

**PROGRESS REPORT FOR INFORMATION PRESENTED AT THE 16TH SESSION OF
REGIONAL ASSOCIATION VI**

(unedited)

APPENDIX C: PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

ACTIVITIES OF THE PRESIDENT DURING THE INTERSESSIONAL PERIOD 2009 – 2013

Introduction

1. This report covers the period from the fifteenth session of the Association in September 2009 to August 2013.

Members of the Association

2. The number of Members of the Association has remained at 50.

Officers of the Association

3. During the period under consideration Mr Ivan Cacic (Croatia) served as president. Prof. Mieczyslaw Ostojki (Poland) served as vice-president until Cg-XVI (June-July, 2011) when he was elected as Second Vice-President of WMO. He was replaced by Ms Vida Auguliene (Lithuania) as vice-president of RA VI for the remaining period. Mr Markku Puupponen (Finland) served as the hydrological adviser to the president.

Subsidiary bodies of the Association

4. At its fifteenth session, the Association established the Management Group and three working groups: Working Group on Technology Development and Implementation (WG-TDI), Working Group on Climate and Hydrology (WG-CH), and Working Group on Service Delivery and Partnership (WG-SDP). Task teams on different subjects have been established by the Management Group. Mr Ivan Cacic served as the Chair of the Management Group.
5. Information on the activities of the RA VI subsidiary bodies and related documents is available on the website of the Regional Office for Europe:
<http://www.wmo.int/pages/prog/dra/eur.php>

Major regional events and outcomes

6. During the period of the report, several regional conferences, workshops and other events were organized or hosted by WMO and its Members. Members of the Association actively participated in these events, among others:
 - (a) RA VI Workshop on Climate Monitoring Including the Implementation of Climate Watch System was held from 25 to 28 October 2010 in Offenbach kindly hosted by the German Weather Service (DWD).
 - (b) As a follow-up of the XV-RA VI recommendation, WMO organized, in collaboration with MeteoSwiss, a WMO RA VI Conference on Social and Economic Benefits of Weather, Climate and Water Services, which was held in Lucerne, Switzerland, from 3 to 4 October 2011.

- (c) To foster the WIS implementation by RA VI Members, WMO organized a Workshop on the Implementation of WIS in RA VI, which was hosted by the Bulgarian National Institute of Meteorology and Hydrology (NIMH) in Sofia from 1 to 3 November 2011.
- (d) Following the recommendation of the Working Group on Climate and Hydrology (WG-CH), WMO organized, in collaboration with the Federal Institute on Hydrology, Germany, the first session of the RA VI Hydrology Forum from 8 to 10 May 2012 in Koblenz, kindly hosted by the Federal Institute on Hydrology.
- (e) A Workshop on the Regional Meteorological Data Communication Network (RMDCN) was held on 14-15 May in Geneva in cooperation with ECMWF.
- (f) WMO organized, in collaboration with the Agencia Estatal de Meteorología (AEMET) and at the kind invitation of the Government of Spain, a WMO RA VI (Europe) WIGOS Workshop from 6 to 8 May 2013 in Madrid.

Regional plans and communication with Members

7. In order to facilitate timely and harmonized implementation by all RA VI Members, a Regional WIS Implementation Plan has been developed by the Task Team on WIS Development and Implementation (TT-WIS/DI) of the Working Group on Technology Development and Implementation (WG-TDI). The Plan has been approved by the President of RA VI, Mr Ivan Cacic in December 2012 and was made available to all Members through the ROE website. The president informed all Permanent Representatives of RA VI Members about the plan and requested their support through a president's letter to PRs.

8. Following the adoption of the WMO Strategic Plan (2012-2015) by Cg-XVI in June 2011 (Resolution 36 (Cg-XVI) refers), the Regional Association VI (Europe) has initiated a consultation process for the development of the regional Operating Plan which would constitute a part of the WMO-wide Operating Plan. The main role in the preparation and drafting of the RA VI OP was played by the Task Team on the Strategic Plan and Action Plan (TT-SPAP) established by the RA VI Management Group in 2010. *The Terms of References of the RA VI TT-SPAP are available on the WMO website at: http://www.wmo.int/pages/prog/dra/eur/documents/TT-SPAP/TT_SPAP_Draft_TOR.pdf.* The RA VI Operating Plan (2012-2015) was approved by the president in October 2012 and was made available to all Members through the ROE website.

9. During the intersessional period, the president informed Members of important regional developments through several circular letters addressed to the PRs and copied for information to the RA VI network of international advisers (INTAD-6).

Missions and WMO sessions

10. In his capacity as the president of RA VI, in July 2010 Mr Cacic visited Albania as part of a WMO mission organized in cooperation with the World Bank. During the visit, the RA VI president held meetings with a number of officials from the Albanian Government to discuss ways of resolving some deficiencies and enhancing the capacity for the provision of meteorological, climatological and hydrological Services in Albania.

11. The president participated in a number of WMO meetings and sessions, including Cg-XVI (2011), Cg-Ext.(2012), EC sessions, meetings of EC Working Groups on Strategic and Operational Planning (EC WG/SOP) and the EC Working Group on Capacity Development (EC WG/CD), regular meetings of the presidents of regional associations (PRA) and the joint meeting of the presidents of regional associations and technical commissions (PRA/PTC).

12. The president paid special attention to the interregional cooperation and attended the Session of RA II (Asia) in Qatar (2012), as well as the scoping meeting for the MedCOF in Madrid (2013) in collaboration with RA I (Africa). The president established close coordination with technical commissions and attended sessions of CBS, CAgM, CHy and JCOMM.

WMO Regional Office for Europe

13. The WMO Regional Office for Europe in Geneva provided effective support to the president, vice-president and subsidiary bodies of the Association in discharging their responsibilities. It facilitated the organization of a number of WMO regional events and maintained close contact with Members and relevant partner organizations. *[The activities of the WMO Regional Office for Europe are documented in RA VI-16/Doc. 8.]*

Acknowledgments

14. The president of the Association would like to express his appreciation and gratitude to all those who have contributed to the work of the Association. Particular thanks are due to the vice-presidents, Prof. Mieczyslaw Ostojski and Ms Vida Auguliene, and the hydrological adviser to the president, Mr Markku Puupponen (Finland). The president also expresses sincere thanks to chairpersons of the RA VI Working Groups and the Leaders of the Task Teams. Thanks are also due to the Members of the Association who have hosted various meetings, conferences and training events during the intersessional period.

15. The president would also like to express his deep gratitude and appreciation to the Secretary-General of WMO and to the Secretariat, in particular the WMO Regional Office for the Europe, for their valuable support and advice in the work of the Association.

APPENDIX C: PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

DEVELOPMENTS IN AERONAUTICAL METEOROLOGY SINCE LAST SESSION

1. European aviation has seen a series of difficult years since the last session of the Association. The sector suffered from a succession of natural disasters (Eruption of the Icelandic Volcanoes Eyjafjallajökull and Grimsvottn) and several extreme wintery outbreaks with disruption of on - and off - airport traffic. Furthermore, airlines were affected by issues with regulatory changes such as the introduction (and temporary suspension) of an Emission Trading Scheme for Greenhouse Gas Emissions.
2. The slow progress and complex issues of the re-organization of European Airspace to the Single European Sky was again overshadowed by slow progress in the establishing of contractual arrangements for the so-called Functional Airspace Blocks (FAB), and the ensuing questions of how service delivery for Air Navigation Services (including ancillary services such as Meteorological Services) would be organized in the future.
3. On the other hand, thorny issues of the global aeronautical meteorology programme such as the introduction of Quality Management Systems (QMS) were handled relatively well at least in the western half of the Region due to already existing compliance with regulations of the Single European Sky, and some European Members were instrumental in providing support to out-of Region Members with difficulties implementing QMS through generous twinning and mentoring arrangements.
4. The new WMO requirements (deadline December 2013) for the implementation of a system for assessing and documenting on the competency of personnel in aeronautical meteorology is making good progress, with an active engagement of regional institutions such as EUMETCAL and experts from the Region driving this implementation within and beyond the Region.
5. Similarly, issuance of SIGMET, while mostly reliable in terms of lead time, accuracy in location and intensity and phenomena covered, may require further efforts in coordination between neighbouring countries in order to provide a regionally consistent service and product.
6. The latest version of the ICAO Global Air Navigation Plan (GANP) encompassed a system of sequential Aviation System Block Upgrades (ASBU) that were designed to take full advantage of emerging new technologies in all areas of aviation to cope with the expected growth of traffic and the ensuing increased traffic density. Europe, with its very dense but highly complex air space structure, was entering the next phase of airspace integration (SESAR 2+), posing significant challenges to the provision of meteorological services to civil aviation.
7. Aviation meteorology is seen as a fundamental enabling factor for the transition to new, trajectory-based air traffic management concepts, for which highly accurate, reliable and detailed meteorological information will be a pre-requisite to maintain and improve safety and economy in an increasingly dense air space. The meeting further supported the development of new, tailored meteorological services for Air Traffic Management with emphasis on high-density air space and aerodromes by a newly established Project Team of ICAO in close cooperation with WMO, whereby the CAeM Expert Team on Meteorological Service for ATM and Meteorological Information Exchange (ET-M&M) is providing the scientific and technical input.

8. A number of “Best Practice Workshops” on Volcanic Ash detection, transport and Dispersion Modelling, and VAAC Coordination have taken place since the explosive eruption of Eyjafjallajökull, and the European research and operations community had taken a strong lead in establishing a network in support of locating and following of volcanic ash clouds by vertically pointing LIDARs (EARLINET), a tool to identify and extract data from such installations including aerodrome ceilometers, a coordinated network of Wind Profilers (e-WINPROF). It further coordinated and supported the installation and use of weather radars in the primary source region (Iceland) in collaboration with the national institutions there, and coordinated the use of European research aircraft for in-situ and airborne remote sensing of volcanic ash.

APPENDIX B: PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

AGROMETEOROLOGY

Commission for Agricultural Meteorology

1. Three meetings in relation to agricultural meteorology were held in Slovakia from 4-10 May 2010. The first meeting was a Joint WMO-COST event held from 4-5 May 2010 at Topolcianky, Slovakia with the final seminar of the COST-734 action “Impacts of Climate Change and Variability on European Agriculture – CLIVAGRI”. The main objective of the Cost Action was the evaluation of possible impacts from climate change and variability on agriculture and the assessment of critical thresholds for various European areas. Around 100 experts from Europe as well as from other continents participated at the event. Discussions about agroclimate indices and their trends, agroclimatic risks assessment and expected impacts under climate variability and change were very fruitful and a COST publication will be issued with the conclusions of this seminar.
2. The second event, held on 6 May 2010 also in Topolcianky, Slovakia was the meeting of the CAgM Expert Team on the Response of the Agricultural Communities to Information on Changing Climate: Adaptation at the Regional Level. Three ET members, the president of CAgM, the chair of the CAgM OPAG 3, and others experts joined the meeting. A revision of the ET ToR and duties assigned to the members was undertaken, establishing a time schedule of the ET activities.
3. The third event was the meeting of the Management Group of the CAgM held in Bratislava, Slovakia from 9 to 10 May 2010. The activities addressed were a revision of the Group ToR, revision of the work programme, WMO Secretariat feedback about WAMIS, the GFCS and ongoing agricultural meteorology projects, reports of the OPAG’s chairs and proposals from the president of the Commission.
4. A CAgM Expert Team on Software Resources for Operational Applications in Agrometeorology was held from 8 to 9 October 2012 in Obninsk, Russian Federation. This meeting was followed by an International Conference on Providing Agrometeorological Information to Support Agriculture from 10 to 12 October 2012. Both meetings were organized by the Russian Hydrometeorological Service (Rosshydromet) in cooperation with WMO.
5. A meeting of the RA VI Task Team on Agrometeorology with additional CAgM experts was held on 24 April 2013 in Bucharest, Romania. This meeting provided an excellent review of the work performed by the Task Team and a fruitful exchange of opinions on the issues for the next CAgM session in March 2014. In addition, a CAgM Expert Team on Strengthening Operational Agrometeorological Services was held from 25 to 26 April 2013 in the same venue. Both meetings were organized by the Romania Meteorological Administration.
6. A meeting of the CAgM OPAG 3 Implementation/Coordination Team on Climate Change/Variability and Natural Disasters in Agriculture was held in Florence, Italy from 30 to 31 May 2013. The participants reviewed the Expert Team reports for OPAG 3 and prepared a work plan for their report to be sent to CAgM-16.

7. A WAMIS Next Phase Meeting was held from 3 to 6 June 2013 also in Florence, Italy. Experts from most WMO Regions reviewed the current status of WAMIS and made proposals on how to proceed with the next phase of developing and expanding WAMIS.

8. A Regional Workshop for Central and Eastern Europe on National Drought Management Policies was held in Bucharest, Romania from 9 to 11 July 2013. This initiative was started and signed at the High-level Meeting on National Drought Policy (HMNDP) in March 2013, and four regional workshops are planned from July 2013 until 2014. The partners are WMO, FAO, UNCCD and the UN-Water Decade Programme on Capacity Development (UNW-DPC). The participants in the workshop were from Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, Republic of Moldova, Romania, Serbia, Slovenia, The Former Yugoslav Republic of Macedonia and Turkey.

APPENDIX C: PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

DISASTER RISK REDUCTION (DRR)

1. The implementation of the HFA by national governments is leading to changes in national DRR policies, legal and institutional frameworks, with implications on the role, responsibilities and new working arrangements for the NMHSs. These changes provide opportunities such as increased recognition of the NMHSs by their governments and stakeholders, which could result in strengthened partnerships and increased resources. However, NMHSs face increasing demands and liabilities related to the provision of products and services to larger and more diverse groups of DRR stakeholders (e.g., government authorities, public and private sectors, NGOs, general public and media, etc.) some of whom have direct responsibilities for DRR decision-making. To meet these new challenges, as illustrated in Figure 1, under the crosscutting DRR Programme the two-tier work plan (hereafter referred to as the DRR Work Plan) aims to facilitate better alignment of the activities of WMO constituent bodies and global operational network as well as strategic partners to assist NMHSs to:

- (a) Engage effectively in the national DRR governance and institutional frameworks as part of national development priorities;
- (b) Identify, prioritize, establish partnerships and service delivery agreements with national DRR user community (users);
- (c) Develop and deliver core and specialized products and services (e.g., data, forecasts, analysis, technical advices and a range of other value-added products and services) defined by the requirements of the “DRR users” for DRR decision support (e.g., hazard/risk analysis, multi-hazard EWS, sectoral risk management and disaster risk financing and risk transfer) in a cost-effective, systematic and sustainable manner;
- (d) Ensure that core operational capacities (e.g., observing networks, forecasting systems, telecommunication systems, data management systems, human resources, etc.) are built upon the principles of Quality Management Systems (QMS) to support product and service development and delivery;
- (e) Establish partnership agreements with other national technical agencies (e.g., hydrological services, ocean services, etc.) and with global and regional specialized centers (e.g. Global Producing Centers (GPC), Regional Specialized Meteorological Centres (RSMCs), Regional Climate Centres (RCCs), Tsunami Watch Centers, etc.), with standard operating procedures;
- (f) Engage in regional and global efforts for development of risk information for large scale and trans-boundary hazards, through strengthened regional and global cooperation.

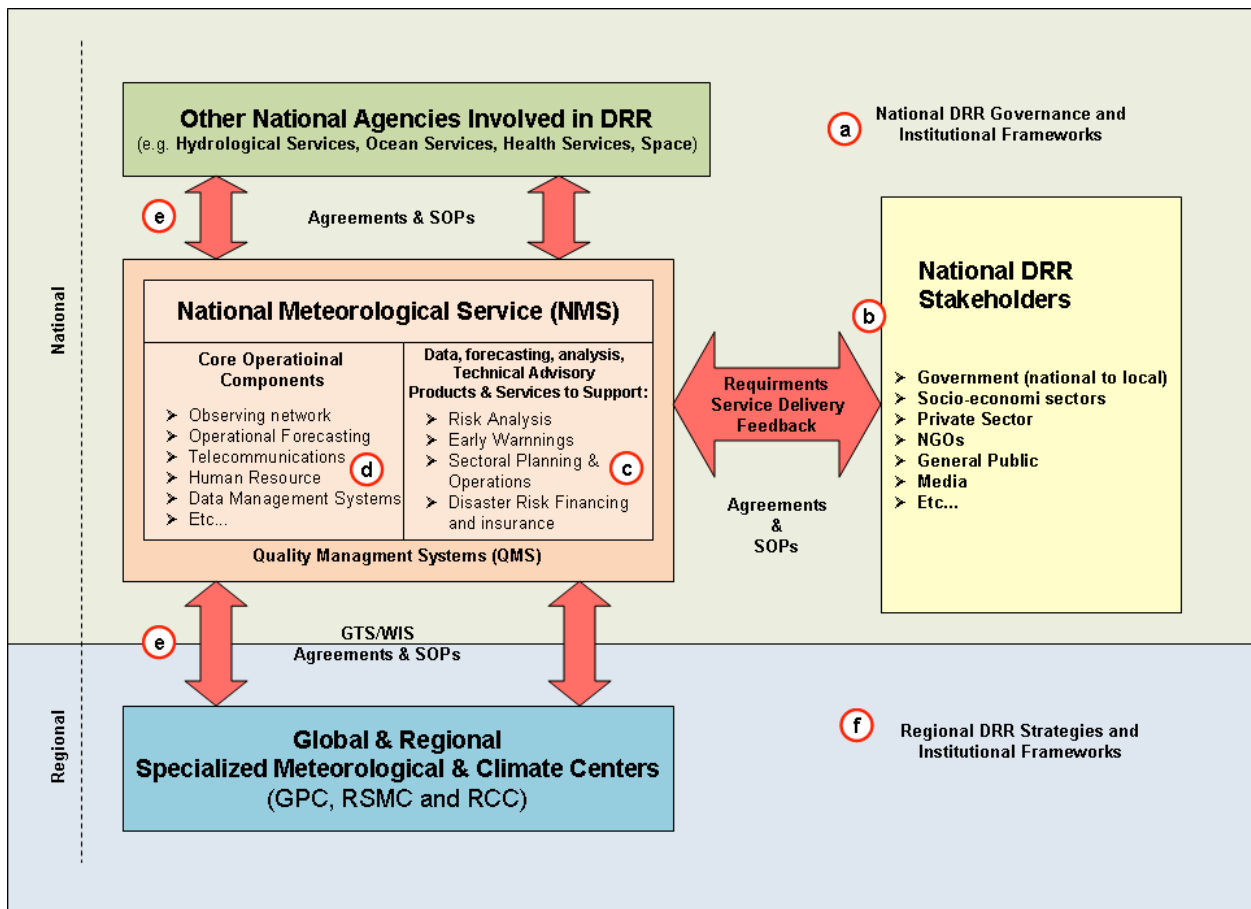


Figure 1. Overarching Framework for Development and Delivery of Products and Services to support DRR decision-making and related partnerships (source: ftp://ftp.wmo.int/Documents/PublicWeb/mainweb/meetings/cbodies/governance/executive_council_reports/english/pdf/64_session_1092_part1_en.pdf (pages 91-94))

2. The DRR Work Plan includes:

- (a) Development of guidelines, standards and training modules for DRR thematic topics based on documentation and synthesis of good practices;
- (b) Coordinated DRR and climate adaptation national capacity development projects with regional cooperation framework (hereafter referred to as coordinated DRR national/regional projects) to support capacity development of NMHSs as per paragraphs 1 (a - f) . A critical aspect of the coordinated DRR national/regional projects is strengthening of cooperation of NMHSs, RSMCs, RCCs and DRR users for development of products and services based on user needs and requirements.

3. Making the implementation plan a reality would require substantial building of the operational capacities of many NMHSs in developing countries, an outcome that can only be achieved through a successful and well focused capacity development activities also engaging development partners such as the World Bank for the modernization of the NMHSs infrastructure, particularly in the developing and least developed countries. As one strategy for achieving this, significant efforts have been taken to engage Members, Regional Associations (RAs), Technical Commissions (TCs) and Programmes, to develop strategic alliances with key partners at regional and international levels to implement the DRR Work Plan.

4. A number of thematic DRR user-interface Expert Advisory Groups have been established to guide and support implementation of the DRR Work Plan and related deliverables, WMO TCs and Programmes, RAs and WMO global operational network. These user-interface Expert Advisory Groups involve leading experts from the diverse DRR user community (public and private sectors), UN and international partner agencies, academia as well as NMHSs. These advisory groups are established to: (i) guide documentation of good practices and development of user needs and requirements for products and services to support thematic areas in DRR decision-making; (ii) support development of and provide feedback on the WMO DRR knowledge products; and, (iii) support the implementation of the DRR Work Plan. These include:

- (a) Expert Advisory Group on Climate Services for Hazard/Risk Analysis (EAG-HRA) with focus on issues related to standards and guidelines for hazard definition, standardization of hazard databases, metadata and statistical analysis and forecasting techniques of hazard analysis to support risk modeling;
- (b) Expert Advisory Group on Multi-Hazard Early Warning Systems (MHEWS) with focus on the operational aspects of MHEWS, building on the principles of QMS;
- (c) Expert Advisory Group on Climate Services for Disaster Risk Financing (EAG-CSDRF) with focus on development of requirements for climate services for disaster risk financing such as ex-ante and post-disaster government funding mechanisms, insurance and external development funding;
- (d) CBS Task Team on the Provision of Operational Meteorological Assistance to Humanitarian Agencies, established under the Commission for Basic Systems (CBS), with the Commission for Climatology (CCI), and the Commission for Hydrology (CHy), with focus on development of requirements of the humanitarian community for meteorological and climate services.

