

World Meteorological Organization



EL NIÑO/LA NIÑA UPDATE

Current Situation and Outlook

ENSO neutral conditions currently prevail in the tropical Pacific Ocean, despite sea surface temperatures being near the El Niño threshold. Most climate models surveyed indicate that ENSO-neutral conditions will continue through July-September 2017, followed by a 50-60% chance of a continuation of ENSO-neutral during the subsequent months of 2017. The development of El Niño conditions is slightly less likely, while the emergence of La Niña appears unlikely. National Meteorological and Hydrological Services will continue to closely monitor changes in the state of ENSO over the coming months.

Since late April, sea surface temperature anomalies in the east-central equatorial Pacific have been near $+0.5^{\circ}\text{C}$, approaching the threshold of El Niño conditions. However, atmospheric patterns have continued to reflect neutral ENSO conditions with a tendency towards above-average rainfall over the Maritime Continent, near to below-average rainfall in the central Pacific Ocean, and near-average to weakly reduced trade winds across portions of the tropical Pacific. Although reduced trade winds continue over the far eastern equatorial Pacific, the sea surface temperatures in that region have receded to average conditions from their strongly positive levels earlier in 2017. The temperature of the waters at depth, from the central Pacific eastward and extending several hundred meters below the surface, have been close to or slightly above average; these waters often provide some indication of the coming conditions at the surface. Although there is some warmth below the surface of the tropical Pacific Ocean, this warmth is not near El Niño levels.

Most dynamical models surveyed predict that sea surface temperatures in the east-central tropical Pacific Ocean will remain at ENSO-neutral levels over the next two months (averaging +0.3 °C), while statistical models favour a borderline El Niño (+0.5 °C). These slightly above-average, but still ENSO-neutral conditions are projected to persist until the end of 2017. Based on these predictions and expert assessment, the chance of ENSO-neutral continuing in the second half of 2017 is in the range of 50-60%, with the likelihood of El Niño somewhat lower at around 35-45%. There is very little chance of La Niña developing during the last half of 2017.

It is important to note that El Niño and La Niña are not the only factors that drive global climate patterns, and that the strength of ENSO does not automatically correspond to the strength of its effects. At the regional level, seasonal outlooks need to assess the relative effects of both the El Niño/Southern Oscillation state and other locally relevant climate drivers. For example, sea surface temperatures of the Indian Ocean, the southeastern Pacific Ocean and the Tropical Atlantic Ocean are also known to influence the climate in the adjacent land areas. Regionally and locally applicable information is 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:

- Although sea surface temperatures have been near the threshold of El Niño, the tropical atmosphere has been unresponsive, and therefore ENSO-neutral conditions continue;
- Models surveyed and expert opinion suggest ENSO-neutral conditions are likely to continue through the remainder of 2017. Chances of ENSO-neutral are in the predicted range of 50-60% during the second half of 2017, while El Niño development is the next most likely scenario, with only a very small chance for La Niña.
- The state of ENSO will continue to be carefully monitored. More detailed interpretations of regional climate variability will be generated routinely by the climate forecasting community over the coming months and will be made available through 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 please visit:

<http://www.wmo.int/pages/prog/wcp/wcasp/RCCs.html>

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

http://www.wmo.int/pages/prog/wcp/wcasp/enso_updates.html

El Niño/La Niña Background

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, for example, sea temperatures at the surface 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 World Meteorological Organization (WMO).

WMO El Niño/La Niña Update

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:

http://www.wmo.int/pages/prog/wcp/wcasp/wcasp_home_en.html

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