



The NHWC Transmission

November 2017

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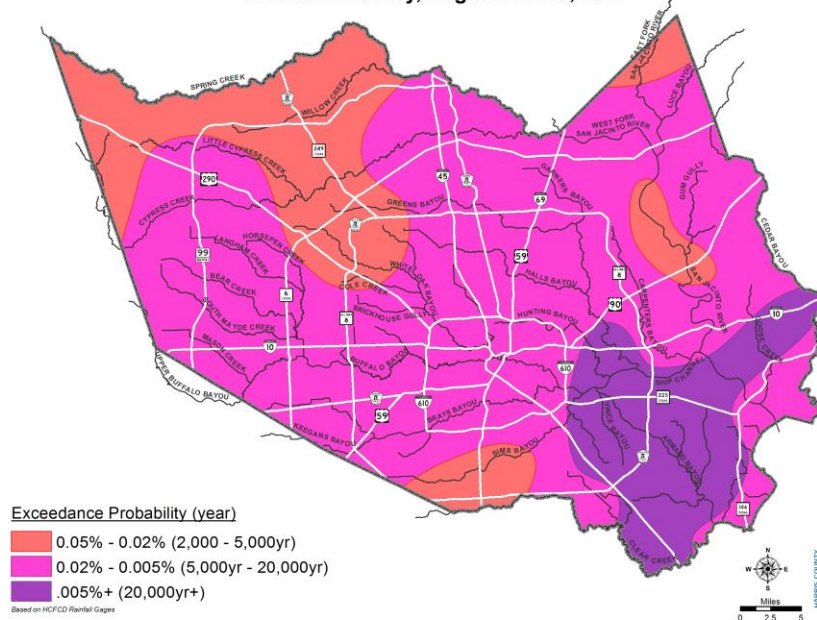
Harvey, Houston, and Hydrology

Bruce Rindahl, Ventura County Watershed Protection District
Steve Fitzgerald, Harris County Flood Control District

When Hurricane Harvey struck Texas this past August, the City of Houston and Harris County received thirty to over forty inches of rain in all the 22 watersheds. The flooding and damages were widespread and historic. Almost immediately after the rains stopped and the water began receding, “experts” and media reports began to look for something to blame. The easiest culprit was the increase in population in the county over the past fifty years and its resultant increase in development and impervious area. This was given as the cause of flooding by numerous media outlets and TV shows for both informational and comedic effect. Unfortunately, this was not the primary cause of the historic flooding in the county, but simply the unprecedented volume and rate of rainfall.

With predominantly clay soils over 90% of the county, the initial soil infiltration losses are typically in the 1-2" range. Harris County had several typical rain bands starting Wednesday afternoon that began to saturate watersheds. By midnight Friday, soils were partially saturated in most watersheds. Once they received 3-4" total by daybreak Saturday morning, the watersheds were totally saturated. When the heaviest rainfall bands struck the county over the weekend and into Monday, every drop of rain was converted into runoff whether it fell on pavement, grass or wetlands. This is easily verified by standard analysis such as the SCS method or groundwater equations.

