



The NHWC Transmission

August 2013

CONTENTS

Communicating Risk	1
Yavapai County DSS	2
NIDIS Drought Outlook	3
US Hydrologic Conditions ...	4
Calendar of Events	5
September Focus	5
Parting Shot	5

NHWC 2013-15 Officers and Directors

David Curtis

President
WEST Consultants, Inc.

Joshua McSwain

Vice President
Charlotte-Mecklenburg
Stormwater Services

Andrew Rooke

Secretary
AMR Consults, LLC

Chris Crompton

Treasurer
County of Orange Watersheds

Kevin Stewart

Past President
Denver Urban Drainage & FCD

George Wilkins

AUG Representative
Pacific REMS, Inc.

Directors At-Large

Steve Fitzgerald

Harris County FCD

Ben Pratt

Susquehanna River Basin
Commission

Jean Vieux

Vieux, Inc.

Communicating Risk

John Moynier, CFM, Dewberry

Every child has heard a warning like, “Don’t touch that stove, it’s hot!” or “Don’t sit too close to the TV, you’ll go blind!” The principal purpose of risk communication is to try to change behavior: this is typically done by people who are more informed as to the risks, providing people who may not be as well-informed with appropriate warnings with the ultimate purpose of reducing the risks that people are exposed to by allowing them to make better, more informed decisions. Just like parents to their children, by communicating risk, we hope to change behavior. We can’t keep people from making bad decisions, but we can help them make better decisions by communicating the risks involved. This is universal; the same principals apply for informing people of financial risks, as well as for physical risks.

However, unless we are there to physically restrain them, we can only hope they heed the warning. We’re all familiar with “Caution” signs, “Danger” signs, and other “How Do I Get Your Attention” signs, but do these work? That’s the dilemma faced every day by risk communication professionals. The red “Don’t Walk” light at an intersection does a good job of communicating the grave risks of crossing against the light, but it doesn’t keep people from stepping out into the intersection.

What is the best way to communicate risk so that people really do change their behavior? As a culture, we’ve grown immune to the “Had this been an actual emergency” announcements on radio and TV. What if it had been a real emergency? Would we have really paid more attention? We also have grown immune to the level of risk. I call it the “Cry Wolf” syndrome. If we say the risk or hazard is “severe” or “extreme” and nothing bad happens, did that really mean that the risk wasn’t real? Yet, the next time the message comes out, are people as likely to take it as seriously?

This is especially true with risk events that are real, but not so obvious that everyone heeds them. These include extreme weather events, flood warnings, fire danger, or avalanche hazard. It’s even worse with something that is much harder to predict like an earthquake or flu outbreak. Most people understand the “do and die” warning associated with being outside in a Class 5 hurricane, but what about staying put in the face of a “moderate” risk? As professionals, if we communicate risk and nothing happens, does that mean we were wrong? How can we know how the public will react? On the flip side, if we know that there is a risk of a terrible calamity and we say nothing, what are the legal ramifications (to say nothing of the moral implications)? What is our professional responsibility?

For those of us tasked with communicating risk, we always will face the reality that the general public may ignore or even deride our professional opinion. Just like the local weatherman who is right 50% of the time, it is ➡

an important (if sometimes thankless) job. For years, I presented a daily regional forecast of avalanche hazard, and I always lived in fear that I would not be able to communicate the risk properly or sufficiently to keep someone from making a poor or uninformed decision. My biggest concern came on days when the risk was “considerable”. On those days, the risk was mostly acceptable, but for specific areas the risk was extreme. We need to convey the risk, but we also don’t want to “cry wolf” and ultimately be ignored, but we also have to let people know to avoid being in the “wrong place at the wrong time”. That is the challenge for risk communication professionals - we want to get it right in a way that the public understands. Easy, right? Just make sure to look both ways before you cross the street! 🚗

Yavapai County Decision Support System

Brian Iserman, P.E., CFM, NHWC Editor,
JE Fuller/Hydrology & Geomorphology, Inc.

The Yavapai County Flood Control District (YCFCD) has embarked on an ambitious program to bring a higher level of situational awareness to a diverse community of flood emergency responders in and around Yavapai County, Arizona. This effort includes reinforcing the county’s existing ALERT flood detection system base station server capabilities and leveraging existing in-house GIS resources to provide greater situational awareness and overall system performance and reliability necessary for the growing challenges of predicting and responding effectively to flood related emergencies and providing the public with flood detection data and services that are intuitive.

