Enhancing South African coastal management and beach safety through improved hazard forecasting

sweep

Impact Summary


South African Weather Service (SAWS)

Drawing on the success of the first SWEEP Operational Wave and Water Level (OWWL) model developed for the Environment Agency, SWEEP's team - Professor Gerd Masellink, Dr Tim Poate and Dr Kit Stokes from the University of Plymouth's Coastal Processes Research Group - have developed a suite of additional bespoke, localised OWWL models for a variety of wider partners. The following impact summaries highlight the benefits being delivered, both for the public and private sector.

Ways of Working

What we did and its impacts

SWEEP's OWWL work directly provided the method and helped to secure Newton funding for this project, enabling the transfer of expertise on coastal forecasting applications to the South African Weather Service (SAWS). A version of SWEEP's Operational Wave and Water Level (OWWL) model was created for the Cape Town coastline to trial the use of an overtopping forecast that would improve forewarning of potentially hazardous storm events, and safeguard coastal communities. SAWS have coded the system into their operational routines and further monitoring will determine how forecasts are being used to support better decision making.

As part of this project, the SWEEP team also delivered a pilot rip current forecast system for Cape Town. Based on earlier NERC funded research on rip currents (2008-2013) under the 'Dynamics of Rips and Implications for Bather Safety' (DRIBS) project, this tool has been operationally implemented by SAWS and used by the National Sea Rescue Institute to generate public-facing rip warnings - see video.

The system has many parallels with the forecasting and hazard warning approach used by the SWEEP team in their 025 Crantock Beach hazard safety project.

> *"The project will most definitely help contribute to safer beaches in Cape Town specifically, and South Africa in general, once the rip forecast model has been validated and released."*
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> **Andrew Ingram, Drowning Prevention Manager, National Sea Rescue Institute**

> *"This work has enabled South African researchers, scientists and organisations to expand their knowledge, skill and ability to better inform our communities regarding their beach safety. SAWS anticipates including the rip hazard warnings into daily forecasts for the Cape Town summer season and holiday periods and , over time, will expand to include as much as possible of the coastline around South Africa."*
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> **Carla-Louise Ramjukadh, Scientist in charge of coastal forecasts, South African Weather Service**

Organisations we've worked with

South African Weather Service

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

NATIONAL SEA RESCUE INSTITUTE

Underpinning NERC Science

- NE/N015525/1 - Physical and biological dynamic coastal processes and their role in coastal recovery (BLUE-coast)
- NE/M004996/1 - Impact of sequence of extreme storms during 2013/14 winter on South West coast of England
- EP/H040056/1 - New understanding and prediction of storm impacts on gravel beaches (NUPSIG)

About SWEEP

The South West Partnership for Environmental & Economical Prosperity (SWEEP) is a partnership between the University of Exeter, the University of Plymouth, and Plymouth Marine Laboratory. Funded by the Natural Environment Research Council and stakeholders together to solve key challenges faced by those working with our natural resources. **www.sweep.ac.uk**

UKRI Natural Environment Research Council

For more information contact sweep@exeter.ac.uk