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

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Expectations of Warmer and Drier Trends Continue as El Nino “Flips” towards a La Nina

Warm and dry trends continue, but could early tropical season eliminate dryness concerns?

Hurricane Alex, June 30th, 2010
April 2024: Heat and Humidity Built as Region Missed North/East Texas Storms

- Upper level disturbances that produced copious rainfall across north, east, and southeast Texas in April left the RGV dry.
- Meanwhile, warmer-than-average temperatures persisted, with year-to-date averages among the top ten warmest on record across the region (January 1 through April 28 – below).
- Rio Grande reservoirs that serve Texas remained at or near record calendar-day lows at the end of April (lower right).

Note: For April (through the 28th), Brownsville, Harlingen, and McAllen average temperatures ranked in the top 20; Brownsville was 8th warmest and Harlingen/McAllen 18th warmest.
Seasonal Forecast, May – July 2024 USA

Seasonal Temperature Outlook

Valid: May-Jun-Jul 2024
Issued: April 18, 2024

Seasonal Precipitation Outlook

Valid: May-Jun-Jul 2024
Issued: April 18, 2024
Key Takeaways: May-July 2024 Outlook

Confidence is medium-high on temperature and rainfall outcomes. As we transition from El Niño to La Niña, there remains some uncertainty on the prevailing (average) signal that could enhance rainfall, or hold it back. Confidence is also medium on dryness expansion or moderate to severe drought redevelopment. Based on the lack of thunderstorm systems through the end of April, confidence has increased on a less active May and early June compared to 2023.

- Reservoir levels at Falcon remained leveled off in late April. Amistad total water levels at the end of April remained at/near all-time record lows. Confidence is increasing on warm and dry conditions across the reservoir inflow regions through spring and into early summer, with accelerating evaporation rates in May and June. Confidence is near-certain on total storage remaining at or near record lows through early summer based on the temperature/rain forecast.

- Remaining El Niño influences combined with other “teleconnections” between oceans and atmosphere will determine the eventual “sense” of weather through May, but hopes of meaningful rainfall from widespread thunderstorms are dwindling.

- Stage 2 and 3 water conservation continued in several RGV municipalities in April, and Cameron/Hidalgo Counties issued water-shortage disaster declarations. Worsening conditions are likely through early summer if storms are infrequent.

- 100° days are likely to increase in May, especially from Brooks/Hidalgo west to Zapata – then increase in number and location to include Cameron-Kenedy County, in June. Dangerous “feels like” temperatures – 111° or higher – are likely, on occasion, in June and July, for a third year in a row.

- That said, dependency on tropical systems in what’s expected to be an active season is increasing and could be the saving grace that puts a dent in dryness expansion. An early-season (June) event can’t be ruled out, but is unlikely now.
The “Why” of the Forecast:  
**ENSO Neutral on track to develop this Spring with La Nina on track to develop this Summer**

- Despite a weakening, but still moderate to strong El Niño in place, other teleconnections including a positive Arctic Oscillation (+AO) and a negative North American Oscillation (-NAO) stymied the sub-tropical jet and limited severe weather/rainfall production in April.

- The rapid transition into ENSO Neutral favors hotter and drier conditions through early summer, but uncertainty remains on whether any thunderstorm “cluster” events can occur and produce localized average to above average rainfall in May or June. A tropical wave or cyclone cannot be ruled out in June, though “La Canícula” (dry upper level pattern in mid summer) may develop early.

*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 weakened slightly December-February.
The May-July 2024 Outlook: Rio Grande Valley (McAllen as Anchor Point)

- **Temperature**: Hotter than normal temperatures likely May-July (Confidence: Medium-High). RGV averages: Afternoon – Around 90 at the start of May, rising to 98 to 102 in July. Wake-up: Around 70 in early May, rising to 75 to 80 from late June through July.

- **Precipitation**: Equal chances for above, below, and average. RGV averages: 7 to 8+ inches.

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- Afternoon: Around 90 at the start of May, rising to 98 to 102 in July.
- Wake-up: Around 70 in early May, rising to 75 to 80 from late June through July.
- Precipitation: 7 to 8+ inches.
The May-July 2024 “Droughtlook”

Drought designation (D0-Abnormally Dry) developed over the RGV in April. 4” (depth) soil moisture fell to 20-30 percent (abnormally dry) by late April.

Continued “lean” toward a hot and dry late spring/early summer suggests moderate, to potentially severe, drought may develop across parts of the region, especially from Hidalgo/Brooks out to Zapata.

The forecast through early June remains a little uncertain as upper level disturbances may bring one or two “coverage” rain events with fronts and/or tropical moisture feeds. If rains are fleeting or nonexistent, drought will return.
Wildfire Spread Potential Could Increase Through Mid Summer

**Effective Green** was present across all but Zapata and western Jim Hogg Counties at the end of April. **Transitional Green** was present there, but also likely developing across the populated Rio Grande Valley (south of yellow dashed line).

May and June will continue to be highly dependent on “just in time” rainfall. Any rain would come in the form of thunderstorm systems. If such systems are seldom or not at all, wildfire growth potential could shift to *above average*. The most likely locations would be west of IH-69C/US 281. May and June typically are our most active period when it comes down to spring (non-tropical) thunderstorms.

