



**NATIONAL
WEATHER
SERVICE**

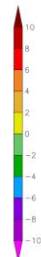
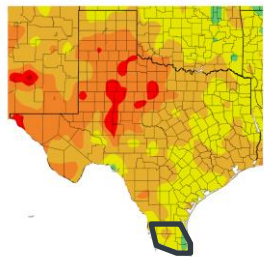
Autumn 2024 Outlook: Perspective for the Lower Rio Grande Valley/Deep S. Texas Region

August 26, 2024

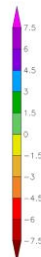
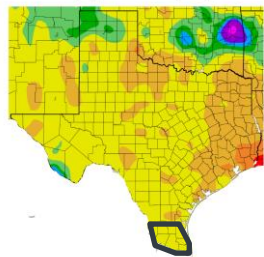
Andrei Evbuoma and Barry Goldsmith
NWS Brownsville/Rio Grande Valley, Texas

After drying out in August, temperatures will continue to lean warmer to at times hotter than normal; dry trends could continue

Departure from Normal Temperature (F)
8/1/2024 – 8/21/2024



Departure from Normal Precipitation (in)
8/1/2024 – 8/21/2024



West of Harlingen (late July)

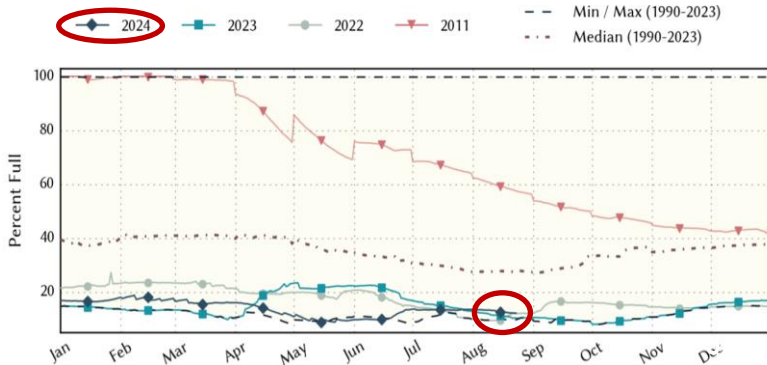


N. Brownsville “flash dry”
(Aug. 26)



August 2024 so far: Increasingly dry; seasonably hot

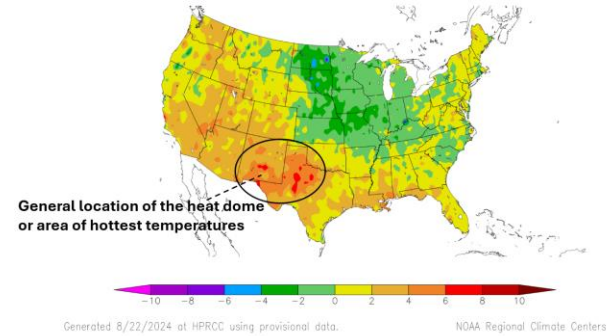
- An **anomalously strong sub-tropical heat dome** established near the U.S. Four Corners Region helped to deflect the rains away, while at the same time, kept the core of the heat away (to our northwest across north-central and West Texas).
- Temperatures were near the 1991-2020 average, while precipitation was slightly below normal. July's monthly rainfall total of 8.98" (**+7.00" above normal**) at Brownsville/South Padre Island International Airport was a night and day contrast to August's (through 26th) monthly rainfall production of 0.84" (**-0.67" below normal**).
- That said, combined shares at the Falcon Reservoir remained near record lows at the end of August at 12.1% (Texas share), on par with 2022 and just above 2023 levels). **Bottom line: More rainfall is needed as we begin to move into the dry season.**



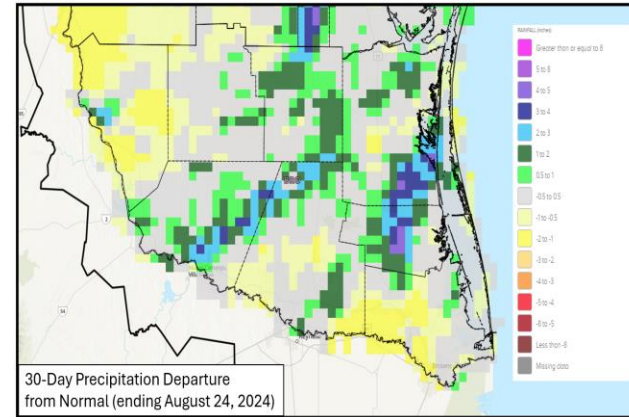
Latest data from the **Rio Grande Reservoirs (Texas Share)** continue to indicate 2024 levels are at or below 30 year lows (and near records. Total values have remained rather steady (slight decrease) as of late.

Image: Texas Water Development Board

Departure from Normal Temperature (F)
8/1/2024 - 8/21/2024



August month-to-date rainfall distribution through the 24th (morning) depicted a **hit or miss (variable) variety**, with **hits being across portions of Willacy and Kenedy Counties**, and **misses being across portions of Cameron and Zapata Counties**. Overall, departures were near normal on either side. (Bottom Image)



