



The NHWC Transmission

December 2017

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Spreading the Word: Flood Communications in a High-Tech World

David Watson, Environment and Parks, Alberta, Canada

The Province of Alberta's River Forecast Centre (RFC) is responsible for both communicating near real-time (NRT) hydrometric information to the public, and municipal, provincial and industry Emergency Managers, as well as issuing river advisories to the public and communicating forecast river levels directly to Emergency Managers during flood events. During the summer of 2013, over a period of four days, 300-350 mm of rain fell in the snow covered Rocky Mountains west of the City of Calgary. Record flooding in over 80 locations was a result, causing the evacuation of 100,000 people and damage estimates of approximately 6 billion dollars. A number of concerns with the existing communication systems were raised after the event:



- Navigation to data and advisories available on the web was cumbersome.
- 3- to 4-hour latency in the NRT data on the web.
- Website slowdowns reported during times of high use.
- Relating flood forecasts to emergency managers via direct phone calls is not sustainable or effective during large scale flood events.

To address these issues, as well as meet the modern demands of clients who are increasingly tech-savvy, the RFC created a mobile application, [Alberta Rivers: Data and Advisories](#) (AB Rivers Mobile), which was released in the spring of 2014. Features of the mobile app include:

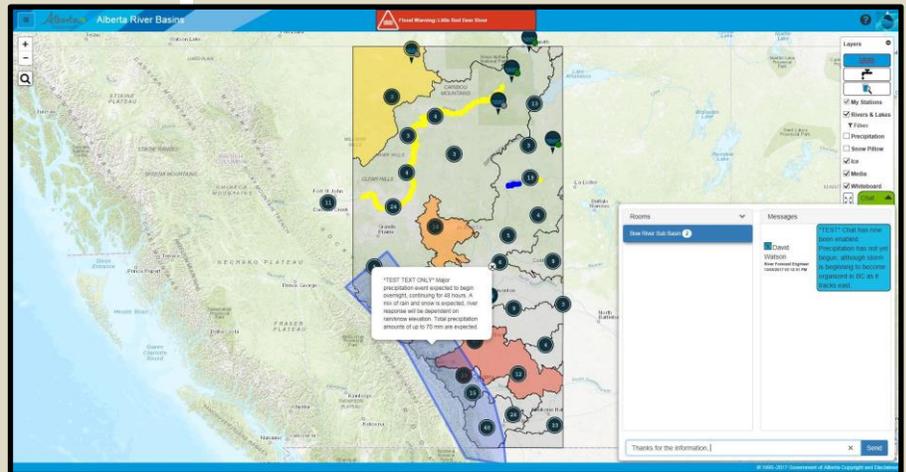


- Map based navigation for the 750 hydrometric and meteorological stations in Alberta, clustered based on zoom level.
- Most recent data and timestamp are displayed in a 'quick view bubble' when a station is tapped; an icon spray allows further exploration options: 5-day tabular view, weekly or yearly graphs.
- 'My Stations' option can show stations users visit often.
- Data latency has been reduced significantly; data are posted automatically from a WISKI database, typically within 20 minutes of the data being ingested.

- Advisories are colour-coded based on their severity; hydrometric station bubbles can be colour-coded according to their current advisory level and major water basins are colour-coded according to the highest advisory level active within the basin.
- Push notifications can be sent to the app in advance of a major system or when advisories are issued or updated.
- Photo submission: App users can take and submit field pictures to the RFC so that forecasters can see on-the-ground conditions.

- Station data are viewed via a live call to the WISKI database, eliminating any data latency other than station transmission intervals.
- Email / SMS Features: RFC staff can email and text updated advisories and other necessary information to all or select groups within a major river basin. This allows all flood responders to get information at the same time.
- Community Diaries: Municipalities can log impacts according to river, location and issue. This allows knowledge transfer between local authorities and RFC staff, as well as successive generations of each.

As AB Rivers Mobile was being developed, the RFC also embarked on a [‘Lessons Learned’](#) exercise, meeting with Emergency Managers and clients who were affected by the 2013 floods. Participants brainstormed a host of ideas that could improve RFC communications, products and services. An improved web presence that would include a dedicated place for Emergency Managers to access forecasts, communication tools and contextualized information was commonly identified as a tool many of the participants felt would assist during future events.

