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The Coastal Breeze

Official Newsletter of
National Weather Service - Brownsville, TX



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Atlantic Hurricane Season Forecast 2017

Is it The Rio Grande Valley's Turn? After Nearly Seven Years, Some May Say We're Due

The NOAA Atlantic Hurricane Season forecast was issued in late May, 2017. For the basin, which includes the most of the North Atlantic Ocean, the Caribbean Sea, and the Gulf of Mexico, the following number of storms was expected:

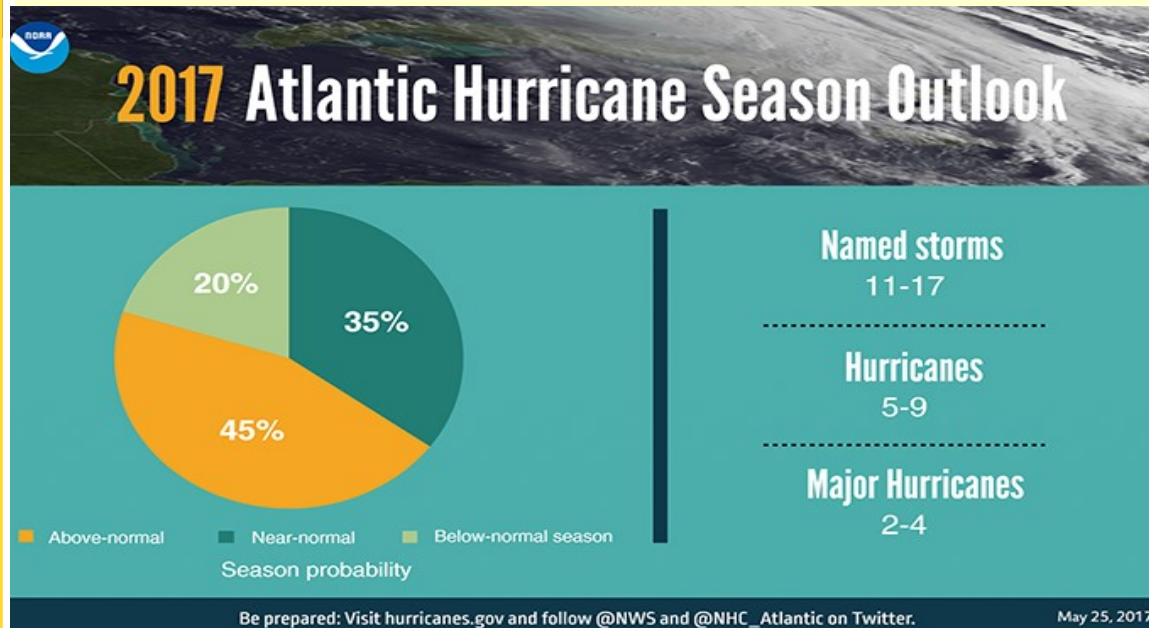
11 to 17 Named Systems

5 to 9 Hurricanes

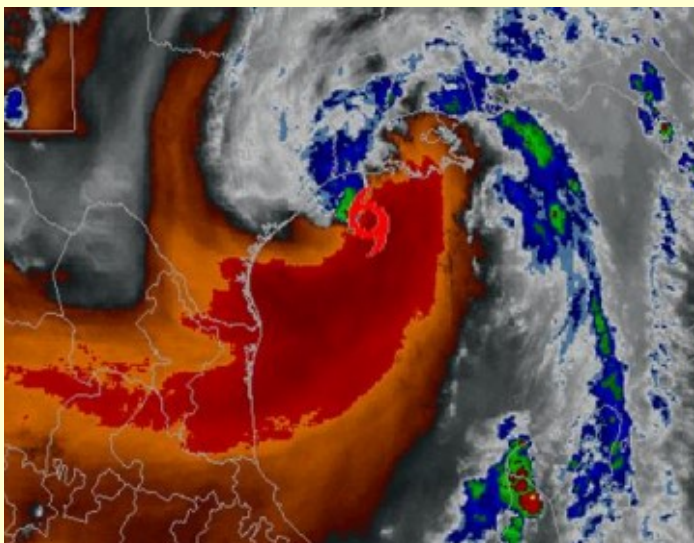
2 to 4 Major Hurricanes (defined as Category 3 wind, 111 mph, or higher)

