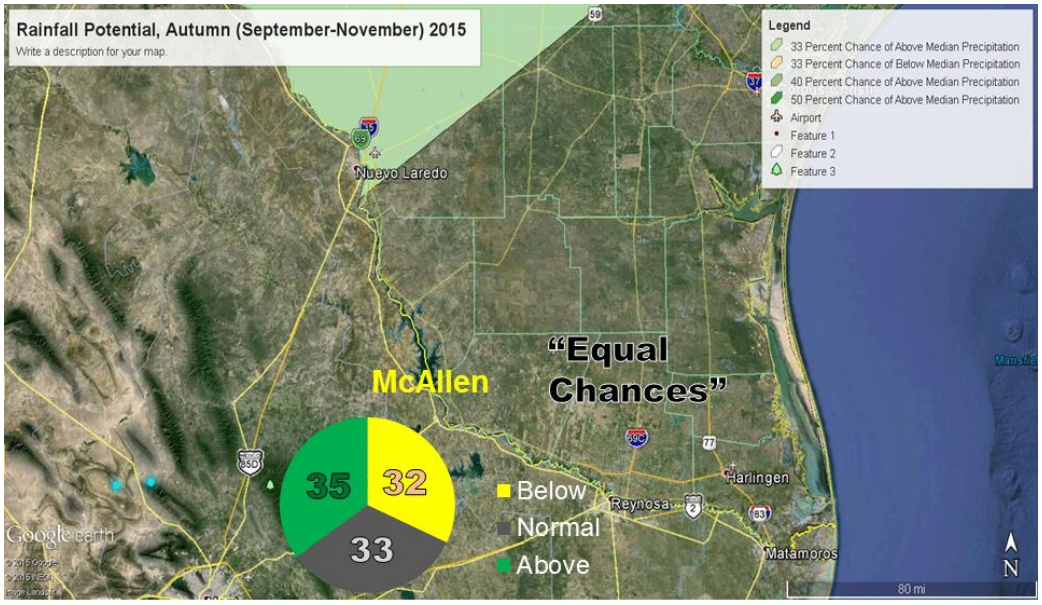
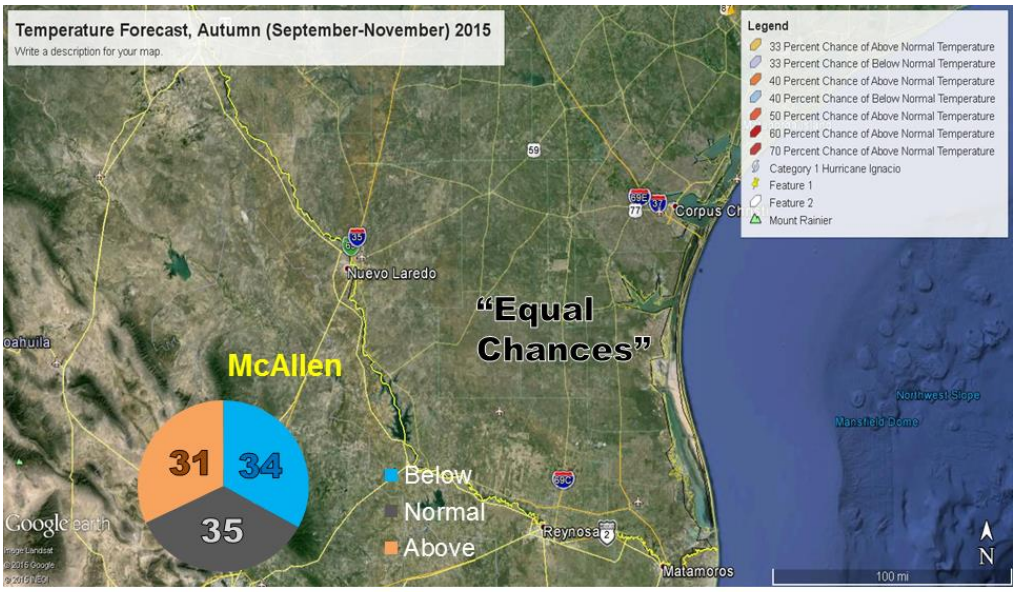
Autumn 2015 Outlook



