



World Meteorological Organization

# EL NIÑO/LA NIÑA UPDATE

## Current Situation and Outlook

***La Niña conditions were re-established in the tropical Pacific during August, after a brief period of neutral conditions following the significant La Niña of 2010-11. Model forecasts and expert interpretation suggest that La Niña should remain in place until at least the end of 2011, with some further strengthening possible. The current La Niña is likely to be considerably weaker than the La Niña event of 2010-11. Over the coming months, National Meteorological and Hydrological Services and other agencies will continue to monitor and predict Pacific Basin climate patterns in order to assess the strength and longevity of this La Niña event.***

Neutral conditions, i.e., neither El Niño nor La Niña, had prevailed in the tropical Pacific between May and August 2011, following the moderate to strong La Niña event of 2010-11. The neutral conditions subsequently gave way to a re-emergence and gradual strengthening of La Niña conditions prevailing at the present time. The key indicators of this 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 cooling across the central and eastern tropical Pacific Ocean, especially below the surface. By the end of October, the La Niña conditions had slowly reached a weak-to-moderate level.

Historical precedence and the latest outputs from forecast models suggest that peak intensity of this La Niña will be reached in late 2011 or early 2012, and that it is very unlikely to reach conditions as strong as those of the 2010-11 La Niña event. A return to a neutral state could then be expected during the typical transition period of the phenomenon from March to May 2012. However, given the uncertainty in the range of varying model outputs, close monitoring is required for firmer signs of the peak strength and likely duration of this event. Development of El Niño is considered highly unlikely prior to the typical transition period of March to May.

Importantly, several other factors influence seasonal climatic patterns apart from El Niño and La Niña. At the regional level, seasonal outlooks will need to assess the relative impacts of both the current La Niña and other relevant factors. A current noteworthy example is the area of warmer than normal sea surface temperatures in the western equatorial Indian Ocean; an uncommon observation during La Niña events. This requires careful monitoring, along with conditions in the

tropical eastern Indian Ocean, 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 La Niña conditions re-emerged in August 2011 following a short period of neutral conditions;
- Weak to moderate La Niña conditions are expected to persist through the remainder of 2011 and possibly early 2012. This La Niña event is expected to be considerably weaker than the 2010-11 La Niña event;
- Development of El Niño is considered highly unlikely before April 2012.

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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