

Weather Prediction Center 2013 Accomplishments Report

1. Introduction

The Weather Prediction Center (WPC) completed several milestones during 2013, including a name change (WPC), new flash flood services, and enhancements to numerous products. Items conducted prior to the name change will reflect WPC as the Center's name for consistency.

2. Major Accomplishments

Hydrometeorological Prediction Center becomes the Weather Prediction Center

The Hydrometeorological Prediction Center (HPC) became the Weather Prediction Center on March 5, 2013 (Fig. 1). The name change is meant to better reflect the diverse mission of the organization and provide a clearer and easier-to-understand name for the center. The process of changing the name began as a grassroots effort by Center employees, and reflects a recommendation made as part of a 2009 external review by the University Corporation for Atmospheric Research, which suggested the center create broader name recognition. As part of that process, it became apparent many partners and customers of the Center's products were not familiar with the meaning of the term "hydrometeorological," which, among other definitions, relates to the study of the atmospheric and terrestrial phases of the hydrologic cycle, with emphasis on their interrelationship. The abbreviation "HPC" was also frequently confused with that for High Performance Computing.

WPC Initiates New Products in Support of the NWS Flash Flood Program

On April 9 WPC took over responsibility for issuing Mesoscale Precipitation Discussions (MPDs) for heavy rainfall. The products include a map and a discussion outlining areas where rainfall may be sufficient to produce flash flooding over the next six hours. This product is similar in format to the Convective Mesoscale Discussions issued by Storms Prediction Center (SPC), but with a focus on rainfall rather than severe weather. This product was previously produced by the SPC, but fits well into the WPC product suite where Quantitative Precipitations Forecasts and Excessive Rainfall products have long been produced. The product aims to improve situational awareness for Weather Forecast Offices (WFOs), who are responsible for issuing flash flood watches and warnings.

WPC Implements Downscaling for QPF

Based on numerous field office requests and as part of continual product improvement, on October 23, 2013, the WPC implemented downscaling on all deterministic QPF products. The downscaling is based on monthly PRISM data, and is conducted on the CONUS at a 5 km resolution. Downscaling provides finer detail which is most evident during the cool season in the western U.S. This implementation aligns the WPC QPF product with the level of detail provided by WFOs.

WPC Hosts Congressional VIPs

Since opening its doors in August 2012, the NOAA Center for Weather and Climate Prediction (NCWCP) in College Park, Maryland, has become a destination for national decision makers that reside in nearby Washington, DC.

On February 11, U.S. Senator Ben Cardin of Maryland and NOAA Administrator Kathryn Sullivan visited the NCWCP. WPC Director, Jim Hoke, and manager, David Novak, led the visitors on an interactive tour of the various WPC forecast desks and emphasized the importance of collaboration in executing the NWS mission to protect life and property.

On March 5, WPC Director Jim Hoke hosted U.S. Congressman Chaka Fattah of Pennsylvania to WPC operations in the NCWCP. Rep. Fattah returned to NCWCP just three weeks later on March 27 to gain more understanding about the details of NWS activities. During this second visit, NWS Director Louis Uccellini briefed Rep. Fattah on some of these operational details prior to an in-depth tour of the WPC operations area.

On July 2, Senator Barbara Mikulski (MD), Commerce Secretary Penny Pritzker, Acting NOAA Administrator Dr. Kathryn Sullivan, and NWS Director Dr. Louis Uccellini visited the NCWCP. They met with NWS leadership, toured the WPC, and held a press conference attended by national media (Fig. 2). At the press conference, Senator Mikulski highlighted the partnership between government and private sector and the serious impact of weather on life, property, and the economy.

In addition to these congressional VIPs, WPC also provided tours to staff of the House Committee on Science, Space and Technology as well as the House Commerce, Justice, and Science Committee.

Such direct interaction with national decision makers is critical to publicize and maintain awareness for the broad and life-saving mission of the NWS.

