



World Meteorological Organization

EL NIÑO/LA NIÑA UPDATE

Current Situation and Outlook

Climate patterns across the equatorial Pacific over the last 1-2 months have developed a notable tendency toward El Niño conditions. There is general agreement that the development of a weak to moderate basin-wide El Niño is now likely and that such an event would persist into early 2007. Expert opinion does recognize that, at this early stage, there is a small possibility that the event could actually dissipate in the next couple of months. However, it may be noted that El Niño conditions, once established at this time of the year, almost always persist until early the following year. In view of the evolving situation, additional caution is required in forming expectations about impacts in those regions typically affected by El Niño events. The situation is expected to become clearer in the next 1-2 months.

Sea-surface temperatures (SSTs) are not yet at uniformly warm levels typical of El Niño across the whole central and eastern equatorial Pacific. In the eastern equatorial Pacific close to the South American coast, conditions became warm toward the end of July. During August, oceanic and atmospheric patterns in the central and western equatorial Pacific also began to resemble conditions typical of an early stage of an El Niño event. In the central equatorial Pacific, SSTs became more than one degree Celsius warmer than normal, while at the same time there was a weakening of the trade winds. There remains some concern over the extent to which these developments are firmly established and form part of a trajectory toward a basin-wide El Niño event. There is a small possibility, therefore, that the recent tendency toward El Niño conditions could dissipate in the next couple of months and that a basin-wide El Niño may not develop. Under current conditions, development of a La Niña is considered highly unlikely.

The development of a basin-wide El Niño event is considered likely based on expert interpretation of the prevailing situation and the general consistency of forecast models. Furthermore, once El Niño conditions are established at this time of the year, they almost always persist until early the following year. Sub-surface conditions in the equatorial Pacific are considered favourable for an enhancement of the currently observed warming, with warmer than normal water in place. Most dynamical and statistical forecast models indicate continued warming of SST in the central and

eastern equatorial Pacific leading to a basin-wide El Niño event, but there is no indication at this time that it would be of strong intensity. Projected warming in the central and eastern equatorial Pacific ranges from very modest warming (less than half degree Celsius) to warming associated with typical moderate basin-wide El Niño events (about 1 to 1.5 degree Celsius warming). Even so-called weak or moderate El Niño events can be associated with severe climatic conditions in some affected areas, serving to emphasize that the evolving situation warrants careful monitoring.

Some climate features over continental regions in the immediate vicinity of the tropical Pacific have resembled those typical of El Niño over the last 1-2 months, including drier than normal conditions over parts of Indonesia and southern Australia. Other climate conditions typical of basin-wide El Niño should now also be considered to have an increased likelihood of occurrence through the remainder of the year and into early 2007. However, the current uncertainty over the expected magnitude of warming in the central and eastern equatorial Pacific, means that additional caution with respect to expected impacts is required at this stage. Furthermore, important factors other than El Niño are known to influence regional climate fluctuations. For example, SSTs in the tropical North Atlantic continue to be warmer than normal and have the potential to influence climate patterns across the tropical North Atlantic and surrounding continental regions, while development of unusual Indian Ocean SST patterns during an El Niño can also be a critical factor in determining regional climate patterns, especially in parts of Africa. In considering response strategies, it is therefore important to consider regionally and locally specific seasonal climate forecasts, as provided by the concerned National Meteorological and Hydrological Services. Information on expected conditions should not rely solely on the presence of El Niño or La Niña.

In summary:

- ?? Over the last 1-2 months climate patterns across the equatorial Pacific have changed from predominantly neutral conditions and are now consistent with a 'development phase' of a basin-wide El Niño event.
- ?? It is very likely that sea-surface temperatures in the central and eastern equatorial Pacific will in general be warmer than normal through the remainder of the year and into early 2007.
- ?? There is still some concern that this tendency may, at least in part, reverse. Nonetheless, there is general agreement that development of a weak to moderate basin-wide El Niño is the most likely outcome, and that such an event would persist into early 2007. Development of a La Niña is considered highly unlikely.
- ?? It is reasonable to conclude that there is now an increased likelihood of climate patterns typical of El Niño events through the remainder of this year and into early 2007. Statements about expected impacts need caution until the evolution of the current developments is more firmly established.

The situation in the tropical Pacific will continue to be carefully monitored, and is expected to become more clear in the next 1-2 months. 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.

Acknowledgements

This El Niño/La Niña Update has been prepared through a collaborative effort between the 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 has been prepared based on contributions from the Australian Bureau of Meteorology (BOM), Centro Internacional para la Investigación del Fenómeno El Niño (CIIFEN), China Meteorological Administration (CMA), Drought Monitoring Centre (DMC)-Harare for Southern Africa, European Centre for Medium Range Weather Forecasts (ECMWF), Fiji Meteorological Service, IGAD (Inter-Governmental Authority on Development) Climate Prediction and Applications Centre (ICPAC) for Greater Horn of Africa, India Meteorological Department (IMD), Instituto Nacional de Meteorología e Hidrología (INAMHI), International Research Institute for Climate and Society (IRI), Japan Meteorological Agency (JMA), Korea Meteorological Administration (KMA), Met Office, United Kingdom (UKMO), Météo-France, National Institute of Water and Atmospheric Research (NIWA) in New Zealand, and Climate Prediction Center (CPC) of the National Oceanographic and Atmospheric Administration (NOAA) in the United States.