

*January 16-17 2018 Rio Grande Valley Winter Weather*



Figure 1. Stranded tractor trailers and other vehicles on glazed overpasses for IH-2 and IH-69E junction in Harlingen, Texas, at around 7 PM CST, January 16<sup>th</sup>, 2018.



Figure 2. Glaze ice photos taken outside of the NWS Brownsville/Rio Grande Valley office on the east side of Brownsville, January 17<sup>th</sup>, 2018, at around 7:45 AM CST.

# Third Time, Not a Charm!

## Wintry Precipitation Settles Across Rio Grande Valley, Ranchlands, for Third Time in Winter 2017/2018

### Summary

The “hits” of the memorable winter of 2017/2018 kept coming, during the peak of the season in this particular case. A strong cold front swept through the Ranchlands just before daybreak, and the rest of the Rio Grande Valley by around 8 AM, on January 16<sup>th</sup>. The strongest surface high pressure system of a winter filled with northerly winds quickly descended on the southern tip of Texas, with temperatures quickly falling below freezing by mid to late morning across the Rio Grande Plains ranchlands, and into the 30s soon after noon elsewhere across the Valley. Drainage of the modified arctic air maximized across colder pockets of the more populated Rio Grande Valley, and by the peak of the late afternoon/early evening commute, subfreezing temperatures had nosed into Weslaco, Elsa/Edcouch, Harlingen, and Raymondville. The 24 hour temperature difference from 4 PM January 15<sup>th</sup> to 4 PM January 16<sup>th</sup> ranged from 35 to 45°F; when adding the brutal northerly winds, the “feels like” temperature difference between the two days was up to a whopping **55 degrees colder** (peaking in the Lower Valley between Brownsville and Raymondville)!

Accompanying the rapid temperature crash was spotty precipitation. Light freezing rain and a bit of sleet produced glazing across Hebbronville by mid to late morning, which continued into the early afternoon. Drier low level air arrive by late afternoon, and precipitation ceased across the Rio Grande Plains at or before sunset. Farther east, a pocket of evaporative cooling in the precipitation formation zone of the atmosphere combined with just enough mid level energy to kick off a brief but surprising period of light snow (no impact) from Rio Grande City through the McAllen metropolitan area during the mid-afternoon, while surface temperatures were at or just above freezing. The snow (and some sleet) was conversational more than anything, and precipitation north and west of the populated Rio Grande Valley ended prior to notable impacts.

Such was not the case for much of the Rio Grande Valley’s population, along and near Interstate Highway (IH) 2, the south end of IH 69C (Edinburg to Pharr), and IH 69E (Brownsville to Harlingen). Light freezing drizzle developed prior to sunset as a nose of subfreezing temperatures slid southeast, with readings falling to between 28°F and 30°F from Weslaco to Harlingen and south toward north Brownsville. Though the precipitation was light and for a shorter duration – 6 to 9 hours – than the nearly 24 hours of similar precipitation experienced during the [February 3-4 2011 Ice Storm](#), impacts to elevated road surfaces and some power lines was both notable and dangerous. The early arrival of the glaze, in some locations prior to sunset and during the end of the afternoon commute, caused vehicles to slide on the highways and would soon force closures of most elevated roadways (there is more than 80 miles in both directions) which continued through mid morning of the 17<sup>th</sup> before the ice would melt or evaporate. Unfortunately, more than two dozen accidents were reported on elevated highways prior to the closures, which diverted traffic onto frontage roads where ground temperatures were above freezing.

