

**THE REGIONAL FORUM FOR DIRECTORS OF NATIONAL  
METEOROLOGICAL AND HYDROLOGICAL SERVICES IN REGIONAL  
ASSOCIATION V (SOUTH-WEST PACIFIC)**

**NADI, FIJI  
28–30 OCTOBER 2015**

**FINAL REPORT**



**WORLD METEOROLOGICAL ORGANIZATION**







*Participants in the Regional Forum for Directors of NMHSs in RA V (Nadi, Fiji, 28-30 Oct 2015)*



## EXECUTIVE SUMMARY

The Regional Forum for Directors of National Meteorological and Hydrological Services in Regional Association V (RA V RF-2015), which was held in Nadi, Fiji, from 28 to 30 October 2015, aimed to review the emerging issues and challenges since the sixteenth session of Regional Association V (RA V-16) held in Jakarta, Indonesia (May 2014), and identify means for improvement of management and operations of NMHSs for further discussion at the next session of RA V.

The key objectives of the RA V RF-2015 were to facilitate the sharing of experiences among Directors of NMHSs in RA V through discussions on a range of potential topics and provide opportunities for Directors of NMHSs in RA V to contribute to the implementation by WMO of the global frameworks/programmes in RA V.

RA V RF-2015 adopted recommendations that will contribute to better weather, climate and water services for sustainable development in the Region, particularly focusing on: response to the Sendai Framework for Disaster Risk Reduction (SFDRR); implementation of the Global Framework for Climate Services (GFCS) and establishment of Regional Climate Centre (RCC) networks; resolving deficiencies in aviation safety and services; implementation of the Programme for WMO Small Island Developing States (SIDS) and Member Island Territories; and partnership and cooperation for capacity development. In summary:

- 1) The Forum recognized that the Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR) calls on States to: enhance and strengthen the Multi-Hazard Early Warning Systems (MHEWS); develop and invest in regional multi-hazard early warning mechanisms; and achieve the global target for MHEWS. The Forum requested the WMO Secretariat in coordination with the EC Working Group on DRR to develop and distribute a guide or information bulletin for Members containing a concise description of the SFDRR and its likely implications for Members.
- 2) Effective communication of long range forecast information to stakeholders was identified as a significant issue. Consideration should be given to developing mechanisms to provide appropriate skills training to meteorological personnel and to enable the sharing of effective communication processes across RA V. Appropriate mechanisms need to be identified to enable sustained funding of ASEANCOF and PICOV. The establishment of RCC Networks will be important to address the various issues identified within the RCOFs. The Forum recommended RA V Working Group on Climate Services (WG-CLS) to convene as soon as possible to take forward the process to establish Regional Climate Center (RCC) Networks for the Southeast Asian and Pacific Island Countries and Territories (PICT) regions, the latter in collaboration with the Pacific Islands Climate Services (PICS) Panel.
- 3) The Forum recommended to identify and document current baseline and needs of RA V regarding: training (WMO 2016 requirements), QMS (migration to ISO 9001:2015), cost recovery, and data formats (GML/XML), provide these identified needs to the Secretariat through the chairperson of RA V Working Group on Weather Services (WG-WXS), establish long term plan and roadmap in collaboration with Pacific Meteorological Council Pacific Islands Aviation Weather Services (PMC PIAWS) Panel, and identify and map the linkages between PMC, RA V WG-WXS, WMO relevant technical commissions and ICAO to ensure effective coordination.
- 4) The Forum welcomed the establishment by Cg-17 of the WMO Programme for WMO Small Island Developing States (SIDS) and Member Island Territories and strongly recommended its

operationalization as soon as possible. In this regard, the Forum requested WMO Secretariat to expedite the allocation of responsibilities and resources for the Programme within the Development and Regional Activities (DRA) department, and also requested the president of RA V to initiate discussion with other presidents of Regional Associations (PRAs) concerned in order to develop a coordinated first draft of prioritized activities focused on SIDS to be presented at the PRAs meeting in January 2016. Based on the outcome of PRAs, further proposals on priorities, activities and related resource needs of the SIDS Programme should be submitted for consideration by the Executive Council Working Group on Strategic and Operational Planning (ECWG-SOP) in February 2016 and the sixty-eighth session of the Executive Council (EC-68) in June 2016. The Forum recommended that as a matter of priority, a strategic work plan be developed for the new Programme for WMO SIDS and Member Island Territories.

**The Regional Forum for Directors of National Meteorological and Hydrological Services in  
Regional Association V (South-West Pacific)<sup>1</sup>  
(Nadi, Fiji, 28–30 October 2015)**

**GENERAL SUMMARY OF THE FORUM**

**1. Opening**

1.1 At the kind invitation of the Government of Fiji, the Regional Forum for Directors of National Meteorological and Hydrological Services (NMHSs) in RA V (RA V RF-2015) was convened in Nadi, Fiji, from 28 to 30 October 2015, with the aim of reviewing emerging issues and challenges since the sixteenth session of Regional Association V (RA V-16) held in Jakarta, Indonesia (May 2014), and identifying means for improvement of the management and operations of NMHSs for further discussion at the next session of RA V. The programme is attached as **Annex I** to this report.

1.2 In opening the Forum, the Honorable Vijay Nath, Fijian Assistant Minister for Infrastructure and Transport, delivered his statement and officially opened the Forum at 9:00 a.m. on 28 October 2015.

1.3 In his statement, the Honorable Vijay Nath warmly welcomed all participants to the Forum. He emphasized the issues of climate variability and change and encouraged all participants to take actions to cope with these issues. He recalled and appreciated the support of WMO for its commitment to support Members, especially to Island States and Territories through the establishment of the new WMO Programme for Small Island Developing States (SIDS) and Member Island Territories which was adopted by the seventeenth session of the World Meteorological Congress (Cg-17).

**2. Remarks (Session 1)**

2.1 The welcoming and keynote addresses were delivered by Mr Ravind Kumar, Director of the Fiji Meteorological Service and Permanent Representative of Fiji with WMO, Dr Andi Eka Sakya, Director General of the Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG) and President of RA V, and Dr Chung Kyu Park, Representative of WMO, Director, Regional Office for Asia and the South-West Pacific.

2.2 In his remarks, the President of RA V recalled some of the challenges, key priorities and achievements of the Region for the period 2016-2019, and expressed his appreciation for the support of WMO in holding Regional Forums every four years. He believed that the Forum could continue and even strengthen efforts to bridge the gap between the level of meteorological and related services provided by developed countries compared to developing countries, including those whose economies are in transition Small Island Developing States (SIDS) and Member Island Territories and, especially, Least Developed Countries (LDCs).

2.3 An overview of the Forum's programme was given by the WMO Secretariat (see **Annex II**) and the Drafting Committee was established (see **Annex III**).

**3. WMO Strategic Plan and RA V Operating Plan (Session 2)**

3.1 An overview of the WMO Priorities and Strategic Plan 2016-2019 was presented by the WMO Secretariat and an overview of the RA V Operating Plan (OP) 2016-2019 by the Chairperson

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<sup>1</sup> The presentation materials and relevant documents for Regional Forum for Directors of NMHSs in RA V are available on the WMO web site: <https://sites.google.com/a/wmo.int/regional-forum-for-directors-of-nmhss-in-ra-v/>

of the RA V Task Team on Strategic and Operational Planning; these were followed by a report by the President of RA V on RA V Management Group activities since RA V-16.

