

# THE COASTAL BREEZE

Volume XIII, Issue 14

Hello! Welcome to the current issue of the Coastal Breeze. We will be now doing two issues a year, in order to better encompass what we are doing in the field and behind the scenes.

In this issue we will say goodbye to Michael Buchanan who served at the Meteorologist in Charge since late 2019, as well take a peek into some of the conferences and events our staff participated in the last 6 months.

**We want to hear from you!**

Do you have suggestion for articles or weather photos you want to show off? Send them our way! For any photos make sure to include: date, time, location and name of photographer for credit!

**Email us at [nws.brownsville@noaa.gov](mailto:nws.brownsville@noaa.gov)**



Brownsville/Rio Grande Valley

## **In this Issue**

### **MIC Minute (Farewell Article)**

by Mike Buchanan  
Pg. 2

### **NWS Brownsville Strengthens Partnership With UTRGV Disaster Studies Program**

By Rodney Chai  
Pg 3

### **Texas Weather Conference**

By Melissa Marcelloni  
Pg 4-5

### **NWS Brownsville Meteorologists Participate in the Brownsville-South Padre Island International Airport Annual Tabletop Exercise**

By Kirk Caceres  
Pg. 6

### **Furthering Hurricane Research**

By Jeremy Katz  
Pg. 7

### **NWS Brownsville Staff Witnessed A Historic SpaceX Test Flight**

By Rodney Chai  
Pg. 8-9

Find Us on Social  
Media and the Web



[@NWSBrownsville](https://www.facebook.com/NWSBrownsville)



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

## MIC Minute (Farewell Article)

by Mike Buchanan

After more than 5 years as the Meteorologist in Charge (MIC) at the National Weather Service (NWS) office located in Brownsville, Texas, my time in the Rio Grande Valley has come to an end. On December 1, 2024, I will officially transfer to the NWS office located in Slidell, Louisiana and take on the role as their next MIC.

It has been a real pleasure to serve the people of the valley and Northern Ranchlands since September 1, 2019. The folks here in the valley have been so friendly and welcoming to me. I will most certainly miss my NWS Brownsville co-workers, my friends, our partners, and members of the public we serve. A special shout-out to the local media partners who I consider friends and excellent partners with the NWS.

From tropical cyclones to winter weather to heat to fires to coastal flooding to drought to severe weather to floods to the “valley wind machine” to more tropical cyclones and even a meteor, it has been a very rewarding experience to lead such a dedicated group of folks at NWS Brownsville. It has been an honor and privilege.

On to the next chapter...



# NWS Brownsville Strengthens Partnership With UTRGV Disaster Studies Program

By Rodney Chai

With the increased occurrence of billion dollar weather and climate disasters, it becomes ever more important for the NWS to focus on building community resilience and deepening partnerships with local partners in order to build a Weather and Climate-Ready Nation. One such partner is the University of Texas Rio Grande Valley (UTRGV) Disaster Studies Program. In October 2024, Science and Operations Officer (SOO) Rodney Chai gave a guest lecture to Professor Dean Kyne's Disaster and Society class. The lecture was timely as it came right on the heels of two back-to-back billion dollar disasters - Hurricane Helene and Milton. Rodney's lecture built on Senior Meteorologist Brian Miller's NWS 101 presentation a week earlier.

Though UTRGV does not have a flagship meteorology program, the increasing interdisciplinary nature of the weather enterprise provides a great opportunity to reimagine our partnership with existing and new academic institutions. With NWS Brownsville/RGV having the second highest proportion of Limited English Proficiency (LEP) population of the 122 Weather Forecast Offices (WFOs) nationwide, it is important to ensure that vital, life-saving weather information is equitably communicated to the vulnerable communities. To build more resilient communities in the age of climate change, it becomes important to cultivate the next generation of Emergency Managers and grassroots leaders who are proficient in communicating risk as it pertains to weather and climate hazards. In the longer term, the goal is to work towards creating an interdisciplinary program that merges aspects of atmospheric science, climate literacy, sociological and psychological aspects of risk communication and decision making.

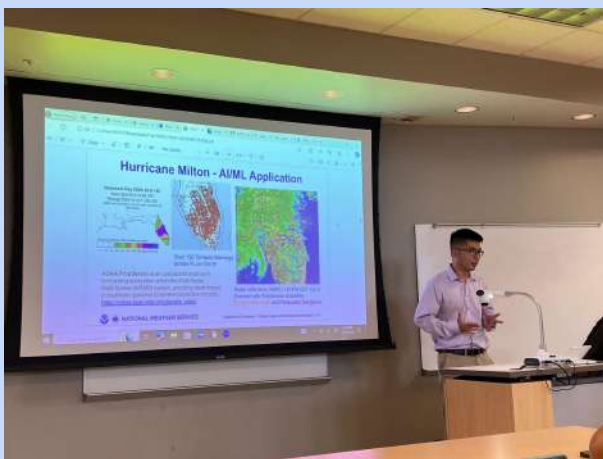


Image 1: Science and Operations Officer (SOO) Rodney Chai giving a guest lecture to Disaster Studies students at UTRGV on Oct 10, 2024.



