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WEATHER
SERVICE**

April-June 2023 Outlook: Perspective for the Lower Rio Grande Valley/Deep S. Texas Region

March 26, 2023

Barry Goldsmith, NWS Brownsville/Rio Grande Valley, Texas

Hot Pattern Locking In; Dryness to Continue but Will Helpful Rains Arrive?

Central Kenedy Co, March 4, 2023



Monte Cristo Area, May 24, 2022



Above: Flooding in Weslaco during the mid to late morning of May 19th, 2021. Photos courtesy of Weslaco Emergency Management.



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Since March 1st...

- A top-ten warmest month and a top-ten warmest year, so far. Several 100°F+ days, especially along/west of IH-69C
- Severe (Level 2) to Extreme (Level 3) Drought covered all but the immediate Lower Texas Coast
- Agricultural releases, near-record low starting points, and periodic very high evaporation rates left Falcon International Reservoir at lowest levels for late March since 2001 and 2002; Texas share shown at lower right.
- Crops and ranches dealing with severe water issues
- As of March 24, two large wildfires (Brooks and Kenedy) accounting for at least 1500 acres. This is much less than 2022 with similar dryness.

Maximum 24-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	75.7	1921-03-24	0
2	75.4	2020-03-24	0
3	74.7	1945-03-24	0
4	74.4	2006-03-24	0
5	74.4	1974-03-24	0
6	74.2	1953-03-24	0
7	73.9	2018-03-24	0
8	73.7	1955-03-24	0
9	73.4	2023-03-24	0
10	73.3	2017-03-24	0

Period of record: 1878-01-01 to 2023-03-24

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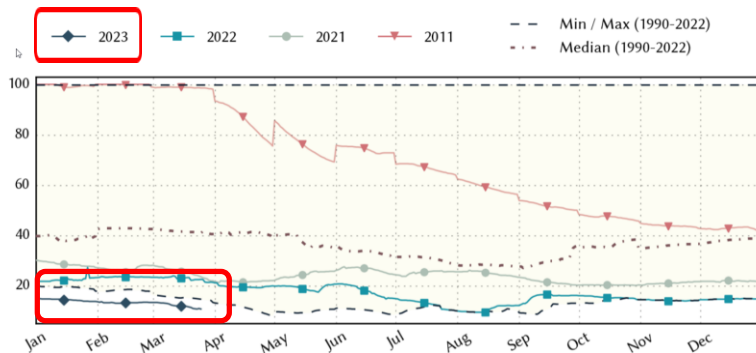
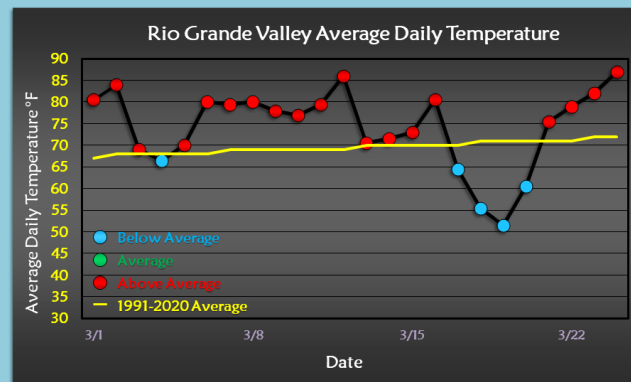
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March 2023

NWS Brownsville/Rio Grande Valley



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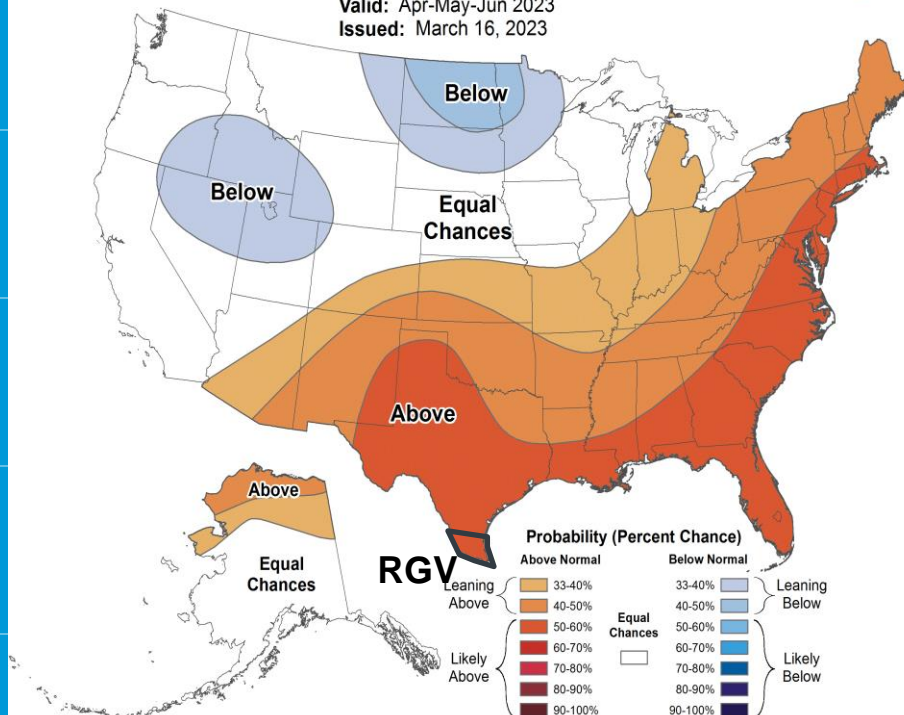
Seasonal Forecast April-June 2023 - USA