3.2 The Forum was informed about key decisions and recommendations of RA V-16 and the priorities described in the RA V Operating Plan 2016-2019, including future priorities and deliverables in the Region.

3.3 The new Programme for WMO Small Island Developing States (SIDS) and Member Island Territories was presented and the Forum discussed the future advancement of this new WMO Programme using voluntary resources from the WMO, with a longer term plan to utilise regular budgetary resources of WMO.

3.4 The Forum discussed the Pacific Hydrological Cycle Observing System (HYCOS), including the possibility of utilizing the Climate Database for the Environment (CliDE) platform to manage data, as well as plans for the next phase of Pacific HYCOS to focus on products, information and services.

3.5 The Forum further discussed the linkages between the Pacific Meteorological Council (PMC) and the various RA V Working Groups and the need for collaboration between the PMC Pacific Islands Climate Services (PICS) Panel and the RA V Working Group on Climate Services, including its Task Team on Climate Services Information System (TT-CSIS).

3.6 The Forum recognized the need for RA V to more actively address the hydrological needs of its Members, and highlighted the need for good synergy between NMHSs, relevant RA V working groups (in particular the RA V Working Group on Hydrology) and the Secretariat of the Pacific Community (SPC) in relation to flood warnings, drought monitoring and water resources management.

3.7 The Forum further recognized the need for closer collaboration between the Inter-Governmental Coordination Group of the Pacific Tsunami Warning System (ICG/PTWS) Regional Working Group for the South-West Pacific and the Tropical Cyclone Committee for the South Pacific and South-East Indian Ocean.

#### **4. Implementation of WMO Priority Programmes (Session 3)**

4.1 A range of presentations were given by representatives of Members, experts and the WMO Secretariat on progress achieved in implementing WMO priority programmes and projects in the Region, including in the areas of disaster risk reduction and service delivery, climate services and aviation meteorological services. Emerging issues and challenges in implementing WMO priorities were also discussed in the form of panel discussion.

#### **5. Disaster Risk Reduction (DRR) and Service Delivery (Session 3.1)**

5.1 The focus of this session was on understanding the Sendai Framework for Disaster Risk Reduction and its implications for NMHSs in Region V and the identification of gaps and potential enhancements of current NMHS DRR services and the areas where enhanced international cooperation and support would assist.

5.2 To inform the discussion, the Forum was given an overview of the Third UN World Conference on Disaster Risk Reduction (WCDRR-III) – Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030 and how it relates to RA V by the Secretariat and several Members.

5.3 The Forum noted that there is a growing realization around the world that investment is required in NMHSs; in particular, investment in monitoring and Early Warning Systems (EWS) to support NMHSs in their essential role as warnings providers and that this will be an important focus of the implementation of the SFDRR.

5.4 The Forum noted the imperative for NMHSs to remain highly visible and relevant to their community so that they enjoy continued government support for their critical role as the official and authoritative voice for early warnings. This visibility may be achieved by successful partnerships between NMHSs, emergency management authorities and other relevant stakeholders, and strengthened through the delivery of impact based forecasts and risk based warnings that assist stakeholders to make effective decisions.

5.5 Presentations were made by various delegates outlining disaster prevention and mitigation activities as well as recent severe weather events.

5.6 The Forum was informed about the International Network for Multi-Hazard Early Warning Systems (IN-MHEWS) – an attempt to break down coordination challenges at jurisdictional borders and as a mechanism to exchange knowledge and expertise in the development and maintenance of early warning systems. There is a lot to be learned from RA V's successful approach to collaboration and communication across a range of hazards and, in particular, those associated with tropical cyclones and tsunamis.

5.7 It was recognized that donors are becoming increasingly aware that investment in mitigation can generate significant savings over time. As such, investment in NMHSs and their end-to-end processes which encompass observations, training, forecasting, etc., is an important place to start and the private sector has a large role to play here.

5.8 Presentations were made by various Members outlining programmes/projects supporting MHEWS and a panel discussion focused on what the WMO Secretariat should do in assisting with the implementation of WCDRR-III outcomes. Ultimately, the Forum noted the need for a clearer picture of what the SFDRR will mean to NMHSs. Some simple, plain language that provides guidance to NMHSs on what the SFDRR will mean to them was recommended.

5.9 The session concluded with a panel discussion on a number of the issues raised during the session..

## **6. Enhancement of National and Regional Climate Services (Session 3.2)**

6.1 The Forum was briefly informed by the WMO Secretariat of the overall activities of the World Climate Programme and its contribution to the Global Framework for Climate Services (GFCS). The Forum noted the important role of National Climate Outlook Forums (NCOFs) in the establishment of GFCS at the national and regional level and that both the Association of Southeast Asian Nations Climate Outlook Forum (ASEANCOF) and the Pacific Islands Climate Outlook Forum (PICOOF) are now underway.

6.2 The Forum was also informed that various WMO data recovery programmes have a primary role in transforming extensive climate archives that exist into high value climate information. Many challenges remain, such as the lack of availability of data and quality control, inconsistencies in the production of national reports and the lack of regional homogenised data sets. There are a number of initiatives of the Commission for Climatology that can help with the development of regional capability in the area of climate data management.

6.3 Presentations were made by various delegates outlining the current status on the national provision of climate services and information, including climate monitoring and NCOFs.

6.4 In the general discussion of this session, the importance of impact based forecasts and a better understanding of climate and its variability was noted. The Forum recognized the widespread interest in the current status of El Niño and the need for each country to tailor the information for their local circumstance. It was recognized that communication remains a challenge and NMHSs need to talk to key stakeholders who can pass on messages at the ground level and that this needs to be done in a simple way that does not lose meaning.



6.5 The report of the first PICOF and the development of ASEANCOF was provided. The Forum learnt that both the PICOF and the ASEANCOF included training components that bring together national, regional and international experts, including Global Producing Centre' (GPC) scientists and stakeholders to discuss the seasonal outlook. These sub-regional climate outlook forums have been valuable in building a wider appreciation of the value that these seasonal forecasts provide. The Forum recognized that these events were very useful for explaining the science behind the forecasts and to provide a better understanding of the level of confidence that could be placed in them. However, financial support for future PICOFs remains unresolved. The Forum requested the WMO to assist in providing or seeking sustainable funding in this respect.

6.6 The Forum recognized the importance of the Regional Climate Center (RCC) framework for addressing demands of NMHSs for climate prediction guidance products, including sub-seasonal timescale forecast information, and operational predictions based on dynamical Long-range Forecast (LRF) output, which can be used as the basis for tailored products which match sector needs, including marine users..

6.7 The history and function of the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES) were introduced. The Forum noted that RIMES contributes to the WMO NCOF process through the organisation of national monsoon forums which take place ahead and after the monsoon. This enables the use of forecast information for planning ahead of the season, and a review after the season of how this information was used, what worked and what did not.

6.8 With regard to climate data management, including data rescue as a prerequisite for effective climate services, the Forum was given an update on the status of the Climate Data for the Environment (CliDE) system developed by the Bureau of Meteorology (BoM), Australia.

6.9 Regarding the Southeast Asian Climate Assessment & Dataset (SACA&D), the Forum was informed that the data have been gathered from a variety of sources, including the Global Telecommunication System (GTS), ASEAN NMSs, and the Global Historical Climatology Network - Daily (GHCN-Daily). Datasets are tagged as 'downloadable' or 'non-downloadable' according to relevant data policies. The Forum was further informed that the data coverage is quite poor in some regions of RA V and encouraged Members to contribute their data to SACA&D.