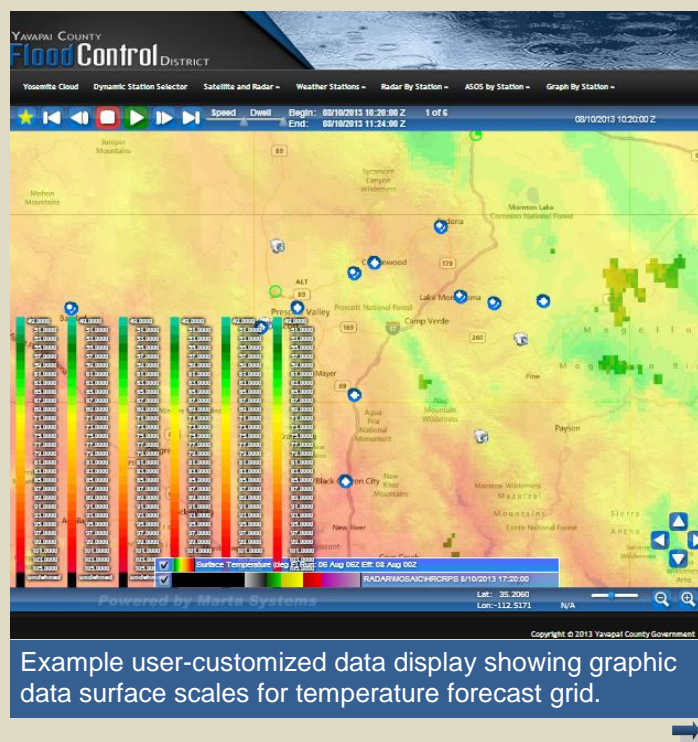
The project integrates software and services from diverse live and static datasets into a decision support system (DSS), including:

- **DataWise** - real-time ALERT and USGS data collection,
- **ESRI ArcGIS Server** – used by YCFCD for their GIS program,
- **GeoServer** – used to serve up all GIS data layers,
- **HEC-GeoRAS** – hydraulic model used to develop inundation mapping,
- **WordPress** – Web page support

- **SkyTAP** – service hosted by Marta System for providing NOAAPORT products,
- **Yosemite Cloud** – The platform that integrates everything, and
- **SQL with PHP** – used by Yosemite Cloud to keep track of all resources and turn clicks into data displays.

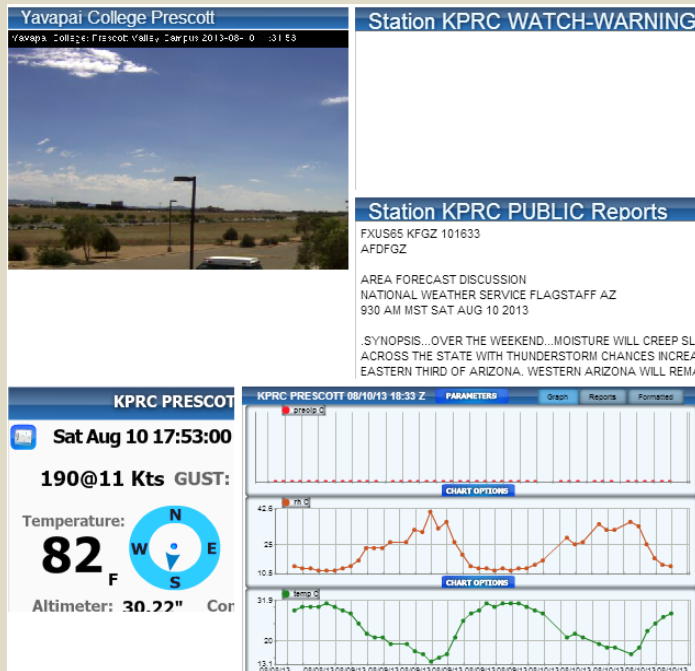
JE Fuller/Hydrology & Geomorphology, Inc., (JEF) is managing the project for YCFCD and producing inundation mapping for the project area and developing custom programming to establish data integration. Key to the integration is Yosemite Cloud software developed by Marta Systems, Inc. Yosemite Cloud brings all mapping elements together into a common platform to display user-defined grouping of decision support graphics and maps that include:

- Real-Time data (ALERT, USGS, NWS Surface Observations, METAR etc.) graphics and tables,
- GIS layers, including map backgrounds, county layers, inundation mapping etc.,
- NOAA Port products including looped radar and satellite imagery and NWS forecasts, watches and warning,
- Web cams, and
- Gridded products supplied by 3rd party providers such as Gauge-Adjusted Radar Rainfall (GARR), temperature forecasts, quantitative precipitation forecasts etc.



