



Earthquake supersite project in the Messina Straits area (EQUAMES)

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A new permanent supersite is going to be proposed to the GEO GSNL (Geohazard Supersites and National Laboratories) for the Messina Straits area (Italy). The justification for this new supersite can be found in its geological and geophysical features and in the exposure to strong earthquakes, also in the recent past (1908). The Messina Supersite infrastructure (EQUAMES: EarthQUAKes in the MEssina Straits) will host, and contribute to the collection of, large amounts of data, basic for the analysis of seismic hazard/risk in this high seismic risk area, including risk from earthquake-related processes such as submarine mass failures and tsunamis. In EQUAMES, data of different types will coexist with models and methods useful for their analysis/interpretation and with first-level products of analysis that can be of interest for different kinds of users. EQUAMES will help all the interested scientific and non-scientific subjects to find and use data and to increase inter-institutional cooperation by addressing the following main topics in the Messina Straits area:

- investigation of the geological and physical processes leading to the earthquake preparation and generation;
 - analysis of seismic shaking at ground (expected and observed);
 - combination of seismic hazard with vulnerability and exposure data for risk estimates;
 - analysis of tsunami generation, propagation and coastal inundation deriving from earthquake occurrence also through landslides due to instability conditions of subaerial and submarine slopes;
 - overall risk associated to earthquake activity in the Supersite area including the different types of cascade effects
- Many Italian and international Institutions have shown an effective interest in this project where a large variety of geophysical and geological in-situ data will be collected and where the INGV has the leading role with its large infrastructure of seismic, GPS and geochemical permanent stations. The groups supporting EQUAMES compile different expertises which will allow most up-to-date analysis and interpretation of the data to be acquired. Finally, the availability of SAR data from different satellites (ERS, Cosmo SkyMed, Sentinel) can be the key for important improvements in the knowledge of the geodynamics of this area of the Mediterranean Sea.