

Bi-Weekly Z-GRAM 23 January 2009

www.IOOS.noaa.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 under program updates.

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

Programmatics:

- NOAA IOOS Office Personnel Changes:
 - Hail: Kurt Nelson, Meteorology and Oceanography (METOC) Integration Officer at the Oceanographer of the Navy offices has joined the NOAA IOOS Program's Ops Division on a 60 day detail as part of his executive development program. His principal assignments will be coastal obs visualization (analysis of the current IOOS Registry and migration to Observation System Monitoring Center (OSMC)), characterization of regional data management capacity, and FY2010 DIF/DMAC planning. Kurt will be with us through the end of February.
 - Farewells: We bid goodbye to both Timi Vann and Becky Shuford. Timi Vann was selected to be NOAA's Regional Collaboration Team Coordinator for the Western Region, which is located in Seattle. Timi will actually transition to this position in March because the really exciting news is that she gave birth to two HEALTHY twin girls, Sophia and Olivia on 21 January. Becky Shuford was selected for promotion to a position with NOAA's National Marine Fisheries Service (NMFS). We will really miss both Timi and Becky, but I am very happy and pleased that both rose to the top to be selected in two highly competitive positions. As we know once an IOOSian, always an IOOSian, so we know we will still be working with both Becky and Timi. In fact, one of Becky's jobs is NMFS liaison to IOOS! We also say goodbye to Ami Kang, she has been with us through the Knauss Sea Grant Program. Ami has worked on a myriad of projects during her year with us and has been an outstanding team member. She is working hard to finish her dissertation and we're looking forward to soon being able to address her as Dr. Kang.
- Congressional Report: Remains with the Department of Commerce.
- FY09: NOAA remains on a CR until 6 March. We have no date as to when we can expect FY09 appropriations. Geno Olmi and Gabrielle Canonico sent a letter to all the Principal Investigators (PIs) outlining our way forward given the circumstances with the FY09 budget. We are working internally to ensure that as soon as we do receive an appropriation, the appropriate approvals/briefings will be done immediately so we can provide you dollar numbers. As a reminder, we still have no plans to conduct a competition during FY09.
- FY10: The Fiscal Year (FY) 2010 Office of Management and Budget (OMB) Budget Passback will occur on Monday January 26th. NOAA will then work with Department of Commerce (DOC) to understand the new Administration's process. NOAA does get the

opportunity to respond or appeal to DOC but it is a quick turnaround with any response due on Wednesday January 28th.

- FY11-15: The Program Decision Memorandum (PDM) is in draft and will be issued by the end of January. This document identifies fiscal adjustments that have been made as a result of the programming phase and provides the basis for the FY 11 NOAA Budget. Within the PDM there are requests by goals for a number of products and I anticipate several of these requests to come to IOOS. This is the internal programmatic that must be done to continue to define and refine what IOOS brings to the nation.

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) High Frequency Radar (HFR) – A National Network; and (6) Continue strong support, with the Interagency 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.
 - **Major Data Integration Milestone Passed for Ocean Color (IOOS®):** NOAA's Integrated Ocean Observing System (IOOS) passed a major milestone in data integration this month. NOAA's CoastWatch program is now delivering ocean color data for the Gulf of Mexico based on IOOS Web services and data standards. The Center for Operational Oceanographic Products and Services and NOAA's National Data Buoy Center began delivering IOOS-compatible data for six additional variables last summer. Delivery of this seventh variable (color) is the first step in the Data Integration Framework, a project to adopt standards and protocols for ocean and coastal data to improve access and compatibility of associated data sets. Completion of these tasks represents a major achievement for IOOS and all of NOAA's associated partners and collaborators. The availability of ocean color products and other satellite-derived parameters are expected to expand nationally in the future.
 - Coastal Inundation Project Update: Ongoing efforts with the SLOSH display program. NOAA's National Weather Service (NWS) Meteorological Development Laboratory (MDL) reported that a graphing feature had been added to the SLOSH display program to present water level observations and the model surge output. This and other key features were requested by the Weather Forecast Offices (WFO). Several additional enhancements were identified and discussed. There was additional discussion around load testing – methods for testing DIF service performance when multiple users are accessing data simultaneously, as

would be the case in the hours before a hurricane landfall. The next major steps include adding water level predictions to the displayed graph and adding specific features for Tropical Prediction Center Public (TV) briefings.

