	Surface	Up to 10 hPa	Up to 100 hPa
Observations at main hours	4	3	2 (at 00 and 12)	1 (at 00 or 12)
Observations at main and inter- mediate hours (i.e. 3 hourly)	8	5	–	–
Availability of data (per cent)	100	50	100	50

TRQ = Target requirements MRQ = Minimum requirements

### **3.1.3 Classification of station**

3.1.3.1 Stations are classified according to their performance with reference to the above requirements:

- (a) Those stations meeting all TRQs are classified as OK;
- (b) Those stations meeting all the MRQs are classified as IP (incomplete programme);
- (c) Operational stations not meeting all MRQs are classified as BC (Below criteria);
- (d) Silent stations are classified as NO (Not Operating).

#### **3.1.3.2 Spatial distribution for surface stations**

- (a) As an ideal target over land areas the RBSN should have a spatial resolution of 150 km for the surface and 250 km for upper-air stations;
- (b) As an optimal target over land areas the RBSN should have a spatial resolution of 250 km for the surface and 500 km for upper-air stations;
- (c) OK stations are acceptable if at a distance of at least 60 km from the nearest network station.

#### **3.1.3.3 Application of the criteria**

The criteria are developed and revised periodically by each session of the Regional Association. These criteria should ensure a network with an optimum composition regarding the observing programme, reliability of reception and spacing of stations. The criteria should allow for the inclusion of stations with reduced observing programmes in data-sparse areas.

### **3.1.4 Arrangements and procedures for updating and amending the RBSN**

Certain minor changes in the RBSN of surface and upper-air synoptic stations which do not affect the data requirements of the Region as a whole are inevitable. To provide a simple and rapid means of effecting changes by Members, the following procedure shall be followed:

- (a) The Association authorizes the president of the Association to approve, at the request of the Member concerned, on the advice of the Chair of the Working Group on Global Observing Systems (WG-GOS), and in consultation with the Secretary-General, minor changes to the RBSN without formal consultation with the Members of the Association, it being understood that any change of substance, i.e., one adversely affecting the density of the network or proposing a significant change in observational hours, would still require the formal agreement of Members through the adoption of a resolution by postal ballot;
- (b) The Secretary-General shall notify all Members of WMO of changes agreed with the president of the Association;
- (c) Each Member of the Association is encouraged to nominate a national focal point (NFP) for WMO on operational matters related to the RBSN. The nominated NFP should coordinate information with the Chairman of WG-GOS and the Secretariat with a view to timely updating information regarding the RBSN.

## **3.2 REGIONAL BASIC CLIMATOLOGICAL NETWORK OF SURFACE AND UPPER-AIR OBSERVING STATIONS**

### **3.2.1 Composition of the Regional Basic Climatological Network (RBCN)**

3.2.1.1 The RBCN was established by the Association to provide a comprehensive network of CLIMAT and CLIMAT TEMP reporting stations. It is based primarily on RBSN stations and

includes all GCOS (GSN and GUAN) stations, regardless of whether these report CLIMAT or CLIMAT TEMP. The RBCN also includes all other stations that report CLIMAT or CLIMAT TEMP needed for description of regional climate features, except those that are within 60 km of another network station. These other stations should be selected under the same criteria used for GSN and GUAN stations. Non-RBSN stations reporting CLIMAT messages should be considered, particularly those with long records, as well as any Reference Climatological Stations.

3.2.1.2 Members are urged 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 the RBCN stations.

3.2.1.3 The RBCN of surface and upper-air observing stations is reviewed and revised at each session of the Association. The list of stations constituting the current RBCN is given in the report of the most recent session of the Association.

### **3.2.2 Arrangements and procedures for updating and amending RBCN**

RA III authorizes the president of the Association to approve, at the request of the Member concerned, on the advice of the Rapporteur on the Regional Aspects of the GOS, and in consultation with the Secretary-General, minor changes to the list of RBCN stations without formal consultation with the Members of the Association, following similar procedures to those specified for the RBSN.

