

Ocean Prediction Center 2008 Accomplishments

1. Introduction

Three significant advances were made by Ocean Prediction Center (OPC) in 2008. Two of these relate to the distribution of oceanographic products. For the first time since its inception, OPC is now providing experimental products which are distinctly oceanographic in nature to the marine users. Gridded tidal departure forecast guidance resulting from extra-tropical storms is now available to NWS field offices and OPC is now the disseminator to the marine user community of the real time U.S. Navy's global ocean model forecast data. Both of these products furthers OPC's goal of adding a comprehensive set of oceanographic products to its product suite. The third advance relates to the implementation of a new forecast zone for the Atlantic offshore region. The new zone came about after input from users along with helpful collaboration with Eastern Region Headquarters, the affected National Weather Service (NWS) region.

Outreach to users and conference participation continued at a high level during 2008. These activities included marine safety-at-sea workshops, boat shows, conference participation, both national and international, and a significant number of meetings with key stakeholders such as academic institutions and NASA.

As a result of a number of retirements, OPC acquired three new forecast staff and was fortunate to have a NOAA Corps officer assigned to the Ocean Applications Branch.

2. Enhancement of OPC products and services

Extra-tropical storm surge guidance

In mid-January, the OPC began to make gridded tidal departure forecasts (0-96 hours), for Atlantic, Pacific, Gulf of Mexico, and Bering Sea coastal areas, available to NWS coastal Weather Forecast Office (WFOs) via ftp. OPC also developed a web page to display the model guidance. In September, 0-96 hr tidal departure guidance for Gulf of Alaska region was added. This is an important first step toward OPC's goal of providing guidance to coastal WFOs on extratropical storm surge guidance.

New Atlantic offshore zone

On June 2, the OPC implemented a new forecast zone for the Atlantic offshore region. The new zone was the result of splitting an existing large zone to provide more detailed forecast information to mariners. This action was a response to the strong input from mariners and a request from NWS Eastern Region. OPC management worked closely with the OPC NWS Employees Organization for more than four months to address significant impacts on

forecaster work flow.

Gridded MSLP at 0, 24 and 48 hours (Q2)

Distribution of U.S. Navy's global ocean model data

The OPC took over the distribution of U.S. Navy's global ocean model (a.k.a., NCOM) data to the user community. Initially, distribution of the NCOM data was carried out National Coastal Data Development Center (NCDDC) of the NOAA National Oceanographic Data Center (NODC) located in the Stennis Space Center. As hurricane Ike was bearing upon the Gulf coast in August 2008, OPC began to distribute of NCOM data in realtime on August 27, and providing 24x7 support for the data distribution. NOAA provision of global NCOM data includes two parts. NCEP is serving real time 3-D NCOM data for limited domain (adjacent to the U.S. in Eastern Pacific and Western Atlantic including Gulf of Mexico), realtime global ocean surface data. These realtime, operationally supported data dissemination are critical for applications such as search and rescue by U.S. Coast Guard, and coastal modeling activities. NCDDC and NODC are providing global and historical 3-D NCOM data in a delayed mode without 24x7 support.

3. On-demand Emergency Response and Weather Support

M/V Mevlut Doven Leaking Oil (April, 2008)

On April 4, National Oceanic Atmospheric Administration (NOAA), Office of Response and Restoration (HAZMAT), asked OPC for weather support in response to the ship M/V Mevlut Doven leaking oil about 215 nm east of Cape Hatteras, NC. OPC provided twice daily weather briefings via phone for NOAA HAZMAT as the ship traveled toward the Chesapeake Bay. The ship was originally located near 35.12N 71.20W. Briefings were provided until late on April 5, when the vessel altered course and headed for Bermuda.

NOAA Ship Delaware-II Filed Experiment (March, 2008)

On March 17, the NOAA Ship Delaware II requested weather forecast support for the DE-08-04 Deep Water Biodiversity cruise. From Mar 17 through Apr 1, twice daily, OPC provided 5 day forecasts of winds and waves to Delaware II for a 15 mile radius around two specific North Atlantic positions. This collaboration was a direct result of the OPC outreach effort to NOAA ship commanders by participating and presenting at the NOAA Corps Commanders Conference on Jan 7.

