The Coastal Breeze

Official Newsletter of
National Weather Service - Brownsville/Rio Grande Valley, TX

HERE'S WHAT'S INSIDE:

Active 2011 Hurricane Season Expected for the Atlantic Basin

By Dr. Melvin F. (Buddy) Martin Jr.

Get ready for an active hurricane season! That is the official forecast according to the National Oceanic and Atmospheric Administration (NOAA). NOAA released their 2011 Atlantic Basin hurricane outlook on May 19 and is forecasting 12 to 18 named storms (winds 39 mph or higher), 6 to 10 hurricanes (winds 74 mph or higher) and 3 to 6 major hurricanes (category 3 to 5 with winds 111 mph or higher).

Similarly, an above normal hurricane season is also forecast by scientists Dr. Philip J. Kloztbach and Dr. William Gray of Colorado State University (CSU). Their latest forecast, issued on June 1st, predicts 16 named storms, 9 hurricanes, and 5 major hurricanes. CSU scientists are also forecasting a higher probability (47%) of a major hurricane striking the Gulf Coast, anywhere from Brownsville, TX to the Florida Panhandle. In a given year, the odds of a major hurricane impacting the Gulf Coast is around 30 percent.

Dr. Gray was the first to forecast long range tropical activity based on a variety of oceanic and atmospheric variables and through many years of research. The forecast is initially released in early December in the year preceding the hurricane season. Updates to the forecast are issued in early April, early June and early August as the hurricane season unfolds.

THE 2011 ATLANTIC BASIN HURRICANE SEASON FORECAST (Continued)

An average or "normal" hurricane season across the Atlantic Basin would yield 11 named storms, 6 hurricanes, and 2 major hurricanes. "It really doesn't matter whether the season overall is above normal or not", said Dr. Martin NWS Brownsville Tropical Program Leader. "If you are the only location impacted by a major hurricane, it will be remembered locally as a active season!"

The exact timing, location, or specific areas where tropical cyclones might develop are NOT forecast by CSU or NOAA. The Atlantic Basin hurricane season extends from June 1 through November 30, 2011.

Now is the time to prepare! Be sure to check out the website at NWS Brownsville/Rio Grande Valley (see the link below) and the other links below for the latest information in hurricane safety, preparedness, and forecast information.

WHERE TO FIND IT...

National Weather Service Brownsville/Rio Grande Valley Website:
weather.gov/rgv

NOAA 2011 Atlantic Hurricane Season Outlook:
www.cpc.ncep.noaa.gov/products/outlooks/hurricane.shtml

Colorado State's Hurricane Season Outlook:
hurricane.atmos.colostate.edu/Forecasts/

Hurricane Preparedness for Rio Grande Valley:
weather.gov/rgv/?n=hurrprep

NOAA Hurricane Preparedness:
www.hurricanes.gov/prepare

National Hurricane Center:
www.hurricanes.gov

WHAT IS A RIP CURRENT?

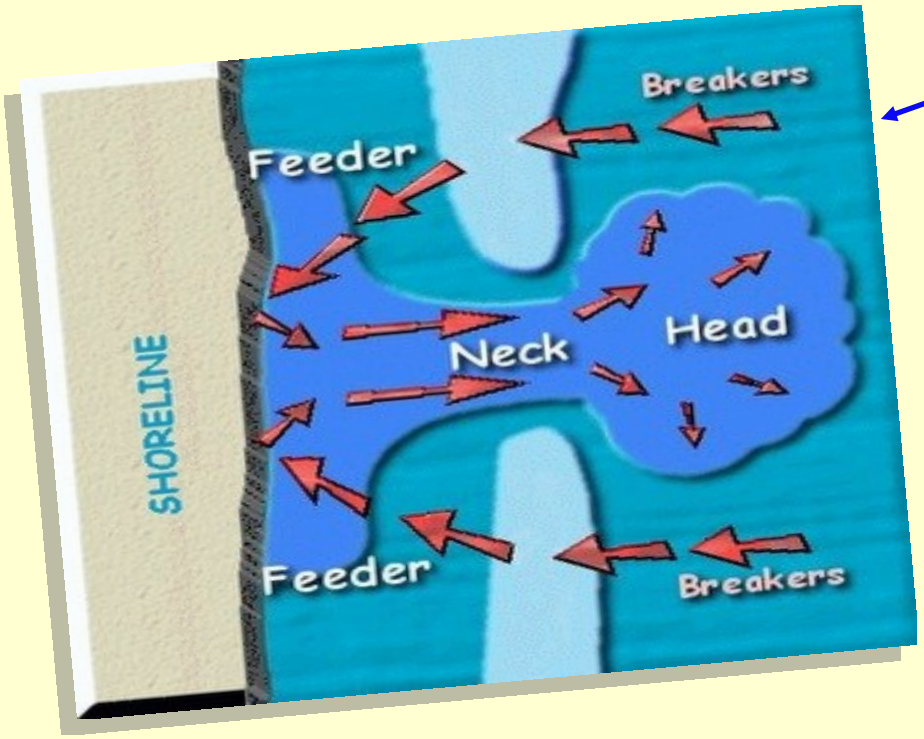
By Joseph G. Tomaselli, Jr.

