




HALLOWEEN 2019 RECORD FLOOD

June 3, 2020 Partners Meeting

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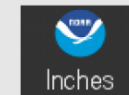
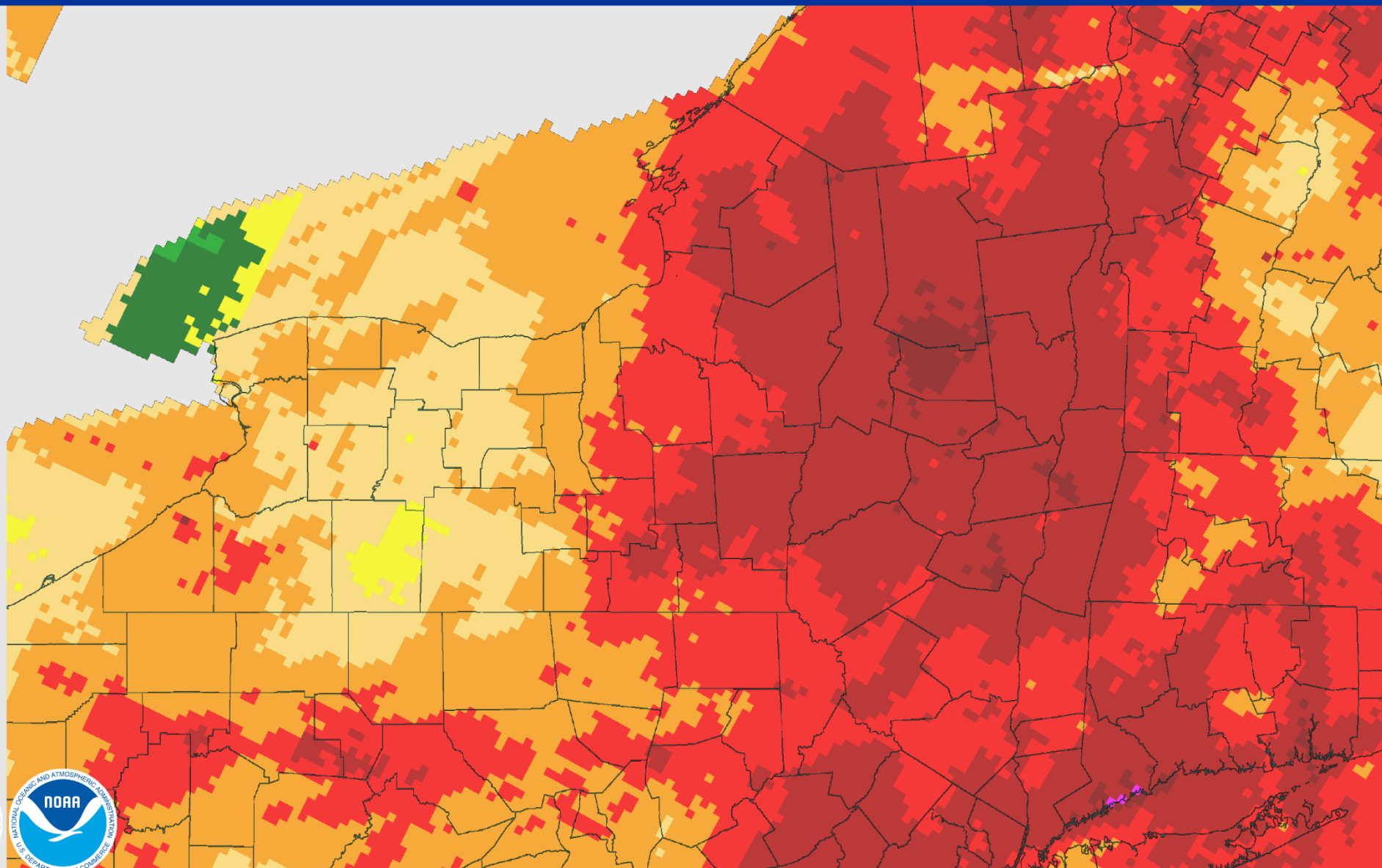
Here's the plan:

