University of Maryland

Global Precipitation Summary for July 2026

Robert Adler and Guojun Gu
August 11, 2026

Headlines:

El Nino rainfall anomaly pattern becomes more dominant in tropics

Southwestern U.S. wildfires mitigated by seasonal "monsoon" rains, but fires in Canada, Washington, Oregon, Utah and Colorado produced smoky conditions over large parts of the U.S.

European drought and high temperatures lead to large wildfires in France and Spain

Global land/ocean division of precipitation shows classic ocean high, land low for El Nino conditions

The ongoing El Nino continues to intensify with the RNino3.4 SST index at +1.4C at the end of July, up from -1.0C in January (La Nina conditions) to zero in April. And the precipitation patterns across the tropics also take on an even more El Nino look this July. The total map for July (Fig. 1, top panel) shows a very strong ITCZ across the Pacific and an active southeast Asian monsoon. The ITCZ continues across South America and the Atlantic into Africa with the typical break at the Horn of Africa.

The July rain anomaly map (Fig. 1, middle panel) has the main El Nino features of a strong positive rain anomaly across most of the tropical Pacific and an intense negative area centered on the Maritime Continent. The El Nino composite map for July based on previous El Ninos at this time of year (Fig. 1, bottom panel) has similar features as this month's major anomalies as just described. Southeast Asia has similar anomaly features to the composite, including a positive anomaly over southeast China where flooding occurred early in the month. Also similar between the two maps is the positive feature at the head of the Bay of Bengal. Further west over the Indian Ocean, on both sides of the Equator this July roughly replicates the July composite. Off the Horn of Africa a small positive anomaly also matches, perhaps heralding heavy rains that are typically associated with El Nino there, later in its development. Australia is also matched between the maps, mostly covered by dry conditions. Over tropical South America there is also an El Nino match with wet to the west and dry to the east.

The overall tropical (40N-40S) correlation between the bottom two panels is +0.5 this month, a relatively solid correlation, and increasing over the last few months (see Fig. 2). With continued intensification of the El Nino forecast over the coming months we'll see if this correlation continues to increase as the domain of the El Nino's effects expands.

