



World Meteorological Organization

EL NIÑO/LA NIÑA UPDATE

Current Situation and Outlook

An El Niño event is now established across the tropical Pacific basin. Conditions since the last update in September have reinforced the event. Sea surface temperatures across the central and eastern equatorial Pacific were about 1 to 1.5 degrees Celsius warmer than usual during October, at levels typical of many El Niño events in the historical record. This El Niño event is expected to continue at least into the first quarter of 2007.

During December 2006 to February 2007, a modest further intensification is expected of the unusually warm sea surface temperatures in the central and eastern equatorial Pacific. Warm water continues to be in place beneath the surface, though computer models and expert interpretation suggest that the surface warming is not expected to be substantially greater than 1.5 degrees Celsius above normal during the December to February period, so the event is not likely to be considered as above the moderate category in this time frame. This does not, however, give cause for complacency. Unusual and sometimes severe climate patterns are known to have occurred during El Niño events of the current magnitude.

Further developments in the equatorial Pacific around March-May 2007 will then be critical for the evolution of the event. Scenarios include that the current El Niño event (i) rapidly dissipates to neutral conditions during March-May; (ii) slowly dissipates to neutral conditions during the first half of 2007; (iii) transitions to a La Niña during the year; or (iv) becomes reinforced, and persists to or beyond mid-2007, as an El Niño event of 1-1.5 year duration. The latter outcome, such as occurred in 1986-87, is unusual but cannot be ruled out at this time. Updates in early 2007 will therefore be important for assessing likely developments beyond the first quarter of 2007.

Impacts have already been, and continue to be, severe in the western equatorial Pacific, the islands therein and surrounding continental regions, including Australia and Indonesia. This is in part believed to be also attributable to a particularly strong pattern of unusually cool ocean temperatures in the equatorial western Pacific and eastern Indian Oceans. Such general patterns do often occur during El Niño events, but rarely so early and with such intensity. These conditions are expected to continue to reinforce the effects of El Niño across the tropical western Pacific Ocean and the Indian Ocean. Furthermore, the western Indian Ocean has now also become unusually warm, a pattern expected to reinforce unusual climate conditions across the Indian Ocean and

surrounding continental regions including eastern equatorial Africa over the next few months. Parts of eastern Africa are already reported to be receiving extremely heavy rainfall.

Elsewhere, climate patterns typical of El Niño should also be considered to have increased likelihood of occurrence over the next few months, including across the Americas, the tropical Atlantic basin, parts of Africa and South Asia. Indeed, it is likely that the emerging El Niño conditions contributed to the suppression of tropical Atlantic hurricanes during 2006. It is, nonetheless, important to consider that, especially for regions remote from the tropical Pacific, El Niño is one of a number of factors that leads to information about the climate patterns to be expected over the next several months. Furthermore, even within the central and western equatorial Pacific, the centres of areas of positive and negative precipitation anomalies have to date been somewhat displaced westward from their usual location during El Niño events, likely in response to the cool eastern Indian and western equatorial Pacific Ocean temperatures.

Regions typically affected should consult seasonal climate outlooks, as produced by National Meteorological and Hydrological Services, for detailed interpretation of the expected impacts of this event on climatic conditions, along with other factors that influence the seasonal climate of the region. In considering response strategies, it is important to consider such regionally and locally specific seasonal climate forecasts and not to rely solely on the presence of El Niño or La Niña.

In summary:

- An El Niño event is now underway, with sea surface temperatures across the central and eastern Pacific about 1 to 1.5 degrees Celsius warmer than usual during October.
- During such 'moderate' events, however, unusual and sometimes severe climatic patterns can and do occur in some regions.
- Unusual ocean surface temperatures in the western equatorial Pacific Ocean and the Indian Ocean are currently enhancing the effects of El Niño in nearby regions.
- A modest further intensification of El Niño is expected over the next three months.
- There is an increased likelihood of climate patterns typical of an El Niño event through the remainder of this year and into the first quarter of 2007.
- Developments in the equatorial Pacific during March-May 2007 will likely be critical for the conditions to expect in the remainder of 2007. Forecasts of those developments are not considered reliable at this time, so it will be important to monitor emerging indications over the next few months.

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 National Meteorological and Hydrological Services.

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 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 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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