

# THE COASTAL BREEZE



Brownsville/Río Grande Valley

SPRING 2021

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## **HAPPY SPRING!**

Spring has sprung and we have jam packed issue for you! Visit with our MIC and start thinking about preparedness for Hurricane season, then look at our spring weather safety page for some tips to get you through the severe weather season. We also have stories about “when thunder roars, go indoors”, the role of social media in operations, importance of water conservation, Fire Weather and Rip Current safety. Also meet two new meteorologists to the Brownsville/Río Grande Valley office and find out how to become a SKYWARN® storm spotter!

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[weather.gov/rgv](https://www.weather.gov/rgv)

## MIC MINUTE

By Mike Buchanan



With less than two months until the official start of the 2021 hurricane season, it is that time again for people in Deep South Texas to begin preparing for the possibility of a land-falling tropical cyclone.

Tropical cyclones are the most significant weather hazard that can affect our region. They can produce very heavy rain and widespread flooding. Often times, this flooding can last for days and even weeks in poor drainage areas. Saltwater inundation enhanced by large waves can produce significant destruction to homes and other infrastructure located along low-lying coastal areas. Saltwater inundation due to storm surge can travel many miles inland. Very strong winds from a tropical cyclone can also produce tremendous damage to infrastructure. These strong winds not only can impact coastal areas but can also impact inland areas far away from the coast. Finally, tornadoes can also accompany tropical cyclones.

Of course, most folks remember Category 1 Hurricane Hanna which directly impacted our region in July of last year. You may ask yourself if you would do anything differently if you experienced another hurricane. Would you do anything differently if the next hurricane you experienced was a major hurricane? Would you evacuate if you live along or near the coast that is vulnerable to storm surge? If so, where would you go? Many of us lost power for several days during the recent February Arctic Outbreak. This same scenario could repeat itself with a hurricane. In fact, power could be potentially out even longer with a major hurricane. If you lost power for several days or even several weeks, would you have enough food and water? Do you have a generator? Do you have adequate insurance? These are some of the questions you should begin thinking about now, before the hurricane season begins. Having a plan in place will not prevent a hurricane but will make you and your family better prepared in the event one does impact our area.

For more information on hurricane preparedness, please visit our local tropical webpage at <https://www.weather.gov/srh/tropical?office=bro#preparedness>.



# SPRING WEATHER SAFETY

Deep South Texas is no stranger to severe weather. Here are just a few safety tips to follow when severe weather threatens.


## Your Safe Place from **Lightning**




Lightning strikes the U.S. 25 million times a year, which sometimes results in death or permanent injury. **You are safest indoors or inside a hard-topped and enclosed vehicle.** If you hear thunder or see lightning, take shelter immediately!

weather.gov 


Lightning is **hotter** than the surface of the Sun and can reach temperatures around



# 50,000°F

When Thunder Roars Go Indoors  
weather.gov/lightning 


## TORNADO TERMINOLOGY



**Tornado Watch**  
Weather conditions could lead to the formation of severe storms and tornadoes. **BE PREPARED:** Know your safe location. Be ready to act quickly if a Warning is issued or you suspect a tornado is approaching.

**Tornado Warning**  
A tornado has been spotted or indicated by weather radar, meaning a tornado is occurring or expected soon. **TAKE ACTION:** There is imminent danger to life and property. Immediately seek refuge in the safest location possible.

**Tornado Emergency**  
An exceedingly rare situation with a severe threat to human life and catastrophic damage due to a confirmed violent tornado. **TAKE ACTION:** There is imminent danger to life and property. Immediately seek refuge in the safest location possible.