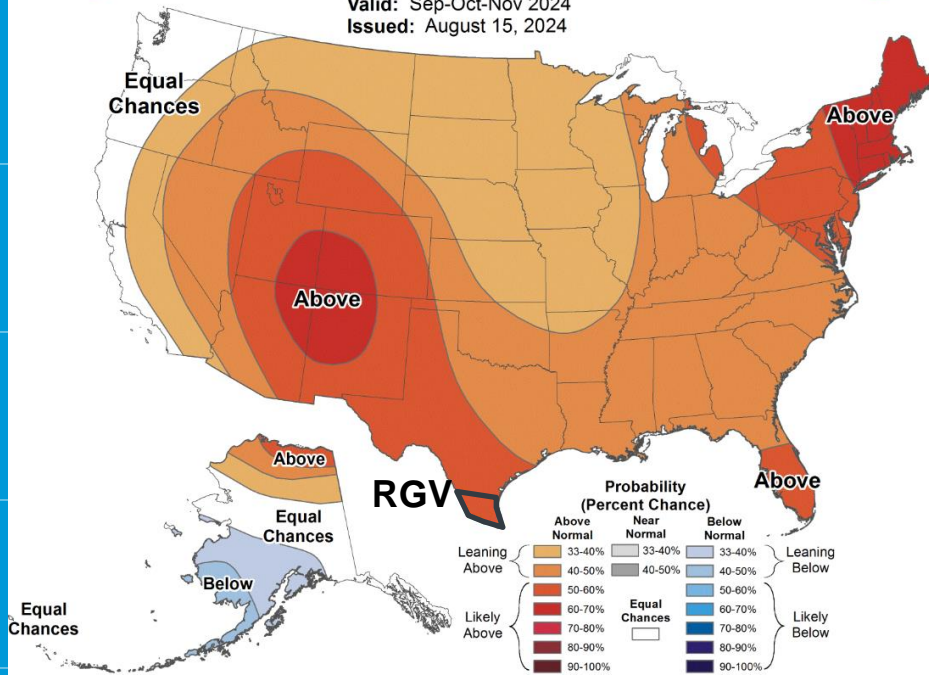
Seasonal Forecast, Autumn (Sept-Nov) 2024, USA



Seasonal Temperature Outlook



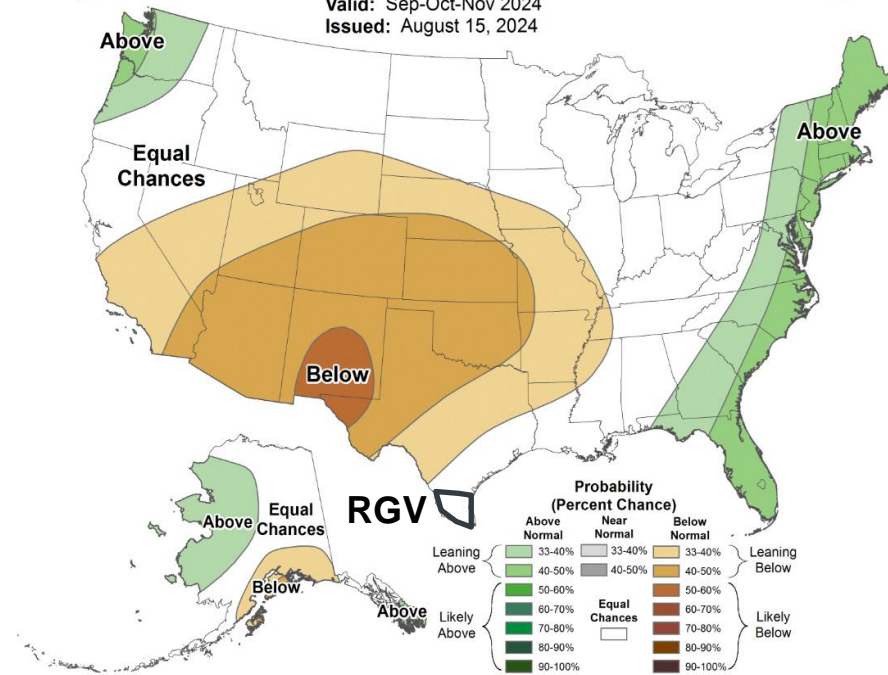
Valid: Sep-Oct-Nov 2024
Issued: August 15, 2024



Seasonal Precipitation Outlook



Valid: Sep-Oct-Nov 2024
Issued: August 15, 2024



Key Takeaways: Autumn 2024 Outlook

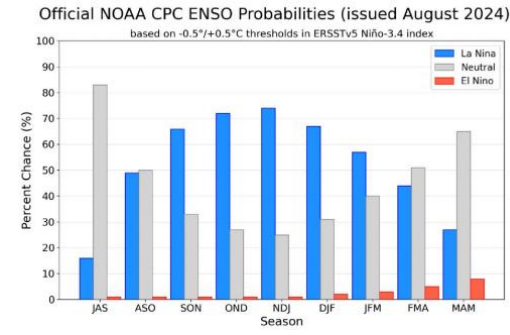
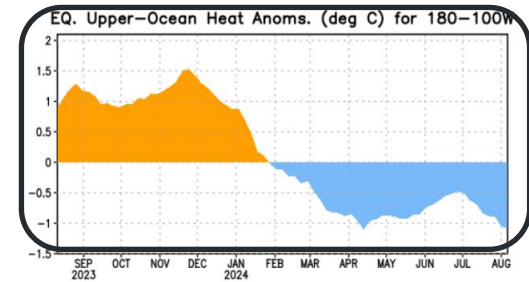
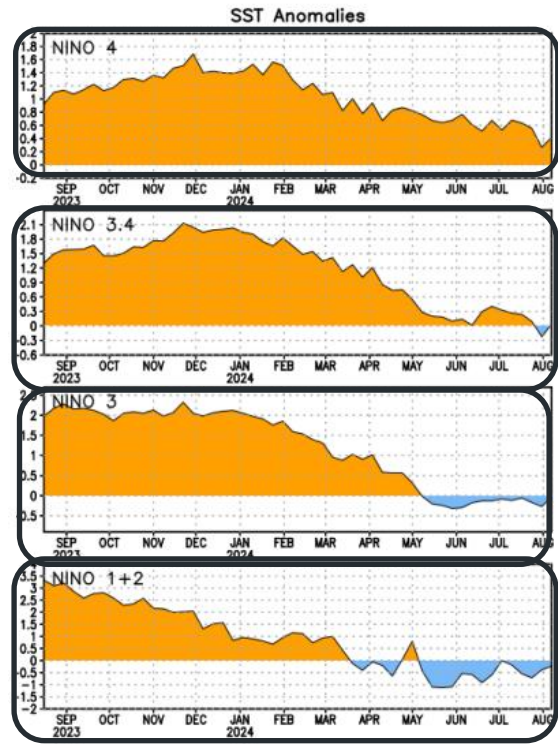
- **Warmer than normal temperatures** are **likely** to persist. There is an equal chance for wetter or drier conditions through the Fall, **though recent forecast trends have shifted towards a drier outlook**. Drought may remain out of the picture through mid-September. **The position of the atmospheric heat dome will continue to be a key player for temperature and critical for precipitation outcomes.**
- Confidence is **medium-high** that **temperatures will run normal to above normal** for the period. Confidence is **low-medium** on precipitation outcome. **Dryness or even moderate drought could develop as early as September, and likely by October.**
- **Amistad and Falcon remained at/near historic lows** on August 26th. Barring torrential rains from slow moving remnants of a tropical cyclone (Atlantic or Pacific based), **confidence is near-certain on total storage remaining at or near record lows through November**. **The clock is ticking...fast...for additional tropical cyclones** to impact the region.
- **Precipitation is a wildcard**. There could be periods of limited rain, and other periods that support wetness via tropical moisture from the Gulf or Caribbean in September. **The door may shut by or just before October 1st**. **Confidence** on precipitation for the season is **low-medium**.
- While 100°F days are still possible into October, the potential for higher rainfall through at least mid-September and the expected **location of the heat dome northeast of Texas**, the final number of such days will fall well short of the **record-breaking levels seen in 2023**. This astronomical summer (June 20 through September 22) year will **not** rival last year's heat...though it will rank in the top 25% of all summers on record.