On Apr 1, the Commanding Officer of the Delaware II, CDR Richard Wingrove, sent the following note of appreciation to the OPC staff:

"I want to thank all of you for your recent weather support. The NOAA's DELAWARE II was working over 180 miles offshore and we needed weather that was focused on location. The

weather information allowed us to plan our operations to maximize safety. Your help was very important and greatly appreciated. I look forward to working with you in the future”

USCG Cutter Hamilton, 1st Arctic Ocean Patrol (August, 2008)

On Aug 26 OPC received a message from the non-ice breaking USCG Cutter Hamilton, on a first ever Homeland Security Patrol of the Arctic Ocean, requesting weather charts covering their operations areas. After coordinating with the Alaska Region, OPC put into routine operation a tailored web page that contains the charts the Hamilton requires. These include surface analyses, 24-h and 48- h surface and wind/wave forecasts, and QuikScat retrievals. The Hamilton informed us that their mission will probably terminate in about a week however; they also noted that there are likely to be future missions.

M/V BlueFin, DART Buoy Service Mission (Nov.-Dec. 2008)

In mid-November the OPC provided tailored forecast services to the NDBC in support of the effort to service and replace tsunami warning buoys (DART) in the central and western North Pacific. The support lasted for about a month.

NOA Ship Oscar-Dyson (Oct. 2008)

OPC provided timely weather support for Dyson’s transit from Kodiak (AK) to Seattle.

4. Transition of Research Advancements into Operations

Altimeter Significant Wave Height from Jason-1, ENVISAT into NAWIPS

Testing an initial capability of marine polygons for OFF

Assessing ASCAT capability as an mitigation alternative for QuikSCAT

Implementing Display capability for GODAE/MISST SST in NAWIPS

5. Conference Participation

National

Joe Sienkiewicz (OPC Science and Operations Officer), Bob Daniels (OPC contract oceanographer), Yan Hao (OPC contract Oceanographer) and Khalil Ahmad (NESDIS contract ocean wind expert) participated in a Marine Weather Workshop hosted by the NWS Eastern Region in Norfolk, VA, May 20-21. Joe, Bob, and Yan each gave presentations, Bob spoke on several topics, the evaluation of the Real Time Ocean Forecast System Atlantic, the NESDIS GOES/POES SST product, and demonstrated the ocean front finder product developed by NESDIS on the GOES SST product. Yan discussed the Extratropical Cyclone Storm Surge Model gridded output. Joe gave highlights of the ocean surface vector winds experience at the OPC and included discussion of hurricane force extratropical cyclones, winds

near SST gradients, and bias correcting the GFS and NAM wind speed fields. A highlight of the workshop was a panel discussion with members of the marine community. Two important topics brought up by offshore users were the forecasts of thunderstorm activity for those returning from the offshore zones into the coastal zone when severe weather warnings have been issued over land. The request was for more advanced warnings. The second subject was the overall size of the offshore zones and the resulting broad brushed description of weather features. The mariners suggested smaller offshore zones to 100 nm of the coast with more latitudinal breaks.

International

Ming Ji, Director, OPC, attended the opening session of the International Global Ocean Data Assimilation Experiment (GODAE) Steering Team (IGST) meeting in Silver Spring, MD June 2-4. The meeting outcomes include recommendations to the World Meteorological Organization (WMO) Joint Commission on Oceanography and Marine Meteorology (JCOMM) on directions to transition GODAE advancements into operational ocean forecasting service capabilities.

Joe Sienkiewicz took part in the 9th GHRSSST-PP Science Team Meeting held June 9-13 in Perros-Guirec, France. The GHRSSST Meeting was co-hosted by Meteo-France, the EUMETSAT Ocean Sea Ice Satellite Applications Facility (OSI SAF), and the European Space Agency. Sponsors included NOAA, Meteo-France, ESA, GODAE, NASA and the city of Perros-Guirec. Topics included operational applications, retrieval techniques, future instrumentation, ensemble based SST products, and the future of the GHRSSST effort. Of special interest to the OPC is the development of an ensemble approach to SST analysis begun at the United Kingdom Meteorological Office. Joe gave a presentation describing the OPC use of SST and the migration of the NCDC developed 25 km resolution multi-instrument Optimum Interpolation SST (OISST) into OPC operations.

