



**NATIONAL
WEATHER
SERVICE**

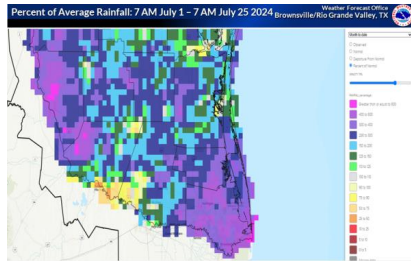
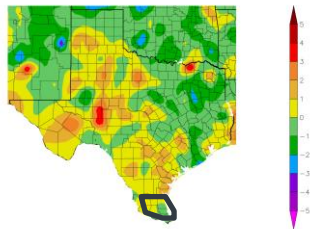
August to October 2024 Outlook: Perspective for the Lower Rio Grande Valley/Deep S. Texas Region

July 28, 2024

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

Late June-July Rainfall Keeps Drought Away and Normalizes Temperatures;
How Long Will It Continue?

Departure from Normal Temperature (F)
7/1/2024 - 7/24/2024



- In General, 150 to 300 percent of average through July 25
- Highest percentages: Zapata/western Starr and Cameron (300-600 percent)

Generated 7/25/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

NOAA Weather Service

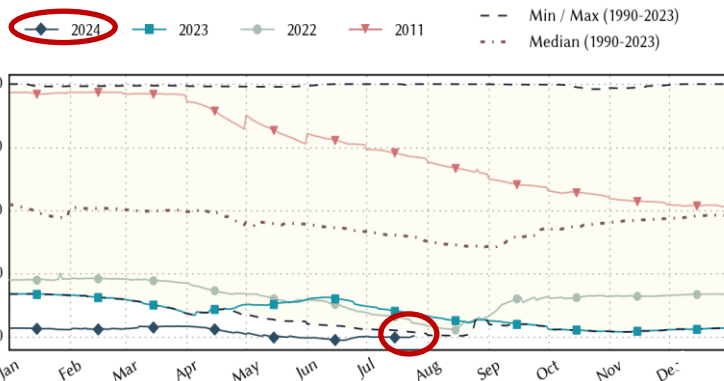


NATIONAL WEATHER SERVICE



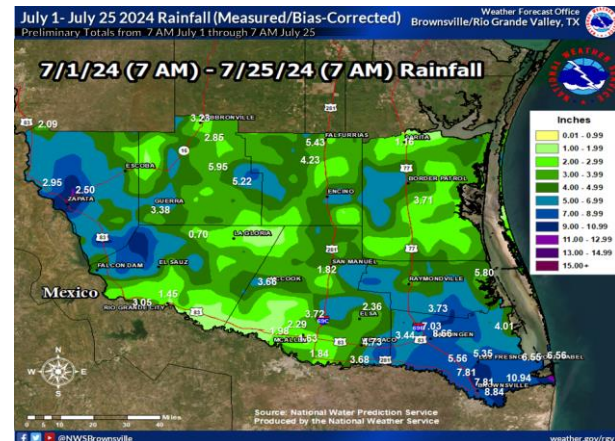
July 2024: Beryl Misses, but Late July “Hits” With Rainfall

- Tropical Storm Beryl offered a glimmer of wet hope in early July before veering away, leaving the region and reservoir region (mostly) dry.
- The same “gap” between upper level high pressure along the east and west coast allowed general upper level low pressure to provide the lift for beneficial rainfall toward month’s end – during a period that is typically dry.
- Unfortunately, with one small exception (July 23), inflow regions to Falcon and Amistad saw little helpful rains. Combined shares remained at or near record lows at the end of July. Much more rainfall is needed – with a tropical cyclone the only hope.

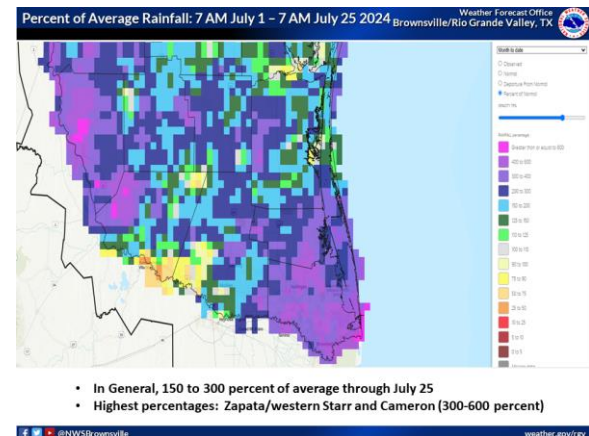


Latest data from the **Rio Grande Reservoirs (Texas Share)** continue to indicate 2024 levels are at or below 30 year lows (and at or near records). Total values showed a slight uptick after July 23, courtesy of a brief rise in Amistad.

Image: Texas Water Development Board



July month-to-date rainfall through the 25th (morning) indicated a wide range of rainfall, from 1 to 3 inches in pockets of the mid/upper Valley to 4 to 8+ inches in Cameron and Zapata Co. Lowest amounts over our northwestern sections.





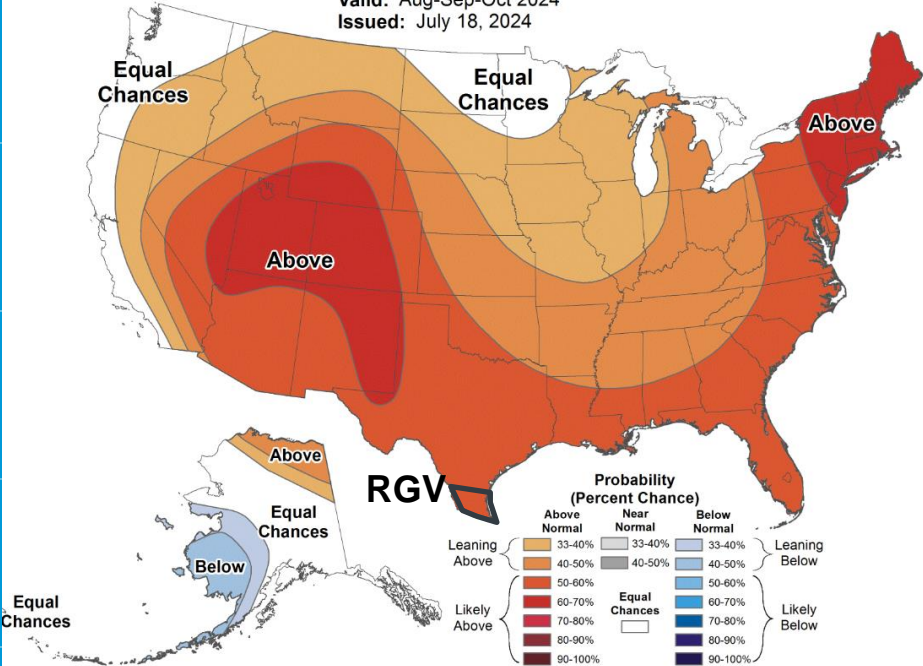
Seasonal Forecast, August – October 2024 USA



