December to February (Winter 2024/2025) Outlook: Perspective for the Lower Rio Grande Valley/Deep S. Texas Region

NATIONAL WEATHER SERVICE

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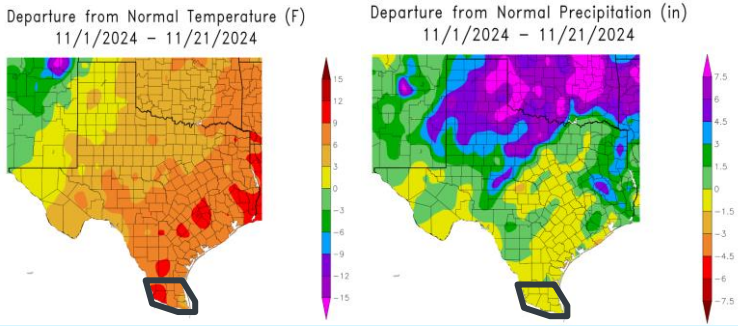
Forecast for dry trends and normal to warmer than normal temperatures remain intact December-February; hazardous marine, wildfire potential, water supply, and cold fronts are remain the mix



November 2024: Another record to near record warm month in the books as dry season kicks in

Maximum 25-Day Mean Avg Temperature for Brownsville Area, TX (ThreadEx)

Click column heading to sort ascending, click again to sort descending.

Rank	Value	Ending Date	Missing Days
1	77.1	2024-11-25	0
2	76.0	1973-11-25	0
3	74.9	2020-11-25	0
4	74.8	1909-11-25	0
5	74.5	2015-11-25	0
6	74.5	1994-11-25	0
7	74.2	2017-11-25	0
8	73.5	1927-11-25	0
9	73.4	1902-11-25	0
10	73.4	1934-11-25	0

Period of record: 1878-01-01 to 2024-11-25

Maximum 25-Day Mean Avg Temperature for HARLINGEN RIO GRANDE VALLEY INTL AP, TX

Click column heading to sort ascending, click again to sort descending.

Rank	Value	Ending Date	Missing Days
1	74.3	2024-11-25	0
2	73.0	2020-11-25	0
3	72.9	2015-11-25	0
4	72.6	2016-11-25	0
5	72.0	2003-11-25	0
6	72.0	2011-11-25	0
7	71.8	2017-11-25	0
8	71.8	2001-11-25	3
9	71.1	2012-11-25	0
10	70.9	2004-11-25	0

Period of record: 1952-07-15 to 2024-11-25

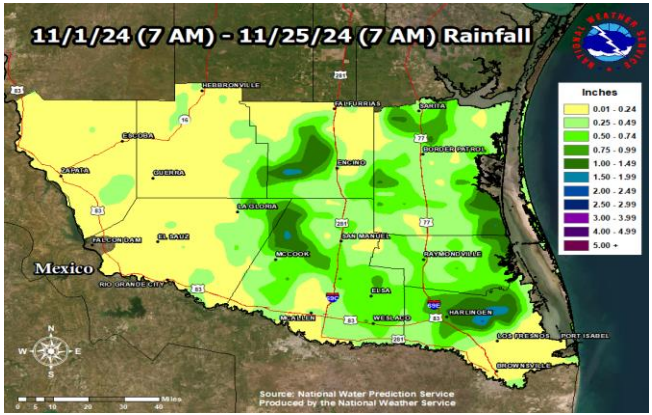
Maximum 25-Day Mean Avg Temperature for McAllen Area, TX (ThreadEx)

Click column heading to sort ascending, click again to sort descending.

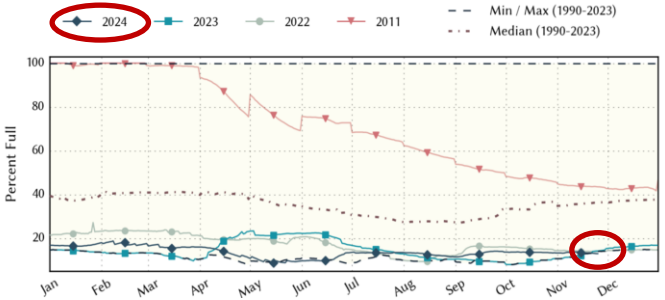
Rank	Value	Ending Date	Missing Days
1	78.0	2024-11-25	0
2	76.1	1994-11-25	0
3	75.7	1973-11-25	0
4	75.2	2016-11-25	0
5	74.6	2020-11-25	0
6	74.0	1985-11-25	0
7	73.9	1945-11-25	0
8	73.6	2017-11-25	0
9	73.5	1988-11-25	0
10	73.4	2011-11-25	0

Period of record: 1941-06-01 to 2024-11-25

- **November 2024 is set to go down as a record to near record setting warm month. As of November 25, Brownsville recorded an average temperature of 77.1F degrees. That ranks #1 of all other November's coming in +1.1F degrees warmer than second place (76.0F degrees in 1973). Harlingen recorded an average temperature of 74.3F degrees. That ranks #1 of all other November's for the site coming in +1.3F degrees warmer than second place (73.0F degrees in 2020). McAllen recorded an average temperature of 78.0F degrees. That ranks #1 of all other November's for the site coming in +1.9F degrees warmer than second place (76.1F degrees in 1994).**
- **As far as rainfall production, November was a quiet month due to tropical season coming to a close and limited non-tropical rain/thunderstorms in the area. Monthly anomalies will fall below normal levels. Because of this, the Falcon Reservoir remains in dire condition. Combined shares at the Falcon Reservoir slipped slightly lower to 13.0%, down around 0.5% from October's 13.5%, levels. As of November 25, shares still remained at/near record lows on par with 2022 and above 2023 levels.**



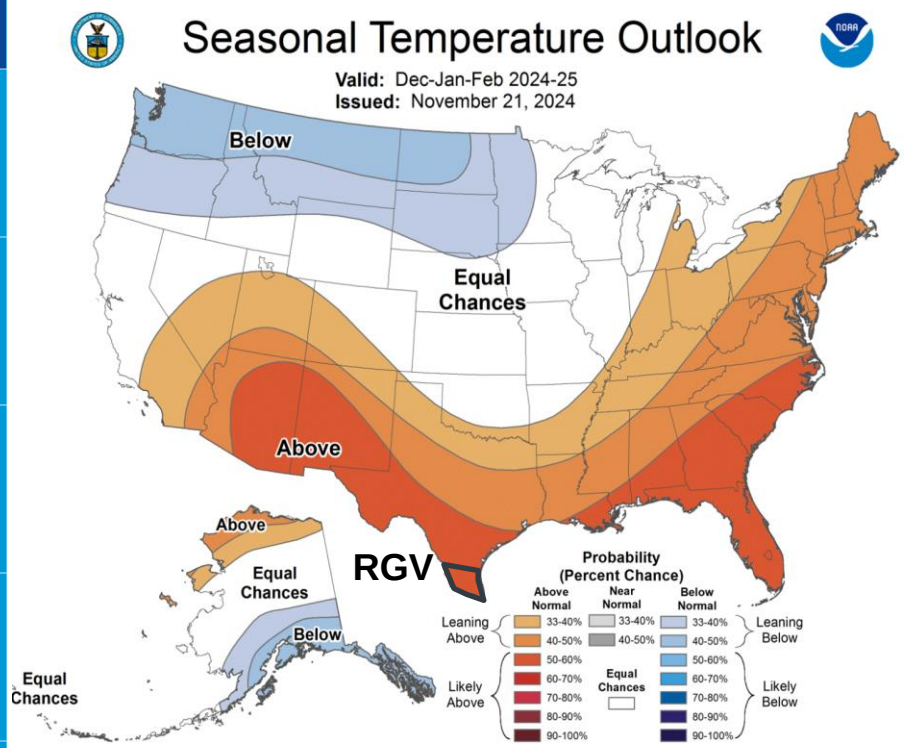
Top Image: Observed rainfall amounts from November 1-25, 2024. Overall, a quiet month precipitation-wise with anomalies falling about an inch or so below average. Footprint indicates that the eastern half of the forecast area was most favored.

