

## **CENTRAL ALGARVE TUFA PLATFORMS, SOUTHERN PORTUGAL. GEOMORPHOLOGICAL CHARACTERIZATION AND GENESIS**

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Modern and fossil carbonate tufa outcrops exist in the Algarve (S Portugal), where climate is Mediterranean and all modern incrusting springs are intermittent and fed by Jurassic aquifers. The major Pleistocene tufa on the Algibre flexure southern slopes are in the Cadouço, São Lourenço and Rio Seco streams basins. There were identified fluvial barrier tufas and low energy fluvial tufas.

The Algarve has three main geomorphological domains: the Paleozoic flysch mountains, the Meso-cenozoic karst hills and the littoral Plio-Pleistocene detrital platform. Located in the Eurasian-Nubian plates boundary, the whole system have been deformed by distensive and compressive tectonics, which give rise to a complex groundwater system. Neotectonical activity has been reported in many works.

Feio (1952) identified Pliocene and Quaternary marine platforms up to 160 ma.s./., but also mature levels at 200 m along with other plain surfaces.

The largest tufa platforms lie in unconformity with the current drainage system, where outcrops are dominated by low gradient facies, v. g. detrital bedded lime muds. Machados platform is dominated by bryophytes and other rapid flow facies, and cemented riverbed upstream. These outcrops lie down on larger areas in Loulé and Lagos e Relva, at altitudes between 160-200 and 120-150 respectively.

Environmentally conformal tufas occupy some sectors of the modern Cadouço, Rio Seco and São Lourenço streams. Modern tufa range from spring dominated mounds in Lagos e Relva and barrier and low gradient fluvial dominated tufas (v. g. São Lourenço and Loulé).

The ocean proximity enables the formation of eustatic platforms, which provided substratum for tufa accumulations. Vertical movements, including salt tectonics, and lowstands promoted fluvial incision and later tufa developments in modern streams.

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