

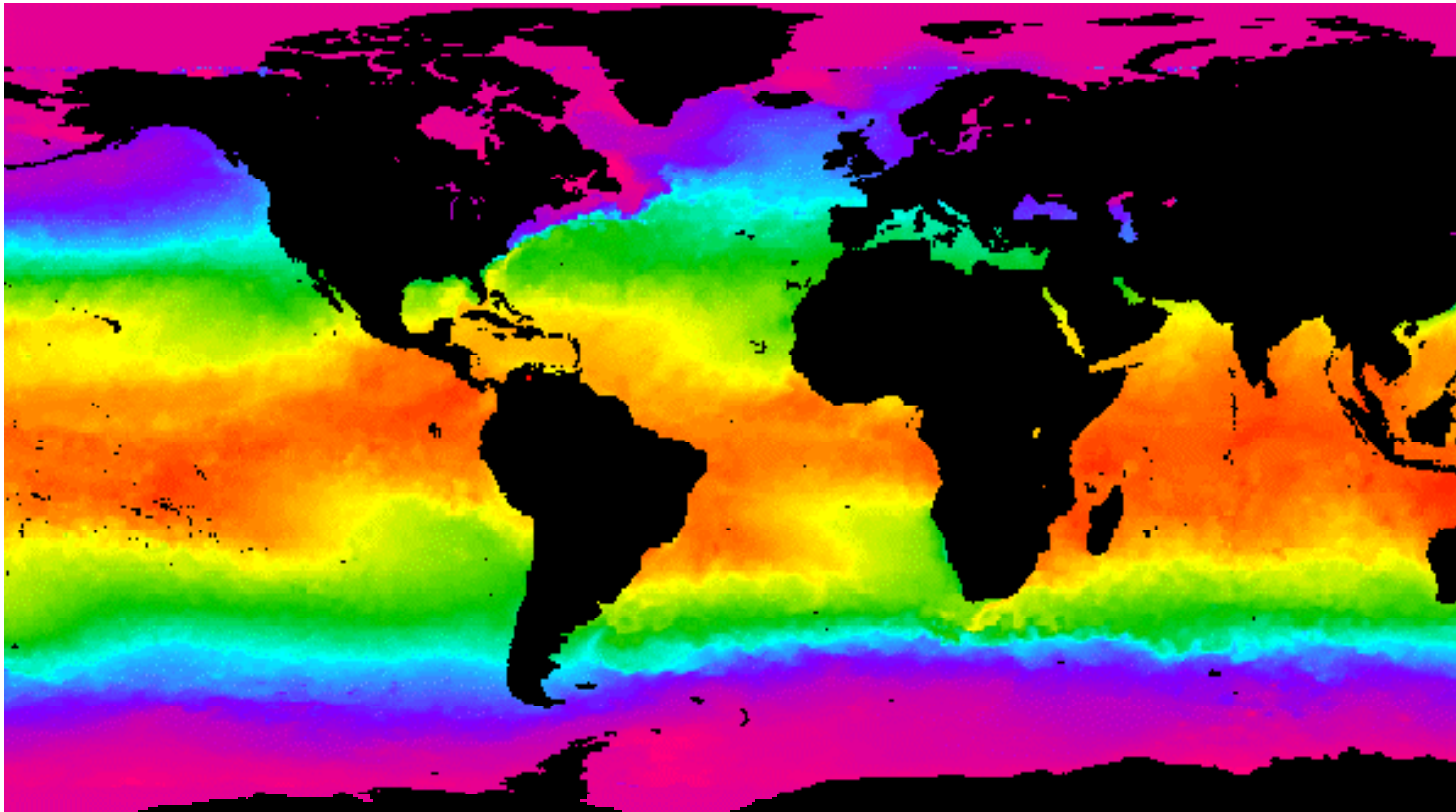
# ***El Nino Southern Oscillation***



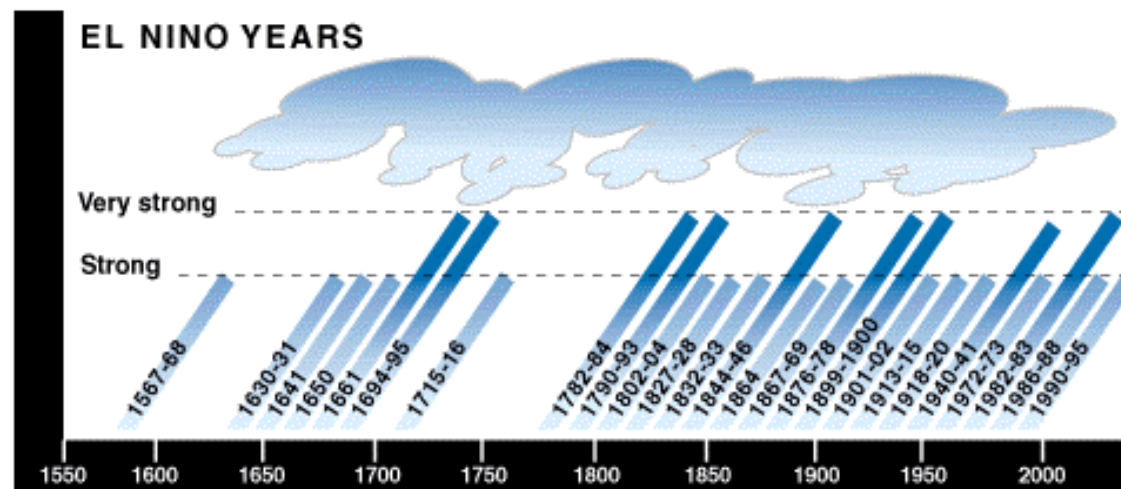
***Cambial Carillo, 1892***

**Corriente del Nino  
Current of the Christ Child**

***kill fish and bird life, replaced by tropical fish***

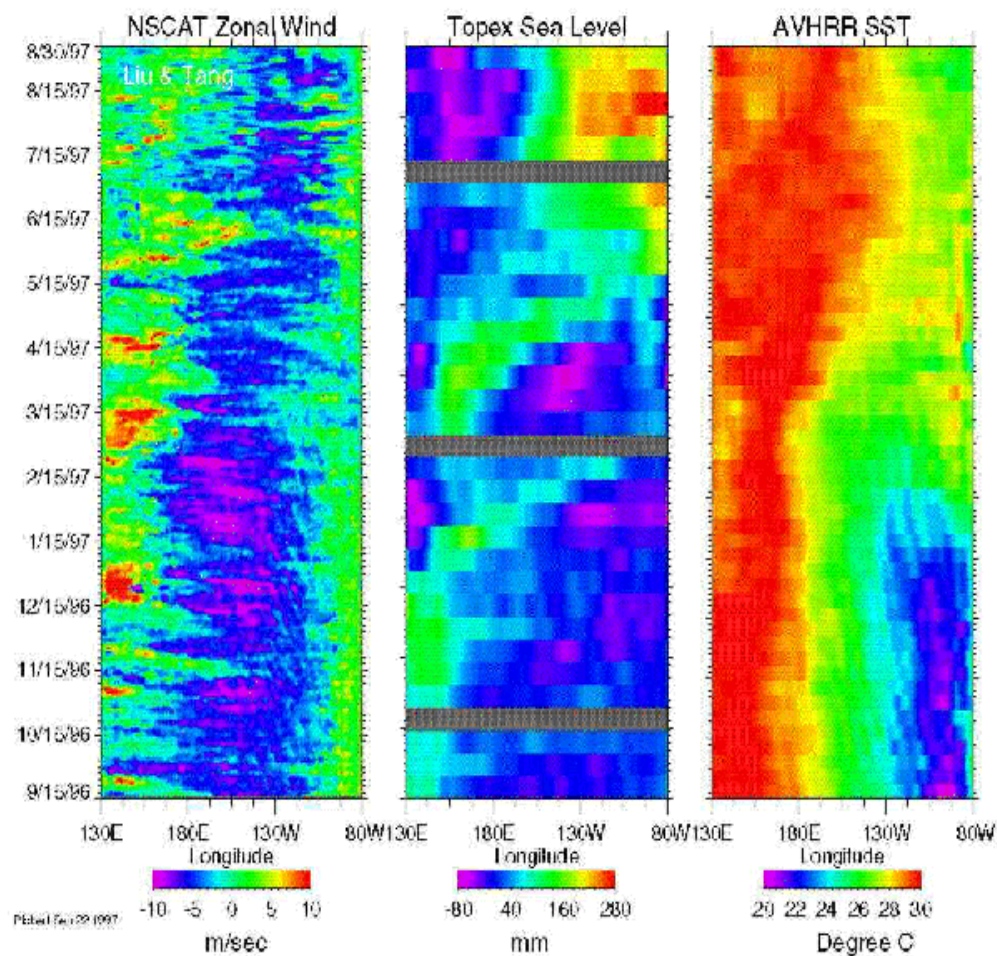


***connection between droughts in  
Australia, Indonesia, Peru and Hawaii  
storms and flooding in California, S. Pacific, Gulf  
