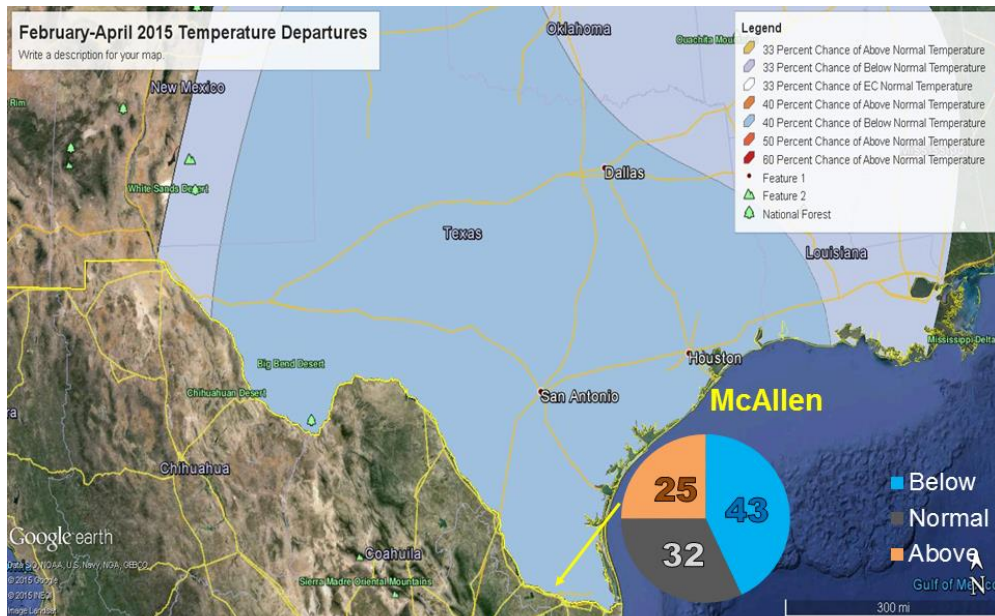
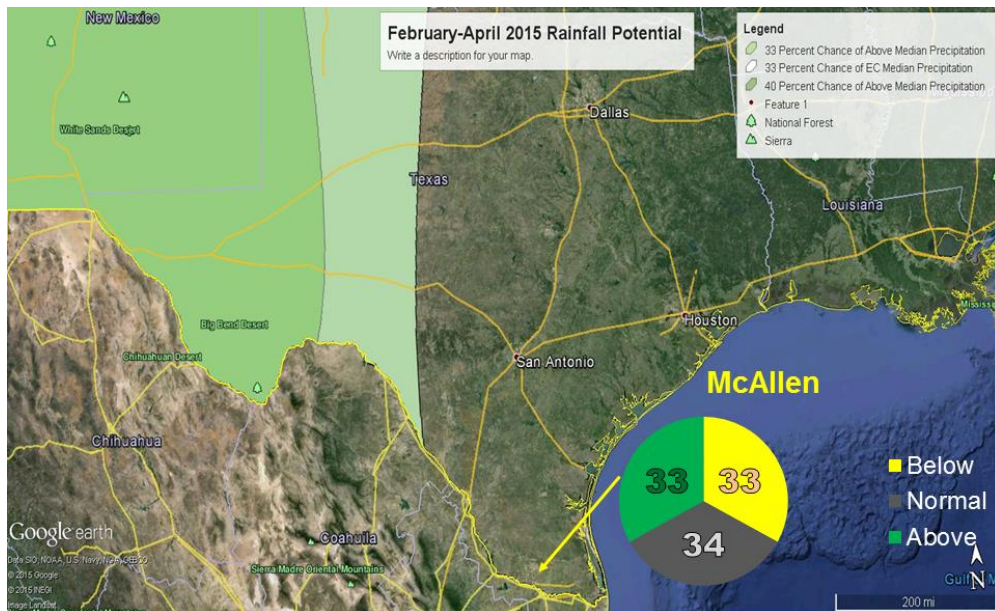


*Early Spring 2015 Outlook*



Rio Grande Valley Average for February - April (based on 1981-2010)  
**Wake-Up Temperature: Around 60°**  
**Afternoon Temperature: Around 80°**



