WEATHER CLIMATE WATER

WORLD METEOROLOGICAL ORGANIZATION

El Niño/La Niña Update

Embargoed , 03 June 2024, 0800 GMT, 1000 CEST

Current Situation and Outlook

The 2023/24 El Niño event is ending. Since its peak during boreal winter, sea surface temperature anomalies in the equatorial Pacific have steadily weakened. The latest forecasts from WMO Global Producing Centres of Long-Range Forecasts give equal chances (50%) of ENSO-neutral conditions or a transition to La Niña during June-August 2024. Slightly later during July-September, La Niña conditions are more likely than not, with around 60% chance, while ENSO-neutral is estimated with around 40% chance. During August-October and September-November of 2024, there is a 70% chance of La Niña prevailing, with a 30% chance of ENSO-neutral conditions. The likelihood of El Niño redeveloping is negligible during this time. Historically, seasonal forecast models at this time of year are known to have relatively low skills, commonly known as the Northern Hemisphere "spring predictability barrier", and therefore these ENSO forecasts should be interpreted with caution. National Meteorological and Hydrological Services (NMHSs) will closely monitor changes in the state of ENSO over the coming months and provide updated outlooks, as needed.

The 2023/24 El Niño event is now showing signs of ending. The latest weekly sea surface temperature anomalies (for the week centered on 15 May 2024) are negative in the eastern Pacific (the Niño 1+2 and Niño 3.0 indices register values of -1.1°C and -0.2°C, respectively), while they are still slightly positive in the central-eastern Pacific, with the Niño 3.4 Index recording a value of 0.2°C above the 1991-2020 average, according to the Optimum Interpolation Sea Surface Temperature (OISST) dataset. The most recent subsurface temperature anomalies along the equator are negative in the central and eastern tropical Pacific, with warm sub-surface temperature anomalies are now confined to a very small region between 160°E and 170°W. With these largely below-average subsurface temperatures, the sea surface temperatures are poised to fall further into the neutral range for May and early June 2024 and then likely to below-average levels in the months of boreal summer through the remainder of 2024. In the atmosphere, the Southern Oscillation Index (SOI: defined by the standardized Tahiti minus Darwin sea-level pressure difference) is currently within the ENSO-neutral range. The trade winds as well as the upper-level westerly winds are close to normal. Deep convection

near the International Date Line is close to normal too. Overall, the coupled atmospheric and oceanic conditions in the tropical Pacific are currently transitioning to an ENSO-neutral state (i.e., neither El Niño nor La Niña).

The WMO Global Producing Centres of Long-Range Forecasts routinely issue global-scale climate forecasts for the coming months, using dynamical models initialized by recent observations. Based on their latest forecasts and expert assessments, there are equal chances (50%) of ENSO-neutral conditions or a transition to La Niña during June-August 2024. During July-September, La Niña conditions are more likely than not, with around 60% chances, while the continuation of ENSO-neutral conditions is estimated to around 40% chances. In August-October and September-November, the chances of La Niña prevailing increase to around 70%, while the chances of ENSO-neutral continuing decline to about 30%. The chance of El Niño re-emerging during this time is near zero.

It is important to note that El Niño and La Niña events are not the only factors that drive global and regional climate patterns, and further that the magnitudes of ENSO indicators do not directly correspond to the magnitudes of their effects. At the regional level, seasonal outlooks need to assess the relative effects of both the ENSO state and other locally relevant climate drivers. Regionally and locally applicable information is made available via regional and national seasonal climate outlooks, such as those produced by WMO Regional Climate Centres (RCCs), Regional Climate Outlook Forums (RCOFs) and National Meteorological and Hydrological Services (NMHSs).

In summary:

- The 2023/24 El Niño event is now showing signs of ending.
- As of mid-May 2024, observations of both ocean and atmosphere over the tropical Pacific indicate a rapid transition to ENSO-neutral conditions (i.e., neither El Niño nor La Niña).
- Expert assessment of model forecasts indicates an equal chance (50%) for ENSO-neutral conditions or the onset of La Niña during June-August 2024.
- Subsequently, La Niña conditions are more likely than not (~60% chance) to prevail during July-September 2024, while chances of ENSO-neutral conditions are estimated at around 40%. In August-October, and September-November 2024 chances of La Niña conditions increase to around 70% and that of ENSO-neutral conditions decline to about 30%.
- The likelihood of El Niño re-emerging during the forecast period, from June to November, is negligible.

The state of ENSO will continue to be carefully monitored by WMO Members and partners. More detailed interpretations of the implications for regional climate variability will be carried out routinely by the climate forecasting community over the coming months and will be made available through the National Meteorological and Hydrological Services.

