



## **Debris Flow and Turbidite Deposits off Northwest Africa**

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The Northwest African margin is a well-studied passive continental margin dominated by normal pelagic/hemipelagic 'background' sedimentation punctuated by infrequent large submarine gravity flows, e.g. turbidity currents and debris flows.

A combination of data collected from the area south of the Canary Islands is being examined in order to provide more detailed information on the mechanics, extent and deposits of the Saharan Slide and to assess the source area, frequency and geohazard potential of turbidity currents from the southern Canary Islands and adjacent Western Saharan margin. This work builds upon the results of previous studies (Embley, 1982; Gee et al., 1999).

The area south of the Canary Islands is dominated by volcanoclastic turbidites originating from the island flanks, though none of them shows the complete Bouma division. Instead Bouma B, C and D are present in most cases with a small cap of E which is interpreted as "bypassing" of the turbidites. Some more scarce organic-rich turbidites appear to originate from the adjacent continental margin. Dating of the turbidites reveals the erosive capacity of these turbidity currents as well as as well as the potential geohazard to seafloor exploration in the region.

Some of the volcanoclastic turbidite sands were entrained by the Saharan Slide as it moved downslope. This slide originates on the NW African margin at a water depth of ~1700 m and is comprised of coherent but highly contorted "background" slope sediments. Upon reaching the area south of the Canary Islands volcanoclastic sands were incorporated into its base transforming the slide into a two-layer flow consisting

of a block of highly deformed slope sediments on top of a thin layer of volcaniclastic sands acting like 'ball bearings'. Detailed analysis of cores crossing the slide margin are revealing new insights into the sand entrainment process.