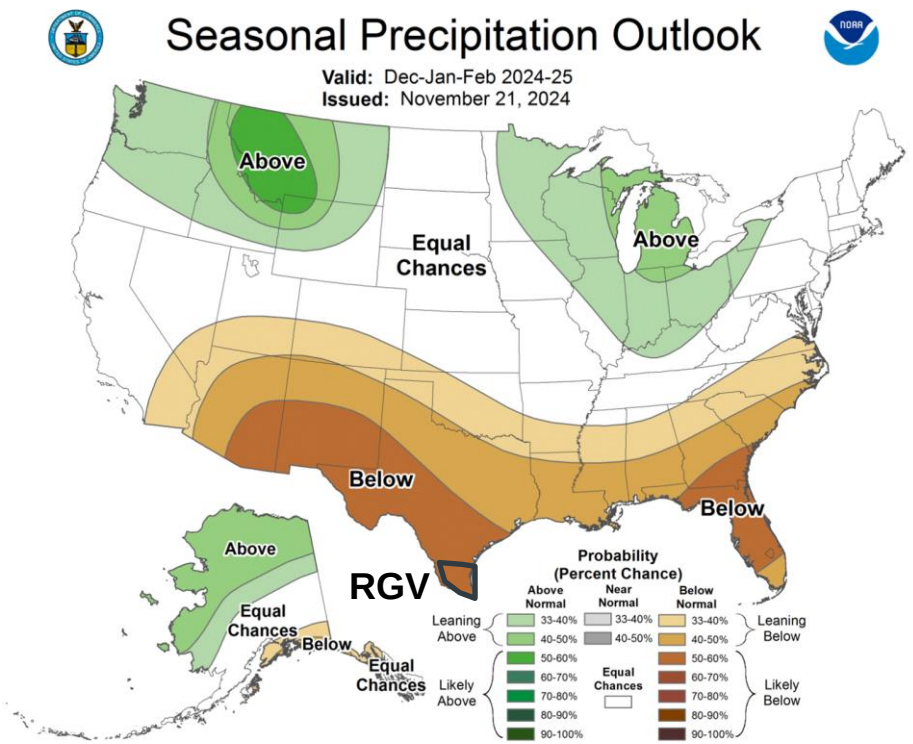


Latest data from the **Rio Grande Reservoirs (Texas Share)** continue to indicate 2024 levels are at or below 30 year lows (and near records. Total values increased slightly as of late. Moving into December, values are expected to hold steady with maybe slight decreases.

Image: Texas Water Development Board

Seasonal Forecast, November – January 2024/2025 USA





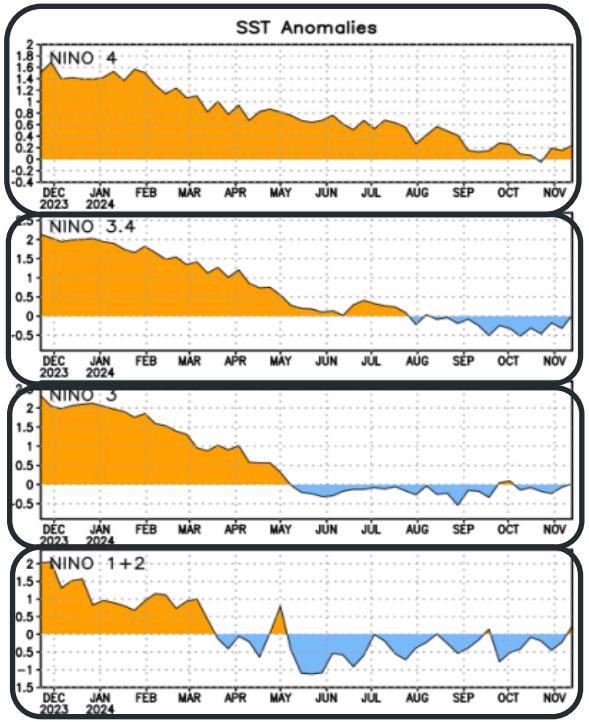
Key Takeaways: December-February (Winter 2024/2025) Outlook

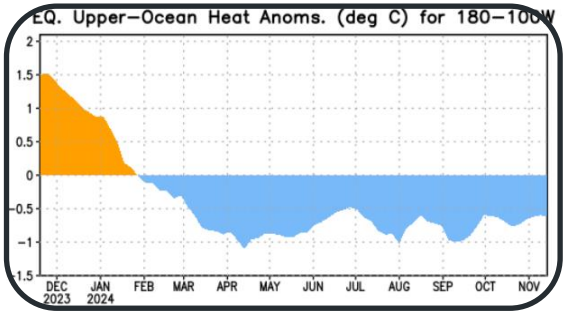
- **Winter is expected to average out warmer and drier than normal** for Deep South Texas and the Rio Grande Valley. With **tropical season** officially over, and **cooler** and **drier** air intrusions increasing, **drought/dryness** concerns will increase through the Winter Season.
- Falcon and Amistad remained **near historic lows at the end of October**. **Confidence is near-certain (~100%) on total storage remaining at or near record lows through February.**
- Confidence remains **medium-high (60-80%)** that **temperatures will run normal to warmer than normal** from December through February. Confidence also remains **medium-high (60-80%)** on a **drier than normal outcome** for the period. Confidence is **high (70-90%)** that **drought/dryness** will continue to expand over Deep South Texas and the Rio Grande Valley through February.
- Though warmer than normal temperatures are favored through the Winter Season a **significant cool/cold snap (i.e. Arctic Air) could reach the region between late December and mid-February!**
- As we transition into the Winter Season, cold fronts should become more frequent and progressively stronger in time. **Wildfire spread will become an issue and difficult to dangerous boating and beach conditions will continue through early 2025!**

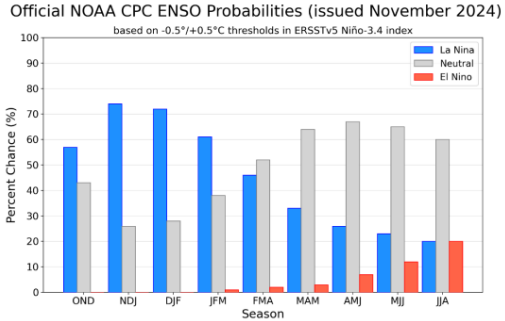
The “Why” of the Forecast: La Nina on track to develop in December or January; soil moisture, long-term trends, intraseasonal variability, and other key climate teleconnections to play a factor

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	0.0	-0.1	-0.2			

- The continued **transition from ENSO Neutral towards a La Nina** through January (at ~70% chance) favors warmer than normal temperatures through February and potentially longer. Additionally, this setup favors a drier trend in the pattern persisting through the Winter Season.
- Despite the ENSO trend of a La Nina developing over the next month or so, other important **teleconnections (i.e. AO/Arctic Oscillation, PNA/Pacific North American Oscillation), polar vortex (PV) strength, northern hemisphere snow cover** could play a vital role in *intraseasonal variability* leading to an anomalous weather event such as a major cold snap or ice storm this upcoming cool season!
- **Wildfire season** could come into better focus this Winter as **drought/dryness** trends continue to increase!



