

Bi-Weekly Z-GRAM - 22 January 2010

www.IOOS.gov

The Z-Gram is an informal way of keeping you up-to-date on 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

After the Holiday break, I am resuming the Z-Gram. If you have suggestions on content, style, or format please send me an email.

Programmatics:

- **Hail:** The new year has brought us new folks in the IOOS office. Neither one of them are strangers to the IOOS community.
 - Dave Easter - Dave joins us as a federal employee. While I know that NOAA's Coastal Services Center will certainly feel the loss, Dave is the US IOOS communities GREAT gain. Since CSC's mission is about working from NOAA outward to stakeholders, I know that Dave will maintain the strong relationship we have with CSC. Dave will work across the IOOS Regional Coastal Component on each of the projects and the connection of this component back to the National level.
 - SECOORA's Sam Walker arrives for a 12-month IPA (Interpersonal Assignment) - Dr. Sam Walker joined the IOOS Program on Monday, Jan 4th, on a 12-month IPA, or interpersonal assignment, from the Southeast Coastal Ocean Observing Regional Association (SECOORA), as Senior Technical Data Manager. Sam will bring a valuable regional perspective to the IOOS Program and will be working closely with the Regional Associations and other IOOS partners to more effectively integrate and implement DMAC elements, including helping to develop the next iteration of the IWGOO's DMAC Steering Team. In addition, he will be focusing on supporting customer-driven applications and supporting operational Program needs relating to the ICOOS legislation such as our Registry/Catalog/Viewer project. Sam's previous experience includes working closely with programs in numerous state and federal agencies, including NSF, USGS, NASA, and EPA. In addition to his experience with SECOORA, Sam has worked in the environmental consulting industry and earth sciences research laboratories in Maryland and South Carolina.
- **Congressional Report:** In review at OMB.
- **FY10:** Appropriation was signed by the President on 20 December. The IOOS Regional Association Planning Agreements funding recommendations have been submitted to NOAA's Acquisition and Grants Office (AGO). For the RCOOS awards, the panel for FY10 FFO will be held on 3 February. We are aiming for the following timeline: On 9 Feb, I will make FY10 funding recommendations and these then need to be concurred with by both NOS Assistant Administrator and Chief Financial Office and then we need to provide the information to NOAA Budget. Our goal is to complete this process by 12

February. At that point we will be able to work with the successful PIs on preparing the necessary paperwork to NOAA's Grants online. All paperwork must be submitted by 31 March. I thank my team and each of you in advance for the effort it takes to make all this happen by 31 March.

- **FY11:** The President's Budget is expected to be rolled out early February. Dr. Jane Lubchenco, Department of Commerce Under Secretary for Oceans and Atmosphere/NOAA Administrator, will lead the briefing and discussion of the NOAA FY 2011 President's Budget Request at the National Press Club at 529 14th Street NW in Washington, DC. NOAA senior leaders will join Dr. Lubchenco to answer questions and respond to comments. This will take place on Tuesday, February 9th, from 1:00 p.m. EST until 3:00 p.m. Please RSVP to Caren.Madsen@noaa.gov by **January 25nd**. For those who would like to call in, a toll-free teleconference number has been set up. Dial 1-800-369-2159; the verbal password to provide to the operator is "NOAA Budget." When you RSVP, let us know whether you will attend in-person or will call the toll-free number. Space will be limited in the National Press Club ballroom so please plan to arrive early.

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

- **What the DIF:** For all documents and information, please visit the www.ioos.gov website.
- **IOOS DMAC: We always welcome your participation. If you want to be a part of the action, please contact Charly Alexander - Charles.Alexander@noaa.gov**
 - **CUSTOMER PROJECTS:**
 - **Coastal Inundation: FY10 CI Project.** The NOAA Storm Surge team and IOOS Ops Division chief have approved the FY10 project plan for Coastal Inundation. The project consists of reviewing the four IOOS-funded extramural coastal inundation projects from two perspectives: (1) DMAC "readiness" and (2) Relevance to the NOAA storm surge roadmap, and then possibly implementing access to high priority surge-related data/model output. A tiger team of Jesse Feyen (NOAA Storm Surge Portfolio manager), Dave Eslinger (CSC), Ken Pavelle (NWS OHD), and Marcia Weak (IOOS) will put together the project review plan (questions to ask, participation, leads, etc) for review by the entire NOAA storm surge roadmap action team, and for inputs from our Ops Division.
 - **NOAA Storm Surge Executive Road Map:** Zdenka, along with Margaret Davidson and Don Berchhoff (NOAA's National Weather Service), is part of an Executive Steering Team (EST) to review NOAA's Storm Surge effort. NOAA has assigned Jesse Feyen, NOAA Storm Surge Portfolio Manager. While this is a NOAA effort is is NOT being done without an interagency focus. The **EST** met in January with the key outcomes of the meeting as follows: 1) To provide details on the "projects of record" that comprise the "must do's" to advance roadmap milestones; 2) to provide a communications plan for "getting the word out" about the

