



Networking of Near Fault Observatories in Europe

Kristín Vogfjörð (1), Pascal Bernard (2), Lauro Chiraluce (3), Donat Fäh (4), Gaetano Festa (5), and Can Zulficar (6)

(1) Icelandic Meteorological Office, Reykjavik, Iceland (vogfjord@vedur.is), (2) Institut de Physique du Globe de Paris, Paris, France, (3) Istituto Nazionale di Geofisica e Vulcanologia, Roma, Italy, (4) ETHZ, Zurich, Switzerland, (5) Universit di Napoli Federico II, Naples, Italy, (6) Bogazici University, KOERI, Istanbul, Turkey

Networking of six European near-fault observatories (NFO) was established in the FP7 infrastructure project NERA (Network of European Research Infrastructures for Earthquake Risk Assessment and Mitigation). This networking has included sharing of expertise and know-how among the observatories, distribution of analysis tools and access to data. The focus of the NFOs is on research into the active processes of their respective fault zones through acquisition and analysis of multidisciplinary data. These studies include the role of fluids in fault initiation, site effects, derived processes such as earthquake generated tsunamis and landslides, mapping the internal structure of fault systems and development of automatic early warning systems.

The six fault zones are in different tectonic regimes: The South Iceland Seismic Zone (SISZ) in Iceland, the Marmara Sea in Turkey and the Corinth Rift in Greece are at plate boundaries, with strike-slip faulting characterizing the SISZ and the Marmara Sea, while normal faulting dominates in the Corinth Rift. The Alto Tiberina and Irpinia faults, dominated by low- and medium-angle normal faulting, respectively are in the Apennine mountain range in Italy and the Valais Region, characterized by both strike-slip and normal faulting is located in the Swiss Alps. The fault structures range from well-developed long faults, such as in the Marmara Sea, to more complex networks of smaller, book-shelf faults such as in the SISZ.

Earthquake hazard in the fault zones ranges from significant to substantial. The Marmara Sea and Corinth rift are under ocean causing additional tsunami hazard and steep slopes and sediment-filled valleys in the Valais give rise to hazards from landslides and liquefaction. Induced seismicity has repeatedly occurred in connection with geothermal drilling and water injection in the SISZ and active volcanoes flanking the SISZ also give rise to volcanic hazard due to volcano-tectonic interaction.

Organization among the NERA NFO's has led to their gaining working-group status in EPOS as the WG on Near Fault Observatories, representing multidisciplinary research of faults and fault zones.