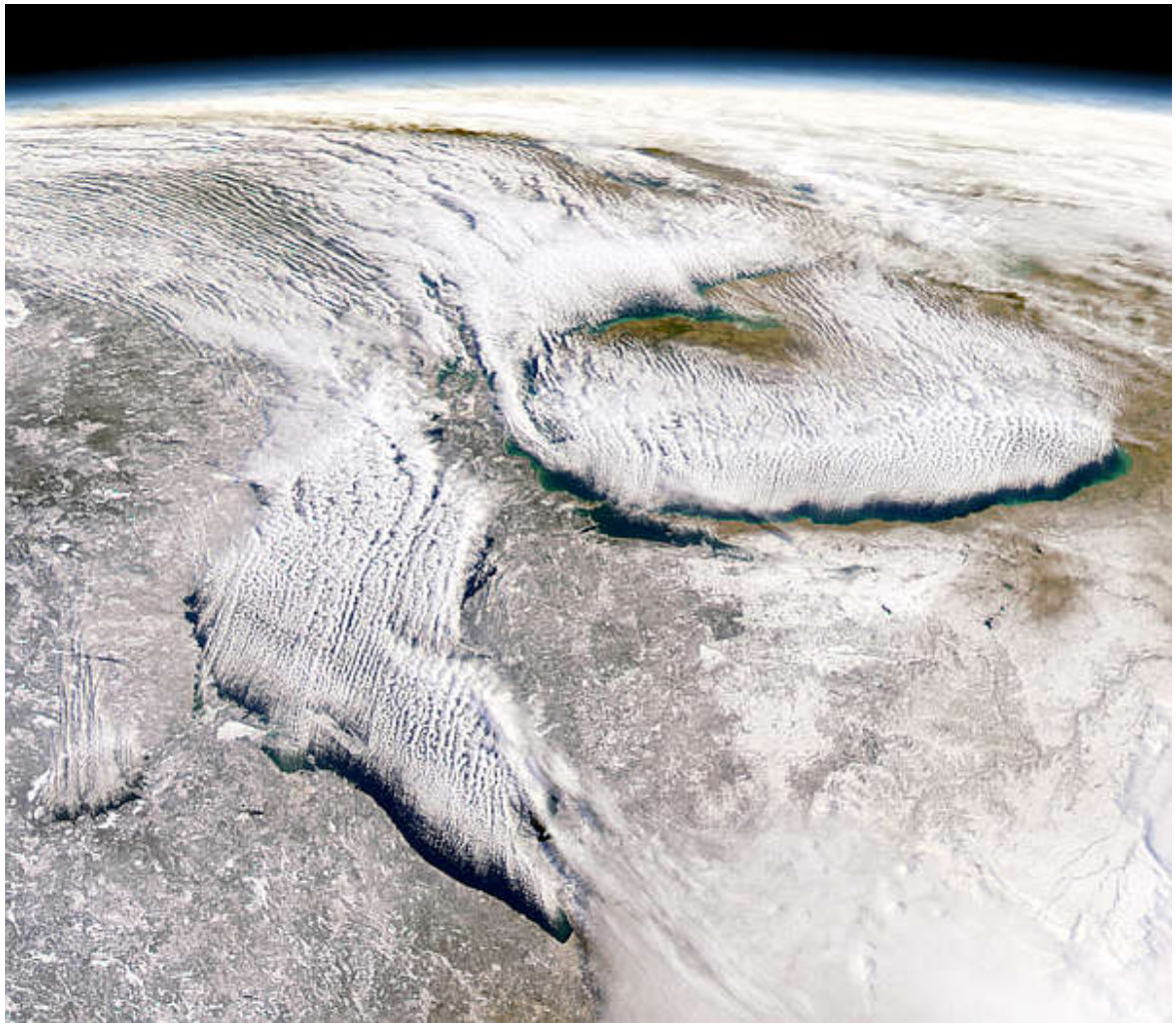
# La atmósfera

# ¿Porqué estudiar la atmósfera?

Los fenómenos atmosféricos pueden representar riesgo.

