Marine Stratus & Stratocumulus

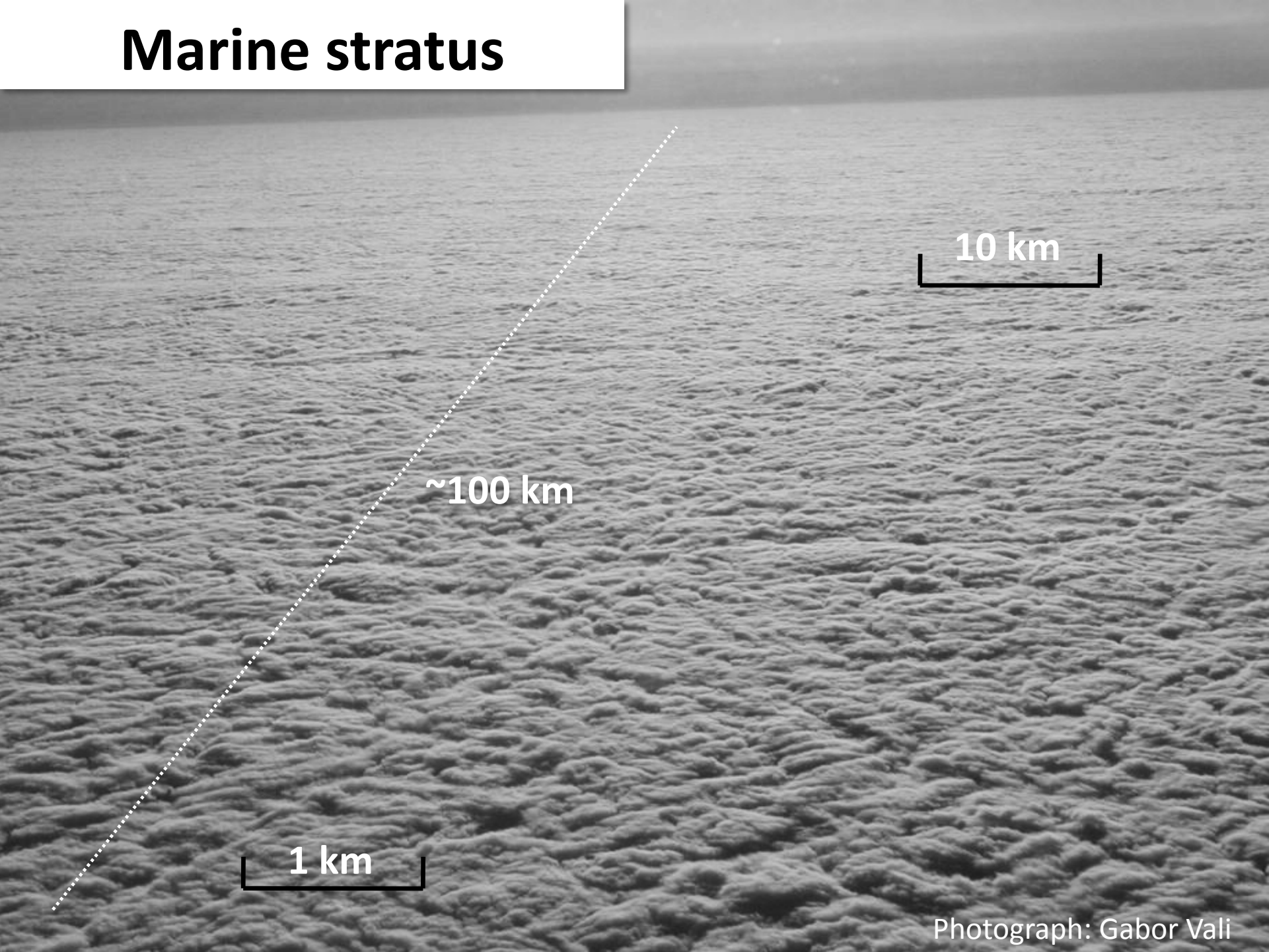
Stratus

Almost solid cloud layer