5. For more information about “WMO Guidelines for National Meteorological and Hydrological Services on Institutional Roles and Partnerships in Early Warning Systems” engaging DRR Expert Advisory Group on Multi-Hazard Early Warning Systems (EAG-MHEWS), please see http://www.wmo.int/pages/prog/drr/projects/Thematic/MHEWS/MHEWS_en.html.

6. For information about WMO DRR Work Plan Implementation related to guidelines, manuals and standards on hazard definition, monitoring, detection, databases, metadata and mapping tools to support risk assessment, engaging DRR Expert Advisory Group on Hazard/Risk Assessment (EAG-HRA), please see: http://www.wmo.int/pages/prog/drr/projects/Thematic/HazardRisk/2013-04-TechWks/index_en.html.
7. For information about WMO DRR Work Plan Implementation related to Guidelines on “Requirements for Meteorological and Climate Services to Support Disaster Risk Financing and Insurance,” engaging DRR Expert Advisory Group on Climate Services for Disaster Risk Financing and Insurance (EAG-CSDRFI), please see http://www.wmo.int/pages/prog/drr/projects/Thematic/DRF/drif_en.html.
8. Information about the WMO DRR and Adaptation Capacity Development Project in Southeast Europe can be obtained at: http://www.wmo.int/pages/prog/drr/projects/SEE/SEE_en.html.

APPENDIX B: PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

Operational weather forecasting, including further development and evolution of the Global Data-processing and Forecasting System (GDPFS)

1. Based on information and data provided by Members in RA VI, the GDPFS includes a number of NMCs or WMCs/RSMCs that run global, regional, or limited-area NWP models (LAM) on an operational basis. Centres at Exeter, Moscow, Offenbach, Toulouse and ECMWF run global models at grid resolutions of around 16-45km (most <30km) and global EPS systems, as well as a number of regional NWP and LAMs with grid resolutions between 1.5 and 12km (most 1-7km). There are a number of NMCs and WMCs/RSMCs engaged in RA VI NWP consortia: ALADIN (<http://www.cnrm.meteo.fr/aladin>), COSMO (<http://www.cosmo-model.org>), HIRLAM (<http://www.hirlam.org>), and UK Unified Model (<http://www.metoffice.gov.uk/research/modelling-systems>). They cooperate on code development, scientific methodologies, standards for models inputs and outputs to allow model verification and interoperability, monitoring and software maintenance. At many advanced centres and consortia (e.g. Météo-France, UKMO, and COSMO Consortium), NWP development to support high-impact weather prediction is now focused on high-resolution global models and convection-permitting (or convective-scale) models (grid spacing: 1-4 km).
2. Four Global Producing Centres (GPC) for Long-range Forecasts have been designated, including GPCs Exeter, Moscow, Toulouse, and ECMWF. A RCC-Network (RA VI) has been designated (AE De Bilt Node on Climate Data Services, Offenbach Node on Climate Monitoring, and Toulouse and Moscow Node on Long-range Forecasting). RSMCs Exeter, Offenbach, Toulouse and Vienna are designated with activity specialization in Atmospheric Transport Modelling and/or backtracking. In addition, London is designated as a Volcanic Ash Advisory Centre (VAAC) by ICAO. RSMC-ASDF Barcelona is designated with activity specialization in Provision of Atmospheric Sand and Dust storm Forecasts.
3. Individual technical progress reports are available at: http://www.wmo.int/pages/prog/www/DPFS/ProgressReports/2012/2011_GDPFS-NWP.html and the status of WMO forecasting centres relative to numerical models is provided at ftp://ftp.wmo.int/Documents/PublicWeb/www/gdpfs/GDPFS-NWP_Annualreports11/STATUSTA2011_updated.doc.
4. Significant progress is being made with the comprehensive revision of the *Manual on the GDPFS* (WMO-No. 485), whose new text is presented in a working document available on the WMO website at <ftp://ftp.wmo.int/Documents/PublicWeb/www/gdpfs/Manual-on-the-GDPFS/>.
5. A WMO Task Team (TT) on Meteorological Analyses for Fukushima Daiichi NPP Accident was formed in late 2011 to develop a series of meteorological analyses in numerical form, using as much observational data and related information as available, that would be suitable for estimating the atmospheric transport, dispersion and deposition of radioactivity released from the Fukushima-Daiichi Nuclear Power Plant in 2011. NMHSs/RSMCs of Austria, Canada, Japan, UK, and US participated in this TT; and representatives from the European Commission Joint Research Centre (Ispra, Italy) were later invited to participate in the data analysis phase of the effort. The work of this TT has been completed and the report is now available on the WMO website at http://www.wmo.int/pages/prog/www/CBS-Reports/documents/WMO_fnpp_final_AnnexIII_4Feb2013.pdf. A *Special Issue* publication is also under preparation. This work contributes to the post-accident study undertaken by the UN Scientific Committee on Effects of Atomic Radiation (UNSCEAR) on the levels and effects of radiation released from the accident.

6. WMO has been actively participating in the coordination meetings for ConvEx-3 (2013), which will be carried out on Morocco territory, planned for 20-21 November 2013, with the involvement of the National Meteorological Service of Morocco, with support from the WMO Secretariat and RSMC Toulouse (France) and RSMC Exeter (UK).

APPENDIX C: PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

DATA PROCESSING AND FORECASTING: WEATHER, CLIMATE AND WATER

Commission for Climatology

1. WMO, in collaboration with the Turkish State Meteorological Service and WCRP, organized the Technical Conference on Changing Climate and Demands for Climate Services for Sustainable Development (Antalya, 16-18 February 2010) in conjunction with the fifteenth session of CCI. A special joint session with the Joint Scientific Committee (JSC) for WCRP was held (Antalya, 18 February 2010) as an integral part of the Technical Conference.
2. The fifteenth session of CCI (CCI-XV), which brought together representatives from 88 countries, was held in Antalya, Turkey (19-24 February 2010). CCI-XV adopted a new working structure consisting of Open Panels of CCI Experts (OPACEs) in four thematic areas (<http://www.wmo.int/pages/prog/wcp/ccl/cclstructure.php>). Germany offered to host the sixteenth session of CCI (CCI-16) from 3 to 8 July 2014 at Heidelberg, Germany.

Regional Working Group on Climate and Hydrology

3. RA VI Working Group on Climate and Hydrology (WGCH) has held three meetings during the intersessional period (Offenbach, Germany, 29-30 October 2010; Yerevan, Armenia, 14-16 November 2011; and Helsinki, Finland, 12-14 March 2013; see http://www.wmo.int/pages/prog/dra/eur/RA6_WG_CH_Meetings.php). The working group has organized or co-organized the following events:
 - (a) WMO Workshop on Climate Monitoring including the implementation of climate watch systems in RA VI (Offenbach, Germany, 25-28 October 2010);
 - (b) WMO RA VI (Pilot) RCC-Network coordination meeting (Offenbach, Germany, 28 October 2010);
 - (c) Side event WMO RAVI RCC-Network workshop, European Conference for Applied Meteorology (Berlin, Germany, 12-16 September, 2011);
 - (d) Water Scarcity and Drought Seminar (Venice, Italy, 13–14 October 2011);
 - (e) RA VI Hydrology Forum (Koblenz, Germany, 8–10 May 2012);
 - (f) Side events on the implementation of RCC-Network and Climate Watch System (CWS) in WMO RA VI, European Conference for Applied Climatology (Lodz, Poland, 10- 14 September 2012);
 - (g) RA VI side meeting at the fourteenth session of the Commission of Hydrology (Geneva, 7 November 2012).
4. RA VI WGCH was assisted by a number of task teams in its work on: (i) RCCs; (ii) RCOFs; (iii) Data Rescue; (iv) Agrometeorology; (v) Drought Management/Water Scarcity and Drought; (vi) Hydrometry; (vii) Flood Forecasting and Warming; (viii) Potential Extreme Floods; and (ix) Hydrometeorological Early Warning Systems.

Climate System Monitoring and Watch

5. The 2011 edition of the Annual Bulletin on the Climate in WMO Region VI introduced a couple of modifications to the previous ones. Layout and content have been adapted in order to:
 - (i) accelerate the production process;
 - (ii) reduce the amount of manual work involved; and

(iii) better align its content with the highly automated monthly RA VI Bulletin. Moreover, the annual Bulletin is no longer available as a printed publication. The Bulletins can be accessed at <http://www.dwd.de/rcc-cm>, ->Products.

6. RA VI Members greatly contributed to the WMO Annual Statement on the Status of the Global Climate 2012 (cf. http://www.wmo.int/pages/prog/wcp/wcdmp/documents/WMO_1108.pdf). Moreover, a supplement 'Assessment of the observed extreme conditions during late boreal winter 2011/2012' on the extreme winter conditions in Europe and Asia was issued by WMO and its RCCs in Asia (Tokyo Climate Center) and Europe (RA VI RCC-Network Node on Climate Monitoring)(cf. <http://www.wmo.int/pages/prog/wcp/wcdmp/documents/Coldspell2012.pdf>).

7. The report of the WMO Regional Association VI (Europe) Workshop on Climate Monitoring including the Implementation of Climate Watch Systems (Offenbach, Germany, 25-28 October 2010,) including an agreed upon road map on the implementation of a Climate Watch system in the Region can be accessed at: http://www.wmo.int/pages/prog/wcp/wcdmp/CWS_4.php. A side event on the implementation of a Climate Watch System in WMO RA VI was organized at the occasion of the European Conference for Applied Climatology (Lodz, Poland, 10-14 September 2012). Relevant recommendations comprise a closer communication among NMHSs on Climate Watch issues as well as the development of a short guidance document to assist NMHSs in implementing Climate Watches at the national level. The report of the side event is also available at: http://www.wmo.int/pages/prog/wcp/wcdmp/CWS_4.php.

8. The EUMETSAT Satellite Application Facility on Climate Monitoring (CM-SAF) will organize its 4th User Workshop in Grainau, Germany, 10-12 March 2014 (www.cmsaf.eu/workshop). The CM-SAF supports various European and global initiatives and projects to develop, generate and provide time series of Essential Climate Variables (cf. www.cmsaf.eu) including SCOPE_CM (Sustained Coordinated Processing of Environmental Satellite Data for Climate Monitoring, cf. www.wmo.int/pages/prog/sat/scope-cm_en.php) and the Climate Change Initiative of the European Space Agency (cf. www.esa-cci.org).

9. Latest meeting reports of the CCI Task Teams on National Climate Monitoring Products (TT NCMP) and on the Definition of Extreme Weather and Climate Events (TT-DEWCE) can be accessed at http://www.wmo.int/pages/prog/wcp/wcdmp/documents/ReportTT_NCMPMeeting_September2012.pdf and http://www.wmo.int/pages/prog/wcp/wcdmp/documents/TT-DEWCE_meeting_report.pdf, respectively.

Climate Services Information System

10. RA VI RCC-Network successfully completed its demonstration phase, and was formally designated by EC-65 as a WMO RCC-Network in May 2013 through suitable amendments to the Manual on the GDPFS, following recommendations by CCI and CBS. The website of WMO RA VI RCC-Network, available via <http://www.rccra6.org>, has been further improved.

11. WMO continued to develop consensus-based updates of El Niño and La Niña, in collaboration with the International Research Institute for Climate and Society (IRI). WMO El Niño/La Niña Updates were being issued on a quasi-regular basis, once every three months. GPCs, regional institutions, NMHSs, as well as some applications and communications experts actively participated in the development of these consensus products. CCI is working on the demonstration phase of a new Global Seasonal Climate Update (GSCU), to cover ENSO and other major global circulation modes and their large-scale impacts on rainfall and temperature patterns.

12. The Southeast Europe Climate Outlook Forum (SEECOF) sustained its operations and held nine sessions so far, with four physical sessions (Budapest, Hungary, 23-27 November 2009, Belgrade, Serbia, 22-26 November 2010 and 28-30 November 2011, Podgorica, Montenegro, 27-29 November 2012), the remaining sessions having been conducted online. The South East European Virtual Climate Change Center (SEEVCCC), Serbia, has been coordinating the SEECOF sessions (<http://www.seevccc.rs/?p=22>), with co-sponsorship support by WMO.
13. The North Eurasian Climate Outlook Forum (NEACOF) commenced its operations with the first session in Moscow, Russian Federation (17-19 May 2011). NEACOF has held four sessions so far, with a physical session in Kazan, Russian Federation (3 October 2012), the rest being online sessions. NEACOF is being coordinated by NEACC (<http://neacc.meteoinfo.ru/neacc/north-eurasian-climate-outlook-forum>), Russian Federation, with co-sponsorship support by WMO.
14. A scoping meeting, co-sponsored by WMO, was held at the headquarters of the State Meteorological Agency of Spain (AEMET), (Madrid, 12-14 June 2013), to initiate a new Mediterranean Climate Outlook Forum (MedCOF). Its main objective was to establish and outline the stakeholders, their responsibilities and the scope of this forum. More than 20 representatives from Europe and Africa attended, including the presidents of RA I and RA VI.
15. An IRI-WMO Workshop on "Tailoring of Seasonal Forecasts: Training Experts in the Climate Predictability Tool (CPT)" was organized in Beijing (19-30 October 2009), hosted by the Beijing Climate Center (BCC). The workshop had a strong focus on the tailoring of seasonal forecasts to provide information beyond the standard tercile-based seasonal forecast formats. Two participants from each of the six WMO Regions benefited from this training.
16. In collaboration with NOAA, funding support from USAID, and hosted by the Turkish State Meteorological Service (TSMS), WMO organized an International Training Workshop and Symposium on Climate Variability, Predictions and Services in Istanbul, Turkey (17-28 July 2013). Trainees from about 30 countries around the world benefited from the workshop and symposium.

Drought initiatives

17. WMO, in collaboration with the Hydrographical Confederation of Segura River Basin (Spain) and the UNISDR, organized a workshop from 2 to 4 June 2010 in Murcia (Spain) of a group of experts to recommend indices for use at the global scale to assist in coping with agricultural droughts. Outcomes from that workshop have been included in a chapter on drought risks for the 2011 UN Global Assessment Report on Disaster Risk Reduction and the proceedings of the meeting are available at the link: <http://www.wamis.org/agm/pubs/agm11/agm11.pdf>.
18. Within the framework of the Regional Programme on Disaster Risk Reduction (DRR) in South East Europe, WMO, in cooperation with UNDP and with the support of the Environmental Agency of the Republic of Slovenia (EARS) and the Drought Management Centre for Southeastern Europe (DMCSEE), organized a Training Workshop on Drought Risk Assessment for the Agricultural Sector from 20-24 September 2010 at the EARS. This workshop is part of the project managed by WMO entitled "Regional Cooperation in South Eastern Europe for meteorological, hydrological and climate data management and exchange to support Disaster Risk Reduction."
19. A regional workshop on Integrated Drought Management took place in Bratislava hosted by the Slovak Hydrometeorological Institute on 5-6 October 2012. The workshop was a joint initiative of the Global Water Partnership (GWP) for Central and Eastern Europe, the GWP Technical Committee and WMO. The main objective was to commit to an Integrated Drought Management Programme (IDMP) initiative. The workshop brought together 53 stakeholders from various sectors such as meteorology, water management and agriculture from Central and Eastern Europe and from international organizations.

20. WMO in cooperation with the Secretariat of the United Nations Convention to Combat Desertification (UNCCD) and the Food and Agriculture Organization of the United Nations (FAO) and also in collaboration with a number of UN agencies, international and regional organizations, organized the High-Level Meeting on National Drought Policy (HMNDP) in Geneva from 11 to 15 March 2013. Four hundred and fourteen (414) participants from 87 countries as well as representatives of international organizations, regional organizations and UN Agencies participated in the HMNDP. The Scientific Segment of HMNDP reviewed different aspects of drought management, including Drought Monitoring, Early Warning and Information Systems; Drought Prediction and Predictability; Drought Vulnerability and Impact Assessment; Enhancing Drought Preparedness and Mitigation; Planning for appropriate Response and Relief; and Constructing a framework for National Drought Policy. Recommendations from the Scientific Segment are presented in the following pages. The High Level Segment of HMNDP concluded in a final declaration in support of the process approved by acclamation of the participants (<http://hmndp.org/>).

APPENDIX B: PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

WATER ISSUES

Quality Management Framework - Hydrology

Under the WMO QMF-Hydrology the following guidance material was provided in the last intersessional period, namely: the *Manual on Estimation of Probable Maximum Precipitation (PMP)* (WMO-No. 1045), the *Manual on Stream Gauging* (WMO-No. 1044), the *Manual on Flood Forecasting and Warning* (WMO-No. 1072), the *Guidelines for the Assessment of Uncertainty of Hydrometric Measurements*, the *Technical Report on Climate and Meteorological Information Requirements for Water Management* (WMO-No. 1094), the *Technical Report on Water Quality Monitoring* (in progress), the *Technical Report on Technical Material for Water Resources Assessment* (WMO-No. 1095). The *Guide to Hydrological Practices* (WMO-No. 168) has been translated into Russian and Spanish and the French version will be soon available. All these publications are available online at http://www.wmo.int/pages/prog/hwrp/index_en.php

World Water Forum, March 2012

The World Water Forum 6 was held in Marseille (France) on 12-16 March 2012. WMO organized one specific side event on GFCS “Improved water resources management through the implementation of the GFCS”, including a panel discussion attended by the Secretary-General of WMO. Members of the WMO delegation took part as invited speakers in several thematic sessions and discussions related to climate change, data management, disaster risk reduction, flood management, etc. highlighting the importance of climate services for the water community, as well as the fundamental contribution of NHSS to disaster risk reduction strategies. A WMO booth was set up as part of the overall UN-Water booth.

UN Water

From February 2012 and for a period of two years the Secretary-General of WMO became the Chair of UN-Water, the UN-wide mechanism to strengthen coordination and coherence among UN entities dealing with issues related to all aspects of freshwater and sanitation, including surface and groundwater resources, and water-related disasters. WMO continues coordinating the UN-Water Thematic Priority Area on Water and Climate Change, which has produced important material, such as a Policy Brief, a Guidance Note on Water-related adaptation to climate change, and various communication tools

APPENDIX C:

PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

WMO INTEGRATED GLOBAL OBSERVING SYSTEM (WIGOS)

References:

1. [Resolution 50 \(Cg-XVI\) - Implementation of the WMO Integrated Global Observing System \(WIGOS\)](#)
2. [The first session of the Inter-Commission Coordination Group on WIGOS \(ICG-WIGOS\), Geneva, 26-30 September 2011](#)
3. [The second session of the Inter-Commission Coordination Group on WIGOS \(ICG-WIGOS\), Geneva, 18-22 March 2013](#)
4. [Resolution 10 \(EC-64\) - WIGOS Framework Implementation Plan \(WIP\), version 1.0](#)
5. RA VI-16/INF.12 - WIGOS Framework Implementation Plan (WIP), version 2.0, adopted by EC-65
6. RA VI-16/INF.13 - Implementation Plan for the Evolution of Global Observing Systems (EGOS-IP), adopted by EC-65
7. RA VI-16/Doc. 4.4(1), Annex to draft Resolution 4.4/1 (RA VI-16) – Regional WIGOS Implementation Plan (R-WIP-VI)
8. RA VI-16/INF. 4.1 - Proposed List of Stations Comprising the Regional Basic Synoptic Network (RBSN) in Region VI
9. RA VI-16/INF. 4.2 - Proposed List of Stations Comprising the Regional Basic Climatological Network (RBCN) in Region VI
10. [Final Report, GCW First Implementation Meeting, Geneva, Switzerland, 21 – 24 November 2011](#)
11. [GCW CryoNet Implementation Meeting, First Session, Vienna, Austria, 20 -22 November 2012](#)
12. [The Fourth session of EC Panel of Experts on Polar Observations, Research and Services, Lanzhou, China, 13-15 March 2013](#)
13. [Draft concept of a potential long-term International cooperative initiative in the polar regions \('International Polar Initiative', IPI\)](#)
14. [Report of the meeting of the CCI Management Group, Denver, USA, 26-29 October 2011](#)

Implementation of the WMO Integrated Global Observing System (WIGOS)

1. Adopting Resolution 50, Cg-XVI decided to implement the WMO Integrated Global Observing System (WIGOS) during the sixteenth financial period as one of the major efforts of the Organization with the goal that WIGOS should become operational from 2016 onwards [Reference 1]. A set of recommendations on WIGOS implementation were formulated by ICG-WIGOS-1 and ICG-WIGOS-2 [Reference 2 and 3].
2. The first version of the WIGOS Framework Implementation Plan (WIP) was adopted by

EC-64 [Reference 4] and the second (updated) version was adopted by EC-65 [Reference 5]. In response to WIGOS, the new Implementation Plan for the evolution of global observing systems (EGOS-IP) was considered by CBS-15 and subsequently adopted by EC-65 [Reference 6].