## **3.3 REGIONAL ARRANGEMENTS AND PROCEDURES FOR OBSERVATIONS**

### **3.3.1 Pressure-reduction method**

3.3.1.1 According to the WMO Technical Regulations, Annex V, *Manual on the Global Observing System*, Volume I, Part III, Regulation 3.3.2.6, the atmospheric pressure at a station shall be reduced to mean sea-level, except at those stations where the regional association resolutions prescribe otherwise, see *Manual on Codes*, Volume II, Region III, page II-3-A-1-1: 3/12.1.1.

3.3.1.2 The Association has not taken any decision regarding the introduction of a uniform method of pressure reduction throughout the Region and Members of the region are free to use the method that suits them best.

### **3.3.2 Regional comparison of barometers**

3.3.2.1 Each Member in the Region should ensure that the barometer of each synoptic station in its territory is traceable to a fixed national barometric standard, through an appropriate series of comparisons at least every two years.

3.3.2.2 National barometric standards should be traceable to an absolute barometric standard recognized by WMO, within or outside the Region, through an appropriate intercomparison at least every 10 years.

NOTE: The term "barometric standard" is used rather than "standard barometer" since often the standard is not a barometer (e.g. a dead weight tester is a pressure standard, but not a barometer).

### **3.3.3 Ground weather radar observations**

Considering the usefulness of exchanging, on a bilateral or multilateral basis, meteorological information obtained by ground weather radar stations, Members are urged to continue their efforts to install ground weather radar stations for detecting precipitation, including heavy rain, hail and other severe weather phenomena, and to exchange on a bilateral or multi-lateral basis



the meteorological information so obtained using the appropriate WMO code form (e.g. FM 94-IX Ext. BUFR).

### **3.3.4 Regional Instrument Centres (RICs)**

3.3.4.1 Considering the need for regular calibration and maintenance of meteorological instruments to meet increasing needs for high-quality meteorological and hydrological data, the requirements of Members in the Region for standardization of meteorological measurements, the need for international instrument comparisons and evaluations, and for training of instrument experts, the Regional Instrument Centres should be established according to the WMO *Guide to Meteorological Instruments and Methods of Observations*, WMO-No. 8, Annex 1.A.

3.3.4.2 The Meteorological Laboratory and Workshop of the National Meteorological Service of Argentina in Buenos Aires, (Argentina) is designated as the Regional Instrument Centre.

### **3.3.5 Regional Radiation Centres (RRCs)**

3.3.5.1 Considering the usefulness of the calibration of national and regional standard pyrhemeters against pyrhemeters of the World Standard Group (WSG) at five-year intervals for guaranteeing the high quality of radiation data and noting Resolution 11 (EC-XXX) – National, Regional and World Radiation Centres, Regional Radiation Centres should be established according to the WMO *Guide to Meteorological Instruments and Methods of Observations*, WMO-No. 8, Annex 7.C.

3.3.5.2 The radiation centres in Buenos Aires (Argentina), Santiago (Chile) and Lima (Peru) are designated as Regional Radiation Centres.

## **Resolution 5 (XV-RA III)**

### **MANAGEMENT GROUP AND SUBSIDIARY BODIES OF REGIONAL ASSOCIATION III (SOUTH AMERICA)**

REGIONAL ASSOCIATION III (SOUTH AMERICA),

#### **Noting:**

- (1) The *Abridged Final Report with Resolutions of the Fifteenth World Meteorological Congress* (WMO-No. 1026),
- (2) The *Abridged Final Report with Resolutions of the Fourteenth Session of Regional Association III (South America)* (WMO-No. 1011),
- (3) The third abridged final report of the Working Group on Internal Matters of Regional Association III, as well as reports by working groups and rapporteurs during the fifteenth session of Regional Association III,

**Considering** the proposal made by the Working Group on Internal Matters of Regional Association III,

#### **Recognizing:**

- (1) That the Members agree on the importance of continuing the activities of the Working Group on Internal Matters of Regional Association III, as well as other working groups of the Regional Association,

- (2) That there is a growing need for greater coordination of the activities of RA III,
- (3) That there is the need for an arrangement to discuss the matters of importance for the Association, including the activities of the working groups, their members and the rapporteurs of RA III, during the intersessional period,