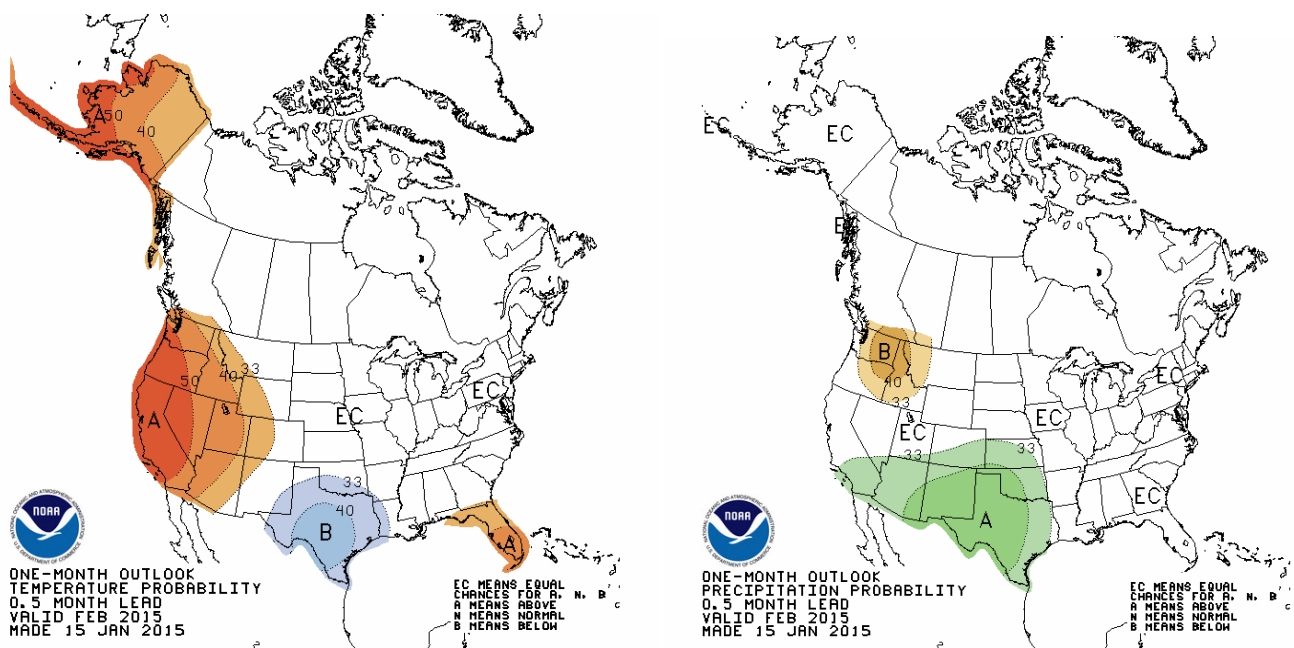
Rio Grande Valley Average for February-April (based on 1981-2010)  
**Precipitation: Ranges from 3 ½ inches inland to 4 ½ -5 inches near the coast**

**A Cool, Damp Transition to Spring?**  
**Does January's Pattern Stay Put Into the Growing Season?**

The [first half of January 2015](#) felt more like a Midwestern winter than the Rio Grande Valley, as temperatures set or neared records for the [sixteen day period from New Year's Eve through January 15<sup>th</sup>](#). After a brief warmup early the third week of the month, a brief cool down on the 23<sup>rd</sup> and 24<sup>th</sup> would ensure the month would likely end up some 5 to 7°F below average and for some locations, settle into the top ten coldest on record (details in later articles). Precipitation, meanwhile, had clinched a “normal” (McAllen/Mission) to above normal (elsewhere in the Cameron/Hidalgo/Willacy growing region) month well before the end of January. The sharp difference between exceptionally wet areas of Cameron County and abnormally dry areas of Starr and Jim Hogg County would continue through month’s end.

### **Spring Overview**

For crop growers in the Valley, fingers were crossed that a mix of dry and wet periods would combine with the seasonal warming to give the potential for bumper crops with limited need for enhanced irrigation from the Rio Grande. As of mid- January, there were some reports of “too *much* water” which had slowed pre-season planting and cultivating, as well as local livestock grazing along and near the US 77 corridor from the Valley through the King Ranch. The short term forecast for February (below) continued to cool, damp trend that dominated the end of December through the first three weeks of January. Beyond February, uncertainty had increased and confidence had decreased in exactly how the general weather pattern would evolve.



