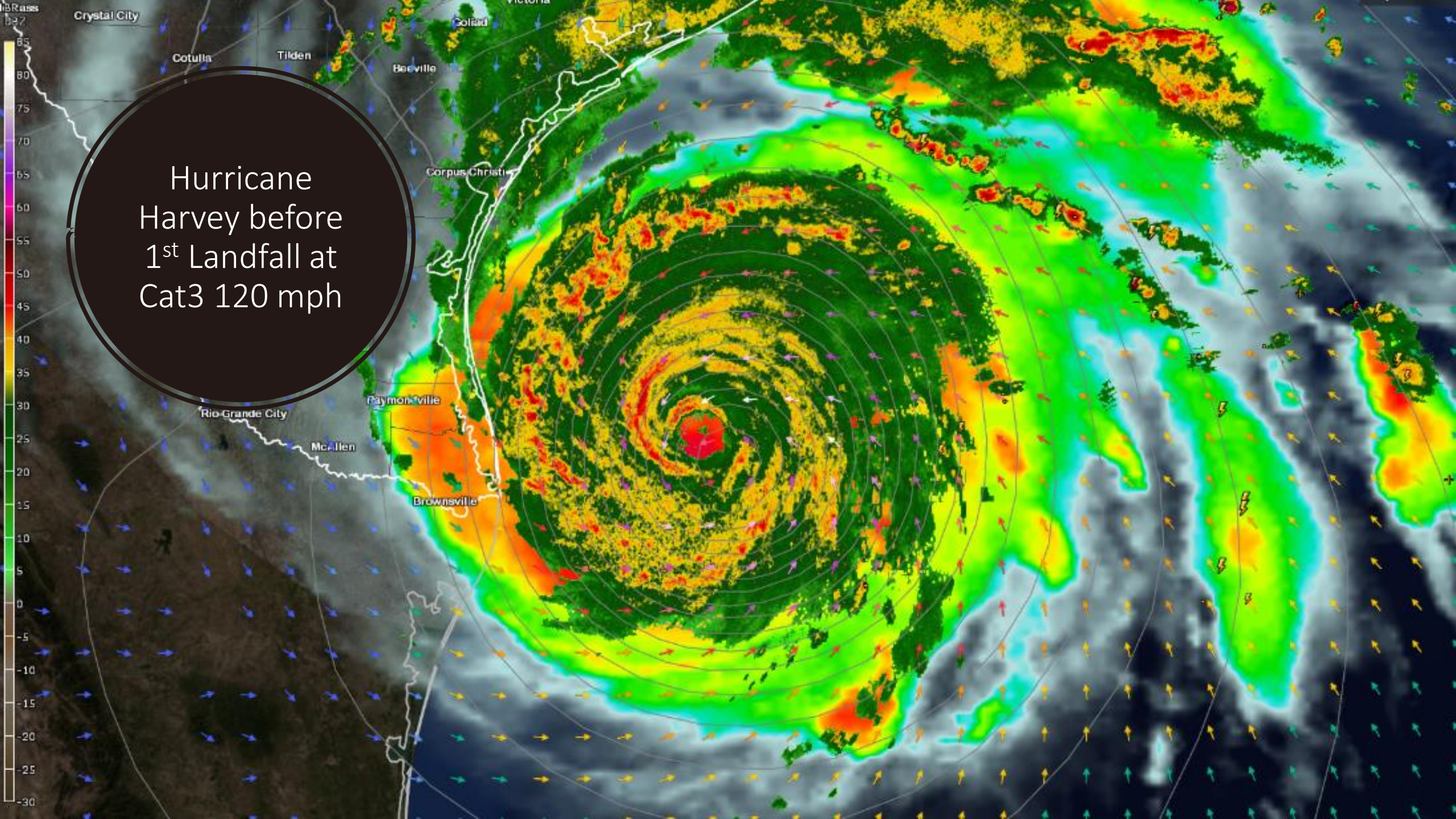


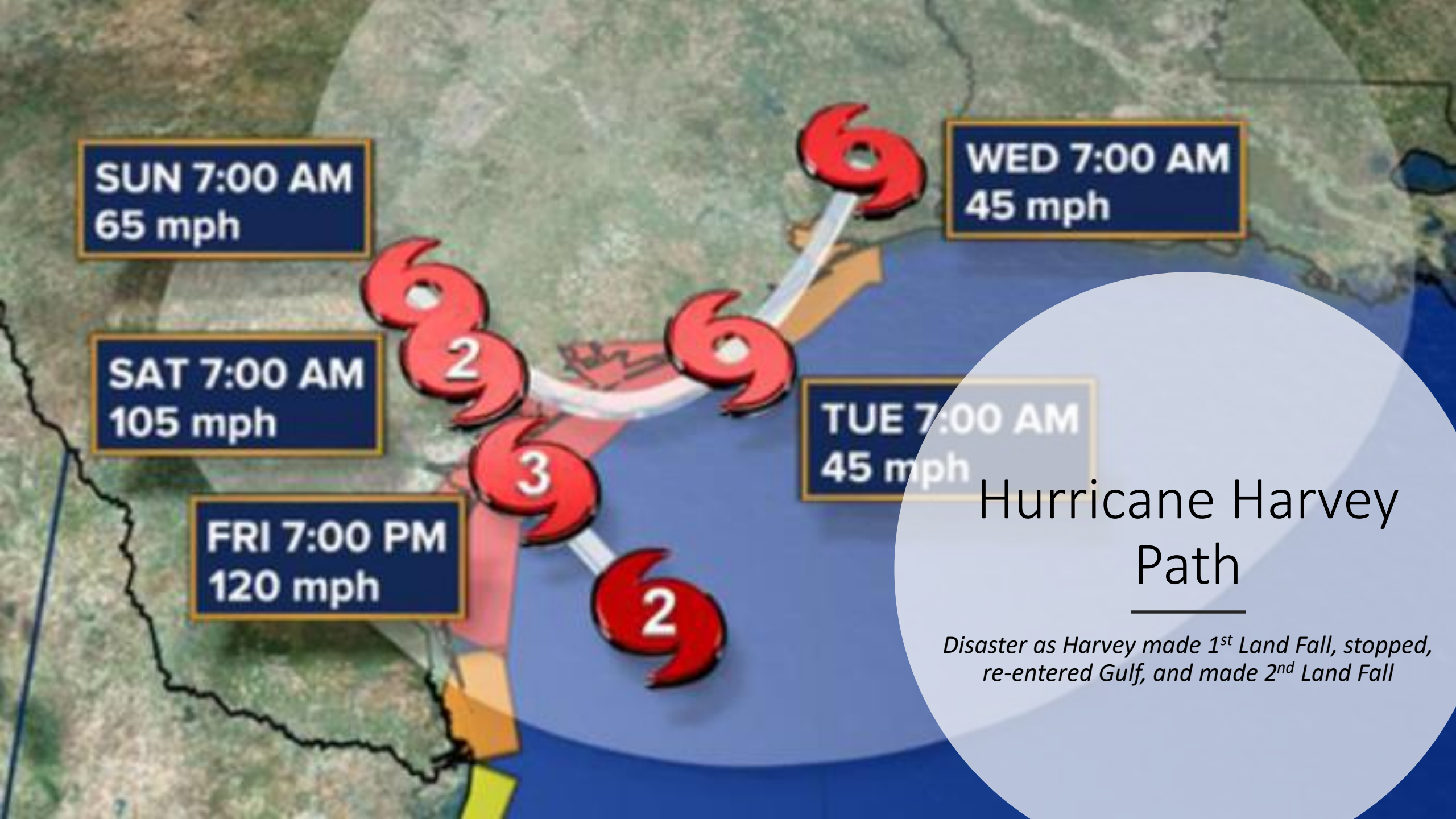
A satellite image of Hurricane Harvey, showing a well-defined eye and spiral cloud bands. The image is a false-color representation of infrared radiation, with warmer temperatures (red/orange) in the center and cooler temperatures (blue/green) in the outer bands. The hurricane is positioned over the Gulf of Mexico, with the Texas coastline visible on the left. A color scale bar is at the top, and a scale bar with '0', '50mi', and '100mi' is at the bottom left. The text 'MODIS-IR window - Band 11 (C)' and 'Sat 04:19Z 26-Aug-17' is at the bottom right.

