PACIFIC METEOROLOGICAL COUNCIL

SPREP Secretariat of the Pacific Regional Environment Programme

Strengthening the Resilience and Security of Pacific Communities through an Integrated approach to Weather Climate and Water Risks

Second Meeting of the Pacific Meteorological Council (PMC-2)

1-5 July 2013
Nadi
Fiji Islands

Agenda Item 6.4.5: Severe Weather and related Systems not associated with Tropical Cyclones – the Vanuatu experience

Purpose

1. To outline the importance of the Severe Weather Forecasting and Disaster risk reduction Demonstration Project (SWFDDP) in addressing severe weather and related systems that are not associated with tropical cyclones (TC) in Vanuatu.

2. To demonstrate the products and services that Vanuatu Meteorology and Geo-Hazards Department (VMGD) issues for severe weather and large waves events not associated with TCs to manage risks associated with these events.

Background

3. The South West (SW) Pacific Islands Severe Weather Forecast Demonstration Project (SWFDDP) is the sub-regional component of the WMO led Severe Weather Forecast Demonstration Project (SWFDP) (refer to Agenda Item 6.5.2 for full details).

4. The vision of the SWFDP is for NMSs in Pacific Islands able to implement and maintain reliable and effective routine forecasting and severe weather warning programmes through enhanced use of NWP products and delivery of timely and authoritative forecasts and early warnings, thereby contributing to reducing the risk of disasters from natural hazards. The SWFDP main goals are (1) Improve severe weather forecasting (2) Improve lead time of warnings and (3) improve interaction of NMHSs with users: disaster management, the media, civil protection authorities and the general public.

5. The Meteorological Service of New Zealand Ltd (MetService) is the regional coordinator for the SWP Pacific Islands SWFDDP. It hosts a password protected website (***MetConnect Pacific***), a 'one stop virtual mall' for the project. MetConnect Pacific provides daily observations, guidance products and links to global producing centres (GPCs), RSMCs and the NMHSs. Twice daily; forecasters at the RSMC Wellington, MetService, prepare the RSMC Daily Severe Weather Forecasting Guidance Products, referred to as the "South Pacific Guidance (SPG)". The SPG are then uploaded to MetConnect Pacific for Pacific Islands NMSs weather forecasters to use, as appropriate, taking into account their own national circumstances, when preparing forecasts and warnings for TCs, non-tropical cyclone events, large waves, heavy swells and heavy rainfall at the country and local levels. The SPG assisted forecasters indicate areas which are likely to be affected

and the likelihood of the event occurring over the next four (4) days. This gives a heads up to forecasters, so that they can issue their warnings well in advance before the onset of the severe weather events.

6. Many communities in the South West Pacific know what a tropical cyclone is, as they have either experienced it at least once in their lifetime or heard about them. They however, have limited knowledge about other non-tropical cyclone weather systems that can equally or worse generate severe weather conditions. Knowing little about severe weather systems other than tropical cyclones can become a major challenge, as people would think that it may not cause a threat to them, their livelihoods, or their properties

7. Vanuatu is not immune to severe weather and related conditions that are not related to tropical cyclones. During its winter months, when the subtropical ridge moves north, intense high pressure systems that move into the Tasman Sea from Australia generate strong to gale winds over Vanuatu's sea and land area. In both summer and winter months, low pressure systems that formed over the Coral Sea or near New Caledonia and move southeast can generate strong or gale westerly winds. This can be very dangerous for people travelling in the open waters. A deep trough system that formed over or within the vicinity of Vanuatu can generate heavy rainfall, either localised or widespread, which can result in heavy rainfall, flooding and landslide. These localised systems are difficult to forecast. The SWFDDP project has enabled Vanuatu to issue targeted services to manage risk, save lives and protect properties. Two years ago, VMGD started issuing a warning bulletin called 'Severe Weather Warning' (SWW). SWW covers heavy rainfall (100 mm or more in 24 hours), flooding and inland winds of 20 knots or more.

8. More recently, new weather products and warnings have been issued for Vanuatu as a result of the project. They are:

    a. High Seas Forecast and Warnings
    b. Five (5) Day TC Outlook for Area 12S to 23S and 160E to 175E and
    c. Three (3) day Severe Weather Outlook (SWO) for Vanuatu. The SWO for Vanuatu covers heavy rainfall/flood, inland winds of 20 knots or over and winds of 25 knots or more over Vanuatu's coastal waters.

9. The project also allows Vanuatu's TC forecasters be more confident in the TC messages that they issue. They are also able to be ahead of the developments of tropical cyclones.

10. The project continuously emphasises the point that weather warnings issued for non-tropical cyclone events are just as important as TC warnings. Strong inland winds, very rough seas, high waves, heavy swells, heavy rainfall and flooding can result in loss of live and property. To reduce this risk, NMHS are encouraged to issue products based on the guidance provided by the SWFDDP project (MetConnect Pacific portal) to their people to warn them in advance of impending severe weather systems.

11. **Vanuatu real experience; an example**: On the 11thof June 2012, an active area of low pressure moved from the Coral Sea past the south of Vanuatu and New Caledonia. It created strong west and south-westerly winds and very rough seas and high waves over Vanuatu Coastal Waters from the 11thto 14thof June 2012. A strong wind warning was issued six (6) to twelve (12) hours in advance before the onset of the event. Winds of 20 to 30 knots and wave heights of 3.5 to 4.0 metres were expected. A small boat travelled between the central islands of Vanuatu during that time, despite the warnings being issued, and despite them (travellers) knowing that a warning was issued. The boat capsized and 8 people were lost and presumed dead. They were never found.

12. Over the last ten (10) years more lives were lost mostly at sea during non-tropical cyclone events than during TC events. This emphasises the importance of the SWFDDP project and acknowledge the fact that NMHSs and Disaster Management Offices (DMOs) must work together to publicise warnings that are issued for non-tropical cyclone events, so that people do believe in the warnings, and act upon them, to manage the risks associated with the severe weather systems and large waves and swells not associated with tropical cyclones. .

Recommendations

13. The Meeting is invited to:

- **Note** this paper
- Give its full **support** to the continuation of the SWFDDP project
- **Encourage PMC M**embers to issue severe weather forecasts and warnings for events that are not related to tropical cyclones
- **Note** that the Vanuatu experience demonstrates the urgent need for NMHSs to work closely with DMOs, the Media and the public to emphasise the importance of weather warnings for severe weather events that are not associated with tropical cyclone events, so people can take the warnings seriously.
- Re**quests the Director General of SPREP**:

    (1) To provide support to the SWFDDP and working closely with WMO to secure funding and other support for the continuation and sustainability of the project;
    (2) To keep the PMC and WMO Members, in particular RA V Members, informed of progress and developments on its work to support the continuation of the project;
    (3) To bring this matter to the attention of all concerned.

- **Acknowledge and express its appreciation** to all stakeholders of the South West Pacific SWFDDP; WMO, GPCs, RSMCs, SPREP, Pacific Islands NMHSs, in particular, MetService, New Zealand, for coordinating the project and hosting the SWFDDP MetConnect Pacific, Australian Bureau of Meteorology, US NOAA NWS, Met Office UK, Japan Meteorological Agency (JMA), Meteo France and other development meteorological partners.

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