

# Australia's Marine National Facility

Our state-of-the-art sensor platform delivering science data for marine and atmospheric research

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OCEANS & ATMOSPHERE INFORMATION & DATA CENTRE (IDC), DATA ACQUISITION & PROCESSING (DAP)  
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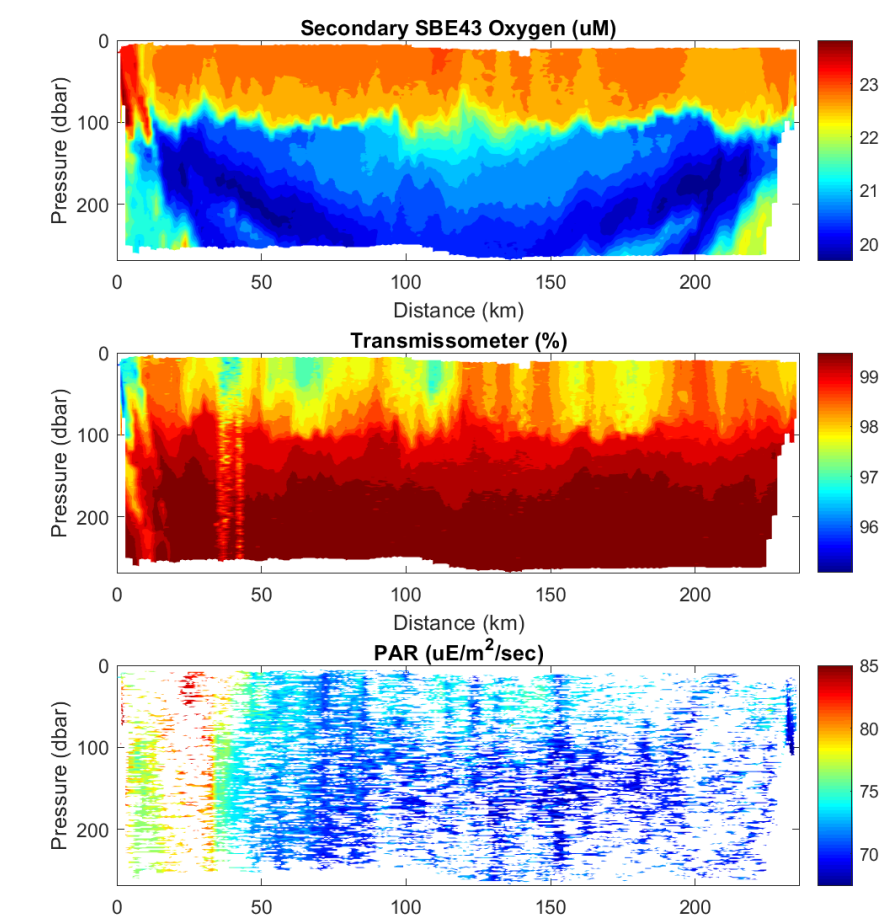
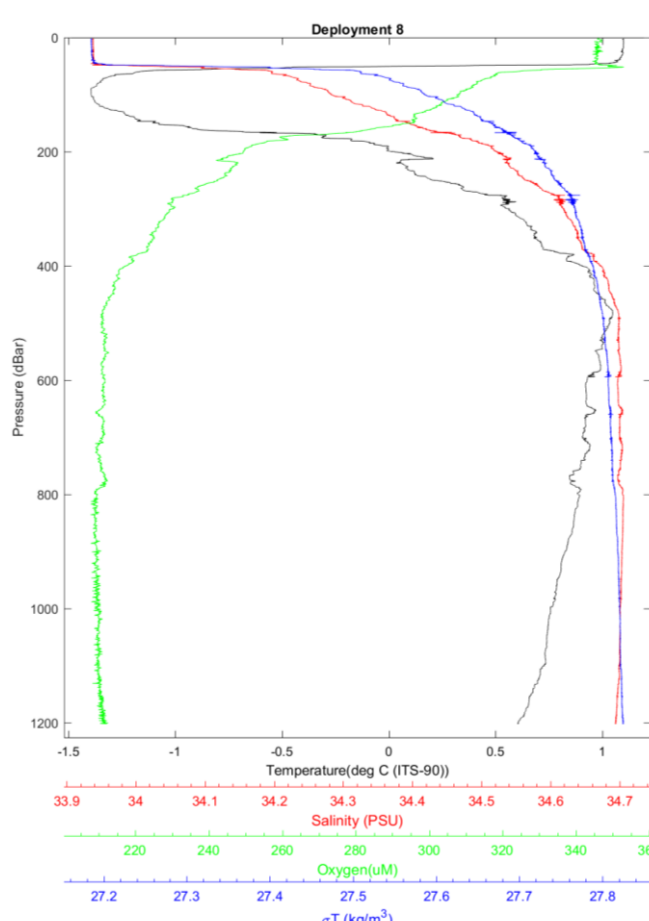
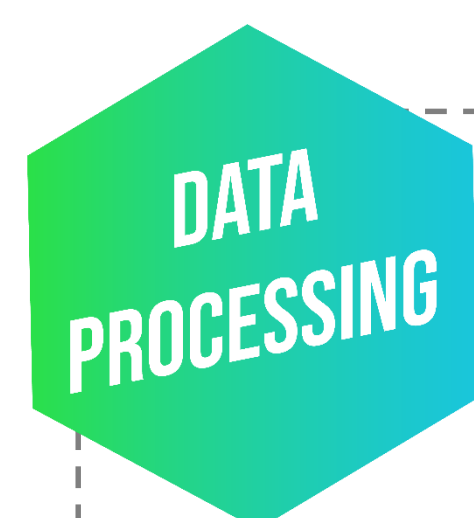