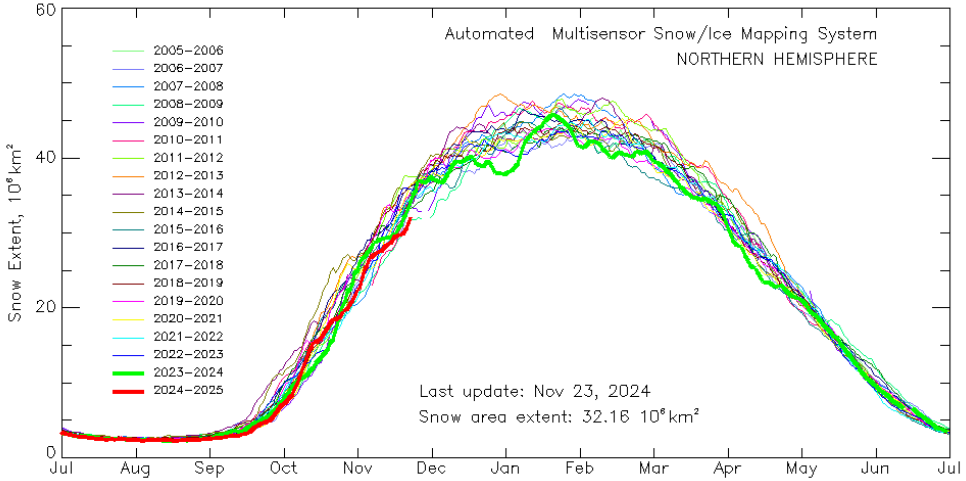




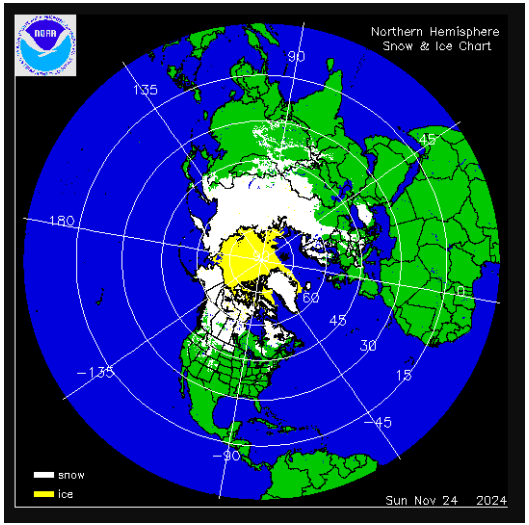
*Above right: Oceanic Niño Index. Values below -0.5 (**light blue**) for five consecutive 3-month periods indicated La Niña. El Niño (**red,** +0.5) officially began in April-June 2023, reached strong levels (**+1.5**) by August-October 2023, strengthened further through November-January, then weakened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