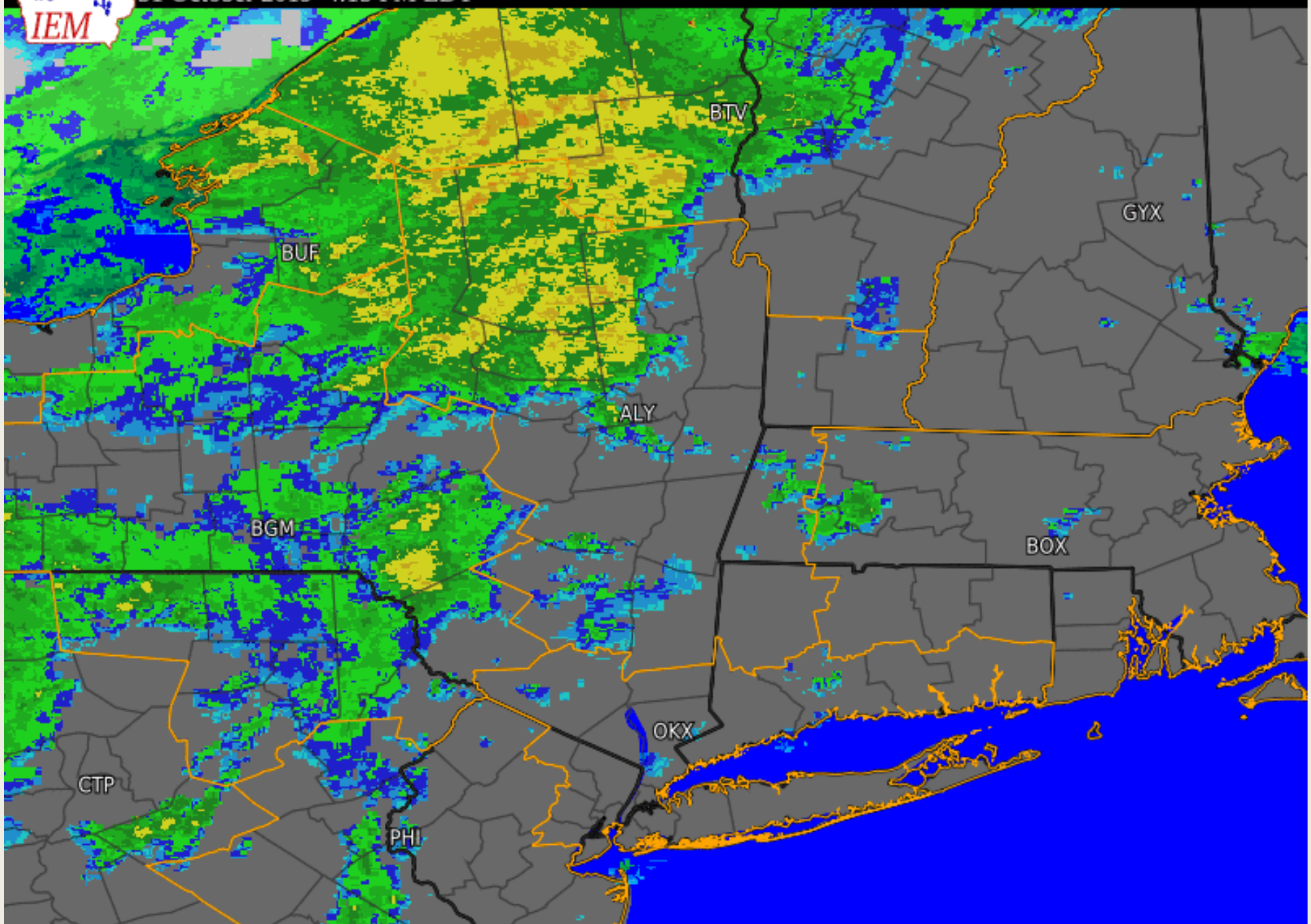
- Rainfall amounts
- Hydrograph review for floods of record
- How geography affects hydrology
- NWS Albany action / challenges

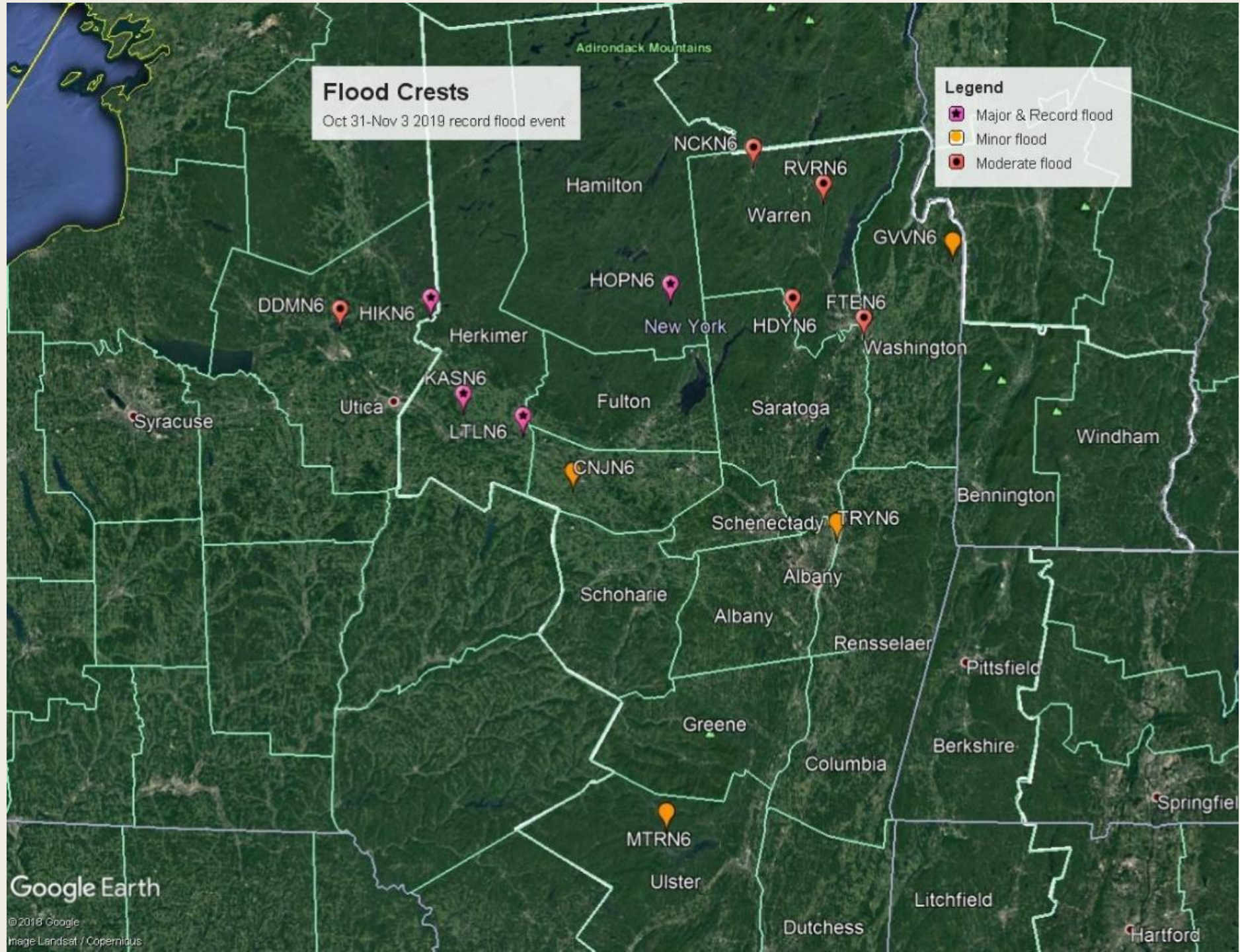
October 31, 2019 30-Day Observed Precipitation

Created on: November 01, 2019 - 13:25 UTC

Valid on: October 31, 2019 12:00 UTC







By the numbers...