A rip current is a narrow channel or river of water moving away from the shore at a fast speed, typically between 1 and 2 MPH, and as much as 5 or 6 MPH. They usually extend from near the shoreline, through the surf zone, and out past the line of breaking waves.

Rip currents are comprised of three parts: The feeder source, the neck, and the head. The feeder source is the area where wave energy is focused, and is the point of origin for the rip current. The neck is the most dangerous part of the rip current, where water is flowing quickly away from the beach. The head is where the effects of the rip current begin to disperse or spread out, as the seaward pull dissipates. Something to always remember about rip currents is that they can carry you away from shore, but they do not pull you under the water.

Rip currents can range from as narrow as 10 to 20 feet wide, to as large as 100 to 200 feet in width. The length of the rip current usually begins to diminish beyond the breaking waves, but can sometimes extend hundreds of feet beyond the surf zone.

Rip currents can be found almost every day at many beaches, especially at low spots or breaks in the sandbars. They also frequently occur near structures, such as the South Padre Island and Port Mansfield jetties. Indicators of rip currents include differences in water color, a break in the incoming wave pattern, a channel of churning and choppy water, or a line of foam, seaweed, or other debris moving steadily seaward. Remember that there may be times when these indicators will not be noticeable. Therefore, you should always proceed with caution if you are planning on wading into the surf.



Anatomy of a Rip Current

WHAT IS A RIP CURRENT? (Continued)

Rip currents are deadly!! Since 2008, eleven people have drowned at the beaches of South Padre Island and Boca Chica due to rip currents. This statistic makes rip currents far more deadly than flash floods, hurricanes, tornadoes, and lightning combined for residents and out-of-town visitors to the Rio Grande Valley for the past several years.

Rip currents will continue to be a serious hazard at local beaches for the foreseeable future. To learn more about rip currents, visit the official National Weather Service rip current website, nationally or locally. Both are listed below. These locations will provide you with a wealth of rip current information, including safety tips, photos, and brochures in English and Spanish that you can download and share with friends and family members.

WHERE TO FIND IT...

NWS Rip Current Website:
www.ripcurrents.noaa.gov

WFO Brownsville's Rip Current Website:
weather.gov/rgv/?n=ripcurrentindex

WANT TO BE A RAINFALL OBSERVER??? GO "COO-COO" FOR COCORAHS!

By Geoff Bogorad

Have you ever wondered how much it rained at your house during that downpour? How it compared to other areas around town? Or, how much it rains at your home over a given month, season or year? Well, no need to wonder any longer! All you need to do is become a rainfall observer for the Community Collaborative Rain, Hail and Snow Network or "CoCoRaHS". Here's how...

What is CoCoRaHS?

CoCoRaHS is an acronym for the Community Collaborative Rain, Hail and Snow Network. It began as a grass roots project at Colorado State University in 1998 and has spread across the entire nation with nearly 20,000 volunteers. CoCoRaHS is a unique, non-profit, community-based network of volunteers of all ages and backgrounds working together to measure and map precipitation (rain, hail and snow). Using low-cost measurement tools, stressing training and education, and utilizing an interactive Web-site, the goal is to provide the highest quality data for natural resource, education and research applications.

Who can participate?

This is a community project. Anyone can volunteer. The only requirements are an enthusiasm for watching and reporting weather conditions and a desire to learn more about how weather can effect and impact our lives.