Northern Hemispheric Snow Cover Extent Maps and Charts

Daily snow extent and anomalies

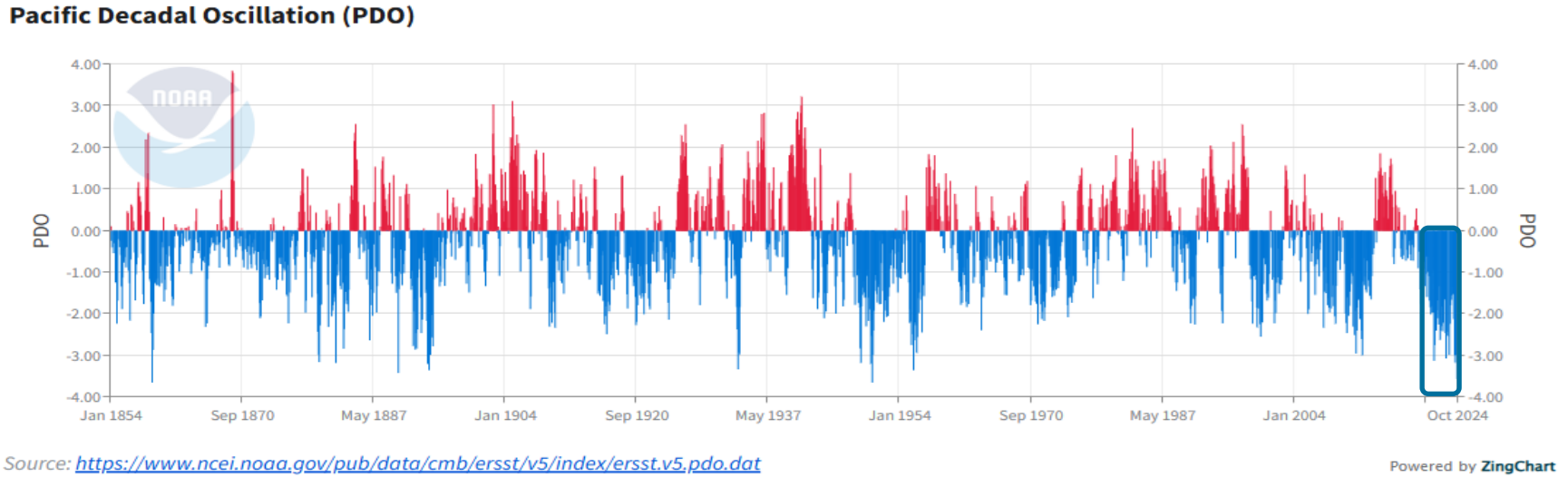


Latest snow map



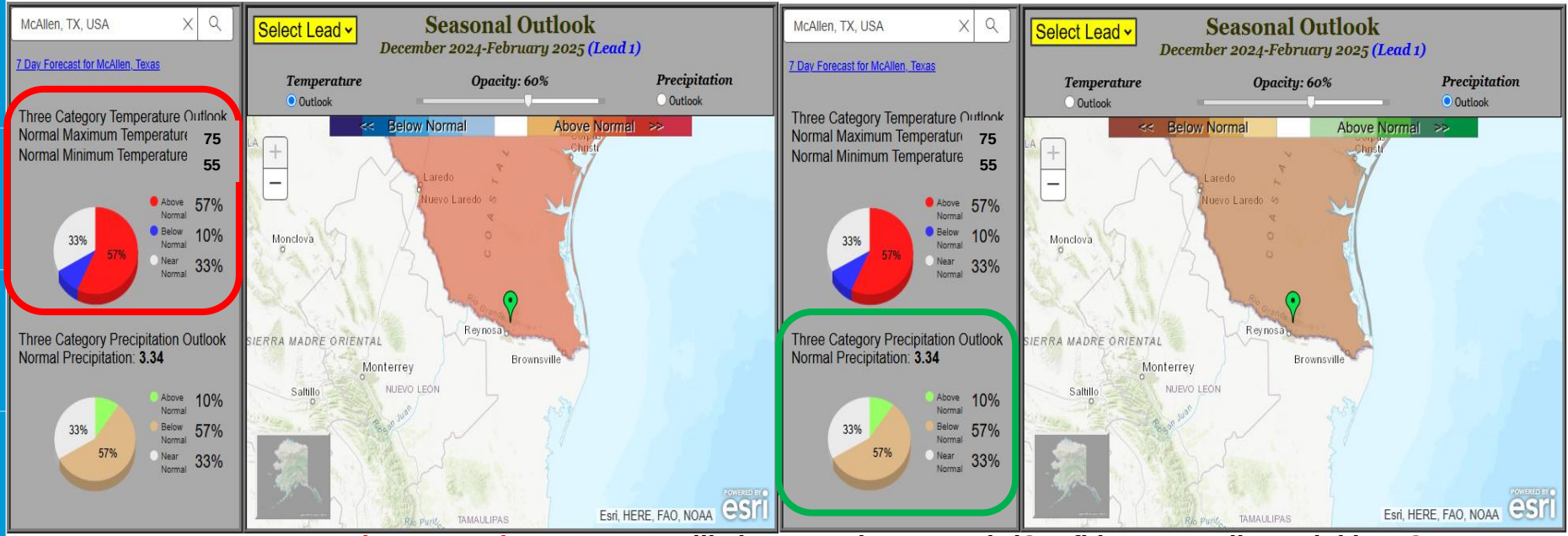
- The **location and extent of snow cover in the northern hemisphere** could serve as a <u>key indicator</u> of how ***strong*** the **cold fronts** from the north become through the upcoming Winter Season!
- Month-over-month, there has been an <u>increase</u> in snow cover over the northern hemisphere including Eurasia/Siberia, Alaska, north-central and northwestern parts of the U.S., and the western half of Canada.

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



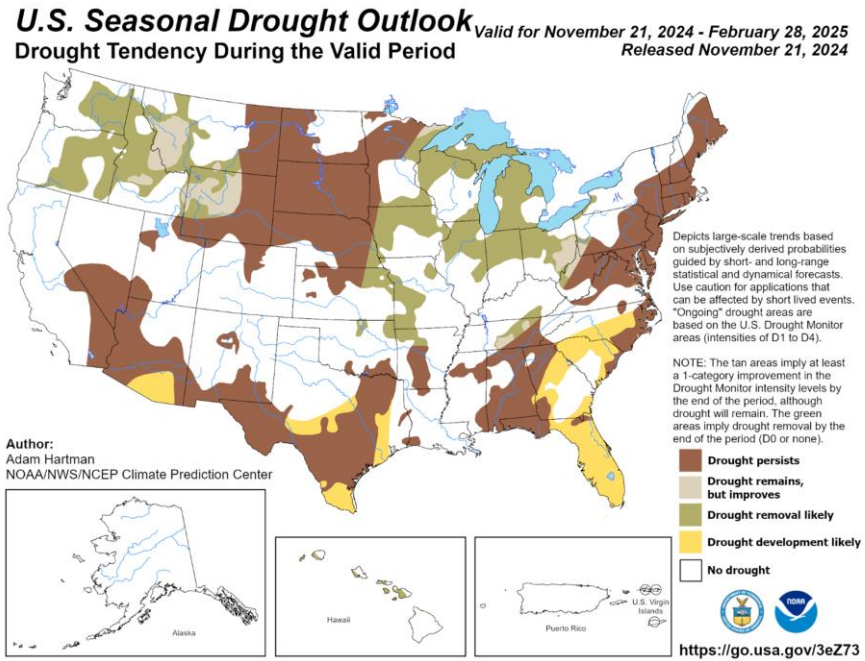
- The 2021-2024 **prolonged and strong negative PDO has persisted**, and should remain the case headed into the expected La Niña period. This **increases confidence** for a **drier and warmer than normal pattern persisting through the Winter Season.**
- The sharply negative PDO combined with the developing La Nina adds confidence to an increasingly dry (and still warm) forecast as we approach the end of 2024 and beginning parts of 2025. **Confidence is high** for sharply negative PDO to maintain through the end of the year and into the beginning parts of 2025.

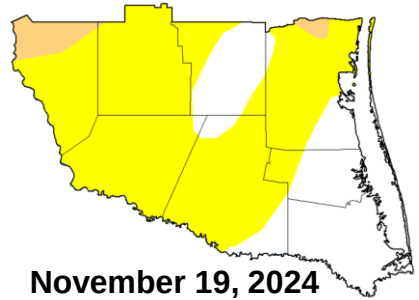
The December-February 2024/2025 Outlook: Rio Grande Valley (McAllen as Anchor Point)



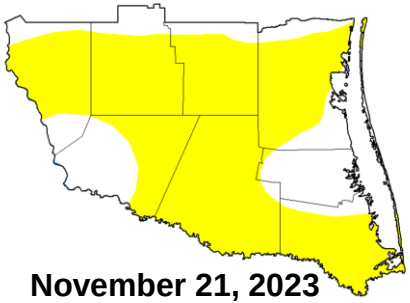
- **Temperature:** **Warmer than normal temperatures likely to persist Dec-Feb (Confidence: Medium-High).** RGV averages: Afternoon – Mid 70s through early December; Low-mid 70s mid-December through January; Wake-up: Low-mid 50s through mid-December; Lower 50s mid-December through January **(Greatest chance for any major cold outbreak)**
- **Precipitation:** **Drier than normal conditions are expected to continue Dec-Feb (Confidence: Medium-High).** RGV averages: 2.5-3.3 inches (most in December).

The December-February 2024/2025 "Droughtlook"