**Decides:**

- (1) To establish a Management Group of Regional Association III (South America) to replace the former Working Group on Internal Matters of Regional Association III, to advise the president, to act on behalf of the Association and to make recommendations on matters relevant to the Association, with the following terms of reference:
  - (a) To discuss matters related to the work of the Association, including emerging matters or matters requiring the adoption of actions that could not be postponed until the following regular session of the Association;
  - (b) To plan and coordinate the work of the Association and its subsidiary bodies;
  - (c) To ensure priorities are addressed and advise on appropriate mechanisms for achieving results in accordance with the RA III Operating Plan;
  - (d) To establish or designate, as necessary, task teams and/or rapporteurs with clear time-bound objectives that take into account the priorities reflected in the Strategic Plan for the Enhancement of the National Meteorological and Hydrological Services (NMHSs) in Regional Association III (South America), the RA III Operating Plan and the WMO Strategic Plan;
  - (e) To elect members of these task teams and/or rapporteurs from nominations provided by Members of RA III;
  - (f) To establish and review the structure and work of the subsidiary bodies of the Association, including the implementation of their recommendations, and to disband or reorganize the bodies as may be required;
  - (g) To collaborate with the Secretariat on resource mobilization and advise on the alignment of resources with regional priorities and implementation of the RA III Operating Plan;
  - (h) To coordinate and monitor the implementation of the RA III Strategic Plan, and to provide the contribution of the Region to the WMO Strategic Plan;
  - (i) To finalize the RA III Operating Plan for the remainder of the fifteenth financial period based on the discussions during the fifteenth session of RA III and taking into account input from the Members of the Association, and to develop a RA III Operating Plan for the sixteenth financial period;
  - (j) To designate RA III Focal Points to ensure coordination with WMO programmes and other organizations;
  - (k) To address other issues as they arise, including strengthening of strategic partnerships with regional organizations, development agencies and other stakeholders;
- (2) To appoint Ms Dora Goniadzki as Regional Hydrological Adviser to serve as regional Focal Point on hydrological matters in the Region;

- (3) To invite the president to act as chair of the Management Group, which will be composed of the president, the vice-president and three other Permanent Representatives from RA III who are part of the Executive Council or their alternates at the invitation of the president. The Regional Hydrological Adviser shall serve as an ex officio member and participate in meetings, when possible. The president is encouraged to invite other Directors of National Meteorological and Hydrological Services and chairs of RA III subsidiary bodies to participate in Management Group meetings, subject to the availability of financial resources;
- (4) To establish the structure of its subsidiary bodies, whose terms of reference and composition are established in the final report of Regional Association III.

**Requests** the president to ensure that Members are adequately represented in the Management Group and working groups, and that the Management Group meet at least once a year, or whenever it is deemed necessary, preferably in conjunction with other events or meetings;

**Requests** the Management Group, with input from RA III Permanent Representatives with WMO, to create and populate the initial RA III subsidiary bodies not later than 30 November 2010;

**Authorizes** the president to adopt the necessary decisions on behalf of the Association, after consultation with the Management Group, on important matters;

**Requests further** the president to report to the Association during the intersessional period as necessary, and at its next regular session, on the activities of the Management Group and the relevant decisions taken on behalf of the Association.

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### Resolution 6 (XV-RA III)

#### REVIEW OF PREVIOUS RESOLUTIONS AND RECOMMENDATIONS OF THE ASSOCIATION

REGIONAL ASSOCIATION III (SOUTH AMERICA),

**Noting** paragraph 3.7.1 of the *Abridged Final Report with Resolutions of the Ninth Session of the Executive Committee* (WMO-No. 67),

**Considering:**

- (1) That a number of its resolutions adopted before its fifteenth session have been revised and incorporated in resolutions of the fifteenth 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** not to keep in force the resolutions adopted before its fifteenth session.

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**Note:** This resolution replaces Resolution 18 (XIV-RA III), which is no longer in force.