## Your Safe Place from **Tornadoes**



Tornadoes can be extremely dangerous. Safe places are storm shelters and basements, but if not available, an interior room without windows can also be protective. If you receive a tornado warning, take shelter immediately!

weather.gov 

## Your Safe Place from **Flooding**



During a flood, water levels and flow speed can quickly change. **You are safest by staying indoors, or seeking higher ground if shelter isn't available.** If you're stuck outside when a flash flood occurs, do not attempt to cross flood waters by vehicle or on foot.

weather.gov 



## “WHEN THUNDER ROARS, GO INDOORS” STILL “SOUND” ADVICE?

By Joshua Schroeder

At the National Weather Service (NWS), we advise people to head indoors at the first sign of a thunderstorm, which is usually hearing the sound of thunder. But perhaps there have been times when you’ve heard thunder, but never visually sighted the lightning flash itself. There can be many reasons for this, but, most often, the flash was either too far away to be seen directly, or it occurred completely up in the sky, with no accompanying lightning strike which hit the ground. At the NWS, we have tools to detect both Cloud-to-Ground (CG) and In-Cloud (IC) lightning flashes.

It is generally understood within the meteorological research community that, as a thunderstorm develops, IC flashes will be produced first, followed eventually by lightning strikes that touch the ground (CG). The latter are the ones that pose a safety risk to individuals outside during a thunderstorm. However, there has not been a great deal of research into this “lag time” (or “lead time”, depending on your point of view) between a given thunderstorm’s first IC flash to its first CG strike. Broadly speaking, it’s been found that the lag time is usually within the range of 3 to 30 minutes. However, this duration varies greatly with geographical location, due to the effects of mountainous terrain, local climate, and so forth.



Figure 1: When you hear thunder, go indoors and wait at least 30 minutes until after the last thunder has been heard to resume outdoor activities.

## “WHEN THUNDER ROARS, GO INDOORS” STILL “SOUND” ADVICE?

Since a study of this sort had never been carried out for our local area, Joshua Schroeder, Brian Mejia, and Matt Brady (now at NWS Austin/San Antonio, TX), decided to take a closer at local sea-breeze thunderstorms that initiated during the months of June through September 2018. They had hoped to identify at least 30 individual sea-breeze thunderstorm cells for which the IC-CG lag time could be determined but were pleasantly surprised to end up with a sample size of 79 storms. So, say you’re outside doing yard work. On average, if you hear thunder, how long do you have before a dangerous cloud-to-ground lightning strike occurs?

The results were a little surprising! In **42%** of the storms analyzed, the very first lightning activity detected was a CG strike! That is, there was *zero* lead-time. The median lag time was found to be around only one minute for each of the months (June, July, August, and September), though in rare cases lead time was up to 25 minutes. Moreover, **76%** of storms had an IC-CG *lead time of less than five minutes*, which is a reasonable estimate of the time needed to seek shelter.

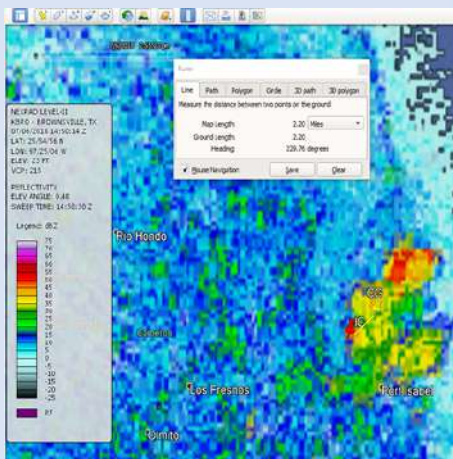


Figure 2: An example of Brownsville radar data, with position of lightning strikes indicated, as used in the analysis for this study.

**The take home message:** IC lightning does not precede CG strikes reliably enough or early enough to aid with safety decision-making. By the time you hear *any* thunder, a ground lightning strike could occur *at any time*. So, when thunder roars...keep going indoors!

**Note:** Those interested in the more technical details of the study can view a summary of the research on our NWS Brownsville/RioGrande Research webpage:

[https://www.weather.gov/media/bro/research/pdf/Schroeder\\_etal\\_SeaBreezeLTG\\_TxWx-2020.pdf](https://www.weather.gov/media/bro/research/pdf/Schroeder_etal_SeaBreezeLTG_TxWx-2020.pdf).

Also, this work was presented at the 4th Texas Weather Conference, with a recording (about 12 minutes long) available at <https://www.youtube.com/watch?v=TC0lwzWxW8I&t=1523s>.

