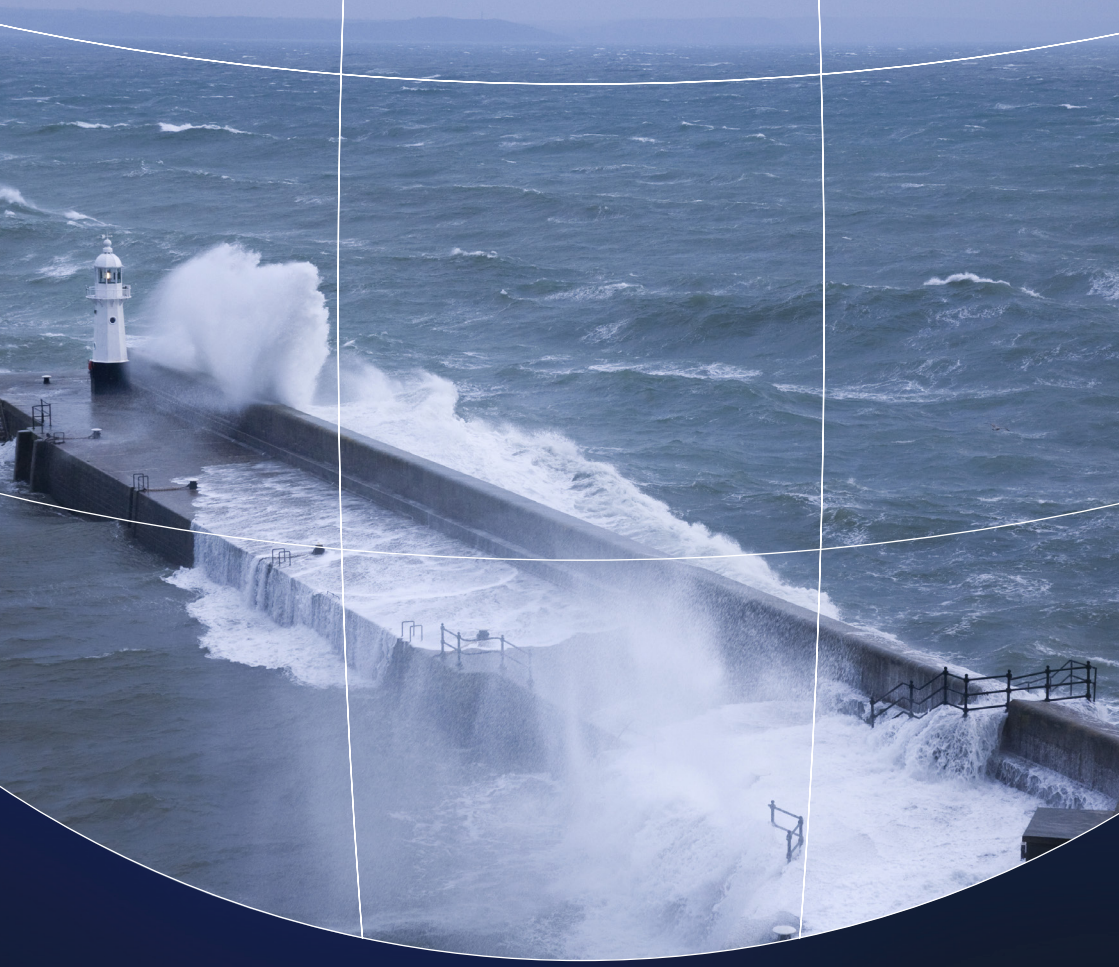

Working with us

Harbours and Ports

National Oceanography Centre

WORLD CLASS MARINE SCIENCE AND TECHNOLOGY FOR YOUR BUSINESS

National Oceanography Centre
NATURAL ENVIRONMENT RESEARCH COUNCIL

noc.ac.uk

NERC SCIENCE OF THE ENVIRONMENT

The National Oceanography Centre is the UK's leading institute for integrated ocean research and technology development from the coast to the deep ocean. Working with our partners we provide large scale, long-term, marine science capability including: major facilities, sustained ocean observing and modelling, mapping and survey, data management and scientific advice.

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Opportunity and value

Coastal flooding around the UK is a threat to economic and environmental assets.

A storm surge is a large scale increase in sea level due to a storm. Storm surges vary between a few hours and several days, and can elevate sea level across hundreds of square kilometres. In regions of high tidal range, storm surges represent the greatest threat when they coincide with tidal high water.

The projected rise in globally averaged sea level for the year 2100 is in the range 0.29 – 0.82m, depending on greenhouse gas emissions. Even with no change to the storm climate of northern Europe, the rise in mean sea level will increase the frequency of extreme water levels.

