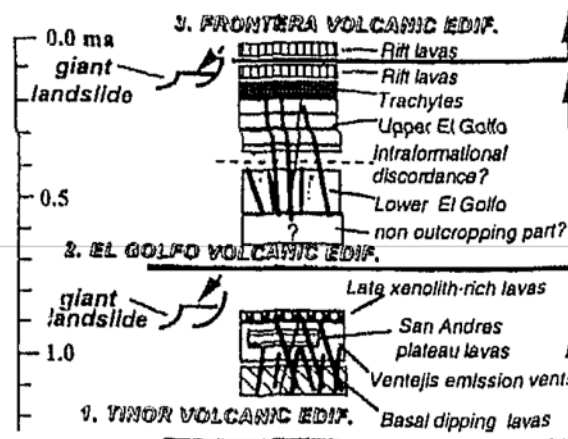


XI-5 MAGMATISM ASSOCIATED WITH ACTIVE PLUMES

XI-5 (10P)
**VOLCANIC HISTORY OF THE ISLAND OF EL HIERRO,
 CANARIAN ARCHIPELAGO**
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Radiometric dating and magnetic stratigraphy and mapping in El Hierro, the westernmost island of the Canary Archipelago, show that the sub-aerial part of the island was built in the last 1.1 Ma. In this relatively short time three volcanic growth-giant landslide mass-wasting cycles occurred, corresponding to the rapid building of high aspect ratio, progressively unstable island-volcanoes, the last one still in progress. Significant features in the development of El Hierro are the occurrence of two consecutive giant landslides and the establishment of a well-defined, 120° branched triple rift system that control since that age the distribution of volcanism in the island.



A similar pattern is observed in the nearby island of La Palma. The contrasting pattern of development of the eastern and western Canary islands is consistent with the presence of a rigid crust near the African continent and a hot spot rejuvenated crust at the oceanic edge of the island chain. The eastern islands are characterised by stable volcanic edifices of low aspect ratio, large volume and dilated periods of growth; mass-wasting is mainly due to marine erosion. In contrast, the western islands show fast-growing, very high aspect ratio, unstable, low-volume volcanic edifices. Mass-wasting is predominantly due to gravitational giant landslides, triggered before the islands can reach greater volumes. The presence of rift systems, with the 120° stellate configuration of less-effort magma updoming rupture and the absence of raised beaches are in agreement with subsidence of the islands on a flexible, hot spot rejuvenated oceanic crust.