- Hurricane Intensity Project Update: NOAA's Atlantic Oceanographic Meteorological Laboratory (AOML) has made available that the synthetic (satellite-derived) temperature profiles for three hurricane "test cases" are now available on an OpenDAP server at AOML using DIF standards for gridded data. By the end of January, salinity synthetic profiles will also be available.
- Regional DIF Implementation: Since the last call there has been considerable progress made on a draft agenda for the March Workshop, as well as several template documents that will provide information on a region by region basis to help inform the work of the team.
 - The team has agreed to complete the template characterizing current Web Services/ Web Encoding implementations.
 - Thanks to Sam Walker (SECOORA), Matt Howard (GCOOS), and Rob Cermak (AOOS) who are taking the lead to establish the agenda for our March workshop.
- **DMAC "Industry Day"**: The goal of this industry day is provide a program status to industry and set the stage for follow-on market research by the program. The Announcement published: NOAA/NOS Grants & Acquisition posted an official announcement on Dec. 30th on the Federal Business Opportunities (FedBizOps) website for the public meeting we will conduct on March 12, 2009 in the NOAA Auditorium. The announcement can be accessed at:
https://www.fbo.gov/spg/DOC/NOAA/AGAMD/IOOS_DMCA_Briefing/listing.html
- NOAA along with Senior Staff from the Environmental Protection Agency (EPA); United States Army Corps of Engineers (USACOE), United States Geological Survey (USGS), and US Navy will provide briefings on IOOS and related activities.
- The High-Level Functional Requirements & DMAC Con-Ops reports are now available on the IOOS website: <http://ioos.noaa.gov/dif/> under the header Data Management and Communications Documents.

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

- **Army Corps of Engineers collaboration on a National Waves Plan**: We received final comments on 17 December and have adjudicated these comments. We are still on track to publish the final plan by the end of January. We will also provide a response back to all who provided us comments on how we adjudicated these comments.
- **USGS Detail to NOAA IOOS - Model Standards effort**: Rich Signell has been busy moving out on his work plan for the year. He briefed the IWGOO on the work he will do over the next year. He visited with the NOAA National Center for Environmental Prediction to coordinate efforts on standardized web-delivery of model data. Rich also

provided a webinar on his planned work and an in depth technical discussion of his efforts. If you would like to view and listen to the recorded webinar, download the latest free WebEx player on Mac & PC <http://www.webex.com/downloadplayer.html> and open this file: http://coast-enviro.er.usgs.gov/models/gom_interop/2009-01-21_NRFA_modeling.wrf

- **GODAE Server MOA:** The GODAE server MOA between NOAA and NRL was submitted to NOS Agreements to begin the formal clearance process. The server is still in NOS Agreements review, but will soon be sent to DOC. The Determination and Findings document is under review by the NOAA Acquisition and Grants Office. The goal is for this MOA is to be through all clearance phases by March 1, 2009. This MOA will provide resources from NOAA to the Naval Research Laboratory (NRL) to support management and operation of the GODAE Server and Argo Global Data Archive Center (GDAC).

Other:

- **IOOS Partners Aid in "Miracle on the Hudson":** On January 15, ocean observation data supplied through the national Integrated Ocean Observing System (IOOS®) aided in the safe rescue of all passengers and crew aboard US Airways Flight 1549 when it crashed into the Hudson River, as well as the subsequent salvage of the aircraft. The flight crashed near sensors within New York Harbor's Observing Prediction System, part of the IOOS network. Within minutes of the crash, IOOS partners at the Stevens Institute of Technology in New Jersey, part of the Mid Atlantic Coastal Ocean Observing Regional Association (MACOORA), prepared a detailed report of real-time water conditions surrounding the site and a forecast of conditions for the next 48 hours. Stevens sent this information – including water temperature, speed, surface conditions, and tide flow – to the US Coast Guard (USCG), the Director of Watch Command for the New York City Office of Emergency Management, and the Emergency Medical Services Command Center, Fire Department of New York. In the days following the crash, Stevens Institute of Technology provided around the clock, on-call assistance to various emergency agencies in order to assist with salvage operations. The National Transportation Safety Board and salvage teams used this information to lift the plane out of the water. See the attached PDF for more information.
- **Dr. Paul Moersdorf, Director National Data Buoy Center (NDBC), Retires - 4 February:** Not to preempt you, Paul, on your farewell message, but by the time I send out the next Z-gram you and Kathy will be on your way to North Carolina and not reading Z-grams. There really are no words to adequately express the deep appreciation that the IOOS community has for all your efforts. You stood up in the early days and believed in IOOS, you took it upon yourself to set up the first IOOS Data Assembly Center, and are now providing more than 4M non-NWS observations annually to the Global Telecommunication System (GTS). You reached out to all the Regions seeking their observational and buoy requirements and we will continue to fight for the resources, you presided over the conversion of the Weather buoys to carry Oceanographic Sensors. Further, you pushed the program to define its roles, to organize, and were instrumental in all the founding documents upon which we have started implementing IOOS. NDBC has been a STRONG partner with the IOOS office on the DIF development, waves plans, and

