



The INGV Mobile Telemetered Network (Re.Mo.Tel.): long-term monitoring analysis.

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Since 2008, the Istituto Nazionale di Geofisica e Vulcanologia (INGV) developed a temporary real-time telemetered seismic network infrastructure (Re.Mo.Tel.) to densify the Italian National Seismic Network in epicentral area, thus improving the location of the aftershocks distribution after a mainshock. This infrastructure consists of various mobile and autonomous seismic stations that in group of three are telemetered to a Very Small Aperture Terminal (VSAT). Using a dedicated bandwidth on UHF, Wi-Fi and satellite frequency, the system is able to stream real-time data to the INGV acquisition centers in Rome and Grottaminarda. The deployment of the seismic network is supported by a geographical information system (GIS) that visualizes, for the epicentral area, information about instrumental seismicity, seismic risk, macroseismic felts and territorial data.

The April, 6th, 2009 Mw 6.3 L'Aquila destructive earthquake represented the first real-case where the entire Re.Mo.Tel. infrastructure has been deployed. Less than 6 hours after the earthquake occurrence, a first accelerometric station was streaming data to the INGV seismic monitoring headquarters. A total number of 9 seismic stations was installed within 4 days after the main event, with the aim of recording continuous data to contribute in the aftershocks detection. In detail the first day a number of 3 stations was installed, surrounding the mainshock. Then the rest of the stations was deployed on the third and the fourth day to the south and the north, following the post-seismic evolution. A project funded by the Dipartimento di Protezione Civile (DPC-Civil Defense) gave the opportunity to maintain some of the deployed stations throughout the duration of the project of one year (although the stations are still installed) to assure the long-term monitoring of the triggered seismic sequence.

In this work, we investigate:

- The impact of the Re.Mo.Tel. on earthquakes detection and real-time monitoring of the sequence evolution;
- The location improvement due to the deployment of stations closer to the epicentral area (with installations that followed the early evolution and complexity of fault fractures);
- The network reliability in terms of data stored throughout the working period.