WP2.1 Ocean Bottom Seismographs deployment and test

Responsible: Giuseppe D'Anna – Giorgio Mangano, INGV- CNT

Objectives

- Deployment of 5 Ocean Bottom seismometers to integrate the on land seismic network. These OBS are produced by INGV OBS Lab Gibilmanna and had been tested only twice: the prototype was deployed in the Tyrrhenian sea near the Marsili spreading centre and very recently three OBS were deployed in the Ionian sea, two of them were just recovered. The production of Italian OBS opens new frontiers to Italian seismologist and make possible an important marine development of the National Seismic Network. Up to now our OBS are stand-alone but during the Messina deployment we would like to test an acoustic link to recover data without recovering the instruments from the sea floor.

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Activities

- In this project we would like to have OBS instruments deployed for a total of about 8-10 months with a first deployment and recovery of the five OBS in selected sites with proper bathymetric properties, in the first year and a re-deployment of instruments in the second year.
- During the second deployment the acoustic link will be tested.
- Three of these OBS were just recovered from the Ionian sea and the data recorded will be used to become confident in the analysis of OBS signals. The continuous recordings from OBS seismometers will be integrated in the project data archive.

Workplanning

1 Year

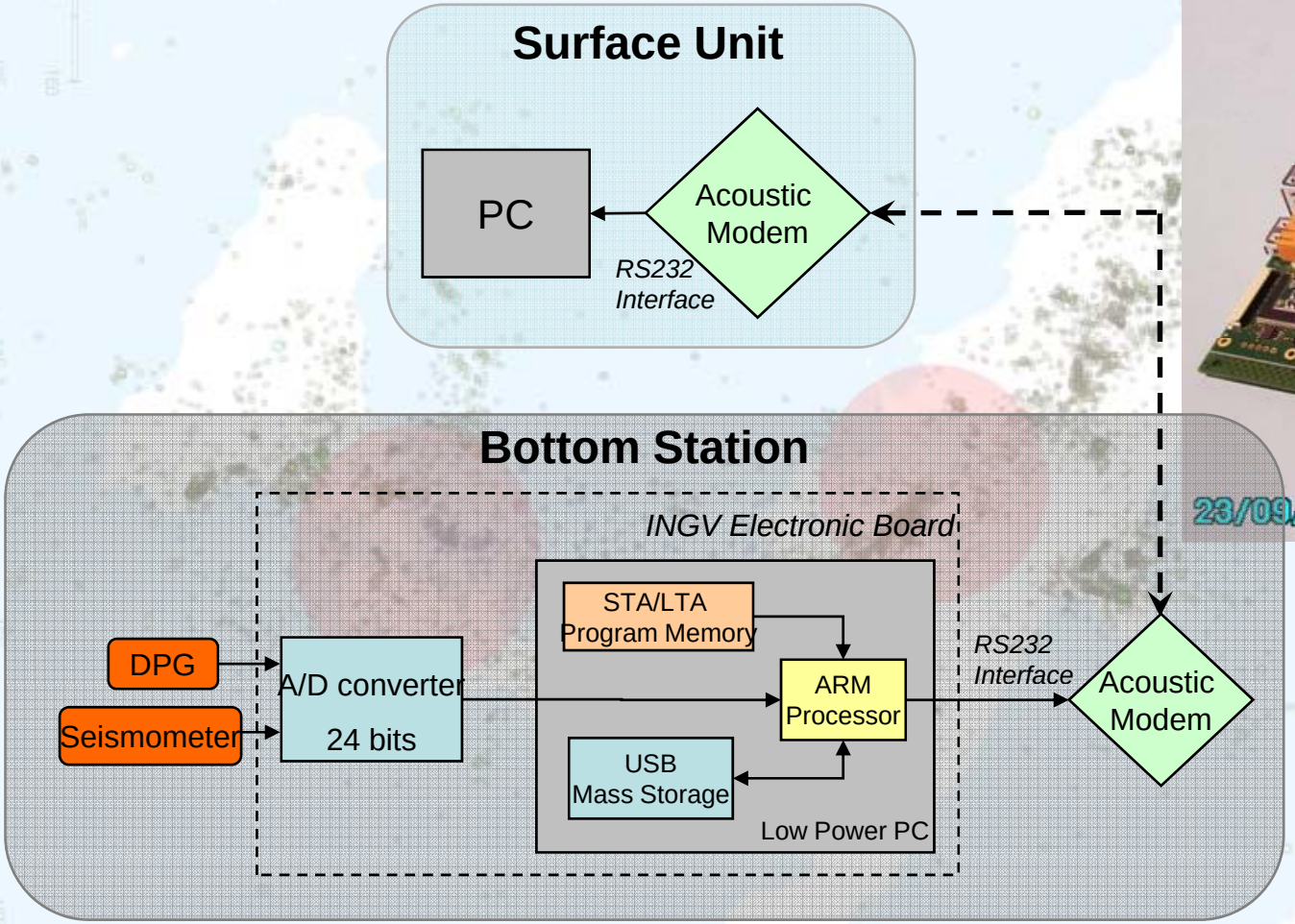
- First OBS deployment 14-19 July 2008
- First OBS recovery 15-30 October 2008
- Second deployment january 2009
- Integration of OBS data into the archive

