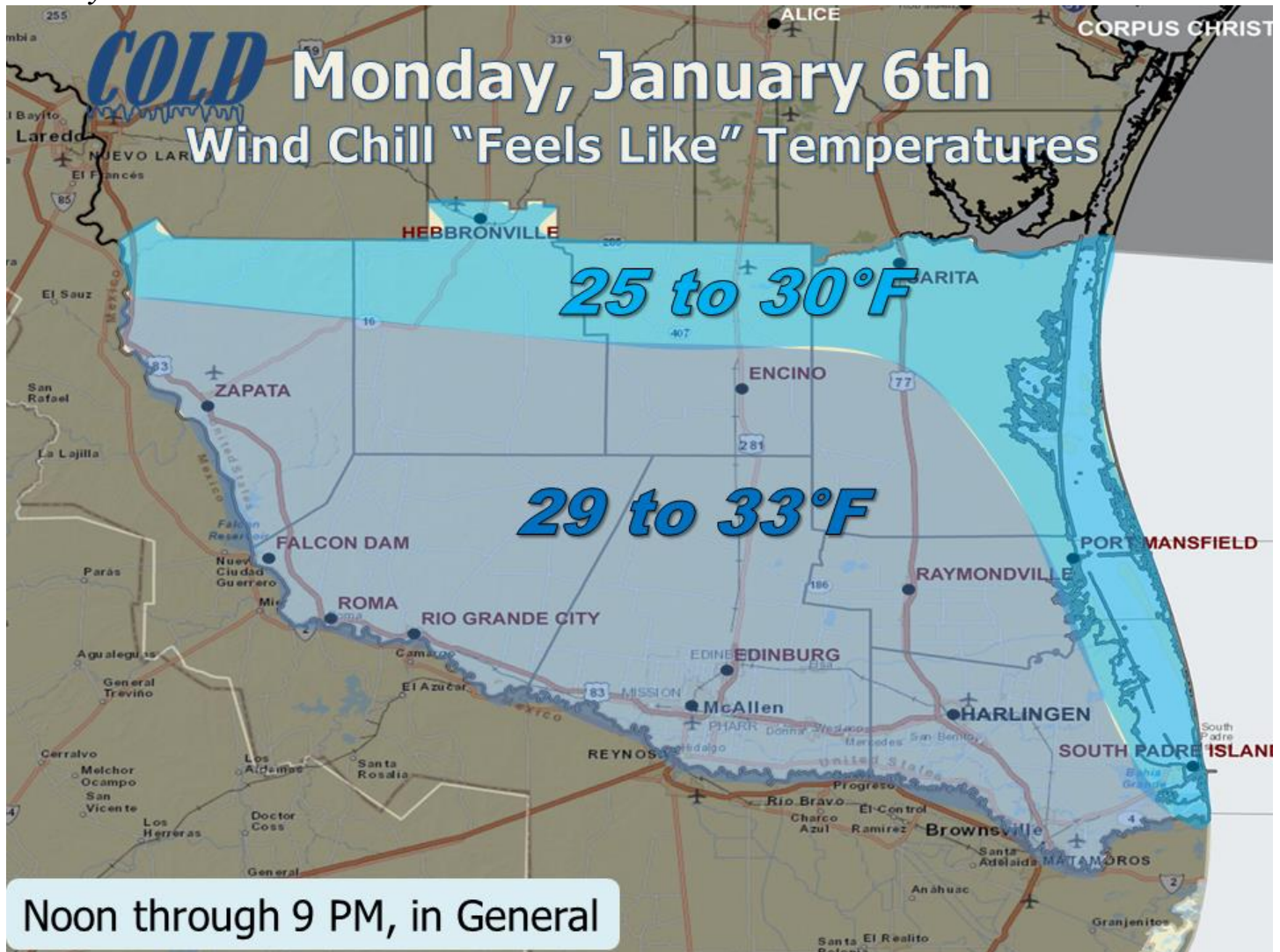


January 6-7 Chill

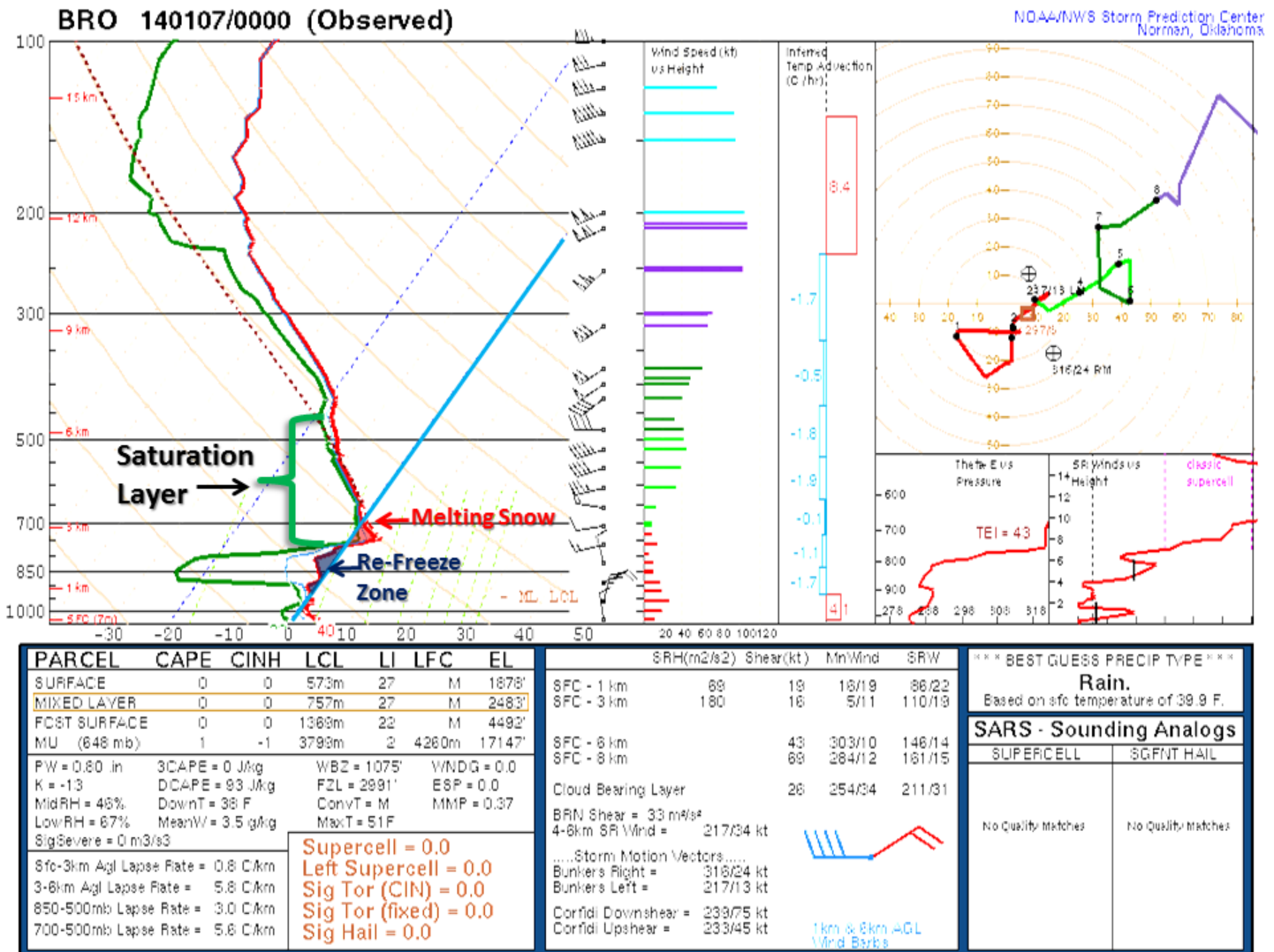


“Converational” *Sleet* Did Fall January 6 2014 Edge of “North Pole Express” Touches Valley with A Taste of Winter

The Skinny

The Valley version of winter weather: Raw, gray, and often wet days with temperatures in the 40s and 50s combined with a stiff north wind that became a staple of [November](#) and continued through December 2013 made another appearance on January 6th, 2014. The “tail” of the record breaking bitter to frigid air mass nudged into south Texas overnight on the 5th. A weakening upper level disturbance approached as the coldest air funneled into the Valley and produced a thick, steely gray sky that blotted out the sun and held daytime temperatures in the upper 30s to lower 40s. Combined with steady north winds of 10 to 20 mph, conditions felt more like the upper 20s to lower 30s; gusts above 20 mph added additional bite to the chill.

By late afternoon, moisture saturated the atmosphere roughly between 19 and 10 thousand feet; any precipitation within this layer would likely have been snow. Between 10 and 8 thousand feet, any snow would have melted to rain, before refreezing into ice pellets (sleet) somewhere around 6500 feet. At this layer, the atmosphere had dried out rapidly; ice pellets were in a “race” to reach the ground before evaporating. There was just enough concentration of ice to allow some pellets to reach the earth’s surface, which explained the brief but notable period of very light “clicking” sounds on Valley roofs, windows, and vehicles between 430 PM and mid-evening. Report times varied based on when enough moisture was available. Brownsville reported the sleet earliest, while the mid Valley reported just after sunset (generally between 630 and 730 PM).



Above: Atmospheric profile at 6 PM CST January 6th, the time patchy light ice pellets (sleet) was reported in portions of the Rio Grande Valley. Dry air between 7 and 4 thousand feet both cooled melted snow back to sleet, but dried up the bulk of the precipitation.

As slightly warmer Gulf air snuck into the Lower Valley by 8 PM, the second wave of light precipitation fell as rain. Farther inland, reports of sleet shifted to the Upper Valley and Ranchlands through the overnight hours. The patchy, light nature of the precipitation combined with warm ground and slightly above freezing air temperatures made the sleet a novelty rather than a hazard (below, right; [click](#) to watch video. Credit: [SurgeWeather](#)).

