



Implementation of Climate Watch Systems

First Workshop for South American Region (WMO RA-III) Guayaquil, Ecuador, 8-11 December 2008

Summary and outline of the implementation plan



I. Rationale

In recent decades, climate extremes and climate variability have resulted in increasingly noticeable impacts on societies in countries throughout the world. The IPCC 4th Assessment report states: “Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level. At continental, regional, and ocean basin scales, numerous long-term changes in climate have been observed. These include changes in Arctic temperatures and ice, widespread changes in precipitation amounts, ocean salinity, wind patterns and aspects of extreme weather including droughts, heavy precipitation, heat waves and the intensity of tropical cyclones.”

With regards to climate and weather related extremes, WMO through its various programs works with its members to help countries to make the transition from “crisis management” policies to “risk assessment/ risk management” policies and considers that It is important that information on the state of the climate be provided to relevant decision-making organizations, such as governments, agricultural agencies, emergency management services, and water resource management agencies.

3. A Climate watch is delivered as an alert/advisory on foreseen and/or evolving climate anomalies with possible negative impacts. Its preparation is based on one hand on climate observations, climate monitoring products and long range forecast, and on the other hand, on the existing information on the socio-economic impacts of various global and regional climate patterns and extremes. Such patterns would be ENSO, MJO, NAO, Indian Ocean dipole,, etc... Therefore, a “Climate Watch” can serve as a mechanism to heighten awareness in the user community that a significant climate anomaly exists or might develop and that preparedness measures should be initiated.

Given the advances in climate monitoring and long range forecasting during the last two decades, it is now feasible for NMHSs to issue climate watches to help reduce socio-economic vulnerability by improving preparedness procedures for adverse climatic conditions.

In collaboration with WMO Commission for Basic Systems (CBS) and Commission for Climatology (CCI) experts, WMO developed in 2005 a technical document on “Climate Watches” referenced as WCDMP-No. 58, WMO/TD-No.1269, and available in electronic format at the WMO website at: <http://www.wmo.int/pages/prog/wcp/wcdmp/documents/GuidelinesonClimateWatches.pdf>.

The document describes the concept of climate watch, and guidelines for establishing, operating and evaluating climate watches.

Based on this development, Congress-XV discussed Climate System Monitoring and Climate Watches and various efforts undertaken through the WMO/WCDMP and CCI to provide information and assistance on how to organize and implement climate watches. It requested therefore WMO to support the organization of regional seminars/workshops on climate monitoring and climate watches and issued a resolution on future climate monitoring priorities which include <<*To enhance climate monitoring capabilities for the generation of higher quality and new types of products and services*>>.

The WMO series of regional workshops on climate watches constitute a leverage in achieving this new type of products and services and aim at building capacity of the National Meteorological and Hydrological Services (NMHS) as well as of the regional climate institutions in the regions in need.

The Executive Council, EC-LX, Geneva, 18 to 27 June 2008, noted the urgent need for NMHSs and regional climate institutions to make use of best practices in delivery, provision and evaluation of climate watches, and in managing efficiently and seamlessly the interaction among the three involved parties: Regional Institutions, NMHSs and end users. The Council urged all Members to assist in providing technical assistance to help developing and Least Developed Countries to implement climate watches. The Council recognized the benefits of regional workshops to implement climate watches and noted the limited availability of funds for these activities. The Council therefore requested the Secretary-General to promote mobilization of extra-budgetary resources to carry this activity in all regions in need.

II. The WMO workshop for the South American Region (RA-III)

Objectives

The first of its kind, the RA-III workshop on climate watches was recommended by the CCI Implementation/Coordination Team (CCI/ICT), Geneva, Switzerland, 9-11 October 2007, <http://www.wmo.int/pages/prog/wcp/cca/documents/FinalreportCCI-ICTrevised7-03-08.pdf>.

The Workshop is sponsored by WMO. It will address the implementation of climate watches in the region, based on the existing infrastructure and expertise at national and regional level. The ultimate goal is to ensure that NMHSs and regional climate institutions make use of best practices in delivery, provision and evaluation of climate watches, and implement best practices in managing efficiently and seamlessly the interaction among the three involved parties: Regional Institutions, NMHSs and end users.

The objectives of the workshop are:

- Address the need for climate watches in the region,
- Review the status of climate monitoring and long range forecasting capabilities at regional and national level,
- Review and discuss climate watch showcases from the region and from abroad,
- Work on tailoring the WMO guidelines on climate watches to the region needs,
- Recommend best practices for the region in issuing climate watches,
- Recommend best strategies towards users of climate watches,
- Develop an action plan to implement climate watches at national and regional level,
- Recommend a follow-up mechanism on the implementation of climate watches.