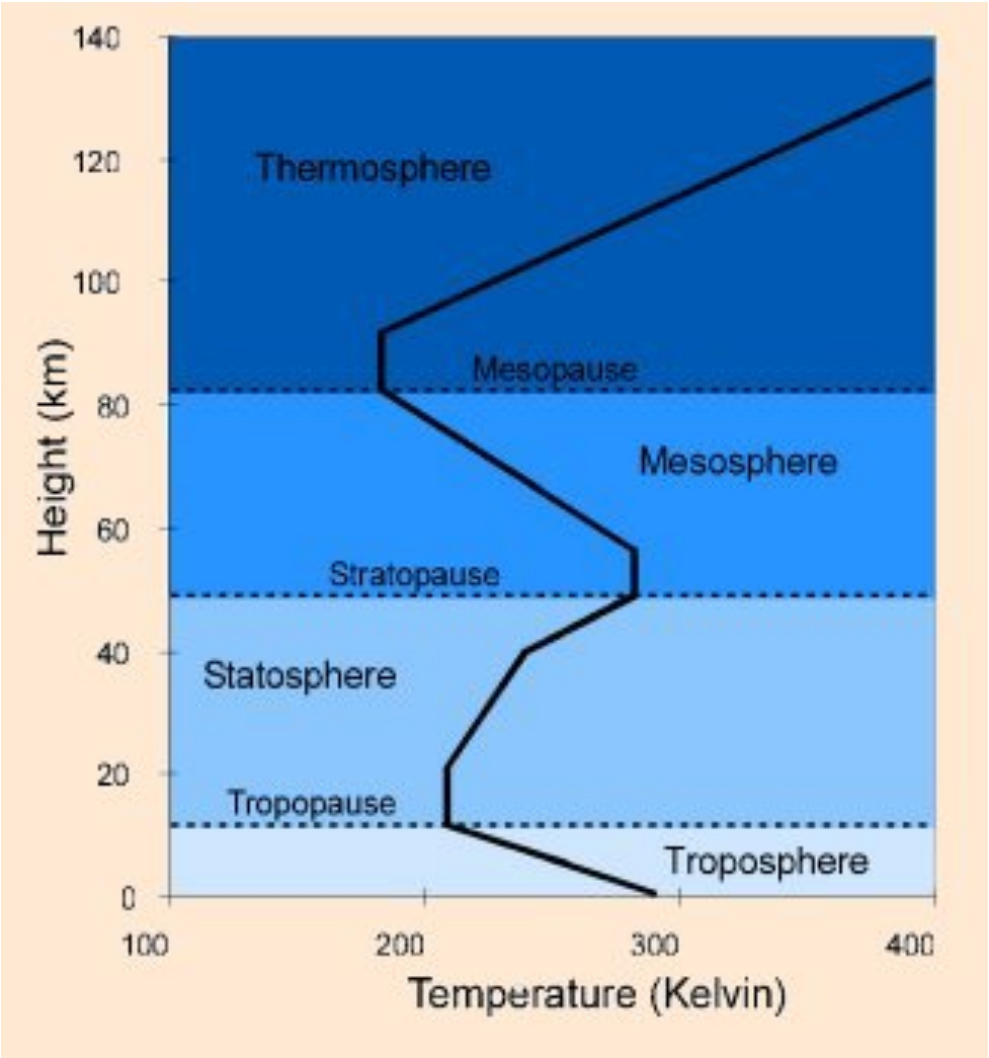
# El clima es el principal control en la distribución de animales y plantas

La atmósfera es una capa delgada de gases que envuelve la Tierra.