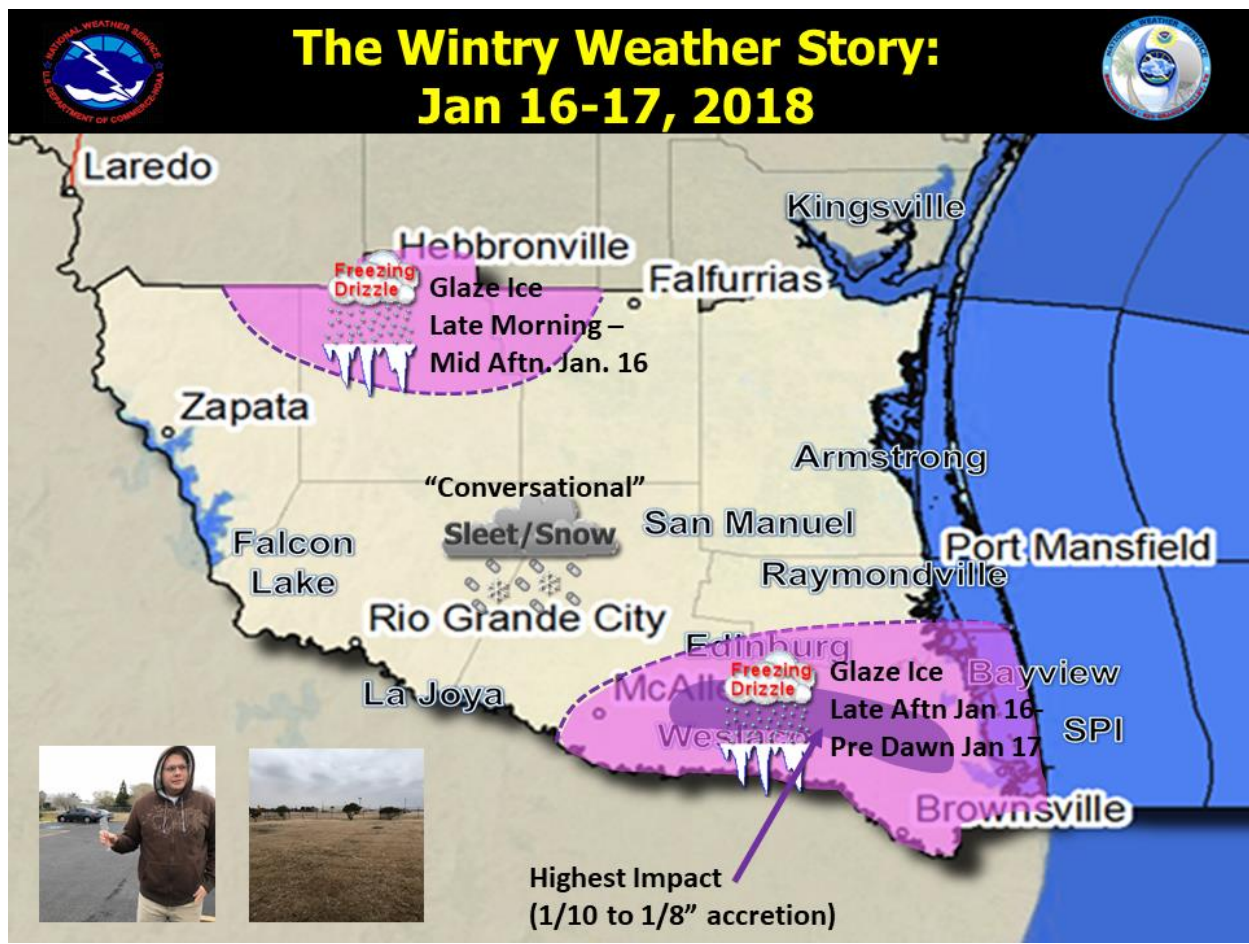
The combination of glaze ice and very cold temperatures, which led to statewide record electricity use (according to the Electric Reliability Council of Texas, or ERCOT), may have contributed to the more than 22,000 customers without power during the peak of the cold and icing, during the pre-dawn hours of January 17<sup>th</sup>. Numerous “blue flashes” of transformers were seen overnight from the 16<sup>th</sup> through the 17<sup>th</sup> before daybreak.

