

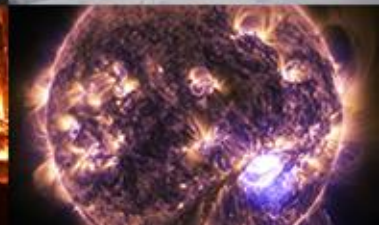
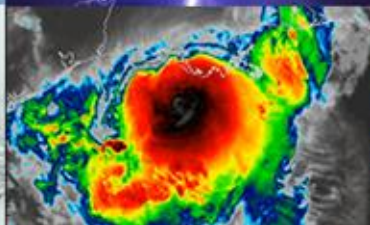


**NATIONAL
WEATHER
SERVICE**

2026 Rainfall in Review, ENSO/TC Status & a Look Ahead into 2027

September 25, 2026

Brandon Aydlett, Meteorologist-in-Charge
Weather Forecast Office, Guam





2026 Guam: *A Record Spring to Start & Still Wet*



- 2024: we noted as 'very average', balancing the wet vs dry periods
- 2025: was also 'very average', ditto 2024
- **2026: record to near record wet spring, to date (79yrs of record)** (*1976 takes the lead today, actually last night with TY Pamela's arrival*)

Year	Through 9/24 (Normal: 68.91")	Through 12/31 (Normal: 98.12")
2023 (near record...1976)	108.79" (+39.88")	138.38" (+40.26")
2024	71.36" (+2.45")	100.35" (+2.23")
2025	66.10" (-2.81")	97.71" (-0.41")
2026 (record (spring) until 5/21)	107.09" (+38.18")	TBD

Feb-Apr: 37.44" (rec)
Prior: 1963's 24.60"