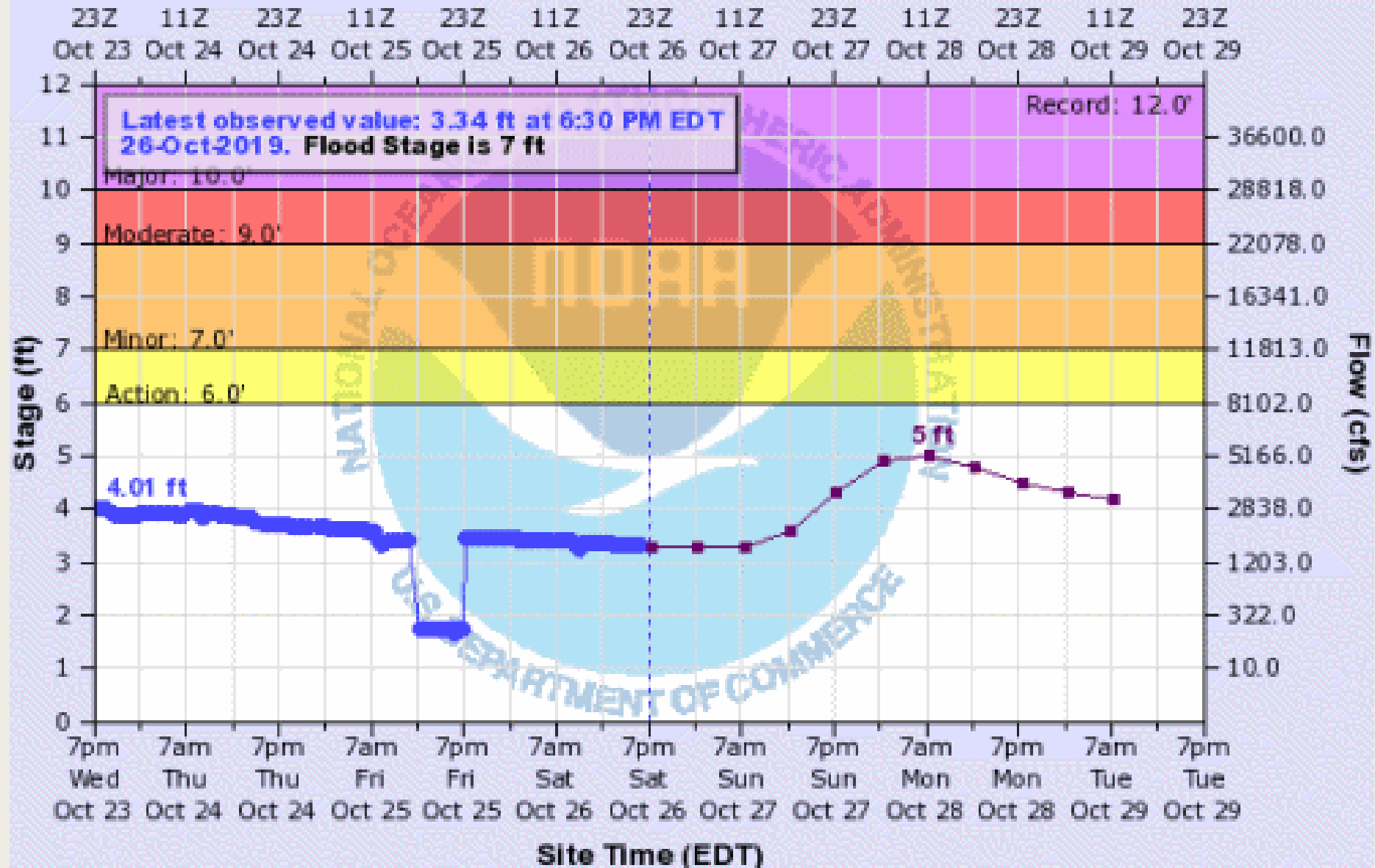
- Total # of floods at forecast points: 13
- # of major / record floods at forecast points: 4
- # of moderate floods: 5
- # of minor floods: 4
- # of Flash Flood Emergencies issued: 2
- # of fatalities: 1
- # of condition B / potential failure declarations at dams (Flash Flood watches): 2
- # of high flow dam alerts: 6

Period of record for record peaks:

Sacandaga R nr Hope, NY - 107 yrs
W Canada Cr at Kast Bridge, NY - 99 yrs
Mohawk R nr Little Falls, NY - 95 yrs
Hinckley Reservoir - 105 yrs