Ming Ji, OPC Director and Hendrik Tolman, Marine Modeling Branch Chief, EMC, attended the final science symposium of the Global Ocean Data Assimilation Experiment (GODAE) in Nice, France Nov 12-16. Ming gave a key note presentation. The symposium set the stage for future international collaboration toward building operational global ocean forecasting capability both in transitioning GODAE advancements into operational centers and in continued improvements in science and technology.

Ming also attended the first meeting of the JCOMM Expert Team on Operational Ocean Forecasting Systems (ET-OOFS) in Nice, France, Nov. 11 and 16. The expert team coordinates international efforts on transitioning global ocean forecasting capability into operational centers.

In addition, Joe Sienkiewicz participated in the 14th Cyclone Workshop in Sainte-Adele, Quebec Sept 21-26. Joe gave a talk titled, "A look at hurricane force extratropical cyclones" and gave an overview of the OPC QuikSCAT experience detecting hurricane force winds in

extratropical cyclones, presented a seven year climatology of extreme cyclones, and showed some early modeling results using the workstation WRF model.

Meetings with key stakeholders and partners

Ming Ji, gave two presentations on NWS operational marine and ocean forecasting and modeling at the annual NESDIS/StAR Corporate Research Program (CoRP) science symposium. The symposium took place on Aug. 12-13 at Oregon State University (OSU) in Corvallis, OR. Close interactions with University based NOAA cooperative institutes can directly enhance NCEP models and operational forecasts. NCEP is working with OSU researchers on improving NCEP atmospheric models to better take into account of SST influences over the ocean and coastal areas.

Ming also participated the review meeting on the draft IOOS national plan for high frequency radar surface current capability (HFR) in Keystone, CO, Aug 19-21. The plan envisions an operational national network of HF radar to observe coastal ocean currents operated by 11 IOOS regional associations based at Universities. Ming provided insight on operational constraints and discussed with the IOOS people (NOAA and University scientists) the stated requirements for the HFR network, concept of operations, management plan and funding and coordination mechanisms. National Centers for Environmental Prediction (NCEP) potentially could use HFR current data for real time coastal modeling and forecasting.

Joe Sienkiewicz attended the NASA Ocean Vector Winds Science Team Meeting in Seattle, WA Nov 19-21. Negotiations continue between NOAA NESDIS, NASA JPL, and the Japanese Space Agency (JAXA) concerning potential QuikSCAT follow ons to the Global Climate Observing Mission (GCOM-2, 3) satellites.

Also, Joe Sienkiewicz visited the University of Washington, Atmospheric Sciences Department on Nov 18. He gave a seminar describing the use of QuikSCAT in the warning and forecast process for hurricane force winds.

OPC and NWS Alaska Region (AR) staff met with staff from Environment Canada's Meteorological Service of Canada (MSC) on Oct 22, in Silver Spring, MD to identify existing and potential areas of collaboration for marine weather and oceanographic services. Future opportunities that were identified included: Implementation of Arctic METAREAs XVII and XVIII (Canada is the issuing agency and US a preparation agency), collaboration on science issues such as tools or methodologies, and operational communication and coordination tools. Participants included: Dave Feit, LTJG Matt Glazewski (OPC, NOAA Corps), Joe Sienkiewicz, Aimee Fish (AR), Jim Nelson (WFO Anchorage), Dave Wartman (MSC, Marine Program Manager), John Parker (MSC, Lead Science Technology Transfer). A suggested path forward is a follow on meeting between small focused national and key regional marine program managers to develop a draft action plan.

Joe Sienkiewicz met with USCG SAROPS Search and Rescue (SAR) prediction was given a demonstration of the and search planning software. NCEP, FNMOC, NAVOCEANO, CMC, and NWS NDFD gridded fields are available to the SAR operator as the basis for wind and current drift calculations.

