

Bi-Weekly IOOS® Z-GRAM - 1 July 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 to the IOOS website and view under program updates.

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

Governance and Management Subsystem:

- **FY11 Awards:** We continue to work with NOAA's Acquisition and Grants Office to process the FY11 awards. All recommended awards were submitted prior to NOAA's 30 June deadline.
- **Certification:** RICE Consultation scheduled for July 27th at COL. Invitations have been extended to NFRA, RA Representatives, IOOS Program Regional Coordinators and Grants Manager, National Ocean Service General Council; IOOC Industry Rep (Ralph Rayner), CO-OPS (Rob Bassett) and ASA (Eoin Howlett.)
- **Systems Advisory Committee:** An inter-agency working group comprised of NSF, NASA, BOEMRE, COL; IOOS Program Office and USACE began deliberating on SAC membership. A second meeting will be held the first week in July with a goal of providing nominations to Dr. Lubchenco for her approval by the end of July.

Observation Subsystem:

- **High Frequency Radar/Radio (HFR):**
 - **ROWG April 2011 Meeting Summary:** A summary document for the Radiowave Operators Working Group (ROWG) April 2011 Meeting held in Santa Barbara, CA has been completed and is available online: <http://www.ioos.gov/hfradar/>
 - **Great Lakes HFR Experiment Results:** Results of the Great Lakes HFR experiment carried out by the Univ. of Michigan and CODAR Ocean Sensors have been captured in a draft document. A final version should be completed prior to the July 19 HFR Technical Steering Team meeting.
- **Animal Telemetry Observations:** Ocean Tracking Network -Hassan talked with Bob Branton [Global Ocean Tracking Network (OTN)/GOOS] about the animal telemetry inventory in North America, evaluation of the OTN metadata portal, and a new Platform for Ocean Data & Knowledge Management (POKM). Hassan was asked to review all of the recently developed global, regional and project level discovery metadata including detailed lists of instruments being used.
- **IOOS Non-Federal Observing Asset Inventory Status:** Derrick and Rob have been coordinating directly with NANOOS, CeNCOOS, SCCOOS, GLOS and MARACOOS to facilitate their inputs to the inventory. They have gathered the status of the remaining RAs from email responses and/or input provided during the last RA monthly call. They will continue to contact regions for their input and information to clarify the status the regions. A common question asked by the RAs has been about inclusion of assets that the RA may not own or operate, but which the data is used. Because this is to inform the

cost estimate, we have been encouraging them to include as much as possible about the assets they may not own or operate. It is important to the cost estimator to know what the RAs are leveraging to provide a more informed product or complete data set. The inventory was posted to GoogleDocs by Sam to provide for easy, simultaneous revisions by the RAs. Unexpectedly, the spreadsheet has neared the size-limit allowed for a GoogleDocs account. Therefore, we are pursuing a direction where we will send out an Excel spreadsheet version of the inventory to the RAs that have not provided input.

- **Biological Observations - New technologies:** Hassan met with Prof. Orest Diatchok from Johns Hopkins University Applied Physics Laboratory. Orest is developing Bioacoustic Absorption Spectrometry technology for long term monitoring of marine animals. His research is supported by the Office of Naval Research. There were discussions about the potential for this technology to be used operationally to observe marine animals. SAVE THE DATE: Orest will give a presentation on September 8 for a OneNOAA Seminar Series.

Data Management and Communications (DMAC) Subsystem: To get on the IOOS System Status list which announces service changes, please contact Derrick (Derrick.Snowden@noaa.gov) or Rob (Rob.Ragsdale@noaa.gov).

