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THE 2014 KEFALONIA DOUBLET (M_w 6.1 AND M_w 6.0), CENTRAL IONIAN ISLANDS, GREECE: SEISMOTECTONIC IMPLICATIONS ALONG THE KEFALONIA TRANSFORM FAULT ZONE

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The 2014 Kefalonia earthquake sequence started on 26 January with the first main shock (M_w 6.1) and the triggered seismicity in the first few hours covered an area extended over 35 km, much longer than expected from the causative fault segment, which is located at the southernmost part of the activated fault zone. Intense seismicity encompassing a major aftershock (M_w 5.5) in less than 6 hours after and several $M > 4.0$ earthquakes mostly during the first three days, continued along the entire activated area, evidencing a less densely covered part where the second main shock (M_w 6.0) on 3 February occurred, associated with the adjacent fault segment, located to the north of the firstly failed segment and evidently encouraged by stress transfer of the first main shock. The aftershock volume was determined from the relocation of about 1150 events registered by the Hellenic Unified Seismological Network (HUSN) and an accelerometric network operated by the Institute of Engineering Seismology and Earthquake Engineering, from 26 January to 16 February 2014. The relocation procedure was based on P and S arrivals readings and the use of a 7-layer velocity model and station residuals. The aftershock distribution evidenced two adjacent fault segments striking almost N-S and dipping to the east, in full agreement with the centroid moment tensor solutions, constituting portions of the Kefalonia branch of the Kefalonia Transform Fault (KTF). Stress transfer by both main shocks provoked ensuing activity. The KTF is bounded to the north by oblique parallel smaller fault segments, which activated along with the first main shock and comprising an extensional overstep, linking KTF with its northward continuation, the Lefkada fault branch.

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