

SPREP
*South Pacific Regional
Environment Programme*



PROE
*Programme régional
océanien de l'environnement*

**Report of the
Eighth SPREP Meeting
of Regional
Meteorological Service
Directors (RMSD)**

Nadi, Fiji
18-20 March 2002

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SUMMARY OF DISCUSSION

1. Organization of the Meeting

1.1 Opening of the Meeting (agenda item 1.1)

Mr. Kim Nitschke of the SPREP Secretariat called the meeting into session. Mr. Nitschke invited Reverend Jimionee Kathi to deliver the opening prayer. Following the prayer, opening remarks were made by the Honourable Minister Konisi Yabaki, Minister of Tourism, Culture, Heritage and Civil Aviation, Mr. Tamari'i Tutangata, Director of SPREP, and Mr. Henry Taiki, WMO Representative.

In his opening remarks, the Honourable Minister Konisi Yabaki stated he was delighted to be invited to the meeting to open the 8th Meeting of the Regional Meteorological Services Directors (RMSD) being organized by SPREP in conjunction with WMO Sub-Regional Office for the South-West Pacific. As host and on behalf of the Fiji Government, he extended to all a very warm and cordial welcome to Fiji. He said that he believed Fiji was not strange to many of the participants, but for those who were there for the first time, he assured them that they would enjoy the hospitality and friendship of the Fiji people. The Honourable Minister said that here in Fiji strangers are only friends we have not met before. He explained that Fiji is a place where worries evaporate with the morning mist over the hills and a place where friendship comes in waves. He hoped the participants would have the time and make the effort to enjoy what most people look forward to, that is, good accommodations, friendly people, sunshine and the sea, with shopping and sumptuous cuisine. (The remainder of the Honourable Minister Konisi Yabaki remarks is in Appendix A.)

The Director of SPREP, Mr. Tamari'i Tutangata extended a warm welcome to all participants of the Eighth SPREP Meeting of Regional Meteorological Service Directors and thanked with deep appreciation on behalf of SPREP members and collaborating partners, the Fijian Government and the people of Fiji for generously agreeing to host the meeting. Mr. Tutangata believed that the SPREP meeting of Meteorological Service Directors continued to be a key forum for strengthening the meteorological services of the Pacific and introduced the theme for the meeting: STRENGTHENING LINKAGES BETWEEN CLIMATE VARIABILITY AND CHANGE. Mr. Tutangata suggested that such a theme reflects both a desire and an opportunity for National Meteorological and Hydrological Services (NMHS) to broaden what may have become a limiting focus on national and international obligations in relation to meteorology and in particular the management of extreme events. In particular it was mentioned that one avenue that has gained significant momentum in the region is that of Climate Change. In supporting and developing closer ties with regional Climate Change programmes, there may be an opportunity to strengthen NMHS capacity through the implementation of proposed remedial and development projects as proposed in the Pacific Meteorological Services Needs Analysis Project (PMSNAP) and Pacific Global Climate Observing System (P-GCOS) Action Plan. (The remainder of the SPREP Director's remarks is in Appendix B.)

In his opening remarks, Mr. Henry Taiki, WMO Representative, expressed on the behalf of Professor G. O. P. Obasi, Secretary-General of WMO, his warm greetings to the Honourable Minister Konisi Yabaki, Minister of Tourism, Culture, Heritage and Civil Aviation; Mr.

Tamari'i Tutangata, Director of SPREP; and all distinguished participants. Mr. Taiki also expressed WMO's appreciation to Mr. Tamari'i Tutangata for the invitation to WMO to participate in the meeting and his sincere thanks to SPREP, the RMSD sponsors, and the Government of Fiji for hosting the meeting. Mr. Taiki noted that the convening of this meeting coincided with the World Meteorological Day. In this regard, he conveyed to the participants the message from Professor G.O.P Obasi, the Secretary-General of WMO, for World Meteorological Day 2002. (This address is contained in Appendix C.)

1.2 Election of Chairperson and Co-Chairperson (agenda item 1.2)

Mr. Kim Nitschke of the SPREP Secretariat announced that, in addition to election of a chair, a co-chair would also be elected to share the responsibility of running the meeting. Niue nominated the Director of the Fiji Meteorological Service, Mr. Rajendra Prasad, to chair the meeting. The representative from American Samoa seconded the motion. Without further nominations, the meeting unanimously elected Mr. Prasad to serve as chair. Mr. Paul Cheesmen, Chief Meteorological Officer of the Tonga Meteorological Service, was nominated and unanimously elected as co-chair.

1.3 Working Arrangements for the Meeting (agenda item 1.3)

The Chair announced that for the remaining days of the meeting, presentations would begin at 8:30am and end at 5:00pm. Breaks for tea will be at 10:00am and 3:00pm, and lunch will be from 12:00-1:30pm.

1.4 Election of Members of Drafting Committee (agenda item 1.4)

Volunteers to take notes and draft the report for this meeting included Mr. James Weyman, Acting Regional Director of the Pacific Region National Weather Service (chair of drafting committee), Mr. Arona Ngari, Director of the Cook Islands Meteorological Service; Mr. Chanel Iroi, Acting Director of the Solomon Islands Meteorological Service; and Dr. Susan Postawko of the University of Oklahoma.

1.5 Adoption of Agenda and Organization of the Work of the Meeting (agenda item 1.5)

The chairperson, Mr. Prasad, asked the meeting participants to review the provisional agenda (8RMSD/Doc 1) and then asked if anyone had any additions or corrections to the agenda. Dr. Wolfgang, Director National Tidal Facility, stated he had a presentation on sea level change and monitoring that he would like to give under agenda item 6 and the chair concurred with this change. In addition, James Weyman, Acting Director US NWS Pacific Region, said he had a presentation on EMWIN that he or Colin Schulz, SPREP Consultant was willing to give also under agenda item 6 if needed and Mr. Rishi Raj, Regional Hydrological Advisor for WMO, stated he would also like to give a presentation on Pacific-HYCOSs. With these additions, the members approved the agenda.

2. Review of Past Activities (agenda item 2)

Mr. Nitschke of the SPREP Secretariat introduced the theme for the meeting: Strengthening Linkages Between Climate Variability and Change (8RMSD/Doc 4). The purposes of this theme is first to encourage closer cooperation and coordination between NMSs and Climate Variability and Change activities at National, Regional, and International levels, and second to remind NMSs of the potential for support that could be obtained through climate change assistance programmes. In addition, he emphasized the required linkage between science and climate change and variability.

2.1 Role and Responsibilities of National Meteorological Services (NMS) in Climate Change and Climate Variability (agenda item 2.1)

This agenda item was presented by Dr. Robert Brook of the Bureau of Meteorology in Australia, on behalf of Dr. John Zillman. Dr. Brook began his presentation by defining the term “meteorology” to refer to all activities associated with the atmosphere, with “climate” then being a sub-set of areas covered by meteorology. Dr. Brook noted that as collectors of meteorological data that ultimately become part of the national climate record, NMS have a fundamental role to play in support of their nations in addressing climate change and climate variability. In particular, NMS can provide seasonal outlooks and other services to their communities, as well as advise various government agencies for planning, development, and policy purposes. Dr. Brook emphasized that the NMS play important roles in contributing to national needs in fields such as: protection of life and property; the environment; sustainable development, the climate record; monitor and quantify climate change and variability; describe impacts to human activity; aid in the development of strategies to take advantages of the favourable impacts and mitigate the unfavourable ones; make decision and policy makers aware of the scientific findings; and international cooperation. Although many of the Pacific Island NMS are small and often under-funded, the NMSD need to keep in mind that they can’t do it entirely individually, but can call on support from WMO, SPREP, SOPAC, and others. Dr. Brook stated that the NMSs have a fundamental role in climate services and must believe they can contribute and make a difference. The NMSs can collect and analyze data, evaluate the needs of the customers and policy makers, and produce required tailored products.

Following Dr. Brooks presentation, there was a great deal of discussion by many of the members. The Fiji representative stated that NMS have a very vested interest in this area even though in Fiji the Department of the Environment is the primary focal point for climate. He also said these were very important areas and needs analyses were very important. The NIWA representative said that the collectors of data must respect the jurisdictions of the individual states. He stated that often people outside of the region had many observations which the individual states did not have access to. So everyone must work closely and share all available data. The SPREP Director said the NMSs must express to their governments the value of climate. During tropical cyclones, the NMSs are in the forefront and then forgotten afterwards. But opportunities exist for recognition by the governments rest with climate issues. The USA representative stated that the NMS must know and understand what the policy makers need and then tailor the observations, products, and services to these needs. The SOPAC representative noted that many things in climate are top-down driven by national governments involved in international conferences. But NMSs must also serve the everyday users so a balance is needed between policy and end users. He also said we must not forget the local traditions learned over many years and we must find a way to cut across the vertical structure of most governments and integrate the information and services. He continued that this also goes for international organizations like IOC (GOOS), WMO (GCOS), etc.

2.2 Regional Cooperation in the Development of Climate Change and Climate Variability, including the Pacific Islands Framework on Climate Change, Climate Variability and Sea Level Rise (agenda item 2.2)

Mr. Nitschke presented to the group a summary of SPREP activities in the area of climate change and variability, and sea level rise that may be of interest to the RMSD, and may represent support opportunities. He encouraged the linking of environmental with finance through proposed activities and projects. There are things we can do now with little to no cost to improve climate change and variability services. These activities include several adaptation projects, renewable energy sector projects, and coordination projects.

Following this presentation USP noted that there was a need to have a better awareness of other climate-related activities that are taking place in the region. For example, USP is currently involved in a pilot project involving Fiji and the Cook Islands (and perhaps PNG). The project is aimed at improving the integration of climate assessment models for small island nations, with the eventual goal of transferring these improved models to other countries in the regions to help train personnel and improve capacity building. USP noted that the greatest problem facing climate-related projects is often sustainability. It was also noted that USP can add strength to projects in research and development.

Mr. Nitschke recommended the NMSs be proactive in what data are needed and for the NMS to work in collaboration with other agencies and other NMSs. He endorsed the idea of developing stronger links between meteorological and climatology services. Fiji offered the opinion that the linkage is important, but that more coordination is needed to be successful. Fiji noted that regardless of any formal activities, the meteorological services play an important role in climate projects by providing data and assuring the quality of the data. The WMO Representative to the Pacific Region expressed the feeling that it is very important for meteorological services to explore links with climate projects. In particular, attention should be paid to how the meteorological needs analysis could be integrated and coordinated with climate programs. SOPAC supported this statement, noting that there are many redundant efforts and that there is a real need for more collaboration and cooperation. SOPAC also suggested the group move away from projects and address the basic issues of vulnerability and what data are needed. He then stated that many organizations and agencies are using the name of the Pacific Islands and many of the projects duplicate others and waste money. We need to work smarter.

