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# Large Earthquakes in the Broader Area of Peloponnesus (Southern Greece) in 2008

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Southern Greece is dominated by the presence of the Hellenic Arc, whose formation is the result of the convergence between the Eurasian and Africa plates in an approximately NNE-SSW direction with a rate of about 2 cm/year. The broader area of Peloponnesus, located in Southern Greece, hosts since the antiquity a significant number of large earthquakes, as well as continuous background seismicity. From January to June of 2008 five earthquakes with magnitude Mw ≥ 6.0 occurred in the above mentioned region. These events, analyzed in the framework of the present study, are: the 6 January Leonidion earthquake, the three large Methoni earthquakes that occurred on 14 (two events) and 20 February and the 8 June Andravida earthquake. Initially, the source parameters of the earthquakes that occurred in the study area –were calculated in near real time using an inversion procedure based on regionally recorded waveforms. The aftershocks which followed the shallow events were automatically located and the location for each earthquake was improved using relocation codes. Seismotectonic studies were applied using the relocated events combined with focal mechanism solutions obtained for both the main events and their aftershocks. Teleseismic inversion procedure was also applied to compute the source parameters, as well as the temporal and spatial distribution of slip on the ruptured fault. The retrieved slip models were then used to construct detailed coseismic static stress dislocation models and synthetic peak ground velocity maps. The dislocation models were used to reveal the possible fault interaction between strong earthquakes. Furthermore, the source directivity of the large earthquakes was studied.