Ming Ji visited the NOAA HAZMAT on June 12. The purpose of the visit is to inform NOAA HAZMAT the availability of real time U.S. Navy operational global ocean model (NCOM) analysis and forecast at OPC. NOAA Hazmat staff expressed strong interest in the Navy model data to support their on-demand response to incidents and spills on the high seas. OPC and HAZMAT staff will conduct tests to ensure the readiness of the data for NOAA Hazmat applications. In addition, the HAZMAT staff also indicated that there is a large international community concerned with Hazmat spills and responses in the ocean that will be very interested in accessing these real time ocean surface current data through NWS.

6. Training

Safety

Joe Sienkiewicz met with Dr. Walter F. Bohlen, physical oceanography professor, at University of Connecticut, Avery Point, regarding the upcoming Newport to Bermuda Race. Dr. Bohlen on behalf of the Race Committee invited the OPC to participate in the weather safety portion of the Skipper's Meeting scheduled for June 19, 2008. On June 19 Joe gave a presentation on weather safety at the Skipper's Meeting for the Newport to Bermuda sailboat race. Nearly 400 skippers and navigators representing the 200 sail boats about to depart for Bermuda attended the meeting.

Government

Paul Vukits, a senior marine forecaster at the OPC, gave a presentation on OPC marine weather warnings and forecast products at the annual NOAA Corps commander's conference on January 8, 2008 in Easton, MD. Virtually all the NOAA Corps ship commanders were at attendance. All of the NOAA ship commanders were aware of the scope of OPC products. As a result of the presentation it is expected the NOAA ships will make more use of the OPC products and services.

Lt j.g. Matthew Glazewski, NOAA Corps Officer at OPC, visited the United States Merchant Marine Academy on June 3 and spoke to the 112th NOAA Basic Officer Training Class (BOTC) about NWS marine products. Since many of NOAA ships operate in North Pacific and North Atlantic waters, he showed the officers the suite of OPC products, and discussed how to get them via the web, as well as through the FTP server. The new officers will bring this knowledge to their assigned NOAA ships. Matt acts as the conduit with the NOAA Corps for feedback regarding OPC products

U.S. Naval Academy

The OPC participated in the annual Safety At Sea Seminar hosted by the USNA Sailing Squadron and Marine Trades Association of Maryland. Joe Sienkiewicz, and Paul Vukits staffed an exhibit booth. They presented several seminars on NWS marine forecast and warning products. Many in attendance will be participating in one of three races to Bermuda this summer that cross through the OPC offshore and high seas waters of responsibility. Three hundred thirty sailors attended the seminar series and were made aware of NWS products.

7. Outreach

Boat Shows

Ocean Prediction Center (OPC) participated in an exhibition booth with the Volunteer Observing Ship (VOS) Program at Connecticut Maritime Association (CMA) Shipping 2008, Mar 17-19, a unique gathering of the international shipping community including operators, owners, and service providers. Several of the private weather firms in attendance noted that they use OPC products in their routing decisions and forensic investigations.

Seminars and Workshops for Sailing and Boating Organizations

On April 10, Dave Feit was invited to give a presentation on OPC services at a meeting of the Freeport Tuna Club in Merrick, NY. About 100 club members were in attendance. Most of the members are recreational fishermen. Other participants include ship captains and other mariners. Many of them are regular users of OPC and NWS marine products. This outreach effort provided an opportunity for OPC to interact with a segment of users who have had little interaction with OPC in the past.

Professional Organizations

On May 14, OPC and the Tropical Analysis and Forecast Branch of the Tropical Prediction Center (TPC) jointly presented an invited lecture at the Tampa Bay Mariners Club 2008 Seminar in St. Petersburg, FL. The NCEP presentation was on National Weather Service (NWS) marine weather products and services. The audience represents a broad scope of marine insurance industry including about 100 insurance agents, underwriters, surveyors, admiralty attorneys, salvage experts, and claims representatives among others. The NCEP participants fielded a series of very knowledgeable questions from the audience during and after the presentation that effectively clarified many questions on the types and sources of NWS data and forecasts that are available to these users

8. Special Activities

Joe Sienkiewicz flew aboard the NOAA WP-3D-N42RF into Hurricane IKE prior to land fall on Sep 12. The data acquired on this flight will be used to validate QuikSCAT derived ocean

surface winds in extreme conditions and more importantly serve as the basis for determining the capabilities of future scatterometers.

