The Coastal Breeze

Official Newsletter of
National Weather Service - Brownsville, TX

HERE'S WHAT'S INSIDE:

Meet Jim Reynolds: NWS Brownsville's New Meteorologist-In-Charge

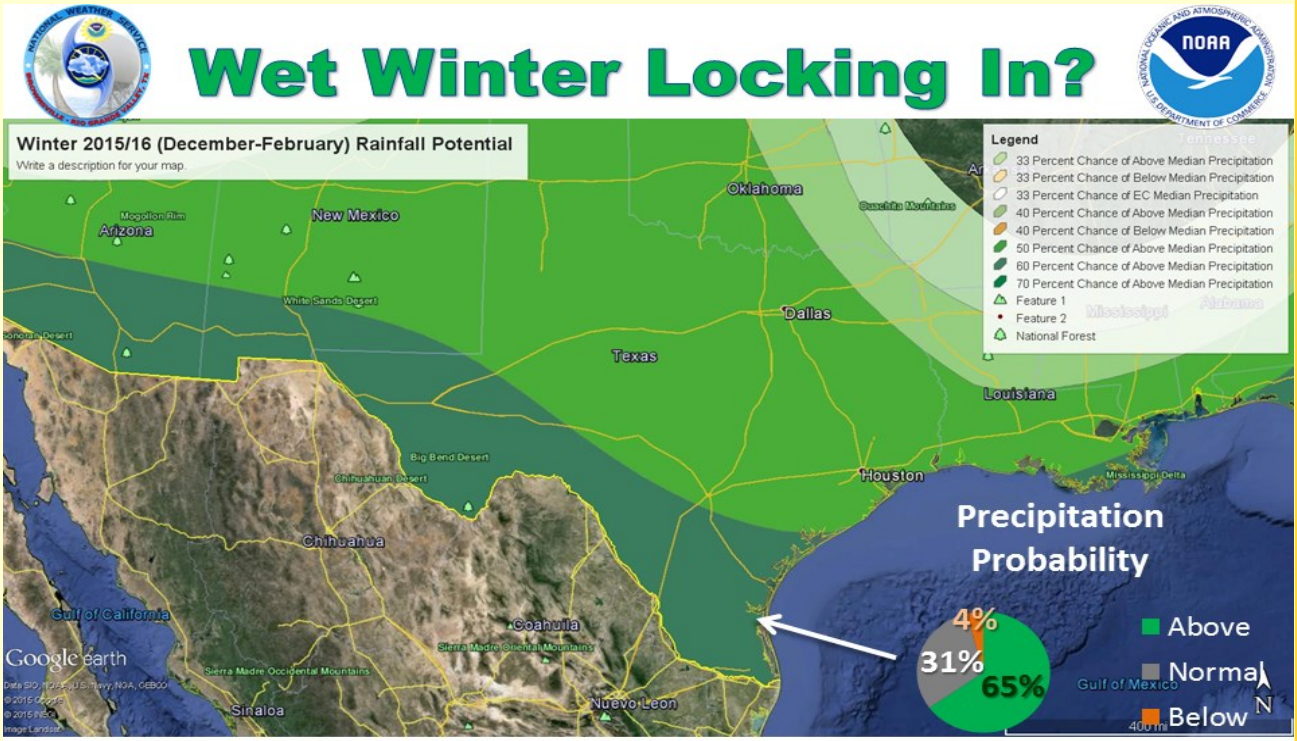
By Jim Reynolds, Meteorologist-In-Charge

Jim Reynolds began as the new Meteorologist in Charge at the Brownsville National Weather Service Office in late August, 2015. Though an Illinois native, Jim attended Arizona State University and obtained a Bachelor's Degree in Geography with an emphasis on meteorology and climatology in 1991. He worked as a pilot weather briefer in Phoenix, Arizona for two years after graduation before beginning work with the NWS as a Meteorological Intern in San Diego, California in 1993. He subsequently held various positions within the NWS in El Paso, Texas Medford, Oregon Hastings, Nebraska, Corpus Christi, Texas and Albuquerque, New Mexico. Jim completed a Master's in Management degree from Southern Oregon University in 2006 and is now about one-third of the way through his Ph.D. in Organizational Leadership. Jim has been married to his wife Amber for about fourteen years and has two step-children with her. Their names are Elissa and Dylan. As a private pilot, Jim's hobbies include flying small aircraft. Aside from that, he likes to travel, snow ski, water ski and storm chase.