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# ANNEXES

## ANNEX I

Annex to [paragraph 4.7.5](#) of the general summary

### WMO GUIDING PRINCIPLES FOR SERVICE DELIVERY

#### 1. Purpose

The purpose of this document is to propose Guiding Principles for Service Delivery that will assist National Meteorological and Hydrological Services (NMHSs) in the provision of weather-, climate- and water-related services that incorporate user needs and performance metrics. While there is no prescriptive way to provide services, the Guiding Principles aim to improve service delivery by sharing best practises between NMHSs and to increase focus of WMO Programmes on service delivery in accordance with the WMO Strategic Plan.

#### 2. Introduction

Effective service delivery is a fundamental requirement for NMHSs if they are to meet national needs. However, there are many different interpretations of the concept of service delivery as it relates to the provision of weather-, climate- and water-related services. Several of these are defined and discussed in this paper with the intent of forging an international WMO Guiding Principles for Service Delivery.

#### 3. Principles guiding effective Service Delivery

- (a) User engagement and feedback is essential in designing and delivering effective services;
- (b) Sharing best practises leads to effective and efficient service design and implementation;
- (c) Service concept applied to all WMO activities and culture change is essential to ensure the success of service delivery;
- (d) Partnership with other international and regional organizations that are also engaged in delivering services is essential in maximizing the use of weather, climate and water information for decision making.

#### 4. Attributes of effective services

Effective services should be:

- (a) Available: at time and space scales that the user needs;
- (b) Dependable: delivered regularly and on time;
- (c) Usable: presented in user specific formats so that the client can fully understand;
- (d) Useful: to respond appropriately to user needs;
- (e) Credible: for the user to confidently apply to decision-making;
- (f) Authentic: entitled to be accepted by stakeholders in the given decision contexts;

- (g) Responsive and flexible: to the evolving user needs;
- (h) Sustainable: affordable and consistent over time;
- (i) Expandable: to be applicable to different kinds of services.

## **5. The role of WMO in the Guiding Principles for Service Delivery**

**5.1** WMO provides international coordination and sets standards for weather-, climate- and water-related products and supporting services. This includes observations, data quality, and telecommunications. The data underpinning meteorological and related products require international coordination and validation to guarantee that they meet the needs of the product generating centres. The communication systems that move data and products globally are coordinated through WMO. The assessment, and objective verification of products that are generated by one country and used by others may also be coordinated by WMO and the results shared and used in the process of improving the quality of products for all.

**5.2** WMO also provides guidance for service delivery which is used to good effect by all Members. However, Guiding Principles for Service Delivery are required to provide a more uniform and structured approach for WMO and its NMHSs on service development and delivery applicable to all weather, climate and water information.

**5.3** NMHSs deliver a wide range of weather-, climate- and water-related services to meet a broad range of needs. In the majority of these cases needs are defined nationally, the major exceptions being services for international aviation and shipping, which conform to international standards and defined user requirements. Providing an international strategy through WMO will enable NMHSs to improve national service delivery by sharing better practises and supporting mutually agreed guidelines, and by increasing the user targeting of the services.

**5.4** The Guiding Principles on Service Delivery will also help enable capacity-building within NMHSs in order to make best possible use of resources. This is achieved by focusing the assignment of resources to countries with the greatest need for assistance in service improvements, or to relevant Secretariat activities required to underpin and coordinate this capacity-building.

## **6. What drives the priority of Service Delivery in NMHSs?**

**6.1** The public and political assessments of the effectiveness of NMHSs occur continuously. These depend largely on how effectively the NMHSs meet the service delivery standards of the nations they serve. Confidence in NMHSs derives from demonstrated capability to deliver services in a way that meets national and public needs. It is not enough that staff within the NMS or NHS consider the services they provide to be world-class, highly accurate or even perfectly usable and relevant to their community's needs, what is required is that the community receives services that meet their needs. This requires concerted effort for direct communication and engagement with the users.