- **IOOS Data Catalog:** No update
- **Regional Priority Activities:** A telecon was held to clarify the underlying activities of the highest priority topics reached at the IOOS RA DMAC Workshop. Hassan, Derrick, Rob and Charly were on the call with the IOOS RA DMAC Coordinators. The RA DMAC Coordinators affirmed the workshop results, that development of a reference implementation for SOS was the highest priority activity for advancing DMAC in the regions. The scope of the implementation development task was discussed with an emerging tiger team, that will assess the potential SOS reference implementations. NANOOS DMAC Coordinators Emilio Mayorga and Rick Blair; AOOS DMAC Coordinator Rob Bochenek; and Derrick Snowden from the IOOS Program Office will comprise the tiger that will develop recommendations to be discussed with the RA DMAC Coordinator Team. A 90 minute monthly RA DMAC Coordinator conference call schedule will be initiated to track progress, but this will not preclude more frequent calls. Particularly, as tiger teams are formed to address the priority topic areas.
- **Biological Observations Data Management Project:** A metadata integration plan was discussed between Hassan and representatives from the Ocean Biodiversity Information System (OBIS-Philip Goldstein and Felicite Brace) and NOAA/PIFSC (Annette DesRochers and Troy Kanemura).
- **Hydroacoustic Observations - Data management:** Conference call (6/23): Hassan participated on a call with Tim Ryan from CSIRO/ Integrated Marine Observing System (IMOS) and chair of the International Council for the Exploration of the Sea (ICES) Working Group FAST, TG-MetaSOOP. Discussion topics on the call included working with ships of opportunity and other platforms to develop standardized metadata protocols to suit ocean observing system requirements for data acquisition, processing, quality control and data dissemination to report. IMOS has already integrated the acoustic data. Hassan discussed with Tim recent advances in acoustic metadata development and

integration with the IMOS portal and the potential for applying DMAC standards to hydro-acoustic data sets.

- **IOOS NCCOS Project - Water Quality Data Management:** Derrick and Rob met with Oren Perez (National Center for Coastal Ocean Science) to discuss the first tasks in the project and evaluate the existing SOS implementation at University of North Carolina Wilmington (UNCW). Doug Pirhalla and Oren will convey issues found with the UNCW SOS and differences between the schema they are employing and the IOOS specification to the UNCW Programmer Xiaoyan Qi. Matters of data transfer between Florida International University and UNCW and metadata file requirements to complete development of the SensorML file were covered as part of the first three tasks in phase 2.

Modeling and Analysis Subsystem:

- **US IOOS Model Testbed: SUCCESSFUL Year One Meeting:** Over 60 scientists and managers participated. The Federal IOOS joined in force with representatives from many offices from NOAA's National Ocean Service and National Weather Service; U.S. Army Corps of Engineers; US Coast Guard; US Geological Survey; and NASA. Each of the 4 teams: Inundation (Tropical and Extra Tropical); Shelf Hypoxia, Estuarine Hypoxia and Cyber Infrastructure team reported out a large number of successes. More information including the agenda and presentation materials can be found at <http://testbed.sura.org/node/429>. Below is a just a brief highlight of accomplishments - I urge you to go to the website to see all of the GREAT work.
 - Inundation: Gulf of Mexico & GOM – Scituate Harbor
 - HPC capabilities secured by SURA through member Universities
 - Calculated the HPC needs to return inundation predictions within stringent time scales (less cores – faster output delivery)
 - Direct comparisons between operational and academic models
 - Shelf Hypoxia
 - Multi-year hypoxia data set available for NOAA Hypoxia Watch Data Portal
 - Models show salinity distribution are not sensitive to changes in Chlorophyll, Primary Production, and DO
 - Progress towards linking sediment transport processes and biogeochemical models within ROMS.
 - Estuarine Hypoxia
 - Target Diagram for Model Skill Assessment
 - New, single term hypoxia model shows significant improvement in predicting dissolved oxygen
 - NOAA-CSDL has already incorporated this testbed model in the research version Chesapeake Bay Operational Forecast System
 - Cyber Infrastructure
 - Interactive Web Site: browse model results, view model grid data, side by side comparisons, and MUCH MORE
 - Unstructured Grid Support; Time series extraction completed for FVCOM, SELFE, ELCIRC, ADCIRC.

- Matlab Toolbox: standardized data transformations, new methods for comparing data (including unit conversion). Coordination with OOI-CI
- Matlab as a Service: Matlab processes - no desktop license required.
- Skill Assessment Tools: Measure the degree of correlation between model prediction and observations

