Project INGV-DPC S5

"*Test-sites" per il monitoraggio multidisciplinare di dettaglio*"

Task 2 – Test site "Stretto di Messina"

UR2 WP2 **Integrated seismic data bank and refined earthquake location to define seismogenetic structures**

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WP2.2 Integrated seismic data bank and refined earthquake location to define seismogenetic structures

Responsible: Milena Moretti, INGV-CNT

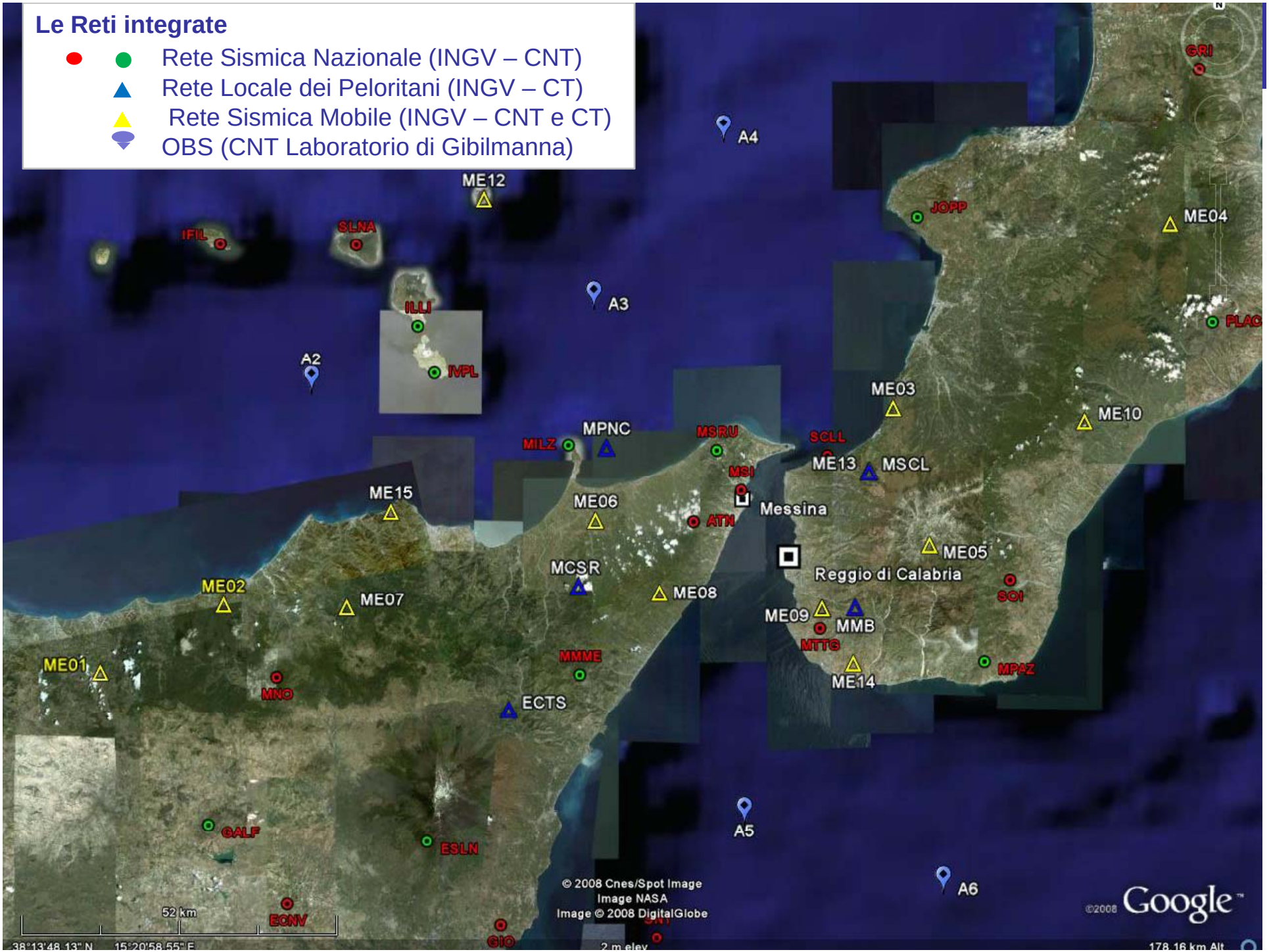
Objectives

- Main goal of this working package is the creation of a **waveform archive** that will collect, in a uniform format, recordings of all the available seismic stations present in the region.

  It will be the first example of complete integration of permanent networks (National Seismic Network; Peloritani Local network), temporary deployments (both mobile network from INGV CNT and INGV CT) and OBS data, that hopefully will become a standard for INGV seismic experiment.

- We will compute refined hypocentral locations to define seismogenic structures inside the Messina Strait and in the surrounding region especially in the Tyrrhenian and Ionian sea.

- We will evaluate the improvement introduced by the use of OBS on the seismic detection and on earthquakes location.


Le Reti integrate
Rete Sismica Nazionale (INGV – CNT)
Rete Locale dei Peloritani (INGV – CT)
Rete Sismica Mobile (INGV – CNT e CT)
OBS (CNT Laboratorio di Gibilmanna)
A4
ME12
JOPP
ME04
GRI
IFIL
SLNA
A3
ILLI
PLAC
A2
IVPL
ME03
ME10
MPNC
MILZ
MSRU
SCLL
ME13
MSCL
MSI
ME15
ME06
Messina
ATN
ME05
MCSR
Reggio di Calabria
ME02
ME07
ME08
SOI
ME09
MMB
MTTG
MMME
MPAZ
ME01
ME14
MNO
ECTS
A5
GALF
ESLN
A6
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52 km
ECNV
GIO
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Activities

- To build the archive we should convert all the continuous seismic recordings (permanent stations, temporary stations and OBS) in a uniform format.
  - Starting from February 2008 INGV CNT (Rome) and INGV Catania data center are connected in real time via *seedlink*;
  - The temporary stations have been deployed on November 2007 and the data has been collected on a regular basis;
  - OBS deployment is planned on midJuly, while the first data should be available for processing by the end of October 2008;
- Starting from these continuous recordings of the integrated network a semiautomatic procedure will define the triggers and the P and S arrivals (this procedure is implemented in Task 1) to locate the seismicity using both conventional and refined techniques.

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- The microseismicity recorded will delineate the presence of seismogenic structures in the study area which will help in understanding the seismotectonics of the area.

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Methodologies

To build the archive we will take advantage of personnel, structures and experience of the National Seismic Network run by INGV.

- We are developing standard procedure to convert all the gathered data in *SEED* format and to build a common open data bank for the researches; this will become a standard for experiments done using INGV portable stations.

- To detect triggers and to pick phases we are going to use procedures developed in the past year (funding DPC 2004-2006) and implemented in Task1 WP1.

- The earthquakes will be located using standard, double-differences techniques, in collaboration with WP 2.5 (U.R. Messina University); special attention will have doublets and repeated earthquakes, which are important for the WP2.3 analysis.

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Workplanning

1 Year

- Development of procedures for data integration and quality control
- Integrated archive
- Earthquake refined locations

2 Year

- Integrated archive
- Earthquake refined locations
- Correlation of seismicity and active faults