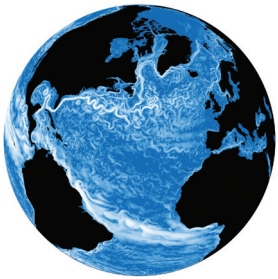
Marine Renewables and Offshore Wind



Development and operation of assets in nearshore and offshore environments

The ocean is a vast economic resource of low carbon energy including offshore wind, tidal and wave power generation, but turning potential energy into reality poses many challenges. The marine environment is dynamic, complex, and often hazardous, and in any particular context, multiple aspects act concurrently. Research by the National Oceanography Centre (NOC) focusses on improving our understanding of this changing marine system.

The Centre has been providing information, software and advice for over 80 years and turning knowledge and technology innovations into applications for government, business and the public. Our expertise includes environmental modelling, *in-situ* and remote sensing of the marine and coastal environment, alongside specialist development of marine observing solutions. We also specialise in the development of new analyses and data processing algorithms to gain insights from existing observations, assimilating different data sources to gain new environmental knowledge.

Partnering with the NOC provides direct access to world-class science, technology and innovation. The Centre delivers exceptional research capabilities that can

National Oceanography Centre
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be used by organisations across the value chain to assist with specific challenges throughout the lifecycle of a project, and can spend time with you to identify and apply those aspects which would bring most benefit to your activities – working together toward a more sustainable future.

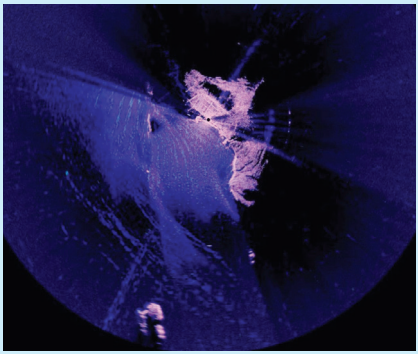
Measuring the marine environment

The NOC pioneered the use of marine autonomous observing platforms in tidally active seas, and creates, develops and operates instruments and sea going vehicles, enabling research teams to make measurements in new ways and in challenging locations. The Centre hosts the largest research fleet of marine autonomous vehicles in Europe. Examples of our capabilities include:

- Electronic sensor development
- Optimisation of analytical assays for autonomous sensor applications
- Remote sensing and telemetry including Satellite, Radar and work with GNSS technologies
- CTDs, acoustics, photography and video.

Numerical modelling

The NOC's advanced modelling and analysis skills can be used to investigate and understand environmental parameters at many scales from an overall systems level, assimilating multiple information sources to gain new insights, to very specific and highly challenging operational issues, for example, relating to seabed movement or water flow. The Centre also provides a suite of standard, but highly customisable software packages, with powerful mapping and visualisation tools driven by NOC hydrodynamic models.



State of the art NOC marine radar remote sensing of coastal seas was demonstrated at a proposed Tidal Energy development site through a project with Meygen Ltd. Some of the capabilities of this technology include bathymetric survey, current measurement, sea surface roughness and small target tracking (marine wildlife, both airborne and seaborne).