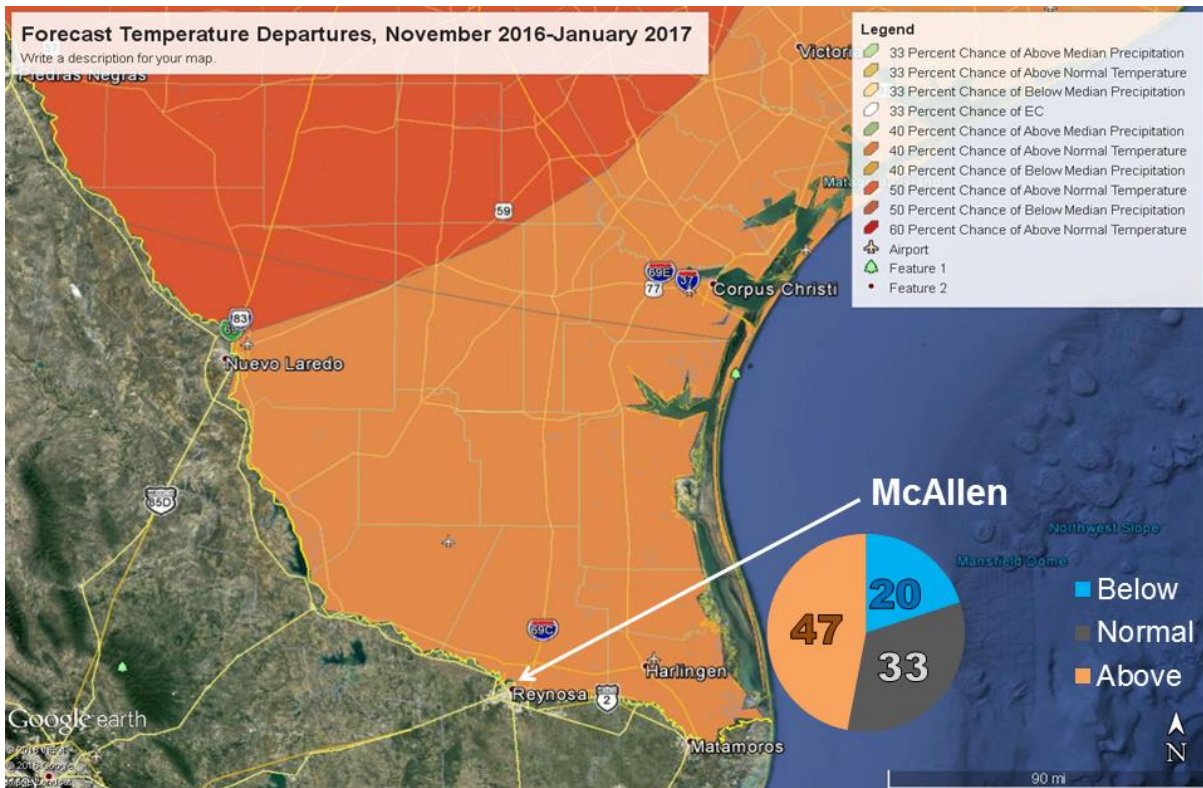
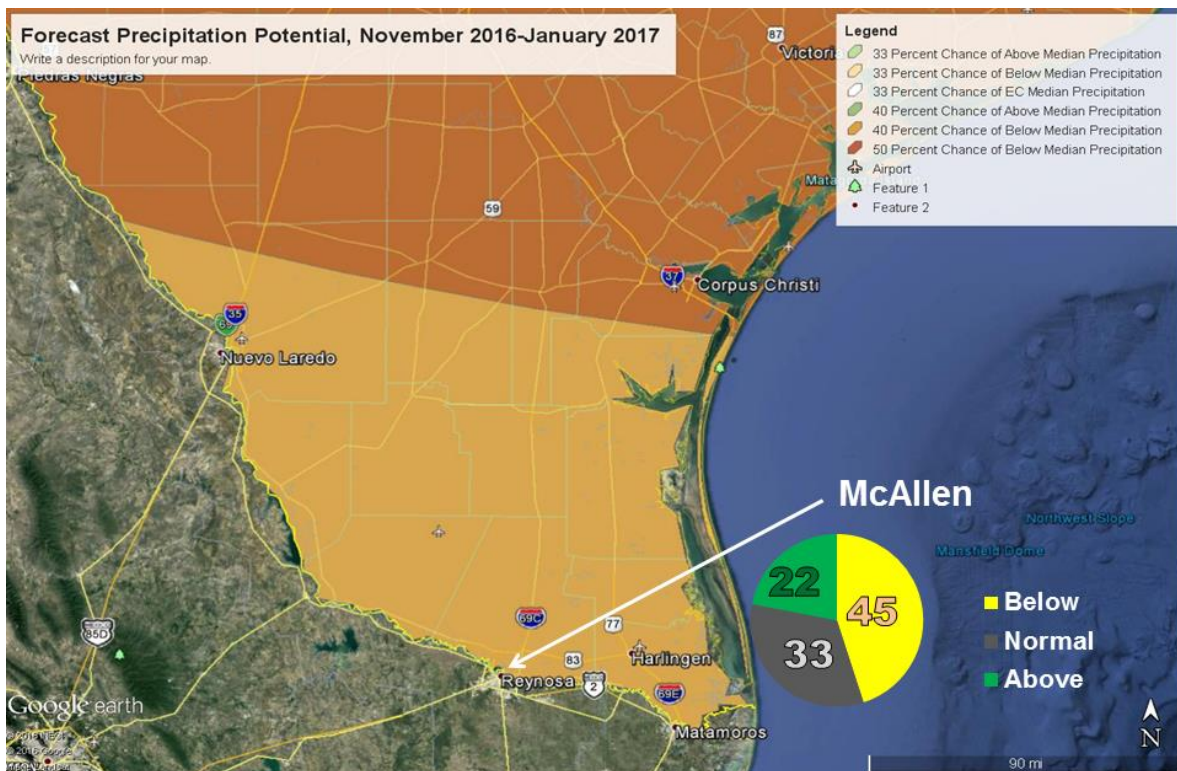


