EVENT BRIEFING

Event: 13 July 2019: Hurricane Barry

Region: Southern US Gulf Regions

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Key Lessons

- ❏ Storm surge and flooding impacts can be disproportionate to the Saffir-Simpson scale intensity, which is based solely on maximum sustained wind speeds.
- ❏ The vast majority of buildings appear to have performed well structurally against Hurricane Barry due to the low maximum wind speeds relative to design.
- ❏ Scattered damage to roofs emphasizes the importance of the roof as the first line of defense against wind damage and subsequent destructive water ingress.
- ❏ At least one gas canopy station failed, even though gust wind speeds over land appeared to be less than 70 mph, continuing a trend in premature failures that was also observed by the StEER team in Hurricane Florence[1].
- ❏ Wind-driven rainwater ingress is difficult to quantify, and may be an issue even in relatively low intensity storms like Hurricane Barry.

StEER Response Strategy

The objectives of this event briefing are:

1. Summarize the path and intensity of Hurricane Barry
2. Provide a preliminary overview of impacts to life and property
3. Provide an engineering perspective on the impacts and identify key lessons

Information provided herein was gathered from various websites, news channels, and other public sources in the immediate aftermath of the storm. Therefore, this briefing does not include insights from detailed field investigations and should be considered preliminary. StEER may decide to continue to form a Virtual Assessment Structural Team (VAST) to collect and process additional public data, but field deployments are not anticipated at this time due to lack of structural damage.

[1] http://doi.org/10.17603/DS2TT3G

Event Details

Hurricane Barry was a well-forecasted storm that developed in the Gulf of Mexico from a Mesoscale Convective Vortex (MCV) that moved from the mainland US to the Gulf of Mexico on July 10th. The National Hurricane Center designated the storm Tropical Storm Barry in the 1500 UTC Public Advisory on July 11th, and subsequently Hurricane Barry in the 1500 UTC Public Advisory 13. Hurricane Barry ultimately made landfall on 13 July 2019 near Intracoastal City, Louisiana as a brief Category I hurricane on the Saffir-Simpson Scale. Maximum sustained wind speeds at landfall were estimated at 70 mph with higher gusts, per the 1800 UTC Public Advisory 13A[2]. Central pressure at landfall was reported as 993 mb. Advisory 12A reported a wind gust of 85 mph was recorded at the National Ocean Service Station at Eugene Island, LA. Inspection of publicly available surface observation stations through the Weatherflow Datascope platform[3] indicated a peak 3-second gust (10 m height in open terrain) of approximately 70 mph was recorded at a Weatherflow station in Dulac, LA, and 60 mph at the ASOS station in New Iberia, LA.

The primary threat with Hurricane Barry as it came ashore was the potential combination of heavy rainfall rates and storm surge. Maximum water inundation above ground level was forecasted by the Coastal Emergency Risks Assessment to be nearly 10 ft in parts of Louisiana southwest of Baton Rouge as shown in Figure 1. Official measurements of actual inundation is not yet available at the time of this report. Actual rainfall amounts were estimated to be as much as 20 inches in localized areas, although the majority of Louisiana saw amounts less than 5 inches. Resulting flooding was severe, but not as catastrophic as originally feared.

Impacts

Impacts of Hurricane Barry are still being assessed. The following summarizes wind and surge/flooding impacts based on preliminary reports.

Wind Damage

With maximum reported wind gusts no more than 60% of design, relatively minor wind damage is expected from Hurricane Barry. Early reports appear to confirm this expectation, as only scattered reports of damage are available. Figure 3 shows a selection of the most significant reported damage. The reports of damage are generally restricted to a handful of older, vulnerable buildings, including a mobile home that lost its roof. A couple reports of shingles being lost on a roof were also noted. A number of trees were also downed, impacting transmission lines and roadways. Overall however, wind damage appears to be minimal beyond these isolated cases.

Flood/Surge Impacts

Storm surge and heavy rainfall caused severe flooding in several parishes, including Terrebonne , St. Mary, and Plaquemine. In these areas there were reports of several feet of water in buildings. A number of people were rescued from their roofs with flood waters rising. At Amerada Pass (St. Mary

[2] https://www.nhc.noaa.gov/archive/2019/al02/al022019.public.013.shtml?
[3] http://ds.weatherflow.com/map#30.035,-92.178,7,1

Parish), the storm surge inundation peaked at 6.6 ft above the normal high tide level[4] as shown in Figure 4. With the storm surge, one of the concerns was flooding overtopping levees and cutting off access to evacuation routes for residents. Figure 5 shows levees overtopping in Plaquemines Parish. There are no reports of failed levees at this time.

