

P06

Last Glacial and Holocene Continental Slope Sedimentation on the Mozambique Margin, NE off Zambezi Delta: Preliminary Results

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Summary

Mozambique margin sedimentation is highly controlled by sediments delivered by the Zambezi River, the largest river and catchment in Eastern Africa. The main goal of this research is to understand the processes of transport and deposition of sediments along the Mozambique continental slope during the last glacial period and the Holocene (last 40 000 years).

The study area is located in the northern part of the Mozambique margin, off the Zambezi Province, and extends from the shelf break to the base of slope NE off Zambezi delta (Fig. 1).

The studied records highlight how the sediments accumulated on the continental slope result from the interplay between gravity flows (turbidity currents and debris flows) and hemipelagic/contouritic sedimentation supplied by particles originated from the shelf and from the Zambezi River. All combined, these processes played roles in downslope transport of sediment at different periods and in different eustatic configurations during the last 40 000 years.

Abstract

Mozambique margin sedimentation is highly controlled by sediments delivered by the Zambezi River, the largest river and catchment in Eastern Africa. The main goal of this research is to understand the processes of transport and deposition of sediments along the Mozambique continental slope during the last glacial period and the Holocene (last 40 000 years). Despite growing oil interests, the deltaic margin of the Mozambique is still poorly studied for the late Quaternary and this research will contribute to improve the scientific knowledge on the development of one of the key sedimentary wedge bordering the western Indian ocean. The study area is located in the northern part of the Mozambique margin, off the Zambezi Province, and extends from the shelf break to the base of slope NE off Zambezi delta (Fig. 1).

For this study the following data were collected in 2015 during the PAMELA-MOZ4 cruise (<http://dx.doi.org/10.17600/15000700>): chirp sub-bottom profiles multibeam bathymetry, and sediment cores. The bathymetry shows the presence of scours, erosional surface and channels. The sedimentation from upstream to downstream shows the following pattern:

On the upper slope (904 m) we identified three different sedimentation sequences: Hemipelagic sedimentation characterized by clay-silt mud; Mass Transport Deposit (MTD) sequences characterized by bioturbation and laminated mud and; Fining-upward sequences characterized by carbonate rich sandy-mud.

On the mid-slope (1200-2000 m) we identified a muddy Mass Transport Deposit characterized by a transparent seismic facies.

On the base of slope (2000-2500 m) the morphology is characterized by erosive scours. The sedimentation is dominantly hemipelagic (carbonate oozes) with few sandy turbidites.

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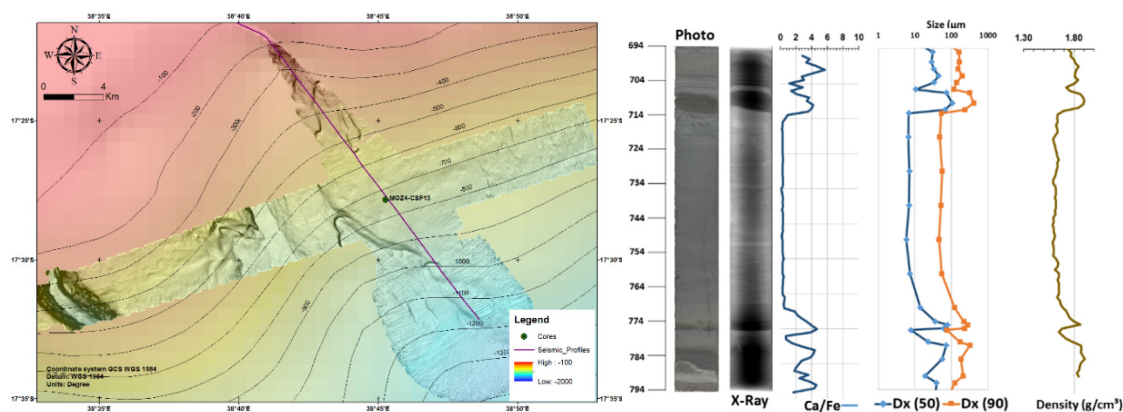


Figure 1 Left: Swath bathymetry of upstream part of study area. Note the presence of channels and erosional surface from shelf break. Right: Example of lithofacies representing Mass Transport Deposits (MTD).

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