regional leadership and interaction. You have personally helped me as I set up the NOAA IOOS Office. Without your efforts, the SUCCESS that IOOS is enjoying now would not be happening. On behalf of the IOOS community, a heartfelt thank you for everything you have done, not only for the IOOS program, but for what you have done for NOAA and our Nation. We wish you and Kathy all the best.

- **National Oceanographic Partnership Program (NOPP) seeks research proposals:** NOPP and the President's Interagency Committee on Ocean Science and Resource Management Integration (ICOSRMI) are currently seeking proposals meeting the goal of partnerships between at least two of the following three sectors: academia, industry (including NGOs), and government. Research proposals are being solicited for three topics:
 - Improving Wind Wave Predictions: Global to Regional Scales
 - Sensors for measurement of Biological, Bio-Optical, Optical, or Chemical Properties of the Ocean
 - Improving Cyclone Intensity Forecasting

Submission deadline is April 10, 2009. For more information, refer to the full Broad Agency Announcement: <http://www.onr.navy.mil/02/baa/> - BAA # 09-012. Up to \$21.5 M over four years may be available for this solicitation, subject to appropriation and final approval by the Interagency Working Group on Ocean Partnerships of the ICOSRMI. For more info: NOPPO@oceanleadership.org.

- **2009 Storytelling Workshop for Ocean Observatory Systems (OOS) Professionals:** Under the National Science Foundation (NSF) - Centers for Ocean Science Education Excellence Networked Ocean World's (COSEE NOW), the outreach coordinators of all the IOOS Regional Associations, along with other OOS Professionals met for a 1.5 day retreat experience designed to help explore, share, and learn how to connect with public audiences about the ocean and ocean observing systems (OOS). This was organized and led by Janice McDonnell, Science Engineering & Technology (SET) 4-H Agent, Associate Professor, Department of Youth Development - Rutgers University. I, along with Jennie Lyons, had a chance to participate and it was fantastic. The morning was a seminar with Andy Goodman, a nationally recognized expert in storytelling, who lead the group in a hands-on experience that helped us improve our ability to effectively write stories about ocean observing systems science. After his presentation, we spent time developing our own stories (if you have not already done so, please send your stories to Janice). The afternoon panel included members from government agencies and industry who shared their experiences developing compelling visualizations for specific audiences. We were treated to outstanding presentations by Laura Allen, American Museum of Natural History; Ned Gardiner, NOAA Climate Visualization Project; David Herring, NOAA Climate Program Office; Hannah Fairfield, New York Times; and Dan Pisut, NOAA Environmental Visualization Program. We then broke into groups to try our hand at some hands-on experience on how to come up with potential visualization projects. The second day was devoted to understanding collaborative efforts that are ongoing and can be started. This was an extremely worthwhile endeavor that all of us need to remain engaged in. For more information see: <http://coseenow.net/>.