SACANDAGA RIVER AT HOPE

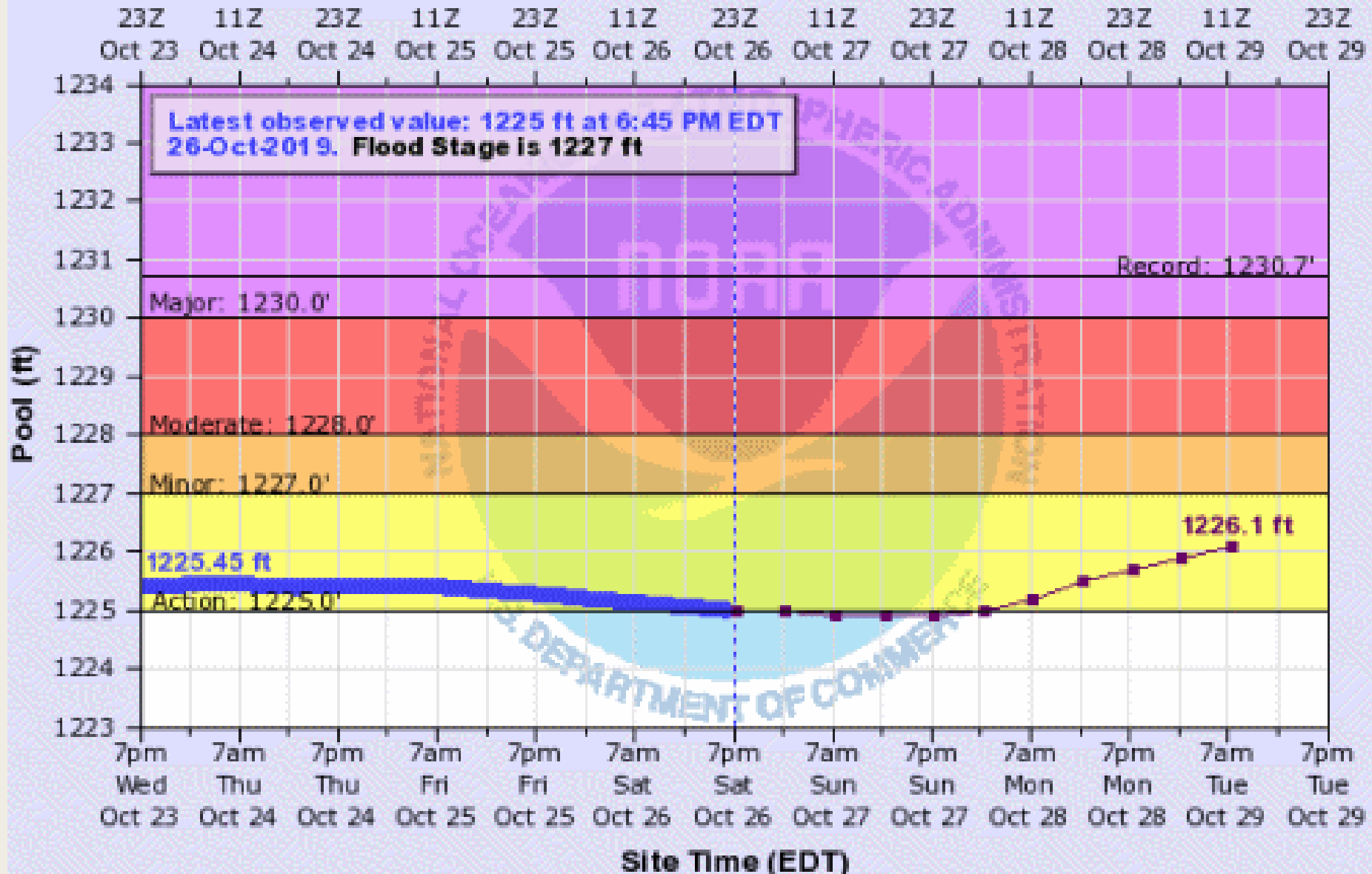
Universal Time (UTC)



--- Graph Created (7:45PM Oct 26, 2019) ● Observed ● Forecast (issued 11:54AM Oct 26)

WEST CANADA CREEK AT HINCKLEY DAM

Universal Time (UTC)



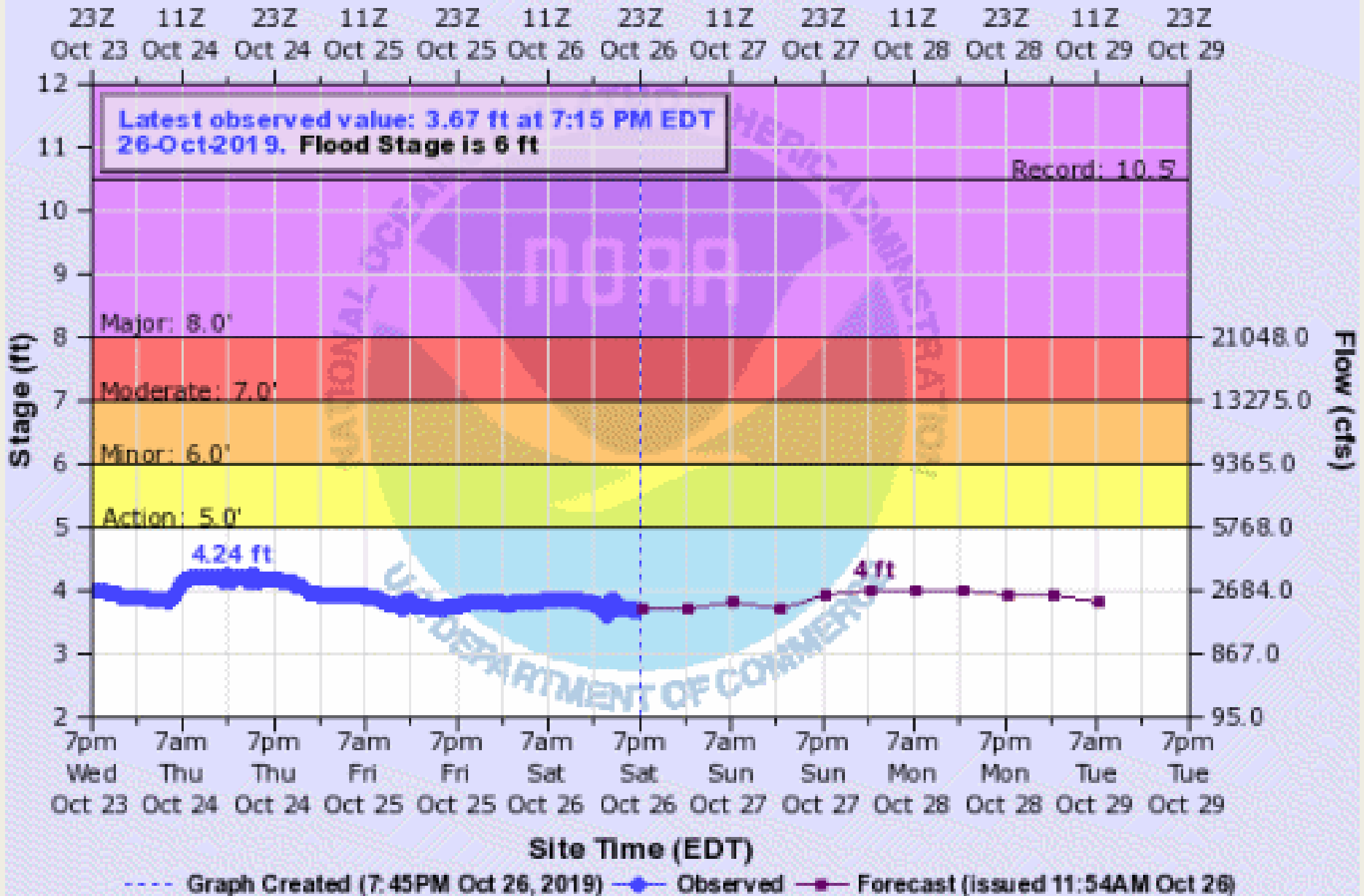
--- Graph Created (7:45PM Oct 26, 2019) ● Observed ◆ Forecast (issued 11:54AM Oct 26)