The forecast Accumulated Cyclone Energy (ACE) Index – a measure based on the duration and number of high intensity storms based on wind – ranged from 75 to 155 percent of median, which is around 92. Based on the long term average from 1981 to 2010, these values indicate a slightly above normal season in terms of actual numbers of storms, which is 12.1 named systems, 6.4 hurricanes, and 2.7 major hurricanes. As of August 1, the season was off to a jackrabbit start; April's pre-season Arlene was followed by mid June's Bret and Cindy, and July's Don and Emily. Each were weak Tropical Storms, with a combined preliminary ACE a paltry 4.14. Tropical Storm Bret formed on June 19th southeast of Trinidad and brought heavy rain and gusty winds to the southern portions of the Windward Islands. Bret moved along the northeastern coast of South America before weakening across the eastern Caribbean Sea on June 20th. A tropical disturbance moving across the Gulf of Mexico became tropical cyclone Cindy on June 20th. Cindy tracked across the Gulf of Mexico and eventually moved ashore between Port Arthur and Lake Charles on the morning of June 22nd.

Tropical cyclone Cindy produced heavy rain and flash flooding across portions of the northern Gulf coast, mainly well east of the surface center. Don quickly sheared apart across the Lesser Antilles, and Emily formed on July 31 on the tail of a dissipating front just west of Tampa Bay and produced a few hours of heavy thunderstorms with gusty winds in south central Florida.



Is it The Rio Grande Valley's Turn? After Nearly Seven Years, Some May Say We're Due (Continued)



Left: Tropical Storm Cindy south of the southwest Louisiana coast at 5 pm on June 21, 2017. Note the displaced position of the surface center well within the atmospheric dry air.

Reasons for the Season

The slight lean toward an above average 2017 Atlantic Hurricane Season is based on the following main factors expected during the peak of the season (August through October):

- El Niño, a known source for wind shear in the Gulf of Mexico, Caribbean Sea, and western Atlantic Ocean, is expected to be weak or non-existent, with neutral conditions most likely.
- Near or above average ocean water temperatures across the Main Development Region (MDR), which stretches from the Tropic of Cancer to just north of the Equator and east to west from Hispanola to the central African coast

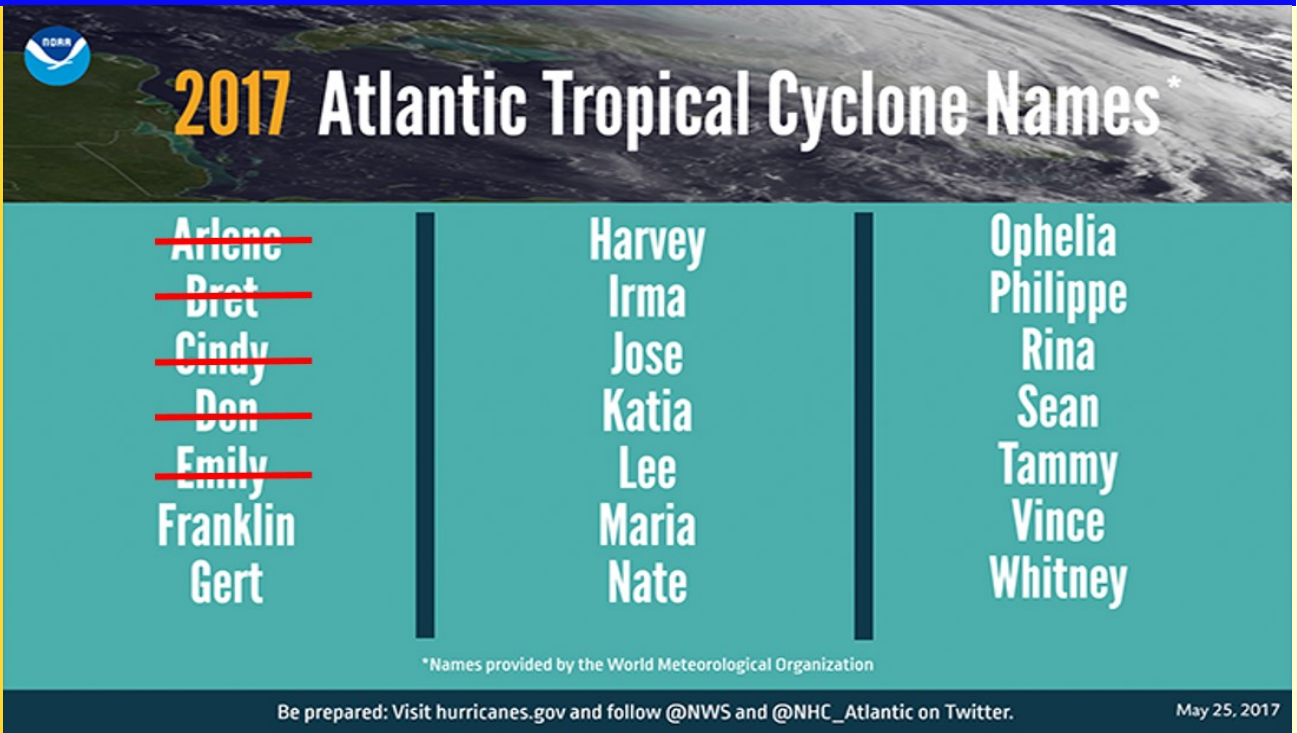
Near or weaker than average wind shear potential across the MDR