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:** No update
- **Fourth in the Series of IOOC Industry Work Shops** - A very successful meeting that brought the IOOS community together with the shipping, water quality, agriculture, and alternative energy to discuss how IOOS could better support these communities. The morning contained briefs from the IOOS community including GLOS, EPA, USGS and the Army Corps. The afternoon included case studies from the Michigan Farm Bureau, Offshore Wind (BAIRD) and Alternative Energy (Great Lakes Wind Collaborative); Water Quality (Grand River Conservation Authority) and Marine Operations (Interlake Steamship Company). New partnerships were forged that day with commitment from both communities to follow up. The briefings will soon be posted at: <http://www.iooc.us/stakeholder-outreach/great-lakes-workshop/>. Thank you to the steering team: GLOS and their members; Ralph Rayner, US IOOS Industry liaison, Nick Rome and Josh Young - IOOC Support Staff.
- **IOOS and Links to the National Water Quality Monitoring Network: Coordination with EPA:** Rob and Charly (IOOS Program Office) led a conference call with representatives from NERACOOS (Craig Swanson) and SECOORA (Debra Hernandez, Dwayne Porter and Megan Treml) and Gabrielle Canonico (IOOS Program) to discuss next steps for advancing discussions on beach water quality per the \$50K EPA's Gary Foley for the Office of Research and Development has offered. The team agreed to draft a narrowly scoped project idea by Friday July 8th and then meet again with the EPA team.
- **IOOS and The National Science Foundation (NSF) - Ocean Observatories Initiative (OOI):** No report

Other:

- **Gordon Research Conference on Coastal Ocean Modeling (June 26-July 1):** USGS's Rich Signell chaired a Coastal Ocean Modeling Gordon Research Conference (GRC) conference at Mount Holyoke College in Massachusetts that was co-sponsored by US IOOS and attended by several dozen senior scientists including many PIs from the current US IOOS Modeling Testbed. For more information including the conference agenda go to: <http://www.grc.org/programs.aspx?year=2011&program=coastal>
- **The Future of the 21st Century Ocean - Marine Science & European Research Infrastructure:** Dr. Chet Koblinsky, NOAA/OAR/Climate Program Office and I were invited speakers to present US IOOS - Global and Coastal Components at this gathering. This meeting brought together the Research Infrastructures (RI) of pan-European

interests to dialog between contributors and managers of the RIs and their users, including scientists, industry and stakeholders. In addition to briefings from the European RI, Chris Barnes presented on behalf of NEPTUNE Canada; Roger Procter on behalf of Australia's IMOS. It was one of the few times that US IOOS, IMOS, NEPTUNE program managers were able to collaborate with our European colleagues. In addition to learning about the European RI such as MyOcean (similar to IOOS and IMOS); EUROFLEETS (similar to US UNOLS); Euro-ARGO; and the EMSO (similar to the Regional node of OOI); there are a number of RI associated with marine biodiversity and genomics such as LifeWatch and EMBRC. The constant topics discussed throughout all the meetings were centered around: data integration, the need for sustained observations and how best to serve the user. Several side meetings resulted in agreements on specific data coordination between IMOS, IOOS and our European partners. I had the chance to briefly discuss the GEO work plan activity for a Global HFR networking effort that we hope to kick off in FY12 and a commitment to discuss glider data integration. I sincerely appreciated the invitation by Pierre-Yves Le Traon (EURO-ARGO) for the invitation and sponsorship for my trip. The sponsors expect to post the presentations so keep an eye out for them at <http://www.europolemer.eu>.

- **CariCOOS In Action: Summer Education & Outreach:** This summer promises to be an exciting one for the CariCOOS program. Together with the NOAA Center for Atmospheric Sciences (NCAS), CariCOOS will co-sponsor the Puerto Rico Weather Camp 2011 from July 10 to 16. Fifteen high school students from public and private schools around the island will participate in this immersive summer experience. Through seminars, workshops, field trips, training at-sea and, interactive activities, students will learn about our complex tropical weather, climate change, atmosphere and ocean connections, coastal weather, and ocean observing systems. During this period, participants will have the chance to meet experts in the field and learn about the diverse career opportunities. On July 23rd CariCOOS will host a visit of the 14th Annual National Ocean Sciences Bowl (NOSB®) award winning team. The winners, from Marshfield High School (Marshfield, Wisconsin), received all expense paid trip awards to experience ocean sciences in Puerto Rico. During their visit to CaRA/CariCOOS facilities, our staff will offer an interactive workshop on IOOS products and tools. The NOSB is an ocean science education program of the Consortium for Ocean Leadership based in Washington, DC.
- **CHALLENGER Mission - Phase One UNDERWAY:** Taken directly from Scott Glenn's Blog - since I could not improve on the words. You can follow along at <http://www.i-cool.org/?cat=77>: " A Historic day. Today, June 23, 2011, is the first day at sea for the growing global partnership that has just embarked on the first phase of the Challenger Mission. Followers from previous missions will know the history. It began on December 9, 2009, in Baiona, Spain, at the landfall celebration for RU27, the first underwater glider to cross an ocean basin. Rick Spinrad challenged the U.S.-Spanish partnership to go back to sea. To build even longer duration gliders. To entrain even more partners and schools. And to revisit the historic track of the H.M.S. Challenger, the first circumnavigation of the globe for science. So today, after spending 2010 supporting the U.S. response to the oil spill in the Gulf of Mexico, we are back at sea on another long-duration mission of discovery. This glider, owned by Teledyne Webb Research, is our first long-duration test flight in preparation for the globally coordinated mission we