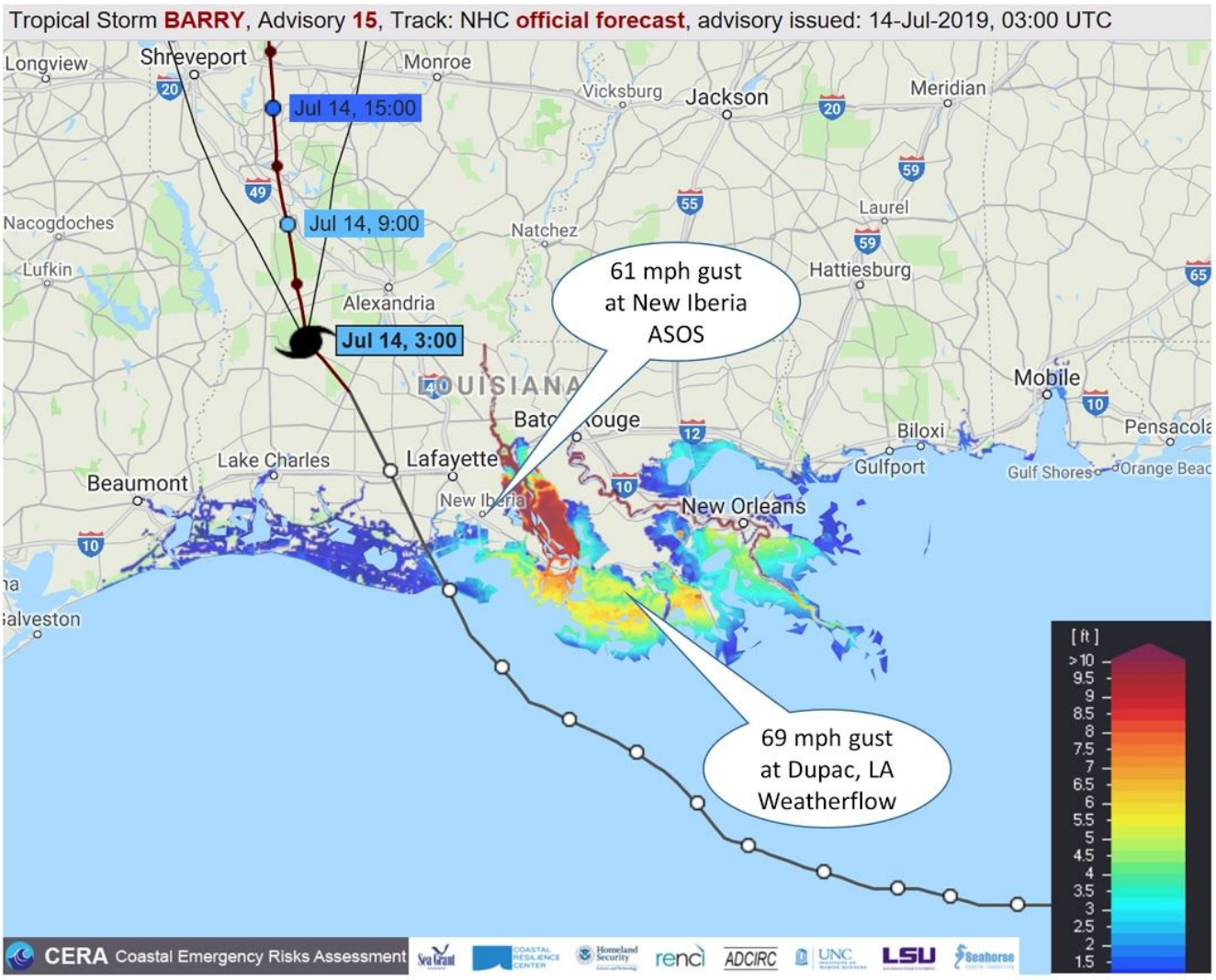

Figure 1. Predicted water inundation height above ground level due to Hurricane Barry, courtesy of the Coastal Emergency Risks Assessment (CERA)[5]. The Hurricane Barry track and current position as of July 14 at 3:00pm local time is shown by the black polyline. Select maximum observed wind gusts are also shown.

[4] https://tidesandcurrents.noaa.gov/waterlevels.html?id=8764227&units=standard&bdate=20190713&edate=20190714&timezone=GMT&datum=MHHW&interval=6&action=