WPC Hosts International Numerical Weather Prediction Scientists

During the week of June 17 – 21, the NCWCP hosted distinguished representatives from the World Meteorological Organization, World Bank, and NOAA to address the need to develop a sustainability plan involving the sharing of weather and climate data among national hydrometeorological agencies. The WPC hosted tours for the distinguished representatives, as well as dedicated one-on-one sessions with Ken Mylne, head of Numerical Modeling at the United Kingdom Office of Meteorology, and David Richardson, head of Meteorological Operations at the European Center for Medium-Range Weather Forecasting. The NCEP International Desks were showcased, and the use of international model guidance was demonstrated during the visit. Overall, the visitors were interested in discussing the optimal role for the forecaster, the role of local modeling, and the pros and cons of centralization. Such engagement with the international community can help inform agency decisions on these major topics.

WPC Spanish Version of National Forecast Chart Extended

On September 24, 2013 a Spanish-language version of the popular WPC chart depicting significant weather across the continental U.S. was extended to the Day 2 and Day 3 forecast range. The Day 1 forecast range was made available in 2012. The chart depicts such weather as the threat of severe thunderstorms, snow storms, and flash flooding, as well as fronts and general

weather expected for the day. The original (English version) chart is WPC's most popular web product.

WFOs Train on Winter Weather Desk Products

WPC partnered with the Warning Decision Training Branch (WDTB) to provide training to local WFOs on the WPC Winter Weather Desk (WWD). The purpose of the WWD is to provide guidance to serve as a catalyst for winter weather collaboration among NWS field offices. The training reviewed the forecast products and services available via the desk, the techniques used to generate the information, and forecast verification. Nearly half of all NWS field offices (64) took the live training over the course of three separate sessions, concluding in November. The sessions were recorded and are available online.

Pilot Project Collaboration on Probabilistic Snowfall

WPC collaborated with the WFO Sterling Pilot Project on local probabilistic snowfall products. In November, WFO Sterling implemented a 'best case' and 'worst case' snowfall scenario product for local Decision Support Activities based on the WPC 10th and 90th percentile snowfall information. This collaboration represents a major step towards the official dissemination of probabilistic snowfall information for DSS at the local level.

Outreach, conferences, and visitors

WPC staff participated in 5 different conferences through the year, including the Annual Meeting of the American Meteorological Society, the International Hurricane Conference, the Great Lakes Operational Meteorology Workshop, the NOAA Satellite Conference, and the NOAA Testbeds Meeting.

In addition to the above congressional visitors and media visits below, the WPC hosted more than 30 tours through the Center in 2013.

Media activities

WPC forecasters were interviewed by numerous media outlets throughout the year, including radio, television, and the print media. For example, CNN Radio, National Public Radio, CBS Radio, Associated Press, Christian Science Monitor, Fox News, and other national networks contacted WPC for live or taped interviews on a number of occasions.

In early January, WPC hosted the visit of NBC-TV Channel 4 Washington to the NOAA Center for Weather and Climate Prediction. The event included all four of the station's on-camera meteorologists, who were impressed by the new facility and were most appreciative of WPC's daily suite of weather products and services. They filmed a story on winter weather forecasting, winter weather safety, and the new building.

In late January, Dave Novak, Chief of the Development and Training Branch, gave an invitational talk titled, "Advancing Extreme Precipitation Science and Services for a Weather-Ready Nation" at the 2013 Weather and Climate Summit (<http://www.stormcenter.com/wxcsummit/>). This event provided WPC national exposure, and educated leading national broadcasters on the extreme precipitation forecast challenge as well as WPC's new strategic plan.

In March, the Sterling, VA WFO hosted members of the local television and print media at NCWCP to discuss issues related to the upcoming severe weather season, including warning communication, new policies and products, and recent case studies. The workshop included a tour of the NCWCP and an interactive discussion with the NWS Director. The discussion among the WFO, NCEP, and media participants highlighted the increasing importance of social media, the communication of forecast uncertainty, and the importance of continued collaboration among the various members of the weather enterprise, and offered an opportunity to showcase WPC's collaborative services with the local field offices.

Mike Davison, WPC International Desks Coordinator, and José Gálvez provided numerous interviews in Spanish.