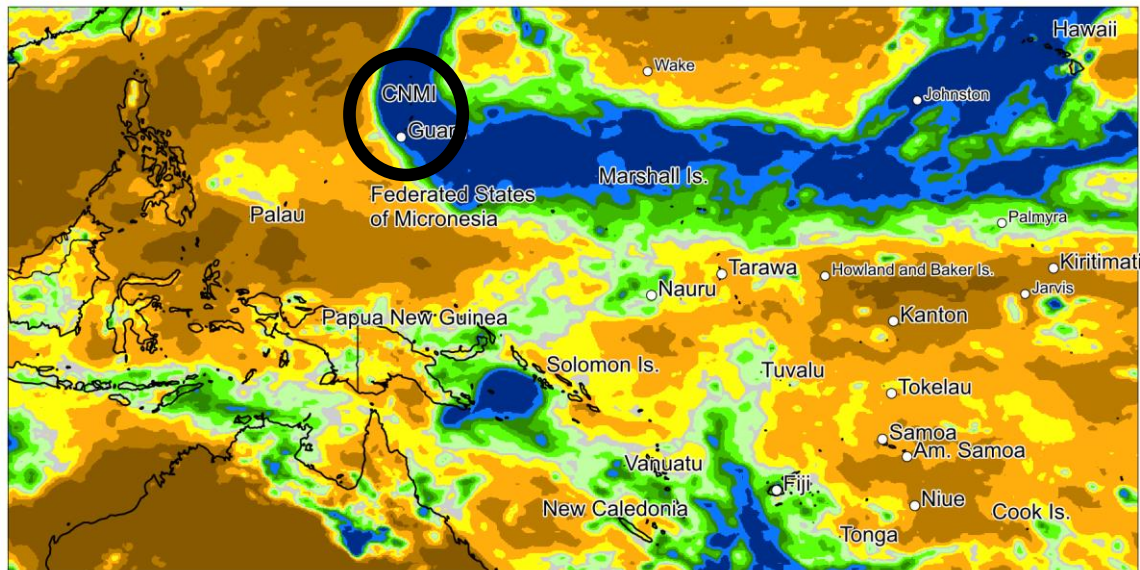




2026 Rainfall: How We Got to the Spring “Record”

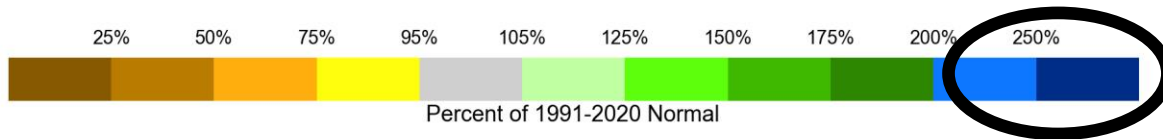


Precipitation Departure for Apr 2026



Source: ERA5 Reanalysis

Map by: Brian Brettschneider



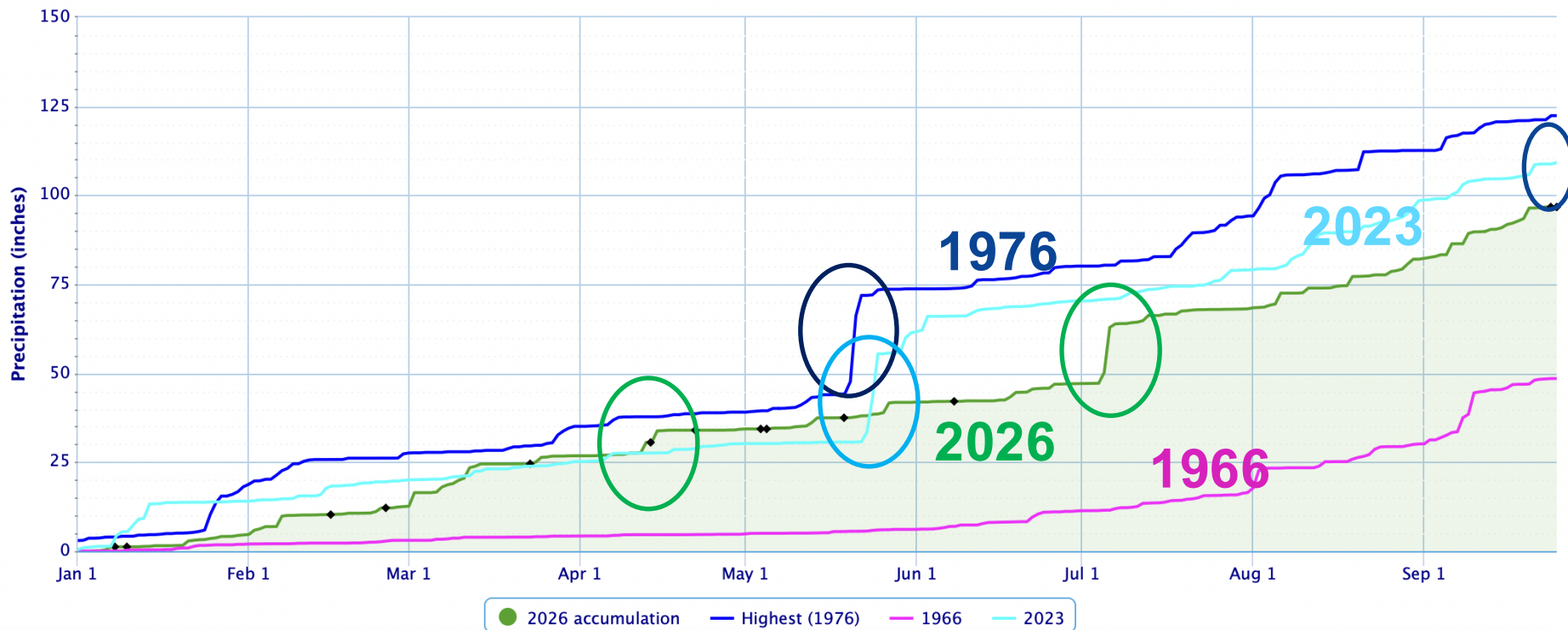


2026 Rainfall with Other Notable Years



Accumulated Precipitation – GUAM INTERNATIONAL AP, GU

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



Powered by ACIS



NATIONAL WEATHER SERVICE

Building a Weather-Ready Nation // 4

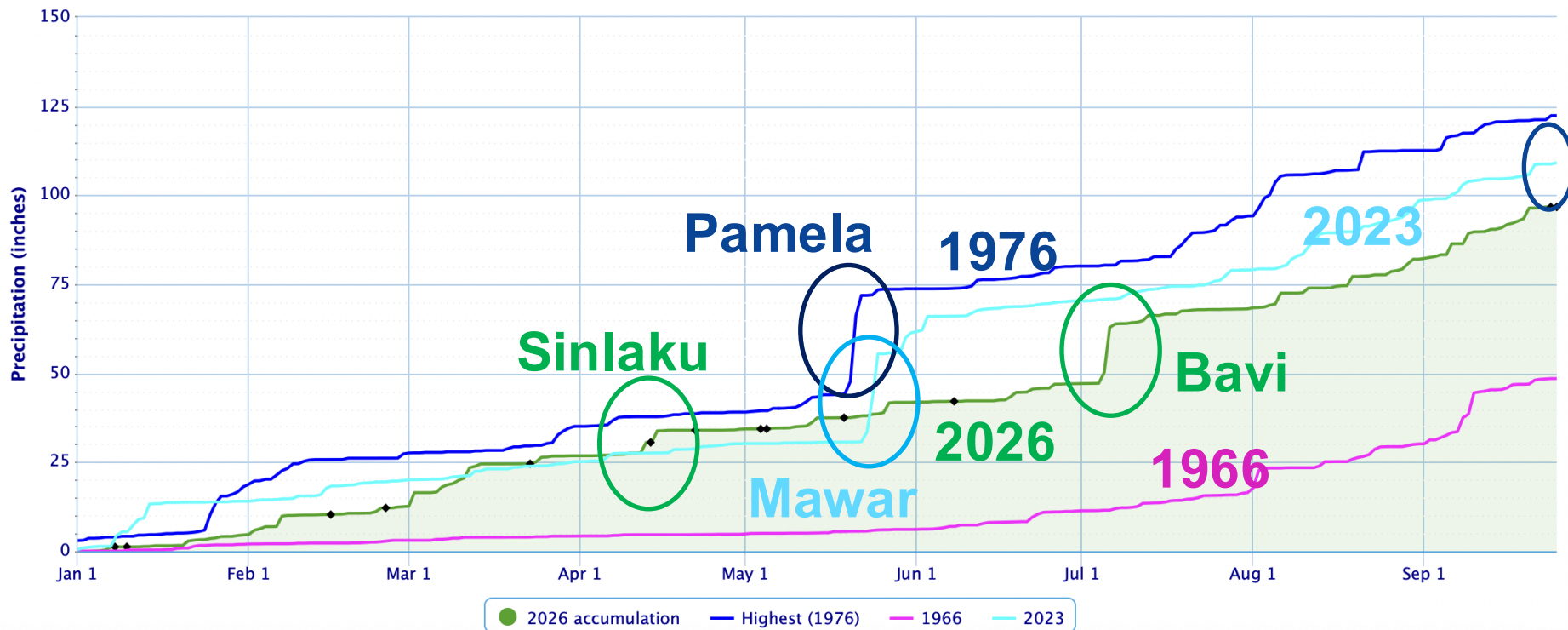


2026 Rainfall with Other Notable Years



Accumulated Precipitation – GUAM INTERNATIONAL AP, GU

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



Powered by ACIS



NATIONAL WEATHER SERVICE

Building a Weather-Ready Nation // 5

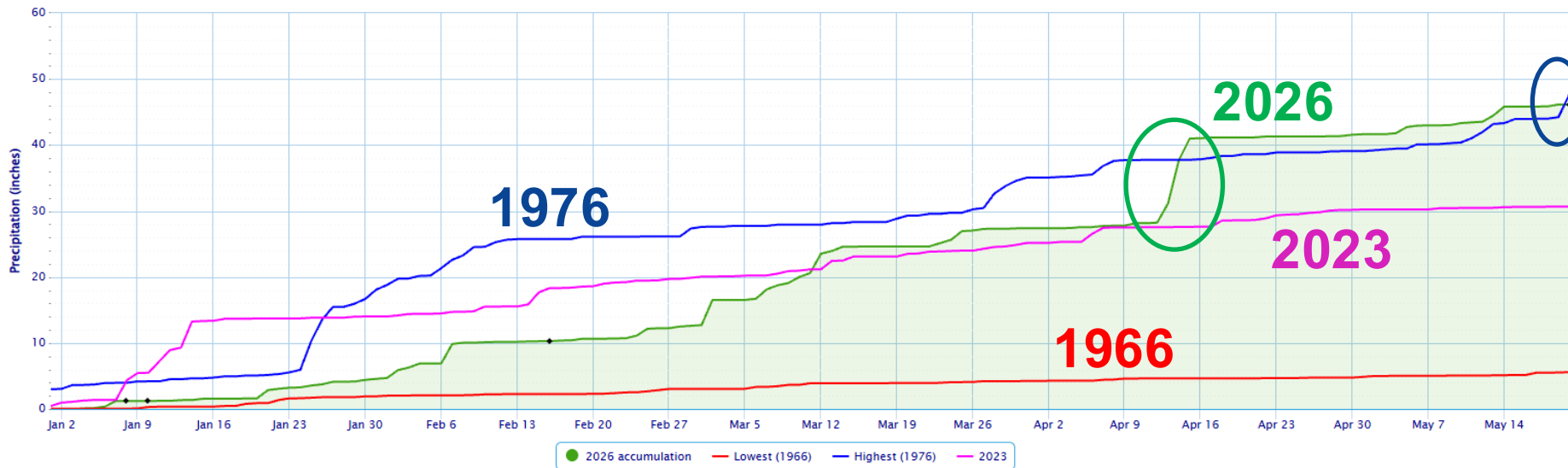


Wait...2026 Spring: *A record?* (Recall 5/21 Chart)