HIKN6(plotting HPIRG) "Gage 0" Datum: 0'

Observations courtesy of US Geological Survey

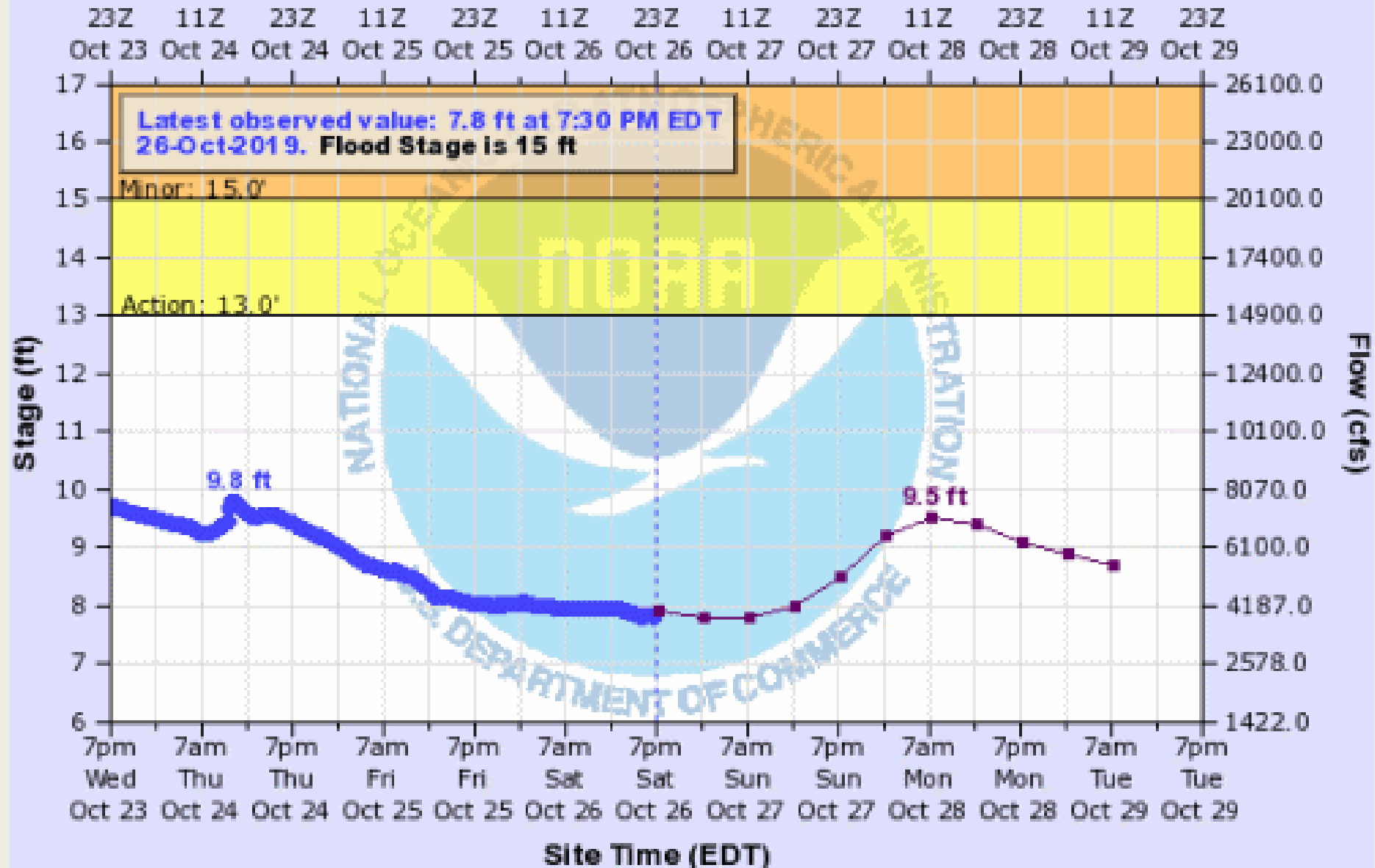
WEST CANADA CREEK AT KAST BRIDGE

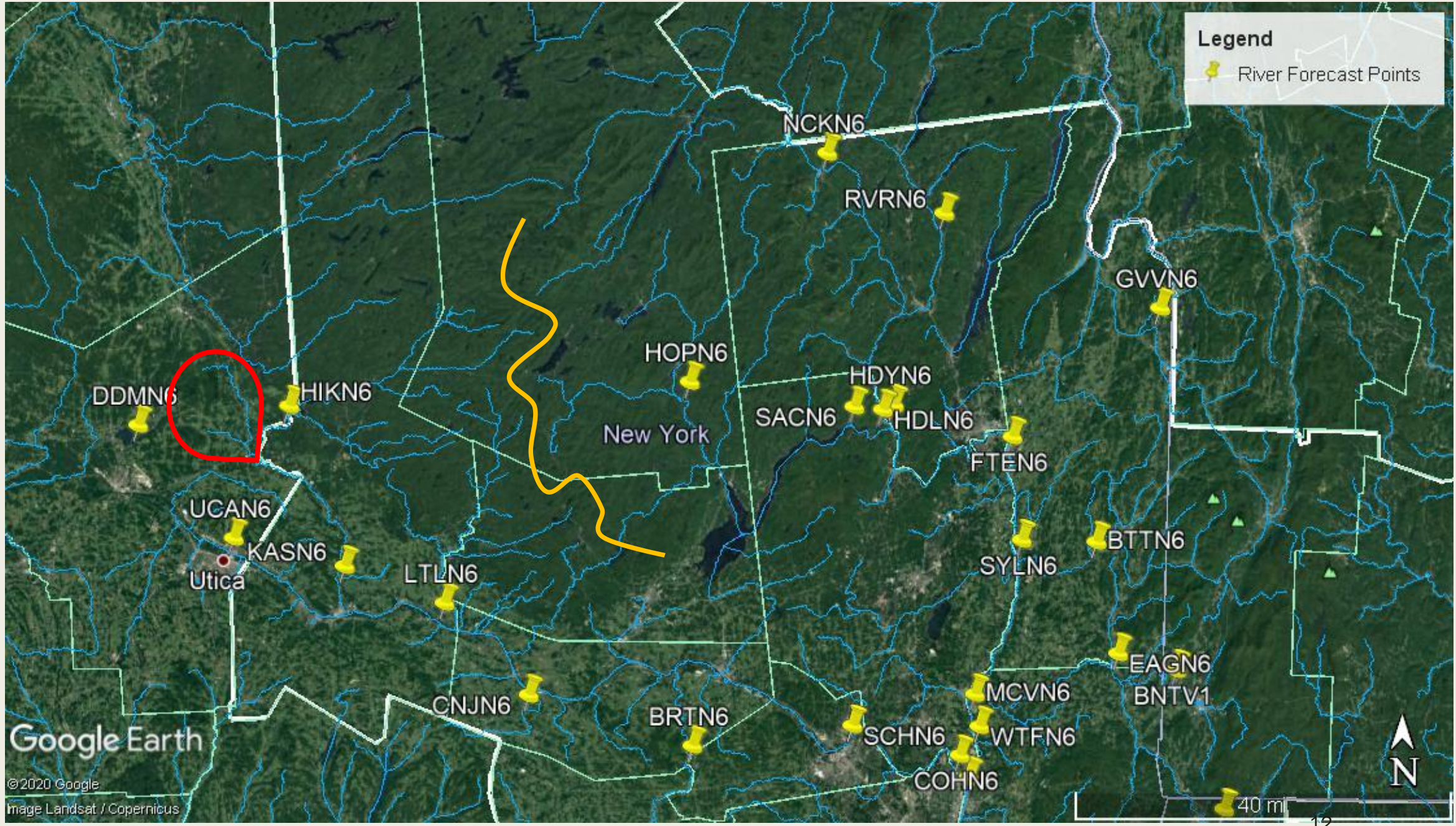
Universal Time (UTC)



MOHAWK RIVER AT LITTLE FALLS

Universal Time (UTC)