**6.2** The ability of an NMS or NHS to meet national service delivery needs is put to its most critical test when an extreme hydrometeorological event occurs and then even the best forecast, issued on time, is no defence in the event of a national disaster if no one used that forecast. Providing effective warning, forecast and assessment products and services depends on a system that engages users, the problems, the risks and the values throughout the process. Most of the utility of weather, climate and water information, added or lost in the value-chain of decisions and actions between the physical phenomena and their subsequent impact, occurs in communicating the information to users and in the behaviour of users in response to that information, and ultimately in the effect of their decisions in societal and economic outcomes. If the user cannot make changes or there is no effect on the outcome, the information is of little direct value. Value

can be increased by improving the forecast, by improving communication, and by improving the decision-making process. If the currently available information is underutilized, value will likely accrue if the communication or decision-making process is improved. Service delivery is about providing the service that the users actually use because it meets their needs.

**6.3** Countries make choices about which services their NMHSs will deliver. Generally, NMHSs must meet the key public needs in such a way as to have the greatest beneficial impact on their community. In one sense, this makes prioritization straightforward for NMHSs because it is clear that the activities that contribute most to the safety of life and property have the highest priority. However, the risks are not always obvious to national governments and are rarely objectively or continuously assessed.

## **7. Elements of service delivery for WMO**

**7.1** The WMO Strategic Plan emphasizes enhancing the capabilities of Members to provide and use weather, climate, water and environmental applications.

**7.2** WMO Programmes, as part of the Guiding Principles on Service Delivery, should adopt improving service delivery as part of their responsibility to assist NMHSs, including by encouraging them to:

- (a) Evaluate user needs and decisions, including drivers to:
  - Increase understanding and acting upon societal and economic requirements for impact-related weather, climate, water and air quality services;
  - Increase training and provision of guidance material to enhance NMHSs and partner organizations' ability to deliver useful services;
  - Expand the use of weather, climate and hydrological services;
  - Improve the decision making capability of Members by providing appropriate inputs to Members, including through integrated early warning of sector specific impacts, and information related to climate risk management and adaptation to climate change;
- (b) Develop and improve Service Delivery mechanisms to:
  - Improve relevant, timely, cost-effective and useful products and services that can be used beneficially by WMO Members;
  - Increase collaboration and cooperation between NMHSs, sectors and government agencies whose day-to-day activities are affected by weather and climate and which can benefit from improved weather, climate and water services;
- (c) Define service outcome effectiveness to:
  - Effectively use performance management approaches, tools and methods;
  - Ensure more people take effective action in response to information received;
  - Increase participation of NMHSs in Members' meteorological and hydrological risk management activities;
- (d) Establish governance practices by:
  - Ensuring that information is received and acted upon;
  - Learning from successful outcomes;
  - Sharing responsibility with all the partners engaged in Service Delivery.

## **8. Evolving User Needs**

**8.1** Service delivery must focus on collaborative problem solving which requires full engagement between providers and users. Service delivery is a complex issue and there are gaps in how services are delivered. These gaps need to be addressed and reduced. A service for a particular sector involves a broad partnership of producer and user organizations, meteorologists and related scientists, and practitioners from user sector and supporting organizations. It provides an opportunity to interlink global, regional and national information systems; to provide comprehensive modelling and analytical capability to address problems at regional and local scales, and to provide for a distributed decision-relevant research and development capability. It is the latter, which sets this service apart from the traditional, exclusively science-based forecasting service. Each service must be adapted to the sector it serves.

**8.2** With evolving needs of users, in order to stay relevant, NMHSs need to adapt themselves to user requirements. Implicitly, although service delivery is part of the role of NMHSs and collaborating organizations on technical matters, it should ideally be a partnership between environmental and social organizations. As such, one approach is to create a mechanism, which may be in the form of a real or virtual co-location of providers and users of weather, climate and water information who work together, iteratively, to deliver timely, effective and user specific services. It brings together the operational capacity of providers and users of weather, climate and water information and services. The mechanism, which may be called a “platform”, an “approach” or a “framework”, integrates environmental and user-specific data to determine impacts on the public and social and economic sectors such as energy grid management, construction sites, flood control and urban inundation agencies, emergency responders including the police and fire services, hospitals, transportation, accident management and control, airports, harbours, etc. The benefit to users would be an operational network that evolves to meet specific user needs, forecasts systems targeted to user decisions and an integrated system that aligns weather, climate and water information with social, economic and other user-specific information. A public service “platform”, “approach” or “framework” would provide the opportunity to focus on strengthening ground-based observation systems, strengthening surveillance, creating integrated early warning and assessment systems for weather, climate and hydrological forecasting systems, and providing fast, efficient and unified service delivery. The “platform”, “approach” or “framework” (representing all the operational providers and users) is instrumental in setting requirements for research and development.

