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Aigion Fault seismogenic behaviour and future drilling plans

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The Corinth Rift Zone, in western central Greece, is one of the most seismogenic regions in Europe, with four earthquakes with magnitude larger than 6 during the last thirty years. An intense seismic activity is observed near the city of Aigion, about 20 km far from the western rift extremity, with three 6 to 8 months long seismic swarms over the last eight years. A 1000 m deep well intersects the 60 ° north dipping Aigion Fault, at a depth of 760 m and was instrumented with four high frequency (2.5 KHz) sensors (two geophones at 750 m and two hydrophones located respectively at 500 m and 250 m). The sensors have recorded both the seismic events from the rift activity at depths ranging from 6 to 8 km, and high frequency short duration events that seem to be located within less than 1 km from the deepest sensor. These short duration events suggest that the Aigion fault is creeping in its upper 2 km but becomes progressively seismogenic with depth. In particular it has been the site of magnitude 2 earthquakes during the 2003-2004 swarm crisis. A proposal is being prepared to intersect the fault below the detachment zone at the base of Gavrovo-Tripolitza nappe, so as to document the seismogenic characteristics of the fault, its relationship with the local rift opening process and its influence on regional fluid fluxes. This ICDP drilling proposal is complementary to the IODP proposal for a multi-hole investigation in both recent soft sediments and basement rocks. The objective is to constrain the Rifting process but may reveal unique for documenting climate changes over the last million years.