



World Meteorological Organization

# EL NIÑO/LA NIÑA UPDATE

## Current Situation and Outlook

***La Niña conditions in the tropical Pacific have been at weak to moderate levels since around October 2011. Model forecasts and expert interpretation suggest that the La Niña is near its maximum strength and hence is likely to slowly decline over the coming months. However, beyond May, there is some uncertainty over the expected state of the Pacific Ocean, with no particular preference for El Niño, La Niña or neutral conditions. Over the coming months, National Meteorological and Hydrological Services and other agencies will continue to monitor Pacific Basin conditions to assess the longevity of the current La Niña event and the conditions most likely to follow for the second half of 2012.***

After a period of neutral conditions (i.e., neither El Niño nor La Niña) in mid-2011, the tropical Pacific Ocean started to cool once more in August and has been at weak to moderate La Niña levels from around October to the present. Key indicators of the La Niña have been a consistently positive Southern Oscillation Index (a measure of large-scale fluctuations in monthly or seasonal mean surface air pressure between western and eastern tropical Pacific; high positive index is associated with La Niña and high negative index with El Niño), stronger than average trade winds and cooler than average sea temperatures across the central and eastern tropical Pacific Ocean, including below the surface.

Historical precedence and the latest outputs from forecast models suggest that this La Niña reached its peak during late 2011 and early 2012, and was considerably weaker than the 2010-11 La Niña event. Model outputs and expert opinion suggest that sea surface temperature anomalies will return to a neutral state during the March to May 2012 period. A boreal spring (austral autumn) decay is typical of the cycle of previous La Niña events. Beyond May there is a wide range in the model forecasts, and hence Pacific Ocean conditions will continue to be monitored closely to determine the likely ENSO status for the remainder of 2012.

Importantly, several other factors influence seasonal climatic patterns apart from El Niño and La Niña. At the regional level, seasonal outlooks need to assess the relative impacts of both the current La Niña and other relevant factors. Such other factors include, for example, conditions in the tropical Indian and Atlantic oceans, as these can influence surrounding continental climate patterns. Locally applicable information should therefore be consulted in detailed 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:

- Weak to moderate La Niña conditions have prevailed since around October 2011;
- La Niña conditions are expected to persist until March to May 2012;
- Currently, expectations beyond May 2012 are uncertain. While neutral conditions appear likely, possibilities for development of El Niño, or even redevelopment of La Niña cannot be ruled out.

The situation in the tropical Pacific will continue to be carefully monitored. More detailed interpretations of regional climate fluctuations 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 Services, please visit:

[http://www.wmo.int/pages/members/members\\_en.html](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 higher than normal. In contrast, during La Niña events, the sea surface temperatures in these regions become lower 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.

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