Seasonal Temperature Outlook



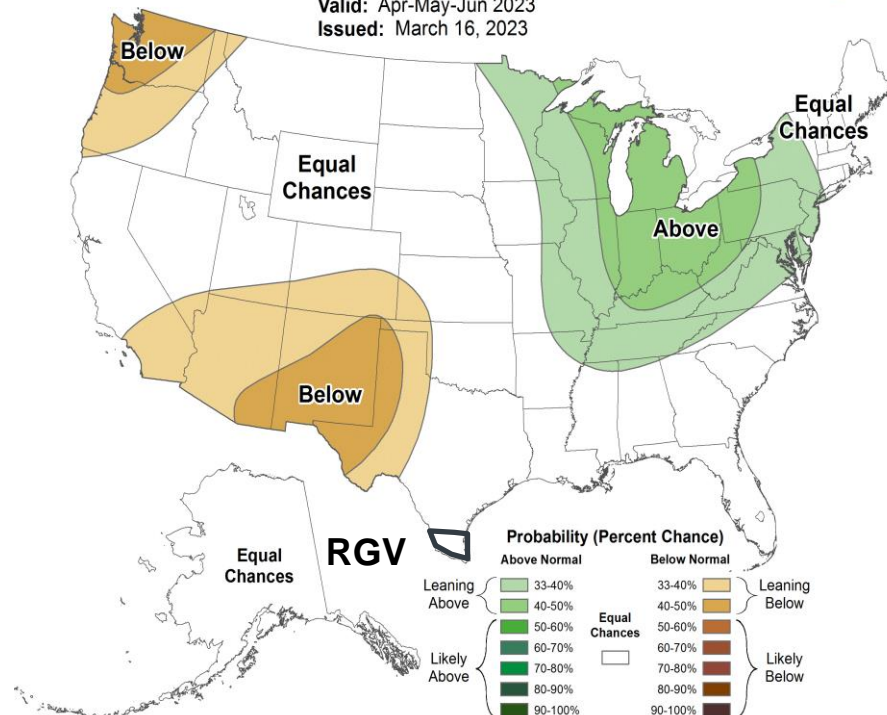
Valid: Apr-May-Jun 2023
Issued: March 16, 2023



Seasonal Precipitation Outlook



Valid: Apr-May-Jun 2023
Issued: March 16, 2023



Key Takeaways: April-June 2023

- **Confidence is high** on **hot weather to dominate through April 2023** but **medium** on the evolution of drought through the period
- Breakdown:
 - **Persistent Warmth** which began in April 2022 will continue through June 2023. Generally hot weather is favored for the period, but there could be a few more pleasant mild days into mid-April. **Heat stress** is likely to become an issue as early-season heat persists.
 - Reservoir levels at Amistad and Falcon accelerated in March due to releases for agricultural (and municipal) use as well as high evaporation rates. **Each will be at or below prior 30-year Texas-share lows through April.** If local thunderstorm rains don't occur to help fill municipal water storage locations, **Water supply issues will become critical as early as April.**
 - The potential for **rapid wildfire growth will continue into April**, barring any helpful early-season torrential rains from thunderstorm clusters. As of March 24, around 1500 acres had burned in Brooks and Kenedy, **much lower than this time in 2022.** Wildfire prevention actions can continue to keep this number low in 2023. **These actions are urgent and critical.**
 - The period is a “wild card” and explains the “equal chances” three-month rainfall probabilities for the season. **Organized thunderstorm “systems”** have occurred in many Mays and Junes; such systems would alleviate or potentially eliminate drought, but **also cause localized flash flooding and damaging wind/large hail**. May's last two weeks are typically the time to watch for these events.
 - If **April remains dry**, **drought conditions** will reach **level 3 (extreme)** and **4 (exceptional)**; worst level on the four-point scale) at some point.

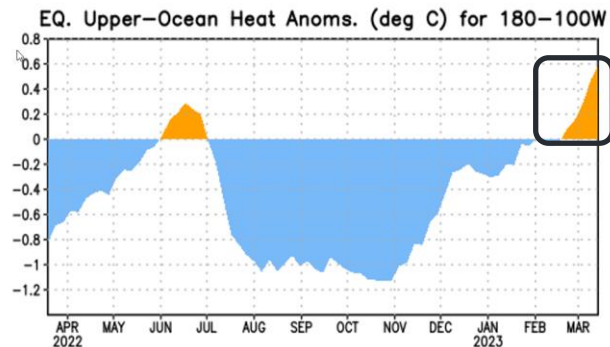
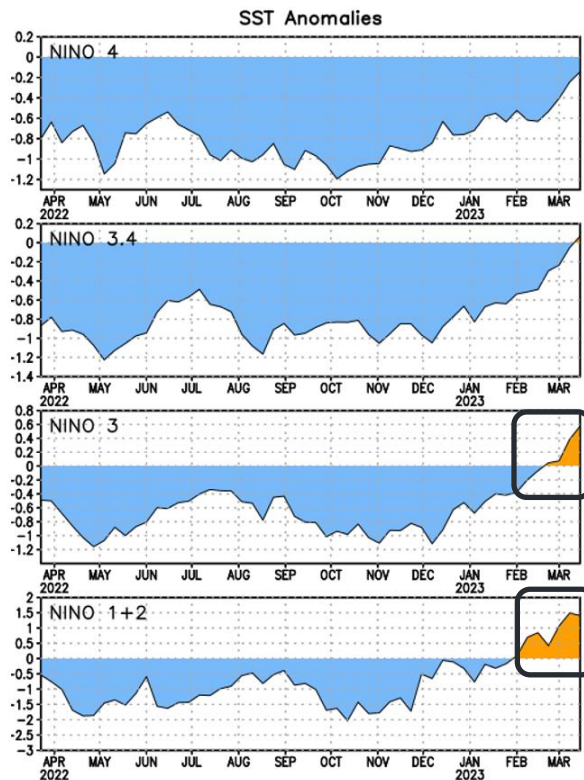


