

# **MEMBER REPORT**

**United States of America**

**UNESCAP/WMO Typhoon Committee  
44<sup>th</sup> Session  
6-12 February 2012  
Hangzhou, China**

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## I. Overview of tropical cyclones which have affected/impacted Member's area in 2011

1. Meteorological Assessment (highlighting forecasting issues/impacts)  
*Western North Pacific (130E to 180, north of the equator) Overview*

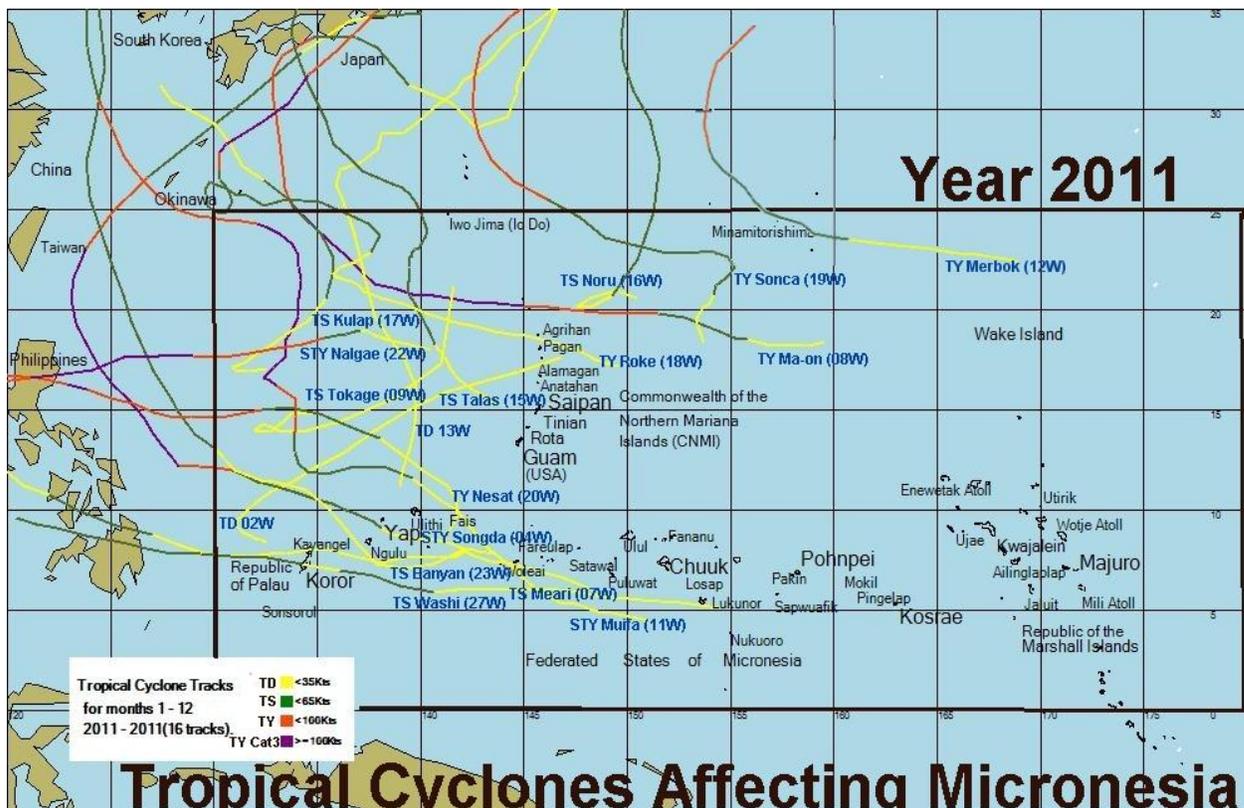


Figure 1: Tropical Cyclones affecting Micronesia in 2011

Tropical Cyclone activity in the Micronesian portion (area between the Equator and 21N from 130E to 180, not including Kiribati) of the western North Pacific from 1 January through 31 December 2011 was again below the normal of 18 to 20 tropical cyclones per year, with only 16 tropical cyclones that warranted Public Advisories from Weather Forecast Office (WFO) Guam. There were two other tropical cyclones that brushed through the Area of Responsibility (AOR) but did not fully develop until they moved out of the AOR. WFO Guam issued Tropical Storm Warnings for 4 cyclones and a Tropical Storm Watch for 1 cyclone. No Typhoon Watches or Warnings were issued for Micronesia this year.