- MACOORA, GCOOS, CARA working together and supporting IOOS and the Department of Homeland Security (DHS):** In support of DHS's Maritime Center Of Excellence, Stevens Institute is the lead with participation across the MACOORA partners. One part of the proposal deals with HFR testing in Puerto Rico. Unfortunately, this particular cooperative agreement does not come with money to purchase new HFR. However I am very pleased to write about the collaboration across the Regions. MACOORA - Rutgers University is able to loan one radar and Jim Bonner, PI for HF radar at Texas A&M University (now affiliated with Clarkson Univ. in NY), has graciously agreed to loan one of his 13 MHz Codars to UPR. This will greatly help to lay the foundation for HFR efforts within the CaRA region. Rutgers already has an ongoing relationship with the TAMU HFR and has agreed to work the logistical details. CaRA is busy securing the necessary authorities to site the radars. My sincere thanks to Jack Harlan, NOAA IOOS - HFR Project Manager, who worked with our partners to set up this arrangement. As Jack stated in his email to the participants: "This represents a significant inter-regional cooperation between CaRA and GCOOS. So, a great story for the larger IOOS community. Finally, I have to say that, for me, as an HF guy who has been trying to get HFR into the Caribbean for more than 10 years, this is really exciting and I look forward to a successful deployment. The first current maps that come out of this 2-radar deployment will truly be historic since 2-D current measurements have never before been produced for that area." I could not agree more. Not only is this a win for IOOS, it is also a win for the Department of Homeland Security. IOOS is serving another vital customer.
- Northeast Benthic-Pelagic Project:** One of the projects IOOS funding is supporting - this really exciting effort. We hosted the team from Woods Hole Oceanographic Institute (Scott Gallagher, Norm Vince, Steve Lerner, Richard Taylor, and Amber York) who gave a seminar on the Northeast Benthic-Pelagic Observatory (NEBO; <http://nebo.whoi.edu>) and the Habitat Mapping Camera System (HABCAM; <http://habcam.whoi.edu>). There was broad interest and participation in the seminar, including individuals from several NMFS Science Centers (Alaska, Pacific Islands, Southwest), NMFS Habitat Office, NMFS Science and Technology Office, as well as representatives from Consortium for Ocean Leadership/ OBIS-USA, among others. The brief given by WHOI will be posted on the project Websites identified above. If you have not received your HABCAM calender - contact Scott. I have one and the pictures taken by the HABCAM are really, really amazing!
- IOOS and Ocean Energy:** I expect this to be a first in a series. IOOS offshore Wind Energy Meeting 2 February - Rutgers University. Given the shared interest in coastal observations from both offshore wind energy developers and the mission of IOOS and its RAs to provide data to meet end user needs, it is proposed that the two communities meet to discuss possibilities for collaboration. The initial workshop is scheduled for February 2, 2009 at Rutgers University in New Brunswick, NJ and will be hosted by the RAs. The invitees include offshore wind farm developers and their consultants, key partners in the regional associations, and key federal (NOAA, MMS, US Army Corp, and FERC) and state regulators. See attached for more details.

Congressional:

- S22 passed the Senate. We are now one step closer to IOOS legislation. S22 is an omnibus bill that contains 5 Ocean bills as well as a number of land bills. S22 is expected to pass in the House and then be forwarded to President Obama for his signature. We are really close and we appreciate everyone's support.

Communications: No updates

Upcoming Meetings:

- 2 February: IOOS offshore Wind Energy Meeting - see above.
- 10-12 February: Surge/Inundation Meeting, Tampa St Pete: Participants from Navy, USGS, USACE, NOAA, DHS and FEMA, NWS WFOs, several IOOS RA's and other academic institutions are attending - Marcia Weeks will be representing NOAA IOOS Program.
- 10-12 February: West Coast Regional Harmful Algal Bloom Summit done under the West Coast Governors' Agreement (WCGA) on Ocean Health which is looking to integrate specific actions to promote interstate coordination of HAB research and monitoring efforts. The NOAA lead is National Ocean Service Office's National Centers for Coastal Ocean Science (NCCOS). NOAA IOOS Program, NANOOS, CeNCOOS, and SCCOOS will all be participating.
- 10-11 March: NOAA IOOS Regional DMAC Workshop, Silver Spring, MD.
- 12 March: IOOS Industry Day - Silver Spring, MD - see above for details.
- 14 April: Small Sea Change: Big Business Impacts - IWGOO IOOS sponsored workshop. Silver Spring - A workshop to explore how enhanced understanding of the oceans improves weather and climate prediction enabling better informed business decisions. For more information: <http://www.oceanleadership.org/iwgoo>

Cheers,
Zdenka

“Present In the Moment”

Stevens Efforts Regarding the Crash of US Airways Flight 1549

Alan F. Blumberg

Center for Maritime Systems

Stevens Institute of Technology

Castle Point on Hudson

Hoboken, NJ 07030

January 19, 2009

In the late afternoon on January 15, 2009, I was contacted by friends who had just learned that US Airways Flight 1549 with 155 people on board had crashed into the Hudson River. My friends were unable to contact 911 because of the high call volume. I immediately alerted colleagues at Stevens who then contacted the US Coast Guard and other emergency agencies to assist in the rescue. My colleague, Nickitas Georgas, and I went to the Stevens NYHOPS – New York Harbor Observing and Prediction System (www.stevens.edu/maritimeforecast/) website where we prepared a detailed summary of the present water conditions in the Hudson River surrounding the crash site and a forecast of conditions for the next 48 hours. This summary was based on the extensive suite of ocean sensors and forecast models that have been operational in the waters of New York and New Jersey over the past 10 years. Within minutes of the crash, we emailed this water analysis summary and forecast to the Director of Watch Command for the NYC Office of Emergency Management (OEM) and the EMS Command Center, Fire Department of New York.

