Channel Coast News

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The newsletter for the Southeast Strategic Regional Coastal Monitoring Programme www.channelcoast.org

Regional News

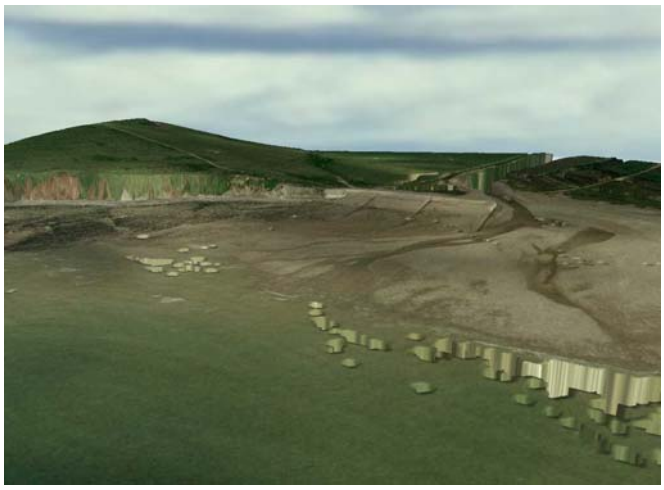
South East Coastal Group

Spring profile data has been received for Management Units 1 and 2 and will be quality checked within the coming week. Bathymetric data for North Kent and Sussex areas has now been received from the survey contractor and is undergoing quality checking. The quality has substantially improved and checking is progressing at a faster pace.

LiDAR data for the Isle of Grain and Isle of Sheppey, including the Medway and Swale Estuaries, The Warren, Pett Levels and Fairlight Cove has been received from the Environment Agency and will be checked shortly.

South Downs Coastal Group

Data from the LiDAR survey undertaken of the Brighton Marina to Beachy Head area during January 2005 has recently been received with checking work nearing completion. Indications are that this dataset is of a very good quality. The figure shows LiDAR data in the Cuckmere Haven area, looking west.



Contours and XYZ data from the March 2003 baseline aerial survey and summer 2004 Beach Management Plan (BMP) surveys of MU's 2, 2A, 3, 5, 8B & 15B have recently been received, with checking work now complete. One-to-one Project Partner meetings are progressing well with only one or two still to do. After the next SDCG meeting in Crowborough, in the afternoon of the 18th April there will be a further meeting to summarise the outcomes of these meetings and the Annual Report.

Environment Agency (Southern Region)

All areas within the 2004/05 LiDAR programme have now been flown and the QA-ing of all data received to date is progressing well. Work will begin on planning next year's programme once all outstanding data has been received. Aerial photography interpretation for Hampshire is ongoing and a draft delivery of part of Southampton Water has been made.

SCOPAC

The topographic survey season is now well underway. Several of the outstanding bathymetric survey management units along the Portland Bill to Durlston Head frontage have been surveyed and the data are now being quality checked.

Channel Coastal Observatory

More data are coming onstream in the website's Data Catalogue. The ortho-photography has been available for some time; and now bathymetric data from the Isle of Wight and East Solent have been uploaded, in addition to topographic survey profile data from the SECG region. Please encourage external users of the data to use the website Data Catalogue, wherever possible.

Contacts

If you have any queries about the Strategic Regional Coastal Monitoring Programme, or would like a personal copy of this newsletter by email, please contact your area representative:

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Post-storm surveys
Part II - Applications

Post storm beach profiles are collected for several applications:

(a) Operational assessment of beach condition following a storm- using threshold conditions, to determine whether beach management intervention is required.
(b) Validation and development of predictive models used in beach management.
(c) Definition of alarm and crisis conditions for long term planning at each site.

Shingle barrier beaches are amongst the most vulnerable of beaches and may breach during severe storm conditions, usually in association with extreme water levels. Empirical beach modelling methods have been developed to predict the response of shingle barrier beaches under storm attack. These have been based on physical model testing and require field validation so that they can be used with confidence, or refined if necessary. Historically, very little data has been captured to provide this information. The regional programme provides an excellent data set for this purpose.

The model is based upon variables including: beach geometry, wave conditions and storm peak water level. Beach profile data is used to calculate the resistance of the barrier; this is used in conjunction with data derived from wave buoys and tide gauges. Figure 1 shows an application of field data to predict breaching at Hurst Spit.

Each storm, and profile, is represented by a point on the graph. All points lying above the curved line suggest that a breach should not occur with the condition tested.

Figure 2 Overwashing and breaching of Hurst Spit in 1989

A breach is expected to occur when data is found below the line. So far the results have been extremely encouraging and confidence is building in the model. This has enabled crisis and alarm conditions to be defined for each profile. The alarm condition is based upon a breach being likely in a 1:100 year return period event, whilst the crisis condition is represented by the 1:5 year event.

It is intended that alarm and crisis conditions will be defined for many barrier sites and improvements made to the predictive methods by using post storm response data to validate the predictions. Further details on the modelling techniques used can be found in the references below and in other publications which will be available shortly on the website.

Bradbury A P (2000). Predicting breaching of shingle barrier beaches - advances to aid beach management *35th MAFF Conference of River and Coastal Engineers*.
Cope S N (2004). Predicting overwashing and breaching on UK coarse-clastic barriers. *Proceedings of Coastal Dynamics 2005*, American Society of Civil Engineers (in press).

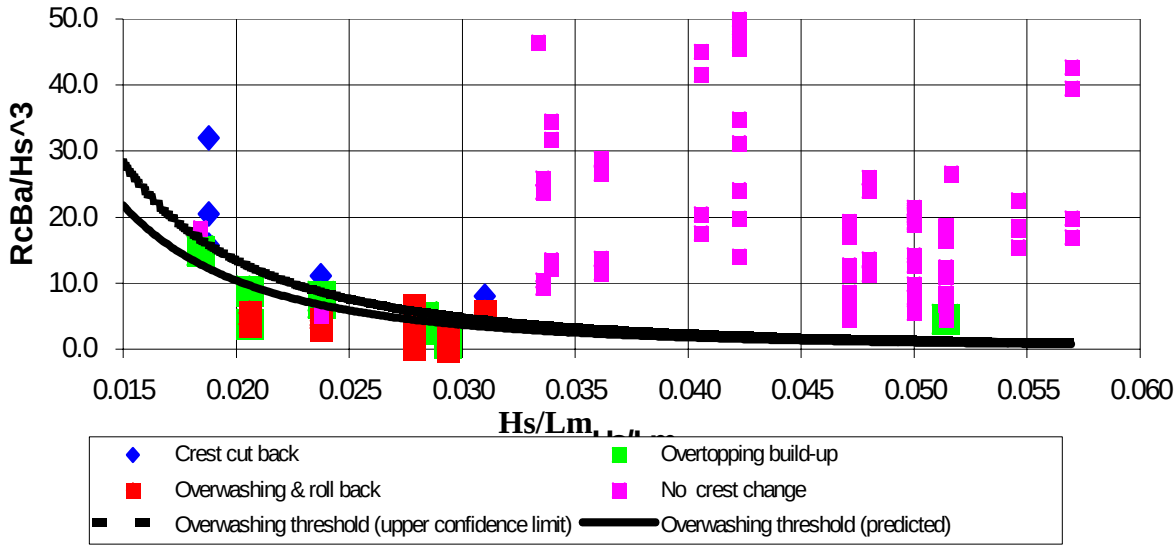

Figure 1 Prediction of breaching conditions at Hurst Spit