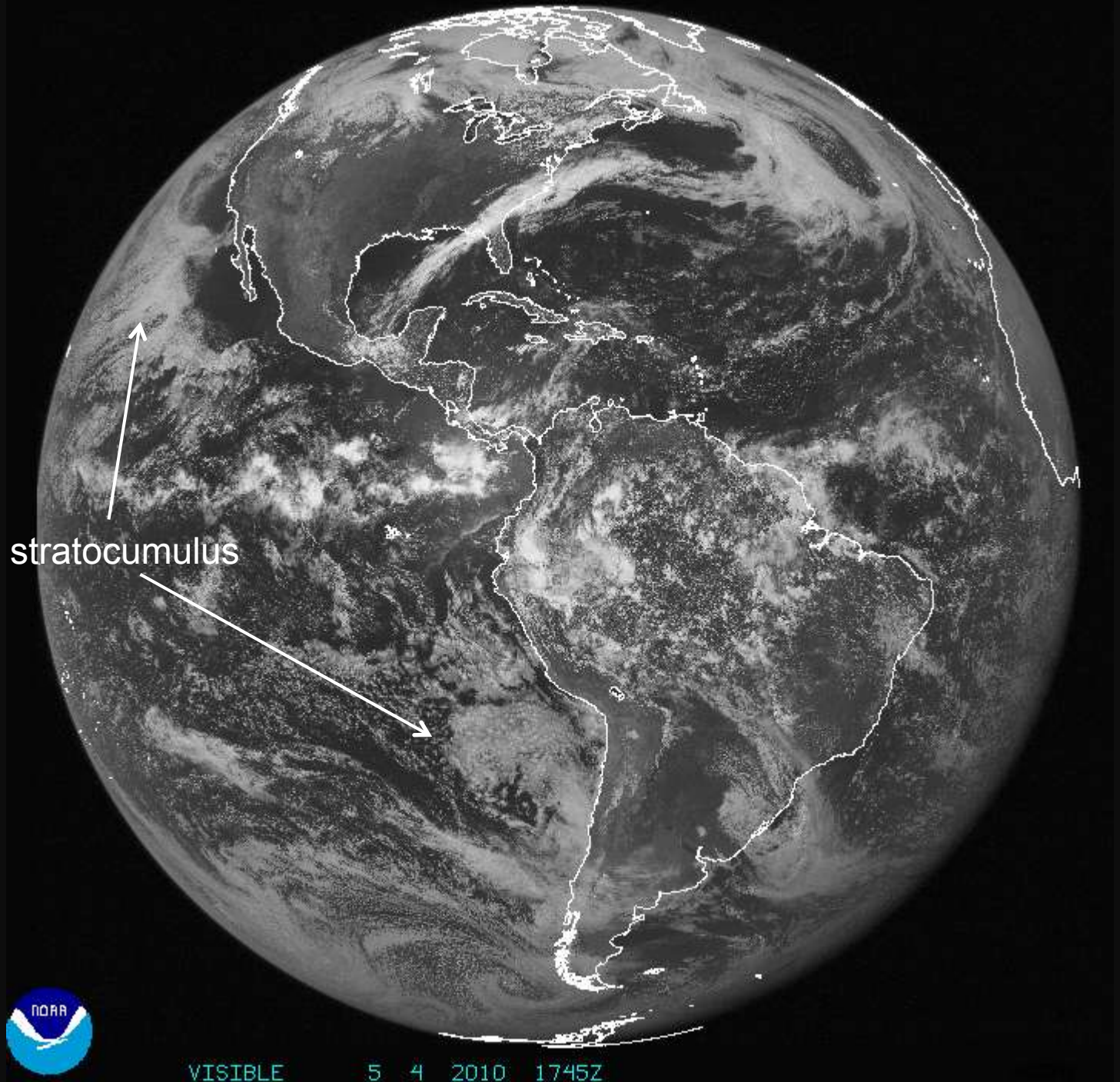
Stratocumulus

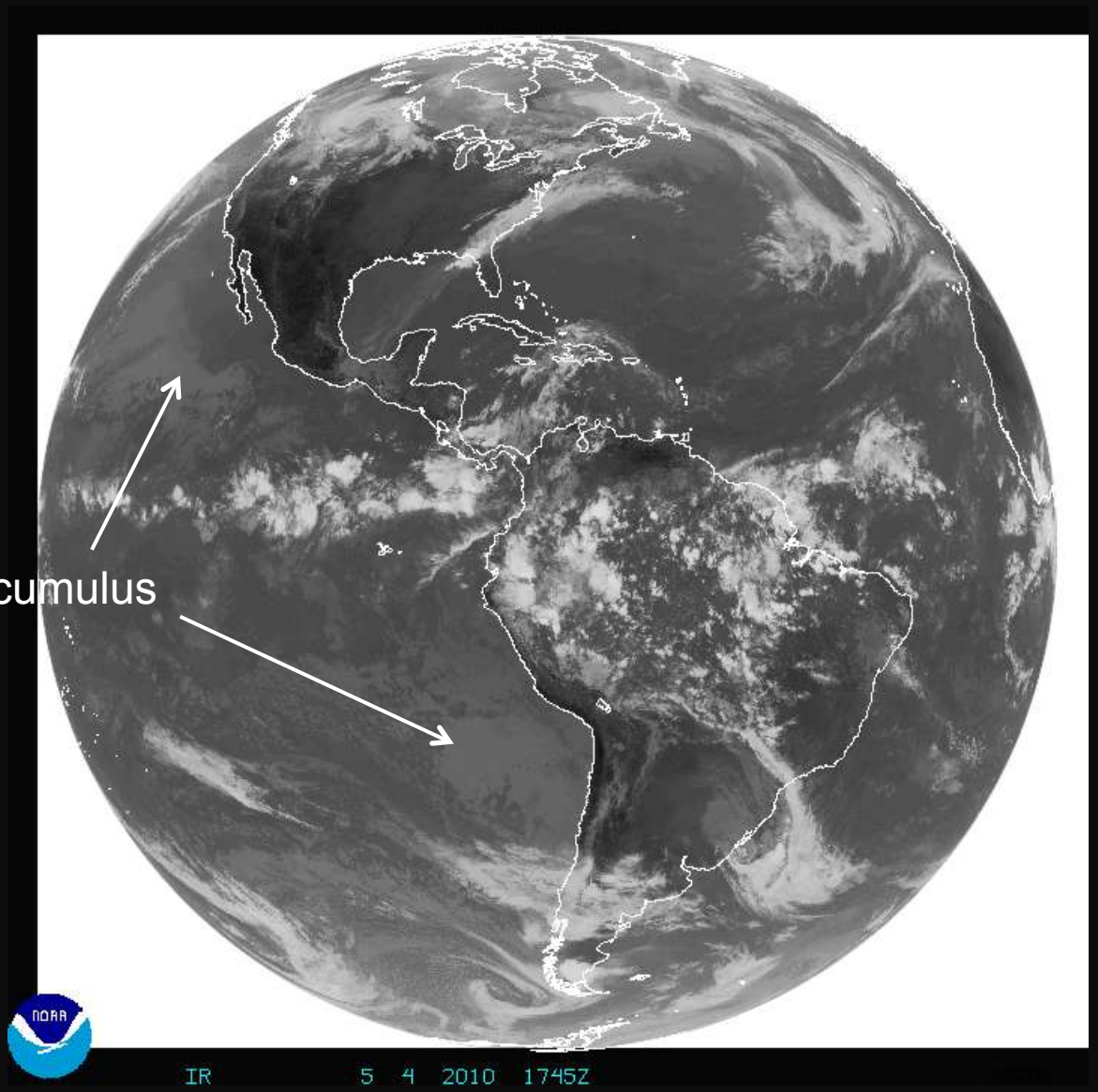
Sun shining through breaks in cloud layer