Due to the nature of the crash location, emergency teams realized that rescuing passengers from the slowly sinking plane would be complicated due to the swift river currents that kept dragging the plane south. With surface water temperatures of 32F, timing was critical for removing passengers from the ice-cold waters, particularly those passengers who had fallen into the water and those who had walked out on the wings. Exposure to extremely cold air and water temperatures would result in hypothermia within a few minutes.

Within 30 minutes of the crash, I was in touch with the Office of Emergency Management (OEM) Watch Command Supervisor via telephone regarding the water conditions. My suggestions were to deploy rescue assets downstream, not upstream, along Manhattan and to

guide the plane eastward to the Battery area for salvage operations. Since the Battery has the weakest currents in this very energetic current environment, it was the easiest area to try and salvage the plane. In the days following the crash, Stevens provided around the clock on-call assistance to the various emergency agencies including the NTSB in order to assist with the salvage operations.

As a result of the coordinated efforts between various agencies, everyone onboard Flight 1549 was safely rescued. New York Governor David A. Paterson declared, that this was "a miracle on the Hudson". As an educational institution, we strive to learn more from these types of incidences; with this crash, we learned that miracles occur when ordinary citizens are present and act with skill, courage, training, experience, and teamwork. A bit of luck helps too. Agencies that had the foresight to fund our observation and forecast modeling work made it possible for us to be "present in the moment - being aware of what is going on right here and now". Our quick action in reporting Hudson River conditions to emergency teams was a direct result of long term continuous funding received from the New Jersey Department of Transportation, the Office of Naval Research, and the NOAA Program Office for the U.S. Integrated Ocean Observing System (IOOS).



Photo: Brendan Mcdermid/Reuters

Based on the NYHOPS nowcast/forecast at Pier 40 and south:

Forecast valid at 1600 EST 01/15/2009:

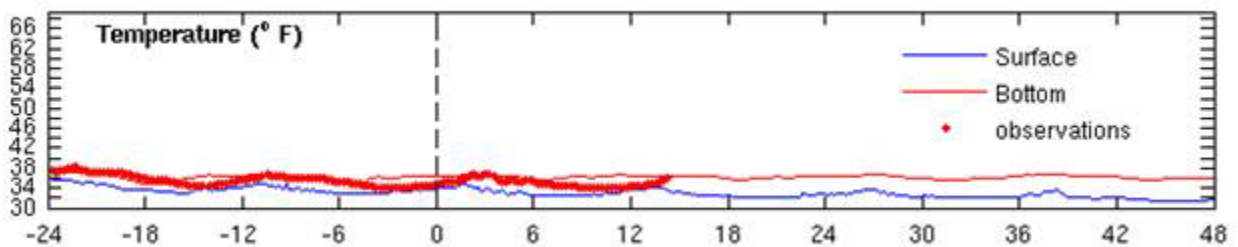
The temperature of the water is very cold, between 32 degrees at the surface, to 38 degrees at the bottom waters.

Winds are northerlies, directed downstream on the Hudson at about 7 knots, steady for the next couple of hours.

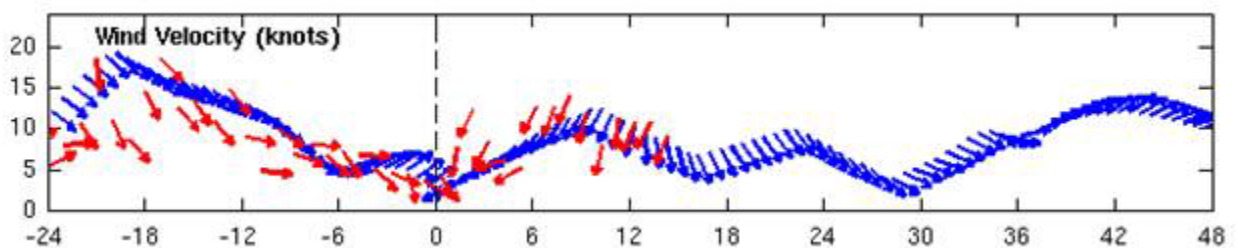
Water level is dropping and will drop another foot in the next two hours.

Surface currents are to the south, increasing to a maximum of 4 knots (very fast) in the next two hours.

