

The Big Picture – The ENSO of 1997–98

James J. O'Brien

Center for Ocean-Atmospheric Prediction Studies

The Florida State University

Tallahassee, FL 32306-2840

U.S.A.

e-mail: obrien@coaps.fsu.edu

The largest warm phase of the ENSO cycle occurred in 1997–1998. It was anticipated by some modelling efforts and tracked by the TOGA-TAO Array and TOPEX/Poseidon.

A post analysis of the low frequency surface winds and sea surface temperature anomalies has been done using the National Centers for Environmental Prediction (NCEP) reanalysis and Florida State University tropical winds and the NOAA so-called Reynolds sea surface temperature (SST) anomalies. An animation of the low-passed data shows the evolution of the surface winds and SST anomalies for 40 years. Briefly, one can realize that the Aleutian Low tends to be strong during the warm phase and *vice versa*. There is an obvious connection between the Gulf of Alaska and the equatorial Pacific.

The big event of 1997–98 was quite different than previous events including the previous monster warm phase event in 1982–87. In 1997 anomalously warm water appeared along the west coast of North America months before it could be forced by Kelvin wave advection from the south.

In the talk we emphasize some of the myths about El Niño. In particular the “Biggest Lie about El Niño” is that the warm water in the western Pacific gets advected to Ecuador. This is not true. Instead the intraseasonal Kelvin waves lower the thermocline by about 100–150m. This destroys the local heat balance and warming ensues by not mixing up the deeper cold water.

A free video has been prepared of the animation with the author's voice over. Please email for a copy to obrien@coaps.fsu.edu.