Geophysical Research Abstracts
Vol. 18, EGU2016-1638, 2016
EGU General Assembly 2016


# Characterization of bottom sediments in the Río de la Plata estuary

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Bottom sediments and surface water samples were collected in the intermediate and outer Río de la Plata Estuary during 2009-2010, in six repeated cruises, with 26 stations each. Samples were processed for grain size using a laser particle size analyzer, and water and organic matter contents. The aim of this work is to analyze this data set to provide a comprehensive and objective characterization of the bottom sediments distribution, to study their composition and to progress in the construction of a conceptual model of the involved physical mechanisms. Principal Components Analysis is applied to the bottom sediments size histograms to investigate the spatial patterns. Variations in grain-size parameters contain information on possible sediment transport patterns, which were analyzed by means of trend vectors. Sediments show a gradational arrangement of textures, sand dominant at the head, silt in the intermediate estuary and clayey silt and clay at its mouth; textures become progressively more poorly sorted offshore, and the water and organic matter contents increase. And seem to be strongly related to the geometry and the hydrodynamics. Along the Northern coast of the intermediate estuary, well sorted medium and fine silt predominates, whereas in the Southern coast, coarser and less sorted silt prevails, due to differences in tidal currents and/or in water pathways. Around Barra del Indio, clay prevails over silt and sand, and the water and organic matter contents reach a maximum, probably due flocculation, and the reduction of the currents. Immediately seawards the salt wedge, net transport reverses its direction and well sorted coarser sand from the adjacent shelf dominates. Relict sediment is observed around the Santa Lucía River, consisting of poorly sorted fine silt and clay. The inferred net transport suggests convergence at the Barra del Indio shoal, which is consistent with the constant growing of the banks.