## THE ROLE OF A “SOCIAL MEDIA-ROLOGIST”

By Brian Adams



If you were anything like me while growing up, you probably spent a little *too much* time sitting on the computer after school. Whether it was on AOL Instant Messenger, MySpace, Facebook, Twitter, or any other forms of online communities, many of us were vested in social media. It probably would have been cool to earn money for all those hours spent in chat rooms, finding the right backgrounds and songs for our profiles, and simply sharing information back and forth with our friends.

Now let's jump ahead 15 years or so. You know the saying, “The more things change, the more they stay the same?”

Aside from the usual forecasting, warning, and data collection portions of my job as a Meteorologist, social media plays a huge part in my role at the NWS. Social media is becoming a more prominent way for people to receive news and other information. Twitter has become one of the quickest and most effective ways to learn about breaking news stories. Facebook serves a similar purpose and allows for people living in a certain community, say a neighborhood or school district, to quickly share news relevant to their community with each other. Because of the continually growing use of social media, it is an extremely effective way for the National Weather Service to disseminate life-saving information. The NWS now utilizes social media as a vital tool to disseminate forecasts, warnings, briefings, and even direct person-to-person communication all in the name of building a Weather Ready Nation.

Some of my specific duties as the Social Media Focal Point here at NWS Brownsville include overseeing our accounts on Facebook, Twitter, and YouTube, creating user-friendly weather graphics that are shared with our community, participating in social media campaigns as part of larger, more nation-wide programs, and leading live briefings in the event of extreme weather impacting our area. All of this comes while interacting with the community daily through our various accounts. If you're reading this and you've communicated with us on social media recently, there's a high chance you and I have interacted before!

In a way, all that time spent on social media primed me for my position here at the National Weather Service. Chat rooms have turned into comment sections and message inboxes through which I interact with citizens of the Rio Grande Valley, not to mention the actual chat rooms we use to collaborate with other offices and partners. Creating profile backgrounds has turned into creating graphics through which we communicate information. Sharing all kinds of information with friends? That's an essential part of my job! From collecting reports to answering questions, communicating forecasts, and even calming some nerves occasionally, social media is an indispensable part of our jobs here at the NWS.

By Barry Goldsmith

The combination of a steadily worsening drought (Fig. 1), a forecast for a [hot and dry spring and early summer in 2021](#) (Fig. 2), and very low “pool” levels at Falcon International Reservoir (Fig. 3) bodes poorly for both agricultural and municipal water supplies to the Rio Grande Valley. By early April, water conservation requirements had already been in place for 32 cities and water supply entities across the Valley. Most recently, the Laguna Madre Water District issued a [conservation order](#) in March for communities served by the Laguna Madre Water District, which includes South Padre Island, Port Isabel, and Laguna Vista.