6.10 The Forum was informed about the status of the establishment of RCCs in RA V and the process for RCC establishment within Regional Associations and designated requirements developed by CBS and CCI. As a panel discussion, Forum explored how to establish an RCC network in RA V, including the role of RCOFs and NCOFs. The Forum recognized the critical and urgent roles of the RA V Working Group on Climate Services and the PICS Panel in developing RCCs in RA V.

## **7. Aviation Services in Southeast Asia and the Southwest Pacific (Agenda Session 3.3)**

7.1 This session reviewed the current status of aviation meteorology at global and regional levels, and aviation hazards in RA V. Presentations were given by several Members on the current status of provision of aviation meteorological services, competency of aeronautical meteorology personnel, quality management assurance standards, deficiencies in technology and lessons learned.

7.2 The Forum noted a number of recent and emerging global and regional developments in the aviation industry that will impact upon the provision of aviation meteorological services.

7.3 The continued evolution of existing aviation meteorological services was discussed. In particular, the increasing spatial and temporal resolution of products, the increasing focus on trajectory-based operations and the shift from product-centric to data-centric provision were highlighted.

7.4 The Forum noted that the provision of meteorological information was recognized as a key enabler for implementation of the ICAO Global Air Navigation Plan (GANP). The Forum recognized that there are considerable challenges for RA V NMHSs ahead, including the migration to new QMS standard (9001:2015), meeting the WMO Aeronautical Meteorological Observers (AMO) and Aeronautical Meteorological Forecasters (AMF) qualification standards, and conversion to XML, GML specifically, and more generally, in planning and capacity development.

7.5 The Forum also recognized that there are significant challenges regarding effective cost recovery for the provision of aviation meteorological service and noted that there is no consistency regarding the attribution of aviation meteorological service charges that are delivered back to the respective NMHSs.

7.6 As a result, the Forum recommended that the needs for aviation meteorology of NMHSs in the region be accurately identified, linkages between relevant organisations and bodies be determined, and that a long term plan on aviation meteorological services, with an RA V context addressing these issues be developed. To aid the development of this plan, the WMO Commission for Aeronautical Meteorology with its new terms of reference and Expert Teams was seen as an excellent reference source for the Working Group on Weather Services.

7.7 The Forum was also provided with an update on lessons learned from the provision of aviation meteorological services at national and regional level in the Pacific region by respective NMHSs. Common issues include the lack of meteorological aviation infrastructure and appropriately qualified personnel to provide observations, particularly in remote areas, and difficulties with communication causing the delay or non-receipt of observational data from some countries.

7.8 The Forum was encouraged by the progress with the implementation of aviation-specific quality management services and the steps towards, or achievement of, aviation meteorological service QMS certification in many countries, and noted that these learning can be leveraged to other programs such as marine and public weather. The need for clear, functional standard operational procedures (SOPs) that are developed with the active participation of those who use them operationally was highlighted.

7.9 Progress towards the achievement of relevant aviation meteorological competencies was also recognized, but the difficulties of resourcing the ongoing cost of renewing competencies and certification was also noted.

## **8. Partnership and Cooperation (Agenda Session 4)**

8.1 The Forum was briefed on the establishment of the new Programme for WMO SIDS and Member Island Territories that was approved at Cg-17. This was recognized as a significant achievement that will help to focus the work of Members and partners on the meteorological and relevant capacity development needs of small island NMHSs.

8.2 Participants discussed how the plans and priorities of the new Programme might be developed, including through engagement and consultation with Members and external partners. It was recognized that for the coming WMO Financial Period, the Programme will depend on voluntary resources, but that in the longer term, it would be desirable to mainstream the Programme into the WMO Regular Budget. The increased focus on SIDS, through mechanisms such as the S.A.M.O.A. Pathway, was recognized as an opportunity to ensure prominence and priority to the SIDS Programme and how it can contribute to these global and regional agendas.

8.3 The Forum was then advised of the broad range of initiatives being undertaken through the WMO Office for Resource Mobilization and Development Partnerships, including under the Voluntary Cooperation Programme (VCP). Particular focus was given to activities involving RA V Members, regional partners and funding agencies that address regional priority areas.

8.4 Following these overarching perspectives, the Forum learnt of specific and wide-ranging contributions being made by countries (including Australia, Canada, New Zealand, USA, Japan and Republic of Korea) and regional and intergovernmental bodies (RIMES, SPREP, USP, IOC-UNESCO, UNISDR) to enhance the capability of Members and their NMHSs to deliver against priority areas such as climate services, observations and ICT infrastructure, early warning systems and staff training.

8.5 A Panel discussion followed in which the importance of cooperation and coordination amongst the various programs of activities was emphasised, along with the criticality of resources support – both voluntary and regular budget – to sustain the priority work over the long term. The value of establishing a strategic work plan for SIDS was recognized, as well as the need to develop strategies that help engage all WMO Members and embed the WMO SIDS Programme into the strategic priorities and regular budget of the Organization. In this context, and as an example, it was noted that robust observations networks for SIDS Members are of benefit to the whole WMO community, e.g. by improving global NWP systems.

## **9. Recommendations (Session 5)**

9.1 The Forum proposed recommendations for the contribution to better weather, climate and water services for sustainable development in the Region, particularly focusing on: response to the Sendai Framework for DRR; implementation of the GFCS and establishment of RCC network; resolving deficiencies in aviation safety and services; implementation of the Programme for WMO SIDS and Member Island Territories; partnership and cooperation for capacity development. The recommendations are summarized in [Annex IV](#).

## **10. Gender Mainstreaming in Regional Association V**

10.1 The Forum noted Resolution 59 (Cg-17) on Gender Equality and Empowerment of Women, and specifically the provisions relating to the work of regional associations. The latter are expected to: (a) develop action plans on implementation of the WMO Policy on Gender Equality; (b) compile statistics on the participation of men and women in their work; (c) take action on the outcomes and recommendations of the Conference on the Gender Dimensions of Weather and Climate Services; and (d) report to the Executive Council and the World Meteorological Congress on progress at least once per financial period.

10.2 The Forum further received some statistical data regarding the participation of men and women in RA V activities. It observed that progress had been made but that women remained significantly underrepresented in RA V subsidiary bodies. The Forum further noted that the WMO Policy on Gender Equality calls on Regional Associations and Technical Commissions to ensure that a minimum of at least 30 percent of the members of their working structures are female and that this percentage rises progressively within each financial period. Regional associations are further expected to designate a member of their management committees to be responsible for gender equality.

## **11. Closing**

11.1 Mr Ravind Kumar, Permanent Representative of Fiji with WMO, thanked the participants for their significant contribution to the success of the Forum.

11.2 Participants expressed their appreciation to Fiji Government and Fiji Meteorological Service for their outstanding hospitality in hosting the Forum.

11.3 Mr 'Ofa Fa'anunu, vice president of RA V, closed the Regional Forum for Director of NMHSs in RA V at 6.30 p.m. on Friday, 30 October 2015.