hope someday will include about 15 gliders simultaneously covering different segments of the H.M.S. Challenger's track. This time we have chosen a difficult route. Instead of our usual east-west route where we remain in temperate waters, we are flying north-south from arctic to tropical waters. Our path is from Iceland to the Canaries, a distance of about 4,000 km. Another difference this time – the students are distributed around the globe. They are stationed in Spain with Carlos, Antonio or Enrique, with us in the U.S., or with our new partners in Australia. Through student exchange programs, they are now visiting each other's labs. Most of the pathplanning and blog entries for the next several months will come straight from these students, some of whom are now veterans of up to 4 previous long-duration missions. A memorable moment in 2009 was when the student glider pilots chose Baiona, Spain for Ru27's landfall. Their choice was based on Baiona's history as the port where the Pinta first returned in 1493. We were especially pleased when the students chose to nickname the present glider Challenger 1. The name is a reference back to Hank Stommel's science fiction story on the global Slocum Mission, http://www.tos.org/oceanography/issues/issue_archive/issue_pdfs/2_1/2.1_stommel.pdf where the first glider deployed by the students in the attic of the Bigelow Building in Woods Hole was named Sentinel 1. So today, with this launch, the global mission envisioned by Hank Stommel, invigorated by Rick Spinrad, and made possible by Teledyne Webb Research, has begun. We hope you enjoy the ride.

- **Alliance for Coastal Technologies and Ocean Networks Canada sign MOU:** The Alliance for Coastal Technologies (ACT) and Ocean Networks Canada (ONC) have entered into a memorandum of understanding to partner in environmental sensor evaluations, focused on supporting technology transition into operations and providing independent performance information on diverse ocean observing instrumentation. ACT is a U.S. Integrated Ocean Observing System (IOOS) supported effort dedicated to fostering the development and adoption of effective and reliable sensors and platforms for studying and monitoring coastal, ocean and freshwater environments. The three primary ACT services are: (1) a third-party testbed for evaluating existing and developing sensors and sensor platforms, (2) a forum for capacity and consensus building through technology specific workshops and training exercises, and (3) a comprehensive data and information clearinghouse on environmental technologies. ONC is a not-for-profit agency responsible for the management of the ONC Observatory on behalf of the University of Victoria. The observatory, consisting of the VENUS (coastal) and NEPTUNE Canada (regional) networks, supports a new generation of coastal and deep ocean research. With a 25+ year operating life cycle, the ONC Observatory enables transformative ocean research and technology development through an innovative cabled infrastructure that supplies continuous power and internet connectivity to a broad suite of novel subsea instrumentation. ONC's new Canadian Centre of Excellence in Ocean Observing Systems, the ONC Centre for Enterprise and Engagement (ONCCEE) supports industry and outreach activities from the ONC Observatory, including a new Technology Demonstration Facility, which will be used in partnership with ACT. ACT and ONC will work together to identify technology needs and coordinate efforts. However, the emphasis of this MOU is to partner on instrument testing activities. The first such joint effort will be on an upcoming ACT Technology Evaluation of in situ pH sensors. High spatial and temporal measurements of pH directly in the field are key to understand and address ocean acidification. For example, monitoring changes in ambient pH will provide

insight to carbonate mineralization and its impact on the health of calcifying organisms and communities such as planktonic foraminifera, coral reefs, and oyster aquaculture operations. As in all prior ACT Evaluations, this Performance Verification will follow the established process resulting in the release of public reports on the performance of individual instruments during laboratory and field tests in diverse environments and applications, including seafloor cabled deployments on the ONC Observatory. For more information contact: Mario Tamburri, ACT, tamburri@umces.edu, 410-326-7440; Scott McLean, ONCCEE, sdmclean@uvic.ca, 250-853-3961; Or the respective websites: www.act-us.info www.onccee.ca