The “Why” of the Forecast: El Niño/Southern Oscillation (ENSO) transitions to neutral

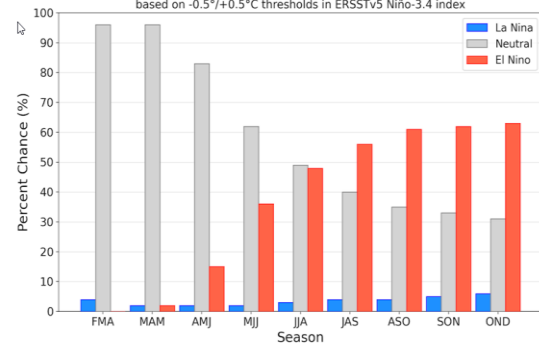
Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2021	-1.0	-0.9	-0.8	-0.7	-0.5	-0.4	-0.4	-0.5	-0.7	-0.8	-1.0	-1.0
2022	-1.0	-0.9	-1.0	-1.1	-1.0	-0.9	-0.8	-0.9	-1.0	-1.0	-0.9	-0.8
2023	-0.7											

- La Niña is fading to neutral in March and continue neutral into early or mid summer
- The remnant La Niña combined with general atmospheric patterns and other “teleconnections” **leans toward warm and dry/drought conditions into mid April**, with unknowns from mid April through June
- El Niño is possible by the peak of the Hurricane season. Summer El Niños can enhance heat/drought, as was the case in 2009.

*Above right: Oceanic Niño Index. Values below -0.5 (light blue) indicate a 3-month La Niña episode. Current La Niña has reached 18 months as of Feb. 2023.

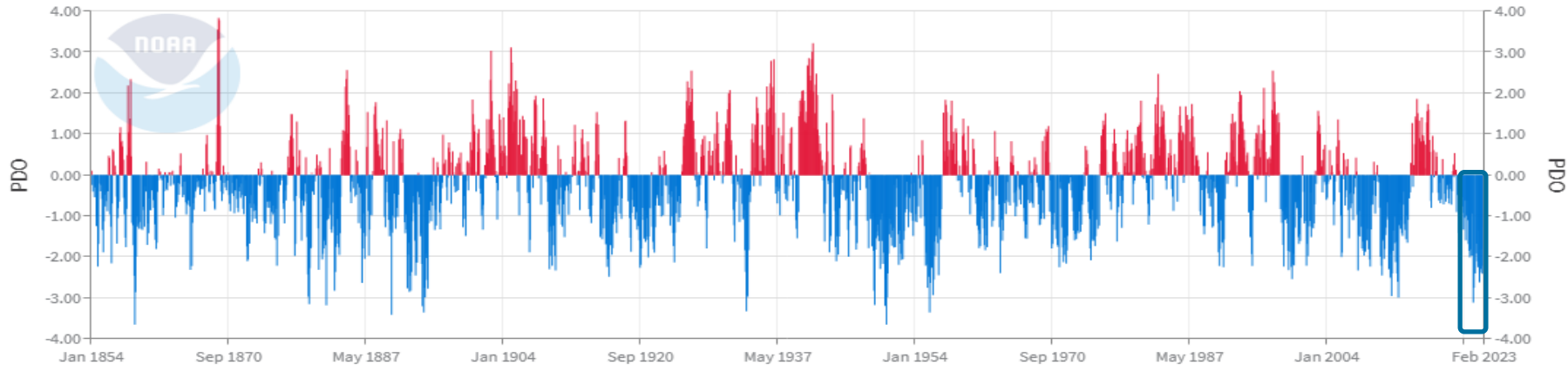


Official NOAA CPC ENSO Probabilities (issued Mar. 2023)
based on -0.5°/+0.5°C thresholds in ERSTv5 Niño-3.4 index