11.4 The list of participants is attached as [Annex V](#) to this report.

**The Regional Forum for Directors of National Meteorological and Hydrological Services in  
Regional Association V (South-West Pacific)  
(Nadi, Fiji, 28–30 October 2015)**

**PROGRAMME**

**DAY 1: 28 OCTOBER 2015 (WEDNESDAY)**

<b>08.15-09.00</b>	<b>REGISTRATION</b>	
<b>09.00-09.30</b>	<b>Opening Ceremony – MC: Ms Marica Ratuki</b>	
	Opening statement	<i>Honorable Vijay Nath, Assistant Minister for Infrastructure and Transport</i>
<b>09.30-10.00</b>	<b>Group photo and Refreshment</b>	
<b>10:00-10:15</b>	<b>Session 1: Remarks – MC: Ms Marica Ratuki</b>	
	Welcoming address	<i>Mr Ravind Kumar, Permanent Representative of Fiji with WMO and Director of Fiji Meteorological Service</i>
	Keynote Address	<i>Dr Andi Eka Sakya, President of Regional Association V and Director General, Agency for Meteorology, Climatology and Geophysics of the Republic of Indonesia</i>
	Keynote Address & Introduction to the Forum	<i>Dr Chung Kyu Park, Representative of WMO, Director, Regional Office for Asia and the South-West Pacific</i>
<b>10.15-13.00</b>	<b>Session 2: WMO Strategic Plan and RA V Operating Plan Chair: Mr 'Ofa Fa'anunu/Tonga; Rapporteur: Mr Henry Taiki</b>	
	2.1	Overview of the WMO Priorities and Strategic Plan 2016-2019 – <i>Dr Chung Kyu Park/WMO</i>
	2.2	Current Status of the Development on RA V Operating Plan 2016-2019 – <i>Mr Jon Gill, Chair, Task Team on RA V OP/Australia</i>
	2.3	Linking and synergizing the Pacific Islands Meteorological Strategy (PIMS) 2012-2021 with the RA V Operating Plan 2016-2019 – <i>Mr Salesa Nihmei/SPREP</i>
	2.4	Report of RA V subsidiary bodies <ul style="list-style-type: none"> <li>• <i>Management Group – Dr Andi Eka Sakya/President of RA V</i></li> <li>• <i>Working Group on Weather Services – Mr Graham Reader/Australia</i></li> <li>• <i>Working Group on Climate Services – Dr Christopher Gordon /Singapore</i></li> <li>• <i>Working Group on Hydrology – Mr John Fenwick/New Zealand</i></li> <li>• <i>Working Group on Infrastructure – Mr Karl Monnik/Australia</i></li> <li>• <i>Tropical Cyclone Committee – Mr Jon Gill/Australia</i></li> </ul>
	2.5	Discussion
<b>13.00-14.30</b>	<b>Lunch Break</b>	
	<b>Drafting Committee Meeting (Chair: Dr Andi Eka Sakya)</b>	
	<b>Side Meeting: Pacific Meteorological Council (PMC) Pacific Islands Marine and Ocean Services (PIMOS) Panel (hosted by WMO/SPREP)</b>	
<b>14.30-18.00</b>	<b>Session 3: Implementation of the WMO Priority Programmes</b>	

	<b>3.1</b>	<b>Disaster Risk Reduction (DRR) and Service Delivery</b> <b>Chair: Mr Arona Ngari/Cook Islands; Rapporteur: Mr James Lunny/New Zealand</b>
	3.1.1	Overview of the Third UN World Conference on Disaster Risk Reduction (WCDRR-III) – Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030 and how it relates to RA V <ul style="list-style-type: none"> <li>• General outcomes and follow up to the Third UN World Conference on DRR (WCDRR) – WMO activities and commitments made for the implementation of the Sendai Framework for DRR 2015-2030 – <i>Mr Alasdair Hainsworth/WMO</i></li> <li>• Sendai Framework for DRR in Relation to Fiji – <i>Mr Ravind Kumar/Mr Sunia Ratulevu/Fiji</i></li> <li>• Programs and activities of PAGASA in disaster prevention and mitigation – <i>Dr Vicente B. Malano/Philippines</i></li> <li>• <i>Mr Malaki Iakopo/Samoa</i></li> <li>• Discussion</li> </ul>
	3.1.2	Recent disasters and emergency responses in the Region <ul style="list-style-type: none"> <li>• Response to Big Flood 2014 – <i>Mr Jailan SIMON/Malaysia</i></li> <li>• Recent disaster caused by typhoon Koppu (local name – Lando) in October 2015 – <i>Dr Vicente B. Malano/Philippines</i></li> <li>• Severe Tropical Cyclone “IAN” (Cat 5) that Impacted Central Tonga from 6-11 January 2014 – <i>Mr 'Ofa Fa'anunu/Tonga</i></li> <li>• Impact &amp; Response measures on Tropical Cyclone PAM in Tuvalu – <i>Mr. Tauala Katea/Tuvalu</i></li> <li>• Vanuatu Tropical Cyclone Warning Center: Experiences and Lessons Learned during TC Pam – <i>Mr David Gibson/Vanuatu</i></li> <li>• Discussion</li> </ul>
		<b>16:00-16:20 Refreshment</b>
	3.1.3	Multi Hazard Early Warning Systems and Service Delivery for high impact weather in RA V <ul style="list-style-type: none"> <li>• International Network for Multi-Hazard Early Warning Systems (IN-MHEWS) &amp; International Conference on MHEWS (IC-MHEWS) – <i>Mr Alasdair Hainsworth/WMO</i></li> <li>• <i>Mr Malaki Iakopo/Samoa</i></li> <li>• Improve Climate Monitoring and Forecast to Enhance Climate Early Warning System for Agriculture Sector – <i>Mr Lloyd Tahani/Solomon Islands</i></li> <li>• WMO RA V Severe Weather Forecasting and Disaster Risk Reduction Demonstration Project (SWFDDP) – <i>Mr James Lunny/New Zealand</i></li> <li>• Weather Ready Nation: Interoperable Warning Message Dissemination to the Last Mile – <i>Mr Edward Young, Jr./USA</i></li> <li>• Discussion</li> <li>•</li> </ul>
	3.1.4	Panel discussion – Response and WMO contributions to the Sendai Framework in RA V and actions required by the NMHSs ( <i>Facilitator: Mr Arona Ngari/Cook Islands</i> ) <i>Panelists: Mr Ueneta Toorua/Kiribati, Mr James Lunny/New Zealand, Dr Vicente B. Malano/Philippines, Mr 'Ofa Fa'anunu/Tonga, Mr David Gibson/Vanuatu, WMO</i>
<b>18.00-19.00</b>		<b>Side Meeting: Pilot Project on SIGMET data exchange in South-East Asia</b> <i>(hosted by WMO, Indonesia, Malaysia, Singapore)</i>



