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Leveraging Traditional Broadcast Media to Disseminate Effective Flood Risk Information

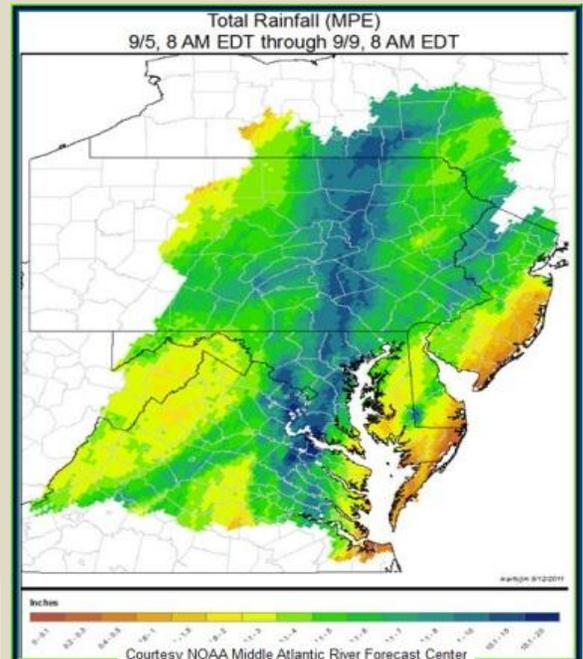
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Stuart Geiger, CFM – Dewberry, Fairfax, VA

The Susquehanna River begins in Cooperstown, New York and flows 440 miles to the Chesapeake Bay. The 27,500 square mile drainage basin is recognized as one of the nation’s most flood prone due to the basin’s susceptibility to tropical systems and the varied topography of the region. Advanced warning of extreme hydrologic events is disseminated to citizens of the basin by the Susquehanna Flood Forecast and Warning System (SFFWS) through NOAA’s National Weather Service. The SFFWS provides a network of stream gages and rain gages that collect and communicate critical data to forecast flood events.

Following catastrophic flooding in June 2006, the Susquehanna River Basin Commission (SRBC) in partnership with the SFFWS and private-sector technical support developed the web-based [Susquehanna Inundation Map Viewer \(SIMV\)](#) to provide a graphical flood inundation display for a gage specific NWS forecast. During recent extreme hydrologic events in the basin, the general public accessed and made use of the web-based SIMV product, clearly demonstrating that the general public will seek and use online risk communication tools to make informed decisions affecting their own life and property.

In September of 2011, the remnants of Tropical Storm Lee dumped more than 15 inches of rain through the heart of the basin (Figure 1, Total Rainfall Graphic). Catastrophic flooding once again plagued communities along the river from Binghamton, New York to Bloomsburg, Pennsylvania. During the course of the event WBNG (a local television station) advertised the availability of inundation maps in the viewing area. Subsequently, SIMV received more than 12,000 unique hits from people looking for this information.

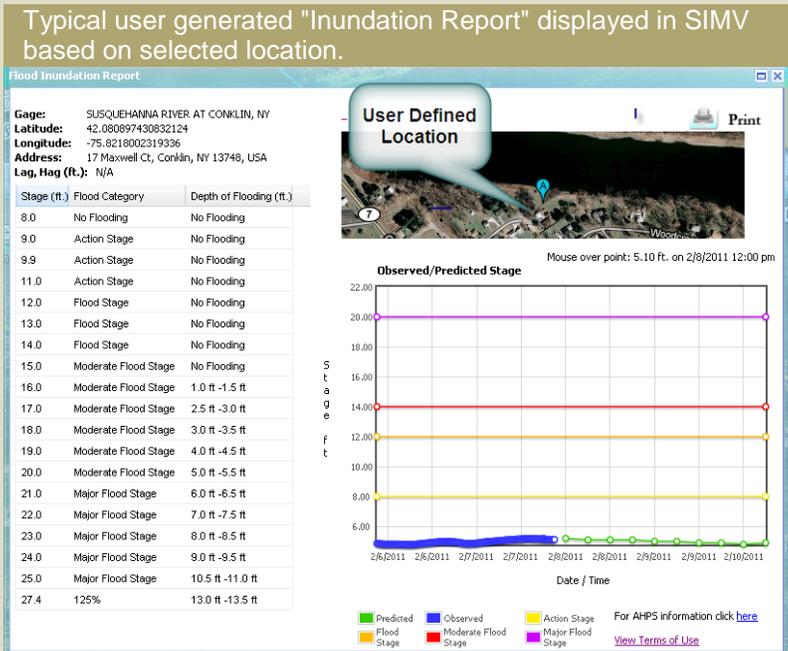
Immediately following the passage of Tropical Storm Lee, SRBC evaluated the use of SIMV during the flood event. Since SIMV first went live in April 2010, Google Analytics web tracking software had been actively tracking site visits. On average, SIMV was receiving between 10



Tuesday, September 6, 2011	0.17% (22)
Wednesday, September 7, 2011	26.66% (3,501)
Thursday, September 8, 2011	49.61% (6,514)
Friday, September 9, 2011	15.13% (1,986)
Saturday, September 10, 2011	4.66% (612)
Sunday, September 11, 2011	2.44% (320)
Monday, September 12, 2011	1.33% (175)

and 30 visits per day. From September 6 to September 12, 2011, SIMV recorded 14,703 hits, with a peak of nearly 6,500 visits on September 8, the day immediately prior to the flood peak. Of the 14,703 visits, 82% were from visitors who had never previously accessed the site.