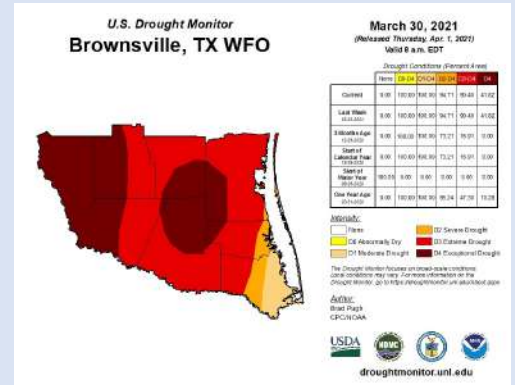


Figure 1: Rio Grande Valley/Deep S. Texas Drought Monitor, March 30, 2021

## The April-June 2021 Outlook: Rio Grande Valley (McAllen as Anchor Point)

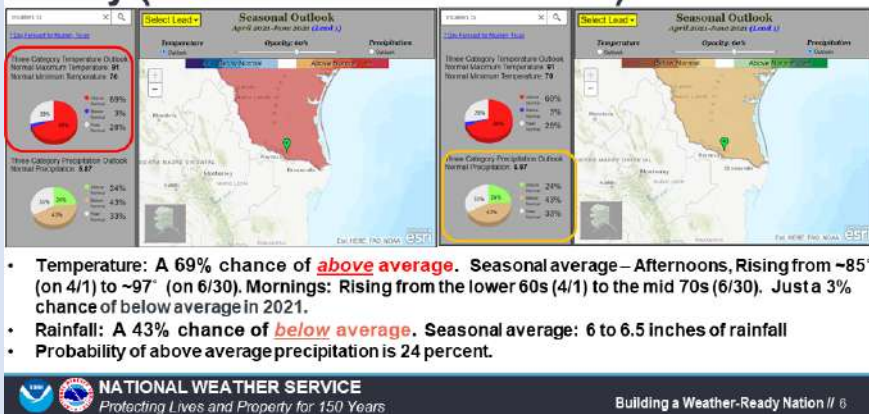


Figure 2: April-June temperature and precipitation outlook for the Rio Grande Valley, using McAllen as an anchor point for the values shown.

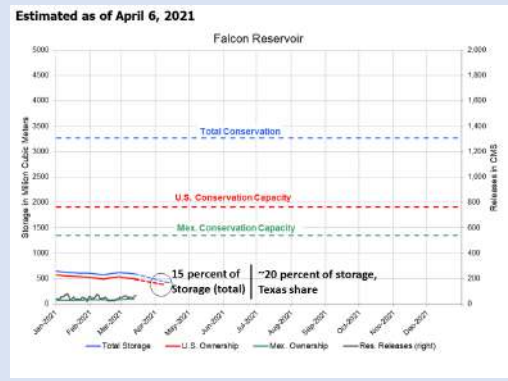


Figure 3: Conservation storage compared with U.S., Mexico, and total capacity on April 6th, 2021. Shown in dashed blue line is value of the conservation capacity at 473 million cubic meters, a little under 15 percent of total conservation.

## What You Can Do Today...and Tomorrow

A Texas weatherman in the 1920s once said, “Texas is a State of perpetual drought, broken by the occasional devastating flood.” That vision is *exactly* what has occurred across the Rio Grande Valley since 2010: Flooding rains followed by serious droughts, some with significant consequences to the Valley’s agriculture and water supply. The prolonged drought of 2011-2013 was followed by alternating flood/drought cycles in 2015, and 2018 through 2021.

As regional temperatures continue to warm and annual evaporation rates increase, the availability of water for agricultural and municipal use will be challenged not only in 2021, but for years and decades to come, as the Valley’s population on both sides of the Rio Grande continues to grow. It becomes imperative for communities to make water conservation a part of daily routines to ensure a high quality of life for current and future generations.

There are several ways to do this, described below. Information shown comes courtesy of [Take Care of Texas](#), a feature of the [Texas Commission on Environmental Quality](#).

### ***Reduce Home/Business Water Use***

The average American family uses more than 300 gallons of water per day for multiple uses. Water conservation can reduce much of this use, as well as money on the monthly bill. Most importantly, during periods of potential water shortages as we may see later this spring into early summer, conservation could allow enough water to flow to all households even during difficult times. The following are great tips to start your conservation efforts.

- Take shorter showers. Use a shower timer to indicate water use.
- Turn off the tap! This includes:
  - When washing your face, brushing your teeth, and shaving
  - When washing dishes, plug the sink and fill with soapy water; do a quick rinse and towel dry.
  - Wash vehicles with a bucket or use a commercial car wash that recycles water.
- Install Energy-Star appliances and use smartly.
  - Scrape dishes of debris into the trash, then fill the dishwasher completely and run on “light wash” when possible
  - Fill the washing machine before running, and wash most loads using the cool or cold-water setting
  - Use low-flow toilets that also have dual-flush settings
- If you irrigate your property, be sure to follow these steps:
  - Let the grass grow higher. Longer blades help retain moisture close to the ground, especially during the overnight through mid morning hours.
  - When irrigating, do so just before sunrise and no longer than an hour or two after sunrise. Watering in the afternoon or early evening is wasteful as most goes straight into evaporation through heat and wind.
  - For plants, replace spray irrigation with targeted “drip” irrigation. Drip irrigation saves thousands of gallons per year and minimizes evaporation and runoff by 60 percent or more.

### ***Consider Rain Harvesting***

Rainwater harvesting collects and stores rainwater for multiple uses - in the yard, but also for other potable and non-potable use. Consider that lawn and garden watering make up 30 to 50 percent of total household use in Texas. By collecting rainwater from just 10 percent of a roof's runoff, Texas could conserve over 32 billion gallons of water annually.