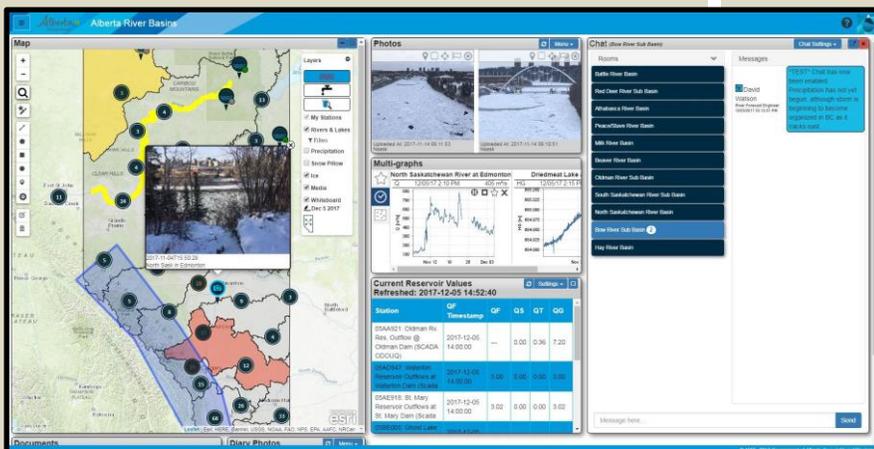


Secure Portal – Emergency Manager View

Using the mobile app as a springboard, design began on a new web application rivers.alberta.ca. The web app has both a public facing side as well as a secure login portal, where RFC staff and Emergency Managers can access additional information and communication tools. The web app was introduced in the spring of 2016, and includes the following features:

- Photos submitted via users of the mobile app can be pinned to the map, and are visible by all users of the portal.
- Interactive Whiteboard: RFC staff can add features to the provincial map in real time. Delineated areas of active or expected rainfall as well as spot information such as station malfunctions and infrastructure impacts can be shown.

- Chat Feature: RFC staff/upstream/downstream communities can share information.



Secure Portal – RFC Staff View

Since the introduction of these two tools, water shortage information and advisories have been integrated, so all water quantity related advisories in the province can be found in the same place and in the same format. The mobile and web apps allow many different users to access data and advisories in an interactive and intuitive way, streamlining communication and allowing government staff to communicate more efficiently with the public, emergency managers and first responders.

The National Weather Service's Hazard Simplification Project



Daniel Roman, National Weather Service Headquarters/
Water Resources Services Branch, Silver Spring, Maryland

The goal of the National Weather Service's (NWS) Hazard Simplification project is to simplify and clarify NWS hazard messaging for the public and NWS partners, with a focus on the NWS Watch, Warning, and Advisory (WWA) system. NWS has received considerable feedback that there are too many hazard messaging products and that the WWA terms themselves can be too confusing individually or with respect to each other. A secondary goal is to provide hazard information in as clear and concise a manner as possible.

As an initial component of the hazard simplification effort, the NWS will be consolidating and/or reformatting its flood hazard products. In this context, consolidation means the combining of two or more WWA products for a given hazard into one product. Changes to flood hazard products will be as follows:

- Flash Flood Warnings and Flash Flood Statements will be reformatted into the Impact-Based Warning (IBW) format. The IBW format provides valuable information to media and emergency managers, facilitates improved public response and decision making, and better meets societal needs in the most life-threatening weather events. IBW tags in these products will note if general, considerable, or catastrophic impacts are anticipated, which will allow the NWS to Wireless Emergency Alert (WEA) and Emergency Alert System (EAS) alert only those warnings with considerable or catastrophic impacts.

- All other flood products, including Flood Watches, Flood Watches for Forecast Points, Flood Warnings and associated follow-up statements, Flood Warnings for Forecast Points and associated follow-up statements, Flood Advisories, and Flood Advisories for Forecast Points, will be reformatted to follow a "What", "Where", "When", "Additional Details", and "Precautionary/Preparedness Actions" order.
- NWS will no longer use the following five types of individual headlines associated with flood advisory products: Urban and Small Stream Flood Advisory, Arroyo and Small Stream Flood Advisory, Small Stream Flood Advisory, Flood Advisory and, Hydrologic Advisory. Instead, specific information regarding individual hazards will be provided in the "What" portion of the Flood Advisory products.
- The Flash Flood Watch and Flood Watch will be consolidated into one Flood Watch product. The NWS will discontinue the use of the Flash Flood Watch product. Instead, information regarding possible flash flooding will be included in the "What" section of the reformatted Flood Watch product. The Valid Time Event Code (VTEC) phenomena (pp)/significance (s) code FF.A will be discontinued.