Plenary sessions were conducted in English with simultaneous translation in Spanish. Working group sessions were in English only.

Experts from the NMHSs in the region:

Argentina:	Mrs Laura Aldeco, Servicio Meteorologico Nacional, BUENOS AIRES
Bolivia:	Mr Gualberto Carrasco Miranda, LA PAZ
Chile:	Mr Gaston Torres, Direccion Meteorologica de Chile, SANTIAGO
Colombia:	Mr Daniel Useche, IDEAM, BOGOTA
Ecuador:	Mr Gonzalo Ontaneda; Mr Raul Mejia, INAMHI, QUITO
France:	Dr Pierre Bessemoulin, Météo France, TOULOUSE
French Guayana:	Mr Kelvin Samaroo, Hydrometeorological Service, GEORGETOWN
Paraguay:	Mr Julian Baez Benitez, ASUNCION
Peru:	Ms Ena Jaimes Espinoza, Servicio Nacional de Meteorología e Hidrología, LIMA

International and regional experts

Pierre Bessemoulin,	Meteo-France
Affonso Mascarenhas,	CIIFEN, Ecuador
Mario Alberto Palacios Moreno,	CPPS, Ecuador
Jose Luis Santos,	ESPOL, Ecuador
Neil Ward,	IRI, USA
Michelle L'Heureux,	Climate Prediction Center, NOAA, USA
Anahit Hovsepyan,	National Hydrometeorological Service of Armenia
Ing Gonzalo Ontaneda,	INAMHI, Ecuador

Sponsors

WMO, Instituto Nacional de Meteorología e Hidrología (INAMHI), ESPOL (Ecuador), CPPS (Ecuador), CIIFEN (Ecuador)

Agenda

DAY 1		
REGISTRATION from 8:30		
OPENING CEREMONY: 9:00 Chair :Carlos Lugo Freire, Permanent Representative of ECUADOR to WMO		
I. Morning session: Key lectures on rising awareness Start at 9:30 Chair: Carlos.L.Freire Co-chair: TBD from the user Sector		
I.1 Climate Variability and Climate change; Key issues including current status on extremes	Pierre Bessemoulin (Météo-France, France) ; Président of CCI	40'
I.2 Climate Variability and Climate change; RA-III perspective	José Luis Santos (ESPOL, Ecuador)	35'
Break		20'
I.3 Extreme climate events; risk assessment and management including user needs	Neil Ward (IRI,USA)	35'
I.4 The WMO activities in RA-III	Miguel Angel Rabiolo (WMO) TBC	30'
I.5 WMO climate related programmes	Omar Baddour (WMO)	30
Discussions		20'
Lunch		
II. Afternoon Session: Users needs and requirements for an efficient and effective Early Warning Systems against climate extremes (*) Start at 14:30 , Addressing Sector vulnerability, needs and requirements for early warning, communication mechanisms and channels, timeliness of climate watch advisories, etc...		
Chair: Neil Ward Co-chair: TBD From the User Sector		
II.1 Heavy rainfall and flooding /user perspective	TBD	40'
II.2 Dry spells and droughts / user perspective	Brad Murphy (BOM, Australia)	40'
II.3 Climate early warning system; a show case application	Mohammed Kadi (ACMAD)	30'
Break		20'
II.4 Climate related health risks /user perspective	Ortiz Bulto (Cuba) TBC	40'
II.5 Environment / user perspective	TBD	40'
Discussions		30'
SOCIAL EVENT		
DAY 2		
III. Morning Session: Climate Watches; Methods, products, data bases and procedures Start at 9:00, Chair: M.KADI Co-chair: TBD from NMHSs in RA-III		
III.1 Climate monitoring, available products and ENSO Alert Systems	Michelle L'Heureux (CPC,USA) Brad Murphy (BOM, Australia) Affonso Mascarenhas (CIIFEN) Mario Alberto Palacios Moreno (CPPS)	50'
III.2 Long range forecasting; Methodologies and available products for climate watches	Neil Ward (IRI,USA) Mohammed Kadi (ACMAD, Niger)	50'
Break		20'
III.4 The WMO Commission for Climatology (CCI)	P. Bessemoulin (Meteo France, France)	30
III.5 Regional Institutions in RA-III and climate activities CIIFEN, CPPS, CPTEC, ESPOL	Designated representatives	40'
III.6 The WMO Guidelines on Climate Watches	Omar Baddour (WMO) Anahit Hovsepyan , National	30

