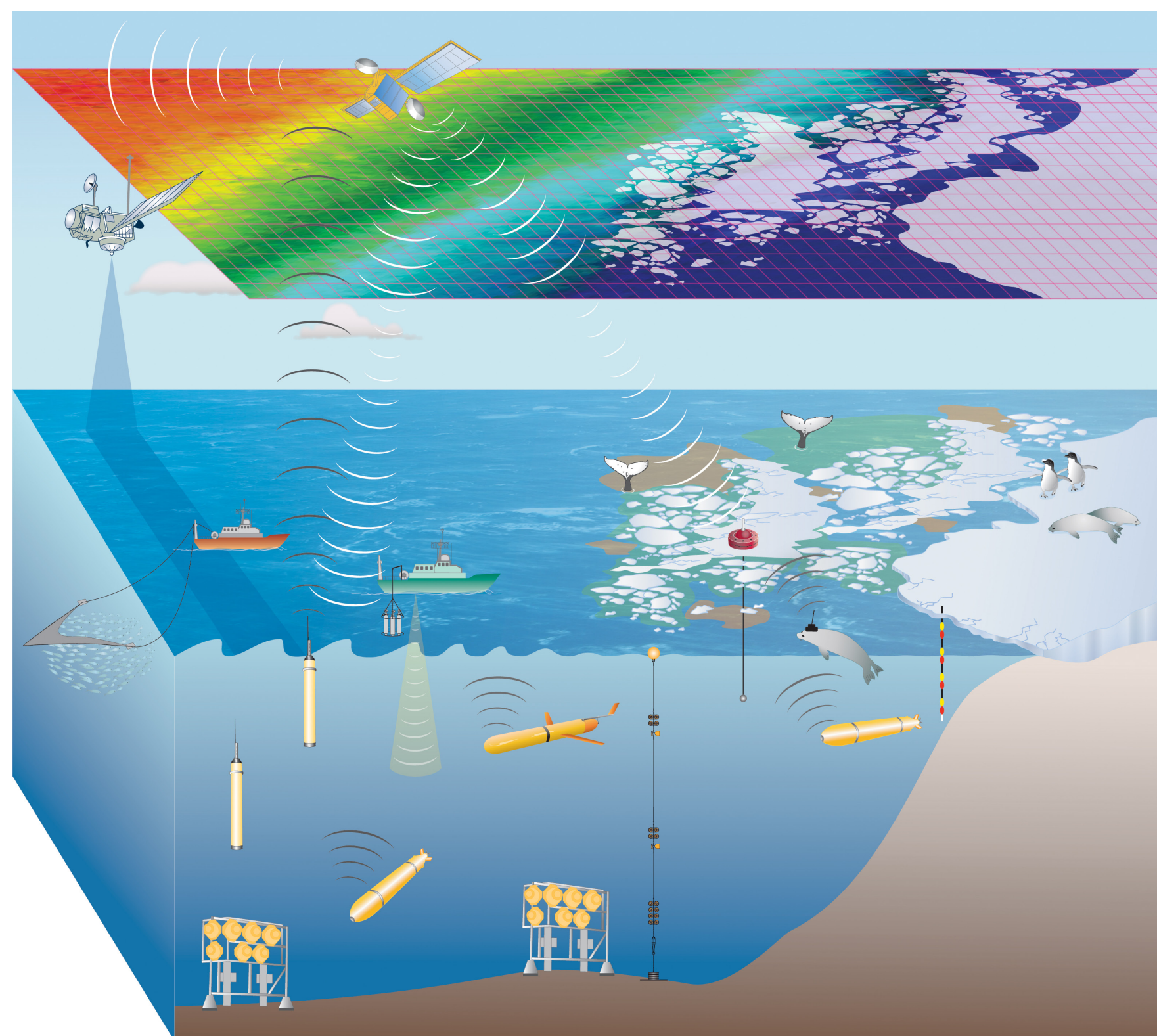


The SOOS Mission

The Southern Ocean Observing System (SOOS) is an international initiative to coordinate and expand the efforts of all nations that gather data from the Southern Ocean.