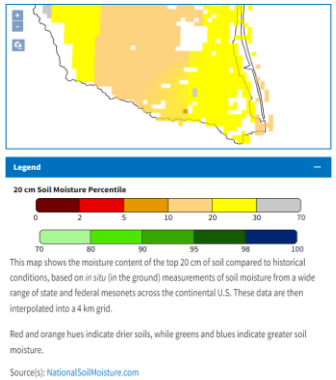




November 19, 2024

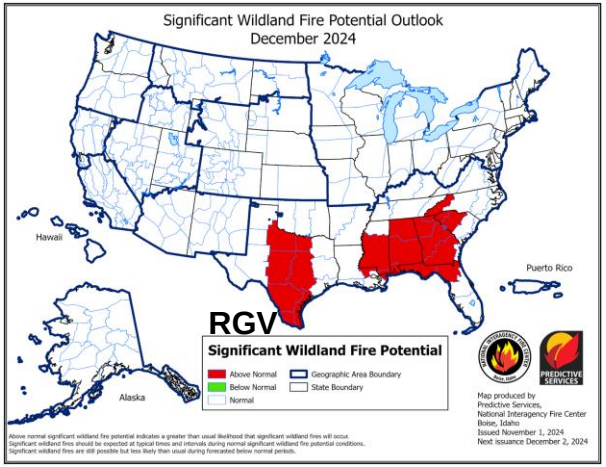


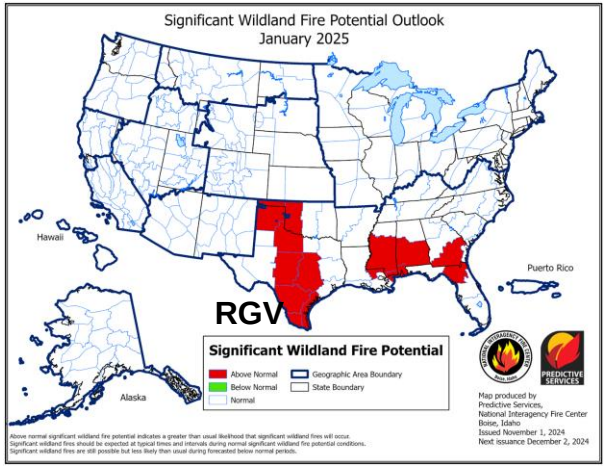
November 21, 2023

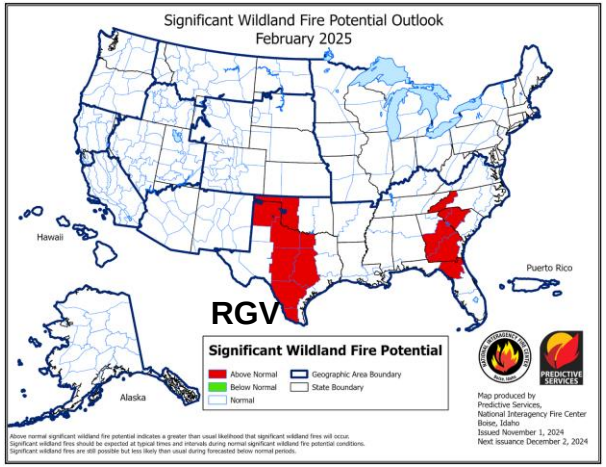


- **Year-over-Year (YoY) drought/dryness** over Deep South Texas and the Rio Grande Valley are <u>on par</u> with each other. However, the <u>trends are in different directions.</u> After a wet summer, mainly **dry conditions** over the past couple of months have led to **dryness/drought** **<u>expanding</u>** over the region this year. Meanwhile, October to November 2023, **heavy rains** helped to **<u>bust</u>** the moderate to severe drought that was in place over much of the region.
- Factoring in a developing La Nina and climatological trends, the latest seasonal outlook is suggesting for drought to continue **<u>expand</u>** across Deep South Texas and the Rio Grande Valley through the upcoming Winter Season.

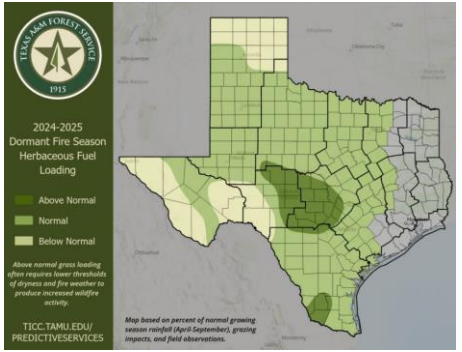
Wildfire Concerns Increasing This Upcoming Cool Season; Continue Monitoring Trends Through Early 2025







- **Despite underlying dryness, Transitional Green was observed across most of Deep South Texas and the Rio Grande Valley in late November with mainly Normal moisture levels present**. There's a good chance for fuels to become cured due to a combination of drought and potential freezes through Winter.
- Moisture levels will likely fluctuate between normal levels and dry levels in December. **In the coming weeks, moisture levels will largely be dependent on rain chances, the strength and number of cold frontal passages vs. days with a return flow out of the south boosting relative humidity (RH) values.**
- **Dry moisture level trends are likely to develop through the winter. How quickly we get to dry levels is the question??**
- **Bottom line: Wildfire concerns** will continue to **increase** as we head deeper into the Winter Season, as soils become drier and cool fronts become more frequent and at times stronger. The **National Interagency Fire Center (NIFC)** has all of Deep South Texas outlook under an **"Above Normal Risk"** in its **Wildland Fire Potential Outlook**.

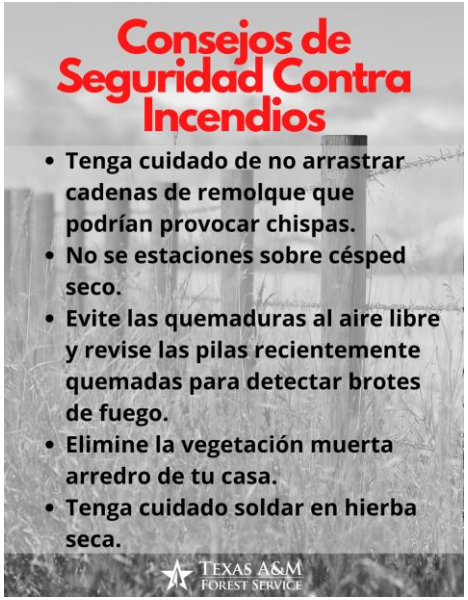


Herbaceous Fuel Loading Map for Texas (November 21, 2024)

Wildfire Prevention Review

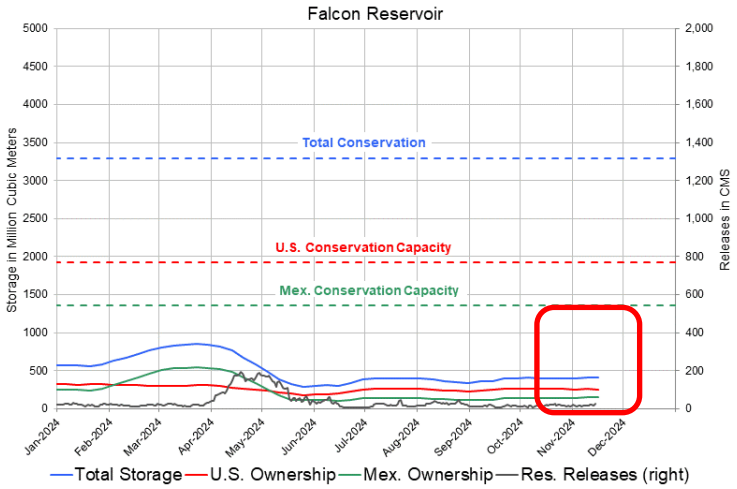
- This **remains critical through Winter**, as Moderate (level 1) drought has developed over still fuel-loaded rangeland north and west of the populated Valley. The greater threat would begin in December as Severe (Level 2) Drought should arrive in some areas, and Extreme (Level 3) Drought may develop by February.
- Continue to focus on **farm, ranch workers**, and **other persons who might drive vehicles with hot exhaust/converters** on parched brush on critical/near-critical days – especially low humidity, breezy days following fronts.