Average Rainfall:
6 to 9 Inches West
9 to 12 inches East



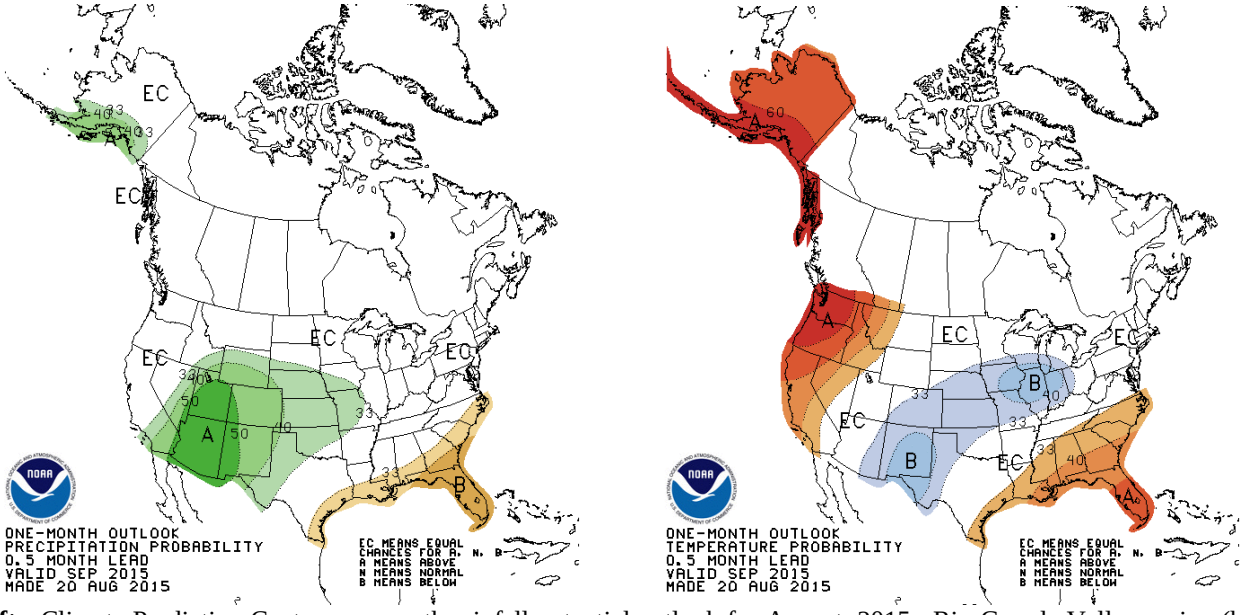
Average Afternoon Temperature: 85°
Average Wake-Up Temperature:
65° except 60° Ranchlands

The Heat Rolls On Early (Part II)…

But Will Significant Rain Return By October and November?

Summer Heat and Less Rainfall than Average in September; Will October/November Make up the Difference?

El Niño continued to soar toward near record levels by the end of August, 2015, and the expected, enhanced "La Canícula" (Dog Days) dominated July and August, with hotter than average temperatures for most areas through the period. The number of wet days was also very few; however, a single event early on August 20th ensured many locations, at least for August, would end up well above monthly normals (based on the 1981-2010 sample). At McAllen's Miller International Airport, 37 of 39 days between July 12th and August 19th rached 100°F, and July/August totals were headed well over 40 days, despite getting off to a slow start after a near record wet spring and early summer. September (below) remains a "wild card" due to uncertainty for the rare tropical cyclone that could develop in the southwestern Gulf, in *any* season, as well as the potential for a break in the pattern that would allow at least some feed of tropical moisture from the southern Gulf and Caribbean to arrive. However, confidence for a drier (average rainfall is 4.5 to 6 inches across the Valley) and hotter (average afternoon temperatures between 90 and 95; wake-up temperatures around 70) has sharpened based on the increasing strength of the El Niño, which is expected to maintain high wind shear across the main development region of the western Atlantic and potentially leave a dominant remnant of the "La Canícula" pattern of Texas and northeastern Mexico atmospheric ridging.

