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. During July and August 2012, the tropical Pacific sea surface temperature rose to a level indicative of a weak El Niño, but an atmospheric response has not yet been observed in the Pacific region. An atmospheric response is necessary for an El Niño to have global climate impacts. Model forecasts and expert opinion suggest that the likelihood of developing El Niño conditions during September or October and enduring through the remainder of 2012 is higher than the persistence of neutral conditions. If El Niño does develop, its strength is likely to be weak. 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 during the latter part of 2012.

After the weak to moderate strength 2011-2012 La Niña ended around April 2012, tropical Pacific sea surface temperatures, sea level pressure and trade winds remained neutral (indicative of neither El Niño nor La Niña) until July 2012, when sea surface temperatures increased and exceeded weak El Niño thresholds. However, features characteristic of El Niño have not yet developed in the tropical Pacific atmosphere (e.g., in patterns of sea level pressure, winds and cloudiness), so that the ocean-atmosphere system as a whole remains in a neutral state. An atmospheric response is required in order for the event to be sustained and to influence the large scale climate patterns. The latest results from climate forecast models and expert opinion suggest that sea surface temperature anomalies will likely remain at weak El Niño levels (or possibly increase further) and that it remains more likely than not that the tropical atmosphere will soon respond in a manner consistent with El Niño. A minority portion of the models predicts neutral conditions to persist throughout 2012, with sea surface temperatures returning to neutral in late September or early October. Hence, expert interpretation of these models and current conditions suggest a moderately high likelihood for El Niño conditions to develop during September or October, and to endure into boreal winter 2012-13. If an El Niño event does develop, it is most likely to be weak, although a moderate strength event or the lack of any seasonally enduring El Niño event cannot be ruled out.

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 current borderline El Niño state and other relevant factors. 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 the end of the La Niña in April 2012, neither El Niño nor La Niña conditions have existed;
- Although tropical Pacific sea surface temperatures have recently risen and are at levels consistent with a weak El Niño, characteristic features of El Niño have not yet clearly appeared in the overlying atmosphere;
- During September or early October 2012, outlooks indicate development of El Niño is more likely than not, but the chances for persistence of neutral conditions cannot be ruled out;
- If El Niño develops in September or October 2012, it is expected to persist into boreal winter 2012-2013, and its strength will most likely be weak.

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 and Hydrological 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 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

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