What it Means for the Rio Grande Valley

Based on data back to the mid-19th century, the odds of a direct tropical storm strike in Cameron County are very low in any given year, just 6 percent, and only 3.6% for a direct hurricane strike. Hurricane Dolly in 2008 was the first direct hurricane landfall in Cameron County since Beulah (1967). This year, the odds are projected to be just a shade higher, at 6.5% (tropical storm) and 3.9% (hurricane). Direct strike odds *do not* consider the impact zone of wind, and more importantly, the impact from other hazards such as storm surge and rainfall flooding which extend well beyond the eye! Typically, parts of the Valley receive tropical storm force winds, related heavy rainfall, or both every three years. At the conclusion of the 2016 season, that time had doubled with Tropical Storm Hermine (September 2010) being the last case. In that sense, we are due.

Patterns Matter. The reason for the gap is simple: Atmospheric puzzle pieces, whether large (El Niño and its associated wind shear, atmospheric dry air dominant in the MDR) or small (frequency of “[La Canícula](#)” atmospheric high pressure over Texas and northern Mexico that blocks cyclone tracks well to the south) have not fit together at any point between 2011 and 2016 to provide the opportunity for a direct or nearby landfall. Those puzzle pieces may fail to fit together in 2017, too – but there are no guarantees in June or July when all the pieces for August and September, the peak of the season in the Rio Grande Valley, are not even on the board. Even in a summer dominated by “La Canícula”, just one week to two week break in the pattern could open the window for sufficient flow of tropical moisture or developing waves over a very warm Gulf with low wind shear to create a direct or nearby hurricane strike.

**Is it The Rio Grande Valley's Turn?
After Nearly Seven Yeas, Some May Say We're Due**
(Continued)



The graphic features a satellite image of a tropical cyclone in the background. In the top left corner is the NOAA logo. The title "2017 Atlantic Tropical Cyclone Names" is prominently displayed in the center. Below the title, three columns of names are listed, separated by vertical lines. The first column contains names that have been crossed out with red lines: Arlene, Dret, Cindy, Don, Emily, Franklin, and Gert. The second column lists active names: Harvey, Irma, Jose, Katia, Lee, Maria, and Nate. The third column lists names that are not yet used: Ophelia, Philippe, Rina, Sean, Tammy, Vince, and Whitney. At the bottom of the graphic, there is a small note: "*Names provided by the World Meteorological Organization".

Used	Not Used	Not Used
Arlene	Harvey	Ophelia
Dret	Irma	Philippe
Cindy	Jose	Rina
Don	Katia	Sean
Emily	Lee	Tammy
Franklin	Maria	Vince
Gert	Nate	Whitney

*Names provided by the World Meteorological Organization

Be prepared: Visit hurricanes.gov and follow @NWS and @NHC_Atlantic on Twitter.

May 25, 2017

Beulah, Beulah, Beulah!

