

Bi-Weekly IOOS® Z-GRAM - 25 March 2011

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The Z-Gram is an informal way of keeping you up-to-date on US IOOS® activities. Please advise of additional addressees, or if you are receiving and no longer want to receive. If you think others could benefit from the Z-Gram please pass it on. To see previous Z-Grams go the IOOS website and view under program updates.

IOOS® - Our Eyes On Our Oceans, Coasts, and Great Lakes

Programmatics:

- **WE NEED YOU: System Advisory Committee** [ICOOS ACT: Section 12304 (d)]: The FRN for membership is now out, please apply by **16 May**. We are looking for all sectors of IOOS to apply: State, Local, Tribal government; Academia, Industry, NGO. To get a copy of the FRN please visit: <http://federalregister.gov/a/2011-6063>. For your ease I have attached the FRN to the Zgram.
- **Welcome Aboard:** Sarah Fahmy joined the IOOS team as the Executive Assistant. Sarah graduated last year from the University of Maryland, Baltimore County, with a Bachelor of Arts in Political Science, with a minor in Public Administration and International Affairs. She is a McNair Scholar completing a research fellowship in McNair's Summer Research Institute Program (2010) for which she received the McNair Award: "Best Research." Her research was titled "International Organizations and their Role in Facilitating Human Migration: A Case Study of the People of Tuvalu and the validity of Environmental Refugees." She already hit the ground at full speed this week and we are thrilled she has joined our team.
- **Programmatic Environment Assessment (PEA):** US IOOS, for the Regional Component, is conducting a PEA identify potential conflicts with the environment; to develop alternatives and a tactical plan to mitigate identified conflicts; and to build a strategy to address dynamic situations at a tiered level when necessary. As the U.S. IOOS Program matures and authorizes an increasing number of activities by non-federal partners, it is imperative to analyze the Program's impact on the human and natural environment. A PEA provides an efficient process for systematically analyzing the Program's compliance with National Environmental Policy Act (NEPA), Marine Managed Areas (MMA), Endangered Species Act (ESA), Magnuson-Stevens Fishery Conservation and Management Act (MSA), and National Marine Sanctuaries Act (NMSA). Many thanks to Regina who set up the discussion this past week and is leading this effort. I appreciate everyone's participation. First thank you very much to Emily Johannes, NOAA, who did a wonderful job facilitating the session. To the team in US IOOS (the Deputy, all the Division Chiefs, the READ division and members from OPS) as well as Josie, National Federation of Regional Associations (NFRA), Molly McCammon, AOOS, Ru Morrison, NEARCOOS, Judith Krauthamer, MACOORA; Mario Tamburri, ACT; Ann Jochens from GCOOS. I was unable to stay for the entire time, but when I asked how it went the reply I got - was Emily thought we got further in 4 hours than most groups do in 2 days! Well Done and thank you, this is an important step for the US IOOS program.

Data Management and Communications (DMAC) V0.9 Subsystem of IOOS® To get on the IOOS System Status list which announces service changes, please contact Jeff (Jeff.deLaBeaujardiere@noaa.gov) or Rob (Rob.Ragsdale@noaa.gov).

- **Biological Project:**
 - Metadata Project: Focused call on metadata needs specific to the biological data project: what metadata standards to use, how to map the metadata and timeline for decisions. There were agreements on: the standards to use - FGDC/ISO 19115, a list of metadata attributes to follow, how to incorporate the Pacific Island Fisheries Science Center's – Coral Reef Ecosystem Division existing fish diver survey data/metadata records and schedule to finish this task.
 - NOAA Fisheries/ERD-ASA Contributions to the Biological Data Project:
 - ERD's Roy Mendelsohn, via contract support from Applied Science Associates (ASA – EoinHowlett, et al), is facilitating a number of key contributions to the HI Biological Observations project, most recently via:
 - modifying ERD's Environmental Data Connector (EDC) in order to work with the IOOS Biological Data Protocol;
 - developing Matlab interfaces and scripts for IOOS Biological data transport protocol; and
 - developing R Interfaces and Scripts for IOOS Biological data transport protocol
- **IOOS Animal Telemetry Observations Workshop – next steps:** Draft Workshop Report in progress: workshop summary notes and a draft outline for the synthesis report has been sent to the Steering Committee for review/comment. Meanwhile, Hassan is drafting the report. Information about IOOS Animal Telemetry Activities and the recent workshop held in Santa Cruz, CA (March 2-3, 2011) can be found on the US IOOS Website: http://www.ioos.gov/animal_tagging/welcome.html
- **IOOS Data Catalog & Service Registry:** The Kick-off Meeting for work on v.2.0 of the IOOS Data Catalog has been scheduled for April 25 with NGDC and GMRI. The Catalog is built by harvesting metadata from compatible data access services. New work items include:
 - Improve GUI
 - Implement API
 - Simplify access to data from multiple servers
 - Provide routine monitoring & metrics capability
 - Assess possible use of ESRI GeoPortal Toolkit
 - Metadata enhancements at IOOS components (Regional Associations)
 - The current version is at <http://www.ioos.gov/catalog/>
- **IOOS RA DMAC Workshop (April 26-28):**
 - Metadata Training Session (scheduled for Tues April 26)
 - The training will be held at NODC's offices in Silver Spring with most of the Regional IOOS DMAC coordinators
 - Aconf call to discuss the session was held on Wed 3/23 with Ken Casey (NODC), Ted Habermann (NGDC), Darrell Duncan and Kevin Kern (NDBC), and Jeff DLB. An initial plan for teaching the session was agreed on.

