



Onshore-offshore insights of multi-event oceanic island landslides: (El Hierro Island, Canary Archipelago)

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Based on the re-interpretation of a vast onshore-offshore data base in the El Hierro island (Canary Archipelago, Spain), a new onshore-offshore morpho-structural characterization of the El Golfo giant landslide is presented. Offshore data from multibeam echosounders, chirp sub-bottom profiles and multichannel seismic reflection data and onshore data coming from water wells and galleries have been analyzed in order to determine its multi-event nature. The subaerial headscarp shows a non-continuous arcuate profile formed by two nested semi-circular amphitheatres that extend offshore along a smooth chute, suggesting the occurrence of at least two large retrogressive events. Channels/gullies and escarpments developed along the submarine sector of the scar also indicate smaller-scale events and predominance of sediment bypass. In the lower slope, two subunits of submarine mass transport deposits (MTDs), debris avalanche, are identified on multichannel seismic reflection profiles with a total estimated volume of 318 km³: ~84 km³ and ~234 km³, for the younger and older MTDs respectively. Data from wells and galleries show abrasion platforms with beach deposits at sea-level (0 masl) formed after the landslide scar and buried by the post-collapse El Golfo lavas infill, suggesting an age at least older than 23.5-82.5 Ka for the landslide