The discussion then turned to what, exactly, is considered “climate data”. It was suggested that the RMSDs could help to determine what type of data is useful and needed. Following along these lines, Fiji asked if there were particular issues concerning data, such as continuity of data, quality of data, or distribution of data. Fiji also noted that there has been some concern recently on the quality of data from automated stations and the differences between AWSs and manual observations. New Zealand noted that when looking at monthly data from the region, approximately 28% of the data appears to be missing. The problem, however, may be one of communications rather than truly missing data. It was suggested that data loggers attached to AWS could record data in case there is a gap in communications. Although these data from data loggers and other data not transmitted in real time would still be very valuable for climate purposes.

The University of Oklahoma reminded participants that scientists around the world are very interested in all data from the Pacific Region, but they rarely interact with local government agencies. The participants were reminded that there is great potential for the Pacific Island nations to not only make valuable contributions to global climate efforts, but also to benefit from the global need for data.

The SPREP Director added strong support to the idea of umbrella programs, rather than individual projects, using the example of the Round Table on Nature Conservation. This group maintains a voluntary database of activities by nature conservation stakeholders in the region. At this time a Round Table on Climate Variability and Climate Change exists only on paper, but a meeting is scheduled to be held in May 2002. Participants of this meeting should be receiving additional information about this Round Table within the next few weeks.

The FMS Director stated the region needs a much more coordinated approach. The RMSD should be able to say that each country wants to be kept informed of what is happening in their country.

Discussion then turned specifically to the Pacific Islands Framework on Climate Change, Climate Variability and Sea Level Rise. USP asked if there had been any progress in implementation of the Framework. While Mr. Nitschke noted that the Round Table meeting in May will be the major kickoff for implementation of the Framework, NIWA pointed out that some parts of the Framework, such as climate forecasts and prediction, are progressing. The SPREP Director compared the Framework document to the Regional Action Plan for the Environment document. This Environment document is updated at a meeting once every 4 years, and is not a plan to be implemented by SPREP, but by member governments. A similar plan is envisioned for actions identified in the Climate Framework. Actions identified in the Climate Framework need to be initiated by member governments. Fiji emphasized that meteorological services need to make their voices heard within their governments regarding involvement in climate change activities. The FMS Director stated that we must stand on our own feet and contact the right policy people. We must strive to make a difference at all levels of government.

The WMO Representative to the Southwest Pacific Region emphasized to the participants of the meeting the important role this forum and the Meteorological Services play in the Framework and in climate projects in the region.

2.3 Seventh SPREP Meeting of RMSD, Apia, Samoa, 16-18 August 2001 (agenda item 2.3)

Mr. Henry Taiki, WMO Representative to the Pacific Region, presented the status of action items from the last meeting of RMSD. Following the presentation, Mr. Weyman, Acting Director of the NOAA NWS Office in Hawaii, noted that at the previous meeting there had been a request for a brief background paper providing historical context and clarification of the implications of WMO Resolution 40 (on meteorological data and product exchange) and Resolution 25 Hydrology data) for the Pacific island states, but that this was not in the list of action items. Mr. Taiki responded that Mr. Peter Weiss had hoped to attend this meeting to present a report on data exchange approaches and policies (Document 8RMSD/Doc 21). Requests were made by the representatives of several countries for copies of Resolutions 40

and 25 and a future presentation or informational paper to fully explain the application of Resolution 40 in the Pacific island states.

Following this discussion, SOPAC brought up the broader issue of data management and collection. He said 28% of the regional data was missing and only 25% of the data collected in the area was available to the island states and 75% was stored outside of the region. He emphasized that the states needed these data to move forward and they didn't have all of the information that was needed and was collected. He also mentioned the sustainability of the observations and mentioned the example of a gauge in Tuvalu being removed by the University of Hawaii. Since this gauge had a record of 24 years of data, it was important to continue it. The FMS Director agreed that the NMSs were often not involved in some of the activities especially in ocean data. The FMS took over the collection of sea level data because no one else in the country could do it. FSM mentioned that it was often difficult to know who was involved in different climate programs. The FSM leaders were aware of a MOU with Australia in Phase II of the sea level change and monitoring program but the NMS was not. The FSM Director concluded the discussion by saying that Resolution 40 and how it applied to the Pacific Island nations were needed and further discussion was needed on total data management.

Mr. Nitschke presented an outline of activities undertaken by SPREP during the time period between August 2000 and March 2002 in support of Meteorological Services (8RMSD/Doc 6.1). No discussion followed this presentation.

The next consideration under this agenda item was a proposal by SPREP to reclassify the SPREP Meteorological/Climatology Officer (MCO) Post to an Assistant Project Officer (APO) post (RMSD/Doc 6.2). Securing funding for the MCO position has been unsuccessful, and it is believed that reclassification of the position will make it easier to obtain funding through the ARMs project. SPREP would recruit a relatively new meteorology graduate, with some experience, to fill this Assistant Project Officer post. The APO would work under the close supervision of Mr. Kim Nitschke and in cooperation with Mr. Henry Taiki. This proposal was endorsed by the meeting participants because of their understanding of SPREP funding problems, but asked that it be considered a temporary situation (2-3years) and be reviewed again if funding became available. The FMS Director stated that with the Strategic Plan and the needs assessment, the RMSDs needed support for implementation of these two documents and this position was critical for this. Australia supported the proposal but said SPREP must be very careful in the selection for this position and the person must have expertise in meteorology and climate. The SPREP Director elaborated on the situation. He said when Pene left, it was decided to break the position into two positions because of the amount of work for both. Until last year, the country contributions had not changed since 1991. Last year the Governing Board raised country contributions by 45% which is a large percentage increase but not a lot more money. The Governing Board also adopted a new structure with a Deputy Director of SPREP, 2 managers (business and operations), and appointment of coordinators for the 5 key results area one of which is climate related. SPREP currently has hired two APO and both have been highly qualified with one having 4 years experience and the other 5 years. He emphasized the APO will have Kim and Henry to help and that this should be a temporary situation.

The last action under this agenda item was a proposal by SPREP to officially hold the RMSD meeting once every two years rather than annually (RMSD/Doc 6.3). The reason behind this proposal is the difficulty in securing funding for an annual meeting, and the suggestion that

meeting every 2 years would allow more time for action items to be implemented. It was suggested by a number of participants that the proposal be changed to read that meetings be held “at least every 2 years” in case funding did become available to resume holding the meetings annually. Several participants also suggested that the RMSDs could perhaps meet in conjunction with other regional meetings, such as the WMO Region V TCC meetings. The Director of SPREP suggested that the chair of the RMSD meeting remain as chair during the time in between meetings in order to be a focal point for interactions with SPREP. It was also recommended that a newsletter could be prepared every 6 months to disseminate information or a “working group” be formed to maintain oversight of action items in between meetings. Further discussion and a decision on these recommendations are to be revisited later in this meeting. It was strongly noted by several of the participants that the proposal to meet every 2 years does not imply waning interest.

Fiji suggested that if meetings are held only every 2 years that the length of the meeting be increased to 4 or even 5 days. At least part of one of these extra days could be spent with presentations and discussions of the science of meteorology. This was supported by SOPAC, with the additional recommendation that one of the extra days be restricted to just the meteorological directors.

Support was expressed by Mr. Jim Weyman, Acting Director of the Pacific Region NOAA National Weather Services for the idea of meeting every other year, opposite the WMO Region V TCC meetings. However, to avoid having three years until the next meeting it would be helpful to meet next year, and then go to the every other year plan. In addition, it would be helpful to have reports prior to coming to the meeting so that time could be used more effectively. Having a common format for country reports would also be useful.

Solomon Islands asked if it is possible to request that WMO consider some permanent funding in its annual budget to support this meeting. The SPREP Secretariat noted that this has been discussed within SPREP, but may be some downsides to this approach. Australia notes that there are issues that can't be resolved at this meeting, including secure funding for the meeting. There was a re-emphasis on the request first made at the 7th RMSD meeting that SPREP and WMO explore ways in which to continue to fund this meeting.

American Samoa supported the idea of holding this meeting next year, perhaps in conjunction with a SOPAC workshop. SOPAC responded that this was certainly worth keeping in mind and discussing further, although the SOPAC budget would not be able to completely support this meeting as a stand-alone meeting.

Mr. Nitschke of the SPREP Secretariat ended discussion with a proposal that he develop and circulate a proposal to participants concerning meeting frequency and venue.

2.4 Implementation of the Needs Analysis for the Strengthening of Pacific Islands Meteorological Services – Meeting the Challenges (agenda item 2.4)

Mr. Nitschke introduced this document (RMSD/Doc 7) for discussion. SPREP has distributed the document, but there has been little feedback to SPREP in terms of sponsoring the projects. AusAID has shown initial interest in few of the projects but at the moment things are put on hold because of a change in their funding approach, but may sponsor some in the future. There is a concern that implementation of the actions needed in the needs

analysis may be difficult. There is a need for a group to coordinate group proposals. A request was made for suggestions on how to continue forward and on how these projects may be supported.

Mr. Garry Clarke of the NZ Met Service noted that NZODA has been restructured to focus on programs rather than projects. NZODA are also more interested in working in partnerships. NZODA has, however, picked up costs of producing The Island Climate Update bulletin (originally supported by Italy). U.S. NSF may be a source, but again they are interested in collaborative efforts. NIWA said one logical way to move forward may be a Pacific Regional Climate Center (as perhaps a “virtual center”) with one or two locations taking a lead. This may be something NZODA would be interested in helping to support. Fiji asked SPREP if there are particular areas that AusAID would be interested in funding. SPREP replied there are two projects they expressed interest in funding, but due to restructuring they have at least temporarily dropped those projects. Because of changes with various donor organizations, SPREP believes the best path is to consolidate efforts into integrated programs and make sure proposals are aimed at the right donors. FSM said they were unsure where to start and PNG said they had been assisted by New Zealand to help with their needs. SPREP stated that there needs to be a more concerted effort to write proposals which meets the donors’ criteria and this will be a labor-intensive effort. Therefore, there may be a need to set up a working group to contact donors and work with all services. Fiji supported this suggestion. Fiji noted that the Pacific Island nations were the first to develop a strategic plan and the first to do a needs analysis. Most members believed that initially SPREP would move ahead on behalf of the NMSs, but it is clear that they don’t have the resources so it is time for the directors to pursue these projects. USP explained the needs analysis is very comprehensive, so working group or states need a mechanism to prioritize them. This should be done by the states not the donors. USP when on to say some elements could utilize regional resources (e.g. training; research and development) to satisfy the needs.

Mark Morrissey from University of Oklahoma mentioned that the US funding agencies are looking at collaborative effort with donor agencies from other countries (e.g., Australia, New Zealand)

Kim Nitschke suggested that to a move forward is to form a coordinating group in pursue these projects with funding agencies.

Hilia Vavae from Tuvalu fully supports the needs analysis as this was a result of collaborative effort. She encouraged SPREP to make concerted effort with support from Met Directors.

Garry Clarke from New Zealand supports the formation of a group but emphasized that there is a PGCOS working group already in place and that there needs to be more communication between the two groups to avoid confusions or possibly combine the two working groups.

