



World Meteorological Organization

EL NIÑO/LA NIÑA UPDATE

Current Situation and Outlook

The ongoing El Niño event continues to have significant and widespread impacts. The signature of this event, which started in June 2009, is seen in basin-wide Pacific Ocean conditions, and in many of the climate patterns around the world that are typically impacted by an El Niño event. The most likely outcome by mid-year 2010 is for the El Niño event to have decayed and near-neutral conditions to be re-established across the tropical Pacific. However, this time of year (March-June) is a particularly difficult period for forecasting developments in the tropical Pacific, and forecasters cannot rule out persistence of El Niño or the possible early stages of La Niña by mid-year. Even during the decaying phase of the El Niño expected over the next few months, the conditions associated with it will continue to influence climate patterns at least through the second quarter of the year, and this information will be contained in the available national and regional seasonal climate forecast assessments.

During the first two months of 2010, conditions in the tropical Pacific continued to clearly reflect the presence of the El Niño event. Sea-surface temperatures remained more than 1 Degree Celsius warmer than normal across much of the central Equatorial Pacific, while large-scale atmospheric indicators of El Niño, such as increased cloudiness and convection in the central equatorial Pacific, were also firmly established. A peak in the intensity of El Niño conditions is generally considered to have occurred around November-December 2009. Sea-surface temperatures especially in the central Equatorial Pacific were at that time more generally 1.5 Degrees Celsius warmer than normal. Overall, this event is considered to have close to or slightly above the typical strength seen in the historical record of El Niño events.

Through mid-year 2010, computer models are consistent in expecting continued decay of the currently prevailing central and eastern Equatorial Pacific warmth. However, there is a wide spread in the forecast sea-surface temperature values, ranging from ones that are consistent with persistence of a weak El Niño, to values that are more consistent with the early stages of La Niña. Overall, the results of forecast models and expert interpretation suggest near-neutral to be the most likely outcome by mid-year, but recognizing that there is considerable uncertainty in this forecast. Indeed, beyond mid-year, the best information currently available is considered to be based on the long-term climatological frequency of occurrence of each state, which is around 25% for El Niño, 50% for near-neutral and 25% for La Niña.

The uncertainty in the outlook for El Niño over the next few months should not detract from the significance of the current event that is still underway. Both close to and remote from the Pacific, climate patterns that are typical of El Niño may continue in some parts through mid-year even if the warm sea-surface temperatures in the central and eastern Equatorial Pacific diminish quickly in the next couple of months, since impacts can continue even during the decay phase of an El Niño 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 are also the consequence of ocean/atmosphere interactions other than those typically associated with El Niño and La Niña events, and users should consult tailored regional and national climate outlooks. Such assessments integrate region-specific climate systems with the major global systems of El Niño and La Niña. They also take account of the fact that no two El Niño events are identical. 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:

- A basin-wide El Niño event continues. Its strength peaked in November-December 2009 at a moderate level. So far, declines in strength have only been modest;
- Further decline in strength is expected over the next few months, but considerable uncertainty remains regarding the timing and rate of decay. Nonetheless, the most likely outcome by mid-year is considered to be near-neutral;
- The period March-June is a particularly difficult time of the year for forecasting tropical Pacific developments, and while near-neutral is considered the most likely outcome by mid-year, it is still considered possible for El Niño to persist or for the early stages of a La Niña to be present by mid-year;
- It is however important to recognize that impacts of the current El Niño are expected to continue to be felt in many parts of the world through at least the second quarter of 2010. This is because impacts on many climate patterns both close to and remote from the Pacific, can occur even during the decay phase of an El Niño event.

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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