SOOS is developing:

- A coherent and efficient observing system, to deliver the observations required to address key scientific and societal challenges.
- A Southern Ocean Data Portal to provide ‘one-stop access’ to distributed data archives.



Representation (left) of a cyberinfrastructure-based vision for SOOS.

Marine assets would include a mixture of autonomous and non-autonomous platforms. Combined with satellite remote sensing, data would be relayed to ground stations in real time where assimilating ocean models would produce near-real time state estimates of the parameters in the system. From Meredith et al. (2013).

SOOS Data Management

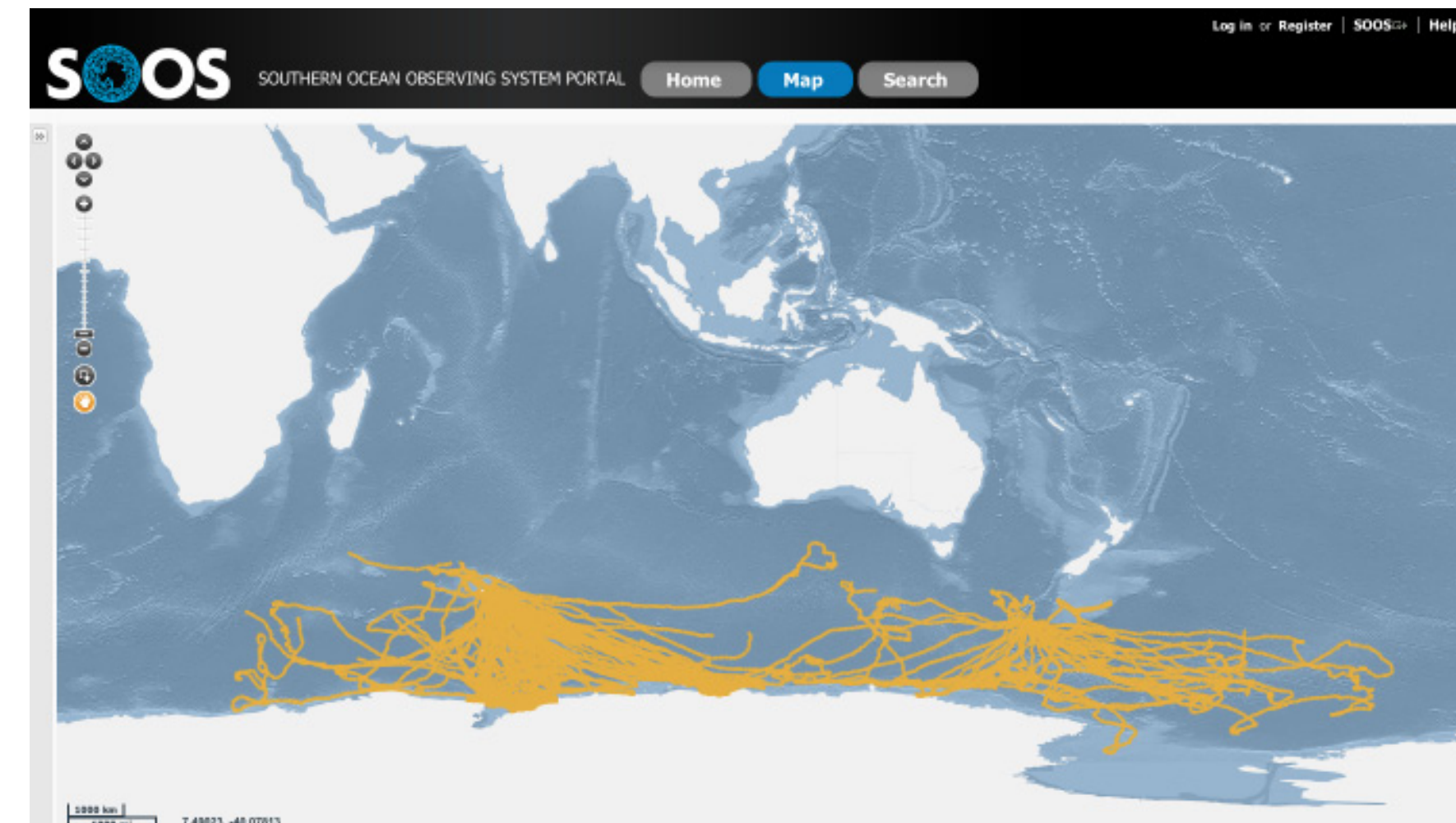
There is currently a lack of both data sharing (within and between nations) and a coordinated approach to collect, and make available, multi-disciplinary Southern Ocean data.