Seasonal Temperature Outlook



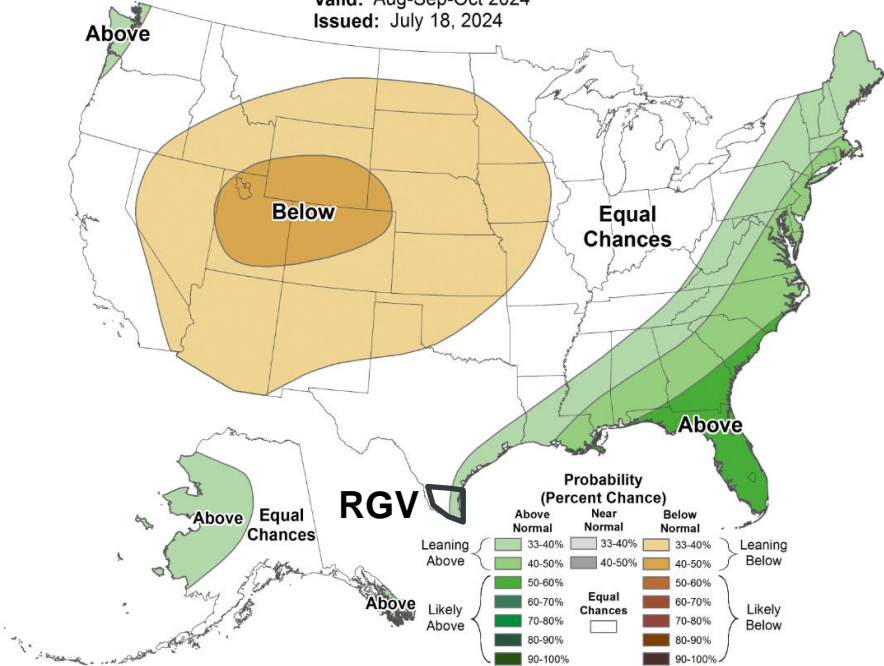
Valid: Aug-Sep-Oct 2024
Issued: July 18, 2024



Seasonal Precipitation Outlook



Valid: Aug-Sep-Oct 2024
Issued: July 18, 2024



Key Takeaways: August-October 2024 Outlook

Hotter than normal temperatures are likely to resume sometime in August, and peak in September and October. There is a **slight lean to a wetter than average** conditions, favoring August through mid September. **The position of the heat dome this summer will be key, as it will need to shift from the middle of the U.S. south into Texas/northern Mexico.** Tropics will also be key and a wildcard this season, through mid September. Drought should remain out of the picture into mid September.

- Confidence is **medium** that **temperatures will run hotter than normal** for the period, and will depend on trends in September and October. The heat dome may shift toward the area in September and October. **Dryness or even moderate drought could develop in October.**
- Medium and long-range weather models are showing the **core of the heat to be located north of the RGV/Deep South Texas Ranchlands** - over the south-central and central U.S. with occasional visits to parts of the western and eastern U.S. through at least mid August. This pattern would favor persistent east to southeast steering flow, with the potential for sea breeze showers/storms or **more coverage of rain, should upper level disturbances join the flow.**
- Despite the beneficial rains across the Valley, Amistad and Falcon had yet to see necessary rainfall to pull values above near-record lows. heaviest. Falcon and Amistad remained **at or near historic lows at the end of July.** 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 October.**
- While 100° days are likely during the period, the combination of late July and expected August-mid September rainfall and a near normal atmospheric profile, as well as the **north and northeast location of the heat dome**, the final number of such days will fall far short of the record-breaking levels seen in 2023. This year will **not** rival last year's heat!
- Dependency on tropical systems remains critical for the reservoir areas**; no longer as critical for the rest of the region through at least mid September given rainfall between 100 and 300 percent of average from mid-June through late July, and July temperatures closer to long-term averages.

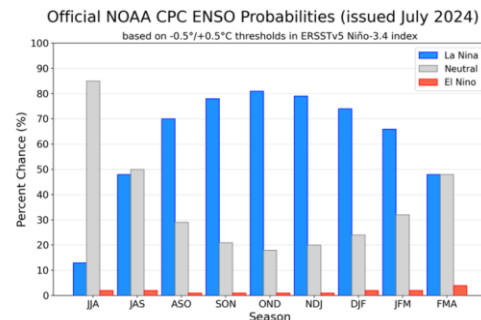
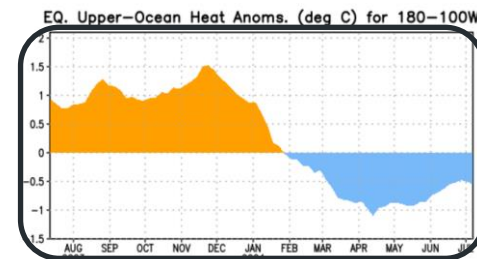
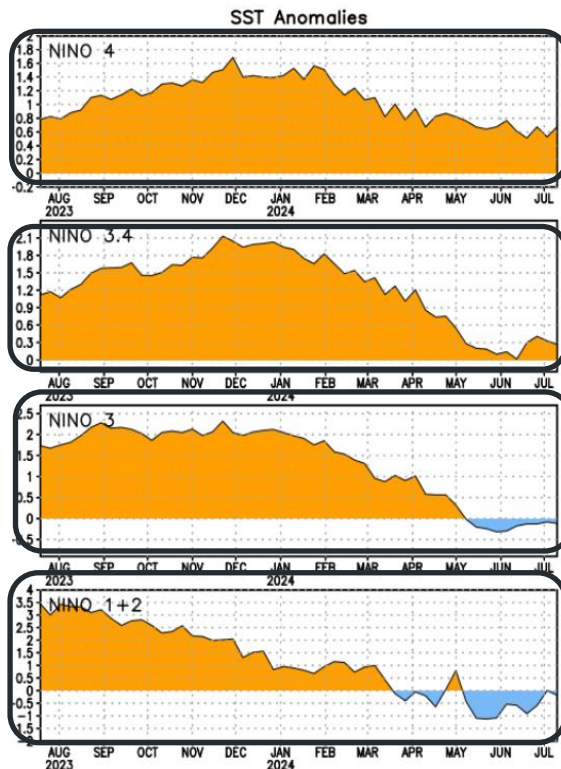


The “Why” of the Forecast: La Nina remains on track to develop this Summer; heat ridge positioning and tropics are key variables too

- The continued rapid **transition towards a La Nina** favors seasonal conditions through August and potentially hotter than average thereafter.
- Precipitation trends** through the summer season is a **wildcard** and will depend largely on the position of the heat dome, any waves on the south side of it, and any direct/nearby tropical activity.
- Precise position of the heat ridge is key in where the most intense heat resides and whether or not it encourages or inhibits tropical development. **Very important through mid September.**
- Anthropogenic and non-anthropogenic climate forcings such as a **positive feedback loop** of a **very warm/hot and dry weather regime** will also play a role.