Accumulated Precipitation – GUAM INTERNATIONAL AP, GU

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



Powered by ACIS



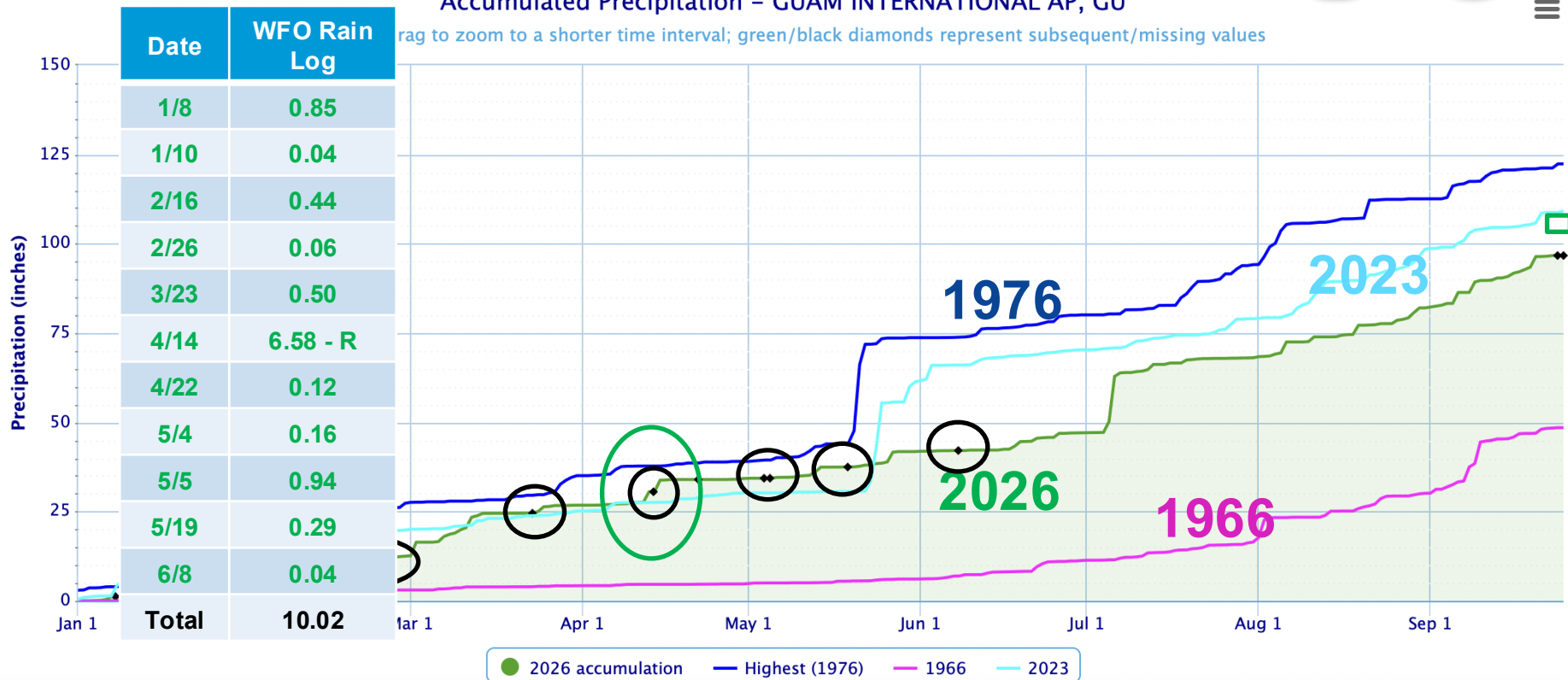


2026 Missing Daily Rainfall



Accumulated Precipitation – GUAM INTERNATIONAL AP, GU

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



Powered by ACIS

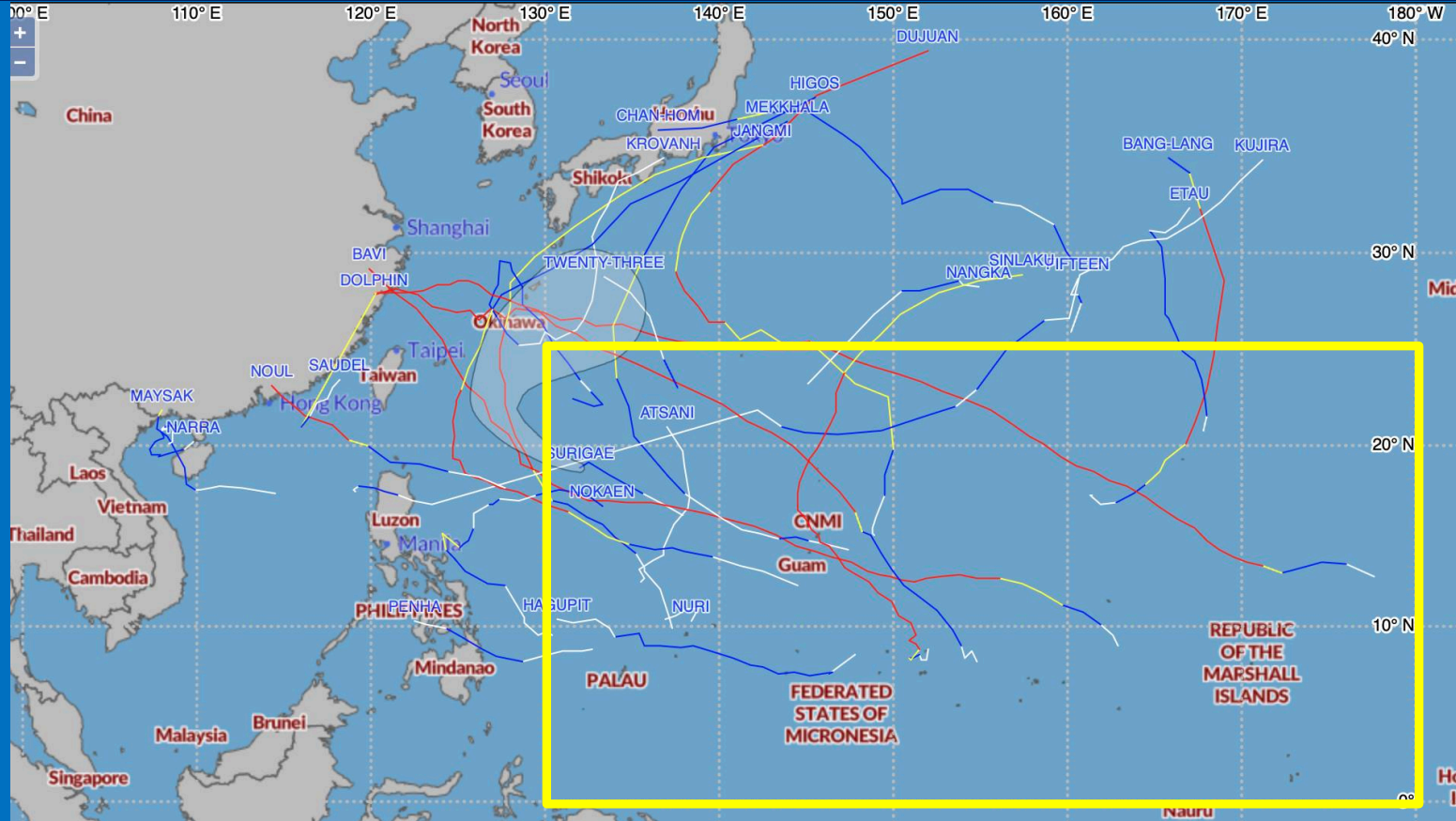


NATIONAL WEATHER SERVICE

Building a Weather-Ready Nation // 7

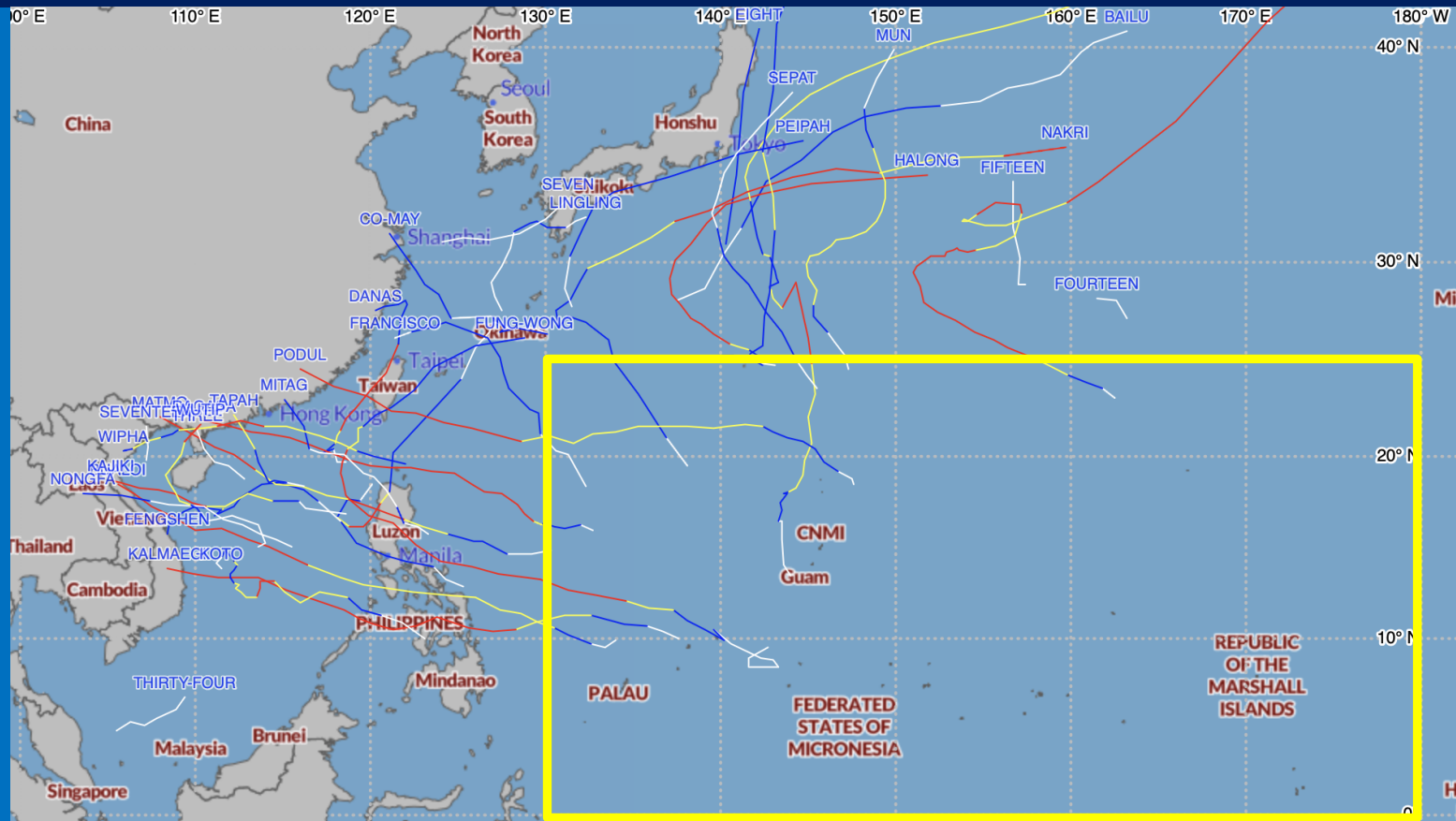


2026 AOR So Far: *4 Nearby TCs & ~21 Formations (25 Basin-wide)*



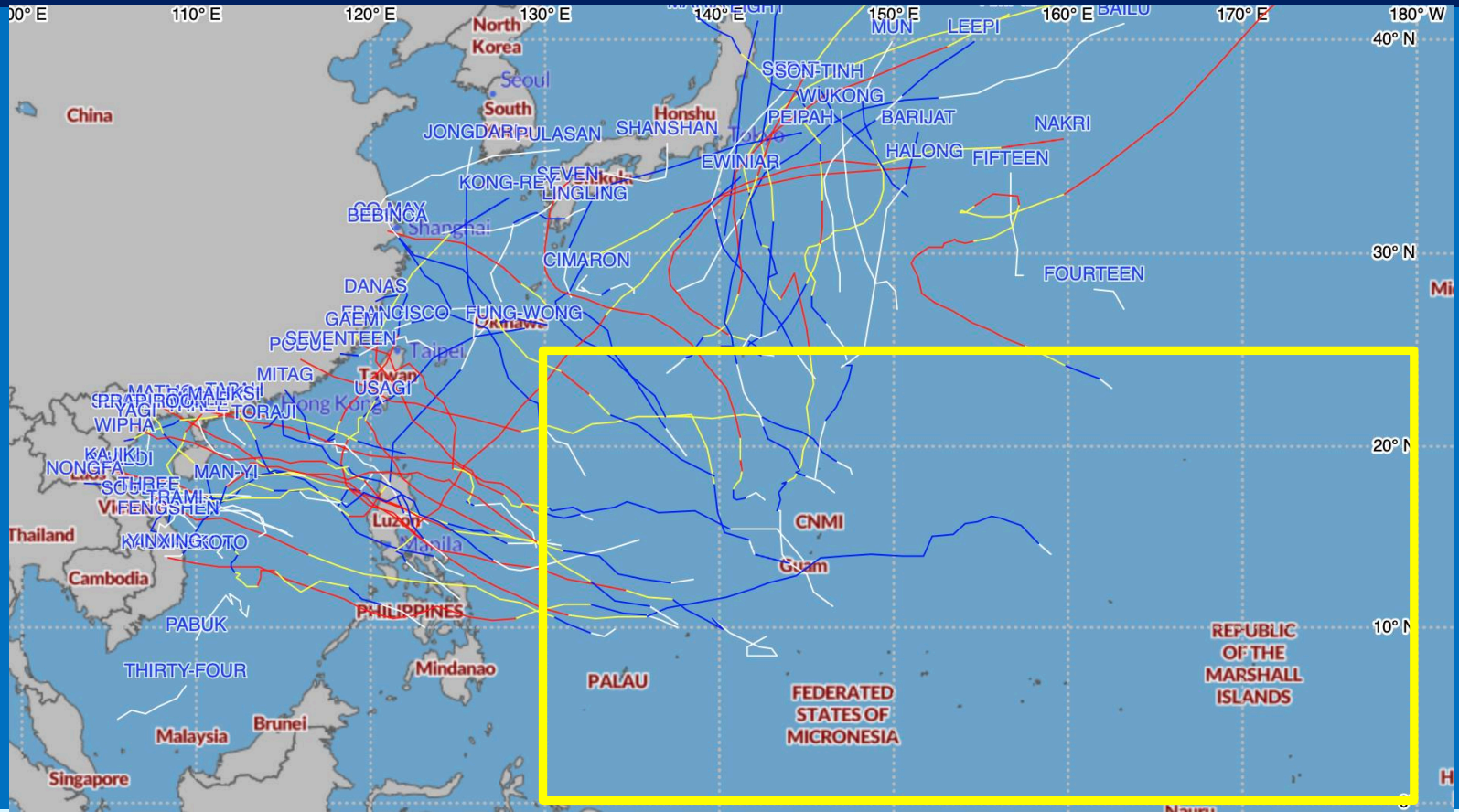


2025 AOR Look Back: *1 Nearby TC & 13 Formations*



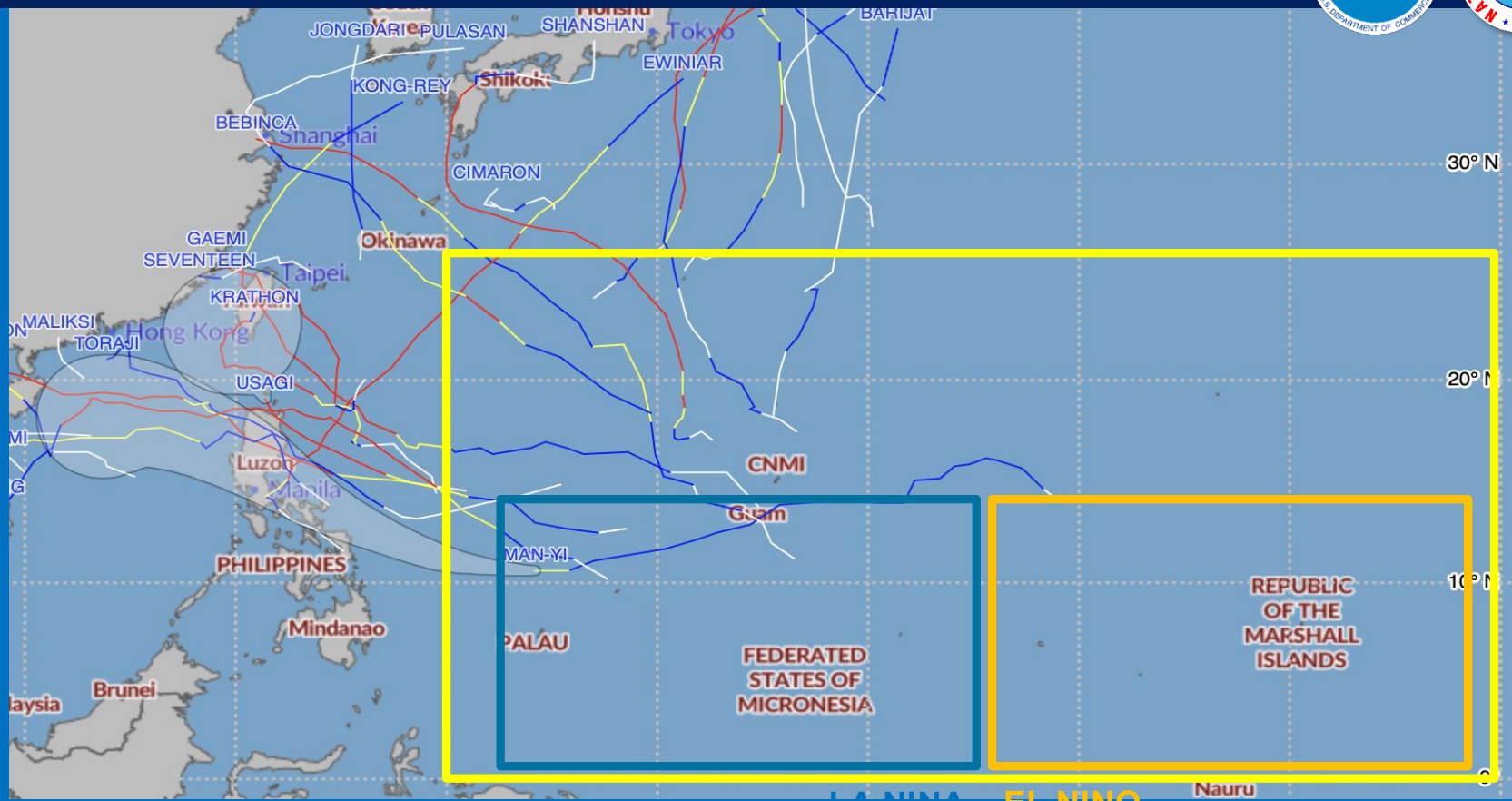


2024 & 2025 AOR Look Back: *4 Nearby TCs & ~28 Formations*



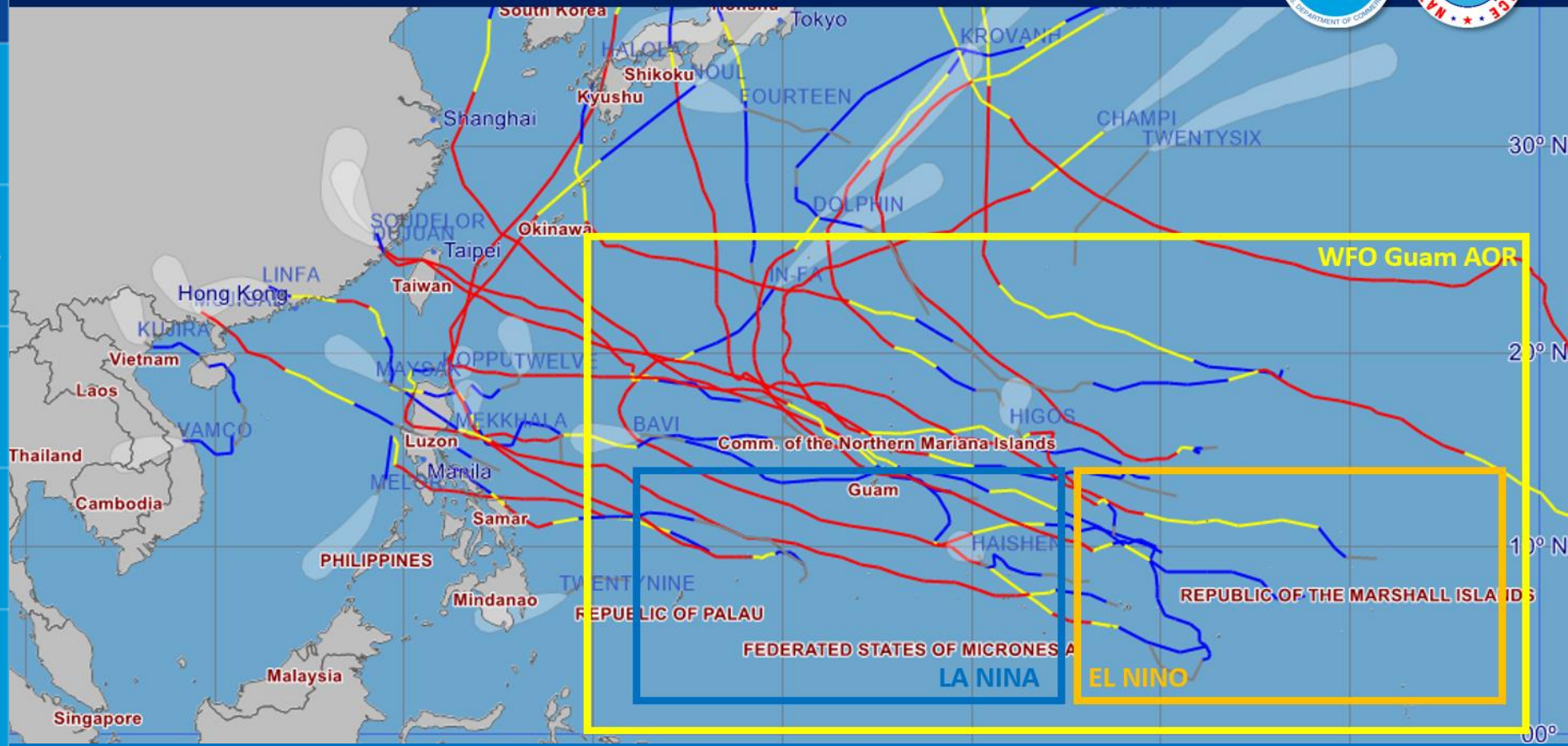


La Niña vs El Niño: 2024 – ENSO-Neutral / Weak LN





2015 TCs-Year in Review: Strong El Nino





2026 NW Pacific TC ACE, Thus Far vs Normals



Northern Hemisphere Tropical Cyclone Activity for 2026 (2026/2027 for the Southern Hemisphere)

1991-2020 Climatological Activity Through September 24 in Parentheses

Basin	Named Storms	Named Storm Days	Hurricanes	Hurricane Days	Major Hurricanes	Major Hurricane Days	Accumulated Cyclone Energy
<u>North Atlantic</u>	6 (10.3)	9.75 (47.7)	0 (4.7)	0.00 (18.6)	0 (2.1)	0.00 (5.6)	6.8 (86.0)
<u>Northeast Pacific (East of 180°)</u>	19 (13.1)	101.50 (57.5)	8 (7.2)	40.50 (22.9)	5 (3.8)	16.50 (7.5)	205.6 (105.8)
<u>Northwest Pacific (West of 180°)</u>	22 (17.7)	96.25 (86.9)	9 (10.5)	43.50 (39.8)	4 (5.7)	22.25 (14.6)	227.3 (183.4)