On Sep 10-11, the NCEP Product Timeliness Team, led by Dave Feit and Bill Hirt of the Aviation Weather Center, met at the Space Weather Prediction Center in Boulder. The team, with representatives from all of the NCEP Service Centers, plus Bill Hopkins, Executive Vice-President of NWSEO, continued to work and sharpen the standards it set forward last year for product timeliness. This most recent report will be presented at the Regional Labor Council Meeting in Nov.

9. Special Visitors

On February 21, Ming Ji, Dave Feit, and Joe Sienkiewicz, of the Ocean Prediction Center (OPC) and Hendrik Tolman of the EMC met with two representatives from the ocean routing company Jennifer Clark's Gulf Stream. The purpose was to discuss the feasibility of developing a hazard warning product for the risk of extreme waves, particularly over the Gulf Stream region.

The participants reached a consensus that in the long term (2-4 years), such risk estimation will be based on future operational wave model guidance. In the short term, OPC will look at the feasibility of relying on existing data to develop a prototype product to estimate risks of extreme waves over the Gulf Stream.

On July 22, 28 participants in the Maury Project visited OPC and were given a tour and presentation on OPC operations by Dave Feit. The Maury Project is a program of the American Meteorological Society in cooperation with the United States Naval Academy and supported by NOAA. A major aim of the project is to develop a cadre of master oceanographic education resource teachers. This visit was OPC's contribution to NOAA's support of the project.

On July 23, Dr. Jean-Pierre Ple, Deputy Director of National Marine Fisheries Service (NMFS) Office of International Affairs was given a tour of the OPC. Dr. Ple was first introduced to the OPC while attending a Safety At Sea Seminar at the U.S. Naval Academy. Potential marine weather and oceanographic product services for NMFS were discussed between Joe Sienkiewicz and Dr. Ple.

Professor Jerome Patoux, Research Faculty at the University of Washington, visited the OPC on Oct 14-15. Dr. Patoux is the recipient of a CSTAR grant to improve the operational use of the University of Washington Planetary Boundary Layer Model. Dr. Patoux and Joe Sienkiewicz discussed potential improvements to both the sea-level pressure retrievals using QuikSCAT winds and the derivation of winds over the ocean from forecaster created sea level

pressure fields.

10. Awards

In April, Joe Sienkiewicz received the Department of Commerce Bronze Medal Award for Superior Federal Service. The award was given for developing and implementing an Ocean Forecast System to improve a wide variety of ocean prediction services for the entire U.S. East Coast and the Gulf of Mexico.

11. OPC Staff as of December 31, 2008

Administration

Ming Ji, Director
Kevin McCarthy, Deputy Director
Crystal Rickett, Administrative Officer
Sharleta Hubbard, Secretary

