NERC
SCIENCE OF THE ENVIRONMENT

NERC PURE Associates

Safety at sea

PROBABILISTIC WEATHER INFORMATION FOR RNLI

RNLI / London School of Economics

The need

RNLI is the charity that saves lives at sea. Every year, its volunteer lifeboat crews are called out around 8,000 times. Difficult operational decisions about how the weather affects capability sometimes have to be made.

This project aims to provide a risk visualisation tool to help inform these operational decisions by combining academic work around weather risk analysis with RNLI knowledge and data about incident rates. The project should also determine timescales on which existing weather forecast products might better inform RNLI activities.

What we have achieved

The RNLI believes that the weather has a large influence on its operations, but it currently provides only minimal forecast information to its decision makers, due to limited bespoke weather data.

By combining the knowledge and experience of the RNLI with the expertise in the Centre for the Analysis of Time Series this project has focused on identifying the weather conditions that tend to cause a high rate of incidents as well as those that are more likely to result in serious or life threatening incidents.

Using the information obtained in the analysis, a tool has been de-

signed with the aim of providing decision makers with the forecast information they need to make informed planning decisions such as the positioning of crew or deciding on the best time to perform maintenance on the station's equipment.

In addition, the tool provides real time information giving decision makers access to the most up to date information available on both the atmospheric and marine conditions. As an example, the screen that would be available to managers at an RNLI station is shown over the page.

"RNLI saves lives at sea in all weathers. The weather has an impact on the number of incidents we are called to, as well as the dangers our crews face. This tool should help us be better prepared for busy times, and keep our crews safe."

Cath Reynolds, Royal National Lifeboat Institution

How we did it

From analysis of past incident rates it was found that warm and sunny weather tends to result in an increased number of call outs. For this reason, both quantitative and qualitative general weather forecast information is now being provided, giving advance warning of these types of conditions. Warnings of possible extreme events such as storms and gale force winds are provided giving notice of potentially dangerous conditions, sometimes long before they are reported in the media.

Conditions when the crew arrive at an incident often differ substantially from those at launch. The tool provides decision makers with radar views of the local area giving a better insight into evolving situations. Shipping forecasts and recent observations of the sea state around the coastline are also provided to give further information on the state of the sea. The combination of all of this information has the potential to allow much more informed decisions and thus improve even further the vital work done by the RNLI.
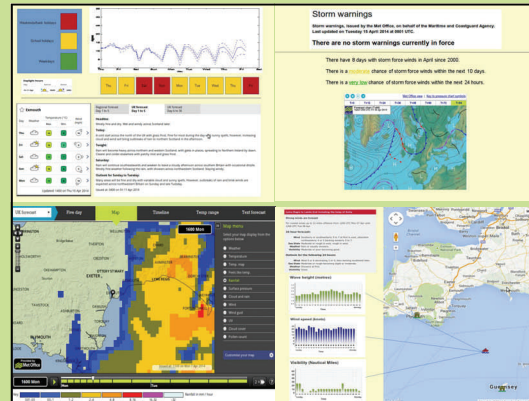
Meet the team

From left to right
Ed Wheatcroft, LSE
Cath Reynolds, RNLI
Leonard Smith, LSE

"This project has been a great opportunity to apply the techniques we use daily to the practical problems experienced by the RNLI. That the work of the organisation is of such vital importance to the wellbeing of the general public has made it an even more rewarding experience."

Ed Wheatcroft, LSE

Project Details

Partners
RNLI
London School of Economics

Project dates
Dec 20, 2013 - May 20, 2014

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NERC is the UK's main agency for funding and managing research, training and knowledge exchange in the environmental sciences. Its research contributes to a strong UK economy and improves people's lives.

PURE is a Knowledge Exchange Network and Research Programme funded by NERC to increase the impact of Natural Hazard research and to take a national leadership role in changing the way in which uncertainty and risk are assessed and managed across the Natural Hazard community.

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