roadmap across NOAA and beyond; and 3) to provide a draft of the next NOAA Assistant Administrators (AA) briefing.

- **Biological Data Project:** The draft SOW is coming along well. Progress continues via a project “Wiki” site and routine emails and conference calls. NOAA Science Advisory Board Briefing – Feb 3rd: We have been invited to brief our progress on this project to the Ecosystem Sciences and Management Working Group of the NOAA Science Advisory Board during their 2/1-3 meeting in Maui, HI. Charly will do the presentation.
- INTEGRATED PRODUCTS TEAM (IPT): In consensus of the IPT members, the IPT will continue through at least the current FY and most likely hold a workshop this summer focused on the DIF Assessment. Convergence with other DMAC advisory groups such as the new iteration of the DMAC ST and the current Regional DMAC Team is one possible path that was suggested. Reports were provided on the biological data customer project and modeling test bed. Other reports included:
 - NDBC has provided their lessons learned report for FY09 and has been submitted to the IOOS Program Office.
 - CO-OPS: SOS web-services have now been moved from their developmental server to their operational server.
 - NODC: A THREDDS server has been set up to provide more data in an IOOS format. Three data streams in particular are being fully automated for archiving: CMAN stations, TAO array, and NDBC buoys.
- TECHNICAL ENHANCEMENTS: Jeff met with NOAA OAR’s Office of Climate Obs Derrick Snowden to discuss OceanSites metadata, SensorML, SOS, NDBC task, IOOS RCV, GeoNetwork, and OSMC. GEO-IDE UAF (Unified Access Framework focusing on gridded data and THREDDS Data Servers): Jeff wrote recommendations for conventions on directory names and hierarchy to enable interoperability and a broader level than simply low-level file access.
- IOOS DIF SURVEY AND SOS ENCODING COMPLETED: The purpose was to gather feedback on the IOOS DIF project’s recommended Web services and formats - focused on the output format used for in situ observations. It does not address the merits of the SOS service, only the XML format used for encoding in situ observations served by IOOS SOS at NDBC, CO-OPS, and some IOOS Regional Associations. The survey was designed for IOOS data providers, data customers, and participants in the development of the schema, but others were also welcome to participate. Twenty-two (22) completed responses were received.
- IOOS REGISTRY/CATALOG/VIEWER: Jeff has been leading the effort to evaluate the best technical way forward on this effort. We will be meeting at the end of the month to make a decision on our path forward for a summer release of the RCV version 1 this summer.
- IOOS OBS REGISTRY: Hassan met with Gary Conley (NMSP) and Vembu (USF) to define requirements and the timeline for the transfer of the IOOS Obs registry to the University of South Florida (USF) server. Vembu (USF) agreed to dedicate two servers (one for backup and another one to host the Obs registry domain and the site). Gary will provide support to Vembu’s team at USF by providing the technical staff support to help with the transfer process. They both

agreed to start migrating the Obs to USF's servers on February 1 and the first test of the Obs capabilities will take place the first week of March.

- **IOOS REGIONAL DMAC COORDINATION**: The workshop steering team and full-Regional DMAC Working Group made comments and suggested changes on the draft agenda. The agenda will be revised and refined with a final agenda expected to be completed by mid-February.

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.