3. RA VI Working Group on Technology Development and Implementation (WG-TDI) drafted the Regional WIGOS Implementation Plan (R-WIP-IV) [Reference 7].

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

4. The existing RBSN and RBCN are based essentially on a design representing the late 1990s status of the observing networks. Also, the majority of stations in the RBSN and RBCN are multipurpose, serving both synoptic and climatological purposes. Therefore, the Region VI Working Group on Technology Development and Implementation (RA VI-WG-TDI) recognized the need to integrate the two networks into one Regional Basic Observing Network (RBON) and initiated the activity through its Task Team on the Re-design of the Regional Basic Observing Network (TT-RRBON). It is expected that the new re-designed RBON would also take into consideration the inclusion of new ground based observing systems, such as weather radars, wind profiler systems, existing buoys, ships and aircraft that make meteorological, climatological and marine observations. The network re-design would also be coordinated with satellite observations. Until new RBON is designed, the existing scheme of two separate networks (RBSN and RBCN) will continue [References 8 and 9].

5. Overall, during the intersessional period, the implementation of the RBSN surface and upper-air observational programme in the Region shows 97% of surface stations performing the full observational programme (8 observations per day) and 86% of upper-air stations carrying out observations at the two main standard times²¹. Implementation of stations reporting CLIMAT is around 90% during this same period.

6. The integrated WWW Monitoring (IWM) of the operation of the WWW carried out on a quarterly basis each year provides information on the performance of the observing systems. The status and monitoring trends in the last four years are presented in the table below. For full details on IWM/AGM and Special MTN monitoring results, see: http://www.wmo.int/pages/prog/www/ois/monitor/index_en.html.

**Average Availability of SYNOP, TEMP and CLIMAT data at MTN centres from RA VI
IWM: Period Jan - Oct (2009–2012)**

Year	Surface (SYNOP)		Upper-air (TEMP)		CLIMAT	
	Number of stations	Reports received (%)	Number of stations	Reports received (%)	Number of stations	Reports received (%)
2009	811	96%	128	78%	577	94%
2010	832	96%	128	81%	585	95%
2011	831	97%	127	78%	585	94%
2012	840	97%	125	78%	586	91%

Note: Results based on the RBSN/RBCN in RA VI

Marine and Oceanographic Observations

7. The JCOMM contribution to WIGOS implementation is realized essentially through the

²¹ Upper-air: 00, 12 UTC.

JCOMM Observations Programme Area Implementation Goals (OPA-IG) thanks to the contributions of WMO Members and IOC Member States for the deployment of ocean observing platforms. Some programme implementation support at the international level is also provided by the JCOMM *in situ* Observations Programme Support Centre (JCOMMOPS) thanks to voluntary contributions from Members/Member States.

8. Of particular interest regarding the implementation of the ocean observing networks in RA-VI are (i) the EIG EUMETNET operational service for Surface Marine Observations (E-SURFMAR), including RA-VI contribution to the global surface drifter network (1250 units globally, half of them with barometers) and to the Voluntary Observing Ship Scheme (VOS); (ii) the EIG EUMETNET Automated Aerological Shipboard Programme (E-ASAP), (iii) the Ship of Opportunity Programme (four active XBT upper ocean thermal sampling lines in the equatorial Atlantic Ocean - AX07, AX10), (iv) the Argo profiling float programme (sustained at a level of 3000 units globally), and (v) the Tropical Moored buoy array in the Equatorial Atlantic Oceans (TAO: 57 of the 67 surface moorings are reporting; PIRATA: 16 of the 17 surface moorings are reporting).

Aircraft Observations

9. With the recent cessation of the WMO AMDAR Panel (November 2012) and the establishment of the CBS Expert Team on Aircraft-Based Observing Systems (ET-ABO) and CIMO Task Team on Aircraft-based Observations (TT-AO), the transition of the AMDAR observing system as a component subsystem of the GOS under the World Weather Watch Programme has been completed.

10. These WMO Technical Commissions' teams, continuing to rely on contributions by Members to the AMDAR Trust Fund, have recently developed their work plans, which will focus activities on the Actions of the CBS EGOS-IP relating to Aircraft Meteorological Stations, including: AMDAR enhancement and expansion through the development of AMDAR Regional Implementation Plans with the utilisation of the recently completed *Study on AMDAR Coverage & Targeting for Future Airline Recruitment*; final sensor validation and operational implementation of AMDAR water vapour monitoring; wider implementation and utilisation of turbulence and icing monitoring; and, extension of the aircraft-based observing system data coverage through collaboration with ICAO and other third-party aircraft-based observations data providers.

11. Recent specific achievements related to aircraft observations include: the specification of Version 5 of the Meteorological Report within Supplement 7 to the Airlines Electronic Engineering Committee (AEEC) ARINC 620 Standard Report & Appendix, (February 2013); the establishment of a WMO News & Events website in support of AMDAR outreach activities and the production and publication of the first five editions of the WMO AMDAR Observing System Newsletter; the commissioning of two papers on AMDAR data impact assessment; the holding of the Workshop on Aircraft Observing System Data Management in Geneva over 5-8 June 2012, which significantly helped in advancing the development of the Data Management Framework for the Aircraft-based Observing System.

Global Cryosphere Watch (GCW)

12. The development and implementation of GCW is currently coordinated by the Executive Council Panel of Experts on Polar Observations, Research and Services (EC-PORS) on behalf of the Council. The first GCW implementation meeting [Reference 10] brought together the GCW Task Team from among the EC-PORS members, GCW national focal points (including some from RA VI) and WMO Programmes and as well as partners from the outside agencies, organizations and scientific associations which are major contributors to GCW. The meeting identified activities for implementation and the GCW Implementation Plan v.1.0 is now available at: http://www.wmo.int/pages/prog/www/OSY/Meetings/GCW-CN1/INF5_GCW-IP.pdf. A proposed governance structure has been endorsed by EC-PORS.

13. GCW activities are now being initiated based on the Task Plan developed at the first GCW Implementation Meeting and the updated GCW-IP at EC PORS-4. GCW also held its first workshop on the surface-based observation network, called “CryoNet”, November 2012, Vienna, Austria [Reference 11]. CryoNet is one of the four observing components of WIGOS and will initially be comprised of existing stations/sites, rather than creating new sites. CryoNet stations will agree to provide prescribed sets of measurements taken according to GCW standards, guidelines and best practices, thus ensuring high quality data for scientific research and operational use. Over 80 sites and/or networks were proposed for initial consideration. Links are being identified and clarified, as many of the cryospheric networks are external to WMO. The CryoNet Task Team is developing a draft CryoNet Guide based on available guidelines and inputs from contributors and through extensive group discussion. The CryoNet Guide will become a part of the WIGOS Regulatory Material. RA VI is a critical region for cryospheric observing and Members are encouraged to contribute actively to the development of CryoNet and enhanced cryospheric observing in the Region. It is noted that many of the cryospheric networks are external to WMO, so partnering will be essential.

14. Thanks to the increased support of Norway, the development of the GCW portal (operated by met.no) has further progressed. The portal will ensure access to real-time, near real-time and historical cryospheric data and products through WIS. Thanks to USA, the GCW website will offer “the Watch” component of GCW (<http://globalcryospherewatch.org/>).

15. The GCW Implementation Plan identifies the need for a “Project Office”. This could be in the WMO Secretariat or hosted by a Member or Members, or a combination. Currently funds do not exist for a full-time permanent staff member in WMO to support GCW. Lack of a Project Office or Secretariat staff will seriously limit GCW implementation and Members are encouraged to discuss the feasibility of hosting a Project Office in RA VI.

16. The limited funds available in the Regular Budget for GCW have been invaluable in supporting GCW tasks/activities only. The Trust Fund resources have funded a part-time staff person to support PORS and GCW activities. GCW will need additional resources to move forward as planned. Contributions to a GCW Trust Fund would help immensely to continue through the 2013-2015 period.

WMO Polar Activities

17. The EC Panel of Experts on Polar Observations, Research and Services (EC-PORS) was established by EC to assist in its oversight of WMO Polar Activities. The aim is to bring observations, research and services together allowing WMO to maximize the value of its and its partners’ investments in Polar Regions. EC-PORS-4 was held in Lanzhou, China 13-15 March 2013, [Reference 12]. The emphasis for this meeting was to expand our thinking on the 3rd Pole (Himalayan and Tibetan Plateau region) and place some emphasis on the cryosphere and water resources. It was noted that the Global Framework for Climate Services (GFCS) is providing new impetus on the polar climate and the Panel must determine the best method for it to interface with the GFCS.

18. Plans for an Arctic HYCOS project under the World Hydrological Cycle Observing System (WHYCOS) Programme have accelerated this past year. These plans have evolved from an initial workshop held in Halifax (March 2012) which furthered discussions held by EC-PORS and from recent side meeting discussions at the fourteenth session of the Commission for Hydrology (CHy) held in Geneva. Like EC-PORS, representatives agreed that this initiative is crucial for an improved understanding of the pan-Arctic hydrological system. The main goal of the Arctic-HYCOS project is to improve monitoring, data accuracy, availability and dissemination of information in the pan-arctic drainage basin.

19. The Steering Group for a Long-term Corporate Polar Initiative has proposed the concept of the International Polar Initiative (IPI), [Reference 13]. IPI is proposed as a cooperation framework to address the fast and dramatic transformations of the Polar Regions that impact their environment, economy, the life of local residents and lead to significant global implications. The framework envisages preparation of a common IPI Implementation Plan for the development of observing systems, research, services, related education and outreach, and practical applications of scientific knowledge in the Polar Regions. One of the motivations for IPI is to optimize the use of existing resources and, at the same time, identify areas where new investments in polar activities are necessary for environmental protection, sustainable development of the regions, and addressing existing and emerging societal needs. Existing polar programmes and infrastructure, including the legacy of the recently concluded International Polar Year 2007-2008, will provide initial building blocks for IPI. Given the many commonalities between the polar and alpine regions, involvement of the alpine research community in IPI is considered.

Climate Monitoring Activities

20. CCI Management Group discussed CCI involvement in WIGOS and the contribution to WIGOS implementation, [Reference 14].

21. On 13 June 2013, the Austrian Central Institute for Meteorology and Geodynamics (ZAMG) jointly with the Austrian Meteorological Society organised a colloquium to celebrate 250 years of weather and climate observations at Stift Kremsmünster, Austria. Several invited speakers including from WMO provided welcome addresses and lectures, stressed the importance of long time series for climatology and congratulated the monastery as well as ZAMG for maintaining the station over such an extraordinary long time span. Discussions during the colloquium revealed support to WMO's proposal for a formal designation of centennial stations.

APPENDIX B:

PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

WMO SPACE PROGRAMME

References:

1. Amendment to the Manual on the GOS, chapter IV Space-based Observing System (ftp://ftp.wmo.int/Documents/PublicWeb/mainweb/meetings/cbodies/governance/tc_reports/english/pdf/1101_en.pdf#page=93)
2. [Strategy towards an Architecture for Climate Monitoring from Space](#): M. Dowell, P. Lecomte, R. Husband, J. Schulz, T. Mohr, Y. Tahara, R. Eckman, E. Lindstrom, C. Wooldridge, S. Hilding, J. Bates, B. Ryan, J. Lafeuille, and S. Bojinski, 2013.
3. Special issue of the IEEE Transactions on Geoscience and Remote Sensing on satellite instrument intercalibration. ([Vol.51, No.3, March 2013.](#))
4. Competence of Aeronautical Meteorological Personnel ([WMO-No. 49, Vol.1, Part II, Section 5.1](#)).
5. Observing System Capability Analysis and Review tool (OSCAR), [space capabilities component](#).
6. Outcome of the 2012 WMO survey on the use of satellite data (http://www.wmo.int/pages/prog/sat/documents/SAT-PUB_SP-9-Survey-Report-2012.pdf)
7. CBS Guidelines for ensuring user readiness for new generation satellites [CBS-15 Abridged Final Report](#), Annex I.

1. The definition of the space-based component of the Global Observing System (GOS) has been updated in response to the Vision of the GOS for 2025 and to the new baseline agreed by the CGMS for its operational/sustained contribution to the GOS. This major development is reflected in an amendment to the Manual on the GOS, Chapter IV, which was recommended by CBS-15 and adopted by EC-65 [Ref. 1]. This will be reflected in the future Manual on WIGOS.

2. A Strategy towards an Architecture for Climate Monitoring from Space [Ref.2] was developed by WMO, CGMS and CEOS as foreseen by Cg-XVI, Resolution 19. A comprehensive inventory of Essential Climate Variable (ECV) related datasets has been established, as a basis for a gap analysis and further actions to address these gaps. The CBS Expert Team on Satellite Systems (ET-SAT) discussed this approach and recommended to extend the inventory to Fundamental Climate Data Records (FCDRs). This view was supported by CGMS-41 (Tsukuba, Japan, 8-12 July 2013).

3. The Global Space-based Inter-calibration System (GSICS) is developing best practices and procedures for improved pre-launch and on-orbit calibration, and making calibration corrections routinely available through the online GSICS product portal (<http://gsics.wmo.int>). An overview of scientific developments achieved by GSICS members and partner organizations was published as a special issue of the IEEE Transactions on Geoscience and Remote Sensing and is available on line [Ref. 3].

4. The Virtual Laboratory for Education and Training in Satellite Meteorology (VLab) is actively pursuing its activities, with highlights over the past year including the online events on precipitation (547 participants from 33 countries), direct readout (25 from 13 countries), a EUMETTrain-led world weather briefing (448 from 34 countries), and a series of virtual round tables on the new competence requirements for aeronautical meteorological personnel, as defined by the WMO Technical Regulations and required by ICAO [Ref. 4]. The first set of virtual round tables each had 40 participants on average, held in English, French, Spanish, and Russian. Further events are planned, and translations into Arabic, Chinese and Portuguese are under consideration.

5. Several online resources have been developed to inform users on satellite capabilities, data, products, and means to access them. The Observing System Capability Analysis and Review tool (OSCAR) [Ref. 5] contains description of more than 500 instruments and related programmes, satellites, and measurements; it will be part of the future WIGOS Information Resource. In addition, a guide on satellite data access (near- and non-real time), pre-processing and analysis tools and the prototype Product Access Guide are also available from the Space Programme home page (<http://www.wmo.int/sat>).

6. The Space Programme Office carried out the 2012 WMO Survey on the Use of Satellite Data [Ref. 6] to collect information on access and use of satellite data and products by users globally, to enquire on key application areas, training needs, and to identify any areas for improvement and remedial action. The survey was completed by 227 users from 95 Member countries globally, including 53 operational users from 34 countries in Region VI. Compared to other WMO Regions, there is a relatively high level of satellite data use in RA VI in all thematic domains (weather, climate, marine, hydrology, among others). Fig. 1 provides an overview of polar-orbiting satellites used in the Region. There is a high demand for future use of operational satellite products characterizing soil moisture, lightning, land surface temperature, and inland waters (e.g., levels of rivers and lakes) [Fig. 2]. Users are accessing data through a range of distribution techniques, mostly using EUMETCast and the internet [Fig. 3]. Key challenges identified by Members in using satellite data are mostly due to issues with data processing, analysis and interpretation, and a result of insufficient resources [Fig. 4]. Moreover, many users are insufficiently prepared for the use of new data types from the upcoming generation of satellite systems [Fig. 5]. Therefore, CBS adopted the Guidelines for ensuring user readiness for new generation satellites [Ref. 7]. The Survey serves as guidance for Space Programme activities over the coming three years.

7. Following completion in 2012 of the prototype phase of the Sustained Coordinated Processing of Environmental Satellite Data for Climate Monitoring (SCOPE-CM), a new phase has been initiated, aiming at improving the scientific and operational maturity of selected satellite-based climate data records, with reference to an agreed maturity metrics. A concept of operations has been developed to foster regional collaboration towards improved and sustained use of satellite data for nowcasting (SCOPE-Nowcasting) and five pilot projects were identified to demonstrate the value of this approach in different regional contexts.

8. Twenty-one WMO Members and seven international organizations are part of the WMO Inter-Programme Coordination Team on Space Weather (ICTSW). A Space Weather Product Portal has been implemented in 2012 (http://www.wmo.int/pages/prog/sat/spaceweather-productportal_en.php) and a Statement of Guidance for Space Weather observations has been developed, as a contribution to the WIGOS Rolling Requirements Review process. Work is ongoing with ICAO on the definition of future space weather warning services to air traffic navigation.

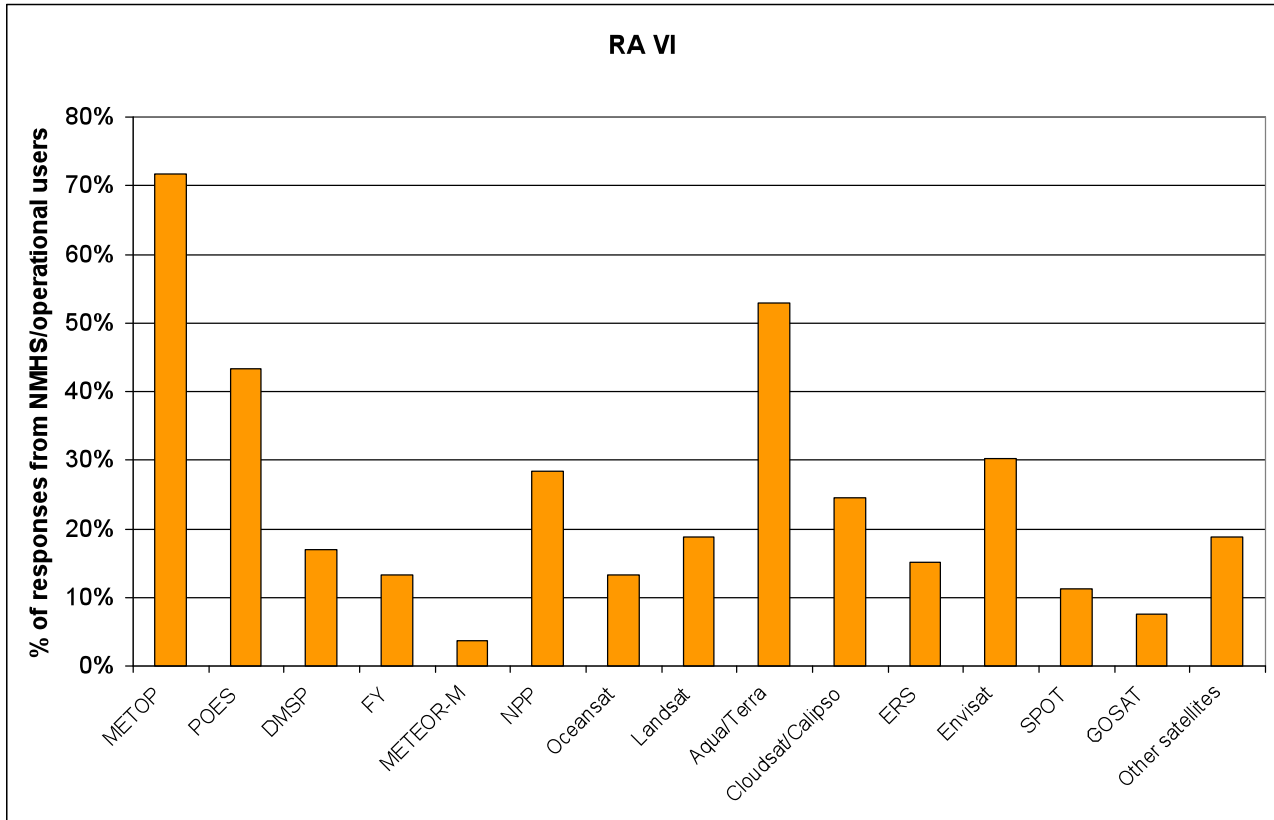


Figure 1: Use of polar-orbiting satellites (based on 53 responses)