**Above:** *Left* – Nationwide temperature outlook for February. For the Rio Grande Valley, average daytime temperatures are in the mid 70s and nighttime temperatures in the lower 50s. *Right* – Nationwide precipitation outlook for February. Rio Grande Valley average monthly rainfall is between 1 and 1.5 inches.

### **Teleconnection Talk**

A number of teleconnections during mid-winter, from the [El Niño/Southern Oscillation](#) to the [Arctic Oscillation](#), were weak predictors of long range weather conditions to come. A weak El Niño appeared to have developed by January, but sea surface temperature trends later in the month suggested its lifespan could be limited, and perhaps eliminated, by mid spring. The Arctic and North Atlantic Oscillations continued to fluctuate from positive to negative and back again, providing little confidence in a persistent trend.

One teleconnection, however – the [Pacific Decadal Oscillation](#), *had* made a definitive turn to its positive phase to close out 2014 and begin 2015. While impossible to say during the middle of the 2014/2015 cool season, there may be some confidence in the strong positive PDO and enhanced moisture along the mid latitude jet, which has left an upper level low pressure trough in the subtropical eastern Pacific Ocean near Baja California, from which energy impulses have ejected (after diving south from the east central Pacific) and contributed to the persistent cloudiness across south Texas and northern Mexico since December 2014.

Should the Pacific Decadal Oscillation prove to be a primary driver of the southwestern United States’ weather pattern into spring, a continued active jet across the southern third of the nation, combined with the usual array

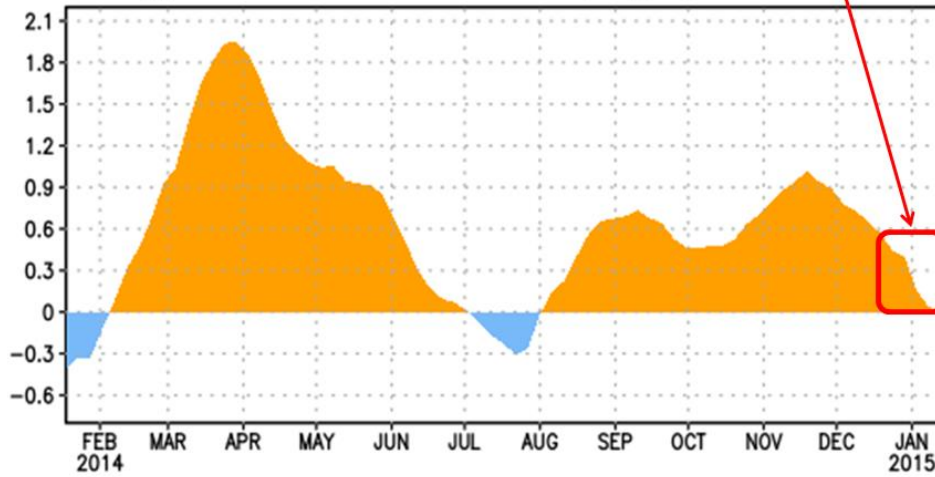


of late winter through early spring cold fronts, could aid an active downburst, hail, and tornado season beginning in March and continuing through April from the U.S. mid-south (Tennessee, Alabama, Mississippi, Louisiana, Arkansas) into portions of East, Southeast, Central, and North Texas. How might the Valley fare? All will depend on exactly where the southern-oriented jet stream sets up. Farther south, into southwest and central Texas, and the Valley could be on the edge of a few hail, wind, and tornado producing events. Farther north, and the Valley would be passed by.