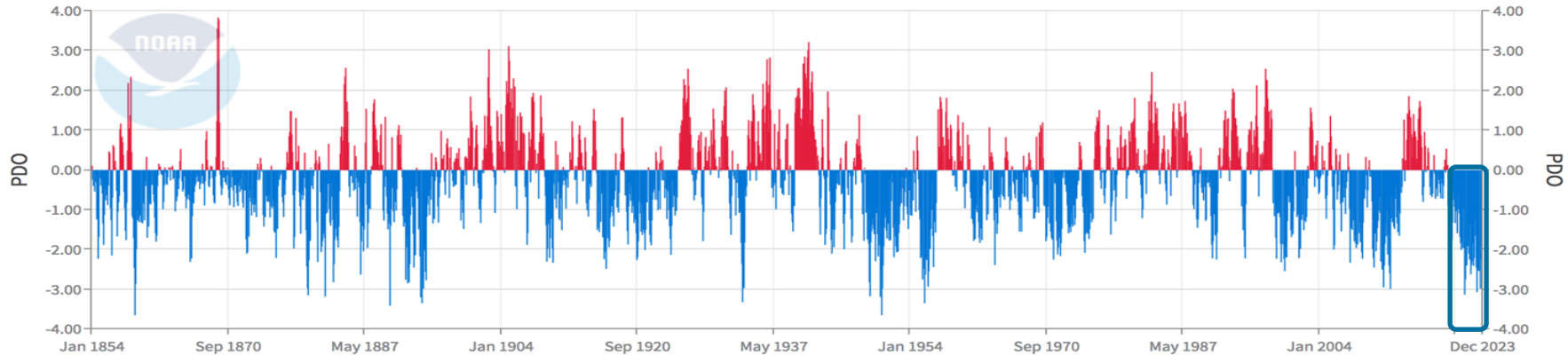
*Above right: Oceanic Niño Index. Values below -0.5 (light blue) for five consecutive 3-month periods indicated La Niña. El Niño (red, +0.5) officially began in April-June 2023, reached strong levels (+1.5) by August-October 2023, strengthened further through November-January, then weakened rapidly through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

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							



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

Pacific Decadal Oscillation (PDO)



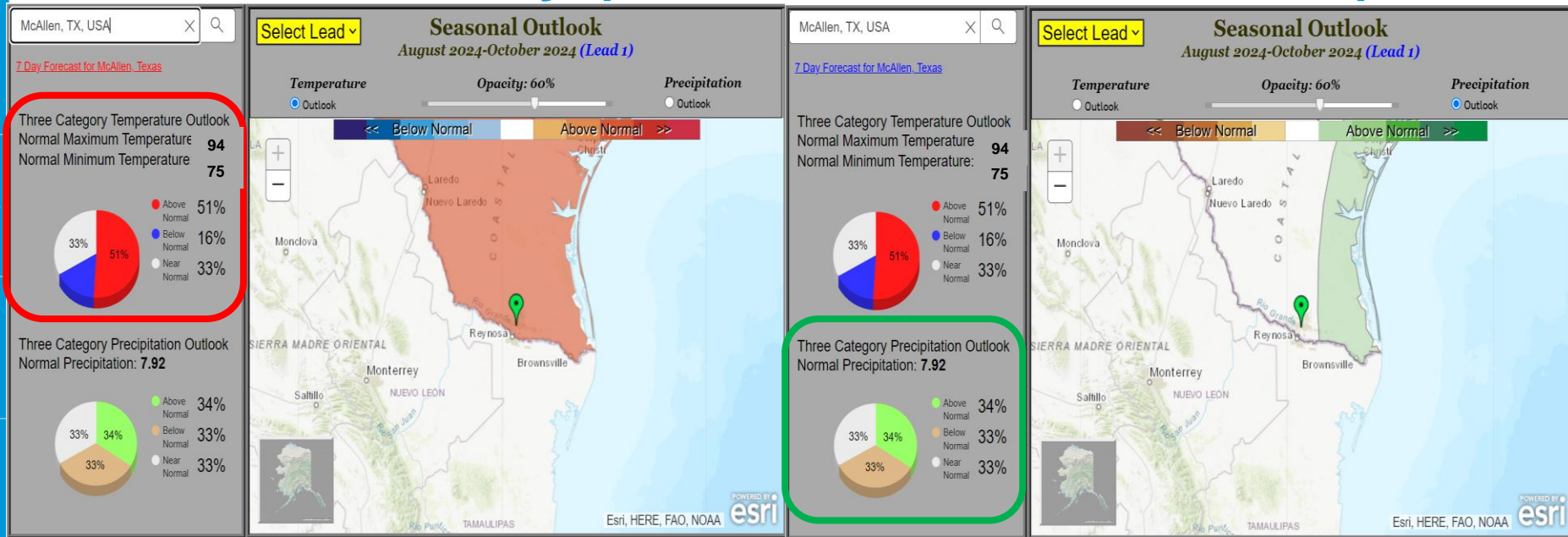
Source: <https://www.ncei.noaa.gov/pub/data/cmb/ersst/v5/index/ersst.v5.pdo.dat>

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 to hot) 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 August-October 2024 Outlook: Rio Grande Valley (McAllen as Anchor Point)

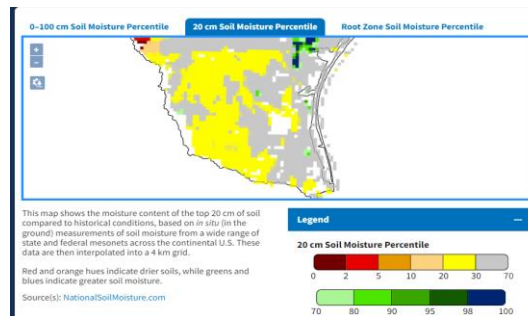
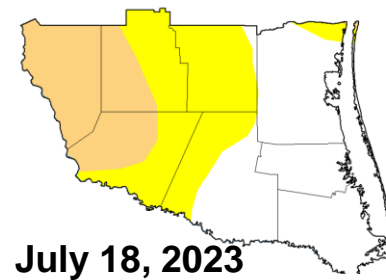
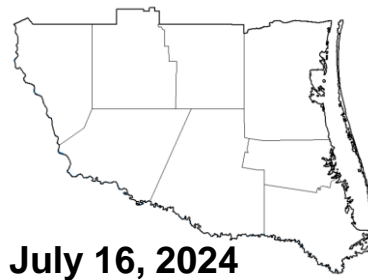
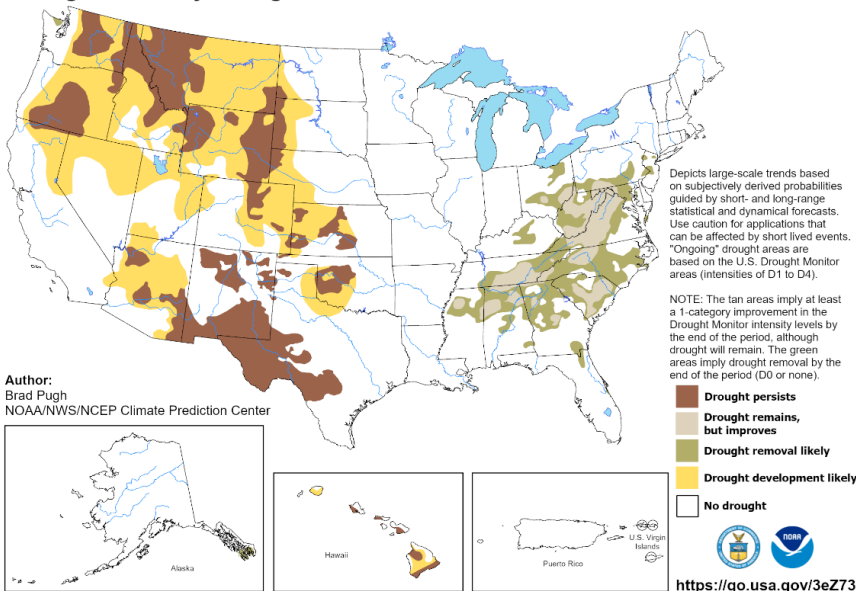


- **Temperature:** Hotter than normal temperatures likely August-October (Confidence: Medium-High). RGV averages: Afternoon – Upper 90s to lower 100s through early September; 85 by the end of October. Wake-up: 77 to 80 through early September, 60 to 65 by end of October.
- **Precipitation:** Equal chances for above, below, and average. Slight lean for above average precipitation lower Valley. 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 July 18 - October 31, 2024
Released July 18, 2024



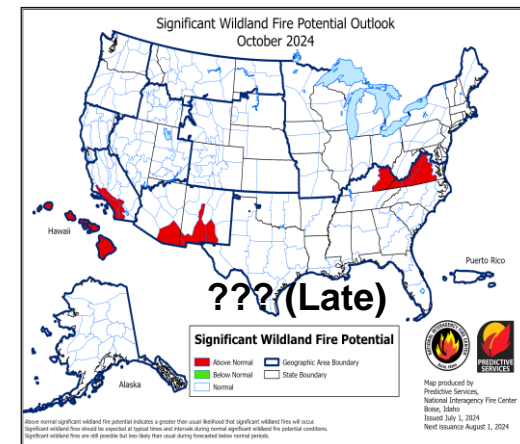
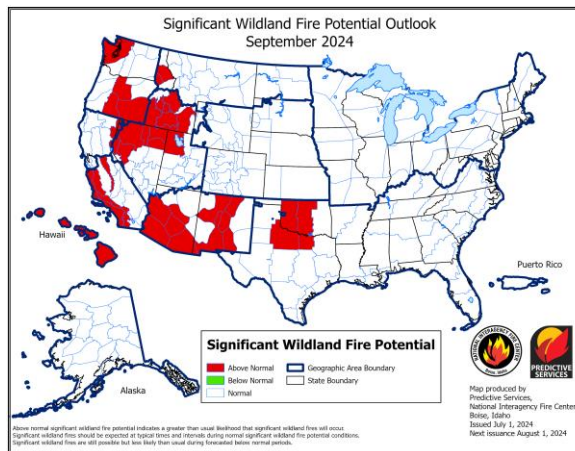
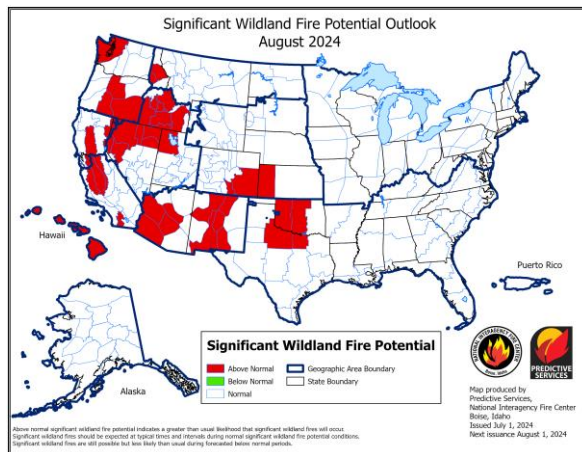
Drought Classification



- Rainfall Associated with a persistent upper level disturbance along the Texas/Mexico coast in late July increased saturation levels across the region.** 4 inch soil moisture had not shown the response on this image, but the response was underway (July 25).
- A modestly wet August (slide 13) **would keep drought/dryness away and maintain average to above average soil moisture conditions.**
- After mid September, dryness, drought, and soil moisture will **depend on when rains end and lower humidity arrives.**



