



World Meteorological Organization

EL NIÑO/LA NIÑA UPDATE

Current Situation and Outlook

La Niña conditions, which started in the third quarter of 2007, continue across the central and eastern Equatorial Pacific. Basin-wide features are now typical of the mature stage of a La Niña event, including in the western Equatorial Pacific. The magnitude of the event continues to be in the middle range of those observed in the historical record. The La Niña event is expected to continue at least through the first quarter of 2008. Many La Niña events in the historical record are found to decay rapidly during the March-May period, but it cannot be determined at this time whether or not this event will decay during the same period. By the middle of the year, La Niña and, what is referred to as 'neutral conditions' are considered to be about equally likely, with El Niño continuing to have a low likelihood of occurrence at this stage. Long-term statistics indicate neutral conditions should currently be considered a more likely outcome for the latter part of 2008.

Over the last three months, La Niña conditions have matured and become slightly stronger. Sea surface temperatures are now about 1.5 to 2 degrees Celsius colder than average over large parts of the central and eastern Equatorial Pacific. The local atmosphere is strongly coupled to this SST situation, with trade winds strengthened and cloudiness reduced in central and eastern equatorial Pacific region. However, in the far eastern equatorial Pacific near South America, the La Niña conditions are not as strong in the last few weeks.

In 2007, when the La Niña became established, conditions in the western equatorial Pacific, were initially not typical of a La Niña, but over the last three months, they have also become generally consistent with a La Niña event, and sea surface temperatures surrounding northern Australia and into much of the Equatorial western Pacific are about 0.5 degrees Celsius warmer than normal. Basin-wide conditions are therefore now reflecting a La Niña pattern.

There is good agreement amongst forecast models and amongst expert interpretations that the current event is well established and should continue at least through the first quarter of 2008. There is more uncertainty over conditions for the second quarter of the year. However, a rapid decay of the event during March-May, while still possible, is not considered likely, given the current strength of the prevailing ocean sub-surface and atmospheric patterns that are reinforcing La Niña.

Most models indicate a more gradual decay that starts early in the year, but still leaves substantial coolness in the central and eastern Equatorial Pacific during the second quarter of the year. Thus, most interpretations suggest that the likelihood of La Niña conditions remains heightened through the second quarter and, at a lower level of confidence, into the first part of the third quarter of 2008. Some models suggest that it is possible that a temporary weakening of the event may begin in the next few weeks, associated with a temporary reversal of atmospheric conditions, but this is not expected by model interpretations to lead to a substantial rapid decay of the event.

At this time, longer-lead seasonal forecasts for time periods beyond the third quarter of 2008 are not considered to contain useful information on the occurrence of La Niña or El Niño. It should be noted that very rarely, a La Niña event will persist for two years or slightly longer, such as occurred from early 1998 to early 2000. However, the likelihood of such a situation developing in this case will remain unclear for some months to come, but will be closely monitored. At this point of time, based on long-term statistics, neutral conditions should be considered a more likely outcome for the latter part of 2008.

This La Niña continues to be in the middle range of La Niña events found in the historical record, although the slight further cooling in the central and eastern equatorial Pacific in the last couple of months will likely place it on the stronger side of the middle range. The event has already influenced climate patterns over the last six months across many parts of the globe, including in the direct vicinity of the equatorial Pacific, as well as more widely, across the Indian Ocean, Asia, Africa, and the Americas. Users and decision makers in areas with a tendency for anomalous climate patterns during such events should be aware of the expected continued presence of La Niña, but should also continue to recognise that other factors influence seasonal climatic patterns as well. They are therefore encouraged to consult the climate forecasts for their location and consider the appropriate risk management strategies.

The above observations illustrate the need for detailed regional assessment of prevailing conditions and combining expected El Niño/La Niña influences with influences from other geographic regions, to anticipate likely weather patterns regionally and locally over the coming months. Locally applicable information should be consulted in detailed national/regional seasonal climate outlooks, such as those produced by National Meteorological and Hydrological Services (NMHSs; http://www.wmo.int/pages/members/members_en.html) and Regional Climate Outlook Forums (RCOFs; http://www.wmo.int/pages/prog/wcp/wcasp/clips/outlooks/climate_forecasts.html).

In summary:

- La Niña conditions continue in the central and eastern equatorial Pacific.
- Conditions in the western Equatorial Pacific are also now consistent with a La Niña event. This event is currently influencing many weather events in the region of the Pacific and beyond.
- This La Niña event is expected to continue for at least the first quarter of 2008. For the second and third quarters of the year, current model-based forecasts suggest, though with considerable uncertainty, that there is an

increased likelihood of La Niña continuing into the second and possibly even the first part of the third quarter of 2008.

- Neutral versus La Niña conditions by mid 2008 are considered to be equally likely, given the uncertainties associated with current assessments. The likelihood of El Niño conditions remains low through the middle part of the year.
- Beyond the third quarter of 2008, there is no information currently available to suggest any deviations from long-term statistics, which have neutral conditions as a more likely outcome.
- Forecasts beyond the first quarter of 2008 are expected to become clearer as we get closer to the period.

The situation in the equatorial 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. 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.

Acknowledgements

This El Niño/La Niña Update has been prepared through a collaborative effort between the World Meteorological Organization (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 African Centre of Meteorological Application for Development (ACMAD), Asia-Pacific Economic Cooperation (APEC) Climate Centre (APCC), Australian Bureau of Meteorology (BoM), Australian Centre for Sustainable Catchments of the University of Southern Queensland, Centro Internacional para la Investigación del Fenómeno El Niño (CIIFEN), China Meteorological Administration (CMA), Climate Prediction Center (CPC) and National Weather Service (NWS) of the National Oceanic and Atmospheric Administration (NOAA) of the United States of America, Climate Variability and Predictability (CLIVAR) project of the World Climate Research Programme (WCRP), European Centre for Medium Range Weather Forecasts (ECMWF), Fiji Meteorological Service, Météo-France, IGAD (Inter-Governmental Authority on Development) Climate Prediction and Applications Centre (ICPAC), Instituto Nacional

de Meteorologia e Hidrologia (INAMHI) of Ecuador, International Research Institute for Climate and Society (IRI), Japan Meteorological Agency (JMA), Korea Meteorological Administration (KMA), Met Office in the United Kingdom (UKMO), National Center for Atmospheric Research (NCAR) of the United States of America, National Institute of Water and Atmospheric Research (NIWA) of New Zealand, Southern African Development Community Drought Monitoring Centre (SADC-DMC) and Wageningen University of The Netherlands.