	Hydrometeorological Service of Armenia	
Lunch		
IV. Afternoon Session; countries presentations on the status and priority needs of monitoring and predicting climate anomalies and extremes Start at 14:30 Chair: Mario Alberto Palacios Moreno Co-chair: Anahit Hovsepyan		
IV.1 Focus on available infrastructure and expertise related to: - Climate Data and Observation, Climate Monitoring, Long range forecasting systems and methods - User activities in support of Climate Risk management and early warning systems including - Data bases and, preparedness and mitigation procedures (for drought, flooding, heat waves, heavy precipitations, dry spells, cold waves, etc...)	Country representatives	20 minutes for each presentation
DAY 3		
V. Group session Start at 9:00 , 20 minutes break at 10:30		
GROUP I: Format, Content, Dissemination and Verification of climate watch advisories Chair: Michelle L'Heureux Rapporteur : TBD from NMHSs		
GROUP II: Basic infrastructure requirements and needs for climate watch implementation Chair: Neil Ward Rapporteur: TBD from NMHSs		
GROUP III: Providers-Users interaction mechanisms Chair: Gonzalo Ontaneda Rapporteur : TBD from NMHSs		
GROUP IV: Research and Development Chair: José Luis Santos Rapporteur : TBD from NMHSs		
Lunch at 12:30		
Afternoon: WG chairs and Rapporteurs prepare their reports for Day 4		
DAY 4		
VI. Morning Session: Chair: Pierre Bessemoulin Co-Chair : TBD , Rapporteur : Anahit Hovsepyan VI.1 Presentations of the WGs Conclusions and Recommendations Start at 9:00		120'
Break at 10:30		30'
VI.2 Plenary discussions on the way forward		60'
Closing the workshop at 12:30		

Outlines of climate watch implementation plan for RA-III

The first WMO workshop on climate monitoring including implementation of climate watch system in RA-III, Guayaquil, 8-11 December 2008 concluded with an agreed by participants of general outlines for climate watch implementation in RA-III, including:

I. Goal

Achieve a sustained, operational and coordinated climate watch system in South American Region in accordance with the National Meteorological and Hydrological Services' mission in contributing to the protection of lives and properties.

II. General statement

Participants agreed that adapting to climate change needs urgent action from NMHSs and Institutions in RA-III. One of these actions is the implementation of Climate Watch System (CWS) as proposed by WMO during the workshop and the CCI Guidelines on climate watches. CWS is essential in providing climate information based on climate observations, Monitoring and Long Range Forecasting and will improve NMHSs Role in providing useful advisories against climate anomalies and extremes. Participating institutions and NMHSs will cooperate and collaborate to achieve the goal of the Implementation plan in a coordinated manner.

III. Outline for the implementation plan

1. Regional Level

- (a) Establishment of sustainable interaction mechanisms amongst participating countries and institutions, including the use of regular events such as regional climate outlook forums to exchange information and harmonize strategies related to climate watch implementation and its monitoring;
- (b) Organisation of regular meetings, workshops and seminars involving user aspects,
- (c) Work towards the establishment of WMO Regional Climate Centers in the region based on the WMO guidelines on the establishment of RCCs.

2. National Level

- (a) Establishment of a national climate watch mechanism and start issuing climate watch advisories within NMHSs based on existing knowledge and expertise, and benefiting from the long experience in issuing weather warnings;
- (b) Organize climate watch unit at NMHS to meet specific national requirements and organizational aspects. This unit could be the existing forecasting unit or climate unit, or a joint weather-climate unit, etc.;
- (c) Establishment of a coordination mechanism with users at national level, such as for example setting up national climate forums (NCFs), but this is left open for consideration by each country. (NCFs) were proposed as a mechanism inspiring from the successful RCOF mechanism already established at regional level;
- (d) Development of Code of Conduct (C.o.C) of NMHSs in the region during climate related crisis, with respect to communication with various kind of users and media.

3. WMO Role

WMO will continue to provide the following role to streamline climate watch efforts within the WMO context and within other organization including, coordination, through networking and RCC

establishment, capacity building and provision of advice on issues related to climate data, monitoring and prediction.

Annex:

Res. 3.2.4/1 (Cg-XV) — WORLD CLIMATE DATA AND MONITORING PROGRAMME

THE CONGRESS,

Noting:

- (1) The *Abridged Final Report with Resolutions and Recommendations of the Fourteenth Session of the Commission for Climatology* (WMO-No. 996),
- (2) The *Abridged Final Report with Resolutions of the Fifty-eighth Session of the Executive Council* (WMO-No. 1007),
- (3) The *Abridged Final Report with Resolutions of the Fourteenth World Meteorological Congress* (WMO-No. 960), agenda item 3.2,
- (4) The *Abridged Final Report with Resolutions of the Thirteenth World Meteorological Congress* (WMO-No. 902), agenda item 3.2,
- (5) Resolution 7 (Cg-XIII) – Global Climate Observing System,
- (6) Resolution 11 (Cg-XIV) – Services of the World Climate Programme (covering the World Climate Data and Monitoring Programme and the World Climate Applications and Services Programme),
- (7) The Sixth WMO Long-term Plan, and the WMO Strategic Plan for 2008-2011,
- (8) The IPCC Reports,