<u>North Indian</u>	1 (2.1)	1.50 (6.4)	0 (0.8)	0.00 (1.8)	0 (0.4)	0.00 (0.7)	1.0 (9.8)
<u>Northern Hemisphere</u>	48 (43.2)	209.00 (198.5)	17 (23.2)	84.00 (83.1)	9 (12.0)	38.75 (28.4)	440.7 (385.0)



ACE: Accumulated Cyclone Energy: Sum of squares of 6hrly max winds
10,000

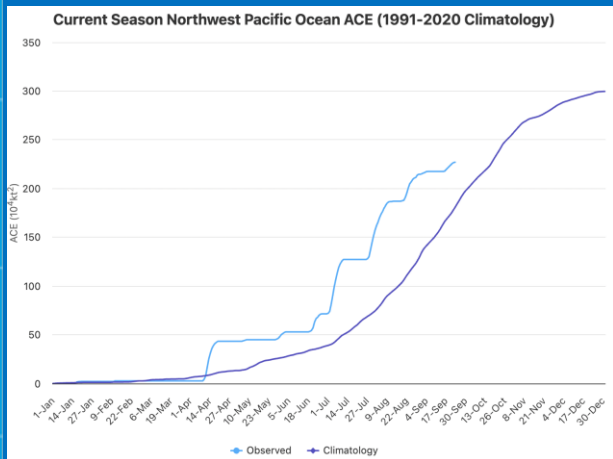




2026 Basin TC ACE, Thus Far vs Normals



NW Pacific

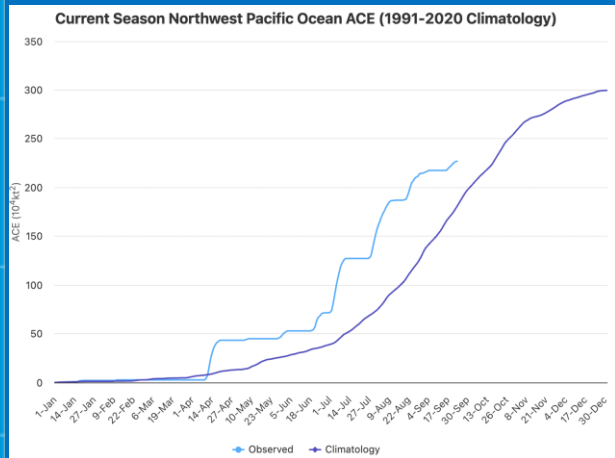




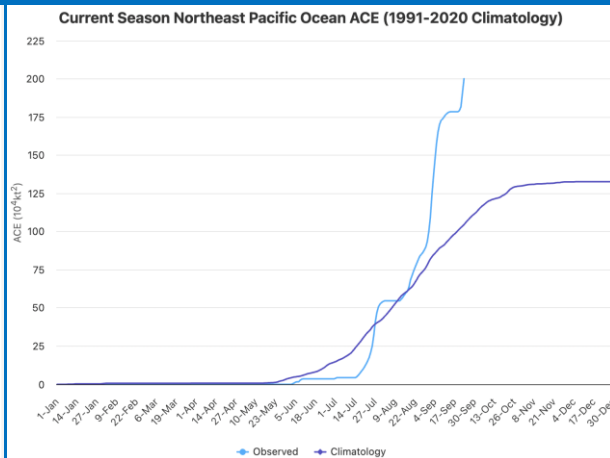
2026 Basin TC ACE, Thus Far vs Normals



NW Pacific



NE Pacific

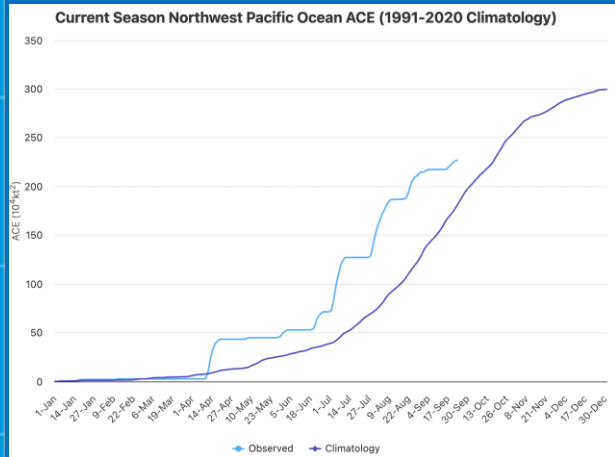




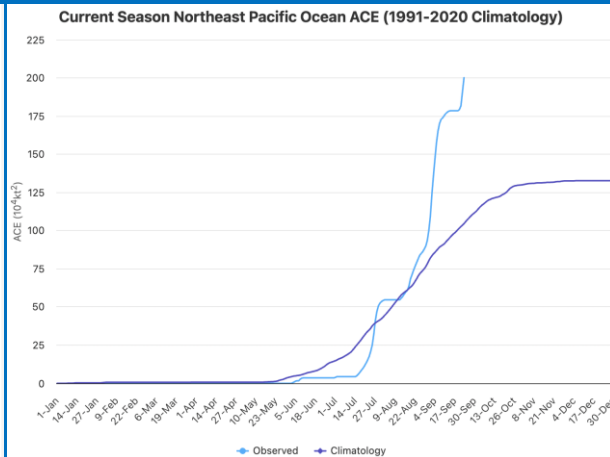
2026 Basin TC ACE, Thus Far vs Normals



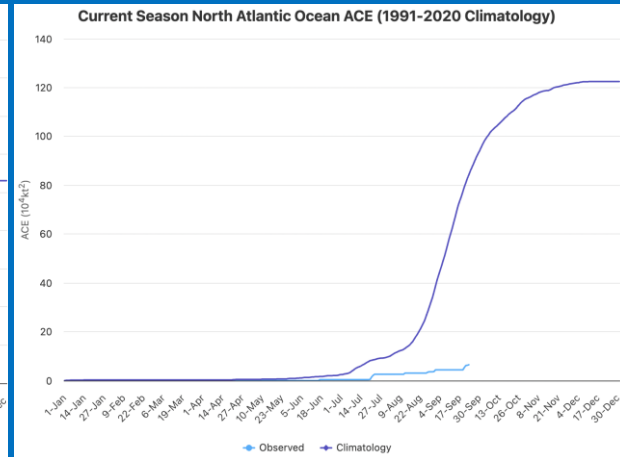
NW Pacific



NE Pacific



Atlantic





A Look Ahead: *EN+ > ENSO Neutral*



Table 1 ENSO Conditions and the Effects of ENSO Changes

Feature	Neutral ENSO Year	El Niño ENSO Year	La Niña ENSO Year
Wind	Normal east to west winds	Weaker east to west winds; can even blow from west to east	Stronger east to west winds
Rainfall	Usual amounts of rainfall with normal variability	Micronesia tends to be drier than usual, and can have long droughts	Micronesia tends to be wetter than usual
Sea Level	Usual sea level with normal tide variability	Lower sea levels so that high tides tend to cause less flooding	Higher sea levels so that high tides tend to cause more flooding

Basic ENSO trends: La Nina vs El Nino vs ENSO Neutral

(via https://ftp.soest.hawaii.edu/coastal/USAPI_CLimateChangeBooklets/Micronesia%20Climate%202016.pdf)

