



Morphology of the Faial Island shelf (Azores): The interplay between volcanic, erosional, depositional, tectonic and mass-wasting processes

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[1] The extents of volcanic island shelves result from surf erosion, which enlarges them, and volcanic progradation, which reduces them. However, mass-wasting, tectonics and sediment deposition also contribute to their morphology. In order to assess the relative significance of these various processes, we have mapped in detail Faial Island's shelf in the Azores archipelago based on interpretation of geophysical and geological data. The nearshore substrates of the island, down to 30–50 m depth, are rocky and covered by volcanoclastic boulder deposits formed by surf action on now-submerged lava flows. Below those depths, sandy and gravel volcanoclastic beds dominate, building clinoforms up to the shelf edge. In some sectors of the coast,