All NWS Weather Forecast Offices (WFO) will begin issuing flood hazard products in the simplified format in early 2019. For additional information on the NWS's hazard simplification project, please refer to <http://www.weather.gov/hazardsimplification/>.

Harris County Regional Joint Information Center Marks 10th Anniversary – Offers 10 Best Hacks

Rosio Torres-Segura, Harris County Office of Homeland Security & Emergency Management

Complex emergencies, natural or man-made, require public information from multiple partners – such as the National Weather Service (NWS), emergency management, flood control districts, public health and public safety. Coordinating multiple messages from different perspectives for the same incident is challenging if not difficult. However, the ability to coordinate effectively during a crisis is crucial to save lives and property.

Harris County has been doing this for more than a decade through its Regional Joint Information Center (JIC). During a disaster, the Regional JIC collaborates with key partners responding to the same incident to ensure coordinated and consistent messaging. As the information is received, it is prioritized, verified and delivered using the most effective means available.

Harris County is the third largest county in the United States and the largest in Texas, with a population of more than 4.7 million residents. It has 34 cities, including Houston, 57 fire departments, 125 law enforcement agencies, 22 major watersheds, and more than 1,200 municipal and public districts. Mass communication systems and new technology are therefore crucial to the communication process by disseminating messages rapidly via alerts, social media, apps, websites and other platforms.

Ten Best Hacks for an Efficient JIC

Assembling and sharing diverse urgent information in a coordinated way can be overwhelming, but the JIC concept can make the process more efficient. Lessons learned have helped improve the Regional JIC's operations over time. Below is a compiled list of ten best hacks.

1. Always be in a "constant state of JIC" – monitor, be ready to respond, have pre-scripted messages ready, have reliable communication systems. By doing this, your JIC will be a solid resource during an area-wide emergency. Your website can become a one-stop-shop for the media and public.
2. Maintain strong relationships with the media – have a media contact list and update it often. The media is an essential partner in emergency management. Get to know your local media representatives ahead of a disaster. Media coverage is more informed and accurate if you address inquiries in a timely manner; otherwise, the public and media may seek out alternative sources.
3. Have a facility (designated JIC) – equipped with computers, telephones, printers, TV monitors; and an area to accommodate staff deployed from partner agencies to help during an activation. Also, have a designated working area for media and a place to hold news conferences.
4. Network and have access to PIOs and communication professionals with a role in public safety, emergency response and crisis management. This is very important, especially during a large-scale event that may require round-the-clock staffing for an extended period of time. These partners can help relieve overworked staff and keep operations going.
5. Create JIC Strike Teams – trained PIOs from partner organizations that can assist in the JIC

are qualified individuals who can deploy rapidly for short or no-notice incidents. In Harris County, these teams are composed of disaster trained PIOs from various agencies.

6. Provide job information and tools – job aids, step-by-step guides, access to shared drives. Not all staff will have the expert knowledge or previous experience of working in a JIC, so roles need to be written with clear, succinct descriptions and job aids should be intuitive for any user. It is also important to provide staff with the technology and access needed to effectively produce the necessary communication products.
7. Offer a Partner Guide – the guide should provide general information about JIC operations and instructions on how to request assistance during an emergency. Provide contact information including telephone numbers, email addresses, website links and social media details.
8. Create a website for the event or have a designated area on your website where information can be accessed and posted. Set up an RSS feed to subscribe to latest news from partner agencies that will post directly to your website. Your website can be the clearing house for disaster and recovery information.
9. Learn how to use social media – create a social media policy, monitor platforms, only retweet reliable sources. If you are part of a social media network, monitor it daily and respond to questions or requests. Social media helps you reach wider audiences, helps you interact with the public, helps monitor situational awareness, and improves collaboration for sharing information during an emergency.
10. Let go – trust your partners to come in and help! Dealing with disasters always involves integrating the efforts of the many people who can lend and combine their diverse strengths before, during, and after an event. Identifying and reaching out to partners before an incident helps establish clear roles, responsibilities and lines of communication.