Alf Simpson from SOPAC stressed that his organization has done similar needs analysis before and suggest that the projects be done in a programme form. He also stressed that these projects be included in National Statements in High Regional Meetings such as the SPREP Council Meeting, the Forum Leaders Meetings, etc. so that it can be taken up at highest level as donor countries will be also present. He also added that each Pacific Island nation needs to make this a priority because if the donors don’t hear it from the countries, then they don’t think it is a priority.

Director of SPREP stressed the need for a collaborative effort between member countries, SPREP and donor countries. The upcoming WSSD in Johannesburg , South Africa could be used to make our voice heard in these matters. In addition, the Director of SPREP stressed that Needs Analysis projects be included in Item 16 of the RA V meeting agenda and could be called 'Strengthening the Meteorological Services in the PICs. However, he noted that it is up to the countries to take this forward to the meeting in May. The changes in the agenda have to be submitted by member countries before the meeting.

Henry Taiki of WMO Sub-regional Office for the Southwest Pacific mentioned that WMO Congress sets out the work programme for next four years. The next Congress will be in 2003. He suggested that ways can be taken where a 'statement' concerning this matter can be included in the RA V agenda for consideration. He also mentioned that the WMO Regions can be used as avenues to include these needs to be considered by the next Congress. Also the WMO VCP programmes can be tapped to meet some of these needs.

Fa'atoia Malele fully supported the idea full participation in regional projects for its success.

Rajendra Prasad from Fiji mentioned that although the final report of the recently completed EU Tropical Cyclone Warning System Upgrade project was a success, some countries had seen it as a failure. These failures are not to be blamed on the participating NMS. Because of the precedent made by the project, EU might not be willing to fund another PIC regional project. He suggested that WMO programmes and the LDC funding through UNFCCC are avenues for progress. Five of least developed countries in the world are represented by SPREP members.

Jim Salinger from NIWA suggested that it is important that we look for signals from donors and then develop projects/programmes that will match their goals and objectives. The NIWA and Guam representatives stated some of the problems are the donors changed their emphasis of interest frequently and proposals have to fit these new directions. SOPAC mentioned that some goals last longer than others, for example the Millenium Development Goals. It would be good for the NMS to develop linkages to these Development Goals.

Kim Nitschke called for volunteers to be included in the initial coordinating group to create a resolution that could be given at the RA V Association meeting.. These include: American Samoa, Fiji, New Zealand, FSM, Vanuatu, Solomon Islands, Vaisala, University of Oklahoma, Collin Schulz, and SPREP.

The coordinating group met several times throughout the meeting and produced a resolution that was approved and will be forwarded to RA V Association Meeting and will be used by the NMS to take back and brief their agencies and governments. In addition, SPREP and SOPAC offered to add it to agendas for their Forums.

It was noted that the heads of government will meet in Suva in August. Fiji can influence the agenda at this meeting. It was recommended that this resolution be added as a national agenda item at the Suva Forum.

2.5 WMO Activities in Regional Association V (agenda item 2.5)

The activities of the WMO in RA V were presented to the meeting by Mr. Henry Taiki of the WMO Sub-regional Office for the South-West Pacific (8RMSD/Doc 8). The document summarizes activities that have taken place during the period August 2000 to March 2002 and planned activities in 2002-2003. A workshop on cost recovery is planned for 2003. No agenda for this meeting has been started.

3. National Meteorological and Hydrological Service Reports (8RMSD/Doc 9.1-9.24)

3.1 American Samoa

Since the last meeting, American Samoa has made significant progress in capacity building. A permanent electronics technician was added to the staff; the office gained access to high resolution GOES-10 and GMS-5 satellite data; they have access to more model data via the internet; the office is equipped with a satellite phone for use during communications outages; a new building has been begun and is scheduled for completion by December 2002; new communications with Samoa and Honolulu is nearly complete; and coordination with Samoa continues to improve.

3.2 Australia

Australia prefaced its report by saying that it would only cover issues that had arisen since the last meeting that would be of general interest to the regional Meteorological Services. It noted that the degradation of the GMS-5 meant that contingency plans were being developed to cope with the situation until MTSAT was operational. It had also been active in addressing threats to meteorological radio frequencies in both national and international for a. Australia noted that with WMO's recent action, the next generation of polar orbiting satellites will operate in X-band. The Bureau has been actively engaged in developing plans to receive these data. It was also noted that these may need to be regional cooperation in this area. The proposed Geostationary Infra-red Fourier Transform Satellite (GIFTS) has powerful potential to provide data in the region and the Bureau was actively involved in its developmental program.

Australia noted that legal issues are becoming increasingly present in NMHSs. The Bureau at present faces action arising from the 1998 Sydney-Hobart Yatch race. The outcome of this if unfavourable, could have profound impacts on all Services providing forecasts. The Bureau will vigorously defend its performance.

The Bureau gives high priority to regional training, but of recent times these has been a need for increased local staff intakes to cover losses of aging staff. However it will continue to give strong support to having of staff from the Pacific region.

Finally mention was made of the increasing importance of the Internet. The Bureau's site is consistent in the top 20 most visited site in Australia and is by far the most visited government site with several million links per day, up to half for radar images.

3.3 Cook Islands

The Cook Island NMS has been very active in the last two years. They now have two qualified meteorologists, but still depend on Fiji for their forecast. They have been involved

in extensive collaboration with other government agencies and in regional and international forums. In the area of climate, they have taken a country team approach and formed an interagency council for the common good. They started a web site 18 months ago and at first they received 20-30 hits per month but then it increased to 200-300 per month. However the telecommunications company cut off the service. There may be some need for a regional approach to integrate for the benefit of all. Agriculture, especially the growing of Miranda, has really begun to grow. Currently it is hard to get up production to meet demand. In education, they developed a syllabus for science in schools. They are trying to attract and keep a highly qualified professional staff, but it is hard because they move to different countries or agencies. The NMS developed a strategic plan based upon SPREP's strategic plan for 2000-2009. Through the help of New Zealand, they have been able to upgrade their observing systems and their services. However their upper air reports are not getting to WMO.

3.4 The Federated States of Micronesia (FSM)

The main concern for FSM at the current time is the renegotiations of the Compact Agreement with the USA. The funded provided in the new Compact will determine the level of services available. Through the USA training program there are now three fully trained Meteorologists in Charge at the three FSM WSOs. The goal set out in November 2001, is for the WSOs to become full service, independent offices in 7 years. Beginning this year, the FSM offices will each develop an annual operating plan with specific goals and performance measures to evaluate their performance.

3.5 Fiji

Vision is to be a regional leader in meteorological science and expertise, and in the provision of quality weather and climate services. Have expanded over the past few years; divisions include Weather Forecasting; Climate Services; Reporting and Facilities; Computing and Information Systems; Technical Systems; and Corporate Services. Developments since the last RMSD meeting include loss of professional staff; addition of new automated weather stations; a change in severe weather warnings due to a new definition and criteria for a tropical cyclone; and the addition of public weather services and aviation weather services. There is a particular concern with the problem of the "brain drain" in developing countries. Of concern to this meeting is the global shortage of trained meteorologists. The Regional Specialized Meteorological Centre (RSMC) Nadi hopes to soon run the mesoscale model "MM5". Due to recent budget cuts, the Department now faces difficulty in providing services to the region.

3.6 French Polynesia

3.7 Guam

3.8 Kiribati

3.9 Republic of the Marshall Islands (RMI)

The main concern for RMI at the current time is the renegotiations of the Compact Agreement with the USA. The funded provided in the new Compact will determine the level of services available. Through the USA training program the first meteorologist is expected

to join the staff in early 2003. Recruiting for a second meteorologist position is under way and will follow the same process of attending the University of Hawaii and obtain a BS in Meteorology and then do several months of on the job training at NWS WFO Guam. The goal set out in November 2001, is for the WSO to become full service, independent offices in 7 years. Beginning this year, the RMI WSO will develop an annual operating plan with specific goals and performance measures to evaluate their performance. In other areas, the US NWS installed 6 Automated Observing Stations in the outer islands; the office successfully recruited and installed a network of Volunteer Surf Observers throughout RMI; the USA NWS procured and installed a mobile satellite telephone to support and strengthen existing backup communications systems; a modern new WSO building, upper air structure, and other supporting infrastructure is being planned but is being held up because of the failure to obtain a suitable land lease; and RMI is in the process of becoming a member of WMO. Finally, the issue that RMI so gravely faces on a day-to-day basis in their tiny, low-lying atolls with potential impact to their beaches and coastal areas is Climate Change and the acceleration of the Sea Level rise.

3.10 Nauru

3.11 New Caledonia

3.12 New Zealand

New Zealand has developed capabilities in the areas of operational data processing, forecast modeling, additional products, and employee skills. They completed a major upgrade of the central computer system; started a project to create a new "Information Customisation Engine" (ICE) which will handle data storage and management requirements; installed additional satellite receiver capability to receive USA GOES-10 imagery; developed mesoscale modeling capability on clustered PCs; issued their first ever official two-week forecast; developed and testing frost forecasts; instituted a year long meteorologist training course; was ISO 9001 certified; maintained Civil Aviation Rule Part 174 certification; developed collaborative efforts within the community such as the Volcanic Ash Advisory Service, Lightning Detection Network for Transpower, and UpuMet website for America's Cup; and extensive international relationships and interactions.

3.13 Niue

The report for the Niue Meteorological Service was prepared by Sionetasi Pulehetoa, Manager of the Niue Meteorological Service and then presented at the meeting by Garry Clarke of New Zealand Meteorological Services, Limited.

Niue has made many advances in the meteorological and climatological areas. The government of Niue planning budget for 2002/2003 includes funds for replacing necessary resources and equipment essential for the Met Service. The staff includes 4 full-time and one part-time employees. One Met staff attended the 2 month basic WMO Meteorology Class IV course in Fiji and one is studying at the University of Auckland to obtain a BS in Meteorology. The Niue Meteorological Services (NMS) successfully undertook several new developments to provide better service. These include: the implementation of Metar reports in December 2000 by using an automatic weather station provided by NZODA; replacement of the satellite antenna; a mentoring programme provided by the BOM in Brisbane, Australia and additional educational material; the installation of seven SPaRCE rainfall stations by the

University of Oklahoma, USA; recorded telephone weather forecasts and weather presentations on the radio and television stations; preparedness activities associated with the National Disaster Council Workshop; completion of the National Communications Report for Phase I of the Climate Change Project; and seeking funds to install SEAFRAME monitoring tide gauge.

