

Bi-Weekly Z-GRAM 15 November 2008

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The Z-gram is an informal way of keeping you up-to-date 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 under program updates

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

Programmatics:

- **Welcome Aboard:** Dr. Richard Signell, a research oceanographer with the United States Geological Service's (USGS) Coastal and Marine Geology Program at Woods Hole, MA has joined the NOAA IOOS Program's Operations Division on a one year detail where he will focus on standardized access to model data via web services that include improved analysis and visualization capabilities. He will also act as a technical liaison on ocean and coastal modeling with the IWGOO, the IOOS Regions and NOAA. Rich has a long-standing interest in data management, analysis and visualization, promoting standards and standards-based modeling tools for the last 20 years. He is the Chair of the Gordon Research Conference on Coastal Ocean Modeling, a coauthor of the NetCDF Climate and Forecast (CF) Metadata Conventions, a member of the CF Standards Committee, a member of the Integrated Data Viewer (IDV) Steering Committee, and the chair of the Gulf of Maine Ocean Data Partnership Modeling Committee. His research interests include shallow shelf and estuarine physical oceanographic and sediment transport processes, bottom and surface boundary layer dynamics, and developing community models, methods and tools for hydrodynamics and sediment transport in the coastal ocean. During the detail Rich will continue to work out of USGS offices in Woods Hole though he will travel to Silver Spring approximately every 6-8 weeks. We are very excited by this partnership and I extend my thanks to John Haines, USGS, who helped arrange this detail.
- **Congressional Report:** I reported in error that NOAA's Deputy Under Secretary had cleared the report. It has not yet been sent to her office and remains in review.
- **FY09: No Change.** IOOS does not plan to issue a Federal Funding Opportunity for FY09.
- **FY10: No change.**
- **FY11-15:** The Program plans were briefed to the combined NOAA Executive Panel and NOAA Executive Council on 14 November. Again thank you to our Planning, Programming, Budgeting, Execution, System (PPBES) for preparing and delivering our plan. The foundational capacity that Modeling, Observation, Infrastructure (MOBI) goal provides was positively discussed.

Initial Operating Capability - Data Management and Communications (DMAC)
subsystem of IOOS®

In FY09 we are focused on 6 areas for this subsystem: (1) Data Integration Framework (DIF) support to Customer Applications: Harmful Algal Blooms forecast system; Integrated Ecosystem Assessments (IEAs); Coastal Inundation; Hurricane Intensity; (2) DIF Regional Implementation; (3) DIF Evolution & Enhancements; (4) Development of the best approach to DMAC (5) HFR – A National Network; and (6) Continue strong support, with the Inter Agency Working Group on Ocean Observations (IWGOO), to the IOOS DMAC Standards Process and working with the DMAC Steering team and the first 5 areas

- IOOS DMAC Standards Process: DMAC Steering Team meeting 8-10 December.
Get Involved:
<http://ioosdmac.fedworx.org/ioos/dmac.nsf/WhatsNew?OpenForm>
- What the DIF: For all documents and information, please visit the www.ioos.noaa.gov website and hit the button that says **IOOS Data**.
 - Harmful Algal Blooms Forecast System (HAB-FS)/IOOS Phase 2. The first milestone which was to review all historical blooms and select bloom period that will be the focus of this project has been completed. NOAA/NCCOSS team will run initialization tests to tune the GNOME transport model using some initial current output data provided by NOAA/CSDL. NOAA/CSDL will generate the currents output from the NGOM/NWFS model for the selected time period (August 2004 to March 2005) and provide to NCCOS. Through the initialization test runs, we should begin to get some definition into performance metrics (e.g. Transport and Extent) - focus of 12/10 meeting will be on this topic, moving towards further progress on milestone 2 ("Metric Definition") whose scheduled completion date is January 30, 2009.
 - Data Provider Implementations: **Ocean Color**, On November 10, NESDIS OSDPD announced that the THREDDS server could be implemented as early as the end of November 2008, but certainly by the beginning of December 2008. Completion of this milestone will satisfy the terms of the current statement of work for ocean color, with the exception of operations and maintenance tasks/costs and working with the HAB customer on implementation. This is a change from last week's email which projected a delay into January 2009. Thanks to NESDIS/STAR for their efforts on this project.
 - DIF- SOS Progress/Improvements: Jeff DLB continues to review functions and potential revisions of the current DIF SOS tools. Highlights over the past two weeks include:
 - Testing: Draft report received from CSC. Requested revisions/additions expected soon.
 - CO-OPS SOS service: reviewed XML options (DIF vs OOSTethys) and options for disaggregating physical measurements (e.g. winds: speed/direction combined or separate) which would appear to require a major new effort if agreed to
 - ERDDAP: Studied enhanced client implementation that gets data from SOS with Mendelsohn

