Convenzione INGV-DPC 2007-2009
Seismological Projects
Integration to Project S5
"High-resolution multi-disciplinary monitoring of active fault test-site areas in Italy"
Test site "L'Aquila"
L'Aquila fault system. A test site to understand the physical processes of the earthquake preparation and generation.
(duration 1 September 2009- 31 May 2010)

WP4.1: Build a semi-permanent Seismic and GPS network to monitor segments adjacent to Paganica fault.

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Objectives

Rapid field deployment of a new type of continuously operating Global Positioning System (GPS) network, together with data collected from the Rete Integrata Nazionale GPS (RING) stations that had recently begun operating in the area, allow unique observations of the postseismic deformation associated with the 2009 L'Aquila earthquake.
Innovative solutions in field-craft, devised for the 5 new GPS stations, provide high-quality observations with 6-months time histories on stable monuments at remote sites.

We propose to integrate the new 5 GPS sites temporary installed for the emergency into the RING in real time acquisition (Rinex 30s)

Similarly, 5 seismic stations possibly with Nanometrics satellite-linked Real Time acquisition (satellite centre near Coppito, two near Montereale [RI] and 2 to the south) and few standalone stations are planned to be active for the project duration, to have precise locations of the earthquakes and monitor the segments adjacent to L'Aquila fault.

Activities

The activity include different tasks as follows:

(a) bureaucratic regularization of the survey sites to obtain environmental licenses;

(b) fence deployment for on-site protection;

(c) power supply for increasing performance;

(d) cable protection for higher isolation;

(e) wireless data connectivity improvements.

The requested funds will be used for semi-permanent infrastructures devoted to the scientific project. Possible future permanent installations will be covered by other funds.

