



Application of satellite data as a tool for managing coastal risk and sustainable development in the South West Indian Ocean.

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It is well established that global sea-level is increasing and that large-scale weather patterns are changing. However, across large parts of the world, there is a lack of observational data from in [U+2011] situ instrumentation available on which to implement evidence-based approaches to coastal adaptation. In the South West Indian Ocean, Mozambique and Madagascar have large coastal populations whose lives and economic security are vulnerable to the consequences of climate variability and change.

With access to improved regional information on coastal risk factors (sea level, wave and wind extremes) plans to protect coastal communities and safeguard economic activity can be improved. This information can also contribute to improving industrial and commercial competitiveness in the maritime sector, which is heavily dependent on access to accurate relevant oceanographic information

In the past it has been difficult to retrieve satellite altimeter data close to the coast, due to land contamination of the return waveform. Using an innovative coastal processor, developed by NOC, a new satellite altimeter sea-level dataset for the South West African coastline has been generated. These data are have been validated against available tide gauge data and analysed for regional characteristics in sea-level variability, including long-term sea-level trends.

These data, together with ocean wind, wave and surface current data are being provided through C-RISe, a Coastal Risk Information Service, to partner organisations in Mozambique and Madagascar to inform decision-making and reduce the impact of coastal inundation and increasingly variable weather patterns.

The three main objectives of C-Rise are:

- Deliver a Coastal Risk Information service, providing satellite-derived information about coastal vulnerability to environmental threats such as sea level rise and extreme wind and wave events.
- Apply and evaluate the C-RISe service through a set of Use Cases, applying the C-RISe products to end use applications meeting local priorities.
- Build local capacity to use satellite data for strategy development, governance and management of coastal areas to increase resilience to coastal hazards.

A key objective of C-RISe is to support the development of local capacity to access, process and apply satellite data. This is achieved through a range of Use Cases which are evaluating the C [U+2011] RISe service in different application areas, including: maritime safety, coastal erosion, coastal defence planning, fisheries, marine and coastal ecosystem management

Local users are also being trained in the use of marine satellite data to quantify coastal hazards and incorporate this information into ongoing programmes. Two series of training workshops have been organised and held in Mozambique and Madagascar: “Wind, Wave and Sea Level Information from Satellites”, and “Tools to Apply Satellite Data to Coastal Risk”.

This presentation will introduce the project, summarise key findings, and present results from the Use Cases, highlighting areas of most benefit and future interest.

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