- Sensor ML: Agreed with WSDE working group on metadata fields to include. Began working with SURA's Bermudez to develop actual SensorML examples.
- OAR/OCO: Continued discussions with OCO's Derrick Snowden on Web Map Services and the NCS Portal
- XSLT (Extensible Style sheet Language Transformations): Jeff's experiments with the use of XSLT to convert DIF XML to easier representations in a web browser with subsequent readability by Excel are very promising. Related discussions with OGC's Josh Lieberman per these types of simplifications also continue.

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 all of them have project leads.

- **Ocean Observatories Initiative (OOI)/Cyber Infrastructure meeting at National Science Foundation:** Charly, Jeff DLB and USGS's Rich Signell met with the OOI/CyberInfrastructure team at the National Science Foundation in Arlington, VA from 1-4pm on Friday to review progress on our collaboration and begin planning next steps. Also present were the principals for OOI/CI - John Orcutt and Frank Vernon (Sripps), Matthew Arrott and Michael Messinger (UCSC) as well as NSF's Stephen Meacham, Al Plueddemann from WHOI, and Jack Clinart from Raytheon. Matthew and Michael gave a short PowerPoint brief followed by a live demon of the "cloud computing" prototype service they have built that includes components they have collaborated with NOAA Fisheries' Roy Mendelsohn via the ERDDAP tool. The progress is impressive. Discussions focused on technical questions/clarifications per the current pieces and candidate priorities for next steps (e.g. a specific modeling question per sub-sampling model outputs, HFR as a candidate "national" data application, and one or more "reference implementation" tools we are planning to add to the DIF - i.e. registry, data aggregation, etc.). We agreed to complete a plan for next steps by early/mid Dec (i.e. by the DMAC ST meeting). All in all an excellent discussion.
- Army Corps of Engineers collaboration on a National Waves Plan: Next version for comment will be ready by this coming week.
- NOAA-Navy collaboration on the GODAE server: **No change**
- National Water Quality Monitoring Network: The interagency team from EPA (Dwayne Young and Kristen Gunthardt), USGS (Jon Scott, Dorrie Gellenbeck, and Nate Booth) and NOAA (Jeff DLB, Ami Kang, and Rob Ragsdale) has met twice this month to better define a collaboration project.
 - Nov. 6: The technical aspects of this collaboration were discussed in detail and led to identification of four focus areas: Semantics, Catalogs, Schemas and Services
 - Nov. 13: This discussion focused on the four areas identified on Nov. 6. In area of schema, schema for continuously monitored water quality stations was identified as a good starting point. The group agreed a separate call was needed to focus on schema for this type of data. Significant discussion on vocabularies and catalogs also took place. Jeff suggested agreement could be had on ways to represent vocabularies and

further suggested Web Ontology Language (OWL) and Resource Description Framework (RDF) Schema. USGS and EPA suggested translation services could be used to access existing registries. Members agreed to exchange information on vocabularies to discuss further.

Other:

- **Rutgers University - Across the Pond:**
<http://rucool.marine.rutgers.edu/atlantic/> Highlights of the success from RU17 - Please go to the website for a full list. RU17 was deployed on May 21, 2008 and was within 20 km of the Azores EEZ line when communications was lost. The Rutgers students, technical staff and scientists flew RU17 a record breaking distance of 5,700.59 km and spent 160 days at sea. There is no Guinness Book for glider statistics, so relying on public websites - Glider RU17 now holds the world record for the longest distance mission for an autonomous underwater glider – 5,700 km. A University of Washington Seaglider holds the world record for the longest duration mission – 7 months. Education: Primary purpose of this flight was education. Students have opportunities earlier in their school careers to get involved with Oceanography and there are new work study options and internships; Students helped to build the glider, improved flight characteristics, planned the mission, controlled the glider and designed new Google Earth and Google Maps interfaces. Science: On of the most interesting scientific discovery of this mission was the interaction of the glider with the upper ocean biological communities. Partnerships: Strong partnerships both nationally and internationally were accelerated. Path planning for RU17 required data and forecasts, and operational centers. The University of Maine provided a link to their satellite data when the Rutgers acquisition system went down and required repairs. A similar satellite receiving station in the Canaries provided local coverage on the European side. The NASA Ocean Color Web provided access to the global MODIS dataset for SST and Chlorophyll that filled the gap between the higher resolution direct broadcast data acquired on either side of the Atlantic. The Altimetry products generated by the University of Colorado were in constant use. Ocean model forecasts were provided by the Naval Oceanographic Command and by our partners in Spain. The NOAA National Hurricane Center and Oceanweather websites provided wind and wave forecasts. The international Argo program provided subsurface temperature and salinity profiles for ballasting and flight planning. The Google Earth interface proved to be extremely popular and has already been transferred to other glider operators within the Navy and MACOORA. Training: Rutgers developed the Glider School 102 as a follow-on to the Webb Research Glider 101 course. This course is now being taught to Navy operators and Rutgers was invited by the European Glider Organization (EGO) to join them in a European Glider School conducted in Italy at the NATO facility in the fall. Technology: RU17 served as a test case for three major changes on the Standard Slocum Glider. This was the longest duration test to date of the new Digifin developed as part of the glider hardening work for ONR. The Lithium Batteries were tested for a NOAA NOPP project to install a kinetic Fluorescence,

Induction and Relaxation (FIRE) sensor on a glider. The extended payload bay was tested for future deployments at the NSF LTER located on the Antarctic Peninsula. During the mission, engineering observations were continuously shared with Webb Research, the designer and manufacturer of Slocum gliders. This feedback helped Webb identify and prioritize software and hardware upgrades that impact all gliders. Specific examples include positive control of the buoyancy pump, additional energy savings modes and a range of new gain values for the control of the Digifin, the ability to cross UTM navigation zones without restarting a mission, the design of new wing rails for attaching the wings to extended payload bays. Public Outreach: The students as ambassadors for Rutgers brought gliders to high schools around the state. The Flight to Halifax attracted coverage in the U.S. and Canada, and the midway point in the flight across the pond produced an Associated Press article that was printed in hundreds of newspapers around the world.

- **13-15 November: Final Global Ocean Data Assimilation Experiment (GODAE) meeting:** Zdenka represented the Interagency Working Group on Ocean Observing and presented a paper U.S Ocean Observing Initiatives – Way Forward authored by a number of the members of IWGOO and our industry partners. The briefing was well received and the questions reinforced that as we move forward within the United States we need to participate with our international partners as they are facing the same issues.
- **10 November: Meeting with Mid-Atlantic Coastal Ocean Observing Regional Association (MACOORA), NOAA Center for Operational Oceanographic Products and Services (CO-OPS) and NOS General Council:** As a follow up to the MACOORA meeting we were able to talk with Senior Management within CO-OPS to better understand how IOOS data and models can be used within PORTS®. NOAA CO-OPS must ensure that their partners identify the requirements, that a strict Quality Control is adhered to and that a maintenance scheduled is adhered to. A very productive conversation took place with the general criteria provided by Co-OPS. CO-OPS has agreed to provide specific requirements for both data and models by 1 December so that we can discuss this at the upcoming Regional Coordination Workshop.
- **13 November, Open Geospatial Consortium (OGC):** Charly, Jeff DLB, USGS's Rich Signell, and I met with OGC President Mark Reichardt to review opportunities for an expanded level of collaboration between the NOAA IOOS Program and OGC, particularly with respect to the existing DIF SOS tools, regional DIF implementation, and National DMAC. We agreed to several follow-up meetings before the end of the year.

Congressional: **No update**

Communications: **No update**

Upcoming Meetings:

- 18-20 November: Zdenka and Brian Melzian will attend from the IOOS Federal partnership. There will be a panel on Integrating the National System of Marine

Protected Areas (MPA) and Ocean Observing Systems, myself and Josie Quintrell will be part of this panel

- 25-27 November: Fourth Forum of the GOOS Regional Alliances - Ned Cyr will represent the United States - NOAA IOOS Program is preparing his briefing
- 2-4 December: Third IOOS Regional Coordination Workshop will be held 2-4 December in Baltimore. The NFRA annual meeting will be 0800-0945 on Tuesday morning 2 December.
- 4 December: IOOS-Funded Coastal Inundation Projects Meeting
- 9-10 December: CaRA Stakeholders meeting 9 December, site visit 10 December (Zdenka, Jack Harlan)
- 9-11 December: DMAC Steering Team, Washington, D.C.

Cheers,
Zdenka