



Prodelta sediment budget analysis: a case study from the Holocene of the western Adriatic Sea

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The late-Holocene Highstand Systems Tract (HST) of the Adriatic Sea is represented by a mud wedge located along its western margin. The mud wedge is sourced from several rivers on the Italian side of the Adriatic Sea. The Po is Italy's largest river in terms of liquid discharge and suspended sediment load, and is generally considered to be the prime contributor to the mud wedge. The rest of the mud is supplied by a series of smaller rivers draining the Apennines. The fine-grained sediments of these rivers are dispersed to the south and form a complex prodeltaic sediment body that extends for 400 km. Analysis of seismic data and cores of the HST allows us to construct isopach maps and estimate the volume of this complex body. Refinement of the bulk sediment budget is possible if the volumetric contributions of different sources to the HST can be reconstructed. Several types of data have been analysed to investigate if a distinction can be made between contributions of the Po and Apennine rivers to the mud wedge. Carbonate and non-carbonate grain-size distributions of 200 surface sediments of the mud wedge, as well as their bulk carbonate content have been analysed by laser particle sizer to characterize the present-day spatial variation in sediment properties. These data have been compared to other sources of information from the geological literature, notably mineralogical and chemical data on fine-grained sediments, and simulated sediment flux records.

Keywords: HST, Holocene, Adriatic Sea, fine-grained sediment budget, stratigraphy