



WORLD
METEOROLOGICAL
ORGANIZATION



GLOBAL SEASONAL CLIMATE UPDATE

TARGET SEASON: April-May-June 2024

Prepared: 20 March 2024



Summary

During December-February 2024, the Pacific Niño sea-surface temperature (SST) index in the eastern Pacific (Niño 1+2) remained above-normal but declined with respect to the previous months. The other three indices in the central Pacific were also above-normal but they too declined in their amplitude. The observed SST conditions in the equatorial Pacific were characterized by an El Niño state. The observed Indian Ocean Dipole (IOD) was above-normal. Both the North Tropical Atlantic (NTA) and South Tropical Atlantic (STA) SST index were much above-normal and reflected widespread warmth in the tropical Atlantic. In general, the observed SST anomalies in global oceans was for a positive value¹.

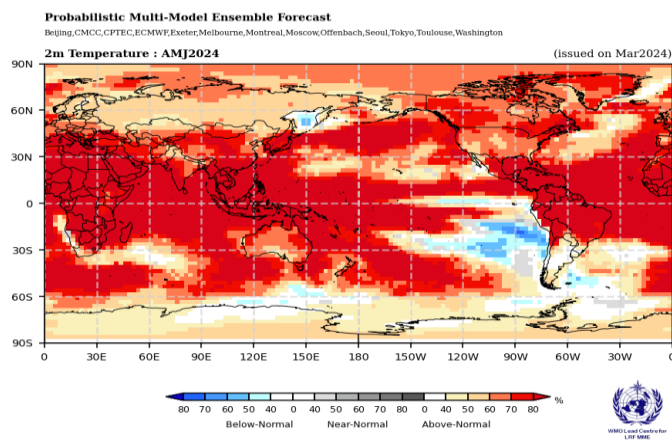
Above-normal sea-surface temperature anomalies in the Niño 3.4 and Niño 3 regions are predicted to decline during April-June 2024 and transition to ENSO-neutral conditions. Farther west in the Niño 4 region, the sea-surface temperature anomaly is also predicted to return to near-normal condition. The Indian Ocean Dipole (IOD) index is predicted to stay positive but is anticipated to return to near normal. In the equatorial Atlantic, SSTs are predicted to be above-normal in both the northern (NTA) and the southern (STA) areas during the season. In general, the forecast tendency for SST anomalies in global oceans is for a positive value.

Consistent with the prediction of above-normal sea-surface temperatures over much of the global oceans, there is widespread anticipation of above-normal temperatures over almost all land areas. Positive temperature anomalies are expected over almost the entire Northern Hemisphere. The largest increases in probabilities for above-normal temperatures are generally south of 55° N over Europe, Africa, and Asia, and south of 30° N over Central America. Over much of North America probabilities for above-normal temperature are also enhanced, with the largest increase in the probability of above-normal temperature north of 40° N. In the Caribbean and Central America, the probabilities of above-normal temperatures are strongly increased, and this area of much above normal probabilities also extends to 30° S over South America. Extending further south in South America, probabilities for above-normal temperatures are weakly increased. Over most of the land areas in the Southern Hemisphere, temperatures are predicted to experience above-normal temperature anomalies, as for the Northern Hemisphere. Thus, in Africa south of the equator, including Madagascar and the entire southern Indian Ocean north of 30° S, above-normal temperatures are predicted with high probabilities. Over Australia and New Zealand above-normal temperatures are predicted with moderate to high probability. Along 20° S in the Pacific Ocean, east of the Dateline, there is a band of predicted normal-to-below normal temperatures that expands southwards into the far south-eastern Pacific and continues into the southern Atlantic Ocean.