The Regional JIC is flexible and adaptable to accommodate virtual or multiple JIC locations if required. It is a vital tool for HCOHSEM and its partners, because effective and accurate communication can *save lives* and property, and helps build credibility and public trust. 🌐

ALERT Users Group 27th Flood Warning Systems Training Conference & Exposition

April 17-20, 2018
Ventura, California

Call for Abstracts

Instructions for Submitting
Abstracts

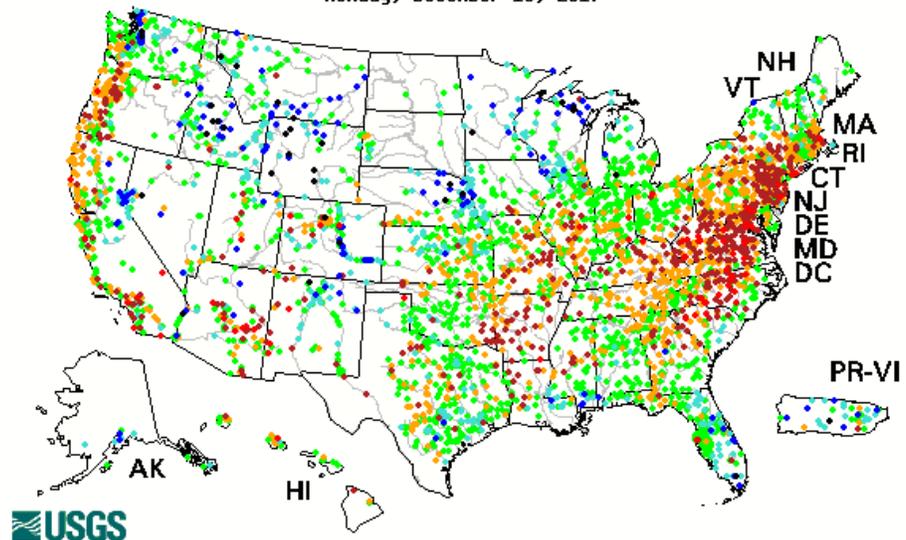
1. Abstracts should not exceed one page.
2. Abstracts should clearly describe the topic and have a title that clearly relates to the subject matter to be presented.
3. A concise biography of all authors must be submitted. This should include the name, job title, employer, phone number, street and e-mail address of each author. The person or people who will present the paper at the conference must be clearly identified.
4. Abstracts and biographies must be submitted as a PDF file by January 19, 2018. Send to: AUG-Conf@alertsystems.org
5. Preparation for a complete paper is highly encouraged, but is not a requirement for submitting an Abstract and making a presentation at the conference.
6. By submitting an Abstract or paper, authors agree to its distribution at the conference and to subsequent reproduction in the conference proceedings and on the website of the ALERT Users Group.
7. Authors will be notified in February 2018 of their inclusion in the conference program.

Additional Conference details are on the ALERT Users Group web site:

www.alertsystems.org

Hydrologic Conditions in the United States Through December 12, 2017

Monday, December 18, 2017

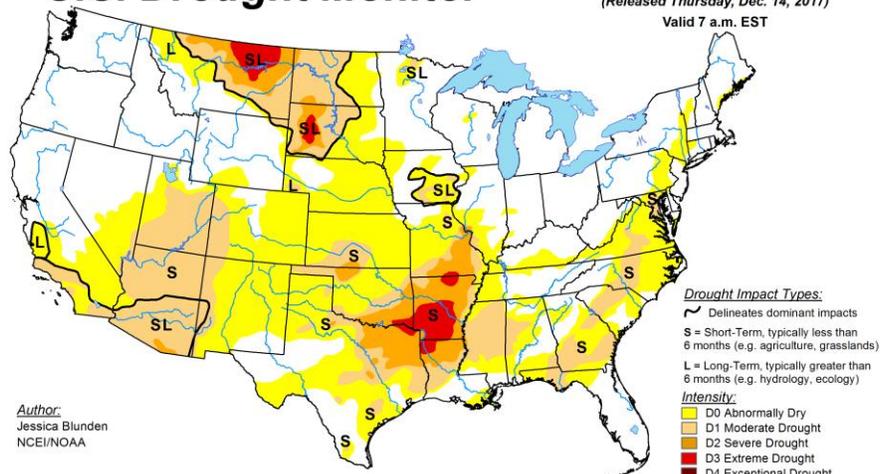


Explanation - Percentile classes						
●	●	●	●	●	●	
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

