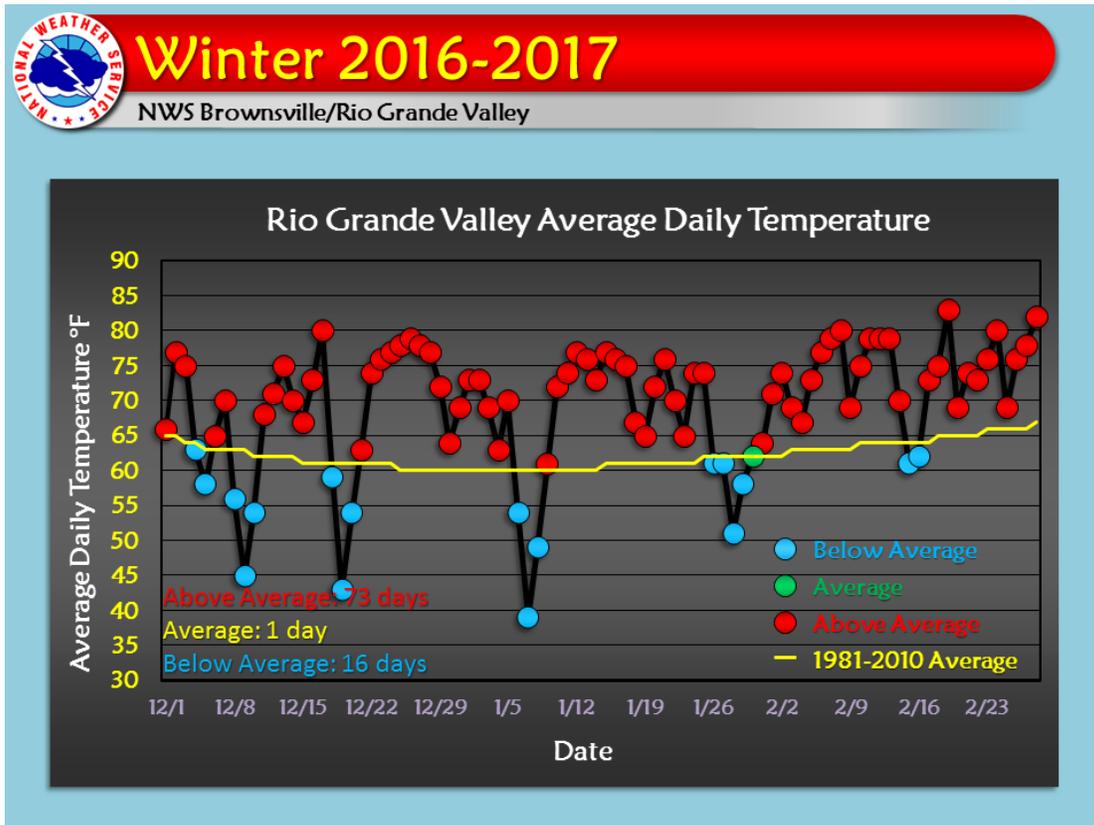




Record to Near Record Winter Heat!

December 2016 to February 2017

| Location | 2017 Value (Rank) | Current or Prior Record (Year) |
|-------------------------------|-------------------|--------------------------------|
| McAllen/Miller (since 1961) | 70.2 (1) | 66.5 (1970/71) Diff: +3.7 |
| Harlingen (since 1912) | 68.3 (1) | 67.9 (1949/50) Diff: +0.4 |
| Falcon Dam (since 1962) | 66.2 (1) | 64.3 (1999/2000) Diff: +1.9 |
| Port Mansfield (since 1958) | 65.7 (1) | 65.3 (1999/2000) Diff: +0.4 |
| Brownsville (since 1878) | 68.9 (2) | 69.7 (1889/90) Diff: -0.8 |
| McAllen/Coop (since 1942) | 67.5(2) | 68.6 (1949/50) Diff: -1.1 |
| Rio Grande City (since 1897) | 65.0 (4) | 67.4 (1949/50) Diff: -2.4 |
| Mission/La Joya (since 1922*) | 65.0 (9) | 67.3 (1949/50) Diff: -2.3 |



Bottom Image: Average daily temperature (day/night combined). Note the number of above average days was more than four times that of the below average days, and accounted for 81 percent of the sample.

