



# UK Coastal Research Conference

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### **DUNE NOTCH DYNAMICS: MORPHOLOGY AND AEOLIAN RESPONSE**

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Coastal dune systems can provide a rich ecological habitat as well as a valuable natural geomorphological feature important for protection from coastal flooding. The stability of the foredune is essential for effective coastal flood protection and is usually a feature of maturing dunes that are well-established.

The removal of vegetation and sand to create channels or “notches” through the foredune areas has been successfully applied at a number of dune systems and been shown to help with greater deposition and accumulation of sand in the back dune area as well as affect the grain size distribution of sand.

This paper looks at the impact of three notches (up to 300 m long) created on an established mature dune system with a minimal foredune presence and high back dune in Cornwall, UK. Repeat aerial surveys and in-situ measurements of aeolian transport and wind dynamics are used to examine variability in notch impact on the surrounding dune system.

Early analysis of the field data shows the notches were created primarily through the movement of material ( $dz = -3$  m) to the edges of the notch area creating accretionary landforms ( $dz = +4$  m) along the notch perimeter. Early accretion, post-notch creation, is evident with large deposits at the upper back dune which results in wide spatial variability in wind dynamics and subsequent aeolian transport rates. Accretionary features from wind-blown sand are evident at the back of the notches (>60 m above MSL) with maximum deposition present adjacent to the largest notches.