Pacific Undercurrents

West

wind

surface slope

East

pressure = wind

surface mixed layer

gradient   friction

equatorial undercurrent

thermocline

Structure of an equatorial section in the Pacific

Winds :   Southeast   Intertropical   Northeast
            Trades   Convergence   Trades
                              Zone
Currents: South Equatorial   North   North Equatorial
            Current   Equatorial   Current
                           Counter-
                            current
    5°S   0°   5°   10°   15°N

surface
0
Depth (m)
100
200

Equatorial
Undercurrent

thermocline
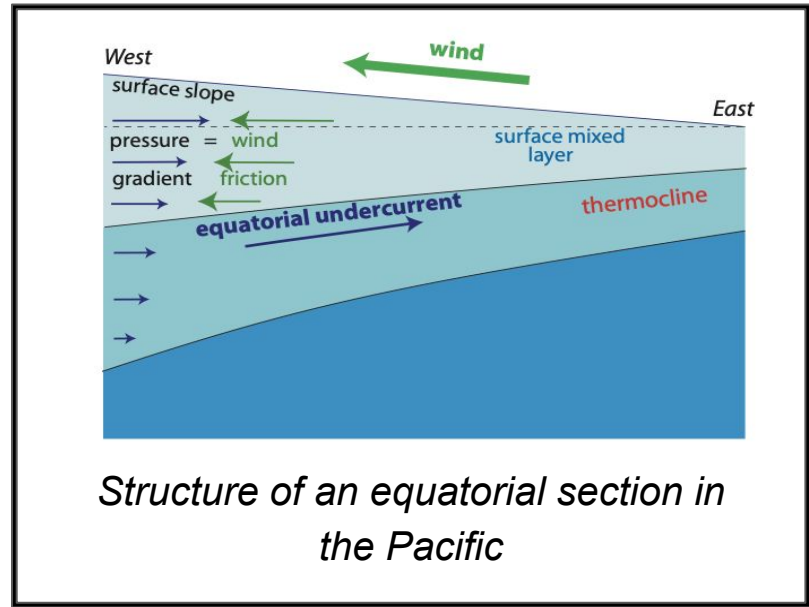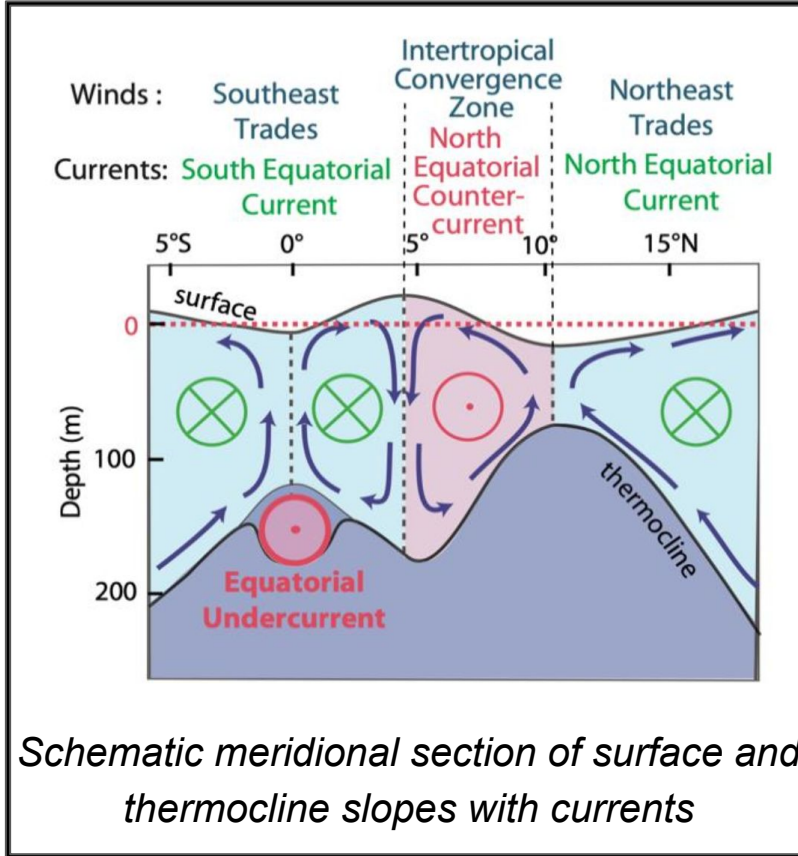
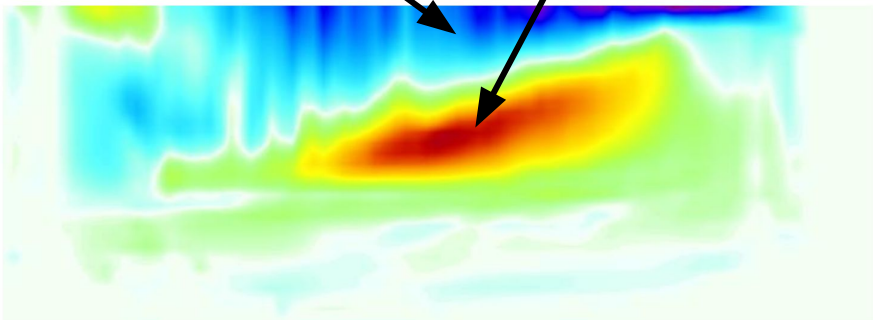*Schematic meridional section of surface and thermocline slopes with currents*

$$g \frac{\partial h}{\partial x} = \frac{\tau_x}{\rho H}$$
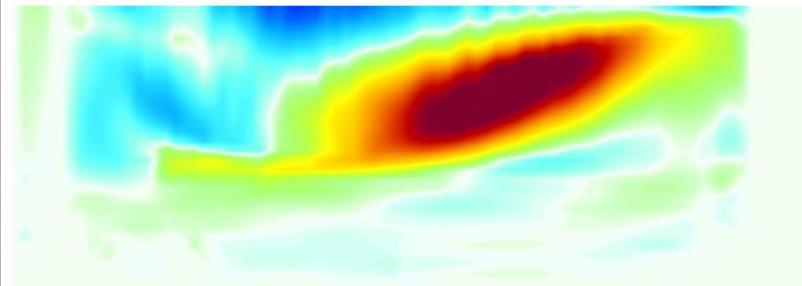
Equation of the equilibrium between wind stress and pressure gradient

SEC   EUC

Zonal components of currents from a cross section at the equator in April 1995

Zonal components of currents from a cross section at the equator during la Niña

Zonal components of currents from a cross section at the equator during el Niño