

Bi-Weekly Z-GRAM - 30 October 2009

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.

Programmatic:

- **United States Army Corps of Engineers Joins the IOOS Office:** We are now fortunate to have a full-time U.S. Army Corps of Engineers representative located here at the IOOS program office on a permanent basis going forward. Linda Lillycrop joined us on 19 October. Linda holds a B.S. in Aerospace Engineering from the University of Florida and an M.E. in Coastal and Ocean Engineering from Texas A&M University. She has worked for the USACE for 23 years, 13 years with the USACE Engineer Research and Development Center, Coastal and Hydraulics Laboratory in Vicksburg, MS and Alexandria, VA and 10 years with the USACE Mobile District, AL. Her experience includes numerical modeling, field data collection, monitoring, and analysis, and overseeing application development and integration in support of the USACE shore protection, dredging, and navigation missions.
- **Welcome Aboard:** John Ulmer - formerly on the IOOS Team at NOAA's Coastal Services Center - joined the Operations Division last week on a six month contract. John holds a B.S. in Civil Engineering from The Citadel College of Graduate and Professional Studies. His career includes five years of shellfish biology and management for the South Carolina Wildlife Department, Marine Resources Division in Charleston, about ten years in the environmental testing and consulting industry, and then about ten years in the information technology arena at the NOAA Coastal Services Center. He has served on the IOOS DMAC Data Transport Expert Team, which he currently chairs, and on the NOAA Data Management and Integration Team.
- **Congressional Report:** In review but making progress.
- **FY10:** CR expected to be extended through December 2009.

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

- **DMAC STEERING TEAM NEEDS YOUR PARTICIPATION:** I urge you to join me in taking this survey. It is easy to do and your written comments will really help us improve our DMAC ST. **Please complete your survey by COB 6 November.** URL: <http://tinyurl.com/y94mfsy>. If you are uncertain how to proceed or have any questions please contact the following: Josh Young, IWGOO Staff support, 202-787-1622 jyoung@oceanleadership.org; Nick Rome, IWGOO Staff support, 202-787-1645 nrome@oceanleadership.org; Anne Ball, DMAC Steering Chair, NOAA Coastal Services Center 843-740-1229 anne.ball@noaa.gov.

- **What the DIF:** For all documents and information, please visit the www.ioos.gov website.
- **IOOS DMAC ENHANCEMENTS and TECHNICAL EFFORTS:**
 - **IOOS Registry:** This is a strong and immediate focus and will involve the National IOOS office and all of the Regions. Planning began for an IOOS Registry/Catalog/Viewer component(s). Weekly conference calls with John Ulmer were established to discuss and perform work. Basic sequence: define requirements, assess and select from existing similar implementations, determine where to host software, populate registry with data provider services, establish regular metadata harvesting to populate catalog, establish viewer to display observing assets (at minimum) and perhaps to display data holdings and allow drill-down to data values.
- **IOOS DMAC CUSTOMERS - We always welcome your participation. If these projects intersect with what you are doing and you want to be a part of the action, please contact Charly Alexander - charles.alexander@noaa.gov**
 - **IOOS Biological Data Project:** In follow-up to the October 15 project launch meeting, a conference call has been scheduled for November 13, 2009. The objective is to identify a customer need and discuss data availability in the pacific region. The participating members on this project include USGS/OBIS, Census of Marine Life, the University of Hawaii, and NOAA.
 - **Integrated Ecosystem Assessment (IEA):** Charly, Hassan, Carmel, and Alex had a conference call with IEA customer project partners Roy Mendelssohn (NOAA Fisheries/SWFSC-ERD) and Rost Parsons (NESDIS/NODC-NCDDC) to review specific deliverables/status per the “statement of work.” All deliverables have been completed except for the final “REDM” or Regional Ecological Data Management” tool from NCDDC for which the completion data was previously renegotiated to March 2010. Most of the work for this task has been completed and Rost anticipates final completion before March – perhaps by the end of December 2009.
 - **Harmful Algal Bloom (HAB) Forecasting:** NOAA has formed a HAB coordination team. Carmel and Gabriele represent NOAA IOOS and the IOOS Regional Associations. NOAA continues to try to outline a National HAB forecast system. Based on all HAB Forecast Systems having the same fundamental components: Observational data, circulation models and analysis, it is envisioned that a national infrastructure to support local and regional analysis could be provided. A national HAB forecast system requirements document is nearly complete, but not yet ready for release. There are questions about where IOOS fits in and the role of IOOS in a national infrastructure, which was part of the discussion. Carmel offered that IOOS could define the standards and formats for the data to provide common access. There was interest about access to biological parameters through IOOS. The goal of the coordination team is to develop a concept paper defining an end-to-end approach to HAB forecasting for all regions.
 - **Marine Mammal Tracking/Monitoring:** Jeff De la Beaujardiere (NOAA IOOS) met with Dr. Greg Silber, Coordinator of Large Whale Recovery Activities at NOAA/NMFS/Office of Protected Resources. Planned topic was the possible use