- The first step is polling the session participants on the data types that would be most helpful to focus on.
- The training session will focus on NODC data templates, for feature data types, in conjunction with use of metadata standards (FGDC/ISO) as a best practice for preserving data.
- Workshop Planning – agenda and pre-workshop DMAC “readiness” survey
 - OpsDiv staff reviewed the draft workshop agenda and proposed survey questions that will be used to assess the relative readiness of each region to execute DMAC based on the DMAC guidance provided in the most recent FFO.
 - Adjustments to both the agenda and the survey were agreed to. Rob will discuss proposed agenda changes with his workshop steering committee. He and Alex will revise the survey early this week and use “Survey Monkey” to execute it. The results will also be provided to Carl G. as supplemental material for the Regional component of the on-going Blueprint Assessment.

Interagency Project Collaboration: The Z-Grams are certainly focused on providing information on IOOS® connections to these projects and it is not intended to provide programmatic updates of these specific projects because they all have project leads.

- **DMAC Steering Team:** The first meeting of the new DMAC ST will occur on April 11-12 in Washington DC - Consortium of Ocean Leadership. Sam is working the agenda now.
- **High Frequency Radar/Radio (HFR):** For more information on all US National HFR efforts please contact our US Project Manager - Jack Harlan, Jack.Harlan@noaa.gov
 - Frequency Allocation: Senior Leadership from NOAA will meet with the Assistant Secretary of the Navy for Installations and Environment this week.
- **IOOS and Links to the National Water Quality Monitoring Network:** National Beach Conference: Rob Ragsdale, Eric Vowinkel (USGS/ MACOORA) and Craig Swanson (ASA/ NERACOOS) attended this conference in Miami, FL in support of the IOOS Regional Beach Water Quality Project.
 - The project was briefed during the pre-conference predictive tools forum and the subject of a poster presented.
 - There was indication from EPA that in kind support was possible for this project through participation and leveraging of existing EPA modeling tools, like Virtual Beach.
 - The predictive tools forum was a briefing and discussion session on predictive modeling capabilities available to public health officials and beach managers.
 - The focus of the predictive tools was on modeling potential impacts of point source discharges, and forecasting threshold exceedances, for fecal indicator bacteria, in beach waters.
- **IOOS and The National Science Foundation (NSF) - Ocean Observatories Initiative (OOI):** No update
- **IOOS Modeling Testbed and Related Modeling efforts:** Reports from the Leads:

- Cyberinfrastructure (Eoin Howlett, Lead): Meetings were held with the Shelf Hypoxia and Inundation Teams to discuss their cyberinfrastructure needs. An Alpha version of an SOS service for observation data is being hosted using THREDDS. New Estuarine Hypoxia data sets have been standardized and available via a THREDDS server. The Interactive Model Evaluation and Diagnostic Skill Assessment (IMEDS) toolbox is on the SURA Website (<http://testbed.sura.org/node/384>) for download.
- Shelf Hypoxia (John Harding, Lead): Boundary & Pre-Operational Model Availability. Initial modeling runs have been compiled.
- Coastal Inundation (Rick Leutlich, Lead): The Testbed Inundation Team Meeting was held in North Carolina in early march. A head to head comparisons between 4 modeling teams in the inundation group (ADCIRC-UND, SELFE-VIMS, FVCOM-USF, FVCOM-LSU) for the computation of tides in the Gulf of Mexico. This is the first step in comparing the overall model responses for storm surge / inundation (& tides). In general all of the models performed well, except in areas that are poorly resolved in the computation grid being used in the testbed. All models are now running in both the Gulf of Mexico and the Gulf of Maine testbed locations. Initial comparisons have been made between 2 modeling teams (SELFE-VIMS, UMassD-FVCOM).
- Estuarine Hypoxia (Carl Friedrichs, Lead): Target Analysis showing that simple 1 term model reproduces seasonal variability in seasonal changes as well, or better than, multiple, complex variable CBOFS model. Initial results are showing a weak correlation between DO and Estuarine Stratification. The team is investigating the utility of single variable model with wind direction.

