



## **The GEOSCOPE broadband seismic observatory**

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The GEOSCOPE observatory has provided continuous broadband data to the scientific community for the past 34 years. The 31 operational GEOSCOPE stations are installed in 17 countries, across all continents and on islands throughout the oceans. They are equipped with three component very broadband seismometers (STS1, T240 or STS2) and 24 or 26 bit digitizers (Q330HR). Seismometers are installed with warpless base plates, which decrease long period noise on horizontal components by up to 15dB. All stations send data in real time to the IPGP data center, which transmits them automatically to other data centers (FDSN/IRIS-DMC and RESIF) and tsunami warning centers. In 2016, three stations are expected to be installed or re-installed: in Western China (WUS station), in Saint Pierre and Miquelon Island (off the East coast of Canada) and in Walis and Futuna (SouthWest Pacific Ocean).

The waveform data are technically validated by IPGP (25 stations) or EOST (6 stations) in order to check their continuity and integrity. Scientific data validation is also performed by analyzing seismic noise level of the continuous data and by comparing real and synthetic earthquake waveforms (body waves). After these validations, data are archived by the IPGP data center in Paris. They are made available to the international scientific community through different interfaces (see details on <http://geoscope.ipgp.fr>). Data are duplicated at the FDSN/IRIS-DMC data center and a similar duplication at the French national data center RESIF will be operational in 2016.

The GEOSCOPE broadband seismic observatory also provides near-real time information on global moderate-to-large seismicity (above magnitude 5.5-6) through the automated application of the SCARDEC method (Vallée et al., 2011). By using global data from the FDSN - in particular from GEOSCOPE and IRIS/USGS stations -, earthquake source parameters (depth, moment magnitude, focal mechanism, source time function) are determined about 45 minutes after the occurrence of the event. A specific webpage is then generated for each earthquake, which also includes information for a non-seismologist audience (past seismicity, foreshocks and aftershocks, 3D representations of the fault motion...). Examples for recent earthquakes can be seen on <http://geoscope.ipgp.fr/index.php/en/data/earthquake-data/latest-earthquakes>.