of HFR surface current observations to hindcast or forecast trajectories of dead whales. Discussion revealed numerous other areas of possible intersection and mutual benefit, including: other observations we have such as in situ currents and winds for whale tracking, observations in sea state conditions such as swell height to help monitor compliance with vessel speed restriction in whale migration corridors, possible use of HFR to detect vessels offshore and compare with data from automated transponders in migration corridors, possible new data source for IOOS in biology realm (passive acoustics and aircraft surveys providing approximate whale positions).

- **Climate Services:** Steve Hankin (NOAA PMEL), Rich Signell (USGS/NOAA IOOS), V. Balaji (NOAA/GFDL), and Charly Alexander (NOAA IOOS) have collaborated on a project description for an IOOS project to support NOAA's emerging climate services mission and have suggested to Tom Karl (Director, NCDC). An initial meeting to discuss this climate initiative with Tom Karl has been scheduled for November 17.

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.

- **IOOS and Links to the National Water Quality Monitoring Network:** Coordination continues for the January workshop. An initial conference call was held to discuss logistics/goals/outcomes for the interagency/multiregional water quality workshop. The workshop will be narrowly focused on 2-3 related topics (e.g. HABs, DO, and Nutrients) and "stories" for these issues will be developed. Two to three case studies from each of the regions will be highlighted in the workshop. A final product/outcome has not been clearly identified.
- **IOOS and National Science Foundation (NSF) - Ocean Observatories Initiative (OOI):** No update.
- **Interagency Working Group on Ocean Observations Next Industry Workshop 13 November:** Sign up for the "Small Sea Changes: Big Infrastructure Impacts" workshop being held in Houston, TX on November 13, 2009. Confirmed speakers for this event include: Dr. Virginia Burkett, the Chief Scientist of Global Change Research at United States Geological Survey; Michael Savonis of the Federal Highway Administration; Dr. Quenton Dokken, Executive Director of the Gulf of Mexico Foundation; Randall Freed, Senior Vice President of ICF International; Gene Berek of Exxon Mobil Corp.; Randy Helmick, Vice President of Transmission at Entergy Corp.; and Zdenka Willis, Director of the Integrated Ocean Observing System at the National Oceanic and Atmospheric Administration. The broad focus of this workshop is the effect of uncertainty on infrastructure decision-making within the Gulf of Mexico region. Specifically, this event will highlight the traditional means of addressing uncertainty and provide new strategies for coping with uncertainty during changing environmental conditions through leveraging ocean observing systems. More information, including registration for the workshop, can be found online at: www.oceanleadership.org/iwgoo/houston.
- **Interagency modeling activity:** No update.