No tropical cyclones crossed over from the Central Pacific. An El Nino pattern weakened rapidly and became ENSO-neutral by May, and then transitioned into a La Nina by July. The La Nina pattern was classified as moderate to strong by late summer. Almost identical to last year, the La Nina pattern shifted most tropical cyclone development from central and more eastern parts of Micronesia to more western longitudes.

Type	Definition
Tropical Storm watch	Tropical storm-force winds (34-63 knots, 1-minute average sustained) are possible within the next 48 hours
Tropical Storm warning	Tropical storm-force winds (34-63 knots, 1-minute average sustained) are expected within the next 24 hours or are occurring
Typhoon watch	Typhoon conditions (64 knots or more, 1-minute average sustained) are possible within the next 48 hours
Typhoon warning	Typhoon conditions (64 knots or more, 1-minute average sustained) are expected within the next 24 hours or are occurring.

**Figure 2: Definitions of WFO Guam watches and warnings**

***Central North Pacific (140W to 180, North of the Equator) Overview***  
**Quiet 2011 Hurricane Season in the Central North Pacific**

There was only one tropical cyclone in the central North Pacific during the 2011 hurricane season. Tropical Storm Fernanda formed in the eastern North Pacific on 15 August and crossed 140W into the central North Pacific on August. Tropical Storm Fernanda reached a peak intensity of 55 knots. Fernanda rapidly weakened 19-20 August after encountering increasing shear and cooler sea surface temperatures. There were no impacts to any islands. RSMC Honolulu issued the last advisory on Fernanda at 0300 UTC on 20 August.

La Niña conditions did not favor development of any other tropical systems either locally within the central North Pacific basin or in the northeast Pacific and then moving into the central North Pacific.

La Niña conditions are typically not favorable for tropical cyclones to occur in the central North Pacific in contrast to the typically more active hurricane seasons associated with El Niño conditions. However, there were 8 tropical cyclones in the basin during the La Niña of 1985. There were other years with one tropical cyclone in the central North Pacific during the satellite era (which began in 1965). These years with only one system included 1965, 1995, 2008, and 2010.

The upcoming 2012 hurricane season in the central North Pacific will be largely dependent on the status of the ENSO cycle. The latest International Research Institute for Climate and Society (IRI) and NOAA Climate Prediction Center (CPC) analysis of model guidance shows the dynamic model average, the statistical model average, and CPC model consensus all predict the current La Niña episode continuing into the early part of 2012 before transitioning back to neutral conditions during the northern spring season. Neutral conditions are predicted to remain through the northern summer and possible transition toward an El Niño phase by the end of 2012.

2. Hydrological Assessment (highlighting water-related issues/impact)

***Western North Pacific (130E to 180, north of the equator) Overview***

For the few tropical cyclones that occurred in Micronesia (from Palau in the west to the Marshall Islands in the east and from the Equator in the south to the northernmost islands of the Commonwealth of the Northern Mariana Islands (CNMI) in the north) during 2011, there were no significant hydrological events. WFO Guam issued a few hydrologic products such as *Urban and Small Stream Flood Advisories* and *Special Weather Statements*, mostly for thunderstorms that occurred on Guam or on Pohnpei Island, or for periods of monsoon flow across the high islands of Chuuk Lagoon. Monsoon flow that often leads to prolonged heavy rains that can produce floods and mudslides was more prevalent than in 2010. However, the monsoon activity in Micronesia was relatively short-lived due to the short-lived period of ENSO-neutral conditions in mid-2011 that rapidly gave way to another La Niña event. Despite the fact that the western part of Micronesia experienced well above normal rainfall, significant extreme events that could have threatened life and property, did not occur.

