



World Meteorological Organization

# EL NIÑO/LA NIÑA UPDATE

## Current Situation and Outlook

***Neutral conditions (neither El Niño nor La Niña) continue in the tropical Pacific. Model forecasts and expert opinion suggest that the likelihood of El Niño or La Niña conditions developing during the first half of 2013 is low, and that neutral conditions are likely to be maintained through the boreal spring. National Meteorological and Hydrological Services and other agencies will continue to monitor Pacific Basin conditions and provide outlooks to assess the most likely state of the climate through the coming several months of 2013.***

During the last 10 months El Niño-Southern Oscillation (ENSO) indicators in the tropical Pacific (e.g., tropical Pacific Ocean temperatures, sea level pressure, cloudiness and trade winds) have generally been at neutral levels, indicating neither El Niño nor La Niña conditions have been present. From July to October 2012, sea surface temperatures increased to a borderline El Niño level, but the atmospheric characteristics of El Niño failed to develop and the ocean-atmosphere system as a whole remained in a neutral state. Since November the tropical Pacific Ocean has cooled, and although the first two months of 2013 showed patterns of ocean temperatures that approached borderline La Niña levels, and cloudiness and trade winds that also leaned towards La Niña conditions, the tendency has been weak and the state of the ocean-atmosphere system as a whole continued to be neutral.

The latest outlooks from climate models and expert opinion suggest that sea surface temperature and atmospheric anomalies are most likely to remain neutral through the boreal spring of 2013. Less than a quarter of models surveyed predict borderline or weak La Niña conditions during the February to April period, but nearly all models clearly display neutral conditions by early boreal spring. No model predicts El Niño development during the period of March to May 2013. Forecasts beyond the boreal spring made at this time of the year have lower levels of skill than outlooks made at other times; hence users should factor this into their risk assessments.

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. Such other factors may 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:

- Since April 2012, conditions have remained neutral in the tropical Pacific (neither El Niño nor La Niña);
- Since January 2013 tropical Pacific Ocean temperatures and some atmospheric features have leaned toward La Niña conditions, but the overall ocean-atmosphere system has remained neutral;
- As of late February 2013, outlooks indicate that neutral conditions are likely to continue through the boreal spring, after which the outlook is uncertain due to characteristically low outlook confidence at this time of the year.

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

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