

IMOS Bulletin

Issue #60 November 2016

Welcome to the IMOS Bulletin. Please feel free to distribute this email bulletin to others. The Bulletin is also available for download from the website at <http://imos.org.au/bulletin.html>.

If you have any comments or questions regarding the IMOS Bulletin please contact IMOS Communications, communication@imos.org.au.

From the IMOS Office

Below is a brief roundup of activity and engagement done through the IMOS Office over the last month.

- Forum for Operational Oceanography ([FOO](#)) Steering Committee meeting held on 31 October. A quarterly update will be issued soon. Headline news is that planning has commenced for FOO-2 in late July 2017.
- The Committee on Earth Observation Satellites (CEOS) Plenary meeting was held in Brisbane on 1 and 2 November. A brief meeting report has been written and shared with the [Australian Marine Remote Sensing Group](#). Sign up to the group's email list if you are interested in marine remote sensing.
- IMOS has recently joined the Fisheries & Aquaculture Research Providers Network (RPN), with the latest meeting held on 4 November at Melbourne airport. We are currently looking at identification of priority species to guide future design of the national acoustic animal tracking network.
- Coordination between the WA Blueprint for Marine Science and the National Marine Science Plan discussed with WA Chief Scientist Peter Klinken (as Blueprint co-chair) and others in Perth, on 8 November.
- "From Observations to Impact: the first decade of IMOS" was released by Senator Jonathan Duniam on 11 November. Well done to you all!
- IMOS convened a small workshop on Harmful Algal Blooms (HABs) on 21 November with a focus on whether we could underpin development of a HAB forecasting capability. A second meeting will be planned for the first quarter of 2017. Please contact [Ana Lara-Lopez](#) if you would like more information.
- All NCRIS Capabilities met at the Department of Education and Training on 23-24 November. The meeting was useful and IMOS gave a well-received presentation on industry engagement. We had expected the draft 2016 Research Infrastructure Roadmap to be released before the meeting, but were advised that it is a little behind schedule. We expect to see the draft Roadmap very soon and will communicate with the IMOS community once it is released.

New QC'd Southern Ocean data set available through the AODN Portal



Elephant seal with data logging tag. Photo: Clive McMahon

Seals are becoming an increasingly useful vehicle for obtaining marine data from locations otherwise inaccessible. Satellite Relay Data Loggers, attached to seals, collect CTD (Conductivity-Temperature-Depth) measurements which are used to explore how marine mammal behaviour relates to their oceanic environment.

The AODN portal has been making seal data available for some time but only now has this data source been fully quality controlled prior to publication on the portal.

The data represented by this record are the Australian subset of the MEOP-CTD database (MEOP: Marine Mammals Exploring the Oceans Pole to Pole), complemented with the most recent Southern Ocean deployment data. Fabien Roquet, from MEOP and based in Sweden, has been working with AODN staff in Hobart to present the data.

These data were collected in the Southern Ocean, from both Elephant Seals and Weddell Seals. Data parameters measured by the instruments include time, conductivity (salinity), temperature, pressure and depth.

The Australian dataset originated in 2004, and was initially collected by Mark Hindell's team based at the University of Tasmania, and in later years his data has formed part of the IMOS Animal Tracking Facility.

This data collection can be accessed via the [AODN Portal](#).

The IMOS data holdings are detailed in a suite of reports generated by the AODN on a monthly basis. The summary reports for September 2016 can be downloaded directly via the IMOS website <http://imos.org.au/datareports.html>.

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IMOS Activity Planning

Deployment and maintenance activities next month include:

- The Autonomous Underwater Vehicles (AUV) Facility in partnership with Sydney Institute of Marine Science (SIMS) will deploy the AUV *Sirius* from the NSW Department of Primary Industries vessel, *Bomborra*.
- The Continuous Plankton Recorder (CPR) Sub-Facility (part of the Ships of Opportunity Facility) will deploy the CPR from the MV *Tonsberg* from Brisbane to Sydney, Sydney to Melbourne and Melbourne to Adelaide. Another CPR will be deployed from the *Aurora Australis*, on route from Hobart to Antarctica.
- The National Mooring Network, Acoustic Observations Sub-Facility, in partnership with Curtin University, Centre for Whale Research and the Department of Defense, will deploy Passive Acoustic receivers from the RV *Whale Song* in the Perth Canyon.
- The Animal Tracking Facility, in partnership with South Australian Research and Development Institute (SARDI), SIMS and the University of Tasmania, will deploy tags on six Australian sea lions in the Great Australian Bight.

Future activity planning for the IMOS Facilities is provided via the IMOS website (<http://imos.org.au/imosactivityplanning.html>). The activity plans contain details for all the planned deployment/recovery/servicing/sampling etc. activities for the 2016-17 period.

Paper of the month

This month we'd like to highlight the following paper that references IMOS data:

University of NSW PhD Student, Haifeng Zhang, has recently published the following paper in Journal of Geophysics Research Oceans:

Zhang H., H. Beggs, X.H. Wang, A. E. Kiss, C. Griffin (2016) Seasonal patterns of SST diurnal variation over the Tropical Warm Pool region, *J. Geophys. Res. Oceans*, **121**, doi:10.1002/2016JC012210.

The paper uses five years of IMOS sea surface temperature (SST) data from the NOAA-19 satellite (2010-2014) to present a detailed description of the seasonal patterns of SST diurnal variation (DV) over the Tropical Warm Pool region (25°S to 15°N, 90°E to 170°E). A double-peak seasonal pattern of SST DV is observed over the study region: the strongest DVs are found in March and October and the weakest in June. The paper also presents the results of sensitivity tests of SST DV over the study period and region to different meteorological variables: wind speed, solar shortwave radiation and latent heat flux.