Further noting:

- (1) The continued cooperation between CCI and other WMO Technical Commissions (particularly CBS and CIMO); and WMO-sponsored programmes relevant to climate data and monitoring, in particular GCOS and WCRP, the establishment of linkages and collaboration between CCI and cross-cutting programmes such as the WMO Space Programme and the WMO Disaster Mitigation and Prevention Programme (DPM),
- (2) That progress has been made by WCDMP during the period 2003-2007, in particular in:
 - (a) Providing Members with assistance and capacity building to migrate from CLICOM to modern and robust Climate Data Management Systems,
 - (b) Helping Members in safeguarding invaluable climate records at risk of degradation such as those records kept on paper or in obsolete electronic media and coordinating several Data Rescue Projects,
 - (c) The publication of annual press releases, global climate statements and reviews,
 - (d) The organization of training seminars on climate monitoring systems and climate change indices to help NMHSs develop useful input to their national reports for the UNFCCC,

- (e) Developing guidelines and material on best practices in Observing Requirements and Standards for Climate, Data Management, Metadata and Homogenization, Data Rescue and Climate Watches,

Considering:

- (1) That monitoring, assessing and predicting the climate system at various space-time scales is becoming one of the Members' highest priorities at different levels of decision-making,
- (2) The importance of high-quality climatological observations and datasets for understanding and monitoring climate variability and change, and for implementing climate applications and prediction services,
- (3) That the accessibility and use of climate data is as important as its collection and archiving,
- (4) That there is a need to encourage Members to provide CLIMAT and CLIMAT TEMP reports to the international community,
- (5) That there is a pressing need to continue the migration from CLICOM to CDMSs to meet the requirements of all Members in a cost-effective way; as well as emerging needs in upgrading and maintaining the newly installed CDMS and preserving and safeguarding data records from being lost through DARE projects,

Expresses:

- (1) Its satisfaction that progress has been made in the World Climate Data and Monitoring Programme (WCDMP) through:
 - (a) Well coordinated climate system monitoring at global and regional scales;
 - (b) Closer links with the climate modelling community on development and use of climate variability and change indices;
 - (c) Completion of *WMO Statements on the Status of the Global Climate* in all WMO languages;
 - (d) Improved Climate Data Management in Developing and Least Developed Countries;
 - (e) Data rescue seminars and projects to increase the number of observations in Members' and global centres' databases;
 - (f) The publication of the World Weather Records 1981-1990 and 1991-2000 in collaboration with NCDC;
 - (g) The collaboration with GCOS and WWW in the organization of CLIMAT and CLIMAT TEMP reports seminars;
- (2) Its concern that climate system monitoring including climate change detection is still being hindered by non-availability of sufficient and accessible data as well as by the continuous lack of capacity within many developing and least developed countries;

Decides:

- (1) That the implementation of the WCDMP should continue to be carried out, with priority being given to:
 - (a) Improvement to climate databases through the implementation of CDMSs and improving access and expanding use of the databases;
 - (b) Pursuing DARE projects and expanding the focus on other Data Media storage to be rescued;
 - (c) Continue climate system monitoring through routinely published reports, and promote the use of the Web based climate system monitoring within NMHSs, as well as the use of remote sensing data and products in a more efficient manner;
 - (d) Transform the content of the various published guidelines into knowledge through capacity building training workshops, seminars and conferences as well as the development of e-learning capabilities as it deems appropriate;
 - (e) The implementation of climate watches particularly in developing countries in collaboration with other WMO Programmes including WWW and WCASP;

Urges all Members, especially donor countries individually and through appropriate multinational arrangements, to cooperate actively and enthusiastically in the implementation and operation of WCDMP and, in particular:

- (1) To continue as far as possible to implement, maintain and enhance climate observation networks, for national, regional and global climate analysis;
- (2) To implement, upgrade, maintain and enhance access to national digital climate archives;
- (3) To enhance climate monitoring capabilities for the generation of higher quality and new types of products and services;
- (4) To participate in the deployment and use of new climate database management systems and techniques;
- (5) To improve data exchange among Members and improve Members capacity through a continued collaboration with GCOS and WWW in their joint efforts in organizing relevant seminars such as CLIMAT and CLIMAT TEMP Reports seminars;

REQUESTS the Secretary-General:

- (1) To assist Members, as necessary, in overcoming difficulties which may arise in the implementation of WCDMP activities particularly climate watch systems, climate data rescue and data management;
 - (2) To assist the Executive Council, the regional associations and CCI in the implementation of this resolution;
 - (3) To bring this resolution to the attention of all concerned.
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