States, Cuba, Ecuador***

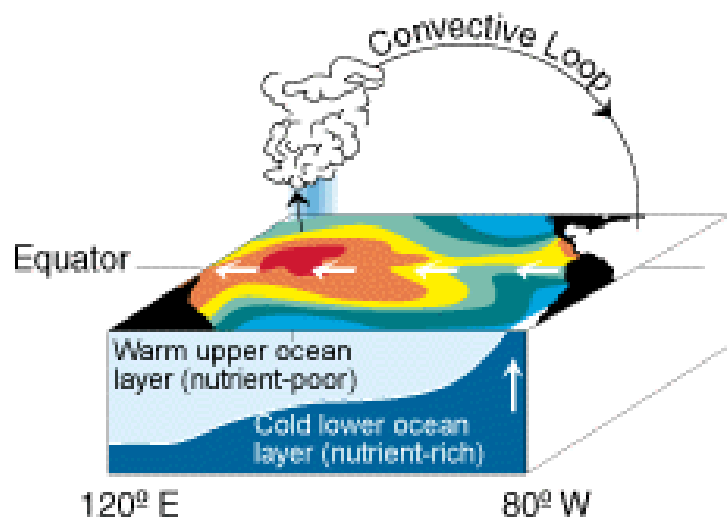


***destruction of coral reefs and changes in fish  
population, tide pools, massive kills of sea lions,  
clams, small invertebrates, birds***