The paper can be accessed here: <http://onlinelibrary.wiley.com/doi/10.1002/2016JC012210/epdf>

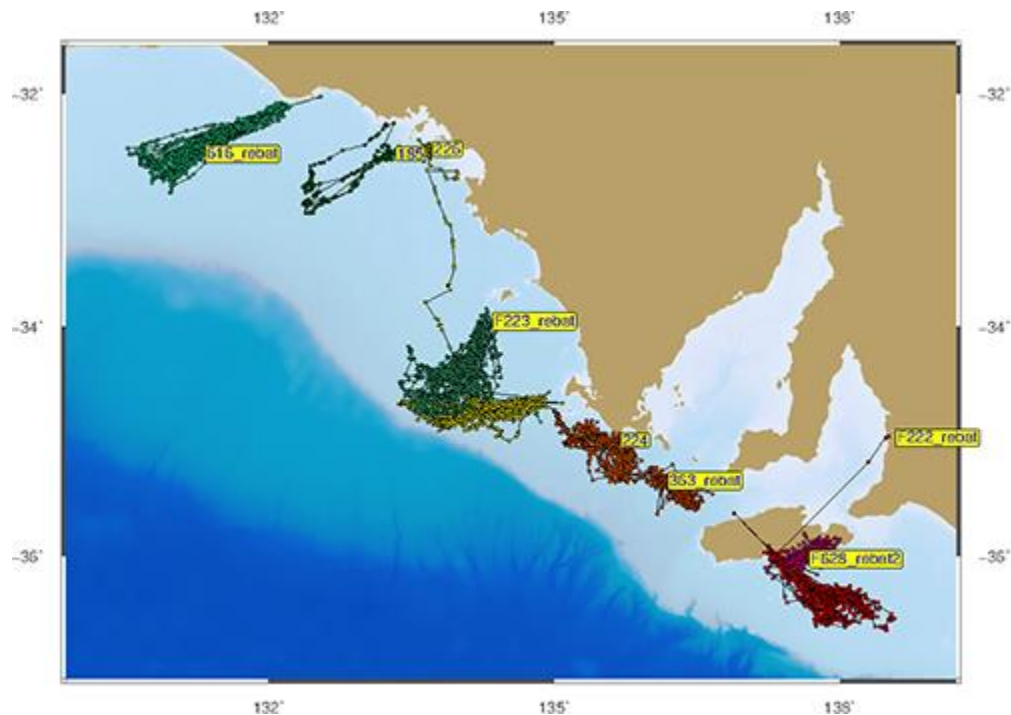
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Did you know?

This section features news from the marine science community and highlights various ways in which you can discover, access and use IMOS data.

Seal satellite animal tracking data incorporated into IMOS Ocean Current

The southern coastline of Australia is home to around 90% of the world's population of the Australian sea lion, which forages benthically in continental shelf waters year-round. As platforms for instrumentation, they provide an unprecedented opportunity to gather data on the oceanographic environment at a high spatio-temporal resolution. Since 2007, over 50 sea lions have been equipped with Argos-Conductivity-Temperature-Depth recorders collecting cross-shelf temperature and salinity profiles over a 1,000 km of shelf. More recently, individuals have been equipped with a new generation of tags that include both fluorescence and irradiance sensors, measurements which in conjunction with CTD data, can be used to estimate primary production. Sea lion instrumentation has provided a viable and cost-effective method of sampling near real-time hydrographic properties in the GAB region. In 2016, one tag recorded ~5300 profiles over the continental shelf over a six month period.



Tracking data from deployments conducted on 8 males in 2016. Picture from the Sea Mammal Research Unit website <http://www.smru.st-andrews.ac.uk>

An important recent development is the integration of the satellite animal tracking (SealCTD) data into the IMOS Ocean Current web portal (<http://oceancurrent.imos.org.au/aatams.php>), providing simple point and click access to 10 day CTD profiles, detailed temperature and salinity plots of individual profiles, TS plots by dive and depth, and time series plots. Data are used in the validation of regional physical models (e.g. the Coupled-Ocean-Atmosphere-Wave-Sediment Transport Modeling System, which is integrated to exchange data fields between the ocean model ROMS, the atmosphere model WRF, the wave model SWAN, and the sediment capabilities). Over the next year, much of these data

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will be integrated into key outputs describing the regional oceanographic processes, variation in mixed layer and euphotic depths, and subsurface productivity as part of the GAB Research Program.

Upcoming Events

- **12 – 16 December 2016** American Geophysical Union (AGU) Fall Meetings, San Francisco USA
<http://fallmeeting.agu.org/2016/>
- **30 January – 4 February** IOGOOS/IOP/SIBER/IRF Annual Meetings and 1st IIOE-2 Steering Committee Meeting and Bio-Argo Workshop, Perth Australia (by invitation)
<http://www.clivar.org/events/iogoosiopsiberirf-annual-meetings-and-1st-iioe-2-steering-committee-meeting-and-bio-argo>
- **7 – 10 February 2017** Australian Meteorological and Oceanographic Society (AMOS) and Meteorological Society of New Zealand (MSNZ) joint conference in conjunction with the Australian/New Zealand Climate Forum (ANZCF), Canberra, Australia http://www.amos.org.au/Main/Upcoming_Events/amos2017.aspx
- **31 May – 2 June 2017** Blue Planet Symposium: Oceans and Society, Maryland USA.
<http://symposium.geoblueplanet.com>.
- **2 – 6 July 2017** AMSA Australian Marine Science Conference 2017, Darwin Australia
<http://events.amsaconference.net/home.html>

For a full list of upcoming conferences please visit the Calendar page at <http://imos.org.au/calendar.html>. If you would like an event or conference featured on our website calendar please contact communication@imos.org.au.