September 20th 2017 marks the 50th Anniversary of what continues to be the hurricane of record in the Rio Grande Valley. Beulah's exploits are well known by those who lived through her devastation, from massive rainfall-induced flooding across the Valley and northern ranchlands to severe wind damage and an 8 to 14 foot storm tide that swamped South Padre and Port Isabel. Beulah was just the second named storm of 1967, occurring near the effective end of the Texas hurricane season. For many residents along Atlantic basin coastlines, 1967 – with eight named storms, five hurricanes, and one major hurricane – will be remembered as a quiet season. For the Valley, 1967's season will never be forgotten. Modern American hurricane history includes several "quiet" seasons with locally memorable results, led by 1992's Hurricane Andrew, a \$50 billion catastrophe in South Florida in a season with only seven named cyclones, and for Texas, 1983's Hurricane Alicia, a nearly \$7 billion destroyer for Houston/Galveston in a season with just *four* named cyclones!

In summary, we remind all Valley residents that preparedness knows no quiet or busy season. Beulah's golden anniversary year reminds us that it only takes one devastating event to make a season memorable – no matter how slow or busy the season is. It is always a good time to be ready for a hurricane strike. Build your preparedness knowledge with information and videos in English and Spanish at <http://hurricanes.gov/prepare>; improve your personal, family, and business resiliency by becoming [#HurricaneStrong](https://www.hurricane.gov/#/strong)!



#HURRICANESTRONG™

Hurricane Beulah, Then and Now: Are We Ready in 2017?

50th Anniversary of the Rio Grande Valley's Storm of Record a Stark Reminder to Be Prepared

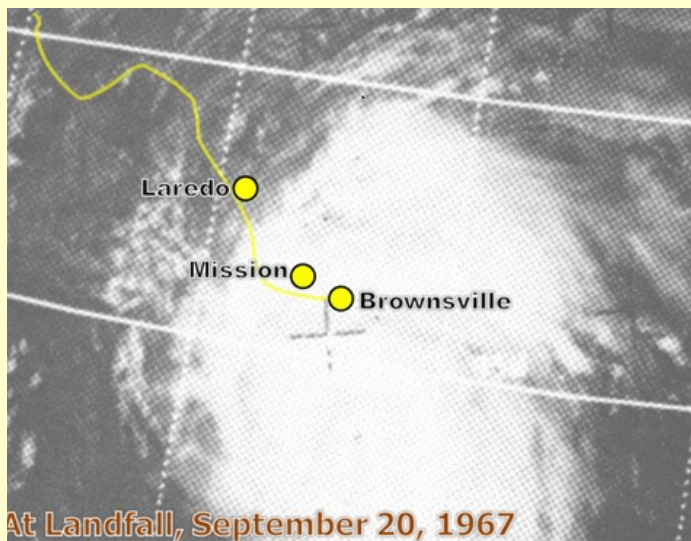
By Barry Goldsmith, Warning Coordination Meteorologist



Beulah.