What will CoCoRaHS volunteer observers be doing?

Each time a rain, hail or snow storm crosses your area, volunteers take measurements of precipitation. These precipitation reports are then recorded on our Web site, cocorahs.org. The data are then displayed and organized for many of our end users to analyze and apply to daily situations ranging from water resource analysis and severe storm warnings to neighbors comparing how much rain fell in their backyards.

What does CoCoRaHS hope to accomplish?

CoCoRaHS has several goals. 1) provide accurate high-quality precipitation data for our many end users on a timely basis; 2) increase the density of precipitation data available throughout the country by encouraging volunteer weather observing; 3) encouraging citizens to have fun participating in meteorological science and heightening their awareness about weather; 4) provide enrichment activities in water and weather resources for teachers, educators and the community at large to name a few.

What benefits are there in volunteering?

One of the neat things about participating in this network is knowing that you have made an important contribution that helps others. Providing your daily observation helps fill in a piece of the weather puzzle that affects many across your area in one way or another. You will have the opportunity to make new friends and learn new things along the way. In some areas, activities are organized for network participants including training sessions, field trips, special speakers, picnics, pot-luck dinners, and photography contests just to name a few.

COO-COO FOR COCORAHS! (CONTINUED)

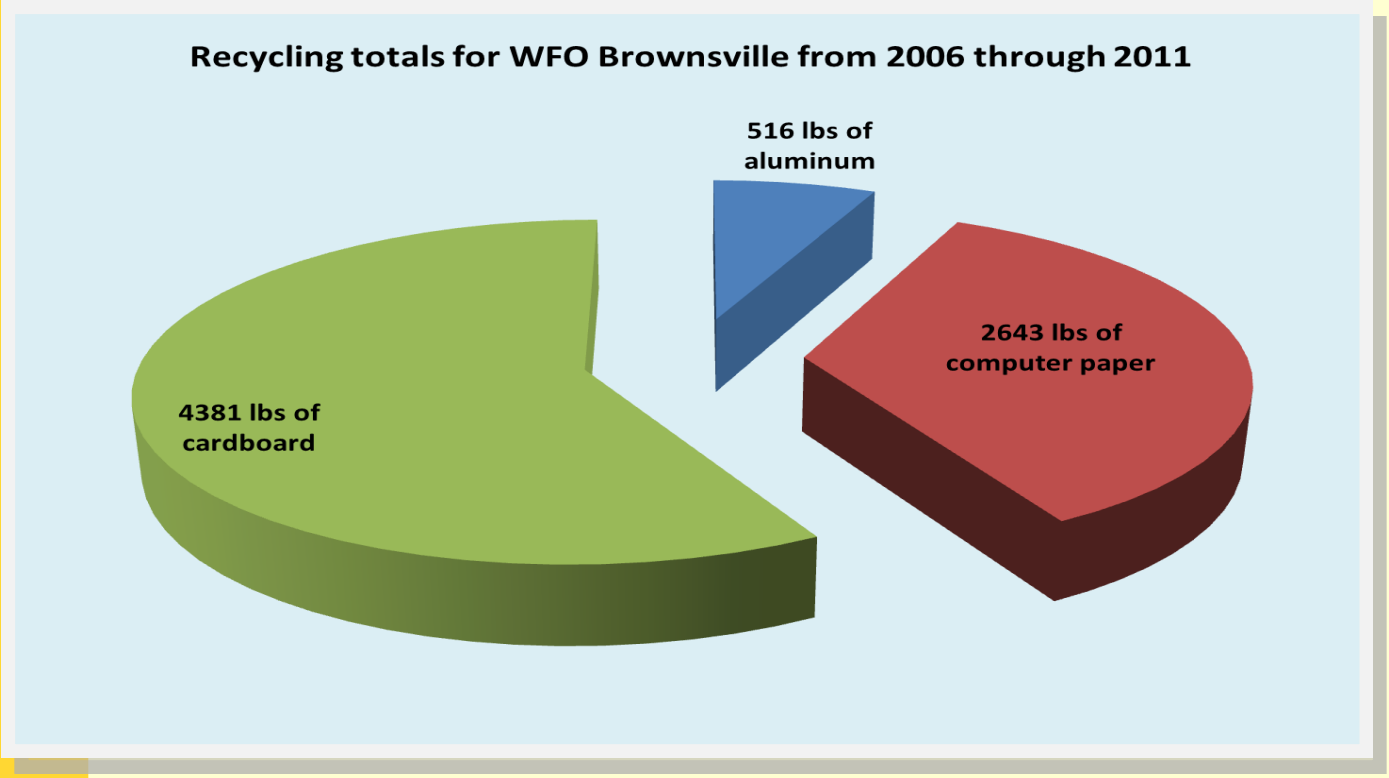
How can I sign up?
Go to the CoCoRaHS website at **cocorahs.org** and look for the "join CoCoRaHS" link on the left side of the page or for the icon in the upper right. Any questions can be forwarded to Geoffrey Bogorad , National Weather Service Senior Forecaster and CoCoRAHS Coordinator for Deep South Texas at Geoffrey.Bogorad@noaa.gov or by calling the Brownsville National Weather Service at 956-504-1432.

