



El Niño/La Niña Update

May 2022

Current Situation and Outlook

La Niña conditions, which started in September 2020, continued to prevail through mid-May 2022 across the tropical Pacific. While there was a temporary weakening of the oceanic components of La Niña during January and February 2022, a resurgence of La Niña has been observed since March 2022, further strengthening thereafter in terms of both oceanic and atmospheric indicators. WMO Global Producing Centers for Long Range Forecasts indicate that there is a high probability (about 70%) of the current La Niña conditions extending into boreal summer 2022 and continuing thereafter, but with slightly reduced probability of about 50-60% during July-September 2022. However, there are indications that the probability may increase again slightly, with greater uncertainty, during the boreal fall of 2022 and early boreal winter of 2022-23. Return to ENSO-neutral conditions is less likely (around 30%) during June-August, while it is very unlikely for El Niño to develop. 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 protracted La Niña conditions, which began in September 2020, are still continuing in the tropical Pacific as of mid-May 2022. In the equatorial Pacific Ocean, the sea surface temperatures ranged from -0.7 to -1.5 degrees Celsius (for the week ending 18 May 2022), with below-average subsurface temperatures sustaining the cooler sea surface temperatures. Around December 2021, the oceanic components of the current episode reached their peak of intensity, declining to weak levels in January and February 2022; however, atmospheric indicators remained comparable to those experienced during December. Since March 2022, there has been a resurgence and gradual strengthening of La Niña. The overlying atmospheric conditions, including surface and upper-level

winds and patterns of cloudiness and rainfall, currently remain consistent with La Niña conditions. The Southern Oscillation Index (SOI: defined by the standardized Tahiti minus Darwin sea-level pressure difference) also remained very strong during April 2022 (according to Bureau of Meteorology [SOI datasets](#)). Anomalously dry conditions have been observed around the date line, with enhanced convection and precipitation over Indonesia and the western Pacific. On the whole, observed conditions clearly indicate a continuation of the current La Niña event.

Using the recent observations as the starting point for their dynamical seasonal prediction systems, the WMO Global Producing Centres of Long-Range Forecasts routinely issue global-scale climate forecasts for the coming months. Their latest forecasts and expert assessment indicate that there is a high probability (about 70%) for the sea surface temperature anomalies in the central and eastern equatorial Pacific to remain between -0.5 and -1.0 degree Celsius during June-August 2022. The likelihood of a continuation of the current La Niña may decrease (about 50-60%) during July-September 2022. The probability for ENSO-neutral conditions to prevail during June-August season is estimated at around 30%, and the chance of El Niño developing is highly unlikely. While La Niña has a better chance of continuing beyond mid-year 2022 than ENSO-neutral, the ocean-atmosphere system tends to be quite sensitive and relatively more variable during the summer months. A further one to two months of monitoring of the situation will be required in order to establish a more precise direction of development. Should this event continue into 2023, as some long-lead predictions suggest, it would only be the third "triple-dip La Niña" (three consecutive boreal winters of La Niña conditions) since 1950.

It is important to note that El Niño and La Niña 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:

- La Niña conditions that developed in September 2020 continue to prevail through to mid-May 2022, though the first quarter of 2022 was marked by a relatively weaker La Niña intensity.
- The oceanic components of the current La Niña have been gradually strengthening since March 2022, coupled with extremely strong atmospheric components that have been sustained through to mid-May 2022.
- Climate models and expert assessment indicate about a 70% chance for the continuation of the La Niña during the June-August 2022 season, and 30% probability for ENSO-neutral conditions to return.
- There is a 50-60% chance for continuation of the current La Niña beyond mid-2022.

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 information and web links to WMO Regional Climate Centres (RCCs) please visit:

<https://public.wmo.int/en/our-mandate/climate/regional-climate-centres>

For information and web links to Regional Climate Outlook Forums (RCOFs) please visit:

<https://public.wmo.int/en/our-mandate/climate/regional-climate-outlook-products>

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>

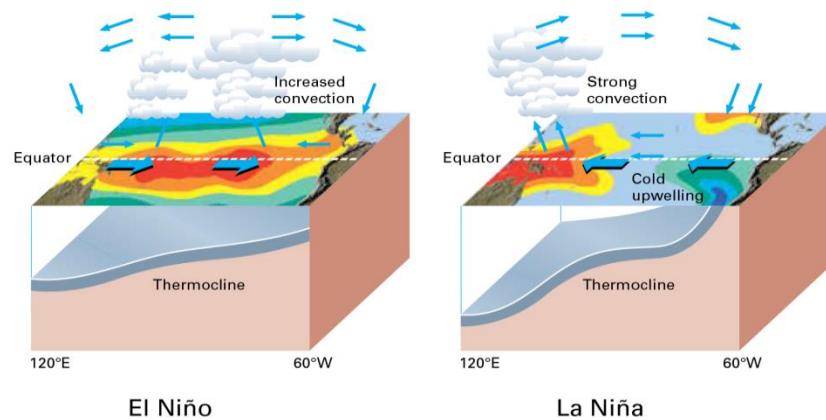
An archive of all WMO El Niño/La Niña Updates issued so far, including this one, is available at:

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

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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>