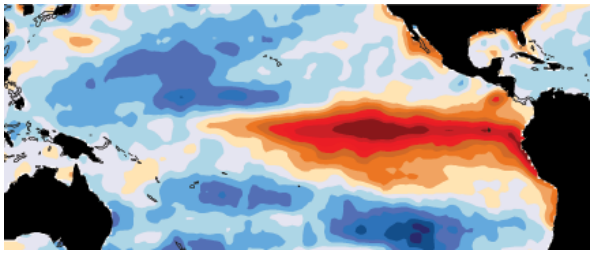
What are La Niña and El Niño and why do they matter?

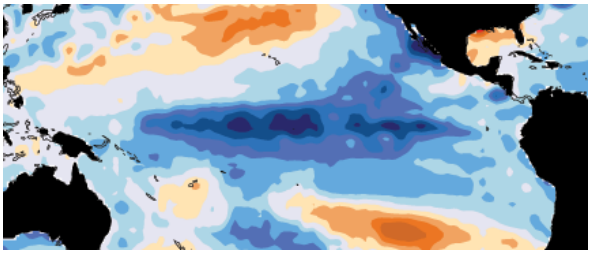
El Niño and La Niña represent opposite extremes in the El Niño/Southern Oscillation (ENSO). The ENSO cycle refers to the coherent and sometimes very strong year-to-year variations in sea-surface temperatures, rainfall, surface air pressure, and atmospheric circulation that occur across the equatorial Pacific Ocean. El Niño refers to the above-average sea-surface temperatures that periodically develop across the east-central equatorial Pacific. It represents the warm phase of the ENSO cycle. La Niña refers to the periodic cooling of sea-surface temperatures across the east-central equatorial Pacific. It represents the cold phase of the ENSO cycle.

El Niño



Warmer than normal tropical Pacific sea surface temperatures

La Niña



Cooler than normal tropical Pacific sea surface temperatures

Why do El Niño and La Niña Occur?

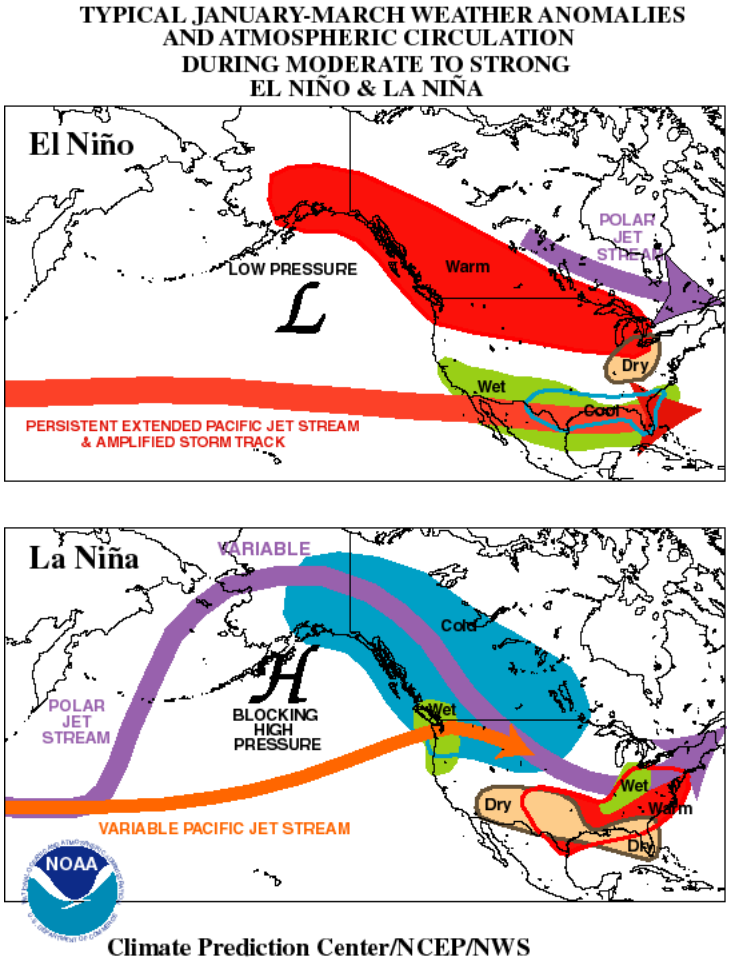
El Niño and La Niña are naturally occurring phenomena that result from interactions between the ocean surface and the atmosphere over the tropical Pacific. Changes in the ocean surface temperatures affect tropical rainfall patterns and atmospheric winds over the Pacific ocean, which in turn impact the ocean temperatures and currents. The El Niño and La Niña related patterns of tropical rainfall causes changes in the weather patterns around the globe as seen on the diagram to the right.