Other:

- **The Scarlet Knight (RU27) and the Remainder of the Atlantic Fleet:** At 8 pm on October 29, Scarlet surfaced and reported she had flown a total path length of 6,900.43 km. The altimetry map below showed a different current picture than we had planned for. The geostrophic currents on the map have totally changed in character. The jet to the southeast is gone, and the eastward currents we hoped to ride along 42 N are down to zero. Instead of the stronger currents being to our south, the stronger currents are now to our north. Luckily, Scarlet was on an eastward heading, so the distance to either route is the same. With this new information, we turned Scarlet northeast into the region with larger currents. According to this sea-map, the currents should be first to the northeast, and then to the southeast. The first task is to get into Spanish waters by crossing the 200-nautical-mile limit (thin yellow arcs) that marks the outer edge of the Exclusive Economic Zone (EEZ). As of 8 pm tonight, Scarlet is 269 km from the outer edge of the Spanish EEZ. Once we cross this line, our job is to position ourselves in Spanish waters at a location that is most favorable for recovery. Updates on other Atlantic Gliders: RU15 is about to hit its final offshore waypoint. It's on a dual use mission. It has the hottest optics package we've ever deployed for the ONR mission, and it's following the route to collect temperature data for the NOAA IOOS and NOAA Fisheries missions. It should hit its waypoint at the end of the Tuckerton Endurance line today, then head in for recovery. On Friday we also deploy 3 gliders for the NSF OOI. Glider party in the Mid-Atlantic. Moving south to Teledyne Webb's thermal glider Drake, we have hit the target latitude of 26.5 N and are heading east. We are running Drake along this line to determine how gliders can best contribute to the programs to monitor the north-south exchange of heat in the North Atlantic. The circulation is called the Meridional Overturning Circulation, abbreviated as MOC. The rapid climate change scenarios are often related to changes in the MOC. Drake is holding the line quite well so far. For those of us who grew up in the shallow glider world, it is truly amazing to see how well a deep glider can hold a line in the open ocean. Keep in the loop by visiting <http://www.i-cool.org/?cat=38>
- **It was IOOS/OOI ALL DAY EVERY DAY at MTS/IEEE Oceans 09:** The meeting was kicked off by three great ocean observing talks by Dr. Jerry Miller, White House Office of Science and Technology Policy; Dr. Ed Gough - Deputy Commander, Technical Director, Naval Meteorology and Oceanography, and Dr. John Delaney, who dazzled and challenged the audience on the importance of ocean observing. This was followed by 9 sessions that covered US IOOS and OOI, and final session on our International Observing System Partners. We presented 43 papers and 2 town halls on the Public/Private Policy as outlined in the IOOS ACT. I had a number of the conference attendees tell me they really appreciated the IOOS/OOI track as they were able to get a better understanding of the program across the entire spectrum. The two town halls on the Public/Private Policy provided very good dialog on the challenges and opportunities as we develop IOOS. I would like to thank Shelby Walker (then NSF and now NOAA) and Dick Crout (NDBC), who helped me pull this tract together. I sincerely appreciate each of the authors of the papers - they were all top-notch. I am going to work with MTS to see if we can take these papers and turn them into a special MTS journal report. I have to thank April Black, Carl Gouldman (NOAA IOOS) and Ralph Rayner, Josh Young, and Nice Rome (IWGOO) for their efforts in setting up and conducting the two town halls.

For those who participated, your feedback on the idea of the IOOS/OOI track will be very much appreciated as we work with Dave Martin on MTS/IEEE Oceans 2010 in Seattle, September 2010. Dave Martin is the technical program lead.