Predictions for rainfall are consistent with the prediction of decaying El Niño conditions in the equatorial central and eastern Pacific. Weak probabilities for normal to above-normal rainfall is predicted over a narrow band along or just north of the equator starting from the Date Line extending eastward to the southern region of Central America and crossing into the southern Caribbean where it extends north-eastward towards the oceanic regions adjacent to the western Europe; the probabilities for above-normal rainfall have a weak or moderate enhancement. Immediately to the south and along the equator between 90° W and 150° W enhanced probability for near-normal rainfall is predicted. Across most of the Pacific Ocean immediately to the north of the wet band and to about 30° N, rainfall is predicted to be below-normal. This northern band of predicted below-normal rainfall extends from southeast Asia to the western coast of Central America. Also starting from 150° E and immediately below the equator, a narrow band of probability for above-normal rainfall extends westward across the Indian Ocean to the eastern coast of Africa where it expands into north-south direction. A branch of prediction for above normal probability extends south-eastward and reaches to 30° S and 90° E. Also, from the east coast of equatorial Africa, the probability for above normal rainfall extends into the Arabian Sea. In the Southern Hemisphere, the area of below-normal rainfall stretches across the northern tip of Australia and to the west it extends into the Indian Ocean to about 75° E. The same region of below-normal rainfall extends eastward across the southern Pacific Ocean to reach western coast of South America. Also, in the southern hemisphere oceans between 45 - 60° S there is a band with probability of above-normal rainfall. Over most of Asia western half of Asia east of 90° E and south of 50° N a weak enhancement in the probability of above-normal rainfall is predicted. This area of modest increase in probability for above-normal rainfall also extends into Europe. The probability for below-normal rainfall is enhanced south of 10° S over Africa, and on the eastern side of the continent it extends into oceans and over to Madagascar. Over most of North America, in general, there is no clear signal for predicted rainfall.

¹ See <https://www.cpc.ncep.noaa.gov/products/people/mchen/AttributionAnalysis/images/Attribution202402.pdf>

Surface Air Temperature, AMJ 2024



Precipitation, AMJ 2024

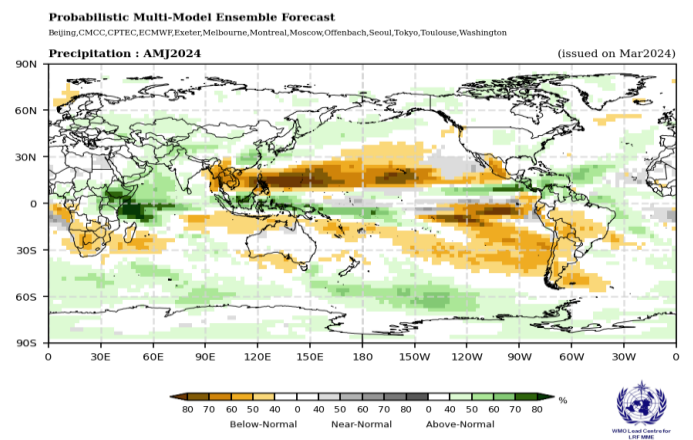


Figure 1. Probabilistic forecasts of surface air temperature and precipitation for the season April-June 2024. The tercile category with the highest forecast probability is indicated by shaded areas. The most likely category for below-normal, above-normal, and near-normal is depicted in blue, red, and grey shadings respectively for temperature, and orange, green and grey shadings respectively for precipitation. White areas indicate equal chances for all categories in both cases. The baseline period is 1993-2009.

