



# **REGIONAL ASSOCIATION V (SOUTHWEST PACIFIC)**

**WORLD CLIMATE SERVICES PROGRAMME**

## **MEETING OF THE RA V WORKING GROUP ON CLIMATE SERVICES**

**Honiara, Solomon Islands,  
2-4 November 2011**

**FINAL REPORT**

**WORLD METEOROLOGICAL ORGANIZATION  
2011**

The **World Climate Programme (WCP)** implemented by WMO in conjunction with other international organizations consists of the following major components:

- World Climate Research Programme (WCRP)
- Global Climate Observing System (GCOS)
- World Climate Services Programme (WCSP)

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## **1. OPENING**

The Meeting of the RA V Working Group on Climate Services –held in conjunction with the *RA V Regional Seminar on Climate Services*– was opened at 15:30 hours on Wednesday, 2<sup>nd</sup> of November 2011, at Heritage Park Hotel in Honiara/Solomon Islands. Mr. Erwin Makmur, Chair of the Working Group welcomed the participants and expressed his gratitude to the participants as well as the host for preparing and organising the Meeting and wished fruitful discussions. Mr. Peer Hechler addressed the Meeting on behalf of WMO. He stressed the important role of the Working Group in facilitating regional co-operation for the benefit of the NMHSs in the Region. The Working Group has also the potential of facilitating regional and national implementation of global recommendations and standards from WMO Technical Commissions, such as CCI, CBS, CAgM and others.

While appreciating the opportunity to convene a first meeting of the Working Group in Honiara on the occasion of the above mentioned Regional Seminar, the Group noted the very limited time available for discussions. Accordingly, the Group agreed to focus on the identification of its deliverables as reflected in section 8 of this report and to refer as much as possible to the RA V Regional Seminar’s presentations, discussions and outcomes.

## **2. ORGANISATION OF THE MEETING**

### **2.1 Adoption of the agenda**

The agenda was adopted without any changes as provided in ANNEX 1 to this report.

### **2.2 Working arrangements**

The Meeting agreed its hours of work to be from 15:30–17:30 on Wednesday, 2<sup>nd</sup> of November, from 17:00–18:00 on Thursday, 3<sup>rd</sup> of November and from 8:00–11:00 on Friday, 4<sup>th</sup> of November. The *List of Participants* in the meeting is provided in ANNEX 2 to this report.

## **3. REPORT OF THE LEAD OF THE WORKING GROUP**

### **3.1 Terms of Reference, the Working Structure and the Work Plan of the Working Group**

Mr. Makmur introduced the topic. The Working Group reviewed its Terms of Reference, its working structure and its work plan as reflected in Annex VI of the *Final Report of the 6<sup>th</sup> RA V Management Group Meeting* (cf. <http://www.wmo.int/pages/prog/dra/rap/documents/FinalReport-RAVMG6.pdf>). The Group felt that strict prioritisation is needed in light of the limited resources and time available in the current intersessional period (2010-2014) and decided to focus on a small yet specific and tangible set of deliverables.

### **3.2 Outcomes of the Regional Seminar on Climate Services in RA V related to the activities of the Working Group**

In its deliberations, the Meeting referred to the presentations, discussions and outcomes of the *RA V Regional Seminar on Climate Services*. The Working Group’s deliverables as outlined in section 8 of this report reflect RA V Member’s needs and capabilities addressed during the Regional Seminar.

#### **4. IMPLEMENTATION OF THE WORK PROGRAMMES OF THE TASK TEAMS**

The Working Group agreed on the set of deliverables as reflected in section 8 of this report.