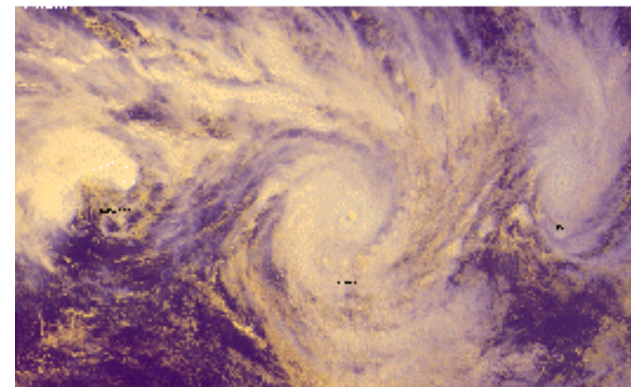
# Temperature, wind, sea height



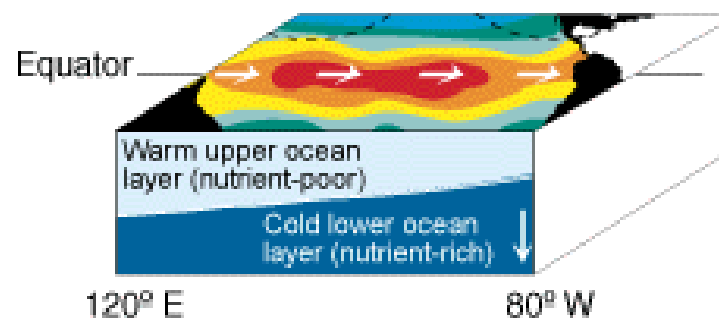
# Interaction of oceans and atmosphere



**NORMAL CONDITIONS**



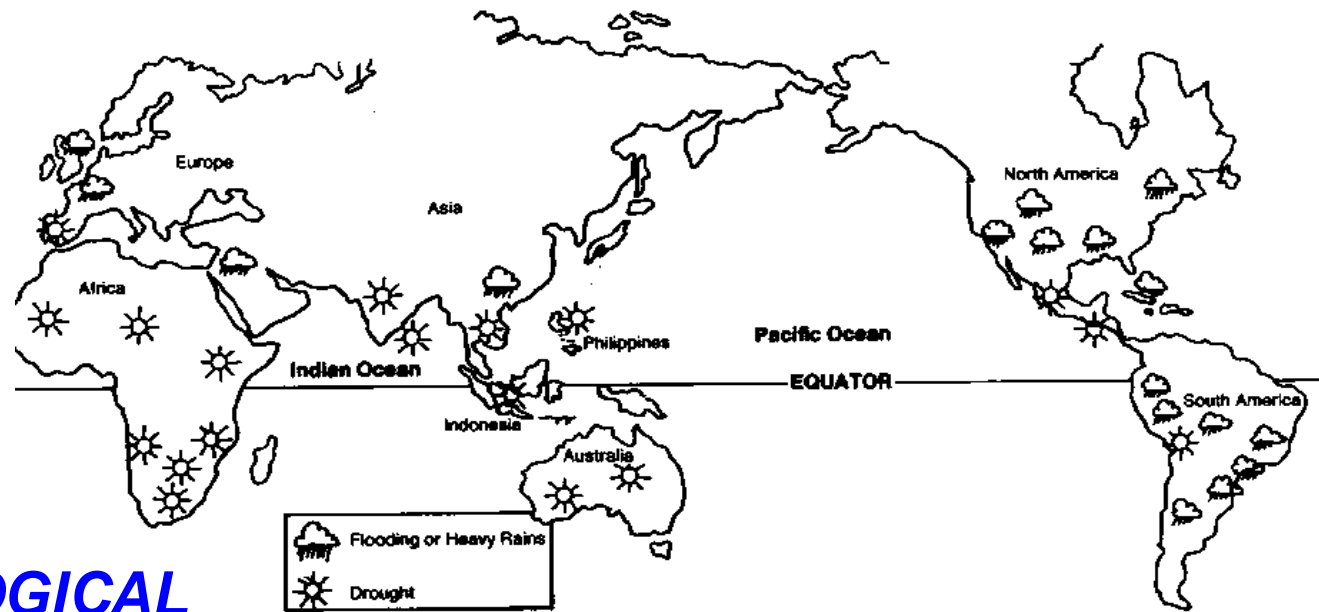
**Three tropical cyclones in the South Pacific, Jan 6, 1998**