Other impacts from the sudden change included another round of pelican rescues along the stretch of SR 48 between Port Isabel and the Port of Brownsville (Gaiman Bridge area near the Bahia Grande), and recovery of “cold stunned” sea turtles along Laguna Madre Bay and the coast between Boca Chica Beach and the South Padre Island jetties (at least) as surf and bay temperatures fell to or below 50°F on the 17<sup>th</sup>, which continued through the 18<sup>th</sup>.

Fortunately, early notification of the sharp cold front beginning Sunday, January 14<sup>th</sup> and continuing through early Tuesday, January 16<sup>th</sup>, allowed local jurisdictions to ready shelters for homeless and other persons in need. Roads were also pre-treated prior to the arrival of the wintry mix, though bridges are always a difficult situation especially with temperatures several degrees below freezing.

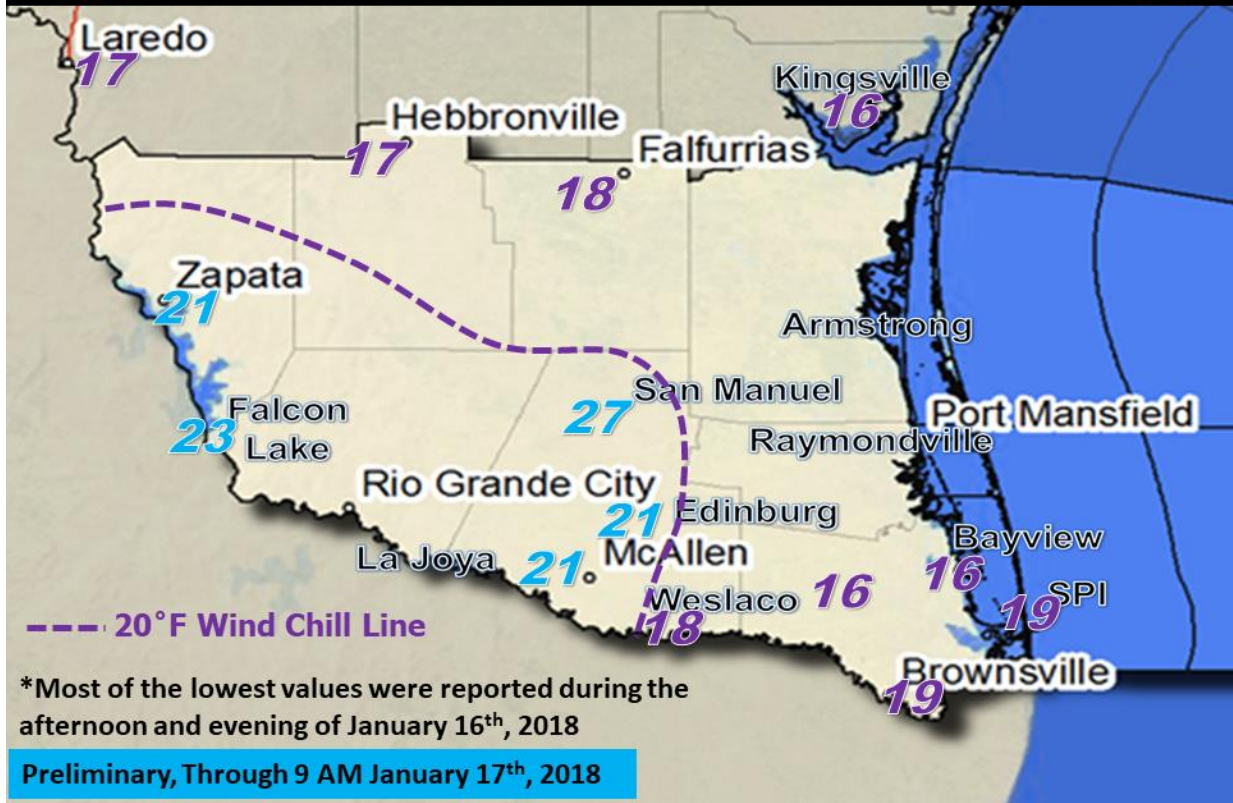
## Other Quick Facts

- This was the first *complete* Valley-wide freeze since January 7, 2017, as temperatures in all areas reached 32 or lower for a few hours everywhere. This was not the case on January 3, 2018, which fell just short.
- Consecutive hour duration of freezing temperatures ranged from 3 to 5 hours in typically warmer pockets to 15 to 30 hours in colder pockets, particularly from Hebbronville through the King Ranch extending south into Weslaco, Harlingen, and Raymondville. This was the longest consecutive hour freeze since February 2-5, 2011 – but nowhere close on the whole, as that event typically ranged from 36 to 60 hours across the region.
- Ice accretion was marginal, but typically ranged from 1/10<sup>th</sup> to 1/16<sup>th</sup> an inch on trees, branches, vehicle antennae, etc. This was significantly less than what occurred on February 3-4, 2011 (up to 1.5 inches in some areas) and even January 29, 2014. The main reason? Precipitation was much finer, with accumulation below 0.05". February 2011 had values generally from 0.25 to 0.5" liquid equivalent.
- Chilly rain/drizzle continued into January 18<sup>th</sup>, with temperatures held in the upper 30s to lower 40s for most of the day.