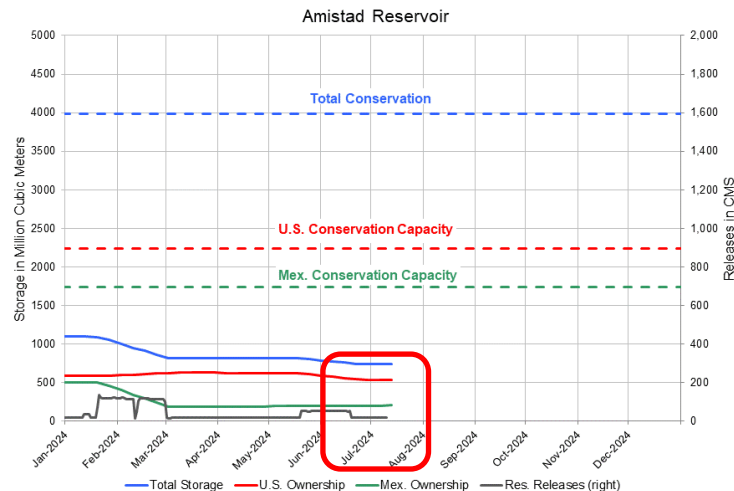
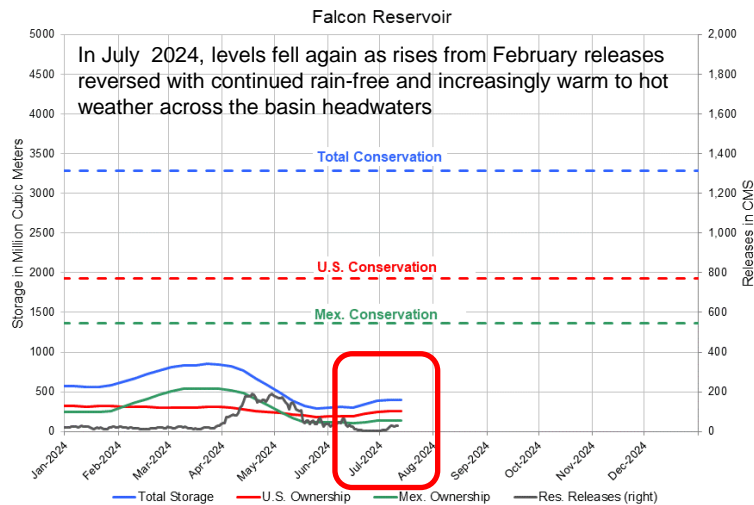
Wildfire Spread Potential in Check; Will Need to Monitor Trends After Mid September



- **Effective Green** was present across all of Deep South Texas and the Rio Grande Valley in late July.
- **Effective Green** was likely to continue through August into mid September.
- **October conditions were somewhat uncertain**, and will depend on if rain ends, heat remains, and humidity falls. Rapid “flash drought” conditions would lead to transitional (green to cured) conditions.

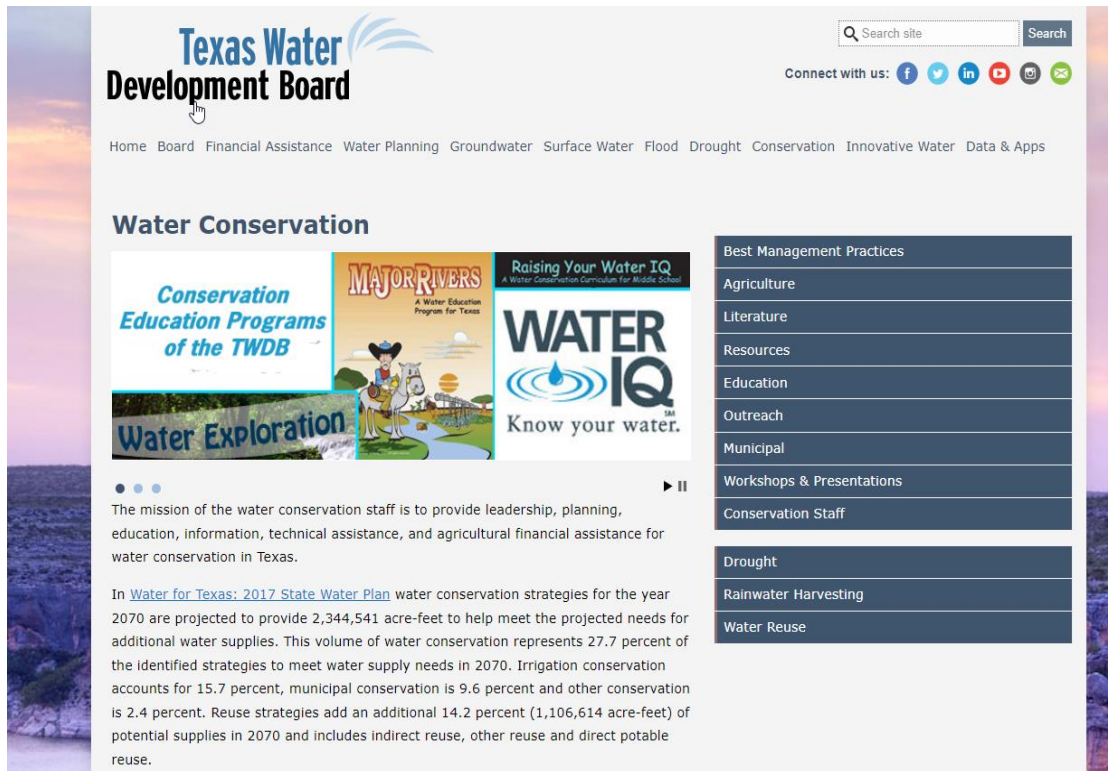
Herbaceous Green/Curing Map for
Texas (May 3rd)

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



- Falcon was largely steady through July, ending around **11.8 percent** (slightly up from **11.6% in late June**). This level was just a few ticks above prior records. Uncertainty in the August-September rainfall forecast across inflow regions means that **levels may not change much through September** – then **potentially drop again headed into October** – without a notable tropical cyclone remnant event.
- Amistad nudged above **all-time record lows in late July** but was still near them. Levels were at **19.3% on July 25th**, just a touch above **18.7% on June 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 August-September rainfall forecast across inflow regions means that **levels may not change much through September** – then **potentially drop again headed into October** – without a notable tropical cyclone remnant event.

Water Conservation is Key Until Further Notice!



The screenshot shows the Texas Water Development Board (TWDB) website. The header includes the TWDB logo, a search bar, and social media links. The main navigation menu lists: Home, Board, Financial Assistance, Water Planning, Groundwater, Surface Water, Flood, Drought, Conservation, Innovative Water, and Data & Apps. The 'Water Conservation' section is highlighted, featuring three educational programs: 'Conservation Education Programs of the TWDB', 'MAJOR RIVERS A Water Education Program for Texas', and 'Raising Your Water IQ A Water Conservation Curriculum for Middle School'. Below these, there is a 'Water Exploration' video player. To the right, a sidebar lists various resources: Best Management Practices, Agriculture, Literature, Resources, Education, Outreach, Municipal, Workshops & Presentations, Conservation Staff, Drought, Rainwater Harvesting, and Water Reuse. The main content area includes a paragraph about the mission of the water conservation staff and a link to the 'Water for Texas: 2017 State Water Plan'.

Texas Water Development Board

Home Board Financial Assistance Water Planning Groundwater Surface Water Flood Drought Conservation Innovative Water Data & Apps

Water Conservation

Conservation Education Programs of the TWDB

MAJOR RIVERS
A Water Education Program for Texas

Raising Your Water IQ
A Water Conservation Curriculum for Middle School

WATER IQ
Know your water.

