



Recent Seismicity and Deformation Patterns in the Ionian Sea region

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The Ionian Sea, between the Calabrian and Hellenic Arcs, is a the most seismically active area in Europe due to the active collision and subduction processes that involve the African and Eurasian plates. Many large and catastrophic earthquakes have occurred along the western coasts of Greece and offshore in the Ionian islands throughout history, however it was following the 'Great Ionian Earthquake', which struck the southern Ionian islands on August 12th, 1953, that a Wood-Anderson seismograph was installed on the island of Kefalonia by the National Observatory of Athens (NOA). Subsequently, the NOA seismographic network expanded and improved with new station installations and standard observatory practice, in order to produce detailed monthly bulletins and a homogeneous and complete earthquake catalog.

During the last five years and in order to further improve the assessment of the tectonic stress field and the seismic hazard of the Ionian Sea region, NOA established six permanent GPS stations on the islands and in Western Greece, all transmitting real-time data. In this study we determine and map: a) the spatial and temporal seismicity rate changes, b) the tectonic stress field associated with the recent seismicity and c) the GPS deformation patterns, of the Ionian Sea region. From this multi-parameter approach, the results converge to indicate that advances or retardations of the seismicity follow the patterns of stress increase and decrease as predicted by the Coulomb hypothesis.