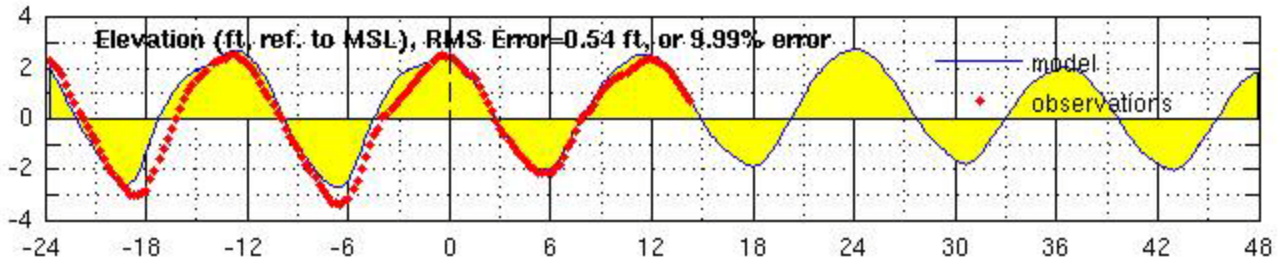
No significant waves now or within the next two hours.



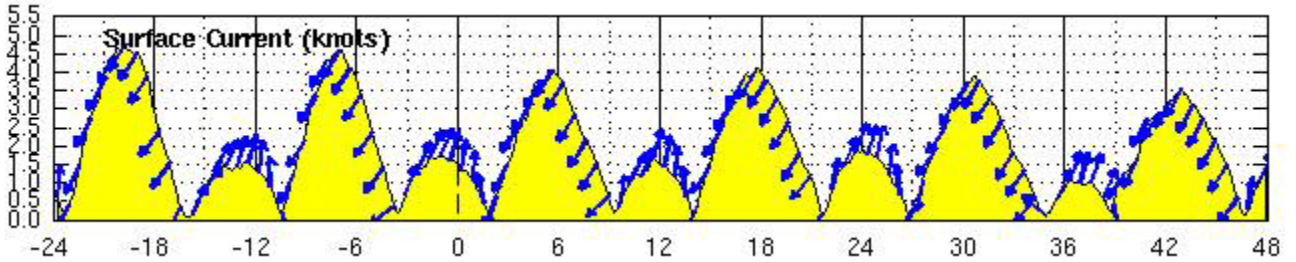
Winds are northerlies, directed downstream on the Hudson at about 7 knots, steady for the next couple of hours.



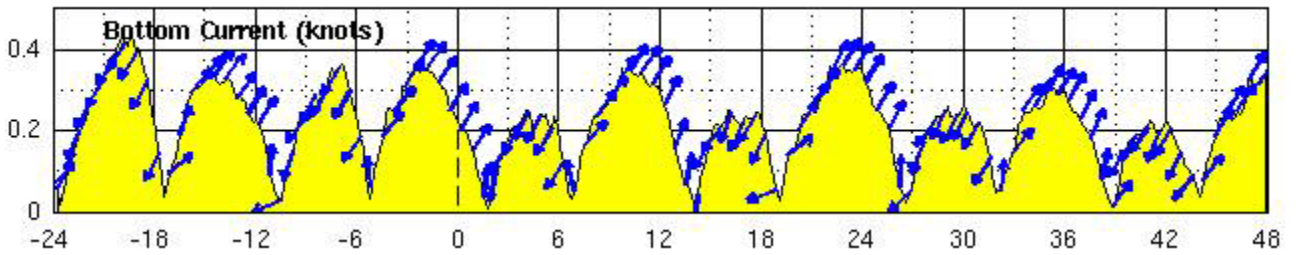
Water level is dropping and will drop another foot in the next two hours.



