Capability Statement

IMOS is Australia's integrated marine observing system (http://imos.org.au/). It provides a national, multi-institutional capability to undertake systematic and sustained observing of the marine environment, from the open ocean onto the continental shelf and into the coast, and across physical, chemical and biological variables. All observations undertaken by IMOS produce data streams in near real time and/or delayed mode (quality controlled), that are discoverable, accessible, usable and reusable via the Australian Ocean Data Network (AODN). Increasingly, even more data is being made available via AODN from a wide range of partner organisations – research institutions, Federal and State Government departments, and private industry. As the national scale marine observing system, IMOS supports a high level of international collaboration. This benefits Australia through co-investment in our region, and helps position Australian scientists as global leaders in Southern Hemisphere marine and climate science. IMOS has also established partnerships with coastal and ocean modellers in the areas of model validation and development, data assimilation, and observing system design.

IMOS brings together the combined marine observing and data management capabilities of the following organisations:

- University of Tasmania (UTAS, lead institution)
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- Australian Institute of Marine Science (AIMS)
- Bureau of Meteorology (BOM)
- Sydney Institute of Marine Science (SIMS), a partnership between University of New South Wales, University of Sydney, Macquarie University and University of Technology Sydney
- University of Western Australia (UWA)
- Curtin University, and
- South Australian Research and Development Institute (SARDI), with Flinders University.

This national capability is deployed through the following technology based Facilities:

1. Argo floats
2. Ships of Opportunity
3. Deep water Moorings
4. Ocean Gliders
5. Autonomous Underwater Vehicles (AUV)
6. National Mooring Network
7. Ocean Radar
8. Animal Tracking
9. Wireless Sensor Networks
10. Satellite Remote Sensing
11. Australian Ocean Data Network (AODN), and value added products such as IMOS *OceanCurrent*

IMOS scientific leadership, competencies, and coverage are summarised below, by Facility:

IMOS Facility Lead Scientists, Organisations	Competencies	Coverage
1. Argo profiling floats *Dr Susan Wijffels, CSIRO*	• Ocean temperature and salinity to 2km depth	Global ocean
2. Ships of Opportunity *Dr Rudy Kloser, CSIRO* *Ms Rebecca Cowley, CSIRO* *Dr Jessica Benthuysen, AIMS* *Dr Bronte Tilbrook, CSIRO* *A/Prof A Richardson, CSIRO/UQ* *Dr Randall Lee, VicEPA*	• Ocean temperature – surface to 800M depth • Underway sampling of heat, mass, carbon fluxes • Phyto/Zooplankton surveys • Mid-trophic biomass estimation using acoustics	Research vessels Ferries Merchant vessels Fishing vessels
3. Deepwater Moorings *Prof Tom Trull, CSIRO* *Dr Eric Schulz, BOM* *Dr Bernadette Sloyan, CSIRO* *Dr Steve Rintoul, CSIRO*	• Carbon cycling • Air-sea heat/moisture fluxes • Regional ocean circulation	Southern Ocean Indonesian Through Flow East Australian Current Antarctic shelf
4. Ocean Gliders *Prof Chari Pattiaratchi, UWA* *Mr Mark Underwood, CSIRO*	• Autonomous measurement of shelf/boundary currents	WA Coast, Qld Coast, NSW Coast, SA Coast, Tasman Sea, Tas Coast
5. AUV *Prof Stefan Williams, U Sydney*	• Fine scale benthic habitat mapping	East/west coasts, tropical/ temperate locations
6. National Mooring Network *Mr Craig Steinberg, AIMS* *Dr Ming Feng, CSIRO* *Prof John Middleton, SARDI* *Dr Moninya Roughan, UNSW* *A/Prof Rob McCauley, Curtin*	• Long term reference stations, with sensor and vessel based sampling • Shelf mooring arrays • Ocean acidification • Passive acoustics	Seven sites around the Australian coast WA Coast, Qld Coast, NSW Coast, SA Coast, Tas Coast, NT Coast
7. Ocean Radar *Dr Simone Cosoli, UWA*	• Surface currents • Winds and waves	WA Coast, Qld Coast, NSW Coast, SA Coast
8. Animal Tracking *Prof Rob Harcourt, Macquarie*	• Acoustic Telemetry • Animal Tagging	Australian continental shelf Southern Ocean, GAB
9. Wireless Sensor Networks *Mr Scott Bainbridge, AIMS*	• Sensor networks, providing dense data in real time	GBR
10. Satellite Remote Sensing *Dr Edward King, CSIRO* *Dr Helen Beggs, BOM* *Dr Thomas Schroeder, CSIRO* *Prof David Antoine, Curtin* *Dr Christopher Watson, UTAS*	• Sea Surface Temperature (SST), Ocean Colour and Altimetry • Calibration/validation and product delivery	Global ocean Regional validation and product delivery
11. Marine Information *Dr Roger Proctor, UTAS* *Dr David Griffin, CSIRO* *Dr Madeleine Cahill, CSIRO*	• Information infrastructure • Daily maps of real time currents, temperature etc	As above

The IMOS Office based at UTAS provides strong management and governance of the national program, with accountability to the Department of Education & Training for core funding (~$158M over eleven years to date) and to co-investing Partners (~$228M invested to date). IMOS strategy is overseen by a well-credentialed Advisory Board with an Independent Chair (Dr Ian Poiner).

Contact *– Tim Moltmann, IMOS Director e: Tim.Moltmann@imos.org.au m: 0407 558 004*