Confluence

NWS Hydrology Program News

Hydrologic Support Branch

Behind the scenes, a team of eight delivers critical support to field office operations...

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Headwaters

Don Cline, Chief, Hydrology Laboratory

Welcome to *Confluence*! The NWS Hydrology Program begins a new chapter as we wish Gary Carter the very best in his retirement. As Director of the NWS Office of Hydrologic Development (OHD) for the past 12 years, Gary's accomplishments were significant; he reshaped the Hydrology Program, established a vision for improved flood forecasting and water resources prediction, and positioned the Program to take on these challenges. A fitting capstone to his successful tenure, in this issue we are pleased to congratulate the Community Hydrologic Prediction System (CHPS) Acceleration Team, who has won the Department of Commerce's highest honorary recognition. We introduce you to the folks of the Hydrologic Support Branch in the Office of Climate, Water and Weather Services. We highlight the Alaska-Pacific River Forecast Center (RFC) as they work to implement HEC-RAS on the challenging Kenai River. We introduce you to Jason Tuell, the new Acting Director of OHD. Two River Forecast Centers have new leadership, and we bring you the latest pictures of the National Water Center construction.

Our third issue of *Confluence* was wrapping up just as Sandy left its mark on the East Coast. Its heavy rains, widespread flooding and devastating storm surge once again provided dramatic reminders of the importance of our work, and of the work we still need to do. Look for updates on our progress in future issues of *Confluence*.

In This Issue

When the well is dry, we know the worth of water.

Benjamin Franklin

Project Spotlight

Hydrologic Support Branch, Office of Climate, Water and Weather Services

Given the complexity of the NWS hydrologic services, it's no surprise that the Hydrologic Support Branch (HSB) is a busy group of people. Organized within the Hydrologic Services Division of the Office of Climate, Water, and Weather Services (OCWWS), the HSB is focused on serving the needs of the field.

Support for the NWS field offices comes in different forms. At the core of HSB's support services is a specialized "help desk", answering questions on functionality, working to resolve operational problems, and testing and coordinating software fixes. The Branch also serves as an advocate for the Hydrology Program, working with field offices, NWS Headquarters, and Regions to identify requirements and promote solutions. The HSB also receives help from others such as the Office of Hydrologic Development, the AWIPS Program Office, the CHPS contractors, and the field offices themselves. The HSB's job is both science and art, as troubleshooting and service support doesn't always follow predictable paths. Most days have unique adventures and challenges, but the core mission of serving the Hydrology Program operations endures, whatever challenges come their way.

Dave Riley Alfred Kwentua Randy Rieman Mark Glaudemans Mark Armstrong
Hak Su Lee Brad McCune Shangdi Mo

Getting Help

For general questions, post a message to: whfsinfo@infolist.nws.noaa.gov (WHFS-AWIPS) or chps_ops@infolist.nws.noaa.gov (CHPS).

To request Support Branch help, send an email to whfs@noaa.gov (WHFS-AWIPS) or submit a request in the Fogbugz web-based tracking tool (CHPS). AHPS web page issues should be reported to: Toc.Nwstg@noaa.gov.

WFO and RFC reference info is available on the Fogbugz wiki and at: www.nws.noaa.gov/om/water/WFO_support/index.shtml and www.nws.noaa.gov/om/water/RFC_support/.

After hours, the AWIPS Network Control Facility can be contacted at 301-713-9344, who can then engage the Support Branch.

Meet the Hydrologic Support Branch

The HSB is led by Mark Glaudemans, and is split into two groups aligned with the NWS field office structure:

- The River Forecast Center (RFC) group focuses on the Community Hydrologic Prediction System (CHPS) and is led by Randy Rieman, with vital contributions from Dave Riley. Invaluable help is provided by three contractors: Brad McCune focuses on core CHPS operations, Alfred Kwentua on hardware and systems, and Hak Su Lee on the Hydrologic Ensemble Forecast System (HEFS).
- The Weather Forecast Office (WFO) group benefits from the experience of Mark Armstrong and Shangdi Mo. While attention is focused on AWIPS-1 WFO Hydrologic Forecast System (WHFS) operations, AWIPS-2 topics and certain non-CHPS topics affecting RFCs are also addressed.