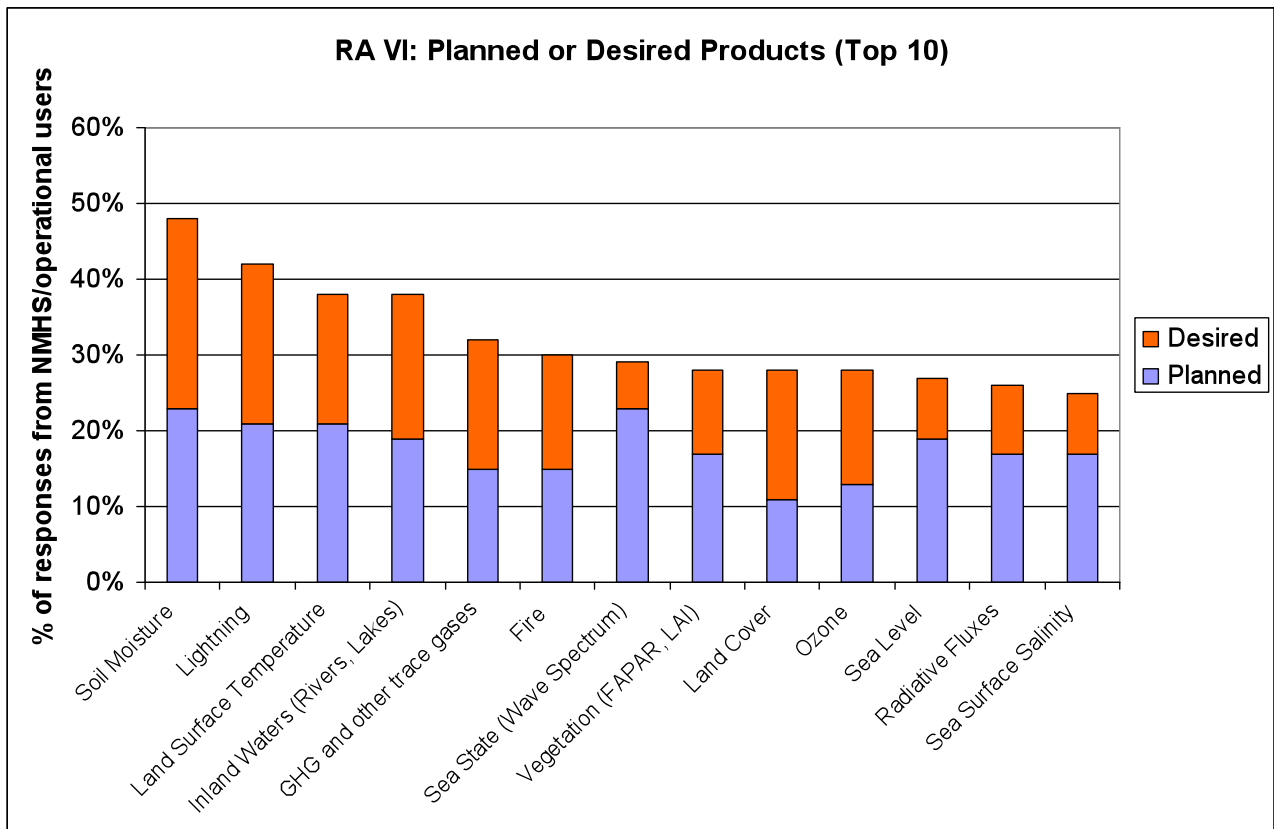


Figure 2: Satellite-based Products planned for use, or desired to be used (53 responses)

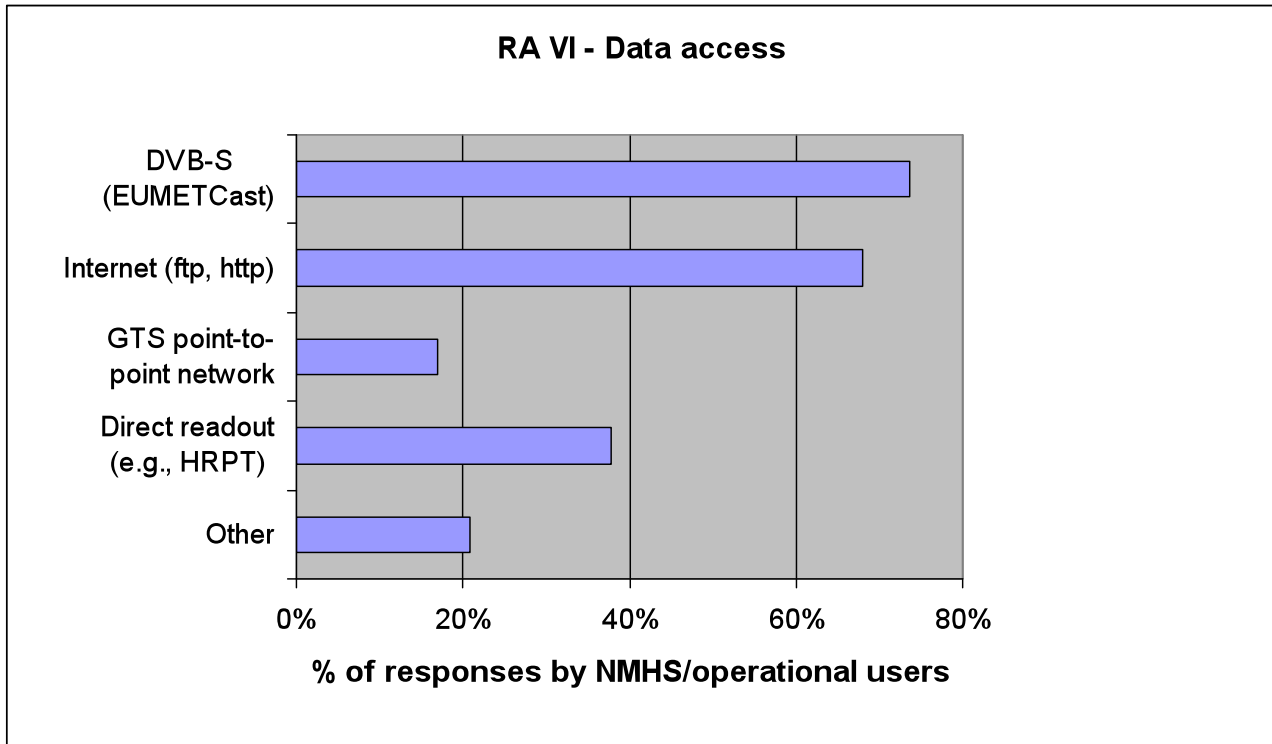


Figure 3: Data access (based on 53 responses)

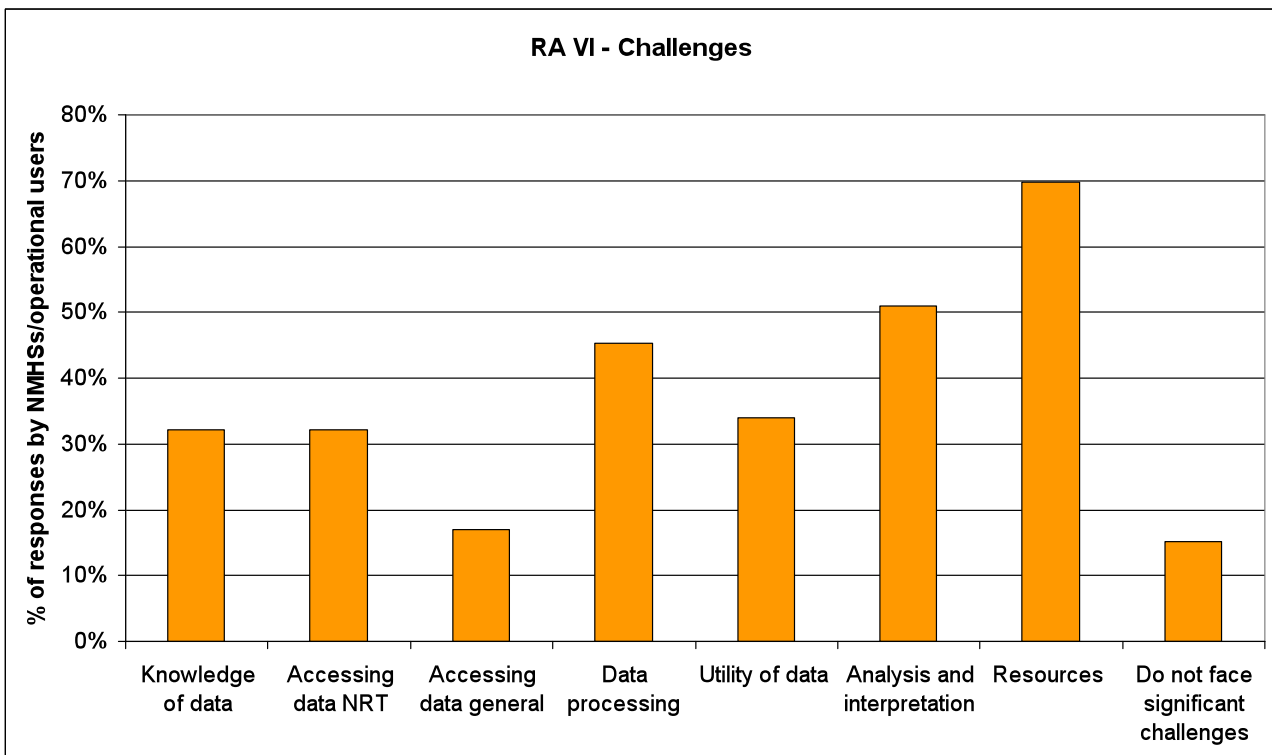


Figure 4: Challenges identified in the use of satellite data (53 responses)

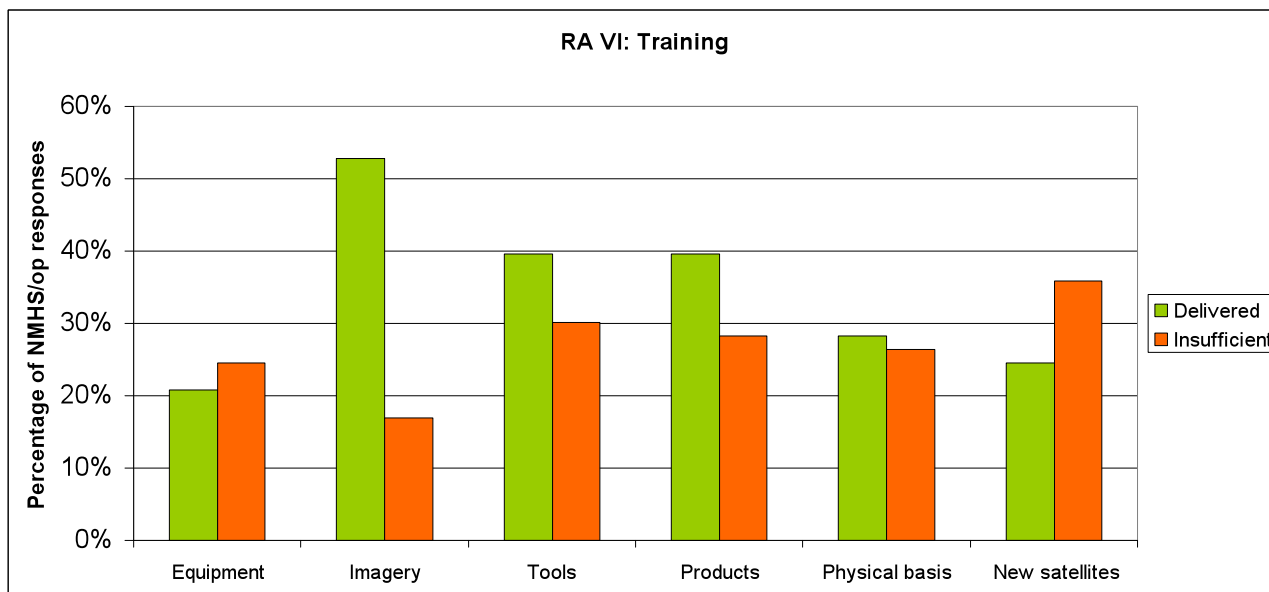


Figure 5: Training delivery and deficits (based on 39 responses which indicated a need for training)

APPENDIX C: PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

WMO INFORMATION SYSTEM

References:

1. Resolutions 4 and 51 (Cg-XVI);
2. Resolution 13 (EC-65);
3. WIS in a Nutshell (<http://wis.wmo.int/page=wis-in-a-nutshell>).

Migration to Table Driven Code Forms

1. Significant progress has been made towards exchanging information in Table Driven Code Forms. The Special Main Telecommunications Network Monitoring (SMM) identifies reports for stations in the Regional Basic Synoptic Network that are exchanged in BUFR. Figure 1 and Figure 2 show areas for which the SMM for April 2013 identified BUFR information for Regional Basic Synoptic Network (RBSN) stations being exchanged. There may be more countries actually exchanging information in BUFR that these figures show. Two reasons for this that have already been identified are that BUFR reports may be exchanged for stations that are not in the RBSN (for example, Belgium provides upper-air information for a station that is not in the RBSN), or that BUFR reports that are provided are not being routed to the monitoring centres (for example, Portugal produces reports in BUFR that were not received in Offenbach).

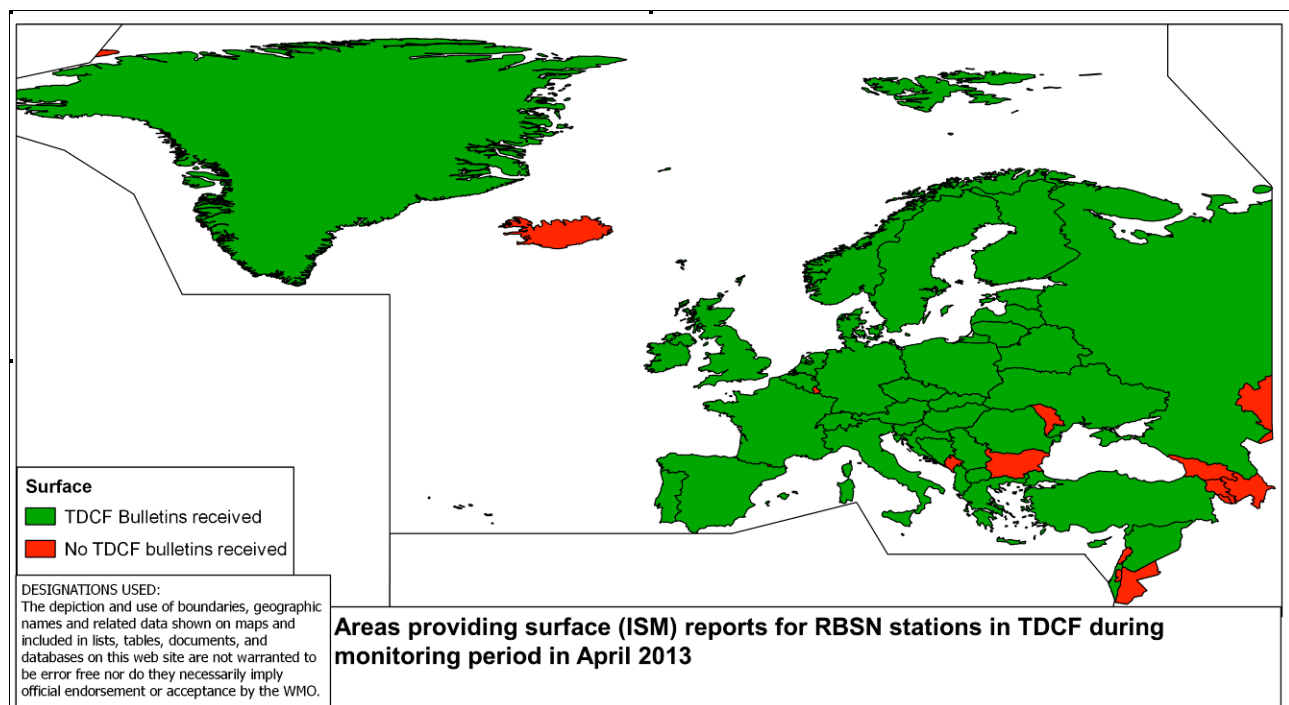


Figure 1. Surface synoptic reports exchanged in BUFR during the SMM in April 2013

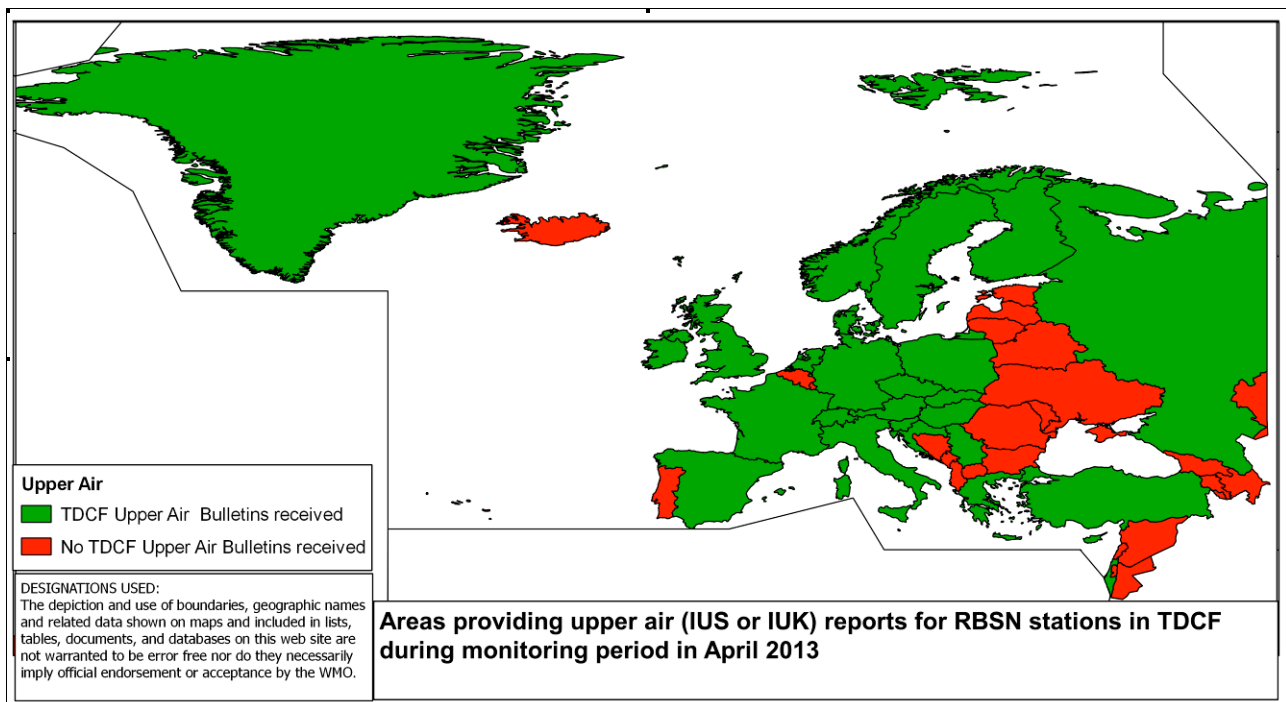


Figure 2. Upper-air synoptic reports exchanged in BUFR during the SMM in April 2013

Monitoring of the World Weather Watch

2. Each year from 1 to 15 October, Regional Telecommunications Hubs take part in the World Weather Watch Annual Global Monitoring. The number of observations for the main synoptic hours received is recorded for each station in the Regional Basic Synoptic Network (RBSC) and the number of CLIMAT reports is recorded for the Regional Basic Climate Network (RBCN). Results of this monitoring for October 2012 are shown in Figure 3, Figure 4 and Figure 5. Note that only observations for the main synoptic hours are recorded.

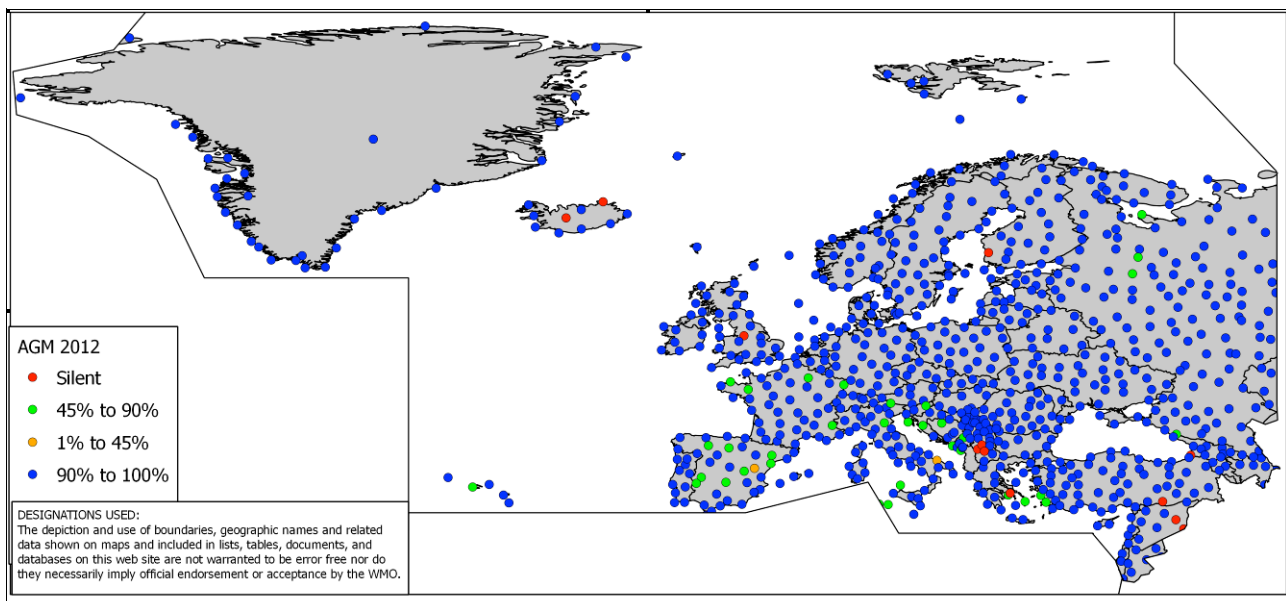


Figure 3. Proportion of SYNOP reports received for main synoptic hours (00Z, 06Z, 12Z, 18Z) from RBSN stations during the AGM 2012.

