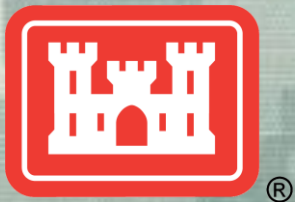


U.S. Army Corps of Engineers Response to South Carolina Floods

Anthony Niles

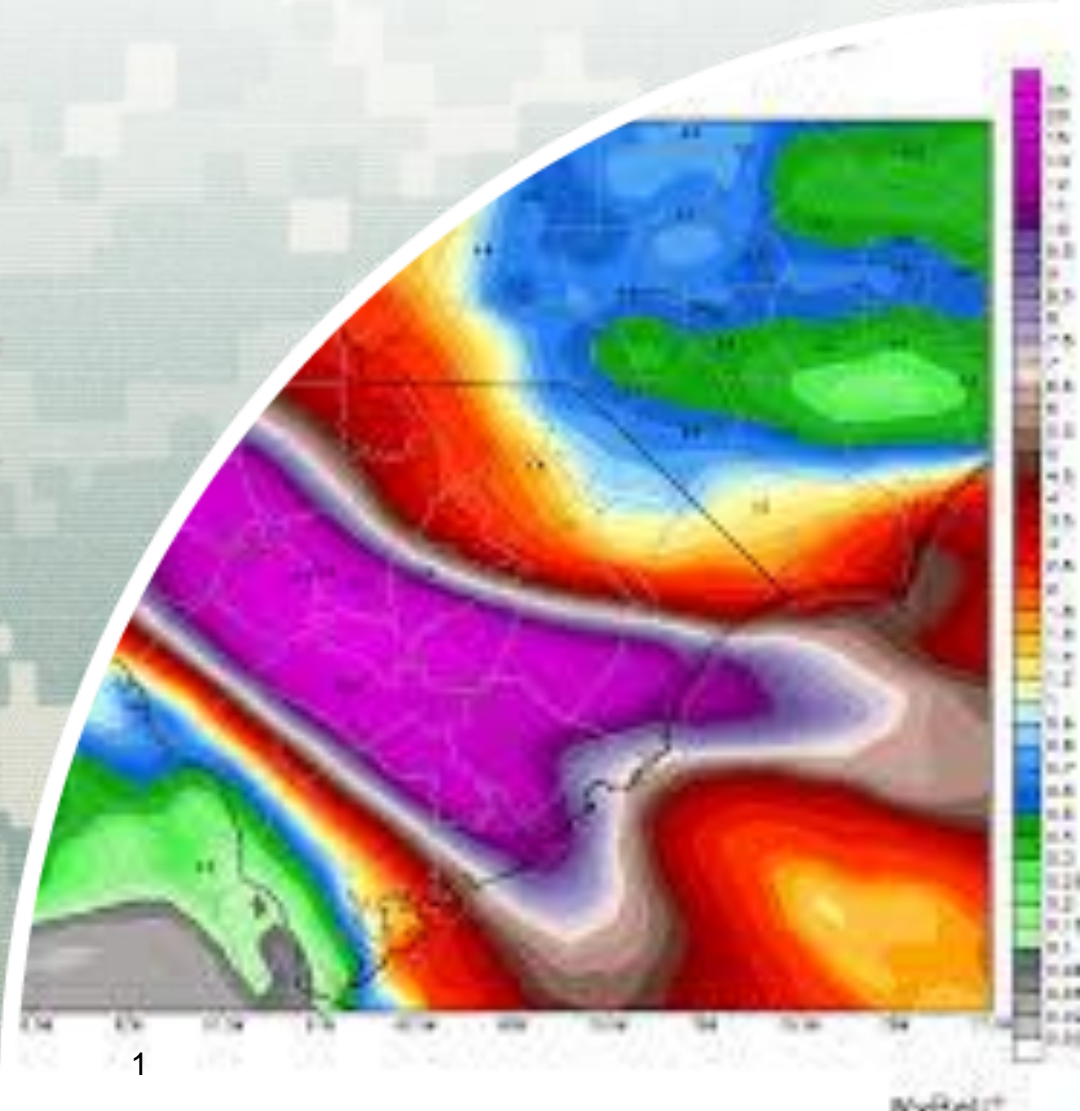
Headquarters Directorate of
Research and Development

