**Introduction**

IMOS is funded by the Australian Government and designed to be a fully-integrated national array of observing equipment to monitor the open-ocean and coastal marine environment around Australia, covering physical, chemical and biological variables. When data from ocean observing systems can be provided in near real-time, the operational aspects are further enhanced and provide potential for a range of value-added products to be developed. Here we provide three examples of co-invested partnerships that have facilitated the development of real-time ocean observing systems in the coastal and the remote outer continental shelf, operated by the Queensland and Northern Australian moorings & National Reference Station sub-facilities of IMOS.

**Yongala National Reference Station**

Close to Townsville on Australia’s North East coast, the Yongala National Reference Station (NRS) has had a subsurface mooring or bottom frame in place since 2007. The site lies in the centre of the Great Barrier Reef lagoon, between the mainland and the reef itself and is representative of a large region of the continental shelf between the predominantly outer shelf reef matrix and the coastal waters. The Yongala NRS is therefore well located to sample the conflicting influences of the south-eastward lagoon branch of the East Australian Current and the opposing south-easterly trade wind forced coastal current. The Australian Maritime Safety Authority required the installation of an Isolated Danger Mark which provided an ideal instrumentation platform.

**Darwin National Reference Station**

Darwin Harbour is the main shipping port for the Arafura Timor Seas region of northern Australia. Even though the harbour has undergone rapid development, the water quality and health of the marine environment is very good. Darwin Harbour still retains over 90% of its mangrove areas and these contain 35 of the 52 species found in Australia. The Northern Territory Government is committed to preserving the environmental and cultural values of the harbour whilst also allowing for non-environmentally degrading economic development.

In collaboration with Darwin Port Corporation, an IMOS National Reference Station has been established at the entrance to Darwin Harbour using an existing channel navigation marker. The station measures tidal currents, waves, chlorophyll-a, turbidity, wind vectors, temperature and rainfall. The system is telemetered and the data is available in near real time. The system is being used now to provide boundary conditions for a numerical model of the harbour as well as provide data to mariners for ship handling.

**Palm Passage Mooring**

The Queensland IMOS node has an array of moorings along the Great Barrier Reef (GBR) designed to monitor the flow of oceanic water along and into the reef matrix. Historically these moorings have all been operated in delayed mode with data recovered every six months. In 2013 the mooring at the Palm Passage site in the central GBR was upgraded to real-time in order to inform the eReefs project.

**Conclusions**

The advent of near real-time observations and higher resolution 3-D operational models of the ocean environment provide timely information to better inform decision makers, industry and the general public. The benefits and opportunities offered by these real-time ocean observing systems outweigh the technical challenges of developing and maintaining these complex platforms.

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**References**

Integrated Marine Observing System web site, including links to full data access: http://www.imos.org.au
Live real meteorological and oceanographic observations available from AMS Data Centre website: www.aims.gov.au
eReefs web site: http://www.ereefs.org.au