2 Year

- Test of the acustic link
- Second recovery October-December 2009
- Integration of OBS data into the archive

OBS/H	Lat.	Long.	Depth
S5_A2	38° 20.6’	14° 44.9’	-1424
S5_A3	38° 28.2’	15° 16.6’	-1165
S5_A4	38° 42.9’	15° 31.2’	-1360
S5_A5	37° 42.7’	15° 33.5’	-1615
S5_A6	37° 36.5’	15° 55.7’	-1927

Acoustic communication block diagram and new digitizer



OBS deployed in the Ionian

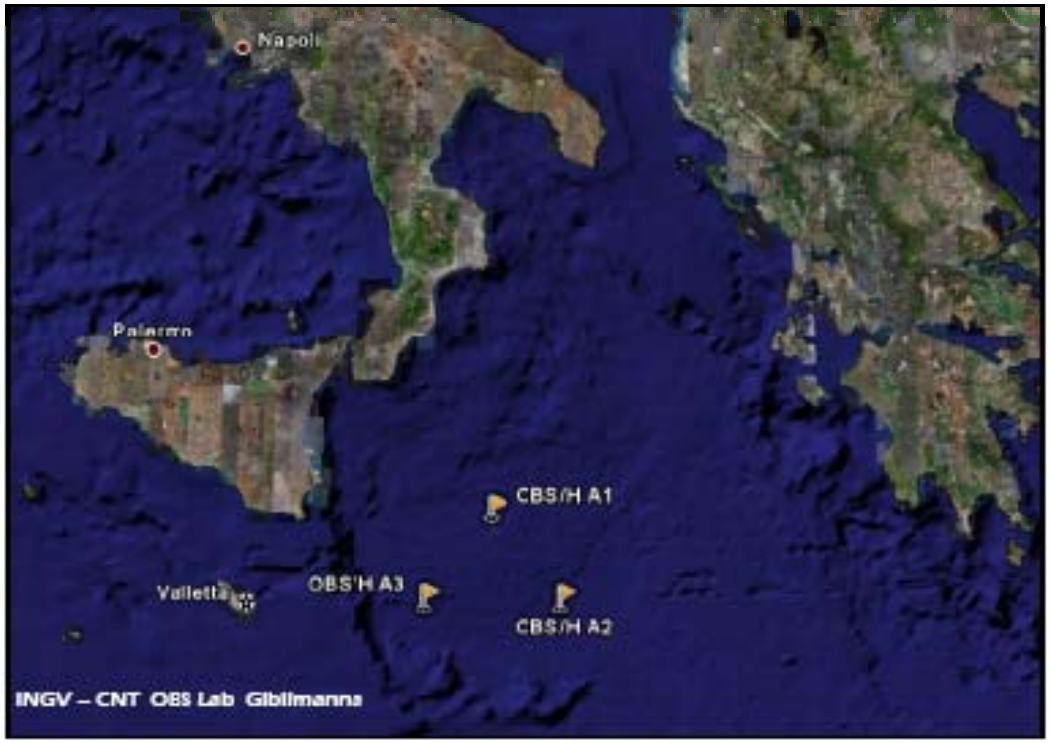


Fig. 4: INGV OBS deployment positions.

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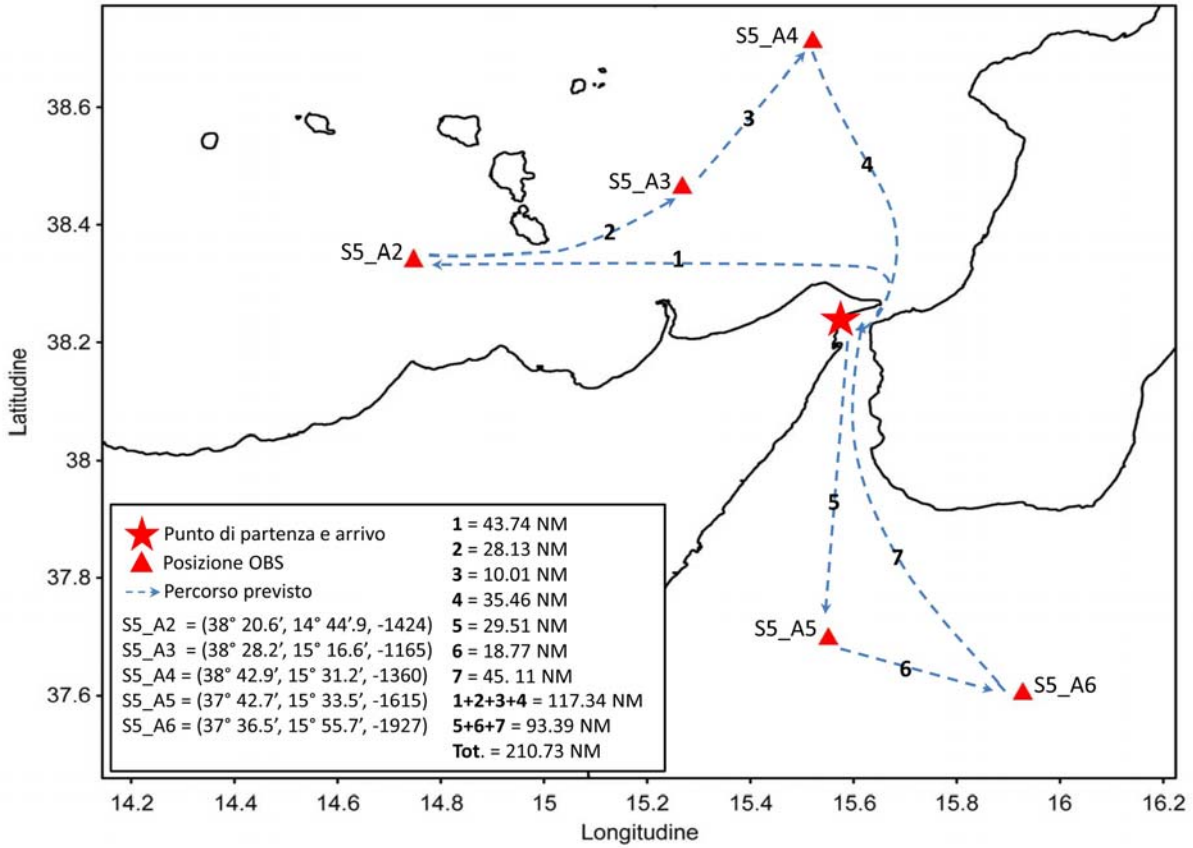
Methodologies