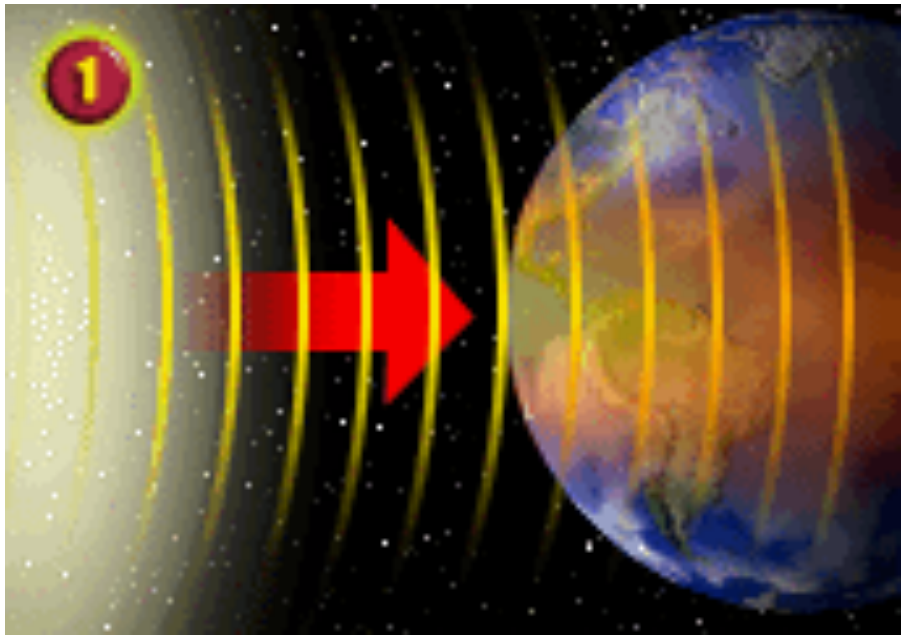


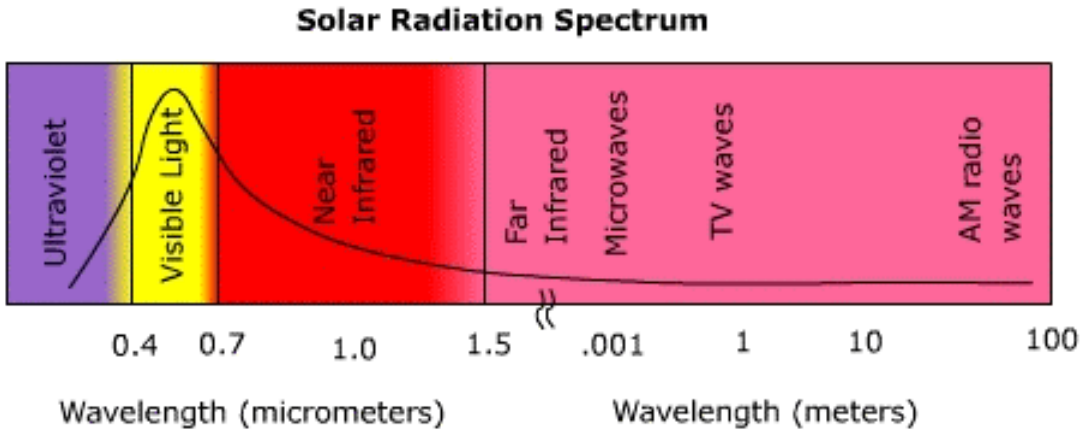
# Es importante reconocer que la atmósfera es un sistema que interactúa con otras componentes del Sistema Tierra

# La atmósfera comprende varias capas con diferente comportamiento

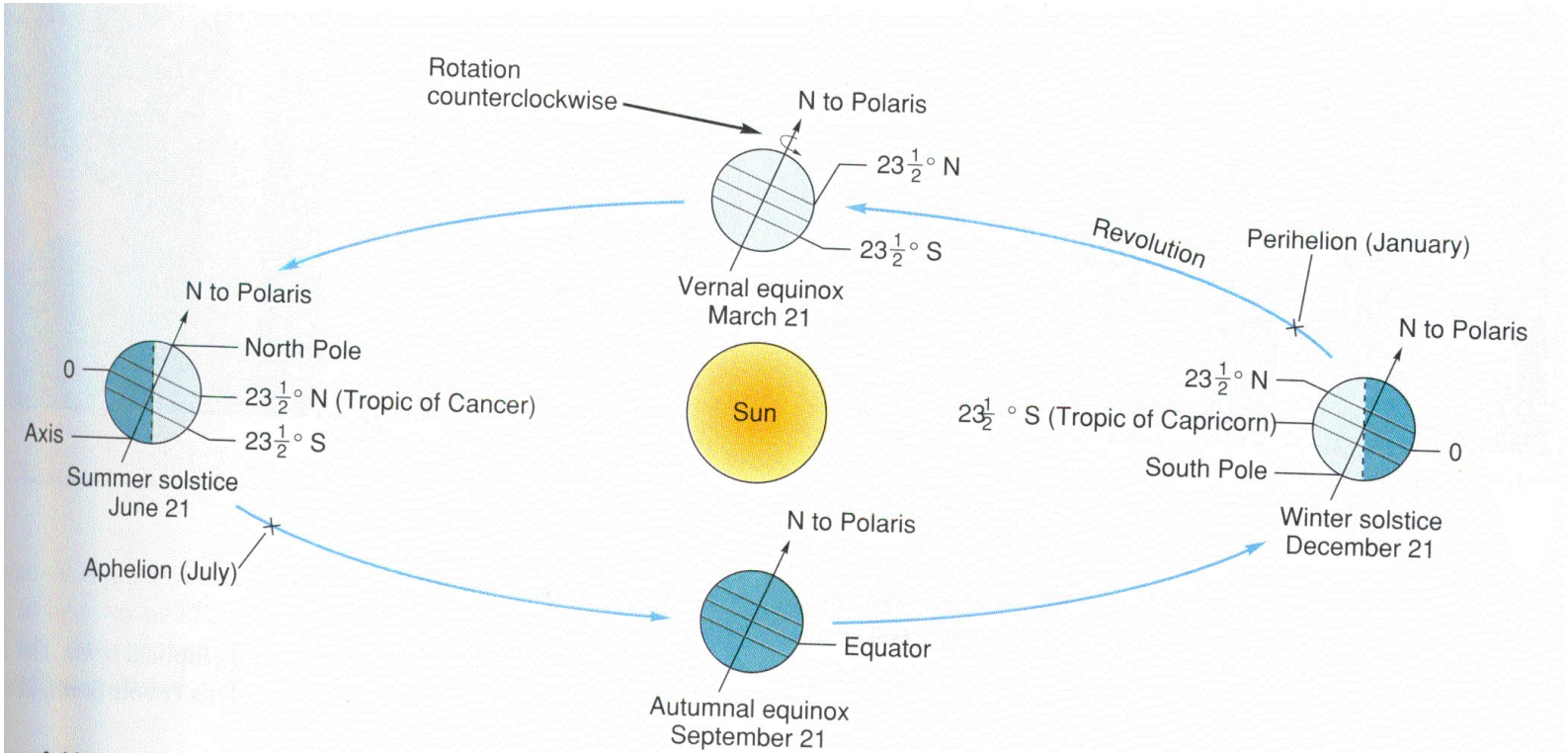


# El principal motor de la atmófera es la energía que recibe del sol.

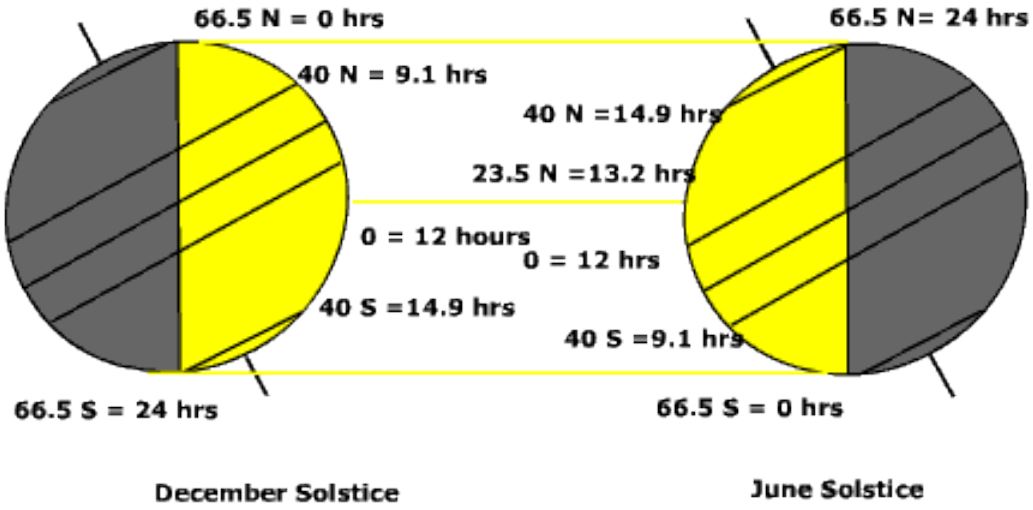


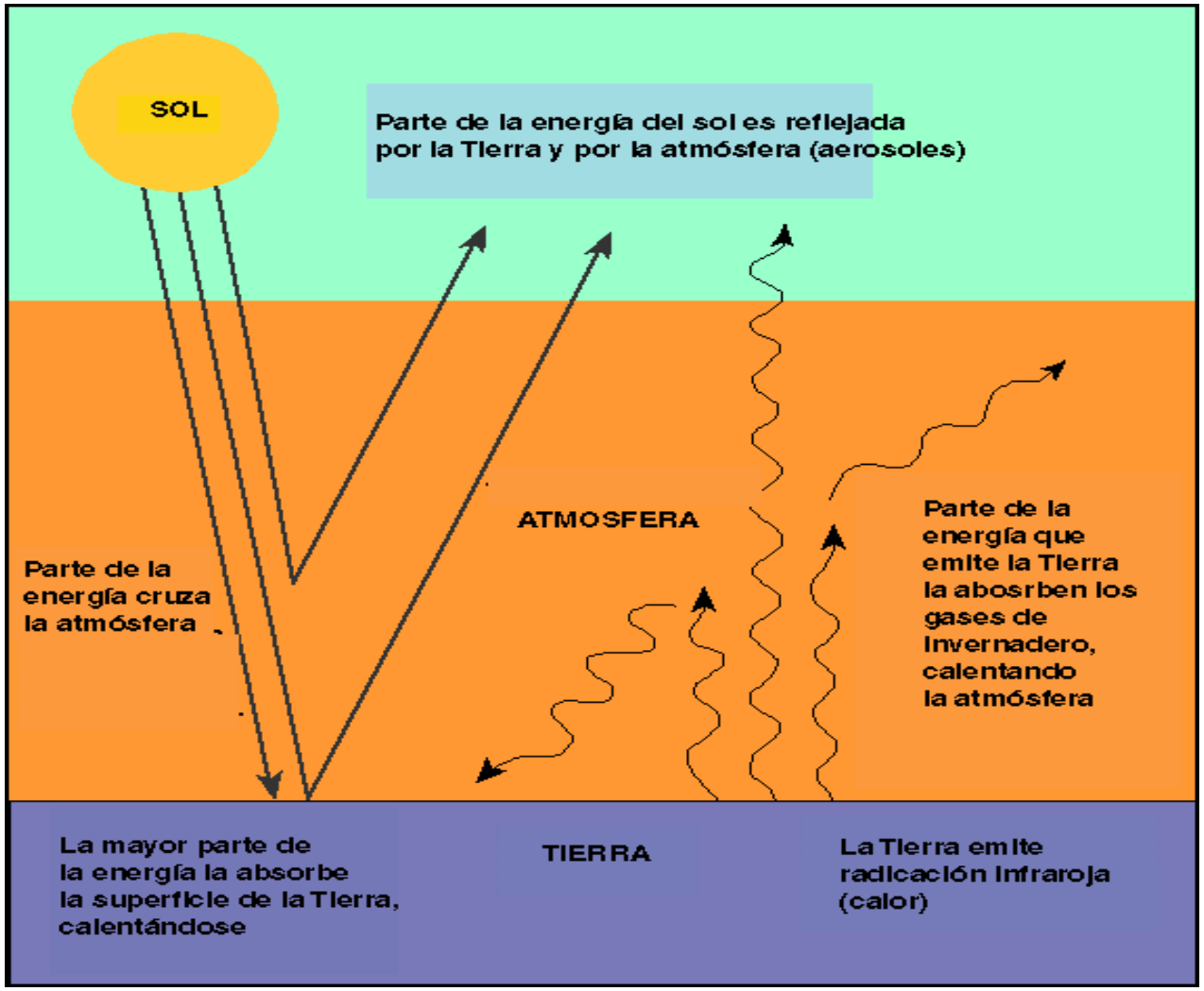
# La energía no está igualmente distribuída por varias razones: distancia al sol, ángulo de incidencia, ...

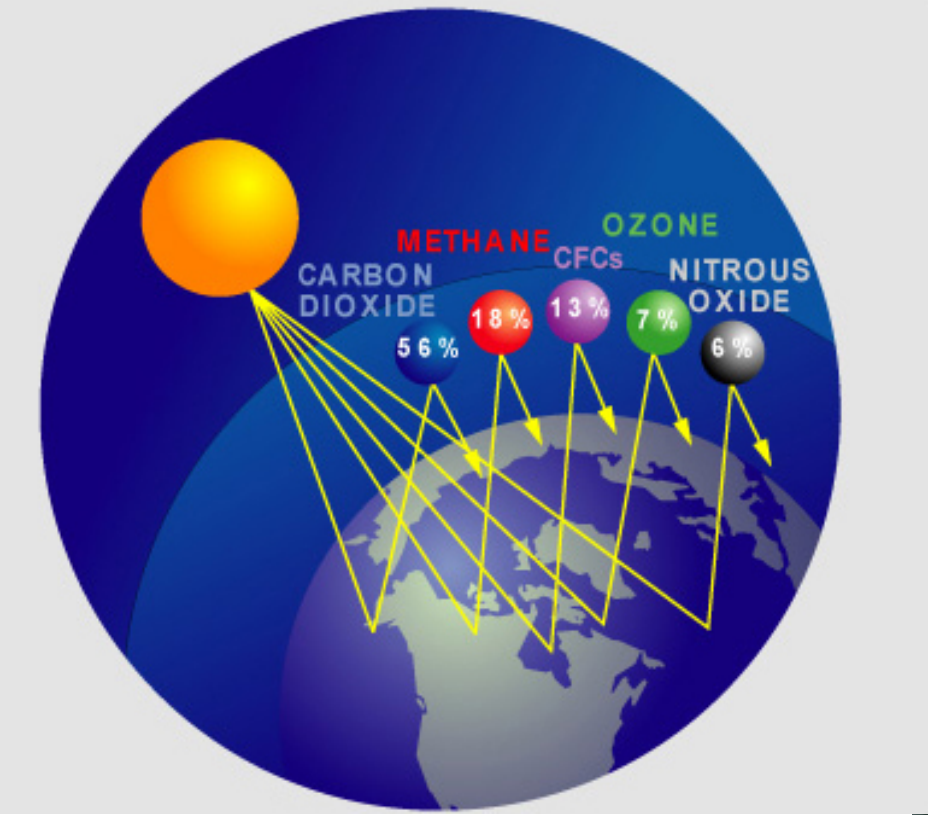


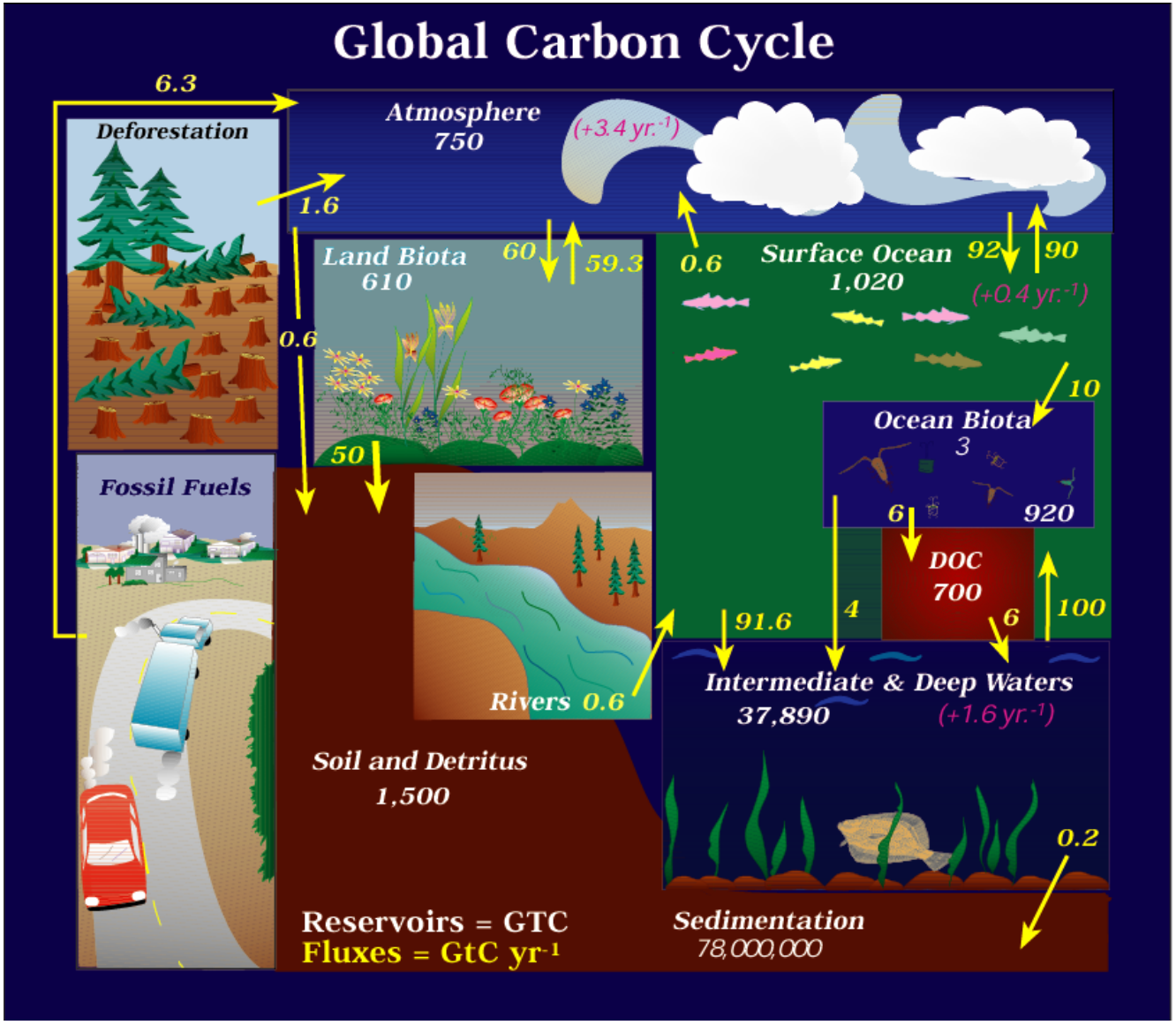
# ... duración del día, albedo



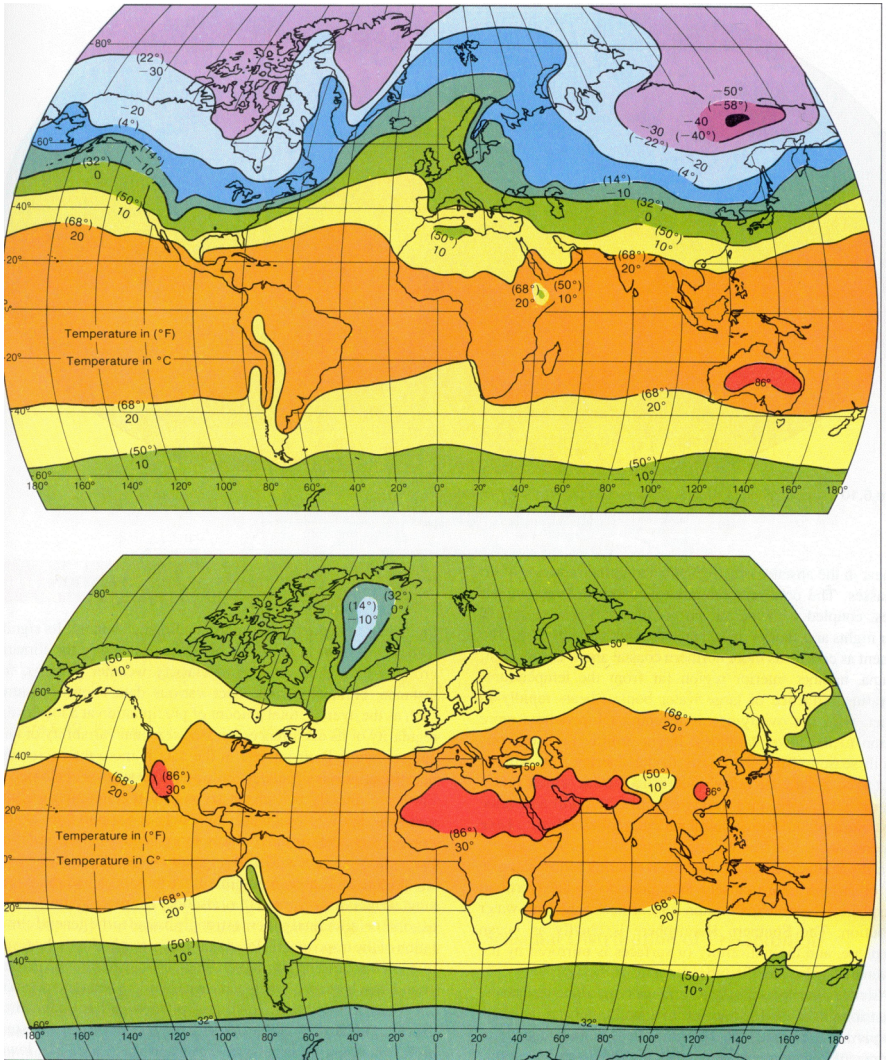
# El efecto de invernadero

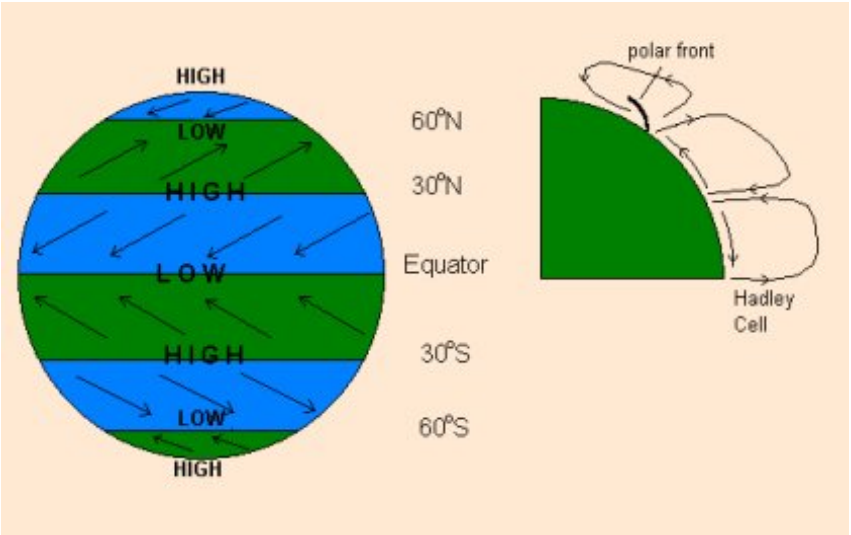



METHANE
OZONE
CFCs
CARBON DIOXIDE
NITROUS OXIDE
56 %
18 %
13 %
7 %
6 %

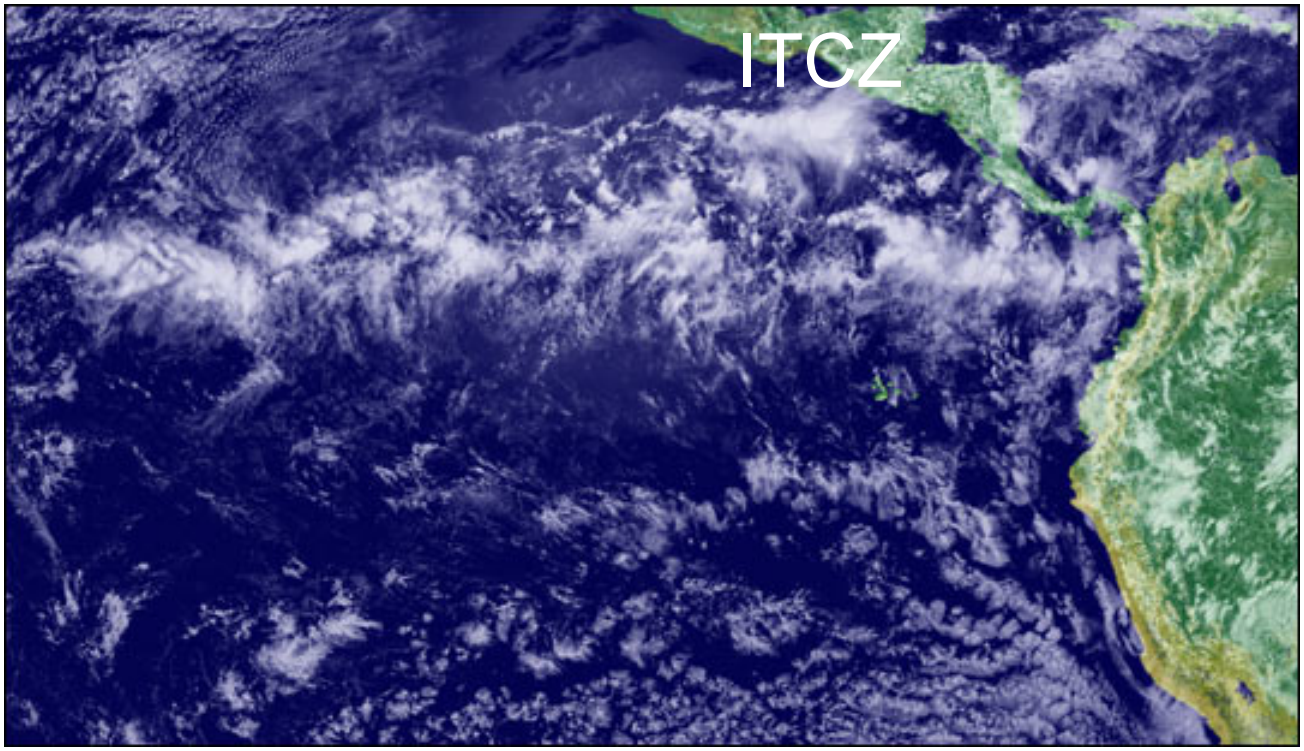