Ocean Forecast Branch

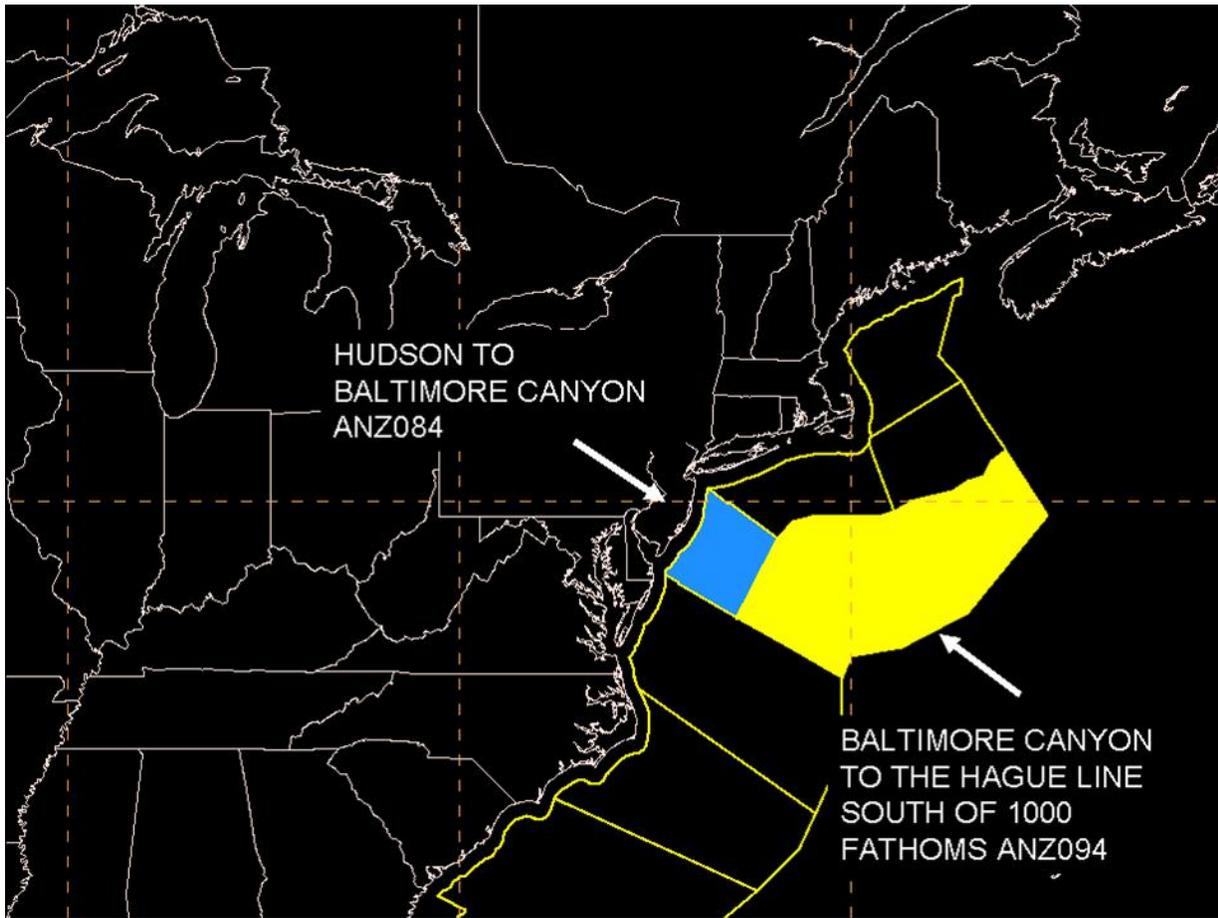
David Feit, Branch Chief
Senior Marine Forecasters: Robert Oszajca, Scott Prorise, James Clark, Douglas Scovil, Paul Vukits, Edward Schoenberg (part time)
Marine Forecasters: Kevin Achorn, George Bancroft, Kathy Bell, Brian Garcia, Timothy Collins, James Clark, Timothy Holley, James Kells, David Kosier, Hugh McRandal, David Mills, Frank Musonda, James Nolt, Michael Rowland, Todd Shaw

Ocean Applications Branch

Joseph Sienkiewicz, Acting Branch Chief/Science and Operations Officer
Curt Janota, Meteorologist Developer, Frances Achorn, Meteorologist Developer
Matthew Glazewski, LTJG, NOAA Corps Officer



Scott Prorise preparing an Atlantic offshore forecast.



The new Atlantic offshore zone implemented in June 2008.



LTJG Matt Glazewski , right, demonstrating the availability of NOAA oceanographic products to visitors at Coast Day 2008, Lewes, DE.



Joe Sienkiewicz aboard the NOAA P3 preparing for take-off for a flight into hurricane IKE.



Dave Feit, right, and Joe Sienkiewicz ,left, participating in CMA Shipping 2008, Stamford, CT.