- **High Frequency Radar/Radio (HFR):** The main issue continues to be frequency management and this is a CRITICAL time for us all. Jack Harlan is spearheading this and is working across the Federal and Regional partnership. **My appeal to each of you is that if Jack Harlan calls you for some information, please continue to support his information requests.** A special Interdepartmental Radar Advisory Committee (IRAC) meeting on HF Radar resulted in an action item to look into technical mitigation methods. Conference calls have taken place with the Office of Radio Frequency Management (ORFM) and Codar to respond to the action item and discuss non-technical solutions as well. A follow-up call is scheduled for Jan 29.
- **IOOS and Links to the National Water Quality Monitoring Network:** IOOS Regional Water Quality Workshop (Baltimore, MD; Jan. 25-26): Regional, interagency, and industry partners will be represented at this workshop, including senior scientists/managers from NOAA (NOS/NCOOS's Rob Magnien, NWS/Office of Hydrology Development's Gary Carter), USGS (Pixie Hamilton), EPA (Chuck Spooner), and the IOOS Regions (Ru Morrison – NERACOOS; Debra Hernandez – SECOORA; Josh Kohut – MACOORA). The outcome will be presented at the National Water Monitoring Conference this April in Denver, CO.
- **IOOS and National Science Foundation (NSF) - Ocean Observatories Initiative (OOI):** OOI-CI/IOOS DMAC Intersection Development Project: NWS's Arthur Taylor continues to lead this project via a Department of Commerce Leadership Program detail that will come to a close next week. A day-long discussion was held in Silver Spring last Thursday (Jan 14th) that included: Matthew Arrott (UCSD), David Stube (ASA), Rich Signell (USGS), Roy Mendlesohn (NMFS), John Wilkin (Rutgers), John Orcutt (Scripps), John Graybeal (MBARI), Bill Pritchett (COL), and Charly, Jeff DLB, and Sam Walker (NOAA IOOS). The result of the meeting was the project being recast as an "Automated transfer of external data to model analysis" project. This change in plans means both supported and unsupported (i.e. unstructured grids) feature-types can be identified and data discovery does not need to be part of the project. Tasks and requirements were reevaluated and determined not to be detailed enough as a result of the plan changes. A start toward capturing more detailed requirements was made in the meeting. A document will be drafted describing criteria to identify representative modelers and customers and will serve as the first version of an Adoption Strategy. A follow-up meeting is scheduled for January 22 to review the updated project plan.
- **Interagency modeling activity: IOOS Modeling Test Bed:** A Federal Funding Opportunity (FFO) for an Integrated Ocean Observing System Community Modeling

Environment To Support a Super-Regional Test Bed was published Federal Register / Vol. 75, No. 11 / Tuesday, January 19, 2010 / Notices - page 3105. Proposals for the \$4M funding opportunity are due to the IOOS Program Office by February 18, 2010. The Federal Register Notice can be downloaded from:

<http://www.thefederalregister.com/d.p/2010-01-19-2010-721>

Other:

- **Ocean Tracking Network (OTN) Coordination:** We have begun coordination with this very important network, working to ensure that the IOOS Regional Associations are integrated with OTN. For more information please contact Hassan and Gabrielle within the NOAA IOOS office.
- **CODAR Ocean Sensors, Ltd. is offering several RiverSonde equipment loan grants for graduate students in 2010.** Details can be found at the following URL. http://www.codar.com/news_01_1_2010.shtml.
- **IOOS met with the members of the Pacific Coast Shellfish Growers Association:** Thanks to Greg Dale of Coast Seafoods who set up meetings with the IOOS team and with me. We discussed how changes in the coastal environment is affecting their business. The meetings were great, as we both gained a better understanding of needs and what IOOS can provide. There are close ties already between the shellfish growers with CeNCOOS and NANOOS and we are looking to increase that coordination. US IOOS will work with the Pacific Coast Shellfish Growers Association to host a conference this spring to discuss observation and monitoring needs.
- **Integrated Marine Protected Area Climate Tool (IMPACT) Meeting (January 11-13; Miami, FL):** A diverse array of NOAA and non-NOAA stakeholders met at OAR's AOML to discuss a possible project called "Integrated Marine Protected Area Climate Tool" (IMPACT). Matt Howard (GCOOS), Nick Shay (SECOORA), and Marcia Weak (IOOS Program Office) attended. Presentations were given on subjects ranging from relevant observing systems/programs, climate impacts on resources, data integration activities, etc, and discussions were held about data and products needed for assessing climate impacts on sanctuaries, corals reefs, and MPAs. A general agreement was made to move forward and a draft action plan will be made available as a primary workshop output. An IOOS role for helping to provide access to high priority data sets available in standardized Web-based services was suggested. Matt H. volunteered to host data/model files for the project to avoid AOML firewall/security issues, and suggested a GCOOS programmer, at the University of Miami – RSMAS, who has written Coral Reef Management Tools in the past, which could be applied to a similar task for this project. Nick S. proposed to possibly extend the range of the WERA radars to help with coverage and mentioned the waves capability.
- **National Waves Plan briefing to Chinese Delegation of the State Ocean Administration:** Charly presented a short brief on the National Waves Plan to a delegation of approximately 30 scientists and managers who were hosted by NOAA/NOS International Programs Office.
- **NOAA Chesapeake Bay Office Meeting (January 15; Annapolis, MD):** Rob and Sam met with Doug Wilson at NOAA's Chesapeake Bay Office to explore opportunities to work collaboratively on a project to bring dissolved oxygen or mobile platform (e.g. AUV, drifting buoy) data into standard data formats and make available through standard