“Winter”? What Winter?!

Record to Near Record Warmth Dominates December 2016-February 2017 in RGV

Trees, Flowers in Full Bloom Before the End of February

Overview

The “heat beat” just didn’t stop with the calendar in the traditional winter season. Following a record [July to October hot period](#) where “La Canícula” (the “dog days” high pressure ridge in northern Mexico) held on with clenched teeth, which led to a [full calendar year \(2016\) of high temperature records](#) – December through February just kept the records coming (above). Nearly all of the populated Rio Grande Valley ranked #1 or #2 for winter overall.

Unlike the forecast impacts (generally wetter and cooler) that failed to materialize in a big way from El Niño prior to the [winter of 2015/16](#), when there was only a 4 percent probability for below average rainfall and a 24 percent probability for above average temperature – and the *opposite occurred* – the high confidence for a warmer and drier than average [winter of 2016/17](#) was spot on, with the 50+ percent probability of above average temperatures easily verifying with the records. Also previewed was the possibility of an early to mid-season freeze, largely based on the combination of a weak La Niña with a period where surface high pressure systems with arctic origins could blast all the way into Mexico. That period, mainly from late December through early January, produced three notable ‘northers – two in December and the third between January 7 and 9, 2017, which bottomed out temperatures and brought the first [Valley-wide freeze in nearly six years](#). Unlike some winters, when ‘northers can hang on for three to six days, each of the four “big” fronts impacts were fleeting, with above average temperatures surging forth after just three days of below to much below average temperatures. For example, following the pre-Christmas chill of December 18-20, there were eight straight days (December 22-29) with temperatures *more than 10°F above average!* An identical situation occurred after the freezes of January 7 and 8; from the 10th through 17th, temperatures also were more than 10°F above average.

A final ‘norther, just before the end of January, finished off winter (weather) for the populated Rio Grande Valley. February was truly unprecedented, as temperatures ranged from 9 to 11° above the 1981-2010 means and set records at nearly every location. February’s tables are shown below, but some additional statistics of interest include:

- For Brownsville, Harlingen, and McAllen, the new monthly records were equivalent to Secretariat “pulling away” from the rest of the field in his quest for the 1973 Triple Crown:
 - Brownsville’s 2.9°F difference between #1 and #2 (1962) was more than 2 degrees more than the difference between #2 and #10! (1.7°F)
 - McAllen’s 3.9°F difference between #1 and #2 was equal to the 3.9 degree spread between #2 and #10
 - Harlingen’s 2.1°F difference between #1 and #2 was 0.5 degrees more than the difference between #2 and #10 (1.6°F).
- The monthly averages were most similar to those in April, which explained why trees and flowers looked like April by the last week of the month. Did you know that:
 - McAllen/Miller’s February 2017 average would have ranked **#4...in March?**
 - Brownsville’s average would have ranked **#8...in March?**
 - Harlingen’s average would have ranked **#10...in March?**

Was Your Air Conditioning Humming This Winter? Warm temperatures are one thing, but add humidity (and warm overnights) and the need for dehumidifying homes through air conditioning becomes routine. One measure of winter heating and cooling needs is the calculation of Heating Degree and Cooling Degree Days (HDD and CDD) based on an average of 65°F. Not surprisingly, CDD tracked nearly identically with the temperature rankings:

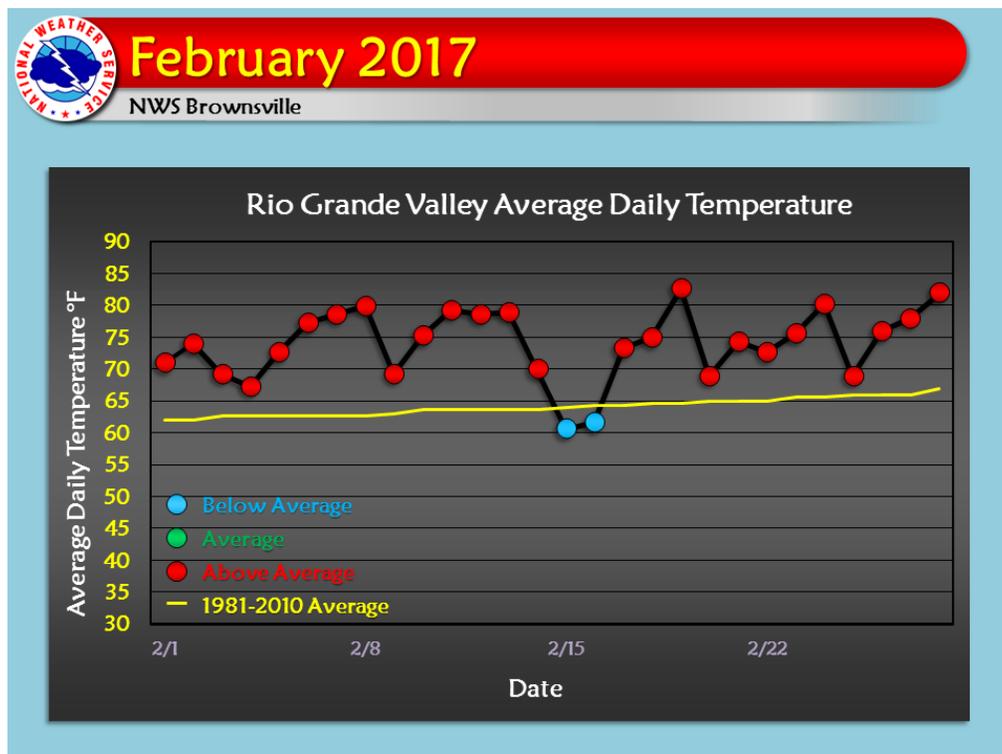
- Brownsville's 563 ranked just behind 1889/1890's 587
- Harlingen's 524 edged out 1949/50's 513 for #1
- McAllen/Miller's 664 obliterated 1970/71's 469 – a nearly 200 point increase on a prior record!!

Finally, “reaching the beach” in February wasn’t just for Winter Texans. For the last three weekends of the month, warm and humid conditions helped bump the surf temperature at the sea/land interface to the mid 70s, quite comfortable and unusual for so early in the season. Local crowds enhanced the weekend population to look more like April and May than the tail end of winter; even the typical “cool breeze” was lacking, as was the opportunity for sea fog with Gulf temperatures beyond shore in the mid-70s as well.



February Temperature Records Shattered!

| Location | 2017 Value (Rank) | Current or Prior Record (Year) |
|-------------------------------|-------------------|---------------------------------|
| McAllen/Miller (since 1961) | 75.3 (1) | 71.4 (1962, 1999) Diff: +3.9 |
| Harlingen (since 1912) | 73.2 (1) | 71.1 (1962) Diff: +2.1 |
| Falcon Dam (since 1962) | 71.8 (1) | 70.7 (2000) Diff: +1.1 |
| Port Mansfield (since 1958) | 70.7 (1) | 69.4 (2008) Diff: +1.3 |
| Brownsville (since 1878) | 73.3 (1) | 70.4 (1962) Diff: +2.9 |
| McAllen/Coop (since 1942) | 73.1 (1) | 72.0 (1978) Diff: +1.1 |
| Rio Grande City (since 1897) | 70.8 (3) | 71.7 (1932) Diff: -0.9 |
| Mission/La Joya (since 1922*) | 70.5 (4) | 71.3 (1962) Diff: -0.8 |



