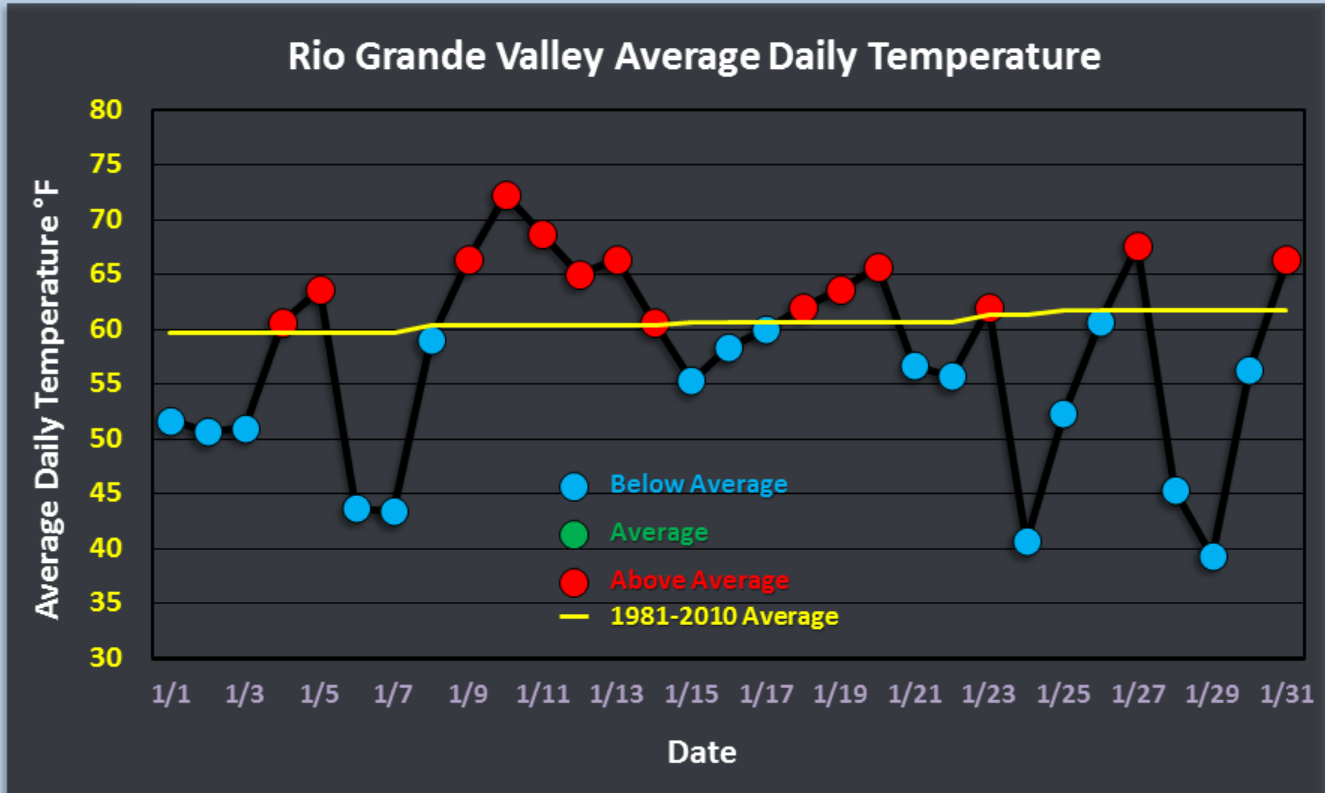




January 2014's Ups and Downs



Did We Say It Was Cold?