On a local, regional and national scale, UK government agencies, harbour commissions, port authorities and commercial companies (such as engineering, shipping and insurance companies) are becoming increasingly concerned by the impact of storm surge. Such organisations are now taking action; informed by innovative marine science and technologies, to protect coastal populations, coastal assets and coastal habitats, and mitigate future risks from storm surge.

Working with us

NOC scientists have developed advanced modelling capabilities to predict the occurrence of storm surge. These models are run at the UK Met Office and are a critical part of today's coastal flood warning system.

NOC is working together with UK government agencies, harbour commissions, port authorities and commercial companies, to help them plan for storm surge and the impact of extreme weather-sea events.

NOC is also working together with major on-shore companies involved in heavy engineering and manufacturing, by de-risking the sea transportation of heavy components of infrastructure, around the UK. NOC offers weather, tides, currents and bathymetry modelling, to predict the optimum window-of-opportunity for the sea transportation of heavy infrastructure, and preferred navigation routes on passage. Our work may also include other considerations such as accessing infrastructure at the receiving ports, ship ballast, ship fuel efficiency and ship pollution.

NOC's unique data-collection, modelling and validation of data, using innovative technologies, offers your organisation a valuable basis for planning future costs and requirements, including dredging, beach reinforcements and artificial reefs for port and harbour protection.

NOC's surveys, reports and reviews offer your organisation credibility when presenting research results, justifying decisions and accounting for expenditure, in reporting to external stakeholders, the public and the media.

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NOC science

- NOC delivers exceptional capabilities for sediment transport modelling and monitoring, using computer models, radar technology and satellite imaging, applied to both local and regional areas.
- NOC professionally reviews reports generated by commercial contractors, relating to wave, tides and sedimentation data modelling, and will 'sense-check' conclusions of scientific reports.
- NOC works with commercial companies commissioned by your organisation, to establish better boundary conditions for modelling waves, tides and sediment transport.*
- NOC can offer your organisation unique modelling capabilities, for regional modelling around the UK coastline.
- NOC can offer your company a complete harmonic analysis of tides and currents, combined with tidal modelling and prediction software, to compute the ideal timing for a sea passage, and preferred navigation routes for sea transportation.

* *This delivery must be made a condition of contract between your organisation and the company you commission to develop the work.*

NOC Tidal Analysis and Prediction

NOC has world leading expertise in developing accurate tide timetables, vital for port and harbour operations. NOC has unique capabilities to improve on the accuracy of tide tables, by developing harmonic analysis of tide gauge data or current meter data. This data is collected either from our own network of 43 gauges, or from tide gauges managed by the port and harbour authorities. NOC also offers a suite of analysis and prediction software available to companies, to enable them to manage and process their own data.

Our Facilities

Institute for Sustainable Coasts and Oceans

The National Oceanography Centre (NOC) and the University of Liverpool have entered into a new strategic partnership to create the Institute for Sustainable Coasts and Oceans (ISCO).

ISCO uses innovative marine science and technology to develop systems and strategies to protect assets along the UK coastline and mitigate risk from storm-surge and climate change.

Surge Watch Database of Coastal Flooding

Scientists at the National Oceanography Centre (NOC) have helped to compile a new database of coastal flooding in the UK over the last 100 years. The Surge Watch database contains information on 96 large storms, taken from tide gauge records dating back to 1915. Surge Watch offers crucial information which scientists will use to help prevent future flooding events.

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Marine Robotics Innovation Centre

The National Oceanography Centre's Marine Robotics Innovation Centre provides additional resource and capability for working collaboratively with innovative companies which are developing technology for marine autonomous systems.

The centre also provides information about regulation and legislation, risk and reliability, communication, and control relating to marine autonomous systems.

Rock Physics Laboratory

The Rock Physics Laboratory measures seismic and electrical properties on rock or sediment samples, saturated with different pore fluids, under simulated *in situ* conditions of pressure and temperature. Our measuring capabilities include seismic velocities, attenuations and electrical resistivities, which can then be related to other rock and sediment properties such as mineralogy, porosity, permeability, oil-gas-water saturation and hydrate content.

British Ocean Sediment Core Research Facility (BOSCORF)

BOSCORF provides specialist non-destructive logging facilities, measuring physical property and high-resolution geo-chemical data from cores. BOSCORF is the national ocean sediment core repository offering access to the most comprehensive suite of scanning, logging, data management and visualisation facilities in the UK.

British Oceanographic Data Centre (BODC)

The British Oceanographic Data Centre (BODC) is a national facility for looking after and distributing data concerning the marine environment. BODC maintains an extensive database of biological, chemical, physical and geophysical data, containing measurements in excess of 25,000 variables. BODC has unique experience of managing marine data collections and through the development of information technology, ensures that data are documented, stored and accessible to both public organisations and commercial companies.

If you are interested to discuss this opportunity, please email us at: business@noc.ac.uk or call: 023 8059 6159

We look forward to hearing from you

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