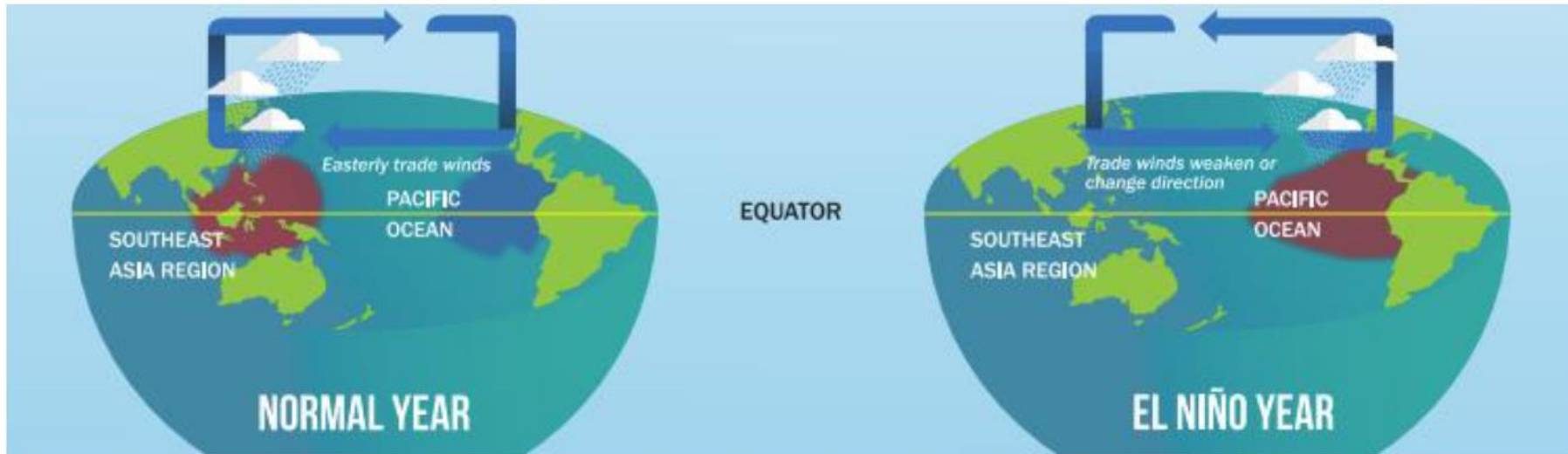




ENSO Basics



Requires a coupling or linkage between the ocean **AND** the atmosphere



<https://www.weather.gov.sg/wp-content/uploads/2015/03/El-Nino-Infographic.pdf>

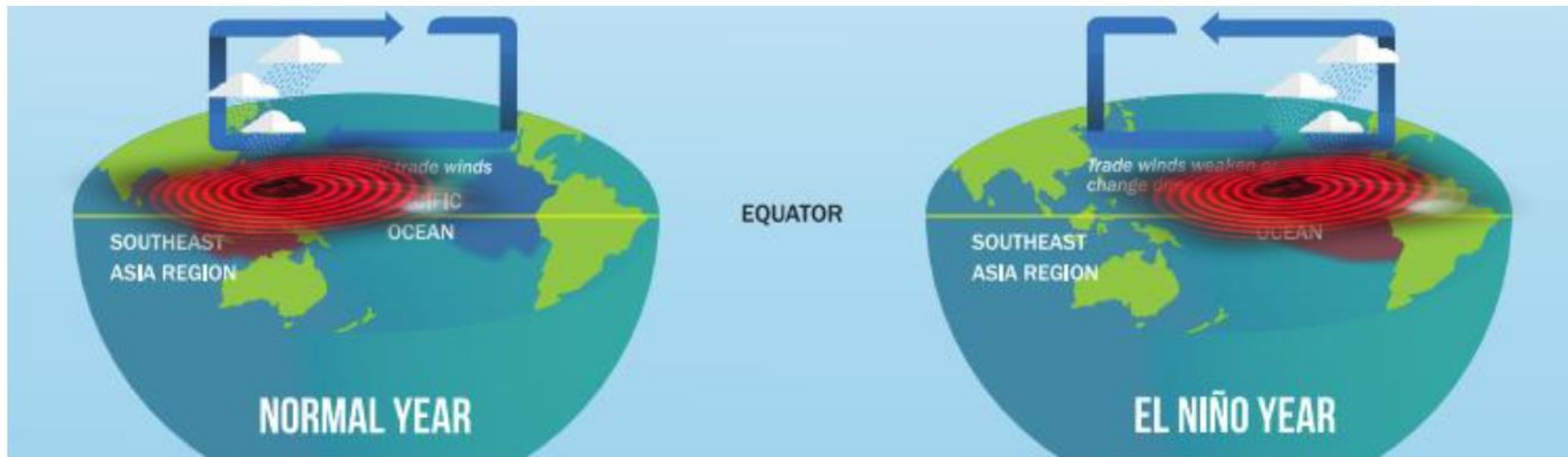




ENSO Basics



Requires a coupling or linkage between the ocean **AND** the atmosphere



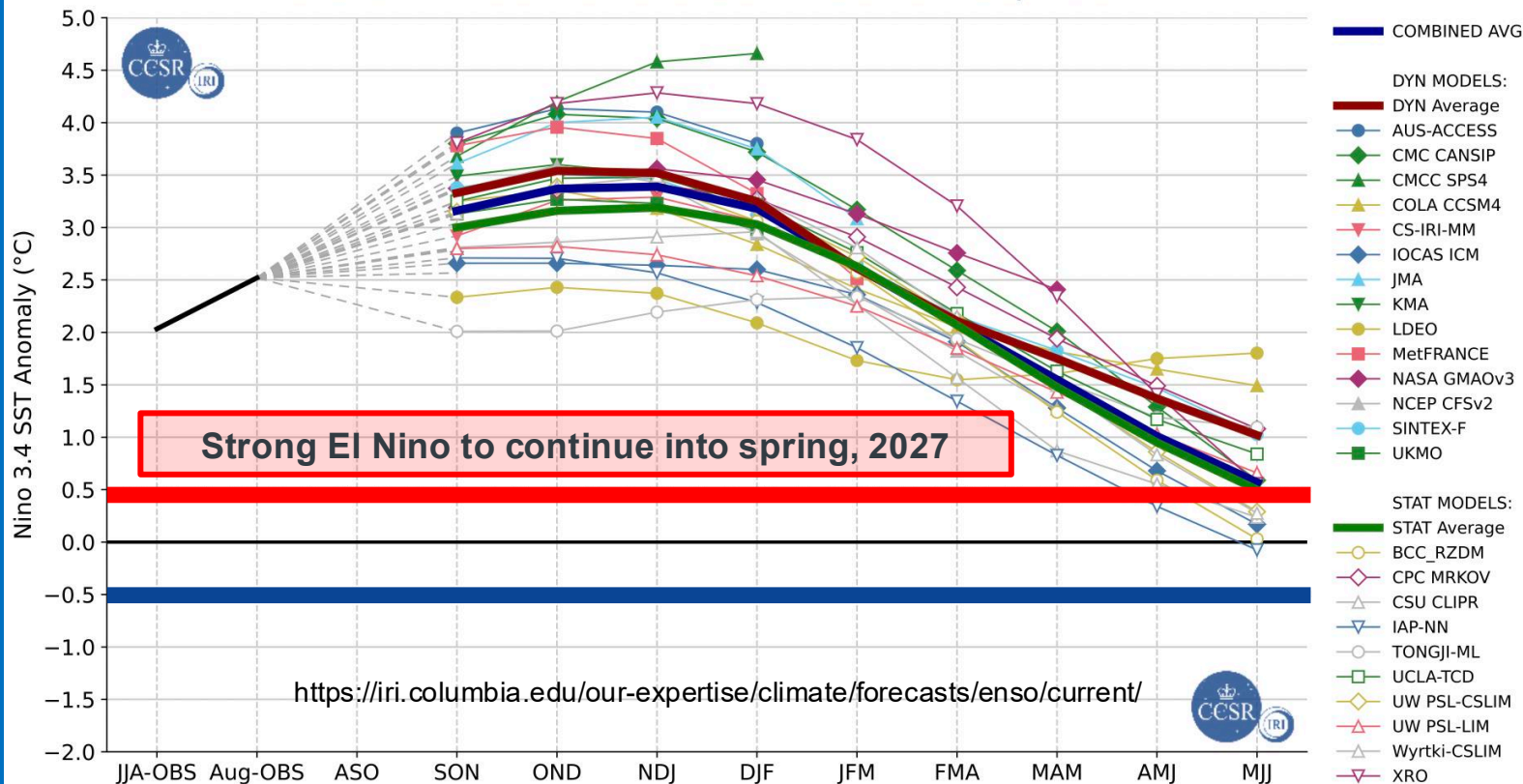
<https://www.weather.gov.sg/wp-content/uploads/2015/03/El-Nino-Infographic.pdf>



Latest IRI Projections



CCSR/IRI Model Predictions of ENSO from Sep 2026



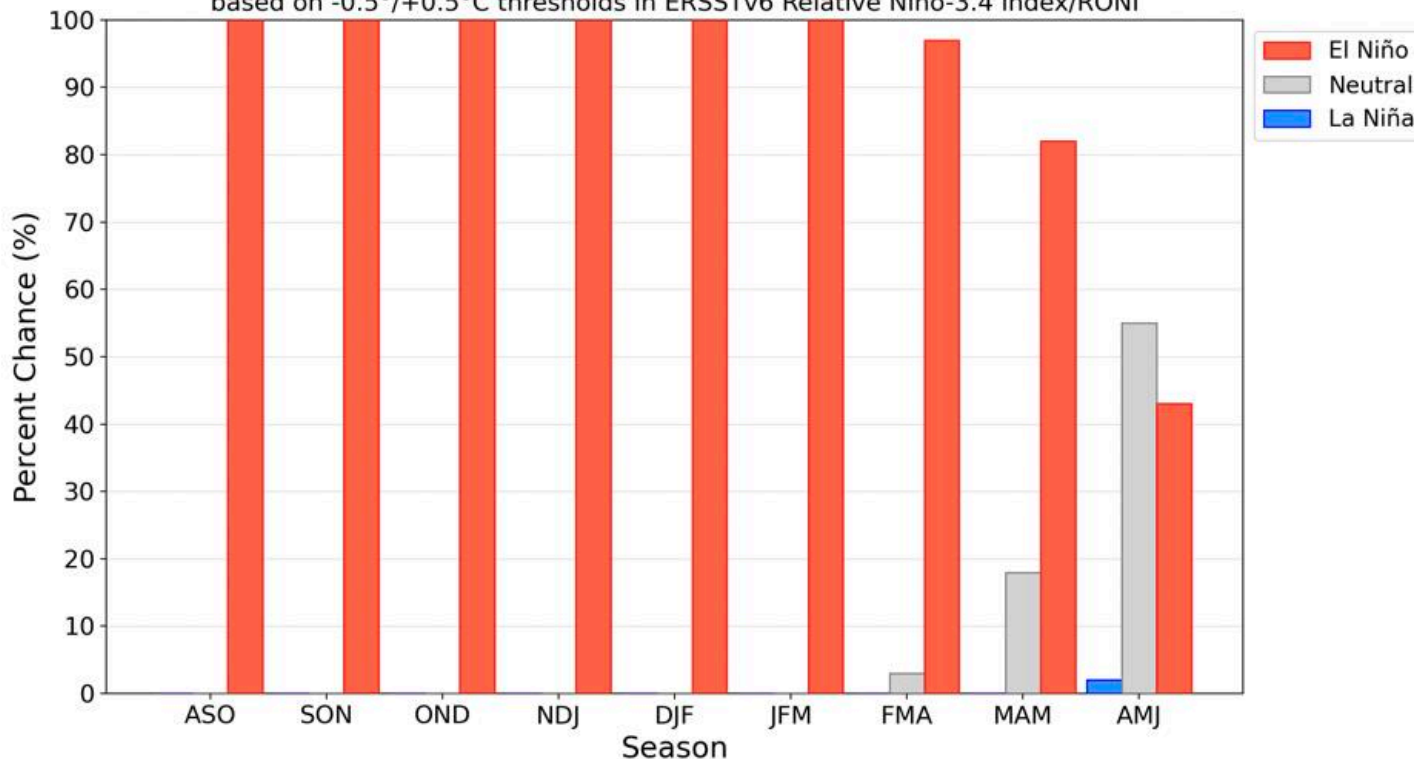


Latest CPC Outlook



Official NOAA CPC ENSO Probabilities (issued September 2026)

based on $-0.5^{\circ}/+0.5^{\circ}\text{C}$ thresholds in ERSSTv6 Relative Niño-3.4 index/RONI



**El Nino
Advy; El
Nino to
continue
into spring,
2027; dry
phase ahead
for NW
Pacific**

https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.pdf





Posted 10 September 2026



- ENSO Alert System Status: **El Niño ADVISORY: El Niño is present and strengthening.**
- 90% chance of a very strong event this Fall/Winter
- Atmospheric indicators continue to increase; coupling of ocean-atmosphere remains solid
- Ocean-Atmosphere indicators keeping pace with 1997 El Nino development; 2026 may or may not outpace 1997
- 69% chance of a historic El Nino event (exceeding previous events back to 1950)
- **CAVEAT: People are interested in strength because stronger events can more strongly shift the distribution of possible outcomes associated with El Niño. However, because these are seasonal outlooks, we can never say anything will happen with absolute certainty. Stronger events can make certain weather and climate outcomes more likely, but they will never guarantee any outcome**





