

B-SCAN: BEACH BED-LEVEL SCANNER

FOR IMPROVED FORECASTING OF WAVE OVERTOPPING AND EARLY WARNING OF TOE EROSION

Location: West Bay, Dorset

Project Dates: August 2019 – October 2020

Clients: Environment Agency

Summary:

- Proof-of-concept design for automated bed-level measurements
- Stand-alone sensor providing remote measurements of beach response
- Daily profile data to improve accuracy of overtopping forecasts
- B-Scan can aid beach management operations when ‘trigger’ levels are defined

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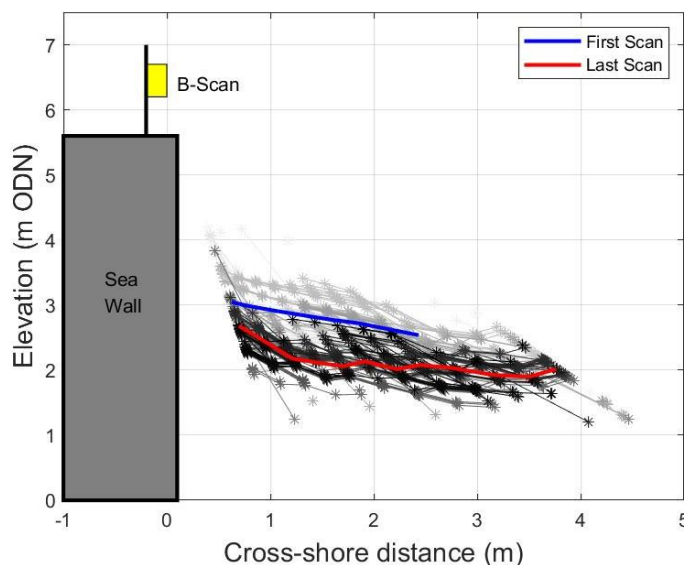
PROJECT DESCRIPTION

Erosion in front of sea walls can threaten the integrity of the wall, as well as influence the level of wave overtopping in the event of extreme wave conditions and/or elevated sea levels. The importance of such data is recognised by the **Environment Agency** who commissioned the **Coastal Marine Applied Research** team at **Plymouth University** to develop and test a stand-alone bed-level sensor that can autonomously monitor the beach level in front of a sea wall and transmit the data at regular intervals.

The bespoke sensor (B-Scan) was deployed at West Bay for nine months providing daily low tide data. Powered by a solar panel with data transfer via mobile networks, two-way communications allow the sensors status (e.g., battery levels) to be monitored and scan times to be updated.

In addition to providing early warning, the data received allows for more accurate prediction of wave overtopping during storms and can provide vital information on ‘trigger’ levels for coastal assets.

Upper: B-Scan deployed at West Bay. Lower: Returned profile data for the duration of the deployment showing beach change over nine months (darker shading = most recent scans).



Coastal Marine Applied Research

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