SOOS aims to develop a data system to ensure past and future data sets are accessible, of known quality and consistent with SCAR's *Data and Information Management Strategy* (2009).

1 Data Strategy

The SOOS strategy for managing data is based on the following principles:

- Open access to data
- Development of a data portal
- Use of existing resources/data centres (where possible)
- Improved access to, and quality of, historical data
- Foster a culture of good data management practices
- Establish protocols for data management



Data from Southern Elephant Seal CTD profiles (illustrated left), based on the Australian Animal Tagging And Monitoring System (AATAMS), can be accessed and searched via the SOOS Data Portal. AATAMS is a coordinated marine animal tagging project. CTD Satellite Relay Data Loggers are used to explore how marine mammal behaviour relates to their oceanic environment.

2 Data Management Governance

SOOS has established a Data Management Sub-Committee (DMSC). The DMSC is a sub-committee of the SOOS Scientific Steering Committee.

The DMSC is comprised of 13 members who have professional data management experience and are affiliated with national and international data centres and scientific data programmes.

The DMSC is tasked with identifying and coordinating cost effective, collaborative mechanisms to manage and publish observational data within the purview of SOOS.

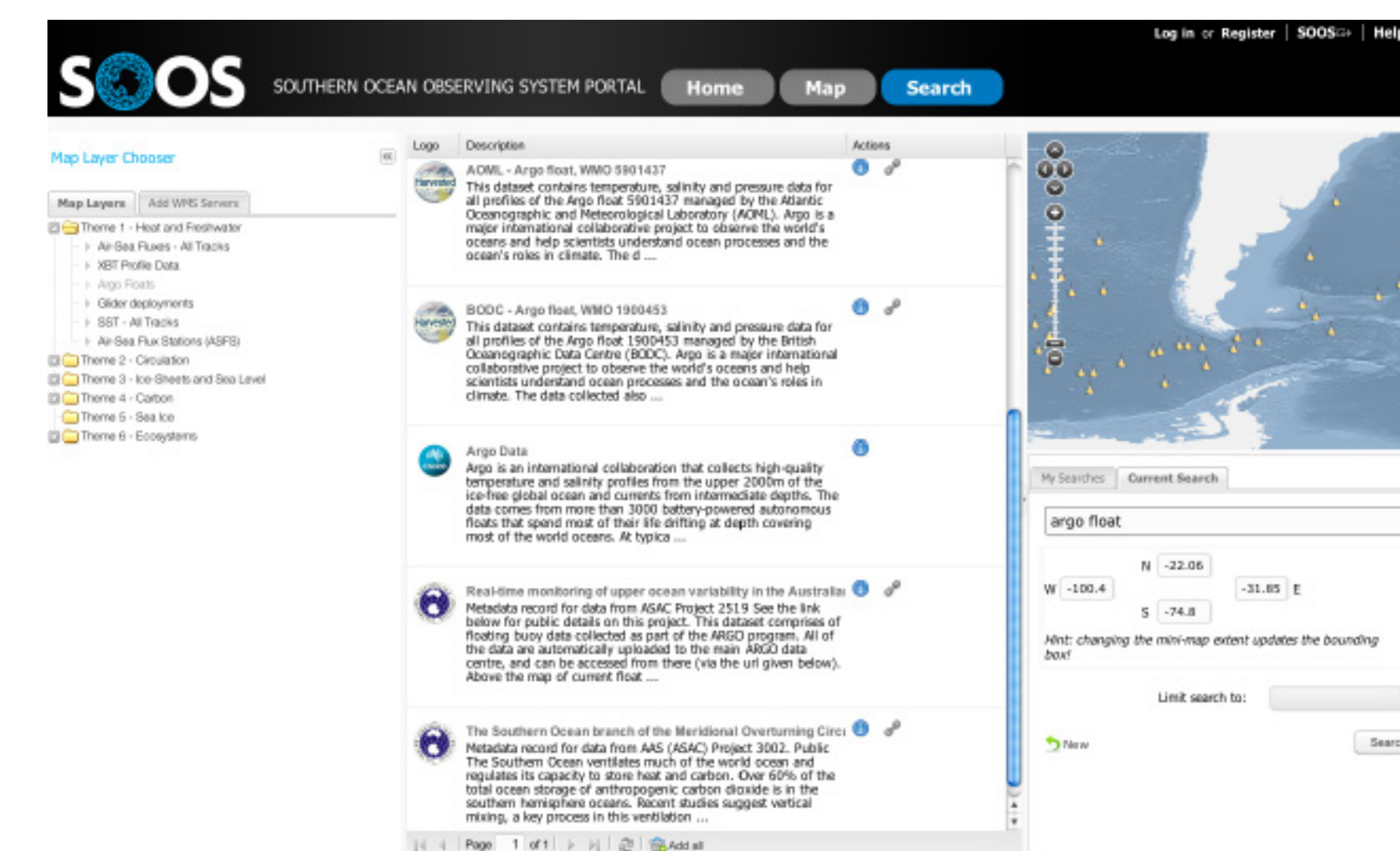
3 Data Portal

Development of a data portal is critical for the success of SOOS and aims to provide seamless access to distributed data archives holding SOOS-relevant data.

SOOS launched a pilot data portal, based on the Australian Ocean Data Network (AODN), 1 February 2013.

The pilot portal classifies data into the six SOOS science themes:

- Heat and Freshwater
- Carbon
- Circulation
- Sea Ice
- Ice Sheets and Sea Level
- Ecosystems



The SOOS Data Portal enables users to combine a search for datasets using multiple parameters (e.g., platform and location). This example illustrates datasets available from Argo floats located in a specified latitudinal and longitudinal zone.

4 How to contribute data to SOOS

SOOS is working closely with the Integrated Marine Observing System (IMOS) eMarine Information Infrastructure (eMII) and the AODN to develop a fully operational SOOS Data Portal.

IMOS has developed a generic ‘cookbook’ that explains how to contribute data to the underlying infrastructure. The cookbook will be modified to be ‘SOOS data-provider specific’ as the pilot portal is developed further.

For information how to contribute data to the SOOS Data Portal and to download the cookbook visit:

<http://soos.aodn.org.au/soos/>

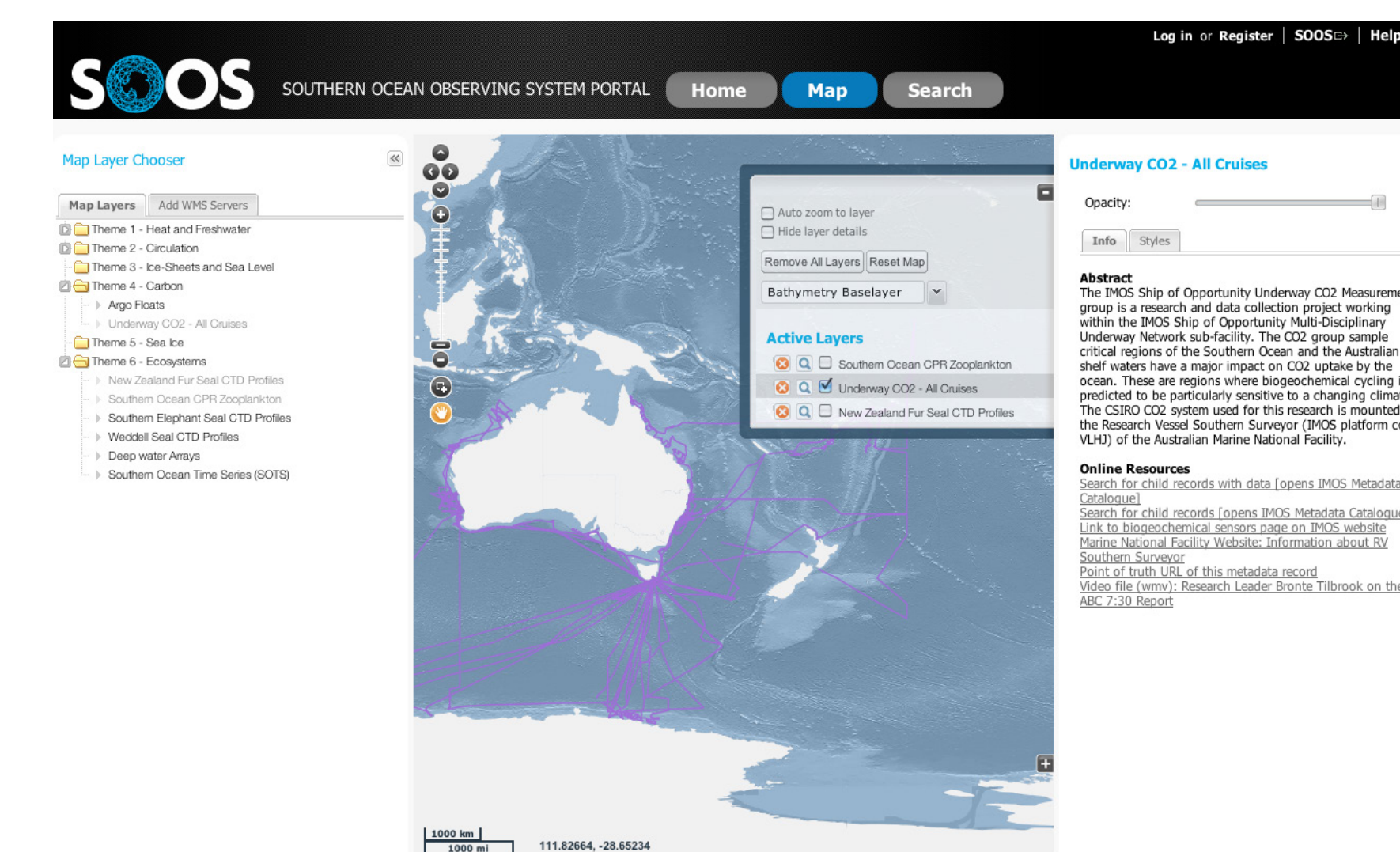
5 Data Portal Features

The AODN infrastructure, chosen for the SOOS Data Portal, is built on open-source tools and uses international standards to ensure efficient data exchange and interoperability between contributing systems.

Open Geospatial Consortium (OGC) standard web service protocols are used for serving of data via the internet, including Web Map Service (WMS) for visualisation, Web Feature Service (WFS) for data download, and Catalogue Service for Web (CSW) for catalogue exchange.

The pilot SOOS Data Portal offers a number of tools to access and visualise data, including:

- A search link to the metadata catalogue to enable search and discovery by simple text search, geographic area, temporal extent, keyword, parameter, organisation (or a combination of these).
- A map interface for discovery and display of data, and the ability to change the style/opacity of layers, add additional data layers (via OGC WMS) or view animated timeseries data streams.
- Easy access and download of data directly from OPeNDAP/THREDDS servers.



Users can display multiple layers on the SOOS Data Portal, and then modify the display by removing layers or redefining search parameters. This example illustrates an active layer for Underway CO₂ data from the IMOS Ship of Opportunity Measurement Group, whilst other active layers are hidden (e.g., Southern Ocean CPR Zooplankton and New Zealand Fur Sea CTD profiles).

6 More information

Please visit the data portal website or contact the Executive Officer in the SOOS International Project Office (info@soos.aq).

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