Water Exploration

The mission of the water conservation staff is to provide leadership, planning, education, information, technical assistance, and agricultural financial assistance for water conservation in Texas.

In [Water for Texas: 2017 State Water Plan](#) water conservation strategies for the year 2070 are projected to provide 2,344,541 acre-feet to help meet the projected needs for additional water supplies. This volume of water conservation represents 27.7 percent of the identified strategies to meet water supply needs in 2070. Irrigation conservation accounts for 15.7 percent, municipal conservation is 9.6 percent and other conservation is 2.4 percent. Reuse strategies add an additional 14.2 percent (1,106,614 acre-feet) of potential supplies in 2070 and includes indirect reuse, other reuse and direct potable reuse.

Best Management Practices

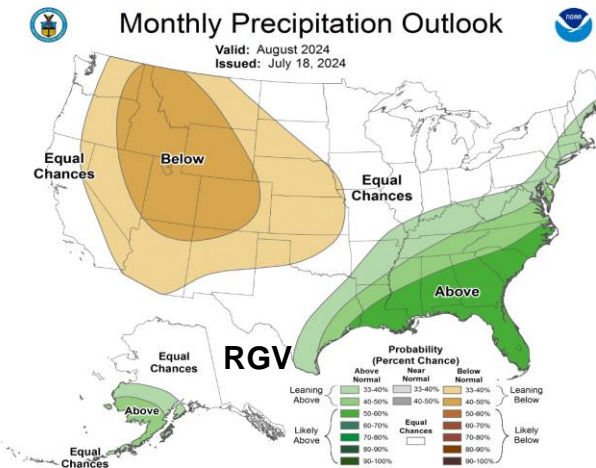
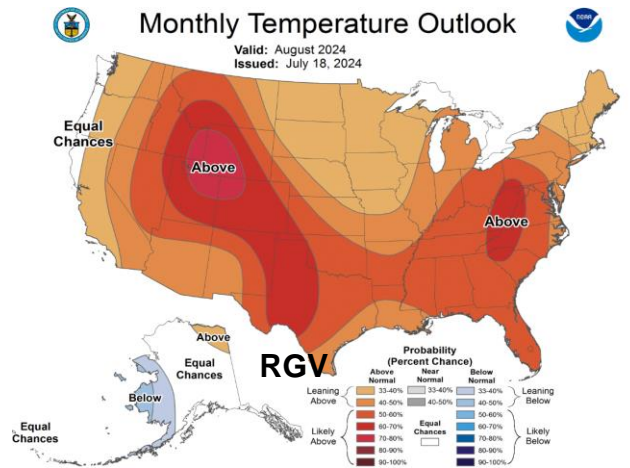
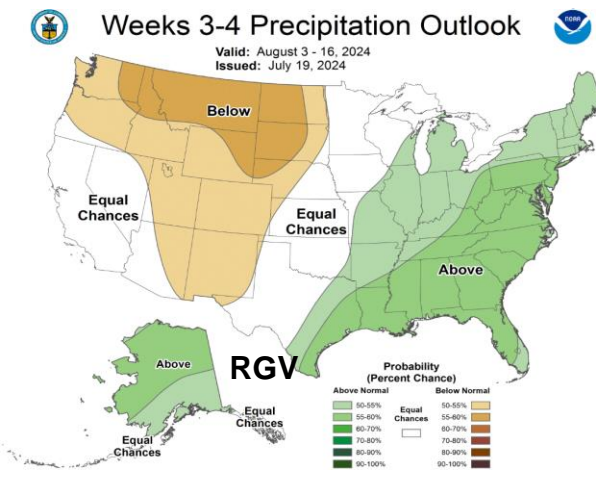
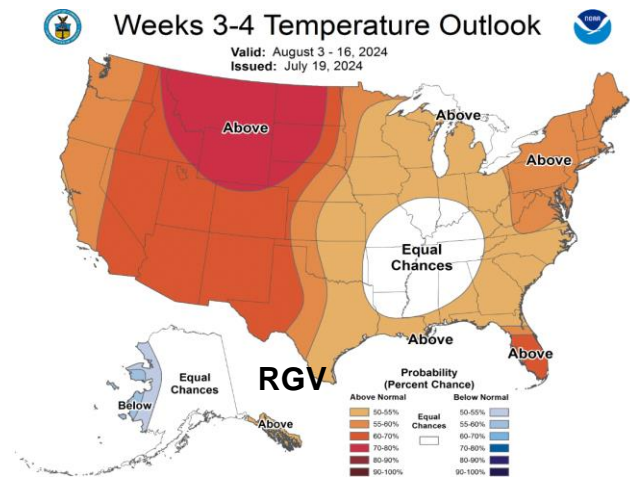
- Agriculture
- Literature
- Resources
- Education
- Outreach
- Municipal
- Workshops & Presentations
- Conservation Staff

Drought

- Rainwater Harvesting
- Water Reuse

- “Stage 2/3” Restrictions continued through mid 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](#)

August 2024: Confidence: Medium on Rainfall and Temperature



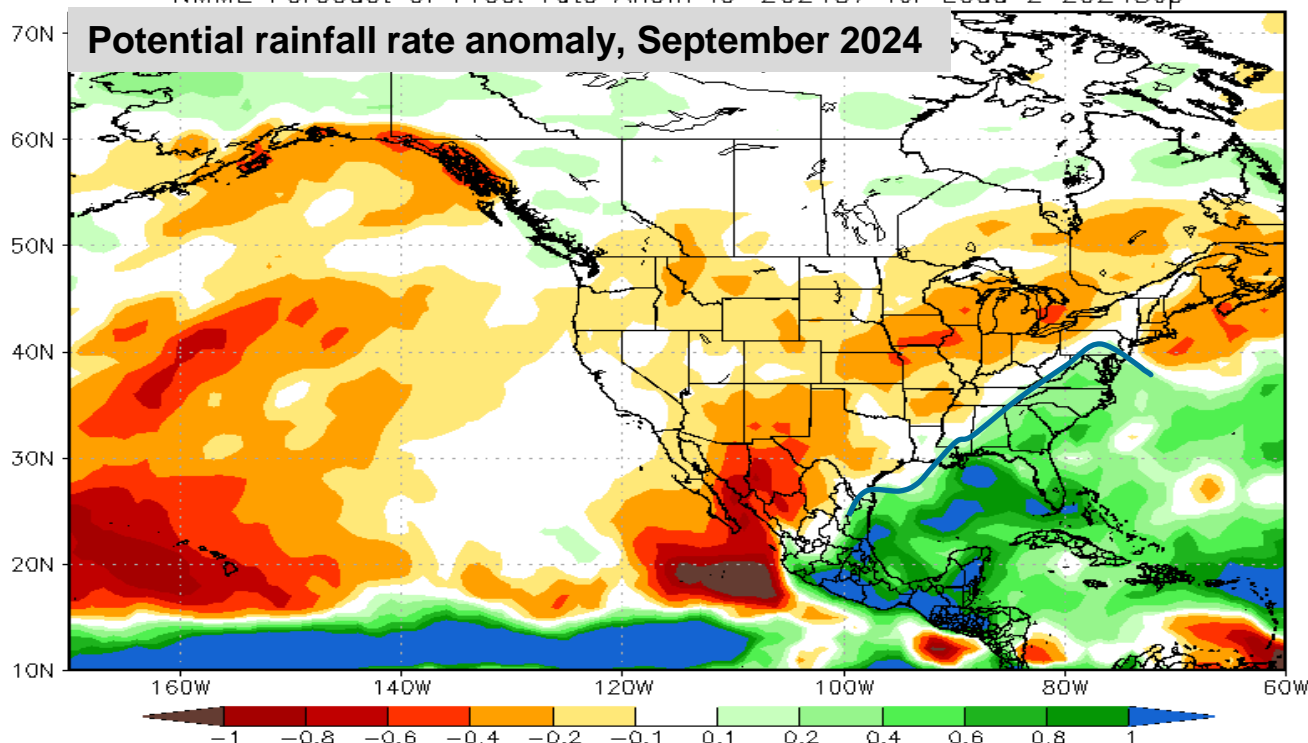
Medium to long-range forecast models are suggesting the **heat ridge (core of the most intense heat)** to be situated over portions of the western, U.S. (north of our area) through mid August. That said, temperatures are still expected to run **average to slightly above average** given the close proximity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

