



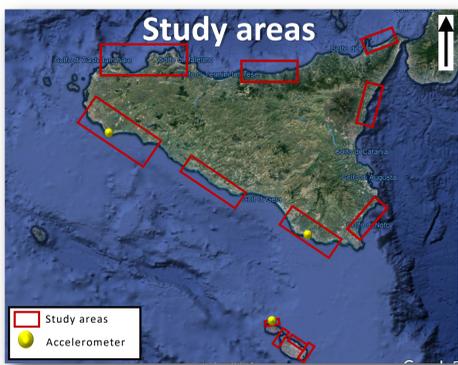
# Interreg Italia-Malta BESS



Fondo Europeo di Sviluppo Regionale  
European Regional Development Fund



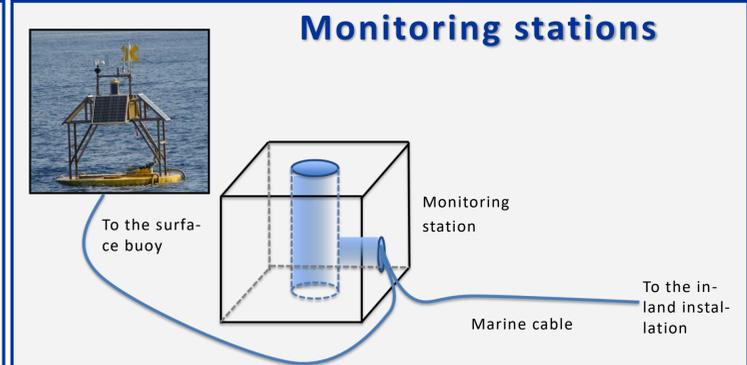
## COASTAL MONITORING BY ACCELEROMETER SENSOR



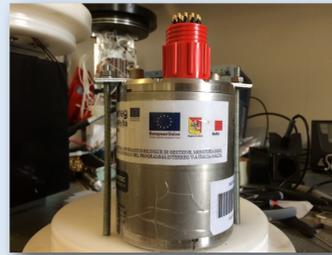
Three locations, two in Sicily and one in Malta will be chosen as test sites, where underwater multiparametric stations will be placed to detect the frequency signature and strength of incident wave trains, together with environmental parameters.

Acquired data will be remotely transmitted to the data processing center.

**INGV**  
INGV "Istituto Nazionale di Geofisica e Vulcanologia" provide the realization of the monitoring system in the study areas. The surveillance network, at the conclusion of the project, is entrusted exclusively to the INGV and inserted into its active surveillance networks.



### Titan Posthole Accelerometer



Titan Posthole force balance triaxial accelerometer is ideally suited for national networks and research applications.

### Multidisciplinary observatory

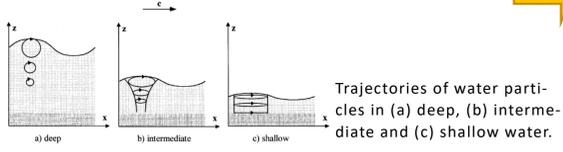
#### CTD



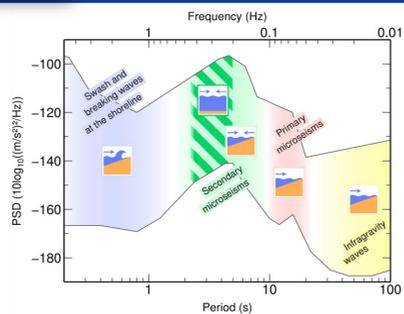
CTD device is an oceanography instrument used to measure the conductivity, temperature, and pressure of seawater (the D stands for "depth," which is closely related to pressure).

### Why this approach?

The seismic energy for periods lower than 2 s is due to the wave breaking on cliffs, energy that regulates coastal erosion.



Examples for coastline geometries that provide the necessary interference condition for the generation of secondary microseisms.



POWER SPECTRAL DENSITY. Summary of the oceanic-marine signature on seismic energy recorded at shoreline stations. (Peterson, 1993).

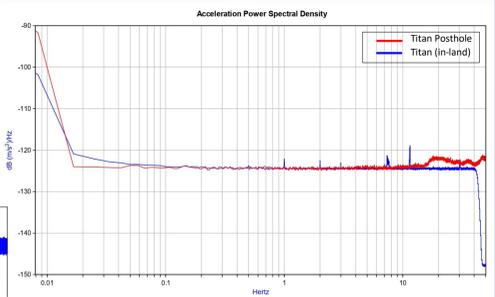
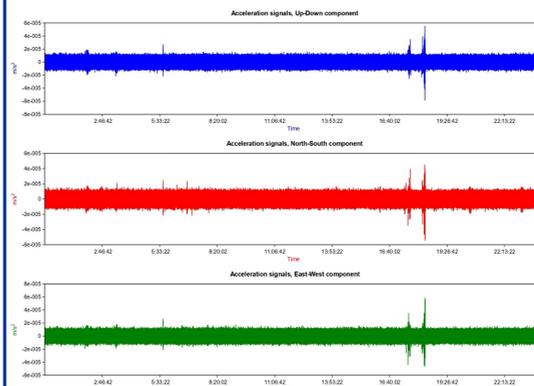
### Accelerometer Test - Marineo, Palermo (Sicily)

Comparison between Titan Nanometrics Posthole and Titan Nanometrics (in-land installation) sensor.



The Titan Posthole accelerometer is housed in a waterproof stainless steel enclosure.

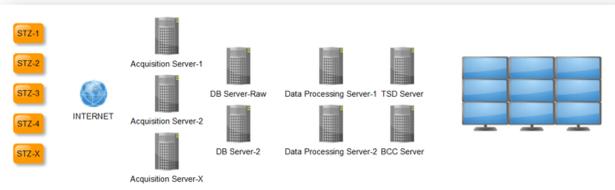
### RESULTS



POWER SPECTRAL DENSITY. Evident a good overlay of spectrums in a broad range of frequencies.

Acceleration signal of the three components (Z component, N component, E component).

### Monitoring room Data acquisition and management



The data coming from the networks flow into the Multi-disciplinary Monitoring Room of the Palermo Section where they are archived, processed, displayed and interpreted by expert personnel.



INGV monitoring center (Palermo).

References:  
Peterson, J. R. (1993). *Observations and modeling of seismic background noise* (No. 93-322). US Geological Survey.

