Messina 1908-2008: understanding crust dynamics and subduction in Southern Italy

To mark the centennial anniversary of the 1908 earthquake that struck Messina, Italy, the Institute National de Physique et de Volcanologie (INGV) has begun the “Messina 1908-2008” research project. The aim is to clarify the tectonic deformation processes that occur in the Messina Strait and to understand the relationship between tectonics, and geodynamics. This will be done by synthesizing new and more detailed seismological, geodetic, and geological observations. A dense permanent geodetic network has been installed in the region, and some geodetic measurements have been performed. In addition, several campaigns have been deployed to better monitor the area. Fieldwork, related to the study of historical earthquakes, will be analyzed with advanced geophysical and geodetic techniques. In parallel, a new earthquake early warning system using advanced signal processing will be tested. The integration of geophysical and geological databases, and integration of geophysical technologies, could transform our understanding of the crust and its dynamic evolution on the Messina Strait.