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

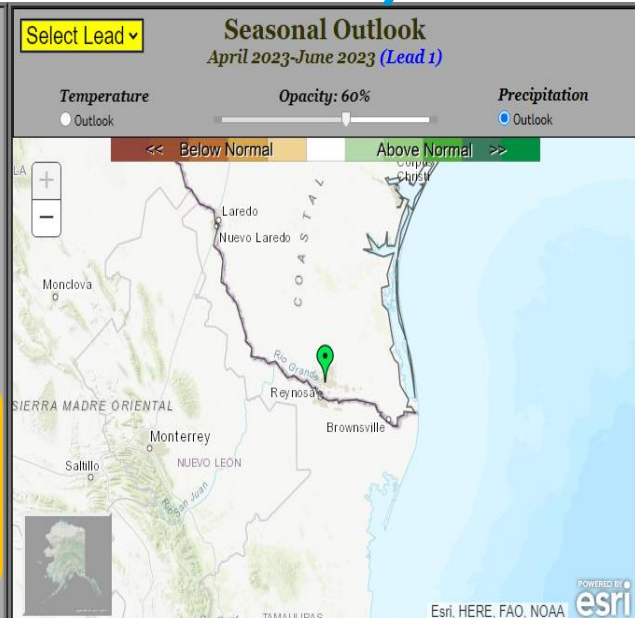
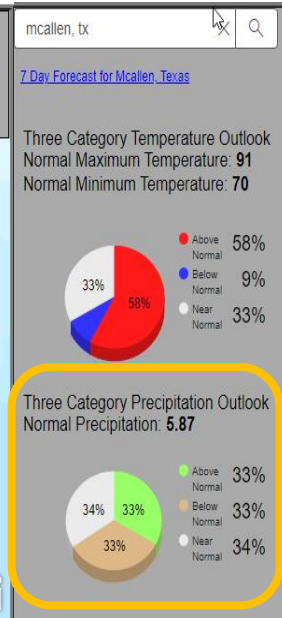
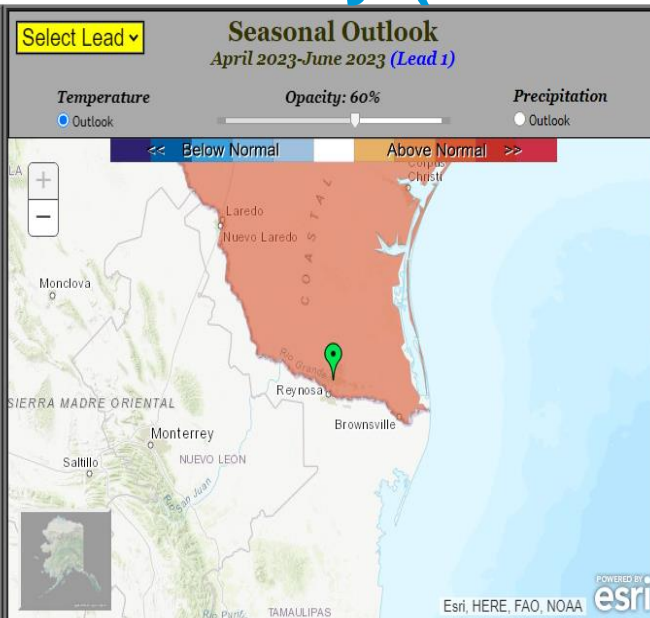
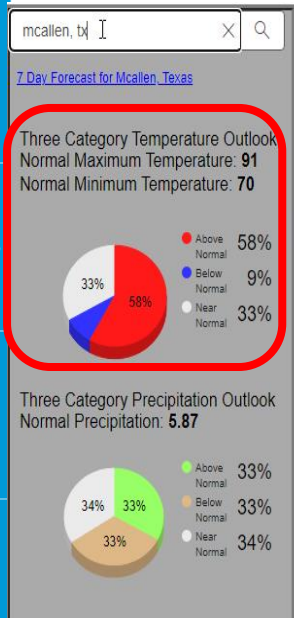
Pacific Decadal Oscillation (PDO)



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

- The 2021-2023 prolonged and strong negative PDO remains similar to that of late 2010 through 2011. Combined with the persistent La Niña – also very similar to that from late 2010-2011 (though 2011 was a bit stronger), **confidence remains high on warm-hot April-June** overall.
- The PDO when combined with neutral ENSO suggests lower confidence for drier than average for the April-June 2023 period.

The April-June 2023 Outlook: Rio Grande Valley (McAllen as Anchor Point)

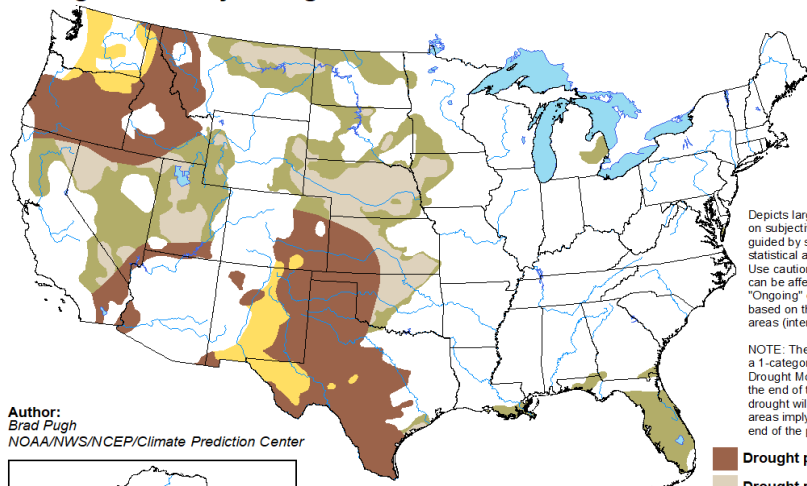


- Temperature: A **58 percent chance of above average**. A **9 percent chance for below** average: RGV averages: Afternoon – Mid to Upper 80s at start of April, rising to the mid to upper 90s by the end of May. Wake-up: Around 65 in early April, rising to the upper 70s at the end of June
- Precipitation: Equal Chances of Above, Below, or Average. RGV averages: 5-6 (west) to 7 (east) inches.