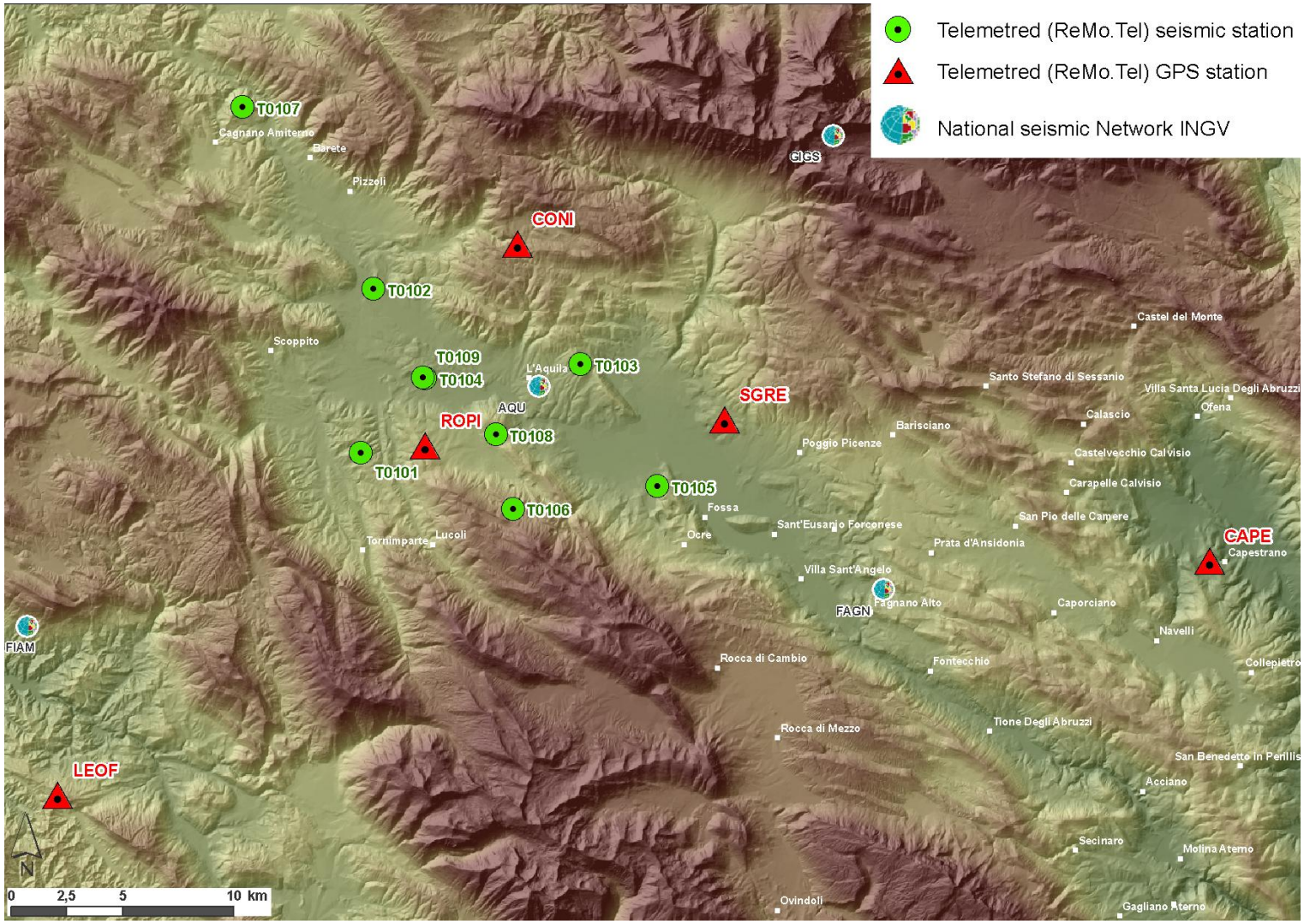
Methodology

GPS acquisition: within the framework of this project, we propose to acquire at 1-Hz in Real Time (and at 10 Hz in Local) sampling rate the data of the new 5 CGPS stations. The GPS data will be processed, using Gipsy software, to analyze the temporal character and spatial pattern of the post-seismic and coseismic transients. The GPS Rinex file data will be available on the RING web sites **(http://ring.gm.ingv.it/).**

Seismic acquisition: seedLink server in Rome will acquire data from the Nanometrics satellite centre through the INGV NaqServer. Data will be published automatically in quasi real time whenever an earthquake with specified location and magnitude occurs. Data relative to the event will be grouped and put on the INGV web site (ISIDE database), for downloading by users. TDMT moment tensors and quick Regional CMT will be also published. Moreover it will be included in the SEED database.