Hydrometeorological Testbed

Third Annual Winter Weather Experiment

The Hydrometeorological Testbed at WPC (HMT-WPC) hosted 23 forecasters, researchers, and model developers at its third annual Winter Weather Experiment from January 15 - February 15, 2013. The experiment was held at WPC and provided participants with an opportunity to explore experimental Air Force Weather Agency and NCEP ensemble systems, test a new NCEP method for deriving model snowfall accumulations, and experiment with Day 4 and 5 winter weather outlooks. The experiment also featured a decision support component in which participants were asked to prepare a graphic and give a mock decision support briefing for the upcoming winter weather event. During the last week of the experiment, participants worked jointly with the Aviation Weather Testbed's (AWT) Winter Experiment, with WPC providing ground-based forecast information and AWC providing forecasts for in-flight concerns. The experiment continues to be a well-received focusing mechanism for advancing winter weather forecasts for the Nation.

WPC hosts first NOAA Flash Flood and Intense Rainfall (FFaIR) Experiment - During July 8–26, the Hydrometeorological Testbed at WPC (HMT-WPC) and the National Severe Storms Laboratory (NSSL) co-hosted the first FFaIR experiment at the NCWCP (Fig. 3). Twenty-six WPC, WFOs, and River Forecast Center (RFC) forecasters, Environmental Modeling Center (EMC) model developers, and members of the research community worked collaboratively to explore the challenges associated with short-term flash flood forecasting and verification. During the experiment, emerging high-resolution numerical guidance tools from Office of Atmospheric Research and EMC and associated tools developed by HMT-WPC were used to make flash flood forecasts. Results of the experiment highlighted verification challenges and provided information on requirements for next-generation prediction systems for the difficult flash flood problem.

International Desks

The WPC International Desks is a program for training meteorologists from South, Central, and Caribbean America in the techniques of weather analysis and forecasting. The WPC International Desks are well known to the meteorological services of the countries served. When weather events are likely to have a significant impact, the Desks are frequently contacted by

former students. In addition, on many occasions the Desks have been proactive in contacting foreign meteorological services to ensure they were aware of impending significant weather events.

WPC Leads International Training Workshop in Columbia

Mr. Michel Davison, training director of the WPC International Desks, led a week-long in-country training workshop for meteorologists and meteorological technicians in Bogota, Columbia, March 18-22, 2013. The workshop was held under the auspices of the US National Weather Service and sponsored by Colombia's national weather service. The workshop included participation from Colombia, Venezuela, Panama, Costa Rica, Nicaragua, El Salvador, Guatemala, Cuba and the Dominican Republic. The 29 participants trained on the application of numerical weather prediction, with emphasis on quantitative precipitation forecasting techniques. They also learned about ensemble models as a tool for establishing confidence in the short to medium range forecast. Mr. Davison was assisted by two former alumni of the WPC Tropical Desk - Yolanda Gonzalez and Luis Raul Sanchez. Training workshops, such as this, highlight NWS's deep commitment to the international community, and help strengthen the collaborative relationship with WMO Region 3 and 4 countries.

International Desks Host Visiting Scientist

Captain Silvia Santos Da Silva participated as a visiting scientist at WPC and OPC. Silvia is an officer in the Brazilian Navy and has spent two months working at the WPC international desks. Silvia will spend two months with OPC, learning about the GOES-R capabilities and products. The knowledge she gains here will help Brazil prepare for when GOES-R is launched and operational. Silvia joined the Brazilian Navy in 2001 and currently works as a marine forecaster for the Navy Hydrographic Center/Marine Meteorological Service. This office is responsible for marine weather forecasts and severe warnings for Brazil's waters. Silvia is also an instructor at the Brazilian Navy Hydrographic Center and participates in the planning, installation, and maintenance of Naval meteorological stations.

3. Training, Awards, and Certifications

Training

Several forecast staff completed the NWS Dual-Polarization training, in conjunction with the national upgrade of the radar network.

NOAA Bronze Medal

The Center was awarded a Bronze Medal with MBRFC and WFO Omaha for work during the life-threatening Missouri River flooding of 2011. The award reads, “For outstanding decision support and forecast services preventing record flows being uncontrolled or impugning the integrity of Missouri River dams.”