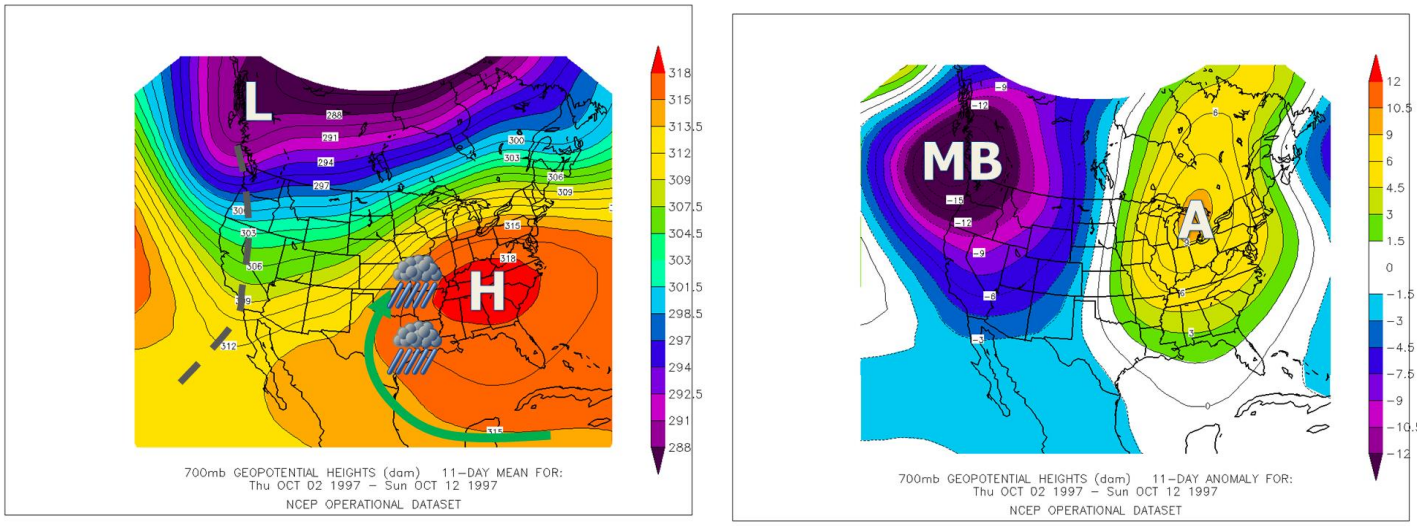


Left: Climate Prediction Center one-month rainfall potential outlook for August, 2015. Rio Grande Valley region (bottom center of map) has a 33 to 38 percent chance for below average rainfall and only an estimated 25-30 percent chance for above average rainfall. Average rainfall ranges from 4.5 to 6 inches overall. **Right**: Climate Prediction Center one-month temperature potential for September 2015. Similar to the temperature forecast, there is a 33 to 38 percent chance for below average rainfall and a 25 to 30 percent chance for above average rainfall.

Though torrential rains in southern Hidalgo, western Cameron, most of Willacy and Kenedy County quenched the thirst of drying ground and eliminated abnormally dry conditions, at least temporarily, near zero days with rain across the Rio Grande Plains (most of Jim Hogg, northern Starr, much of Zapata, and western Brooks) brought moderate drought back to the region by the end of August. Should rain-free and breezy weather dominate part of September, there will be an increasing threat for the rapid spread of wildfire (should one start) if temperature, wind, and relative humidity combine to produce dangerous conditions. Those conditions remain compounded by very high "fuel loading" from the excessive grass/rangeland and brush growth, unless tended to. While the heat will make brush clearing difficult, we highly advice ranchers across the Rio Grande Plains trim back brush and cut or graze high grasses. We remind everyone to be firewise and to follow Smokey Bear's advice when spending time outdoors into September as well.

A "dry" September doesn't mean no rain; after all, it would be very difficult to replicate September 2011 which had a paltry monthly total of less than an inch to 2 inches in the Valley and King Ranch, and 2 to 4 inches in the Rio Grande Plains. And, aside from the tropical "wild card", the Valley has seen more than a half-dozen thunderstorm "systems" between April and August; if another such system, typically generated by small scale atmospheric puzzle pieces (deep moisture, upper level energy, timing, etc.) rapidly develops, several inches of rain could fall in a hurry and match the monthly average.

October remains the true wild card. The question to be answered: When will El Niño's wetter, and somewhat cooler, autumn and winter influence arrive? The best method to dump copious rain on the Valley would be one or more slow moving fronts, which could combine atmospheric lift with the last of the summer's deep tropical moisture to dump very heavy rain on the region and potentially flood some areas once again. Such was the case in October, 1997, when upper level energy, the remnant of an eastern Pacific Hurricane, and residual moisture flowed abundant moisture into the region between the 2nd and 12th. The season's first significant cold front hooked up with the residual moisture on the 13th and provided the slam dunk of several inches of rain, with widespread freshwater flooding the result. In total, much of the Lower Valley received 10 to 20 inches of rain. The current El Niño has similarities to the one that developed and strengthened during the summer and autumn of 1997, so October 2015 is a month to be watched. But confidence remains low in predicting a similar result to 1997 at the time of this writing (late August).



Above Left: Average flow around 10,000 feet above the surface between October 2 and 12, 1997. Note the broad flow of deep tropical air (green arrow); upper level trough along the west coast tightened the pattern, resulting in repeated heavy rain events between the ridge (H) and trough (L). **Right**: Anomalies in the pressure pattern shown at left. "MB" is "Much below" average; "A" is "Above" average. Between the two centroids is the area where atmospheric lift and deep moisture combined to produce rain, which added up to nearly 20" in some spots of the Lower Valley by mid month.

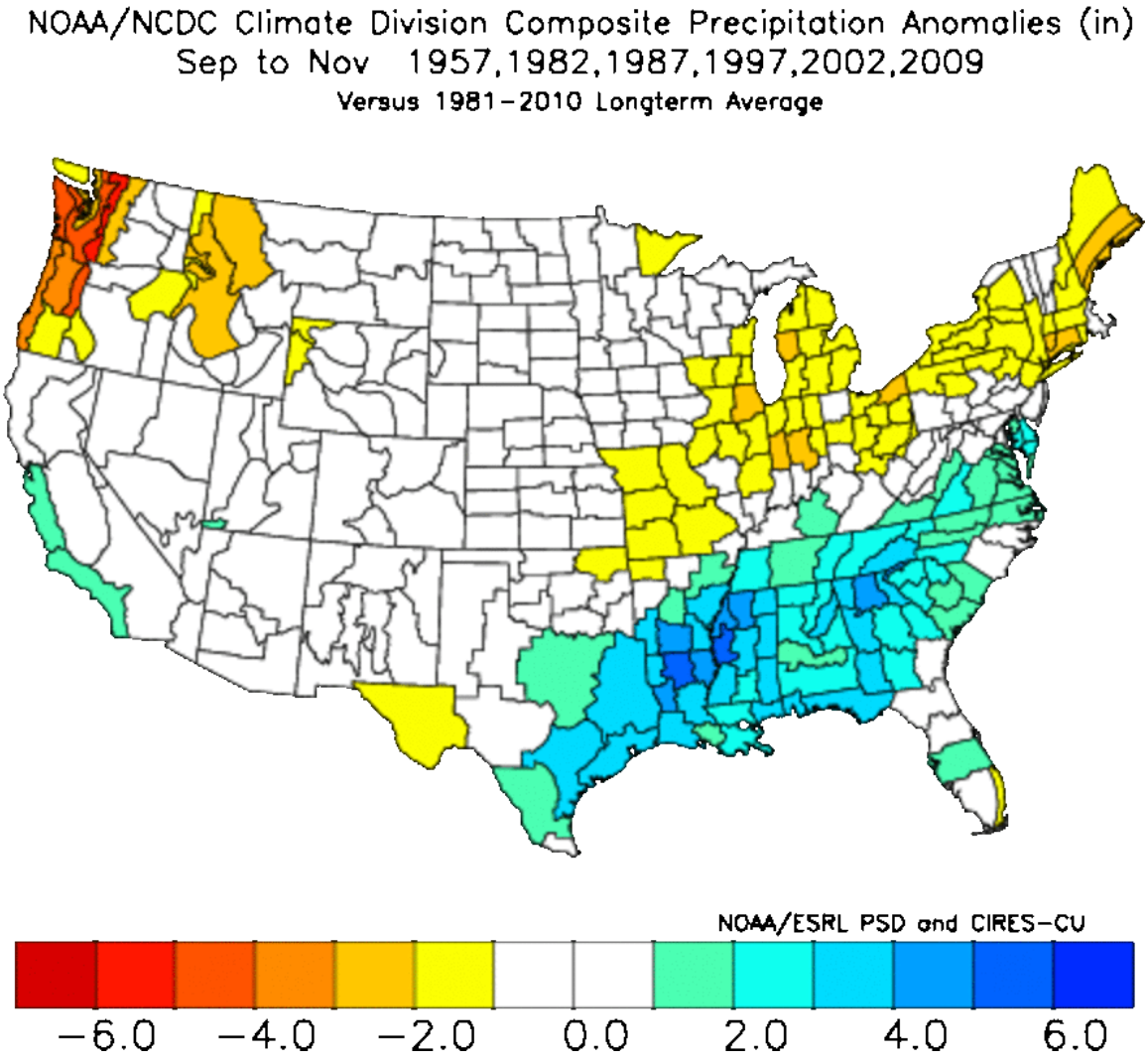
Fig. 5 Flood waters in eastern Cameron County, October 13, 1997.