**8.3** The net effect should include strengthening partnerships with key user sectors and government ministries. The aim would be to realize tangible and quantifiable benefits to communities by exploiting new operating partnerships between user and provider to share responsibility for effective delivery of services. This would include the development of new tools and methods to strengthen dialogue and collaboration between provider and user, especially the implementation of more interactive early warning and forecasting systems for weather, climate and water, which are integrated into every level of governance from the community level to the national infrastructure.

**8.4** By distinguishing between service delivery and production, emphasis is placed on information sharing, joint information dissemination, joint research and training, and joint product development between the service provider and the user. In addition to the information generated by the NMS, the platform would also seek to integrate data from outside partners, both national and international, so that users have access to all relevant information through a single source with which they can work directly.

## **9. Responsibilities of WMO Members**

WMO Members will:

**9.1** Rely on technological advancement to optimize forward looking service delivery, and this will be particularly important in building capacity in service delivery in developing countries.

**9.2** Agree on minimum guidelines and approaches for the development and provision of weather, climate or hydrological services. The approaches may be nationally determined, monitored and evaluated and results should be exchanged among WMO Members. The evaluation should include user assessment of the services intended for their use.

**9.3** Transfer knowledge through advanced capacity-building approaches (e.g., by engaging in regional partnerships and documentation of best practices).

**9.4** Engage in regional focus on user needs through information platforms (e.g., METEOALARM in Europe), regional workshops and forums for different user sectors.

**9.5** Develop acceptable metrics to determine the effectiveness of NMHSs' service delivery and agreed programmes that monitor and assess service quality and effectiveness.

**9.6** Exchange information between NMHSs on their effectiveness in engaging users and measuring outcomes as a means of capacity-building.

**9.7** Understand better the relevance of their services judged in the context of user needs. The information will be used to improve the efficiency and effectiveness of all WMO Programmes, and, as a consequence, of all Members. Quality management is an important element of these Guiding Principles.

**9.8** Establish a time-frame for reviewing the Guiding Principles.

## **10. Implementation of the Guiding Principles**

Taking into consideration the strong coordination aspect of service delivery, the following activities, among others, need to be undertaken to apply these Guiding Principles:

- (a) Establish an approach within the NMHS to respond to needs of selected user communities;
- (b) Conduct a survey of NMHS service delivery priorities, and develop an inventory of existing good practices;
- (c) Apply the new approach to at least one priority service;
- (d) Evaluate the results of service quality taking into account the guidelines and approaches (see 9.2) and user satisfaction.

## **11. Definitions related to provision of weather, climate and water**

**11.1** NMHSs (always used in the plural) – National Meteorological Services (NMSs) and National Hydrological Services (NHSs); NMS – A National Meteorological or Hydrometeorological Service; NHS – A National Hydrological Service.

**11.2** Users – Users are individuals or organizations with responsibilities for decisions and policies in sectors that are sensitive to weather, climate and water and for whom products and services are provided by NMHSs or collaborating organizations. If the user has paid directly for the service, he/she is generally called a customer.

**11.3** Providers – Individuals or entities that produce or acquire weather, climate or water information or products that are then supplied in support of users' needs in this regard. NB: *Providers may include NMHSs, Collaborating Organizations, other meteorologically-relevant agencies and the private sector, but this present strategy focuses only on WMO NMHSs.*



**11.4 Collaborating Organization** – An organization or entity (e.g. a University, a specialized non-government centre, a relevant government agency) of a WMO Member that provides complementary/additional weather, climate or water information to NMHSs or directly to users, under terms and conditions that have been mutually agreed.