Persistent or nearby upper level disturbances over Texas/northern Mexico could still enhance rainfall **showers and thunderstorms into August.**

Bottom Line: While the lean is for a better opportunity for tropical activity (heavier rainfall) along the **northern Gulf coast and along the southeast U.S. coast**, the back edge of an above average rainfall forecast suggests **tropical cyclones are still possible through August.** How far west any rainfall gets is uncertain, and the **lean is against much help for Falcon and Amistad.**

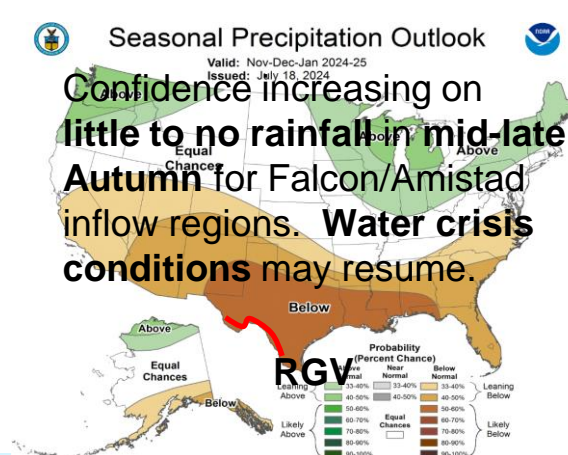
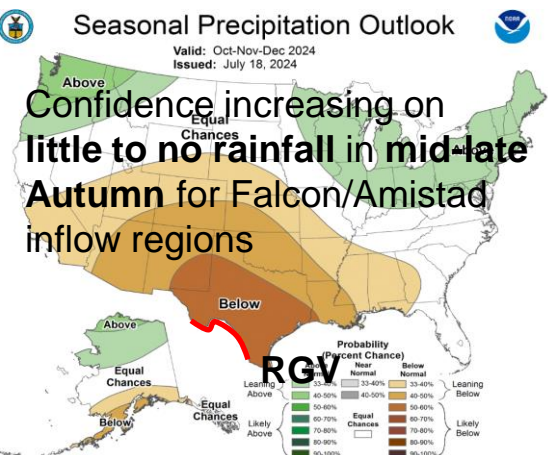
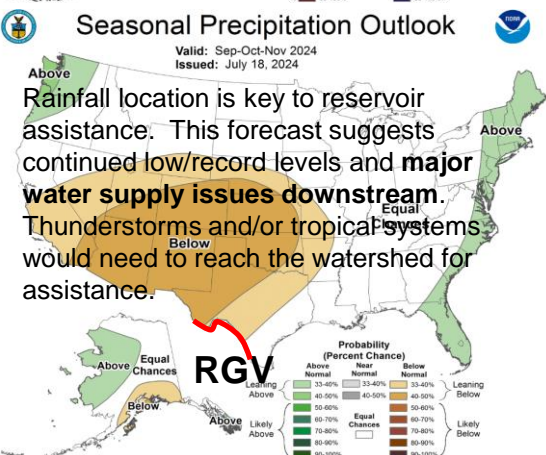
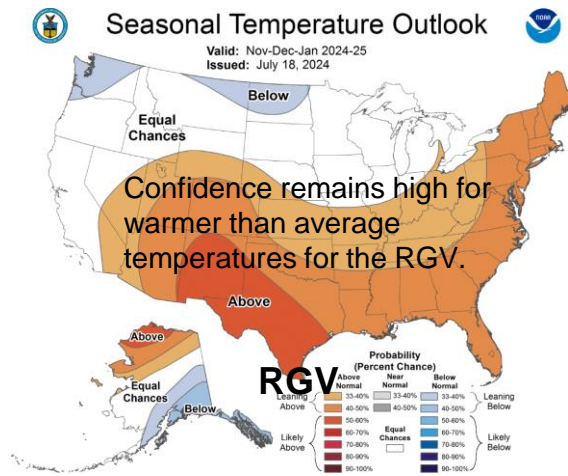
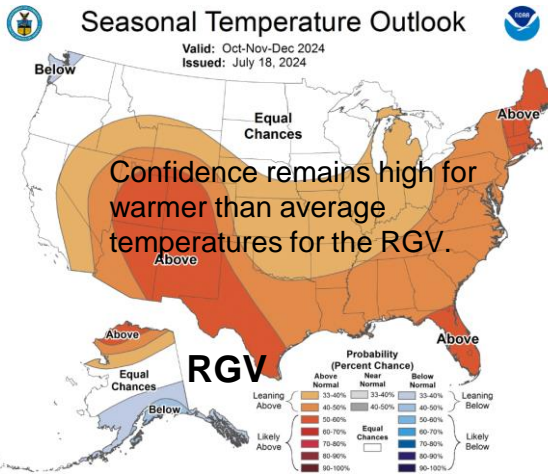
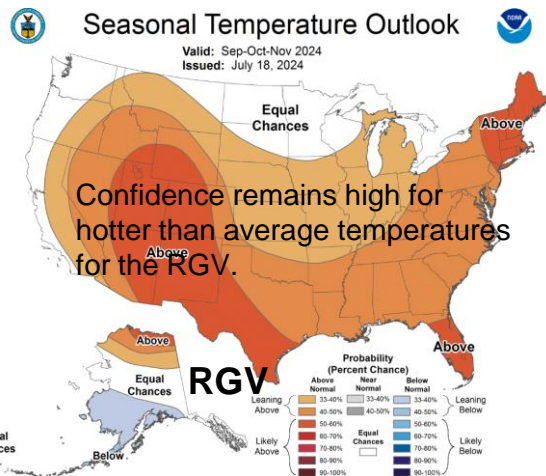
Early Look: September 2024