[5] https://cera.coastalrisk.live/

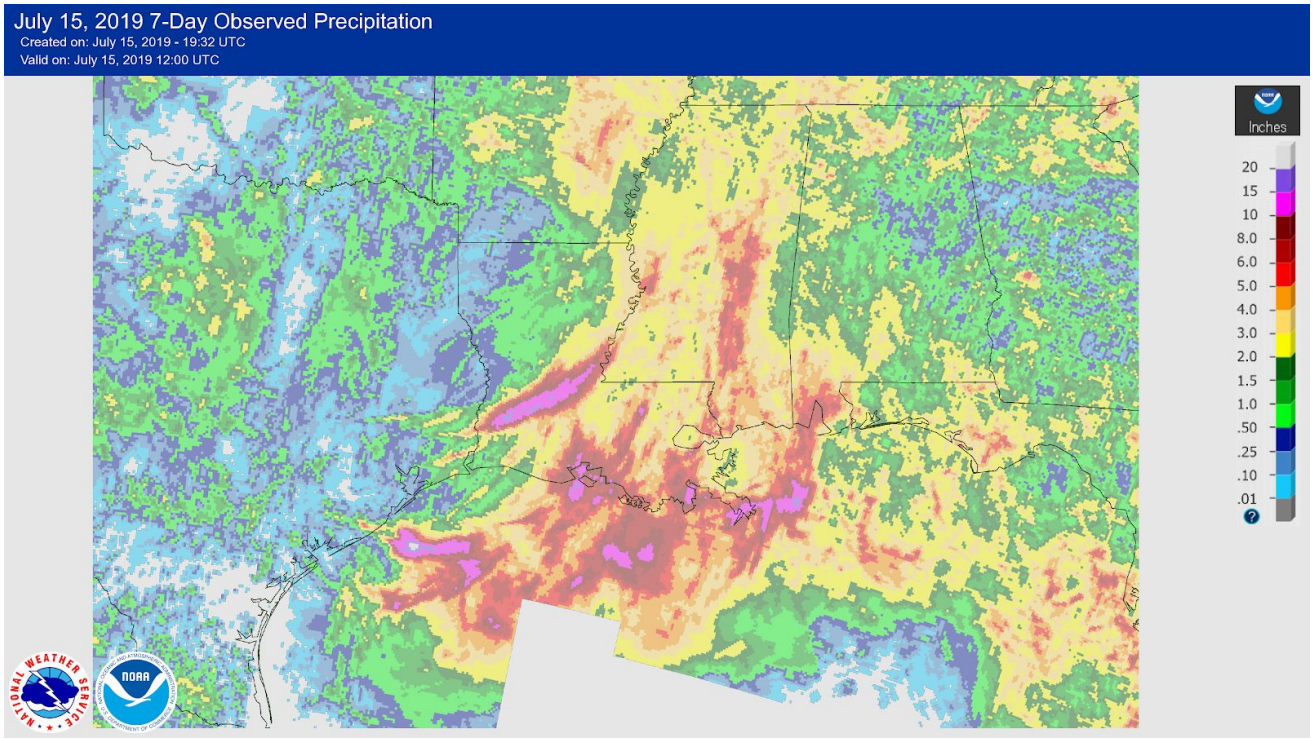

Figure 2. 7-Day Observed Precipitation in Louisiana and surrounding states as of July 15, 2019 at 19:32 UTC. Maximum rainfall, as estimated by radar, was between 15 and 20 inches in several localized regions. Image courtesy of the [NWS water.weather.gov](water.weather.gov).

Figure 3. Reports of wind damage from Hurricane Barry. (a) A corrugated metal roof and framing torn off a building in Morgan City, LA (Courtesy of MadWxChasing); (b) Corrugated metal roof sheeting uplifted on anslack arched roof building in downtown Morgan City, LA (Courtesy of Trey Greenwood); (c) still frame from video showing the roof of a mobile home in Morgan City, LA blowing off due to Hurricane Barry winds (Courtesy of Scott Pilie); (d) Collapsed storage shed at a baseball park in Patterson, LA (Courtesy of Ryan Cartee / Live Storms Media); (e) A back view of the damaged mobile home shown in (c), courtesy of Trey Couvillion; and (f) a toppled single column gas station canopy near Morgan City, LA (Courtesy of the Weather Channel).

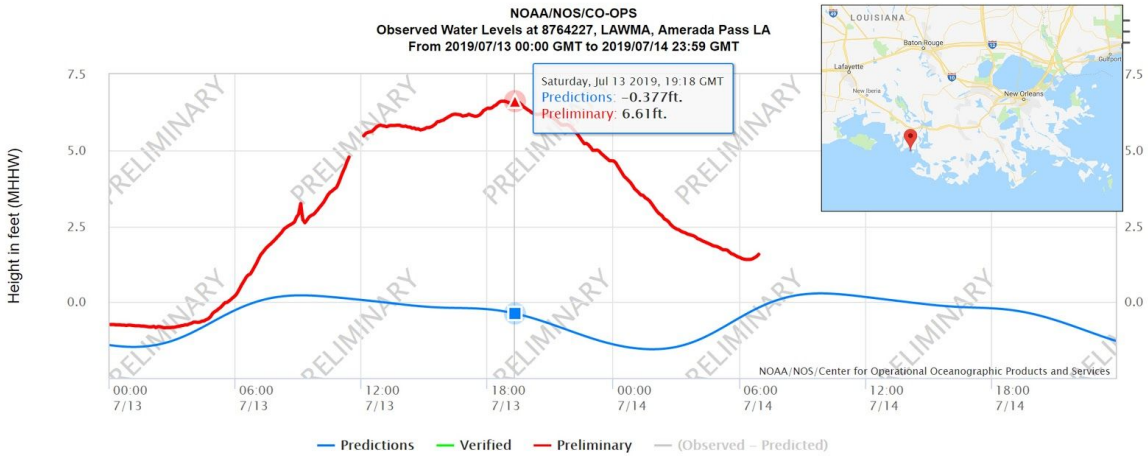

Figure 4. Reported storm surge at 6.6 ft above Mean Higher-High Water level.

Figure 5. Levee overtopping in Plaquemines Parish near Myrtle Grove. Still shot taken from video by WXChasing.

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