AGAETE REVISITED: NEW DATA ON THE GRAN CANARIA TSUNAMIITES

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1. Introduction

The tsunami deposits of the valley of Agaete (Fig. 1), northwestern Gran Canaria, have been revisited and new data is presented here. Based on the observations reported by Pérez-Torres et al. (2008) a new outcrop was found and named “La Ruina” (GPS: 39° 58' 47.41" N, 15° 41' 52.04" W; 71 m a.s.l).

2. Description of the deposits

The deposits are chaotic conglomerates (Figs. 2, 3), clast-to-matrix-supported, containing marine fossils and coating and fossiliferous valley slopes. These conglomerates are characterized by the presence of the Agaete valley. Pérez-Torres et al. (2008) suggest the possibility that more than one marine conglomerate deposit could be present in the outcrops of “Llanos de Tamán” and “Berrazales”. At “La Casalierina” and “La Aldia 1”, the conglomerates form a single layer, representing one depositional event at “La Aldia 2”, the conglomerates form two layers: one directly contacting each other, no evidence of a time hiatus between deposits of both layers have been found.

3. New observations

An important and enigmatic aspect that can be observed at the La Aldia 2 (Fig. 4, 7a) and La Ruina outcrops is the presence of deep fissures filled with conglomerates. These structures occur in the base of the tsunami conglomerate deposits and penetrate the underlying sedimentary units, widening down. The depth of the filled fissures may reach up to 8 m; these features were observed in all three tsunami deposits at La Ruina (Figs. 5, 6, 7b, c, d).

4. Conclusions

The field evidence presented above shows that the deposits of tsunamiogenic conglomerates on the Agaete valley are related to, at least, three tsunami events. The lateral correlation between different outcrops is difficult due to variable number of deposits in each outcrop, lateral discontinuity and variability, and to compositional and textural similarity between distinct tsunami sediments. The occurrence of these Pleistocene tsunami deposits in the same area points to a relatively high frequency of tsunami (probably generated by mega-landslides or fast entry of voluminous explosive volcanic deposits into the sea). It is also possible that this recurrence of tsunami inundations may reflect multiple-phased mega-landslides responsible for the large scars prominent in the geomorphology of the neighbouring island of Terémita.

The fissures departing from the base of the deposits are tentatively attributed to erosion by extremely energetic tsunami waves.

This is a contribution from project “Estabilidad de los edificios volcánicos en Canarias: análisis de los fenómenos geológicos, geomorfológicos y paleontológicos. APLICACIÓN A LOS NIVOS Y BICAMEROS DE LA ISLA DE TENERIFE” (CGL2008-04123) financed by MCT, Spain.

Reference: