

Severe Thunderstorm Winds Affect Borden County on June 4th, 2020

Synopsis

On the evening of June 4th, scattered thunderstorms developed within an axis of instability east of a surface dryline in the Texas Panhandle and Central High Plains of West Texas. Storms eventually merged into a large complex and propagated southward. The storm complex was able to maintain strength for several hours as new convection developed along a leading outflow boundary. This boundary progressed further south with storms developing into Borden County where severe wind damage eventually occurred. The following information summarizes the wind event from start to finish.

Wind Damage in Gail, TX

On the night of Thursday, June 4th, a large complex of thunderstorms moved south out of NWS Lubbock's County Warning Area (CWA), crossing over the Borden-Garza county line around 11 PM CDT. Mesonet sites on the Garza County side had recorded wind gusts of 90+ mph as the storm moved through, so a Severe Thunderstorm Warning was issued by NWS Midland for Borden County. As it moved southeast over central Borden County, the storm passed through the small town of Gail, TX.

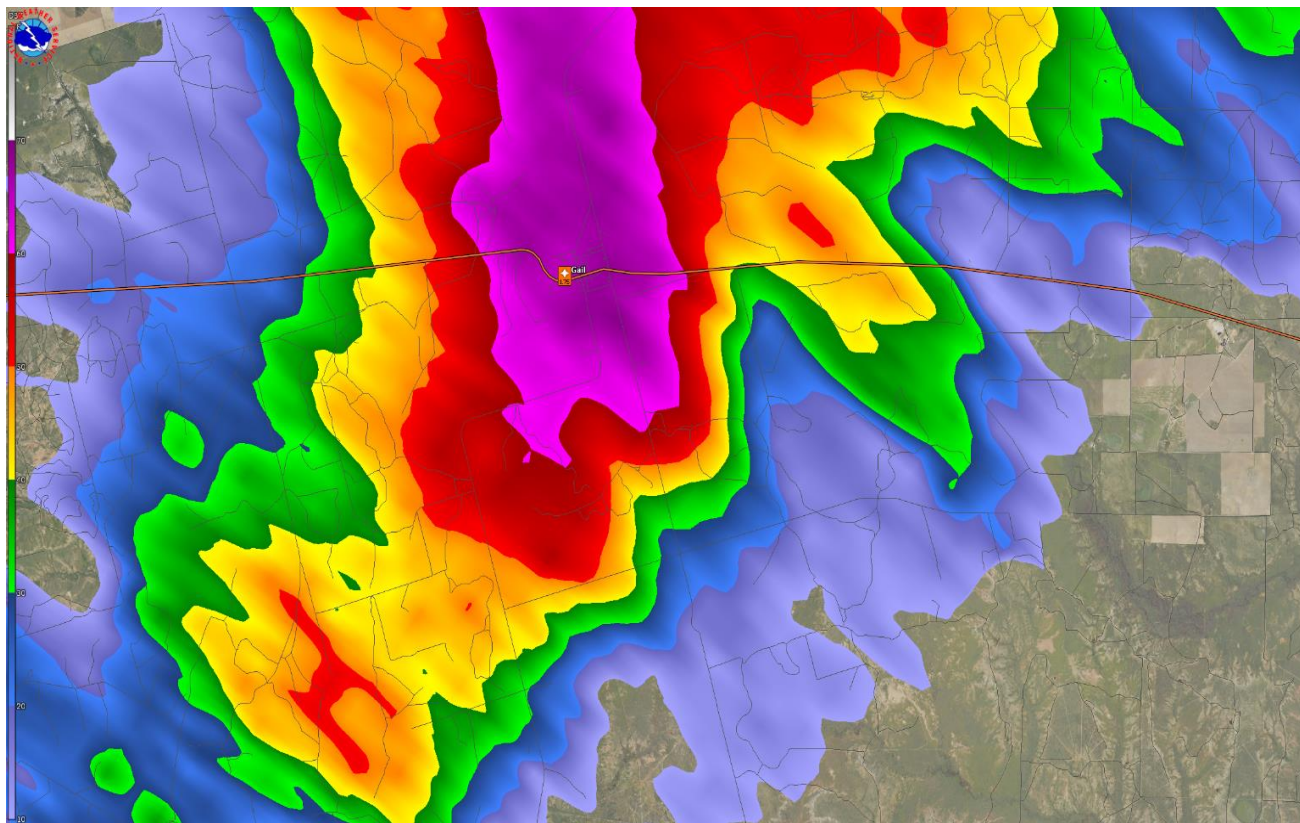


Figure 1: KMAF 0.5 deg reflectivity showing 60dbz core over the town of Gail, TX at 11:11PM CDT

Max = 101° F / Min = 60.9° F Max Wind = 83 mph @ 11:15 PM Total rain = 1.76 inches
 Maximum Daytime High = 101° F occurred at 08:50 PM Maximum Sustained Wind = 61.8 mph from 315° at 11:15 PM.

Time CDT	Temperature (°F)				Dew Point Temperature	Wind (mph)			Wind Speed @ 6.5ft	Altimeter Setting	Relative Humidity	Rain
	6ft	6.5ft	30ft	ΔT 6.5ft-30ft		Direction	Speed	Gust				
11:55 PM	62	62.8	62.7	0.1	59.8	103	23	38	17	30.00	97	0.03
11:50 PM	61.8	62.4	62.0	0.4	59.6	099	20	28	15	30.01	97	0.15
11:45 PM	61.8	62.2	61.9	0.3	59.6	107	18	27	13	30.02	97	0.15
11:40 PM	61.4	61.7	61.7	0.0	59.1	108	19	28	14	30.04	96	0.21
11:35 PM	61	61.5	61.4	0.1	58.7	085	17	23	11	30.07	96	0.18
11:30 PM	60.9	61.1	61.1	0.0	58.5	054	16	23	10	30.10	96	0.27
11:25 PM	62	61.9	62.1	-0.2	59.4	005	22	31	15	30.15	96	0.28
11:20 PM	61.9	61.7	62.3	-0.6	59	297	48	70	36	30.15	94	0.42
11:15 PM	65.4	64.3	63.9	0.4	60.2	315	62	83	7	30.06	87	0.07
11:10 PM	74.8	74.0	73.2	0.8	58.2	338	44	67	34	30.04	59	0.00
11:05 PM	84	83.4	82.8	0.6	57.3	346	27	37	20	30.02	43	0.00
11:00 PM	87.6	87.5	87.6	-0.1	55.2	046	10	16	7	29.96	35	0.00

Figure 2: Data from the Gail Mesonet station, located 3 miles southeast of the town of Gail, is provided in 5-minute increments. At 11:15 PM CDT on June 4th, the Mesonet site recorded 83 mph wind gusts (see above). The numbers highlighted in red indicate the measured wind speeds and wind gusts, while the numbers highlighted in green are the measured rainfall amounts.



Around 11:11 PM CDT, the strongest portion of the storm moved over Gail near the Borden County School (Figure 1). The storm continued southeast over the town for the next 10 minutes, leaving a path of damage in its wake. The damage swath across Gail roughly a mile wide. It was noted during the survey that all damage in the city of Gail was laying/oriented to the southeast and is evidence of straight-line winds of 80-85 mph. At the same time that the storm was crossing through Borden County, a Mesonet site located 3 miles southeast of town measured wind gusts of 83 mph (Figure 2). Some of the damage in town included a roof torn off a mobile home (Figure 3), damage to the fence

Figure 3: A mobile home on the southeast side of Gail, TX, had their entire roof blown off when the storm passed through. The roof was thrown 100+ feet away into a field across the road, snapping a powerline in the process. No injuries were reported.

surrounding the softball field at the Borden County School (Figure 4), and an outdoor metal shed that was completely overturned and ripped apart (Figure 5).



Figure 4: This is a photo of the softball field at Borden County School. The metal poles were all bent towards the southeast, and the fencing along the poles was ripped off.



Figure 5: A large metal shed also located on the southeast side of Gail, TX, was overturned and ripped in half.

Wind Damage 5 miles southeast of Gail, TX

Shortly after these storms moved southeast of Gail, around 11:30 PM CDT, a localized microburst occurred roughly 5 miles southeast of the city. Damage found in the area included 3 broken powerline poles (Figures 6 and 7), along Willow Valley Road, oriented WSW. This damage was



Figure 6: Downed powerline poles along Willow Valley Road. All of the poles were snapped in half.



Figure 7: This pole was the furthest south on Willow Valley Road and was snapped near the base of the pole.

consistent with winds of 100-120 mph, similar to that of a weak EF-2 tornado. The damage observed indicated that a microburst had occurred, and examination of radar data helped to solidify this conclusion. The velocity imagery shown in Figure 8 illustrates strong convergence in the upper portions of the storm (outbound connecting with inbound velocity) which lead to a strong downdraft and air rushing outwards at ground level where the damage occurred. The localized microburst was determined to have a width of 255 yards.

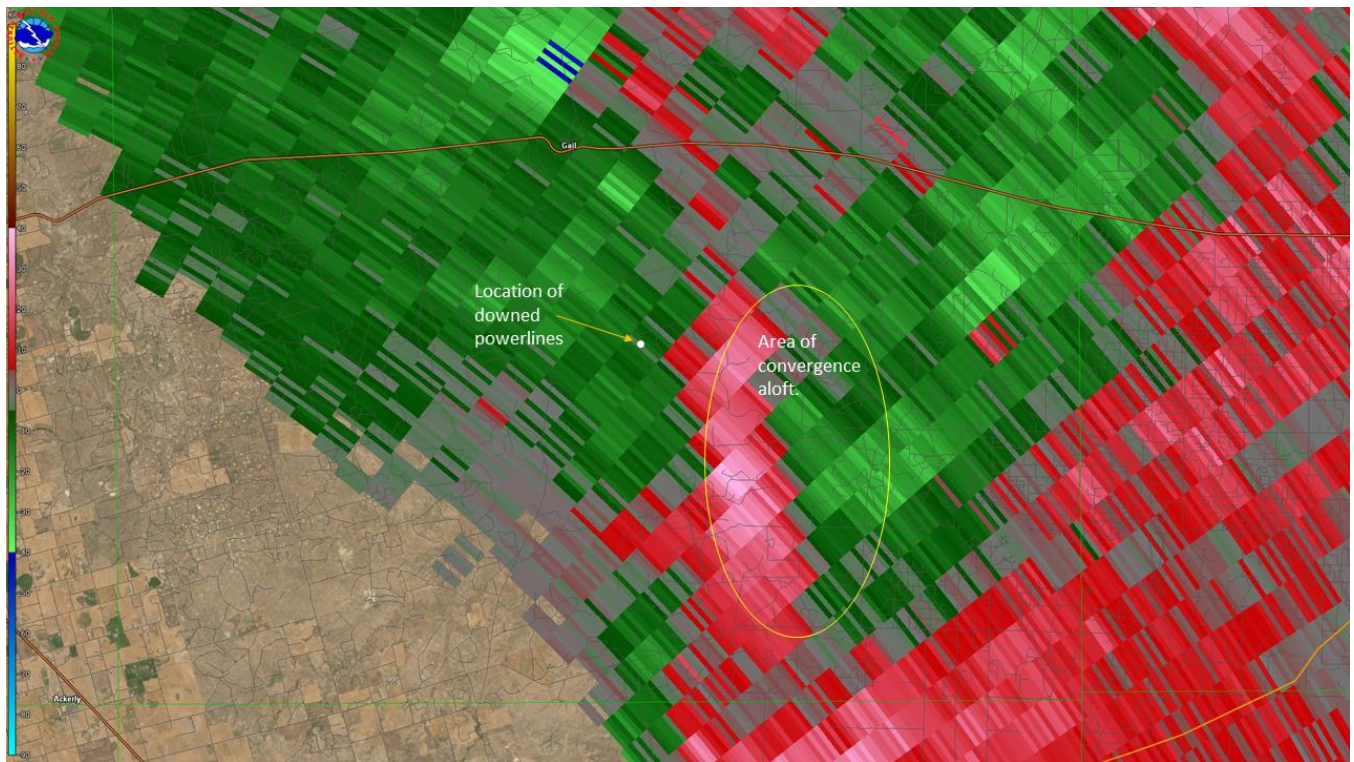


Figure 8: KMAF 4.0 deg base velocity showing strong convergence aloft leading to a microburst just east of Willow Valley Road where several powerline poles were snapped.

Special thanks to Borden County Judge Ross Sharp and Deputy Steve Swift for helping with the storm survey.