Other:

- **Ocean/Coastal observing supporting the Tsunami forecasting:** There are many parts of ensuring that Tsunami forecasts and warnings are issued, this excerpt highlights (not exhaustive) of how observations and efforts of the US IOOS Regional component were able to assist. At the National level, NOAA used the Deepocean Assessment and Reporting of Tsunamis (DART) buoys, the National Water Level Observation Network and its international counterpart, satellites and advanced computer modeling to provide essential detection and warnings necessary. Our US IOOS partners - NDBC operate the DART buoys and CO-OPS the water level stations played key roles along with many other parts of NOAA. At the Regional level both observations, data and products and services were part of the response. Highlights (non exhaustive) as follows:
 - PacIOOS: Observed a ten-fold increase in web traffic from Insular Pacific and Hawaii visitors, corresponding with the passage of the tsunami waves through the region.
 - Provided the only real-time water level (tsunami arrival) and turbidity (debris) measurements for Waikiki at five locations.
 - Served in a consolidated location, real-time water level and wave height for Hawaii, Guam, and the Marshall Islands from the regional pages on the new PacIOOS web page under the "Conditions at a glance" windows.

- Integrated several overlay elements into a map-based visualization system for Hawaii, including tsunami evacuation zones, emergency shelters, and historic tsunami heights for all major tsunamis in the last 60 years.
 - NANOOS: Observed a four-fold increase in web traffic, mainly from WA, OR, and CA, but also visits from nearly every state
 - Featured “Tsunami Evacuation Zones for the Oregon Coast,” a Google Map-based application for the public, planners, etc., at the top of its home page. This application was made jointly by Oregon Dept of Geology and Mineral Industries and NANOOS (Washington State is interested in developing a similar system)
 - Provided users of the NANOOS Visualization System with easy access to current, water height, and other information for a wide variety of U.S. IOOS system assets, including NDBC-, NOS-, and NANOOS-supported assets, as well as a variety of other sources in Washington, Oregon, and northern California
 - SCCOOS:
 - Measured the tsunami signal tsunami signal was documented by the NOAA tide gauge on the Scripps Institution of Oceanography pier and by pressure sensors at the four SCCOOS Automated Shore stations: Scripps Pier, Newport Pier, Santa Monica Pier, and Stearns Wharf.
 - This information was released to the media (news channel and newspaper) and posted on the CDIP (USACE sponsor)/SCCOOS website within an hour of the first wave .
 - CeNCOOS: □ Observed a five-fold increase in web traffic
 - Captured the tsunami passage using the Monterey Accelerated Research System (MARS) node, and information was displayed in real time
 - Recorded the tsunami passage with U.S. IOOS sensors in Humboldt, San Francisco, Monterey, and Morro Bays (each showing different intensities)
 - Displayed in real time via video cameras the succession of tsunami inflows and outflows in Moss Landing and Santa Cruz harbors
 - Shared data streams with the San Luis Obispo Science and Ecosystem Alliance (SLOSEA) program of California Polytechnic State University's Center for Coastal Marine Sciences to provide information via SLOSEA's network of water quality sensors in Morro Bay
 - Provided information regarding the tsunami's impact on San Luis Obispo County through two live television interviews with local NBC affiliate KSBY
 - Created a central source of useful tsunami information for stakeholders
 - AOOS: Posted Tsunami information was posted on the AOOS web site
- **Meeting with Severn Marinotech- US IOOS Integrating on Many levels:** I had the chance to meet with Hank Lobe on the value of collaboration and the important role IOOS has had in technology transfer. By the virtue of having a US IOOS enterprise and cultivating the relationships being build over many years, we are able to hasten the relationship between Industry, Academia and Federal partners. We talked about a number of examples, and I will highlight 2. Severn Marinotech has developed ClearSignal an antifouling coating which was used on Scarlet Knight and was a key