With the strong La Niña of 2010 weakening in early 2011, the drought that brought very dry conditions to near equatorial areas east of 150°E, such as Kapingamaringi (Pohnpei State, Federated States of Micronesia (FSM)), Nauru, and western Kiribati, also weakened. From August 2010 until March 2011, the Guam forecast office issued weekly drought statements for Kapingamaringi. Easterly trade winds that dominated the flow in Micronesia weakened as ENSO-neutral conditions became dominant in June, producing more unstable rainfall regimes, including periods of westerly monsoon winds that penetrated as far eastward as Chuuk State. As a result, most locations were somewhat wetter than normal, except for the eastern portions of Micronesia such as Kosrae and the Marshall Islands. The ENSO-neutral conditions were short-lived as La Niña conditions began to re-emerge in August. While the 2011 La Niña event was not nearly as strong as the 2010 event, in many respects, it did behave similarly. For example, most tropical cyclone activity was displaced to the west of Micronesia and the rainfall for the Republic of Palau and for Yap State in the FSM was well above normal. Because of the weaker La Niña, most 2011 sea levels were considerably lower than during the October 2010-to-March 2011 period, resulting in little to no coastal inundation.

***Central North Pacific (140W to 180, North of the Equator) Overview***

Unseasonably persistent trade wind conditions in the first three months of the Hawaiian wet season helped bring near to above normal rainfall totals to many of the windward slopes of the main Hawaiian Islands. The persistent trades and lack of winter storm activity also meant little rainfall occurred over leeward areas. Many leeward areas continue to be impacted by severe to extreme drought conditions.

The agriculture sector including ranching, ornamental flowers, and coffee continues to experience the most detrimental impacts of the ongoing drought. Portions of Hawaii have been in severe drought or worse continuously since June 17, 2008 and extreme drought since July 7, 2009. Grazing pastures have experienced severe diminished vegetation forcing ranchers to reduce herd size or pay for expensive imported feed. Regional Specialized Meteorological Center (RSMC) Honolulu provided decision support to the State Drought Council, Wildland Fire Council, State and County Government, and various associations. The U.S. Dept. of Agriculture's Farm Service Agency has provided relief funds through its Livestock Forage

Program which uses the Drought Monitor as the deciding factor for granting relief funds to farmers.

3. Socio-Economic Assessment (highlighting socio-economic and DRR issues/impacts)

***Western North Pacific (130E to 180, north of the equator) Overview***

In 2011, tropical cyclone activity across the western North Pacific was below normal but above that of 2010. A late season tropical system developed near Palau and eventually became Tropical Storm Washi. While the weak system produced no significant damage or rainfall in Palau, the evolving stronger system triggered flash floods and mudslides in Mindanao in the southern Philippines, killing more than 500 people.

Once the strong La Niña of 2010 weakened in early 2011, the general weather was relatively mundane over Micronesia. There were a significant number of reports of waterspouts near Guam, the CNMI, Pohnpei Island and Kosrae Island in the Federated States of Micronesia. In May, a waterspout in Kosrae came ashore (becoming a tornado) and deposited a large amount of sand and seaweed in the lobby of a local hotel.

***Central North Pacific (140W to 180, North of the Equator) Overview***

A comprehensive tropical cyclone outreach program for the 2011 Central Pacific Hurricane Season generated a heightened awareness of emergency preparedness in the State of Hawaii. RSMC Honolulu staff provided presentations at or participated in over 30 outreach events focused on hurricane preparedness. RSMC Honolulu emphasized that even though there was a likelihood of developing La Niña conditions and a resulting decrease in tropical cyclone activity expected, it only takes one hurricane hitting Hawaii to produce major damage and impacts.

4. Regional Cooperation Assessment (highlighting regional cooperation successes and challenges)

***Western North Pacific (130E to 180, north of the equator) Overview***

To provide critical hydrological information for the smaller, less developed countries of Nauru and Kiribati, WFO Guam included these countries' information in the drought statements that were issued for Kapingamaringi into March of 2011. These bulletins were relayed to the US and Australian Embassies to relay to the affected nations.

## **II. Summary of Progress in Key Result Areas**

1. Progress on Key Result Area 1: Reduced Loss of Life from Typhoon-related Disasters

a. Meteorological - Achievements/Results. N/A

b. Hydrological – Achievements/Results. N/A

c. Disaster Risk Reduction - Achievements/Results.