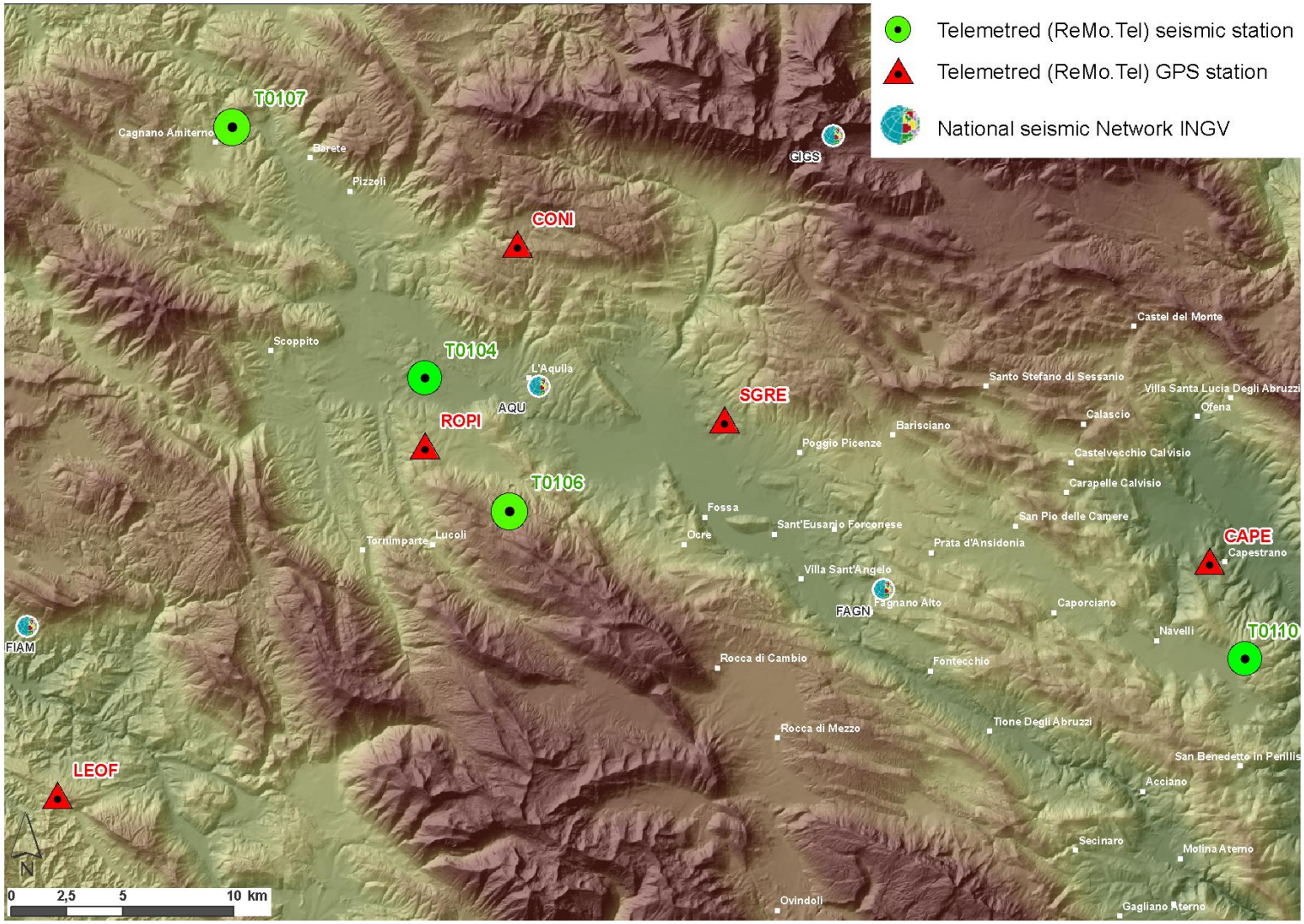
Seismic acquisition: seedLink server in Rome will acquire data from the Nanometrics satellite centre through the INGV NaqServer. Data will be published automatically in quasi real time whenever an earthquake with specified location and magnitude occurs. Data relative to the event will be grouped and put on the INGV web site (ISIDE database), for downloading by users. TDMT moment tensors and quick Regional CMT will be also published. Moreover it will be included in the SEED database.

