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Volcano-Tectonic phenomena identified during El Hierro volcanic process by seismic and GNSS data Título Temporal/Temporary Title

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The El Hierro volcanic episode was first detected as an abrupt increase in the level of seismicity in July 2011. A submarine eruption followed, beginning in October 2011 and ending in March 2012. Afterward, the unrest continued as a succession of seismic swarms lasting days and separated by months of quiescence. These unrest episodes permitted a detailed observation of the complex series of processes related to the reactivation of an oceanic island after a long period of volcanic quiescence. GNSS and seismic data analysis shows that magma migration process disturbs the regional tectonic framework, clamping and unclamping existing faults related to landslides. Here, we analyze two processes (2013-12-20 to 2012-12-26 and 2014-03-12 to 2014-03-18) affecting San Andres rift in the NE sector of El Hierro. In the first period the magmatic pressure center and seismic activity are concentrated at the center of the island, activating the San Andres rift faults. This fact is reflected by opposite vertical movements between two GNSS receivers placed on both sides San Andres rift. During the second period the magma injection occurs in these opened faults provoking seismicity on the San Andres rift faults and, according to GNSS data, symmetric deformation on each side. So far, San Andres rift faults were considered result of progressive volcano instability and multiple gravitational collapses. These new results evidence that San Andres rift faults are a deep and active system, showing the relationship between the edifice structure and its basement and on the effects of regional tectonics on volcano structure. This model can be extrapolated to others large landslides present at El Hierro which would modify the hazard map of the island.