Late June and perhaps July will be dependent on tropical systems.
Wildfire Prevention Review

- This remains critical through autumn, especially if severe to extreme drought continues over fuel-loaded rangeland north of the populated Valley. The 300+ acre fire at Santa Ana NWR happened in September, as did a similarly large fire in Starr County.

- 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 estaciones sobre césped seco.
- Evite las quemaduras al aire libre y revise las pilas recientemente quemadas para detectar brotes de fuego.
- Elimine la vegetación muerta arredro 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 remained at Record Seasonal Lows; Falcon Fell Back

Falcon resumed a steady drop in April due to lack of rainfall, no inflows, and increasing evaporation – to 17.1%, down from 25.9% on March 25th. This level was just above record lows for this date. The forecast that favors below average rainfall in the watershed suggests values will drop through late spring and early summer, barring additional releases from Amistad, organized thunderstorm systems that develop in the watershed, or a late June tropical system.

Amistad remained at/near all-time record lows in late April. Levels were at 20.5% on April 29th – about steady from late March (20.7%). The late spring/early summer forecast strongly suggests minimal inflows into Amistad while temperature and evaporation rates rise. Without assistance, levels are likely to fall into the upper teens in May and remain through July.
Water Conservation is Key Until Further Notice!

- “Stage 2/3” Restrictions continued through early winter and are likely to continue through at least June, based on inflows from Amistad and Falcon.
- Learn more at the Texas Water Development Board’s Conservation Page.
May 2024: Confidence: Medium on Rainfall; Medium-High on Temperature

• Bottom Line: The pattern continues to lean warmer and drier, with continued weak frontal systems yielding to a mainly dry start to the month.

• Confidence in the rainfall forecast shown for May in the RGV is low-medium.

Though April produced very little in the way of rainfall, May could provide one or two opportunities for showers and thunderstorms associated with upper level disturbances in the (southern) jet stream. If disturbances affecting the southern and central Great Plains do not connect with the southern stream, dryness will increase/intensify.

As thunderstorm potential wanes in June and July, our dependency on and the chance for tropical systems may increase and will need to be monitored closely.
Summer 2024 into early Autumn 2024: Dryness and Heat Becoming More Likely; Tropical Season Dependency Critical

Rainfall location is key to reservoir assistance. This forecast suggests continued low/record levels and major water supply issues downstream. Thunderstorms and/or tropical systems would need to reach the watershed for assistance.

Confidence has increased for hotter than normal temperatures for the RGV.

Confidence has increased for hotter than normal temperatures for the RGV since the outlook issued in February.

Rainfall location is key to reservoir assistance. Slight lean to wetter than normal pattern in the lower Valley due to the expected much above average number of tropical cyclones in August/September. Tropical systems would need to reach the watershed for assistance.
Comparing Similar El Niño to La Niña Episodes; May-July Periods

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 May-July window.

• **Top:** Composite temperature (left) and precipitation (right) anomalies for moderate/strong/“super” El Niños leading into May-July, since 1950.
• **Bottom:** Same, except for most recent cases (2009/10 and 2015/16).
Bottom Lines

- Sufficient inflows from Mexican reservoirs serving the Lower Rio Grande watershed remain unlikely during the May-July 2024 period. **Combined share of water in Amistad and Falcon now likely to continue well below Stage 2 and 3 triggers (25% or less) through at least June.** Water conservation, smart irrigation, and rainwater harvesting are **critical actions to continue.** A **water crisis in May or June** is a becoming more likely for agriculture and some municipalities.

- It’s **possible that drought develops/expands across some locations by late May and June.** Drought development will be predicated on **limited to no areawide thunderstorm events; multiple events would slow or hold off worsening drought.** Prolonged spells of warm to eventually hot weather with low to moderate humidity would bring severe-extreme (Level 2-3 of 4) drought as early as late May or June to parts of the area, particularly the Rio Grande Plains. The combination of increasing heat (evaporation) and very limited water releases would have **major impact on the crop and livestock industry.**

- The expectation that El Niño will quickly turn neutral this spring, and possibly flip to La Niña by late spring/early summer, could be a harbinger of wildfire spread potential – after a warm and dry April. **May-June begins a critical period.**

- **Severe Weather? May through June** offers the best opportunity, as surface temperatures warm with the sun and instability could increase. However, **much would depend on an active subtropical jet stream linking up with stronger mid-latitude systems.** A **drier pattern, especially in May, would reduce opportunity.** Because of these factors, **confidence is low.** Typical threats would be **hail,** followed by **damaging wind** and **flooding rain.**

- **Early tropical activity? June is always a wildcard.** In 2023, the active west-east subtropical jet (steering) that produced rainfall through June 8th ended immediately on June 9th, when “La Canicula”– the pattern of atmospheric high pressure that extends from Coahuila/Chihuahua southeast through the Valley and western Gulf, **brought searing heat, humidity – and no rain.** This is a favored pattern again this year, but a **brief pattern shift** could allow a June 2018 event (tropical wave/trough) to slide in from the east and **provide beneficial rain.**