11/25/22 Black Friday Winter Storm

Most of the month of November had been quiet in terms of impactful weather across West Texas and Southeast New Mexico with a warm start shifting to bouts of cold thanks to multiple cold fronts. The pattern would shift over the course of one week leading to a more impactful winter weather event for the area. An anomalously strong upper-level disturbance would enter the picture on Tuesday (11/22) across the Northern Rockies, making a strong push south towards New Mexico by mid-week. The disturbance would eventually develop into a powerful upper-level area of low pressure, digging south into the mountains of Chihuahua in Mexico before finally lifting to the northeast over the Permian Basin and exiting into the southern plains of Oklahoma.

One of the interesting aspects of this disturbance was the trajectory in which the storm would take to bring about the event in question. The aforementioned storm would dive south sharply, strengthening in the process over the Central Rockies, eventually making a due south push over the International border to the west of El Paso, TX. According to historical records, there have only been a handful of storms to take a similar track to impact our area, most notably a storm that impacted Southeast New Mexico and the Trans Pecos back in 1980. Both storms brought copious amounts of snow to the higher elevations of West Texas and New Mexico, creating a difficult forecast due to complexity in both rain/snow lines, as well as impacts focused over a widespread area pending the elevation.

This storm was certainly a difficult forecast for the NWS Midland office. A cold front would move through the region late on Thanksgiving dropping temperatures out of the 50s and 60s that were present earlier in the daytime. Unlike some later season cold fronts, this airmass was more temperate with temperatures only generally getting to near freezing in the higher elevations and the northern plains of TX and NM while the rest of the region would slowly fall into the upper-30s and low-40s. This would play a large part in who would receive the most winter weather impact across the region.

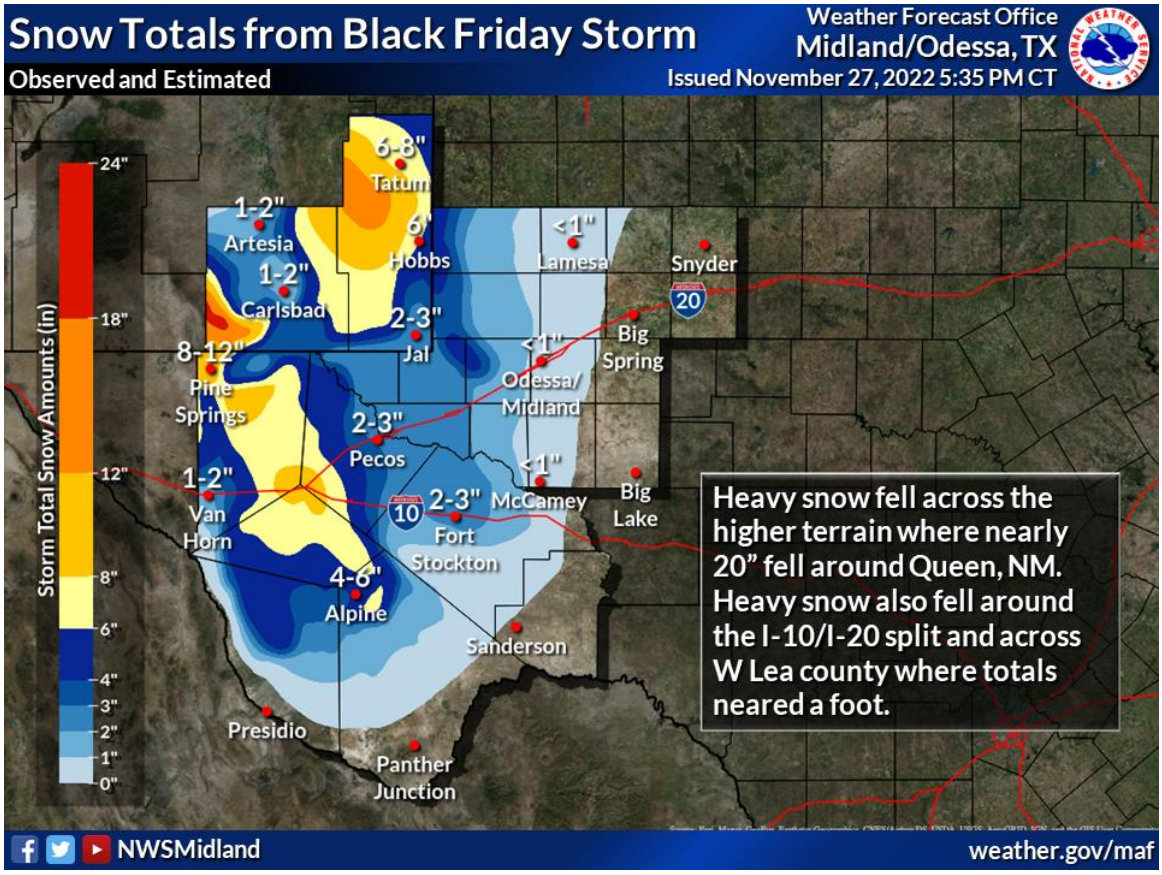
The storm began over the higher terrain to the west of the Pecos river early-Friday morning with areas out in the Guadalupe’s already seeing several inches of snow by sunrise. The disturbance was very strong in a meteorological sense as it