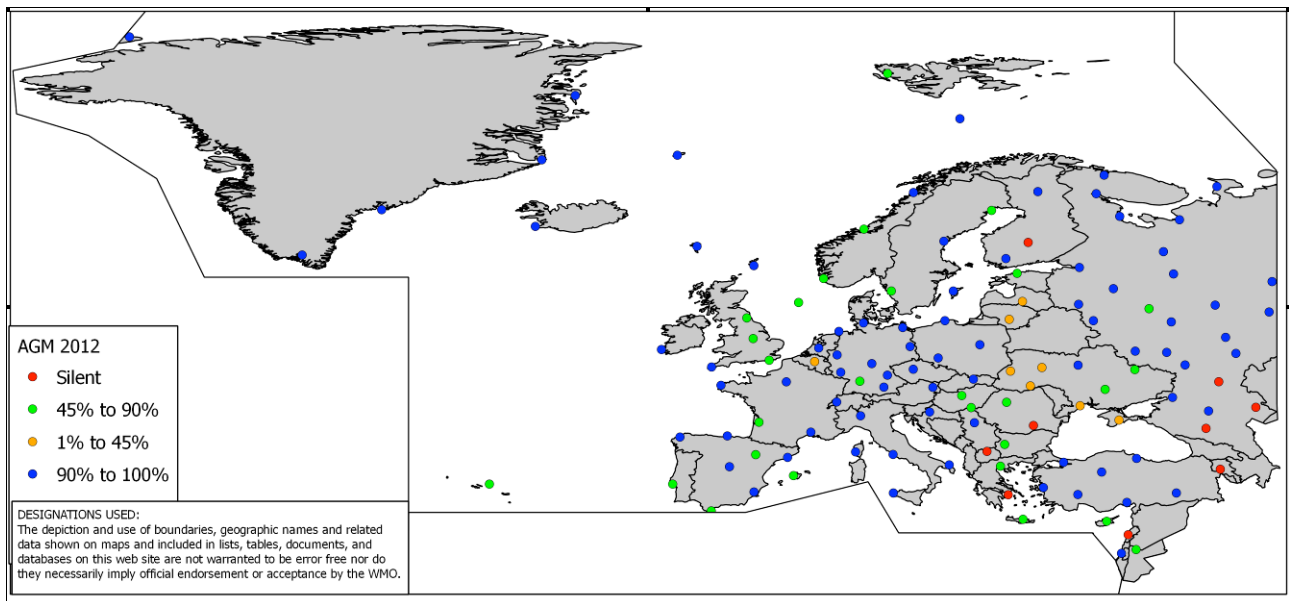


Figure 4. Proportion of TEMP reports received for main synoptic hours (00Z, 12Z) from RBSN stations during the AGM 2012.

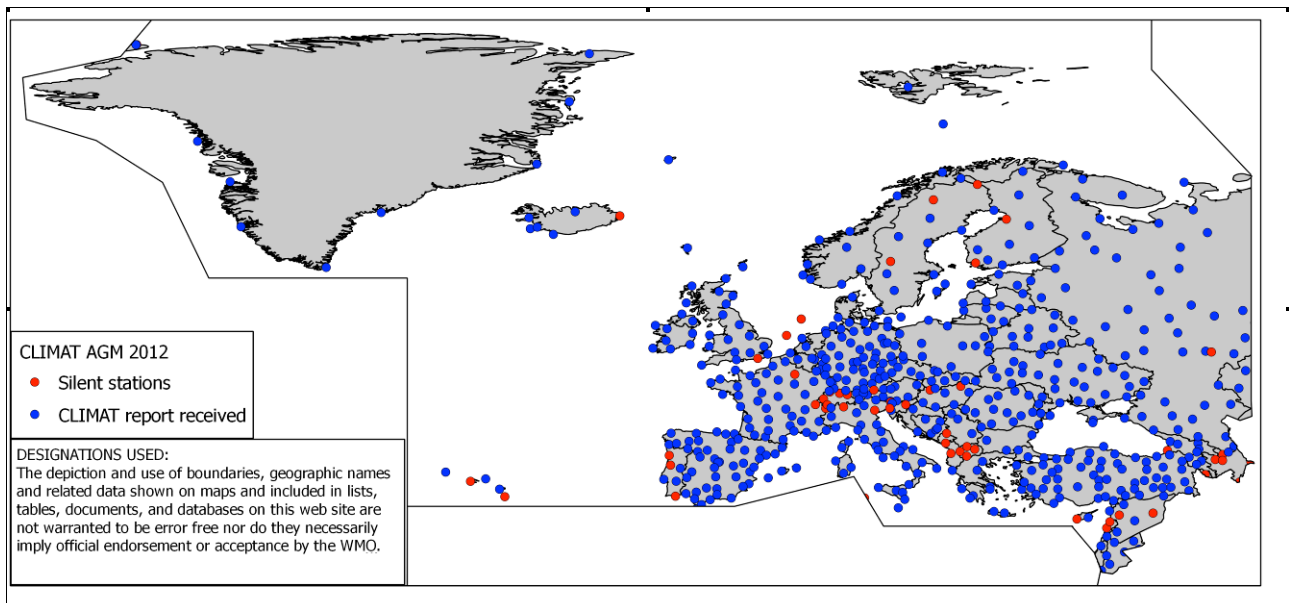


Figure 5. CLIMAT reports received from RBSN stations during the AGM 2012.

3. Figure 6, Figure 7 and Figure 8 show the time trend for the percentage of reports defined by the RBSN and RBSN in each Region.

4. For 21 stations all expected synoptic surface reports were received, but no monthly climate report was received in October 2012. This indicates that there may be procedural problems in the preparation and exchange of the monthly CLIMAT report for these stations.

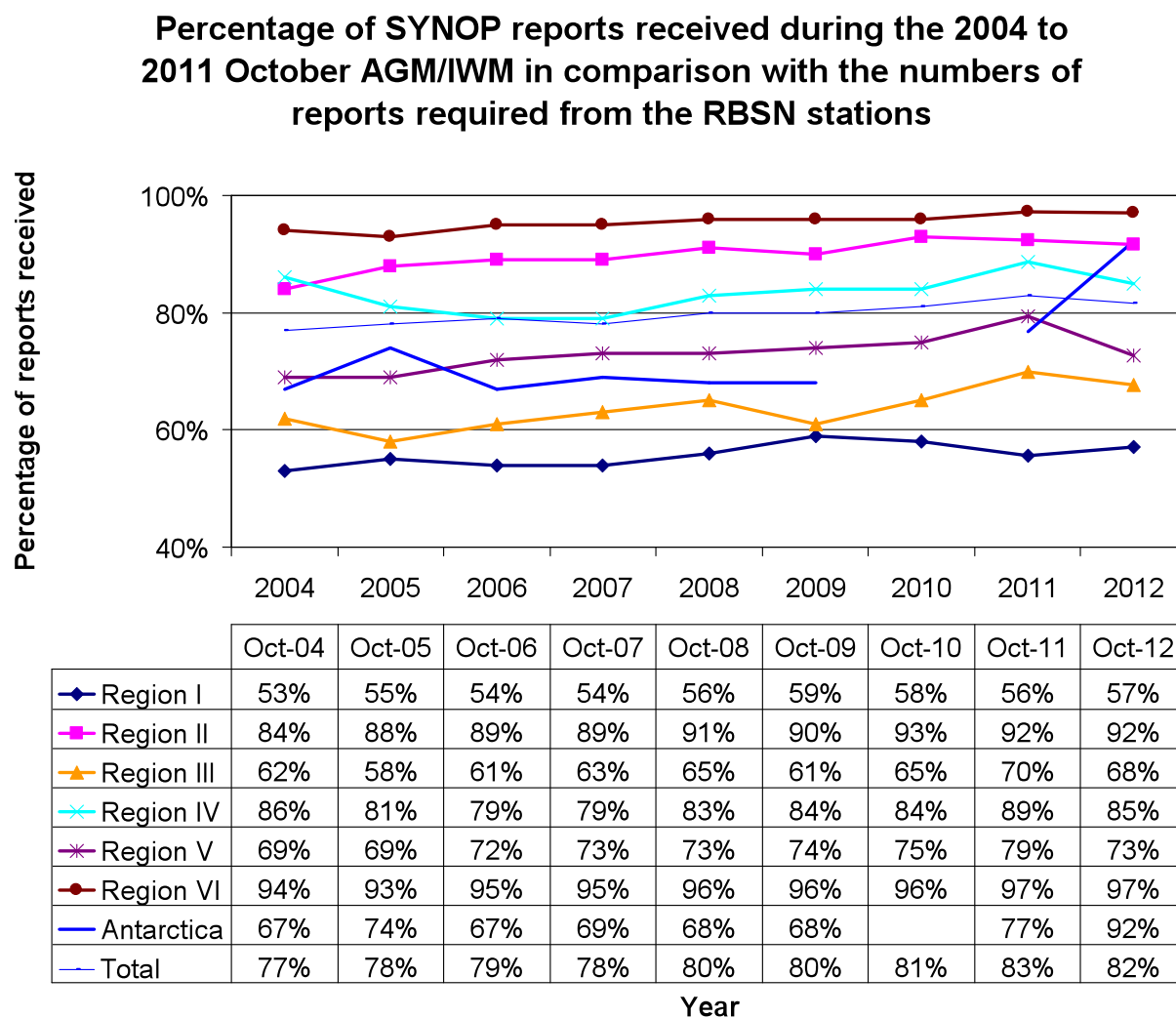
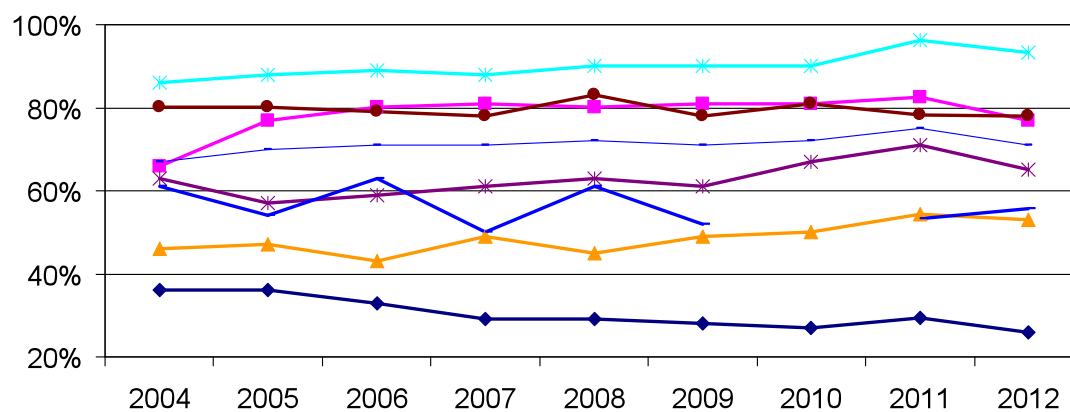


Figure 6. Time series of the percentage of SYNOP reports received in each Region.

Percentage of reports received

**Percentage of TEMP reports received during the 2004 to 2011
October AGM/IWM in comparison with the numbers of reports
required from the RBSN stations**



	Oct-04	Oct-05	Oct-06	Oct-07	Oct-08	Oct-09	Oct-10	Oct-11	Oct-12
◆ Region I	36%	36%	33%	29%	29%	28%	27%	29%	26%
■ Region II	66%	77%	80%	81%	80%	81%	81%	83%	77%
▲ Region III	46%	47%	43%	49%	45%	49%	50%	54%	53%
✱ Region IV	86%	88%	89%	88%	90%	90%	90%	96%	93%
✱ Region V	63%	57%	59%	61%	63%	61%	67%	71%	65%
● Region VI	80%	80%	79%	78%	83%	78%	81%	78%	78%
— Antarctica	61%	54%	63%	50%	61%	52%		53%	56%
— Total	67%	70%	71%	71%	72%	71%	72%	75%	71%

Year

Figure 7. Time series of the percentage of TEMP reports received in each Region.

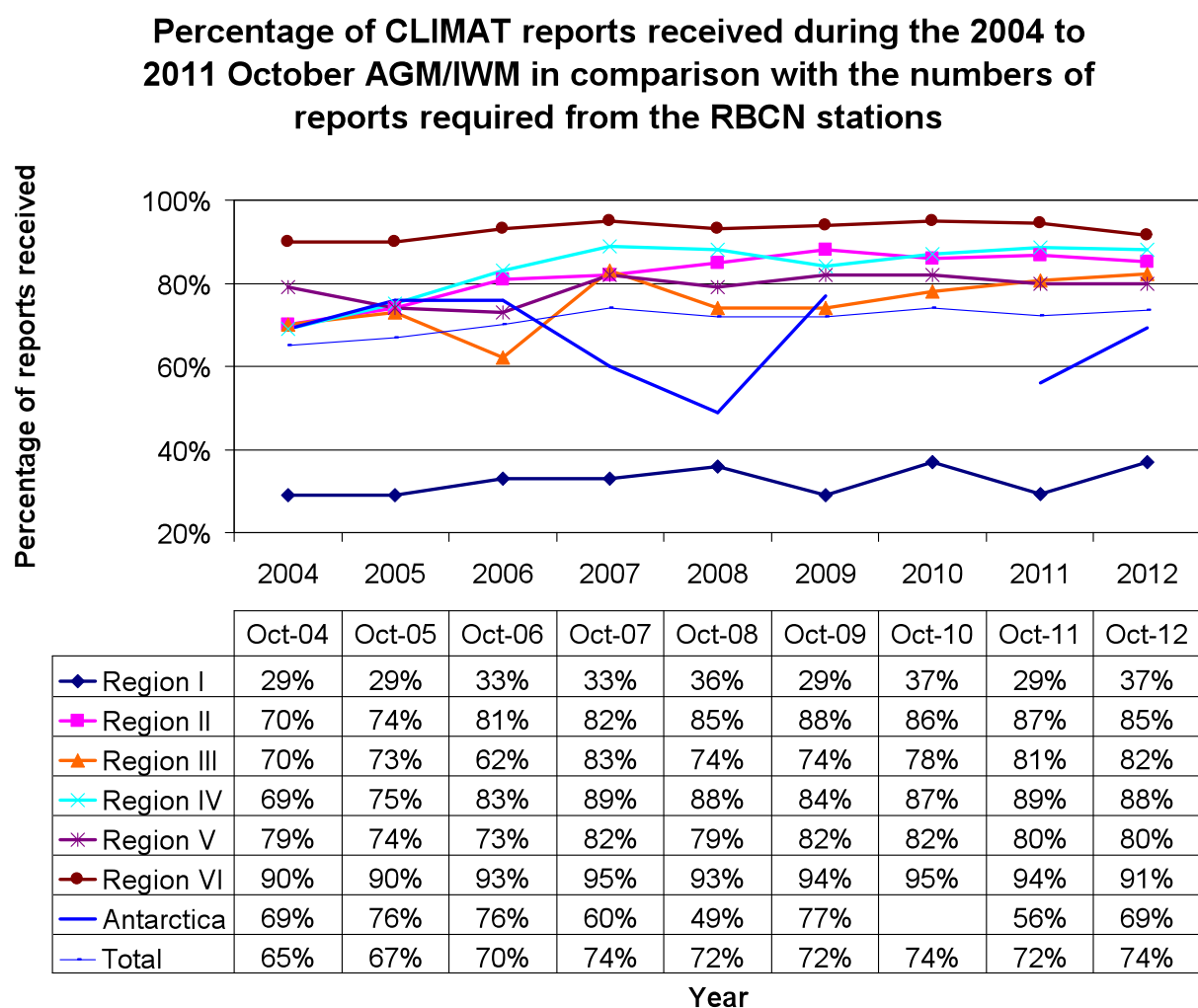


Figure 8. Time series of the percentage of CLIMAT reports received in each Region.

APPENDIX B: PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

GLOBAL CLIMATE OBSERVING SYSTEM

References:

1. Resolution 15 (EC-64)
2. Resolution 29 (Cg-XVI)
(ftp://ftp.wmo.int/Documents/PublicWeb/mainweb/meetings/cbodies/governance/congress_reports/english/pdf/1077_en.pdf#page=243)
3. Report of the Twentieth Session of the WMO-IOC-UNEP-ICSU Steering Committee for GCOS, (GCOS-164), Geneva, Switzerland, 4-7 September 2012
4. Report of the Eighth GCOS Cooperation Mechanism Board Meeting, (GCOS-163), Reading, UK, 3 September 2012
5. Report of TOPC-XV, Geneva, Switzerland, 6-7 March 2013 (GCOS-168)
6. Report of AOPC-XVIII, Geneva, Switzerland, 2-5 April 2013 (GCOS-169)
7. [The Implementation Plan for the Global Observing System for Climate in Support of the UNFCCC \(2010 Update\), GCOS-138, WMO/TD-No. 1523\)](#)
8. [Systematic Observation Requirements for Satellite-based Products for Climate - Supplemental details to the satellite-based component of the Implementation Plan for the Global Observing System for Climate in Support of the UNFCCC - 2011 Update, \(GCOS-154\)](#)
9. [GRUAN Implementation Plan 2009-2013, \(GCOS-134, WMO/TD No. 1506\)](#)
10. GRUAN Manual (GCOS-170, WIGOS Technical Report No. 2013 – 02)
11. GRUAN Guide (GCOS-171, WIGOS Technical Report No. 2013 – 03)
12. GRUAN Implementation Plan 2013-2017, (GCOS-165)
13. GCOS Workshop on Observations for Adaptation to Climate Variability and Change, Offenbach, Germany, 26–28 February 2013, (GCOS-166)
1. ***Next steps in the GCOS Improvement and Assessment Cycle – a Contribution to GFCS***

The GCOS Secretariat organized an expert Workshop on Observations for Adaptation to Climate Variability and Change, supported by IOC of UNESCO and UNEP, to consider the climate observing requirements, hosted by the German Meteorological Service, Deutscher Wetterdienst (DWD), in Offenbach, Germany from 26-28 February 2013. The workshop considered the sectors of water resources management, coastal zone management, health, forestry and

agriculture, energy, transport and discussed the cross-cutting issues: risk management, early warning systems, research, modelling and assessment, and data rescue and management.

2. GCOS Cooperation Mechanism

Recent initiatives to revitalize the GCOS upper-air and surface networks and to improve the overall performance of these important baseline networks since last year include direct renovation projects, the activities of the CBS Lead Centers for GCOS, and various training workshops. Of particular relevance for Members of RA VI is, that:

- The supply of radiosondes and balloons to Gan, Maldives; Yerevan, Armenia; and Khartoum, Sudan was made possible through funding from Japan, Switzerland and the United Kingdom;
- The upgrade of the eight GSN stations in Angola, funded by KNMI, is still not completed. All equipment is in place, but the project has stalled as the Angolan Met Service cannot afford the travel necessary for the actual installation activities;
- The UK Met Office has made progress with the project to renovate the 11 stations in Madagascar and once testing is complete, using a local mobile phone SIM connection, the rollout of the AWS equipment will commence;
- It is increasingly more evident that technical issues, failures in Hydrogen generators and re-supply of consumables are resulting in significant downtimes for many of the GUAN stations. These issues are primarily due to lack of finance and often the long lead-times needed to get approval to spend even for relatively small amounts of money. GCOS is supporting where it can both with GCM funding and working with industry for a speedy resolution, but immediate contact with the GCOS Secretariat when the issue is identified could help to lessen the downtime of the system;
- It has been reported to GCOS that the GUAN stations at Ascension Island (61902, Region I) and Cluj-Napoca (15120, Region VI) have stopped reporting and will close. It is important that Members formally report to WMO and GCOS at the earliest opportunity on station closures or changes in practices which have an impact on the GSN and GUAN;
- The bi-annual CBS Lead Centre meeting for GCOS will take place in Santiago, Chile from 8-10 October 2013, kindly hosted by the Dirección Meteorológica de Chile. This meeting will focus on the Quality Management service provided by these Lead Centres, in terms of monitoring the network, diagnosing any issues and their methods of communication;
- In 2010 GCOS updated the minimum requirements for a GUAN station, to report temperature and wind to 30hPa and humidity to the tropopause, on at least 25 days each month. Members should note that the balloon size and how it is handled, has a significant impact on the burst heights achieved and thus every effort should be made to ensure the minimum requirement is reached for all GUAN stations;
- Whilst the majority of Region VI Members are providing the monthly CLIMAT message, there are still a few that are not. It is important to remind Members on their commitment in providing the monthly CLIMAT message both for their GSN and RBCN stations.

3. GCOS Reference Upper-Air Network (GRUAN)

The GCOS Reference Upper-Air Network (GRUAN) is intended to provide long-term high-quality climate records of upper-air temperature, water vapour, and other key essential climate variables, particularly in the troposphere and in the lower stratosphere, by a combination of balloon borne and remote sensing state-of-the-art instrumentation, and will constrain and calibrate data from more spatially-comprehensive global observing systems, including satellites and current radiosonde networks (e.g., the GCOS Upper-Air Network (GUAN)). Its over-arching aim is to create an unimpeachable record of vertically resolved changes in atmospheric ECVs on multi-decadal timescales to support climate monitoring and climate change attribution activities and climate dataset development.

In 2009, the 'GRUAN Implementation Plan 2009-2013' was published and parts thereof were designated as a Pilot Project for the WMO Integrated Observing System (WIGOS). The strategy to implement GRUAN is described therein, complemented by the short- and medium-term GRUAN workplans which are updated on an annual basis. Recently, an update of the GRUAN Implementation Plan, spanning the period 2013-2017, has been published.