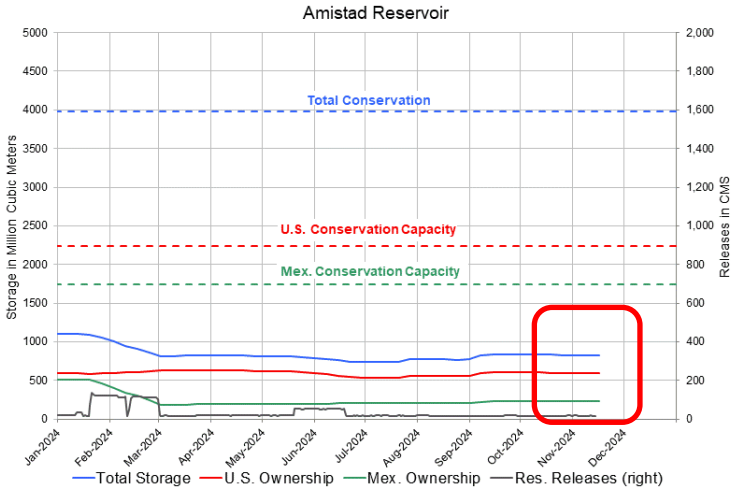
Infographics for Wildfire Prevention



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

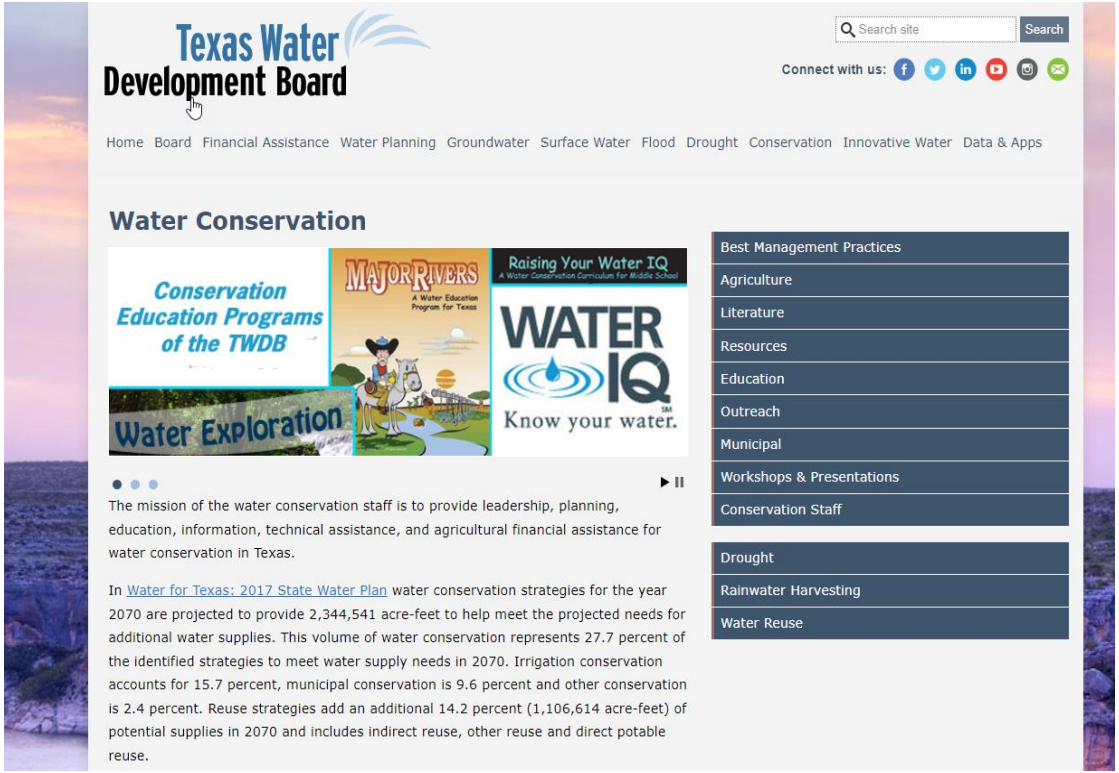
Amistad and Falcon remains at/near Record Lows heading into December





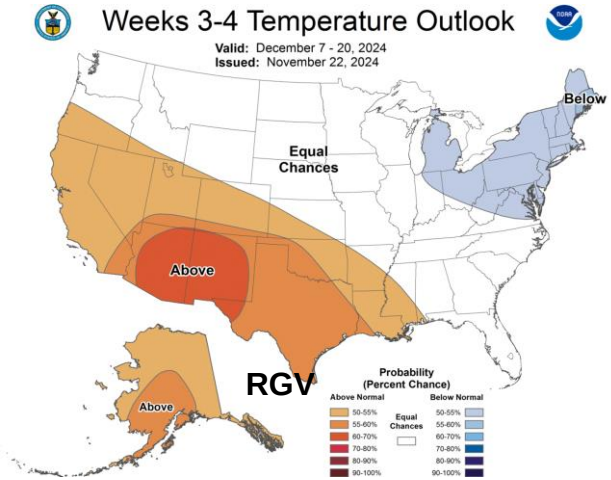
- Falcon remained nearly steady, ending late November at **12.3 percent** (up slightly from **12.1% in late October**). This level is just a few ticks above prior records. With tropical season behind us and the dry season ahead, levels may not change much through January, and in fact, **may continue to slide through the early parts of 2025.**
- **Amistad remained above all-time record lows in late November.** Levels were at **20.8% on November 22nd** (slightly down from **20.9% on October 27th**). With tropical season behind us and the dry season ahead, levels may not change much through January, and in fact, **may continue to slide through the early parts of 2025.**

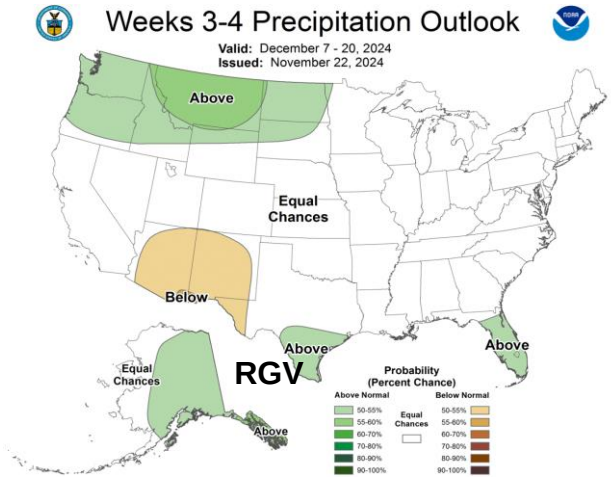
Water Conservation is Key Until Further Notice!

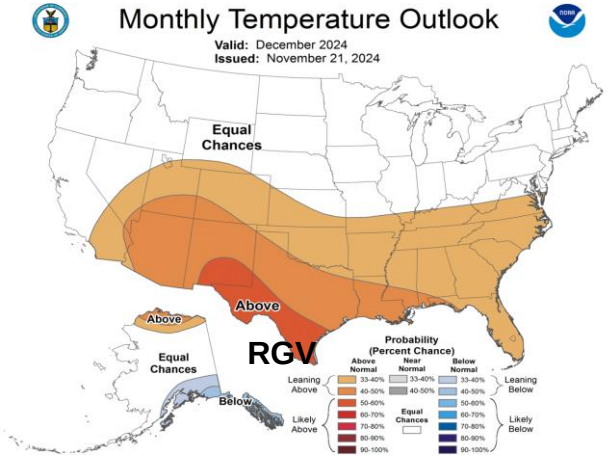


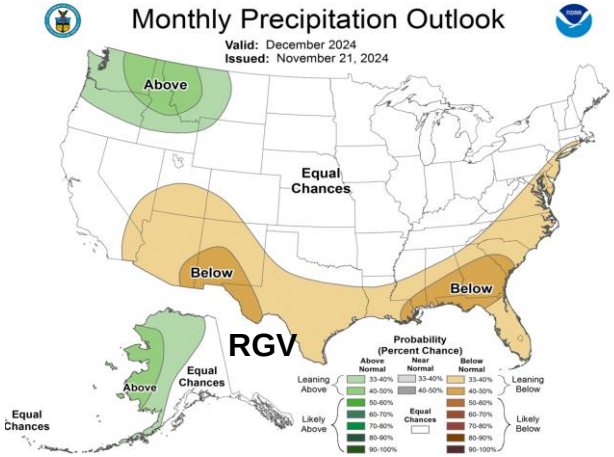
- "Stage 2/3" Restrictions continued through Summer 2024 and are likely to continue **until further notice** based on inflows from Amistad and Falcon.
- Learn more at the Texas Water Development Board's Conservation Page

