

Bulletin of Monthly Global Climate Monitoring and Prediction

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

Global total precipitation was slightly above normal with highly heterogeneous spatial distribution. Precipitation was over 100% more than normal across most of eastern North Asia, northeastern East Asia, central Southeast Asia,

northwestern South Asia, eastern West Asia, northwestern Central Asia, central Europe, scattered parts of northern and portions of southern Africa, northwestern regions and isolated zones of southern North America, most of northern and western Greenland, eastern and southern South America, scattered parts of central Australia, and portions of Antarctica.

In July 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 2.09 °C, representing a 0.49 °C rise relative to the preceding month. The three-month (May–July 2026) average Niño 3.4 index stood at 1.55 °C, indicating an El Niño condition across the equatorial central-eastern Pacific.

In July, 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 southern Amundsen Sea where above-normal sea ice concentrations persisted. Snow cover extents across the Northern Hemisphere, Eurasian continent, North America and China were all close to the climatological normal.

Major global weather and climate hazards in July included heavy rainfall and floods, heatwaves, droughts, tropical cyclones, and wildfires. In mid-July, Japan experienced persistent heatwaves. The immediate driver was a deep anomalous warm high-pressure system dominating the region. Sinking motion prevailed within the high-pressure cell, generating significant adiabatic warming via subsidence. Continuous solar radiation heated the land surface under clear-sky conditions, and accumulated terrestrial heat facilitated the formation of a heat dome over Japan.

In September 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 and southern Africa, northeastern Greenland, and parts of eastern South America. Precipitation will be over 20% more than normal across southern Southwest China, parts of northern Southeast Asia, central-western Central Asia, northern West Asia, southwestern Europe, northern and southern Africa, parts of eastern Africa, southern North America, northeastern Greenland, and most of central-southern South America. Among these regions, precipitation will be 50%–200% more than normal across most

of central-western Central Asia, northern West Asia, northern Africa, parts of southern and eastern Africa, southwestern North America, and most of central-southern South America, with scattered parts seeing increases exceeding 200%, posing disaster risks caused by concentrated extreme precipitation. Precipitation will be less than normal by more than 20% over most of northern China and southwestern Xizang, most of South Asia, southern Southeast Asia, southern West Asia, central Africa, most of Australia, scattered parts of northwestern North America, and northern South America. Specifically, precipitation will be 50%–80% less than normal across scattered parts of western Inner Mongolia, western South Asia, southern Southeast Asia, southern West Asia, scattered parts of central Africa, parts of eastern Australia, and scattered parts of northeastern South America, with potential risks of meteorological drought. In September 2026, SSTs over the equatorial central-eastern Pacific will continue to rise, and the El Niño conditions will further intensify.