The National Weather Service in Brownsville has been recruiting volunteers since 2006, yet **more observers are needed!** Register online or contact us today!!

RECENT RECYCLING EFFORTS AT NWS BROWNSVILLE

By Tim Speece

Back in 2006, staff at the National Weather Service in Brownsville staff decided to make the office a little bit "greener" and started an office wide recycling effort. This effort included the recycling of waste aluminum cans, computer paper, and cardboard produced at the office. From 2006 through the first half of 2011, the National Weather Service in Brownsville has recycled a total of 7540 pounds of material. Here is the breakdown of the 7540 pound total: 516 pounds of aluminum, 2643 pounds of computer paper and 4381 pounds of cardboard.

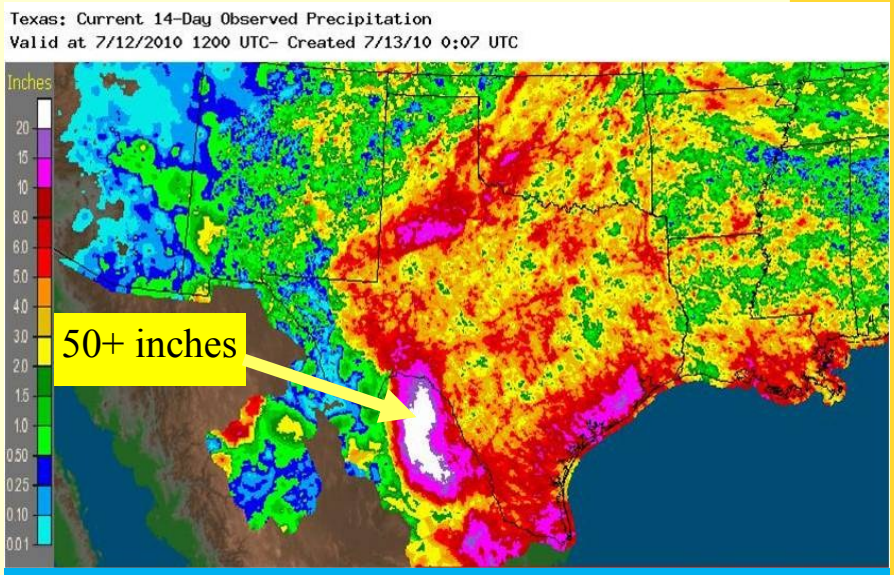


THE RIO GRANDE FLOOD OF 2010

By Mike Castillo

The Rio Grande flood of 2010 was bad, but it could have been worse! While the flood was the most significant in 22 years, it's impacts were minimized by calculated releases from affected reservoirs and the activation of several man made floodways constructed specifically to divert water and lessen the flood's impact. How exactly was this done, you ask? Read on to find out!

The remnants of Hurricane Alex and Tropical Depression Two in early July 2010 produced tremendous amounts of rainfall across the Amistad watershed located across portions of northeast Mexico and southwest Texas. As a result of the expected runoff and flood concerns, the International Boundary and Water Commission (IBWC) began releasing water from Amistad Dam on July 5, 2010. Eventually 35,314 cubic feet per second (cfs) was released from Amistad Dam. Flood operations continued at Amistad Dam until August 19, 2010.



