



## **Project for an Italian multiparametric seismic network**

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The Istituto Nazionale di Geofisica e Vulcanologia (INGV) runs the Italian National Seismic Network (Rete Sismica Nazionale, RSN) and other networks at national scale for monitoring earthquakes and tsunamis as a part of the National Civil Protection System led by the Italian Department of Civil Protection. RSN is composed of about 400 stations, the current configuration is the result of a long and complex process that took place over the last 25 years, always looking for the best technologies available at the moment.

Today, the network consists of several multi-sensor stations being installed in some cases at the same site. A velocimeter (different types of broadband, VBB, or short-period sensors) is present at more than 350 sites, an accelerometer at about 110 sites, a GPS receiver at about 180 sites and in few cases a radon sensor is installed. The data acquired are transmitted in real time by different vectors, not always integrated. The high heterogeneity of the sensors and transmission vectors presents concrete advantages in terms of flexibility, quantity and quality of data produced although it can reduce the reliability and performance of the network. In fact particular attention should be devoted to the power supply and transmission systems of the stations.

In the following year INGV is promoting an upgrade of a limited number of sites/stations in order to constitute a multi-parametric network able to guarantee the highest level of reliability for the seismic monitoring service. At the same time, it lays the groundwork for future multi-parameterization of the entire INGV monitoring infrastructure. A forthcoming station suited to be part of the aforementioned multi-parameter network must guarantee the acquisition of high-quality different geophysical data: seismic, accelerometric and geodetic data, together with radon emanations. The selected stations for the improvements should ensure easy accessibility to the site, good logistics, robustness of signal transmission (preferably latency times under 1 second, certainly under 10 seconds). Stemming from such principles we are going to select the candidate sites where installing the necessary sensors to complete the multiparametric station. These latter will be acquired at the three INGV monitoring rooms in Rome, Naples and Catania to guarantee the robustness and redundancy of the Italian seismic surveillance.