The South Carolina Extreme Rainfall Event

Oct 2-4, 2015

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Meteorological Situation

South Carolina Flooding (Synoptic Summary)
Oct. 3-4, 2015

500hPa
850hPa Moisture Transport
Track of Joaquin

500hPa
South Carolina Flooding (Synoptic Summary)
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Meteorological Situation

[Map and weather patterns]
Rainfall By the Numbers

- 15-25” of rainfall in 3 days, including metro areas of Charleston and Columbia.
- The rainfall exceeded that of any tropical cyclone in South Carolina history.
- The flood of record was observed on the Black River.
- The official statewide daily rainfall record was exceeded in several locations.
- The statewide October monthly precipitation record has been broken.

- Rainfall in much of South Carolina had only a 0.1% chance of occurring in any given year

![Observed Rainfall](image-url)

Red = 1% chance of occurrence in any given year
Purple = 0.1% chance of occurrence in any given year
### Event Timeline

**Thursday, Oct 1**
- 4 am: NWS predicts 15” for South Carolina and issues Flash Flood Watches
- 8:30 am: NWS briefs FEMA HQ
- **6 pm: State of Emergency declared**

**Friday, Oct 2**
- 5 am: NWS continues prediction of historic rainfall including ‘high risk’ of flash flooding
- 6 am: NWS deploys onsite to FEMA Region IV
- 8:30 am: NWS briefs FEMA HQ
- “Potentially Catastrophic” used in NWS messages
- **State and FEMA pre-position assets**
- 12 pm: Governor Haley Press Briefing
  “this is not just any rain, this is going to be the heaviest rainfall we have ever seen”
- Event begins in earnest

**Saturday, Oct 3**

**Sunday, Oct 4**
- Civil Emergency Message for the entire state for people to remain where they are if in a safe place

**Monday, Oct 5**
- NOAA/USGS rapid river gauge deployments and flood damage surveys
Decision Support Services

• Remote Support to Partners
  • FEMA – National Watch Center and Regions.
  • U.S. Department of Health and Human Services.
  • State of South Carolina.
  • Santee Cooper (State-owned utility seated at the South Carolina Emergency Operations Center).

• On-site Support to FEMA Region IV
  • NWS Meteorologist and Hydrologist deployed.

• Decisions based on NWS Support and Data
  • Evacuations.
  • Pre-positioning of resources.
  • Pre-positioning of personnel.
  • Enhanced staffing.
  • Contingencies for power operations
Meteorologists are deeply uncertain about where Joaquin will go. But they warn that the record-breaking downpours from storm No. 1 are a sure and scary thing.
The System Worked

Accurate and consistent forecasts of a historic rainfall event

Proactive federal, state, and local response

Meteorologists pegged the epic South Carolina flood forecast days in advance

“...it’s hard to imagine how forecasters could have done a better job in warning about this flood event.”

“Through continuous decision support..., FEMA and interagency partners were able to preposition assets and personnel”

“this is going to be the heaviest rainfall we have ever seen” – South Carolina Governor Haley