

INTERMOUNTAIN WEST CLIMATE SUMMARY



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NEW ENSO Alert System from NOAA Climate Prediction Center

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In each issue of the Intermountain West Climate summary, we feature an El Niño Status and Forecast page that describes the current conditions as well as forecasts for the next year. The majority of the information on that page comes from the monthly ENSO Diagnostics Discussion written by forecasters at the NOAA Climate Prediction Center, with collaboration by other NOAA agencies. The NOAA Climate Prediction Center (CPC), based in Camp Springs, MD, is one of the National Centers for Environmental Prediction, an arm of the National Weather Service (see Focus Page in the March 2005 IWCS). CPC's mission is to "deliver climate prediction, monitoring, and assessment products for timescales from weeks to years to the Nation and the global community for the protection of life and property and the enhancement of the economy." This includes assessing climate and weather linkages, including monitoring sea surface temperatures and atmospheric conditions in the tropical Pacific Ocean, which contribute to the El Niño-Southern Oscillation (ENSO).

Recently, CPC introduced a new ENSO Alert System that more succinctly describes the onset and status of ENSO. This information can be used to plan and prepare for weather events that typically accompany El Niño or La Niña events. The ENSO alert System Status is first posted in conjunction with the monthly ENSO Diagnostics Discussion: http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensodisc.html. The ENSO Alert System is also posted in conjunction with the monthly Climate Diagnostics Bulletin, published a few weeks after the ENSO Diagnostics Discussion (<http://www.cpc.noaa.gov/products/CDB/>).

The ENSO Alert System is based on El Niño or La Niña "conditions" that allows NOAA CPC to issue watches/advisories in real-time. "Conditions" require a 1-month sea surface temperature (SST) departure in the Niño-3.4 region of the equatorial Pacific Ocean and a corresponding atmospheric response, along with the expectation that the 3-month Oceanic Niño Index (ONI) value will be achieved.

The CPC defines El Niño conditions as existing when: A one-month positive sea surface temperature anomaly of 0.5C or greater is observed in the Niño-3.4 region of the equatorial Pacific Ocean (5°N-5°S, 120°W-170°W) and an expectation that the 3-month Oceanic Niño Index (ONI) threshold will be met AND an atmospheric response typically associated with El Niño

is observed over the equatorial Pacific Ocean (see the "El Niño and Climate Impacts" Fact Sheet at http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/impacts/warm_impacts.shtml for details about typical atmospheric responses to El Niño).

The CPC defines La Niña conditions as existing when: A one-month negative sea surface temperature anomaly of -0.5C or less is observed in the Niño-3.4 region of the equatorial Pacific Ocean (5°N-5°S, 120°W-170°W) and an expectation that the 3-month Oceanic Niño Index (ONI) threshold will be met AND an atmospheric response typically associated with La Niña is observed over the equatorial Pacific Ocean (see the "La Niña and Climate Impacts" Fact Sheet at http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/cold_impacts.shtml for details about typical atmospheric responses to La Niña).

From the ENSO Diagnostics Discussion page, you can click

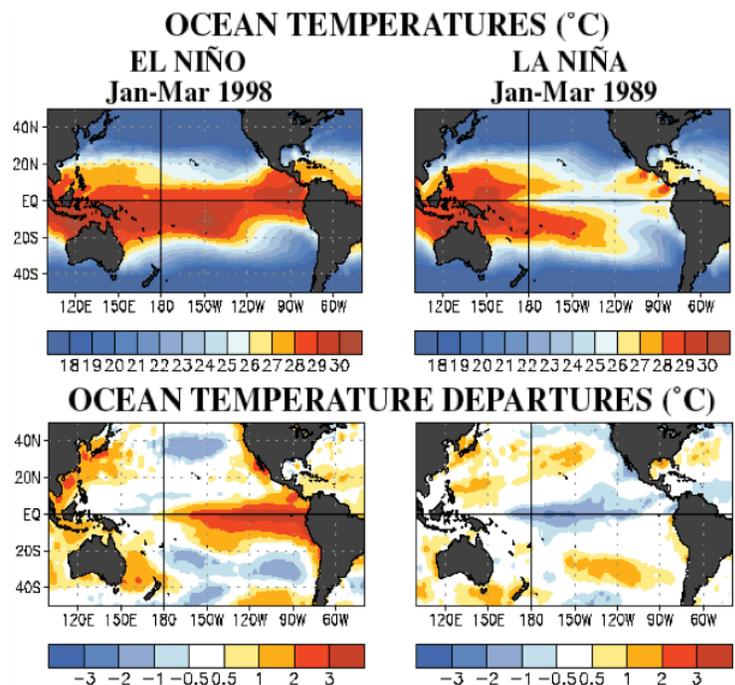


Figure 1: El Niño episodes (left hand column) reflect periods of exceptionally warm sea surface temperatures across the eastern tropical Pacific. La Niña episodes (right hand column) represent periods of below-average sea-surface temperatures across the eastern tropical Pacific. These episodes typically last approximately 9-12 months. Sea-surface temperature (top) and departure (bottom) maps for January–March during strong El Niño and La Niña episodes are shown above.



on the alert system status to go to a page with a description of the terms:

STEP 1 - El Niño or La Niña Watch: Issued when conditions are favorable for the development of El Niño or La Niña conditions within the next three months.