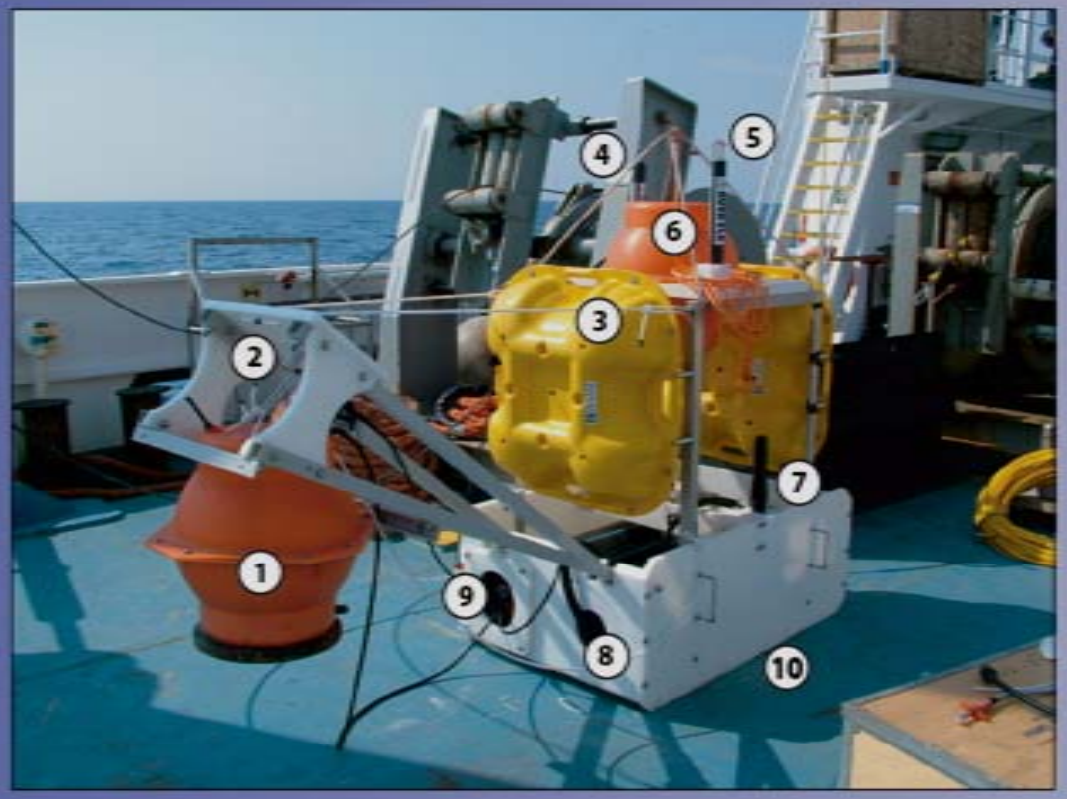
- To deploy and recover the marine seismographs an appropriate ship will be rented twice; each cruise will last about two-three days. OBS are equipped with sensors Trillium 120 sec., and hydrophone (DPG band pass 160 s -2Hz), power supply, double recovery system and acquisition system on compact flash of 24 GB.
- An ad Hoc levelling base(Gimbal) was projected and realized

DPC 2007-2009
High-resolution multi-disciplinary monitoring of active fault test-site areas in Italy

Deployment 14- 19 July



Il Nuovo OBS/H INGV



1. Bentosfera da 17" contenente il sensore sismico installato su una base autolivellante
2. Burn-Wire di sgancio della bentosfera
3. Bentosfere di spinta
4. Radio beacon
5. Flash
6. Sistema di localizzazione satellitare d'emergenza
7. Idrofono
8. Sganciatore acustico
9. Contenitore in ERGAL
10. Zavorra

New INGV gimbal