Example user-customized data display showing graphic data surface scales for temperature forecast grid.

A WordPress website with DSS access, now open for preview (<http://weather.ycflood.com>), was developed by JEF with Marta Systems and optimized with Yosemite Cloud to provide secure, credentialed access to emergency services workers and floodplain managers. Authorized individuals with credentials are able to save their own custom decision support pages, graphics and maps while public, non-credentialed, users are able to access pre-defined displays designed to provide intuitive access to flood detection data and services.



Example pre-formatted public access data display.

One of the key features desired by YCFCD was a system to automatically display inundation maps corresponding to forecasted river flow data produced by the Colorado Basin River Forecast Center (CBRFC). GeoServer was employed to manage a library of incremental raster inundation maps developed by JEF for the study area which includes a reach of the Agua Fria River and tributaries at Black Canyon City, Arizona north of the Phoenix area. HEC-GeoRAS was used to develop incremental inundation maps for this project as well as for a concurrent regulatory floodplain delineation study performed by JEF.

An important element of the project was to build in scalability. With the Forecast Inundation Mapping System (FIMS) now working for the project area, the county plans to add inundation mapping layers to the GeoServer Map Library for other rivers in the county using map display standards which were developed by JEF working collaboratively with Atkins, who was working

concurrently on a large re-mapping project on the Verde River.

Because the system will be used for flood detection and emergency response, the project team placed an emphasis on maximizing system availability. One of the ways this was accomplished was to locate all servers, software and telemetry hardware locally in hardened county-operated facilities. Even the website (currently in a test phase) is being hosted in an in-house virtual server environment. Plans for further system hardening include installation of a NOAAPORT satellite receiver station to replace the web-based SkyTAP NOAAPORT service. Beta testing for the DSS is expected to be completed by December, 2013.

YCFCD has developed a scalable resource in a high-availability environment that will help increase situational awareness so that emergency response personnel and resources can be allocated efficiently and effectively to save lives and property in Yavapai County, Arizona.

NIDIS Releases National Drought Outlook

The National Integrated Drought Information System (NIDIS) has just released a [National Drought Outlook](#)

The Outlook includes:

- Current and anticipated national drought conditions
- National seasonal precipitation and temperature outlooks
- National wildfire outlook
- Corn and cotton information

The Outlook can be downloaded from the NIDIS Drought Portal reports page at: <http://www.drought.gov/drought/content/resources/reports>

The Outlook includes content provided by the following agencies:

DOI/Bureau of Reclamation www.usbr.gov

DOI/US Geological Survey waterwatch.usgs.gov

National Interagency Fire Center www.nifc.gov

National Drought Mitigation Center drought.unl.edu

NOAA/NWS Climate Prediction Center
www.cpc.ncep.noaa.gov

US Army Corps of Engineers www.usace.army.mil

USDA/Office of the Chief Economist www.usda.gov/oce

Mark your Calendars

The 11th NHWC Training Conference and Exposition will be June 15-18, 2015 at the Crown Plaza at Historic Union Station in Indianapolis, Indiana.



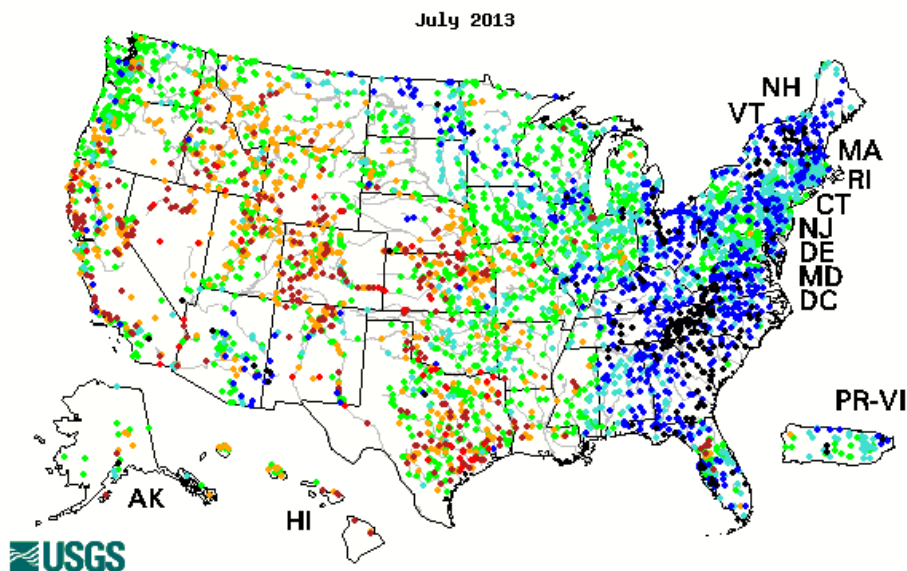
NHWC 2013 Conference Presentations Now Available