Marine stratus

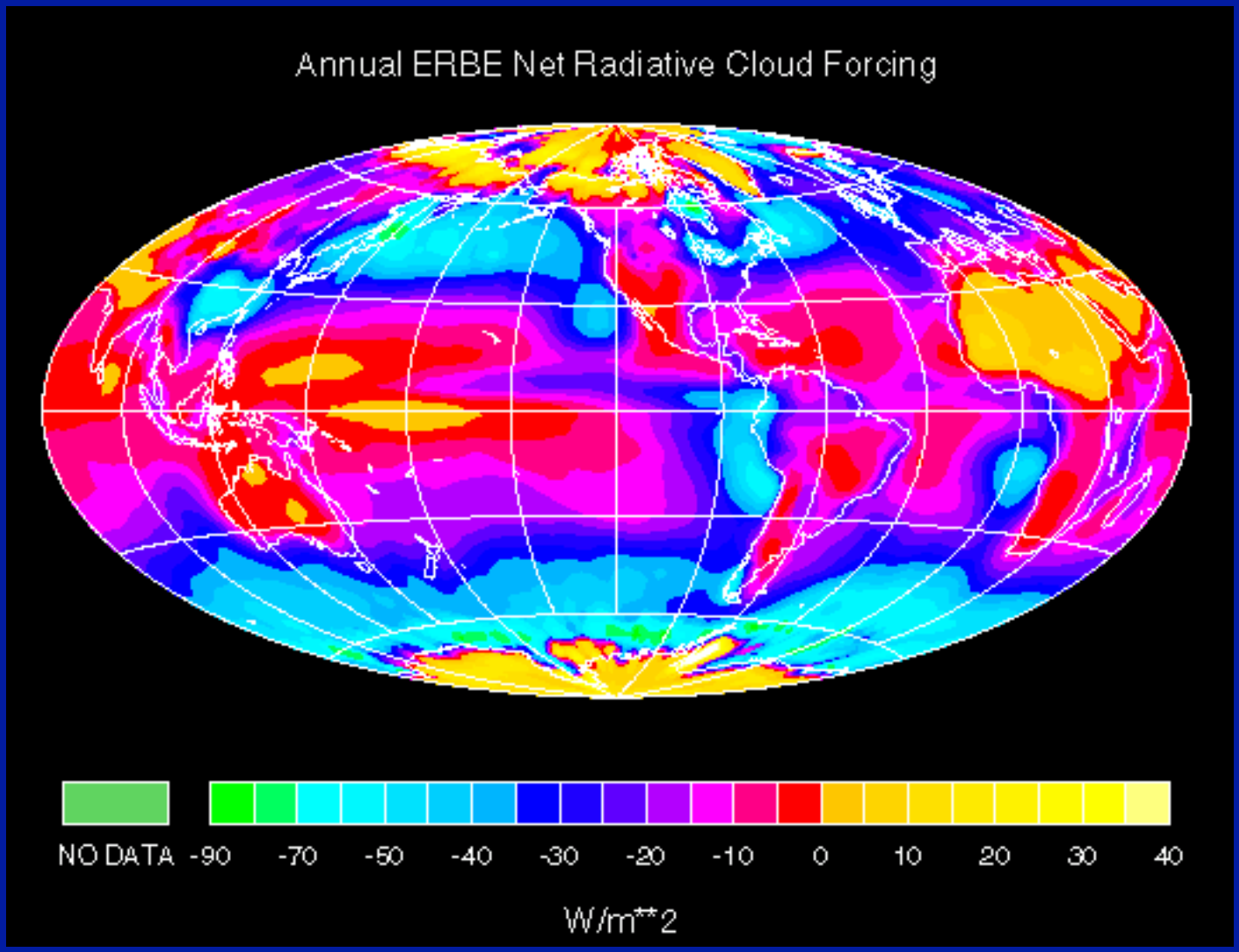


Photograph: Gabor Vali

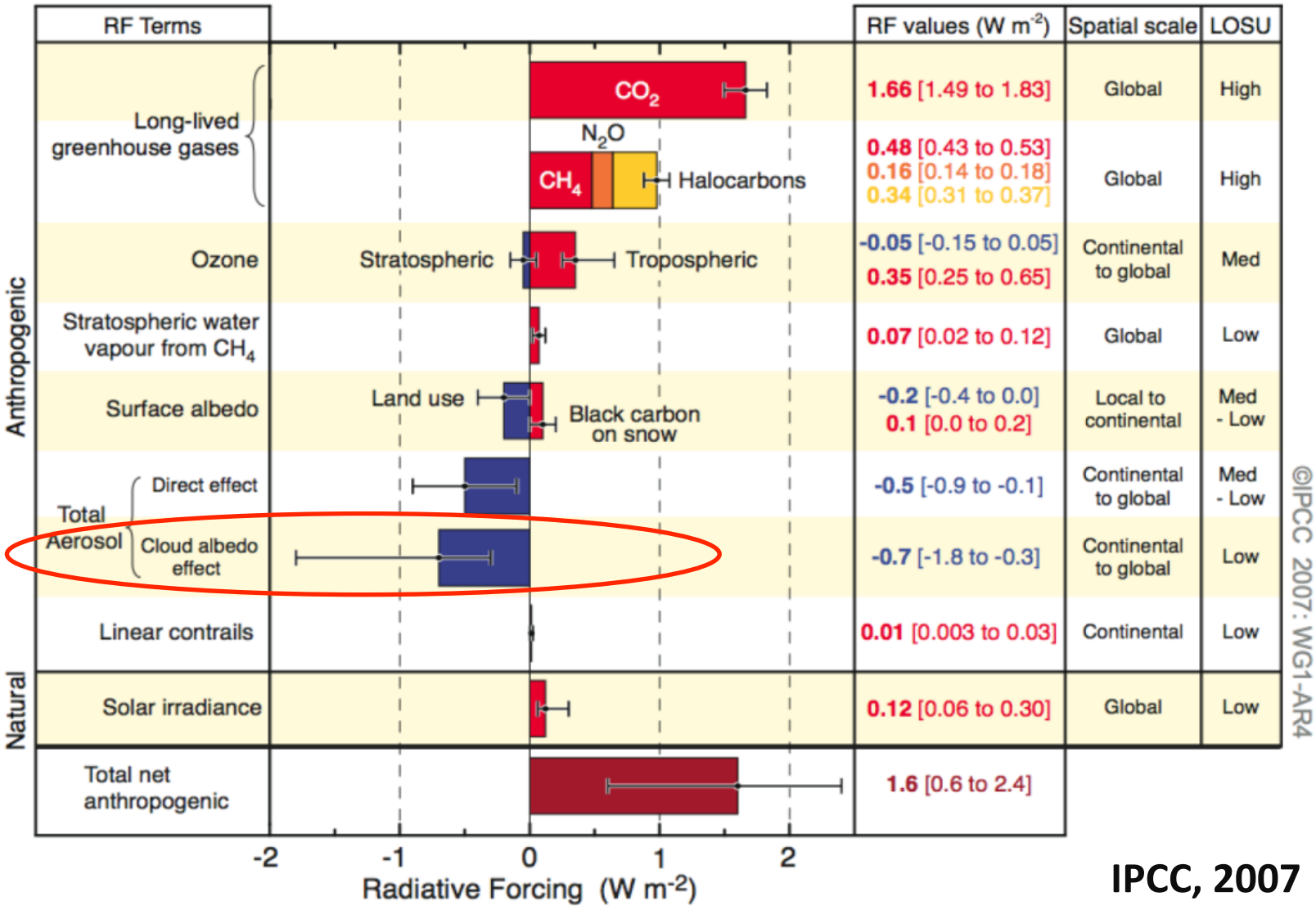

Marine stratocumulus
NOAA
VISIBLE 5 4 2010 1745Z


Marine stratocumulus
IR 5 4 2010 1745Z

Stratus & Stratocumulus

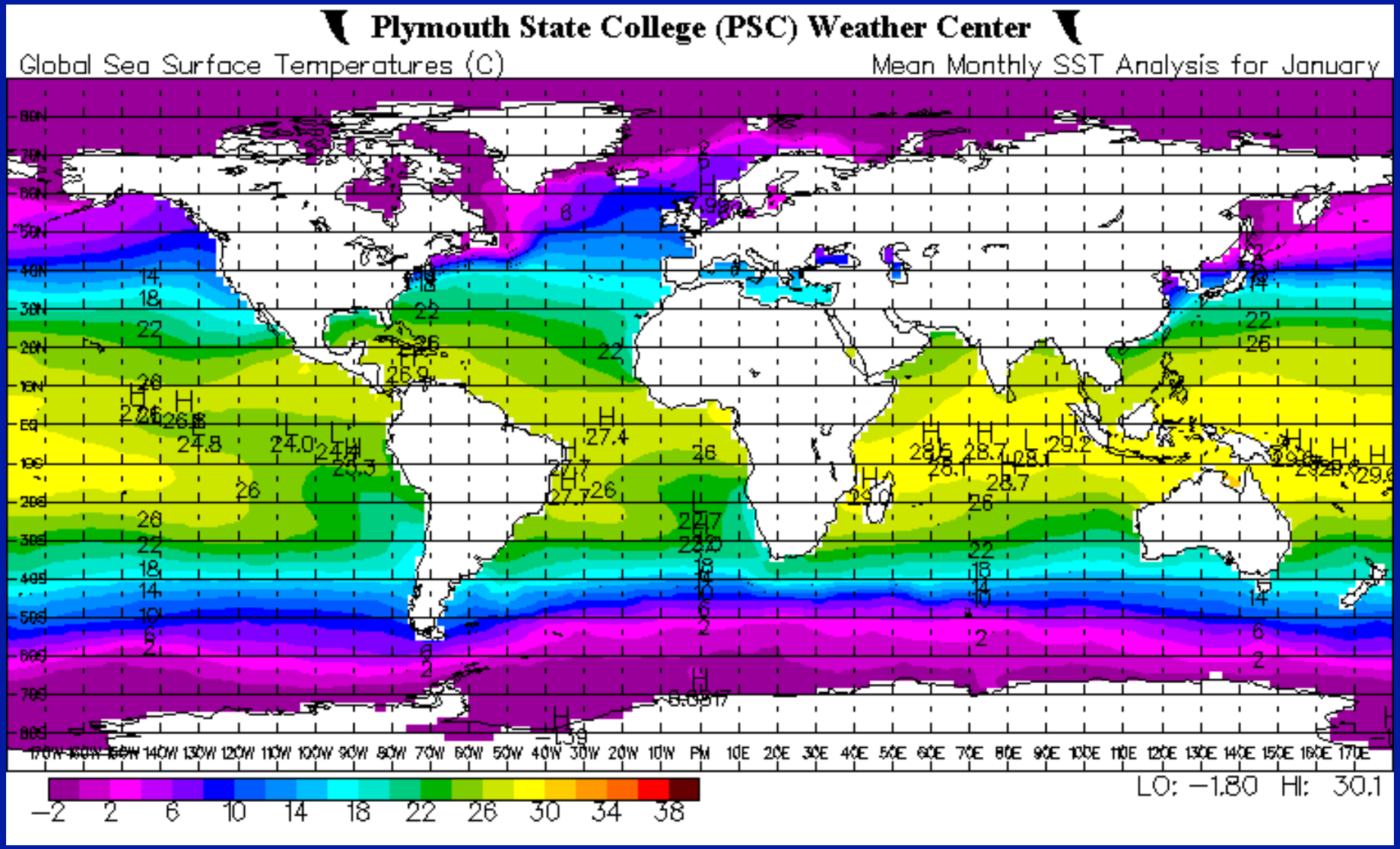


Radiative Forcing Components

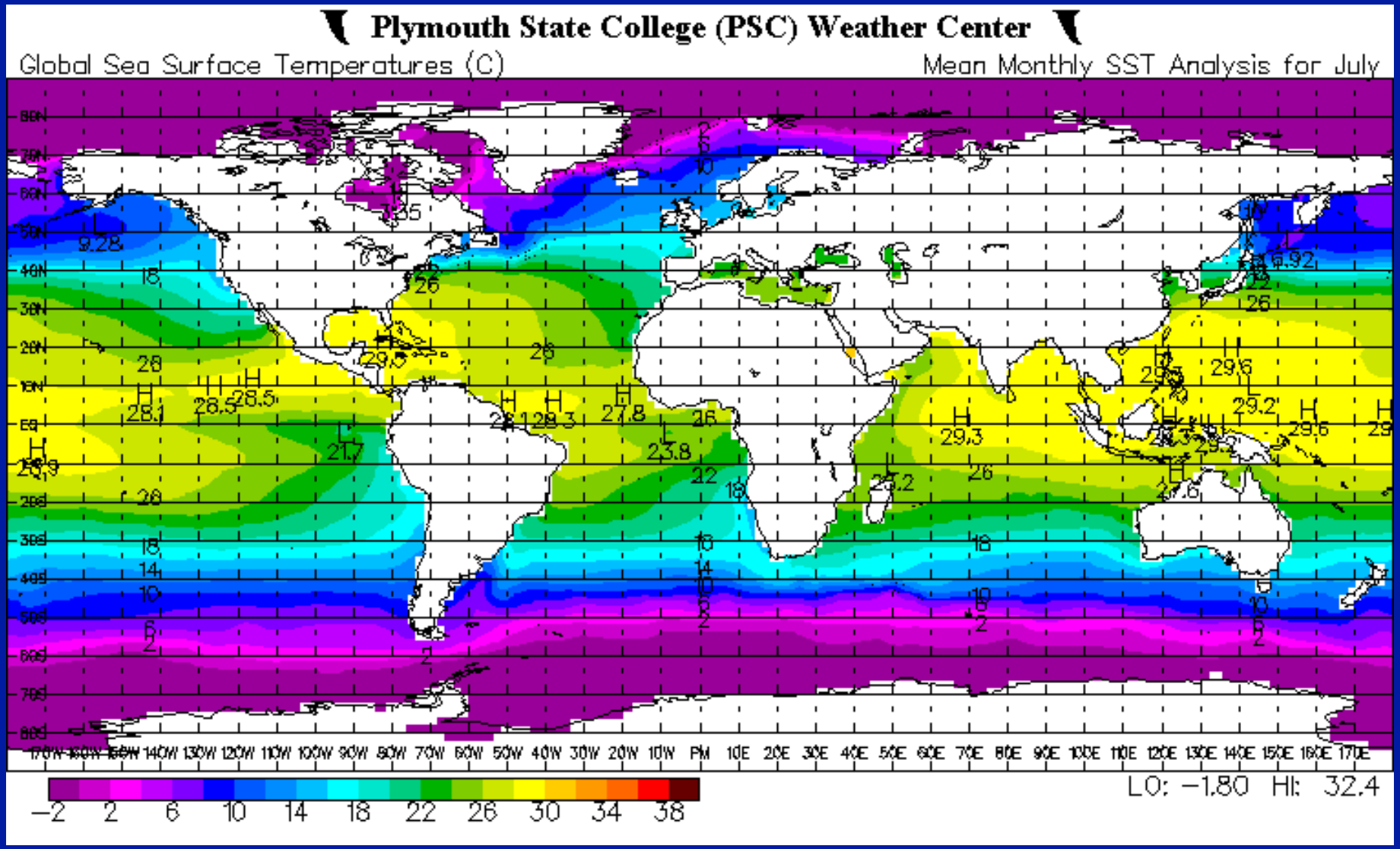


IPCC, 2007

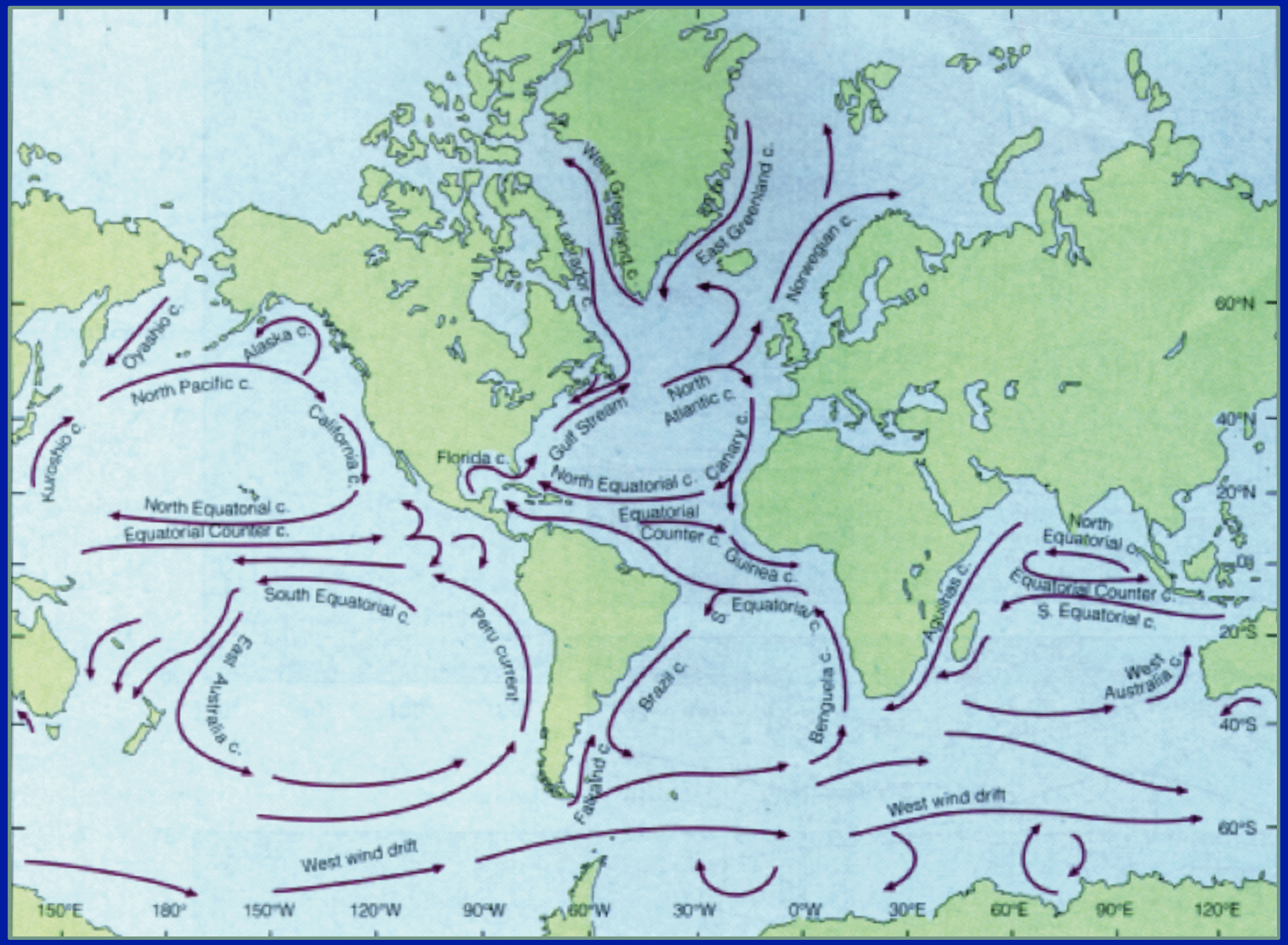
SST Climatology (January)



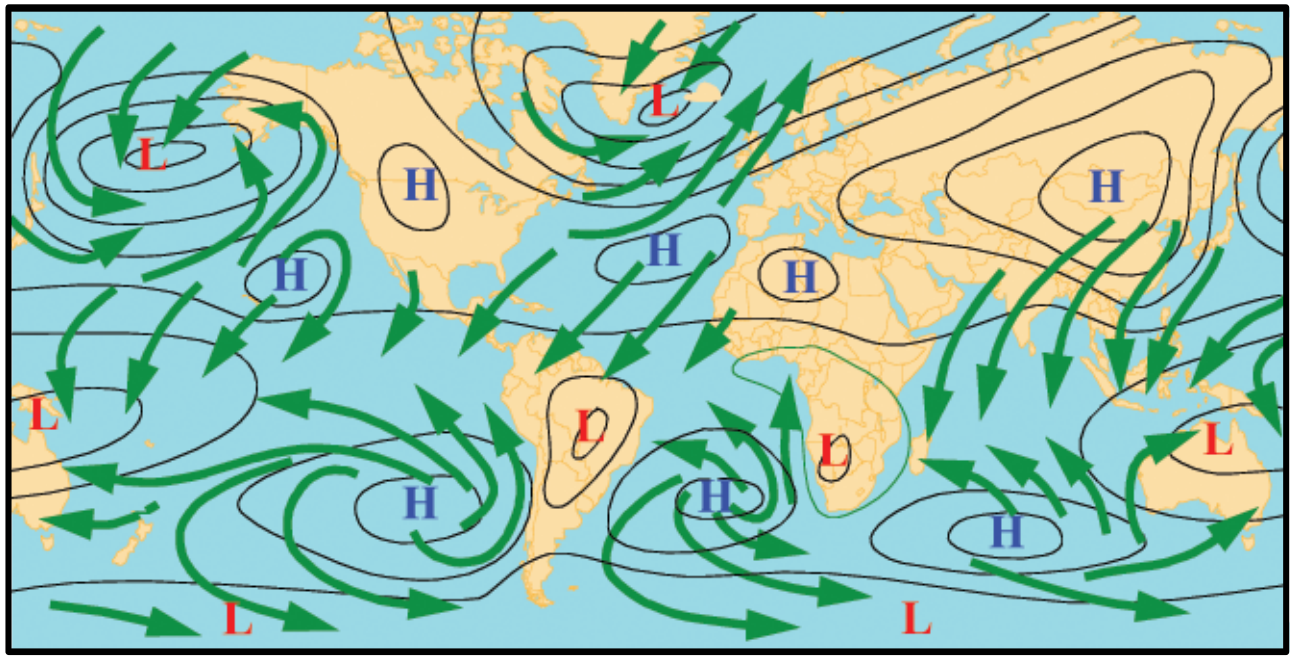
SST Climatology (July)