Niño 3.4 Region is roughly between 5°N and 5°S Latitude and 170° and 120°W Longitude

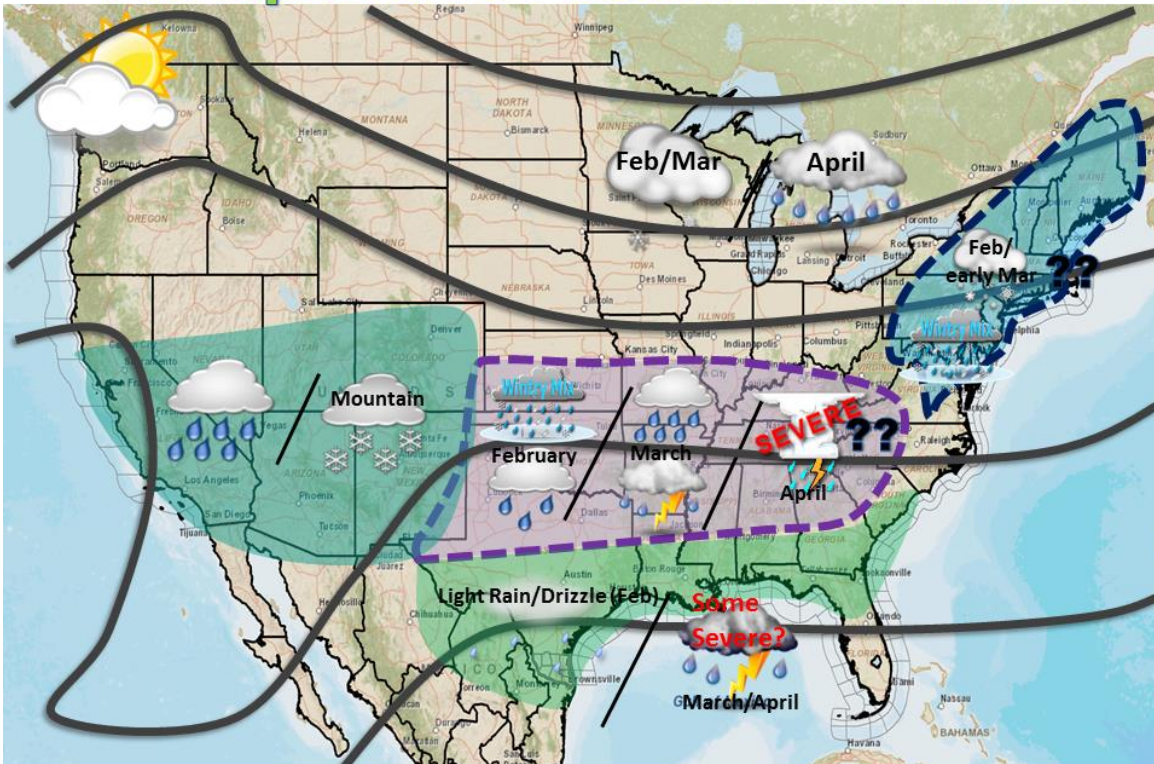
El Niño ONI (0.5) held up from early October through late December 2014, but crashed in early January 2015

EQ. Upper-Ocean Heat Anoms. (deg C) for 180-100W



## El Niño: Barely Hanging On?

### Feb-April 2015 Pattern Possibilities



Potential Average Flow pattern at 500 mb (~18,000 feet)



