



El Niño/La Niña Update

August 2020

Current Situation and Outlook

The El Niño-Southern Oscillation (ENSO) status in the tropical Pacific remains neutral, signifying that neither El Niño nor La Niña is currently occurring. However, since May both surface and sub-surface waters in the region have leaned to below average. The latest forecasts from the WMO Global Producing Centers of Long Range Forecasts indicate that tropical Pacific sea surface temperatures are likely to cool further, potentially reaching La Niña levels during September 2020. Given current conditions and model predictions, the chance of La Niña during September-November 2020 is estimated to be around 60%, with about a 40% chance for ENSO-neutral conditions to continue. Chances for La Niña decrease to 55% for the December-February 2020/2021 period. National Meteorological and Hydrological Services will closely monitor changes in the state of ENSO over the coming months and provide updated outlooks.

Since May 2020, east-central tropical Pacific sea surface temperatures have been near-to-below average, following approximately seven months of leaning above average. Despite this recent cooling tendency, sea temperatures still remain in the ENSO-neutral range. Since June, enhanced trade winds have been generally observed, along with a tendency of upper level westerly winds to be stronger than average. The cloudiness and rainfall patterns across the tropical Pacific have featured drier than average conditions in the west-central to the east-central tropical Pacific, and near-average in the far western Pacific and over Indonesia. Sub-surface water temperatures in the eastern tropical Pacific have become mainly below average since April 2020. Also, the Southern Oscillation Index (SOI), represented by standardized Tahiti minus Darwin sea-level pressure difference, has been mainly positive during the last two months. Sustained negative (positive) values of the SOI beyond certain thresholds are often associated with El Niño (La Niña) episodes. The recent conditions, while still being ENSO-neutral overall, do lean in the direction of weak La Niña, with the continuation of below-average waters at depth suggesting the likelihood of additional cooling in sea surface temperature in the coming months.

These recent conditions are integrated into the climate models from the WMO Global Producing Centers of Long Range Forecasts to produce global-scale forecasts for the coming months. About two-thirds of models predict mean sea surface temperatures to further cool to levels indicative of weak La Niña for the September-November period. The probability for La Niña during September-November varies somewhat across different forecasting centers, ranging from approximately 50% to 70%. Based on the model predictions and expert assessment to take into account model skills and model differences, the likelihood for La Niña conditions to develop during the September-November 2020 season is estimated to be about 60%. The likelihood of ENSO-neutral is estimated to be about 40% and that for El Niño near-zero. For the December-February 2020/2021 season, the likelihood for La Niña conditions drops slightly to about 55%, while the likelihood for ENSO-neutral remains about 40% and that for El Niño is about 5%. The sea

surface temperatures in the east-central tropical Pacific are likely to be in the range of 0.3 to 1.3 degrees Celsius below average during the September-November season, and 0.1 to 1.2 degrees Celsius below average during the December-February season. The forecasts for both the seasons do have some inherent uncertainty, but are no longer affected by the so-called “predictability barrier” that limited the accuracy of the previous seasonal outlooks issued in March and June. On the whole, for both forecast lead times, the probabilities emphasize a slightly higher likelihood for weak La Niña development than the continuation of ENSO-neutral conditions, and El Niño development is considered to be extremely unlikely.

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 automatically 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 tropical Pacific has been an ENSO-neutral condition since July 2019. However, since May 2020, sea surface temperatures over the area have leaned slightly towards below-average.
- Current observations show below-average surface and sub-surface water temperatures in the tropical Pacific, suggesting a likely tendency towards further decreases in sea surface temperature, possibly reaching La Niña thresholds during September 2020.
- Model predictions and expert assessment indicate that the probability for La Niña development during September-November 2020 is about 60%, while that for ENSO-neutral conditions continuing is 40% and that for El Niño is near-zero. For the December-February 2020/2021 season, the probability for La Niña slightly drops to about 55%, while that for ENSO-neutral remains at 40% and that for El Niño marginally rises to 5%.
- Sea surface temperatures in the east-central Pacific Ocean are most likely to be in the range of 0.3 to 1.3 degrees Celsius below average during September-November 2020, and 0.1 to 1.2 degrees below average during December-February 2020/2021.

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 Regional Climate Outlook Forums (RCOFs) please visit:

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

For the latest global seasonal forecast based on WMO Global Producing Centres of Long Range Forecasts, please visit:

<https://community.wmo.int/global-producing-centres-long-range-forecasts>

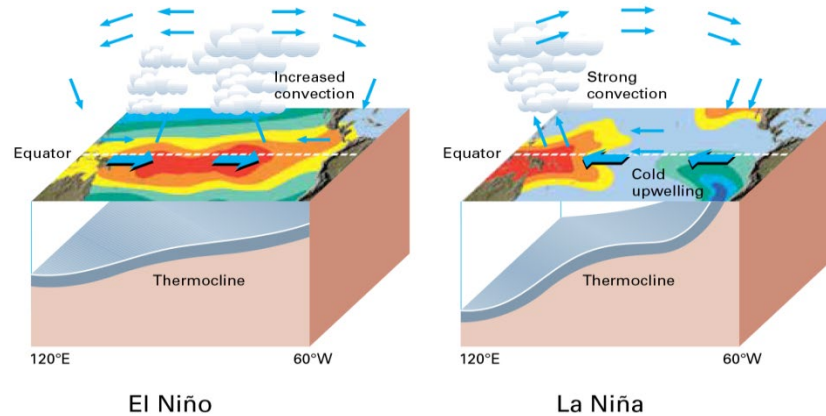
An archive of all WMO El Niño/La Niña Updates issued so far, including this one, is available at:

<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>