provided a large amount of lift capable of producing a widespread area of precipitation to develop in a short period of time. In the higher elevations, they were able to have the colder air for much, if not the entirety of the storm creating the perfect recipe for a plethora of snowfall across the Guadalupe Mountains, western high plains of Culberson county, Marfa Plateau, and the Davis Mountains. Thanks to elevations between 4500-8000 ft across those areas, rain was limited and snowfall prevailed as the primary precipitation type, leading to high snowfall amounts. In the lower elevations of the Pecos river valley and Permian Basin, the depth of the cold was still not enough to limit the rainfall potential, at least for the beginning of the storm, so the totals in those locations did not come close to what transpired over the higher terrain. A deep conveyor belt of moisture would develop rapidly across the eastern portions of the forecast area and pivot overhead for areas east of the Pecos river Friday morning, spreading westward through the morning and afternoon, creating a widespread area of precipitation for the region.

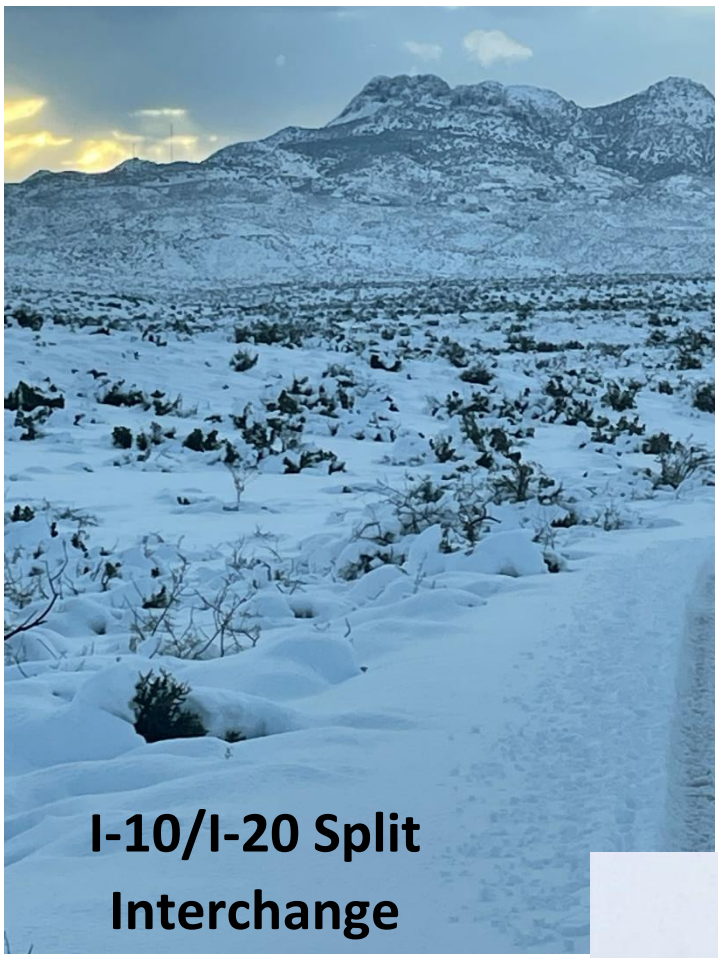
As the storm reached its peak intensity, there was a change of rain to snow for the lower elevations west of the Pecos river and south of the Lea/Eddy counties in New Mexico, creating a wintry scene for places like Pecos, TX, Hobbs, NM, and surrounding plains. The afternoon and evening time frame would feature several reports of moderate to heavy snow across the Upper Trans Pecos down to the Davis Mountains. As the upper-level disturbance began lifting northeast out of Mexico, colder air aloft would help to push the established rain/snow line to the east, eventually overspreading the Northwestern Permian Basin and the Midland/Odessa corridor after 6 PM CST. Moderate to heavy rain found across the central Permian Basin would change to a rain/snow mix, eventually to all snow for places like Odessa, Gardendale, and West Midland. Accumulating snow was found in those locations for a few hours prior to a dry wedge of air moving in around the low-pressure center, eventually cutting off precipitation.

Off to the northwest into Lea county New Mexico, a strong band of snow developed, indicating a classic development of what we call a, “Deformation Zone”, an area of strong lift created by a combination of cold air on the northwest side of a low-pressure combining with a deep layer of moisture that wraps across the northern side of the same low. The combination of these two processes creates a strong area of lift focused to the northwest of a low pressure which generates a heavy band of precipitation for a period of time before it moves out of the area. Thanks to this lift, there was a 3-6-hour period of heavy snow that brought snowfall totals across areas like Hobbs and Tatum to 5+” of snowfall for the storm

and 8-12” over the western hills of Lea county. One last burst of snow was seen over portions of the Permian Basin, including western Midland county where moderate snow was seen at the National Weather Service office between 6-8 AM CST that morning, further adding to the totals seen from the previous evening. Snowfall would end with some lingering showers over the northeastern Permian Basin for Saturday with clearing skies rapidly advancing to the north in wake of the storm moving out.



Snowfall totals were pretty stout for the high terrain out west with the winner of the whole event being Queen, NM where a measured 18” reading came in from a local spotter in the area. This was certainly an event that will be remembered due to the dynamics at play and the rarity of the storm track to create the scene that played out across the western highlands.



I-10/I-20 Split Interchange

McDonald Observatory

Carlsbad Caverns

Fort Davis, Juan Hartnett