For web links of the National Meteorological Hydrological Services, please visit:

https://public.wmo.int/en/about-us/members

For the latest Global Seasonal Climate Update (GSCU) based on WMO Global Producing Centres of Long-Range Forecasts, please visit:

https://www.wmolc.org/gscuBoard/list

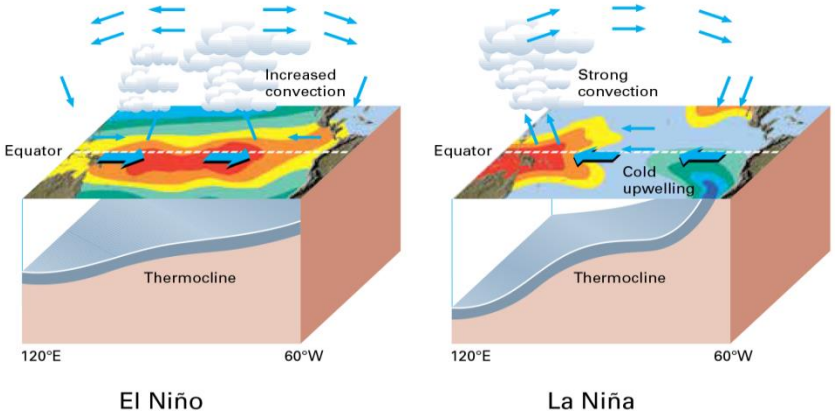
An archive of all WMO El Niño/La Niña Updates issued so far, including this one, is available at:

https://community.wmo.int/activity-areas/climate/wmo-el-ninola-nina-updates

Acknowledgements

The WMO El Niño/La Niña Update is prepared through a collaborative effort between the WMO and the International Research Institute for Climate and Society (IRI), USA, and is based on contributions from experts worldwide, inter alia, of the following institutions: Australian Bureau of Meteorology (BoM), Centro Internacional para la Investigación del Fenómeno El Niño (CIIFEN), China Meteorological Administration (CMA), Climate Prediction Centre (CPC) and Pacific ENSO Applications Climate (PEAC) Services of the National Oceanic and Atmospheric Administration (NOAA) of the United States of America (USA), European Centre for Medium Range Weather Forecasts (ECMWF), Météo-France, India Meteorological Department (IMD), Indian Institute of Tropical Meteorology (IITM), International Monsoons Project Office (IMPO), Japan Meteorological Agency (JMA), Korea Meteorological Administration (KMA), Met Office of the United Kingdom, Meteorological Service Singapore (MSS), WMO Global Producing Centres of Long Range Forecasts (GPCs-LRF) including the Lead Centre for Long Range Forecast Multi-Model Ensemble (LC-LRFMME).

El Niño/La Niña Background



Typical circulation patterns during El Niño/La Niña (Source: WMO, 2003, "Climate into the 21st Century").

Climate Patterns in the Pacific

Research conducted over recent decades has shed considerable light on the important role played by interactions between the atmosphere and ocean in the tropical belt of the Pacific Ocean in altering global weather and climate patterns. During El Niño events, sea surface temperatures in the central and eastern tropical Pacific Ocean become substantially warmer than normal. In contrast, during La Niña events, the sea surface temperatures in these regions become colder than normal. These temperature changes are strongly linked to major climate fluctuations around the globe and, once initiated, such events can last for 12 months or more. The strong El Niño event of 1997–1998 was followed by a prolonged La Niña phase that extended from mid-1998 to early 2001. El Niño/La Niña events change the likelihood of particular climate patterns around the globe, but the outcomes of each event are never exactly the same. Furthermore, while there is generally a relationship between the global impacts of an El Niño/La Niña event and its intensity, there is always potential for an event to generate serious impacts in some regions irrespective of its intensity.

Forecasting and Monitoring the El Niño/La Niña Phenomenon

The forecasting of Pacific Ocean developments is undertaken in a number of ways. Complex dynamical models project the evolution of the tropical Pacific Ocean from its currently observed state. Statistical forecast models can also capture some of the precursors of such developments. Expert analysis of the current situation adds further value, especially in interpreting the implications of the evolving situation below the ocean surface. All forecast methods try to incorporate the effects of ocean-atmosphere interactions within the climate system. The meteorological and oceanographic data that allow El Niño and La Niña episodes to be monitored and forecast are drawn from national and international observing systems. The exchange and processing of the data are carried out under programmes coordinated by the WMO.

WMO El Niño/La Niña Update

The WMO El Niño/La Niña Update is prepared on a quasi-regular basis (approximately every three months) through a collaborative effort between WMO and the International Research Institute for Climate and Society (IRI) as a contribution to the United Nations Inter-Agency Task Force on Natural Disaster Reduction. It is based on contributions from the leading centres around the world monitoring and predicting this phenomenon and expert consensus facilitated by WMO and IRI.

For more information on the Update and related aspects, please visit:
https://public.wmo.int/en/our-mandate/climate/el-niñola-niña-update