
Fourth Meeting of the Pacific Meteorological Council (PMC-4) Working Papers

7-9 August 2019
Apia
Samoa

Agenda Item 13.2: Progress from ORSNET

Purpose:

- 1) The purpose of this paper is to provide update on the progress of ORSNET services for tsunami early warning.

Background:

The ORSNET stands for Oceania Regional Seismic NETWORK.

The member states are Papua New Guinea, Solomon Islands, New Caledonia, Vanuatu, Fiji, Tonga and Samoa. All ORSNET data are shared with PTWC since the end of 2016.

The main motivation of establishing this Oceania Regional Seismic Network (ORSNET) is to better manage Tsunami Alerts in national tsunami warning centers (more stations mean better/faster/more accurate earthquake detection and source characterization). This also supports the National TWS with a Regional Alert System and allows sharing of resources (financial, technical and human) for mutual support. This has been the only and best way to ensure that ORSNET member states can obtain continuous training and mutual support to become self-reliant to cope with earthquake hazards and tsunami early warning.

The countries initially collaborated in the network through a letter of agreement. The connection of the Solomon Islands seismic observatory was trialled in 2013. The Samoan seismic network was connected to the ORSNET server in New Caledonia in 2014, Fiji and Tonga in 2015, and Papua New Guinea in June 2017.

Vanuatu has been coordinating the ORSNET project since 2013. New Caledonia is hosting and maintaining the network server, as well as providing network services to countries when needed. The project was established with the support of the Pacific Fund to establish the full network server infrastructure in New Caledonia and the connection to the countries.

The first audience was the UNESCO IOC PTWS Working Group of Tsunami detection and warning dissemination meeting in Wellington in 2011, and in Samoa in July 2012 when the IOC/ICG/PTWS endorsed the sharing of seismic data between Vanuatu and New Caledonia as the appropriate pattern for other countries to follow. The first ever ORSNET executive committee was held in Vanuatu in 2013 after the CTBTO national data centre training where the countries elected Vanuatu as the chair and Samoa as Vice chair. Since 2013, ORSNET executive committee meetings are held annually back to back with other meetings due to funding constraint to update on the progress of each country and to discuss needs.

Through the Intergovernmental Coordination Group (ICG) for Pacific Tsunami Warning and Mitigation System (ICG/PTWS), it was recognised that ORSNET serves as the only vehicle for seismic data sharing in the region, and as such, it strongly requested for ORSNET member Countries to use bilateral or multilateral funding mechanisms to ensure that ORSNET is sustainable. Currently, there is no funding mechanism in place to ensure the sustainability of the network.

The ORSNET server host is providing the service to member countries particularly by undertaking the system back up and the data archive for national seismic Observatories, issuing the daily network status and the earthquake detection notification to members who would like to receive this service. Moreover mutual technical support remotely or on site is up to date to ensure continuous data streaming. As the network gets mature, more technical areas of need are continuously required which will need limited funding support. Together as a region and as a regional network, ORSNET countries are helping each other to develop to the standard required by the Federation of Digital Seismograph Networks.

Various ORSNET products were developed since 2017 and are available to ORSNET member countries and tsunami focal points in the region through a web service that is accessed at www.ORSNET.org

Updates

1. ORSNET Member States presently consist of Fiji, New Caledonia, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu. Membership could be extended to other countries operating a national seismic network, such as French Polynesia, in due course.
2. The Solomon islands network is upgraded with additional 6 seismic stations though south-south exchange collaborations
3. The ORSNET Regional Data centre developed the ORSNET products particularly -the ORSNET web services, the daily ORSNET station state of health report, the ORSNET ftp server with earthquake bulletins and other information resources relevant to ORSNET country's needs. This service is available to members.

4. The ORSNET members agreed to continue to issue earthquake bulletins as appropriate to members and tsunami warning focal points in the PICT upon request. This has been done for Kiribati, Cook Islands, Wallis and Futuna.
5. The ORSNET Regional Data Centre has the capacity to remotely archive seismic data from national data centre and ensure national seismic data management systems back up pending access provided.
6. The ORSNET member states agree to expand their data sharing efforts in volcano-seismic monitoring
7. The ORSNET member states have developed the term of reference for the ORSNET Regional Data Centre program management., leadership and membership
8. The ORSNET Data agreement , is called the “Agreement of the Oceania Regional Seismic Network data sharing for Tsunami warning in the south West Pacific”, is finalised ready to go through formalisation process of individual countries, The agreement includes the following:
 - i. To continue to provide data to the ORSNET Regional Data Centre
 - ii. ORSNET Regional Data Centre to provide real-time seismic data to ORSNET Member States and the PTWC for tsunami warning purposes
 - iii. ORSNET Regional Data Centre to provide bulletin containing earthquake location, magnitude and depth to ORSNET Members, as well as Pacific islands counties who request for this information.
 - iv. The ORSNET Regional Data Centre will redistribute any ORSNET Member State’s real-time seismic data feed to Global Seismic Networks, ONLY if agreed by the concerned ORSNET Member State.
 - v. ORSNET Member States are prohibited to distribute seismic data of any other ORSNET Member State without prior approval.
 - vi. Data request from third party should be directed to member country concerned. The country has to notify the data center of any data sets issued to third party.
9. The ORSNET member countries agreed that ORSNET should be regionally aligned for long term sustainability

Recommendations:

1. The Meeting is invited to:

➤ **Note**

- .1. The progress of ORSNET with the availability of ORSNET services to national tsunami warning centres
- .2. The commitment and contribution of all ORSNET countries in the development and running of this regional network
- .3. The request of ORSNET members to see regional alignment for long term sustainability and contribution of the system to the PTWS to improve early detection

➤ **Request.**

- .1. Support for ORSNET activities and development towards tsunami early warning