The “Why” of the Forecast: La Nina remains on track to develop this autumn (Sept-Nov period); heat ridge positioning and tropics are key variables too

Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2021	-1.0	-0.9	-0.8	-0.7	-0.5	-0.4	-0.4	-0.5	-0.7	-0.8	-1.0	-1.0
2022	-1.0	-0.9	-1.0	-1.1	-1.0	-0.9	-0.8	-0.9	-1.0	-1.0	-0.9	-0.8
2023	-0.7	-0.4	-0.1	0.2	0.5	0.8	1.1	1.3	1.6	1.8	1.9	2.0
2024	1.8	1.5	1.1	0.7	0.4	0.2						

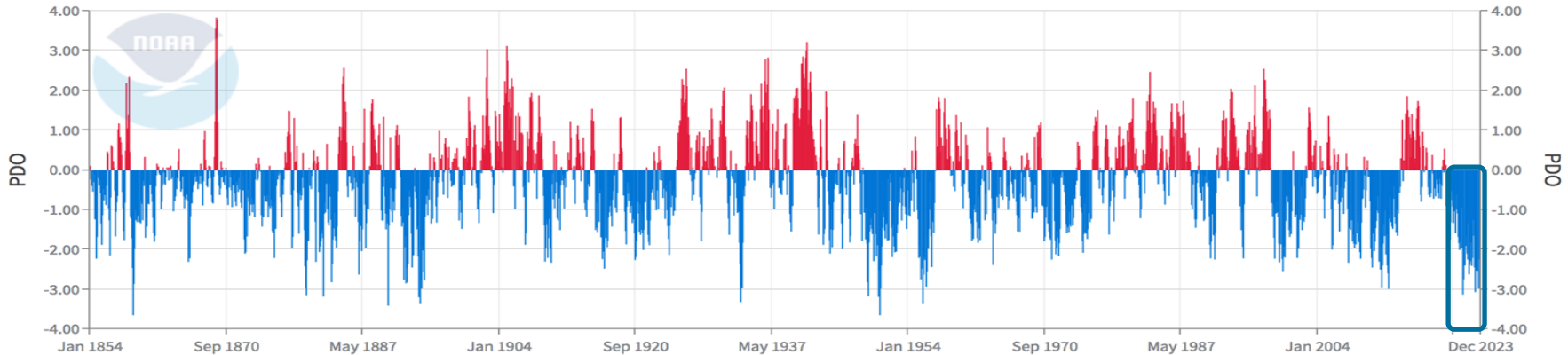
- The continued **transition towards a La Nina** favors mainly near seasonal temperatures (slightly above normal) through September and potentially longer, and potentially a drier trend in the pattern in time through the Fall Season.
- The mid to upper level pattern, specifically the **precise** location of the heat ridge, will play a vital role in the temperature and precipitation outcome this autumn.
- Anthropogenic and non-anthropogenic climate forcings such as a **positive feedback loop** will continue to play a role.
- Cold frontal boundaries** sweeping across Texas will increase beginning in October. Most will be dry, but some could help to ignite showers/storms.



*Above right: Oceanic Niño Index. Values below -0.5 (light blue) for five consecutive 3-month periods indicated La Niña. El Niño (red, +0.5) officially began in April-June 2023, reached strong levels (+1.5) by August-October 2023, strengthened further through November-January, then weakened rapidly through early summer. Neutral conditions arrived for April-June 2024.

The “Why” of the Forecast: Pacific Decadal Oscillation (PDO) remains in Sharp Negative Phase

Pacific Decadal Oscillation (PDO)



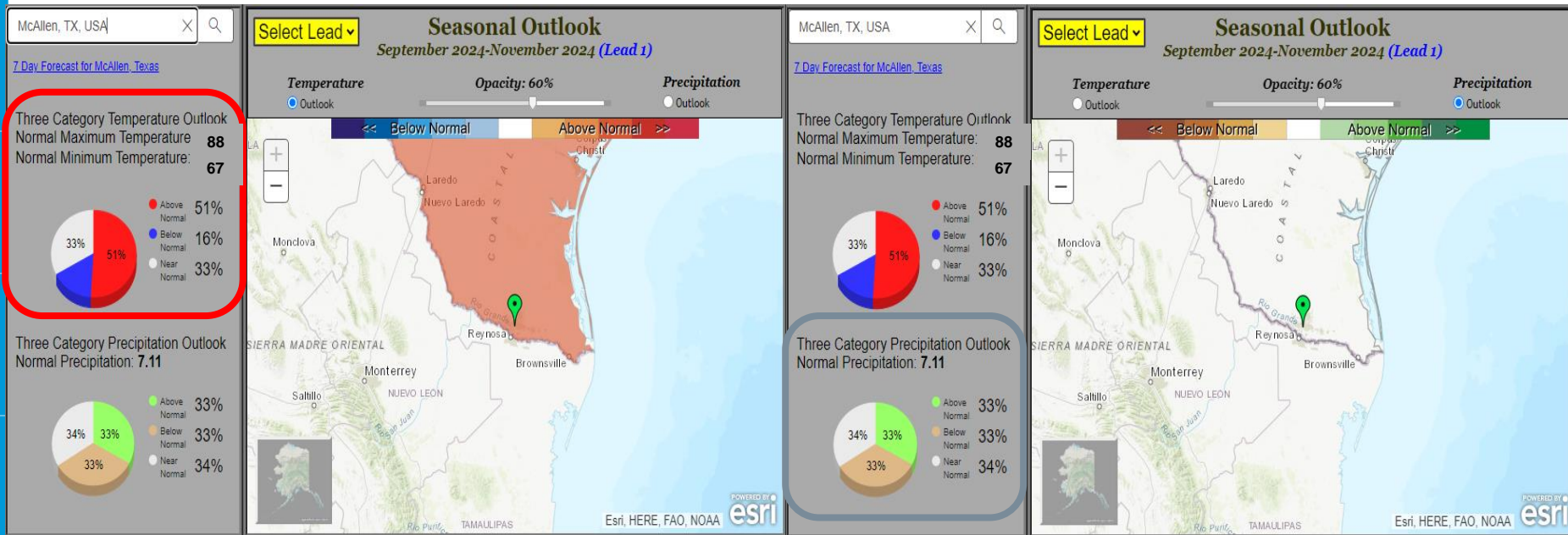
Source: <https://www.ncei.noaa.gov/pub/data/cmb/ersst/v5/index/ersst.v5.pdo.dat>

