

**Minutes of the Ocean Obs Research Coordination Network  
Virtual Meeting  
October 24 2014**

Participants: Steve Anderson, Laura Beranzoli, Mairi Best, Eric Delory, Ed Gough, Eileen Hofmann, Frank Muller-Karger, Stefano Nativi, John Orcutt, Jay Pearlman, Benoit Pirenne, Dick Schaap, Oscar Schofield, Samantha Simmons, Heidi Sosik, Sandy Williams.

**Agenda**

1. Samantha Simmons of the Marine Mammal Commission will review a recent survey of US Agencies on Essential Ocean Variables for Biology
2. Dick Schaap of SeaDataNet will talk about interoperability uses cases of the Ocean Data Interoperability Platform Project, a joint program of US, Europe and Australia.
3. Oscar Schofield of Rutgers will talk about plans and activities for the OOI Cyberinfrastructure.
4. Paul Holthus of the World Ocean Council will discuss results of the recent meeting on "Changing Oceans and Industry Futures: How will changes to ocean properties and processes affect ocean business?"
4. Citizen Science

A citizen science working group under the guidance of John Orcutt is forming.

Sam Simmons presented the work of the Biological Task Team, focusing on a survey of US Agencies on their needs for ocean biology variables. The IOOS Summit of November 2012 had 25 recommendations of which 8 contained biological elements. BIO-TT was formalized in March 2013 with a 2-year initial term to address assessment of biology needs. Bob Houtman and 10 more members are on the task team, which is led by Samantha (Sam) Simmons. They represent different agencies. Jay and Eileen are included as RCN persons. The objectives of the team include:

- a. Improve the availability of existing IOOS core biological variables; and
- b. Identify, and prioritize additional cross-cutting biological and ecosystem variable. Actions were to design and execute a survey (using Survey Monkey) and then organize a workshop to have community inputs. The workshop is planned for Nov 4-6, 2014. The survey was sent to 250 federal employees and had a 33% response rate distributed evenly across the agencies; 14 different agencies or departments responded. The survey objective was to identify the top 5 needs that should to be met. It was open ended with some of the responses in text format; this made it hard to

compare across agencies. Binning based upon keywords was used to have categories rated high, medium or low. Zooplankton and fish were in high. Benthos, data, and population were high. Chemistry, corals, geography, invertebrates, marine mammals were in medium. In some cases, the needs came from problems such as too few observations, limited resources or data inadequacy. Next steps are to finish writing the report and put them in a query-able format. The workshop to address additional variables and prioritize the broader collections is being held Nov. 4-6, 2014. There will be a follow up effort with IOOS Program Office. The BIO-TT sunset date is March 2015.

Questions: What is done about the country and how does it impact the list?

For example, survey needs were the most basic biological observations. Priorities mirror what is being collected by the groups around the country. The survey lists data as not being available but often they are available but the linker doesn't know where. Sam indicated that ascertaining availability is part of the assessment process and this will be pursued.

Comment: The hardest variable to measure is sound. It takes decades of observations to determine the change in sound (noise) in the ocean and requires calibrated hydrophones. It may respond to changes in shipping and oil exploration. For example, during the recession the speed of vessels dropped to save fuel costs. That reduced the shipping noise substantially. It may well continue since larger vessels running slow are cheaper to operate than running existing ones fast. Marine Mammals under IOOS can be brought into this study. Ocean Noise Reference Station Network (9 calibrated acoustic monitoring buoys around the US) is a good start. Shipping lanes are marked and need long term acoustic monitoring to learn what the evolution of the sound field is. Eric Delory is working on such instrumentation through NeXOS