[https://takecareoftexas.org/sites/default/files/styles/1200\\_x\\_800/public/multiple\\_field\\_images/iStock\\_61701984\\_XXLARGE.jpg?itok=jmIF0rhn](https://takecareoftexas.org/sites/default/files/styles/1200_x_800/public/multiple_field_images/iStock_61701984_XXLARGE.jpg?itok=jmIF0rhn)



## FIRE WEATHER SAFETY

By Rick Hallman



Photo Credit: Rick Hallman



Photo Credit: Rick Hallman

We would like to remind you to follow all fire safety guidelines as we head into spring, with above average temperatures, below normal rainfall, and worsening drought conditions expected across all of Deep South Texas.

- **Fully extinguish and properly dispose of cigarettes and cigars**
- **Avoid any outdoor burning of debris, yard waste, or trash**
- **Avoid any activities with open flame or sparks**
- **Avoid using power equipment that may spark**
- **Never park hot or warm vehicles on grass**
- **Be especially vigilant on windy days, or if a Fire Weather Watch or Red Flag Warning have been issued.**

A **Fire Weather Watch** means critical fire weather conditions are ***possible***

A **Red Flag Warning** means critical fire weather conditions are ***occurring or will shortly***.

Remember, majority of wildfires across the state of Texas are preventable. By following these guidelines and taking extra precaution on dry and windy days, you can help your family and all of Deep South Texas stay fire safe this spring!

Rick Hallman  
NWS Brownsville  
Fire Weather Program Manager

## MEET OUR NEWEST METEOROLOGISTS

Hi, I'm Angelica Soria and I am from Topeka, KS. Growing up in Kansas, I experienced all different types of weather. I used to be afraid of thunderstorms but then that fear turned into curiosity and that's when I knew that meteorology was what I wanted to do.

The summer between my junior and senior year of college I volunteered at the Topeka National Weather Service which gave me the experience of working for a Weather Forecast Office and I was certain that was the job for me. After graduating from Mizzou with a Bachelor of Science in Atmospheric Science I decided to pursue a Masters of Science (M.S.) degree in Atmospheric Science from the University of Madison-Wisconsin and hope to receive my M.S. degree this summer.



Moving to Brownsville, TX from Madison, WI was a huge temperature change for me, and my dog Mila really enjoys the warm weather! Being a Hispanic female, I look forward to connecting with the community and encouraging other females to pursue careers in Science, Technology, Engineering and Mathematics (STEM). Representation in the workplace matters and I am so grateful for this opportunity. This has been my dream job for a long time, and I am excited to get working with my new team to serve and protect Deep South Texas and the RGV!



My name is David Reese and I am from Sarasota, Florida. I attended Florida State University where I received a Bachelor of Science in Meteorology.

My meteorology career began in the broadcast industry where I was a meteorologist for WRBL in Columbus, GA for over four years. I covered a wide range of weather: tornadoes, hail, floods, tropical storms, snow and ice. My most memorable event was covering the EF-3 tornado in Salem, AL on April 29, 2014 that struck just before 4 AM. I oversaw social media and vividly remember giving people near Salem, AL an early heads up about the storm as it was heading their way. Fortunately, no one was killed during that tornado despite the time of day and significant damage it caused.

I moved to Charlottesville, VA in January of 2015 to be a meteorologist for WCAV, where I gained experience with winter weather, fog, and mountain weather. My most memorable event in Charlottesville was the January snowstorm in 2016. I had seen snow before, but not this much! By the time the snow stopped, 18 to 24 inches had fallen with temperatures in the single digits and teens to follow for several days.

I am eager to start my career here at the National Weather Service and look forward to serving the people of Deep South Texas.