- **OOI Ocean Observing Simulation Begins:** The Ocean Observing Initiative (OOI) has begun construction. The OOI has a large effort to build a mature cyberinfrastructure to support OOI and all-ocean infrastructure. Taken from Scot and Oscar's Blog and endorsed by me, "First things first, we toast, the three who got us here, John Delaney, John Orcutt, and Robert Weller." Rutgers is a partner on the OOI cyberinfrastructure team. Rutgers is teaming up with infrastructure being funded by the NOAA IOOS MarCOOS and the ONR ESPreSSO programs. For the next two weeks, we will be testing all the Planning and Prosecution software during an Observing System Simulation Experiment (OSSE). The OSSE software team is large but anchored by scientists/engineers from Rutgers, Scripps, Cal-IT, MIT, USGS, and NASA's Jet Propulsion Lab. Rutgers will be testing several distinct software programs (to be highlighted in several blogs to follow in the next few days) trying to coordinate real assets in the field during windy and rough November weather in the angry seas on the Mid-Atlantic Bight. During this week we highlight, in a series of blogs, the range of technologies we will be deploying. The observation assets that we will use are satellites including AVHRR, MODIS, GOES 11+12, FY1D, OCM, TMI+AMSRE, and AASTR. These images will be complemented with a full nested CODAR array. The in situ robotic systems will consist of a fleet of Teledyne Webb Slocum gliders complemented with a fleet of propellered REMUS and Iver AUV systems. These field assets are complemented with NOAA NODC moorings. For models, we are utilizing numerical models from U Mass Dartmouth (Avijit Gangopadhyay), Stevens Institute (Alan Blumberg), University of North Carolina (outer boundary condition, Ruoying He), Massachusetts Institute of Technology (Pierre Lermusiaux), Rutgers (John Wilkin), and Jet Propulsion Lab (Yi Chao). These ocean models are complemented by the atmospheric NAM model. The model and observation data can be accessed through our ocean data portal constructed by the Jet Propulsion Lab. To follow along, go to: <http://ourocean.jpl.nasa.gov/CI>
- **NOAA participated the 5th annual Maritime and Systems Technology (MAST) conference:** MAST's aim is designed to attract government, R&D, academia, and industry leaders for a full perspective on future maritime security and defense concepts, capabilities and enabling technologies. NOAA was asked to participate in the Arctic Special Tack of the conference. The conference attracted 1400 delegates from 36 countries. John Calder, NOAA Arctic Program, and I wrote a paper on the criticality of ocean observing as the foundation of operating in the Arctic. I was able to present results of the International Polar Year efforts, Alaska Ocean Observing System (AOOS), and glider efforts in both the Arctic and Antarctic. The United States National Ice Center also provided an update on the products and services and changes they are seeing in their requirements with the changing conditions in the ice conditions. The opening and closing plenary attracted Admirals from area Navies and Coast Guard. Rear Admiral James Watson, Chief of Operations (Atlantic Area), US Coast Guard, provided the United States view. One of the interesting notes in the plenary came from Rear Admiral Nils Wang (Chairman of European Chiefs of Navies) who talked about Sea Blindness – 70% of the planet is water, yet we do not think about problems from a maritime focus. His example – international Food and Agriculture estimated 24 billion fish are stolen and

most being off the coast of Africa. If you can set up fishing monitoring to decrease these fish being stolen it would be more cost effective than any of the land projects.

- **NOAA IOOS office meeting with NOAA Ocean Acidification Team:** We participated in a telecon with a number of NOAA offices to look at using IOOS Regional Association platforms for hosting of OA sensors. Under the OA legislation, NOAA has the responsibility for taking the lead on a national plan for the measurement of ocean acidification.
- **Coastal States Organization (CSO) Sponsors Ocean Observing Workshop in Alaska:** CSO sponsored a seminar on coastal processes and erosion response and a workshop on the needs of coastal managers for ocean observing information to address issues such as flooding, inundation, sea level changes, erosion and storm surge. The seminar and workshop were also sponsored by the Alaska Coastal Management Program within the Alaska Department of Natural Resources, the Coastal Impact Assistance Program, and the Alaska Ocean Observing System. Dr. Orson Smith, PE, a professor of civil engineering from the University of Alaska Anchorage lead the seminar in response to requests from coastal managers for information on coastal science and coastal engineering. The workshop focused on identifying the specific data needs of coastal managers to address coastal processes and by the Alaska Ocean Observing System (AOOS).
- **Saipan Met/Ocean Station:** A team from NOAA/AOML's Integrated Coral Observing Network (ICON) program visited Saipan, October 15 to 19, to examine candidate sites for the installation of a Coral Reef Early Warning System (CREWS) station. With field and logistical support provided by the Commonwealth of the Northern Mariana Islands (CNMI) Coastal Resources Management office, specific areas within the Managaha Marine Conservation Area and Lao Lao Bay were tentatively identified as the best candidate sites. The CREWS station is being funded by NOAA's Coral Reef Conservation Program and will measure standard meteorological parameters, plus sea temperature, salinity, and tide, as well as light (PAR, UV) above and below water. The ICON program currently monitors satellite data (SST, winds, rain) from the Managaha area for its developing ecological forecasting models, but will integrate the CREWS station data, as well as data from about a dozen Fish Aggregating Devices, soon to be deployed by the CNMI Division of Fish and Wildlife along the west coast of Saipan. Installation of the CREWS station is expected during the first half of 2010. For more information, please see <http://ecoforecast.coral.noaa.gov> (Saipan, MANM1), and/or contact jim.hendee@noaa.gov.
- **Fifth Meeting of the Quality Assurance of Real-Time Ocean Data (QARTOD) Working Group will be held November 17-19, 2009 at the Omni Hotel in Atlanta, Georgia:** QARTOD is composed of oceanographers, data managers, and data providers from agencies interested in addressing the quality assurance and quality control issues of evolving ocean observing systems, such as the Integrated Ocean Observing System (IOOS) community. The QARTOD V meeting will focus on the quality control of some different physical ocean parameters from past QARTOD meetings (e.g. conductivity, dissolved oxygen, turbidity, and pH) as well as provide additional input for parameters such as waves and ocean currents to complete the QARTOD To Open Geospatial Consortium (OGC) or Q2O effort. More information on Q2O can be found at <http://q2o.who.edu>. Please register at <http://qartod.org> and forward this announcement to