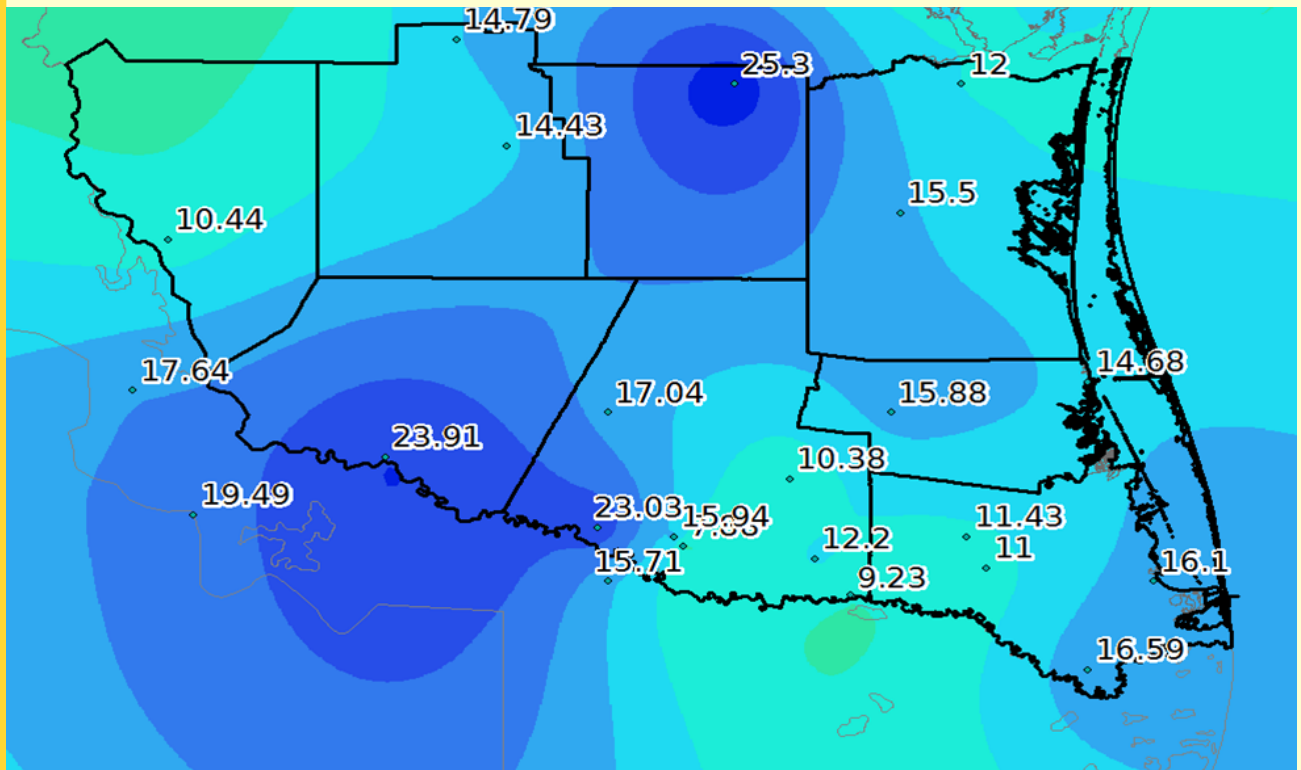
Among Valley residents who lived through the floods, winds, and the months-long recovery that followed, the storm coined “Evil Woman from the Sea” by local media in 1967 recalls stories of danger and hope – from the fear of residents riding out the damaging winds and torrential rains to the courage and heroism of those who stood firm protecting families and communities along the Rio Grande, reducing casualties during and after the storm.

Shortly after daybreak September 20th, 1967, Beulah made landfall as a Major Hurricane near the mouth of the Rio Grande, bringing damaging winds of 100 mph or greater from the McAllen metropolitan area to South Padre Island; a peak wind of 136 mph was recorded near the entrance of the Brownsville Ship Channel. Peak storm tides of 8 to 14 feet inundated South Padre Island and communities along Laguna Madre. Most memorably for Valley residents, however, was the rainfall and eventual widespread flooding. 10 to 25 inches of rainfall over more than two days produced varying levels of inundation to all communities from the Valley to the ranchlands. Excessive water flowing down the Rio Grande and Arroyo Colorado inundated a number of communities, most notably Harlingen, where hundreds of homes and business were destroyed by water to or above rooftops. In total, 1967 damage was estimated at \$100 million in Deep South Texas and the Rio Grande Valley, a value that would equate to more than \$5 billion in 2017 when adjusting for inflation, population, and infrastructure.



Left: Hurricane Beulah satellite image at landfall on September 20, 1967

Hurricane Beulah, Then and Now: Are We Ready in 2017? 50th Anniversary of the RGV's Storm of Record a Stark Reminder to Be Prepared (Continued)



Above: Rainfall totals across the Rio Grande Valley and the Ranchlands associated with Hurricane Beulah.

Yesterday...and Today

What would happen if the next Beulah occurred in 2017 or beyond? First – and most importantly – we are confident that strong regional partnerships among the Valley's Emergency Management partners, combined with government assistance from the State of Texas and the FEMA and communications with NWS Brownsville/Rio Grande Valley and the overall Weather Enterprise will ensure that residents will have the information needed to keep people safe. However, much changed circumstances since 1967 will offer many challenges to ensure the goal of life and livelihoods are protected. These challenges include the following:

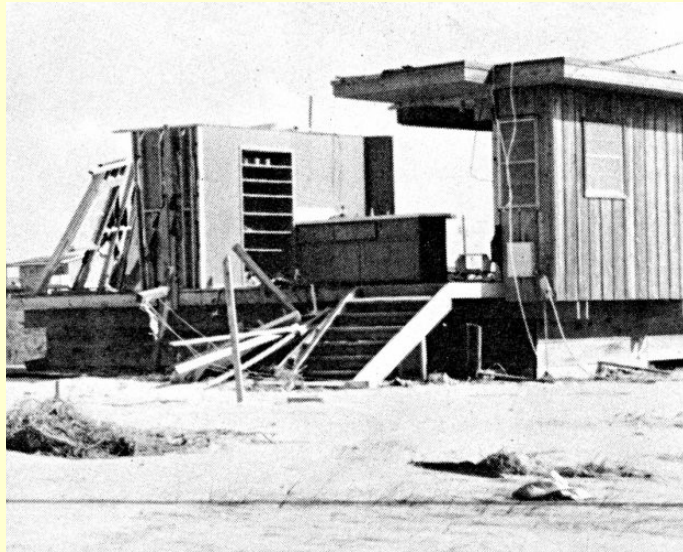
- *Population.* Since 1967, the Valley's population has increased nearly four times – from 355,000 persons in 1967 to nearly 1.4 million persons in 2017.
- *Population vulnerability.* At least 100,000 Valley residents live in more than 1,500 *colonias* – many with substandard housing at high risk to destruction from hurricane force winds and high rainfall totals.
- *Urban development and soil type.* Increasing population and economic growth have meant a reduction of natural drainage locations (such as wetlands) and an increase of pavement, each which favor increased runoff in an already geographically flood-prone region due to location on a river delta and less permeable loamy/clay/silt soil
- *Agricultural development.* In 2012, the crop-rich Rio Grande Valley and livestock-rich Deep South Texas ranchlands were estimated to be worth \$1 billion in annual production. Flood damage alone from 2008's Hurricane Dolly was estimated to be at least \$125 million from 6 to 18 inches of rainfall. Doubling those rainfall totals in a Beulah-type storm in 2017 could leave a much larger crop and livestock loss without sufficient planning.

Hurricane Beulah, Then and Now: Are We Ready in 2017? 50th Anniversary of the RGV's Storm of Record a Stark Reminder to Be Prepared (Continued)

Increasing Resilience and Mitigation

It's not a matter of if – but *when* the next Beulah (or worse) strikes the Valley. With memories of the real Beulah refreshed on her 50th Anniversary in 2017, it's never too late to become more resilient. We often stress hurricane preparedness in the form of evacuation or shelter-in-place plans and kits (readiness) and knowing where to get information to make appropriate personal, family, or community decisions. Being ready should also include being resilient. For the Rio Grande Valley, hurricane resiliency focuses on wind and flood mitigation. After all, whether you choose to stay or go when the next Beulah approaches, having a home, neighborhood or business to come back to may depend on how a community has mitigated against the impacts. Here are just a few tips that can get you started:

- *Wind Resiliency.* Check your roof inside and out. Repair loose shingles outside, and ensure interior trusses and strapped, vents are sealed properly, and gabled ends are braced. If you have a garage, add bracing bars to ensure winds don't get inside. If you live in a mobile or manufactured home, be sure to anchor the building into the ground properly. Learn more at <http://hurricanestrong.org>
- *Flood Resiliency.* Homes can be “wet” or “dry”-proofed to help create a barrier around the structure that can help reduce the impact from inundation. Learn more at http://flash.org/peril_inside.php?id=59



Above: Damage on South Padre Island from Hurricane Beulah

South Padre Island, TX, Courtesy Brownsville Herald



Left: Harlingen Flooding caused by Hurricane Beulah
Harlingen, TX, Courtesy Brownsville Herald

- *Flood Insurance.* Even if a business or residence is in the designated “100” or “500” year flood zone, the combination of soil, land use, and location in/near a river delta mean *anyone is at risk* to inundation from the next Beulah. Flood insurance is offered through private companies, backed by the Federal Government through the National Flood Insurance Program. Learn more at <http://floodsmart.gov>

Staff Changes At Your Brownsville NWS Office

By Julie Lesko, General Forecaster



Above: General Forecaster, Julie Lesko

The National Weather Service (NWS) in Brownsville, Texas welcomes the arrival of three new meteorologists all in about a year.

Julie Lesko is the newest General Forecaster to join the NWS Brownsville/RGV office having arrived in June of 2016. Her interest in the weather started in grade school when learning about the various layers of the atmosphere in earth science class. Her passion for meteorology grew and Julie obtained her Bachelor's Degree in Meteorology from Ohio State University and her Master's Degree in Meteorology from Florida State University.