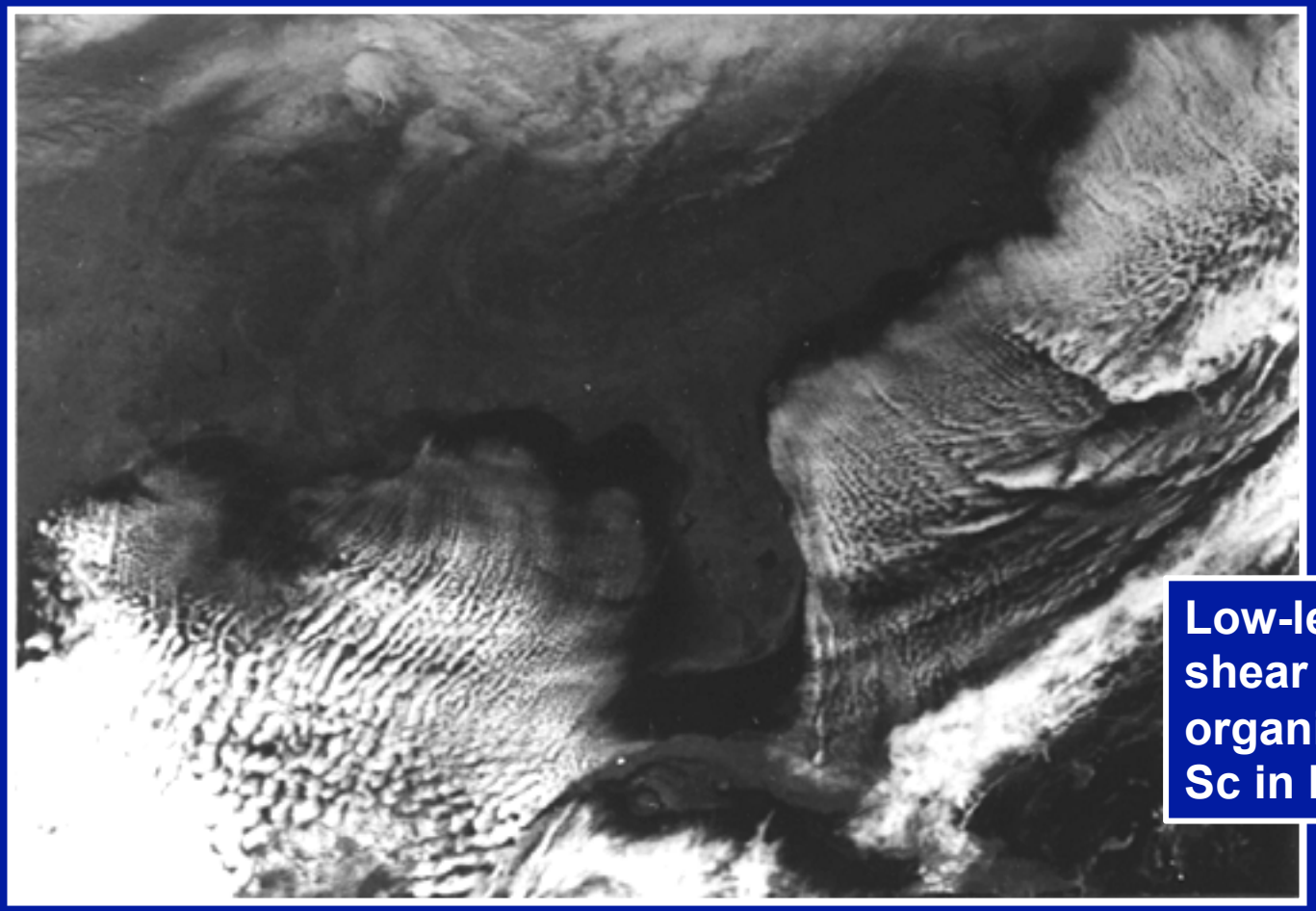
Ocean currents



January Surface Pressure and Wind

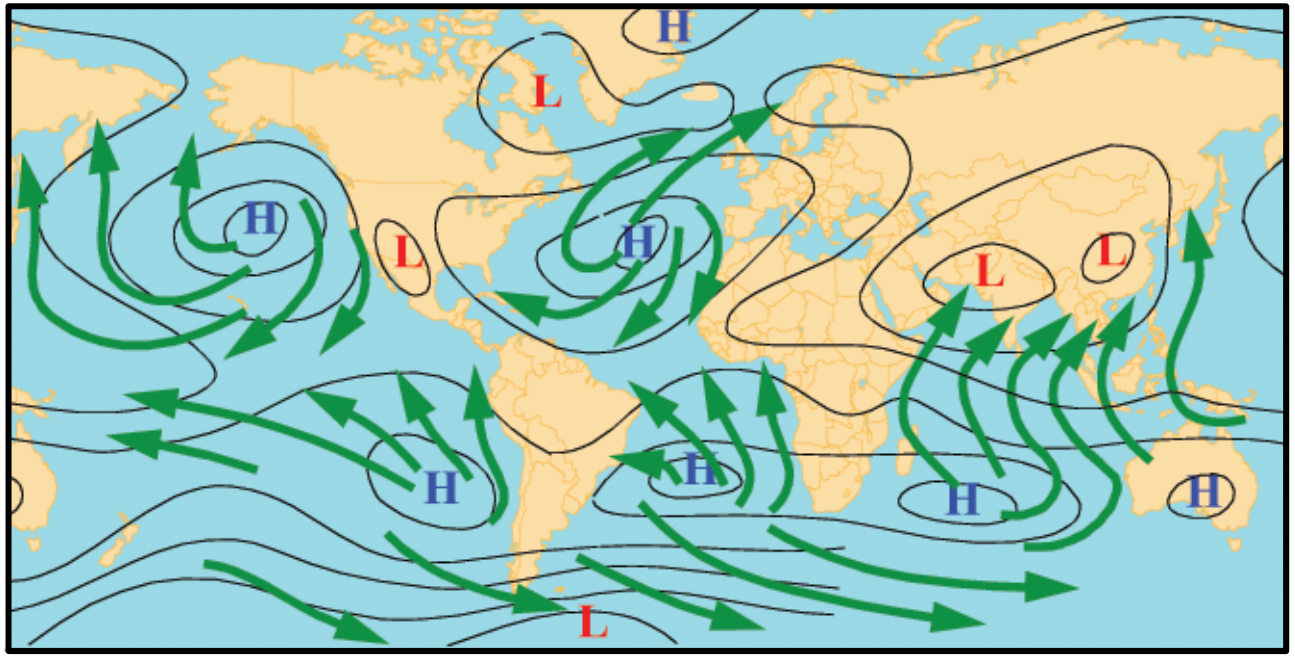


Cloud streets in cold air flowing off cold land mass

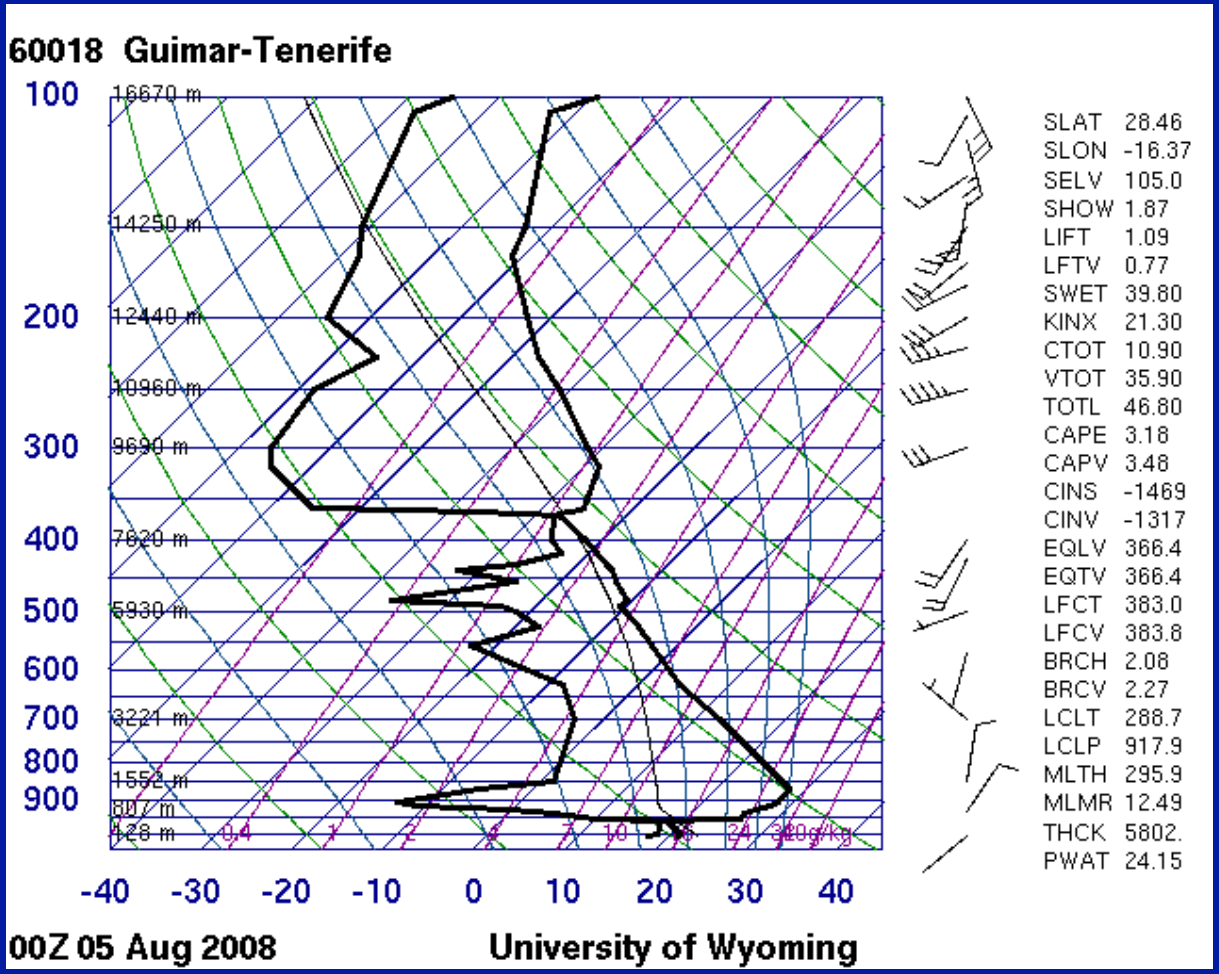


