

ENSO: El Niño Southern Oscillation

ENSO Intro:

The state of the ENSO is based on the Sea-Surface Temperature pattern in the Equatorial Pacific. Above or below normal conditions develop over a period of months and may last anywhere from 3 months to 12 months.

ENSO conditions go back & forth between warmer and colder every few years. Some events are stronger, although the majority are weak events.

Stronger events tend to have more of an impact on the weather patterns across the Northern Pacific Ocean during the Winter months, and can be correlated with areas of above & below normal snowfall in the Western United States.

El Niño = Warmer than Normal Sea-Surface Temps across the Equatorial Pacific.

-- El Niño conditions occur when *Easterly Trade Winds become weaker* in the Equatorial Pacific. This is caused by a weakening pressure gradient between the eastern Pacific & western Pacific (between Peru and Australia). Weaker trade winds allow warmer surface water to surge eastward, replacing the normal cooler water off the coast of South America.

-- Typically, during El Niño winters the **Southwestern U.S is cooler & snowier** than normal, and the **Northwestern U.S. is warmer & snowfall can be up or down.**

La Niña = Colder than Normal Sea-Surface Temps across the Equatorial Pacific.

-- La Niña conditions occur when *easterly trade winds are stronger*, causing cooler water in the eastern Pacific to spread westward, and is also deflected north & south of the equator, allowing the upwelling of even colder water to replace it.

-- Typically, during La Niña winters the **Northwestern U.S. is cool & snowier** than normal, and the **Southwestern U.S is warmer & dry.**

No Niño (Neutral) = Normal Sea-Surface Temps across the Equatorial Pacific.

-- Weather pattern similar to La Niña, with normal Easterly Trade Winds that are not amplified.

-- Weather patterns and snowfall distribution during No Niño winters can be all over the map! And you never seem to hear anything about a "No-Niño", regardless of what the weather does!

*NOTE: The effects of ENSO events are most noticeable during Northern Hemisphere winters.