Nice Weather Forgotten Amid Cold, Raw Days in January 2014

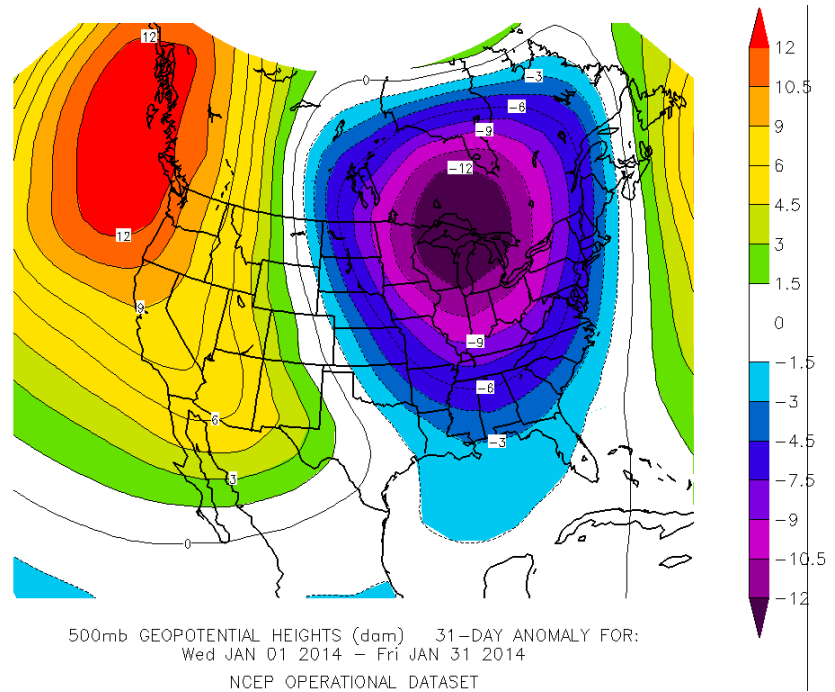
Rio Grande Valley Ends First Half of Winter Well Below Average

Perhaps the cold, raw start to the New Year was the harbinger of a month that would live up to the definition of winter. For the first time in recent memory, New Year's Eve 2014 sent many revelers indoors as light rain, brisk north wind, and temperatures in the 40s dominated the festivities. A dreary New Year's Day set the tone for a month that set no cold temperature records but had its share of chill.

The cold start to the month was followed by a brief warm-up on the 4th and 5th, only to be slammed by a nearly 30 degree drop by the afternoon of the 6th. A weak upper level disturbance triggered the season's first "conversational" [wintry precipitation](#), along with cold "feels like" temperatures. The chill became a distant memory as 80 degree days arrived during the second full week of the month, joined by plenty of sunshine and a building southerly wind. A slight mid-month cool down was followed by "Chamber of Commerce" January weather, with light north winds, plenty of warm sunshine, low humidity, and clear, cool nights and cold early mornings. Clouds and humidity briefly picked up on the 23rd, and was the start of the roller coaster that would finish the month.

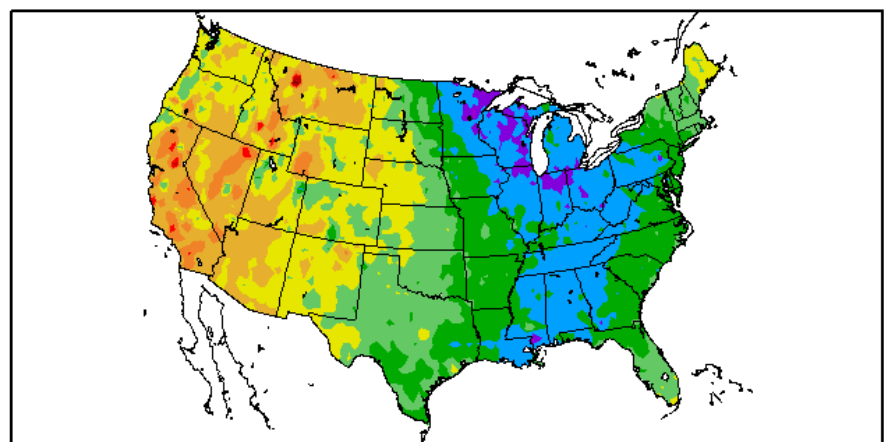
A sharp, shallow cold front crashed temperatures from the upper 70s into the upper 30s – a 40 degree plunge – between the afternoon of the 23rd and 24th. Combined with stiff north winds gusting to 30 mph at times in the Lower Valley, the “feels like” temperature dipped into the 20s. The 40+ degree crash marked the fourth time during the cool season (November 2013 – March 2014) that temperatures fell more than 30 degrees from the previous day’s peak and 2 PM the following day for much of the Valley. The cold snap was joined by a [coating of light snow in Zapata County](#), the first snow in Zapata County in [nearly three years](#). In just three days, “spring” would return to the Valley, as temperatures soared back above 80 in many areas. And, just like on the 23rd/24th, a second sharp cold front would surge through the Valley, crashing temperatures into the upper 40s less than 24 hours later on the 28th.