El Nino Impacts & Rainfall through 2027



TYPICAL TIMELINE OF IMPACTS FOR THE MARIANAS

**typical does NOT mean guaranteed*



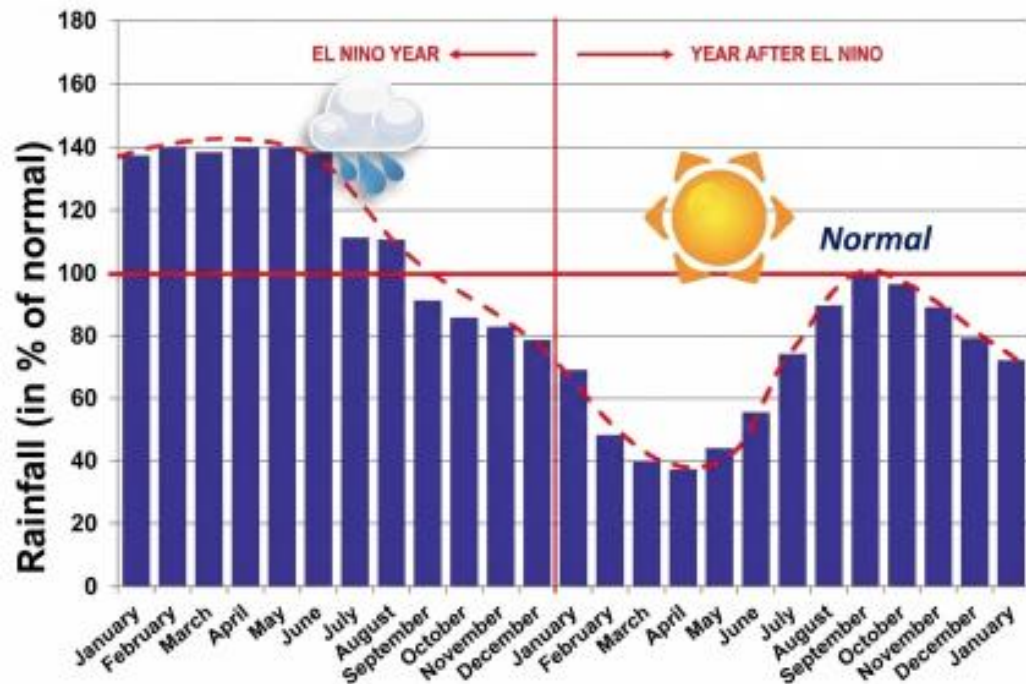


El Niño Impacts: Guam



- Rainfall during an El Niño event typically features an initial "rainy phase" during the first year (Year 1) followed by a dry phase in Year 2
- Dry conditions are usually their worst during the February to May of the year after El Niño (Year 2), but can persist for longer
- A drier than normal dry season brings an increased risk of...
 - wild fires
 - reduction of water supply
 - damage to farming and crops
 - threatened habitats for terrestrial and marine plants and animals
 - Health problems - bacteria in water and food, lack of food, and dehydration

Average monthly rainfall during El Niño years for the Marianas





Two Significant Areas of Concern on Guam

● Tropical Cyclones

- Rainfall/Flash Floods/Landslides
- Storm Surge/Inundation
- Damaging/Destructive Winds
- **Timeline**: NOW through late 2026, possible into January 2027

● Drought

- Agriculture/Livestock
- Water Supply/Catchments (especially Micronesia)
- **Timeline**: Emerging dryness by October 2026 and going through Summer 2027, with rainfall potentially well below normal for January through May 2027





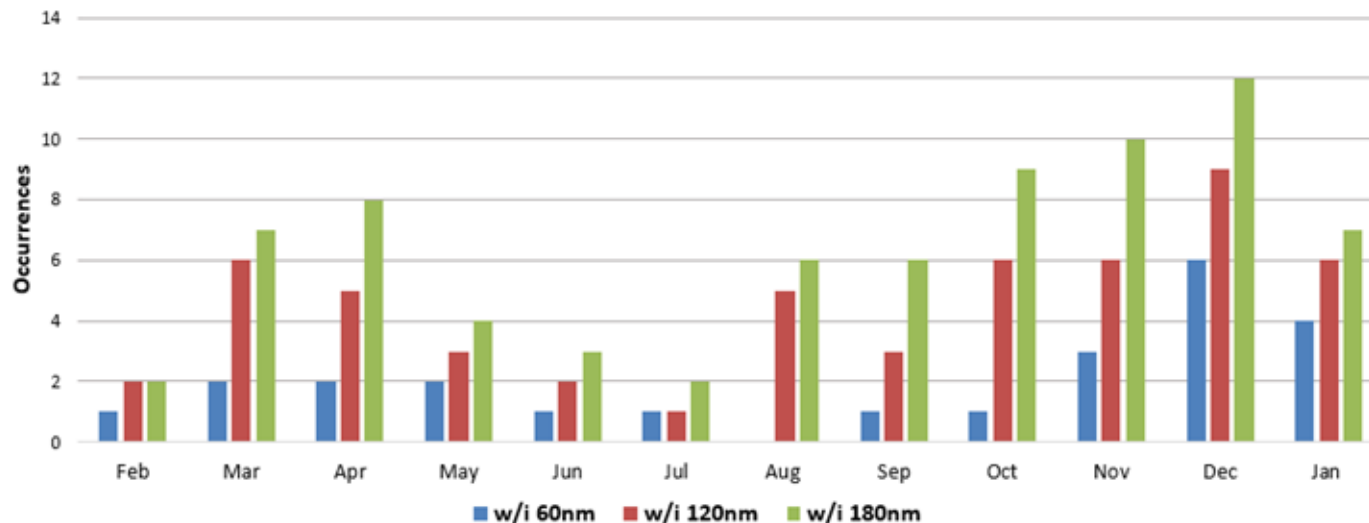
TC Climatology - TCs Year-Round!: **Kosrae - ALL TCs**



Number of Tropical Cyclones within 60, 120, and 180 Nautical Miles of Kosrae by Month from 1945-2018

🌿	Within 180 nautical miles (glancing blow)	76 tropical cyclones (all intensities)	1.03 per year
🔴	Within 120 nautical miles (near miss)	54 tropical cyclones (all intensities)	0.73 per year
🔵	Within 60 nautical miles (direct hit)	24 tropical cyclones (all intensities)	0.32 per year

Tropical Cyclones Affecting Kosrae from 1945-2018





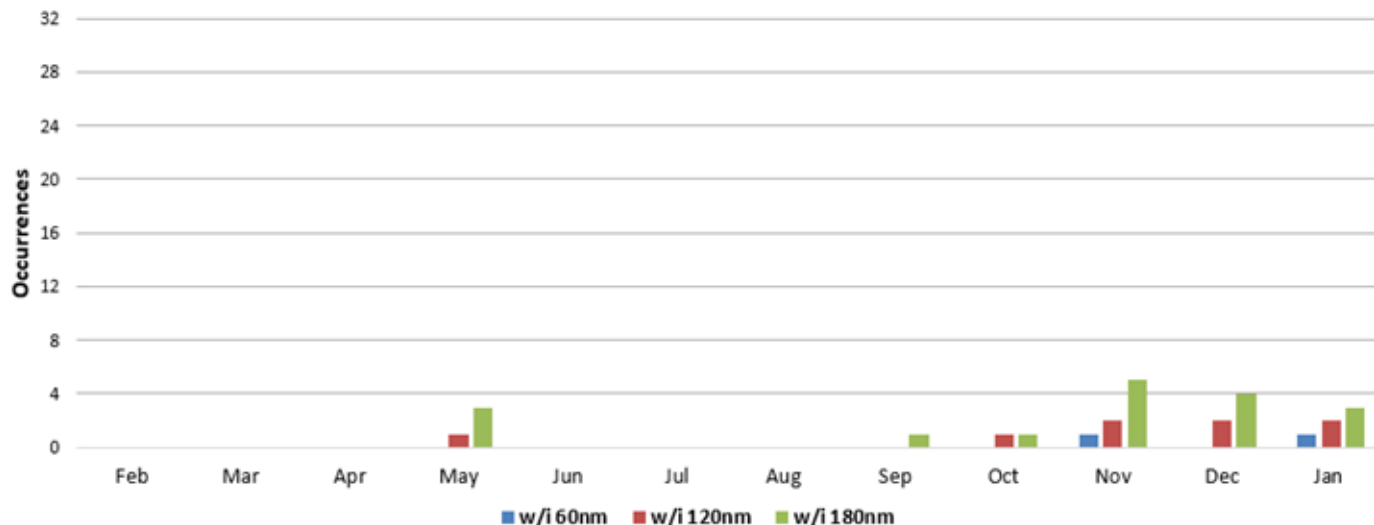
TC Climatology - TCs Year-Round!: Pohnpei - Typhoons ONLY



Number of Typhoons within 60, 120, and 180 Nautical Miles of Pohnpei by Month from 1945-2018

🌿	Within 180 nautical miles (glancing blow)	17 typhoons (≥ 64 kt/74mph)	0.23 per year
🔴	Within 120 nautical miles (near miss)	8 typhoons (≥ 64 kt/74mph)	0.11 per year
🔵	Within 60 nautical miles (direct hit)	2 typhoons (≥ 64 kt/74mph)	0.03 per year

Typhoons Affecting Pohnpei from 1945-2018





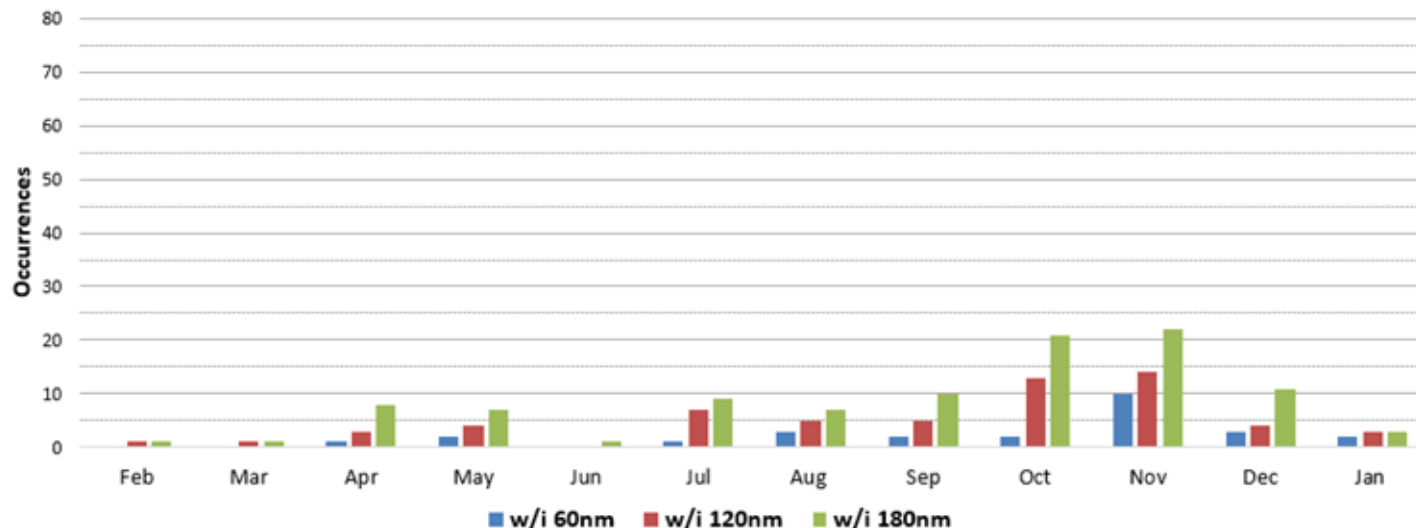
TC Climatology - TCs Year-Round!: Guam - Typhoons ONLY