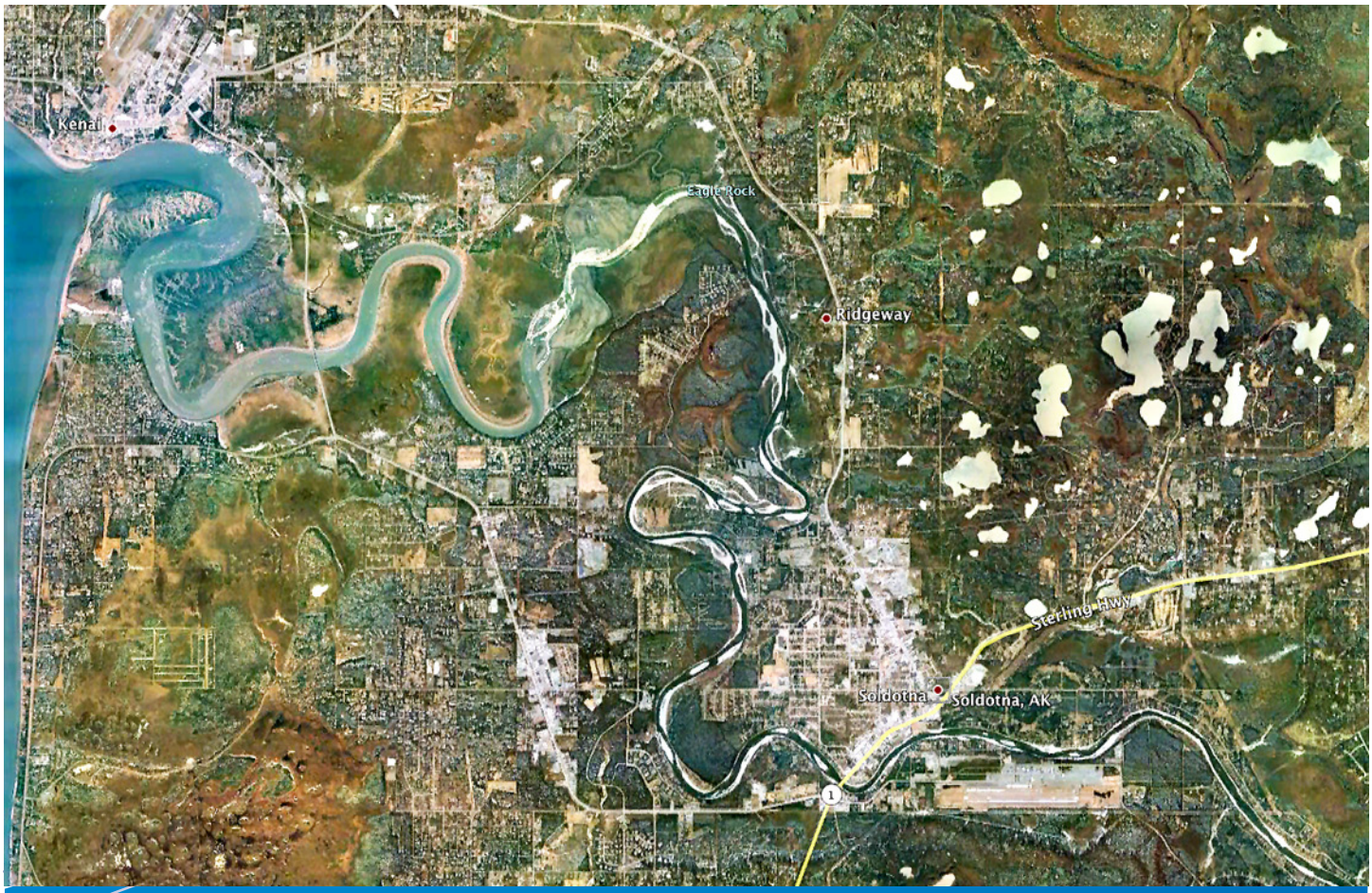
Field Spotlight

Alaska-Pacific River Forecast Center (APRFC) Implementing HEC-RAS on Kenai River

APRFC is striving to implement the Hydrologic Engineering Centers River Analysis System (HEC-RAS) into CHPS for the lower Kenai River. Sixty-five air miles southwest of Anchorage, the Kenai River is the foremost recreational and the sport fishing destination in Alaska. The two population centers on the lower river, the cities of Soldotna and Kenai, are home to more than 11,500 full-time residents and welcome thousands of fishermen, recreationalists and tourists each summer.