Australia's Marine National Facility (MNF) is hosted by CSIRO National Collections and Marine Infrastructure. Oceans & Atmosphere (O&A) contribute technical expertise to operation of the RV *Investigator*, an Australian government blue-water research vessel dedicated to supporting Australia's atmospheric, oceanographic, biological and geoscience research.

## Data Acquisition

RV Investigator is equipped with a multitude of sensors to map the ocean floor, sample the water column and collect atmospheric measurements. On-board instruments include a CTD (Conductivity, Temperature, Depth), Triaxus, deep-towed camera system and standard underway sensors measuring weather and seawater characteristics.

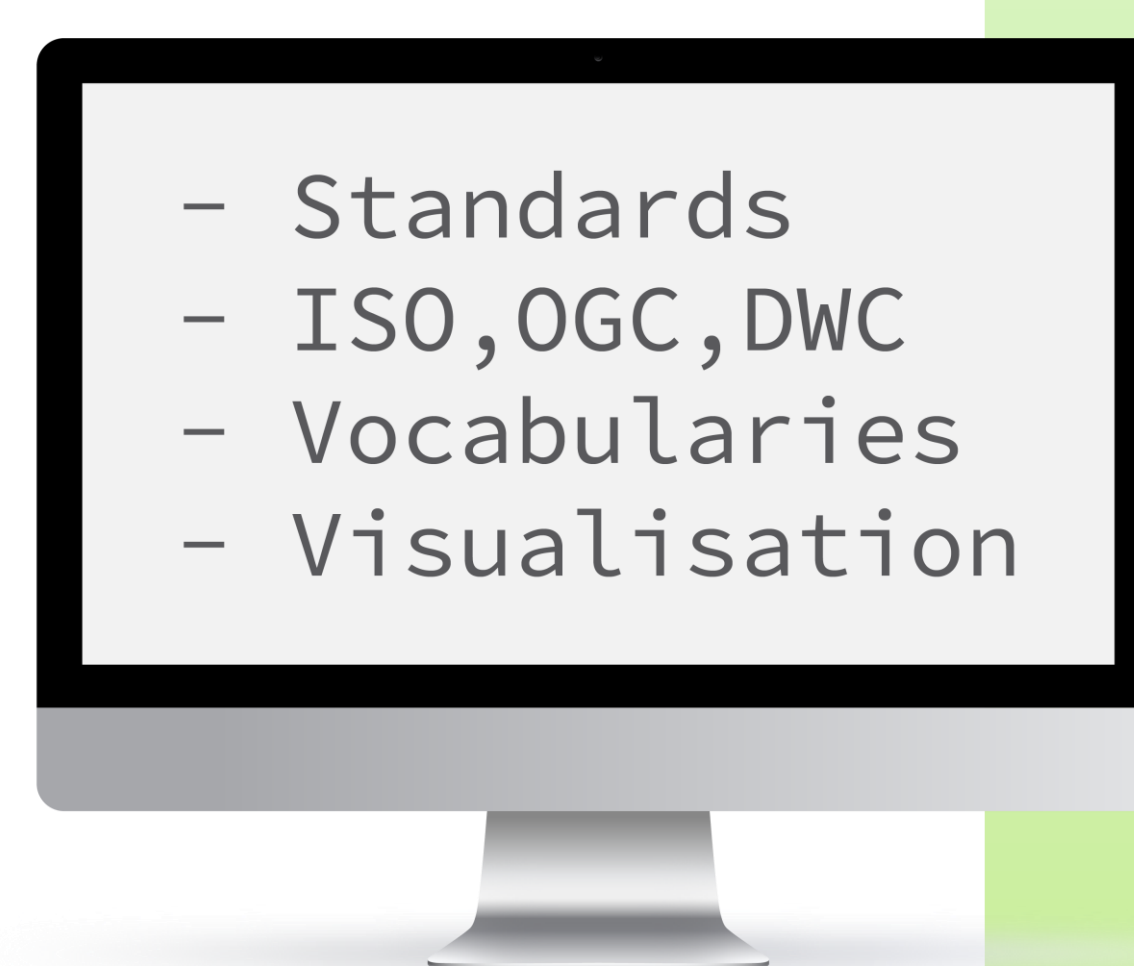
- The CTD is a winch-lowered profiling instrument that measures seawater characteristics including temperature, salinity, oxygen and biological activity and captures deep ocean water samples for lab analysis.
- The Triaxus is a remotely operated platform towed behind the ship which allows data to be collected over large temporal and spatial areas.
- The deep towed camera system is equipped with high-resolution video, still cameras and powerful LED light arrays to monitor fishery stock levels, seafloor habitat, and investigate active volcanic vents.