Above: Near Los Fresnos, October 13, 1997, the last time El Niño developed the way it has in 2015. Could Los Fresnos look like this in October 2015?

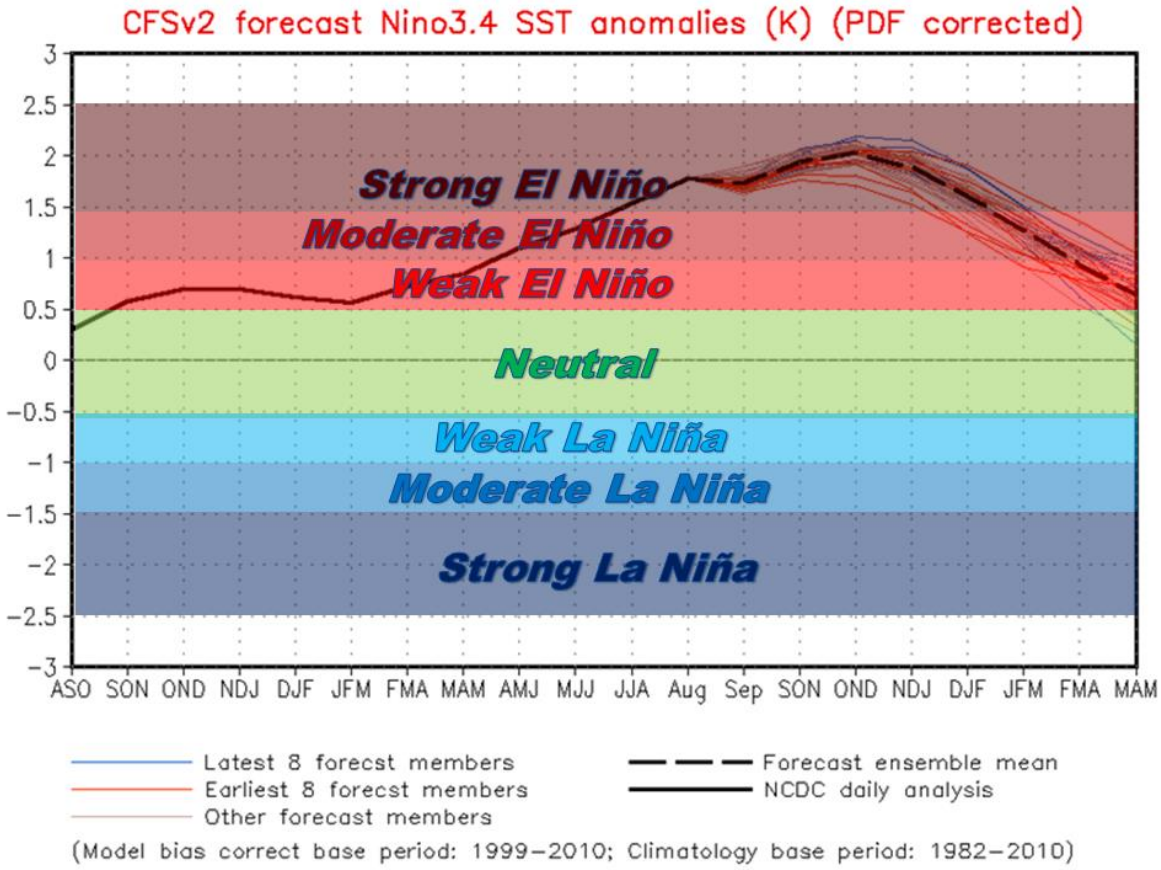
El Niño and Autumn: Transition "Game On"?