10:27 Dick Schaap presented developments in the Ocean Data Interoperability Platform (ODIP). The project is a collaboration of Australia, the Europe and the US. It is a consolidation of regional initiatives (Australian Ocean Data Network, AODN, Sea Data Net and NODC.) ODIP is a community effort to overcome barriers by exploring common standards and interoperability solutions. It will support global infrastructures such as GEOSS, IODE and Pogo. Partners including associate partners were listed in Schaap's presentation. The objectives are a coordination platform. Prototype projects leverage existing regional projects and initiatives. Sharing data between open portals is a target. There were

three workshops to date: Ostende (Feb. 2013) San Diego (Dec 2013), and Townsville (Aug 2014) with a fourth to be held in England. Discussions in the recent meetings have been addressing three prototypes, vocabularies, data publishing including both citation and Person identifiers, which are needed as well as DOIs. Looking at the three projects, ODIP 1 prototype establishes interoperability between SeaDataNet, IMOS, and US NODC data discovery. The Prototype 1 is lead by European partners via SeaDataNet, including exchange from SeaDataNet to IODE/ODP and GEOSS, both of which are operational. Pan-European infrastructure started 20 years ago and now includes data tracking mechanism from European resources. 1.5M entries: ISO 19115-19139. DAB is the GEO Broker between SeaDataNet and GEO and IDOE. Research vessels are part of ODIP 2 to ensure interoperability with a common reporting system. R2R has been adopted by partners from US and Australia. ISO Cruise Summary Reports go to Marine National Facility (Australia), SeaDataNet (Europe), and R2R (USA). This tool has been employed by the USA and Australia. Adopting the European elements is now augmented by new technologies including NSF's EarthCube. ODIP 3 prototype is Sensor Observation Service (SOS), SensorML, and O&M profiles for selected sensors on research vessels. Github is a calibration tool followed by an inventory of SOS services. A task is to compile inventory of instrument SensorML records and O&M structures. The collaboration platform is <https://github.com/aodn/ODIP>. Dissemination of ODIP outcomes are a project website, social media, International conferences, Ocean data Portal, Research Data Alliance, and the Belmont Forum.

Comment from participants: Most people say they are interested in data but actually are interested in data collection.

Oscar Schofield presented an OOI Update on Cyberinfrastructure. He covered the East and West coast Regional Arrays, Cabled Arrays, and the Global Node. Capabilities mapping uses the "uFrame core", which was developed by Raytheon for AWIPS (weather data). It takes data from the installed instruments and puts them in a repository. Building the drivers from these systems is a major task. Various user groups are involved in this. A big team in San Diego is building the cable drivers. Uncabled drivers are from Raytheon in Portsmouth. The platform drivers are from UW, algorithms from OSU. Iterative development is aggressive since this ends at the end of next year. As an early demonstration (build 1), glider data has gone into the uFrame and come out of the data file. A big focus in November and December will be in asset management and the user interface (visualization) is planned for January. Oscar presented a more

detailed schedule. Developments of web-based tools allow sharing. Some of the results are coming from the OOI Education and Public Engagement project centered at Rutgers. OOI Net MREFC is led by Dan Sanshu, the CI Project Manager (Raytheon San Diego). A big review is coming next Monday and Tuesday at NSF.

Paul Holthus of World Ocean Council (WOC) gave a verbal update on the “Changing Oceans and Industry Futures” workshop. This was part of the WOC “Smart Ocean-Smart Industries” flagship program on ships of opportunity. This program fosters and facilitates vessel and platform (cargo ships, fishing boats, cruise ships, ferries, oil rigs) participation in data collecting and interaction with ocean observations/science institutions and programs. Priority areas for this include the Arctic, E Canda. This is part of the overall WOC effort to build collaboration between industry and science, e.g. EU requirement like the Framework 2020 Industry Connection needs this service to link PIs with ocean industries. A recent workshop brought the two communities into contact in Brussels. Outcomes of the workshop will be posted on the RCN Website.

Discussion: If WOC can help it will be good. Citizen Observations can use these ships of opportunity. John Orcutt is organizing a working group on Citizen Observations prior to our meeting in San Francisco. There are efforts in Canada and elsewhere on ocean citizen science and develop synergies with programs for voluntary observations by industry, such as the WOC program. E.g. Paul Holthus was at a workshop at Memorial University, St. John’s, Newfoundland on Citizen Science for the ocean.

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Jay reminded us that the annual meeting is in San Francisco and will be held December 14, 2014, the day before AGU.

Meeting adjourned.