Web service formats. Requirements for a project were discussed: Guidance on QA/QC standards to use are needed, potential customers for data in the Chesapeake Bay - EPA being one and thus an opportunity to work with them and the Chesapeake Bay Program Office.

- **Heads UP - May 24-28 Biodiversity Observing Workshop:** NOAA (NMFS, IOOS, NMS and OER) are working with other Federal Agencies to secure funding for this workshop. NOAA IOOS is working with the steering committee as they refine the meeting structure, agenda, and identify participants.
 - Two biodiversity letters (biological data infrastructure and policy; Int. Year of Biodiversity) were transmitted to JSOST and SIMOR. View the letters: ftp://dossier.ogp.noaa.gov/OER/biodiversity/20100121_Quarterly_Meeting/
- **IOOS office meeting with NOAA's CO-OPS:** We have re-engaged with CO-OPS to discuss the next steps on PORTS-related discussions with the regions.
- **AOOS Partnership with COSEE Alaska:** AOOS is a key partner in COSEE Alaska, which recently launched SEANET, a collaboration between scientists and educators.
- **CaRA Annual Meeting:** Over 100 stakeholders from Puerto Rico, the US Virgin Islands, and the US mainland attended the annual General Assembly of CaRA, the Caribbean Regional Association for Coastal Ocean. Highlights included progress reports from the Executive Director, Prof. Julio M. Morell, and the CaRA VI Coordinator, Prof. Roy A. Watlington. Significant progress was made this year in the implementation of the observing system with the deployment of CariCOOS Data Buoy A and continued to build out of the CaRA/WeatherFlow hurricane-hardened coastal meteorology Mesonet. Modeling efforts continue apace with progress in applications for wind forecasting (WRF), coastal inundation (ADCIRC), and coastal circulation (HYCOM ROMS). Collaboration with The National Center for Secure and Resilient Maritime Commerce and Coastal Environments (CSR), a Department of Homeland Security Center of Excellence, has also begun to produce results with "first light" for the CODAR® High Frequency Radar array deployed in the Mona Passage for ship tracking and surface current visualization.
- **CeNCOOS Factsheet on Ocean Observing Systems for Marine Spatial Planning:** http://www.cencoos.org/documents/about/OceanEnergy_SpatialPlanning.pdf
- **GCOOS Education and Outreach Website Initiated:** It includes an "Education" tab that has pages for Formal (K-12), Informal (aquariums, museums, etc), and "For Scientists" education pages. It also includes a "Community" tab that will have specialty pages for boaters, fishers, divers, and beachgoers. The informal education page is populated with a visualization of Hurricane Katrina storm surge effects in Gulfport, Mississippi. Comments welcome. E/O URL: <http://gcoos.tamu.edu/education-outreach.html>; Visualization URL: <http://gcoos.org/eo-informal.html>
- **GLOS Hosts the GEOSS Great Lakes Testbed:** GLOS hosted the first in-person meeting of the GEOSS Great Lakes Testbed on Thursday, December 10, 2009 in partnership with USGS and Environment Canada. Attendees included representatives from GEO, federal agencies, state and provincial government agencies, universities, and non-profit organizations. The group worked on developing a draft charter for the Testbed and determining focus areas for the project scope. The group decided to focus on data management and integration issues related to ice, water levels, ground water, and

beaches. If you would like to know more about this project please contact Kelli Paige at kpaige@glos.us.