#### **5. STRENGTHENING OF CLIMATE SERVICES IN RA V**

##### **5.1 Establishment of WMO Regional Climate Centre(s) in RA V**

The Meeting was briefed on the concept of WMO RCCs and its worldwide implementation status during the *RA V Regional Seminar on Climate Services*. WMO RCCs are considered as an important element of the GFCS Climate Services Information System (CSIS), providing mandatory and highly-recommended regional-scale climate-related services to NMHSs and thereby strengthening the capacities of WMO Members to deliver better national climate services. WMO RCC functions comprise services in the domains of climate predictions and projections, climate monitoring, climate data, training, research co-ordination and user liaison. RCC Beijing and RCC Tokyo are the first designated WMO RCCs. RCC demonstration phases are underway in RA I, II and VI. RA III agreed on an overall RCC structure for South America. Discussions on efficient RCC implementation are ongoing in Regional Associations IV and V.

The Group also reviewed Resolution 2 of RA V-XV 'Establishment of Regional Climate Centres' and concluded on its activities to facilitate RCC implementation in RA V as reflected in section 8 of this report.

##### **5.2 Implementation of Watch Systems in RA V**

The Meeting was briefed on the concept of WMO Climate Watch systems and its implementation status. WMO's Climate Watch concept aims at enabling Members to issue climate advisories on observed and/or predicted monthly- to seasonal scale climate anomalies with potential negative impacts on societies. Elements of a Climate Watch system comprise, beside others, adequate observing and data management systems as well as climate monitoring and prediction services including regional guidance products from WMO RCCs and RCOFs. WMO designed a workshop on regional Climate Watch implementation, which so far was held in RA III, RA II and RA VI.

The Group members agreed to familiarise themselves with the concept as per distributed brochures as well as comprehensive information available on WMO WebPages (cf. [http://www.wmo.int/pages/prog/wcp/wcdmp/index\\_en.php](http://www.wmo.int/pages/prog/wcp/wcdmp/index_en.php), -> Climate Watch System) and to discuss by online means any relevant recommendation, such as to prepare for and invite a WMO Climate Watch implementation workshop to the Region.

#### **6. CAPACITY BUILDING FOR CLIMATE SERVICES IN RA V**

Referring to session 7 of the RA V Regional Seminar ‘Partnership, Capacity Building and Resource Mobilisation’, the Working Group felt that its planned activities as reflected in section 8 of this report would greatly facilitate capacity building in RA V.

The Group furthermore addressed the issue of an overall qualification benchmark for ‘climatologists’. Mr. Hechler advised the Group that this issue should best be discussed with WMO’s Education and Training Programme (Director: Jeffrey Wilson).

## 7. COLLABORATION WITH OTHER INTERNATIONAL/REGIONAL ORGANIZATIONS IN RA V

The Group reiterated the multitude of collaboration opportunities as reflected in the presentations of the RA V Regional Seminar and particularly in the presentation on ‘Regional Partnerships and GFCs’ in session 7. The Group agreed to consider relevant collaboration opportunities when tackling its specific activities as summarised in section 8 below.

## 8. WORK PLAN, DELIVERABLES AND TIMELINES

Based on the discussions held during its meeting as well as during the RA V Regional Seminar, the Working Group concluded on five specific activities during the current inter-sessional period (2010-2014):

Activity/Deliverable (cf explanatory notes below the table)	Co-ordinator	Milestones	Reference to ToR of the RA V WG CLS*
1) Development of a document ‘Best practices and resource guide for data management and data rescue’	Howard Diamond	Structure of document shared amongst WG members by 31 March 2012 1 <sup>st</sup> draft of document available by Dec. 2012	To provide advice on methods to strengthen and improve climate system monitoring, analyses and indices
2) Facilitation of a first Southeast Asian Climate Outlook Forum (SEACOF) in 2012	Erwin Makmur	Detailed concept note shared amongst WG members by 31 January 2012 Facilitation of host identification Facilitation of SEACOF-1 session preparations SEACOF-1 in second half 2012/first half 2013	To provide advice on and assist in the implementation of various climate information and prediction services in RA V ... To provide advice on ... climate-related training workshops ... To ... provide advice on the use of ... downscaling to produce useable regional and national climate forecasts and products
3) Facilitation of a RA V RclimDex training workshop including a	Chew Kian Hoe	Concept paper to be shared amongst WG members by April 2012 Facilitation of sponsor- and	To provide advice on methods to strengthen and improve climate system monitoring, analyses and indices