Number of Typhoons within 60, 120, and 180 Nautical Miles of Guam by Month from 1945-2018

Within 180 nautical miles (glancing blow)	101 typhoons (≥ 64 kt/74mph)	1.36 per year
Within 120 nautical miles (near miss)	60 typhoons (≥ 64 kt/74mph)	0.81 per year
Within 60 nautical miles (direct hit)	26 typhoons (≥ 64 kt/74mph)	0.35 per year

Typhoons Affecting Guam from 1945-2018





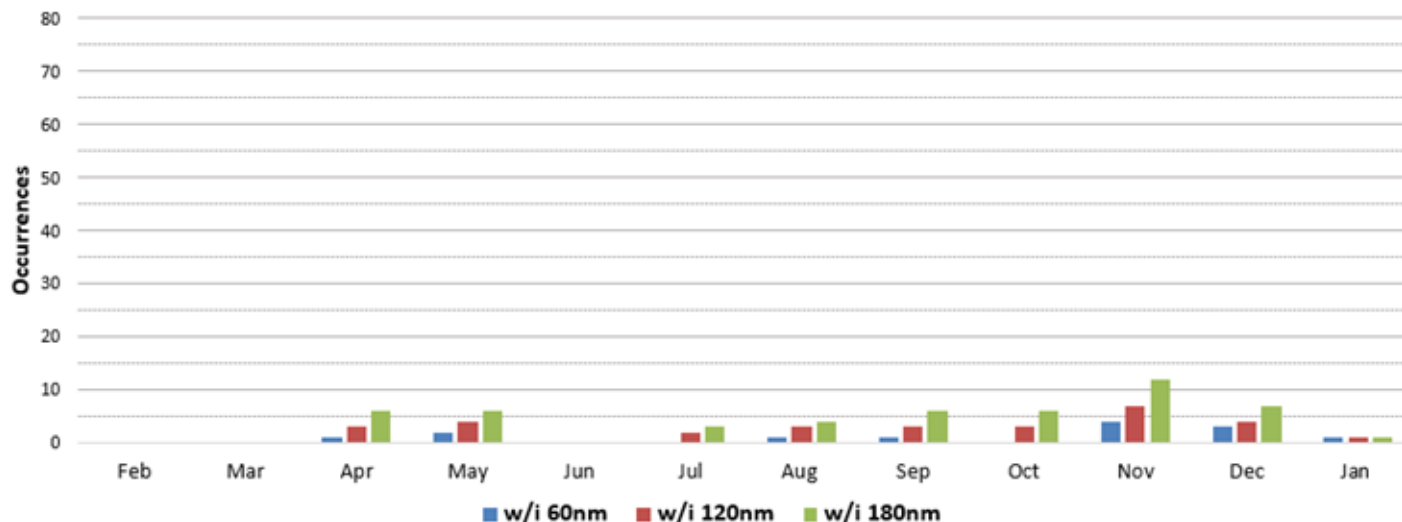
TC Climatology - TCs Year-Round!: Guam - Major Typhoons



Number of Major Typhoons within 60, 120, and 180 Nautical Miles of Guam by Month from 1945-2018

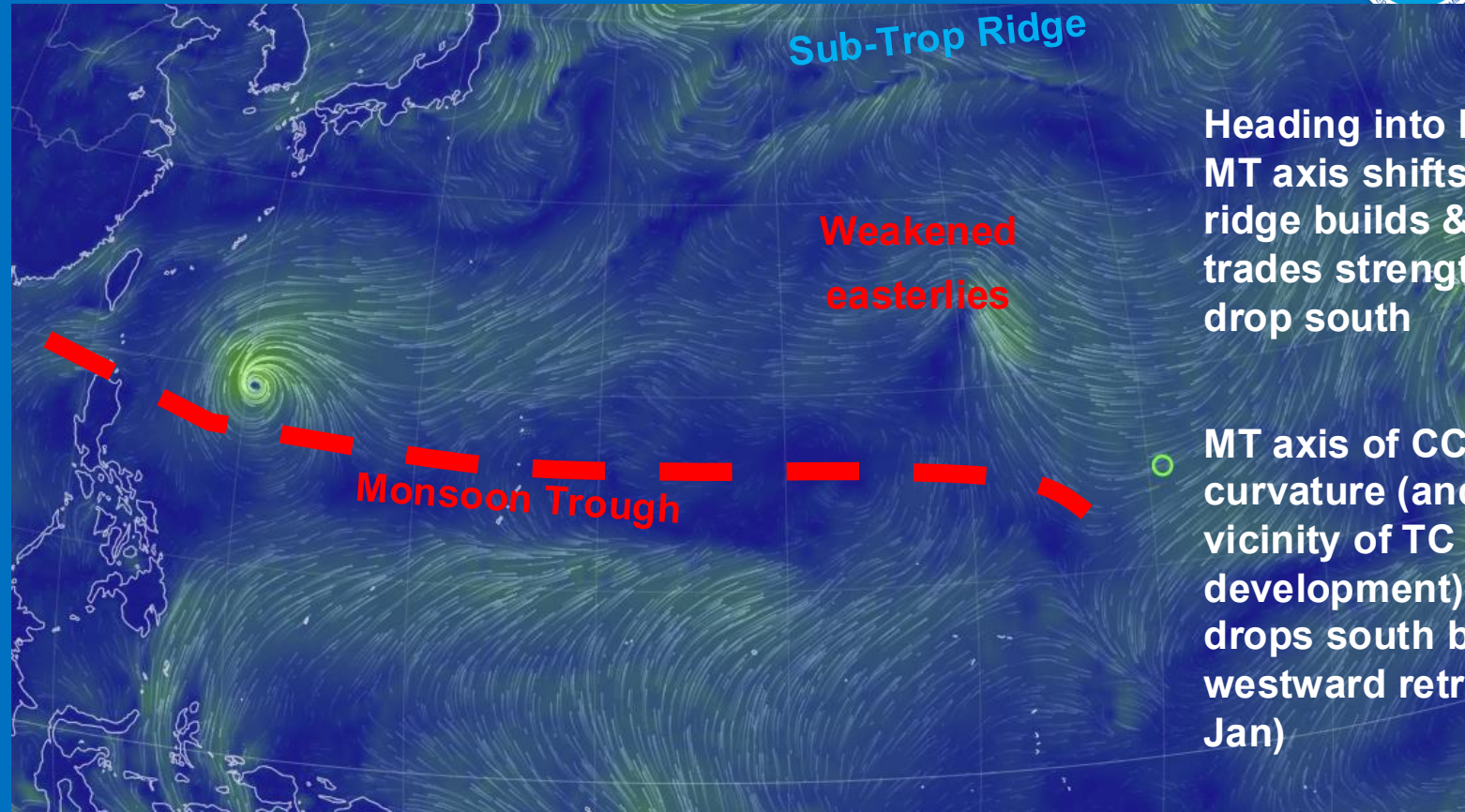
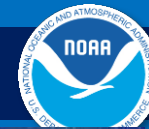
- Within 180 nautical miles (glancing blow) 51 major typhoons (≥ 96 kt/111mph) *0.69 per year*
- Within 120 nautical miles (near miss) 30 major typhoons (≥ 96 kt/111mph) *0.41 per year*
- Within 60 nautical miles (direct hit) 13 major typhoons (≥ 96 kt/111mph) *0.18 per year*

Major Typhoons Affecting Guam from 1945-2018





Later Fall 2026: *TC Concerns?*



Heading into late fall, MT axis shifts south as ridge builds & ENE trades strengthen and drop south

MT axis of CCW curvature (and general vicinity of TC development) also drops south before westward retreat (Dec-Jan)





Seasonal Climate Models (NMME/C3S): Oct-Dec 2026

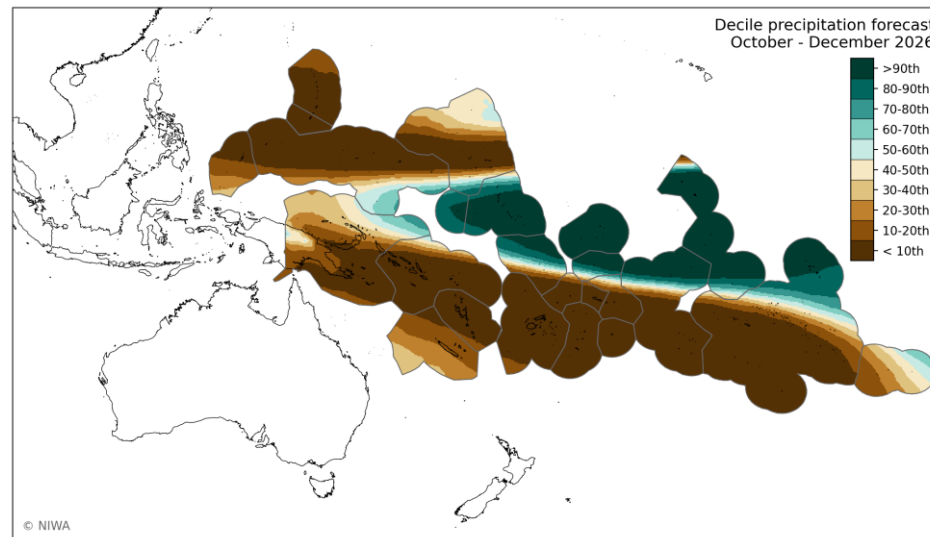
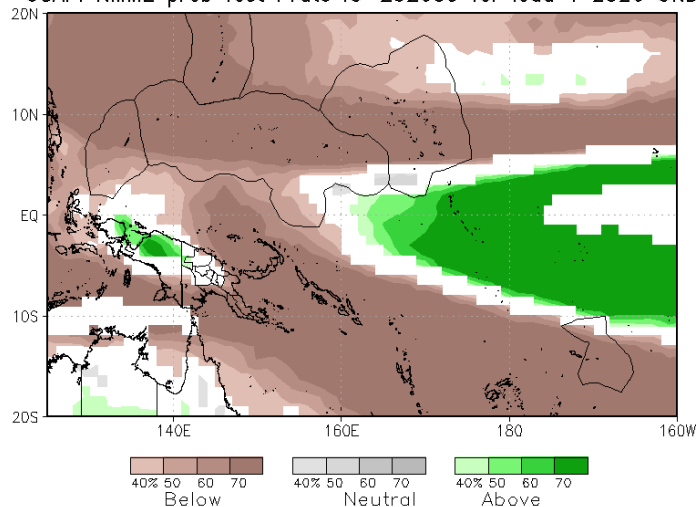


Rainfall - 1 to 3 Month Guidance

NMME

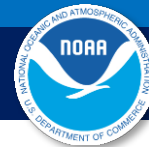
C3S

USAPI NMME prob fcast Prate IC=202609 for lead 1 2026 OND



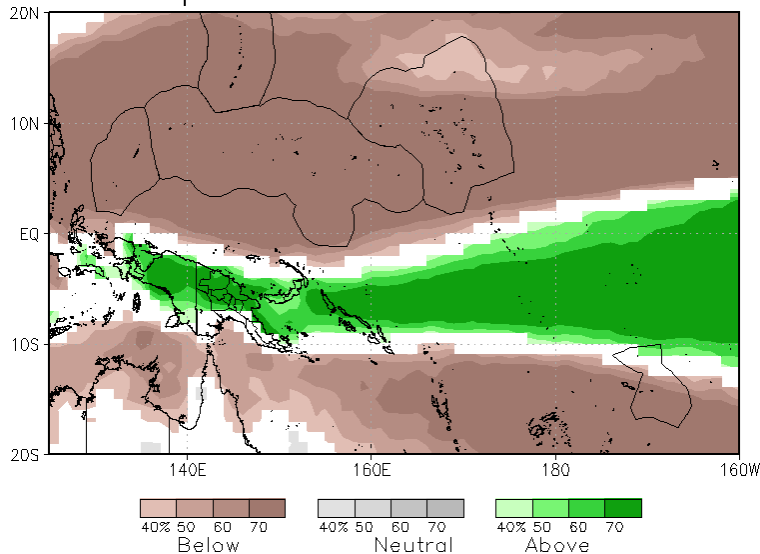
<https://www.cpc.ncep.noaa.gov/pacdir/nmme3.html>
<https://shiny.niwa.co.nz/icu-app/>



