

Bulletin of Monthly Global Climate Monitoring and Prediction

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In June 2026, the global average surface air temperature was above normal. Marked warming exceeding 4 °C was observed across most of western North Asia and scattered parts of southwestern Europe and northeastern North America. By contrast, below-normal temperatures prevailed over eastern and southwestern East Asia, portions of eastern North Asia, Central Asia, northwestern South Asia, isolated zones in northwestern and central North America, most of Greenland, southeastern South America, southwestern Australia, parts of western Africa, and most of Antarctica. Negative anomalies less than -4 °C were recorded in central-eastern Mongolia, localized areas of northwestern North America, and coastal sectors of western Antarctica.

Global total precipitation was slightly above normal with highly heterogeneous spatial distribution. Precipitation was over 200% more than normal across eastern North China and southern Xinjiang, parts of Central Asia, discrete regions of northwestern and southern Africa, northeastern North America, central South America, and western Antarctica.

In June 2026, sea surface temperatures (SSTs) across most of the tropical Pacific were anomalously warm, with warm SST cores centered over the central and eastern Pacific. The Niño 3.4 SST index reached 1.60 °C, representing a 0.64 °C rise relative to the preceding month. The three-month (April–June 2026) average Niño 3.4 index stood at 1.00 °C, indicating an El Niño condition across the equatorial central-eastern Pacific.

In June, sea ice concentrations over most Northern Hemisphere oceanic basins ranged from near-normal to below-normal. Over the Antarctic, sea ice concentrations were near-normal to below-normal across nearly all regions, except the northern Amundsen Sea where above-normal sea ice concentrations persisted. Snow cover extent across China was close to the climatological normal, while snow cover extents over the Northern Hemisphere, Eurasian continent and North America were all below normal.

Major global weather and climate hazards in June included heavy rainfall and floods, heatwaves, severe convective storms, tropical cyclones, debris flows, and wildfires. During late June, multiple countries in central-western Europe experienced prolonged extreme heat. The immediate driver was a persistent anomalous warm high-pressure system dominating central-

western Europe. Sinking motion prevailed within the high-pressure cell, generating adiabatic warming via subsidence. The high-pressure circulation trapped hot air near the surface and suppressed cloud and precipitation formation. Clear-sky conditions allowed persistent solar radiative heating of the land surface, triggering a heat dome effect. Meanwhile, southerly flow along the periphery of the high-pressure system continuously transported dry and hot air masses originating from North Africa into central-western Europe, sustaining the prolonged heatwave.

In August 2026, near-normal to above-normal temperatures are forecasted to prevail over most regions of the globe. Temperature anomalies exceeding 2 °C are likely to occur in parts of central Africa and western North America. Precipitation will be over 20% more than normal across most of eastern China, the western Qinghai-Xizang Plateau, eastern Central Asia, western Indochina Peninsula, western and northeastern Europe, parts of southern Africa, western North America, and central and southern South America. Among these regions, precipitation will be 50%–200% more than normal in eastern Central Asia, parts of southern Africa, western North America, and eastern and southern South America, posing disaster risks

caused by concentrated extreme precipitation. Precipitation will be less than normal by more than 20% over a broad area stretching from Xinjiang to western Inner Mongolia, most of Central Asia and West Asia, central-southern Southeast Asia, southern Europe, parts of northern and central Africa, most of Australia, northwestern and central North America, and northern South America. Specifically, precipitation will be 50%–80% less than normal across eastern Xinjiang, central-southern Central Asia, most of West Asia, southern Southeast Asia, parts of northeastern and southern Africa, eastern Australia, southern North America, and northeastern South America, with potential risks of meteorological drought. In August 2026, SSTs over the equatorial central-eastern Pacific will continue to rise, and the El Niño conditions will further intensify.