report/peer-reviewed journal paper on RA V climate indices analyses		host identification Facilitation of workshop preparations Training workshop by end of 2013	To provide advice on and assist in the implementation of various climate information and prediction services in RA V ...
4) Assessment of current RCC-related functions being performed in RA V vis-à-vis the mandatory and highly-recommended RCC functions and subsequent gap analysis	James Renwick	Structure of survey shared within WG by 31 March 2012 1 <sup>st</sup> draft analysis document available by Dec. 2012	To provide advice on and assist in the implementation of various climate information and prediction services in RA V ... To provide further advice and proposals on the role, structure and mechanism of the RCCs in the region Res 2 (RA V-XV)
5) Development of a review document on the current use of climate information for agriculture in RA V	Andrew Tait	Structure of document shared amongst WG members by 31 March 2012 1 <sup>st</sup> draft of document available by Dec. 2012	To provide advice on and assist in the implementation of various climate information and prediction services in RA V ..., including agriculture ...

\* Further references are given in the Terms of Reference (ToR) for each Task Team of the RA V WG CLS (as per Annex VI of the Report of the 6<sup>th</sup> RA V Management Group; cf. <http://www.wmo.int/pages/prog/dra/rap/documents/FinalReport-RAVMG6.pdf>).

Explanatory notes:

**Activity/deliverable 1:** The envisaged document is expected to help RA V Members to begin implementing a more robust and sustainable climate data management programme including data rescue.

**Activity/deliverable 2:** A general concept note is available already (cf. Annex 3). The detailed concept note to be elaborated needs to (i) address the issue of the target season(s), (ii) specify the audience (experts, NMHSs, relevant sub-regional institutions and programmes, users) and (iii) discuss funding options. The detailed concept should be elaborated in close liaison with the *RA II Working Group on Climate Services, Adaptation and Agrometeorology* (Chair: Zhai Panmao, China) and specifically with its *Subgroup on Climate Applications and Services* (Chair: K. Takano, Japan). Once the detailed concept note is finalised, the Working Group is expected to facilitate (i) the identification of a host for a first SEACOF session as well as (ii) the session's preparation and conduct.

**Activity/deliverable 3:** The proposed workshop aims at capacity building to improve climate system monitoring and detection in RA V. RCLimDex provide a user friendly interface to compute indices of climate extremes from daily data. It computes all 27 core indices recommended by the joint WMO Commission for Climatology (CCI)/World Climate Research Programme (WCRP) Climate Variability and Predictability (CLIVAR) project's Expert Team on Climate Change Detection, Monitoring and Indices (ETCCDMI). NMHSs participating in the study will develop these indices from their station data for as much of the period 1950-2010 as possible but certainly at least a 30 year period within this range, preferably 1980-2010. Participants will

bring their own daily data to the 3-5 days workshop to learn use of RCLimDex and other supporting software (RHtests for data homogeneity testing), facilitated by ETCCDMI expert. During the workshop, participants will apply what they learn to derive and analyse the climate indices from their own data. Deliverables will include a report/peer-reviewed journal paper of the analysis of pooled/shared climate indices for RA V done at the workshop.

Potential sponsors could be: World Bank, UNDP, WMO, US DOS, APN etc.

*Note: Mr. Walland agreed to inform the Working Group on similar PCCSP (Pacific Climate Change Science Programme) activities and to advise on respective liaison opportunities.*

**Activity/deliverable 4:** Resolution 2 (XV-RA V) 'Establishment of Regional Climate Centres' calls for an assessment of current RCC-related functions performed in RA V vis-à-vis the mandatory and highly-recommended RCC functions including a subsequent gap analysis. Such an assessment is considered to form the basis for subsequent discussions on the design of WMO RCCs in RA V.