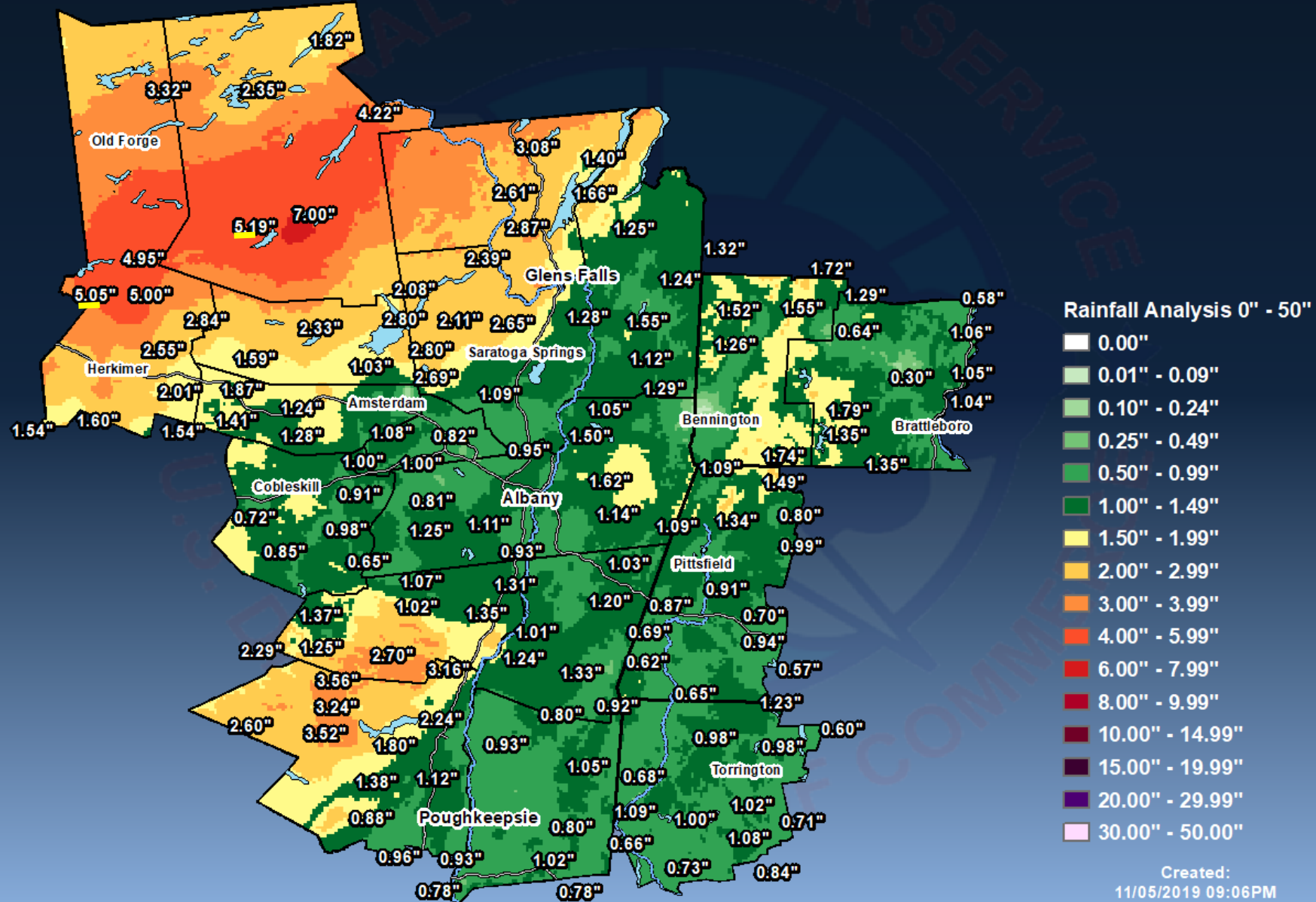




National Weather Service Albany New York

Rainfall Analysis 10/31/2019 08:00AM to 11/01/2019 08:00AM

Analysis Data Source: Regional Observations



NWS Albany Actions

- Early issuance of watch and warning products:
 - *Flood watch – Wed afternoon (10/30)*
 - *Flash Flood Warnings – lead time on first one (evening of 10/31) with 11pm upgrade to FF emergency*
 - *River flood warnings (> 4 hrs to FS and ~ 13 hrs to crest)*
- Real time NYS Mesonet rainfall monitoring
- Direct contact with NYS OEM Watch Center as warning categories increased (“rapid/insane rises” per shift log)
- Post-event website stood up as event was winding down
<https://www.weather.gov/aly/Halloween2019Storm>

Challenges

- Rainfall underforecast → flood crests underforecast / catch up race
- Heaviest rainfall in least populous portions of CWA
- Multiple condition B declarations
- Getting damage information for our record keeping
- Evaluating if changes were needed to warning areas or to AHPS point information (impact statements)...

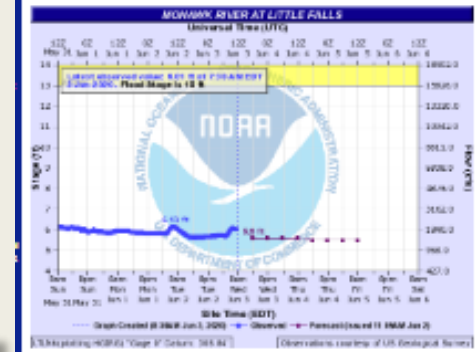
AHPS Impacts

Flood Impacts & Photos



If you notice any errors in the below information, please contact our Webmaster

- 20 Water reaches parts of the NY State Thruway.
- 19 Water reaches the rail tracks.
- 18.5 Water floods the basement of the former Salada plant, the Montgomery Public Works garage, and the Fonda Motor Speedway.
- 18 Major flood stage.
- 17 Moderate flood stage.
- 16 Water reaches roads in the industrial park.
- 15 Minor flood stage. Water overflows onto Route 5S near Fort Herkimer and farm fields are flooded.
- 14 Water begins to flood nearby farmland.
- 13 Action stage. The river is near bankfull.



[Printable Image](#)
[About this graph](#)
[Water Data \(UTC\)](#)
[Water Data \(EDT\)](#)
[Data](#)
[Data](#)
 Datum: Not Available
 Metadata

NDI: Forecasts for the Mohawk River at Little Falls are issued routinely year-round.
 Default Hydrograph
[Return to Area Map](#)

[Upstream Gauge](#) [Downstream Gauge](#)

Flood Categories (in feet)
 Major Flood Stage: 18
 Moderate Flood Stage: 17
 Flood Stage: 16