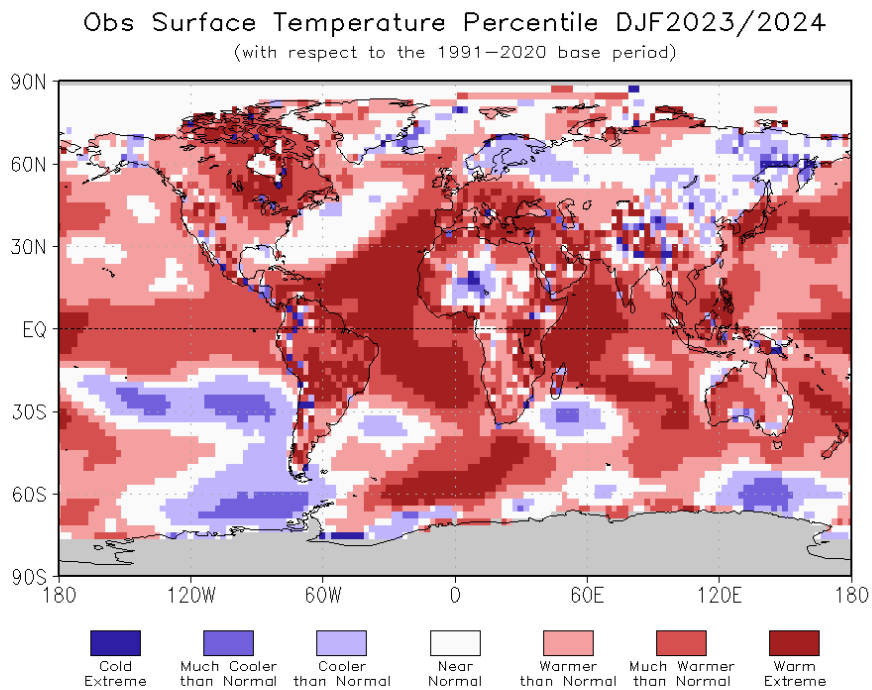
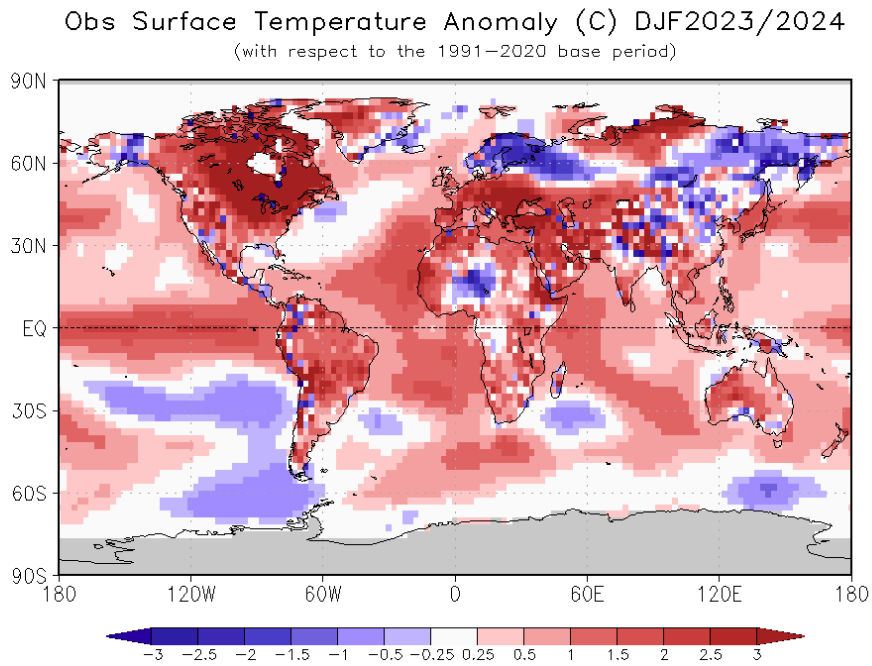


Figure 2. Observed December-February 2023-2024 near-surface temperature anomalies relative to 1991-2020 (top). The Cooler than Normal, Near Normal, and Warmer than Normal shadings on the percentile map (bottom) indicate that seasonal mean anomalies were in the bottom, middle, and upper tercile of the 1991-2020 distribution, respectively. Regions with anomalies in the lowest and highest decile (or 10%) of the distribution are marked as Much Cooler than Normal and Much Warmer than Normal, respectively. The Cold Extreme and Warm Extreme shadings indicate that the anomalies exceeded the coldest and warmest temperature values of the 1991-2020 period for the season. Grey shading indicates areas where observational analysis was not available. (Source: U.S. Climate Prediction Center).