**Activity/deliverable 5:** Considering the overarching themes of CAgM ('Coping with impacts of natural disasters on agriculture'; 'Use of improved tools for operational Agrometeorology' and 'Agrometeorological information for enhancing farming productivity') the proposal is to produce a review document on the current use of climate information for agriculture in RA V. This would be structured with country chapters, each briefly describing:

- the kind of climate information and products that are currently being produced (both general level information and agriculture-specific information) with examples;
- the ways such information is being delivered (again, both general level delivery and specific delivery to agricultural sector users);
- examples of the use of such information by agricultural sector users;
- some user feedback, if possible, on the usefulness of the information; and
- an evaluation of gaps and needs to improve the use of climate information for agriculture for the country.

The review document, which eventually should be considered to be published as a WMO publication, would also have a synthesis section, highlighting good examples and identifying where there are significant gaps and needs within the Region. It would also address prospects of organising WMO Roving Seminars in RA V.

## **9. ANY OTHER BUSINESS**

No further items were raised by the participants.

## **10. CLOSURE**

In closing, the Chair thanked all the participants for their dedication and valuable inputs to the discussion and the WMO Secretariat staff for their support and advice. He also thanked the host for the efficient arrangements to facilitate the meeting and the warm hospitality. Mr. Makmur expressed his hope for further face-to-face communication amongst WG members on the occasion of upcoming meetings and conferences in the Region.

The meeting was closed on Friday, 4 November 2011 at 11:00 a.m.

## **AGENDA**

- 1. OPENING**
- 2. ORGANISATION OF THE MEETING**
  - 2.1 Adoption of the agenda
  - 2.2 Working arrangements
- 3. REPORT OF THE LEAD OF THE WORKING GROUP**
  - 3.1 Terms of Reference, the working structure and the work plan of the Working Group
  - 3.2 Outcomes of the Regional Seminar on Climate Services in RA V related to the activities of the Working Group
- 4. IMPLEMENTATION OF THE WORK PROGRAMMES OF THE TASK TEAMS**
  - 4.1 CLIPS including Regional Climate Centre, Regional Climate Outlook Forums and Climate Extreme Prediction
  - 4.2 Climate Data Management and Data Rescue
  - 4.3 Climate Change
  - 4.4 Agrometeorological Services
- 5. STRENGTHENING OF CLIMATE SERVICES IN RA V**
  - 5.1 Establishment of WMO Regional Climate Center(s) in RA V
  - 5.2 Implementation of Climate Watch systems in RA V
- 6. CAPACITY BUILDING FOR CLIMATE SERVICES IN RA V**
- 7. COLLABORATION WITH OTHER INTERNATIONAL/REGIONAL ORGANIZATIONS IN RA V**
- 8. WORK PLAN, DELIVERABLES AND TIMELINES**
- 9. ANY OTHER BUSINESS**
- 10. CLOSURE**

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## **South East Asian Climate Outlook Forum (SEACOF)**

### **A Concept Note**

The idea of “climate outlook forums” originated at a Workshop on Reducing Climate-related Vulnerability in Southern Africa, held at Victoria Falls, Zimbabwe, in October 1996. Recognizing that climate predictions could be of substantial benefit to many parts of the world in adapting to and mitigating the impacts of climate variability and change, planning was initiated to establish a regional climate outlook forum (RCOF) with an overarching responsibility to produce and disseminate a regional assessment (using a predominantly consensus-based approach) of the state of the regional climate for the upcoming season. Built into the RCOF process is a regional networking of the climate service providers and user-sector representatives. Recognizing its vulnerability to extreme climatic variability, Africa has been a pioneering and enthusiastic participant in the RCOF process. Participating countries recognize the potential of climate prediction and seasonal forecasting as a powerful development tool to help populations and decision-makers face the challenges posed by climatic variability and change. National and Regional capacities are varied but certainly inadequate to face the task alone. Since 1997, when the Forum process started at Kadoma in Zimbabwe, Africa has benefited from a significant amount of capacity building and funding which has enabled the Southern Africa Climate Outlook Forum (SARCOF) to meet twice a year, the PRESAO (Prévision Saisonnière en Afrique de l’Ouest) once a year and the Greater Horn of Africa (GHA) two/three times each year. In parallel, National Meteorological and Hydrological Services (NMHSs) and some decision makers have come to realize the potential benefits to be gained and have played larger roles in the processes. Ownership now lies largely with national and regional players, but there is a continuing need for support at all levels to ensure that the momentum gained to date is maintained.