3.14 Northern Marianas

3.15 Palau

3.16 Papua New Guinea

On January 1, 2001, the PNG National Weather Service (NWS) became a division of the newly created Civil Aviation Authority (CAA). PNG operates as a cost center of the CAA with is expected to generate 10% of its revenue from the aviation industry via "Air Navigation Charges." The Government of PNG is responsible for meeting the remaining 90% of PNG NWS as part of the Community Service Obligation. However, if the Government of PNG is unable to provide the 90% of the budget, the CAA does not have the financial capacity to maintain the operational meteorological network and the operations of PNG NWS will be affected. As a result of funding shortfalls in 2001/2002, four upper air observation sites suspended operations. In the training area, operational forecasters attended a one week training session by the BOM Australia; members of the PNG NWS attended refresher courses in meteorological observations, forecasting, and technical training by BOM; climate personnel attended training in Auckland and at the University of Oklahoma; and an Agro-meteorologist attended training on climate mapping techniques. As a result of this training, PNG NWS will attempt specific country seasonal forecasts especially for the agricultural disaster mitigation and there has been a mark improvement in observing, recording, reporting, and timely dissemination of weather reports and forecasts.

PNG NWS has improved communications with a dedicated, lease line of 19.2 kbps to the internet and a national network of HF two-way radio system, telephone, and facsimile. All data are sent via the national link to Port Moresby and then to Melbourne via the dedicated line and GTS. Operational forecasters download weather information via the internet to make their forecasts.

3.17 Samoa

The Samoan Meteorology Division under the Ministry of Agriculture, Forest, Fishery, and Meteorology is comprised of four earth sciences: meteorology and climate, hydrology services, geophysics and geological and geotechnical engineering. There may be a reorganization and this structure could change. The Cabinet approved a Corporate Plan 2002-2005 in which the Observatory's scientific advisory role through Meteorological, Climate, Hydrological, and Geological information and products were substantiated and strengthened with its long-term goals. The Meteorology Division has completely taken over the operational 24-hr aviation observations for 2 international airports; is nearing completion pf main communications links with American Samoa and US Mainland; developing a website; upgrading the climate data base and quality control; and issues daily forecasts for islands and coastal and marine areas. Samoa acknowledged the WMO Sub-Regional Office and the assistance it has provided with project proposals, appraisals, and negotiations.

3.18 Solomon Islands

The presentation was made by Mr. Chanel Iroi. The SIMS has operated under different ministries over the years. They are currently under the Ministry of Culture, Tourism, and Aviation. They do have a legal framework under which they operate. However, this act needs to be revised. Development plans often depend on who is in power. The government plan from 2002-2006 includes policy objectives for the meteorological services that they will be working on addressing. The civil war has affected all facets of the country from 1998 until just last year, and in particular the country is very poor. The met service is able to only provide very essential, basic services. Some effects include telephone and fax lines that have been inoperable for the past 2 years (the government cannot pay the bills). The met service cannot even receive forecast data. They are able, however, to participate in some regional training programs. Two computers and a printer were installed in the forecast center. In regards to climate change issues – the met service is the focal point for climate change programs. The Met Service is designing some public awareness materials. In addition, new equipment consisting of a computer and printer; software; spare equipment; and digital camera will be installed. The Met Service is in the process of developing and maintaining of a web site.

3.19 Tokelau

The report for Tokelau was presented by Garry Clarke of New Zealand Meteorological Services, Limited. The meteorological service is currently nonexistent. The manual observing program is expected to be reinstated in May 2002, employing village weather observers. There will be one Automated Weather Station, under the oversight of the government.

3.20 Tonga

A new corporate plan for the meteorological services in Tonga has the objective of providing accurate and timely meteorological and climate advice and services in support of economic development, safety, security, and general well-being of the people of Tonga. The primary function of the TMS continues to be weather observing. Some new equipment was obtained with assistance from the Australia Bureau of Meteorology. The establishment of a Forecast Office is a high priority for the TMS, which will also require additional training for staff. At this time TMS has only one qualified forecaster. The TMS has been able to maintain an operational website. Would like more Marine and Satellite training, as well as Technician Training for maintaining instrumentation. Communications with the outer island meteorological stations remains poor.

3.21 Tuvalu

The report for Tuvalu was presented by Ms. Hila Vavae. She acknowledged the Honolulu National Weather Service office, noting that their synoptic reports are very useful. Tuvalu would like more training for staff in the areas of forecasting, climate data analysis, and sea level monitoring. New Zealand has provided Office Internet service which has made meteorological products more easily accessible to staff and clients. The installation of the Continuous Global Positioning System by the South Pacific Sea Level Climate Monitoring Project has allowed Tuvalu to measure absolute sea level. Other new equipment has been purchased through the New Zealand MetService.

3.22 Vanuatu

Mr. Jotham Napat expressed the great loss felt by the meteorological community at the resignation of Mr. Wilson Tari Vuti. WMO has funded training of a staff person in Australia. Many staff members are over 30 years of age and have not been properly trained. There is an urgent need to replace most of the current instruments. Vanuatu acknowledged Mr. Paul Hamilton of the Australian Bureau of Meteorology for the installation of the Internet-based Global Telecommunication System (GTS). They also were very grateful to the Peoples Republic of China for donation and installation of a high-resolution satellite receiver.

Vanuatu thanked the Fiji Met Services for their assistance in tropical cyclone warnings and to all responsible agencies for training received, including NIWA, Australian Bureau of Meteorology, Fiji Meteorological Services, and the University of Oklahoma.

3.23 US NOAA NWS

Dr. Richard Hagemeyer, the long time Director of the Pacific Region National Weather Service, passed away on October 25, 2001. He will be greatly missed by a very large community. The Pacific Tsunami Warning Center was renamed and rededicated to him and is now officially named the Richard H. Hagemeyer Pacific Tsunami Warning Center.

Pacific Desk in Honolulu appears to be well received and have received many highly favorable comments. Students are assigned to RSMC Honolulu for 2 months, and at the end the computer and software they used during their training are then sent back to their home country for use by their NMS. Students are encouraged to train the rest of the NMS staff when they return. Students are scheduled through the end of 2002. In August or September 2002, another announcement will be made to recruit students for 2003.

The USA Compact agreements with the Republic of the Marshall Islands and the Federated States of Micronesia have expired and new Compacts are currently being renegotiating to take effect in 20004. US National Weather Service Pacific Region believes that full funding should continue for the 5 Pacific Weather Service Offices in Micronesia (3 in FSM, 1 in RMI, and 1 in Republic of Palau). However, the total amount of money included under services may be capped at a certain dollar level and the FAA and the Postal Service want more funding, which may decrease or even eliminate funding for Weather Services for these Micronesia States. This is of great concern because of the loss of data and especially the impact to the capacity building for these three island nations. Three Micronesian Meteorologists in Charge have been installed since the last SPREP at WSOs Pohnpei, Koror, and Chuuk.

EMWIN systems continued to be installed throughout the northwest Pacific at Emergency Management Offices (EMO) in Pohnpei State and FSM National office. Through the excellent work of Collen Schultz, EMWIN receivers for GOES-7 transmissions were installed at WFO Guam and WSOs Chuuk, Yap, and Koror. The final phase is to install them at EMOs in Majuro, Guam, CNMI, Yap, and Koror.

Mr. Weyman also suggested that a specific format be provided to every SPREP member for their country reports and that they strictly follow this format. There was a suggestion by

SPREP that it would be helpful for the countries to suggest strategies/solutions needed to address the needs/challenges noted in island reports.

4. Regional Organizations and Development Partners

4.1 FORUM Secretariat Programmes and Activities (agenda item 4.1)

This was presented by Mr. Adam Delaney of the Forum Secretariat described several topics during his review of the FORUM Secretariat's programmes and activities.

European Union Cyclone Warning System Upgrade Project was funded by EU under European Development Fund (EDF). This project was a 3.5 year effort from October 1996 to March 2000. Its main objective was to improve regional and national tropical cyclone warning systems for

National Met Services and National Disaster Offices. In addition, it sought to improve telecommunications systems in the region, to improve the collection of meteorological data, and then convert the warnings to be used by the public. Only 9.5% of funds went to disaster preparedness. The rest went to NMS and regional systems (36.1%), telecommunications (2.4%) and the collection of data and data systems (52%). Copy of final report to was given to the SPREP Secretariat.

The second issue dealt with regional coordination. During a meeting in 1995 meeting in PNG, CROP (Council of Regional Organizations in the Pacific) was established. The purpose was to try to avoid duplication of efforts in the region by having a mechanism for various regional organizations and NMSs to discuss what they were working on. Several working groups were formed to prioritize programs, e.g., on ocean policy, energy, aviation, etc. In Nauru in 2001, the participants reaffirmed the importance of regional coordination and urged improved dialog among CROP members. The meeting also recommended involving the stakeholders at an early stage and also to involve the policy makers.

The next item dealt with C-SPOT funded by Canada. This is a \$14M (Canada), 5 year program that was first initiated in 1996. Phase I began in 1998 and in January 2002, a month long review of the project was conducted. The review found that the money was well spent and made several recommendations for the future. Currently this program deals mostly with the oceans but it may expand in the future.

Mr. Delaney then discussed the Kyoto Protocol. This is a very important issue for the Pacific Islands. It is expected that the EU and Japan will approve and sign the protocol soon.

Following Mr. Delaney's presentation there was a great deal of discussion. SOPAC emphasized the important for RMSDs to become very involved in issues and to ensure scientific validity of issues. In addition he asked about the status of the satellite phones purchased by the EU Project. He wondered if they were still available and could they be used. Fiji stated that the Cyclone Warning Project was located in Nadi because of support of FMS and FSM did not request this. The FMS Director expressed hope that Forum Secretariat would be able to assure the EU that meteorology is a good area to support in the Pacific. He also emphasized the importance for the Pacific region to develop their own policies and not to rely entirely on international organizations.

The FSM Director also stated that he is still questioned by his government sometimes on why RSMC Nadi does international forecasts. He again stated that Fiji needs bi-lateral agreements with the countries they serve much like the one from Samoa.

4.2 SOPAC Programmes and Activities (agenda item 4.2)

SOPAC is currently in a transition period of restructuring. Four strategic directions have been identified. Most relevant to this meeting is the Support of National and Regional Initiatives for Sustainable Development. Within this directive there are several areas that are of interest to NMSs and that would benefit from enhanced coordination and cooperation with NMSs. Some of SOPACs activities include:

- Coordinating participation and integrating activities within the ARGO program. SOPAC would like to have more participation from the meteorological community.
- Coastal vulnerability and coastal erosion activities – some are climate related, which would greatly benefit from interaction with NMSs
- CHARM (Comprehensive Hazard and Risk Management) – aid in decision making for risk reduction activities. This program looks at all risks, not just natural hazards, and to establish formal linkages between stakeholders, as well as identify gaps and priorities. SOPAC would like to acknowledge and express their appreciation for contributions of meteorological services to national disaster management programs
- Hazards assessments – tsunamis, storm surges. Met data important
- GOOS – Global Ocean Observing Systems
- Rainwater harvesting, which is obviously important for small island states
- Energy programs – importance of meteorological data in solar energy and wind energy resources.

