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World Meteorological Organization

EL NIÑO/LA NIÑA UPDATE

Current Situation and Outlook

Moderate to strong La Niña conditions are now well established in the equatorial Pacific. Sea surface temperature departures in the central and eastern equatorial Pacific are now at, or just above, the mid-range of those found during the past La Niña events. These La Niña conditions are likely to continue at least into the first quarter of 2011. Although the current La Niña has some similarities to past events, its impact upon local climates may differ from those observed in the past. For management of climate-related risks during this event, it is important to consult regional climate information and seasonal outlooks that account for both the prevailing La Niña conditions and other factors with potential influence on the local climate.

Moderate to strong La Niña conditions are now present in the central and eastern equatorial Pacific, where sea surface temperatures are around 1.5 degrees Celsius cooler than average. The atmosphere across the tropical Pacific is now well coupled to this sea surface temperature pattern, with strengthened trade winds and markedly reduced cloudiness over a substantial portion of the central and eastern equatorial Pacific.

The subsurface waters of the central and eastern equatorial Pacific also strongly reflect La Niña conditions, with temperatures of 2 to 6 degrees Celsius below average. This large volume of anomalously cold water will likely maintain or strengthen the cold waters already at the ocean surface. Almost all forecast models predict continuation, and possible further strengthening, of this La Niña episode for the next 4-6 months, taking the event well into the first quarter of 2011.

This La Niña developed quickly in June and July 2010, following the dissipation of the 2009/10 El Niño in April. Unlike many El Niño or La Niña events that have unequal contributions from the oceanic and atmospheric components during onset, this event featured strong ocean-atmosphere coupling since its initial development in June, following a strong initial spell of enhanced trade winds in the western equatorial Pacific in May. By August the event had become moderate to strong, and currently continues at approximately the same strength. Given the good reinforcement of the oceanic and atmospheric aspects of the current event, and the large area of below-average subsurface ocean temperatures, the event is expected to sustain or increase its strength, and endure at least through the normal El Niño/La Niña life cycle into the first quarter of 2011.

It is important to recognize that while the state of El Niño or La Niña may be the most important factor leading to climate risk assessments in many regions, climate extremes may also develop as a consequence of ocean/atmosphere interactions outside of the tropical Pacific. For climate outlooks that incorporate the effects of both the current La Niña and other climate factors, users should consult their respective National Meteorological and Hydrological Services (NMHSs) and regional climate institutions, as well as the Regional Climate Outlook Forums (RCOFs). More detailed, regionally tailored climate outlooks will likely be issued by the regional services, and will likely be issued more frequently than the WMO El Niño/La Niña Update.

In summary:

- Moderate to strong La Niña conditions are present in the central and eastern equatorial Pacific Ocean.

- Model predictions indicate a continuation of this La Niña at least through the first quarter of 2011. Beyond that time, the evolution of El Niño/La Niña cycle is uncertain.

- In light of the above assessment, regions typically impacted by La Niña events are advised to take note of the expected continuation of moderate to strong La Niña conditions over the coming 4 to 6 months. Consultation of local climate outlooks is recommended for the best information on management of climate-related risks.

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 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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