NMME Forecast of Prec. rate Anom IC=202407 for Lead 2 2024Sep



- This model's forecast for September is **slightly in the light green for the RGV**...but higher probabilities favor **the northern Gulf coast and Florida**
- **This suggests at least part of the month we'll need to watch closely in the tropics.**

Autumn – early Winter 2024/2025: Warmer than Normal Trends to Continue; Drier Trends Return

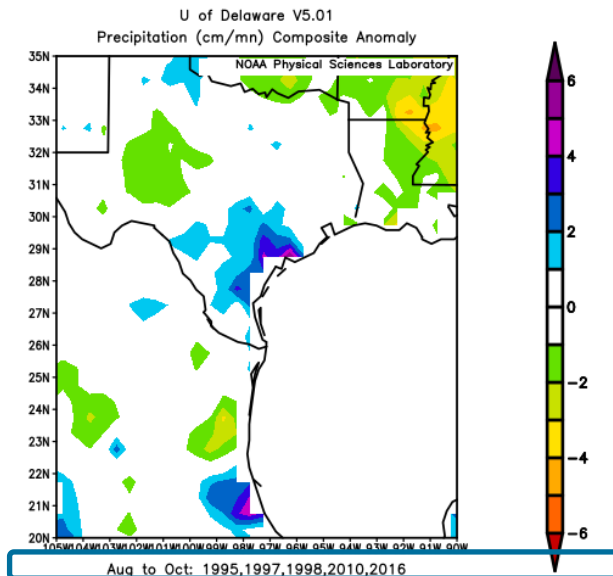


Comparing Similar El Niño to La Niña Episodes within the last 30 years;

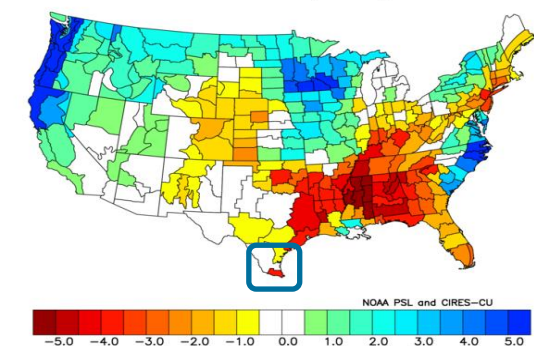
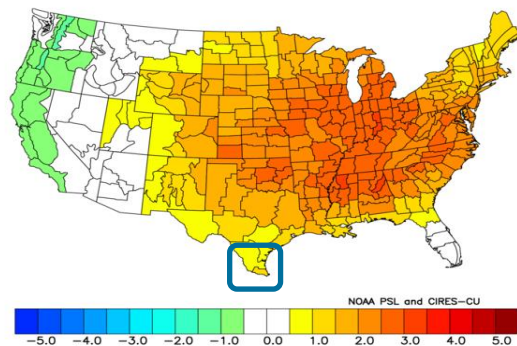
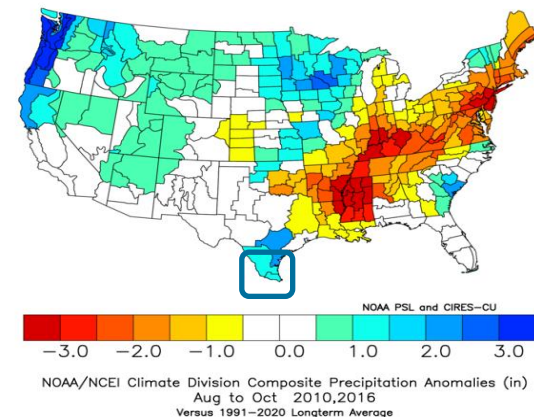
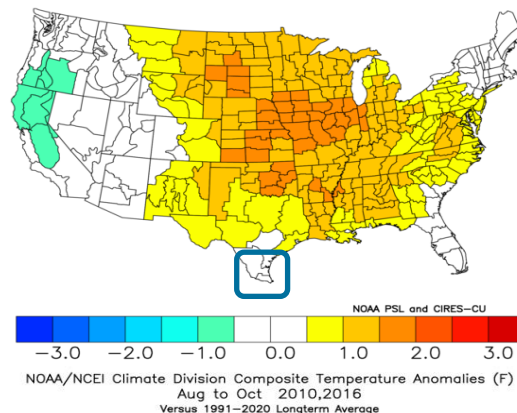
August-October Periods

NOAA/NCEI Climate Division Composite Temperature Anomalies (F)
Aug to Oct 1995,1997,1998,2010,2016
Versus 1991–2020 Longterm Average

NOAA/NCEI Climate Division Composite Precipitation Anomalies (in)
Aug to Oct 1995,1997,1998,2010,2016
Versus 1991–2020 Longterm Average



Composite departure from average rainfall for years where the Oceanic Niño Index (ONI) increased to moderate (1 to 1.4), strong (1.5 to 1.9), or “super” (≥ 2.0) levels prior to the July-September window.



- **Top:** Composite temperature (left) and precipitation (right) anomalies for moderate/strong/“super” El Niños leading into July-September, 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 September, and are **more likely from mid September through October**. Unlike 2023, dangerous heat will be limited – but may increase in September and October. Residents should remain prepared for heat safety measures at times.

Additional opportunities for upper level disturbances to tropical cyclones remain through mid September. **Locally torrential rains can quick become devastating floods in the RGV. Be ready!!** Continue to assess any flood plans, **including purchasing flood insurance**, flood-proofing your home, and **frequently clearing drainage ditches, canals, and culverts**.

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**.

There is an outside chance that reservoirs feeding the Rio San Juan (El Cuchillo and Marte Gomez) fill sufficiently into August so that releases would be necessary into the Lower Rio Grande east of Rio Grande City - and **could help provide some water to RGV communities**. Decisions would be made at the **bi-national state department level on distributions**.

Fuel, in the form of grasses and brush, will **“load up” based on the observed and expected rainfall into August and 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 fire safety rules**.