**11.5 Product** – A product is basic information such as observations, datasets, or information that is created by an analysis or forecast process. For example, products include a warning of a tropical cyclone, a forecast of heating degree days for the next five days, a seasonal forecast, a time series, a climatological normal, a hydrological risk map, a satellite image, etc.

**11.6 Service** – A service is a product delivered or activity that is carried out (advice, interpretation, etc.) that meets the needs of a user or that can be applied by a user. A true service is therefore based on an understanding of the user's requirements, provides information, products and advice that is tailored for the user, e.g. in terms of timing, format, or content, and maintains a dialogue with the user. Providing a user access to a tropical cyclone warning in a convenient and timely manner is a non-user-specific service. Providing a customer access, for a commercial fee, to the five-day forecast of degree heat days, for example, is also a non-user-specific service. Both government and non-government entities supply weather-, climate- and water-related services (see also 3.3 and 3.4 above).

**11.7 Service Development** – A service should be co-developed by the user and the provider of the weather, climate and water products, a process which reflects the increasing importance of user-defined products and services, which integrate weather, climate and water information into user decision support systems.

**11.8 Service Contract** – Services may be provided as a public good; on a contractual basis to certain users or on a commercial basis to a fee paying customer. In all cases there is an implicit or explicit contract between the provider and user of the services to strive to meet the needs of the user.

**11.9 Fit for Purpose** – Within the implicit or explicit contract between the provider and user, and resulting from an extensive dialogue between the provider and user, "Fit for Purpose" implies a clear understanding and agreement in terms of:

- What is the information need?
- How will the information be provided?
- How will the information be used?
- The risks inherent in the decisions to be made using the information;
- The strengths and weaknesses of the information being provided (including verification and inherent uncertainties).

**11.10 Service Delivery Process** – The service delivery process describes the end-to-end activity of:

- Preparing and delivering the service;
  - Ensuring that the service is fit for purpose;
  - Establishing a feedback system that monitors the user/customer needs and their feedback on the quality of the service provided; and,
  - Managing the service performance continuously for service improvement over time, with respect to current and evolving user requirements.
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**ANNEX II**  
**Annex to paragraph 5.1.13 of the general summary**

**VOLUNTEERISM IN THE WORK OF REGIONAL ASSOCIATION III**

**General**

It is recognized that commitment and volunteerism, with the required support from Members, plays an important role in the subsidiary bodies of the regional association.

**Recommendations**

The following is recommended as per nominations, performance monitoring and recognition in order to improve the current situation with volunteerism, especially the declining number of volunteers:

Nominations:

1. That the work of WMO be better advertised and promoted within National Meteorological and Hydrological Services and other weather, climate, water and environment communities, in order to ensure contributions from a wide spectra of expertise and appropriate geographic coverage;
2. That prospective candidate experts and their Permanent Representatives should be aware of responsibilities and commitments, especially as far as coordination and participation are concerned;
3. That in seeking nomination for membership in the subsidiary bodies of regional associations, especially prior to a constituent body session, for the procedure to ensure that the commitment of the Permanent Representatives and the proposed experts are confirmed, as well as the availability of the professional profile, through a brief curriculum vitae of the latter, to help ascertain their specific expertise, and willingness to contribute; and that nomination committees are established early to allow sufficient time to examine all experts' personal information prior to a constituent body session;
4. That working group and task team members and theme leaders be chosen in such a way that their volunteer work corresponds to their daily activities in their home institutions;
5. That an indication of time commitment, for example in terms of minimum percentage of overall activity or time slots, might be useful for the agreement of the Permanent Representative to secure the necessary time for WMO work;
6. That Permanent Representatives should provide complete and up-to-date expert details, especially working e-mail addresses, to facilitate establishing subsidiary bodies;
7. That candidate experts not selected by nomination committees should be informed, thanked and encouraged to apply again to some other WMO work.

