



## **Cataloguing Quaternary paleo-coastlines in West and Southwest Portugal. Economic, societal and geologic implications**

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A catalogue of paleo-coast lines in Southwest and South Portugal is presented based on direct field observation and on recent multibeam and backscatter bathymetric surveys. Above sea level, coastline classification was based on field observation of i) wave cut platforms directly associated with ii) notches and/or marine sand deposits with shell clasts, iii) speleothems interbedded with sand deposits and iv) beach rock slabs. Below sea level morphologic and archeologic criteria were used such as, i) buried cliffs under ii) prograding submarine prodeltas or littoral prisms, iii) hard rock surfaces interbedded with mobile sand deposits (possibly beach rock slabs), iv) lagoon depressions associated to coastal barriers sometimes buried by submerged river deltas and v) long wrinkled escarpments.

Coastline erosive surfaces ranging from ~30 m above present-day sea level to ~120 m below present-day sea level were cataloged. The highest notches with beach sand and bioclasts appear to be well above Quaternary sea level high-stands within the realm of an area that is associated with Pliocene thrusting and uplift. This together with a series of close located well-preserved wave cut platforms and notches from ~30m above sea level to ~70 m below sea level require dating. Establishing an absolute chronology for these paleo-coastlines will contribute for understanding the different contributions from eustatic variations, littoral environments (sedimentation contributions) or vertical tectonic movements.

The highly curvilinear pattern of the recently discovered paleo-coastlines in SW Portugal, between 30m to 80m below present day sea level, which mimics the present day coastline pattern, is associated with the inherited Paleozoic tectonic fabrics. These escarpments and embayments act as sand traps off the Iberian Pyrite Belt, worldwide famous for its base metals sulphide deposits. Ground truthing for characterizing these mobile deposits is in course looking for possible mineral placers. Thorough mapping of rocky outcrops is also important for habitat mapping, fisheries and diving activities in a region that is under tectonic uplift and needing artificial sand nourishment for keeping beaches attractive.

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