The Kenai is a challenging river to model, but the availability of data and high tidal range make the Kenai a perfect candidate to be modeled in HEC-RAS. The first 20 river miles of river upstream of the mouth are ungauged and include significant infrastructure. The first 12 miles are strongly affected by tides, which have a range of 20 feet here. To implement this project, APRFC has been working with the U.S. Army Corps of Engineers (USACE) Alaska Region Office as well as partners on the Kenai River. The USACE had a pre-existing steady-state HEC-RAS model and APRFC modified it to run in the unsteady-state environment. The cross sections were extended to include over-bank areas, generated in GIS from recently acquired LiDAR data. After finishing model calibrations, it will be put it into CHPS and static flood inundation maps will be created.

In high flow situations, where inches count, the HEC-RAS implementation will help APRFC give their customers the best possible decision support services.



Information Technology Corner

Federal Information Security Management Act (FISMA)

Jim Rawls, OHD IT Manager

Prescribed within the legislation of the E-Government Act of 2002, FISMA is the "Federal Information Security Management Act". It mandated government agencies to develop, document, and implement an agency wide program to provide information security for the information and IT resources that support the operations and assets of the agency. In 2010 a significant revision was completed. Though never signed into law, it prescribed a risk based management framework and a continual monitoring of those information resources.

FISMA is commonly associated with the process of "Certification and Accreditation" (C&A), which is now officially named "Assessment and Authorization" (A&A). All FISMA systems must be regularly assessed and officially authorized to operate. A FISMA System (boundary) encompasses all IT resources used to perform certain functions (e.g. capabilities and/or generate products). A FISMA boundary can include only a few separate devices or thousands of distributed resources.

A key part of the regular assessment of FISMA systems is Continuous Monitoring (CM). It's a FISMA requirement, and key to the Risk Management Framework (RMF). The RMF provides a framework for selecting appropriate security controls necessary to ensure information security and protect individuals and the operations and assets of an organization. CM requires an assessment of approximately 1/3 of all required controls at least annually. The assessment results are reported to the Office of Management and Budget (OMB). The word "continuous" infers a constant monitoring activity rather than focus on a few weeks each year. FISMA systems are monitored contiuously in many different ways. Vulnerability scanning and patch management are part of CM, as are audit log reviews, data backups, and purchasing new hardware to retire the old. FISMA compliance is aimed at ensuring that the functionality that the system is intended to provide is secure in all respects, from outside threats to equipment failures.

OHD has three FISMA systems - NOAA8200 (HADS), NOAA8201 (DEIT), and NOAA8874 (NOHRSC). As part of the data center consolidation efforts I described in the last issue, all three of these will be merged into a single system, NOAA8202, which will become operational in FY14. All the current capabilities within our three existing branded systems will remain in place, co-exist, and allow for rapid infusion of new technologies or improvements to existing ones.

Next issue let's discuss "Risk based IT service management"!

A successful IT Risk Management team consists of representatives from the various departments of an organization that have an interest in the system.

Can you name the 5-step process of an IT Risk Assessment team?

OHD Director Gary Carter Retires

As Gary Carter announced in the September issue of Confluence, he retired from the National Weather Service (NWS) at the end of September. Gary would tell you that during the last 12 years of his 42-plus years with the NWS, he had "been a man on a mission." Those years were spent as Director of the NWS Office of Hydrologic Development (OHD), where he had an active role in leading the NWS Hydrology Program into the twenty-first century.

Gary's interest in meteorology and hydrology was inspired when he attended San Jose State University. A professor who had worked for the NWS helped him become a summer student trainee in the NWS offices in Fresno and San Francisco while completing his B.S. and M.S. studies. The first part of Gary's professional NWS career focused on meteorology in Camp Springs, MD and at NWS headquarters in Silver Spring, MD (NWS Techniques Development Laboratory). From 1988-2000, Gary worked at NWS Eastern Region Headquarters on Long Island becoming chief of the Scientific Services Division, where he experienced numerous, real-life examples of the challenges associated with river and flood forecasting. Those experiences piqued Gary's interest in hydrology and led to a redirection in his career.

"Flooding is the number-one weather challenge year-in and year-out throughout the Eastern Region," he explained. "I developed a passion for water and addressing the grand challenge of hydrological forecasting."