Hurricane Harvey 2017

Things to consider for shutdown and startup while preparing for a Hurricane

Hurricane
Harvey before
1st Landfall at
Cat3 120 mph





WED 7:00 AM
45 mph

SUN 7:00 AM
65 mph

SAT 7:00 AM
105 mph

TUE 7:00 AM
45 mph

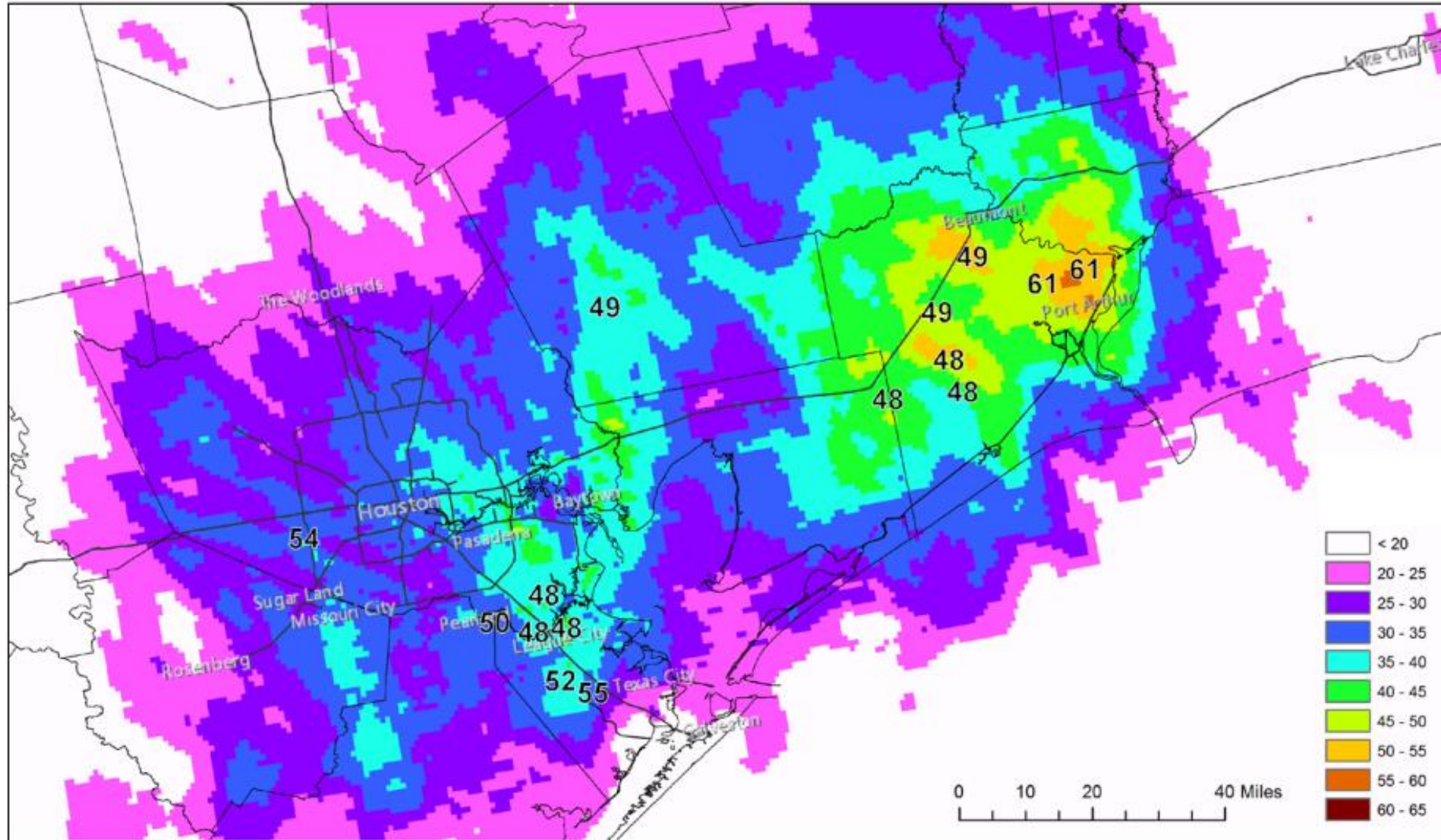
FRI 7:00 PM
120 mph

Hurricane Harvey Path

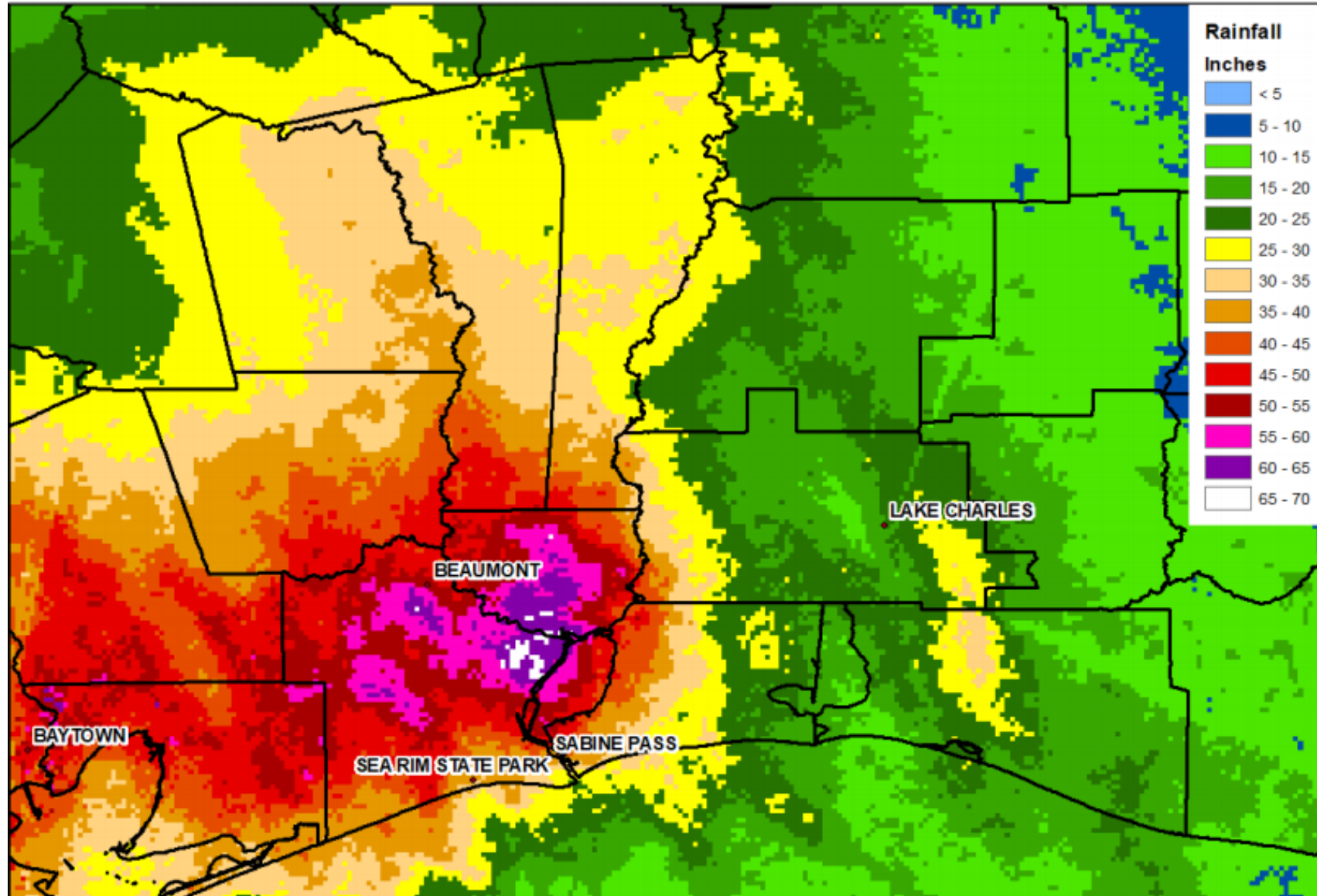
*Disaster as Harvey made 1st Land Fall, stopped,
re-entered Gulf, and made 2nd Land Fall*

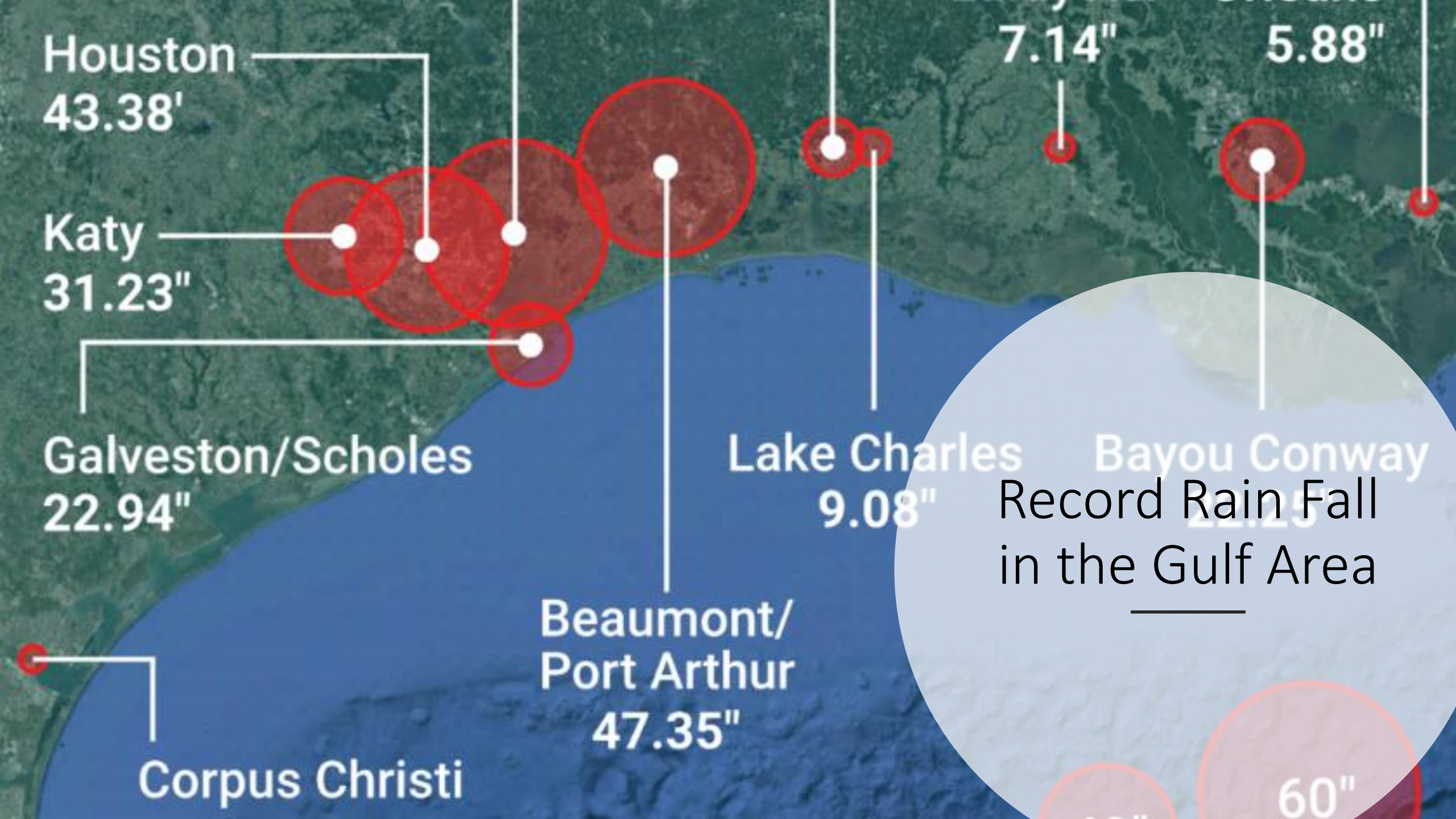
Rain Fall from Hurricane Harvey

- https://www.nhc.noaa.gov/data/tcr/AL092017_Harvey.pdf

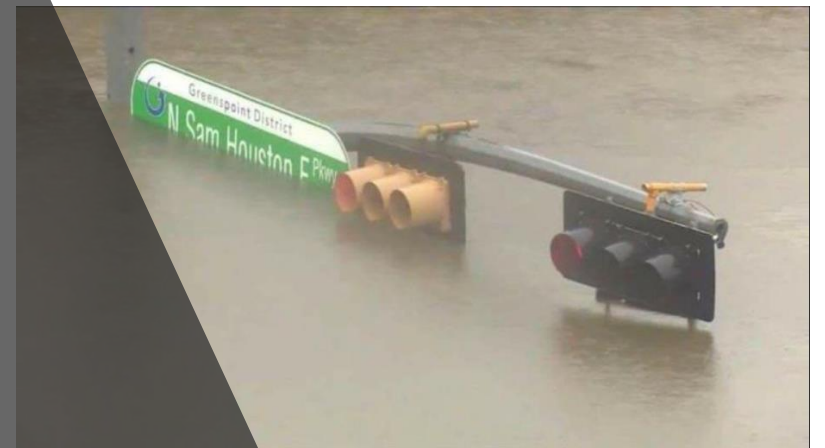


Rain Fall from Hurricane Harvey in the Beaumont Area





Flooding in Houston





Flooding on I-10 West of Beaumont

I-10 WEST OF BEAUMONT
CHRISTOPHER BOEHME

Eyewitness News at 10PM

10:00 PM

10:00:29

ROSENBERG, SIMONTON, SAN BERNARDINO

Rain Fall in the Golden Triangle

Hurricane Harvey

Groves 1.3 N	60.54
Groves 2.5 SE	33.42
Nederland 1.5 SW	60.58
Nederland 2.2 SE	41.19
Nederland 3.6 S	43.47
Nederland 7 WSW	40.87
Port Arthur	44.09
Port Arthur 1 SSE	37.50
Port Arthur 18 WSW	47.99
Port Arthur 2 NNW	36.01
Port Arthur 2 SSW	31.75
Port Arthur 20 SW	37.24
Port Arthur 3.1 WSW	26.90
Port Arthur 5 SW	36.34
Port Arthur 5 WNW	37.79
Port Arthur 6 SW	32.05
Port Arthur 6.4 WNW	45.26
PORT ARTHUR/Nederland	47.52



Refinery Flooding

| Things to Consider

Select one SRU to remain operational as long as possible while placing the remaining SRU's in natural gas firing mode

Insufficient time to remove sulfur from the SRU's

Loss of Utilities (N2, O2, Instrument Air, etc.)

Loss of Power

| Things to Consider

Flooding (Unit Access)

Sulfur Pit Flooding

Motors damaged

Electrical equipment damaged

Triconex Systems damaged

| Things to Consider

Loss of transmitter settings after power and battery backup depleted

Control Valves damaged

Amine System contamination

Loss of Amine

Catalyst damage during shutdown or restart