Image 2: Disaster Studies students listening to SOO Rodney Chai's guest lecture at UTRGV on Oct 10, 2024.

# Texas Weather Conference

By Melissa Marcelloni

On Thursday, November 7th, Amber McGinnis and I drove six and a half hours from Brownsville up to College Station, Texas to attend the 6th annual Texas Weather Conference. It was held at the Texas A&M University campus on November 8th and 9th, and was well-attended by NWS personnel from all over the state of Texas. Amber and I represented WFO Brownsville, and the conference was also attended by staff from all the other Texas WFO's as well as WFO Albuquerque, WFO Shreveport, and Southern Region Headquarters. There were also several Texas A&M and Texas Tech students and professors, emergency managers, broadcast meteorologists, and weather enthusiasts in attendance as well.



The conference featured several presentations by NWS personnel and professors on a wide variety of topics, such as hydrology, applied meteorology, drought/fire weather, severe weather, and tropical weather. There were also two poster presentation sessions, featuring the research projects of several students around the state. Former WFO Brownsville Science and Operations Officer (now at WFO Albuquerque) Josh Schroeder gave a presentation on how his office provided Emergency Operations Center support to the Ruidoso area after the 2024 fires and burn scar flooding. Other presentations that were of particular interest to our office included a presentation by Jennifer Dunn (WFO Fort Worth) on best practices for using the Damage Assessment Toolkit (which is what our office uses to survey severe weather and flooding damage), and a presentation by Connor Dennhardt (WFO El Paso) on the operational use of probability-based risk assessments for both incident strategy and hazardous weather communication.



WFO Houston's Science and Operations Officer Lance Wood (who also served here at WFO Brownsville recently as interim SOO) gave a valuable presentation about how their office assessed the microclimate of an outdoor concert pavilion to help mitigate heat stress for attendees. Since high heat is such a huge risk for the Valley as well, this is something our own office could one day emulate at one of the Valley's local outdoor venues. As shown in the photo, WFO Lubbock's Kaitlin Schueth talked about the day Lubbock's CWA received hail that broke the state record for largest hail size! Finally, there was an insightful presentation given by Jeff Evans (WFO Houston) about some of the messaging challenges their office faced during Hurricane Beryl, which was an event well-remembered by the Brownsville office.

All in all, it was an outstanding conference, and our office is looking forward to attending the next one, which will likely be held in 2026 somewhere in the Austin/San Antonio area.



WFO Lubbock Kaitlin Schueth presenting: **Week From Hail: A Post Event Analysis and Review of Record Sized Hail, Damaging Winds, and Tornadoes**

# NWS Brownsville Meteorologists Participate in the Brownsville-South Padre Island International Airport Annual Tabletop Exercise

By Kirk Caceres

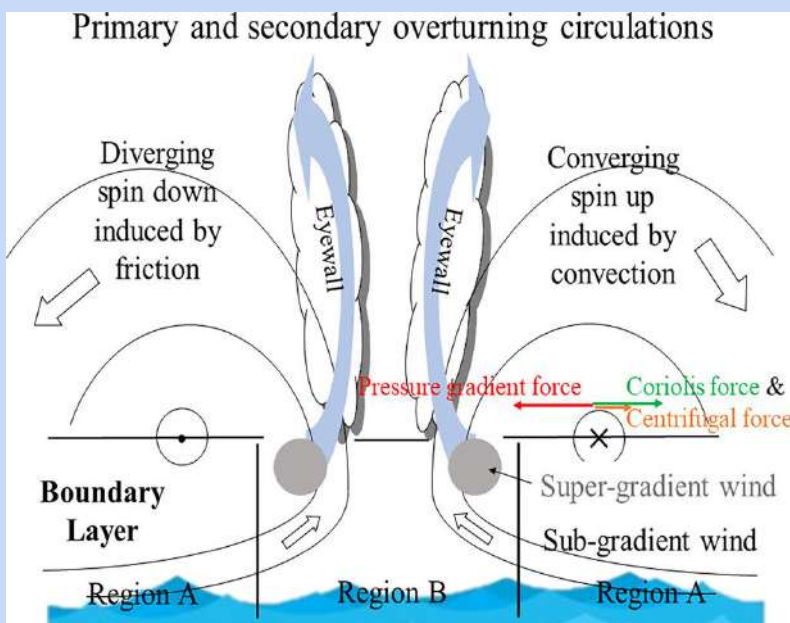
The City of Brownsville, Department of Aviation, conducted their annual Airport Emergency Tabletop Exercise on November 21st, 2024. This required yearly event is where the airport officials review a brief airport incident scenario and discuss their response procedures to a group. The group consisted of airport administration and personnel, first responders, airport tenants, area hospital personnel, members of the US Border Patrol, the Red Cross and the National Weather Service. Kirk Caceres, Meteorologist and Aviation Program Manager, Brian Miller, Senior Meteorologist, and Barry Goldsmith, Warning Coordination Meteorologist attended this event. Kirk Caceres provided a brief weather scenario to the group, where he described what the weather conditions would be like at the airport during the incident scenario. Mario Lopez, Interim OPS/Maintenance Manager hosted this year's Airport Annual Emergency Tabletop Exercise. The annual Airport Emergency Plan and Incident Management process is a federal requirement that must be met to maintain the Airport's Operating Certificate.