December 2024: Confidence: Medium-High on Temperature and Precipitation Trends









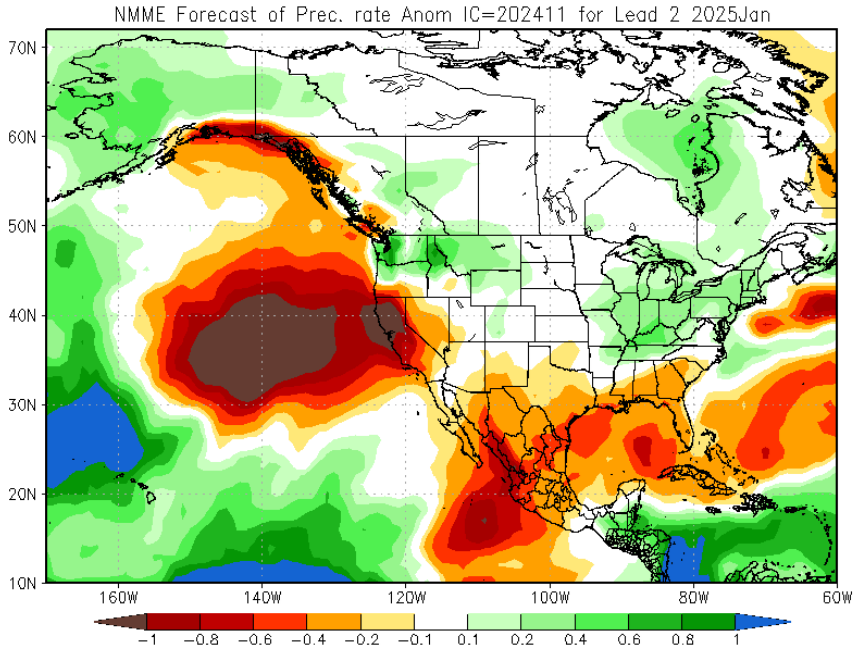
- Strong signal amongst medium range models of a **highly amplified and active 500mb pattern** featuring a **warm West U.S.** vs **Cold East U.S.** alignment developing this week and persisting into early December. While this will bring wintry weather to the northern tier states during this timeframe, a series of cold fronts will bring **cooler temperatures** to Deep South Texas and the RGV during this time. In fact, temperatures could average out **normal to slightly cooler than normal** late week into early December.

- Longer range models suggest the pattern becoming ***less amplified*** after the 1st week of December resulting in **moderating/warming temperatures** across Deep South Texas and the RGV. This pattern could persist through at least mid December.

- Trends in the pattern suggest for temperatures to run **normal to warmer than normal** through December. While, there could be some **slight rain chances** here or there, this pattern suggest an overall **drier than normal pattern** continuing through December.

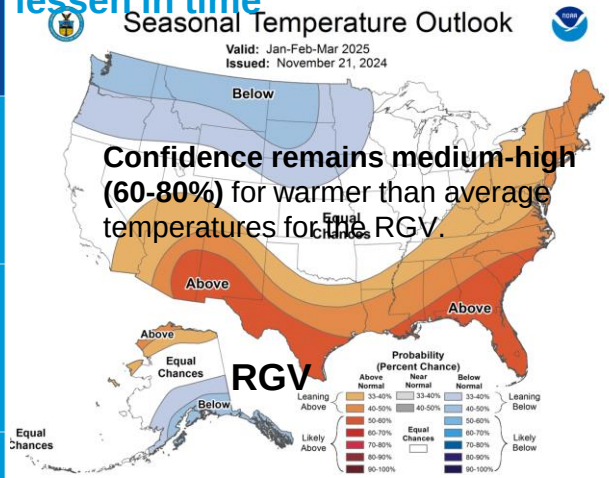
Early Look: January 2025

Potential rainfall rate anomaly, January 2025

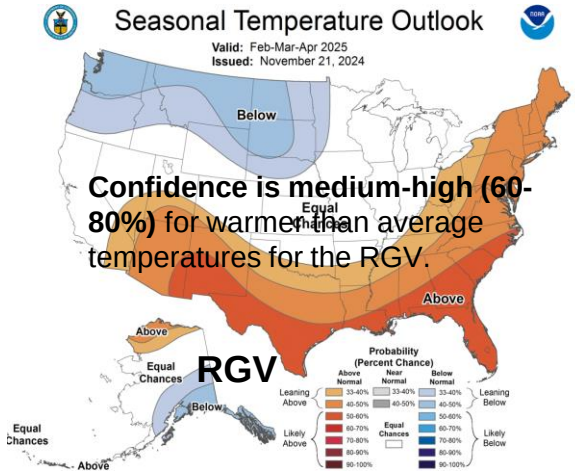


- This model's forecast for January suggest a **dry pattern** (note the red color over the area and nearby brown colors) continuing. Confidence is rather high given that we're entering the heart of the dry season here!
- **Cold frontal boundaries** moving into Texas will continue! Most will likely be dry, but there could be some strong ones that reach Deep South Texas. Will be monitoring the potential of a **major cold snap or two (Arctic Express)** to take place during January!

Winter 2024/2025 to Spring 2025: Warmer than Normal Trends are Favored; Dry trends favored, but lessen in time



Confidence remains medium-high (60-80%) for warmer than average temperatures for the RGV.



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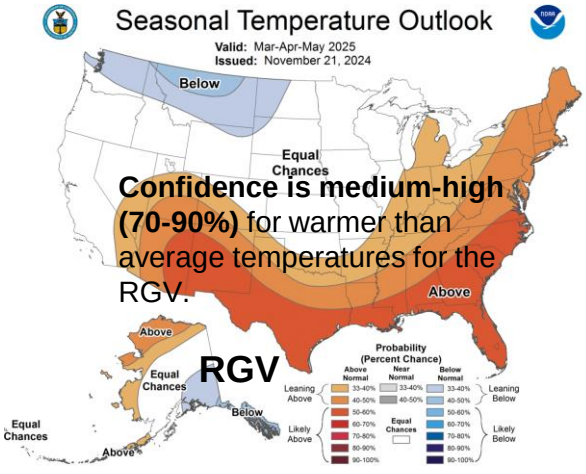
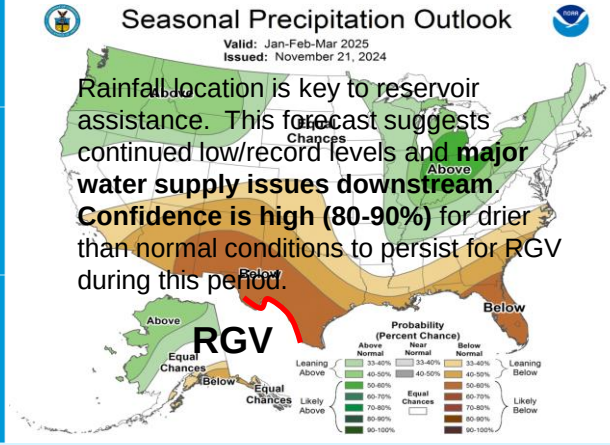
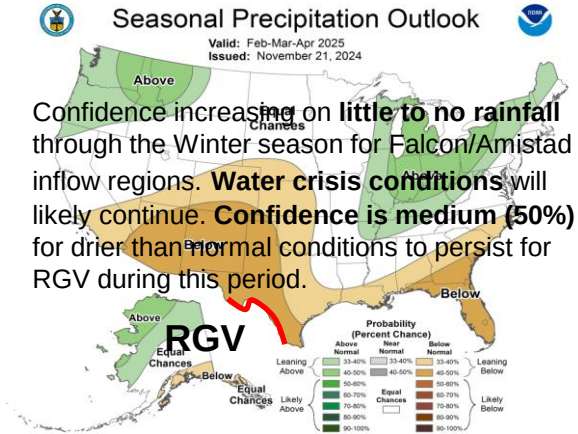