**DAY 2: 29 OCTOBER 2015 (THURSDAY)**

09.00-13:00	3.2	<b>Enhancement of National and Regional Climate Services</b> <i>Chair: Ms Wong Chin Ling/Singapore, Rapporteur: Dr Christopher Gordon/Singapore</i>
	3.2.1	World Climate Programme (WCP): Contribution to the Global Framework for Climate Services (GFCS) – <i>Dr Chung Kyu Park/WMO</i>
	3.2.2	Current status on the provision of climate services and information including climate monitoring and National Climate Outlook Forums (NCOFs) <ul style="list-style-type: none"> <li>• Example of Australian National Climate Service (Sector Briefing) – <i>Mr Jon Gill/Australia</i></li> <li>• Provision of Climate Services in Indonesia – <i>Dr Andi Eka Sakya/Indonesia</i></li> <li>• Supporting the delivery of climate Early Warning Systems – <i>Mr Duong Ramsay/New Zealand</i></li> <li>• Climatological products and services of PAGASA – <i>Dr Vicente B. Malano/Philippines</i></li> <li>• Current Status of Climate Services in Fiji – <i>Mr Terry Atalifo/Mr Ravind Kumar/Fiji</i></li> <li>• <i>Mr Malaki Iakopo/Samoa</i></li> <li>• Progresses and Challenges on Climate Service in Kiribati – <i>Mr Ueneta Toorua/Kiribati</i></li> <li>• Discussion</li> </ul>
<b>10.20-10:40 Refreshment</b>		
	3.2.3	Regional Climate Outlook Forums (RCOFs) in RA V: Experiences and lessons learned <ul style="list-style-type: none"> <li>• Outcomes of the Pacific Islands Climate Outlook Forum (PICOF) including works of Pacific Islands Climate Services (PICS) – <i>Mr Sunny Seuseu/SPREP</i></li> <li>• ASEAN Climate Outlook Forum (ASEANCOF) – <i>Dr Christopher Gordon/Singapore</i></li> <li>• Perspectives on National Climate Outlook Forums Based on Experiences from Asia – <i>Dr A. R. Subbiah/RIMES</i></li> <li>• Discussion</li> </ul>
	3.2.4	Climate data management including data rescue – prerequisites for climate services <ul style="list-style-type: none"> <li>• Current status and new and future development of the Climate Database for Environment (CLIDE) and applications – <i>Mr Jon Gill/Australia</i></li> <li>• South East Asia Climate Assessment and Data Set (SACAD) and Data Rescue (DARE) – <i>Dr Urip Haryoko/Indonesia</i></li> <li>• Enhancing the Status of the RBSN in the Pacific – <i>Mr Arona Ngari/Cook Islands</i></li> <li>• Discussion</li> </ul>
	3.2.5	Panel discussion – Establishment of Regional Climate Centers (RCCs) network and Climate Data Managements for the contribution to the GFCS ( <i>Facilitator: Ms Wong Chin Ling/Singapore</i> ) <ul style="list-style-type: none"> <li>• Current status on the establishment of RCCs – <i>Dr Chung Kyu Park/WMO</i></li> <li>• <i>Panelists: Mr John Gill/Australia, Mr Ravind Kumar/Fiji, Dr Urip Haryoko/Indonesia, Dr Christopher Gordon/Singapore, Mr 'Ofa Fa'anunu/Tonga</i></li> </ul>
13:00-14.30	<b>Lunch Break</b>	

<b>14.30-18.00</b>	<b>3.3</b>	<b>Aviation Services in Southeast Asia and the Southwest Pacific</b> <b>Chair: Mr 'Ofa Fa'anunu/Tonga; Rapporteur: Mr Graham Reader/Australia</b>
	3.3.1	Aviation meteorology – Global and regional developments – related challenges and opportunities – <i>Mr Dimitar Ivanov/WMO</i>
	3.3.2	Aviation hazards in RA V <ul style="list-style-type: none"> <li>• <i>Aviation Hazards – Recent Learning Case in Indonesia – Dr Urip Haryoko/Dr Andi Eka Sakya/Indonesia</i></li> <li>• Provision of aviation meteorological services at national and regional level in the Pacific region: Lessons learned – <i>Mr Amit Singh/Mr Ravind Kumar/Regional Specialized Meteorological Center (RSMC)/Tropical Cyclone Advisory Center (TCAC)/Nadi</i></li> </ul>
	3.3.3	Current status of provision of aviation meteorological services including competency of aeronautical meteorology personnel and quality assurance standards, deficiencies and lessons learned <ul style="list-style-type: none"> <li>• <i>Aviation Meteorological Services in Malaysia – Mr Jailan Simon/Malaysia</i></li> </ul>
		<b>16.00-16.30 Refreshment</b>
		3.3.3 (continued) <ul style="list-style-type: none"> <li>• Current status of aviation meteorological services including competency of aeronautical meteorology personnel and quality assurance standards, deficiencies and lesson learned – <i>Mr Benjamin Malai/Papua New Guinea</i></li> <li>• Current Status of QMS – Tonga – <i>Mr Moleni Tuuholoaki/Mr 'Ofa Fa'anunu/Tonga</i></li> <li>• Current Status of Aviation Meteorological Services in Vanuatu: Experiences and Challenges to meet QMS and Competency Standards – <i>Mr David Gibson/Vanuatu</i></li> <li>• Discussion</li> </ul>
	3.3.4	Panel discussion – Towards a regional roadmap for resolving deficiencies and enhancing services ( <i>Facilitator: Mr 'Ofa Fa'anunu</i> ) <i>Panelists: Mr Ueneta Toorua/Kiribati, Ms Wong Chin Ling/Singapore, Mr. Tauala Katea/Tuvalu, Mr Lloyd Tahani/Solomon Islands, WMO, IFALPA, Civil Aviation Authority of Fiji (CAAF)</i>
<b>18.00-19.00</b>		<b>Drafting Committee Meeting</b>
		<b>Side Meeting: PMC Pacific Islands Aviation Weather Services (PIAWS) Panel</b> <i>(hosted by WMO/SPREP)</i>

**DAY 3: 30 OCTOBER 2015 (FRIDAY)**

<b>09.00-12.30</b>	<b>Session 4: Partnership and Cooperation</b> <b>Chair: Mr Ravind Kumar/Fiji; Rapporteur: Mr Jon Gill/Australia</b>	
	4.1	Programme for WMO SIDS and Member Island Territories
		<ul style="list-style-type: none"> <li>• Overview of the Programme for WMO SIDS and Member Island Territories – <i>Dr Chung Kyu Park/WMO</i></li> <li>• Discussion</li> </ul>
	4.2	Partnership and Voluntary Cooperation Programme (VCP) on the cross-cutting issues in the Region <ul style="list-style-type: none"> <li>• Resource Mobilization and Partnerships for Weather and Climate Services in WMO – <i>Ms Mary Power/WMO</i></li> <li>• Partnership and VCP on the cross-cutting issues in the Region – <i>Mr Jon Gill/Australia</i></li> <li>• Partnership &amp; Cooperation: New Zealand – <i>Mr James Lunny/Mr Doug Ramsay/New Zealand</i></li> <li>• Met Service Education and Training Programs for the Pacific Island Countries and Territories – <i>Mr Edward Young/ US-NOAA</i></li> <li>• Assistance of JICA for South-West Pacific – <i>Mr Koji Kuroiwa/JICA</i></li> <li>• The Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES) – <i>Mr A. R. Subbiah/RIMES</i></li> <li>• Partnership and Cooperation with SPREP – <i>Mr Sunny Seuseu/SPREP</i></li> <li>• Higher Education Institutional Contributions to an RTC – <i>Mr Morgan Wairiu/USP</i></li> <li>• UNESCO IOC SW Pacific Activities – <i>Mr Rajendra Prasad/UNESCO-IOC</i></li> <li>• Outcomes of Pacific Regional Disaster Resilience Meeting – <i>Ms Tomoko Minowa/UNISDR</i></li> <li>• Discussion</li> </ul>
	<b>10.30-11.00 Refreshment</b>	
	4.3	Panel Discussion – Partnership and Cooperation for Capacity Development and Ways forward to progress the Programme for SIDS and Member Territories ( <i>Facilitator: Mr Ravind Kumar/Fiji</i> ) <i>Panelists: Dr Jon Gill/Australia, Mr James Lunny/Mr Doug Ramsay/New Zealand, Mr Edward Young/US-NOAA, Mr 'Ofa Faanunu/Tonga, Mr Arona Ngari/Cook Islands, Dr Andi Eka Sakya/President of RA V, WMO</i>
<b>12.30-14.30</b>	<b>Lunch Break</b>	
	<b>Side Meeting: PMC Pacific Islands Education, Training and Research (PIETR) Panel</b> ( <i>hosted by WMO/SPREP</i> )	
<b>14.30-16.00</b>	<b>Drafting Committee Meeting (Chair: Mr 'Ofa Fa'anunu)</b>	
<b>16.00-16.30</b>	Gender Mainstreaming in Regional Association V – <i>Ms Anni Arumsari Fitriany/WMO</i>	
<b>16.30-18.30</b>	<b>Session 5: Recommendations (Chair: Mr 'Ofa Fa'anunu)</b>	
<b>18.30</b>	<b>Closing</b>	