Performance monitoring:

1. That the WMO Secretariat manages the organization of subsidiary body meetings as early as possible within the intersessional period, in order to finalize action plans drafted following e-mail communication or teleconferences, and that the budget is set up accordingly, in order to have work assigned appropriately;
2. That evaluation of each subsidiary body and involved experts be conducted by the chair of the working group according to the rules of results-based management, in particular to

decide on the continuation of the membership of experts, taking into consideration the need for a balance between continuity and new activities and experts;

3. This evaluation is also important for the experts involved, especially for the recognition of their work by their Permanent Representatives;
4. That should an expert not contribute at the expected level, or in case of a totally silent expert, the president of the Association will consider his/her replacement, for example after one year of insufficient contribution;
5. That peer-reviewed reports produced should be published as soon as possible, at least on subsidiary body Websites, preferably in appropriate publication series with the names of contributors, for monitoring purposes and in order to recognize the work of the authors.

Recognition:

That Permanent Representatives should give recognition to their staff of work conducted for WMO activities. As in most National Meteorological and Hydrological Services an individual evaluation procedure is in place for rating staff members, the contribution to WMO work should be included in the list of criteria used.

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# APPENDIX

## LIST OF PARTICIPANTS

### 1. Officers of the session

President	Mr VIÑAS GARCÍA (Venezuela)
Vice-president	Mrs Myrna ARANEDA (Chile)
Hydrological Adviser	Mrs Dora GONIADZKI (Argentina)

### 2. Representatives of WMO Members within the Region

#### Argentina

Mónica BEATRIZ MARINO (Mrs) Principal Delegate

#### Bolivia, Plurinational State of

Miguel Angel ONTIVEROS MOLLINEDO Principal Delegate  
Félix Reinaldo TRUJILLO RUIZ Alternate

#### Brazil

Divino Antonio MOURA Principal Delegate  
Sergio de Paula PEREIRA Delegate  
Jose Mauro REZENDE Delegate  
Alaor Moacyr DALL ANTONIA JR. Delegate  
Antonio CARDOSO NETO Delegate  
Mario MOTTIN Delegate  
Jose ARIMATEA Delegate  
Artur FERREIRA Delegate

#### Chile

Myrna ARANEDA FUENTES (Mrs) Principal Delegate  
Gastón TORRES ARAVENA Delegate

#### Colombia

Ricardo José LOZANO Principal Delegate  
Ernesto RANGEL MANTILLA Delegate

#### Ecuador

Carlos NARANJO J. Principal Delegate  
Fernando GARCÍA Delegate

#### France

Patrick Van GRUNDERBEECK Principal Delegate

#### Guyana

Garvin CUMMINGS Delegate

#### Paraguay

Julián BÁEZ BENÍTEZ Delegate  
Raúl Enrique RODAS FRANCO Delegate

#### Peru

Wilar David GAMARRA Principal Delegate

#### Uruguay

Rodolfo PEDOCCHI Delegate

#### Venezuela, Bolivarian Republic of

Ramón Jesús VIÑAS GARCÍA Delegate

### 3. Representatives of WMO Members outside Region III

#### Canada

David GRIMES Observer

#### Costa Rica

Vilma CASTRO (Ms) Observer

#### Finland

Petteri TAALAS Observer

Harri PIETARILA Observer

Jaakko NUOTTOKARI Observer

Mats WILJANDER Observer

#### Poland

Mieczyslaw OSTOJSKI Observer

Lukasz LEGUTKO Observer

#### Spain

Ricardo GARCÍA HERRERA Observer

José Antonio FERNÁNDEZ MONISTROL Observer

#### United States of America

Dan THOMPSON Observer

Eric MADSEN Observer

Reggina CABRERA (Ms) Observer

### 4. Representatives of international organizations

#### International Federation of Red Cross and Red Crescent Societies (IFRC)

Diana LONDONO

Jorge Juan NOVA GOMEZ

#### Association of Hydro-Meteorological Equipment Industry (HMEI)

James ANDERSON

Chris GOODE

#### International Research Centre on El Niño (CIIFEN)

Rodney MARTINEZ

### 5. Other participants

Cornelis BECKER Suriname

Maria M. GUTIERREZ Colombia

Julio C. FRANCO BUITRAGO Colombia

Luis Raúl SANCHEZ VARGAS Colombia