New Caledonia stated in France observations of oceans involves many organizations and we need to ensure that all agencies and international and regional bodies coordinate to the greatest extent possible. The Cook Islands see many of SOPAC issues very relevant to small island states and supports more interaction with the PIS and with other regional organizations. PNG stated there have been governmental concerns with the unlimited access to ARGO system data collected within their economic zone. They are looking to sign a separate MOU with Japanese. SOPAC stated that nearly all countries in the area have concurred with deployment of ARGO floaters within their Exclusive Economic Zones.

4.3 AusAID

Ms. Yvonne Green, Program Officer, Pacific Regional Center AusAID, began by thanking SPREP and the Government of Fiji for inviting AusAID for the invitation to participate in the 8th RMSD meeting. She felt AusAid attendance at these types of meetings are always very important because of the theme of the meeting. Ms. Green discussed that AusAid was developing a new Corporate strategy and a new strategy in the Pacific. They are emphasizing increased focus on working with regional organizations like SPREP, SOPAC, and others and working through partners in area and are changing to looking at programs/areas instead of projects. AusAid sees climate as part of the meteorology programs.

The projects AusAID are involved in Phase III of the Sea Level and Climate Monitoring Project, support of NMSs, Disaster Management unit support in collaboration with SOPAC

and funding with New Zealand, and support to SPREP for WSSD preparation. In addition, the Minister for Foreign Affairs, Mr. Alexander Downe at the Commonwealth heads of Governments (CHOGM) meeting in Queensland in March 2002 announced a new A\$4M for vulnerability and adaptation fund for the Pacific. Ms. Green stated that vulnerability and adaptation is the key challenge facing fragile environments of PICs. This new project has not been specified in any detail but AusAid will work through the regional organizations and the PICs and will start discussion of the proposal at the climate change roundtable in May 2002.

The Chairman of the RMSDs expressed his sincere thanks to AusAid for the outstanding support they have provided to meteorological, hydrological, sea level change, and scholarship and training programs. AusAID has provided valuable assistance and much that have been done in the region would not have been possible without AusAid.

4.4 The University of the South Pacific (USP) (agenda item 4.4)

A presentation by Dr. Mahendra Kumar, Associate Professor of Physics and Head of Department, School of Pure and Applied Sciences, University of the South Pacific. Dr.Kumar thanked the SPREP Secretariat for invitation to meeting, and appreciation in particular to the SPREP Director for his assistance and support throughout the years. USP is supported by 12 countries within the region and with vital assistance from the Japanese Government, especially in the area of development of distance learning capacity. Recently, the buildings on the USP campuses have been connected by USPNet intranet and is now being enhanced thanks to the Japanese government. In USP strategic plan, Environment is one of the key areas in the Science and Training for use in capacity building. Strengths of USP are in research and development and capacity building. USP offers courses at undergraduate and graduate levels important to the meteorological/climatological services such as physics, oceanography, environment, and mathematics and then individuals can get specialized training from other sources. It was noted that the majority of staff at the Fiji Met Service have received degrees from USP. USP is well suited to help provide training, with the aid of governments, in cooperation with other agencies such as SPREP and SOPAC. In the last year the university has set up a Pacific Centre for Environment and Sustainable Development. One of the core areas is to coordinate all climate programs within USP and to focus and integrate research and consultancy in the area of Climate Change and Variability at USP..

SERREAD (Scientific Education Resource and Experience Associated with the Deployment of Argo) Project is designed to increase awareness of the ocean's role in the climate system. USP is conducting training in schools in the region.

Research is a fundamental role of meteorological services. USP offers to work closely with the Met Services and is not seeking to duplicate anything being done by the individual nations but rather to compliment their efforts.

Fiji stated most universities offer scholarships or fellowships for students in research and asked if USP have a similar programs. USP responded there are some avenues of support through research assistance program which is a 2 year program in which the student takes courses and completes his/her thesis. However, the university is exploring ways in which to increase support for students wanting to become involved in research. Fiji also expressed the view that the region should consider using USP for future training needs rather than Australia or New Zealand. This approach could provide long term benefits for the region.

AusAid said for the last 10 years they have been involved in many different projects one of which has been sea level monitoring and analysis. The project is currently in Phase III of this project which will extend from 2001-2005. She emphasized the need for reliable relative sea level changes (water level rising or island sinking) and also absolute sea level changes and then tie into Climate Change and Variability. It was stated that we need to differentiate between variation (seasonal, interannual, decadal, multi-decadal, and near century changes) and real changes (basin response 100 years, deep water response 1000 years, and ice age changes of 10,000 years.)

5. Reports on Regional and International Initiatives in Support of the Development of Meteorology (Weather and Climate) Services in the Pacific Region (agenda item 5)

5.1 CIDA Adaptation Project and PICCAP Phase III Project (agenda item 5.1)

This agenda item was included in a previous agenda item.

5.2 EU/ACP Pacific Regional Support Strategy and Development Programme (agenda item 5.2)

This agenda item was included in a previous agenda item.

5.3 Pacific-GCOS and Pacific-GOOS (agenda item 5.3)

Dr. Jim Salinger of NIWA discussed the Draft Pacific Global Climate Observing System (GCOS) Action Plan. Others involved in the development of this plan include Garry Clarke, Dean Collins, Howard Diamond, Pene Lefale, Arona Ngari, Kim Nitschke, Neil Plummer, Cristelle Pratt, Rishi Raj, and Henry Taiki. The full document of this action plan was distributed to meeting participants.

USA praised the document and said it was well structured and overall a great plan. He thanked the members of the working group for their hard work in preparing it. However, Mr. Weyman had several suggestions. First he would like to see a shorter summary paper be represented to WMO Region V meeting as well as a prioritization of needs. In addition, he would like to reword point 9.1 (Advocacy) to indicate that the first thing to do is see what policy makers need and then tailor observations and products to meet these needs.

SPREP Secretariat stated prioritization will be important to discuss in GCOS meeting following this meeting.

The document was endorsed, with amendments, by the meeting participants and Dr. Salinger will prepare a summary paper for the WMO RA V meeting to be held in Manila, Philippines in May 2002.

5.4 United States (US) Department of Energy (DOE) Atmospheric Radiation Measurement Programme (ARM) (agenda item 5.4)

An update of the project was given by Mr. Kim Nitschke of the SPREP Secretariat. There have been some changes and developments in the region since the last meeting of RMSDs. Two operational Tropical Western Pacific sites are Manus Island in PNG and Nauru. A new station is starting up in Darwin, Australia with a target official opening in June/July of 2002. Location of ARM site on Nauru is on leeward side of island, and there has been some concern that the island itself is affecting measurements. ARM is setting up a small additional site on the opposite side of the island to see what, if any, effects the island is having on measurements.

NTF extended thanks to AusAID, for providing funding to enable collaboration between National Tidal Facility and ARM.

Mr. Colin Schulz noted that ARM data is freely available on the web at www.arm.gov

Mr. Garry Clarke reminded the ARM representatives that not all meteorological services are able to access the ARM data on the web, and there had been a request for the data to be available on GTS. This is being undertaken and will hopefully occur in near future.

The SOPAC representative noted that several groups are engaged in educational activities in the region and there is potential for collaboration between USP, NTF, SOPAC, and ARM.

5.5 Climate Information and Services, including Pacific Island Climate Update Bulletin (agenda item 5.5)

The Island Climate Update: A Success Story of Collaboration was presented by Dr. Jim Salinger, NIWA. Dr. Salinger first discussed the procedure of seasonal climate prediction. This is an involved procedure that takes ENSO model forecasts, climate outlooks, along with multinational collaboration to produce seasonal rainfall outlooks. This is followed up with validation and accuracy assessment. Feedback from small islands such as Niue, Solomon Islands, Cook Islands, and Tonga, indicate these forecasts are used for things like preparation for floods and droughts as well as tropical cyclone guidance, have been positive.

The current ENSO outlook still is cautious for the region. The ocean conditions appear volatile and possibly in a state of transition and primed for ENSO. However from looking at past data, the models are not traditionally as accurate during this time period. There will be more confidence in April.

5.6 The Australian Marine Science and Technology (AMSAT) South Pacific Sea Level and Climate Change Monitoring Project – Phase III (agenda item 5.6)

This presentation was given by Dr. Wolfgang Scherer, Director of the National Tidal Facility. He indicated that a monitoring site in Pohnpei, FSM is now in operation. Phase III runs from 2001-2005. Major objective is still to obtain accurate long-term record of sea level. He said that more emphasis much be placed on variability, with emphasis on getting sea level change and variability information to policy makers. The major problems the project continues to encounter is being able to discriminate between “signal” and “noise”. To date, they only have measured relative sea level. In Phase III CGPS units are monitoring land movement to be able to determine absolute sea level. Accepted global sea level rise is approximately 2mm/year – however local variation is great. They continue to try and separate sea level

variability from sea level change. There are many sources of variability in the sea level record. To truly determine a reliable trend analysis takes at least 20 years.

New components of Phase III include the use of the CGPS to determine land movement; field and formal training components; post graduate training; and modeling work.

Tidal calendars for education and preparedness activities have proven to be very useful, and it is expected that these will continue to be produced for as long as possible.

6. Other Matters (agenda item 6)

6.1 Pacific -HYCOs (agenda item 6.1)

The presentation was made by Mr. Rishi Raj, Regional Hydrological Adviser for WMO. The purpose of this program is to make available hydrological products in the region. Hydrological Cycle Observing Systems (HYCOS) have been developed worldwide, and are funded by a variety of agencies. Goals of the Pacific-HYCOs are:

- To assist participating countries to establish human and institutional capacity to assess status and trend of national water resources and to provide warnings of water related hazards
- To establish basic hydrological monitoring and data capture systems, using technology that balances modernity, economy, robustness, and suitability for Pacific Island environments.
- Establish hydrological databases and info systems that provide users with the information they require.

Components of Pacific-HYCOs:

- Flood forecasting capability
- Water resources assessment in major rivers
- Water resources databases
- Drought forecasting
- Groundwater monitoring and assessment
- Water quality monitoring and assessment
- Project management

6.2 International Exchange of Data and Products

Refer Section 2.3 and Document 8RMSD/Doc 21.

6.3 Regional Climate Centres (agenda item 6.3)

Dr. Jim Salinger of NIWA and Member of the WMO Intercommission Task Team (ICTT) made a presentation and several proposals on Regional Climate Centres (RCC). The first meeting of this group was 30 April-3 May 2001. Within the RCC concept, the NMHSs are central to country service. In addition, Regional Associations are important. In developing the RCCs, inclusions of a variety of organizations and cooperation are important. The WMO regions will determine RCC requirements for their region. Regions may have more than one RCC (e.g., Africa is planning on at least 3 RCCs). The functions of the RCCs can be

centralized or distributed. For example, RA V may choose three or four centres (southwest, northwest, south, and north). RCC functions will be different from Regional Specialized Meteorological Centres. RCCs will take seasonal to interannual (SI) products from the forecasting centres and provide products to NHMSs. Discussions and recommendations at this meeting can be taken to the RA V meeting in Manila.

