



The application of satellite-borne remote sensors for monitoring coastal erosion and ecosystems in Ireland.

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Advances in the resolution and availability of imagery from satellite-borne remote sensors provide an opportunity to utilise the data for near real-time monitoring of coastal erosion and ecosystems. This research project focuses on developing a technique for measuring changes in coastal geomorphology and vegetation cover using a combination of EO synthetic aperture radar and multispectral imagery.

The technique is being developed, tested and refined using data collected from two study sites on the west coast of Ireland (County Kerry & County Mayo). Extracted shoreline positions are validated using orthorectified aerial photography archives, LiDAR imagery and repeat field survey data. Time series analyses are used to determine localised erosion rates and forecasting techniques will be utilised to produce predicted shoreline positions for years 2020, 2030 and 2050. These results will be benchmarked against equivalent shoreline predictions published in the Irish Coastal Protection Strategy Study.

The imagery will be used to generate vegetation maps for the purposes of monitoring the ecological status of coastal habitats (with respect to the EU Habitats Directive) as well as identifying and delineating areas of invasive vegetation species such as sea-buckthorn (*Hippophae rhamnoides*) and Chilean-rhubarb (*Gunnera tinctoria*).

The results will be of wider interest to coastal ecologists, geomorphologists, risk managers, and engineers involved in coastal research and conservation. In particular, the research can inform coastal management strategies for coping with the increased storminess predicted by future scenarios described in many climate models.