Geophysical Research Abstracts
Vol. 15, EGU2013-5441, 2013
EGU General Assembly 2013

Earthquake clusters in Corinth Rift

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Clusters commonly occur as main shock–aftershock (MS–AS) sequences but also as earthquake swarms, which are empirically defined as an increase in seismicity rate above the background rate without a clear triggering main shock earthquake. Earthquake swarms occur in a variety of different environments and might have a diversity of origins, characterized by a high b-value in their magnitude distribution.
The Corinth Rift, which was selected as our target area, appears to be the most recent extensional structure, with a likely rate of fault slip of about 1cm/yr and opening of 7mm/yr. High seismic activity accommodates the active deformation with frequent strong ($M \geq 6.0$) events and several seismic excitations without a main shock with clearly discriminative magnitude. Identification of earthquake clusters that occurred in this area in last years and investigation of their spatio-temporal distribution is attempted, with the application of known declustering algorithms, aiming to associate their occurrence with certain patterns in seismicity behavior. The earthquake catalog of the National Hellenic Seismological Network is used, and a certain number of clusters were extracted from the dataset, with the MS–AS sequences being distinguished from earthquake swarms. Spatio-temporal properties of each subset were analyzed in detail, after determining the respective completeness magnitude.

This work was supported in part by the THALES Program of the Ministry of Education of Greece and the European Union in the framework of the project entitled "Integrated understanding of Seismicity, using innovative Methodologies of Fracture mechanics along with Earthquake and non-extensive statistical physics – Application to the geodynamic system of the Hellenic Arc, SEISMO FEAR HELLARC".