Four Day Peak Rainfall Frequency
Hurricane Harvey, August 25 - 29, 2017



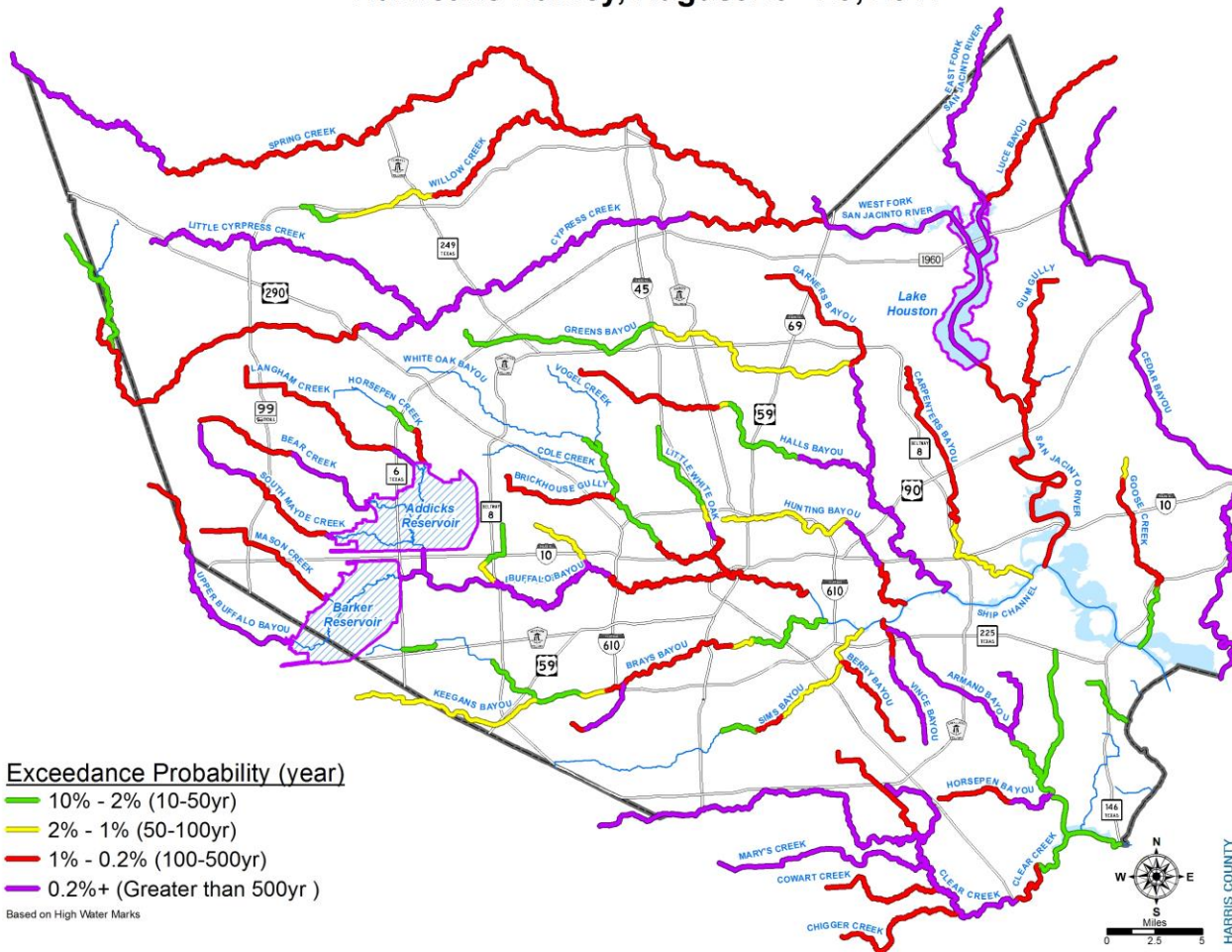
Since 1984, new development and public infrastructure is designed for no adverse impact up to and including the 1% annual flood, and account for the extreme events for 1%+ events or if the outfall structures get completely clogged. That is, building first floor elevations are high and the streets and topography are designed so excessive storm water will flow overland. Most of the county's channels, detention basins, roadways, and local drainage systems were overwhelmed by the flooding by Saturday evening, but in many cases the impacts were less than what it could have been because they conveyed the stormwater more efficiently than the more rural channels and older urban drainage systems. Large regional detention facilities and site-specific detention basins reduced flooding impacts as they were designed to do even though

water levels exceeded the emergency spillway.

To reduce the chance of future flooding and the time and cost to recover, the local jurisdictions are evaluating their respective current drainage regulations and criteria and will likely make refinements based on lessons learned from Hurricane Harvey as was done previously after major flood events.

Explaining a complicated situation like the effects of Hurricane Harvey on a vast urban area such as Houston is difficult. This is especially true when public media demands a quick sound bite or headline. However, consistent, timely, and factual education is the best way to inform the public about the potential flooding hazards they could face and the public media is the most effective method in the third largest county in the U.S.

Peak Channel Water Surface Elevation Frequencies Hurricane Harvey, August 25 - 29, 2017



