



Longshore sediment movements from tracers and models, Praia de Faro, South Portugal

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R sum  en anglais

This work aims to improve the knowledge of sediment circulation in the coastal zone, focusing on the quantification of sediment movement due to longshore drift. The studied field site is the Praia de Faro beach on the Peninsula do Anc o in Algarve (Portugal), which is located on the updrift coast of the Barra Nova tidal inlet. The main objective of the study was to quantify the sediment transport rate that will enter in the inlet system. Measurements were undertaken during low hydrodynamic conditions prevailing in this area and permitted to estimate a longshore transport rate of 2.6-4.2 m/s, consistent with other transport estimations in Algarve. Four theoretical models for longshore transport rate calculation were confronted to tracer results to choose a extrapolation tool. Kamphuis (1991) formula appeared to be the more appropriate in this area. It was used to extrapolate the results in order to be compared to the observed morphological evolution. The calculated short term sediment flux (10500 m³/month) corresponds to the accretion on the updrift swash platform of the Barra Nova tidal inlet and is thus considered to be the contribution of the adjacent coast to this system. Moreover, the estimated longshore transport rate permit us to predict a spit progradation of 60-70 m/year. This result is consistent with the observed migration rate of the Barra Nova inlet during the last 25 years. This study shows that, with a good knowledge of the environmental context, sediment fluxes obtained by sand tracers are accurate enough to estimate the long term longshore transport and long term morphological response of a stretch of shoreline.

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