



World Meteorological Organization

EL NIÑO/LA NIÑA UPDATE

Current Situation and Outlook

An El Niño event, which started in June 2009, is well established across the tropical Pacific. El Niño conditions are very likely to continue at least through the remainder of 2009 and into the first quarter of 2010. Some climate patterns typical of El Niño have been observed over the last several months. The expected continued presence of El Niño into early 2010 has implications for many climate patterns around the world over the next several months, keeping in view the fact that, in some regions, impacts typically continue during the decay phase. Decay of the El Niño event to near-neutral conditions across the tropical Pacific during the approximate March-May 2010 period is considered the most likely further development. The possibilities of a second year of El Niño conditions or rapid transition to a La Niña situation are considered unlikely at this time.

Across the central and eastern Equatorial Pacific, sea surface temperatures were generally about 1 Degree Celsius warmer than normal during June-September 2009. This period formed the early phase of the developing El Niño event, although the magnitude of the warming through September was relatively small in comparison to several previous El Niño events.

During October, a further pulse of warming occurred in the central and eastern Equatorial Pacific Ocean, both at the surface, and in sub-surface waters. Atmospheric climate patterns across the tropical Pacific also took on characteristics typical of an El Niño event, including weaker surface trade winds and stronger displacement of convection and cloudiness from the western Equatorial Pacific to the central Equatorial Pacific. Surface temperature conditions in the western Equatorial Pacific have become widely and substantially below normal. Taken together, these developments indicate enhanced ocean-atmosphere coupling during this El Niño event across the tropical Pacific.

Most dynamical and statistical forecast models anticipate the continuation of El Niño conditions at least into early 2010. Weekly average surface temperatures in the latter half of October in the central and eastern Equatorial Pacific were around 1.5 Degree Celsius warmer than normal and this is around the level anticipated by most models for the November-February period. The observed developments during October may not yet be fully represented in the model forecasts. Therefore some modest additional warming cannot be ruled out, but substantial intensification remains unlikely at this time.

The expectation therefore continues to be for El Niño conditions to prevail through the remainder of 2009 and into the first quarter of 2010. This expectation is based on model forecasts, and the typical life-cycle of El Niño events, which once established in the early-middle part of a year, usually persist through into the first quarter of the following year. Beyond the first quarter of 2010, there is no information of substance on the likelihood of whether El Niño, near-neutral or La Niña will prevail in the tropical Pacific, and users are advised to assume the long-term climatological probability of occurrence, which is 50% for neutral and 25% each for El Niño and La Niña. There are a few rare examples in the historical record of situations like the current one leading to a second year of El Niño conditions, or rapid transition to La Niña conditions. These two possibilities are considered unlikely at this time, but they are the ones that forecasters will be watching for in their models over the next few months.

In considering risk-management responses, it should be recalled that no two El Niño events are identical. Furthermore, the timing of impacts typically varies by region, and can continue during the decay phase of an event.

Even in regions that are typically strongly impacted by El Niño, climate-risk assessments should not rely solely on El Niño/La Niña indications. Many climate extremes develop independently of El Niño and La Niña, and users should consult tailored regional and national climate outlooks. Such outlooks integrate region-specific climate assessments with those for the major global systems of El Niño and La Niña. Users should therefore consult their respective National Meteorological and Hydrological Services and regional climate institutions for more specific climate outlooks and follow-up updates.

In summary:

- An El Niño event is underway, with the early phase of the event holding steady at weak-to-moderate levels through July-September;
- During October, almost all indicators of El Niño became noticeably stronger;
- Large-scale conditions in the tropical Pacific, as captured by dynamical and statistical forecast models, suggest further substantial intensification of El Niño conditions is unlikely. Expert interpretations do not alter this expectation, despite the observed developments in October;
- Forecasts into 2010 from dynamical and statistical models generally anticipate the most typical El Niño event evolution that is found in the historical record, with a return to near-neutral conditions the most likely outcome for around the March-May 2010 period;
- This assessment has important implications for climate patterns around the world, continuing at least into the second quarter of 2010. During this time, climate patterns typical of an El Niño event may have increased likelihood of occurrence; however, this information should be combined with that on other relevant regional systems to estimate the net impacts.

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

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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