- Children's books. RSMC Honolulu partnered with the University of Hawaii Sea Grant Program to publish a children's book emphasizing hurricane safety and preparedness. 3,000 books were printed. Books were approved for circulation and distributed to every public school and state library on each of the main Hawaiian Islands. RSMC Honolulu also participated in over 12 readings of the book to school children. This effort ensures the children of Hawaii are aware of the hazards associated with hurricanes and speak to their parents about being prepared.

d. Training, Research, and Other – Achievement/Results. N/A

- e. Regional Cooperation – Achievement/Results.
    - US transition to NOAA Geostationary Operational Environmental Satellite (GOES)-15. The US transition to the NOAA GOES-15 western satellite was successfully completed at 1628 UTC, on 14 December 14. There were several impacts. RSMCs Nadi, Fiji and Wellington, New Zealand, lost their ability to capture satellite imagery over the south central and the southeast Pacific due to incompatibility of their existing hardware/software ingesting systems. At the official request of RSMC Nadi, RSMC Honolulu will generate customized satellite sectors on a secure FTP site for RSMC Nadi until their software is updated and GOES-15 ingest resumes. The inability to ingest the NOAA EMWIN (Emergency Managers Weather Information Network) on the GOES-15 satellite caused a number of countries in the south-central and south-west Pacific to lose access to the EMWIN satellite broadcast, a satellite broadcast of weather and tsunami data, products, watches, warnings, and advisories, with the exception of the Marshall Islands, Vanuatu, and the Solomon Islands, who received new EMWIN receivers. New EMWIN receivers will be installed in early 2012 to the remaining Pacific Island countries.
    - Decommissioning of the old NOAA GOES-7 satellite, which has been utilized by the University of Hawaii's Pan-Pacific education and communication experiments by satellite (PEACESAT) Program, will occur in January 2012. The PEACESAT Program has up-linked the NOAA GOES-11 EMWIN broadcast to reach Weather Service Offices beyond the reach of the GOES-West EMWIN broadcast. A RAPIDCAST (RANET Asia-Pacific Information and Data Broadcast), a 128 kbps ku-band broadcast, is expected to be operating to cover this area by mid-2012, and receiving terminals will be installed at most Pacific Island national meteorological offices west of 150 degrees east, including the Micronesian Weather Service Offices.
    - NOAA-Japan Meteorological Agency (JMA) Info Exchange and MTSAT LRIT. NOAA and JMA continue discussions about the proposed understanding between NESDIS and JMA to continue exchange of information on advanced geostationary meteorological satellite imager algorithms and calibration.
  - f. Identified Opportunities/Challenges for Future - Achievements/Results. N/A
2. Progress on Key Result Area 2: Minimized Typhoon-related Social and Economic Impacts
    - a. Meteorological - Achievements/Results. N/A
    - b. Hydrological – Achievements/Results. N/A
    - c. Disaster Risk Reduction - Achievements/Results. N/A
    - d. Training, Research, and Other – Achievement/Results. N/A
    - e. Regional Cooperation – Achievement/Results. N/A
    - f. Identified Opportunities/Challenges for Future - Achievements/Results. N/A
  3. Progress on Key Result Area 3: Enhanced Beneficial Typhoon-related Effects for the Betterment of Quality of life.
    - a. Meteorological - Achievements/Results. N/A
    - b. Hydrological – Achievements/Results. N/A
    - c. Disaster Risk Reduction - Achievements/Results. N/A
    - d. Training, Research, and Other – Achievement/Results. N/A
    - e. Regional Cooperation – Achievement/Results. N/A
    - f. Identified Opportunities/Challenges for Future - Achievements/Results. N/A