Late Autumn/Early Winter 2016-17 Outlook



***Average Temperature for November-January across Rio Grande Valley is around 65°F (generally, 75°F by afternoon and 55°F at sunrise).**



***Average Precipitation for November-January across Rio Grande Valley is 3 to 4 inches.**

Endless Summer Ends, Now What?

Drier and Warmer Should Prevail; Drought Gradually Worsens

But a Few “Wild Cards” Could Bring Nippy Weather and a Freeze

Overview

If you like it warm and generally dry, the late autumn through mid-winter (November 2016-January 2017) outlook will be your friend. In fact, confidence in the forecast is higher than that for the lead-in to the Winter of 2015/2016, when El Niño's dominance overwhelmed the room with anticipation for above average rainfall and below average temperature. Each, of course, [failed to verify](#) in what ended up being a somewhat warmer and definitely drier period. Even though confidence is better heading toward the end of 2016 and the start of 2017, the Valley needs to be cognizant of the possibility of periodic wintry events that could “dent” but not change the outcome of the late autumn/winter period. These denting events could come in two forms:

- One or two “gray ‘northers” that leave chilly winds and drizzle or light rain in their wake, with day and night temperatures in the 40s or 50s. This occurred around New Year's Day in 2016.
- A “blue ‘norther” with just enough of a tap from western Canada to bring early morning temperatures to or below freezing, even in the more populated Rio Grande Valley.
- In each case the opportunity would be most likely in December or January this year.