- **MACOORA Welcomes New Member, the Beacon Institute:** [Beacon Institute](#), with offices in Beacon (Dutchess County) and Troy (Rensselaer County), New York, is a not-for-profit environmental research organization with the mission to create and maintain a global center for scientific and technological innovation that advances research, education and public policy regarding rivers and estuaries. The Beacon Institute in Troy, N.Y. and IBM are developing a network of sensors called the River and Estuary Observatory Network (REON) in New York's 315-mile-long Hudson River. The minute-to-minute data stream from REON sensors is gathered and transmitted to scientists on land and will help increase the understanding of how humans are affecting the river ecosystem.
- **NANOOS provides Tsunami Evacuation Zones for the Oregon Coast - Interactive Map:** NANOOS works with the Oregon Department of Geology and Mineral Industries and Oregon Emergency Management to implement a Google interactive map interface for accessing tsunami evacuation maps for the Oregon coast. Next steps include working with Washington emergency officials to integrate evacuation maps developed for the Washington Coast.
- **NERACOOS works with the Northeast Regional Ocean Council (NROC) through our MOU on regional issues including Coastal and Marine Spatial Planning (CMSP):** NERACOOS has put together spatial information from two states and the NOAA Coastal Services Center was incorporated into the WMS viewer, developed as part of the new NERACOOS web presence. The combination of data from multiple distributed systems demonstrated the data integration capabilities of the IOOS Regional Associations. NERACOOS will continue to work with NROC and other interested parties such as the Massachusetts Ocean Partnership (MOP) on CMSP in light of the recently released Interim Framework for CMSP by the Interagency Ocean Policy Task Force.
- **PacIOOS partners with with NOAA's Coral Reef Conservation Program:** PacIOOS has formed a partnership with NOAA's Coral Reef Conservation Program and the Integrated Coral Observing Network (ICON). We will be launching the first IOOS-ICON system in the Commonwealth of the Northern Mariana Islands in the spring. This system will serve real-time ecosystem data from a coral reef off the island of Saipan through both the PacIOOS and CREIOS data systems.
- **SCCOOS provides ocean observation data for online Mapping Tools for MPAs:** Ocean observing data is now available on Marine Map, an online mapping tool for planning and evaluating marine protected areas (MPAs) in California. Click on a data layer to display the transport and dispersion of larvae along the coast, as measured by surface currents. Add exposure probability to see where discharge plumes from polluted sources and contaminated water affects southern coastal areas.
<http://www.marinemap.org>
- **SECOORA Fisheries Applications Workshop Conducted:** SECOORA's DMAC - Ocean Data Partnership Committee, hosted by the Florida Fish and Wildlife Research Institute, conducted a workshop focused on assessing and integrating observing data for fisheries applications. Sectors represented include private industry, public agency, academic, and non Proposal Development Process.

- **ACT published new Limnology and Oceanography Methods:** A new publication, based on data collected as part of the ACT Performance Verification of in situ turbidity sensors entitled Comparison of Inherent Optical Properties as a Surrogate for Particulate Matter Concentration in Coastal Waters, has just been released in Limnology and Oceanography Methods. For more information, please visit <http://www.aslo.org/lomethods/free/2009/index.html>
- **NOAA Deploys New ‘Smart Buoy’ off Annapolis:** NOAA deployed the seventh in a series of “smart buoys” to monitor weather conditions and water quality in the Chesapeake Bay. The buoy, located at the mouth of Severn River near Annapolis, MD., will be used by commercial and recreational boaters to navigate safely and provide data for educators and scientists to monitor the Bay's changing conditions. "I recently introduced legislation that calls for aggressive action to restore the Bay to health and sustainability," said Senator Benjamin Cardin, a member of the Environment and Public Works Committee. "I particularly want to commend NOAA for its monitoring and observing system in the Bay. This new buoy in Annapolis will be joining other monitors along the Captain John Smith Trail as a way to help Marylanders and all Americans understand and appreciate the unique history, culture and environment of the Bay."