Criteria for site assessment and certification, and the process for implementation, have been developed. The first official versions of the GRUAN Manual and Guide have been finalized. It is expected that specific details of, and information on, GRUAN from the forthcoming GRUAN Manual and Guide will be included in WMO regulatory material (currently for GOS and CIMO, and ultimately for WIGOS).

The role of WMO in GRUAN governance has been clarified following a meeting held under the auspices of WIGOS (January 2012, Geneva). Representatives of the WMO Technical Commissions (CBS, CIMO, CAS and CCI) are now officially represented at the Working Group on GRUAN, formerly called Working Group on Atmospheric Reference Observations.

GRUAN is envisaged to eventually consist of 30-40 sites, covering major climatic zones worldwide. To guide expansion from the current 16 sites, a dedicated expert meeting was held (June 2012, Fürstenwalde, Germany), which brought together experts from the main user communities of GRUAN data to develop the network design and expansion criteria.

The recent 5th Implementation and Coordination Meeting (ICM-5, 25 February to 1 March 2013, DeBilt, The Netherlands) focused on bringing additional data streams online within GRUAN.

The GCOS Atmospheric Observations Panel for Climate (AOPC) intends to conduct a scientific review of GRUAN's performance during its 2015 session.

APPENDIX B: PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

DATA MANAGEMENT APPLICATIONS IN SUPPORT OF THE GLOBAL FRAMEWORK FOR CLIMATE SERVICES

Climate Data Management Systems (CDMS)

1. The WMO/CCI Questionnaire on CDMS is available at:
http://www.wmo.int/pages/prog/wcp/wcdmp/CDM_3.php

Data Rescue

2. The RA VI DARE website can be accessed at www.climatol.eu/DARE.
3. The Mediterranean Data Rescue initiative - MEDARE - is a regional collaborative initiative amongst Members in the Greater Mediterranean Region (GMR) on Data Rescue. It aims at developing a long term high quality instrumental climate dataset for climate change assessment, adaptation and climate services (<http://www.omm.urv.cat/MEDARE/index.html>).
4. WMO organized the third MEDARE workshop (<http://www.omm.urv.cat/MEDARE/index-3workshop-outcomes.html#atitol>) in Istanbul, Turkey in 2012.

World Weather Records (WWR)

5. The WWR collection for the 10th series (2001-2010) and for the years 2011 and 2012 was launched in 2013. A circular letter was sent to all WMO Members on 15 February 2013 with the request to send the data until 30 June 2013 to the responsible CBS Lead Center for GCOS or WMO. Details and guidelines for WWR data submission can be found at http://www.wmo.int/pages/prog/wcp/wcdmp/GCDS_2.php.

WMO Climate Normals

6. The Executive Council at its sixty-fifth session welcomed the efforts led by CCI with involvement of other technical commissions to improve the current WMO definitions and practices applied by Members in calculating Climate Normals. It noted the related proposal to increase the frequency of updates to the 30-year WMO Climatological Standard Normals from 30 years to every ten years. In a changing climate, these updates would better reflect climate averages for use in operational climatology and provision of climate services. The Executive Council further noted the intention to maintain the 1961-90 period as a WMO reference period for long-term climate variability and change assessment. This reference period should be maintained until such a time as scientific reason dictates that a new reference period is required. EC-65 requested CCI to submit a proposal for related amendments to the WMO Technical Regulations.

Training and capacity development on Climate Data Aspects

7. The outcome of the Regional Workshop on Historic Hydrometeorological Data Management for West Balkan Countries and Turkey with representation from Lebanon and Jordan are available at: http://www.wmo.int/pages/prog/dra/eur/IPA2012/IPA2012_main.php.
8. Information about the EU-UNISDR-WMO project 'Building resilience to disasters in the Western Balkans and Turkey' can be accessed at www.preventionweb.net/ipadrr/.

APPENDIX B: PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

WORLD CLIMATE RESEARCH PROGRAMME (WCRP)

1. Since RA VI-XV, WCRP made further advances under the Programme's two main objectives, improving climate prediction and enhancing understanding of human interactions with climate. Progress was achieved in improving the quality of seasonal forecasts through the use of multi-model ensembles, developing state-of-the-science data assimilation systems, and better understanding of key processes that are likely to contribute to improved seasonal forecasts. WCRP is also exploring the potential of decadal predictions that could provide useful information for development of adaptation strategies. WCRP continues its efforts to improve regional climate information through a coordinated regional climate downscaling experiment (CORDEX) that is producing regional climate projections for many areas of the world. Recognizing the pressing need to narrow the large gap that currently exists between decision-makers and climate science researchers, WCRP is organizing a series of regional projects, conferences, capacity development and training activities focussing on the role of science in climate services and risk management. A joint WCRP-IPCC-EU International Conference on Regional Climate will be held 4-7 November 2013 in Brussels, Belgium. This event aims to showcase the main outcomes of the IPCC AR5 WGI report the key scientific results for the first phase of CORDEX and identify the future research priorities. Likewise, another conference will take place in October 2013, in Arusha, Tanzania, on the State of the African Climate System, followed by a similar forum in Latin America in March 2014 in Montevideo, Uruguay.

2. WCRP is sponsoring active engagement of many early career scientists in its activities, with particular emphasis on scientists from least developed and developing countries, to facilitate growth of the diverse future workforce needed to meet the increasingly complex scientific challenges in the future. Through strategic partnerships with WCRP sponsors (WMO, ICSU, and IOC) and sister organizations such as the START (Global Change System for Analysis, Research and Training), APN (Asia-Pacific Network for Global Change Research), and IAI (Inter-American Institute for Global Change Research), WCRP is currently undertaking a wide range of education, training and capacity development activities like:

- CORDEX training workshops in Asia, Africa and Latin America;
- Summer Schools on WCRP Grand Science Challenges.

3. Unprecedented volumes of data containing climate historical simulations, predictions, projections, and observational datasets are being made available openly to scientists and other users through the Earth System Grid Framework (ESGF). These data include the results from Coupled Model Intercomparison Project, Phase 5, Climate system Historical Forecast Project (CHFP) focused primarily on seasonal climate forecasts, the COordinated Regional Climate Downscaling EXperiment (CORDEX), the four major international re-analysis products from the USA, Japan and Europe, and observation-based data sets prepared by NASA for intercomparison with some of the CMIP5 products. The ESGF is a highly distributed system with nodes in all major continents around the world to ensure ease of access to these large scale data sets on one hand, and consistency of protocols, formats, projection maps, documentation, etc. on the other hand to enable more effective analysis and intercomparison among these data sets, as warranted. The WCRP Coupled Model Intercomparison Project Phase 5 (CMIP5) held a workshop in March 2012 in Honolulu, USA (http://www.wcrp-climate.org/documents/ezone/WCRPnews_14032012.pdf) where the outputs of the experiment were presented including historical, centennial model runs and pilot decadal predictions leading to numerous contributions to the IPCC AR5. WCRP is engaged in several important collaborative projects, in which both WCRP and WMO sponsored

projects participate, including the Subseasonal to Seasonal Prediction (S2S) project, for which a research implementation plan has been developed; the WCRP Polar Climate Predictability Initiative (PCPI), and joint WCRP/GAW activities in the domain of air quality and atmospheric chemistry.

4. WCRP is grateful for the support provided to the WCRP International Project Offices by the Region specifically Norway for hosting the CliC IPO, UK for hosting CLIVAR IPO and Switzerland for hosting the SPARC IPO. Significant developments are taking place in all four WCRP core Projects. The GEWEX will focus on predicting global and regional energy and water variations, trends, and extremes (such as heat waves, floods, and droughts) through improved observations and modelling of land, atmosphere and their interactions; thereby providing the scientific underpinnings of climate services. CliC's main objectives are to enable prediction of the Arctic and Antarctic climate systems, terrestrial cryosphere, and past, current and future sea-level variability and change. SPARC research focus is on atmospheric dynamics, chemistry and composition, and its activities are evolving with a greater emphasis on stratosphere-troposphere coupling and their influence on air quality. CLIVAR is focussing on the role of the oceans and ocean-atmosphere interactions in order to better understand climate variability, predictability and change.

5. A conference "Climate Research and Earth Observations from Space: Climate Information for Decision Making" is being organized by WCRP and EUMETSAT, in partnership with GCOS, CEOS and CGMS. It will be held in Darmstadt, Germany on 13-17 October 2014, and its main goal is to provide a forum for discussion of the state-of-the-science and observations in order to evaluate achievements and critical issues from satellite-derived climate information. A further priority is to identify gaps in the current space-based climate observing system. The conference will initiate a process for creating a post-IPCC-AR5 joint action plan for continuing development of observing systems, with a focus on the space component.

APPENDIX B:

PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

PARTNERSHIP WITH EU INSTITUTIONS AND THE EUROPEAN METEOROLOGICAL INFRASTRUCTURE (ECMWF, EUMETSAT AND EUMETNET)

European Centre for Medium-Range Weather Forecasts (ECMWF)

1. On 9 April 2010 all of the European Centre for Medium-Range Weather Forecasts (ECMWF) Member States officially accepted the amendments to the Convention adopted by the ECMWF Council on 22 April 2005. The amended convention entered into force on 6 June 2010. This was thirty days after the notification by the Austrian government of its acceptance of the Amending Protocol to the depositary of the ECMWF Convention, the General Secretariat of the Council of the European Union, on 7 May. The original Convention restricted ECMWF membership to the founding 18 Member States. The amended Convention enables more States, in particular existing Cooperating States, to join ECMWF as full Member States. Furthermore, it enlarges ECMWF's mission to cover the monitoring of the Earth system and broadens the possibility for externally-funded activities.
2. To date, ECMWF has 14 active Cooperation Agreements with the following States: Bulgaria, Croatia, Czech Republic, Estonia, Israel, Hungary, Latvia, Lithuania, Montenegro, Morocco, Romania, Serbia, Slovakia and The former Yugoslav Republic of Macedonia. Cooperation agreements offer full access to ECMWF real-time products, archive data and software tools, as well as access to ECMWF training facilities.
3. At present, the ECMWF Member States are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom of Great Britain and Northern Ireland.
4. Member States have full voting rights at the Council, which is the top level governing body of ECMWF. Also, each Member State gets a portion of the Centre's supercomputer and data archive resources for its own use and has access to all ECMWF products and tools.
5. ECMWF has an extensive education and training programme to assist Member States and Co-operating States in the training of scientists in numerical weather forecasting, and in making use of the ECMWF forecast products and computer facilities. However, there are courses targeting participants from WMO National Meteorological and Hydrological Services which are not ECMWF Member States or Cooperating States.

European Organization for the Exploitation of Meteorological Satellites (EUMETSAT)

6. EUMETSAT supports the Strategic Plan of WMO Regional Association VI (Europe) without excluding cooperation in other regional associations. The objective being to facilitate access to EUMETSAT data products and services and make best use of available and planned satellite services in order to help individual countries and regions to meet their respective needs.
7. EUMETSAT is committed to support National Meteorological Services in WMO Regional Association VI countries, which do not belong to the EUMETSAT Cooperating or Member States family.

8. In 2009, EUMETSAT initiated the organization of regular meetings with representatives of the National Meteorological Services of these countries, in order to facilitate the exchange of information and gather feedback from the users of EUMETSAT data and products in these countries:

- Information Day in Kiev (May 2009), for Eastern European Countries;
- Information Day in Montenegro (June 2009), for Western Balkan countries;
- Workshop in April 2011 in Skopje (The former Yugoslav Republic of Macedonia), for Eastern European, Caucasian and Western Balkan countries.

9. EUMETSAT has also initiated the Data Access for Western Balkan, Eastern European and Caucasian Countries (DAWBEE) project in order to support operational access to EUMETSAT data and products in these countries.

10. In its effort to maximize the use of its satellite data and products, EUMETSAT, in partnership with some of its Member States and in cooperation with the WMO, initiated the DAWBEE project in early 2010. The project ended in summer 2011.

11. The objective of the Data Access for Western Balkan and Eastern European and Caucasian Countries (DAWBEE) project was to ensure that eleven RA VI National Meteorological and Hydrological Services (NMHSs) located in the Balkans and Black Sea area, which are not EUMETSAT Member or Cooperating States, have operational access to data distributed through EUMETCast.

12. Through this project, standard EUMETCast stations (called DAWBEE stations) were installed at the premises of the eleven NMHSs. Several activities (user requirements, design of the station, installation and local training) were implemented with the support of experts from neighboring EUMETSAT Member and Cooperating States which have established cooperation with these NMHSs. Specific training activities also took place within the project. The eleven NMHS are:

1. Armenian State Hydrometeorological and Monitoring Service;
2. Azerbaijan National Hydrometeorological Department;
3. Belarus Department of Hydrometeorology;
4. Department of Hydrometeorology of Georgia;
5. State Hydrometeorological Service of Moldova;
6. Ukrainian Hydrometeorological Center;
7. Albanian Hydrometeorological Institute;
8. Federal Meteorological Institute of Federation of Bosnia and Herzegovina;
9. Hydrometeorological Institute of Kosovo as per (UN SCR 1244/99);
10. Hydrometeorological Service of The former Yugoslav Republic of Macedonia;
11. Hydrometeorological Institute of Montenegro.

EUMETRep Programme

13. In 2006, WMO, together with EUMETNET and ECMWF (with the logistical support of EUMETSAT), created a joint programme (EUMETRep) and office, whose Chief is a WMO staff member, responsible for liaising with the European institutions and representing the combined interests of its Members. Shortly after the fifteenth session of RA VI, EUMETSAT joined the founding Parties and a new Memorandum of Understanding was concluded for a period of 8 years (2010-2017), subject to evaluation every 2 years.

14. The Chief of the Joint Office therefore interfaces with the EU institutions representing the whole European Meteorological Community. Depending on the specific domain addressed, the Chief may act on behalf of WMO, EUMETNET EIG, ECMWF or EUMETSAT (or even a combination of them) but in any case the objective is to make sure that the message conveyed to EU is consistent with the shared interests of the entire community. On the other hand, EU Institutions particularly appreciate the presence in Brussels of a permanent single entry point to the whole Met community.

15. The basic objectives of the programme are essentially the timely availability of information and analyses on EU initiatives, plans, programmes and decisions, an increased awareness of EU bodies of the responsibilities and of the relevance of capabilities of the European Meteorological Infrastructure (EMI) to the implementation of EU policies and programmes and the representation of the programme stakeholders to the EU institutions. The added value of the EUMETRep programme lies primarily in upstream activities (issuing early warnings, monthly reports, monitoring funding opportunities and initiating new partnerships) which are then handed over to more relevant and competent staff of the organizations' respective secretariats and NMHSs.

16. In the context of the financial crisis in Europe, the task of the Chief became even more challenging and more critical. National resources of the NMHSs became scarcer while the EU budget did not increase, making the competition for EU funded partnerships even harder.

17. This daily and close collaboration between the Chief of the Joint Office and the EU has already brought some significant improvements in the way meteorological aspects and concerns are taken into consideration within EU initiatives in a series of different fields, as illustrated by the following examples.

EC Framework research programmes

EC 7th Framework Programme for Research and Development (FP7)-reporting/early warning of opportunities

18. The Chief of the Joint Office performed and circulated a global analysis of FP7 funding opportunities for NMHSs on the occasion of the launch of the programme and the Programme Manager attended and reported on yearly information days organised by EC. He also provided assistance and guidance to NMSs, ECMWF and WMO who wish to participate to FP7 activities.

EC Horizon 2020 Research and Innovation programme- influencing & reporting

19. For the next Multiannual Financial period 2014-2020, the new EC Research programme is called Horizon 2020. The European Commission has tabled its proposal some time ago and the recent agreement between Parliament and Council on the MFF (Multiannual Financial Framework) will pave the way to a formal adoption of the Horizon 2020 programme. Lobbying actions have been performed in order to draw the attention of the Commission on some topics which might be particularly interesting for the EU Met community. The first draft work programmes for 2014 and 2015 are currently being issued and they include several opportunities which are relevant for the EU Met community and which would deserve deeper analysis from this side and, potentially, bilateral contacts with the Commission before the actual calls for proposals are published.

Aviation Meteorology- influencing/reporting opportunities & threats

20. The action of the Chief of the Joint Office in this field focused in the early days on lobbying efforts aiming to bring Meteorology in the scope of the SESAR initiative: until then, aviation meteorology was considered as granted and absent from the range of envisaged ATM research projects. This eventually has led to the issuing of a dedicated call by the SESAR Joint

Undertaking (Workpackage 11.2) for which a consortium under the umbrella of EUMETNET EIG has been formed.

21. Together with Steve Noyes, the Executive Director of EUMETNET EIG, the Chief interfaced with the European Commission during the volcanic ash crisis. This was followed up by bilateral contacts that eventually led to the issuing of a dedicated call for proposals in which the project called Wezard has been selected. The recommendations of the Wezard project were presented to the European Commission under the format of a draft roadmap called EUVONET (EUropean Volcanic ash Observing NETwork) and EUMETrep currently lobbies the EC for the inclusion of the development of an Operational Integrated Observation System for the improved definition of volcanic eruption source parameters and the monitoring of distal volcanic ash in the atmosphere as a priority activity supported within Horizon 2020. The work performed in aviation meteorology also involved several interventions during various hearings of the European Parliament dedicated to the future of SESAR programme or the Volcanic Ash crisis. In this domain, the Chief of the Joint Office worked in close coordination with the AVIMET Chairman and the EUMETNET EIG Aviation Affairs Manager in order to ensure proper representation of the Met community in the dedicated EC consultation bodies (ICB and its subgroups).

22. Action taken by the Chief also included an early warning on potential threats: on 11 June 2013 the European Commission issued proposals for two new regulations on Single European Sky in which its intentions are made very clear, explicitly targetting the Met services: "The Commission is proposing to open up new business opportunities for companies to provide support services to air traffic control organizations. Support services, such as meteorology, aeronautical information, communications, navigation or surveillance services, will have to be separated so they can be put out to competitive tender, in an open and transparent manner, under normal procurement rules". The Chief joined EIG Executive Director and AVIMET Chairman to draw the attention NMHSs on this point. In the coming weeks and months, these proposals will have to be discussed in both Parliament and Council and there is therefore still room for potential modifications which will require coordination of national lobbying and targeted contacts with the European Parliament.

Climate-influencing reporting on opportunities

23. Building on the first achievements, (a coordinated Meteorological answer to the European Commission consultation on climate change adaptation) bilateral contacts with EC staff have been organized at very high level including meetings between the WMO Secretary-General and EU Commissioners, participation of EC representatives to World Climate Conference-3, Extraordinary Session of the World Meteorological Congress regarding the Global Framework for Climate Services (GFCS) and the first meeting of the Intergovernmental Board on Climate Services. The Chief of the Joint Office regularly reported on the EU policies for Climate change mitigation and adaptation. Specific attention was paid to the EU involvement in GFCS: EUMETRep organized a briefing on the GFCS to the benefit of relevant European Commission Directorates General (DGs) in April 2012 which helped creating an informal network of EC climate experts. The Commission was also consulted on the GFCS draft implementation plans and WMO DSG offered a debriefing of the Extraordinary Congress decisions in November 2012. More recently the European Commission was invited to highlight its projects in the field of climate services during the workshop on operational services held in Geneva in July 2013. This was followed by another debriefing of the first IBCS meeting given by WMO ASG to the benefit of DG Research, DG Devco and DG ENTR on 11 July.

24. Such an intensive collaboration with the European Commission has likely contributed to influencing the content of the draft work programme (2014-2015) of Horizon 2020 which includes a priority on climate that integrates several research areas which are highly relevant to the EU Met community.

Copernicus (formerly Global Monitoring for Environment and Security GMES)

25. A sustained lobbying (including within the European Parliament) led to the official recognition of a major role for the Met Community in the implementation of this EU programme. From the EC Communication on the future of GMES (2008) to the very recent proposals for a regulation establishing Copernicus as an operational programme (May 2013) through all the intermediate steps (GMES initial operations, regulation on data policy) each of the official EC Communications or proposed Legislative texts in this domain acknowledge a central role for the Met community and its organizations. This is particularly true for ECMWF in the Atmosphere Service and for EUMETSAT for the space component. WMO has always been highlighted by the Commission as a key partner in the field of international cooperation and more recently the development of the Copernicus climate service was presented as the European contribution to the GFCS.

26. The joint nature of the EUMETRep programme proved very useful in this domain since it helps the exchange of information and the coordination of the Met Community positions.

Development policy

27. The Chief of the Joint Office has also started building a relationship with DG Development of the European Commission (DG DEV). From the very early days of the programme, contacts were established with DG DEV staff. The role of the Chief in this field is essentially to identify the right interlocutor at the appropriate level and then organize meetings to the benefit of colleagues from ECMWF, EUMETNET, NMHSs and WMO. This has been the case on subjects such as GMES Africa (WMO, EUMETNET and EUMETSAT), ClimDev Africa, WMO (GCOS) AMMA (EUMETNET and WMO), the EC Strategy for Disaster Risk Reduction (WMO), the Global Climate Change Alliance (WMO), capacity building and automated weather stations in Africa (WMO).