As of this writing (late August), **strong** El Niño conditions prevailed the eastern/central tropical Pacific Ocean, with a near certainty that strong conditions (an Oceanic Niño Index of 1.5°C or greater) would persist through the entire fall of 2015. From late June through this writing (late August), impressive westerly wind shear – a critical "enemy" of hurricanes – remained anchored to the western and central Caribbean Sea and had already destroyed one hurricane (Danny) and was doing a number on a second cylone (Erika); the shear was expected to continue through the peak of the Atlantic season. Such wind shear is highly correlated to moderate to strong El Niño episodes and virtually guarantees fewer numbers of cyclones from the Caribbean to points well east in the Main Development Region of the tropical Atlantic. That same wind shear tends to be on the "front" side of "La Canícula" and, based on similar El Niño formation periods and intensity in the past, argues for the continuation of dry, and increasingly hot, late summer. By October, the frontal "wild card" – the transition toward the wetter late autumn – really begins to show across the Deep South (U.S.) into southeast Texas and the Coastal Bend, perhaps edging into the Rio Grande Valley late autumn.

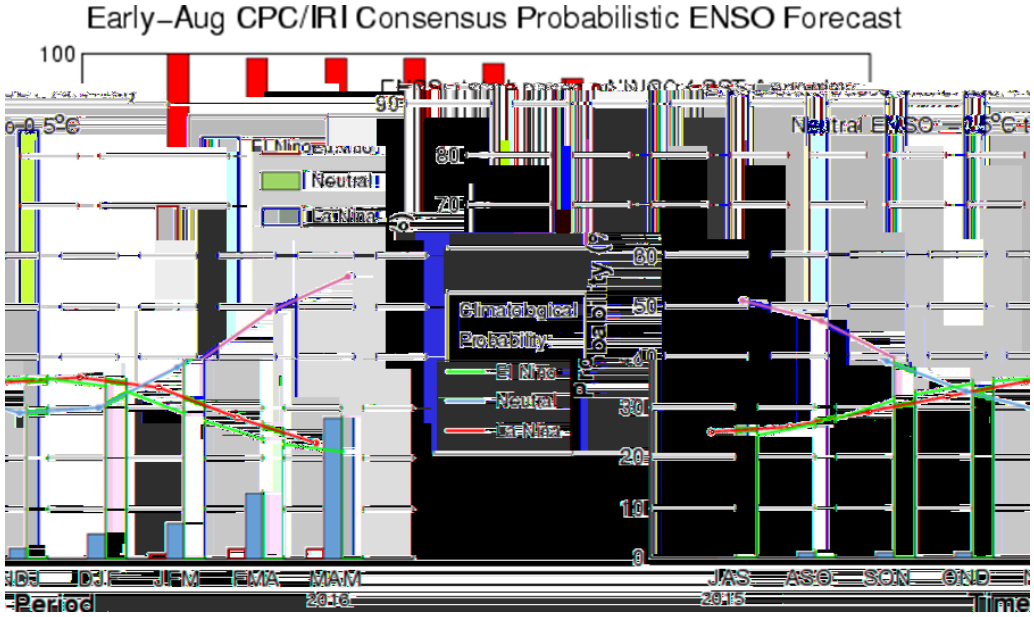
November is where things could get interesting – or not. El Niño implies a more distinct, two-jet stream pattern; a mid-latitude jet stream that can bring the typical autumn fronts across the nation, dipping farther south, including the Rio Grande Valley, as the season heads toward winter, and a low latitude, subtropical jet stream that folds in ample moisture from the eastern tropical Pacific which can enhance rainfall and cool temperatures down with the precipitation and cloud cover. The most recent El Niño episode (mid 2009 through early 2010), however, saved its rainier conditions for December through February, and the aforementioned 1997/98 episode practically "wrung" itself out in October, with November reverting to below average rainfall (even though temperatures ended up notably below average). Cool and wet? Cool and dry? The final answer remains to be seen.