others who share our goals and interests. This meeting is sponsored by NOAA's National Data Buoy Center.

Congressional: No update.

Communications:

- NOAA World story entitled "Data Aids Search and Recovery in Hudson River Crash" has been posted on the following site:
http://www.noaaworld.noaa.gov/aroundnoaa/nov2009_around_1.html
- NANOOS announces the inaugural edition of the NANOOS Observer, your update for new products, news items, and ocean-related issues affecting the NANOOS region of the Integrated Ocean Observing System. See: <http://www.nanoos.org>. It's the top "Noteworthy" item.
- Rutgers posted two versions two versions of a new video centered around the glider on their website. This footage centers around a conversation between Scott Glenn (Rutgers) and Richard Spinrad (NOAA) talking about the glider mission and the future. There is video footage of the glider on board a ship as well as in the water. The website has two versions of the video: One broadcast quality high-definition version that requires a special codec to view (if you have it the video is impressive) and a second version of lower resolution that is viewable from a larger number of machines. You can download both from our site at: <http://rucool.marine.rutgers.edu/index.php/COOL-Video/>

Upcoming Meetings: The National Federal of Regional Associations (NFRA) has just launched a wonderful calendar that will feature IOOS meetings/conference, etc. Just this upcoming week there are 5 events around the country. Please visit this link often: <http://www.usnfra.org/calendar.html>. Click on the individual meeting and you will find the details.

- October 23-November 13: COSEE-West Online Workshop, Ocean Observing Systems.
- November 3: AUVs in the Bay II – Shallow Water AUV Working Group – Integrating AUV Operations with Buoy Observations - Charly will participate in this meeting in Annapolis, MD, which is being hosted by NOAA's Chesapeake Bay Program. The objective is to discuss and plan demonstration/proof of concept program that would integrate AUV operations and data collection with CBIBs Buoys.
- November 1-5: IOOS-Estuaries and Coasts in a Changing World - Portland, OR.
- November 2-4: NERACOOS Baird Symposium 09: Ecology of Marine Wind Farms.
- November 2-4: SCCOOS-California Stormwater Quality Association (CASQA) Conference.
- November 10: AOOS board meeting.
- November 11-12: OOI-Community Science Workshop.
- November 13: NERACOOS Annual Meeting.
- November 15-19: NANOOS Fifth Symposium on Harmful Algae.
- November 17-18: MACOORA annual conference, "Understanding the Coastal Ocean: Partnerships for a Changing World" www.macoora.org (Jack Dunnigan participating, as will the NOAA IOOS office)
- November 17-18: ORRAP meeting, Charly Alexander (NOAA IOOS) will participate

- November 17-18: GEO VI Plenary - Washington DC; IOOS will have a demonstration and will be featured in the US booth on November 17.
- December 2-3: DMAC ST Review Meeting - Washington, DC.
- December 3: CaRA General Assembly.

Cheers,
Zdenka