Powered by ZingChart

- The 2021-2024 **prolonged and strong negative PDO has persisted**, and should remain the case headed into the expected La Niña period. This **increases confidence** for a **developing dry (and warm) condition by mid Autumn (October)**.
- The sharply negative PDO combined with the developing La Niña adds confidence to an increasingly dry (and still warm) forecast as we approach the end of 2024. **Confidence is high** for sharply negative PDO to maintain through the end of the year.



The Autumn 2024 Outlook: Rio Grande Valley (McAllen as Anchor Point)

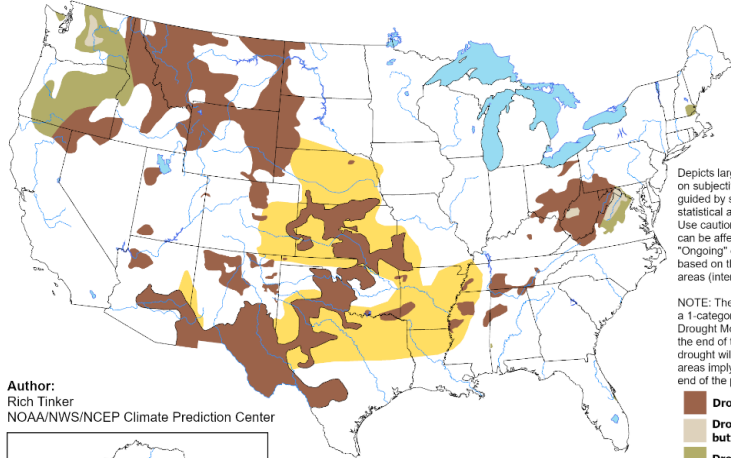


- **Temperature:** A 51 percent chance of above average. A 16 percent chance of below average. (Confidence: Medium-High). RGV averages: Afternoon – Mid to Upper 90s in early September; mid 70s by the end of November. Wake-up: Mid to upper 70s in early September, falling to the 50s by the end of November.
- **Precipitation:** Equal chances for above, below, and average. (Confidence: Low-Medium). RGV averages: 7 to 11.5 inches (most in September).

The August-October 2024 “Droughtlook”

U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for August 15 - November 30, 2024
Released August 15, 2024



Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. *Ongoing* drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

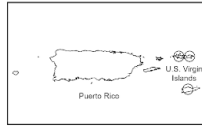
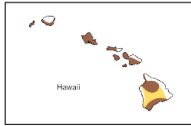
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

- Drought persists
- Drought remains, but improves
- Drought removal likely
- Drought development likely
- No drought

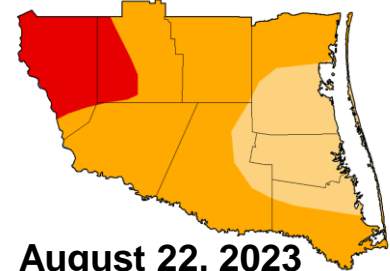


<https://go.usa.gov/3eZ73>

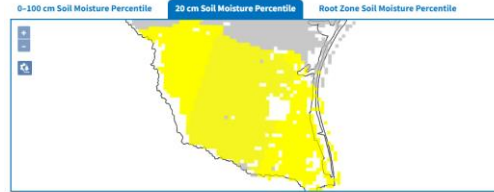
Author:
Rich Tinker
NOAA/NWS/NCEP Climate Prediction Center



August 20, 2024



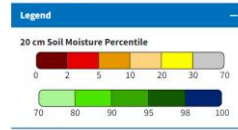
August 22, 2023



This map shows the moisture content of the top 20 cm of soil compared to historical conditions, based on in situ (in the ground) measurements of soil moisture from a wide range of state and federal mesonets across the continental U.S. These data are then interpolated into a 4 km grid.

Red and orange hues indicate drier soils, while greens and blues indicate greater soil moisture.

Sources: NationalSoilMoisture.com



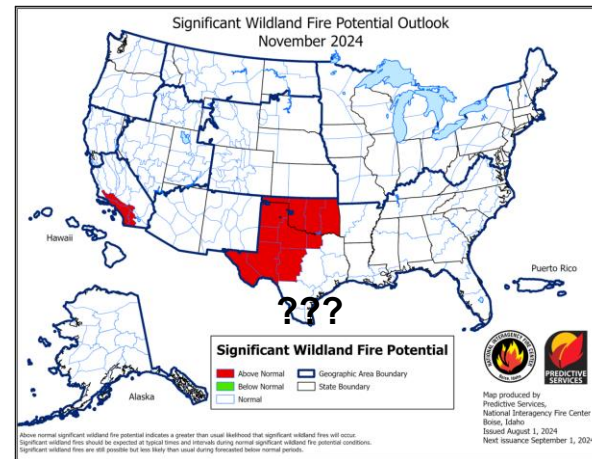
Drought Classification

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data

- **What a difference a year makes! Despite increased dryness over parts of the area, it's a stark difference from last year where the entire area was under a moderate to extreme drought.**
- Latest seasonal outlook is currently not indicating any drought expansion through the autumn. **However, a “flash” dryness developed by August 19-26**, and anything less than occasionally isolated-scattered afternoon September rain would **result in onset of moderate to severe drought beginning in October and worsening in November.**



Wildfire Spread Potential in Check; Will Need to Monitor Trends After Mid September



- **Dry short- and medium-length grasses returned by mid to late August in many locations.**
- By late August, **effective green** was limited – likely only to parts of Willacy, Kenedy, and Brooks. An average to above-average September (rainfall) would return green-up to most of the region. A drier-than-average September would not.
- **October-November conditions are increasingly likely to support increased wildfire spread threat** – and the areas in red above may cover all of south/west Texas. [Flash drought](#) conditions would lead to transitional (green to cured) or perhaps fully-cured conditions of grasses and some brush.





