



World Meteorological Organization

EL NIÑO/LA NIÑA UPDATE

Current Situation and Outlook

The tropical Pacific continues to be ENSO-neutral (neither El Niño nor La Niña). Model forecasts and expert opinion suggest that neutral conditions are likely to continue into the earlier part of the second quarter of 2014. However, temperatures below the surface of the tropical Pacific have warmed to levels that can occur prior to the onset of an El Niño event, while climate models surveyed by WMO experts show a steady warming of the tropical Pacific during the months ahead. A majority of models reach El Niño thresholds around the middle of the year. If an El Niño event does occur, it remains too early to determine its strength. National Meteorological and Hydrological Services and other agencies will continue to monitor Pacific Ocean conditions for further El Niño developments, and will assess the most likely local impacts.

Since the second quarter of 2012, El Niño-Southern Oscillation (ENSO) indicators in the tropical Pacific (e.g., tropical Pacific sea surface temperatures, sea level pressure, cloudiness and trade winds) have generally remained at neutral levels, indicating that neither El Niño nor La Niña conditions have been present.

The latest outlooks from climate models and expert opinion suggest that oceanic conditions and atmospheric anomalies associated with El Niño or La Niña are most likely to remain neutral into the earlier part of the second quarter of 2014. However, since February there have been two strong westerly wind events, and a general weakening of trade winds in the tropical Pacific. This has led to a significant warming of the waters below the surface of the central Pacific, which historically has been a precursor to El Niño development. While there is no guarantee this situation will lead to an El Niño event, the longer the trade winds remain weakened, and subsurface temperatures stay significantly warmer than average, the higher the likelihood of the emergence of an El Niño.

Model forecasts indicate a fairly large potential for an El Niño, most likely by the end of the second quarter of 2014. For the June to August period, approximately two-thirds of the models surveyed predict that El Niño thresholds will be reached, while the remaining models predict a continuation of neutral conditions. A few models predict an earlier El Niño onset, such as in May. No model suggests a La Niña in 2014. The strength of the possible El Niño cannot be reliably estimated at the current time. This uncertainty is related to the fact that model outlooks that start in March-April tend to have lower skill than those made later in the calendar year, due to the more fluid nature of the ocean-atmosphere system during March to June. If El Niño does develop by the end of the second quarter of 2014, it is likely to continue through the remainder of the year.

It is important to note that El Niño and La Niña are not the only factors that drive global climate patterns. At the regional level, seasonal outlooks need to assess the relative impacts of both the El Niño/La Niña state and other locally relevant climate drivers. For example, the state of the Indian Ocean Dipole, or the Tropical Atlantic SST Dipole, may impact the climate in the adjacent land areas. Locally applicable information is available via regional/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:

- ENSO conditions are currently neutral (neither El Niño nor La Niña);
- Some evidence of precursors to El Niño have emerged in the tropical Pacific;
- As of early April 2014, outlooks indicate likely continuation of neutral conditions into the earlier part of the second quarter of 2014;
- Two thirds of models surveyed favour El Niño development, with most of these suggesting that El Niño thresholds will be reached by July.
- If El Niño does develop, it is likely to continue through the remainder of 2014;
- The strength of the likely El Niño cannot be reliably estimated at the current time.

The situation in the tropical Pacific and Indian Ocean 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 the National Meteorological and Hydrological Services. For web links of the National Meteorological Hydrological Services, please visit:

http://www.wmo.int/pages/members/members_en.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 once in 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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