4. Progress on Key Result Area 4: Improved Typhoon-related Disaster Risk Management in Various Sectors.
  - a. Meteorological - Achievements/Results
    - Graphical Tropical Weather Outlook. During tropical cyclone season, RSMC Honolulu prepares and transmits a text and graphical Tropical Weather Outlook. This text product and graphical representation describes the probability of tropical cyclone development in the next 48 hours.
    - Evaluation of new HURREVAC 2010. During 2011, the WFO Guam staff worked with the developers of the new HURREVAC 2010 program to ensure compatibility of WPAC warnings issued by JTWC to Disaster Preparedness and Emergency Management Offices (EMO) in Micronesia to watch and warning criteria.
  - b. Hydrological – Achievements/Results. N/A
  - c. Disaster Risk Reduction - Achievements/Results
    - Hawaii State Hazard Mitigation Forum. The Hawaii State Hazard Mitigation Forum, of which RSMC Honolulu is a member, is tasked with maintaining and updating the Hawaii State Hazard Mitigation Plan. Forum members met regularly and to discuss hazard threat, risk assessment, and actions which can be taken to mitigate the hazard risk to protect lives and property from loss and destruction during a natural hazard.
    - Hawaii Emergency Preparedness Executive Consortium. RSMC Honolulu is a member of the Hawaii Emergency Preparedness Executive Consortium (HEPEC). HEPEC is comprised of emergency managers and disaster mitigation personnel from local, state, and federal agencies. HEPEC meets quarterly to provide updates on current and outstanding threats, both natural and manmade, to the State of Hawaii. The RSMC Honolulu Director provided a hurricane presentation to the group during the June 2011 meeting.
  - d. Training, Research, and Other – Achievement/Results
    - Exercise Pakyo. A 3-day exercise sponsored by the Department of Homeland Security/US Federal Emergency Management Agency (FEMA) and the US military was held on Guam on 8 to 10 June. Pakyo means “strong wind” in the native language of Guam. WFO Guam participated in this exercise and was responsible for designing the scenario of the exercise. The scenario consisted of an intensifying Category 5 typhoon (super typhoon) moving directly over Guam. Local and Federal government agencies and several representatives of the private sector participated in the exercise. The objective was to provide typhoon response and recovery practice for new civilian and military leadership. WFO Guam also provided a day of executive-level familiarization training for the new leadership prior to the exercise. Participants/players also exercised three distinct, newly adopted phases of preparedness and response coordination with FEMA: Elevated threat, Credible threat, and Response.
    - Makani Pahili Hurricane Exercise. The annual Makani Pahili Hurricane Exercise, coordinated by Hawaii State Civil Defense (CD) in partnership with the National Weather Service (NWS) Forecast Office in Honolulu was held in May. Makani Pahili means “strong wind” in the Hawaiian language. RSMC Honolulu created over 175 text and graphical products for the exercise, featuring a fictitious, category 4 hurricane making landfall on Oahu.
  - e. Regional Cooperation – Achievement/Results. N/A

f. Identified Opportunities/Challenges for Future - Achievements/Results. N/A

5. Progress on Key Result Area 5: Strengthened Resilience of Communities to Typhoon-related Disasters.

a. Meteorological - Achievements/Results

- Monthly Pacific ENSO Discussion. WFO Guam provides a monthly written discussion on the status of the ENSO and its effects on Micronesia. This discussion is relayed to weather officials, emergency managers, US ambassadors and other agencies in Micronesia. These discussions not only entail the trend of the ENSO but provide information on tropical cyclone, hydrological and sea level conditions associated with it. However, if drought conditions exist and Drought Statements are in effect, these monthly discussions are temporarily postponed. WFO Guam also assists with the composition of the quarterly *Pacific ENSO Update* newsletter produced by the Pacific ENSO Applications Center and coordinates on the Climate Prediction Center's Monthly *ENSO Diagnostics Discussion*.