28. Another important actor of the Development Policy of the European Union has also been approached, the ACP Secretariat (group of African, Caribbean and Pacific States). Closer cooperation of the ACP with WMO based on the existing MoU between the WMO and the European Commission, should lead to easier access to EU's development funds. The GFCS has, of course, become a central topic for the discussions with EC in this field.

Transport Policy

29. In addition to the work related to aviation meteorology which has already been mentioned above, contacts have also been established with the transport community and the relevant EC services in order to make sure the impacts of weather and climate on transport networks are properly taken into consideration in the future EU funded projects. The attention of EU interlocutors was drawn to the transversal dimension of weather and climate impacts on all transport modes. As a direct consequence, the first draft Horizon 2020 work programme 2014-2015 for the transport theme includes a chapter on resilience of the transport infrastructures to climate change where the EU Met Community should play a major role.

Other EU policies

30. The Chief of the Joint Office also developed the relationship with other services of the European Commission such as DG Enlargement. In this field, the meeting organized between WMO Secretary-General Michel Jarraud and European Commissioner Olli Rehn can be considered as a critical step towards the EC funding of the Disaster Risk Reduction project in Southern Eastern Europe. The second phase of this programme is now well under way. Several meetings have also been organized with DG INFSO (Information Society) in the field of Radio Frequencies.

Cooperation with EMI structures

31. A Memorandum of Understanding between WMO and EUMETNET EIG is currently being prepared, which seeks to expand the collaboration presently undertaken through the EUMETRep joint programme. The first draft should be submitted to EUMETNET governance structures in October. A similar document is also being drafted for collaboration with ECOMET.

APPENDIX B: PROGRESS REPORT FOR INFORMATION NOT TO BE INCLUDED IN THE GENERAL SUMMARY

Information and Public Affairs in RA VI

1. A key priority for the WMO Information and Public Affairs (IPA) Programme has been to promote the Global Framework for Climate Services (GFCS), most recently through the Extraordinary Session of Congress (October 2012) and the first meeting of the Intergovernmental Board on Climate Services (July 2013). The Communications and Public Affairs (CPA) Office will continue to actively raise awareness about the benefits of climate services.
 2. The CPA Office has remained firmly committed to strengthening the interaction between IPA Focal Points at NMHSs and communications staff of UN system organizations for promoting WMO's messages, developing materials and sharing best practices. This collaboration has contributed to meeting the needs of the media and the public at large for accurate and in-depth information about weather, climate and water and the value provided to society by NMHSs. The CPA Office also regularly sent by e-mail to Focal Points the daily update "In the Media" to inform NMHSs about the press coverage received by WMO and WMO issues.
 3. The CPA Office has strengthened WMO's outreach and messaging for its annual reports on the global climate and the ozone layer, as well as the recent report on the Global Climate 2001-2010. CPA has also worked closely with the Intergovernmental Panel on Climate Change to promote the Fifth Assessment Report and to engage NMHSs in this effort.
 4. NMHSs were assisted every year in the celebration of the annual World Meteorological Day (WMD) as a way of increasing the visibility of NMHSs. With China's invaluable support, WMO actively participated in the World Exposition 2010 in Shanghai, China, by organizing the first ever WMO Pavilion (Meteo World). WMO also emphasized communications and outreach efforts at the annual conferences of the United Nations Framework Convention on Climate Change (UNFCCC).
 5. The CPA Office has started to explore social media such as Twitter and Facebook, in particular to engage younger meteorologists and other new audiences through these channels. It has encouraged collaboration with IPA Focal Points on these efforts. The Office has also taken measures to improve the WMO website with the goal of advancing the image and messages of the WMO community.
 6. The CPA Office has worked with and promoted the three regional climate centres and other relevant centres and institutes, such as the South East European drought management centre and the Sand and Dust Warning Advisory and Assessment System. WMO, EUMETSAT, the UK Met Office and the European Meteorological Society organized a workshop for European NMHS communications officers in Reading, UK, on 9-11 September 2013. The CPA Office aims to pursue opportunities in other WMO Regions to achieve similar results.
-

APPENDIX B: PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

STRATEGIC AND OPERATIONAL PLANNING

Decisions of Congress and the Executive Council

WMO Strategic Plan and Operating Plan 2012-2015

1. Cg-XVI appreciated the active involvement of regional associations, technical commissions and the Secretariat, including Secretariats of WMO joint programmes, in the development of the WMO Strategic Plan 2012–2015, which ensured that the document reflected the collective view of all WMO constituent bodies. Cg-XVI indicated that the SP 2012-15 should determine collective and coordinated activities of regional associations, technical commissions and the Secretariat through well defined programmes, projects and initiatives, as well as guide and motivate activities of Members and their National Meteorological and Hydrological Services (NMHSs).

WMO Strategic Plan and Operating Plan 2016-2019

2. The decisions of the Sixteenth World Meteorological Congress (Cg-XVI, May/June 2011)¹ on the preparation of WMO Strategic Plan 2016-2019 are presented in paragraphs 8.5.1-8.5.5 of the Abridged Final Report with Resolutions and Resolution 38 (Cg-XVI) – Preparation of the Strategic Plan for 2016–2019.

3. Cg-XVI agreed that:

- (a) The Global Societal Needs (GSNs) that formed the basis for the Strategic Plan for the period 2012–2015 and the Strategic Thrusts (STs) together with the Expected Results (ERs) should form the basis for the WMO Strategic Plan for the period 2016–2019;
- (b) The strategic and operational planning for the period 2016–2019 should follow the structure of the Strategic Plan 2012–2015 (GSNs, STs and ERs) and the overall planning process, taking into account the evolution of the societal and economic needs of the Members, relevant international initiatives, and the challenges of climate variability and change; build on experiences gained from the two phases (2008-2011 and 2012-2015); further enhance linkages between SP, OP and RBB to facilitate the implementation of RBM and to improve Key Performance Indicators.

4. The decisions of the sixty-first session of the WMO Executive Council (EC-LXI, June 2009)² that guided the preparation of the WMO SP 2012-2015 are presented in paragraphs 7.2.6-7.2.8 of the Abridged Final Report with Resolutions. They include:

1

ftp://ftp.wmo.int/Documents/PublicWeb/mainweb/meetings/cbodies/governance/congress_reports/english/pdf/1077_en.pdf

2

ftp://ftp.wmo.int/Documents/PublicWeb/mainweb/meetings/cbodies/governance/executive_council_reports/english/pdf/61_session_wmo_1042_part1_en.pdf

- (a) To develop a plan that is concise and that can easily be understood by different audiences including decision-makers;
- (b) To base the strategic direction of the Organization on identified global societal needs;
- (c) To use the results chain Strategic Thrusts (STs) ► Expected Results (ERs) ► Key Outcomes (KO) ► Deliverables ► Activities as the structure of the strategic planning process. The STs and ERs are to be the backbone of the SP, and ERs further detailed by KOs, performance metrics, and deliverables to form the substance for the OP;
- (d) To involve regional associations and technical commissions;
- (e) To include the major achievement of WMO.

5. To implement the request of Cg-XVI to the Secretary-General to submit the first outline with possible scenarios to the sixty-fourth session of the Executive Council, the EC Working Group on WMO Strategic and Operational Planning (WG/SOP) held its first session in Geneva, Switzerland from 2 to 4 April 2012. The EC WG/SOP considered the proposals provided by the Secretariat, which included the processes and timelines for preparing the SP and OP; the structure and outline of the next SP and OP, and scenarios for the next SP.

6. The sixty-fourth session of the Executive Council (EC-64, June/July 2012) considered the recommendations of its working group and decided to endorse the following parameters for the development of the next Strategic and Operating Plans:

- (a) The SP and OP should be articulated as plans for the entire Organization;
- (b) The structure of the SP should be simplified to reduce the layers that are currently GSNs-STs-ERs-KOs;
- (c) The ERs should be proposed by the RAs in consultation with the TCs and the Programmes;
- (d) Five priorities were adequate but should be better integrated into the SP at an earlier stage, and their clarity should be improved;
- (e) The SP should be shorter, more concise and simple. A short summary for the SP should be developed;
- (f) Risks should be included in each section of the SP, rather than in a separate chapter;
- (g) The Organization should have a single Operating Plan that includes the activities of RAs and TCs;
- (h) The strategic planning process should be driven by the needs/priorities set by the Members (through RAs);
- (i) KPIs should be measurable where possible, and clear milestones and responsibilities (Members, Secretariat, task forces and/or technical commissions) should be defined;
- (j) The GSNs should represent global needs to which WMO activities can contribute to provide solutions;

- (k) The current WMO SP is adequate for the next planning cycle. However, key priorities that would guide the investments in the next financial period should be identified;
- (l) The EC and WG/SOP should focus on developing a “single” operating plan for the next financial period.

7. The Council also agreed with the development of the next Strategic and Operating Plans based on the outlines of the SP and OP, and the proposed process and timeliness as given below in Tables 1, 2 and 3, respectively.

Table 1
The outline of the WMO Strategic Plan 2016–2019

FOREWORD
INTRODUCTION
<ul style="list-style-type: none"> • Societal benefits of weather, climate and water services • Purpose and context of the WMO Strategic Plan • Structure of the WMO Strategic Plan 2016–2019 • Global Framework for Climate Services
STRATEGIC THRUSTS LINKING TO EXPECTED RESULTS, KEY OUTCOMES AND KEY PERFORMANCE INDICATORS
<ul style="list-style-type: none"> • Strategic Thrust 1: Improving service quality and service delivery • Strategic Thrust 2: Advancing scientific research and application, as well as development and implementation of technology • Strategic Thrust 3: Strengthening capacity-building • Strategic Thrust 4: Building and enhancing partnerships and cooperation • Strategic Thrust 5: Strengthening good governance <p>Expected results, strategic priorities and potential risks shall be presented within each strategic thrust. Strategic thrusts are broad indications of strategic directions to address the global societal needs (GSNs) to achieve expected results. The ERs represent long-term objectives that WMO seeks to achieve in pursuing its mission. The key outcomes represent the expected effects of the achieved results on Members.</p> <p>The RAs will be requested to propose strategic priorities and activities focusing on their unique needs and those for the Organization. The priorities and activities of TCs should aim at addressing the needs of the RAs along with advancing global scientific research and applications.</p>
WMO OPERATING PLAN
WMO RESULTS-BASED BUDGET
MONITORING AND EVALUATION
CONCLUSION
REFERENCES

Table 2
The proposed outline for WMO Operating Plan 2016-2019

I. Introduction	
The proposed structure of the OP puts all activities under the associated ER and KO for ease of monitoring and to make it easy to recognize commonality in the proposed activities. It is expected that the activities of the TCs will be aimed at addressing the shared and unique needs of RAs.	
II. WMO Programme activities planned for implementation in 2016-2019	
II.1	Expected Result 1
II.1.1	KO1 for ER1
Funded programme activities, and In-kind activities of RAs and TCs	
II.1.2	KO2 for ER1
Funded programme activities, and In-kind activities of RAs and TCs	
II.2	Expected Result 2
II.2.1	KO1 for ER2
Funded programme activities, and In-kind activities of RAs and TCs	
II.2.2	KO2 for ER2
Funded programme activities, and In-kind activities of RAs and TCs	
.	
.	
.	
II.8	Expected Result 8
II.8.1	KO1 for ER8
Funded programme activities, and In-kind activities of RAs and TCs	
II.8.2	KO2 for ER8
Funded programme activities, and In-kind activities of RAs and TCs	
Annex on programmatic focuses in the implementation of Expected Results	
List of Acronyms and Abbreviations	

SCHEMATIC REPRESENTATION OF OP

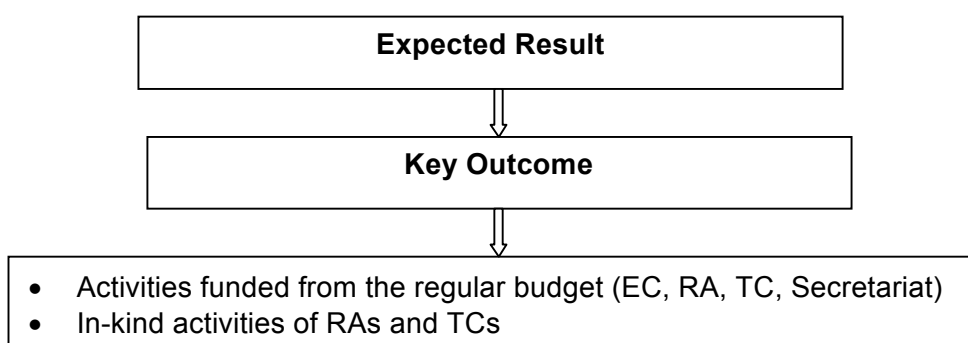


Table 3
Proposed process and timelines for preparing the WMO Strategic and Operating Plans 2016-2019

1. Input to EC-64 (2012)
<ul style="list-style-type: none"> a) EC WG/SOP considers the proposed structure, outline, scenarios and planning process (April 2012)-Done b) Secretariat prepares input to EC-64 based on the recommendations of WG/SOP (April 2012)-Done c) EC provides further guidance on GSNs, ST, ERs, Scenarios, and on the structures and outlines of SP and OP 2016-2019 (June/July 2012) d) Secretariat requests presidents of regional associations and technical commissions to submit strategic priorities focusing on their unique needs and those for the Organization. Proposals for Organization-wide priorities should take into consideration the strategic priorities for 2012-2015. The PRAs and PTCs will also be requested to provide activities relevant for addressing the proposed priorities. The MGs of RAs and TCs would assist the PRAs and PTCs to make submission without waiting for the sessions of the constituent bodies (September 2012)
2. Input to EC-65 (2013)
<ul style="list-style-type: none"> a) Secretariat concludes the preparation of the draft SP and OP using the information from RAs and TCs (January 2013) b) PRAs/PTCs are requested to review the draft SP and OP and provide further input (January 2013) c) EC WG/SOP meeting to consider the draft SP and OP (April 2013) d) EC considers the draft WMO SP and OP, and provides guidance for further development (June 2013) e) Members are requested to review the revised draft SP and make input for further improvement (July 2013)
3. Input to EC-66 (2014)
<ul style="list-style-type: none"> a) EC considers the revised draft SP and OP and makes appropriate recommendations to Cg-17 (June 2014) b) The Secretary-General submits to EC-66 the draft RBB proposal 2016-2019, that is based on the WMO SP and OP 2016-2019, for consideration (June 2014)
4. Input to Cg-17 (2015)
<ul style="list-style-type: none"> a) The revised SP and OP are finalized for presentation to Cg-17 (October 2014) b) The revised RBB proposal 2016-2019 is finalized for presentation to Cg-17 (October 2014)

Monitoring and Evaluation

8. EC-65 recalled the decisions of Sixteenth Congress (paragraphs 8.4.1-8.4.4) and EC-64 (paragraphs 4.8.16-4.8.17) with respect to further development and implementation of the WMO Monitoring and Evaluation (M&E) System. The Council noted with appreciation the report of its Working Group on WMO Strategic and Operational Planning (WG-SOP) and agreed with its assessment that the M&E process was maturing and moving in the right direction. The Council noted that the Key Outcomes (KOs) and Key Performance Indicators (KPIs) were reviewed and the baselines and targets established for each KPI to facilitate the monitoring of progress to achieve results. It noted further the improvement in the level of response to the Survey on Impacts of

Achieved Results on Members following its reopening as requested by EC-64. The Council observed that only a small fraction of NMHSs who responded to the questionnaire rated the level of utilization of WMO publications, and the quality of national and regional products as high to very high. The Council encouraged Members to continue with efforts to enhance the quality of products and make use of the various WMO publications to improve their services. The Council also continued to encourage Members to respond to the surveys to provide information that may help the Organization to focus its priorities on actions to address the needs of Members.

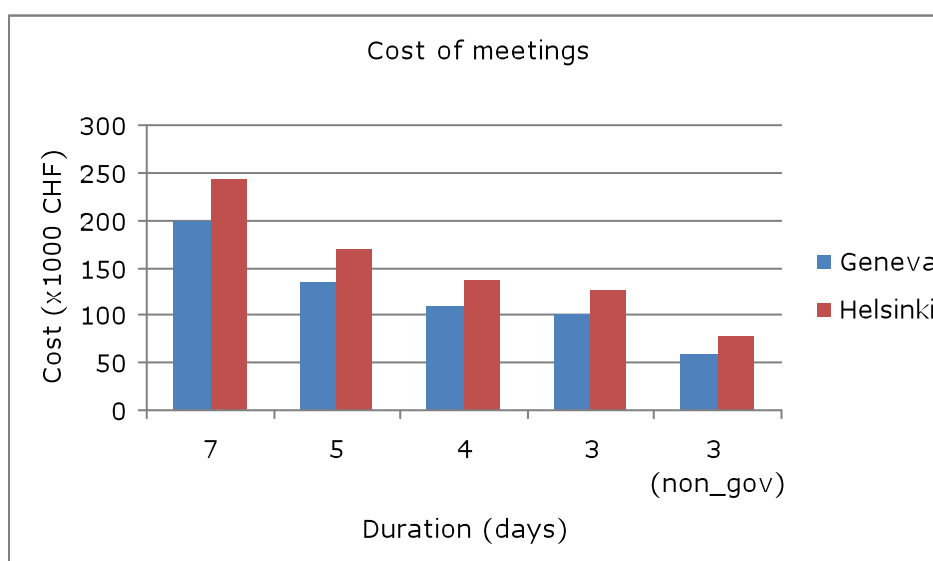
APPENDIX B: PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

Reference material on the on-going discussions on improvement of effectiveness and efficiency

1. The continuous improvement of processes and practices of WMO has been widely discussed during the last three years. Records of these discussions and the respective decisions could be found in:
 - (a) *Abridged final report with resolutions of Sixteenth World Meteorological Congress*, Geneva, 16 May–3 June 2011, (WMO-No. 1077) agenda item 7.4, Improvement of WMO processes and practices;
 - (b) *Abridged final report with resolutions of EC-LXIII* (WMO-No. 1078, June 2011);
 - (c) *Abridged final report with resolutions of EC-64* (WMO-No. 1092, June–July 2012);
 - (d) Report of the First Session EC WG/SOP (April 2012)
[link: http://www.wmo.int/pages/governance/ec/documents/ECWGSOP_2012_session.pdf];
 - (e) Report of the Second Session EC WG/SOP (January 2013)
[link: http://www.wmo.int/pages/governance/ec/documents/ECWGSOP_2013_session.pdf];
 - (f) Reports of PRA and PRA/PTC meetings in 2012 and 2013;
 - (g) Reports of the 6th and 7th meetings of the RA VI Management Group [link: <http://www.wmo.int/pages/prog/dra/eur/RA6ManagementGroup.php>]

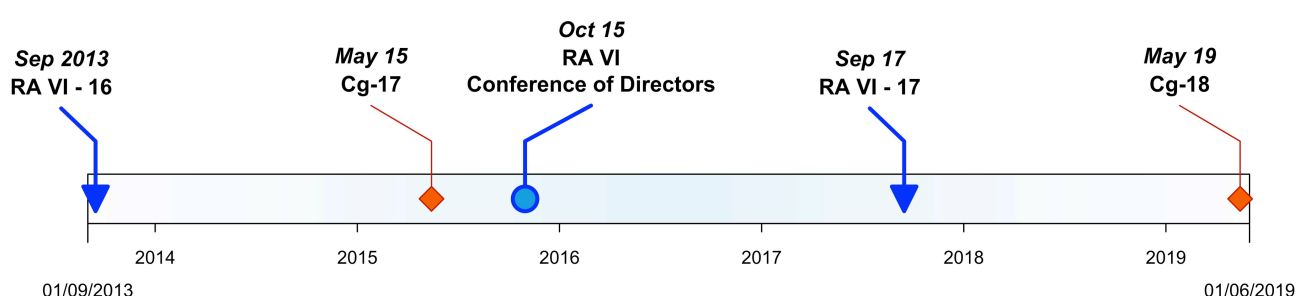
Consideration of financial implications of the proposed optimization of RA VI sessions

2. Following the discussions of the RA VI Management Group, a preliminary estimate of the cost implications of the different options has been carried out. The graph below presents, in indicative figures, the typical budget for sessions depending on their duration and host place (Helsinki is selected as a location outside Geneva for comparison of the budget). The last column indicates the option of non-intergovernmental meeting (e.g., Conference of Directors) but with limited language services (three languages envisaged).



3. The figures in this estimate are only indicative, but it is seen that it is possible, in principle, to organize two meetings during the four-year intersessional period with duration of three to four days within the current budget allocated for one longer session (for RA VI, normally between 200 and 220K CHF, based on Geneva as a host). Eventual slight increase of the required budget could be compensated through adjustments based on exact number of meeting sessions (e.g, a five-day event could have eight or nine meeting sessions), optimization of language services, etc.

4. A simplified option of having two events per intersessional period is to organize a non-intergovernmental meeting in the middle of the four-year period in the form of RA VI Conference of Directors. Thus, the formal part of the session, including elections, would be kept as is, however, a meeting at the PR level in the middle of the period would be very useful to conduct a progress review and agree on any adjustments to the work programme. A regional event like this could be focused on a theme topic or be conducted back-to-back to leverage the resources. A possible timeline for the next intersessional period is shown below (dates are indicative):



5. There are other possibilities for optimizing the conduct of meetings/session of RA VI that could be considered within the current budget allocations. It should be recalled, as indicated by Cg-XVI, that such measures should not be driven by the objective of cutting costs, but rather by the need to increase the overall efficiency of the Organization. The RA VI management Group in cooperation with the Secretariat should continue the research of finding the optimum solution with a view of reaching an agreement and informing Members in early 2014.