**The Regional Forum for Directors of National Meteorological and Hydrological Services in  
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(Nadi, Fiji, 28–30 October 2015)**

**OVERVIEW OF THE FORUM**

<b>OVERALL OBJECTIVE</b>				
<ul style="list-style-type: none"> <li>Review Emerging Issues and Challenges since RA V-16 (Jakarta, Indonesia, May 2014)</li> <li>Identify Means for improvement of management and operations of NMHSs (RA V-17, 2018)</li> </ul>				
<b>SPECIFIC OBJECTIVES</b>				
<p>Sharing Experiences among Directors of NMHSs in RA V:</p> <ul style="list-style-type: none"> <li>Improving weather and climate services relevant to socio-economic sectors and communities</li> <li>Implementation of WMO Priority Programmes</li> <li>RA V Operational Plan (OP) 2016-2019</li> </ul>				
<b>SESSION 1: ORGANIZATION OF FORUM</b>				
<ul style="list-style-type: none"> <li>Identify specific guidance and outcomes expected from the Forum</li> <li>Identify and recommend specific process and tasks to achieve outcomes expected from the Forum</li> </ul>				
<b>SESSION 2: WMO STRATEGIC PLAN AND RAV OP (2016-2019)</b>	<b>SESSION 3: IMPLEMENTATION OF WMO PRIORITY PROGRAMS</b>			<b>SESSION 4: PARTNERSHIP AND COOPERATION</b>
<p><b>Further develop RA V OP (2016-2019)</b> with:</p> <ul style="list-style-type: none"> <li>Inputs from NMHSs</li> <li>Inputs from RA V Working Groups and TCC</li> <li>Linking and synergizing with PIMS (2012-2021)</li> </ul>	<b>SESSION 3.1: DISASTER RISK REDUCTION AND SERVICES DELIVERY</b>	<b>SESSION 3.2: ENHANCEMENT OF NATIONAL AND REGIONAL CLIMATE SERVICES</b>	<b>SESSION 3.3: AVIATION WEATHER SERVICES IN SOUTHEAST ASIA AND SOUTHWEST PACIFIC</b>	<ul style="list-style-type: none"> <li>Ways to forward the new Programme for WMO SIDS and Member Island Territories</li> <li>CD Strategy for the Region</li> </ul>
	<p>WMO contributions to the <b>Sendai Framework on DRR</b></p> <ul style="list-style-type: none"> <li>Gaps and potential enhancements of current NMHS DRR services and areas</li> </ul>	<p><b>Enhancement of climate services and info</b> including:</p> <ul style="list-style-type: none"> <li>NCOFs/RCOFs in RA V</li> <li>Regional Climate Centers (RCCs) network</li> </ul>	<p><b>Regional roadmap</b> for resolving deficiencies and services including QMS, competency, business model(s) for cost recovery</p>	
<b>SESSION 5: RECOMMENDATIONS</b>				
<p>For the contribution to better weather, climate and water services for sustainable development in the Region</p> <ul style="list-style-type: none"> <li>Response to the Sendai Framework for DRR</li> <li>Implementation of the GFCS through the establishment of Regional Climate Centre (RCC) network</li> <li>Resolving deficiencies in aviation safety and services</li> <li>Implementation of the Programme for WMO SIDS and Member Island Territories</li> <li>Partnership and cooperation for capacity development</li> </ul>				

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**DRAFTING COMMITTEE MEMBERS FOR RECOMMENDATION**

Session	Committee
S3.1	Mr Arona Ngari/Cook Islands Mr James Lunny/New Zealand Mr Alasdair Hainsworth / WMO
S3.2	Ms Wong Chin Ling/Singapore Dr Christopher Gordon/Singapore Mr Henry Taiki/WMO
S3.3	Dr Andi Eka Sakya/Indonesia (Replaced by Mr 'Ofa Fa'anunu/Tonga on 29 Oct 2015) Mr Grahame Reader/Australia Mr Dimitar Ivanov/WMO
S4	Mr Ravind Kumar/Fiji Mr Jon Gill/Australia Ms Mary Power and Mr Henry Taiki/WMO



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**RECOMMENDATION**

**<Disaster Risk Reduction and Service Delivery>**

- 1) The Regional Forum recognizes that the Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR) calls on States to: enhance and strengthen MHEWS (par 14, 25); develop and invest in regional multi-hazard early warning mechanisms (par 34-c); and achieve the global target for MHEWS (par 18-g - Substantially increase the availability of and access to MHEWS and disaster risk information and assessments to the people by 2030).
- 2) The Regional Forum requests WMO Secretariat in coordination with the EC Working Group on DRR develops and distributes a guide or information bulletin for Members; the guide to contain a concise description of the SFDRR and its likely implications for Members. The guide should further contain information covering the hierarchy of responses from the global to the local level and include suggestions relating to how Members could interact with relevant stakeholders at those levels.
- 3) It is recognized that moving toward impact based forecasting and risk based warnings is essential for all Members and requires support in order to be successful. As change will be a progressive process, sharing of experiences between Members is encouraged and will be coordinated by the RA V WG-WXS.
- 4) Further, the Forum requests WMO Secretariat that future WMO training of impact based forecasting and risk based warnings considers the specific needs of RA V Members as identified by the RA V Management Group.

**<Enhancement of National and Regional Climate Services>**

- 1) Effective communication of long range forecast information to stakeholders was identified as a significant issue. Some countries and bodies (e.g. Australia, Indonesia and RIMES) have considerable experience in communication of this forecast information. The development of impact-based and risk-based forecast information will enable its more effective application by end users. Consideration should be given to developing mechanisms to provide appropriate skills training to meteorological personnel and to enable the sharing of effective communication processes across RA V.
- 2) Appropriate mechanisms need to be identified to enable sustained funding of ASEANCOF and PICOV. WMO was requested to assist in providing or seeking sustained funding in this respect.
- 3) The establishment of RCC-Networks will be important to address the various issues identified within the RCOFs. The RA V WG CLS is requested to convene as soon as possible to take forward the process to establish RCC-Networks for the Southeast Asian and PICT regions, the latter in collaboration with the Pacific Islands Climate Services (PICS) Panel.
- 4) The sub-seasonal to seasonal timescales was noted of particular importance in the Region. WMO is requested to look into including RA V as a special region of interest within the WMO-

S2S programme (note that Africa is already a focus region, with an emphasis on applications).

