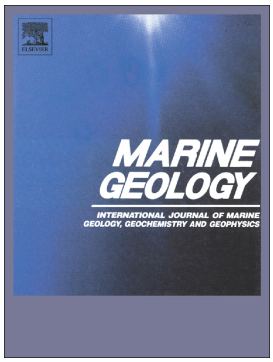

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Acoustic remote characterization of seabed sediments using the Angular Range Analysis technique: The inlet channel of Tagus River estuary (Portugal)

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Abstract

The inlet channel of the Tagus River estuary is located in the biggest urban area of Portugal and connects the river estuary basin to the Atlantic Ocean. Hence, it is a region with extreme economic importance, attested by the presence of the Lisbon port. For this reason, a large amount of resources is invested in acoustic surveys to update nautical charts and monitor the bottom modifications induced by the high hydrodynamics of this river. The use of acoustic remote characterization allows mapping the seafloor, including discrimination of different seafloor types. In this study, we used the Angular Range Analysis (ARA) technique to analyze the backscatter data from four distinct surveys acquired by different multibeam echo sounders systems and to estimate the mean grain size of the sediments. The correlation between the ARA and laboratory results (mean grain size) present in most cases a moderate to a strong linear relationship between them and the standard deviation of the residuals of the mean grain size between