# RIP CURRENT AWARENESS

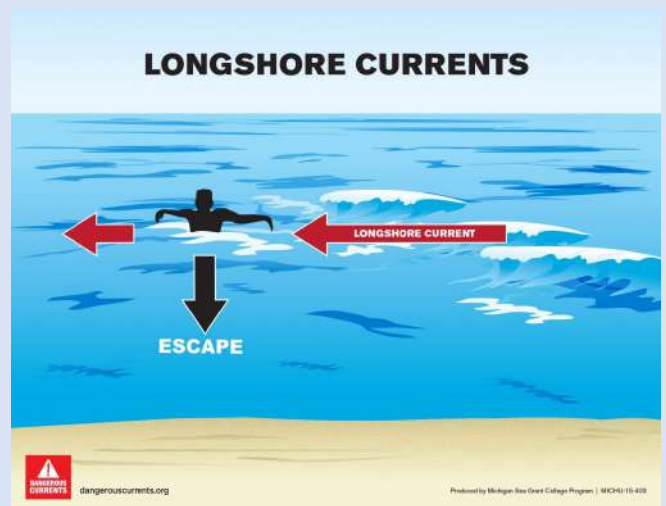
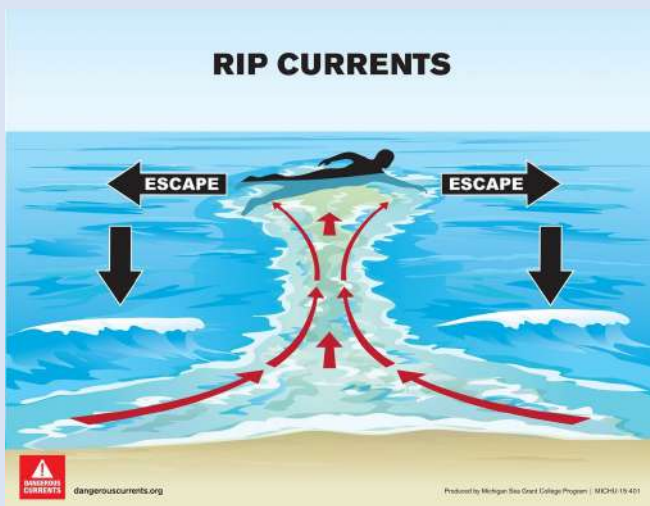
By Laura Farris

When visiting the beautiful beaches of the Lower Texas coast, have you noticed how the waves move you in different directions? Even more, do you know what causes this? The culprits are “rip” and “longshore” currents. The United States Lifesaving Association (USLA) estimates that rip currents account for over 100 fatal drownings per year across the U.S. coastline; locally, rip and longshore currents are our number one weather-related killer for the 8 southernmost counties of Texas. Do not fret if you are unfamiliar with this coastal hazard but take a minute to learn more about it so you can protect yourself and your family the next time you head to the beach!

**What is a rip current?** A rip current is simply a channelized, or concentrated, current of water flowing away from the shore at surf beaches, and they often form near obstructions in the water at the beach such as jetties or piers.

**What is a longshore current?** Longshore currents move parallel to the shoreline, driven by persistent wind and wave direction, also parallel to the shoreline. Longshore currents exert forces that make it difficult to remain in front of a particular spot on the beach. They are most common between the first and second sandbars. On warm spring beach days, south-to-north longshore currents are common on the Lower Texas coast.

**Why are currents dangerous?** Rip currents are dangerous because they can pull even the strongest of swimmers away from the shore into deeper waters, increasing the risk of drowning. Longshore currents are dangerous because they carry a swimmer far down the beach and can require extra effort to swim toward shore. Longshore currents can combine with rip currents where there are sandbar breaks or variations, increasing the difficulty of returning to shore.



## RIP CURRENT AWARENESS

**How can you protect yourself and others?** The best protection is to do your best to avoid getting caught in a current altogether. Learn how to spot a rip current from the shore to avoid entering the water at that location and be aware of the speed of the longshore current. Never swim alone and stick to beaches monitored by lifeguards. If you somehow manage to get caught in one, follow these steps taken from the USLA:

- Stay calm.
- Don't fight the current.
- Escape the current by swimming in a direction perpendicular to the current. When free of the current, swim at an angle— away from the current—toward shore.
- If you are unable to escape by swimming, float or tread water. When the current weakens, swim at an angle away from the current toward shore. Never overexert yourself when attempting to swim back to shore.
- If at any time you feel you will be unable to reach shore, draw attention to yourself: face the shore, call or wave for help.