The [final blow of January arrived the following morning](#). A vigorous upper level disturbance dove into Sinaloa and Durango States, Mexico, and would rip toward Tamaulipas. At the same time, low level cold and very dry air funneled south from central Texas; precipitation began as a mix of rain and some sleet, but would soon freeze on contact with cold, exposed surfaces. A heavy burst of precipitation just prior to sunrise left up to ½ inch of ice accretion on trees, power lines, fences, etc. with the most across the Lower Valley where more than 0.75” of liquid fell. Milder weather followed to close out the month, but the “damage” had been done: the repeated cold snaps, which pushed daily temperatures more than 20 degrees below average, was more than enough to counter the more gradual warm-ups and left the month more than 3°F below the 1981-2010 benchmark.



The image above (right) tells the tale. Shown is the departure from average of the mid-level “jet stream” flow for January 2013; blue and purple colors indicate below/much below average values, while yellow and orange colors indicate above/much above average values. Below average values matched with below to much below average temperatures, some 6 to 12 degrees lower than normal for the coldest month of the year. Conversely, above average values correlated closely with temperatures 6 to 12 degrees higher than normal. Texas, on the west edge of the below average jet stream flow, saw notably colder than average temperatures, generally 2 to 4° lower than the 1981-2010 benchmark (right); the rapid fluctuations were partly related to the state being caught between the associated western high pressure ridge and eastern low pressure trough.

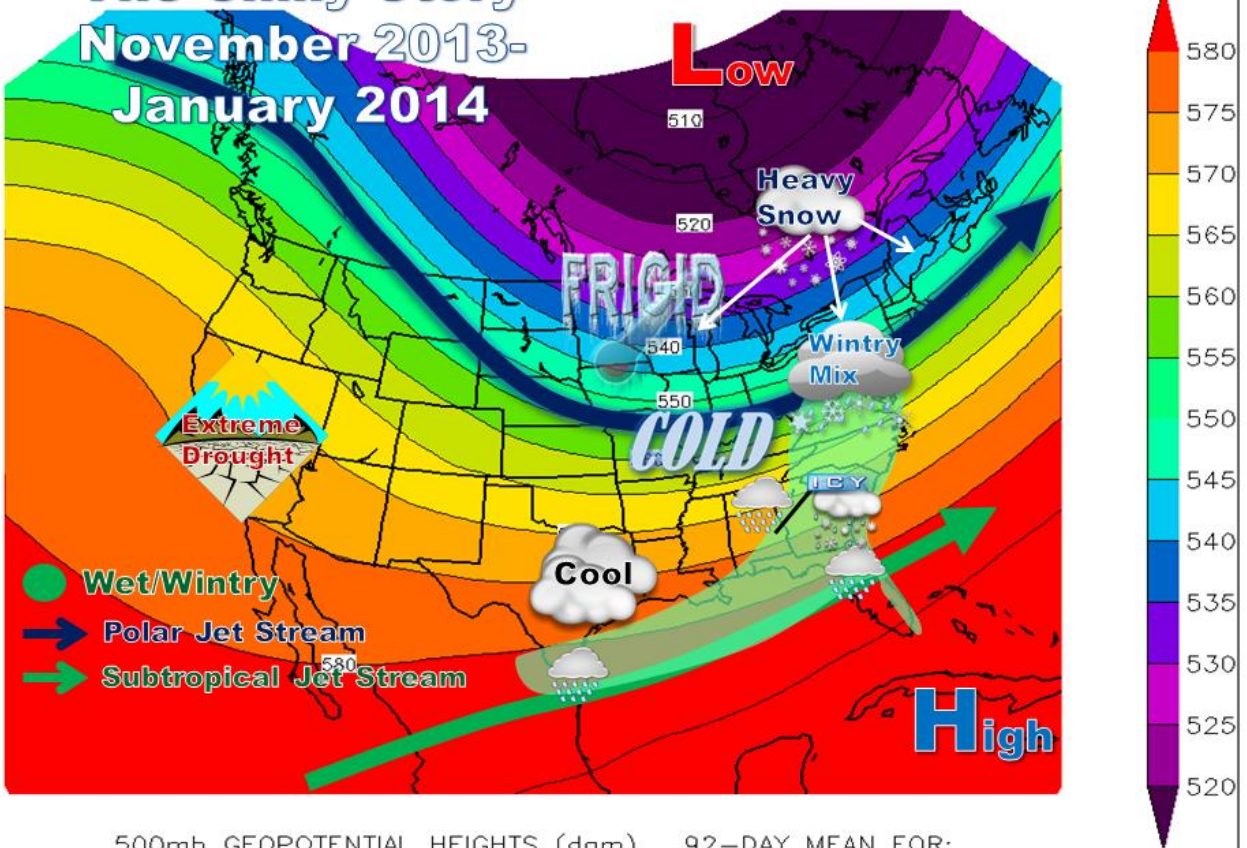
Departure from Normal Temperature (F)
1/1/2014 – 1/31/2014



