



Seismic interactions in Greece following the M=6.4, 2008, Achaia earthquake

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The deformation in the Aegean Region is a combination of extension, thrust and strike-slip. The extension is widely distributed, and in some places, is characterized by clusters of seismic activity. As to the strike-slip deformation, it is strongly localized at the North of the Peloponnese and in the Northern Aegean Sea, around the assumed continuation of the North Anatolian Fault (NAF), which allows the extrusion of the Anatolian-Aegean bloc toward the subduction zone, localized at the south-west border of the Aegean zone. We are looking at the seismic activity in the Aegean area after the M=6.4, June 8, 2008, Achaia earthquake. This earthquake has a strike-slip mechanism, and its rupture is unidirectional : it propagates toward North-East. We use the seismic catalog of Athens Observatory, since 1965. We plot cumulative number of events and cumulative moment on six extension clusters around the assumed NAF. These clusters are localized in the direction of propagation of the Achaia earthquake. The activity of all of them is increased after the Achaia earthquake : they show after the June 8, 2008, the most important seismic activity since 1965. The type of activation is not the same in all the clusters. Four of them begin their activation with an earthquake of magnitude greater than 5, and present delays of two months to one year and a half. The other two have no event of magnitude greater than 5, and present delays of tens of days to four months. The Corinth Gulf cluster, on which the occurrence of the largest event is the most delayed, has another characteristic : an increase in the number of small events (magnitude greater than 2.9) is observed immediately after the occurrence of the Achaia earthquake. We observe the same behavior on a cluster localized further East, also in the Corinth Gulf. We are interested in the thrust activity as well : during 2008, an intense activity of earthquakes of magnitude greater than 6 is observed in the subduction zone. We inferred that the Achaia earthquake is related to this burst of activity. Indeed, this extension event occurred during the 2008 sequence, soon after the occurrence of four thrust earthquakes which were localized in the subduction. Furthermore, we note an increase of activity in the deep subduction (90km depth) ten days after the Achaia earthquake, with the presence of a magnitude 5.1 event, localized below the South-East coast of Peloponnese. This event is the only one there of such a large magnitude since 1965.