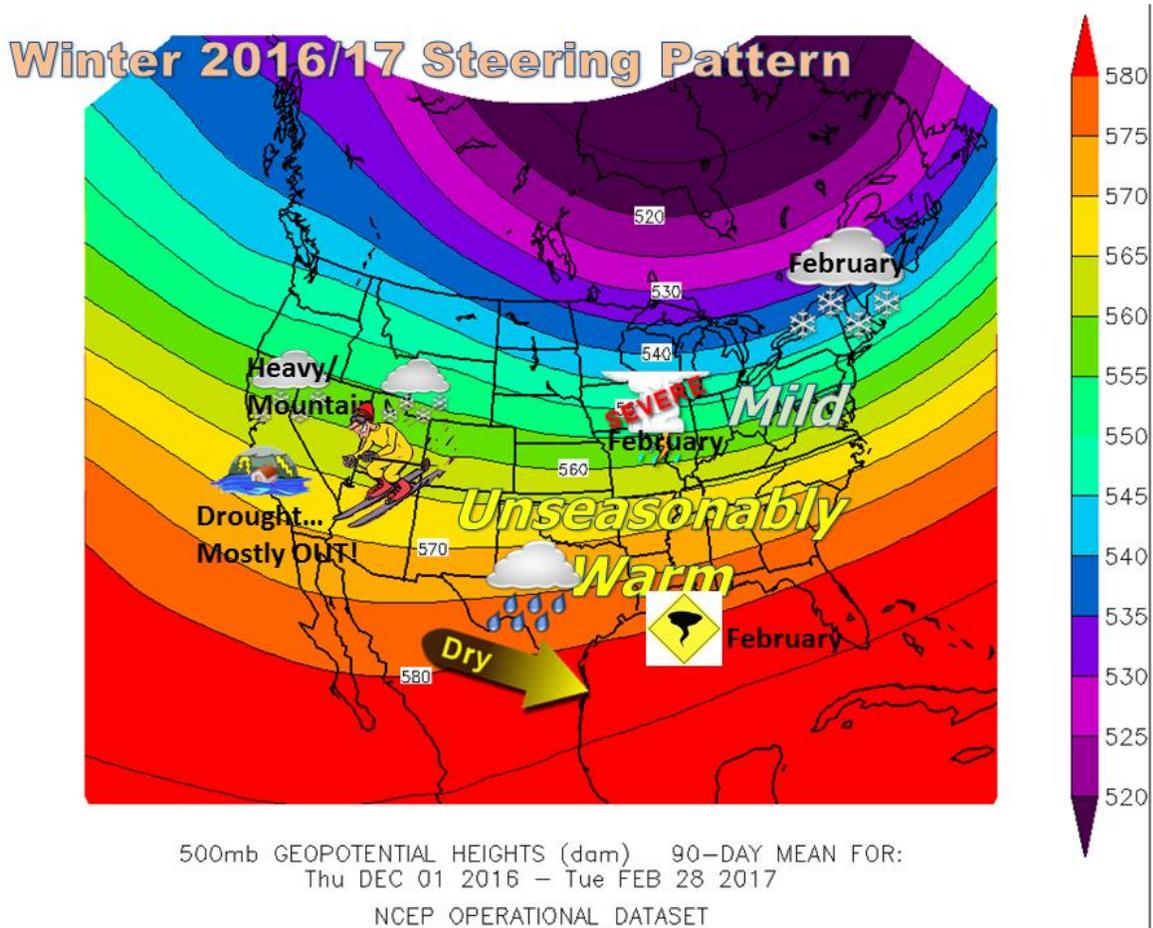
Bottom image: Average daily temperature (day/night combined). Just two of twenty-eight days fell below the 1981-2010 average.