Functions of RCCs are:

- Produce regional SI forecasts from global prediction centres
- Produce tailored products for NHMSs, along with verification and distribution
- Improve observations, communications and data collection between NHMSs
- Coordinate with end-users, assist NHMSs with media and public awareness
- Rescue climate data, provide a database and archiving services
- Advise on data quality management
- Train NHMS staff in SI forecasting
- Assist in training of end-users, and introduction of decision models for end users
- Assist technical capacity building
- Perform regional climate research on variability, predictability and impacts
- Develop consensus practices to handle conflicting region information
- Validate region SI products

RCC Designation will follow established procedures. In order to be designated as a RCC, a group must demonstrate the ability to carry out the functions required. The ICTT will meet again 25-28 March 2002 to make recommendations to WMO Executive Council.

Discussion:

Fiji stated national centres now exist in Fiji, Australia and New Zealand and asked if there was a consensus of the group as to whether other centres would be desirable? The USA stated experience from PEAC shows that face-to-face interactions with users are vital and labor intensive. Therefore it is desirable to have a wider network of centers to spread out the work. For example, Guam visits with all islands in their jurisdiction (with meteorologist, engineers, hydrologist) when ENSO is predicted. Gaining the confidence of the states and providing the expertise to take appropriate actions is a very complicated procedure. The people need to be aware of impacts in each area and if convinced local governments will reallocate resources based on predictions. Cook Islands stated that we should consider including some small island states as virtual centres, because Met Services of these countries can play a vital role. New Caledonia expressed interest in the RCC concept, but don't want to undermine the role of National Met Services. French Polynesia said that there must be agreement on the concept of RCCs in terms of what is really needed in a particular region.

Fiji inquired concerning the capabilities of Zealand and Australia to fulfill all responsibilities of a RCC. NIWA said informal discussions seem to be favorably received by donor agencies in New Zealand. However, Australia believed that the Bureau of Meteorology would have to absorb cost of an RCC and this would have to be looked at. NTF recalled that attempts to get funding for NMSs have met with limited success, which may give an indication of support for RCCs. Fiji hoped that countries that agree to RCCs would have resources to fulfill obligations.

The meeting participants agreed that Dr. Jim Salinger will draft a paper on the concept of a South-West Pacific Regional Climate Centre (RCC) with distributed functions, that inclusive,

with input from NIWA, Bureau of Meteorology Australia, and Metro-France in the Pacific, for presentation to the WMO RA V Association Meeting in Manila, Philippines in May 2002.

6.4 WAFS/SADIS and DirectMet (agenda item 6.4)

Mr. Gene Shaffer from Global Science & Technology, Inc. gave a demonstration of the WAFS/SADIS workstation. This weather information system utilizes products distributed by the U.S. National Weather Service.

Mr. Robert Allan of Orbis Technology demonstrated features of the DirectMet weather workstation.

6.5 University of Oklahoma (agenda item 6.5)

The University of Oklahoma provided a status report on SPaRCE. They are now working more closely with Meteorological Services and in particular with the Niue Meteorological Service. The program can supply simple meteorological equipment to interested parties, not just schools. Anyone interested in learning more about the program can contact either Mark Morrissey or Susan Postawko at the University of Oklahoma.

Dr. Mark Lander from the University of Guam has been doing an informal study of various types of rain gauges. Use of automated tipping buckets have many problems and gages 1 meter apart can have differences of 10-15%. However, simple, direct-read gauges are more reliable and accurate. In particular, plastic gauges always get more rain (10-15%) than tipping buckets and show difference of less than 0.01 inches between nearby gages. Therefore, if there are differences in plastic gauges, it is real

NIWA absolutely agrees with this assessment. At one site, they recorded 7546mm from plastic gauge vs. 6749mm tipping bucket. WMO hydrology representative and the Australian representative disagreed with this assessment and indicated tipping buckets can actually be superior but Australia has a large maintenance staff to properly maintain them. WMO also pointed other difficulties with manual gauges.

6.6 Update on GMS and EMWIN (agenda item 6.5)

GMS-5 satellite is owned and operated by JMA. There are some concerns because GMS-5 is beyond its expect life time and has started to wobble, that is, it is moving north and south about 1 degree at the current time. This wobble will increase with time and will eventually result in errors unless some type of steerable antenna is used. MTSAT-1R is to be lauched in August 2003 and to be operational until December 2003. Contingency plans are being developed. Current systems will probably be useful for 2 years or so. May require shifting of antennae to continue to receive transmissions.

EMWIN existing transmissions will continue for some time. It will eventually be replaced by a new generation of satellite in several years. Many countries still need upgrades in software; however, budgetary constraints have slowed upgrades. Transmission on GOES 7 may be adjusted to be more regional rather than global. This means those using GOES 10 would have to switch over. The vision was for EMWIN to benefit weather services and Disaster

and Emergency Management offices as well. There still needs to be work done on helping DEMOS.

Colin is always available via email and urges everyone to contact him as needed. He acknowledge US National Weather Service for help and expressed thanks to SPREP for assistance, as well as to ARM project that provided some funding.

SPREP Secretariat expressed appreciation to Colin for his hard work and help.

Jim Weyman expressed thanks to Colin for his energy and efforts. Involvement in EMWIN is one of Dick Hagemeyer's legacies – his support was key in making the system a reality in the small island states. The Cook Islands stated that most of small islands states have EMWIN system as well as Internet. Because Internet costs are high, perhaps other products could be put on EMWIN for benefit of small island states. Colin stated that GOES-10 transmissions are near capacity, but when GOES-7 is tailored to the Pacific this will be possible.

6.7 Strengthening Met Services Projects – Working Group Meeting (agenda item 6.7)

A small informal working group was established to draft the RMSD meeting (8RMSD) declaration. The 8RMSD meeting declaration is attached as Appendix F. The declaration is to be tabled at the World Meteorological Organisation (WMO) Regional Association V Meeting to be held in Manila, Philippines May 2003 by SPREP.

6.8 Draft Committee for Meeting Report (agenda item 6.8)

The drafting committee completed the first draft of the Report of the Eighth SPREP Meeting of Regional Meteorological Service Directors (RMSDs) by the afternoon of the last day of the meeting and the meeting participants quickly reviewed it and provided comments. These comments will be incorporated and a final report disseminated at a later date.

7. Data and Venue of the Next Meeting

Tonga volunteered to host the next meeting. In the event that Tonga is unable to, the Cook Islands volunteered to serve as a backup. The date and time of the next meeting will be negotiated by SPREP and the RMSDs, however the most likely timing will be August to September 2003 to avoid difficulties associated with the Tropical Cyclone Season for both the northern and southern hemispheres.

8. Consideration and Adoption of the Draft Meeting Report

A draft meeting report was circulated. It was decided that time did not permit for the complete review and a final draft was to be circulated at a later date by SPREP.

Appendix A

Honourable Minister Konisi Yabaki

Minister of Tourism, Culture, Heritage, and Civil Aviation, Fiji

Opening Remarks

I understand that the RMSD meeting has been an annual event for nearly a decade now, where Meteorological Service Directors of the region come together to discuss issues of importance to them. I am informed that these meetings have been very fruitful and have helped to find ways and means of enhancing meteorological services to individual nations and the South Pacific Region as a whole.

I am also informed that with the leadership of SPREP, and through this forum, the Sout-West Pacific has been the first region to have come up with a Strategic Action Plan for the Development of Meteorology in the Region (2000-2009).

I further understand that as a first step for the implementation of the Strategic Action Plan for the Period 2000-2009, an in-depth needs analysis has been done on a country-by-country basis and for the region as a whole, and that many project proposals have been formulated to strengthen Pacific Islands Meteorological Services.

I consider this to be a milestone achievement and one that will no doubt place meteorological services of the region in a very favourable position for both National Government and donor support and assistance. To my knowledge, there is no other field or sector in this region where such co-ordinated action has been taken. I congratulate you on your accomplishment to date and wish you well with the implementation of the project proposals and other work ahead of you.

I would like to think I speak on behalf of all Governments in the region when I say that the service you provide is very valuable and one that is indeed becoming more crucial with time. This is because of the observed increase in the frequency of weather climate extremes in the region.

Through Fiji has been rather fortunate to be spared from the severe impact of a tropical cyclone lately, I understand that there has been a noticeable increase in the occurrence of these devastating monsters over the past two decades. Also, we have all suffered from severe droughts and floods recently and will continue to do so, especially with the next El Nino on the horizon.

Even casualty from thunderstorm activity has been on the rise! And with the potential impact of global warming on climate change and sea level rise, the role of the National Meteorological Services in terms of alerting governments and communities will no doubt become more important in the future.

The Fiji Government has been proud to be of assistance to its fellow Pacific Island counties through the operation of the Weather Forecasting Centre and Regional Specialized Meteorological Centre (RSMC) at Nadi, which has been providing weather and warning services to the region for over two and a half decades now. We place high value in such service and are committed to see it continue into the foreseeable future.

Our only slight problem has been with respect to professional staffing in the Department of Meteorology, which has not been very stable. This has largely been due to continued loss of experienced meteorologists and climatologists to more developed countries within and outside the region. The Fiji Government is aware of this and will try its best to train more meteorologists and climatologists and will definitely look at ways to alleviate the “brain drain” problem in the future. I am sure this is a common problem among third-world developing countries.

Fiji has been assisting its neighbours with more basic meteorological training needs for many years now. For example, a Basic Meteorology Course is being conducted right now at the Fiji Meteorological Service (FSM) HQ at Nadi and is attended by 8 international and 3 local participants. FMS has also embarked on a five-year training programme in meteorology with assistance under the third-country training scheme of JICA – Japan International Cooperation Agency. Given the meager resources the island nations have, we believe that such training is vital and will go a long way towards fulfillment of the training needs of the regional meteorological community. Fiji will make every effort to continue with such initiatives in the future.

I understand that you have a very heavy workload for the three days of the RMSD meeting, which will be followed by a two-day Workshop on Pacific’s Contribution to the Global Climate Observing System (GCOS). Naturally, my interests lie with the outcome of these two events and how Fiji can contribute towards and benefit from the various regional and international programmes. I therefore urge you to be frank and candid in your views and examine ways and means of improving and enhancing the quality of the service you are expected to provide to your individual nations, and to the region as a whole.

I wish to convey my Government’s appreciation to SPREP and WMO for providing a regular forum for Meteorological Service Directors of the Pacific Region, and for considering Fiji as the host for this year’s event. As Minister responsible for tourism, I guess I would be failing in my duty if I do not say that hosting of such events gives Fiji the necessary visibility and helps in boosting our tourism industry.

I now have the great pleasure in declaring the meeting open, and wish you every success as well as an enjoyable stay in our beautiful islands.

Thank you and Vinaka Vakalevu.

Appendix B

Director of the South Pacific Regional Environment Programme

Opening Remarks

Let me extend a warm welcome to you all to the Eighth SPREP Meeting of Regional Meteorological Service Directors, especially to those of you who are attending this meeting for the first time.

