

Echinoids from the Late Miocene-Early Pliocene & Pleistocene of Santa Maria Island, Azores

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The Azores is an archipelago composed of nine volcanic islands, located almost midway between the North American and European continents. In this relatively young island system, fossiliferous deposits are only found on the oldest island, Santa Maria. These strata are mainly Late Miocene to Early Pliocene in age. A second set of outcrops is associated with Pleistocene wave-cut platforms and presumably of Eemian age (Pleistocene). These deposits are relatively small, outcropping mostly in the coastal areas, and consist of lithic sandstones and carbonates intercalated by volcanic material, testifying periods of relative calm between intensive volcanic activity, during the formation of the island. During the international workshops 'Palaeontology in the Atlantic islands' (2002, 2006–2009), new echinoid material was collected, mainly composed of disarticulated fragmented skeletal material. The echinoid fauna found in the Mio-Pliocene outcrops of Santa Maria island, is dominated by tropical shallow waters taxa (*Eucidaris tribuloides*, *Echinoneus* cf. *cyclostomus*, *Clypeaster altus*, *Meoma* ? sp.), all locally disappeared with the exception of the temperate species *Echinocyamus pusillus*. Additionally, remains of two undetermined species of *Echinocardium* were also found. The Pleistocene material, in contrast, represents a fauna more typical of temperate waters: *Arbacia lixula*, *Paracentrotus lividus* and *Sphaerechinus granularis*. All three species are common present day inhabitants of Azorean rocky shores. In spite of the facies restriction and thus the palaeoenvironments preserved, it is clear that the fossiliferous deposits of the Santa Maria can aid in the understanding of how the fauna in this oceanic island system was shaped through time.

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