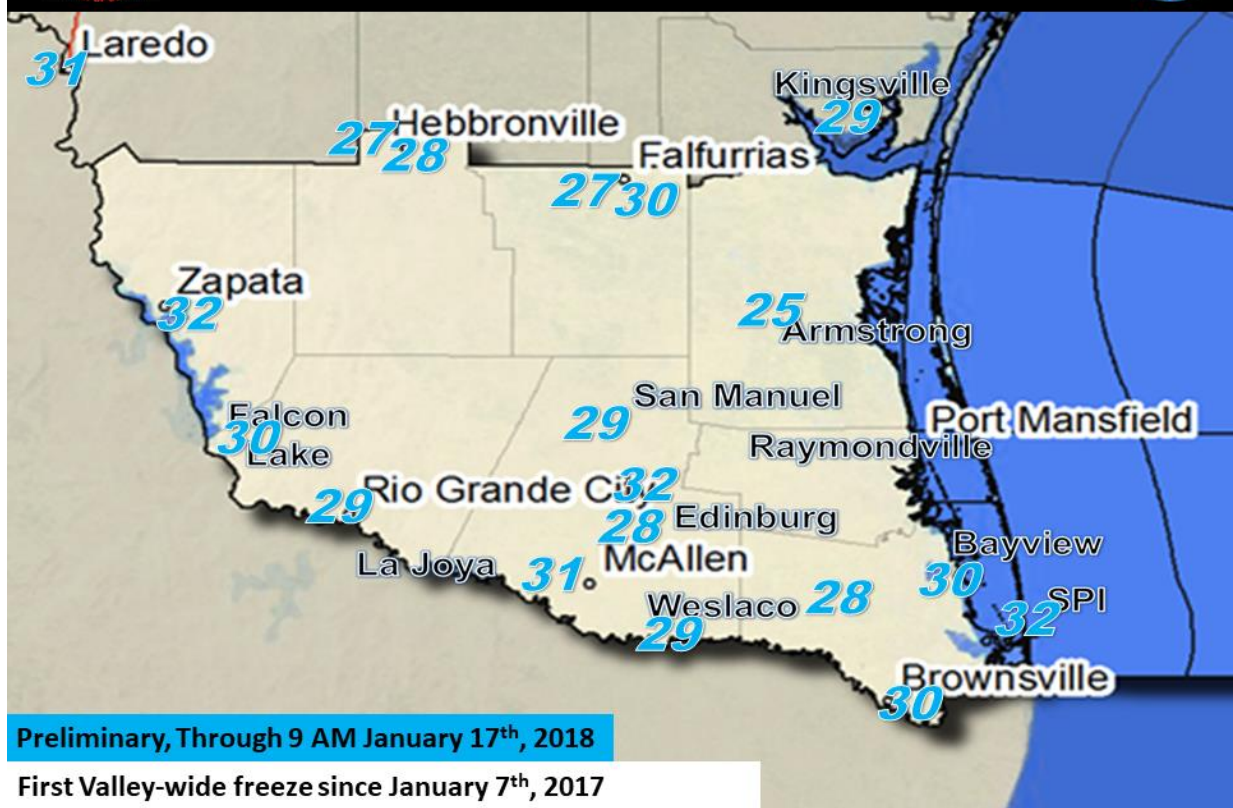


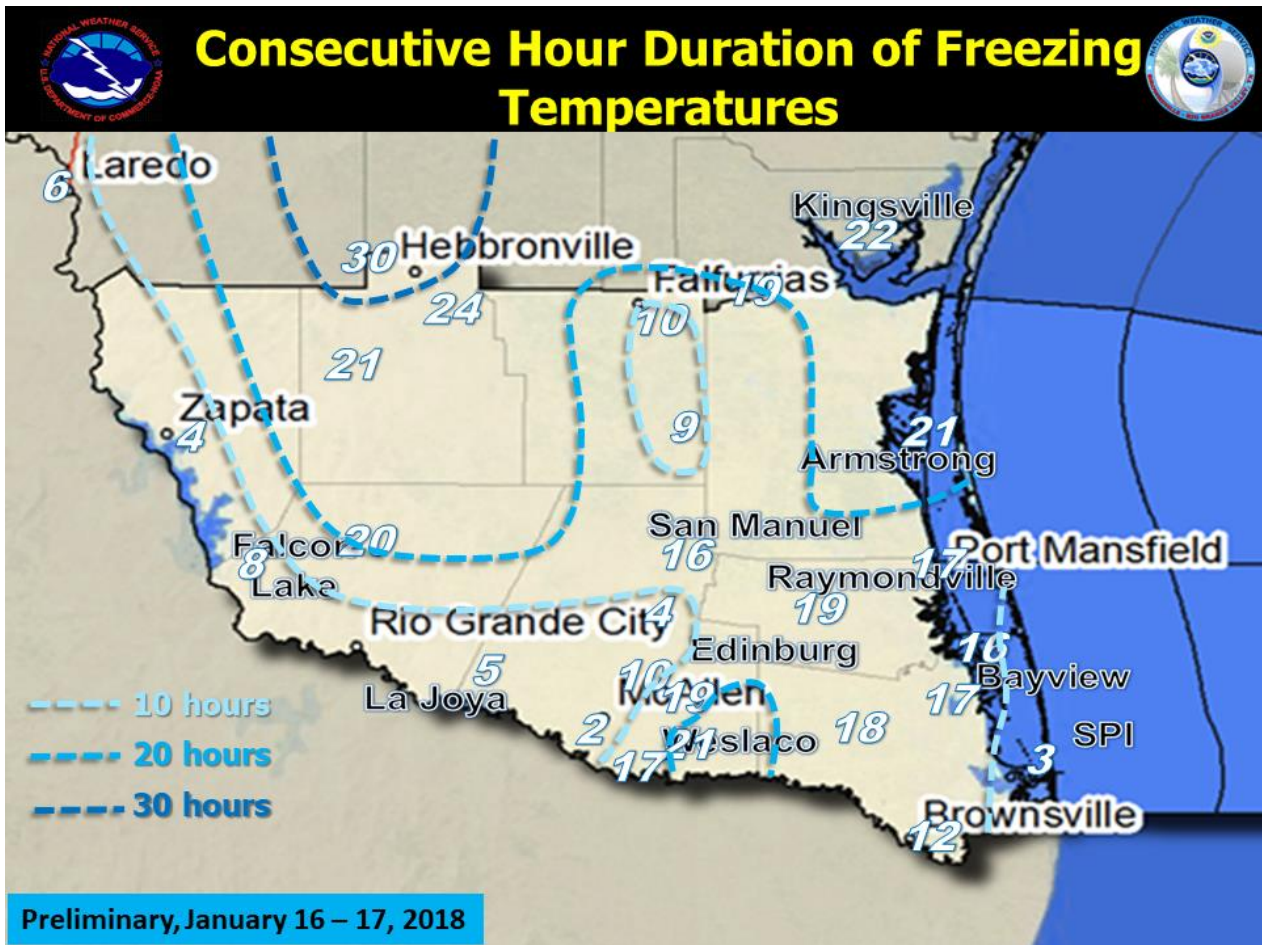


# Lowest "Feels Like" Temps



# Lowest Temperatures

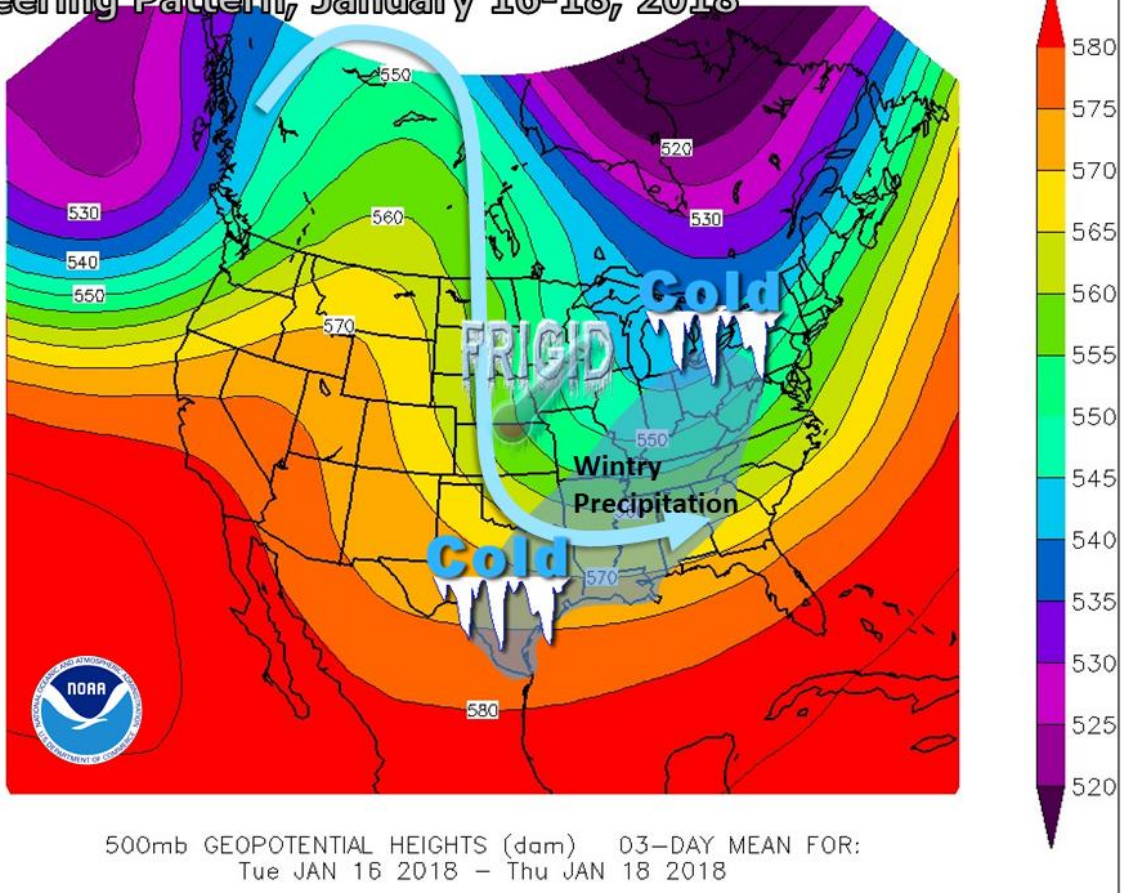




**Pattern Matters**

For the third time in winter 2017/18, a “classic” pattern that opens the door to polar air wide set up in short order just prior to the slamming front – againAs is typical in such a pattern where the eastern two thirds of the US