The April-June 2023 “Droughtlook”

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

Valid for March 16 - June 30, 2023
Released March 16



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).

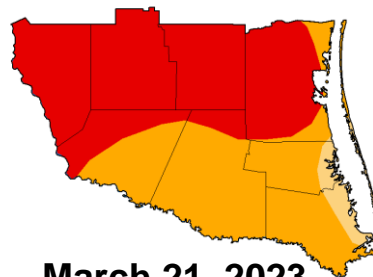
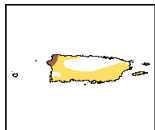
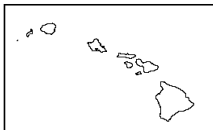
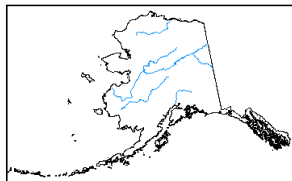
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely

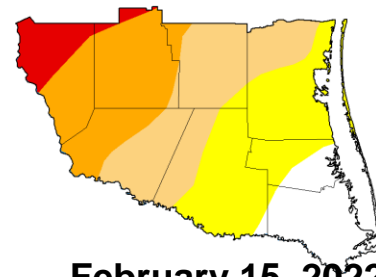


<http://go.usa.gov/3eZ73>

Author:
Brad Pugh
NOAA/NWS/NCEP/Climate Prediction Center



March 21, 2023



February 15, 2022

Drought Classification

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

- Drought spread and worsened across the northern ranchlands and into the Rio Grande Valley** as dry and breezy/windy weather continued through most of March. Cured grasses/brush remained “crisp” through most of March, west of IH-69E/US 77.
- Severe to Extreme Drought levels** are likely to continue into at least mid April. Worsening, or improvement, will be determined by the rain “wild card” potential from thunderstorm clusters, mainly after mid April.

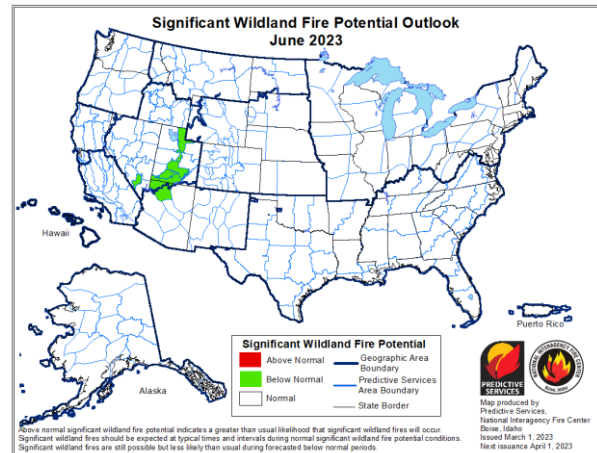
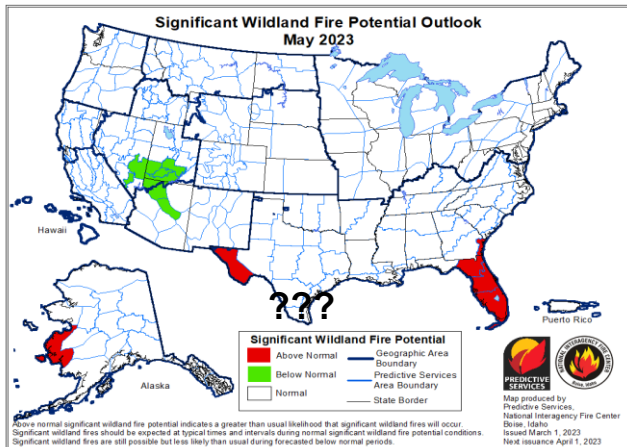
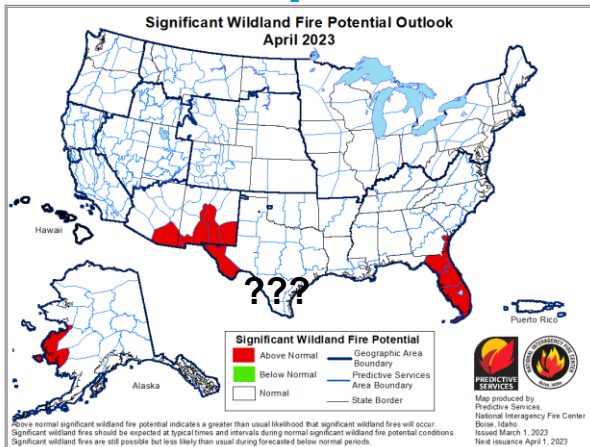


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Wildfire Spread Potential Exists through at least May 2023



- **2022/23 fuel loads remain abundant** across the Brush Country and Coastal Plains as of late March.
- **Cured rangeland and brush remains** across most of these areas, and all are likely to see continued drought levels at Level 3 (Extreme) or possibly worsen to Level 4 (Exceptional) in April.
- Those fuels will remain parched, especially if additional “dry” fronts surge strong northwest winds and very low humidity across high growth areas, bringing **“flash drying”** into April.
- **Mid April through May is a “wild card”**. Without significant wetting, the wildfire spread threat would continue.
- June could continue the potential for rain from multiple sources – but the forecast is highly uncertain (low confidence for any outcome)

Could this scene repeat in April-June somewhere in ranch country?



“SMAC” Wildfire, northwest Brooks Co., June 2011





What Now?



