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World Meteorological Organization

EL NIÑO UPDATE

El Niño Update

Current Situation and Outlook

The development of El Niño or La Niña is unlikely in the next several months. The Pacific basin-wide state continues to be neutral and most indications suggest it will remain so through the first half of 2004. This message is therefore similar to that provided in the last statement (October 2003). However, because of the time of year at present, some additional caution is necessary. The period from around March through to June is known historically to be the time of year when rapid developments have most often occurred. It is also the time of year that is the most difficult to forecast.

Nonetheless, models that predict the evolution of the tropical Pacific are in good consensus that rapid developments are not likely in the first half of this year toward basin-wide El Niño or La Niña states. Expert interpretation supports this, finding nothing of substance in the current climate state of the ocean and atmosphere in the tropical Pacific that would give rise to rapid El Niño or La Niña development.

Therefore, based solely on information about El Niño/La Niña, it is not necessary to prepare for any increased likelihood of the unusual climate patterns that typically accompany such events. Compared to the situation last October when the last statement was issued, there is however a need for increased caution in interpreting forecasts of El Niño/La Niña, due to the time of year. Additional information on regional climate patterns to expect in the coming months is also available through interpretation of other significant aspects of tropical ocean temperatures. Currently, these include unusually warm sea-surface temperatures in the tropical North Atlantic, and continued above-normal conditions in the central/western Equatorial Pacific and central Indian Ocean, which could lead to unusual conditions in surrounding continental regions and beyond. Representing these effects in climate models, along with expert interpretation, provides a basis for information on some of the specific regional climate patterns to expect in the coming several months.

Therefore, when considering response strategies, it will be important to consult National Meteorological and Hydrological Services (NMHSs) for detailed interpretations of possible regional consequences of the current climate system's state. These interpretations will take into account that local and regional seasonal climate fluctuations may have many additional causes, involving patterns of sea surface temperature (SST) both within and beyond the Pacific, and factors other than SST. To elaborate, regional climate fluctuations can be driven by SST patterns in the tropical Atlantic and tropical Indian Oceans. However, it must be emphasized that forecasts of SST patterns in the Atlantic and Indian ocean basins currently have very limited skill. This is largely due to inadequate observations of conditions beneath the ocean surface, and the lack of understanding of the mechanisms of systematic SST changes in these ocean basins.

In summary:

- The basin-wide Pacific state continues to be neutral – that is, neither El Niño nor La Niña is expected to develop.
- Forecast models and expert opinion are in good consensus that these neutral conditions are likely to prevail through the first half of 2004.
- Especially in such neutral situations, it is important to recognize that unusual climate patterns are still possible, because they have many causes, not just El Niño and La Niña events.

The situation in the tropical Pacific will continue to be carefully monitored, especially since this is the time of year when rapid developments have most often occurred, and forecasting is known to be more difficult. 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.

Climate Patterns in the Pacific

Research conducted over the past few 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 temperature at the surface in the central and eastern tropical Pacific Ocean becomes substantially higher than normal. During La Niña events, the sea surface temperatures in these regions become lower than normal. These temperature changes can drive 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. The just completed El Niño phase of 2002-2003 was not as strong as that in 1997-1998. El Niño events change the likelihood of particular climate patterns around the globe, but the events 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 computer 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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