Long term morphological modelling

A morphological modelling concept for long term nearshore morphology is proposed and examples of its application are presented and discussed. The model concept combines parameterised representations of the cross-shore morphology, with a 2DH area model for waves, currents and sediment transport in the surf zone. Two parameterization schemes are tested for two different morphological phenomena: 1) Shoreline changes due to the presence of coastal structures and 2) alongshore migration of a nearshore nourishment and a bar by-passing a harbour. In the case of the shoreline evolution calculations, a concept often used in one-line modelling of cross-shore shifting of an otherwise constant shape cross-shore profile is applied for the case of a groyne and a detached breakwater. In the case of alongshore bar/nourishment migration an alternative parameterization is adopted. All examples are presented, analysed and discussed with respect to the question of realistic representation, time scale and general applicability of the model concept.