Signals of volcanic collapses in the centralwest part of the island of Fuerteventura (Canary Islands, spain) and their relationship with the intrusive complexes.

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It is known that the island of Fuerteventura (the easternmost one of the Canary archipelago) is the result of three large Miocene stratovolcanoes: Jandia, Gran Tarajal and Tetir Edifices, from south to north respectively (Ancochea et al., 1996). The Central and North edifices have associated intrusive rocks that represent their roots (Muñoz and Sagredo, 2004). In the study area these roots consist of olivine gabbros and melanogabbros in the lower parts that grade into gabbros s.s. and layered leucogabbros in the upper parts. The leucogabbros and associated dikes show a 40-44°trend with subvertical 60-70°dips to the NW. This trend, which probably controls intrusive emplacement, is consistent with the main extension direction affecting Fuerteventura in Miocene times (Ancochea et al., 1996). Although some authors have studied the growth and collapse history of the Miocene Volcanic Edifices (Ancochea et al., 1996; Stillman 1999) there is yet no study trying to describe the meso-scale structures associated to these collapse events and how they might have affected the different levels of the volcanic-subvolcanic systems. Los Molinos ravine, in centralwest Fuerteventura, dissects the upper parts of the intrusions, volcanoclastic materials and dikes that have been described as belonging to the Gran Tarajal Edifice. For this reason it has been selected in order to study the cross section which is presented in this work. In the north part of the cross section, the most important structure is a normal fault showing listric geometry implying detachment to the NW and putting into contact layered leucogabbros and dikes with volcanoclastic materials. In the footwall, the dip of the dikes mimics the listric geometry and the layered leucogabbros occur as wedge-shaped, rotated blocks among the dikes. The hangingwall is composed of 36-44°trending dikes with volcanoclastic materials (Salinas breccia) between them. The south part of the Los Molinos ravine is occupied by the Salinas breccia and associated dikes which are in turn affected by another, NE-SW listric fault dipping approximately 23°to the NW. In the footwall the Salinas breccia is more compact and the dikes again mimic the listric fault geometry, whereas in the hangingwall the breccia resembles an agglomerate and its associated dikes show more pronounced dips. The different parts of the above described cross section have been interpreted as different depth levels of the Central Volcanic Edifice that have been placed into contact by collapse processes affecting not only the volcanic materials and dikes but also the shallowest parts of their intrusive roots.