Generated 2/5/2014 at HPRCC using provisional data.

Regional Climate Centers

The Chilly Story November 2013- January 2014



500mb GEOPOTENTIAL HEIGHTS (dam) 92-DAY MEAN FOR:
Fri NOV 01 2013 - Fri JAN 31 2014
NCEP OPERATIONAL DATASET

Above: Average “jet stream” flow for November 2013 through January 2014. For the first winter since 2009/2010, cool weather dominated Texas between November and January overall. Fronts with cold Canadian air were able to penetrate well south into the Great Plains and southeast U.S.; a weak but important subtropical jet provided just enough moisture and rainfall to bring the Rio Grande Valley out of most drought conditions by the start of February 2014.

November 2013-January 2014: Chilly, Damp Story

January 2014 was essentially a continuation of the parade of significant cold fronts that began in earnest on [November 22, 2013](#) and had continued right into the first two weeks of February 2014. In fact, for the first time in many years, three consecutive months of significantly (1.5°F or more) below average temperatures (left) covered the Valley. After years of reporting new or top ten record warm months, seasons, and years, the Valley caught the other extreme from late autumn 2013 through the first two thirds of winter 2014. The table (next page) shows all long term locations (more than 100 years) in the top quartile (25%), with many ranking among the **top ten coldest**. The values were far above the record 1976/77 benchmark.

Temperature Departure from 1981-2010 Average, in Degrees Fahrenheit

Month	Brownsville	Harlingen	McAllen
November 2013	-2.5	-3.9	-3.1
December 2013	-1.9	-1.8	-3.5
January 2014	-3.2	-3	-3.1

The cold trend was quite the opposite of the [expected November 2013-January 2014 temperatures](#), which suggested up to a 40-49 percent probability of above average temperatures and an 18-27 percent probability of below average temperatures. Exact reasons for the inaccurate forecast will be the subject of future research; one large scale consideration may be the prolonged neutral phase of the El Niño/Southern Oscillation, which, combined with mixed signals from other [teleconnections](#), can make

winter temperature forecasting very difficult given the current state of medium range climate predictions.

How Cold Was Nov. 2013 - Jan. 2014?

Location (since)	County	Avg. Temp	Cold Rank	Record Low	Year
Brownsville (1878)	Cameron	61.6	24	54.6	1880/81
Harlingen/Coop (1911)	Cameron	59.5	9	54.1	1976/77
McAllen/Miller (1961)	Hidalgo	60.8	9	52.9	1976/77
McAllen/Coop (1941)	Hidalgo	60.6	14 (tie)	55.2	1976/77
La Joya/Mission (1911)	Hidalgo	60.3	19	54.6	1976/77
Falcon Dam (1962)	Starr	58.4	10	53.8	1976/77
Port Isabel (1928)	Cameron	60.8	5	57.3	1976/77
McCook (1941)*	Hidalgo	57.5	4	53.6	1976/77
Port Mansfield (1958)	Willacy	59	11	54.5	1976/77
Santa Rosa (1987)	Cameron	60.4	3	60.1	2000/01