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High resolution seismic stratigraphy and Mass Transport Deposits of the proximal continental margin, offshore Quarteira, South Portugal: Preliminary Results.

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More than 300 nautical miles of multichannel seismic reflection data were acquired in the scope of the ASTARTE project (Assessment Strategy and Risk Reduction for Tsunamis in Europe), off Quarteira, Algarve, South Portugal. The main goal of this very high resolution multichannel seismic survey was to obtain high-resolution images of the sedimentary record to try to discern the existence of high energy events, possibly tsunami backwash deposits associated with large magnitude earthquakes generated at the Africa-Eurasia plate boundary

This seismic dataset was processed at the Instituto Português do Mar e da Atmosfera (IPMA), with the SeisSpace PROMAX Seismic Processing software. A tailor-made processing flow was applied, focusing in the removal of the seafloor multiple and in the enhancement of the superficial layers. A sparker source, using with 300 J of energy and a fire rate of 0,5 s was used onboard Xunauta, an 18 m long vessel.

The preliminary seismostratigraphic interpretation of the Algarve ASTARTE seismic dataset allowed the identification of a complex sequence seismic units of progradational and aggradational bodies as well as Mass Transported Deposits (MTD). The MTD package of sediments has a very complex internal structure, ~20m of thickness, is apparently spatially controlled by an escarpment probably associated to past sea level low stands. The MTD covers across an area, approximately parallel to an ancient coastline, with >30 km (length) x ~5 km (across).

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