Estimated two week rainfall from Hurricane Alex (June 28– July 12, 2011)

The water released from Lake Amistad, along with direct runoff from the heavy rains, began to fill Falcon Reservoir. On July 15th, Falcon Lake reached a record setting pool elevation of 308.1 feet breaking the previous record set in October 1958. The lake continued to rise setting a new pool elevation record of 309.31 feet on July 17th, just 5 feet below major flood stage. As a result, the IBWC began releasing water from Falcon Dam on July 7th at a rate of 15,000 cfs, doubled the release to 39,700 cfs on July 8th, and increased the release to its maximum discharge of 60,035 cfs on July 14th. The maximum discharge of water continued through July 27th, nearly two weeks before the releases were gradually lowered by the IBWC to 30,000 cfs on August 2, 2010. Falcon Lake finally fell below flood stage on August 13th after being in flood stage for over a month.

Additionally, reservoirs across northeast Mexico reached flood capacity as a result of the rainfall associated with Hurricane Alex and Tropical Depression Two. Releases from these reservoirs were significant as well. Peak flows on the Rio Salado from Carranza to Falcon was135,608 cfs on July 7th, 110,959 cfs on the Rio San Juan from El Cuchillo to Marte Gomez on July 3rd, and 32,772 cfs on the Rio San Juan from Marte Gomez to the Rio Grande below Falcon on July 9th.

The rainfall associated with Hurricane Alex and Tropical Depression Two produced major flooding downstream of Falcon and Anzalduas Dams, impacting communities and agricultural

THE RIO GRANDE FLOOD OF 2010 (CONTINUED)

interests along the river in Starr County, southwest portions of Hidalgo County, and areas inside the levees downstream between Anzalduas and Retamal Dams in southeast Hidalgo County. The Rio Grande at Rio Grande City reached flood stage of 50 feet on July 8, 2010, reached major flood stage and crested at 57.63 feet on July 11th, and experienced a secondary crest of 57.31 feet on July 16th. The river remained in ***major*** flood stage for nearly one month and remained above flood stage for 33 consecutive days, finally falling below flood stage on August 10th.

Further downstream along the Rio Grande, a series of floodways (spillways) were activated. These floodways are part of the Lower Rio Grande Valley Flood Control Project and found on both sides of the United States and Mexico International border. The floodway system begins at Anzaldaus Dam and includes the Banker floodway, the Main floodway, the North floodway and the Arroyo Colorado in the United States. During the high point of the flood, the latter half of July and early August 2010, the floodways were generally at half capacity, meaning water levels were several feet high but sufficiently below the height of the levee system. Visual and measured levels generally ranged from 4 to 8 feet across the floodway system.

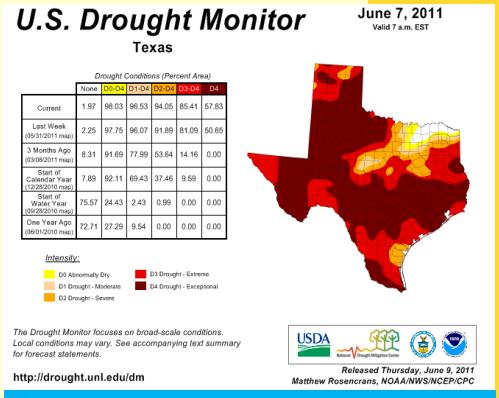
Flooding along the Rio Grande river at Los Ebanos during the peak of the releases from Falcon Reservoir (Photo courtesy of the International Boundary and Water Commission)

FROM EL NIÑO TO LA NIÑA — FLOODS TO DROUGHT

By Alfredo Vega

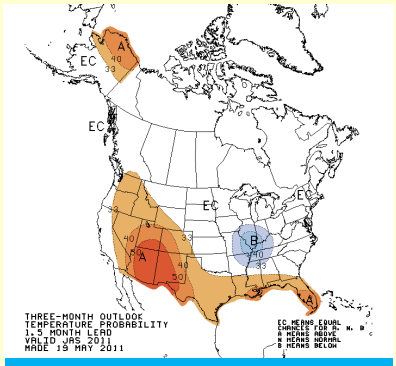
Weather patterns changed drastically across Deep South Texas between the summer of 2010 and the spring of 2011. During the summer of 2010, the influence of a moderate, but weakening El Niño brought active tropical systems and abundant rainfall over Deep South Texas and Northeast Mexico. The region's water source was quickly shut off by the end of September 2010, though, due to the affects of a rapidly developing La Niña.

