Geophysical Research Abstracts
Vol. 20, EGU2018-5277, 2018
EGU General Assembly 2018

sediment transport and morphological changes along a macro-tidal coastline

Nicoletta Leonardi
University of Liverpool, Liverpool, United Kingdom (nicleona@liverpool.ac.uk)

The coastline of SE England is used as test case to investigate the morphological evolution of the coastline at a century timescale, possible changes in residual transport patterns, and the reciprocal interaction between residuals and the character of the bed. We found that in the long term, the morphology of the system evolves toward a dynamic equilibrium configuration characterized by smaller, and spatially constant residual transport patterns. Residual eddies develop in regions characterized by the presence of sand bars due to the interaction of the tide with the varying topography. Residual transport patterns are also computed based on the sediment availability at the bottom. We found that the distribution of sediments on the bed is significantly correlated with the intensity of residuals. Finally, the majority of long-term morphological changes tend to enhance sand banks features, with an increase in elevation and steepening of the bank contours.

Leonardi, N. and Plater, A.J., 2017. Residual flow patterns and morphological changes along a macro-and meso-tidal coastline. Advances in Water Resources, 109, pp.290-301.