 Action Stage: 15

Historic Creeks
 (1) 19.88 ft on 11/02/2019 (P*)
 (2) 19.72 ft on 06/28/2008
 (3) 19.17 ft on 03/14/1977
 (4) 19.00 ft on 03/28/1973
 (5) 18.47 ft on 01/19/1998
 Show More Historic Creeks

(P*) Preliminary values subject to further review.

Recent Creeks
 (1) 19.88 ft on 11/02/2019 (P*)
 (2) 15.89 ft on 07/02/2017
 (3) 16.28 ft on 07/02/2013
 (4) 18.22 ft on 06/28/2013
 (5) 18.20 ft on 08/08/2011
 Show More Recent Creeks

(P*) Preliminary values subject to further review.

Low Water Records
 (1) 3.75 ft on 08/16/1949
 (2) 4.41 ft on 08/17/1938

East Canada, East, H...
 Gauge Location
 Disclaimer: The gauge location shown in the above map is the approximate location based on the latitude/longitude coordinates provided to the NWS by the gauge owner.

[Flood Impacts & Photos](#)

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- 19 Water reaches the rail tracks.
- 18.5 Water floods the basement of the former Salada plant, the Montgomery Public Works garage, and the Fonda Motor Speedway.

QUESTIONS?

Second presentation to follow, so you can ask after that as well...



IMPACT BASED
WARNINGS (IBW) FOR
FLASH FLOODS



Impact Based Warnings (IBW) for Flash Flood Warnings

Goal:

Improve the public response to Flash Flood Warnings by

(1) providing easily readable information and

(2) issuing Wireless Emergency Alerts (WEA) only for flash flood events that require **immediate life-saving action**

Two Major Changes

Warning format changes

- Bulleted format for warning
 - *hazard*
 - *source*
 - *impact*
- Machine readable tags appended
 - *damage threat*
 - *source information*
 - *causative event*

WEA filtering

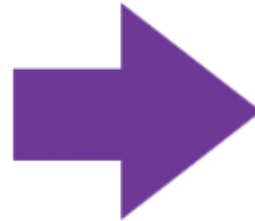
- Wireless Emergency Alerts (WEA) will only be disseminated for FFWs that carry the “Considerable” or “Catastrophic” damage threat tags
- **All** FFWs will still be disseminated to weather.gov, NOAA Weather Radio, and the Emergency Alert System (if activated)

New Flash Flood Warning Format

Impact-based warnings contain hazard, source, and impact information, and additional damage threat tags. On the right is a sample impact-based warning.

