

# Working with us

## Marine Renewables and Offshore Wind

National Oceanography Centre

**WORLD CLASS MARINE SCIENCE AND TECHNOLOGY FOR YOUR BUSINESS**



National  
Oceanography Centre  
NATURAL ENVIRONMENT RESEARCH COUNCIL

[noc.ac.uk](http://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.



## Marine Renewables and Offshore Wind

Under EU targets set during the 2009 EU Renewable Energy Strategy, the UK has a specific target – 15% of overall energy is to be generated from renewables by 2020. For the UK to meet this, electricity generation from renewable sources must increase to 30% during the same time period.

Thus, the UK now faces considerable energy challenges. The task falls to government agencies and industry alike to respond by creating mechanisms for policy, regulation and

innovation, which will provide long term solutions to resolve any constraints or barriers to investment of Renewable Energy installations. This can be achieved by limiting risk associated with renewable energy and by bringing down costs throughout the value chain – from site selection, environmental impact, project development and consenting to construction, deployment, operational monitoring and maintenance, price to consumers and, eventually, decommissioning.



## Opportunity and value

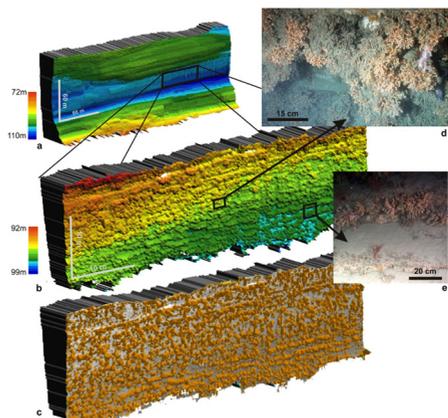
At the National Oceanography Centre (NOC), we work hard to develop our relationships with business in order to ensure the use of our research and technology supports economic growth.

We want to understand the challenges faced by your business and industry sector, so we can match our science to your needs; work closely on an individual and collaborative basis to develop science and technologies which enhance your competitive advantage, and maximise your investment and reduce operational costs.

The NOC has a number of flexible mechanisms through which we can:

- Translate research into tools and solutions
- Collaborate on projects to address your business requirements
- Provide access to scientific knowledge, data and major facilities
- Develop innovative technological solutions
- Apply our problem solving skills to business challenges

3D swath mapping of cold-water coral communities in Whittard Canyon





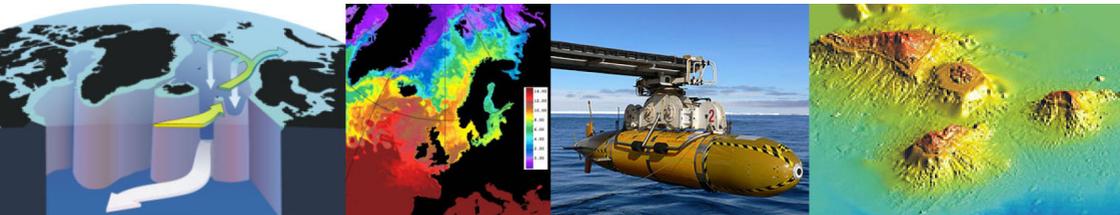
## Working with us

Coasts and oceans represent a vast and largely untapped source of low carbon energy. As well as harnessing the power of offshore wind, energy can be extracted from tides, waves, ocean currents and thermal and salinity gradients.

Working with the NOC, your company would have direct access to world-class science, technology and innovation. The NOC's science underpins environmental impact assessments for Marine Renewable Energy installations and their energy resource assessment. Through a variety of collaborative activities, and knowledge exchange

options, the NOC aims to establish stronger partnerships between our world class Research and Development and the Marine Renewable and Offshore Wind Energy sectors to work together towards a more sustainable future.

NOC's science and technology developments are broadly applicable and can address sector specific and overlapping challenges, helping mitigate concerns and maximise benefits across interests in offshore wind, tidal range, tidal stream, wave and ocean current energy alike.



## NOC Science & Technology

NOC delivers exceptional scientific and technological capabilities that can be used by businesses across the Marine Renewable and Offshore Wind value chain to assist with a variety of concerns, including (but not limited to) initial site selection, project development and consenting, environmental baseline studies, optimum deployment and operational windows, vessel routing, maintenance and methods of dealing with cumulative impacts, risk and uncertainty.

### Modelling capabilities

NOC's advanced modelling capabilities can be used to process weather, tide and currents data; make accurate tidal predictions; understand resource availability, seafloor integrity sediment and water movement at a fine scale, and to understand array layouts, farfield impacts, how turbulence from bases and installations

change water flows as well as how they interact with sediment, by using:

- Numerical modelling, harmonic analysis, tide gauges, X-Band and LIDAR technologies, telemetry, applied to both local and regional areas
- 3D swath mapping
- A highly customisable software package – POLPRED, an offshore predictive system driven by one of NOC's numerical models, with powerful mapping and visualisation tools
- Remote sensing and satellite imaging
- Hydrodynamic models
- Bathymetry, seafloor mapping, habitat mapping
- Environmental monitoring acoustics, photography, video



## Marine autonomous systems

The NOC hosts the largest research fleet of marine autonomous vehicles in Europe and has over 20 years' experience of developing and deploying such vehicles in challenging and hazardous coastal and deep sea environments. Marine Autonomous Systems offer a low risk and cost effective option for:

- Physical surveys and environmental monitoring
- Sediment and ecosystem characterisation over a wide area
- Operational monitoring for long term maintenance of installations, base and cable integrity / fatigue, scouring effects
- Bathymetry and seafloor integrity
- Coastal process surveys
- Deployment of monitoring instrumentation or moorings
- Measurement, monitoring and verification assurance

## Instrumentation and sensor development

- Create, develop and operate instruments and sea going vehicles which enable research teams to make measurements in new ways or get to previously inaccessible places
- Electronic sensor development – tide gauge, optical, acoustic and turbulence
- Wave glider integration and deployment
- Remote Electronic Sensing and Telemetry
- Lab-on-Chip Technology - sensors for determination of dissolved inorganic nutrients *in-situ*
- Develop and optimise analytical assays for autonomous sensor applications
- Experience in deployment of instruments and moorings in challenging coastal and deep sea conditions

# NOC Facilities

## 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 which can be used across a variety of research and industry sectors.

## Corer

The NOC hosts the Centre for Offshore Renewable Energy (CORER), which is a collaboration between the NOC, University of Liverpool, University of Southampton and Ocean University of China, producing novel and fundamental scientific research within Offshore Renewable Energy

## ISCO

The National Oceanography Centre (NOC) and the University of

Liverpool entered into a 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.

## BOSCORF

The British Ocean Sediment Core Research Facility (BOSCORF) within the NOC 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.





If you are interested to discuss this opportunity, please email us at:  
[business@noc.ac.uk](mailto:business@noc.ac.uk) or call: 023 8059 6486

We look forward to hearing from you

