

# CHISWELL STORM FLOOD ANALYSIS

**Location:** Chiswell Beach, Portland, UK

**Project Dates:** December 2017-March 2018

**Clients:** Environment Agency

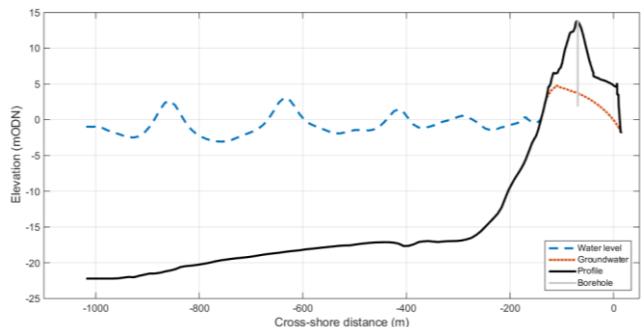
## Scope of work:

- Historical Flood Event Analysis
- Analysis of in-situ groundwater data
- XBeach-G model simulations of storm events
- Development of flood ensemble criteria using forcing conditions

## PROJECT DESCRIPTION

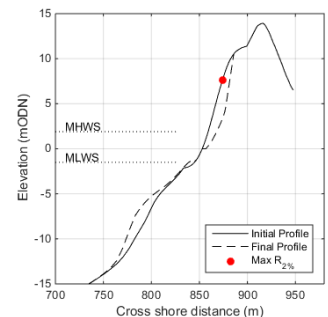
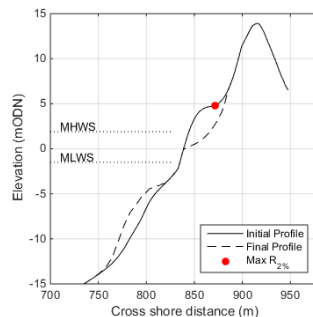
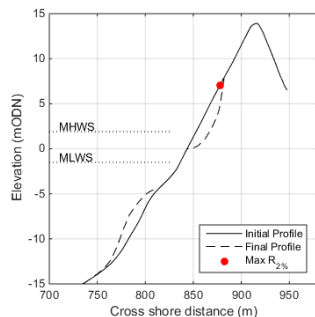
A comprehensive set of coastal defences including sea walls, gabion mattresses, drainage channels and flood gates are used to manage flood risk at Chiswell beach on Portland in Dorset. The exposed site is open to large swells moving up the channel from the Atlantic and despite the 13m high large gravel barrier inland flooding poses a risk to people and property. The Environment Agency wish to provide as much warning as possible when such events may occur to help manage the risk.

Using historical flood event analysis combined with in-situ measurements of groundwater flows CMAR used XBeach-G to explore typical forcing conditions that drive through-flow and overtopping. This allowed a series of thresholds to be defined for flood impacts, which the Environment Agency have used to improve local flood forecasting and operational response.



Above: Chiswell beach during storms in February 2014 and XBeach-G model domain showing groundwater within the barrier.

Right: Example Xbeach-G simulations used to explore the role of profile shape on morphological response and wave runup.



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