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Coastal morphodynamic systems are defined by a set of spatially and temporally variable dynamic inputs that interact with each other. These forces operate on sedimentary material of spatially and temporally variable character that responds to dynamic inputs creating feedback. All these interactions take place within a setting that is defined by pre-existing geological factors (rock outcrop distribution, shell hash layers, slope) that set the limits within which the system is free to fluctuate. Scientific understanding of these interactions is only partial because of the complexity of potential combinations, feedback relationships and environmental settings. Since these interactions are only partially understood, our understanding of coastal processes in toto can only ever be qualitative. To further our understanding of coastal morphodynamics, field observations, historical documentary evidence of change and modelling can be useful.

Modelling of coastal processes and evolution is divided into two categories (THIELER et al., 2000). One category of model seeks to advance our understanding of coastal processes through (i) the process of model development and (ii) the application of research models. These exercises can provide insights into hitherto unknown or unexpected processes. Examples include the work of ASHTON et al. (2000) who suggested that long-term unobservable processes of self-organisation could produce very large-scale shoreline features and that of COCO et al. (2000) who used modelling to explore the role of self-organisation in coastal processes. Implicit in such modelling is recognition that coastal systems are complex systems in which, because of the constraints of time and space, it is rarely possible to:

- observe and measure a single process in the absence of others;
- adequately instrument a site to record the full range of dynamics and morphological responses; or
- record the impacts of high magnitude or long term processes.

Qualitative modelling permits insights into such problems, but the findings are known to provide only partial descriptions of coastal behaviour. Thus, while they add to the body of knowledge, they cannot (and are not expected to) predict coastal behaviour in its entirety or with useful accuracy for applied purposes.

The second category of coastal model is that of applied models that seek to accurately predict future coastal behaviour by application of current (incomplete) knowledge. The work described by BRØKER et al. (2007) falls into this category. This type of modelling either rejects or chooses to ignore the complexity of coastal systems in favour of a simplified approach. Given the fact that coasts are indeed complex systems it should therefore be immediately clear that no model can predict the future morphology of a coast with accuracy. In such modelling it is usually claimed that the process of calibration and validation of the model acts as a test of its predictive ability. As we will show below (like others before us, e.g., KONIKOW and BREDEHOEFT, 1992; ØRRESKES et al., 1994), this notion is fanciful.

BRØKER et al. (2007, p. 1150) contend that because the seabed contours are quasi-uniform alongshore and the waves and currents are quasi stationary, “long coastal stretches can be investigated over long time spans” using the model LITPACK. In light of the complexity of coastal processes we cannot agree with such a statement. Such a view of environmental uniformity most likely reflects a lack of detailed information but many other factors (e.g., unpredictability of forcing factors, complexity of wave-current interactions, spatial heterogeneity in material factors (e.g., grain size), operation of long-term, large-scale processes, storm frequency, storm magnitude and direction, etc.) combine to prompt the exactly opposite conclusion.

The paper by BRØKER et al. (2007) presents the results of numerical simulations of coastal morphological behaviour around a harbour and argues that the type of modelling presented is a useful tool for design of coastal structures. In contrast, we contend that the type of modelling described has limited value and rather than being an exercise in under-