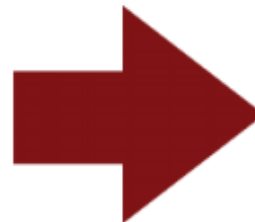
Hazard, Source, and Impact Information

Each Flash Flood Warning (FFW) will contain individual lines that clearly state hazard, source, and impact information.



Tags

Tags will appear at the bottom of FFWs and in Flash Flood Statements (FFSs), which provide supplemental information on active FFWs.



```
...FLASH FLOOD EMERGENCY FOR LIFE-THREATENING CATASTROPHIC FLOODING...  
The National Weather Service in League City has issued a  
* Flash Flood Warning for...  
  Northeastern Austin County in southeastern Texas...  
* Until 715 PM CDT.  
* At 119 PM CDT, Doppler radar indicated continued bands of rain and  
  thunderstorms across the area. Emergency management reported ongoing  
  water rescues. Rainfall rates of 2 to 3 inches per hour will persist  
  across the warned area.  
  
This is a FLASH FLOOD EMERGENCY FOR LIFE-THREATENING CATASTROPHIC  
FLOODING. This is a PARTICULARLY DANGEROUS SITUATION. SEEK HIGHER  
GROUND NOW!  
  
HAZARD...Life-threatening flash flooding caused by thunderstorms.  
  
SOURCE...Emergency management.  
  
IMPACT...Widespread, life-threatening flooding will continue and  
  perhaps worsen at some locations. Historic flooding is  
  expected to continue in the Houston metropolitan area through  
  the foreseeable future.  
  
* Some locations that will experience flooding include...  
  Pasadena, Pearland, League City, and Humble.  
  
PRECAUTIONARY/PREPAREDNESS ACTIONS...  
  
Move to higher ground now. This is an extremely dangerous and  
life-threatening situation. Do not attempt to travel unless you are  
fleeing an area subject to flooding or under an evacuation order.  
  
&&  
  
LAT...LON 2904 9515 2905 9527 2932 9536 2916 9543  
  
FLASH FLOOD...OBSERVED  
FLASH FLOOD DAMAGE THREAT...CATASTROPHIC  
EXPECTED RAINFALL...2-3 INCHES PER HOUR
```

New Flash Flood Warning Tags

| Flash Flood Damage Threat Tag | Explanation |
|--|---|
| "Base" (No Tag) | Use most of the time, when flash flood impact damage is possible. |
| CONSIDERABLE* | Use rarely, when there are indications flash flooding capable of unusual severity or impact is imminent or ongoing and urgent action is needed to protect lives and property. |
| CATASTROPHIC*+ | Use exceedingly rarely, when a flash flood threat to life and catastrophic damage is occurring or is imminent, and floodwaters have risen or will rise to levels rarely if ever seen. |
| Flash Flooding Source Information Tag | |
| FLASH FLOOD... RADAR INDICATED | Evidence on radar and near storm environment is supportive, but no confirmation. |
| FLASH FLOOD... OBSERVED | Flash flood impacts confirmed by trained spotters, law enforcement, media, other credible human observers, etc. |
| Flash Flooding Causative Event Tag | |
| EXPECTED RAINFALL... [##-## INCHES PER HOUR] [## INCHES in ## MINUTES] | Use to identify rainfall rate leading to potential or observed flash flooding, including rain falling on a burn scar. |
| [DAM or LEVEE]FAILURE... [IMMINENT or OCCURRING] | Use to provide additional information about the status of the failing dam or levee, whether it is "imminent" or "occurring". |

* Category utilized for a Wireless Emergency Alert (WEA).

+ Catastrophic equates to a headline and additional language for a "Flash Flood Emergency".

“Causative Event” Tag

What is causing this flash flooding?

| Flash Flooding Causative Event Tag | |
|--|--|
| EXPECTED RAINFALL... [##-## INCHES PER HOUR] [## INCHES in ## MINUTES] | Use to identify rainfall rate leading to potential or observed flash flooding, including rain falling on a burn scar. |
| [DAM or LEVEE]FAILURE... [IMMINENT or OCCURRING] | Use to provide additional information about the status of the failing dam or levee, whether it is “imminent” or “occurring”. |

“Source Information” Tag

How do we know about this flash flooding?

| Flash Flooding Source Information Tag | |
|--|---|
| FLASH FLOOD... RADAR INDICATED | Evidence on radar and near storm environment is supportive, but no confirmation. |
| FLASH FLOOD... OBSERVED | Flash flood impacts confirmed by trained spotters, law enforcement, media, other credible human observers, etc. |

“Damage Threat” Tag

How bad is this flash flooding?

| Flash Flood Damage Threat Tag | Explanation |
|-------------------------------|---|
| “Base” (No Tag) | Use most of the time, when flash flood impact damage is possible. |
| CONSIDERABLE* | Use rarely, when there are indications flash flooding capable of unusual severity or impact is imminent or ongoing and urgent action is needed to protect lives and property. |
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* Category utilized for a Wireless Emergency Alert (WEA).

+ Catastrophic equates to a headline and additional language for a “Flash Flood Emergency”.

What Does This Mean For You?

- Fewer Wireless Emergency Alerts for flash flooding
- Wireless Emergency Alerts that are issued will be of a higher potential threat
- Easier to read and understand our Flash Flood Warnings
- NWS Albany will be even more interested in timely reports of flash flood severity

QUESTIONS? COMMENTS?

Contact me at:
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