The World Meteorological Organization (WMO), through its Climate Information and Prediction Services (CLIPS) project and Regional Programme, made an important contribution towards the development and activities of the forums, alongside an array of bilateral and multilateral sources providing financial and in-kind contributions. These include: the Office of Global Programs of the US National Oceanic and Atmospheric Administration (OGP/NOAA), US Agency for International Development (USAID), the European Union (EU), the International Research Institute (IRI), the UK Meteorological Office, Meteo France, the World Bank, many NMHSs and several others including universities and research institutes. One important aspect of the forums is to bring together experts in various fields, local meteorologists and end users of forecasts in an environment that encourages interaction and learning. CLIPS developed a curriculum as part of the forums which aims at enhancing the climate prediction capabilities of the staffs of the NMHSs. The RCOF process has subsequently been extended to South America, Central America, Asia and the Pacific Islands and more recently to Southeastern Europe. While the implementation mechanisms of the RCOFs worldwide have been varied based on the local conditions, the core concept remained the same, cutting across all the regions: delivering consensus based user-relevant climate outlook products in real-time through regional cooperation and partnership.

Among the challenges identified in the process to date, a key area is the design and delivery of climate information and prediction products that satisfy the needs of end-users. Achieving this will require concerted efforts to demonstrate benefits. This challenge, together with that of sustainability, indicates the continued need to improve the scientific underpinnings of the forecasts, for capacity building, and for sustained support.

The consensus prediction process that underlines RCOF operations consists of the following elements:

- Determine the critical time for development of the climate forecast for the region in question;
- Assemble a group of experts:
  - Large scale prediction specialists,
  - regional and local climate applications and forecast/downscaling specialists,
  - stakeholders representative of climate-sensitive sectors;
- Review current large scale (global and regional) climate anomalies and the most recent forecasts for their evolution;
- Review current climate conditions and their impacts at local, national and regional levels, and national-scale forecasts;
- Considering all factors, produce a forecast with related output (e.g. maps of temperature and precipitation anomalies) that will be applied and fine-tuned (downscaling) by NMHSs in the region to meet national needs;
- Discuss applications of the forecast and related climate information to climate-sensitive sectors in the region; consider practical products for development by NMHSs;
- Develop strategies to effectively communicate the information to decision-makers in all affected sectors;
- Critique the session and its results:
  - document achieved improvements to the process and any challenges encountered,
  - Establish steps required to further improve the process for subsequent sessions.

RCOFs stimulate the development of climate capacity in the NMHSs and do much to generate decisions and activities that mitigate adverse impacts of climate and help communities adapt to climate variability. It may also be noted that, in addition to directly supporting the RCOFs along with other partners, WMO has been making concerted efforts to put in place a number of global and regional mechanisms that would further strengthen the RCOF activities. WMO has established formally designated Global Producing Centres (GPCs) of Long Range Forecasts, which provide real-time global seasonal forecasts accessible to all WMO Members. WMO, along with its Regional Associations, is also at an advanced stage of establishing several Regional Climate Centres (RCCs) to cater to the special needs of regions. NMHSs, the regions and the users of the products must contribute to the sustainability of RCOFs (e.g., demonstrate utility of the forums and value of the products to those who need the information). Additionally, research capacities at the regional level need to be enhanced, to assess the forecast skills as well as to work towards their improvement. Media has an important role to play in RCOF process, which needs to be factored in.

The RCOF process has facilitated a better understanding of the links between the climate system and socio-economic activities. An increasing demand for climate services has been recorded in many parts of the world as a result of these developments. Awareness has been created that climate information, including short-range climate predictions, is an essential element in

mitigating against the impacts of climate variations. RCOFs have fostered interactions and exchange of information between the climate scientists and users of climate information. More importantly, they have facilitated the mainstreaming of regional cooperation and networking, and effectively demonstrated the immense mutual benefits of sharing of information and experience.