What to Watch For: Big Picture

Overall, by the end of January and headed into late winter, the following situations are expected to predominate:

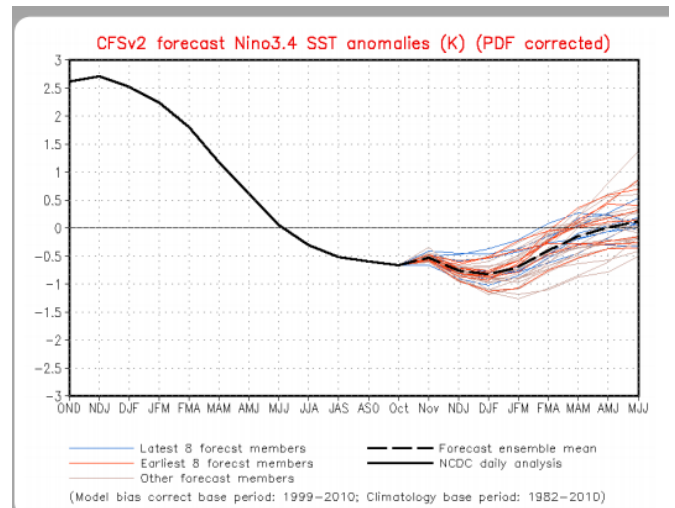
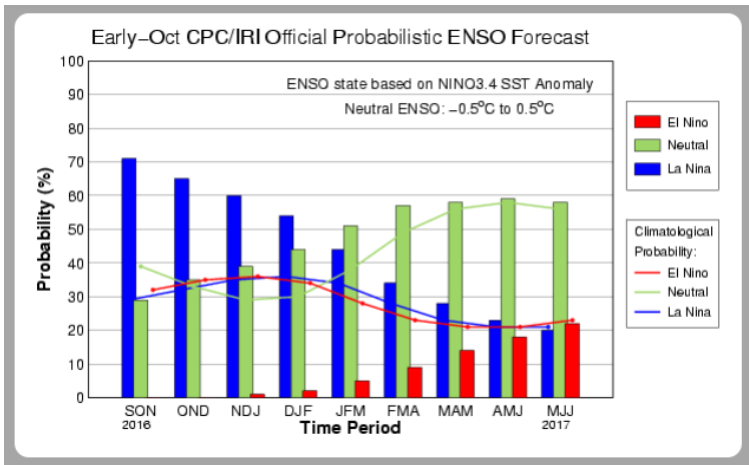
- Though some rain will fall during the period, it will not be enough to quench the increasingly thirsty soil, especially in an overall warmer than average November to January period. If fronts come through “dry” vs. “wet”, the northwest wind and much lower humidity, combined with either Pacific (warm with low humidity) or Canadian (cool with low humidity), drought levels will increase to moderate to severe in most areas.
- Wildfire behavior conditions will need to be monitored. If all fronts come through dry, we could see a repeat of late 2010 and early 2011 in some areas. That year, several thousand acres burned in parts of southern Brooks, northern Hidalgo, northeast Starr, and southwest Jim Hogg in early December, and up to 8,000 acres on the King Ranch in Kenedy County just after New Year's Day.

Teleconnections: Parked in Neutral?

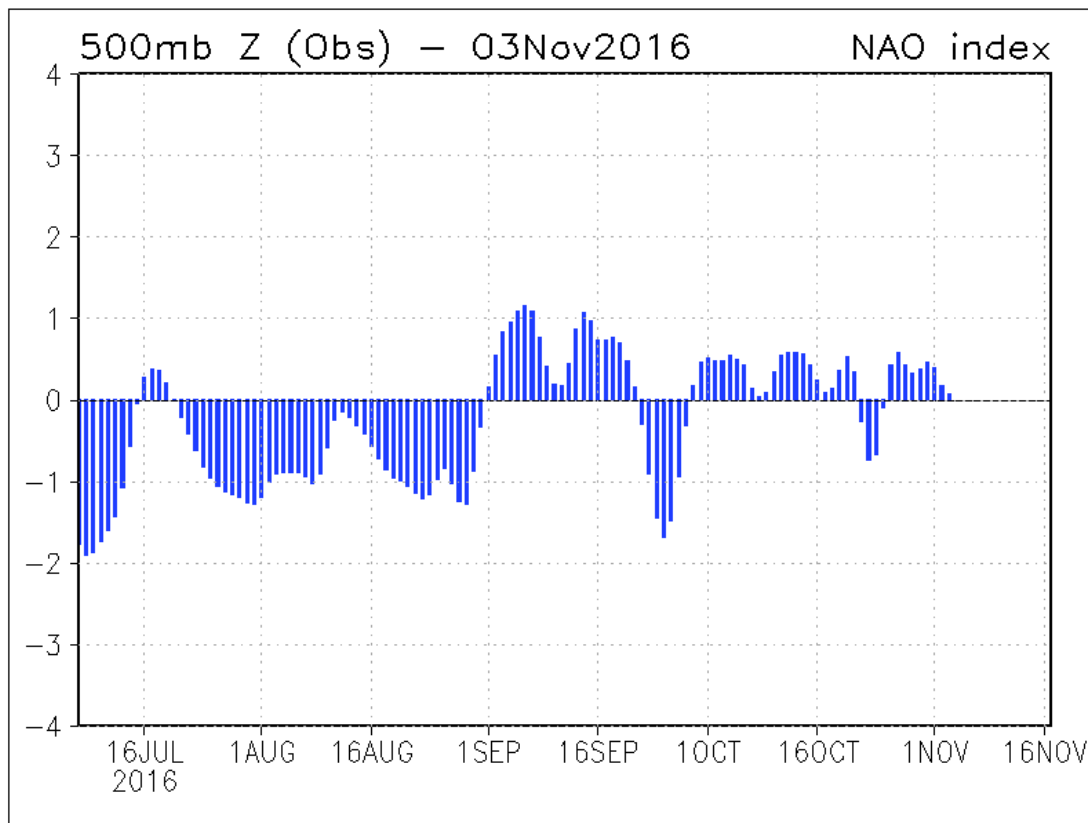
As you've seen in past summaries, we often take a look at teleconnections – ocean-atmospheric “puzzle pieces” that can combine to determine multi-weekly, monthly, and seasonal general weather outlooks. El Niño/Southern Oscillation (ENSO), the “800 lb. gorilla” in the room, is often cited as a large contributor to seasonal outlooks due to fairly decent correlations on the whole from past seasons. ENSO isn't the only game in town – and as shown during the Winter of 2015/16 (above), other smaller scale teleconnections can throw “monkey wrenches” into the mix. Or, a less-studied situation can do the same; for example, there is some discussion that the gradient between the above average sea surface temperatures (sea surface temperature anomalies, or SSTA) in the Equatorial ENSO zone and the above average SSTA elsewhere in the eastern Tropical Pacific contributed to a stronger ridge of atmospheric high pressure just west of the southern California and Baja California coast – which combined with a “flatter” ridge/trough pattern from west to east across the U.S. mid latitudes to both suppress any subtropical energy waves and keep cold air bottled up in Canada – each which, when combined, bring cooler and wetter weather to south Texas.

For the end of 2016/early 2017, nearly all of the typical teleconnections we use - the Pacific Decadal Oscillation (PDO, which, when positive, can enhance El Niño and the eastern subtropical Pacific warmth), the North Atlantic Oscillation and Arctic Oscillation (NAO/AO, which, when negative, can assist in the “plunge” of cold Canadian air into the U.S. east of the Rockies during winter), and ENSO – are *all in a “neutral” leaning phase*. This neutrality – combined with unpredictability on some (such as NAO/AO, which typically has predictability around two weeks) – renders them less predictive than in years when there is a definitive “+” or “-

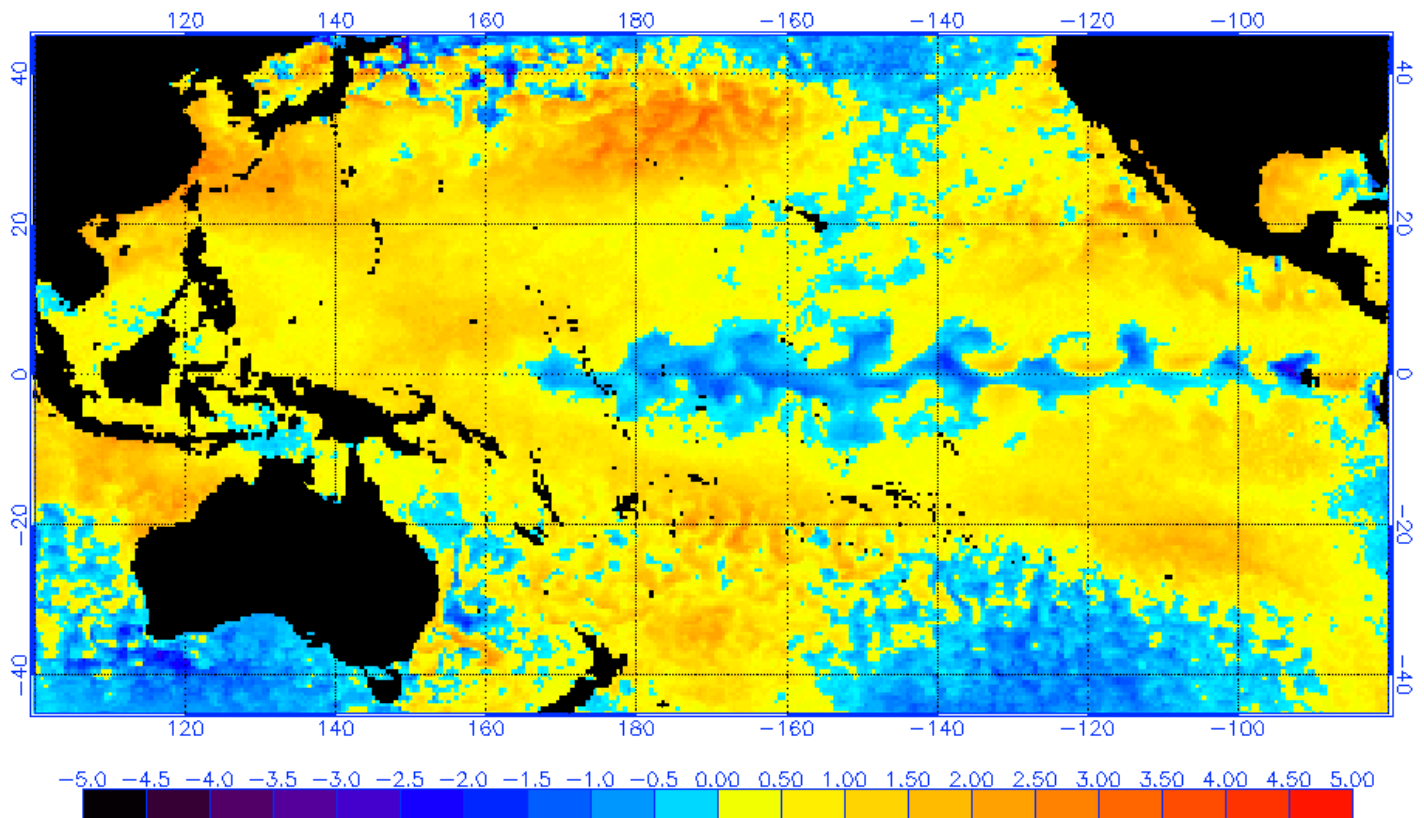
“ signal. This also explains why, while there is confidence in the warmer and drier than average November-January period bearing fruit in the end, there is less confidence on *embedded weather events* which could make the season more memorable for *opposite* impacts. The best example of this in recent years was during the winter of December 2010 – February 2011. That winter indeed ended up warmer and drier than average, but will be remembered by many for the very cold start that culminated in an [early February Ice Storm](#) that closed the region down for several days.