05 November 2015



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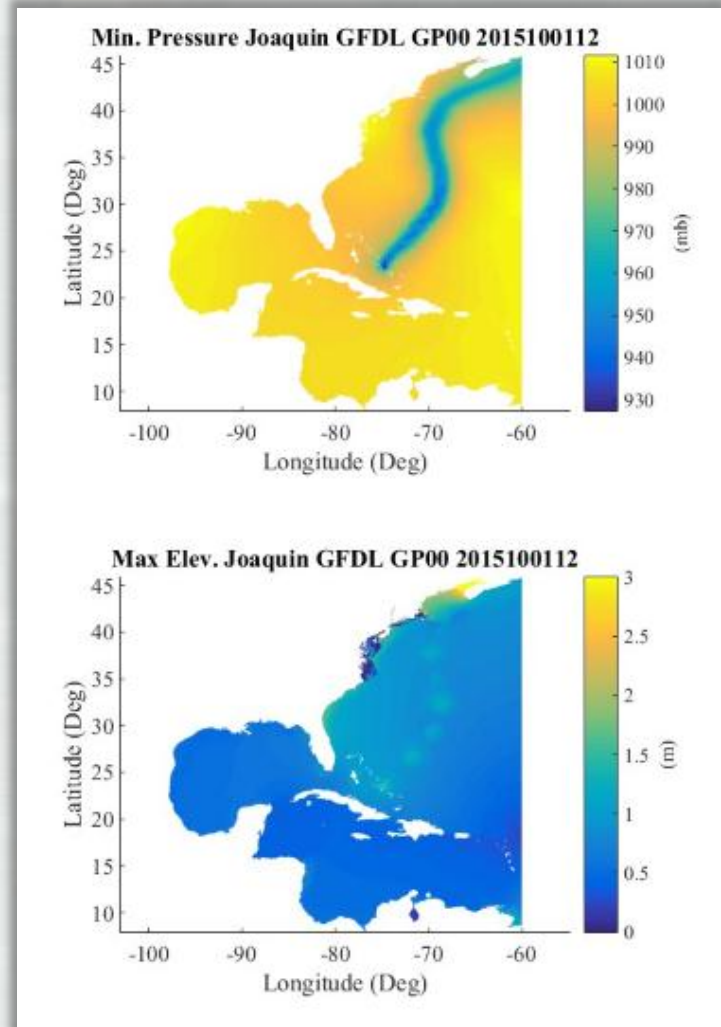
US Army Corps of Engineers
BUILDING STRONG®



The Challenge: Hurricane or Inland Inundation?

Initial preparations were for Hurricane Joaquin making possible landfall, anywhere from the Carolinas to New England

ADCIRC Model showing Maximum Surge Include Tide Contributions



USACE Missions in Response to South Carolina Floods

Stafford Act Missions;

- 249th Prime Power Team Temporary Emergency Power
- Regional Activation, ESF-3 support to FEMA
- Dam Safety Engineer Support to State: 653 dams assessed, with a follow-up of 75 dams with the highest concern. Of the 75 dams, 9 dams were identified as the most vulnerable and needing immediate action.
- Dam Safety Support to Army: assessment of Fort Jackson Semmes Dam/Lake (MILCON funded mission) with follow-on studies.
- Unmanned Aerial System (UAS): Geo-referenced high resolution aerial imagery products over 4 dams, airport and two passes of an area hit the hardest from the flooding.
- Coastal Assessment Engineers (NC/SC): Assessment of approximately 23 non-Federal engineered beaches that sustained damages due to the Severe Storms and Flooding.

USACE Missions in Response to South Carolina Floods

Stafford Act Missions (continued);

- Project Worksheet Writers (PWW): 20 USACE personnel providing FEMA assistance for the preparation of Project Worksheets for Public Assistance Program.

PL 84-99 Mission:

- Federal CSRM Project (Beaches) Preliminary Damage Assessments (PDA): 1 project in North Carolina and 4 projects in South Carolina.
- Flood Risk Management (FRM) Projects Assessments. Four assessed with minor to moderate damage; request for rehabilitation assistance anticipated.
- Flood Fight Equipment: 100K sandbags were provided to the State of South Carolina in support of the Severe Storms and Flooding.
- Response Operations. USACE LNO support to the States, EOC Operations, Assessment Teams, GIS Support.

Post-Flood Observations

- Total Stafford Act and PL 84-99 costs, to date: ~\$3.4M
- SAD Hurricane Rehearsal enabled response according to plan
- Assessment of privately owned dams is not within USACE mission, although such FEMA Mission Assignments are likely in the future. Commercial engineering companies should be a part of the initial planning.
- Although USACE is the Nation's expert in infrastructure, states have jurisdiction and authority over most of their infrastructure. More collaboration with states is needed in preparation for future events.
- First use of the Unmanned Aerial System (UAS) in a disaster demonstrated the ability to obtain geo referenced high resolution aerial imagery products in a timely manner.

Unmanned Aerial System

UAS from Jacksonville District deployed for rapid assessment of critical waterway and flood control structures



Katherine Dam –Delineated area flown



West Bank of Columbia Canal; rendered point cloud from geospatial data shown