Low-level shear helps to organize the Sc in lines

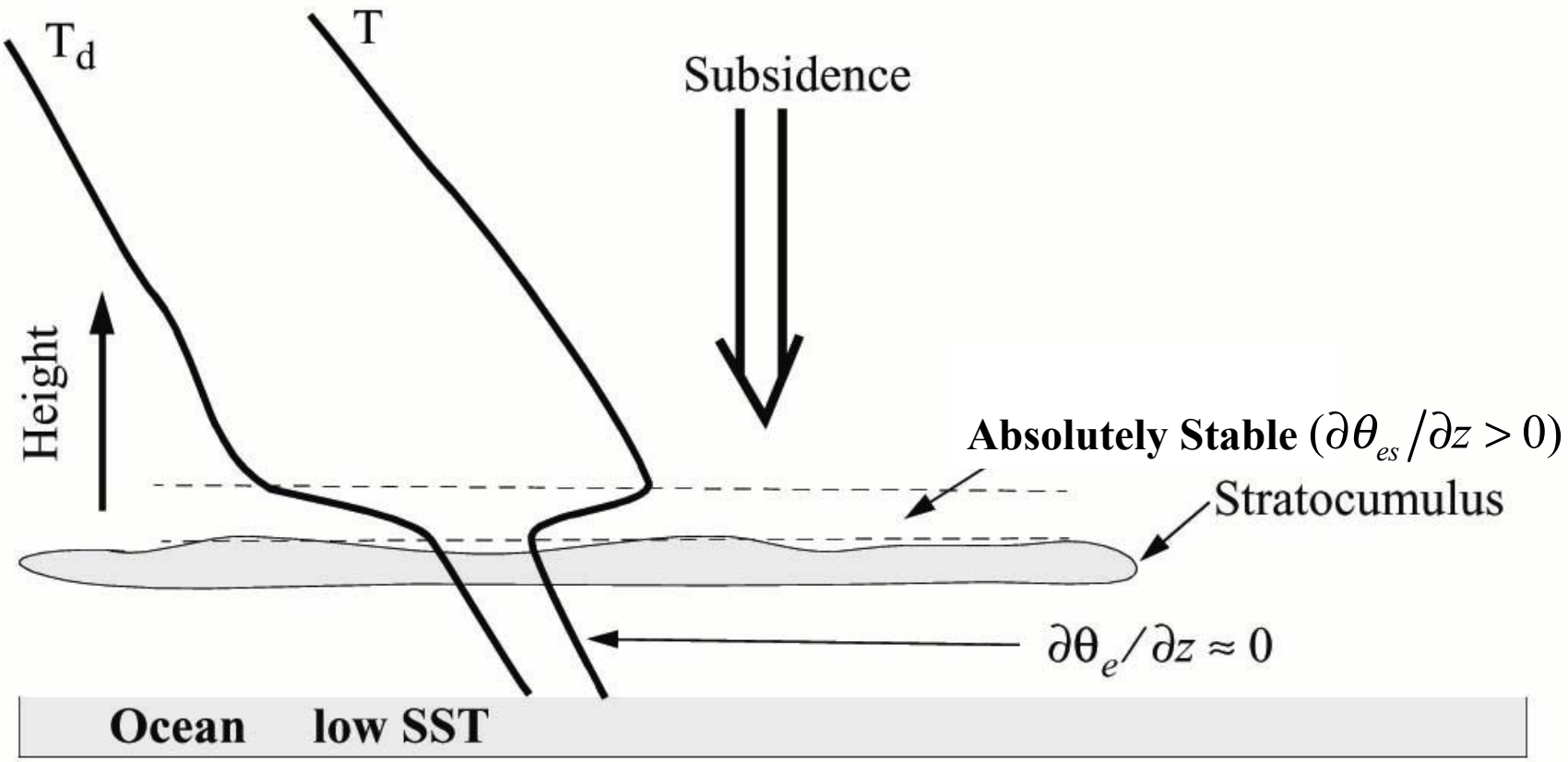
July Surface Pressure and Wind



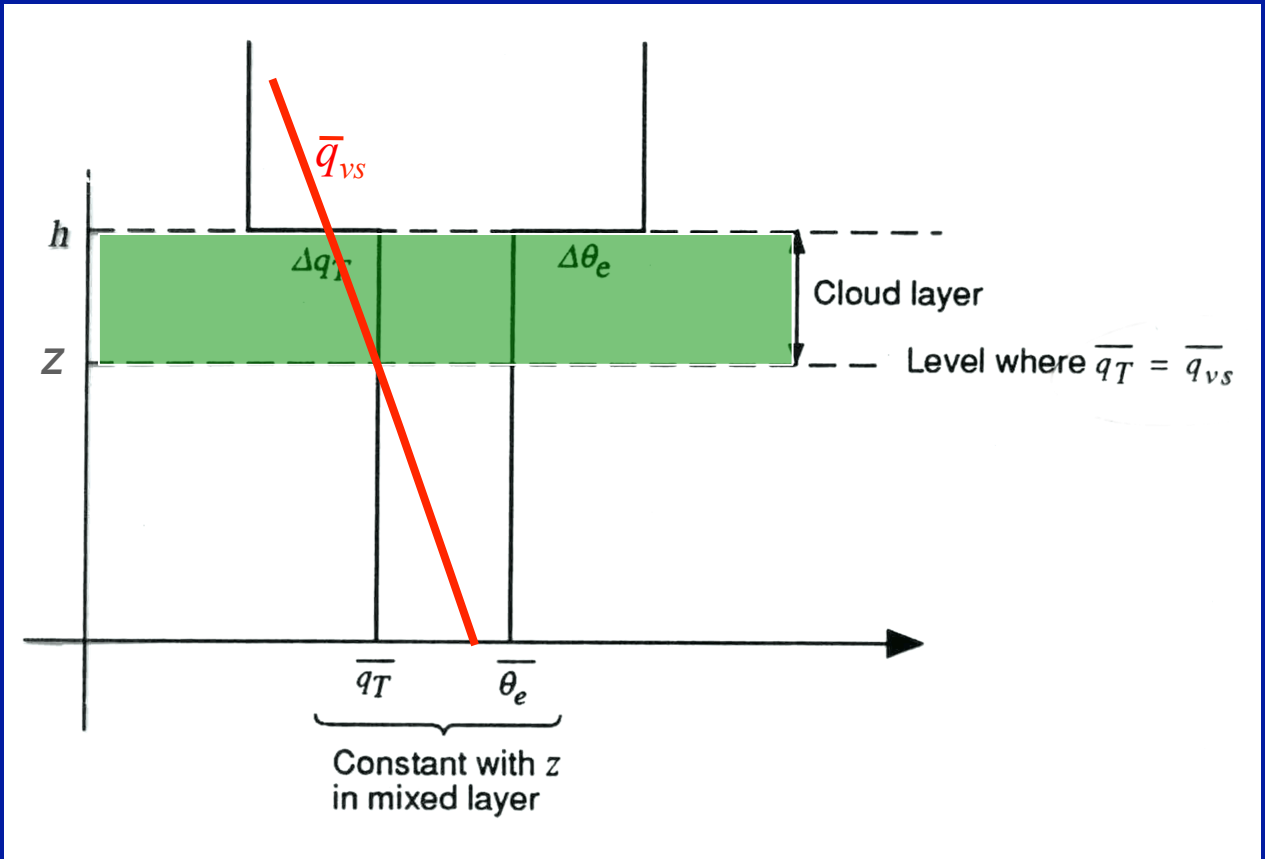
Stratocumulus Regime



Subtropical stratocumulus sounding



Idealized mixed layer



Equations governing non-precipitating mixed layer stratus

$$\frac{d\bar{q}_T}{dt} = \frac{w_e \Delta \bar{q}_T + \overline{\alpha}_{T0}}{h}$$

$$\frac{d\bar{\theta}_e}{dt} = \frac{w_e \Delta \bar{\theta}_0 + \overline{\alpha}_{e0} - R_h - R_0}{h}$$

$$\frac{dh}{dt} = w_e + w(h)$$