- Promoting Wildfire PREVENTION remains **huge** through at least mid-April.
- We CAN reduce the acreage burned – but it **takes everyone**
- Continue to focus on **farm, ranch workers, and other persons who might drive hot vehicles** on parched brush on critical/near-critical days



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

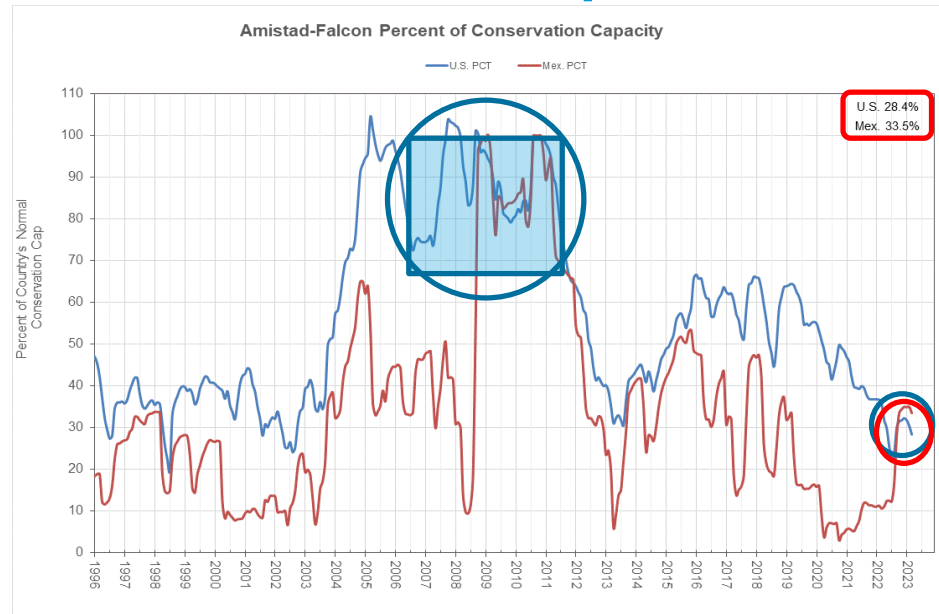
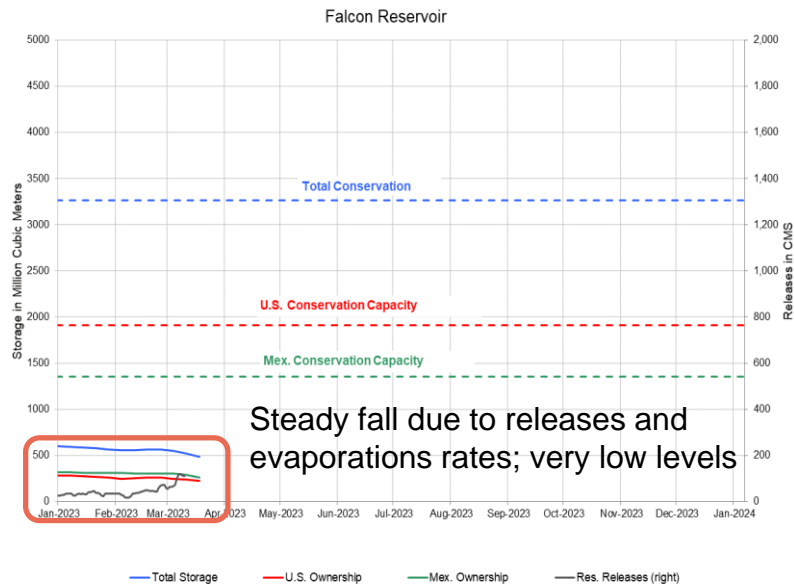
- Tenga cuidado de no arrastrar cadenas de remolque que podrían provocar chispas.
- No se estacione sobre césped seco.
- Evite las quemaduras al aire libre y revise las pilas recientemente quemadas para detectar brotes de fuego.
- Elimine la vegetación muerta alrededor de tu casa.
- Tenga cuidado soldar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



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



Falcon and Amistad Reservoir Slowly Falling; Both Reservoirs Likely to show an increasing fall rate in March and April



- Late March 2023 total capacity, Falcon Reservoir: **12.8 percent (down from 17.1 percent on March 1). Near record low** relative to long term averages.
- Late March 2023 levels are the lowest March values **since 2001 and 2002** – more than 20 years ago.



Water Conservation is Key!



The screenshot shows the Texas Water Development Board (TWDB) website. At the top, the TWDB logo is on the left, and a search bar and social media links are on the right. Below the logo is a navigation menu with links: 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 three featured 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 is a "Water Exploration" section with a video player. To the right of the featured programs is a sidebar with a list of resources: Best Management Practices, Agriculture, Literature, Resources, Education, Outreach, Municipal, Workshops & Presentations, and Conservation Staff. Below this is another section with links for Drought, Rainwater Harvesting, and Water Reuse.