Wildfire Prevention Review

- This may become critical in **October-November** especially if severe drought develops over fuel-loaded areas.
- Continue to focus on **farm, ranch workers, and other persons who might drive hot vehicles** on parched brush on critical/near-critical days – especially low humidity, breezy days following fronts.



Infographics for Wildfire Prevention

Fire Weather SAFETY TIPS

- Be careful to not drag trailer chains that could cause sparks.
- Do not park on dry grass.
- Avoid outdoor burning and check recently burned piles for flare-ups.
- Clear out dead vegetation from around your home.
- Be careful when welding in dry grass.



Consejos de Seguridad Contra Incendios

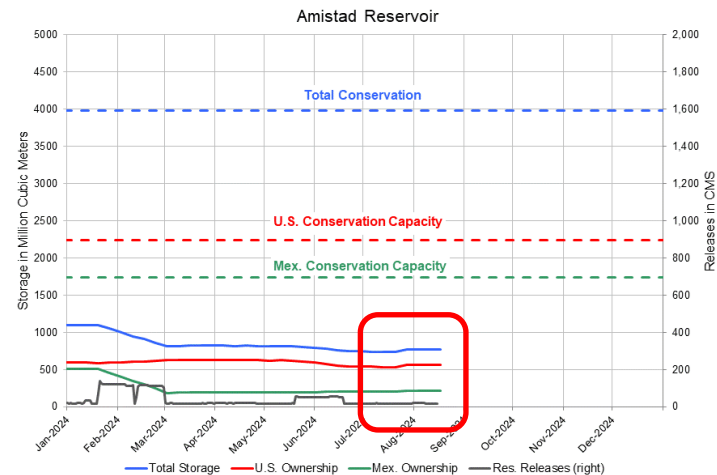
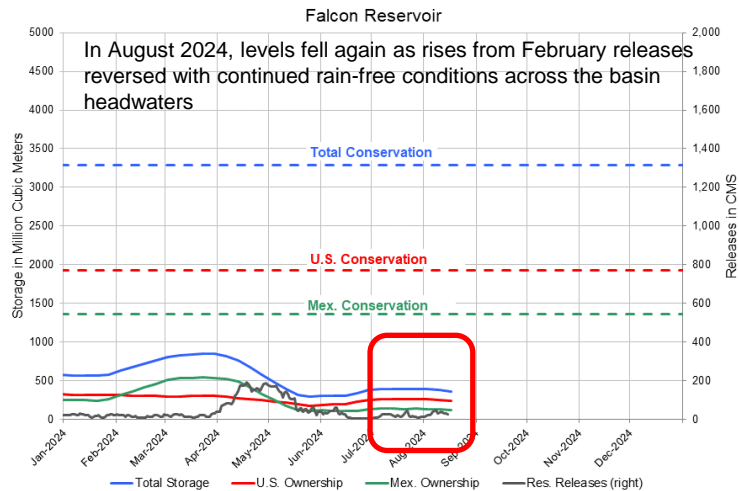
- Tenga cuidado de no arrastrar cadenas de remolque que podrían provocar chispas.
- No se estacione sobre césped seco.
- Evite las quemaduras al aire libre y revise las pilas recientemente quemadas para detectar brotes de fuego.
- Elimine la vegetación muerta alrededor de tu casa.
- Tenga cuidado soldar en hierba seca.



- ~50 in all (20 in Spanish)!
- Thanks to **Texas A&M Forest Service** for Many of These



Amistad and Falcon remained at/near Record Lows Headed into August



Falcon gradually slid through August, ending at around **10.5 percent** (down from **11.8% in late July**). This level is close to prior records. Uncertainty in the September rainfall forecast across inflow regions means that levels may not change much in fact **may continue to slide through October** without a notable tropical cyclone event.

Amistad remained slightly above all-time record lows in late August. Levels were at **19.3% on August 26th** (virtually unchanged from **19.4% on July 27th**). Amistad's recovery is fully dependent on inflow provided by tropical cyclones into the Rio Conchos and other northern Mexican tributaries, as well as monsoon flow along the Rio Grande in the Permian Basin...aided by remnant tropical cyclone torrential rain. Uncertainty in the September-October rainfall forecast across inflow regions means that **levels may not change much through October**— and in fact **may continue to slide through October** — without a notable tropical cyclone event.

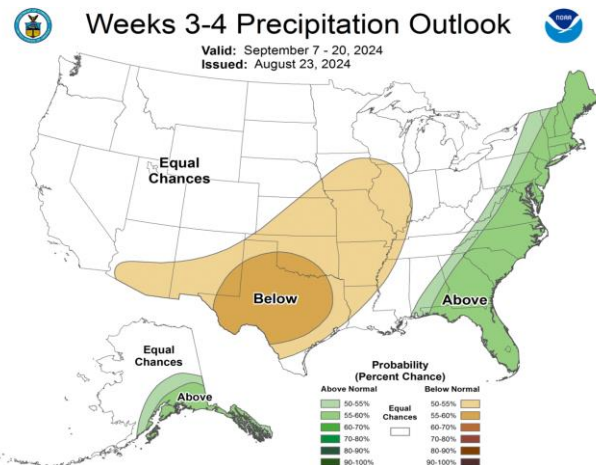
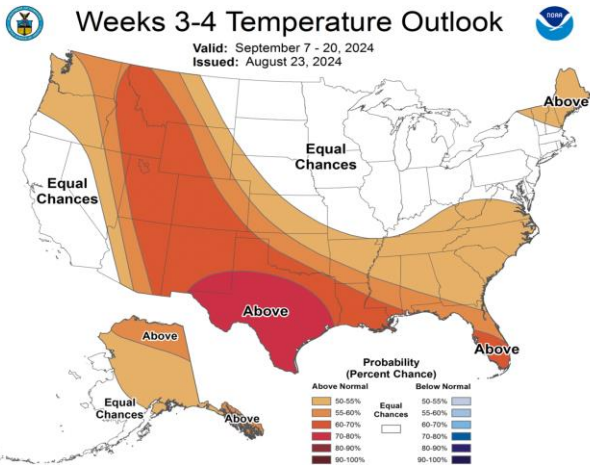
THE CLOCK IS TICKING.