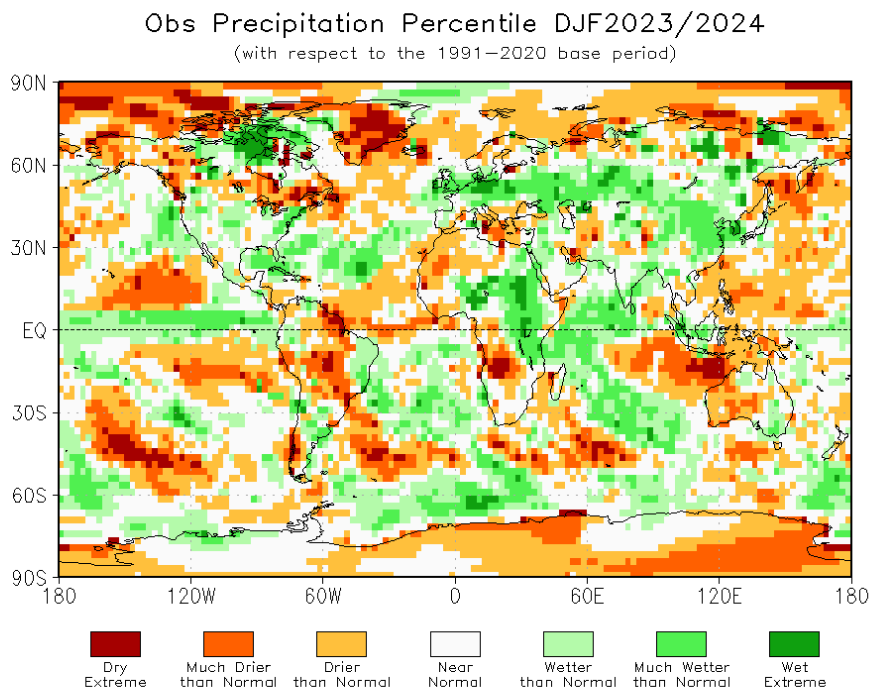
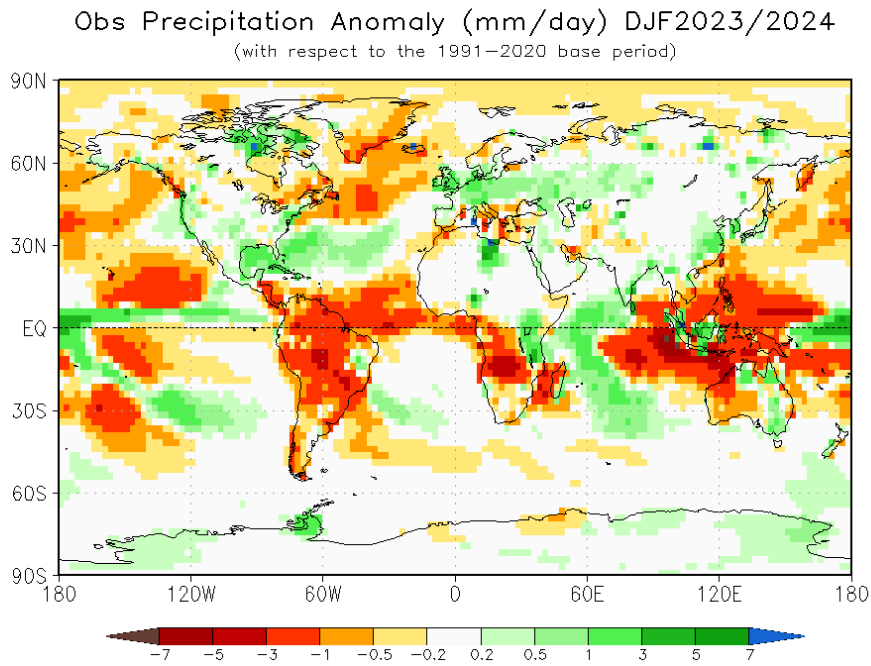


Figure 3. Observed precipitation anomalies for December-February 2023-2024, relative to 1991-2020 base period (top). The Drier than Normal, Near Normal and Wetter than Normal shadings on the percentile map (bottom) indicate that seasonal mean anomalies were in the bottom, middle, and upper tercile of the 1991-2020 distribution, respectively. Regions with anomalies in the lowest and highest decile (or 10%) of the distribution are marked as Much Drier than Normal and Much Wetter than Normal, respectively. The Dry Extreme and Wet Extreme shadings indicate that the anomalies exceeded the driest and wettest values of the 1991-2020 period for the season. (Source: U.S. Climate Prediction Center).