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

April 17-20, 2018
Ventura, California

Call for Abstracts

Instructions for Submitting
Abstracts

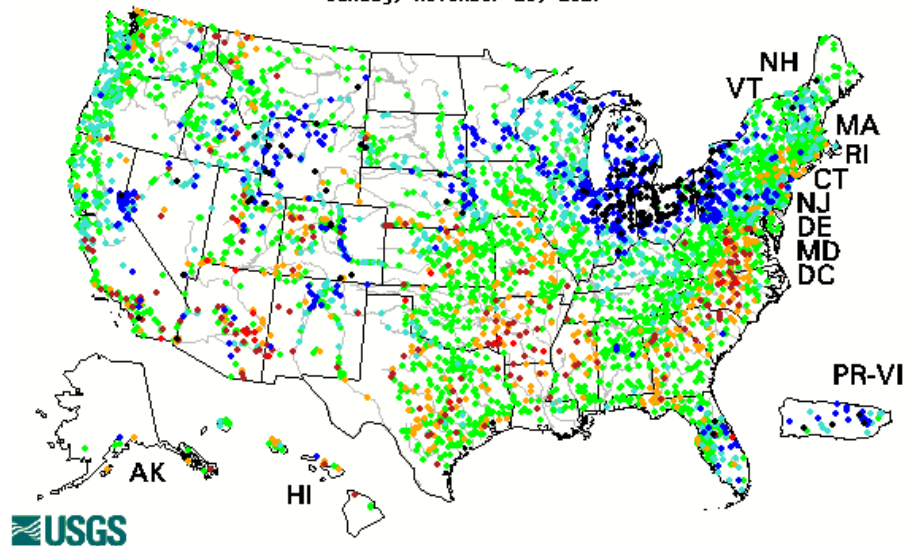
1. Abstracts should not exceed one page.
2. Abstracts should clearly describe the topic and have a title that clearly relates to the subject matter to be presented.
3. A concise biography of all authors must be submitted. This should include the name, job title, employer, phone number, street and e-mail 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 November 14, 2017

Sunday, November 19, 2017

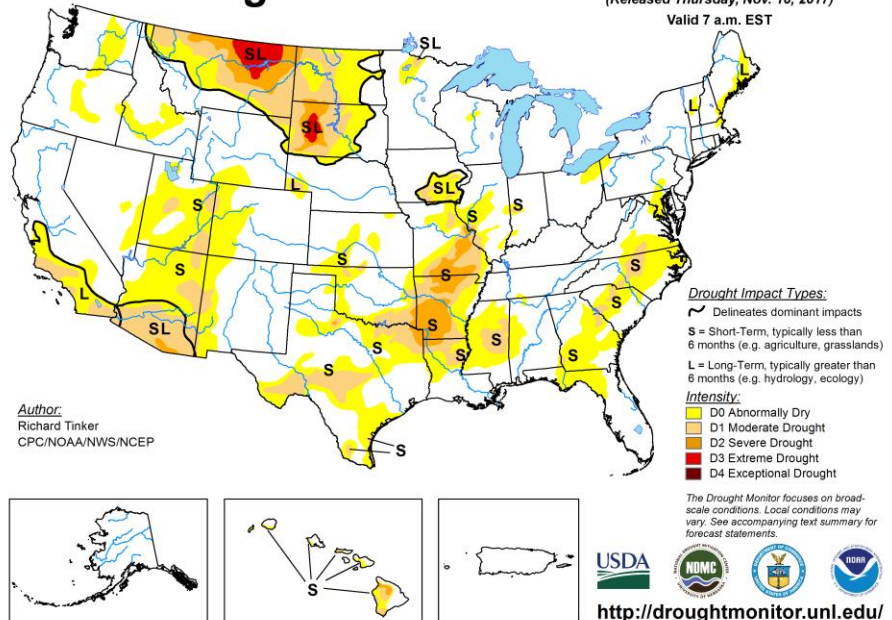


Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

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

U.S. Drought Monitor

November 14, 2017
(Released Thursday, Nov. 16, 2017)
Valid 7 a.m. EST



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

**December
Newsletter
Articles Focus:
Hazard
Communication
& Public
Awareness**

NHWC is requesting articles that focus on getting the word out.

Please prepare an article that explains how your organization gets the right real-time data and information to the right people for the right response.

Submit your article to:

editor@hydrologicwarning.org

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

**Future Newsletter
Articles Focus**

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

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

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

ALERT Users Group Fall Meeting & Workshop – October 19, 2017



50 people attended this year's ALERT Users Group Fall Meeting and Workshop in Sacramento, California. Topics included Flood Warning Tips & Tricks; characterizing how much rain falls between gages during an epic storm like Hurricane Harvey; ALERT Data Collected During Hurricane Harvey near Beaumont, Texas; ALERT2 GPS Troubleshooting, 2017 Cosumnes River: Forecasting, Modeling and Real-Time Gage Information, and (shown above) Winter Weather Outlook presented by Mike Anderson, California State Climatologist.

Photo by **Brian Iserman**, JE Fuller/Hydrology & Geomorphology, Inc.
NHWC Editor

National Hydrologic Warning Council

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

<http://www.hydrologicwarning.org>