An additional action you can take is to learn how to swim. There is no need to become an Olympic swimmer but learning to tread water for a couple minutes without touching bottom can save your life. Find local programs for yourself and your family - it's never too late to learn!

Find out more about rip current safety by visiting: [www.ripcurrents.noaa.gov](http://www.ripcurrents.noaa.gov) and [www.usla.org](http://www.usla.org). Learn about every type of current by visiting [NOAA's Michigan Sea Grant Dangerous Currents webpage](#). Stay safe and have fun at the beach this season!



Photo Credit: Ryan McGinnis

# SKYWARN STORM SPOTTER TRAINING COMING TO A PLACE NEAR YOU!

By Brian Miller and Barry Goldsmith



Have you been thinking about becoming A SKYWARN® storm spotter? Across the Nation, hundreds of thousands of dedicated volunteers provide first-hand reports of hazardous weather, including floods, hail, damaging or destructive winds, tornadoes, wildfires, winter storms, and more, to their local officials and the National Weather Service (NWS). The same occurs across the Rio Grande Valley and Deep South Texas. A SKYWARN® storm spotter's primary reason to become certified is to help protect the citizens' lives and property across the region.

Being a SKYWARN® storm spotter means not only dedication but also training. The training goal is to prepare the spotter to identify hazardous weather conditions, how to report that information to the local NWS office, and personal safety. Training starts with a couple of free online courses from the [MetEd](#) website. These courses are the “Role of the Skywarn® Spotter” module, providing baseline training for all spotters, and the “Skywarn® Spotter Convective Basics” module, guiding users to a basic understanding of convective storms.



## SKYWARN STORM SPOTTER TRAINING COMING TO A PLACE NEAR YOU, CON'T

Once you complete these two courses, email your certificates to **Barry.Goldsmith@noaa.gov** to be added to the storm spotter database. We may contact you for additional information. Within a few weeks, you will receive a certificate, welcoming letter, and ID card via email. The ID will be CCC–NNNB, where CCC = your County Identifier and NNN = your identification number. The trailing "B" after your ID number indicates you completed just the MetEd coursework and have been certified at the basic level. If you are interested in becoming a fully certified SKYWARN® storm spotter in the Rio Grande Valley, you will also need to attend our local virtual courses. Read on for details.

Each spring, the NWS Brownsville/Rio Grande Valley teaches the latest storm spotting techniques to the police, fire department, emergency management (including health, education, transportation, land management, and more), the amateur radio community, and regular citizens. Due to continued limitations of in-person gatherings due to COVID-19, the current courses provided by NWS Brownsville/Rio Grande Valley will be via webinars. These local classes complement the MetEd online courses by giving students a Rio Grande Valley perspective. You can find more information on the local SKYWARN® storm spotter program and upcoming webinars at <https://www.weather.gov/bro/skywarn>.

Since the MetEd online courses cover spotting and thunderstorm development basics, local classes focus on features in the sky and on the ground, with a short introduction on NWS Brownsville/Rio Grande Valley, how to report hazardous weather, and severe weather climatology. These local virtual classes take about an hour and include interactive elements. An online course evaluation form will alert database administrators of webinar completion. Requirements to participate in the webinar include a computer interface with a stable, high-speed internet connection, and audio with a mute option. The audio can be digital audio or a provided phone number.

Once you have become SKYWARN® storm spotter certified the meteorologists at the Brownsville/Rio Grande Valley NWS office will look forward to hearing from you and receiving your reports. Receiving timely ground truth reports helps us fulfill our mission of saving lives, protecting property, and enhancing commerce.



### SKYWARN Spotter Certificate of Training

**Name Here**

Is hereby recognized for the successful completion of the

SKYWARN Spotter Basic Course

NWS Brownsville, TX Spotter I.D. CAM-736 valid until 4/19/2019

Warning Coordination Meteorologist  
National Weather Service, Brownsville TX

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### NWS Mission

Provide **weather**, water, and climate data, forecasts and warnings for the protection of life and property and enhancement of the **national** economy.



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