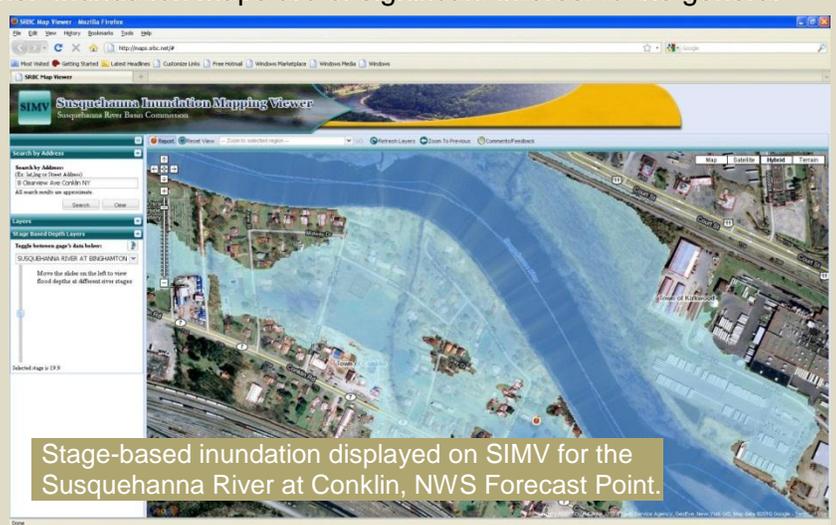
Delving deeper into these statistics, the power of website referrals becomes evident. During the 7 day period covering Tropical Storm Lee, 70.2 percent of SIMV traffic was directly referred from WBNG.com. In comparison, the SFFWS website, susquehannafloodforecasting.org, referred 11.7 percent of traffic, with direct access via the SIMV URL providing 6.6 percent. Social media had limited impact, with 5.41 percent of traffic from Facebook and no traffic from Twitter, despite active marketing through the SRBC's Twitter Handle (@SRBCnews). It should be recognized that at the time of the event SRBC's Twitter handle was only weeks old and did not have many followers.



The response generated from WBNG.com referrals indicates that in North Central Pennsylvania and the Southern Tier of New York, TV-based media remains one of the most effective ways to communicate hazards. People who tuned into the news program might have had various reasons for doing so, such as seeing how their friends and family were impacted, what stage the river was expected to crest at, or simply to continue a daily habit. Whatever the reason, WBNG.com exposed the SIMV link to a multitude of viewers, compelling nearly 10,300 people to seek additional flood risk information via SIMV. Mainstream media referrals, particularly in an emergency, distinctly facilitated the communication of risk associated with Tropical Storm Lee in a way not previously possible because it simply was not available.

The availability of SIMV during Tropical Storm Lee is an opportunity to educate the hydrologic warning community on effective risk communication techniques during an extreme hydrologic event. While much can be inferred from the Google Analytics regarding our success in communicating flood risk, the facts are startling. Local media is a powerful resource for directing the general public to online risk communication tools and should be leveraged in flood response plans. Inundation maps are of significant interest to the general public and should be readily available for any forecast point that has public risk associated with it. The online user experience needs to be streamlined to promote effective, potentially life and property-saving decisions regarding flood risk.

Catastrophic flooding in the Susquehanna basin will continue to be a reality that must be managed and minimized to the greatest extent possible. The digital age has presented unprecedented opportunity to communicate risk and we must direct our available resources and collective talents to provide effective tools that build resiliency in our communities.



April Newsletter Articles Focus:

Modeling & Analysis

The NHC 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

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

NHWC Calendar

General Interest Calendar

April 2-5, 2012 – [2012 Southwest Wildfire Hydrology and Hazards Workshop](#), Tucson, Arizona

May 15-18, 2012 – [24th Flood Warning Systems Training Conference and Exposition](#), Reno Nevada

May 20-25, 2012 – [ASFPM 36th Annual Conference](#), San Antonio, Texas

June 26, 2012 – [2012 California Extreme Precipitation Symposium](#), UC Davis, California

August 12-15, 2012 – [Hydraulic Measurement and Experimental Methods Conference](#), Snowbird, Utah

August 13-16, 2012, [NAFSMA Annual Meeting](#), Coeur d'Alene, Idaho

September 16-20, 2012 – [ASDSO Dam Safety 2012](#), Denver, Colorado

October 6-11, 2012 – [National Weather Association 37th Annual Meeting](#), Madison, Wisconsin

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

Parting Shot



Tyler Azeltine (right) of JE Fuller Hydrology helps Lonnie Sanders of the Pinal County Flood Control District install a new ALERT stream stage station near Red Rock, Arizona.
Photo by Ethan Rode – JE Fuller Hydrology – February, 2012

National Hydrologic Warning Council

Providing Timely, Quality Hydrologic Information To Protect Lives, Property, and the Environment
<http://www.hydrologicwarning.org>