Left: Jim Reynolds
Meteorologist-in-Charge

El Niño's Winter 2015/2016 "Epic Fail"
Drought Returned for Some as Wet Forecast Never Materialized

By Barry Goldsmith, Warning Coordination Meteorologist



Note: Average Precipitation for Period (RGV): 3 inches along the Rio Grande (Starr, SW Hidalgo); 3.5 to 4 inches Elsewhere except 4 to 4.5 inches Along the Coast.

Above: Forecast rainfall potential for December-February, issued in late February 2015

So much for the winter (December-February) 2015/16 forecast.

Despite one of the strongest El Niño's on record, the conventional wisdom for a wet and cool winter across the Rio Grande Valley was turned upside down, as the atmosphere had other things in mind. The miniscule 4 percent forecast for below normal rainfall was exactly what occurred. For many, this was a welcome change from the gloomy expectations, especially in January and February. Strings of "Chamber of Commerce" days with abundant sunshine and mild to warm temperatures brought locals outdoors, made conditions ideal for weekend festivals, and justified why "Winter Texans" travel to the Valley from the northern Great Plains and Canadian Prairies. Winter vegetables, such as cabbage and carrots planted in moist soil in late autumn produced a bumper crop by February. The dry weather also had a downside: Virtually no rain from January 2nd through the end of February combined with a stretch of twenty days from late January through mid-February when humidity across the upper Valley/ranchlands fell below 20 percent on a whopping sixteen of twenty afternoons to return moderate drought to parts of Hidalgo and Starr County, and turn grasses, scrub brush, and small tree limbs "crispy". The combination of dry "fuels", periodic gusty winds, and very low humidity rapidly increased the threat of rapid spread for any wildfires. Fortunately, no large wildfires were observed.

El Niño's Winter 2015/2016 "Epic Fail"
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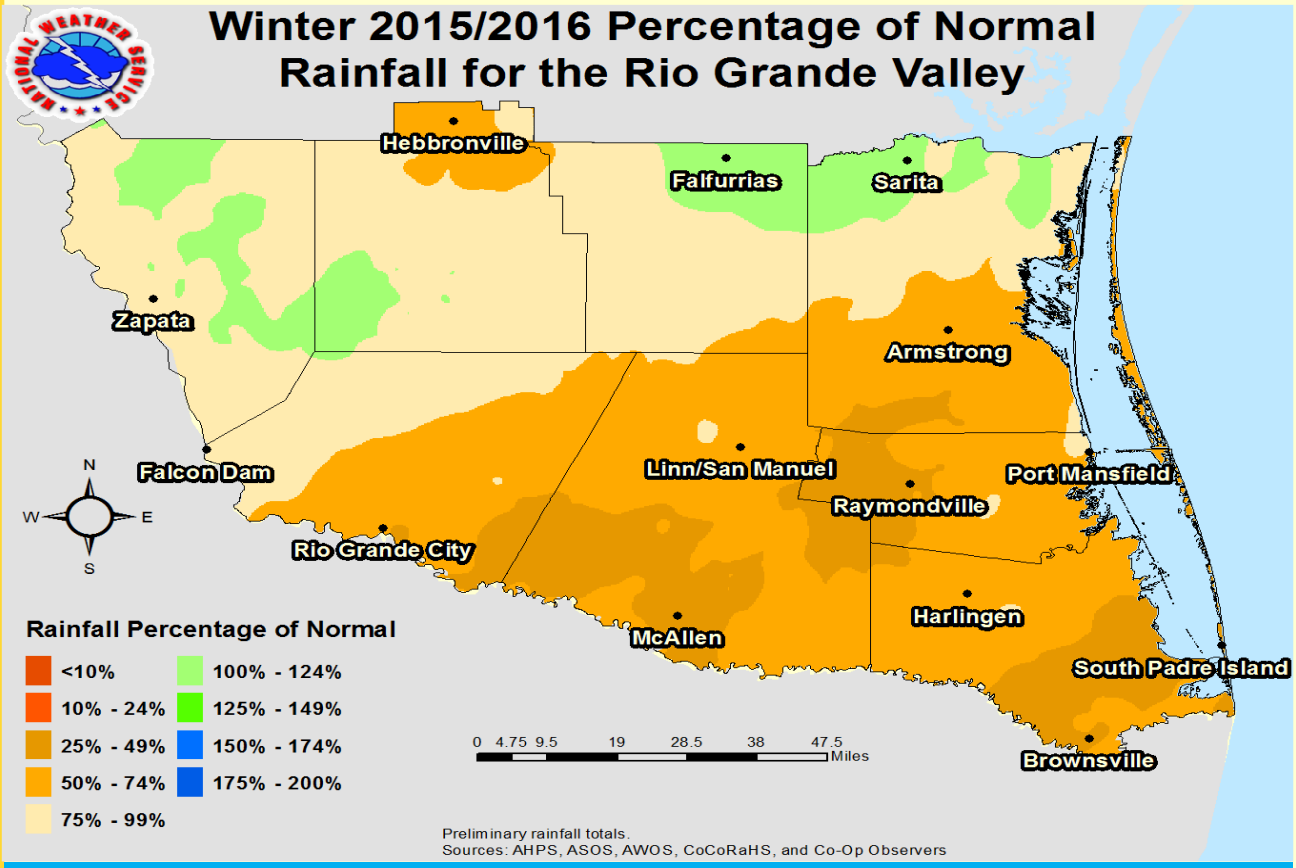

Above: Observed percentage of normal (based on 1981-2010 data) rainfall for December –February, showing the Rio Grande Valley at one-quarter to one-half of normal

How It Happened

Winter 2015/16 evolved from a summery start to a spring middle and end, with only a brief period of winter chill, Valley style, as the calendar turned from 2015 to 2016. December's "feel" picked up where October and November left off: Above-normal warmth and plenty of humidity kept air conditioners humming, as Valley temperatures ended up among the top ten warmest all-time and peaked Christmas week, as Santa needed his surfboard rather than a sleigh. The atmospheric storm track stayed just north of the region, as soaking rains and dangerous thunderstorms marched across central and north Texas into the southeast U.S. and Florida. The high humidity and frequent cloud cover kept soil moisture provided by autumn's rains locked in.

Cooler temperatures finally arrived just after Christmas, and the season's only true wet, cold, and miserable event occurred from New Year's Eve through January 2nd and dumped monthly to thrice monthly rains from the Lower Valley to the King Ranch. Thereafter, a "speedy" atmospheric pattern developed, with systems riding the jet stream from northern California through the central Great Plains, briefing dipping into the southeast U.S. before heading off the eastern seaboard. This pattern brought surface low pressure systems quickly through the southern and central plains and into the southeast U.S. and Ohio Valley before lifting northeast along or off of the eastern seaboard. While tropical moisture was pulled into most areas east of the Mississippi River, bringing a host of winter

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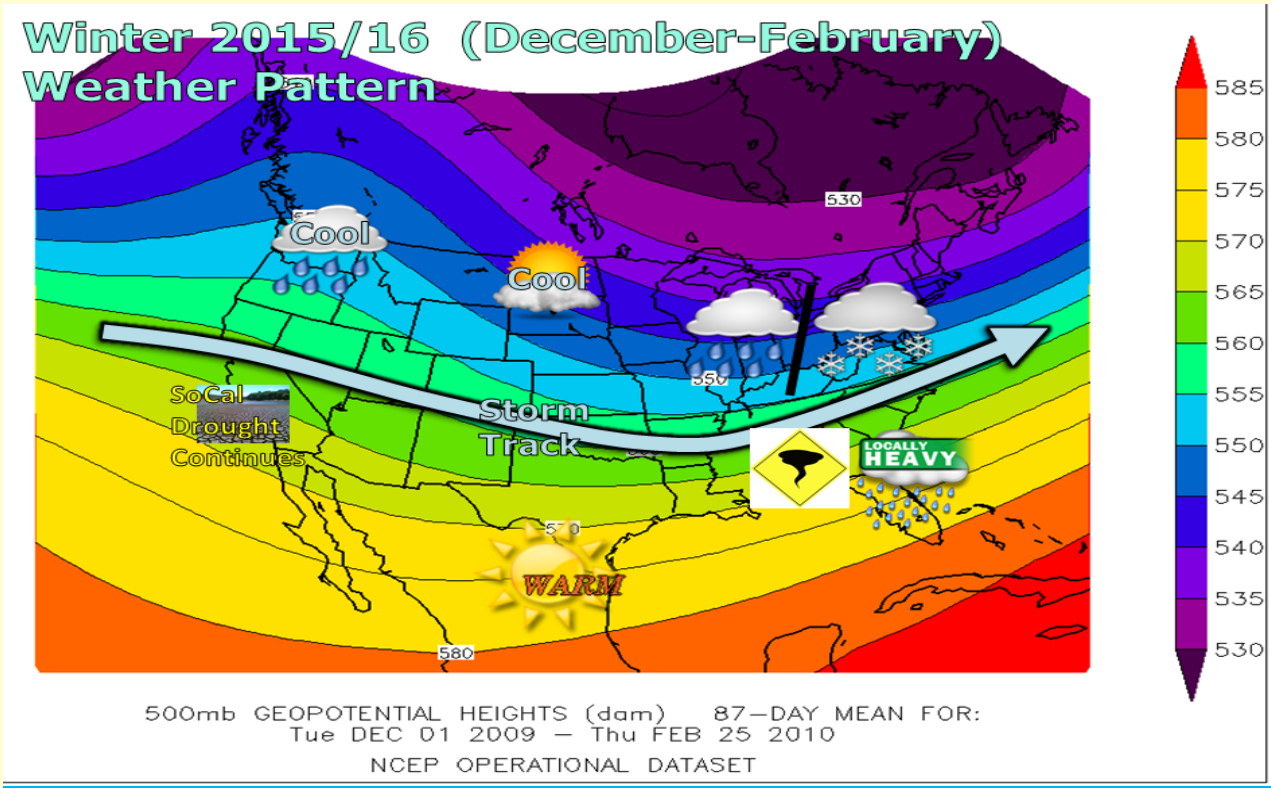
and spring weather which ranged from snow and ice to tornadoes and floods, air flow south of the storm track brought dry air from southern California east through Arizona, New Mexico, and most of Texas. The dry weather - sometimes cooled with a touch of Canadian or northern Rocky Mountain air - brought several chilly daybreaks to the Valley; three light freezes occurred in late January and early February across the ranchlands from Zapata through the King Ranch.



Above: The slight shift of the storm track (light blue arrow) northward was one factor in keeping the rain away from the southwest U.S., from southern California to Texas, the most of Winter 2015/16

Why It Happened

In the simplest of terms, it was the atmospheric storm track. The strength of the upper level high pressure ridge west of southern California and Baja California for January and February displaced low pressure systems farther north than would typically be expected in an El Niño winter, allowing dry air to move from below the ridge through the southern Rockies and Mexican Sierra Madres. The dry air was enhanced by "downsloping" east of the mountains, wiping out any opportunity for an influx of tropical moisture necessary to produce sufficient rains. Such moisture was available farther east, when just enough southerly flow from the Gulf of Mexico and Caribbean sea was pulled into each system as they crossed the southeast U.S.

So, why was the high pressure ridge west of California and Baja California strong enough in January and February 2016 to cause a chain reaction downstream, leading to a failed forecast? This is a question that future research may uncover. One reason could be a pool of warmer than average water west of the U.S.

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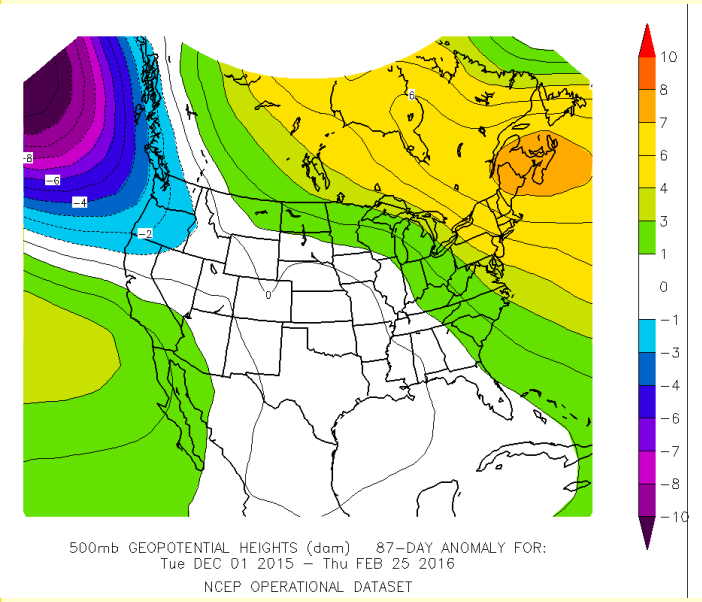
and Mexico, which was cooler than average the last time a moderate or greater El Niño was present in winter (2010). Another reason may be the persistence of a strong positive North Atlantic Oscillation teleconnection – a "puzzle piece" that can sometimes be related to increased values of the atmospheric pressure and may have helped nudge the storm track farther north. During the 2009/2010 moderate El Niño, the North Atlantic Oscillation was negative. Each of these reasons may themselves be related!

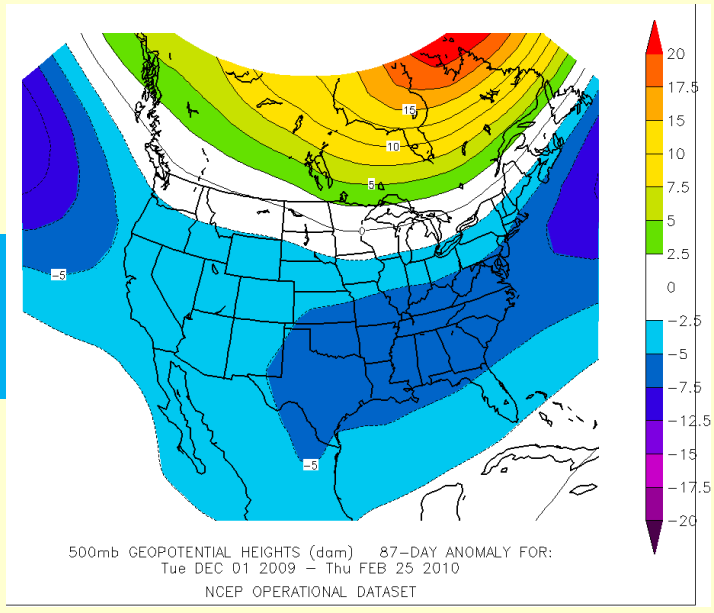
No matter the reason, Winter 2015/16 showed that seasonal forecasting can still create humbling outcomes. El Niño's "800 pound gorilla" didn't consider the other monkeys in the room, each carrying a wrench.



Left: Geopotential height, or atmospheric pressure, departures from normal for December 1 – February 25, 2016.

Notable is the large area of normal to above normal values across the U.S. and Canada in 2016 compared with 2010, with the sharpest differences in the northeast U.S. and west of southern California. The difference west of compared largely explains why the forecast for a wet winter failed from California to Texas.

Right: Geopotential height, or atmospheric pressure, departures from normal for December 1, 2009 – February 25, 2010.



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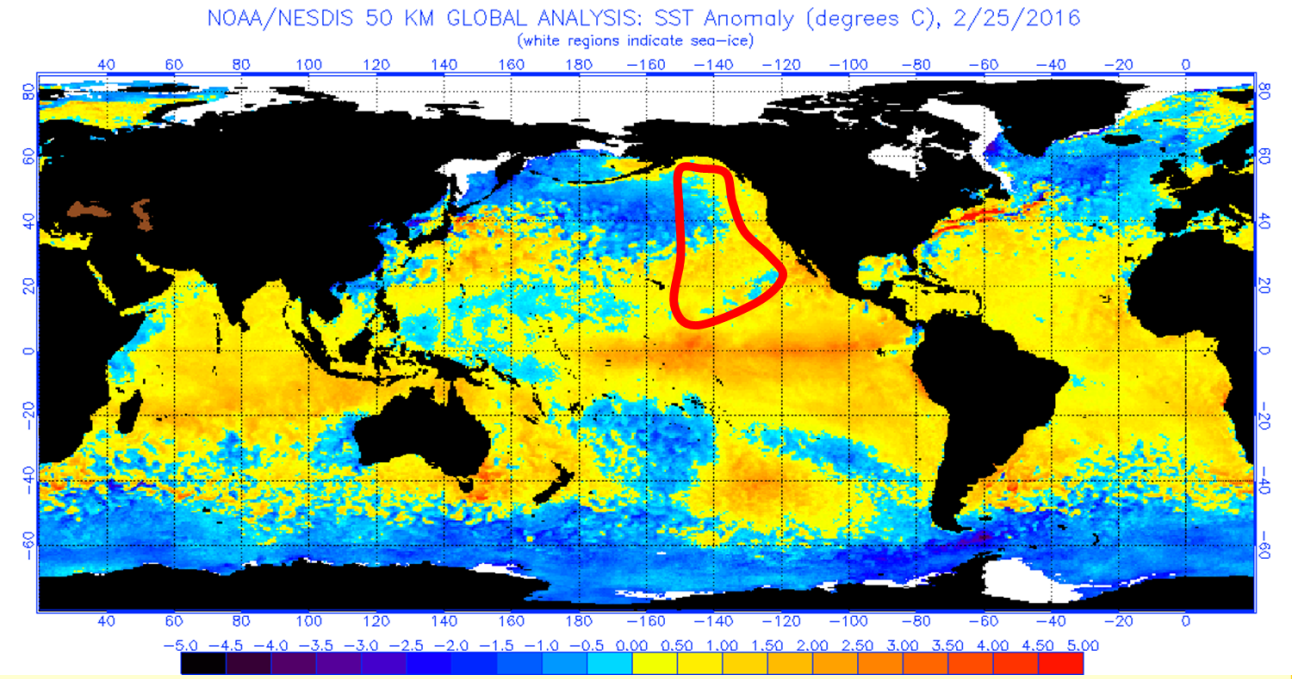
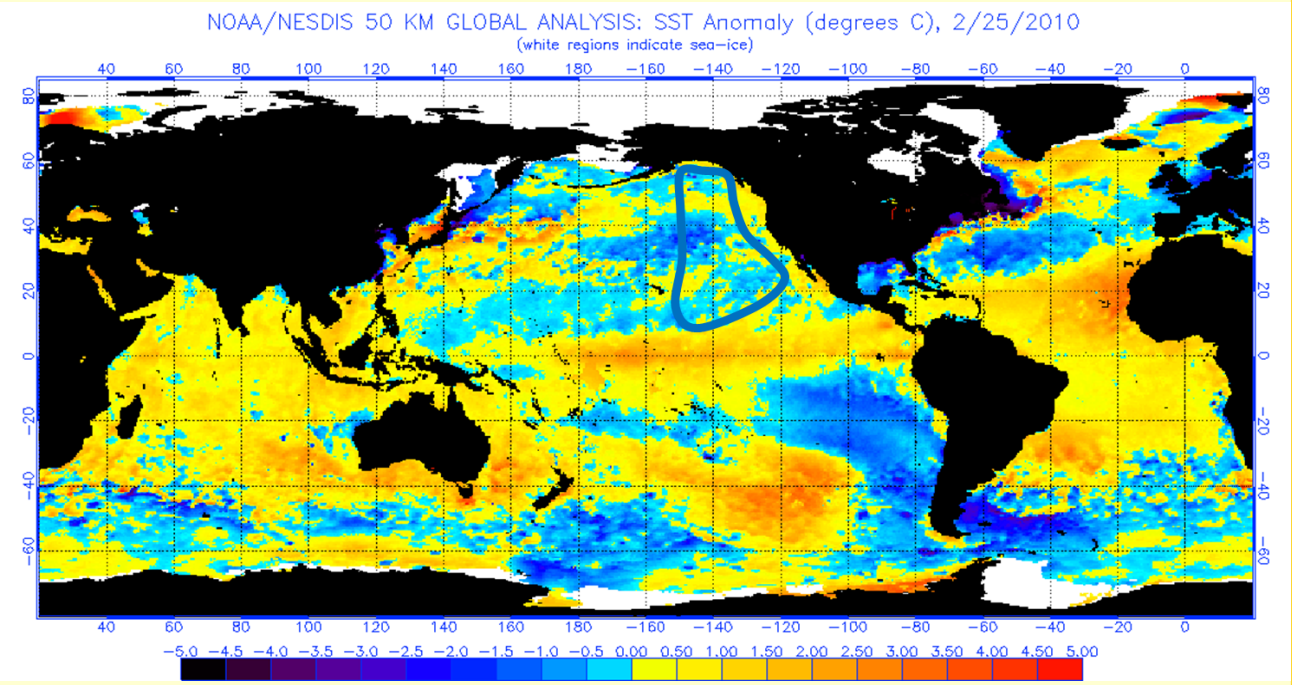


Above: Sea Surface Temperature departure from average on February 25, 2016. Note the pool of mostly **warmer** water west of the U.S. and Mexico (blue outlined area) during the 2015/2016 El Niño



Above: Sea Surface Temperature departure from average on February 25, 2010. Note the pool of **cooler** warmer water west of the U.S. and Mexico (blue outlined area) during the last winter a moderate or stronger El Niño

Local Family Earns Family Heritage Awards

By Erin Billings, Observation Program Leader

Above: Erin Billings, Observation Program Leader (left) and Barry Goldsmith, Warning Coordination Meteorologist (right) present Patricia "Pat" Chapa (right center) and Tina Villarreal (left center) with the Family Heritage Award.

On July 22, 2015, the National Weather Service (NWS) presented the Chapa family of San Manuel, Texas with the Family Heritage Award for 50 years of service. The NWS congratulates and commends the Chapa family for their public service and continued dedication to our nation and to the Cooperative Observer Program (COOP).