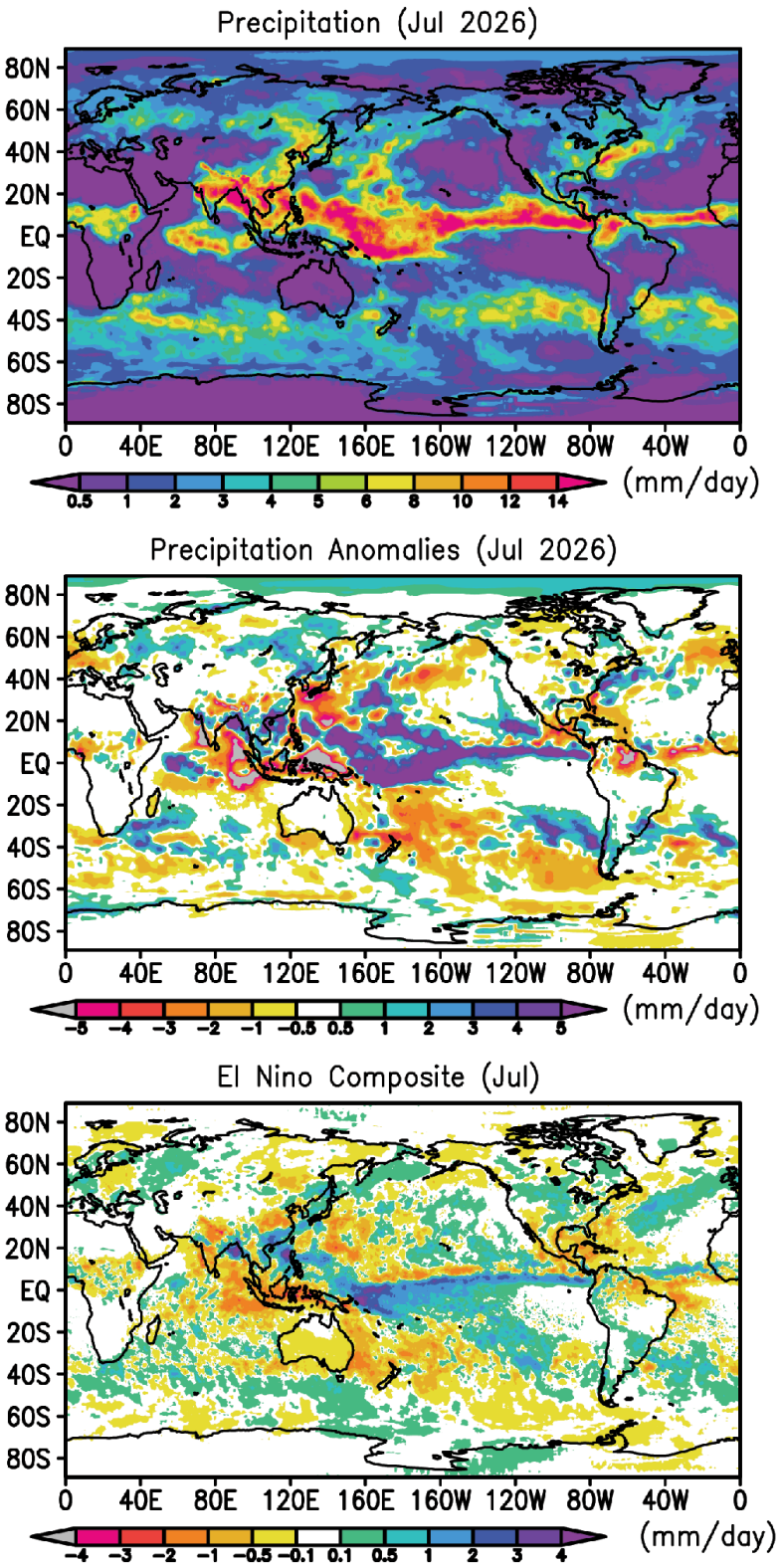

Figure 1. Monthly precipitation and anomalies in July 2026 and El Nino composite in July.

Over North America the two patterns don't match. The composite and this month's anomalies both have wet and dry conditions but almost a set of opposite patterns. This July has weak wet conditions in the southeast, although the North American monsoon has helped the formerly dry conditions and fires of June in the southwest U.S. In the eastern U.S. rain has been generally plentiful with severe thunderstorms and flooding in some locations, including Missouri, West Virginia, New Jersey and New York. But there were new wildfires in Washington and Oregon. Fires in dry Ontario and British Columbia produced smoke which caused unhealthy conditions in the eastern U.S. in the middle of the month.

Across the Atlantic western Europe is still suffering from a long-term drought and very high summer temperatures and there have been large wildfires in France and Spain and smaller versions in Italy and the U.K. The strong dry anomalies here are not correlated with the El Nino composite.

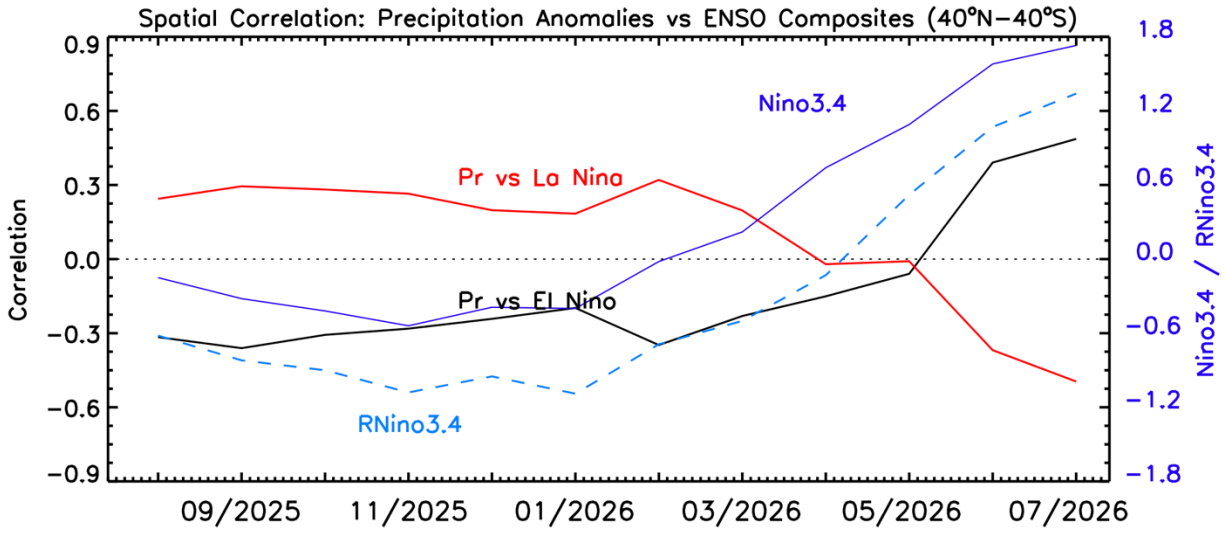

Figure 2. Correlations between anomaly patterns of individual months (40°N-40°S) and El Nino and La Nina composites during June 2025-July 2026. Also shown are Nino 3.4 and Relative Nino 3.4 monthly SST anomalies in the Niño 3.4 region (5°N–5°S, 120°–170°W.