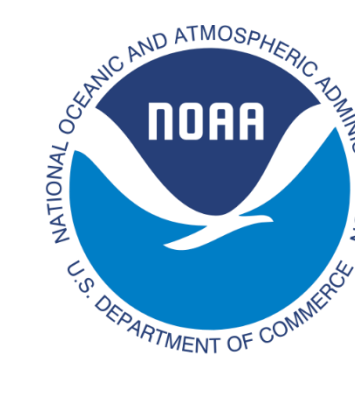
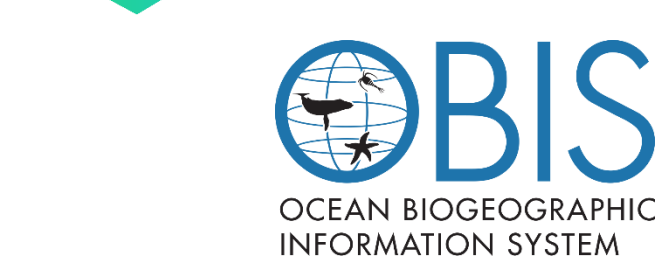
## Data Processing

Data collected on voyages are continually monitored for quality. Detected outliers and anomalies may indicate instrument malfunctions, or regions of particular interest. Ship staff work with visiting scientists to provide access to data for agile planning of operations and preliminary data processing and analysis. Published data products are routinely produced by CSIRO O&A (Engineering and Technology) staff. Our primary processed datasets are ADCP, CTD, Triaxus, underway and bathymetry.

Data processing is done using a mix of custom and third party software. Typically data processing involves detection and flagging of outliers and bad data, transformation into standard publishable data formats, and generation of plots and a report, followed by delivery to the O&A Data Centre.



FINDABLE  
ACCESSIBLE  
INTEROPERABLE  
REUSABLE



## Data Management

The IDC manages archiving and distribution of data collected by CSIRO research vessels and other O&A datasets. We follow standards-based data management and FAIR data principles and develop a number of software applications including:

- **Marlin metadata catalogue:** Metadata records for MNF and O&A datasets and a great initial point-of-entry to find relevant datasets
- **Data Trawler:** Investigate datasets by date, instrument, survey, spatial region, events, sources, projects, datatypes and biology, and download the data in a range of different formats
- **Where is the RV Investigator now?** NRUD is an interactive data visualisation tool for Near Real-time Underway Data and displays minute resolution data with interactive graphs on a world map
- **CAAB (Codes for Australian Aquatic Biota):** A master species database providing names and codes for 44,000+ marine species which occur in Australian and adjacent waters

## Data Publishing

The IDC delivers MNF and O&A data and services to external portals. The Australian Ocean Data Network (AODN) harvests Marlin metadata records. IDC-developed web services enable MNF and O&A data to be made available through the AODN portal.

As the Australian node of the Ocean Biogeographic Information System (OBIS), the IDC acquires and disseminates biological data to OBIS and GBIF (Global Biodiversity Information Facility). These data become available through the Atlas of Living Australia (ALA).

All MNF voyage data are archived in the CSIRO Data Access Portal (DAP) to provide global access for researchers.

More information?  
[www.bit.ly/mnf\\_data](http://www.bit.ly/mnf_data)

### FOR FURTHER INFORMATION

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### ACKNOWLEDGEMENTS

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MARLIN METADATA CATALOGUE



DATA TRAWLER



NEAR REAL-TIME UNDERWAY DATA



CAAB CODES



CSIRO O&A IDC