Above: Left – Probabilistic ENSO forecast through late Spring 2017. Right: Climate Forecast System (model) forecast El Niño plume for the same period. A weak La Niña is forecast to prevail into late autumn, but a “neutral leaning weak La Niña” is expected by early 2017. Weak La Niña tends to slightly favor warmer and drier weather for the Rio Grande Valley, but other factors could dictate otherwise.



Above: July through early November North Atlantic Oscillation (NAO) index. The prolonged summertime negative period, which may have contributed to an enhance “Canicula” heat ridge over southwest Texas and northern Mexico, has returned to neutral in October.



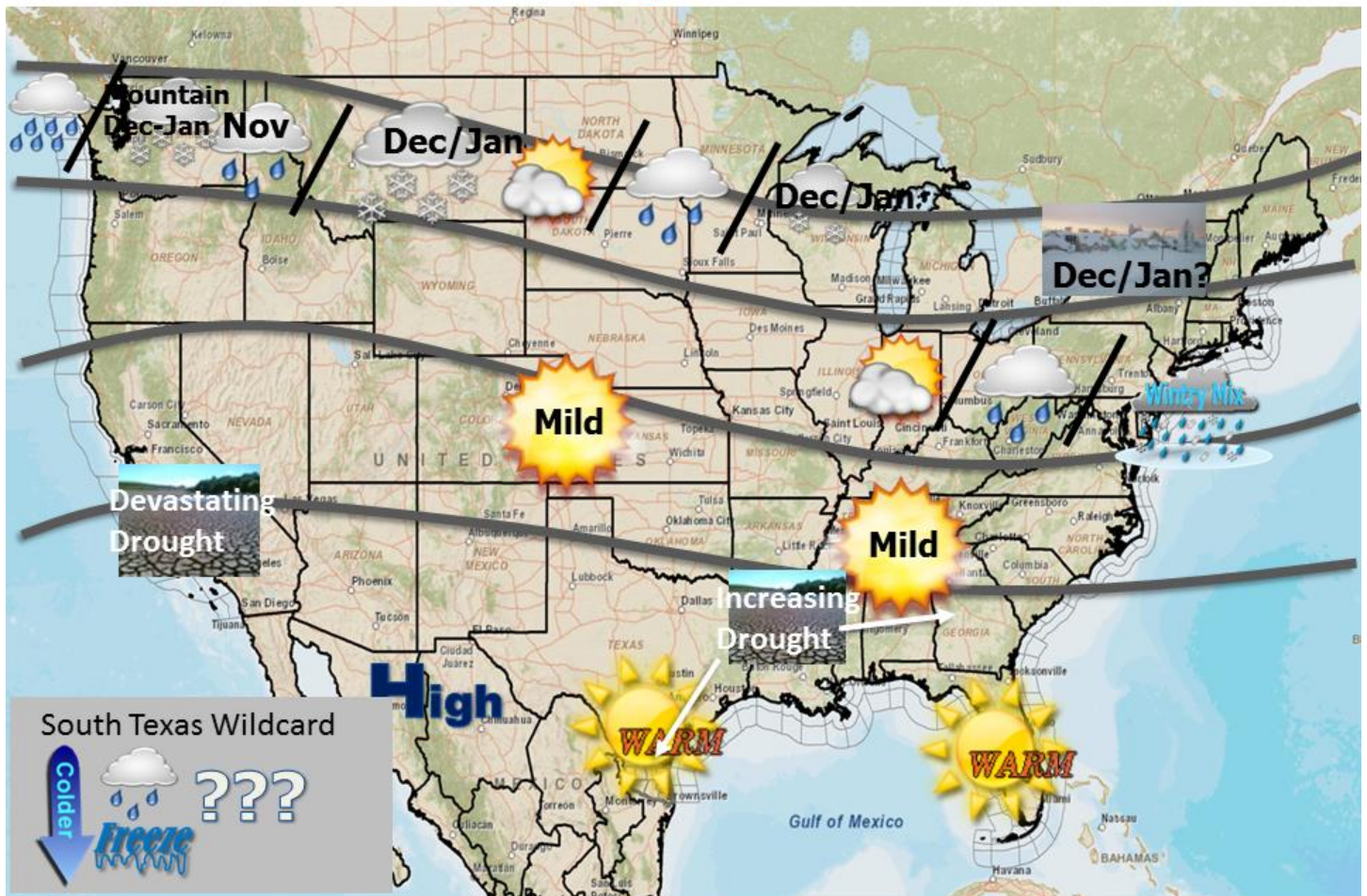
Above: Is this the late autumn/winter wild card? Autumn 2016 has been similar to Autumn 2015 with regards to above to much above normal water temperatures in the non-equatorial tropical and subtropical Pacific. Will it remain, and help maintain the general “warm” ridging (below) that has dominated the southwest U.S. since summer 2016? Or will it cool by December, which could impact the upper level pattern? Time will tell.