Presentations from the 2013 conference are now available for download. Please follow this [link](#).

Four Ways to Support This Newsletter and NHWC

- Purchase advertising space...click [here](#)
- Contribute an article (see the article schedule on page 5)
- Send an interesting photo for the Parting Shot section
- Get on the newsletter editing team by contacting the editor at editor@hydrologicwarning.org

Hydrologic Conditions in the United States Through July, 2013

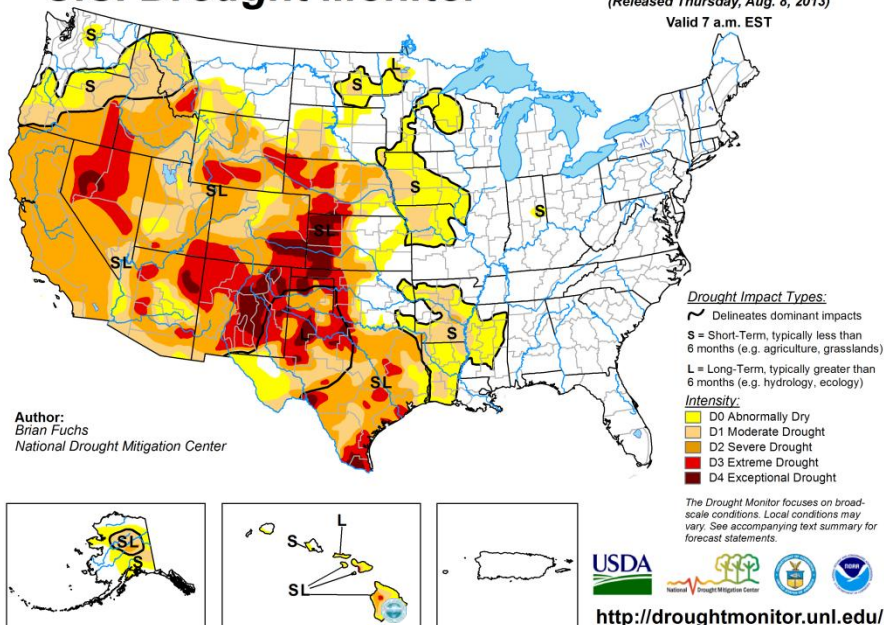


Explanation - Percentile classes						
●	●	●	●	●	●	●
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

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

U.S. Drought Monitor

August 6, 2013
(Released Thursday, Aug. 8, 2013)
Valid 7 a.m. EST



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

September Newsletter Articles Focus: Modeling & Analysis

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

Submit your article to:

editor@hydrologicwarning.org

September 1st is the deadline for inclusion in the September issue.

Future Newsletter Articles Focus

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

Sep - Modeling/Analysis
Oct - Data Collection
Nov - Hydrology
Dec - Hazard
Communication & Public Awareness

NHWC Calendar

June 15-18, 2015 - NHWC 2015 Training Conference & Exposition, Indianapolis, Indiana

General Interest Calendar

Sept 8-12, 2013 – [ASDSO Dam Safety 2013](#), Providence, RI

August 25-27, 2013 - [2013 APWA International Public Works Congress & Exposition](#), McCormick Place, Chicago-IL

May 6-9, 2014 - [ALERT User's Group 25th Flood Warning Systems Training Conference & Expo](#), Reno, Nevada



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

Parting Shot



Seen in the Flood Control District of Maricopa County ALERT Room. ALERT has early roots in Arizona.

Photo by Brian Iserman, NHWC Editor, 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>