component of her success. They are now testing with for long term water quality sensor deployment for IOOS and other observatory systems. Another effort Hank shared with me includes NOAA-NDBC/MMS (BOEM)/Teledyne RD Instruments – Establishment of protocol and methods of reporting and error checking ADCP data reordered from deep water oil and gas as a requirement for MMS. Significance of effort – established methodology adapted for by QARTOD for use by IOOS and other observatory types. These are but just 2 examples and we talked about many others out there. We discussed that there are many examples like this across the IOOS Regions and that the structure we have in places fosters the discussion between needs and technology. I look forward to continuing this dialog.

- **Ocean Gliders:** As discussed at the NFRA board meeting, Sam has begun a discussion with the Regional Associations and partners are where we are wrt to use of Ocean Gliders; Same has complete contacting a list of key experts from the non-federal community to discuss collective planning and priorities. These discussions are part of framing an IOOS “program” for the operational use of gliders.
- **Basic Observation Buoys (BOBs) Workshop:** The UNC Coastal Studies Institute, NC SeaGrant and the Monitor National Marine Sanctuaries have been awarded a grant to implement observation buoys through 4 schools adjacent to the Albemarle and Pamlico Sounds. They've decided to deploy student built Basic Observation Buoys (BOB).
- **Maritime Domain Awareness (MDA) Architecture & Standards Kick-Off Meeting:** Jeff attended for IOOS. The focus was on a distributed, service-oriented architecture for the exchange of relevant data in standardized formats, which has some resemblance to IOOS DMAC. However, the data in question were typically textual rather than environmental, and role-based access restrictions were an essential element. The messages will be based on the National Information Exchange Model (NIEM) developed by the Departments of Justice and of Homeland Security (DOJ, DHS).
- **Coastal Response Research Center Meeting:** At the request of NOAA's Office of Response and Restoration, Sam Walker (IOOS) led Data/Information Acquisition Group at a University of New Hampshire (UNH) Coastal Response Research Center (CRRC) Symposium held in Baton Rouge, LA on March 22-24 on the future R&D needs for oil spill response.
- **CONGRATS to MACOORA Partner - Rutgers University:** The Consortium for Ocean Leadership announced Rutgers, The State University of New Jersey, will join the Ocean Observatories Initiative (OOI) to build a variety of software interfaces and web-based tools that ultimately will allow educators to bring the ocean into their learning environments. As the Education and Public Engagement (EPE) Implementing Organization (IO), Rutgers will lead the development of educational capabilities for the OOI and leverage the system's cyberinfrastructure capabilities by constructing a series of software and web-based social networking tools to engage a wide range of users including faculty, graduate and undergraduate students, informal science educators and the general public. The software will be designed to provide science educators with a suite of tools allowing them to enhance their graduate and undergraduate education activities and engage the general public using ocean observation data from the OOI. Scott Glenn emailed me that this continues to build the synergies from what we have done in US IOOS and the partnership with OOI.

- **Biodiversity Observation Network Synthesis Report now available:** US IOOS was one of the sponsors of this important meeting. Please check out the report. The Attaining an Operational Marine Biodiversity Observation Network (BON) Synthesis Report is now available online: http://www.nopp.org/wp-content/uploads/2010/03/BON_SynthesisReport.pdf. A press release announcing the report was published last week: <http://www.nopp.org/2011/attaining-an-operational-marine-biodiversity-observation-network-report-released/>.
- **SECOORA in Action - The Southeast Atlantic Marine Debris Initiative Consortium:** SECOORA is one of 12 entities who are currently serving on the newly developed Southeast Atlantic Marine Debris Initiative (SEA-MDI). SEA-MDI will use innovative technologies and unique expertise to add culturally relevant outreach tools and information to the current NOAA Marine Debris Program. The three-state (North Carolina, South Carolina and Georgia) consortium will strategize regional marine debris efforts while facilitating the prioritization of Federal efforts by putting the region into a national context. Exciting products are already coming out of this group!
- **SCCOOS in Action - New Product: Optimally Interpolated Surface Currents:** You can now view surface current maps that have been optimally interpolated, or gap-filled, to show areas of upwelling and significant eddies. Select either “Stream function” to view coastal eddies or “Velocity potential” to view upwelling areas. <http://www.sccoos.org/data/hfrnet/oi.php>
- **SCCOOS in Action - Massive fish kill:** On 8 March, King Harbor in Redondo Beach experienced a massive fish kill, estimated at around two million Pacific sardines. Dave Caron’s research group at the University of Southern California, a SCCOOS partner, has been actively monitoring King Harbor as a site of recurrent algal blooms since a massive fish kill occurred there in 2005. With the recent event, water quality measurements indicated a precipitous drop in dissolved oxygen that was the immediate cause of mortality, although analyses of the gut contents of fish tested strongly positive for domoic acid. A significant toxic bloom was detected in the waters off the Palos Verdes peninsula in the San Pedro Channel and it is possible that high levels of domoic acid may have exacerbated physiological stress of the fish brought on by oxygen depletion (Report and photo credit: Dave Caron, USC). For the full story, go to: www.sccoos.org/data/habs/news.php
CNN: <http://www.cnn.com/2011/US/03/15/california.fish.kill/index.html?hpt=T2>
- **GCOOS and Partners in Action - A Primer on Gulf of Mexico Hypoxia:** GCOOS, Sea Grant - Mississippi/Alabama; Gulf of Mexico Alliance, Louisiana University Marine Consortium (LUMCON) and the Mississippi River Gulf of Mexico Watershed Nutrient Task Force, completed a primer on Hypoxia which nicely lays out the definition of Hypoxia, the causes and how you can help. The primer will be posted on the GCOOS website in the near future.