- 5) Good progress has been made by BMKG in the establishment of SACA&D. Members in the Region are encouraged to contribute data to the SACA&D database.
- 6) There is a need to address the current gaps in the Regional Basic Synoptic Network in the Pacific. The Climate Information Early Warning System (CLEWS) is one means to identify the gaps.

#### **<Aviation Services in Southeast Asia and the Southwest Pacific>**

- 1) The Forum recommended WMO WG WXS to:
  - i. Identify and document current baseline and needs of RA V regarding: training (WMO 2016 requirements), QMS (migration to ISO 9001:2015), cost recovery, and data formats (GML/XML);
  - ii. Provide these identified needs to Secretariat (through chair WG WXS);
  - iii. Establish long term plan and roadmap in collaboration with PMC PIAWS Panel;
  - iv. Identify and map the linkages between PMC, RA V WG-WXS, WMO relevant technical commissions and to ICAO to ensure effective coordination; and
  - v. Consider realigning structure and TOR of RA V WG-WXS to better meet needs of SIDS and PMC PIAWS Panel.
- 2) The Forum also recommended to:
  - i. Request CAeM to assist RA V Members in implementing robust TAF verification scheme to ensure sound underlying basis for QMS;
  - ii. Request CAeM and WMO Secretariat to develop additional guidelines specifically for negotiations on the development of aviation cost recovery schemes with relevant stakeholders;
  - iii. Present the training needs of RA V members regarding met observers at the upcoming CAeM ET-ETC meeting;
  - iv. Support the Pilot Project on cross border coordination of SIGMETS in view of developing guidelines to Members States;
  - v. Ensure that forecasters are actively engaged in the development of SOPs, as part of QM, to ensure sufficient initiative and flexibility;
  - vi. Clarify the status of Government level Service Level Agreements (SLAs) regarding aviation weather services;
  - vii. Coordinate with National Civil Aviation Authorities to ensure the participation of Pacific experts in ICAO-MET Meetings; and
  - viii. Clarify the status of the certification process of US funded and country funded aviation observers for the Republic of Marshall Islands, Republic of Palau, and Federated States of Micronesia.

#### **<Partnership and Cooperation including Programme for WMO SIDS and Member Island Territories>**

- 1) That as a matter of priority, a strategic work plan be developed for the new Programme for WMO SIDS and Member Island Territories.
- 2) The Forum welcomes the establishment by Cg-17 of WMO Programme for WMO SIDS and Member Island Territories and strongly recommends its operationalization as soon as possible. In this regard, the Forum:
  - i. Requests WMO Secretariat to expedite the allocation of responsibilities and resources for the Programme within DRA department.

- ii. Requests the President of RA V to initiate discussion with other PRAs concerned in order to develop a coordinated 1<sup>st</sup> draft of prioritized activities focused on SIDS to be presented at the PRA-2016 meeting in January 2016.
  - iii. Based on the outcome of PRA-2016, further proposals on priorities, activities and related resource needs of the SIDS Programme should be submitted for consideration by the EC WG on SOP (February 2016) and EC-68 (June 2016).
- 3) That existing coordination mechanisms (e.g. Pacific Meteorological Desk Partnership) continue to be supported and strengthened to ensure effective harmonization and cooperation between the various capacity development and related activities occurring in the Region.
- 4) That the Terms of Reference of the RA V subsidiary bodies be updated to address Members' needs around: (a) tsunami warning systems and services (e.g. under a Tropical Cyclone Committee Task Team on Coastal Inundation including Storm Surge (CISS)) to ensure coordination with UNESCO-IOC PTWS/ICG South West Pacific Working Group on Tsunami Warning and Mitigation, and (b) SIDS priorities.

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**LIST OF PARTICIPANTS**

**A. RA V Members**

<b>No</b>	<b>Country</b>	<b>Name of Participants</b>
1	<b>Australia</b>	<b>Mr Jon GILL</b> Chair, Task Team on Operational Planning j.gill@bom.gov.au
		<b>Mr Grahame READER</b> Vice-Lead, Working Group on Weather Services (WG-WXS) g.reader@bom.gov.au
		<b>Mr Karl MONNIK</b> Lead, Working Group on Infrastructure (WG-INFR) k.monnik@bom.gov.au
2	<b>Cook Islands</b>	<b>Mr Arona NGARI (PR)</b> E-mail: arona.ngari@cookislands.gov.ck Phone: + 682 20603 Fax: + 682 21603
3	<b>Fiji</b>	<b>Mr Ravind KUMAR (PR)</b> Director Fiji Meteorological Service E-mail: ravind.kumar@met.gov.fj Phone: + 679 67 248 88 Fax: + 679 672 0430
		<b>Mr Aminiasi TUIDRAKI</b> Principal Technical Officer - Facilities & Observational Network Fiji Meteorological Service Email: aminiasi.tuidraki@gmail.com, aminiasi.tuidraki@met.gov.fj
		<b>Mr Terry ATALIFO</b> Principal Scientific Officer - Climate Service Fiji Meteorological Service Email: terry.atalifo@met.gov.fj
		<b>Mr Amit SINGH</b> Senior Scientific Officer - Forecasting Service Fiji Meteorological Service Email: avising8h@yahoo.com
	<b>Fiji LoC</b>	<b>Mr Sosiceni DUMUKURO</b> Fiji Meteorological Service Telephone: + (679) 6736 002 Fax: + (679) 6720 190 Sosiceni.Dumukuro@met.gov.fj
		<b>Mr Sajiva Nand SHARMA</b> Email: Sajiva.Nand@met.gov.fj
		<b>Ms Arieta WAQASOLI</b> Director's Secretariat Fiji Meteorological Service Telephone: + (679) 6736 002 Fax: + (679) 6720 190 Email: Arieta.Waqasoli@met.gov.fj

4	<b>Indonesia</b>	<p><b>Dr Andi Eka SAKYA (PR)</b>  Director General  Agency for meteorology, Climatology and geophysics of the Republic of Indonesia (BMKG)  E-mail: andi.eka.sakya@bmgk.go.id, tu.kbmg@gmail.com  Mobile: +628129437421  Phone: + 62 21 424 8016  Fax: + 62 21 424 6314</p>
		<p><b>Mr Edward TRIHADI</b>  Vice-Lead, Working Group on Infrastructure (WG-INFR)  Director of Center for Communication Network, BMKG  Tel: 62 21 4241169  edward.trihadi@bmgk.go.id, etrihadi@yahoo.com</p>
		<p><b>Mr Maman SUDARISMAN</b>  Head, Division for Cooperation, BMKG  E-mail: maman_sudarisman@yahoo.com,  maman.sudarisman@bmgk.go.id</p>
		<p><b>Dr Urip HARYOKO</b>  Head of Division for Database Development, BMKG  Email: urip.haryoko@bmgk.go.id, urip.haryoko@gmail.com</p>
5	<b>Kiribati</b>	<p><b>Mr Ueneta TOORUA (PR)</b>  Officer-in-Charge  Kiribati Meteorological Service  E-mail: uenetat@gmail.com  Phone: + 686 26511  Fax: + 686 26089</p>
6	<b>Malaysia</b>	<p><b>Mr Jailan SIMON</b>  Director of National Climate Centre  Malaysian Meteorological Department  Tel: 60-3-79678004, 60-3-79678153  Email: jailan@met.gov.my</p>
7	<b>New Zealand</b>	<p><b>Mr Doug RAMSAY</b>  Manager, Pacific Rim  National Institute of Water &amp; Atmospheric Research Ltd  Tel: +64 7 859 1894  Email: Doug.Ramsay@niwa.co.nz</p>
		<p><b>Mr James LUNNY</b>  WMO Manager  Meteorological Service of New Zealand  Tel: +64 4 4700 782  Email: James.Lunny@metervice.com</p>
		<p><b>Mr John FENWICK</b>  Lead, Working Group on Hydrological Services (WG-HYS)  National Institute of Water and Atmospheric Research (NIWA)  Tel: +643343 7864, +64 27 277 9565  Email: j.fenwick@niwa.co.nz</p>
8	<b>Philippines</b>	<p><b>Dr Vicente B. MALANO (PR)</b>  Acting Administrator  PAGASA-DOST  E-mail: vmalano@pagasa.dost.gov.ph  Phone: (632) 929-4865/434-9040 Fax: + 63 2 929 4865</p>
		<p><b>Mr Roy A. BADILLA</b>  Vice-Lead, Working Group on Hydrological Services (WG-HYS)  Officer-in-Charge, Hydro-Meteorology Division  PAGASA-DOST  Tel: (+632) 9204052/9294065  roypagasa@yahoo.com</p>