Through you Honourable Minister, please accept my deep appreciation and that of our members and collaborating partners to your government and the people of Fiji for generously agreeing to host this meeting at short notice.

May I firstly welcome and acknowledge the presence of Dr Robert Brook, Assistant Director of the Australian Bureau of Meteorology, Dr. Wolfgang Scherer, Director of the Australian National Tidal facility, Mr. Adam Delaney of the Forum Secretariat, Ms. Cristelle Pratt, of SOPAC, Mr. Sachinda Nand of the British High Commission - Suva, and all other close friends of the Pacific region who have come a long way to be with us today. On behalf of the SPREP member country representatives and meeting participants, I thank you all for supporting the work of SPREP.

I believe that the SPREP meeting of Meteorological Service Directors continues to be a key forum for strengthening the meteorological services of the Pacific. This Eighth RMSD provides us with the opportunity to identify development opportunities by enabling valuable feedback and information sharing on regional and global initiatives. Your attendance this week demonstrates the strength of the alliance we have built in the Pacific. More than this, it demonstrates our commitment as a region to maintaining our focus on the lasting protection of the Pacific's unique natural assets, and to creating a sustainable future for our region.

The theme for this meeting is: *STRENGTHENING LINKAGES BETWEEN CLIMATE VARIABILITY AND CHANGE*.

Such a theme reflects both a desire and an opportunity for National Meteorological and Hydrological Services (NMHS) to broaden what may have become a limiting focus on national and international obligations in relation to meteorology and in particular the management of extreme events. Deservedly so, one particular avenue that has gained significant momentum in the region is that of Climate Change. Building on the work that has been undertaken to date, there are a number of Climate Change initiatives on the horizon encapsulating the regional and global support that is currently being engendered.

In supporting and developing closer ties with regional Climate Change programmes, there may be an opportunity to strengthen NMHS capacity through the implementation of proposed remedial and development projects as proposed in the Pacific Meteorological Services Needs Analysis Project (PMSNAP) and Pacific Global Climate Observing System (P-GCOS) Action Plan.

At this time we face some fundamental challenges which threaten the effectiveness and sustainability of our programmes. I see three key challenges that face us immediately.

- The PMSNAP and Pacific GCOS continue to be the most visible initiatives in

consolidating and identifying NMHS development projects. Ensuring their ongoing delivery, however, represents our first and most significant challenge. For the successful implementation and future realization of these projects, the documenting of identified avenues of support and project enabling methodologies will be necessary.

Projects identified as part of the PMSNAP and the Pacific–GCOS Action Plan provide an accurate and detailed picture of current deficiencies in NMHSs in the region and clearly targets areas of concern. The Pacific–GCOS Action Plan provides a sound foundation for NMHS development opportunities, in particular with relation to systematic climate observations and incorporates a number of proposed projects addressing climate observation deficiencies that implicate NMHSs and infrastructure deficiencies. The projects identified will provide a targeted opportunity for donor agency sponsorship. To strengthen the work undertaken to date, there is a requirement for a systematic approach to project promotion, adoption and subsequent coordination. This may include providing a mechanism at the regional level for identifying project priorities, coordinating and managing project integration and implementation.

Identifying project support and coordinating implementation is crucial to future action and demands considerable resources. In order to maintain the momentum we have achieved as a result of the completion of the PMSNAP and Pacific-GCOS Action Plan, we need your assistance. There is a danger that our collective efforts to date may not bear fruit without your full and ongoing support.

The successful implementation of proposed projects, relies heavily on your advocacy at regional, national and international levels. The ongoing support of all parties involved in the development of meteorology in the region is crucial. It is particularly important that long-term funding support continue to be adopted by national governments. Long term operational support is diminishing, and in the absence of bilateral agreements between donors and national governments, long-term programme sustainability and developmental opportunities are threatened. It is your responsibility to assist us in ensuring the sustainability of the programmes we have worked so hard to develop.

- Our second challenge relates to the ongoing viability of this very Forum.

This last year has seen a further decline in financial assistance for both the RMSD meeting and the Special Meteorological Purpose Fund. As you may be aware, increases in meeting costs, coupled with declining financial support, have again necessitated the meeting's deferral; a change of meeting location; and a reduction of services available to delegates. It is gratefully acknowledged that during the 7RMSD in Apia, Niue had offered to host the 8RMSD. Although it was intended that all Pacific Island Countries should have the opportunity to host the meeting, it is unfortunate that budgetary constraints has made that impossible this year.

I must again apologize to our French-speaking members for not being able to provide interpretative services. I assure you that a precedent has not been set and we will reinstate this important service when funding can be secured.

In the past we have urged you all to consider that the RMSD meeting be held biannually. SPREP is committed to continuing to provide you with a Forum that promotes the collaboration and development of regional meteorological services, but again we face a

budget deficit. This, coupled with the lack of resources required for coordination, has made this 8RMSD meeting particularly difficult to secure. The assistance provided by the WMO Sub Regional Office in supporting coordination activities is most appreciated. However, continued financial support to enable the meeting of this valuable regional Forum is necessary.

We continue to believe that by holding the meeting every two years, it will allow sufficient time to secure funding, implement projects, and report on significant changes to NMHS status and activities.

- Our third pressing challenge relates to human resources. The SPREP Meteorological / Climatological Officer Post currently remains unfunded. The work undertaken by SPREP in supporting meteorological services, as outlined in Agenda item 2, has been achieved principally through staff dedication and commitment. This is not a viable position over the long run. There is an urgent need for ongoing financial support for the SPREP Meteorological Climate Officer Post.

To ensure the Secretariat can successfully continue to serve you and to alleviate an increasing workload, I therefore propose the following. By utilising the limited funding made available through the Department Of Energy ARM Programme, I suggest that the MCO post be temporarily reclassified to an Assistant Project Officer level, until such time that additional long-term funding can be secured. It is envisaged, as is the case with all Assistant Project Officer level positions within SPREP, that the incumbent be instated in a developable role. This would offer an opportunity for additional capacity building within the regional meteorological sector. I encourage you to consider this proposal, as it offers not only an immediate solution for the improvement of SPREP secretariat support, but also provides a valuable opportunity for human resource development and programme consistency.

In accordance with this discussion of the three key challenges that face us in the immediate future and threaten the lasting effectiveness of our work here, I make the following recommendations for your consideration and discussion this week:

- Firstly, I recommend the endorsement of the recently completed Pacific Global Climate Observing System (P-GCOS) Action Plan draft report. Following your endorsement of the Pacific GCOS Action Plan, a Pacific GCOS Working Group will be formulated to provide guidance in project implementation strategies and will function as a focal point for project coordination and refinement. The Working Group will meet following this meeting to discuss ways in which the projects identified in the P-GCOS Action Plan can be best coordinated and promoted.
- Secondly, I recommend that the RMSD meeting be held every two years forthwith and strongly urge you to support this recommendation.
- Finally, I recommend that the MCO post be temporarily reclassified to an Assistant Project Officer level, until such time that additional long-term funding can be secured

I should like to take this opportunity to acknowledge the increasing assistance of the US government, through the US NOAA National Weather Service and in particular, the US Department of Energy's Atmospheric Radiation Measurement Program in funding Mr

Nitschke's post as ARM Project Coordinator. I also acknowledge the continued assistance of the Bureau of Meteorology, Australia and AusAID by funding meteorological development programs. NZODA continues to provide much needed support within the region. The Global Environment Facility (GEF) through the United Nations Development Program continues to support us. Finally, I would like to thank the sponsors of this meeting; the World Meteorological Organisation and in particular the assistance through the Sub-Regional Office, , the United States Nation Oceanographic and Atmospheric Administration (NOAA) National Weather Service (NWS), the United States Department of Energy ARM programme, and the Bureau of Meteorology of Australia.

As we embark on this week, I would like to extend our deep appreciation to you and all of our collaborating and development partners for the assistance and support given to us since 2000. We face considerable challenges in securing financing for development projects that will enable us to build on the work undertaken in clearly identifying deficiencies and developing remedial solutions. We now require your support and commitment more than ever. I give you SPREP's assurance that any funding will be directed to fulfilling our mission to strengthen meteorological services and subsequently contribute to the economic and social benefit of the region as we pursue sustainable development.

Our most pressing challenge, however, in the context of uncertainty and in the midst of lengthy and at times frustrating processes, is to keep our minds and our commitment fresh. It is my hope that this eighth meeting of RMSD will provide us an opportunity to re-state our commitment to and our reignite passion for the ongoing and effective support for meteorology throughout the Pacific.

I wish you every success in your deliberations. SOIFUA.

Appendix C

Professor G.O. P. Obasi, Secretary General of WMO World Meteorological Day 2002 Message

The World Meteorological day commemorates the coming into force, on 23 March 1950 of the Convention of the WMO. Each year, WMO celebrates the day by focusing on a theme of topical or current interest. The theme for World Meteorological Day 2002 is “Reducing vulnerability to weather and climate extremes”. The theme was chosen in recognition of the important contributions of national Meteorological and Hydrological Services (NMHSs) and WMO to sustainable development by preparing for weather, climate and water-related extreme, and mitigating or preventing their adverse consequences.

The choice of the theme was also motivated by the holding in the year 2002 of the World Summit on Sustainable Development (WSSD) in Johannesburg, South Africa. The Summit will review the implementation of Agenda 21 of the United Nations Conference on Environment and Sustainable Development (UNCED), held in Rio de Janeiro, Brazil, in 1992. It will also take into account the UN Millennium Summit Declaration and the ongoing activities in disaster mitigation, including those of the International Strategy for Disaster Reduction (ISDR), a United Nations umbrella initiative on disaster reduction which WMO heading the USDR Task Force Working Group on Climate and natural Disaster.

The choice of the theme is timely as the recurrence of extreme weather, climate and water-related events show increasingly the vulnerability of humankind. It is estimated that natural disasters claim nearly 250,000 lives annually and cost between US\$50 billion and US\$100 billion in property damage. In 1991, more than 90 per cent of those killed were from hydro-meteorological hazards.

Long-term climate records and related sectoral information are essential for assessing the short and long term sensitivity and vulnerability of communities to weather, climate hazards, for ensuring preparedness, for planning guidelines, and for establishing response strategies that build resilience for coping with future extreme events. Without such resilience, each extreme event will cause destruction and set back development, in some cases for many years. Any disaster mitigation plan should take into account the wide range of weather, climate and water-related phenomena.

Tropical cyclones with related devastating winds, heavy rainfall, flooding, etc, and EL Nino and La Nina are responsible for loss of life and property in this region. In a longer term sustainable development will be determined to a large extent by projected climate change and its impacts on sea level rise, agriculture and water resources and associated natural disasters.