Since 1965, the Chapa family has been the official Cooperative Weather Observers for San Manuel, when Mr. Mike Chapa began taking observations, reporting temperatures and precipitation. In 1980, Mike's brother Mr. Joe Chapa took over maintaining the flow of good quality data, before turning over the responsibility to Ms. Pat Chapa and family friend, Ms. Tina Villarreal in 2004.

Every day, rain or shine, Pat or Tina measure and record the amount of precipitation that fell during the past 24 hours, as well as the maximum temperature and the minimum temperature of that 24 hour period. The Chapa family's observations proved to be especially crucial during the spring of 2015, when very heavy rainfall in the area created significant flooding nearby. Their rainfall reports provided important ground truth that helped forecasters and emergency management accurately determine how much rain had actually fallen, and how much more was needed to create additional flooding.

The National Weather Service greatly appreciates the Chapa family many years of commitment to providing high quality and reliable data.

The NWS Cooperative Observer Program (COOP) was created in 1890 to provide observational meteorological data, including temperature and precipitation totals to help define the climate of the United States and to help measure long-term climate changes. COOP sites also help provide near real time data that supports forecast and warning programs of the NWS. Every day many organizations and individuals in governmental activities, as well as in private enterprises, use the valuable information made available by the efforts and support of over 10,000 volunteers across the United States.

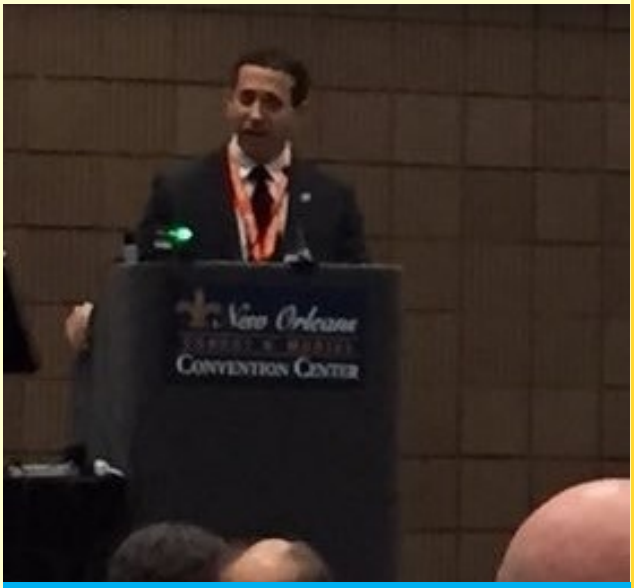
A Busy Beginning to 2016, NWS Brownsville Serves Thousands in Professional Conferences, Winter Texan Expo

By Barry Goldsmith, Warning Coordination Meteorologist and Chris Birchfield, Meteorologist

Above: Maria Torres, Forecaster, speaks to a large audience at the 96th Annual Meeting of the American Meteorological Society in New Orleans, LA

Warning Coordination Meteorologist Barry Goldsmith and Spanish Language Liaison and Forecaster Maria M. Torres solidly represented both the local office and the National Weather Service overall with two well–received presentations at the American Meteorological Society's biggest annual gathering. The 96th Annual Meeting drew a record of more than 3800 attendees spread across more than thirty individual conferences. More than one hundred attended each presentation, which were coincidentally scheduled between 11 AM and Noon on Tuesday, January 12th. Maria's presentation, co–authored by former NWS Brownsville/Rio Grande Valley Tropical Program Manager Justin Gibbs and assisted by Goldsmith and Social Media Program Manager and Meteorologist Chris Birchfield, described efforts by the office to improve hazardous weather communications to a highly vulnerable community whose first language is Spanish. From the Spanish Early Weather Warning Notification System to the Spanish Hurricane Local Statement, methods were explained to improve communication and messaging.

Goldsmith presented From the 'Statement Heard 'Round the World' to Hurricane Threats and Impacts: The Evolution of Communicating Potential Impacts and Safety Messages since Katrina, at the Special Symposium on Hurricane Katrina. Co–authored by David Sharp (NWS Melbourne, FL), Dr. Pablo Santos (NWS Miami/South Florida), Robert E. Ricks (NWS New Orleans, LA), and Matthew Moreland (NWS Key West, FL), the talk described how far hurricane threat, impact, and risk communication has come since Robert Ricks, using words originally written by Goldsmith, made history with "The Bulletin" which was credited with increasing the number of evacuees from southeast Louisiana and the Mississippi Gulf coast and likely saving hundreds, if not thousands, of lives – to the development of probabilistic forecasts of wind and storm surge that were incorporated into Hurricane Threats and Impacts in 2015 which provide decision makers a reasonable, worse case scenario forecast for which to prepare.



