



## **Telsite: a geophysical instrumentation system.**

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Mururoa Atoll is on an inert volcanic bedrock, more than 1000 km away from the magmatic source that gave it birth. It is moving away from this source at an average rate of 11 cm/year to the northwest.

After the nuclear bomb testing had been stopped in 1996, the atoll monitoring was adjusted to monitor the geomechanical evolution of the site. For that, a monitoring system called TELSITE (Télésurveillance du SITE) was put into service at the beginning of 1997. It ensures a permanent and continuous geomechanical monitoring of the Atoll, based on information collected by different kinds of sensors (seismic sensors, inclinometers, extensometers, submersion sensors, GPS position sensors). The main missions of this system are to allow real-time monitoring of seismic activity on one hand, and to monitor the movement of some oceanic cliffs of the atoll on another hand.

As the TELSITE system had been showing signs of ageing, a new system called TELSITE 2 was designed, then installed and put into operation on 23 August 2018. In this framework, beside the surface geophysical stations, three vertical boreholes were drilled and equipped with seismic sensors and inclinometers. Moreover, six inclined boreholes were drilled. These ones are equipped with cables clamped to the rock at the bottom by hydraulic plug and coming back up to the surface, where their ends are wound around measuring wheels. These systems measure the displacement of the oceanic cliffs.

This presentation details the design steps and the different phases of the installation of this singular instrumentation.