How often do El Niño and La Niña typically occur?

El Niño and La Niña episodes typically occur every 3-5 years.

How long do El Niño and La Niña typically last?

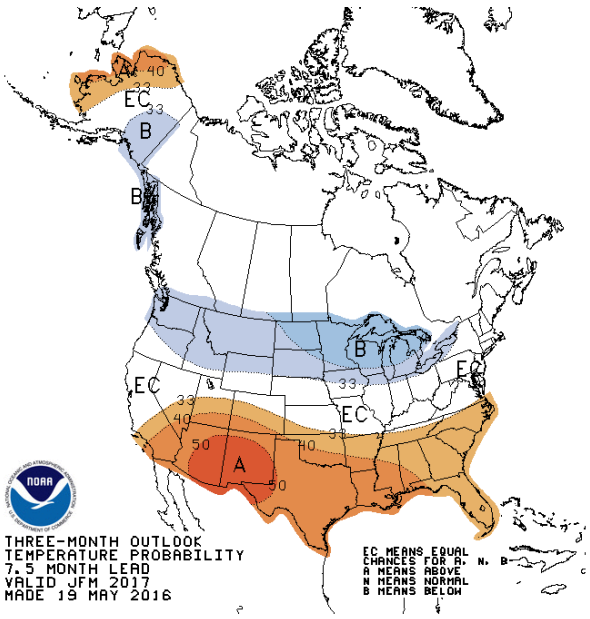
El Niño typically lasts 9-12 months while La Niña typically lasts 1-3 years. They both tend to develop during March-June, reaching peak intensity during December-April, and then weakening during May-July. However, prolonged El Niño episodes have lasted 2 years and even as long as 3-4 years. Due to the peak intensity during the winter months, impacts to the weather patterns are also most noticeable in the winter.

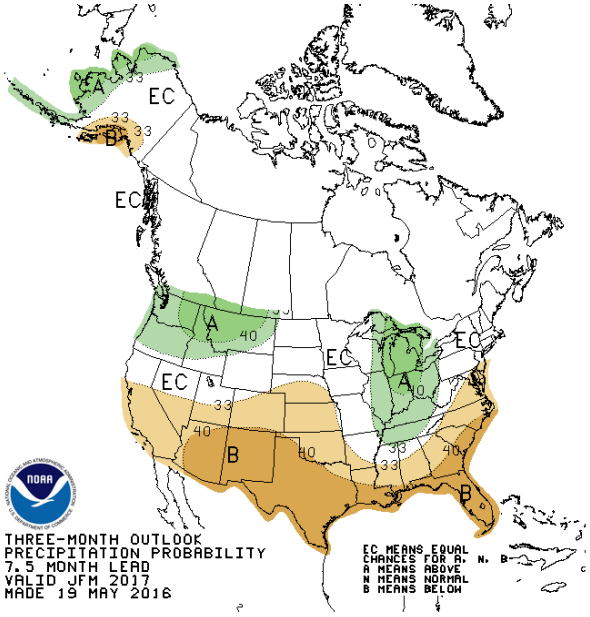


An Early Look at the 2016-2017 Winter for Southeast Alaska

Juneau

A historically strong El Niño that began in the spring of 2015 and peaked during winter 2015 has since begun to weaken. There are strong indications that the ENSO phase will shift to La Niña by this fall and a 75% chance this will persist through the Northern Hemisphere winter. What does this mean for Southeast Alaska? Below is the latest January-February-March 2017 outlook from the Climate Prediction Center (CPC). **It should be noted that the effects of ENSO can be influenced by other atmospheric parameters, which are hard to determine several months out.**





The CPC three month outlook for January-February-March 2017 correlates well with the expected weather anomalies associated with a La Niña. CPC's outlook indicates a 33% chance of below normal temperatures across Southeast Alaska. There is no clear indication on precipitation chances at this time so there is an equal chance of above or below normal precipitation.

Last 8 La Niña Winters (Nov-Apr) at the Juneau Airport

Year	Average Temperature	Departure from Normal (32.7°)	Seasonal Snowfall	Departure from Normal (86.7")	La Niña Strength
2011-2012	33.1°	+0.4°	131.5"	+44.8"	Weak
2010-2011	29.8°	-2.9°	78.4"	-8.3"	Moderate
2007-2008	31.6°	-1.1°	111.1"	+24.4"	Moderate
2000-2001	34.6°	+1.9°	26.4"	-60.3"	Weak
1999-2000	34.3°	+1.6°	43.2"	-43.5"	Moderate
1998-1999	31.5°	-1.2°	124.9"	+38.2"	Moderate
1995-1996	29.3°	-3.4°	85.3"	-1.4"	Weak
1988-1989	31.5°	-1.2°	71.0"	-15.7"	Strong