Above: Barry Goldsmith, Warning Coordination Meteorologist, speaking at the 96th Annual Meeting of the American Meteorological Society in New Orleans, LA

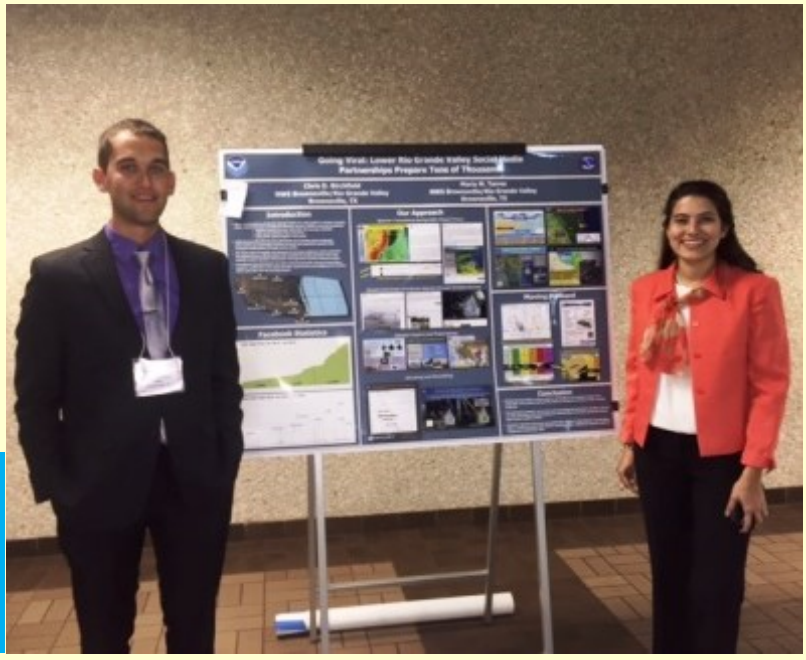
A Busy Beginning to 2016, NWS Brownsville Serves Thousands in Professional Conferences, Winter Texan Expo (Continued)

"The American Meteorological Society Annual Meeting is the ultimate place to meet stakeholders across the Weather Enterprise each winter," said Goldsmith. "To have not one but two members of the NWS Brownsville/Rio Grande Valley staff present to large audiences on the important topics of hurricane threat, impact, and risk communication in English and Spanish is at the core of what building a Weather Ready Nation is all about, and a great honor.

Above: Pablo Gonzales, Information Technology Officer, speaks to visitors at the 23rd Annual Winter Texan Expo in McAllen.

Warning Coordination Meteorologist ***Barry Goldsmith*** and Information Technology Officer ***Pablo Gonzalez*** brought NWS Brownsville/Rio Grande Valley to several thousand temporary residents who annually escape the frigid temperatures and winds of the northern U.S. and southern Canada to find winter refuge in the Valley at the 23rd Annual Winter Texan Expo at the McAllen Convention Center on January 19 and 20. Gonzalez, assisted by Goldsmith, waved more than 500 visitors over to the booth to discuss everything from local, regional, and national weather to military service. In all, at least 2,000 folks passed by the NWS Brownsville/Rio Grande Valley booth, out of a total of more than 8,000 visitors spanning two glorious days.

Meteorologist ***Chris Birchfield***, Forecaster ***Maria Torres,*** and Warning Coordination Meteorologist ***Barry Goldsmith*** attended and presented at the Texas Weather Conference on February 5th. Maria's presentation was titled Building a Weather Ready Rio Grande Valley from the Ground Floor: "The Spanish Language Early Warning Severe Weather Notification System". Barry's presentation was titled Becoming E.F. Hutton: How Partnerships Among NWS Brownsville, Corpus Christi, and South Texas Emergency Managers Prepared Communities Prior to Flooding in 2015. Chris and Maria presented a poster titled Going Viral: NWS Brownsville/Rio Grande Valley Social Media Partnerships Prepare Tens of Thousands of Residents for Hazardous Weather.



Right: Chris Birchfield, Meteorologist (left) and Maria Torres, Forecaster (right).

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NOAA Weather Radio in Deep South Texas and the Rio Grande Valley!

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