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Formation of Mass Transport Deposits on the Submarine Bank of Portimão (Gulf of Cadiz, SW Iberia)

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The development of submarine mass transport deposits (MTDs) plays an important geo-hazards role along continental margins. Accordingly, their identification and characterization is crucial to understand their sources, dynamics, frequency and spatial distribution. In this work a piston core located at the slope (2876 m water depth) of the southern flank of Portimao Bank (Portugal, Gulf of Cadiz, SW Iberia) underwent detailed magnetic (fabric and rock magnetism) and sedimentological (grain-size, carbonates, organic matter) analyses complemented by AMS 14C dating. Such multidisciplinary study identified about one meter of sediments that is unconformable with the ages obtained above and below this layer. Its magnetic fabric, as determined by anisotropy of magnetic susceptibility, indicates sharply changes from oblate to neutral shape, decrease of the anisotropy and preferred orientation of the magnetic susceptibility ellipsoid. Such layer is also individualized by sedimentary parameters, especially in its upper part by a lighter colour and decrease of the mean grain size than the rest of the core. Based on these results it is possible to conclude that the sedimentary column analyzed here shows evidence of an on-going development of a slide, which is well individualized and characterized by magnetic fabric studies.

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