In terms of the total global precipitation, Table 1 indicates a classic El Nino land and ocean division with the land in deficit and the ocean higher than climatology. Also, as is usual during El Nino conditions, the global total (land + ocean) is positive.

Table 1 Global precipitation and anomalies in July 2026.

	Mean Precipitation (July 1983-2025)	Precipitation (July 2026)	Precipitation anomaly (July 2026)
Land+ocean	2.87	2.93	+0.06
Land	2.50	2.37	-0.12
Ocean	3.02	3.16	+0.14

Figure 3 shows the global total precipitation anomaly and surface temperature anomaly since 1983. During the 2025 La Nina the global total precipitation fell below the long term mean, as usual in La Nina conditions. But the global surface temperature anomaly remained above the trend line, unusual in terms of most La Nina periods. But as we have gotten into this year's El Nino the total precipitation has jumped up above the mean from the negative anomaly values during the last year's La Nina. The surface temperature had remained high during the La Nina, although dropping from the record highs during the 2024-2025 weak El Nino. Since the Ts values were already above the trend line during the 2025-26 La Nina, they may be posed to jump to record highs with this El Nino.

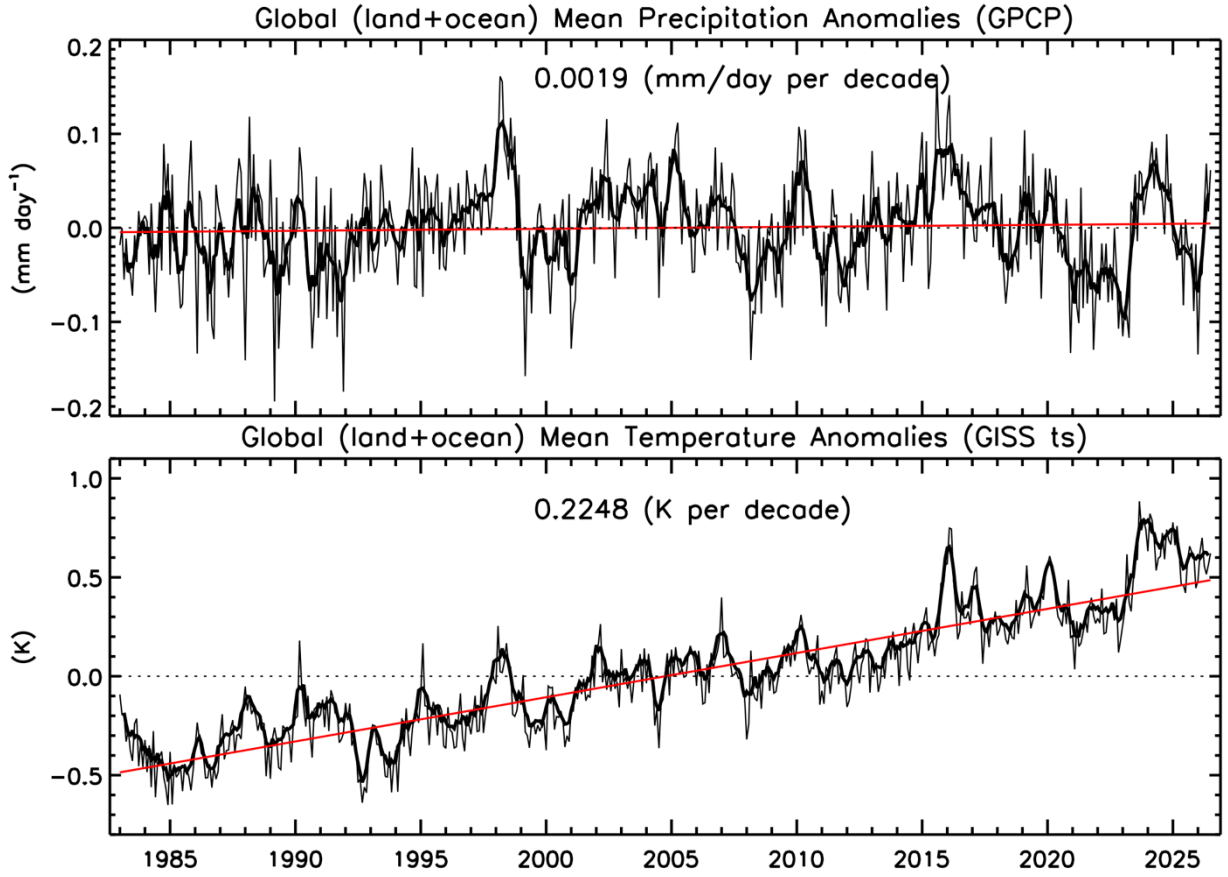

Figure 3. Monthly time series of GPCP global (land+ocean) precipitation anomalies (January 1983-June 2026) and GISS global mean temperature anomalies (January 1983-June 2026). 5-month-running-means are included in thick solid lines.

BACKGROUND

The Global Precipitation Climatology Project (GPCP)

This global precipitation summary is based on V3.2 of the Monthly Global Precipitation Climatology Project (GPCP) product, an observation based analysis using satellite observations over oceans and satellite and rain gauge observations over land. The Monthly analysis extends

from 1983 to the near present as a Climate Data Record (CDR) with an extension to the previous month (within ~ 12 days of the end of the month) as an Interim CDR, or ICDR.

The development of the GPCP CDR products (Monthly and finer time scales) is supported by NASA's MEaSUREs program. The GPCP Monthly ICDR was developed and its routine calculation is supported by NOAA's National Center for Environmental Information (NCEI). GPCP products are available at NASA's Goddard Earth Sciences Data and Information Services Center (GES DISC) and from NOAA NCEI as well as ECMWF's Climate Store.