b. Hydrological – Achievements/Results. N/A

c. Disaster Risk Reduction - Achievements/Results

- Annual Tropical Cyclone, Disaster Preparedness and Climate Workshop. These two-day, 18-module workshops are designed for decision makers in the local, state, and national governments and agencies. They cover various topics such as: tropical cyclone behavior, structure and hazards; the WFO Guam tropical cyclone program, products and timing of products; tsunamis and volcanoes; rip currents, currents, and tides; earthquakes and tsunamis; tropical cyclone plotting and speed-distance-time computations; general climate familiarity, climate variability and climate change; typhoon risk and vulnerability; a scale that relates tropical cyclone wind speed to damage and storm surge; El Niño /La Niña and their effects, impacts and status; tropical cyclone decision making for individual islands/states; and WFO Guam website products and navigation. In 2011, WFO Guam conducted workshops: in Pohnpei, Yap, Kosrae and Chuuk in the FSM; at Saipan, Tinian and Rota in the CNMI; and on Guam. In addition to conducting the workshops, WFO Guam also provides seminars at the local colleges, training at the meteorological service offices, and training to disaster managers. (*also in KRA 4*)
- National Disaster Preparedness Month. As is usual, September was declared National Disaster Preparedness Month for 2011. The Emergency Management Offices on Guam and in the CNMI took the leads and arranged the events. On Guam, several events and numerous activities such as school presentations and a Grand Finale event at a major shopping center showcased the Preparedness Month. WFO Guam participated in the proclamation signing by the Governor of Guam, several awareness activities with over 250 contacts, the Grand Finale Display at the local Shopping Center with more than 300 contacts. WFO Guam also took its display to Saipan in the CNMI, and participated in radio and television spots/interviews for the CNMI Grand Finale.
- 2011 Central Pacific Hurricane Season Press Conference. RSMC Honolulu hosted a press conference to announce the 2011 Central Pacific Hurricane Season Outlook on May 18. The keynote speaker was the Honorable Neil Abercrombie, Governor of the State of Hawaii who emphasized the State of Hawaii is committed to protect the lives of residents and visitors in the event of a hurricane. All four local television stations and the state-wide newspaper attended the press conference and featured stories that evening and/or

the next day on hurricane preparedness and the forecast for a 70 percent chance of a below normal season, a 25 percent chance of a normal season, and a 5 percent chance of an above average season based upon the development of La Niña conditions.

- RSMC Honolulu outreach and education. RSMC Honolulu staff participated in the University of Hawaii, School of Ocean and Earth Science and Technology, Open House with over 1000 children attending; staffed a booth at the Hawaii Fishing and Seafood festival for over 18,000 participants; judged at the state science fair; made a presentation to the HEPEC and to the Hotel Security Association; a radio and two television hurricane preparedness seminars; a statewide hurricane exercise; and over a 100 other presentations and events.
- d. Training, Research, and Other – Achievement/Results
- University of Guam lectures. Environmental Biology classes at the University of Guam participated in a field trip and lecture series at the WFO Guam during the spring and fall semesters. WFO Guam gave 2-hour presentations, which covered basic weather concepts, climate and climate change, and weather and ocean hazards, such as tropical cyclones, volcanic eruptions, and tsunamis. A total of 135 students benefitted from the training.
  - Spotter training. WFO Guam provided Spotter Training for members of the Marianas Amateur Radio Club (MARC). This covered information needed during and following tropical cyclones, high surf events, tsunamis, flash floods, mudslides, severe thunderstorms and high wind events. The spotters received a tour of the WFO Guam and were able to talk to outer islands on the HF radio.
- e. Regional Cooperation – Achievement/Results. N/A
- f. Identified Opportunities/Challenges for Future - Achievements/Results. N/A
6. Progress on Key Result Area 6: Improved Capacity to Generate and Provide Accurate, Timely and understandable Information on Typhoon-related Threats.
- a. Meteorological - Achievements/Results
- Radiosonde Replacement System (RRS). The National Weather Service completed its RRS Program in 2011 with the installation of the new system throughout the NWS Pacific Region. This program successfully replaced the antiquated Microcomputer Automatic Radio-theodolite (Micro-ART) system which had been in operation since the late 1980s. The RRS is comprised of a new Global Positioning System (GPS) tracking antenna referred to as the telemetry receiving system or TRS, 1680 MHz GPS radiosondes, and a new NT-based workstation. In addition to the deployment of the RRS, a new surface weather observing system and precision digital barometers were installed.
- b. Hydrological – Achievements/Results. N/A
- c. Disaster Risk Reduction - Achievements/Results
- RANET Chatty Beetle. The Radio and Internet (RANET) Chatty Beetle is a messaging device designed for remote alert and warning applications. Pilot program deployment is funded by the USAID/OFDA and NOAA. The current terminal design is hardened to operate in remote and environmentally harsh locations where communications are limited. The solar-powered system is based on the Iridium Short Burst Data (SBD) service, and can operate in stand-by mode for 36- 48 hours. The terminal supports two-way



Figure 3: Chatty Beetle

communications with messaging and warning alarm capability. Twenty units have been distributed to Guam and the five Micronesia Weather Service Offices (WSOs). Several have been deployed to outer islands and have been successfully tested.