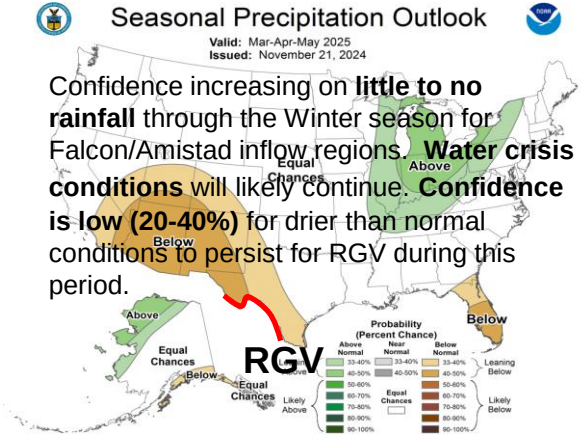
Confidence is medium-high (70-90%) for warmer than average temperatures for the RGV.



Rainfall location is key to reservoir assistance. This forecast suggests continued low/record levels and **major water supply issues downstream**. **Confidence is high (80-90%)** for drier than normal conditions to persist for RGV during this period.

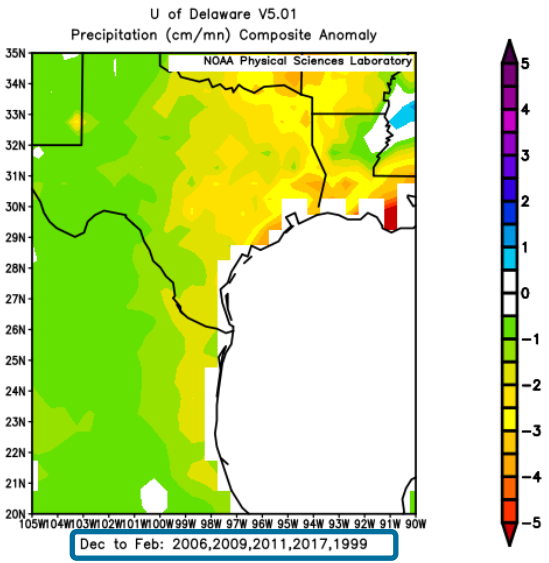


Confidence increasing on **little to no rainfall** through the Winter season for Falcon/Amistad inflow regions. **Water crisis conditions** will likely continue. **Confidence is medium (50%)** for drier than normal conditions to persist for RGV during this period.

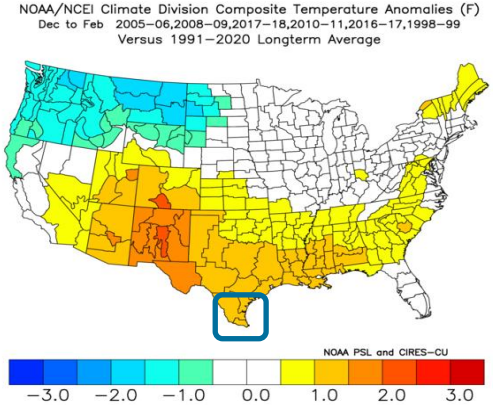


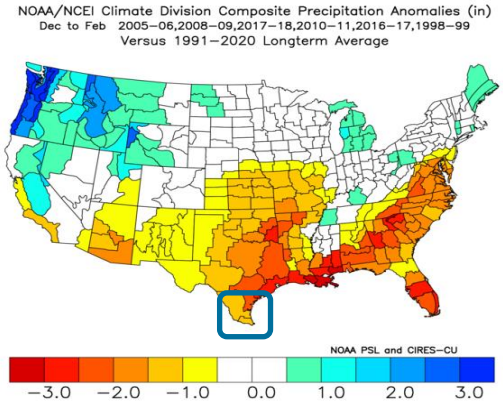
Confidence increasing on **little to no rainfall** through the Winter season for Falcon/Amistad inflow regions. **Water crisis conditions** will likely continue. **Confidence is low (20-40%)** for drier than normal conditions to persist for RGV during this period.

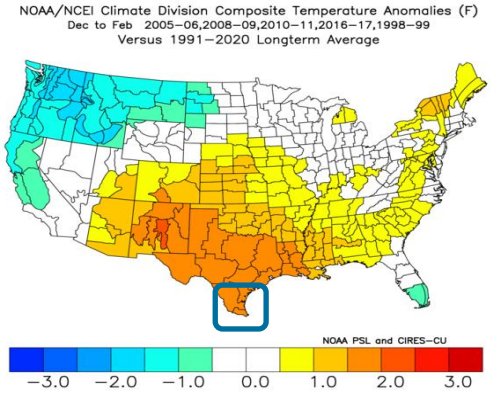
Comparing Similar El Niño to La Nina Episodes within the last 30 years; Dec-Feb Periods

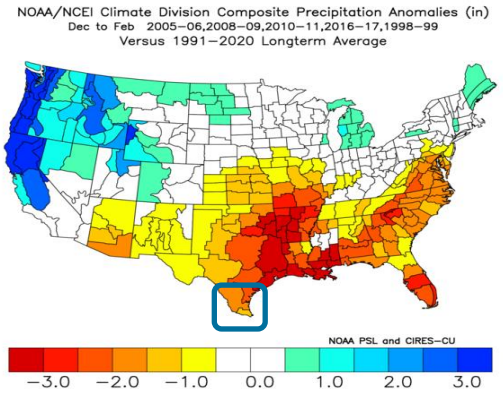


Composite departure from average rainfall for years of similar El Nino to La Nina transition episodes in the December-February window.









- **Top:** Composite temperature (left) and precipitation (right) anomalies for similar El Nino to La Nina transition episodes leading into December-February, since 1950.
- **Bottom:** Same, except for 2017/18 season.

Bottom Lines

La Nina is expected to develop sometime between December and January. This will support **warmer than normal conditions** and **drier than normal conditions** through the Winter 2024/2025 Season. With tropical season over, **dryness** is expected to expand into Deep South Texas December-February.

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 as we move into the dry season.**

Fire weather as well as drought/dryness concerns are expected to come into better focus December and through the early 2025, as **soils continue to dry** and **cool fronts** continue to increase. Farmers/ranchers should be ready to **implement fire safety rules!**

While warmer and drier than normal conditions are expected due to La Nina, it doesn't mean that an anomalous weather event such as a **major cold snap or ice storm** can't take place. **Be prepared to protect people, pets, plants, and pipes from a potential Arctic Outbreak.**