The following references describe GPCP products in detail and provide additional research results using GPCP by the authors of this summary:

GPCP V3.2 paper:
Huffman, G. J. and R. Adler, A. Behrangi, D. Bolvin, E. Nelkin, G.Gu and M. Ehsani, 2023. The New Version 3.2 Global Precipitation Climatology Project (GPCP) Monthly and Daily Precipitation Products. *J. Climate*, 36, 7635- 7655. DOI: 10.1175/JCLI-D-23-0123.1.

GPCP V2.3 paper:
Adler, R., M. Sapiano, G. Huffman, J. Wang, G. Gu, D. Bolvin, L. Chiu, U. Schneider, A. Becker, E. Nelkin, P. Xie, R. Ferraro, D. Shin, 2018. The Global Precipitation Climatology Project (GPCP) Monthly Analysis (New Version 2.3) and a Review of 2017 Global Precipitation. *Atmosphere*. 9(4), 138; doi:10.3390/atmos9040138

Other references:
Adler, R., G. Gu, M. Sapiano, J. Wang, G. Huffman 2017. Global Precipitation: Means, Variations and Trends During the Satellite Era (1979-2014). *Surveys in Geophysics* 38: 679-699, doi:10.1007/s10712-017-9416-4

Adler, R. F., G. Gu, G. J. Huffman, R. P. Sapiano and J. Wang, 2020: GPCP and the Global Characteristics of Precipitation. In *Satellite Precipitation Measurement, Vol. 2, Chapter 35,* 677-697. *Advances in Global Change Research,* **69**, Springer Nature, doi:10.1007/978-3-030-35798-6_11.

Gu, G., and R. Adler, 2023. Observed Variability and Trends in Global Precipitation During 1979-2020. *Climate Dynamics*, 61, 131-150.

Adler, R. and G. Gu, 2024. Global Precipitation for the Year 2023 and How It Relates to Longer Term Variations and Trends. *Atmosphere, 15(5).* 10.3390/atmos15050535.

Gu, G. and R. Adler, 2024. Variability and Trends in Tropical Precipitation Intensity in Observations and Climate Models. *Climate Dynamics*, https://doi.org/10.1007/s00382-024-07287-y.

The GPCP analyses are also used in the Precipitation section as part of the annual State of the Climate report published in the Bulletin of the AMS, e.g., Ziese, M., R. S. Vose, R. Adler, G. Gu

and X. Yin, 2026. Precipitation. [in “State of the Climate in 2025”]. Bull. Amer. Meteor. Soc., 107 (8), S59–S60, https://doi.org/10.1175/BAMS-D-26-0141.1.