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Flood sedimentological records off the south Portuguese coasts

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In the present climate change scenario, the perception regarding the frequency and magnitude of flood events is changing. Nevertheless, to establish return periods and flooding patterns it is important to expand the time-window of observation beyond the historical period. To achieve this purpose, it is crucial to use the sedimentological record of alluvial plains and river banks. However, anthropogenic activities have disrupted the sedimentary dynamics thus interfering with the geomorphological settings and their stratigraphy's. An alternative setting is the shallow nearshore, below storm wave base, where potentially stratigraphy is better preserved.

After a campaign on board RV Meteor, a group of sediment cores were collected offshore the south Portuguese coast. These cores cover the Holocene Epoch and consist essentially on alternations of silty bioclastic layers with some sandy units rich in quartz and bioclasts. The vertical variation of several sedimentological proxies allowed the differentiation of disruptive events, mostly related with extreme marine inundations or possibly linked with abrupt fluvial discharges.

Here we present some preliminary results based on grain-size and compositional analysis (XRD) and attempt to establish a chronology of those events. The preliminary data interpretation seems to suggest an increase in the flood record over the last 1000 years. However, this observation needs further support from other locations in the area and also requires a better understanding of post-depositional processes that affect the record of thin muddy layers on the nearshore stratigraphy.

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