The region experienced very dry conditions in October and November 2010, with less than a quarter inch of rain recorded across much of the area. This resulted in a rapid decrease in soil moisture levels, as a moderate to strong La Niña began in early December. By December, moderate drought conditions affected much of Deep South Texas. Conditions continued to worsen heading into 2011 due to the lack of precipitation over previous months. By spring 2011, with rainfall of a tenth of an inch or less, moderate to severe drought conditions were seen over the entire region. Even though 2 to 4 inches of beneficial rainfall in January brought a brief respite to the dry weather, dry conditions quickly returned for February and March. This allowed severe to extreme drought conditions to be seen across most of Deep South Texas by early April.



The latest drought conditions across Texas

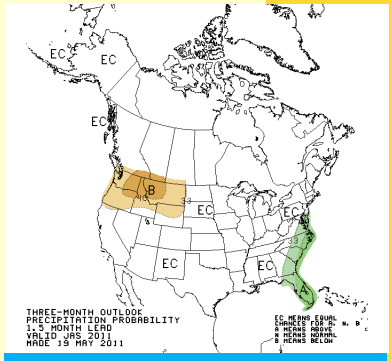
Rain was nowhere to be seen during the month of April, as no rainfall was reported by any of the reporting sites in Deep South Texas. This was the 5th time since the beginning of records (and the first time since 1920) that the National Weather Service Office in Brownsville did not record any rainfall. In fact, the time period between October 2010 and May 2011 is one of the top five driest periods since records have been kept. Drought conditions continue to worsen due to the continued below normal precipitation, above normal temperatures, and periods of windy conditions.



Above normal temperatures are expected through September

Drought conditions continue to impact agricultural interests, fire danger, and local reservoir storage levels. The first notable rainfall in more than 60 days fell across portions of the brush country, King Ranch and portions of the Lower Rio Grande Valley the second week in May. However, the rainfall was no match for the severe to exceptional drought conditions.

So what does the long range climate outlook show for Deep South Texas through September? All indications point toward La Niña dissipating this summer. However, it looks like only a tropical system would provide enough rainfall to alleviate the drought.



Near normal precipitation is expected through September

RARE WINTER STORM SLAMS THE RIO GRANDE VALLEY

By Ryan Vipond

Residents and tourists across Deep South Texas and the Rio Grande Valley closed out the month of January basking in temperatures around 80 degrees. However, the above normal temperatures ended abruptly as a strong arctic cold front swept through the area in early February. The arctic outbreak became one for the record books, resulting in the coldest stretch of cold weather and below freezing temperatures the area had seen in 22 years and very reminiscent of the cold snap of early February 1989.

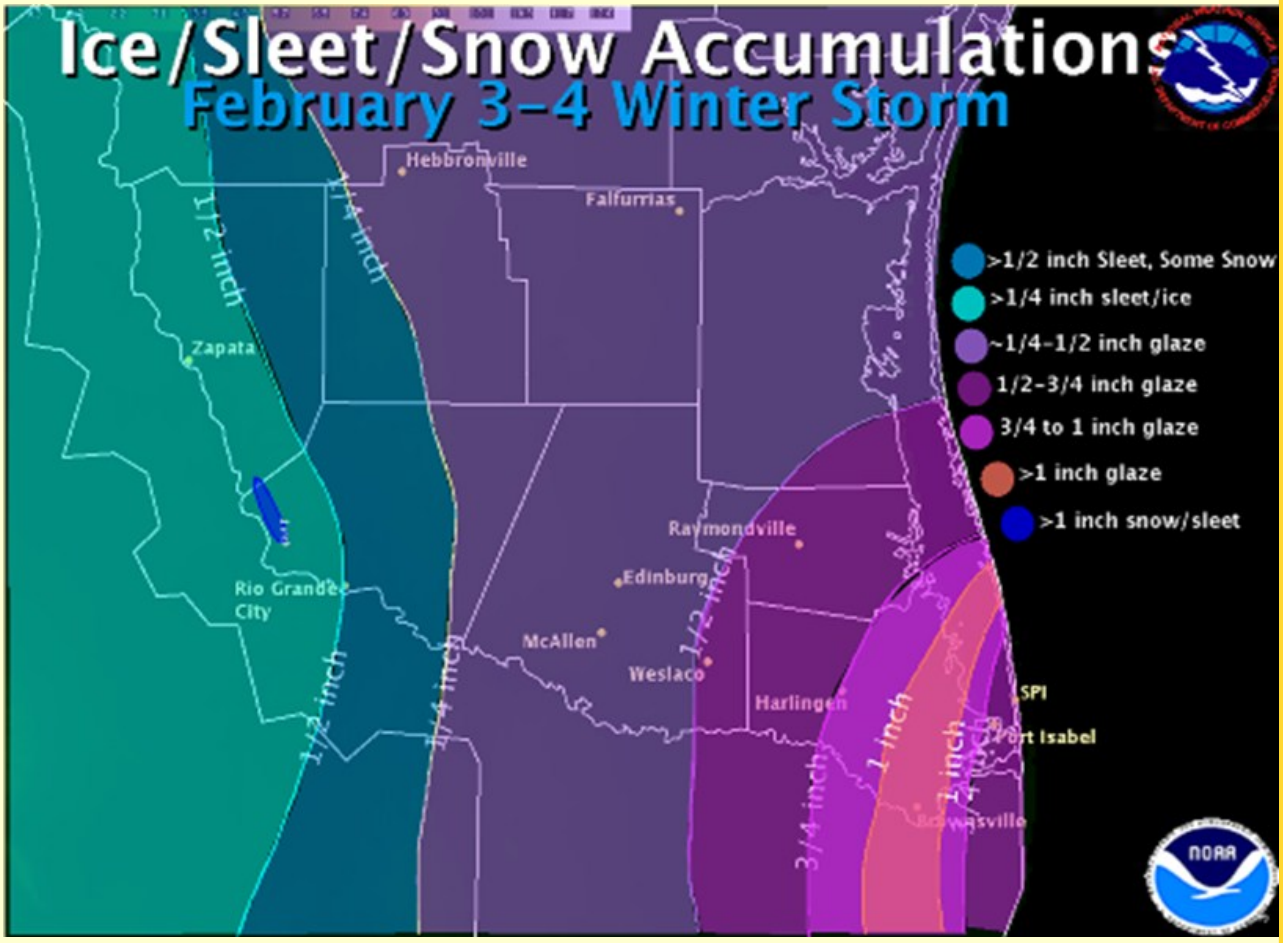
The cold front barreled through the area early in the morning on February 1st. Morning temperatures in the 60's and 70's quickly fell into the 50's and 40's by evening. The following morning, Groundhog Day, residents awoke to near freezing conditions with temperatures remaining in the 30's all day. In addition, strong northerly winds resulted in dangerous wind chill values in the upper teens and twenties throughout the day.

Ice coated tree at the NWS Office in Brownsville

Conditions deteriorated further the following day, February 3rd. The approach of an upper level disturbance marked the beginning of an ice storm that would coat the area in glaze, with some areas seeing light accumulations of sleet and snow. Temperatures remained below freezing throughout the day. Freezing drizzle began during the morning hours and intensified during the afternoon and overnight hours. By afternoon, widespread light freezing rain, along with intermittent light sleet and snow encompassed much of Deep South Texas. Oddly enough, a thin swath of "lake effect snow" was observed downwind of Falcon Lake Reservoir affecting portions of Zapata and Starr Counties where one to two inches of snow fell. Widespread ice accumulations of more than 1/4" were observed across the eastern half of the area with 1" accumulations observed in portions of Cameron County. The weather system responsible for this wintry mix began moving northward and away from the area early on February 4th, bringing an end to the precipitation. By afternoon, abundant sunshine resulted in rapid melting of the ice and snow. However, Deep South Texas had to endure one last night of below freezing temperatures.