Proposal for better definition of R&R of RAs

6. The following proposal for amendment to the General Regulations, Annex II, Regional Associations has been presented to EC-65. It includes a concise text outlining the main roles and responsibilities of the Regional Associations in the WMO integrated planning and implementation environment.

Role/ Responsibility in:	Draft text (to be further refined)
Organizing and coordinating regional activities	Under the general guidance of Congress and the Executive Council, and in close coordination and collaboration with the Technical Commissions concerned, coordinate and organize activities of their Members at regional and sub-regional levels relating to the planning, implementation and evaluation of agreed programmes, strategies and activities.
Identifying and addressing needs of Members	Study the needs of its Members and sub-regions with regard to their technical and institutional capacity and identify gaps impeding the timely implementation of the planned programmes and activities; request TCs and other bodies, as necessary, to address the needs and deficiencies with appropriate solutions; recommend to Congress and EC performance and quality improvement measures tailored to the needs of the Region.

Establishing regional networks and facilities	<p>Based on the identified regional needs and in close coordination with the TCs concerned:</p> <ul style="list-style-type: none"> • Determine the composition of required regional networks; • Recommend the establishment of regional facilities to support requisite Members' activities and recommend their designation in accordance with the established procedures; • Monitor the performance of regional network and facilities and require corrective measure when and where necessary.
Regional planning	<p>Following the adoption of a Strategic Plan of the Organization by Congress, establish a related regional operating (action) plan addressing agreed strategic priorities from regional perspective and ensuring engagement of the Members in focused activities aimed at achieving the Expected Results.</p>
Regional work structure	<p>Structure its work to address regional priority areas and engage the available expertise of its Members to provide guidance and assistance in accordance with the needs of the Region; assure coherence between the work programmes of relevant RA's and TCs' subsidiary bodies through information sharing and engagement of experts.</p>
Regional partnership	<p>Build and promote cooperation and partnership with relevant regional organizations, including the UN Regional Economic Commissions, other UN agencies, sub-regional organizations, financial institutions, NGOs, professional associations, to mobilize resources in support of regional activities. Ensure visibility and recognition of WMO and engagement in regional initiatives and projects related to the strategic priorities of the Organization.</p>

7. The proposed draft formulations have been reviewed by WG-SOP/2 meeting in January 2013. The Group agreed that after further refinement of the text, such provisions in the General Regulations would complement the general functions of the RAs given in Article 18(d) of the Convention and provide clarity regarding the areas and activities where the RAs have their major role and contribution. At the same time, it should be clear that there is no strong borderline between the roles and responsibilities of the RAs and TCs; in many cases, they address the same issue, however, from different perspectives, with the RAs ensuring engagement and commitment of their Members, while the TCs provide the best technical expertise. Therefore, the continuous consultation and coordination between the RAs and TCs is emphasized in the proposed draft provisions.

APPENDIX C: PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

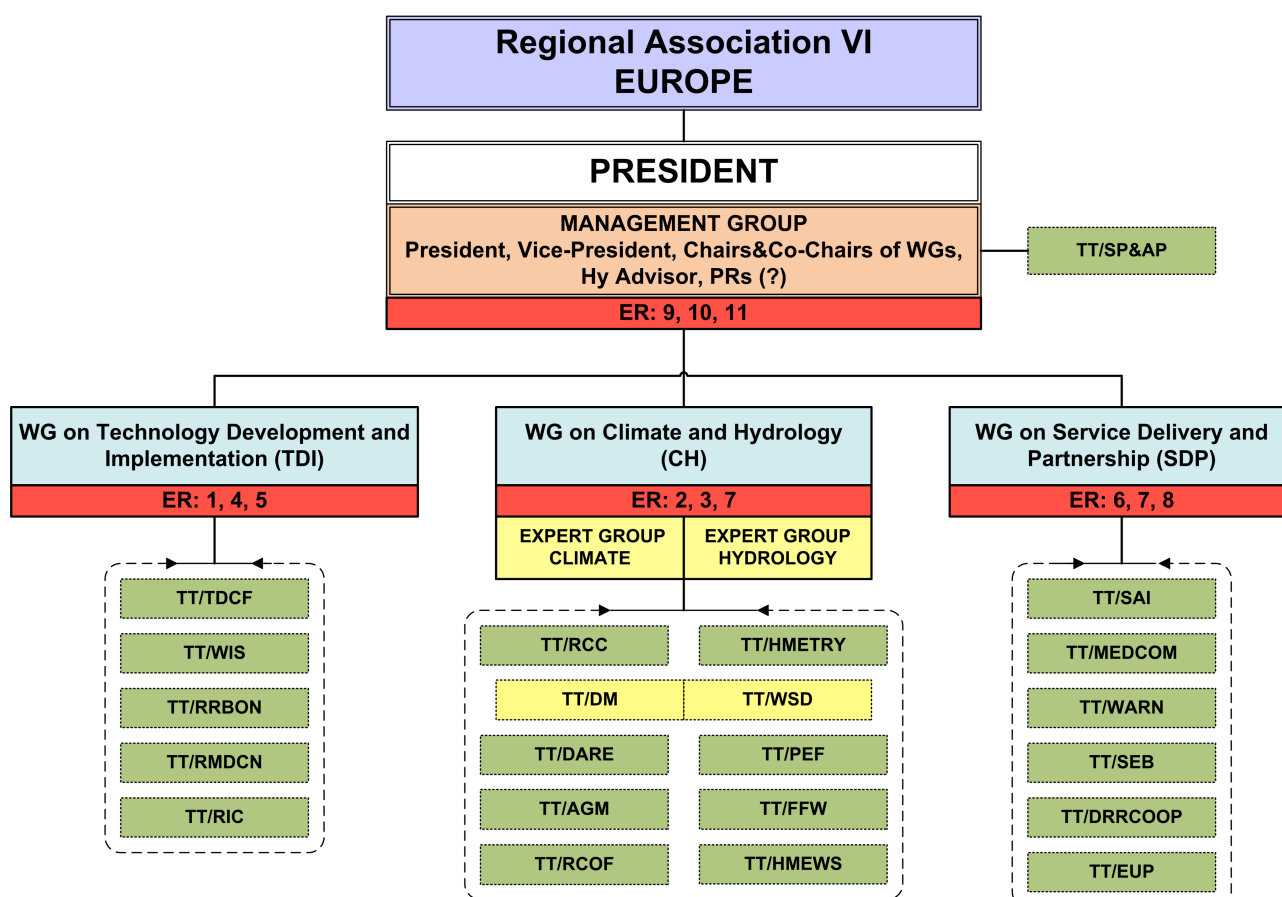
ACTIVITIES OF THE RA VI SUBSIDIARY BODIES DURING THE INTERSESSIONAL PERIOD 2009–2013

Introduction

This report presents the activities of the RA VI subsidiary bodies during the period since the RA VI-XV session (September 2009). The Regional Office for Europe (ROE) established special web pages for all subsidiary bodies where information on their activities has been regularly posted. In addition, the ROE Newsletter issued twice a year provided updates on the meetings and other events conducted by RA VI subsidiary bodies.

Overall structure of the RA VI subsidiary bodies

WORK STRUCTURE OF RA-VI (EUROPE) (for consideration by 16th RA VI, September 2013)



Note: A list of acronyms of the Task Teams names is given in the Annex.

RA VI Management Group

Composition

The MG was composed of:

Mr Ivan Čačić – Chairperson (president of RA VI and PR of Croatia)

and members:

Ms Vida Auguliene ¹	RA VI vice-president and PR of Lithuania with WMO
Mr Gerhard Adrian ²	PR of Germany with WMO
Mr Petteri Taalas	PR of Finland with WMO
Ms Henia Berkovich	PR of Israel with WMO
Mr Alexander Frolov ³	PR of Russian Federation with WMO (on behalf of CIS/ICH Members)
Mr Markku Puupponen	Co-chair of the WG-CH on hydrology-related matters and Hydrological Advisor to the president of RA VI
Ms Anahit Hovsepyan	Co-chair of the WG-CH climate-related matters
Mr Jochen Dibbern	Chair of the WG-TDI
Mr Axel Thomalla	Chair of the WG-SDP

Meetings and reports

The MG held seven meetings during the intersessional period. Information about meetings including the documents and final reports with decisions is available on the WMO ROE website: <http://www.wmo.int/pages/prog/dra/eur/RA6ManagementGroup.php>

Working Group on Technology Development and Implementation (WG-TDI)

Composition

The Working Group consists of 9 core members and 5 Task Teams as follows:

Mr Jochen Dibbern, Germany	Chair
Mr Matteo Dell'Acqua, France	Vice-chair and Task Team Leader TT/RMDCN

Members:

Mr Chris Little, United Kingdom	monitoring ISS-West
Mr Leonid Bezruk, Russian Federation	monitoring ISS-East
Mr Laurent Perron, France	monitoring DPFS
Ms Eva Cervena, Czech Republic	Task Team Leader TT/TDCF
Mr Klaus-Jürgen Schreiber, Germany	Task Team Leader TT/RRBON
Mr G.-R. Hoffmann, Germany	Task Team Leader TT/WIS-DI
Mr Drago Groselj, Slovenia	Task Team Leader TT/RIC

Meetings and reports

The WG-TDI held three meetings during the intersessional period. Information about meetings including the documents and final reports with decisions is available on the WMO ROE website:

¹ Ms Auguliene replaced Mr M. Ostojski (Poland) who served on the Management Group until July 2011

² Mr Adrian replaced Mr W. Kush (Germany) who served on the Management Group until June 2010

³ Mr Frolov replaced Ms M. Germenchuk (Belarus) who served on the Management Group until July 2011

http://www.wmo.int/pages/prog/dra/eur/RA6_WG_TDI.php . The report of the chair is provided in RA VI-16/INF. 4.

Working Group on Technology Climate and Hydrology (WG-CH)

Composition

The Working Group consists of Expert Groups on climate matters and Expert Group on hydrology matters, with a total of 12 core members and 9 Task Teams as follows:

Ms Anahit Hovsepyan, Armenia	Co-chair on climate matters
Mr Markku Puupponen, Finland	Co-chair on hydrology matters
Members:	
Mr Stefan Rosner, Germany	Task Team Leader TT/RCC
Mr Ali Umrhan Komusku, Turkey	Task Team Leader TT/DM
Mr Jose Antonio Guijarro, Spain	Task Team Leader TT/DARE
Mr Josef Eitzinger, Austria	Task Team Leader TT/AGM
Mr Dmitry Kiktev, Russian Federation	Task Team Leader TT/RCOF
Mr Dominique Berod, Switzerland	Task Team Leader TT/HMETRY
Ms Giuseppina Monacelli, Italy	Task Team Leader TT/WSD
Mr Bogdan Ozga-Zielinski, Poland	Task Team Leader TT/PEF
Mr Ilmar Karro, Sweden	Task Team Leader TT/FFW
Ms Caroline Wittwer, France	Task Team Leader TT/HMEWS

Meetings and reports

The WG-CH held three meetings during the intersession period. Information about meetings including the documents and final reports with decisions is available on the WMO ROE website: http://www.wmo.int/pages/prog/dra/eur/RA6_WG_CH.php . The report of the chair is provided in RA VI-16/INF. 5.

Working Group on Service Delivery and Partnership (WG-SDP)

Composition

The Working Group consists of 8 core members and 6 Task Teams as follows:

Mr Axel Thomalla, Germany	Chair
Members:	
Mr Keith Groves, United Kingdom	Task Team Leader TT/SAI
Mr Lukasz Legutko, Poland	Task Team Leader TT/MEDCOM
Mr Frank Krooneneberg, Netherlands ⁴	Task Team Leader TT/WARN
Mr Adriaan Perrels, Finland	Task Team Leader TT/SEB
Ms Branka Ivancan-Picek, Croatia	Task Team Leader TT/DRRCOOP
Mr Joachim Saalmüller, Germany	Task Team Leader TT/EUP
Mr Christoph Jacob	monitoring aviation matters

⁴ Mr Frank Krooneneberg replaced Mr H. Gmoser, Austria, who retired in 2011

Meetings and reports

The WG-SDP held three meetings during the intersession period. Information about meetings including the documents and final reports with decisions is available on the WMO ROE website: http://www.wmo.int/pages/prog/dra/eur/RA6_WG_SDP.php . The report of the chair is provided in RA VI-16/INF. 6.

Annex: 1

ANNEX

List of acronyms used in WG and TT structure

Working Groups

CH	Climate and Hydrology
MG	Management Group
SDP	Service Delivery and Partnership
TDI	Technology Development and Implementation

Task Team on

Parent WG

AGM	Agrometeorology	CH
DARE	Data Rescue	CH
DM	Drought Management	CH
DRRCOOP	Disaster Risk Reduction and Cooperation	SDP
EUP	European Union and Partnership	SDP
FFW	Flood Forecasting and Warnings	CH
HMETRY	Hydrometry	CH
HMEWS	Hydro-Meteorological Early Warning System	CH
MEDCOM	Media and Communication	SDP
PEF	Potential Extreme Floods	CH
RCC	Regional Climate Centres	CH
RMDCN	Regional Meteorological Data Communication Network	TDI
MTDCF	Migration to Table Driven Code Forms	TDI
RIC	Regional Instrument Centres	
RRBON	Re-design of the RA VI Regional Basic Observing Network	TDI
SAI	Service Applications and Improvement	SDP
SEB	Socio-Economic Benefits	SDP
SPAP	RA VI Strategic Plan and Action Plan	MG
WARN	Warning Services	SDP
WIS-DI	WIS Development and Implementation	TDI
WSD	Water Scarcity and Drought	CH

APPENDIX B: PROGRESS REPORT FOR INFORMATION – NOT TO BE INCLUDED IN THE GENERAL SUMMARY

THE PROGRESS REPORT ON THE GLOBAL FRAMEWORK FOR CLIMATE SERVICES (GFCS)

References:

1. *Abridged Final Report with Resolutions of the Extraordinary Session of the World Meteorological Congress*, Part I (Geneva, 29–31 October 2012) (WMO-No. 1102)
Resolution 1 - Implementation Plan of the Global Framework for Climate Services, and
Resolution 2 - Establishment of the Intergovernmental Board on Climate Services
ftp://ftp.wmo.int/Documents/PublicWeb/mainweb/meetings/cbodies/governance/congress_reports/english/pdf/1102_Part1_en.pdf
2. *Abridged Final Report with Resolutions of Sixteenth World Meteorological Congress* (Geneva, 16 May–3 June 2011) (WMO-No. 1077)
ftp://ftp.wmo.int/Documents/PublicWeb/mainweb/meetings/cbodies/governance/congress_reports/english/pdf/1077_en.pdf
3. The Report of the High-level Taskforce for the Global Framework for Climate Services:
http://www.wmo.int/pages/gfcs/documents/1065_HLT_report_en.pdf
4. Global Framework for Climate Services website: http://www.wmo.int/pages/gfcs/index_en.php

Background

1. To support Members in implementing the GFCS at the national level, pilot projects were initiated in Burkina Faso, Chad, Niger and Mali (<http://www.wmo.int/pages/gfcs/PilotProjects.php>). At regional level workshop on climate services for the LDCs in Asia (http://www.wmo.int/pages/gfcs/office/Asia_Reg_WS.php) and for the Caribbean (<http://www.gfcs-climate.org/workshop-caribbean>) were held in October 2012 and May 2013 respectively. Furthermore, workshops for Small Islands in the Pacific, for Portuguese-speaking countries and for Latin America are also planned. Initiatives to establish frameworks for climate services at national level are underway in Botswana, Nepal, South Africa and Spain. These workshops and pilot projects are providing valuable lessons for the development of guidelines on frameworks for climate services at national level (<http://www.wmo.int/pages/gfcs/documents/GuidetoClimateServicesattheNationalLevel.pdf>).
2. Efforts to strengthen the engagement and support of partner agencies continued through concrete examples of collaboration. Collaboration between WMO and the World Health Organization (WHO) resulted in the development of an Atlas of Health and Climate. This joint publication was launched at the Extraordinary Session of the World Meteorological Congress. It illustrates the geographical extent and impacts of climate-induced health epidemics and gives practical examples of how the use of weather and climate information can protect public health and improve health outcomes (http://www.wmo.int/ebooks/WHO/Atlas_EN_web.pdf). To further strengthen the collaboration with the WHO a joint WHO-WMO project office to support implementation of the health component of the GFCS is being set up. It is expected that the office will be operational by mid-2013. Similar offices will be established to support implementation of the water and food security priority areas.
3. With financial support from Norway a collaborative effort involving WMO, WHO, WFP, IFRC, CGIAR Research Programme on Climate Change, Agriculture and Food Security (CCAFS), the Centre for International Climate and Environment Research (CICERO), and Chr. Michelsen Institute (CMI) is underway to facilitate the production and application of climate services food security, nutrition and health in Africa. The initiative aims to increase the resilience of people most

vulnerable to the impacts of weather and climate-related events through the development, implementation and evaluation of the joint programme in the beneficiary countries.

4. A “Dialogue for Climate Services Users and Providers: Towards Implementation of the GFCS” was organized in Geneva, from 26 to 27 October 2012, as part of the Extraordinary Session of the World Meteorological Congress (29–31 October 2012). The Dialogue was attended by more than 300 participants and allowed for the sharing of experiences and lessons on the production and application of climate services in various socio-economic sectors, some of which were shown through 50 posters available at the Dialogue. In addition, seven side events organized by partners and WMO showed that collaborations between agencies are already happening but need to be further improved and streamlined, thus requiring appropriate partnerships.

5. A second Dialogue under the theme “Operational Climate Services: a dialogue on practical action” was organized on 1 July as part of the first session the Intergovernmental Board on Climate Services, held from 1 to 5 July 2013. The Dialogue brought together participants representing providers and users of climate services and demonstrated the value of an organized and coordinated system to address the entire value chain for the production and application of climate services and provided examples of concrete activities from the global to the national levels.

6. To document good practices and lessons learned in the production and application of climate services worldwide, a publication “Climate ExChange” was launched at the Dialogue for Climate Services Users and Providers providing examples on how climate services can help food production, disaster risk reduction, health, transport, energy and water and energy management.

7. Various Members have contributed resources for the GFCS. Contributions were made by: Australia (CHF 484 000); Canada (CHF 5 796 000); China (CHF 200 000); Hong Kong, China (CHF 9 520); Finland (CHF 461,700); India CHF 118 000); Indonesia (CHF 650 000); Ireland (CHF 488 400); Norway (CHF 18 885 000); Republic of Korea (CHF 126 368.00), Switzerland (CHF 1 100 000) and the United Kingdom (CHF 350 000). In addition, Germany and Italy have provided in-kind contribution through the secondment of experts to the GFCS Office.

8. Efforts to promote better understanding of the importance of the GFCS, its benefits and buy-in by Members and partners were continued through organization of workshops and side-events in high-level and important events such the Rio+20, COP 18 in Doha, World Water Week, SBSTA 36, 6th World Water Forum and many other important events.

**APPENDIX B:
PROGRESS REPORT FOR INFORMATION –
NOT TO BE INCLUDED IN THE GENERAL SUMMARY**

**RESULTS OF THE RA VI SURVEY ON INSTITUTIONAL STATUS OF NMHS AND RELATED
CHALLENGES AND PRIORITIES**

The analysis of the RA VI Survey conducted from December 2012 throughout the first half of 2013 are presented in detail in RA VI-16/INF. 14 and on the WMO website at:

http://www.wmo.int/pages/prog/dra/eur/RA6_survey_2013.php.

APPENDIX C:
PROGRESS REPORT FOR INFORMATION -
NOT TO BE INCLUDED IN THE GENERAL SUMMARY

LIST OF PREVIOUS RESOLUTIONS AND RECOMMENDATIONS OF
RA VI (EUROPE) STILL IN FORCE AT THE TIME OF ITS SIXTEENTH SESSION

(Reference: Abridged Final Report of XV-RA VI)

Resolution No.	Title of Resolution	Departments concerned	Suggested Action*		
			To be kept in force	To be replaced	Not to be kept in force
11 (XI-RA VI)	Use of INMARSAT for the collection of ships' meteorological and oceanographic reports	OBS	X		
16 (XIII-RA VI)	Support for the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology	WDS	X		
1 (XV-RA VI)	Establishment of a Regional Climate Centre Network in RA VI (RCC-RA VI)	CLW		X	
2 (XV-RA VI)	Regional Basic Synoptic Network and Regional Basic Climatological Network in Region VI	OBS		X	
3 (XV-RA VI)	Management Group of the Regional Association VI (Europe)	DRA		X	
4 (XV-RA VI)	Working Group on Climate and Hydrology	CLW		X	
5 (XV-RAVI)	Working Group on Service Delivery and Partnership	WDS		X	
6 (XV-RAVI)	Working Group on Technology Development and Implementation	OBS		X	
7 (XV-RA VI)	Review of previous resolutions and recommendations of the Association	DRA		X	

* proposed by the WMO Secretariat