Water Conservation is Key Until Further Notice!

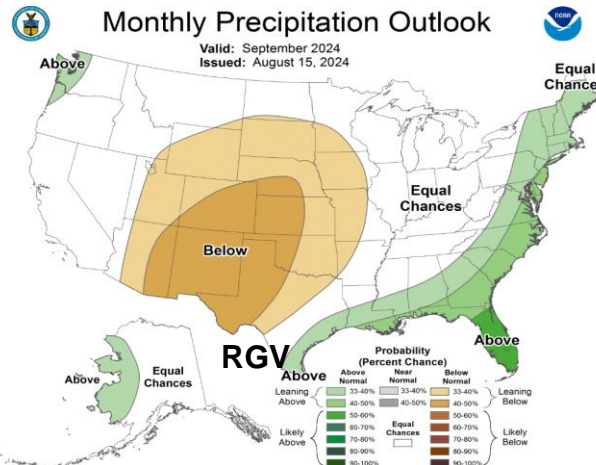
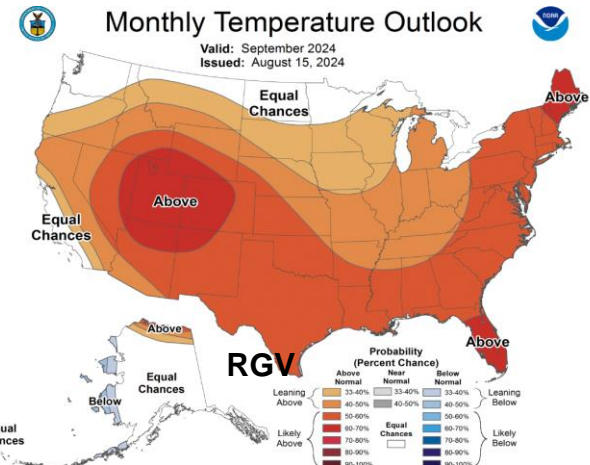
The screenshot displays the Texas Water Development Board (TWDB) website. At the top left is the TWDB logo. A search bar and social media links (Facebook, Twitter, LinkedIn, YouTube, Instagram, RSS) are in the top right. A navigation menu includes Home, Board, Financial Assistance, Water Planning, Groundwater, Surface Water, Flood, Drought, Conservation, Innovative Water, and Data & Apps. The main content area is titled "Water Conservation" and features a carousel of educational materials: "Conservation Education Programs of the TWDB", "Water Exploration", "MAJOR RIVERS: A Water Education Program for Texas", and "Raising Your Water IQ: A Water Conservation Curriculum for Middle School". Below the carousel is a paragraph about the TWDB's mission and a link to the "2017 State Water Plan". To the right is a vertical menu with categories: Best Management Practices, Agriculture, Literature, Resources, Education, Outreach, Municipal, Workshops & Presentations, Conservation Staff, Drought, Rainwater Harvesting, and Water Reuse.

- “Stage 2/3” Restrictions continued through late summer 2024 and are likely to continue **until further notice** based on inflows from Amistad and Falcon.
- Learn more at the [Texas Water Development Board’s Conservation Page](#)

September 2024: Confidence: Medium-High on Temperature, Low-Medium on Rainfall



Medium to long-range forecast models are suggesting the **heat ridge (core of the most intense heat)** to be situated over portions of the western, U.S. (north of our area) through at least mid September. That said, temperatures are still expected to shift **above average** given the close proximity of this feature.

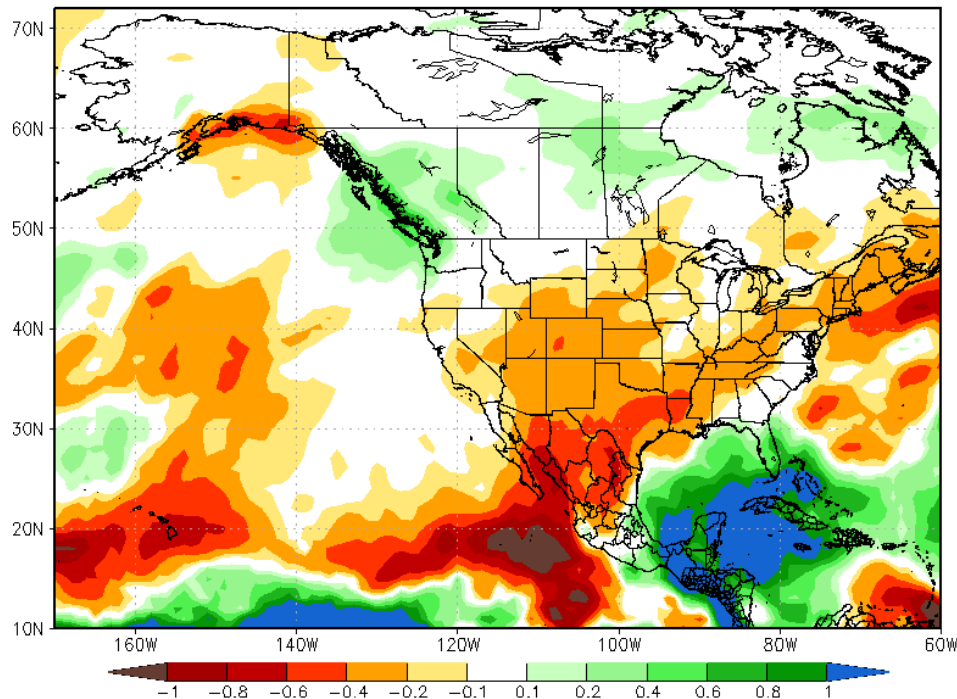


Based off the position of the heat ridge, there could be both dry and wet periods through September. Overall dryness is favored for inflow regions to Amistad, and likely Falcon, International Reservoir.