- New Weather Service Office. Construction began on the new WSO in Kolonia, Pohnpei, FSM in 2011. This new office increased the size of the existing structure by 50 percent and it will modernize the facility that was originally built in 1985. With a more efficient layout, formal meeting room, ready room, parking and the large screen TV, WSO Pohnpei is more capable in briefing officials/fire/police during a serious weather event.
- Surf training. WFO Guam provided surf observation training at locations throughout Micronesia. This included 1 hour of classroom (theory) training and 1-2 hours of field training. Spotter training was also provided to 55 new weather/ocean event spotters at various locations in Micronesia, including 21 amateur radio (also called ham radio) users on Guam. The spotters provide critical, specifically tailored information to the weather offices during and after destructive weather, ocean and other geophysical events.
- On three occasions, RSMC Honolulu hosted Forecasters and Typhoon Duty Officers from the Naval Maritime Forecast Center (NMFC) and Joint Typhoon Warning Center (JTWC). The visits were to familiarize NMFC and JTWC staff with RSMC Honolulu operations and forecast software packages and to increase collaboration amongst the two agencies.

c. Training, Research, and Other – Achievement/Results

- Pacific International Desk. From 21 February to 1 April, the Pacific International Desk Training Programme, RSMC Honolulu, Hawaii Islands, USA trained 1 forecaster from Tuvalu. Funding issues temporarily suspended the Pacific International Desk Training for the remainder of 2011. Funding has been secured for an abbreviated training program in 2012 and RSMC Honolulu will seek applications for 6 training slots in 2012. Since its inception in 2001, 62 people from 15 Members of WMO RA V (Philippines and Malaysia are also Members of the Typhoon Committee) and Viet Nam and Cambodia from the Typhoon Committee have attended this programme. The USA government, through NOAA NWS, funded the training programme.
- RSMC training. Hurricane Specialists and Hurricane Forecasters at RSMC Honolulu completed their annual hurricane and Dvorak technique training.

d. Regional Cooperation – Achievement/Results

- Aviation SIGMET. RSMC Honolulu participated in two international tests of Tropical Cyclone SIGMET dissemination which was coordinated by the WMO. RSMC Honolulu issued a test Tropical Cyclone Advisory followed by a test Tropical Cyclone SIGMET.
- Climate Workshops. WFO Guam attended the RANET Pacific Telecommunications Meeting, a climate services training workshop, on 8 August and the 14<sup>th</sup> SPREP Regional Meteorological Services Directors (RMSD) meeting (Biennial) sponsored by the Secretariat of the Pacific Regional Environmental Program (SPREP) from 9-12 August in Majuro, Republic of the Marshall Islands. Attendees from the northern and southern hemisphere Pacific Island nations, from the major supporting nations of the US, Australia, New Zealand and France, and from donor nations participated. One of the key outcomes of the meeting was to elevate the RMSD to the Pacific Meteorological Council (PMC), changing the group from an advisory group to the primary meteorological decision-making body for regional small island nations. In addition, the Council and other attendees reviewed and recommended changes to the Region's first PMC Strategic Plan

for the period 2012-2021. A report of the 14th SPREP RMSD meeting, and its transition into the more formal 1st Pacific Meteorological Council, can be downloaded from the SPREP web site at:

[http://www.sprep.org/2011SM22/pdfs/eng/Officials/WP\\_8\\_2\\_5\\_Att\\_2\\_Outcomes%20of%20the%2014th%20RMSD%20and%201st%20PMC.pdf](http://www.sprep.org/2011SM22/pdfs/eng/Officials/WP_8_2_5_Att_2_Outcomes%20of%20the%2014th%20RMSD%20and%201st%20PMC.pdf)