Congressional:

- 17 December 2009: Zdenka Willis and April Black (NOAA IOOS); Debra Hernandez (SECOORA); Don Tomlin (Tomlin Group); and John Englander (SeaKeepers) met with Senator Lindsey Graham (R-SC) to discuss the importance of US IOOS and its ties to Climate Change.

Communications:

- [12/28/09](#) — Nation’s Ocean Observing System Completes Year-Long Data Standardization: http://www.noaa.gov/2009_newsarchive.html
- View the US Department of Commerce Secretary Congratulatory Video for Scarlet Knight: http://ioos.gov/video/seclocke_scarletknight.html
- See My Podcast: [Salute to the Scarlet Knight](#) (January 6, 2010) - IOOS Director Zdenka Willis talks about The Scarlet Knight's successful mission crossing the Atlantic: <http://oceanservice.noaa.gov/podcast/jan10/mw010610.mp3>
- NOAA's Heritage Week will feature Scott Glenn as the keynote speaker on February 5-6. He will bring Scarlet Knight to the event. US IOOS will be featured in NOAA's Heritage Week. In the DC area 5-13 February, or if you want to know more about this event visit <http://preserveamerica.noaa.gov>
- First-Ever Trans-Atlantic Crossing by Unmanned Glider Advances Ocean Observation - NOAA World Article by Jennie Lyons and Deanna Eastman: http://www.noaaworld.noaa.gov/scitech/dec2009_scitech_5.html
- Ocean Hall video #2 (SLR): NOW PLAYING at Ocean Hall.
- DAILY COMET (Lafourche Parish, LA): "Gulf observation system has a full year of data," Jeremy Alford, Capitol Correspondent, Published Wednesday, January 6, 2010 at 11:42 A.M.

Upcoming Meetings: For more detail on Regional IOOS meetings go to:
<http://www.usnfra.org/calendar.html>

- January 25-26: IOOS Regional Water Quality Workshop; Baltimore, MD.
- January 25-26: AOOS Bering Strait Stakeholder Workshop; Nome, AK. Bering Strait Stakeholder Workshop in Nome, co-hosted with National Science Foundation, focused on assessing user needs to help inform a Bering Strait Observatory
- January 28-31: NERACOOS - MA Lobstermen's Association Annual Weekend and Lobster Trade Show; Hyannis, MA: Massachusetts Lobstermen's Association (MLA) annual weekend and lobster trade show. January 28-31, 2010 Resort and Conference Center at Hyannis, MA. Contact: bethcasoni@lobstermen.com
- February 2-3: SECOORA EPA Adaptation Workshop, Atlanta, GA: EPA Adaptation Workshop Announcement, The U.S. Environmental Protection Agency's (EPA) Office of Water, Office of Air and Radiation, and Region 4 office in Atlanta are co-hosting the Southeast Adaptation Workshop. The goal of the workshop is to explore how stakeholders from across the southeast can work together to adapt to climate change now and into the future. The registration website is located at:
http://epa.gov/region4/clean_energy/conferences.html
- February 8-10: AOOS - Alaska Forum on the Environment: Alaska Forum on the Environment; includes 85 sessions, keynotes, and breakout groups on climate change, energy, environmental regulations, cleanup and remediation, fish & wildlife, solid waste, and special programs for Alaskan youth. AOOS is helping organize an ocean session focusing on ocean acidification, and impacts of a changing Arctic on marine transportation and fisheries.
- February 8: NERACOOS board meeting.
- February 8-10: GCOOS Freshwater Inflows, 2010 and Beyond, Corpus Christi, TX:
<http://www.freshwaterinflows2010.org>
- February 17-18: SECOORA Rip Current Symposium; Miami, FL. Sponsored by FIU in partnership with Florida Sea Grant. The goal of the Rip Current Symposium is to identify advancements in rip current research that will lead to a better understanding about the dynamics, mechanisms, and predictability of rip currents. In addition, the Symposium will help identify psychological, anthropological, and behavioral factors that relate to rip current drownings on surf beaches. These two objectives will be combined to develop more effective methods of reducing the number of rip current drowning deaths.
- February 22-26: AGU Ocean Sciences Meeting; Portland, OR.
<http://www.agu.org/meetings/os10/>
- March 23-24: IOOS Regional Data Management Workshop; Silver Spring, MD.

Cheers,
Zdenka