Latest stream flow conditions in the United States. (courtesy USGS)

U.S. Drought Monitor

December 12, 2017
(Released Thursday, Dec. 14, 2017)
Valid 7 a.m. EST

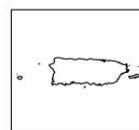
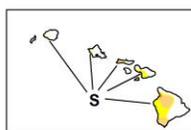


Author:
Jessica Blunden
NCEI/NOAA

Drought Impact Types:
 ~ Delineates dominant impacts
 S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
 L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:
 D0 Abnormally Dry
 D1 Moderate Drought
 D2 Severe Drought
 D3 Extreme Drought
 D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



<http://droughtmonitor.unl.edu/>

Latest drought conditions in the United States.
(courtesy National Drought Mitigation Center)

January Newsletter Articles Focus: Modeling & Analysis

The NHWC is requesting articles that focus on practices, technologies and tools used to model, predict and analyze hydro-meteorological events and to support decision making for emergency response and floodplain management.

Submit your article to:

editor@hydrologicwarning.org

January 8th is the deadline for inclusion in the January issue.

Future Newsletter Articles Focus

To give you more time to prepare articles, below is the article focus schedule for the next four months:

Jan - Modeling/Analysis
Feb - Data Collection
Mar - Hydrology
**Apr - Hazard
Communication &
Public Awareness**

NHWC Calendar

General Interest Calendar

January 7-11, 2018 – [American Meteorological Society 98th Annual Meeting](#), Austin, Texas

April 17-20, 2018 – [The ALERT User's Group Training Conference and Exposition](#), Ventura, California



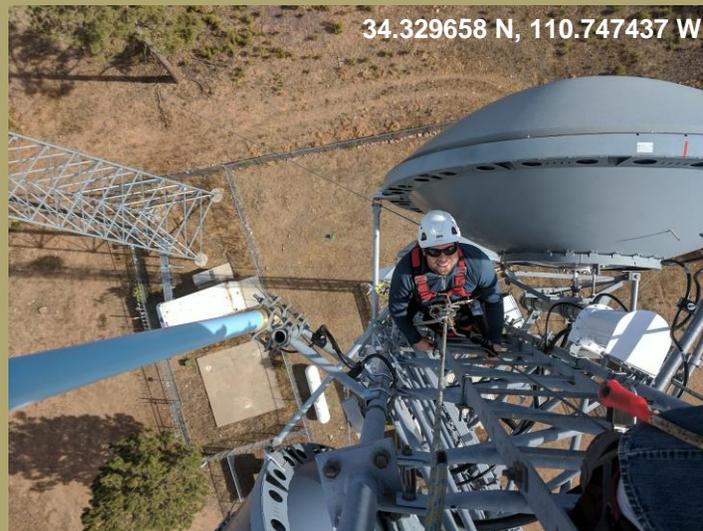
June 4-7, 2018 – [2018 ASCE Environment and Water Resources Institute International Congress](#), Minneapolis, Minnesota

June 17-21, 2018 – [ASFPM 2018 Annual Conference](#), Phoenix, Arizona

(See the [event calendar](#) on the NHWC website for more information.)

Parting Shot

Arizona Game and Fish Department and Department of Public Safety Integrate Systems for Dam Safety and Flood Warning



Peter Acton (left) working with Cory Helton on November 27th, 2017 installed a new antenna on the Brookbank Point Tower 140 feet above the ground.

JE Fuller completed the first implementation of an Arizona ALERT repeater integrated with the Arizona Department of Public Safety (DPS) statewide digital microwave network. This proof-of-concept project performed for the Arizona Game and Fish Department in cooperation with DPS will provide a redundant high-availability data telemetry path for dam safety and flood warning.

Photo by **Cory Helton**, JE Fuller/Hydrology & Geomorphology, Inc.

National Hydrologic Warning Council

*Providing Timely, Quality Hydrologic Information to Protect Lives,
Property, and the Environment*

<http://www.hydrologicwarning.org>