- Articles and Reviews. In addition to conducting several peer reviews for scientific journal articles, WFO Guam Staff co-authored a paper on the Pacific ENSO Applications Climate (PEAC) Center and its support to the Pacific Island nations for the Bulletin of the American Meteorological Society (BAMS). At the request of the Chairman of the Chinese Meteorological Society, WFO Guam Staff also prepared presentations for and participated in a unique WMO-WWRP-sponsored International Workshop on Tropical Cyclone Unusual Behavior, which was hosted by several Chinese organizations at a conference center in Xiamen, China from 18-20 October.
  - Fukushima support. Three WFO Guam weather forecasters were tasked to provide twice-a-day, 7-day forecasts for the area of the Fukushima power plant following the March 2011 earthquake and tsunami disaster in northern Japan. This was in support of US relief and support operations and decision-support in Washington, DC.
  - e. Identified Opportunities/Challenges for Future - Achievements/Results. N/A
7. Progress on Key Result Area 7: Enhanced Typhoon Committee's Effectiveness and International Collaboration.
- a. Meteorological - Achievements/Results. N/A
  - b. Hydrological – Achievements/Results
    - USA participated in the UNESCAP Typhoon Committee Integrated Workshop on “*Damage Assessment Methodology and Pre-Assessment of Typhoon Landfall Impact*” in Nha Trang, Viet Nam from November 7-11.
  - c. Disaster Risk Reduction - Achievements/Results.
    - ESCAP WGDRR meeting. The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) Typhoon Committee Working Group on Disaster Risk Reduction (WGDRR) held its 6<sup>th</sup> meeting in Incheon, Korea on 25-26 May. WFO Guam MIC is the US Representative to the group and presented an overview of the 2010 typhoon season and the US Pacific Region's progress on the Typhoon Committee's Key Result Areas. In addition to the collaboration on current WGDRR projects among the Members, the group was present for the launching of the UN ISDR (International Strategy for Disaster Reduction) Report on the Global Assessment Report on Disaster Risk Reduction 2011.
  - d. Training, Research, and Other – Achievement/Results.
    - New appointments. WFO Guam Meteorologist-In-Charge was elected to serve as the Vice-Chair of the Typhoon Committee Advisory Working Group. WFO Guam Science and Operations Officer was appointed to serve as the Vice-Chair of the Training and Research Coordinating Group and as an editor for the new ESCAP Science and Technology Journal, Tropical Cyclone Research and Review.
  - e. Regional Cooperation – Achievement/Results. N/A
  - f. Identified Opportunities/Challenges for Future - Achievements/Results. N/A

### III. Resource Mobilization Activities

None.

#### **IV. Update of Members' Working Groups representatives**

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5. Resource Mobilization Group  
None.

## V. Glossary of Acronyms

AOR	Area of Responsibility
ART	Automatic Radio-Theodolite
BAMS	Bulletin of the American Meteorological Society
CD	Civil Defense
CNMI	Commonwealth of the Northern Mariana Islands
CPC	Climate Prediction Center
EMWIN	Emergency Managers Weather Information Network
ENSO	El Nino-Southern Oscillation
FEMA	Federal Emergency Management Agency
FSM	Federated States of Micronesia
FTP	File Transfer Protocol
GOES	Geostationary Operational Environmental Satellite
GPS	Global Positioning System
HEPEC	Hawaii Emergency Preparedness Executive Consortium
IRI	International Research Institute for Climate and Society
JMA	Japan Meteorological Agency
JTWC	Joint Typhoon Warning Center
LRIT	Low-Rate Information Transmission
MARC	Marianas Amateur Radio Club
MTSAT	Multi-Functional Transport Satellite
NESDIS	National Environmental Satellite, Data, and Information Service
NMFC	Naval Maritime Forecast Center
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
OFDA	Office of Foreign Disaster Assistance
PEAC	Pacific ENSO Applications Climate
PEACESAT	Pan-pacific Education And Communication Experiments by SATellite
PMC	Pacific Meteorological Council
RA	Regional Association
RANET	Radio And InterNET
RAPIDCast	RANET Asia-Pacific Information and Data Broadcast
RMSD	Regional Meteorological Services Directors
RRS	Radiosonde Replacement System
RSMC	Regional Specialized Meteorological Center
SBD	Short Burst Data
SIGMET	Significant Meteorological Information
SOO	Science and Operations Officer
SPREP	Secretariat of the Pacific Regional Environmental Program
TRS	Telemetry Receiving System
WFO	Weather Forecast Office
WMO	World Meteorological Organization
WWRP	World Weather Research Program
WFO	Weather Forecast Office

WGDRR Working Group on Disaster Risk Reduction  
WMO World Meteorological Organization  
WSO Weather Service Office  
UNISDR United Nations International Strategy for Disaster Reduction  
US United States  
USAID United States Agency for International Development