Congressional: No Update

Communications/Outreach and Website Updates: No updates

IOOS Conference Involvement: This section will highlight those conferences where US IOOS is a sponsor/has a session/relevant sessions of interest to US IOOS:

- **MTS/IEEE Oceans 2011:** The call for papers is now open. We are evaluating how best we can show case Ocean Observing at this meeting. I will try to communicate with all in the next several weeks to get this going.
- **Coastal and Estuarine Research Federation: Biennial Conference in Daytona Beach, Florida, 6-10 November 2011.** Julia Bos, jbos461@ecy.wa.gov; Kimberle Stark, kimberle.stark@kingcounty.gov and Stephanie Moore, stephanie.moore@noaa.gov, will co-chair the session - SCI-040; Integrating Automated Ocean Observing Systems with Traditional Monitoring. Please consider contributing an oral or poster presentation to a session they are convening titled “*Integrating Automated Ocean Observing Systems with Traditional Monitoring*”. This session builds upon the CERF 2009 session on Automated Monitoring which was very successful in showcasing examples of data from automated sampling systems being applied to ecosystems assessments and sharing some important "lessons learned". **ABSTRACTS due on-line by *May 12*** Please note the session title and number (#SCI-040; Technology and Methods Advancement and Application; Monitoring) when you submit your abstract. A description of the session can be found at <http://www.sgmeet.com/cerf2011/Monitoring.asp> . When submitting an abstract to this session, *select this session in the first Session Choice drop-down*. Sessions are listed in numerical order in the drop-down (i.e., SCI-001, SCI-002, etc.). Submitters are also required to select a second choice session in the second drop-down. The session will focus on approaches for integrating data from multiple monitoring techniques, with an emphasis on techniques utilizing data from automated high-frequency observing systems, to conduct ecosystem assessments in coastal and estuarine environments. Merging data from automated and traditional sources can be problematic, as is extrapolating data collected on a small spatial scale to a large scale. However, integration of complex datasets from automated systems with datasets from traditional collection sources can extend monitoring and assessment capabilities. Abstracts are invited that highlight examples where inventive, tailored techniques have been used to combine multi-dimensional data into powerful, comprehensive, ecosystem narratives.

Upcoming Meetings: To see the IOOS calendar, please visit:
<http://www.usnra.org/calendar.html> or <http://ioos.gov/calendar/>

- DMAC ST: 11-12 April
- CaRA General Assembly and Buoy Commissioning: 12, 14 April
- IOOS RA DMAC Workshop: Ops. Div.; Silver Spring, MD; April 27-28, 2011
- Radio Operators Working Group Meeting (4/25-28): Jack; Santa Barbara, CA
- IOOS Biological Data Project Workshop (mid-May): Hassan, Charly; Honolulu, Hawai'i
- IOOS Modeling Testbed - First Year Program Results and Review (5/26-27 – tentative); Doug; Washington, DC
- International Oil Spill Conference (5/22-27): Sam; Portland, OR
- Northeast Coastal and Ocean Data Partnership Annual Meeting and Metadata Workshop (6/8-9): Charly (tentative); Rye, NH

Cheers,
Zdenka