
Fluid seepages associated with benthic communities along the Zambezi Margin (Mozambique).

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R esum e

Evidences for active fluid seepages (water and gas) have been discovered along the Zambezi slope (offshore Southern Mozambique). These active seepages are mostly associated with pockmarks which are aligned along a trend parallel to the slope and running closely upstream of the head scarp of a wide zone of slope destabilization. The fluid seepages are interpreted as triggering slope destabilization. Acoustic anomalies within the water column have shown the activity of moderate bubble seepages. Punctually, acoustic anomalies in the water are interpreted as related to fluid seepages inside the destabilization zone. Exploration with the SCAMPI towed camera system in the widest pockmark (diameter 200 m wide) has shown fluid seepages associated to authigenic carbonate crusts and bacterial mats. These fluid seepages are also associated to the presence of chemosynthetic organisms (Vesicomysidae, Thyasiridae, Siboglinidae). The sampled gas in the sediment correspond mainly to CH₄ of microbial origin, generated by hydrogenation and reduction of CO₂ from a substrate of organic origin, *i.e.* a conventional process of genesis of microbial gas in the marine domain. No evidence for thermogenic gas was detected. In all cases, δ¹³C-CO₂ values are indicative of an organic source consisting of solid organic matter and not related to the biodegradation of liquid hydrocarbons. Another type of pockmarks has been observed within the core of the slope destabilization zone. Most of these pockmarks are inactive in terms of fluid seepages at the present time and they are associated to carbonate buildings forming chimney geometries. They probably correspond to diagenetic chimneys of former fluid migration pathways that have been exhumed during the mass sliding and recurrent activity of strong lateral slope currents which have scoured the sediments around.

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