Re.Mo.Tel deployment



Objectives

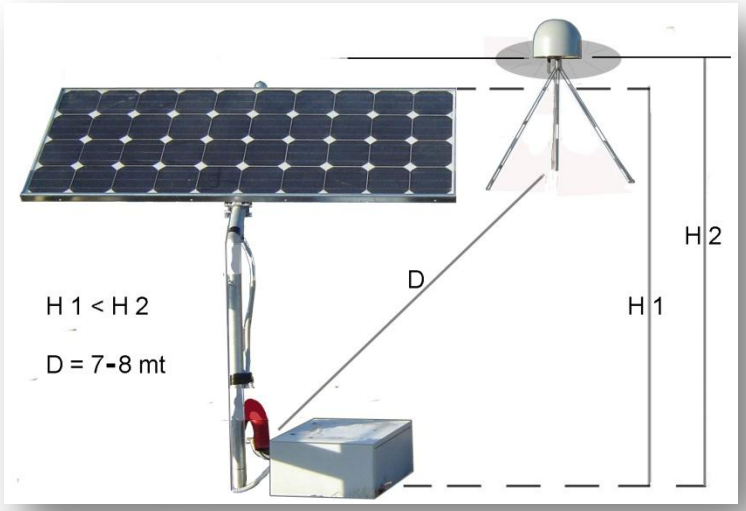
WP4.1: Seismic and GPS network

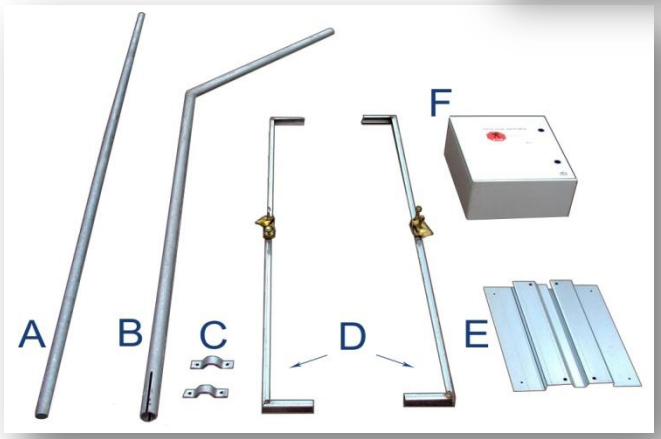


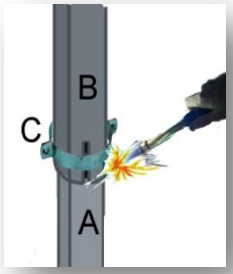
SGRE before implementation

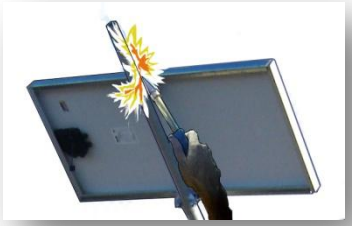
The Project

Assembly list









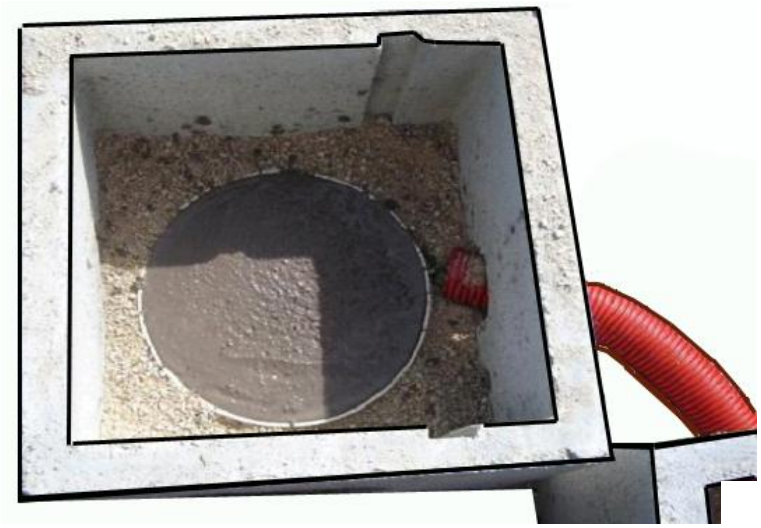
GPS Station

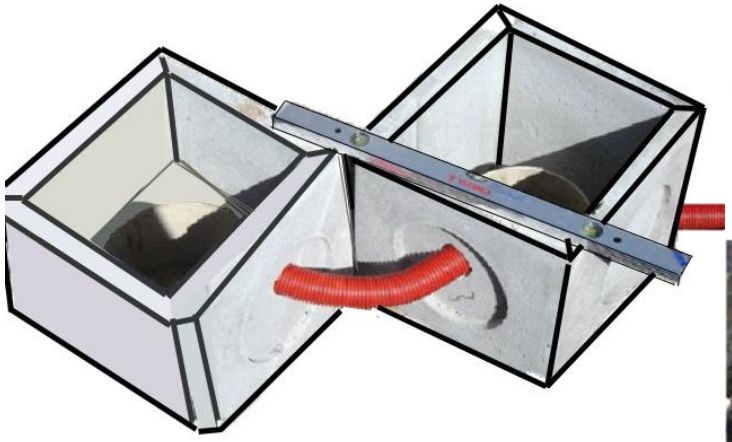

ISTITUTO NAZIONALE DI
GEOFISICA E VULCANOLOGIA
SERVIZIO NAZIONALE DI
PROTEZIONE CIVILE
STAZIONE DI MONITORAGGIO
SISMICO TELESORVEGLIATA
TRASMISSIONE A BASSA POTENZA
OGNI DANNO ALLA STAZIONE
E' UN DANNO ALLA COMUNITA'

SGRE after implementation

T0107 before implementation

Technical details





Seismic station

T0107 after implementation

'*Sottonodo 1*' before implementation

‘Sottonodo 1’ after implementation

‘Centro stella’ before implementation

‘Centro stella’ after implementation

WP4.1: Seismic and GPS network