Characterisation of a debris avalanche deposit based on its geomorphic and internal features. Tenteniguada Basin, Gran Canaria (Spain)

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Debris avalanches are volcaniclastic deposits caused by the collapse and slide of a substantial portion of a rocky slope. They are associated with some form of volcanic activity. The debris avalanche of Tenteniguada in Gran Canaria, Spain, shows some principal geomorphic features: (a) an upper semicircular escarpment, 2,500 m wide, surrounded by volcanic domes; (b) an elongated deposit, 7,100 m long, that was channelled through a paleo-valley; (c) a large foot that became tilted on collision with the lower slope; and (d) typical hummocky surfaces. Probably it is the internal structures which offer the most outstanding features, because the deposit has been incised by ravines that allow observation of the interior. As well as jigsaw cracks, matrix facies (brecciated) and megablock facies (massive) are also visible, and a number of internal structures (domino and elongation structures, accumulation shadows, clastic injections, micro-faults, etc.) that show how mass movement and settlement took place. We consider this debris avalanche to be of the Unzen type, caused by seismic tremors during the Pleistocene epoch and generated by nearby phreatomagmatic eruptions.

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