Previous Page: Departure from 1981-2010 rainfall average of these years, combined, for September to November. The Rio Grande Valley begins the transition to a wetter pattern, though remains close to "normal" departure for the three month period. Note that each year listed had similar El Niño development to the one underway in 2015 The Coastal Bend through southeast Texas begin to see above average rainfall, which picks up in earnest in October and tends to carry through November.



Strong weekly El Niño conditions continued through late August (edge of solid black line, above).The forecast for strong El Niño continues through the end of 2015 and early 2016, perhaps as late as February (maroon colored box).



El Niño is a near certainty through early spring 2016 (85% probability or higher).

Preparedness, Awareness

We couldn't ship an outlook that includes September without the obligatory need to remind everyone that #ItOnlyTakesOne hurricane to make a season. Though El Niño has done its job by helping produce persistent wind shear across much of the Main Development Region, especially the Caribbean, and dry air pockets have been prevalent at other times, the southwest Gulf remains a wild card. Hurricane Bret (August 1999) and strong Tropical Storm Hermine (September 2010) practically "came out of nowhere" to cause havoc along the Lower Texas coast a day later. Even during El Niño years, the window of opportunity can literally crack open and allow rapid development and catastrophe, which was the case in 1992 with Hurricane Andrew. Residents should remain ready – review plans, restock supplies – until the first significant front sweeps the Valley in October. Other hazards we should be ready for:

- ***Heat.*** September may well see a fair share of triple digit afternoon temperatures based on medium and long range forecasts during the last days of August. While average actual air temperatures will end up in the mid 90s for the month, "feels like" temperatures may well be over 100 on most days, and locations from McAllen to Zapata are likely to have more than fifty 100°F afternoons for the entire July to September period. Even October can start hot; one of the hottest days of 2012 occurred on October 18th, with temperatures over 100°F for much of the area!
  - RGV Heat Information
  - Heat Safety Tips
  - Beat the Heat, Check the Backseat!

- ***Wildfire.*** Across the Rio Grande Plains of Jim Hogg, Zapata, and Starr County, ranches flush with brush dried out considerably through August, with the area rated as "moderate drought". The stage is set for the potential for rapid spread of wildfires in these areas, perhaps at points farther east toward the Rio Grande Valley and King Ranch if September somehow ends up like 2011. October and November hopefully bring cooler and wetter conditions, but as 1997 showed us, there are no certainties. We strongly urge residents to ranchers to trim brush and cut/graze grass/ranchland to avoid potential wildfire spread issues. Be Firewise!

- ***Flooding Rain.*** The torrential rains of August 20th, which brought more than double the monthly rainfall in six to eight hours (4 to 6 inches vs. 2 to 3 inches on the August average), reminded us that the Valley can never be complacent, even after 45 to 50 days with nary a drop. Tropical downpours could resume at some point in September, even if the final monthly totals, area-wide, end up below average. We only need to look back to May and June to recall record setting rainfall and localized flooding that brought tens of millions of dollars in property damage to parts of Hidalgo County. October is the wild card month as we transition to a wetter late autumn and winter; if October is "wild" in the form of rain, problems will crop up. After trimming brush and cutting grass, be sure to remove it and never clog drainage ditches or canals!! More here:
  - Flood Safety Awareness

- ***Lightning.*** Lightning was a dominant hazard between March and June, and contributed heavily to more than 30,000 residential and business power outages during the morning of August 20th. Even a "dry" September is bound to have lightning storms at some point; the transition from summer humidity to somewhat drier, cooler air as autumn progresses may provide the contrast that allows for at least one significant "squall line" of prodigious lightning-producing storms at some point in October. Lightning likely has caused well over $1 million in damage through August 2015, and any cloud to ground strike can be a killer. Check safety tips and learn much more at http://www.lightningsafety.noaa.gov .