Pattern Matters

Given all these factors, we expect the U.S. weather steering pattern from November through January to look as shown below. Should the eastern tropical Pacific cool a little, and the western U.S. ridge poke farther north than in 2015/16 [which would allow a potential “tap” of surface arctic air to come into the Lower 48 east of the Rockies, favoring the north central and Midwest states], periodic cooler to even cold and wetter (drizzle/light rain, at least) weather could touch the Rio Grande Valley at times in December and January. Such is the “wild card” (gray box, lower left) in this forecast. Based on persistence – July through October 2016 shattered temperature records and returned some level of drought to the Valley, the continued warm Eastern Pacific which has maintained the northwest Mexico through eastern subtropical Pacific ridge, and a weak La Niña - we’re favoring more sunny and mild to warm days with the periodic return of the “Valley Wind Machine”.

Elsewhere in Texas, dry weather is expected to be dominant, and drought is expected to become a critical factor across the southeast U.S. as winter arrives. Southern California will see no drought relief as the devastating effects continue there. The unusually warm autumn nationwide, including the east coast and Great Lakes, may be conducive to prodigious and perhaps record Lake Effect snows come December and January, especially downwind of Lake Erie and Ontario.

November 2016-January 2017 Pattern Possibilities



Outlook: November 2016 to January 2017

November began with endless summer continuing, with record high temperatures near 100°F at McAllen to for the first three days. A true ‘norther will no doubt arrive at some point during the month. And, a period of unsettled weather could develop on the back side of the persistent ridge as it “flops” east and west between the Gulf and the southwest U.S. – similar to a monsoon setup with decent rains well west of the Valley. Warm will be the word, for another month. Fronts, should they come with “energy”, could produce local severe weather in the form of gusty to damaging winds, some hail, torrential rains, and frequent cloud to ground lightning.

December and January should see a gradual cool down. Most fronts are expected to come through with dry and sunny weather behind them. If they can “run into” sufficient moisture on their way through, thunderstorms could develop, some which could create gusty winds. Otherwise, the potential for rapid drying northwest winds could become a wildfire behavior/spread issue (without prior rainfall), and the winds could gust high enough to become an issue for outdoor activities and perhaps even some poorly built structures. If this pattern dominates, drought conditions will gradually worsen. However, should a few fronts become “gray ‘northers” and couple with weak upper level energy undercutting the western U.S. ridge, several days of blustery chilly weather (temperatures in the 40s and 50s) with light rain or drizzle could be expected. A dry front with a northwest Canadian source region could bring modified arctic air and a potential light freeze to the Rio Grande Valley and a harder freeze across the ranchlands. Could there even be ice or snow? As rare as it may be, the opportunity for the “arctic door” to open up once or twice is actually *greater* this December and January than in 2015/16, with no El Niño to keep it shut. We’re not saying this will happen; only to not be totally

shocked in a “one-off” type event occurs during the heart of this coming winter. Past late Decembers, from the 1980s killing freezes to the [2004 White Christmas](#), give credence to what is possible.