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

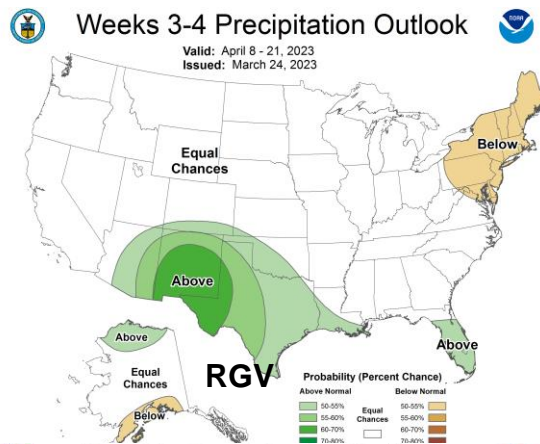
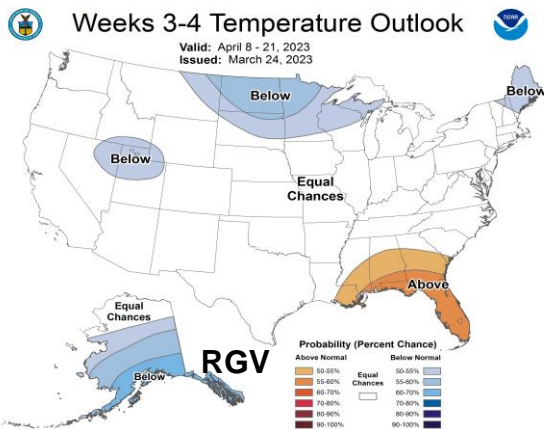
Drought

- Rainwater Harvesting
- Water Reuse

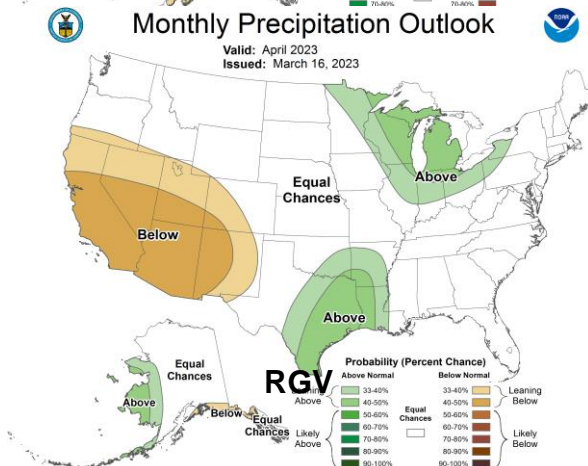
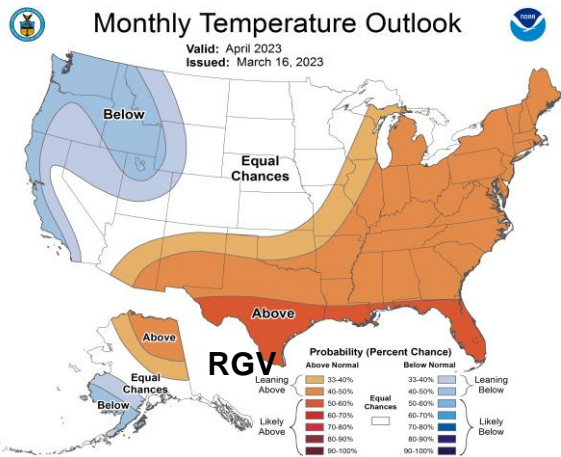
- With “[Stage 2](#)” [Restrictions](#) possible later this spring and summer, water conservation is critical.
- Learn more at the [Texas Water Development Board’s Conservation Page](#)