While the RCOFs were originally conceived with the main focus on seasonal prediction, the same RCOF mechanisms can be effectively expanded to cater to the needs of developing and disseminating regional climate change information products. Such initiatives are already being taken up by some RCOFs (e.g., Greater Horn of Africa). Regional assessments of observed and projected climate change, including the development of downscaled climate change scenario products for impact assessments, can be included in the product portfolio of RCOFs.

In the recent decades we have witnessed remarkable advances in our understanding of monsoon processes and its variability, significantly enhancing our capabilities in monsoon prediction. It is important that the latest research advances are effectively exploited to improve operational monsoon prediction to meet the societal needs for advance information on the monsoon. The considerable level of ongoing activities in the Southeast Asian (SEA) region to generate, improve and use seasonal forecasts, along with the highly significant teleconnections with El Niño/Southern Oscillation and the associated predictive skills, provide an added buoyancy. ASEAN (Association of Southeast Asian Nations) seasonal rainfall forecasts (3-months experimental forecasts) are being issued on a regional scale, by ASEAN Specilised Meteorological Centre (ASMC) hosted by Singapore (Meteorological Service). Seasonal Outlooks are also being produced for both the South West Monsoon season and the North East Monsoon season by the WMO Monsoon Activity Center at Kuala Lumpur hosted by the Malaysian Meteorological Department. At a national level, NMHSs of Philippines, Malaysia, Myanmar, Indonesia, Vietnam, Lao PDR and Cambodia have been holding monsoon forums to discuss their seasonal outlooks with stakeholder agencies. In many instances, besides the overarching coordination support by WMO and its Regional Associations through the NMHSs in the SEA sub-region, such activities have been supported by partner agencies like the European Union (EU), Food and Agriculture Organization (FAO), American Red Cross, United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP) in collaboration with emerging regional inter-governmental organizations like Regional Integrated Multi-Hazard Early Warning System (RIMES). It is in this context that the initiative to launch a South East Asian Climate Outlook Forum (SEACOF) has been taken up, with the active and enthusiastic support by the NMHSs of the South East Asian countries.

The potential for the development of SEACOF has been discussed recently on several platforms and its importance recognized. For example, the recent WMO CLIPS Training Workshop on Operational Climate Prediction for Southeast Asia Citeko, Bogor, Indonesia (27 September - 7 October 2011) called for the establishment of SEACOF, and there is a general agreement that such a process will greatly enhance regional cooperation as well as more effective engagement of the user community. In view of the two main rainy seasons influencing continental and the marine SEA it was suggested to have two SEACOF sessions in a year. Evolving uniform and simple templates for seasonal predictions and verification, validation procedures were recommended in addition to regular training of NMHS staff involved in seasonal prediction. WMO's Regional Association V, while appreciating the pan-Asia RCOF activities over the past few years led by China, and taking cue from the recently launched South Asian Climate Outlook Forum (SASCOF) in South Asia called for additional sub-regional RCOFs to meet the special needs of the sub-regions. This will need active participation of all the NMHSs in the sub-region straddling the WMO regions – RA II and RA V, including the related multi-lateral entities. To take the first steps in this direction and

scope out the implementation aspects of SEACOF, an opportune occasion is in the offing in the form of RA V Regional Seminar and the meeting of the RA V Working Group on Climate Services (1-4 November 2011, Honiara, Solomon Islands). These meetings will review the ongoing operational activities in seasonal prediction, consider further development of SEACOF concept and determine its implementation aspects. SEACOF can also be an excellent mechanism to sustain capacity building activities for the SEA countries on a regular basis. It is essential to pursue resource mobilization for SEACOF (at least once per year), by including the activity as an integral component of disaster risk reduction projects operating in the sub-region. WMO can facilitate the required collaboration between RA II and RA V.