



The Geophysics and Seismology Unit and the Hellenic Seismological Network of Crete (HSNC): An innovative infrastructure in the front of the Hellenic Arc.

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The laboratory of Geophysics and Seismology, Technological Educational Institute of Crete, is a ten years old Laboratory, non included in EPOS, created using EU and national funds and includes activities and infrastructure related to seismological, geodetic, geologic and rock physics experiments. The HSNC is operated in the the South Aegean region one of the most seismically active zones in western Eurasia due to the convergence between the African and Eurasian lithospheric plates. The seismicity of South Aegean is extremely high and is characterised by the frequent occurrence of large shallow and intermediate depth earthquakes. Crete marks the forearc high of the modern Hellenic subduction zone in the eastern Mediterranean.

Towards to the direction of providing modern instrumental coverage of seismicity in the South Aegean, as well as some more insight into the stress and deformation fields, tectonics, structure and dynamics of the Hellenic Arc from which will be possible to retrieve information about the rupture process the Hellenic Seismological Network of Crete (HSNC) begin to operate in 2004. Today it consists of permanent seismological stations equipped with short period and broadband seismographs coupled with 3rd generation 24bit data loggers as well as from accelerographs located in the main cities of Crete. Data transmission and telemetry is implemented by a hybrid network consisting of dedicated wired ADSL links as well as VSAT links by using the private satellite hub. Data are delivered real time in collaborating networks (HT – AUTH, Department of Earth Science – UCL) and events are appended automatically to EMSC database. Additional value to the network is provided by means of a prototype system which deployed in order to acquire aftershock data in the minimum time after main event. This is a mobile seismological network called RaDeSeis (Rapid Deployment Seismological network) which consists of a central station acting also as the central communication hub and WiFi coupled mobile stations. The development of dedicated hardware and software solutions gave RaDeSeis a fast installation time and quick response to reliable aftershocks monitoring. Finally, an evaluation review of real time processing schemes that applied for rapid magnitude estimation in aforementioned network, will be presented. Furthermore, the current operation of the GSLab includes. 3 GPS station in the Western Part of Crete,

Apart from the above, the fully equipped Geophysical branch of GSLad is giving the operational potential to apply seismic-ERT-magnetics-MT-TVLF-microtremore for microzonation and near and deep structural studies.

Last but not least the Rock Physics unit, permits the study of the rocks electrical properties, under variable temperature and pressure conditions, laboratory simulating lithospheric P/T state.

Up to know and in spite of our strong willing GSLab is NOT part of EPOS project in which can contribute with seismological and GPS data in South Aegean, along with geophysical and Rock Physics activities.

References

<http://Geoph-Seismo-Lab.chania.teicrete.gr/>