In November 2000, Gary became director of the NWS Office of Hydrologic Development. This opened the doors for him to engage in research and development activities related to water forecasting in America's rivers and streams.

"The past 12 years of leading the NWS Hydrology Program have been the most fulfilling," he said.

Gary recognized scientific advances only realize their full value when transformed into daily forecast operations as part of a streamlined science to operations paradigm – a value he instilled in OHD. During Gary's tenure, the NWS Hydrology Program produced several significant accomplishments including the implementation of the Community Hydrologic Prediction System and the Advanced Hydrologic Prediction Service (over 80% complete), the development of the Hydrologic Ensemble Forecast Service (now in a field testing), and the groundbreaking for the National Water Center in Tuscaloosa, Alabama. In addition, Gary has been one of the driving forces behind the creation of the innovative federal interagency water Integrated Water Resources Science and Services initiative (see Project Spotlight Confluence issue no. 2).

Gary's plans after his September 30 retirement are simple: "Golf, golf, and more golf."

It's hard to think of Gary slowing down, however, after so many remarkable years with the NWS. His contributions to science and hydrology will endure long after he tees off on that first hole after his departure from the NWS.

Hydro People in the News

- Dr. Pedro Restrepo is the new HIC at the North Central River Forecast Center. Pedro has extensive experience in the private sector as well as academia. For the past 9 years, he was the Senior Scientist for the OHD, providing science direction and advising the OHD director on hydrologic science issues.
- Reggina Cabrera is the new HIC at the Southeast River Forecast Center. Reggina has an extensive background in hydrology, including work in her native Chile as well as the USGS, before joining the NWS in 1994. Reggina has held positions at the SERFC and OHD, before spending the past 6 years as the Chief of the Eastern Region Hydrologic Services Division.
- OHD welcomes Dr. Jason Tuell, who was named the Acting Director of the Office of Hydrologic Development after Gary Carter's retirement. Jason was most recently the Chief, Meteorological Services Division, Office of Climate, Water and Weather Services of the National Weather Service (NWS). Jason has held several other positions in the NWS including one in the Office of Science and Technology where he oversaw the development of many product improvement projects including the Advanced Weather Interactive Processing System (AWIPS), Next Generation Weather Radar (NEXRAD) and Automated Surface Observing System (ASOS) Programs. Prior to joining NWS, Jason was a Senior Program Manager for Litton PRC in McLean, VA. Jason is also a retired Major in the United States Air Force. He holds a Bachelor of Science in Physics from Worcester Polytechnic Institute and a Doctor of Philosophy in Atmospheric Science from Georgia Institute of Technology.

CHPS Bits

News and Updates on the Community Hydrologic Prediction System

Big news arrived on OHD's doorstep and others in the Field on October 12! The members of the CHPS Acceleration Team were notified by Dr. Jane Lubchenco that they have won the Department of Commerce's highest honorary recognition, the Gold Medal for Leadership! The award winners are: Christine Brunner (OHD), Harold Opitz (NWRFC), Rob Hartman (CNRFC), Rob Shedd and Ronald Horwood (NERFC), John Halquist (NOHRSC), Dr. Pedro Restrepo (NCRFC), and Billy Olsen (retired from ABRFC). More news will follow in the January Confluence.

The winter semi-annual release of CHPS, CHPS-3.0.1, is in the works and expected to be available in February 2013. The most interesting new items will be: FEWS 2012.02, which will include some features requested by the NWS for Calibration; and OHD-CORE-CHPS which will incorporate the Graphics Generator into the CHPS baseline for the first time.

National Water Center Construction Update

Construction of the approximately 65,000 square ft. National Water Center (NWC) facility in Tuscaloosa, Alabama, is fully underway. The design-build contractor for the project, Triune-Beck, is completing the north and west basement walls of the structure, and waterproofing and backfill of these walls will follow shortly after. Underground mechanical, electrical, and plumbing work has started, and underground drainage installation will commence by the end of October. The NOAA Project Team (Office of the Chief Administrative Officer/Project Planning and Management Division in Kansas City and the Office of Hydrological Development) is working with Triune-Beck to finalize the remaining design elements of the NWC, and will conduct the 95% Design Review on November 14-15. The tentative completion date of the NWC facility is July 2013, with occupation expected in September 2013.