- **SCCOOS in Action: SPRAY GLIDER DEPLOYED IN GULF OF MEXICO** - A spray glider was deployed on 7 May in the Gulf of Mexico in collaboration with the Centro de Investigación Científica y de Educación Superior de Ensenada, Baja California ([CICESE](#)), a SCCOOS partner. Measured variables include pressure, temperature, salinity, velocity, colored dissolved organic matter (CDOM). The CDOM sensor is a fluorometer that has been shown to be sensitive to hydrocarbons in water, most recently during the Deepwater Horizon oil spill. This is one of a planned fleet of three gliders anticipated to be deployed later this year. The fleet will be assimilated in models for prediction of currents in the Gulf of Mexico. Data is available online at: <http://www.sccoos.org/data/spray/?r=gulf>. **OIL SPILL RESPONSE DRILL IN SAN DIEGO** -In May, SCCOOS members participated in a full-scale oil spill response exercise led by U.S. Coast Guard Sector San Diego in accordance with the National Preparedness for Response Exercise Program (NPREP). The exercise focused on effective communication and response between federal, state, and partner agencies in the event of an oil spill off the coast. Archived surface current measurements that corresponded to the drill scenario were integrated into on-site Office of Spill Prevention and Response GIS maps. SCCOOS members continue to be active participants in the Area Committee coordination and training exercises to assist with surface current mapping technology for oil spill response. **BEACH EROSION AND INUNDATION PROJECT** - Coastal erosion and inundation can cause damage to homes, highway closures, and disruptions in transportation. The goal of the [Cardiff Beach Erosion and Inundation Project](#), as part the SCCOOS Coastal Hazards Program, is to develop a field-validated, site-specific model for inundation and flooding. The project included the installation of ten buried pressure sensors to measure water levels along with surveys of beach sand levels. The data will be used to inform model validation and provide real-time warnings of wave and tidal inundation for the safety and protection of coastal communities. This project also provides a resource for the regional coastal planning conducted by the City of Encinitas: <http://www.cityofencinitas.org/Resident/Environment/CZMP/>
- **BE A PART OF US IOOS: JOB OPPORTUNITY: MARACOOS EXECUTIVE DIRECTOR** -The Mid-Atlantic Regional Association Coastal Ocean Observing System (MARACOOS) seeks an Executive Director to lead the operational aspects of the organization, under the guidance of the Board of Directors. The MARACOOS Executive Director will be based at the University of Delaware, Newark, DE. <http://maracoos.org/node/112>

Congressional: No updates

Communications/Outreach and Website Updates:

- Check out the new Education page on the IOOS website - <http://www.ioos.gov/education/welcome.html>. This includes links to the IOOS RCOOS education pages; lessons plans; examples of using real-time data and Multimedia; social media and APPS
- **Marine Technology Society (MTS) - Annual Update on Worldwide Ocean Observatories** - check it out in this month's Ocean News and Technologies. http://www.mtsociety.org/pdf/committees/2011_MTS_OOS_ONT_Update.pdf

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:

- Coastal Zone 2011: Join us for US IOOS related sessions
 - 19 July: 1:15-2:45 -Panel: US IOOS - New and Improved Tools for Coastal Managers' (*Z. Willis, D. Dugan, J. Thomas, K. O'Brien, H. Kerkering)
 - **19 July: 2:45-4:00 - Model Testbeds Defining the Goals (Levin, Smith, Harding, Tolman, Howlett, Bub, Mooers)** - missed this last week - my apologies
 - 20 July: 1:15-2:45 -'US IOOS: Tracking Water Quality' (*Quintrell, Morrison, Newton, Porter, Read)
 - 20 July: 2:45-5:00 pm: (Café) 'CMSP, IOOS, and Data: They Don't Have to be Four Letter Words' (*Easter, Sheldon, Quintrell)
- **MTS/IEEE Oceans 2011:** No update
- **SAVE THE DATE - MTS/IEEE Oceans 2012:** VA Beach Convention Center: October 14-19 2012. Charly (IOOS Program Office) participated in an Oceans 2012 planning meeting on behalf of US IOOS. The meeting was led by SAIC's Ray Toll and the planning team is well along per logistical planning and a preliminary agenda. The meeting will be framed by US IOOS themes based on IOOS's seven societal benefits.

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

Cheers,
Zdenka

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