### **Rainfall, Drought, and Wildfire**

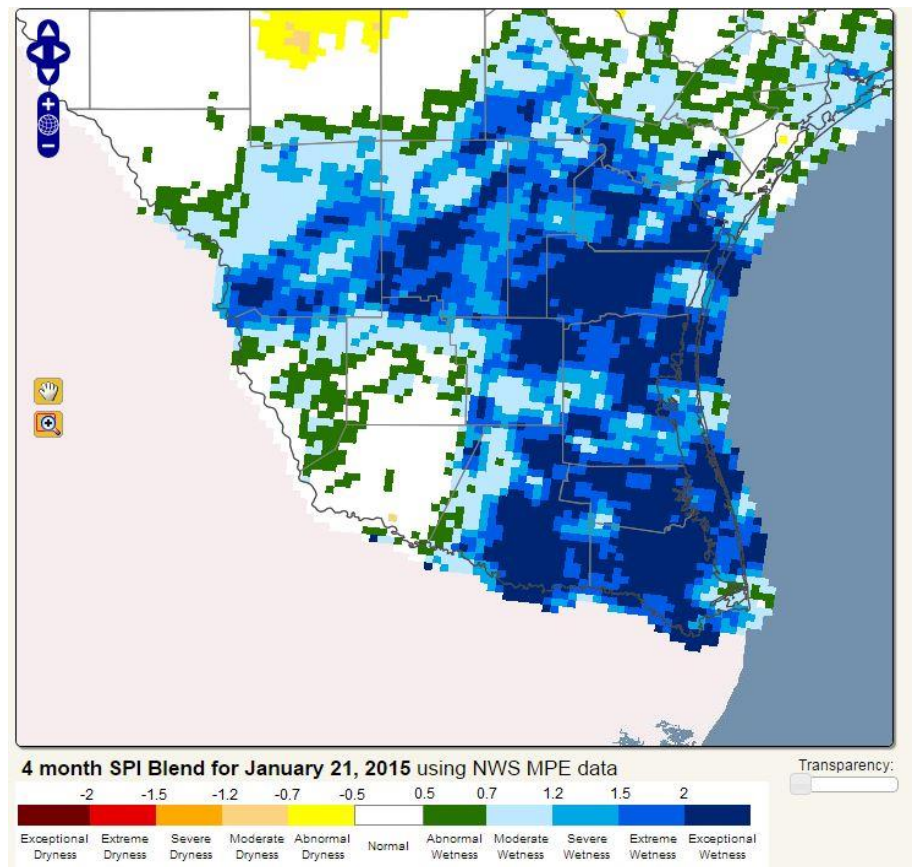
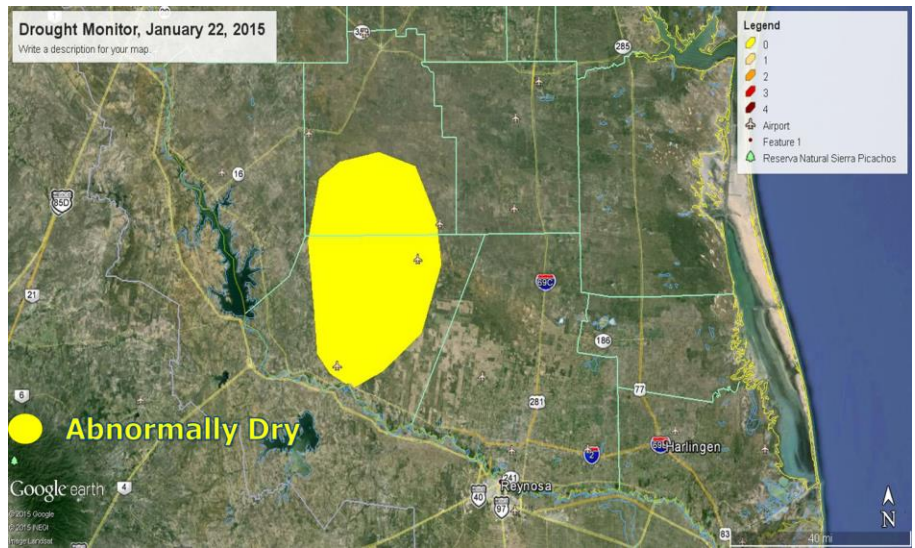
For the vast majority of the Valley’s population and agricultural (crop and some range) land, January 2015 will mark the fourth of the past five months with above-to-much above average rainfall. A number of indications suggest February will see more of the same; after all, only a little more than one inch is required to reach “normal” and the forecast for a continued active jet stream (above) argues for periodic rain, some which could be locally heavy (similar to January 10, 2015).

The Upper Valley, Rio Grande Plains, and northern Ranchlands of Jim Hogg County could continue to be “cut off” from the more prodigious rainfall near the coast, at least early in the season. Increasing potential for heavier rains associated with thunderstorms, even over the Rio Grande Plains, could help alleviate the “abnormally dry” condition (right) in part of the area. However, if rain does not fall, the abnormally dry area may well expand farther into Zapata, Jim Hogg, and western Brooks County.

Elsewhere, the wet ground, additional February rains, and the potential for periodic thunderstorm (convective) rains in March into April would assure that wet to normal conditions continue through mid-spring. Such conditions, which have aided lush grass and brush growth, would keep a lid on the potential for rapid wildfire growth (should one start) for the vast majority of the populated areas, as well as the King Ranch. The sharp drop to dry conditions across the Rio Grande Plains, who also had helpful rains that fed growth in September and November, might be more ripe for rapid wildfire spread should wind and low humidity arrive at times in March and April.