WMO’s programmes and activities, in particular the World Weather Watch (WWW), ensures a comprehensive programme of surface and space-based observations, and the free and unrestricted exchange of such data and derived products essential for predicting and providing early warning of severe weather, flood forecasts, and the monitoring of the climate system. The backbone of the monitoring system some 10,000 stations on land, 1,000 upper air sounding stations, several hundred radars, over 300 aircraft meteorological data and relay systems providing more than 75,000 observations daily, more than 7,000 voluntary observing ships, six near polar-orbiting and four geostationary satellites, a global network of river gauges and nearly 250 global and regional global atmospheric watch (GAW) stations, that monitor the chemical composition of the atmosphere (greenhouse gases, ozone, pollutants,

etc). WMO ensures that every country has access to such data and information on a day-to-day basis, especially in support of safety of life and property.

The collection and exchange of timely and reliable observational data and processed information, including weather forecasts and warnings between NMHSs is ensured by WMO Global Telecommunication System, a dedicated high-speed telecommunication network. WMO also coordinates cooperative efforts in the processing of such data for common use and for assisting developing countries in accessing and better utilizing sophisticated products from advanced centers worldwide. In this context, 25 Regional Specialized Meteorological Centers, including RSMC-Nadi, provide weather forecast and generate generally focused products, including advisories for phenomena such as tropical cyclones, droughts, floods, forest fires, chemical and nuclear debris accidentally released into the atmosphere, volcanic ash and other pollutants.

For longer term preparedness and prevention measures, climate models based on global datasets have been developed for understanding and predicting climate variability and climate change. For example, studies of the El Nino phenomenon, carried out under the auspices of WMO-sponsored World Climate Research Programme has clearly demonstrated how changing sea-surface temperature over the Pacific Ocean can affect weather patterns around the globe. Although still in the early stages of development, these climate prediction models are expected to give early warning of significant climate events that are important for longer term vulnerability analysis, risk assessment, preparedness and prevention of community welfare.

In the global effort aimed at the development and implementation of global and regional mitigation strategies. WMO collaborates with other UN system Organizations, as well as with regional and international organizations. In particular, WMO participates actively in the implementation of ISDR and has entered into partnership with other organizations in specific sectors such as health, agriculture and forestry, water resources management, and tourism. WMO cooperates through building multidisciplinary approaches to integrate scientific knowledge about physical, chemical, biological processes of the earth system with impact assessments, and to develop preparedness and response strategies for a range of extreme weather, climate and water-related events. For long term strategy, the assessment of the WMO/UNEP IPCC has been catalyst for, and has stimulated multidisciplinary studies that have identified potential impacts of climate change extreme across various sectors.

At national level, NMHSs are the providers of weather, climate and water-related information and services. They also serve as national focal points for intergovernmental cooperation and coordination in these field for which WMO, supported by each of its 185 Members, provides the global framework for operations. The integration of national, regional and global information and products is essential for early warning of severe weather and climate events. WMO also endeavours to ensure the development and enhancement of the capabilities of all NMHSs. A coordinated approach at national level in planning relevant policies and response strategies should therefore involve NMHSs, together with other relevant agencies.

WMO programmes and activities aim at monitoring the gaps that exist between the level of relevant services provided by developed countries and developing countries. This disparity is a matter of major concern for all Members because of the high interdependency needed in disaster mitigation. It is of crucial important that governments provide appropriate support for their respective NMHSs in support of basic meteorological and hydrological services

infrastructure and the delivering of services, especially for the reduction of vulnerability of extreme events.

As we move forward in this millennium, it is the hope of WMO and its Members that national and regional authorities, academia, the private sectors, civil society, the general public and the media will fully appreciate the important contributions being made by WMO and the NMHSs to reduce vulnerability from weather, climate and water-related disasters, and thus to public welfare, poverty alleviation and sustainable development.

WMO will continue to enhance its collaboration with Members through the NMHSs and, the disaster mitigation communities at regional and international levels in improving our capacities to assess and reduce the vulnerability of communities to weather and climate extremes.

During the course of the meeting, you will discuss and review a number of important issues of major concern to all Members in meteorology, including climate variability and climate change. I wish the meeting every success and fruitful deliberations.

Appendix D Participants List



*South Pacific Regional Environment Programme
(SPREP)*

**Eighth Regional Meteorological Services Directors (8RMSD)
Meeting**
18 – 20 March 2002, Nadi, FIJI

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Appendix E



South Pacific Regional Environment Programme
(SPREP)

**Eighth Regional Meteorological Services Directors (8RMSD)
Meeting**
Nadi, Fiji, 18 -20 March 2001

“STRENGTHENING LINKAGES BETWEEN CLIMATE VARIABILITY AND CHANGE”

PROVISIONAL AGENDA

1 ORGANISATION OF THE MEETING

- 1.1 Opening of the Meeting
- 1.2 Election of Chairperson
- 1.3 Working Arrangements for the Meeting
- 1.4 Election of Members of Drafting Committee
- 1.5 Adoption of Agenda and Organization of the Work of the Meeting

2 REVIEW OF PAST ACTIVITIES

- 2.1 Roles and Responsibilities of National Meteorological and Hydrological Services (NMHS) in Support of Climate Change and Climate Variability.
- 2.2 Regional Cooperation in the Development of Climate Change and Climate Variability, including the Pacific Islands Framework on Climate Change, Climate Variability and Sea Level Rise.
- 2.3 Seventh SPREP Meeting of RMSD, Apia, Samoa, 16-18 August 2001.
- 2.4 Implementation of the Needs Analysis for the Strengthening of Pacific Islands Meteorological Services – Meeting the Challenges.
- 2.5 WMO Activities in RA V.

Comment [K.L.1]: Henry Taiki

3 NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICE REPORTS

Comment [KN2]: Should this be earlier

4 REGIONAL ORGANISATIONS AND DEVELOPMENT PARTNERS

- 4.1 FORUM Secretariat Programme and Activities
- 4.2 SOPAC Programme and Activities
- 4.3 SPREP Programmes and Activities
- 4.4.3 AusAID
- 4.5.4.4 Other Development Partners

Comment [K.L.3]: South Pacific Applied Geoscience Commission – Russell Howarth
- South Pacific Disasters Reduction Programme
- Hydrology

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5 REPORTS ON REGIONAL AND INTERNATIONAL INITIATIVES IN SUPPORT OF THE DEVELOPMENT OF METEOROLOGY (WEATHER AND CLIMATE) SERVICES IN THE PACIFIC REGION

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5.15 CIDA Adaptation Project and PICCAP Phase III Project.

5.25.1 EU/ACP Pacific Regional Support Strategy and Development Programme.

~~5.35.2~~ Pacific-GCOS and Pacific-GOOS

~~5.45.3~~ United States (US) Department of Energy (DOE), Atmospheric Radiation Programme (ARM)

~~5.55.4~~ Climate Information and Services, including Pacific Island Climate Update Bulletin, and Climate Prediction Center(s).

5.6 [AusAID South Pacific Sea Level And Climate Monitoring Project-Phase Iii](#). The Australian Marine Science and Technology (AMSAT) South Pacific Sea Level and Climate Change Monitoring Project – Phase III.

Comment [K.L.4]: SPREP paper

Comment [K.L.5]: Adoption of the Action plan

Comment [K.L.6]: IOC Perth Regional Programme Office – William Erb

~~76~~ **OTHER MATTERS**

~~87~~ **DATE AND VENUE OF THE NEXT MEETING**

~~98~~ **CONSIDERATION AND ADOPTION OF THE DRAFT MEETING REPORT**

~~109~~ **CLOSURE OF MEETING**

21 December, 2015

Appendix F



*South Pacific Regional Environment Programme
(SPREP)*

Eighth SPREP Meeting of Regional Meteorological Services Directors (8RMSD) Declaration

We the Heads of national Meteorological and Hydrological Services from the (SPREP members) (Pacific Islands Forum members), meeting in Nadi, Fiji, from 18 to 20 March 2002, declare as follows:

We **NOTE** that the United Nations General Assembly, the Economic and Social Council and the regional economic and social commissions have appealed to States to contribute, within their field of competence, to the action taken at the international, regional and national levels to promote and support sustainable development, especially activities pertinent to weather, climate, and water-related natural disasters, climate change and the protection of life, property, and the environment.

We **FURTHER NOTE** that the Forum Leaders recognized and endorsed the deep concern in the region about climate and the need to seek international understanding of the unique circumstance of the Pacific Island Countries, especially low lying islands.

We **REAFFIRM** the contributions already made by, and through, (SPREP members) (Pacific Islands FORUM members) in response to the above appeal, particularly through the national Meteorological and Hydrological Services which is crucial to national, regional and international strategies for the protection of life, property, and the environment such as in addressing climate change and stratospheric ozone depletion issues, among others.

We **FURTHER REAFFIRM** the vital importance of the mission of the national Meteorological and Hydrological Services in observing and understanding weather and climate and in providing meteorological, hydrological and related services in support of national needs. This mission contributes to national needs in the following areas:

- (a) Protection of life and property;
- (b) Safeguarding the environment;
- (c) Contributing to sustainable development;
- (d) Ensuring continuity of meteorological, hydrological and related data including climatological data;
- (e) Promotion of endogenous capacity building;
- (f) Meeting international commitments; and
- (g) Contributing to international cooperation.

We **ARE COGNIZANT** that, weather and climate systems do not recognize political and national boundaries and are continuously interacting. Hence, no one country can be fully

self-reliant in meeting all of its requirements for meteorological services, including weather and climate, and countries need to work together in a spirit of mutual assistance and cooperation.

We **RECOGNIZE** that it is for the various stakeholders in each country, in full awareness of their country's national goals, requirements, resources and aspirations to evaluate and decide on a country-specific strategy for future provision of meteorological, hydrological and related services and to find the greatest possible harmony between the principle of their national sovereignty and their international obligations under environmental treaties and agreements.

We **FURTHER RECOGNIZE** the importance of a unique and integrated national and regional system for the observation, collection, processing and dissemination of meteorological, hydrological and related data and products; and the vital importance of long-term climate records and related sectors information are essential for assessing the short term and long-term sensitivity and vulnerability of communities to climate hazards for ensuring preparedness and for establishing strategies that build resilience for coping with future climate extremes.

We **EXPRESS** deep concern that the national Meteorological and Hydrological Services in the Pacific Island Countries are struggling and often failing to provide basic services for the citizens and industries of their countries.

We **BRING** to the attention of our Leaders a Strategic Action Plan for the Development of Meteorology in the Region (2000-2009) and subsequent Pacific Meteorological Services Needs Analysis Project addressing deficiencies through proposed development projects.

We **URGE** that whatever form or model the national Meteorological and Hydrological Services take, government financial support be provided to operate and maintain the required relevant basic infrastructure, monitoring and services in the national and global public interest, and that such support be strengthened where needed.

We **CALL** on our Leaders to give due consideration to the statements expressed in this Declaration. We believe that this will be in the interest of sustainable development, in support of national economies and social progress and that this contributes significantly to the reduction of loss of life and property caused by natural disasters and other catastrophic events, as well as to safeguard the environment for present and future generations of humankind.