Early Look: October 2024 – Dry Takes Control?

Potential rainfall rate anomaly, October 2024

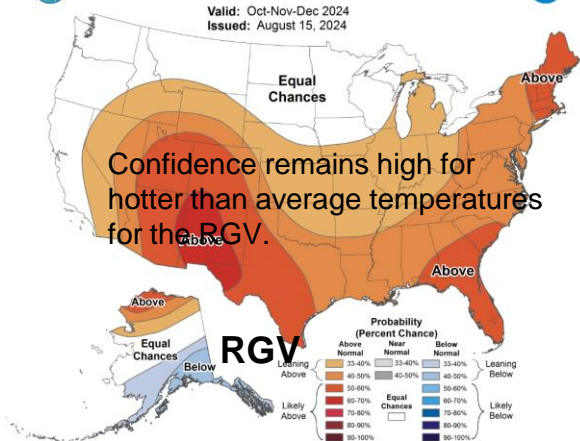
NMME Forecast of Prec. rate Anom IC=202408 for Lead 2 2024Oct



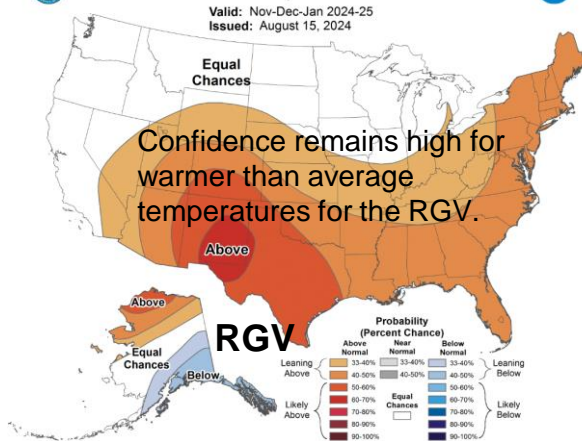
- The National Multi-model Ensemble (NMME) forecast for October suggests a dry pattern (note the orange/red colors). It's worth noting that this time of the year is around the start of our dry season.
- Cold fronts moving into Texas will increase. Most will likely be dry, but there could be some strong ones that could reach the RGV/Deep S. Texas ranchlands and set off quick-moving lines of showers and thunderstorms

Mid-Autumn – Winter 2024/2025: Warmer than Normal Trends to Continue; Drier Trends Dominate

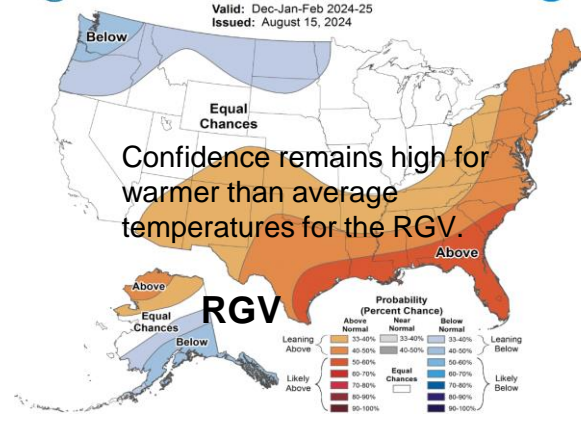
Seasonal Temperature Outlook
Valid: Oct-Nov-Dec 2024
Issued: August 15, 2024



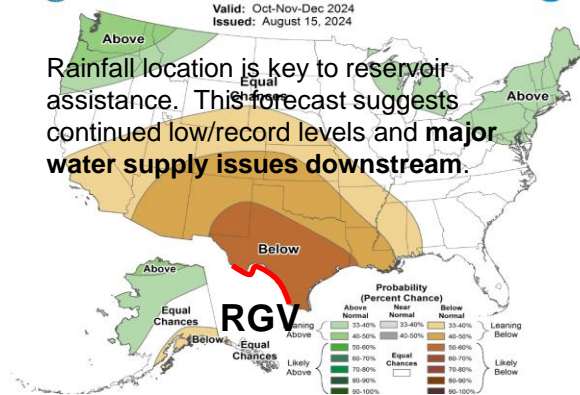
Seasonal Temperature Outlook
Valid: Nov-Dec-Jan 2024-25
Issued: August 15, 2024



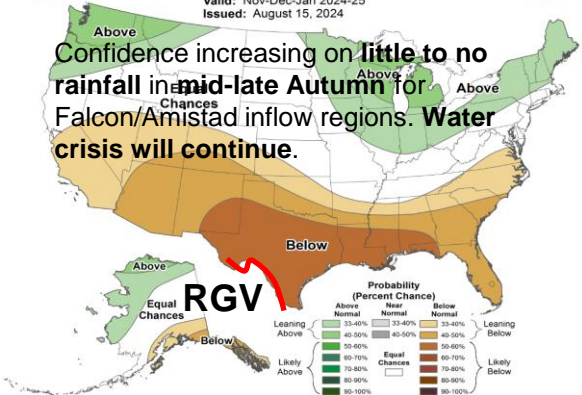
Seasonal Temperature Outlook
Valid: Dec-Jan-Feb 2024-25
Issued: August 15, 2024



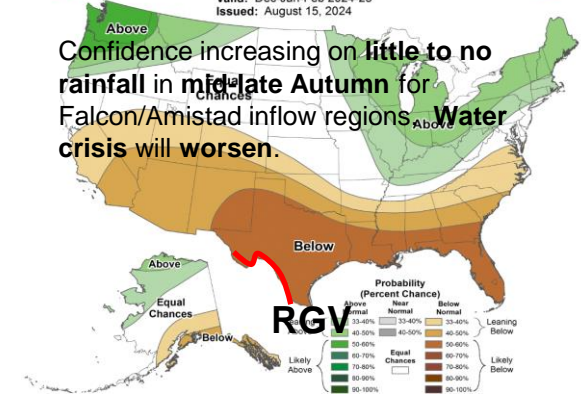
Seasonal Precipitation Outlook
Valid: Oct-Nov-Dec 2024
Issued: August 15, 2024