### **February Freezes?**

Despite the record to near record chill that began 2015, no areas recorded prolonged freezing (32°F or lower) conditions since Christmas morning 2014, which was very localized and brief. Even when the Valley dipped into the mid 30s on January 10<sup>th</sup>, the thick clouds insulated areas to the north, where ranchlands held up just above 32°F. If a similar pattern develops in early to mid-February, we cannot rule out a minor freeze across the ranchlands, but chances would dwindle as daylight hours lengthen and the ability of the source regions to pump out super frigid weather begins to wane. We are increasingly confident of not having a widespread freeze in the Valley, but folks should continue to monitor forecasts into mid February just in case one event can break through and produce the dry, cold conditions that would lead to frost or sub-freezing temperatures.



### ***Beware of Fog!***

On January 11<sup>th</sup>, the surf temperature dipped into the upper 40s, the coldest since February 7, 2014. Since then, nearshore Gulf and surf temperatures had moderated back into the mid to upper 50s, but already there had been one “classic” sea fog (and radiation fog combination) upon the first significant warm-up, which was followed by dew points nearing 70, on January 21<sup>st</sup> and 22<sup>nd</sup> (beach/Gulf only). If early February features another cool or cold snap to ensure the water temperatures remain in the 50s, the combination of available low level moisture and the early spring warm-up will inevitably provide several instances of thick fog, especially near the coast. Such was the case during the week of [February 22-26, 2014](#), as well as during mid March (Texas week) on South Padre Island.

Residents and visitors, especially along and east of U.S. 77/IH 69E, but also along US 83/IH-2 into the mid Valley, should be ready for possible near-zero visibility at times, especially in typically fog-prone areas, from late evening through mid-morning on such days in February and March.

### ***Wind Machine Possibility***

March is typically a transition month out of the damp cold fronts and into warmer and more humid weather which sometimes is punctuated by fronts that move more robustly across the Valley. Such fronts can bring the resurgence of the “Valley Wind Machine” where gusts can reach 50 mph or higher and cause more serious damage than the more typical 20 to 30 mph pre- and post-frontal winds. Rapidly moving systems in the atmospheric steering flow in an El Niño spring can assist both windier days and dangerous thunderstorm potential. In early January 2015, we expected to see some wind machine events come March and April, but the numbers compared with other years may be a bit lower. Note that periodic atmospheric warming over a cooler than normal nearshore Gulf would be the recipe for a “Wind Machine” event.

### ***Dangerous Thunderstorm Potential***

As February turns toward March, and March into April, we’ll begin to look more closely for features that could trigger dangerous thunderstorm episodes across the ranchlands and Rio Grande Valley. As mentioned in the overview, the primary uncertainty is the ultimate location of the “mean” southern jet stream. If the pattern above only lifts waves into New Mexico, central/north Texas, and eastward, the potential increases for damaging downburst winds, large hail, and tornadoes. If the pattern lifts farther north, the necessary energy could reduce the possibility for such episodes. One critical factor will be the tight necessary puzzle pieces of mid to upper level atmospheric dry air with sufficiently moist and warm near ground air. The perfect combination would increase the threat for hail and downburst winds; however, too much atmospheric moisture would severely limit the hail and wind threat. Tornadoes can be dependent on atmospheric “turning” (and overturning, which helps the hail/wind potential as well). A more southern energy track could increase the low level “turning” potential and hence the possibility of even small tornadoes despite the amount of mid and upper level dryness.

### ***Bottom Line?***

Keep the raincoats handy, and make sure your umbrellas are working! In all seriousness, the following tips can help you through the end of winter and early spring 2015:

- For your home: Check window, door, roof, and floor (foundation) for air leaks, and seal them. You can save a lot on your home heating (and cooling) bills with simple repairs.
- For your vehicle: Replace dry-rotted or old windshield wiper blades, check your tires for tread wear and replace, and be sure to check tire air pressure often to ensure a safe ride in the rain.
- For more winter safety tips, check out our [“slide guide”](#). Also [en Español!](#)
- Review our [Hazardous Weather Guide](#) for thunderstorm and tornado safety as we move into March and April!