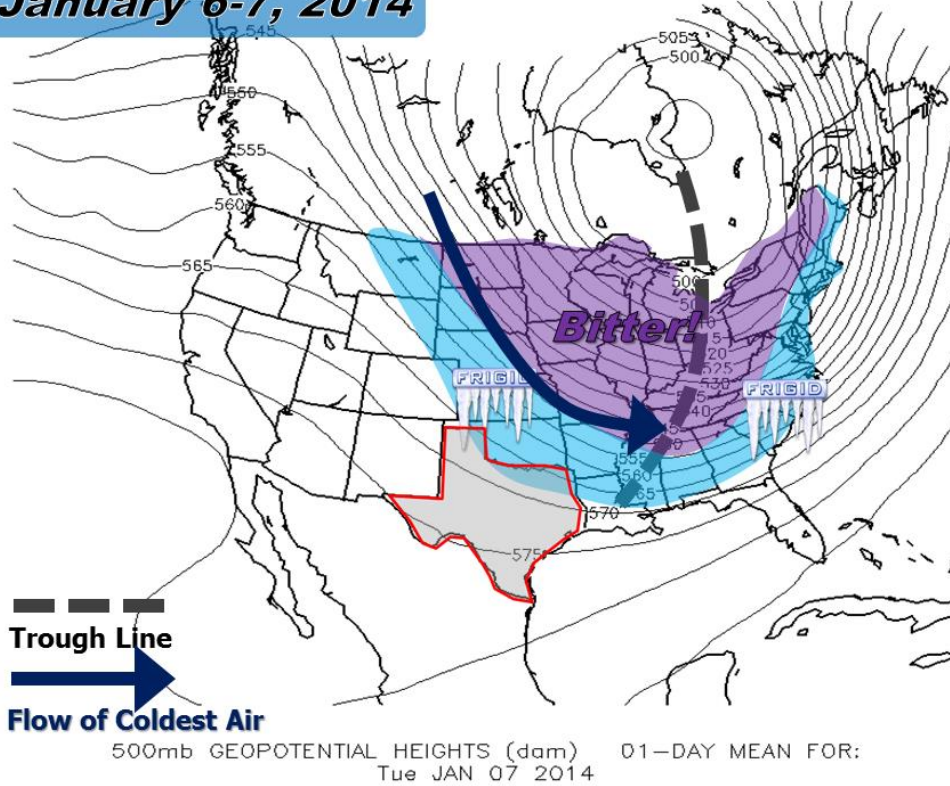


Close, but no Cigar

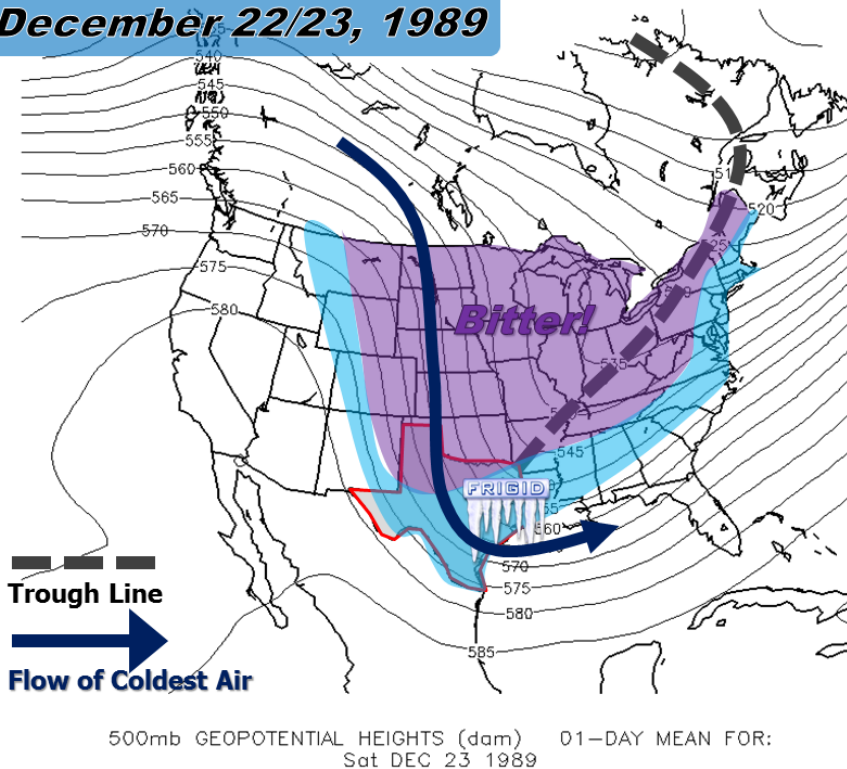
Sometimes, the difference between a significant weather impact and a marginal one can be on the order of several hundred miles. For the Rio Grande Valley, the difference between a significant killing freeze and a close shave was likely related to the “shape” of the atmospheric flow pattern, or jet stream. This year, the core of the coldest air drove directly into the Deep South, where record daily single digit low temperatures occurred as far south as Atlanta and Birmingham, and lower teens along the Gulf Coast from Louisiana to the Florida Panhandle. In late December 1989, the Deep South also saw minimum temperatures in the single digits, but the westward extension of the icebox covered all of Texas. On December 23rd, 1989, Austin and San Antonio plunged to 6°F; Hebbbronville (Jim Hogg) to 12°F, and Harlingen to 15°F, all daily

records. On January 7th, 2014, Austin still reached a bone chilling record of 12°F, but the clouds and lesser “gas” to shove the dangerously cold air toward the Valley left lows at San Antonio at 22°F (16° higher); Hebronville at an estimated 30°F (18° higher), and Harlingen at 36°F (21° higher).

January 6-7, 2014



December 22/23, 1989



Above: Flow pattern at 500 mb (~18,000 feet) across North America. Areas defined as “bitter” either had temperatures below zero or at least 25° below the daily average; areas defined as “frigid” either had temperatures between zero and 20°F or at least 25° below the daily average.