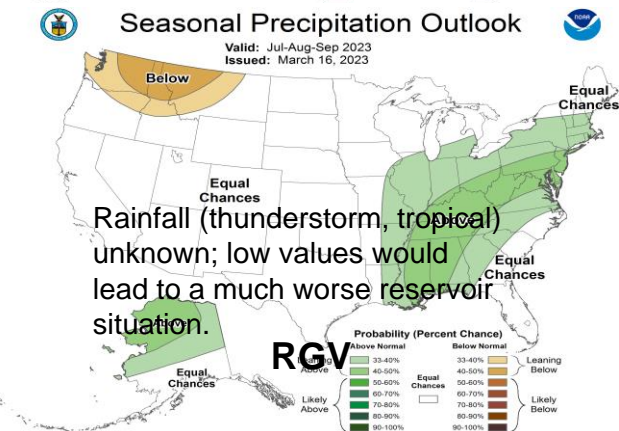
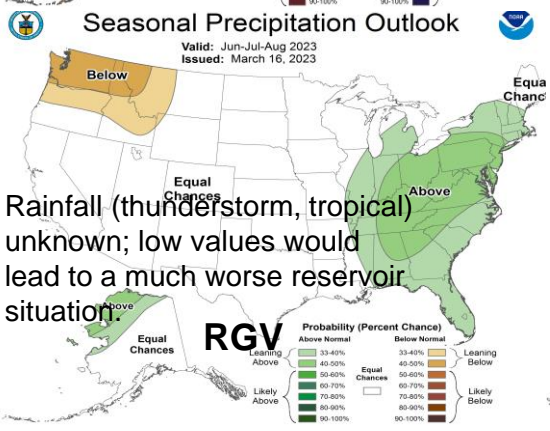
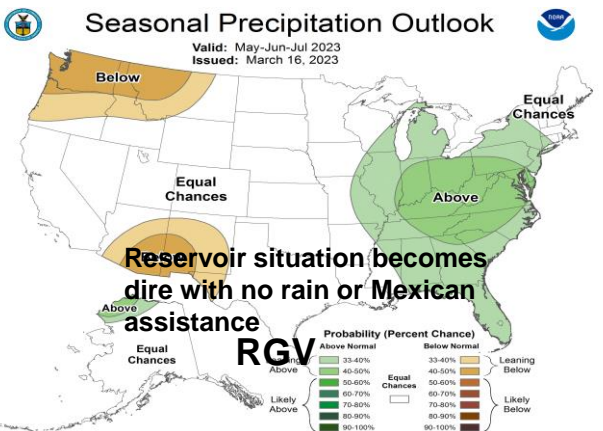
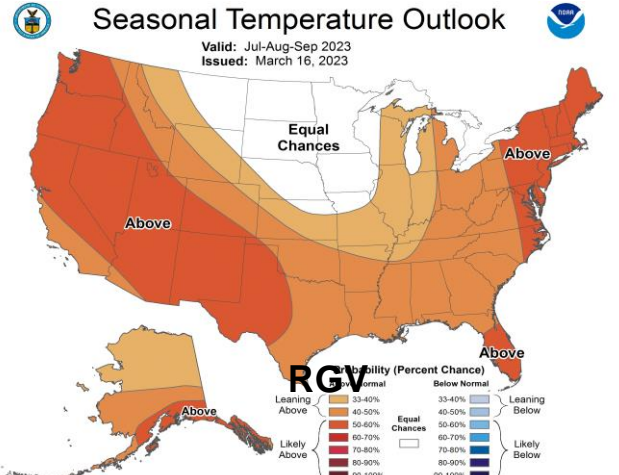
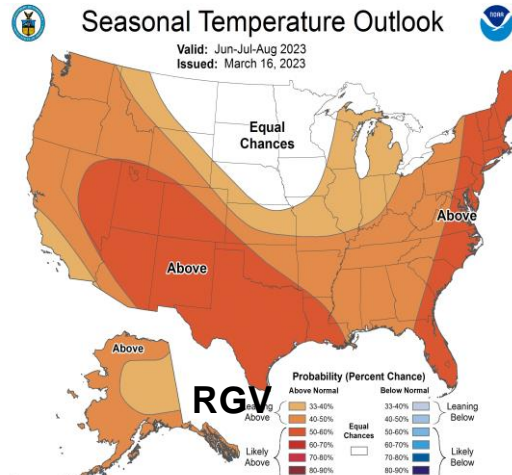
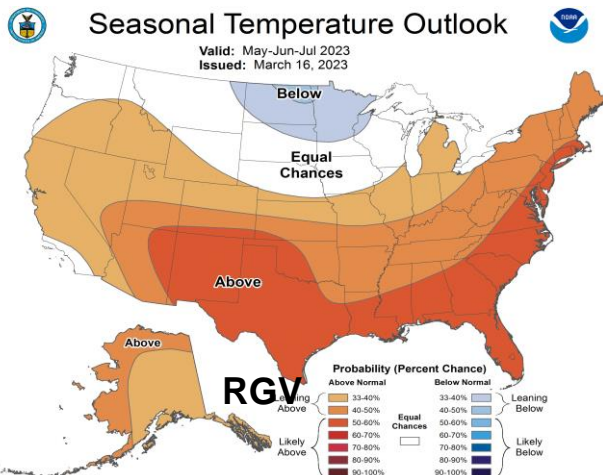
April 2023: Confidence Very High on Heat; Less So on Rainfall



- **Bottom Line: Warm to hot weather is expected**, with no further “cold” fronts in April.
- **Confidence** in a dry April has faded to low to medium. An active “jet stream” pattern could favor enough wet periods to push the monthly average above the typically dry (around 1 inch of rainfall) number.
- Exactly **where** the heaviest rain falls across the southern/southwestern U.S. remains highly uncertain and dependent of the location of upper level systems and their ability to pull in increasingly warm/humid atmospheric conditions. Stay tuned.



Summer 2023 and Beyond: Hot with “Wild Cards” on Rainfall



Rainfall (thunderstorm, tropical) unknown; low values would lead to a much worse reservoir situation.

Rainfall (thunderstorm, tropical) unknown; low values would lead to a much worse reservoir situation.

Reservoir situation becomes dire with no rain or Mexican assistance



Bottom Lines

- Water storage levels at **Falcon and Amistad** continued a steady decline through March from a combination of agricultural releases (both U.S. and Mexico) and unseasonably high evaporation rates. March 2023 levels were just above record low levels in March 2001 and 2002. Without rain or inflows from Mexican reservoirs serving the Lower Rio Grande watershed, **combined share of water in Amistad and Falcon is likely to reach Stage 2 triggers in April.** Water conservation, smart irrigation, and rainwater harvesting are important actions through spring and potentially beyond.
- The growth, thickness, and density of grasses and brush in autumn 2022 (in rural RGV areas) has largely been “freeze cured” from the Dec. 23-25, 2022 event and remained **“tinder/duff” for rapid-spread wildfires** which would continue **well into April**, without sufficient rains. Wildfire prevention activities are strongly urged into April, and resources should be readied for deployment, just in case.
- **Severe (level 2) to Extreme (level 3 of 4) Drought** will become **Exceptional (level 4 of 4) for the ranch areas of** the Valley/Brush Country/Rio Grande Plains if April sees below average rainfall. Rainfall is a “wild card” and confidence is low; drought **improvements** are equally likely.
- Rain could be sufficient for local **urban/flash floods**, and be joined by **damaging winds large hail and excessive lightning** in thunderstorm “clusters”. Prepare for the potential with these safety tips.