WPC 2013 Isaac Cline Local Award Winners

Richard Otto, Andrew Orrison, Patrick Burke, Marybeth Gerhardt, Alan Robson, and Mark Klein – *Hydrometeorology*

For developing and implementing a product and service to alert WFOs and RFCs to near term threats of flash flooding.

Daniel Petersen – *Outreach*

For being extremely active in providing NWS, customers, and external users information and training concerning the WPC winter weather products.

Michael Musher – *Leadership*

For tireless work leading up to the change in name of the Hydrometeorological Prediction Center (WPC) to the Weather Prediction Center (WPC).

James Cisco – *Meteorology*

For providing outstanding forecasts for tropical and post-tropical Sandy, correctly forecasting a landfall in the Mid-Atlantic States despite model forecasts indicating the storm remaining east of the mainland.

Bruce Sullivan – *EEO and Diversity Management*

For playing a large role in implementing the Diversity Management Initiative within the WPC.

Wallace Hogsett – *Program Management/Administration*

For moving WPC operations into a new era of science-based decision support

4. WPC Staff and Contractors

The listing below reflects the WPC staff and contractors assigned as of December 31, 2013.

Front Office

Kevin McCarthy, Acting Director
David Novak, Acting Deputy Director
Crystal Rickett, Administrative Officer
Marsha Morstad, Secretary

Development and Training Branch

David Novak, Branch Chief
Wallace Hogsett, Science and Operations Officer
Michel Davison, International Desks Coordinator
Meteorologist Developers: Chris Bailey, Michael Bodner, Keith Brill, Mark Klein, and Alan Robson.

Forecast Operations Branch

Edwin Danaher, Branch Chief
Senior Branch Forecasters: Brian Korty, Robert Oravec, Bruce Sullivan, Bruce Terry, and Brian Hurley
Forecasters: Richard Bann, Patrick Burke, James Cisco, Anthony Fracasso, Mary Beth Gerhardt, David Hamrick, Brian Hurley, Kenneth James, Paul Kocin, Mike Musher, Andrew Orrison, Richard Otto, Frank Pereira, Daniel Petersen, Robert Rausch, David Roth, Brendon Rubin-Oster, Michael Schichtel, Michael Vojtesak, and Paul Ziegenfelder.
Surface Analysts: Amanda Fanning, Kwan-Yin Kong, Jason Krekeler, and Allison Monarski, and Sean Ryan
Meteorological Technician: William McReynolds, Jr.

Contractors

Faye Barthold and Thomas Workoff, Hydrometeorological Testbed Meteorologists
José Gálvez, International Desks Instructor

Staffing Changes During 2013

Departures: James Hoke (retirement) (Fig. 4)

Arrivals: None

Promotion to GS-14: Brian Hurley

5. WPC Staff Publications in 2013

Stuart, N.A., R.H. Grumm, M.J. Bodner, 2013: Analyzing Predictability and Communicating Uncertainty: Lessons from the Post-Groundhog Day 2009 Storm and the March 2009 "Megastorm. *Journal of Operational Meteorology*.
<http://www.nwas.org/jom/abstracts/2013/2013-JOM16/abstract.php>

6. Photos



Fig. 1. Dr. Jim Hoke, Director of WPC (left), and Dr. Louis Uccellini, NWS Director (right), cut the cake during the March 5th name change ceremony.



Fig. 2. (left to right) NWS Director, Louis Uccellini, speaks to incoming Department of Commerce Secretary, Penny Pritzker, Acting NOAA Administrator, Dr. Kathryn Sullivan, U.S. Senator, Barbara Mikulski (MD), WPC forecaster, Dan Petersen (seated), and The Weather Channel's Hurricane Expert, Brian Norcross, during their July 2 visit (Photograph courtesy NOAA)



Fig. 3. WPC forecaster Andrew Orrison (at center workstation) leads participants through the forecast during the first Flash Flood and Intense Rainfall Experiment in the Collaboration Room at the NCWCP. (Photograph courtesy of Tom Workoff)

Fig. 4. WPC staff pictured in the NCWCP Atrium on the retirement day of long-time Director, Dr. Jim Hoke (far right). (Photo courtesy Ed Olenic)