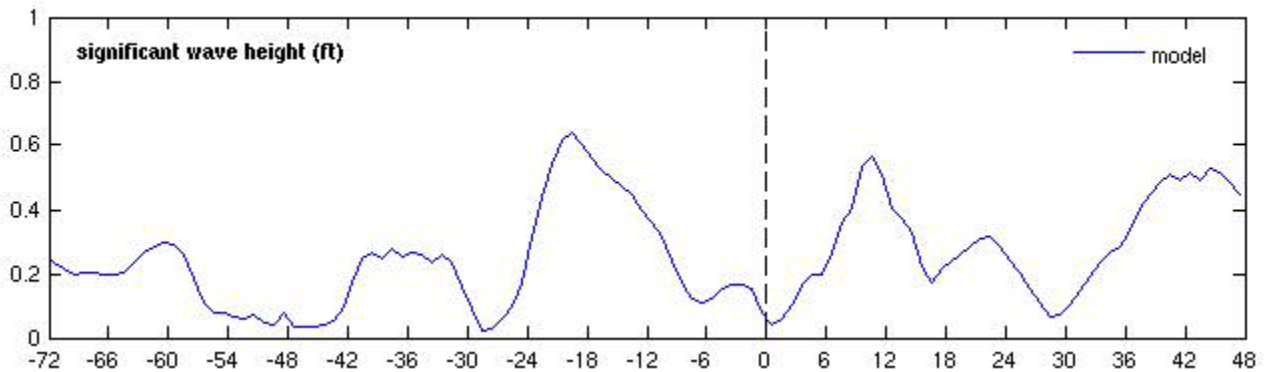
Surface currents are ebbing, increasing to a maximum ebb of 4 knots in the next two hours.



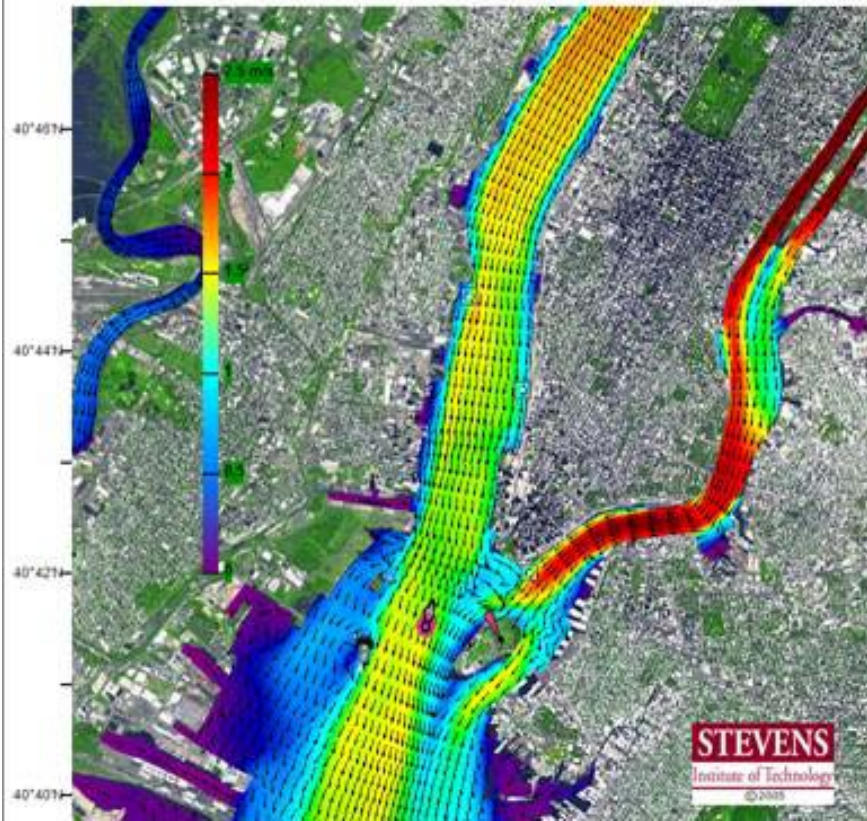
Bottom currents are ebbing, at a steady 0.3 knots within the next two hours:



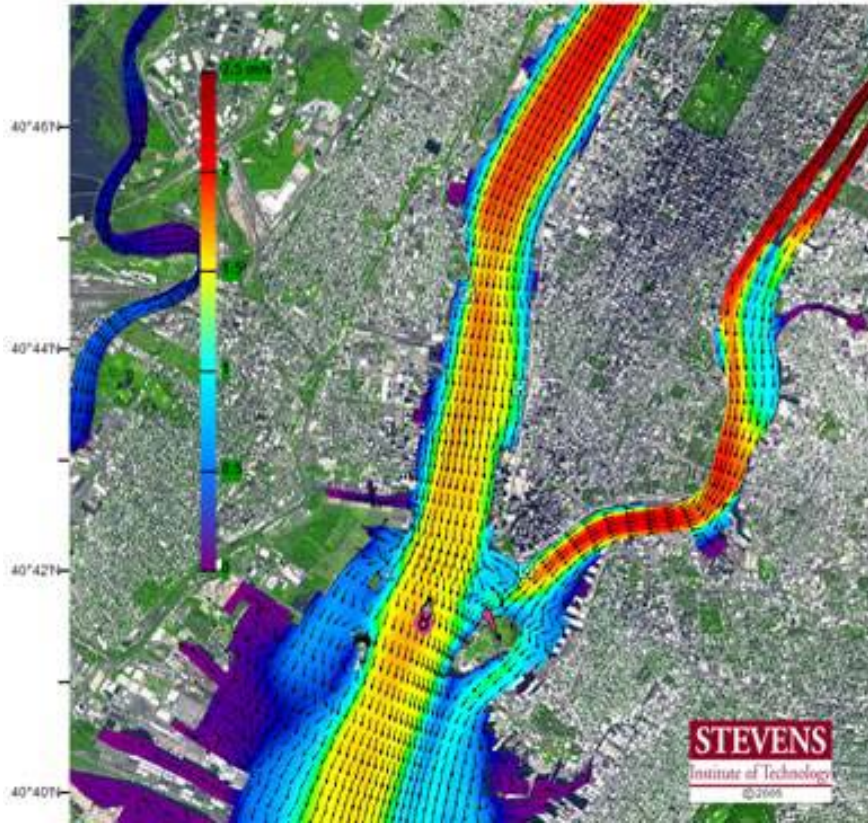
Significant wave height is less than a foot, and dropping within the next two hours.



Manhattan Water Surface Currents (m/s)
Jan 15, 2009 16:00 - 17:00



Manhattan Waters Surface Currents (m/s)
Jan 15, 2009 17:00 - 18:00



U.S. Integrated Ocean Observing System (IOOS)

Meteorological, Oceanographic and Other Observations in Support of Offshore Wind Energy Development

Overview

Offshore wind energy development projects are progressing in several states along the U.S. eastern seaboard. Projects in Massachusetts, Rhode Island, New Jersey, Delaware, Virginia, North Carolina and Georgia are already well into the planning phase. Each of these development projects requires a suite of meteorological, oceanographic and other observations to support siting, installation and operation of offshore wind farms in U.S. coastal waters. Requirements include permitting, estimates of the power production potential, and input to engineering design. Initial data collection, typically from an offshore observation tower, is normally one of the first items undertaken as it is critical to have sufficient environmental information to obtain financing for the projects.

Meanwhile, the U.S. Integrated Ocean Observing System program (IOOS) (<http://ioos.noaa.gov/>) and the NOAA IOOS Program Office are working to enhance the nation's ability to collect, deliver, and use ocean information. The goal is to provide continuous data on our open oceans, coastal waters, and Great Lakes in the formats, rates, and scales required by scientists, managers, businesses, governments, and the public to support research and inform decision-making. IOOS is a partnership between the federal government, led by NOAA, and 11 Regional Associations covering the coastal waters for the U.S., the Great Lakes, territories and commonwealths (www.nfra.org). The RAs representing the Atlantic east coast include NERACOOS (Northeast), MACOORA (Mid Atlantic) and SECOORA (Southeast Atlantic). IOOS RAs received approximately \$20 M in FY09 funding to support a variety of activities such as Coast Guard Search And Rescue, rip-current forecasting, fisheries management, water quality monitoring, hazardous material spill response, and storm-driven coastal flooding forecasts.

Given the shared interest in coastal observations from both offshore wind energy developers and the mission of the IOOS and its RAs to provide data to meet end user needs, it is proposed that the two communities meet to discuss possibilities for collaboration. The initial workshop is scheduled to be held on February 2, 2009 at Rutgers University in New Brunswick, NJ and will be hosted by the RAs. The invitees include offshore wind farm developers and their consultants, key partners in the regional associations, and key federal (NOAA, MMS, US Army Corp, and FERC) and state regulators. The timing of this meeting has been set to merge into the existing wind development plans of the host state. New Jersey has its final Offshore Wind Development Stakeholder Meeting scheduled for February 19, 2009. We thank all participants for their understanding as we put this meeting together on a short time schedule.

The meeting agenda includes a morning information sharing session and an afternoon collaboration plan development session. Initial topics on the agenda include:

- Overview of state development plans including NJ, RI and others.
- Overview of IOOS and Regional Associations on-going programs and their ability to provide observations in coastal and shelf waters.
- Overview of offshore wind energy developers' plans.
- Discussion of industry needs.
- Time for small groups to focus on specific topics of interest
- Group development of a prioritized collaborative path forward.

For further information, contact the Rutgers University Coastal Ocean Observation Lab, 732-932-6555 x501, Scott Glenn glenn@marine.rutgers.edu, or Courtney Kohut chkohut@marine.rutgers.edu.