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RASA AND CONSTRUCTED RASA

The term rasas, of Spanish derivation, refers to old and perched littoral levelling surfaces or planation surfaces. Their width can reach several kilometres. The erosion surfaces are bordered inland by steep relief and by cliffs towards the sea. They were described for the first time by Hernandez-Pacheco (1950) on the Cantabrian Coast, northern Spain. Guilcher (1974) made a remarkable synthesis. These forms were also observed in Galicia (Nonn 1966), northern Chile (Paskoff 1970), southern Morocco, Brittany and Cornwall in England (Guilcher 1974), and Sardinia (Ozer 1986). Guilcher distinguished three types of rasas. The first one was described above, the second is more complex and is constituted by a succession of levellings arranged in stairs, and the third is when the passage towards the inland is gradual.

Plate 93 Rasa: Coast of Gallura (north Sardinia)

Plate 94 Constructed rasa: Coast of Anglona (north Sardinia). Accumulation of aeolianites on the terrace of the last interglacial sea level

Many of these rasas are covered by marine deposits (sand and rounded pebbles). These sediments were brought at a later date, during tertiary transgressions which only slightly retouched these levelling surfaces. Evidence of this process is found through ancient reefs in Brittany (Guilcher 1974), northern Sardinia (Ozer 1986) and south of Tangier, Morocco (Ozer, 2001 observation).

However, a convergence of shapes can exist, which is then called constructed rasas. This is a littoral aeolian accumulation, generally indurated (aeolianites), often mixed with local deposits of torrential origin. These accumulations are cut again in a shelf shape, slightly sloping towards the sea subsequent to runoff erosion.

The most spectacular constructed rasas are developed on slopes preceded by a well-developed continental shelf exposed to dominant winds. During Quaternary regressions, winds transported abandoned sands from the continental shelf until the first relief was formed by ancient cliffs which developed during the Quaternary transgressions. These deposits, essentially aeolian, became consolidated and were later shaped into cliffs by the current sea level. They are bounded inland by strong relief which is a previous Quaternary dead cliff.

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RATES OF OPERATION

Rates of operation of geomorphic processes are determined in a number of different ways depending on the time and space scales of interest, and whether one is interested in rates of operation of individual processes or in the aggregate rates resulting from all processes combined.