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A new integrated seismic and GPS mobile network – (test site: ”Montereale, Aquila – Italy”)

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INGV (Istituto Nazionale di Geofisica e Vulcanologia) is currently using different communication systems for the acquisition of seismic and GPS data from remote stations. The heterogeneity of these connection systems provides strength and redundancy for national seismic monitoring.
Nowadays almost all seismic and gps stations use a remote IP connection for data transmission. A more simplified, mature and reliable access to this type of connection is now possible thanks to recent developments occurred in telecommunications. The implementation of an IP connection is possible using the existing similar telephone and networks (ADSL) system, through the creation of an ad-hoc networks for data exchange, as for RUPA (Unified Network of Public Administration) , or through links to recent satellite-using suppliers, as Nanometrics, Astra2Connect etc. The wireless mesh network, developed at INGV, integrates all the currently used transmission and acquisition seismic and GPS data systems referring to the well know Internet Protocol (IP).
The “mesh networks” as the Internet access points, are able to talk to each other and have all routing functions. They are able to forward packets to another node, each one is needed to be connected to the wired network to extend coverage. The various nodes of the network, previously configured, can automatically interconnect with each other node without any topological constraint and without requiring configuration assistance. The operator will simply proceed the optical antenna pointing it toward the nearest node (or to multiple nodes to achieve redundancy of links) to allow the station to "engage" the network infrastructure.
In this work we will show:
• planning, development and installation of network;
• the network infrastructure;
• the contribution of the Wi-Fi mesh network at the INGV National Seismic Network (RSN).