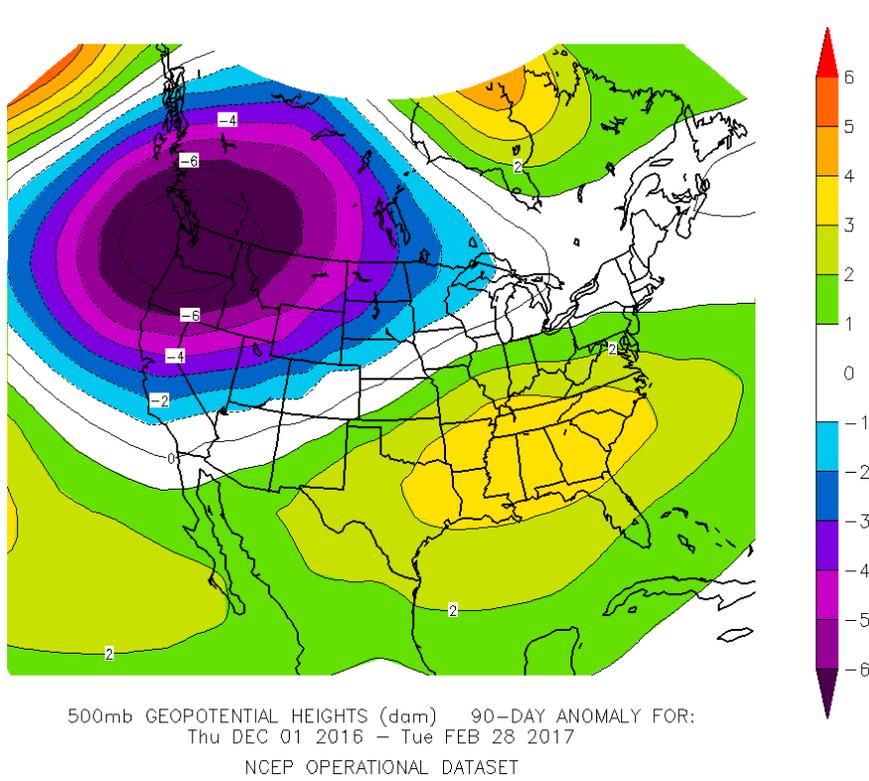
Pattern Matters

Through La Canícula was replaced by more zonal atmospheric flow as fall turned to winter, the level of the 500 millibar surface (a general indicator of atmospheric heat or cold) was above average for all but the Pacific Northwest and parts of California in the Lower 48. This zonal flow, with the northern edge of the subtropical ridge never too far away from the Lower Rio Grande Valley, was a key reason for the impressive and persistent warmth from December 2016 through February 2017. The warmth was impressive, not just for Deep South Texas but the **Deep SOUTH** of the United States, where departure from normal temperatures were also 6 to 8°F – more than two standard deviations above average and most certainly in record territory. Nearly every location east of the Mississippi River had temperatures 4°F or more above the 1981-2010 average; only the northern Rockies and Pacific Northwest fell 4 to 8°F below average.

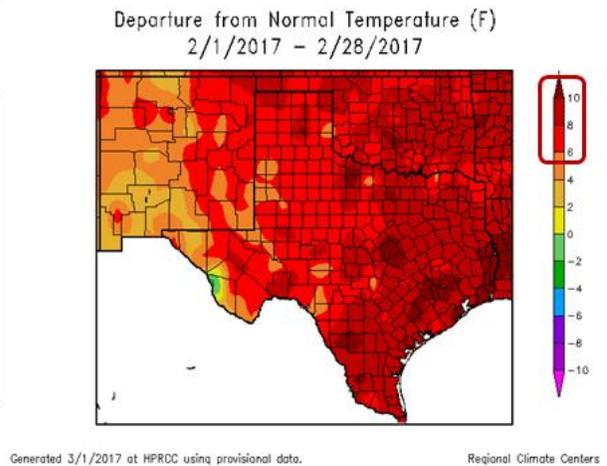
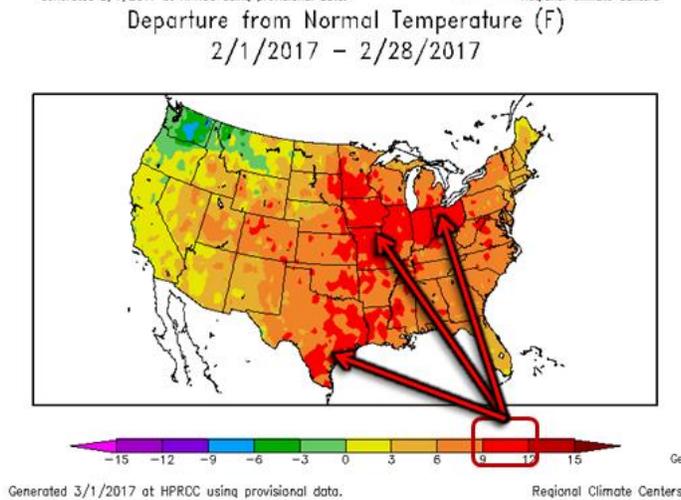
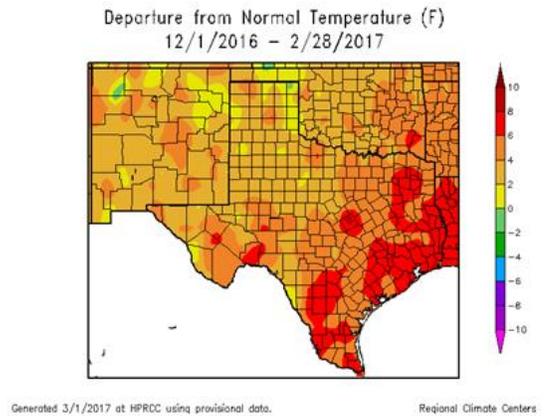
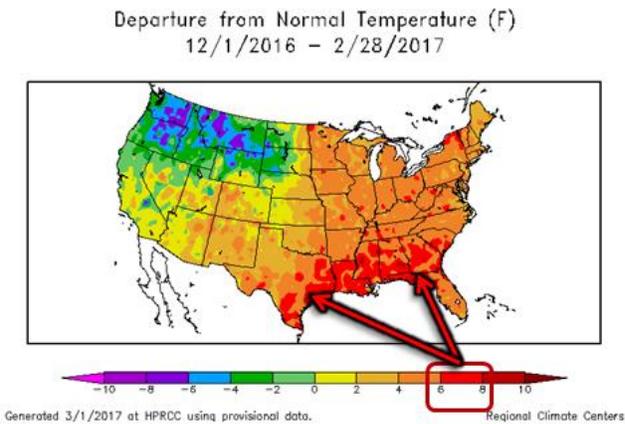
February alone saw many areas from Texas through the Upper Midwest and Ohio Valley with searing February temperatures up to 12°F above average; most locations south of the Ohio River experienced an early spring with similar accelerated blooms by 10 to 20 days or more ahead of schedule.