Julie began her career in the Weather Service at the Little Rock, Arkansas office. She worked there for 7 years where she served as the upper air program leader, the hydrologic program manager, and the office awards team leader. While in Little Rock, Julie was temporarily promoted to Journeyman Forecaster three times and the Operational Program Leader twice. She worked numerous severe weather and flash flooding events as the lead warning operator and brings valuable radar experience to the RGV.

Julie is originally from the Cleveland, Ohio area, but having decided it's too cold to live there, she has steadily moved south. This led her to the Brownsville/RGV office where she greatly enjoyed her first RGV winter. When not working, Julie loves spending time at the Island, enjoying the sun, sand, and surf. She also enjoys traveling to other states (hoping to visit all 50!) and hiking through national parks.

Staff Changes (Continued)

By Matthew Brady, Meteorologist

NWS Brownsville welcome two new entry-level Meteorologists to the Rio Grande Valley recently.

Matthew Brady joined the National Weather Service office in Brownsville, Texas as a Meteorologist in September 2016 after providing impact-based decision support and forecasts in the private sector for clients across the southern United States and in Puerto Rico. Matt holds a B.S. degree in Meteorology from Florida State University (FSU) located in Tallahassee, Florida. Matt, in addition to his B.S. degree, holds academic minors both in Mathematics and Physics. Matt was an active participant and officer for the North Florida American Meteorological Society/National Weather Association Chapter in Tallahassee, Florida while attending FSU. Matt is a huge supporter of FSU athletics and attended every single FSU football home game in his four-year stay in Tallahassee. Matt loves to watch professional baseball along with football as well.

Matt grew up in Orlando, Florida and this is where his interest for weather was sparked. It all started from a young age where he gained a fascination with daily summertime thunderstorms from local sea-breeze collisions and the potential threat of tropical storms and/or hurricanes impacting the state. Specifically, Hurricane Floyd in 1999, along with a tornado outbreak across Central Florida during early 1998, solidified his weather interest and his strong passion to pursue a career in Meteorology. Passion continues to drive Matthew forward with the protecting of life and property with the National Weather Service office in Brownsville.

Nine months since moving to Texas, Matthew Brady is very happy and enthusiastic to be a member of the NWS Brownsville team, and continues to enjoy the wonderful people and culture across Deep South Texas.



Above: Meteorologist, Matthew Brady

Staff Changes (Continued)

By Rick Hallman, Meteorologist



Above: Meteorologist, Rick Hallman

Rick Hallman started working for the National Weather Service in Brownsville, TX in October, 2016 after forecasting and providing impact based decision support services for 12 years in the private sector. He's a die hard Cleveland sports fan; born and raised around 20 miles west of the city in Ohio. Rick is a respected member of the Cleveland music scene, having played guitar for 18 years across Northeast Ohio. Aside from live music and sports, he's a Stephen King and all-around Horror genre fan. Of course, topping all interests and hobbies in Rick's life, is the weather.

While attending The Pennsylvania State University, Rick volunteered as a student meteorologist with the Campus Weather Service (CWS) and the CWS Severe Weather Alert team. During the Pennsylvania Mobile Radar Experiment (PAMREX), Hallman served as a forecaster, radar operator, navigator and data editor. PAMREX intercepted multiple targets in the fall of 2003, from birds and bugs at sunrise to shallow severe thunderstorms in a strong vertically sheared environment. Rick graduated with a Bachelor of Science in Meteorology from PSU in May, 2004 (WE

ARE... PENN STATE!). That same month, he was hired as a meteorologist with a weather consulting firm based in Cleveland, OH named Weather Forecast Inc.

Somewhat ironically, Rick was talked out of applying for a position with the National Weather Service in Brownsville by college faculty in 2004; only to wind up in Brownsville 12 years later. Eight months into this new and exciting adventure, Hallman is beyond happy to be a member of the NWS BRO team, and continues to enjoy the people, food and beaches of the Rio Grande Valley.

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



The Coastal Breeze



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Location	Frequency	Station
Brownsville	162.550	WWG-34
Pharr	162.400	KHB-33
Rio Grande City	162.425	WNG-601
Harlingen (Spanish)	162.450	WZ-2542
Pharr (Spanish)	162.475	WZ-2541

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

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