The 2007 Azores earthquakes: A case of trigering?

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On 5 April (Mw=6.3) and 7 April 2007 (Mw=6.1) two earthquakes occur at the Formigas Islets (Azores Islands), both with same epicenter and felt (I=V/VI MSK) in S. Miguel Island. The rupture process of these earthquakes has been studied from body wave inversion of broad band data at telesesimic distances. Results obtained shown normal faulting for both shocks, with planes oriented in NW–SE direction, with focus at shallow depth (10 km and 6 km respectively). The slip distribution over the fault plane (152/44/-88) shows for the 05-04-07 event, the rupture propagating downward and a duration of 12s for the source time function. For the 07-04-07 event, the slip distribution over the fault plane (125/52/-81) shows de rupture propagating downward and duration of 10s for the STF. From these results we have estimated the static Coulomb stress change. We find that the static stress change caused by the 5 April event is higher, about 2 bar at epicenter the location of the second event (April 7), triggering the second rupture. Locations of aftershocks do not agree well with areas of increased Coulomb failure stress, which can be explained by the complexities of the rupture process oy by uncertainties at the hypocerter location