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## A DIGITAL OCEAN

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### Executive Summary

Marine data is often available only in a disconnected manner. In order to provide a coherent picture of the maritime space in Ireland, the Digital Ocean concept has been proposed as a “one-stop-shop” for access to a wide range of information and data resources.

For the Harnessing Our Ocean Wealth conference in July 2015, a prototype of the Digital Ocean platform was produced which incorporates data from Commissioners of Irish Lights; Environmental Protection Agency; Failte Ireland; Geological Survey of Ireland; INFOMAR; Irish Underwater Council; the Marine Institute; US National Oceanic and Atmospheric Administration; SmartBay Ireland; Sustainable Energy Authority of Ireland; and University College Cork.

The platform provides a map-based interface to live marine observation data and static data regarding places of interest around the coastline. In order to provide a resilient, extensible system with a low barrier to entry the platform has been built on Open Source technology, with Leaflet as the map viewer framework and GeoJSON as the preferred data input format.

Future developments will develop an Application Programming Interface allowing users to extract data from the platform or to submit new data feeds and layers.

### Solution

The Digital Ocean demonstrator is built on Open Source mapping technologies, so that the barrier to other institutions participating in the platform is lowered. The maps are built in the JavaScript Leaflet viewer, using tiles freely available from ESRI and OpenStreetMap.

The choice of an Open Source approach was made for both the reason given above and as a sustainable, long-term development solution for rapid deployment of mapping portals across a range of services. Data sources are received either from ArcMap layers or, preferably, as GeoJSON for rendering in the portal.

Google's Material design patterns are used for the navigation features of the site, and for the patterns of “cards” which are used to highlight areas with detailed observations, and to display the latest readings from these regions.



As this is a demonstrator, there is currently no Application Programming Interface for either the submission or retrieval of data or information from the platform, but this is planned for a second phase of development to commence in early 2016.

Three views of the Digital Ocean platform have been prepared to indicate the potential target audiences: “observations”, “leisure” and “explore”. These views provide for researchers and general users who wish to access live and archived values from marine observing systems; those who wish to explore the marine from a leisure perspective (marinas for sailors; dive sites) and those who are touring the coast (Wild Atlantic Way; multimedia presentations). <http://www.digitalocean.ie/>

## Business Challenge

Presently there are numerous data related services on the marine environment provided by different public sector organisations in Ireland. These services include discovery (e.g. search for marine data), visualisations (e.g. static and dynamic maps, tables and charts) and download (e.g. direct data download and in some cases social media type applications (e.g. video, webinars etc.).

Access to these services is fragmented and often involves knowledge of the types of organisations and categories of information available across the marine sciences domain. The Digital Ocean platform aims to establish an integrated and collaborative environment providing easy access to a network of online marine-related services. This platform provides access to data and information both real time and archived; to applications, to publications and to other information resources from the various data services available. In many cases these services are presently accessible only via organisational websites and are not easy to find for those interested in requesting marine information. The prototype Digital Ocean platform provides an integrated view of what is available using an easy to access interface, to answer general and specific questions on the condition and characteristics of the marine environment for a variety of end users.

Through the agreement to allow data to be accessed through the platform, the demonstrator has been actively supported by a range of institutions including: Commissioners of Irish Lights; Environmental Protection Agency; Failte Ireland, Geological Survey of Ireland, INFOMAR; Irish Underwater Council; US National Oceanic and Atmospheric Administration; SmartBay Ireland, Sustainable Energy Authority of Ireland, University College Cork.

## Benefits

Single-site access to ten data types from eleven organisations covering the entire coastline of Ireland, and beyond the Porcupine Bank. <http://www.digitalocean.ie/>