

# Modelling sediment transport in Swansea Bay and the sandbank systems of the Bristol Channel

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## Description

Using state of the art numerical models SEACAMS2 will provide an improved understanding of sediment transport pathways and changes to seabed morphology in Swansea Bay and Bristol Channel areas under various forcing conditions. This will be achieved via utilisation of numerical models for waves, tides and sediment transport. The wave model will cover the Atlantic to ensure accurate representation of swell waves whereas the hydrodynamic modelling (tides) will be restricted to the European continental shelf. Once baseline morphodynamics under undisturbed conditions are understood, the models will be used to simulate the impact of various anthropogenic developments such as tidal lagoons.

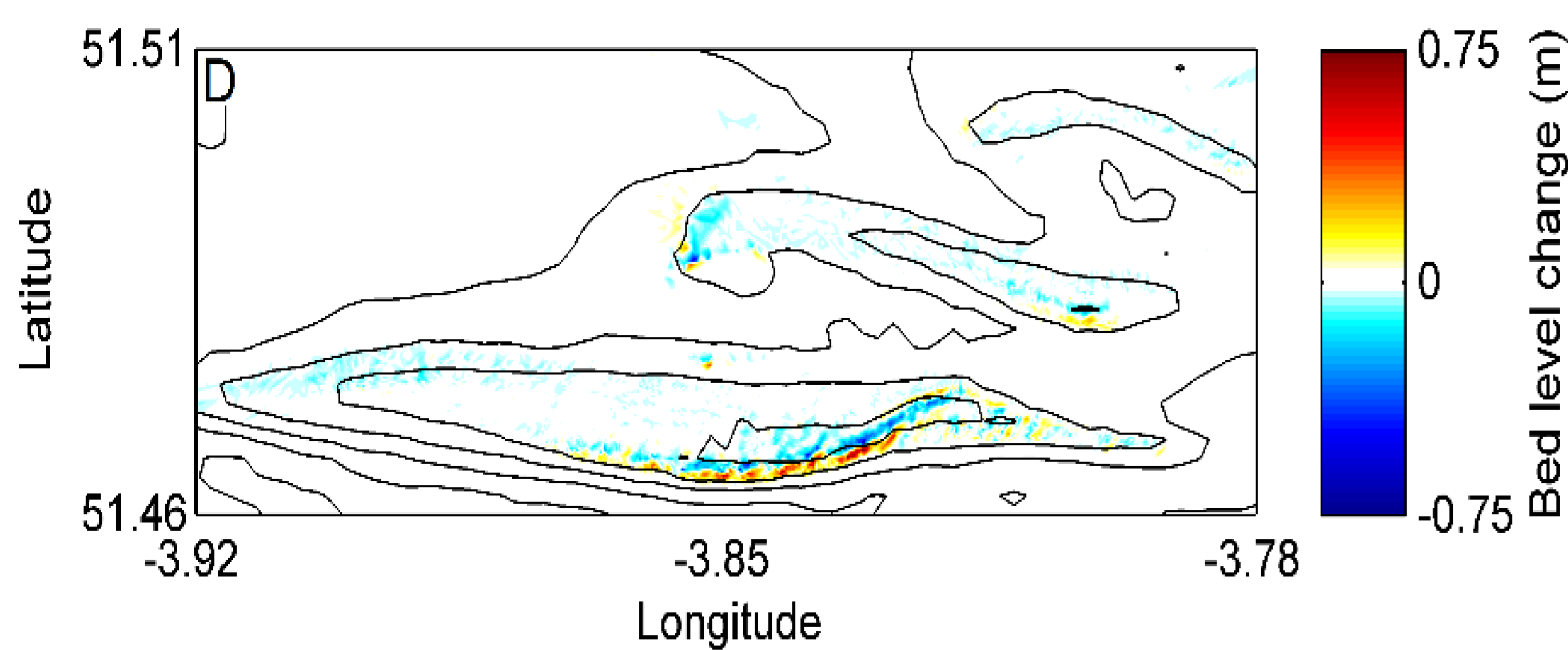


Figure 1. Modelled storm changes at Scarweather Sands

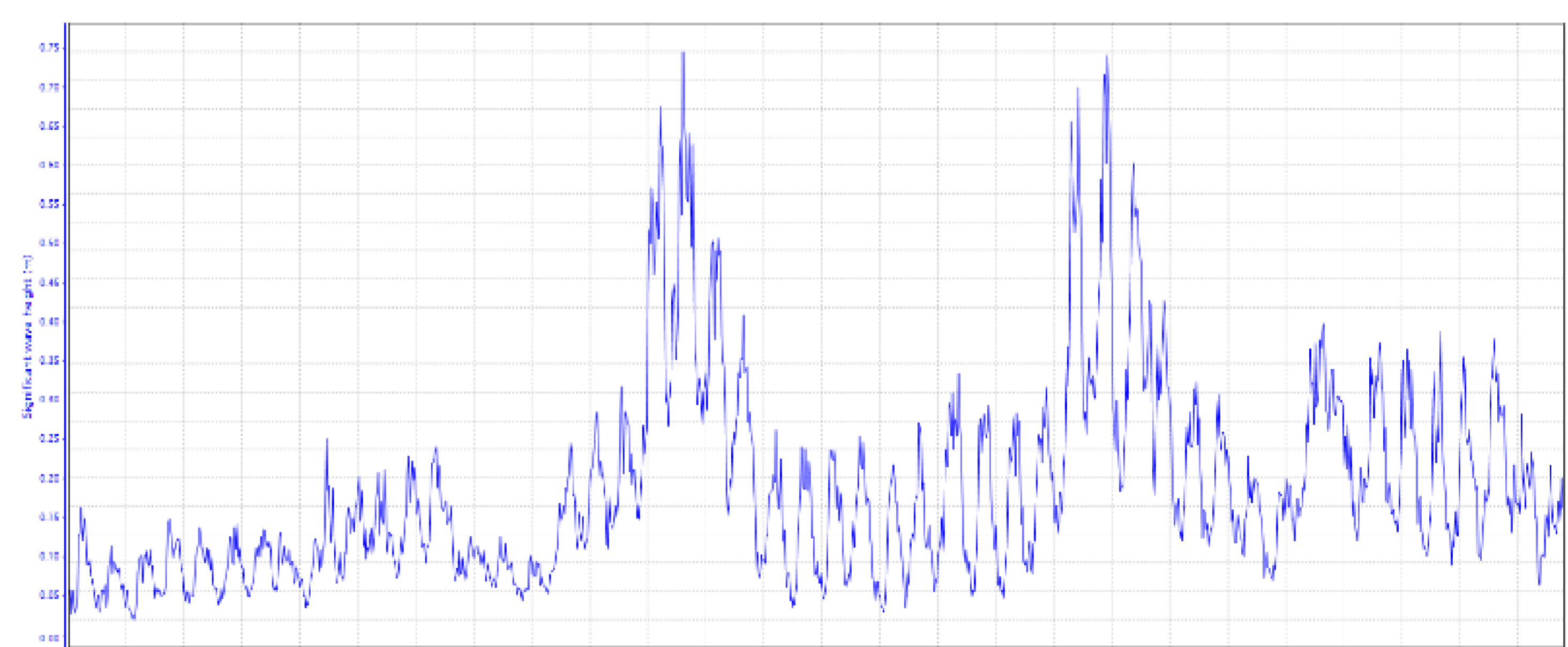


Figure 2. Measured wave heights at Mumbles

This project combines numerically predicted waves and tidal flows to drive a sediment transport model to assess sediment transport patterns under storm conditions. Model output will also be used to infer longer term sediment transport trends and to drive simpler models that can describe the medium to long term morphological evolution.

## Outcomes

- Independent academic modelling study of the regional tides, waves and morphodynamics;
- Improved understanding of the local morphodynamics which will reduce future consenting burden
- Model outputs will be useful for assessing tidal lagoon impact as well as many aspects of local shoreline management.