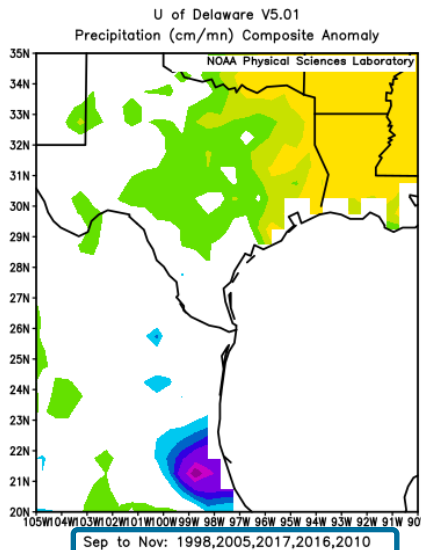
Seasonal Precipitation Outlook
Valid: Nov-Dec-Jan 2024-25
Issued: August 15, 2024



Seasonal Precipitation Outlook
Valid: Dec-Jan-Feb 2024-25
Issued: August 15, 2024

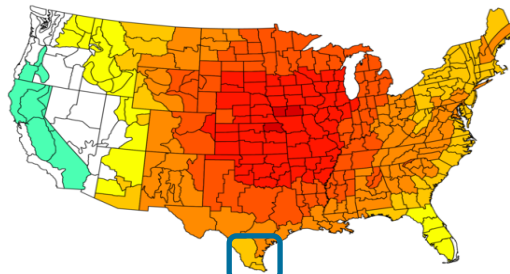


Comparing Similar El Niño to La Niña Episodes within the last 30 years; Autumn Periods



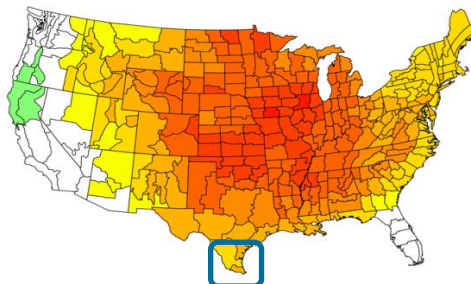
Composite departure from average rainfall for years of similar El Niño to La Niña transition episodes in the September-November window.

NOAA/NCEI Climate Division Composite Temperature Anomalies (F)
Sep to Nov 1998,2005,2016,2017,2010
Versus 1991-2020 Longterm Average



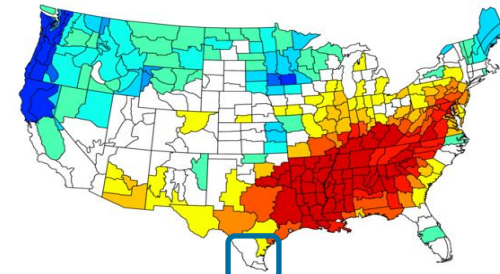
NOAA PSL and CIRES-CU
-3.0 -2.0 -1.0 0.0 1.0 2.0 3.0

NOAA/NCEI Climate Division Composite Temperature Anomalies (F)
Sep to Nov 2016,2010
Versus 1991-2020 Longterm Average



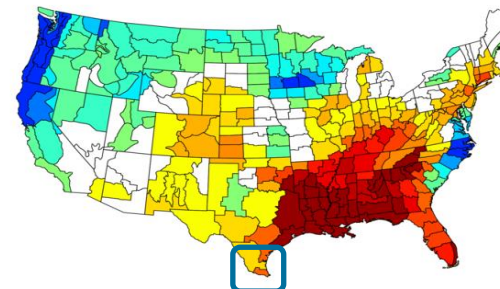
NOAA PSL and CIRES-CU
-5.0 -4.0 -3.0 -2.0 -1.0 0.0 1.0 2.0 3.0 4.0 5.0

NOAA/NCEI Climate Division Composite Precipitation Anomalies (in)
Sep to Nov 1998,2005,2016,2017,2010
Versus 1991-2020 Longterm Average



NOAA PSL and CIRES-CU
-3.0 -2.0 -1.0 0.0 1.0 2.0 3.0

NOAA/NCEI Climate Division Composite Precipitation Anomalies (in)
Sep to Nov 2016,2010
Versus 1991-2020 Longterm Average



NOAA PSL and CIRES-CU
-5.0 -4.0 -3.0 -2.0 -1.0 0.0 1.0 2.0 3.0 4.0 5.0

- **Top:** Composite temperature (left) and precipitation (right) anomalies for similar El Niño to La Niña transition episodes leading into September-November, since 1950.
- **Bottom:** Same, except for most recent cases (2009/10 and 2015/16).



Bottom Lines

- Normal to **slightly hotter than normal conditions may occur through mid-October**. Unlike 2023, dangerous heat should be limited. Residents should **remain prepared for heat safety** at times through mid-October.
- Sufficient inflows from Mexican and International reservoirs serving the Lower Rio Grande watershed remain unlikely. The **combined share of water in Amistad and Falcon will likely to continue well below Stage 2 and 3 triggers (25% or less) until further notice**. Water conservation, smart irrigation, and rainwater harvesting are **critical actions to continue**. Slow moving remnants of one or more **tropical cyclones** over the headwaters is **the only hope for improvement...but the clock is rapidly ticking down on this potential**.
- Saharan Dust off Africa has been a limiting factor for tropical cyclones this season. We'll continue to keep any eye out for any opportunities through September. **The clock is ticking down** for any direct/nearby strikes.
- Additional opportunities from upper level disturbances moving from the tropics across the RGV/Deep S. Texas region are possible through mid-September. **Locally torrential rains can quickly become flash floods in the RGV. Be ready!!** Continue to assess any flood plans, including flood-proofing your home and **frequently clearing drainage ditches, canals, and culverts**.
- Fuel, in the form of grasses and brush may **“re-load up” based on expected rainfall through mid-September**. A period of “flash dry” in October, if combined with heat, **could quickly turn that fuel into “tinder” for rapid wildfire growth** as early as mid to late October. Farmers/ranchers should be ready to **implement wildfire safety rules**.