sees below average “steering” pattern levels, the surface high “split” into two cells, one reaching the eastern U.S. and another nosing south well into northeast Mexico along/east of the Sierra Madre. In the January 16-18 case, the surface high “nose” dominated the Deep South U.S. and stretched into the tropics of eastern Mexico; surface pressures were the highest (1040+ mb) seen this winter and in recent winters across the Valley on January 17<sup>th</sup> in the morning. Unlike the New Year’s entry event, the overall atmosphere for the U.S. was cold to very cold, but not as intense especially across the mid Atlantic, Ohio Valley, and northeastern states. Temperatures were equally or even colder across Texas, Louisiana, and other parts of the Deep South, however.

# Steering Pattern, January 16-18, 2018



# Surface Pattern (Mean), January 16-18, 2018

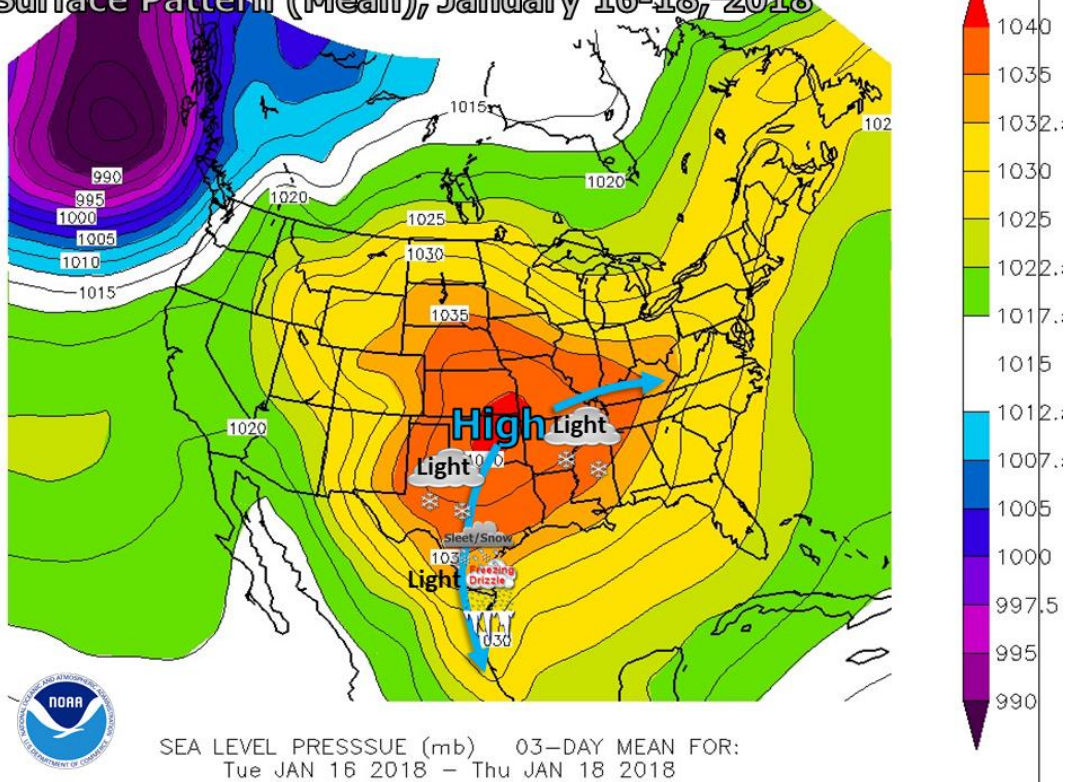


Figure 3. Though the atmosphere overall (top) was not as cold as that to start 2018, the flow pattern and source (arctic regions) were the same. For the January 16-18 case, the coldest air settled over the southern Plains, with wintry precipitation seen across nearly all of Texas at some point, stretching into Louisiana and Mississippi, including along the Gulf coast where rare snowfall was reported.