**EL NIÑO CONDITIONS**

# CONSEQUENCES

**IT IS NOT ALL BAD**



## **BIOLOGICAL**

- \* *food chain*

## **CHEMICAL**

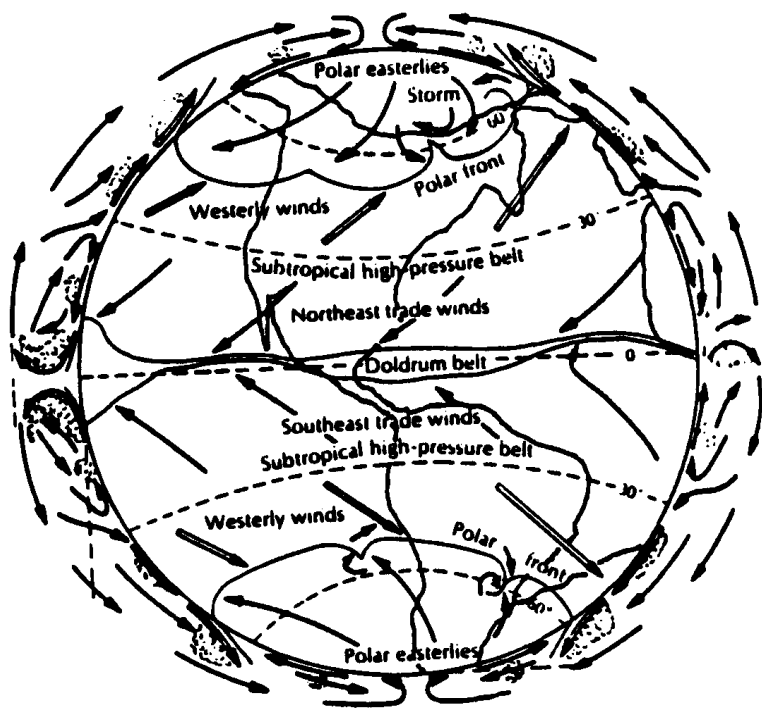
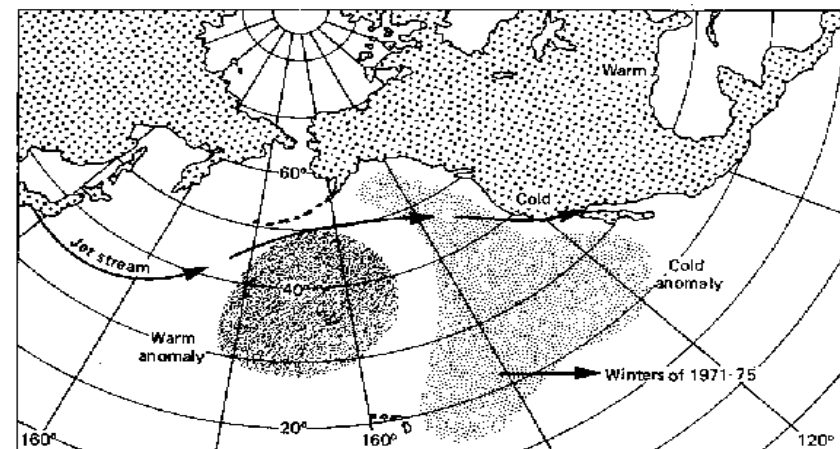
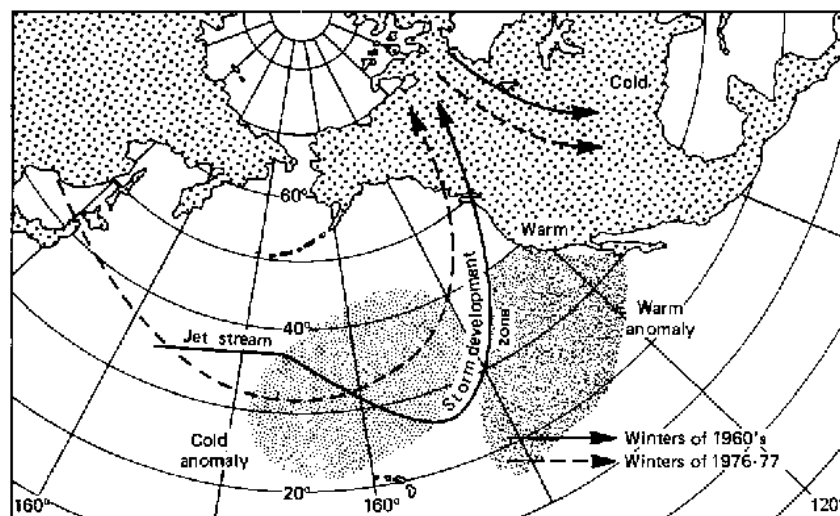
- \* *temperature*
- \* *nutrients*

## **PHYSICAL**

- \* *upwelling patterns*
- \* *height of sea*
- \* *wind speed and direction*

# Chicken or the Egg

**oceans**



**atmosphere**

# *Effective Use of WWW*

<http://airsea-www.jpl.nasa.gov/ENSO/welcome.html>

El Nino watch from outer space.

<http://darwin.bio.uci.edu/~sustain/ENSO.html>

Pictures and descriptions of the El Nino Southern Oscillation.

<http://darwin.bio.uci.edu/~sustain/ENSO.html>

Explores El Nino events.

<http://www.pmel.noaa.gov/toga-tao/el-nino/topex.html>

Looks at satellite photos that are used in interpretation of oceanographic and weather events.

<http://heron.met.nps.navy.mil/~braccio/hdf.html>

Provides pictures and movies of the Global Modeling Program of the World Ocean Circulation Experiment.