Preparedness, Awareness

Should November’s transitional rainfall (from summer to more of a Valley autumn feel) fail to materialize, drought and wildfire behavior issues could become a factor sooner than later – each highly dependent on the number and frequency of “dry” cooling fronts (rather than the “gray ‘norther drizzlers) in December and January. Despite the need for welcome rainfall at anytime through mid-winter, there is some potential for locally heavy rainfall and nuisance flooding in November along fronts with sufficient energy to create thunderstorm clusters ahead or just behind the front.

- **Wildfire Behavior.** The worsening drought and drying of fine fuels (grasses) and “long period” fuels such as brush and trees (mesquite, live oak) may be sufficient to increase the threat for erratic wildfire behavior and spread. Though September and October set hot temperature records and notable rainfall was generally confined to the Upper Valley and Rio Grande Plains, relative humidity remained high and the long nights of October brought the return of dew and some fog. The persistent “[Endless Summer](#)” pattern has only allowed a gradual degradation of drought and Energy Release Component values have been largely stable – though still on the edge of being a potential danger. A series of drying breezy to windy fronts with post-frontal sunshine and mild to warm air would quickly worsen the situation for rapid wildfire spread. Farmers and ranchers should continue to follow safety precautions, including parking vehicles on dirt or pavement, not driving them in high grasses on dry, windy/breezy days, and refraining from using welding/grinding equipment in or near high grass/brush. [Be Firewise!](#) Remember, [only you can prevent wildfires](#).
- **Flooding Rain.** Until the Valley “clears” the tropical environment and the nearshore Gulf waters cool back into the 60s and 70s, the possibility of one or more slow-moving torrential rain events, more than likely involving thunder and lightning, remains a concern into November. Here are several tips to help you get and stay ready for what is among the wettest periods of the year (September, possibly into October):
 - It’s always a good time to check roofs and walls for leaky areas and repair.
 - Anytime is a good time to remove any debris from gutters and downspouts.
 - Speaking of debris - after trimming brush and cutting grass, be sure to remove it and never clog drainage ditches or canals!!
 - Take note of your daily drive, and recollect when flooding forced you to take an alternate route. Know those routes ahead of time for you to make a smart decision and not trap your vehicle in floodwaters. Remember, turn around – your life is worth more than impatience!
 - [Flood Safety Awareness](#)
 - [Federal Alliance for Safe Homes Flood Resiliency](#)
- **Chilly Weather, Freezes, Ice?.** It’s difficult to fathom after an Endless Summer that stretched deep into November. But the “wildcards” mentioned above could bear fruit in December or January. We start our winter weather awareness season at the beginning of December, so why not consider the following in November:
 - Get the cool weather clothes out, and be prepared to have them on hand should a sharp cold front arrive. Past seasons, beginning as late as November but more common in December and January, have seen apparent temperatures crash from near 90 down to 30 in less than 24 hours!
 - If you have tender tropical vegetation, set aside blankets and light coverings now to be ready in case freeze warnings are issued during December and January
 - Have your vehicle checked for the following:
 - Brake pads/shoes – always important on rain-slick roads after dry spells
 - Windshield wipers/blades – dry rotting is common here, so frequent replacement ensures visibility.
 - Tires. Check tread wear and inflation pressures frequently, and repair/replace/inflate as necessary

- Coolant. Anti-freeze is a necessity in both summer and winter, and sharp weather changes can cause stress on older vehicles' cooling systems. Change as needed
- Battery. Summer heat, humidity, salt air wear down batteries here more than most other places in the country. A cold snap could add further stress and the last thing you'd want is a stalled vehicle on a very cold day.
- Keep the Elderly and Infirm in mind. Sharply cold weather can be taxing and even injurious on those acclimated to our semi-tropical climate. If you have family or friends with no heating capability, be sure to educate them on home safety – i.e. small heating units or space heaters – well before the cold arrives.