## Furthering Hurricane Research

By Jeremy Katz

When I first started by career as a NWS meteorologist here at NWS Brownsville, I was near the end of my Ph.D research. After defending my dissertation, I continued to work with my advisor Dr. Ping Zhu over at Florida International University to rework my dissertation research as article that would be published in research journals. We were fortunate that we could have our research on the Parameterization of Vertical Turbulent Transport in the Inner Core of Tropical Cyclones and Its Impact on Storm Intensification undergo the peer review process and also published as two different articles in the American Meteorological Society's Journal of Atmospheric Sciences. The first article focused on the sensitivity to turbulent mixing length. In this part of the research we showed that not only does the turbulence that empowers a developing storm exits within the boundary layer, but well above it as well. This turbulence is often neglected in traditional boundary layer. However the turbulence schemes that formulated the equations for the turbulent kinetic energy equations are not a closed system. Thus they must be closed using empirically prescribed vertical profile of mixing length. This motivated us to test the sensitivity of of the simulated hurricane intensification to the sloping curvature and asymptomatic length scale of the mixing length. The results this part of the research showed that hurricane intensification was more sensitive to the curvature of the mixing length that it was to the asymptomatic length scale. The second part of the research focused around developing a new diagnostic equation to describe the mean secondary circulation of a hurricane in an unbalanced framework by including the radial eddy forcing. This system became an expanded version of the Sawyer-Eliassen equation, which we would come to call the generalized Sawyer-Eliassen equation. Thanks to this we were able to show that the supergradient component of the radial eddy forcing tends to positively affect the acceleration of the peak tangential wind that would positively affect the the hurricane's intensification process. Links to the articles can be found at: [here for part 1](#) and [here for part 2](#).



A schematic illustration of the interaction among the primary TC vortex, secondary overturning circulation, surface friction, diabatic heating of convection, and turbulent transport in the eyewall during the evolution of a TC vortex.

# NWS Brownsville Staff Witnessed A Historic SpaceX Test Flight

By Rodney Chai

On Sunday, October 13 2024, Science and Operations Officer Rodney Chai and Meteorologist Jeremy Katz woke up early to witness a historic SpaceX test flight that took place just 25 minutes down the road from the office at the Boca Chica, TX launch facility. On-duty forecasters watched the action from the office and shared a video with our social media followers. In a world first, the rocket's "Super Heavy" booster was successfully captured by a giant pair of mechanical arms as it made its way back to the launch tower. On-duty the next day, Rodney and Jeremy went to the launch site to check out the aftermath. NWS Brownsville and SpaceX look to continue deepening our partnership through mutual visits and joint research.



Image 1: Starship rocket launch as seen from Isla Blanca Beach on the morning of Oct 13, 2024



Image 2: The 233 ft tall "Super Heavy" booster captured by the giant mechanical arms at the Space X launch facility in Boca Chica, TX on Oct 14, 2024.





Image 3: Satellite imagery capturing the moment the SpaceX Starship rocket launched from Boca Chica, TX on the morning of Oct 13, 2024.



Image 4: Screen capture of a video taken by NWS Brownsville on-duty forecasters from the office as the Starship rocket blasted off from the SpaceX Boca Chica launch facility on the morning of Oct 13, 2024.

**THE NATIONAL WEATHER SERVICE BROWNSVILLE/RIO GRANDE  
VALLEY**

**20 S Vermillion Ave, Brownsville, TX 78521  
(956) 504-1432**



## **NWS Mission**

**PROVIDE WEATHER, WATER, AND CLIMATE DATA,  
FORECASTS AND WARNINGS FOR THE PROTECTION  
OF LIFE AND PROPERTY AND ENHANCEMENT OF  
THE NATIONAL ECONOMY**

**EDITOR-IN-CHIEF: AMBER MCGINNIS**

**ASSISTANT EDITOR: KIRK CACERES**

### **CONTRIBUTORS**

**MIKE BUCHANAN, RODNEY CHAI, KIRK CACERES, AMBER MCGINNIS,  
JEREMY KATZ, MELISSA MARCELLONI**