Rainfall was a mixed bag across the nation, and Texas mirrored that as well. While much of Texas received adequate rainfall – average to above average and enough to limit the rebirth of drought conditions, the Rio Grande Valley often “waved” to rainy/stormy systems that helped out Houston, Austin, and San Antonio but left the tip of Texas wanting (final graphic, at end of this article). Overall, rainfall was 25 to 75 percent of average for the Valley and nearby ranchlands from December 2016 through February 2017.

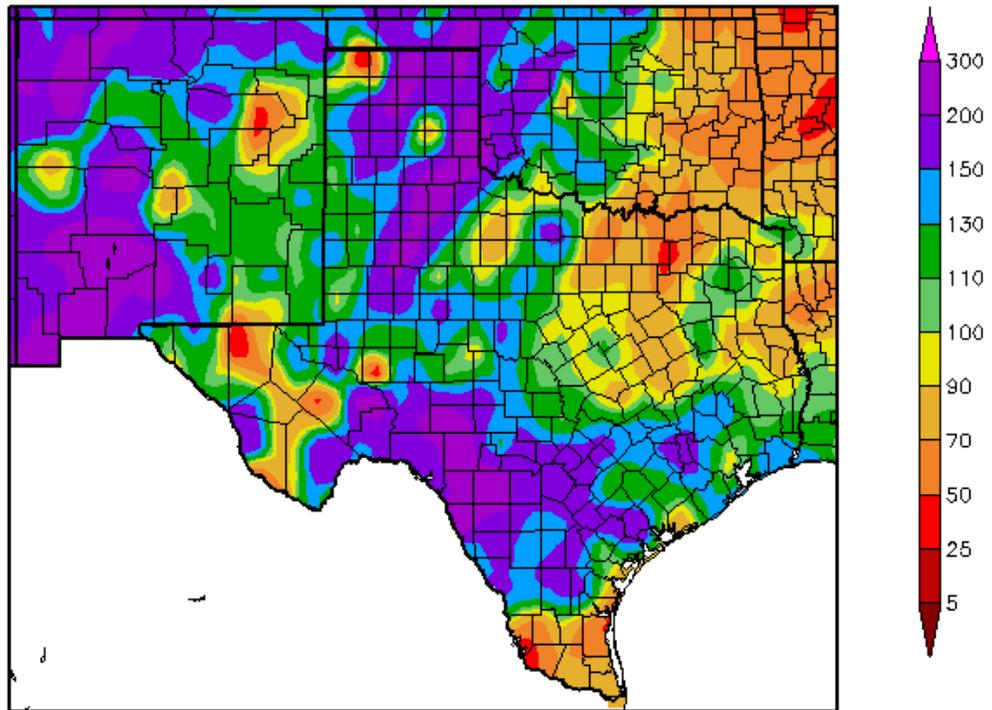




Above: Departure from normal 500 millibar geopotential height for winter 2016/17. Notably above average values extended from the Pacific Ocean west of Baja California northeast through Texas, peaking across the southeast U.S. Much below normal values covered the Pacific Northwest and Rockies. This pattern correlated nearly perfectly with much above and much below average temperatures (below).



Percent of Normal Precipitation (%)
12/1/2016 - 2/28/2017



Generated 3/1/2017 at HPRCC using provisional data.

Regional Climate Centers