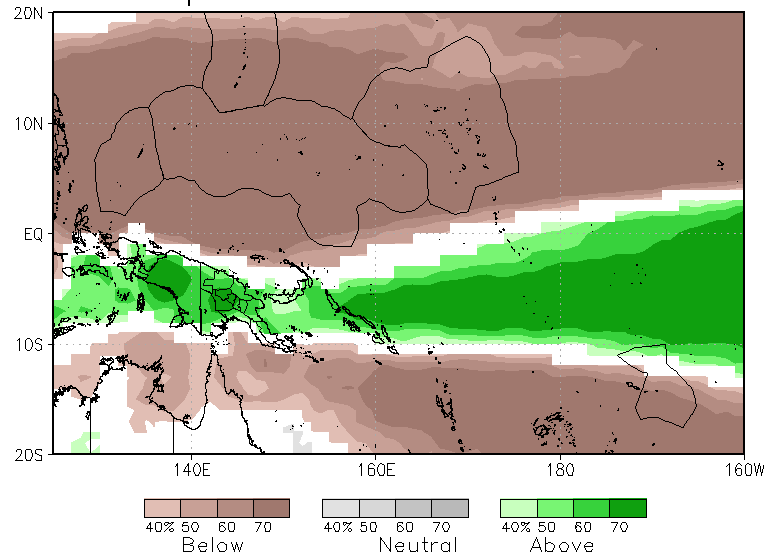


4-6 Month NMME Rainfall Guidance

USAPI NMME prob fcst Prate IC=202609 for lead 4 2027 JFM



USAPI NMME prob fcst Prate IC=202609 for lead 5 2027 FMA



<https://www.cpc.ncep.noaa.gov/pacdir/nmme3.html>

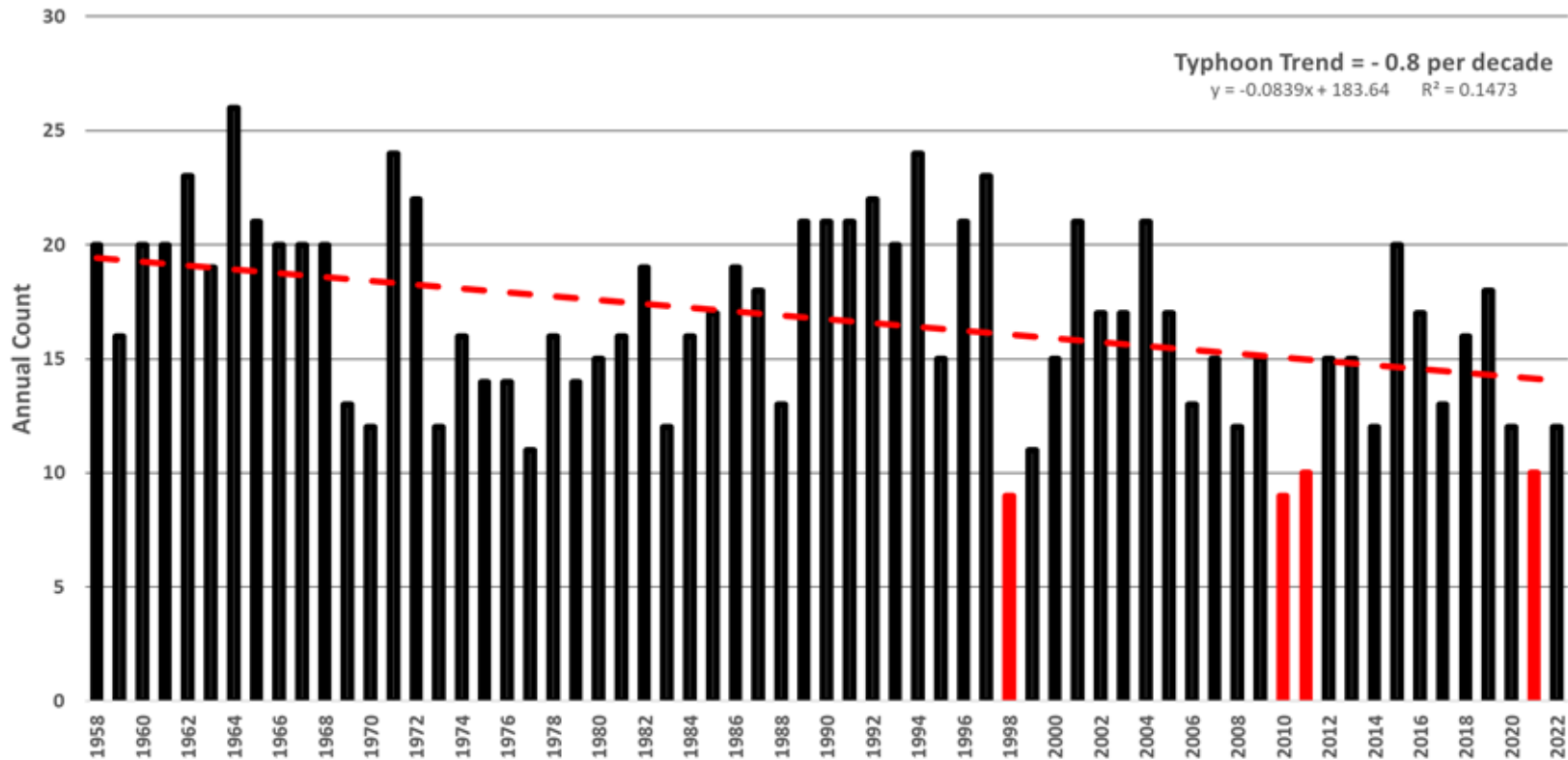




TC Climatology – NW Pacific: *Annual Count of Typhoons*



JTWC Annual Count of Typhoons (10 or fewer in red)





TC Climatology: Typhoon Activity Near Guam / Marianas



DECADAL	Guam w/in 60nm	Guam w/in 180nm	Guam w/in 300nm	Tinian w/in 120nm	Tinian w/in 180nm	Pagan w/in 180nm (18.1/145.8)	Anatahan w/in 240nm (16.3/145.7)
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DECADAL, per year	Guam w/in 60nm	Guam w/in 180nm	Guam w/in 300nm	Tinian w/in 120nm	Tinian w/in 180nm	Pagan w/in 180nm (18.1/145.8)	Anatahan w/in 240nm (16.3/145.7)
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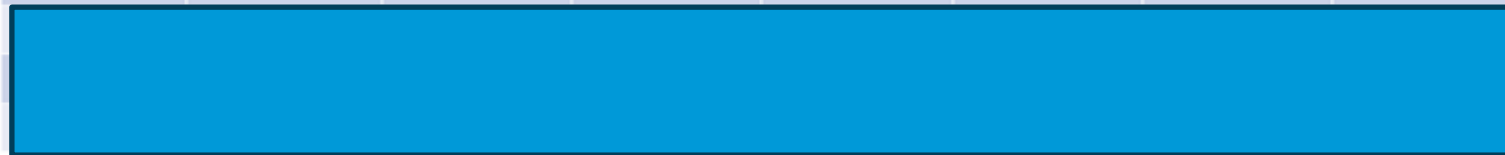




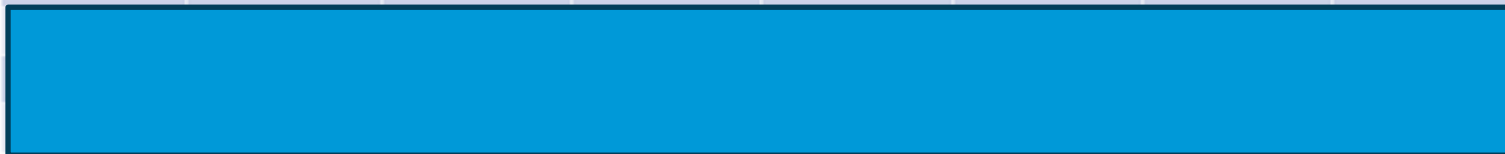
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1970s	17	58	96	34	44	48	59
1980s	19	71	114	39	61	47	67
1990s	30	79	116	47	72	45	79



DECADAL, per year	Guam w/in 60nm	Guam w/in 180nm	Guam w/in 300nm	Tinian w/in 120nm	Tinian w/in 180nm	Pagan w/in 180nm (18.1/145.8)	Anatahan w/in 240nm (16.3/145.7)
1970s	1.7	5.8	9.6	3.4	4.4	4.8	5.9
1980s	1.9	7.1	11.4	3.9	6.1	4.7	6.7
1990s	3.0	7.9	11.6	4.7	7.2	4.5	7.9





TC Climatology: Typhoon Activity Near Guam / Marianas



DECADAL	Guam w/in 60nm	Guam w/in 180nm	Guam w/in 300nm	Tinian w/in 120nm	Tinian w/in 180nm	Pagan w/in 180nm (18.1/145.8)	Anatahan w/in 240nm (16.3/145.7)
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2000s	15	43	76	27	40	29	47
2010s	22	49	78	33	46	36	58

DECADAL, per year	Guam w/in 60nm	Guam w/in 180nm	Guam w/in 300nm	Tinian w/in 120nm	Tinian w/in 180nm	Pagan w/in 180nm (18.1/145.8)	Anatahan w/in 240nm (16.3/145.7)
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2000s	1.5	4.3	7.6	2.7	4.0	2.9	4.7
2010s	2.2	4.9	7.8	3.3	4.6	3.6	5.8





TC Climatology: Typhoon Activity Near Guam / Marianas



DECADAL	Guam w/in 60nm	Guam w/in 180nm	Guam w/in 300nm	Tinian w/in 120nm	Tinian w/in 180nm	Pagan w/in 180nm (18.1/145.8)	Anatahan w/in 240nm (16.3/145.7)
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2010s	22	49	78	33	46	36	58
2020-2024	10	18	25	13	15	7	18

DECADAL, per year	Guam w/in 60nm	Guam w/in 180nm	Guam w/in 300nm	Tinian w/in 120nm	Tinian w/in 180nm	Pagan w/in 180nm (18.1/145.8)	Anatahan w/in 240nm (16.3/145.7)
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1990s	3.0	7.9	11.6	4.7	7.2	4.5	7.9
2000s	1.5	4.3	7.6	2.7	4.0	2.9	4.7
2010s	2.2	4.9	7.8	3.3	4.6	3.6	5.8
2020-2024	2.0	3.6	5.0	2.6	3.0	1.4	3.6





El Nino Impacts & Rainfall through 2027



TYPICAL TIMELINE OF IMPACTS FOR THE MARIANAS

**typical does NOT mean guaranteed*



A wide-angle photograph of a sunset over a calm body of water. In the center, a lone tree stands on a small, dark rock in the water. The sun is low on the horizon, creating a bright orange and yellow glow that reflects on the water's surface. The sky is a deep blue with scattered white clouds. The overall mood is peaceful and serene.

Thank you!

Brandon Aydlett

William.Aydlett@noaa.gov



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