STEP 2 - El Niño or La Niña Advisory: Issued when El Niño or La Niña conditions are observed and expected to continue (this is the “official” NOAA ENSO status).

STEP 3 - Final El Niño or La Niña Advisory: Issued after El Niño or La Niña conditions have ended.

NA: ENSO Alert System is not active.

(http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/enso-alert-readme.shtml)

In addition, oceanic and atmospheric conditions are updated weekly on the CPC web site: El Niño/La Niña Current Conditions and Expert Discussions <http://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/enso.shtml>, which includes links to educational material and fact sheets developed for the public:

- El Niño/La Niña - Frequently Asked Questions on El Niño/La Niña.
- El Niño/La Niña Cycle (Tutorial) - El Niño/La Niña Tutorial.
- El Niño and Climate Impacts - Technical discussion of El Niño’s oceanic and atmospheric conditions and their global climate impacts.
- La Niña and Climate Impacts - Technical discussion of La Niña’s oceanic and atmospheric conditions and their global climate impacts.
- SST Niño Regions - Graphical depiction of the regions (i.e. “NINO Boxes”) most commonly used in the diagnosis and forecast of El Niño.
- Other El Niño Links - Links to the most informative El Niño/La Niña links on the web.

Here are some Frequently Asked Questions and answers about the new ENSO Alert System:

What is the difference between a weather watch/warning and a climate watch/advisory?

A weather watch/warning applies to phenomenon that acts on a faster time-scale, such as a flash flood watch or a tornado warning.

A climate watch/advisory describes a phenomenon, like ENSO, that operates on a longer time-scale. Some examples of longer time-scale climate impacts include abnormally mild winters or increased rainfall over a season. The ENSO Alert System gives us the opportunity to alert the public of potential climate anomalies several months in advance.

Also, the ENSO Alert System is based on “advisories” and not “warnings” because El Niño and La Niña can be associated with both positive and negative impacts. A weather warning implies that impacts will be mostly detrimental to the general public.

When is the ENSO Diagnostic Discussion and ENSO Alert System updated?

The discussion/alert system is updated on the Thursday between the 4th and 10th of each month. If necessary, this date can be moved with advance notice (e.g. account for holidays). An email is sent out whenever the discussion/alert system is updated. Anyone can subscribe by sending an email to ncep.list.enso-update@noaa.gov.

What should I do if there is an El Niño or La Niña Watch issued?

When an El Niño or La Niña Watch is issued, preparations should begin to mitigate the typical impacts expected during El Niño or La Niña. CPC maintains webpages with basic information on typical impacts associated with El Niño or La Niña:

- http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensocycle/enso_cycle.shtml
- <http://www.cpc.ncep.noaa.gov/products/precip/CWlink/ENSO/composites/>

Please be aware that ENSO impacts can vary from event to event, so it is best to refer to the text of the ENSO Diagnostics Discussion for potential ENSO-related impacts over the United States.

What should I do if there is an El Niño or La Niña Advisory issued?

When an El Niño or La Niña advisory has been issued, preparations to mitigate the typical impacts expected during El Niño or La Niña should be completed.

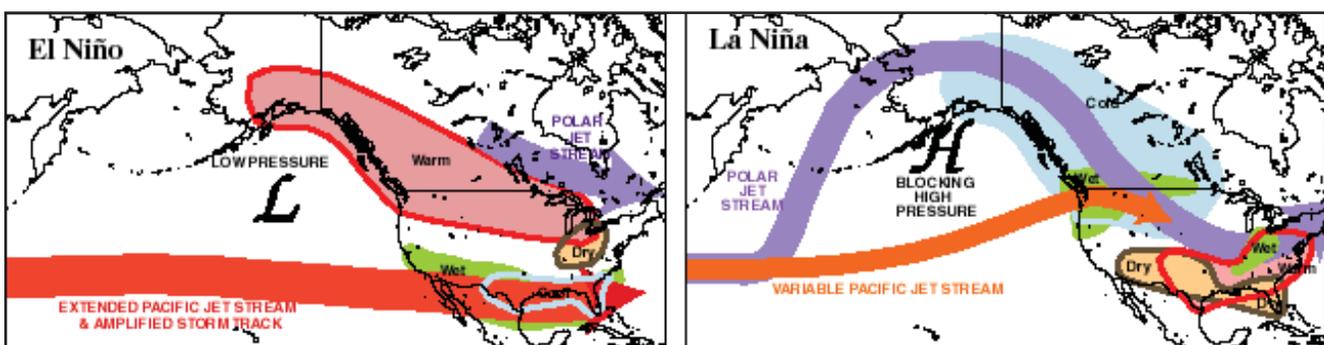


Figure 2: During winter El Niño episodes (top map) feature a strong jet stream and storm track across the southern part of the United States, and less storminess and milder-than-average conditions across the North. La Niña episodes (bottom map) feature a very wave-like jet stream flow over the United States and Canada, with colder and stormier than average conditions across the North, and warmer and less stormy conditions across the South.