9	<b>Samoa</b>	<b>Mr Malaki IAKOPO</b> Assistant Chief Executive Officer Water Resources Division Ministry of Natural Resources and Environment Tel: +685 760 35 94 Email: malaki@mnre.gov.ws
10	<b>Singapore</b>	<b>Ms WONG Chin Ling (PR)</b> Email: wong_chin_ling@nea.gov.sg Tel: +65 65 45 71 94
		<b>Mr Christopher GORDON</b> For Vice-Lead, Working Group on Climate Services (WG-CLS) Director Centre for Climate Research Singapore Tel: +65 64 88 18 52 Email: chris_gordon@nea.gov.sg
11	<b>Solomon Islands</b>	<b>Mr Lloyd TAHANI</b> Deputy Director Tel : +677 24 218 Email: l.tahani@met.gov.sb
12	<b>Tonga</b>	<b>Mr 'Ofa FA'ANUNU (PR)</b> Director of Meteorology Tonga Meteorological Service E-mail: ofaf@met.gov.to Phone: + 676 35 355 Fax: + 676 35 123
		<b>Mr Moleni TUUHOLOAKI</b> Chief Quality Officer Tonga Meteorological Services Tel: +676 35355 Email: molenit@met.gov.to
13	<b>Tuvalu</b>	<b>Mr. Tauala KATEA (PR)</b> Chief Meteorological Officer Tuvalu Meteorological Service E-mail: Tauala.k@gmail.com, tkatea@gov.tv Phone: + 688 207 36; + 688 200 90; + 688 20091
14	<b>United States of America</b>	<b>Mr Edward YOUNG, Jr.</b> Deputy Regional Director, NWS Pacific Region US Department of Commerce/NOAA National Weather Service Tel: +1 (808) 725-6002 Email: edward.young@noaa.gov
15	<b>Vanuatu</b>	<b>Mr David GIBSON (PR)</b> Acting Director Vanuatu Meteorology and Geo-Hazards Department (VMGD) Tel: +678 246 86 Email: dgibson@meteo.gov.vu

## B. Regional Organizations and Development Partners

No	Participants	Names
1	<b>SPREP</b>	<b>Mr Sunny SEUSEU</b> Climate Prediction Services Coordinator Tel:+685 66 244 Email: sunnys@sprep.org
		<b>Mr Tommy MOORE</b> Pacific Island Global Ocean Observing System Tel: +685 219 29 Email: tommym@sprep.org
		<b>Mr Nihmei SALESA</b> Meteorology and Climate Officer Tel:+685 72 52 559 Email: salesan@sprep.org

2	<b>JICA</b>	<b>Mr Koji KUROIWA</b> Chief Advisor Japan International Cooperation Agency Tel: +679 673 60 15 Email: koji.cyclone@gmail.com
3	<b>RIMES</b>	<b>Mr Arjunapermal R. SUBBIAH</b> Director, RIMES Program Unit Regional Integrated Multi-Hazard Early Warning System (RIMES) Asian Institute of Technology campus PO Box 4 Klong Luang, Pathumthani 12120 Thailand Tel.: +662 516 5900 – 01 Mobile: +668 1935 1695 Fax: +662 516 5902 Email: subbiah@rimes.int
4	<b>CAAF</b>	<b>Ms Theresa O'Boyle-Levestam</b> Controller Ground Safety CAAF Tel: 6796721555 Fax: 6720161 Email: Theresa.levestam@caaf.org.fj
		<b>Mr Isei TUDREU</b> Email: <a href="mailto:iseit@afl.com.fj">iseit@afl.com.fj</a>
5	<b>UNISDR</b>	<b>Ms Tomoko MINOWA</b> Associate Programme Officer Sub-Regional Office for the Pacific The United Nations Office for Disaster Risk Reduction (UNISDR) +679 310 0450 minowat@un.org tomoko.minowa.unisdr@gmail.com www.unisdr.org
6	<b>UNESCO</b>	<b>Mr Rajendra PRASAD</b> Programme Officer for Tsunami Warning and DRR UNESCO Apia Office for the Pacific States Email: r.prasad@unesco.org P.O. Box 615, UN Compound Matautu-Uta, Apia, Samoa Tel.: +685 24276 ext 101 Fax: +685 26593 www.unesco.org/apia
7	<b>USP</b>	<b>Mr Morgan WAIRIU</b> Email: morgan.wairiu@usp.ac.fj
8	<b>NDMO</b>	<b>Mr Sunia RATULEVU</b> Email: sunia.ratulevu@govnet.gov.fj

### C. WMO Secretariat

No	Participants	Names
1	<b>RAP Office</b>	<b>Dr Chung Kyu PARK</b> Director Regional Office for Asia and the South-West Pacific Development and Regional Activities Department E-mail: cpark@wmo.int
		<b>Mr Henry TAIKI</b> WMO Office for the South-West Pacific E-mail: <a href="mailto:htaiki@wmo.int">htaiki@wmo.int</a>
		<b>Ms Anni Arumsari FITRIANY</b> Regional Office for Asia and the South-West Pacific Development and Regional Activities Department E-mail: aafitriany@wmo.int

2	<b>RMDP Office</b>	<b>Ms Marry POWER</b> Director Office for Resource Mobilization and Development Partnerships Development and Regional Activities Department E-mail: mpower@wmo.int
3	<b>Technical Department</b>	<b>Mr Dimitar IVANOV</b> Chief Aeronautical Meteorology Division Weather and Disaster Risk Reduction Services Department E-mail: divanov@wmo.int
		<b>Mr Alasdair HAINSWORTH</b> Chief Disaster Risk Reduction Division E-mail: ahainsworth@wmo.int

**List of Abbreviations**

ICAO	International Civil Aviation Organization
SPREP	Secretariat of the Pacific Regional Environment Programme
USP	University of the South Pacific
JICA	Japan International Cooperation Agency
RIMES	Regional Integrated Multi-Hazard Early Warning System for Africa and Asia
ICG-PTWS/IOC UNESCO	The Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS) / Intergovernmental Oceanographic Commission-United Nations Educational, Scientific and Cultural Organization
UNISDR	United Nations Office for Disaster Risk Reduction
NDMO	National Disaster Management Office
CAAF	Civil Aviation Authority of Fiji