RARE WINTER STORM SLAMS THE RIO GRANDE VALLEY
(Continued)

Although this storm may have delivered some picturesque winter scenes across Deep South Texas, it also brought a large toll of negative impacts to the area. Hundreds of residents sought refuge in area shelters to protect themselves from the cold. Highway 77 in Cameron and Willacy counties, along with all elevated road surfaces became icy and were closed during the event. Thousands of customers were without electricity during the peak of the event. Emergency room visits increased considerably with people suffering from injuries due to falls on the ice and vehicle accidents. Law enforcement reported a total of 194 total vehicle accidents, resulting in one fatality in an automobile accident east of Raymondville. Agricultural damage across the Lower Rio Grande Valley totaled an estimated 10 to 15 million dollars, with most of the damage impacting the sugar cane crop. Despite all these impacts, early warning and preparedness among the local communities in partnership with the National Weather Service minimized the impact of this storm.



STAFF CHANGES AT YOUR BROWNSVILLE NWS

By Ashley Butts

Over the past year, the National Weather Service (NWS) in Brownsville, TX has welcomed four new team members. These new additions to the staff include the Meteorologist-in-Charge, Science and Operations Officer, General Forecaster, and a Meteorological Intern.

Steve Drillette, the new Meteorologist-in-Charge arrived in August of 2010. Steve began his NWS career in 1993 as a Meteorologist Intern at the NWS in Amarillo, TX. In 1995, Steve transferred to the NWS in Lubbock as the Regional Service Hydrologist serving all of west Texas, southeast New Mexico and the Oklahoma Panhandle. He was promoted in 1998 to Senior Forecaster at the NWS in Midland. After one year, Steve accepted the Warning Coordination Meteorologist position in Amarillo, TX, which was his final position before moving to Brownsville and joining the staff as the Meteorologist-in-Charge. Prior to his NWS career, Steve worked for 3 years as a Broadcast Meteorologist in Bryan/College Station, TX, and 8 years as a High School Math and Science teacher and head basketball coach at several Texas schools. Steve earned his Meteorology degree from Texas A&M University in 1983.

The new Science and Operations Officer, Doug Butts, arrived to Brownsville in early January. Doug began his career as a SCEP (student employee) in Mobile, AL in 1995. Doug transferred to several different offices as a SCEP, before returning to Mobile as a Meteorologist Intern in early 2000. In 2001, Doug was promoted to a General Forecaster at the NWS in Jackson, MS. After working in this position for nearly 5 years, Doug was promoted to a Senior Forecaster position at the NWS office in Shreveport, LA, In January 2011 Doug accepted the position as the new Science and Operations Officer in Brownsville. Prior to his NWS career, Doug earned a Bachelor's degree at the University of South Alabama. and a Master's degree in Meteorology from Texas A&M University,.

Also reporting in early January was Ashley Butts, the new General Forecaster for NWS Brownsville. Ashley began her career as a SCEP at the NWS in Jackson, MS in 2005. During her 4 years in Jackson, she was promoted to a Meteorologist Intern and General Forecaster.. Ashley transferred to the NWS in Shreveport, LA as a General Forecaster in 2009, before transferring to Brownsville in her same position. Prior to her NWS career, Ashley earned her Bachelor's degree at Mississippi State University.

The newest addition to the Brownsville staff is Erin Billings, our new Meteorologist Intern. Erin reported to Brownsville in March. Prior to entering the NWS, Erin worked as a Cartographic Supervisor for the USDA Natural Resource Conservation Service's Central Remote Sensing Laboratory in Fort Worth, TX. Erin's duties in this position included conducting advance level aerial photo and digital image interpretations and restoration, construction of site maps and data collection. Prior to this work, Erin earned her Bachelor's Degree in Meteorology from Texas A&M University. While successful in her prior responsibilities, she was eager to return to meteorology and join the NWS Brownsville team.

Please join us in welcoming these new team members to the Rio Grande Valley!

The Coastal Breeze

Meteorologist-in-Charge and Publisher	*Steve Drillette*
Science and Operations Officer	*Doug Butts*
Warning Coordination Meteorologist	*Barry Goldsmith*
Data Acquisition Program Manager	*Jim Campbell*
Electronic Systems Analyst	*Bob Wittreich*
Information Technology Officer	*Toan Tran*

Dr. Melvin F. (Buddy) Martin Jr. *Editor-in-Chief* — Ashley Butts *Editor*

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	"Normal"	NWS Forecast	Klotzbach/ Gray
Named Storms	9.6	12-18	16
Hurricanes	5.9	6-10	9
Major Hurricanes	2.3	3-6	5

Want more information on the 2011 Hurricane Season? Check out the story on our front page!

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