Global Carbon Cycle
6.3
Deforestation
Atmosphere
750
(+3.4 yr.-1)
1.6
Land Biota
610
60
59.3
0.6
0.6
Surface Ocean
1,020
92
90
(+0.4 yr.-1)
10
Ocean Biota
3
6
920
Fossil Fuels
50
DOC
700
4
6
100
91.6
Rivers 0.6
Intermediate & Deep Waters
37,890
(+1.6 yr.-1)
Soil and Detritus
1,500
0.2
Reservoirs = GTC
Fluxes = GtC yr-1
Sedimentation
78,000,000

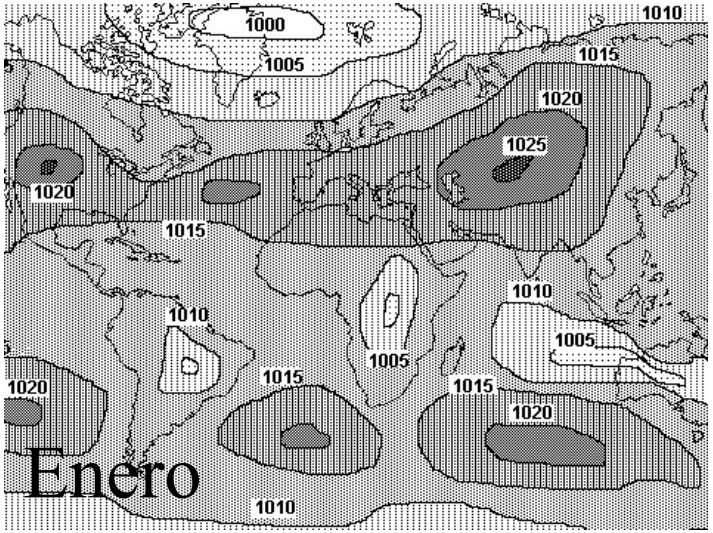
# La diferencia de temperatura produce el patrón de circulación general de la atmósfera

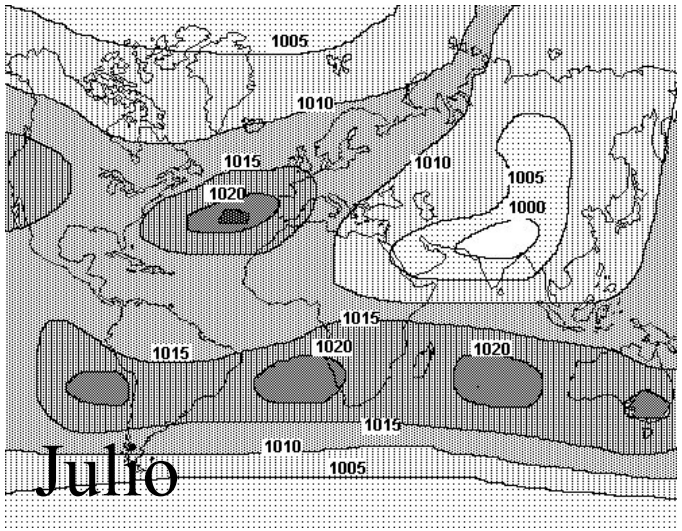


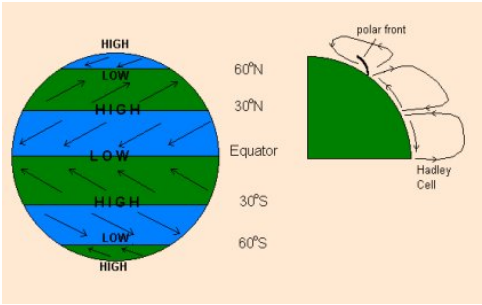

La fuerza de Coriolis es reponsable de la dirección de los vientos

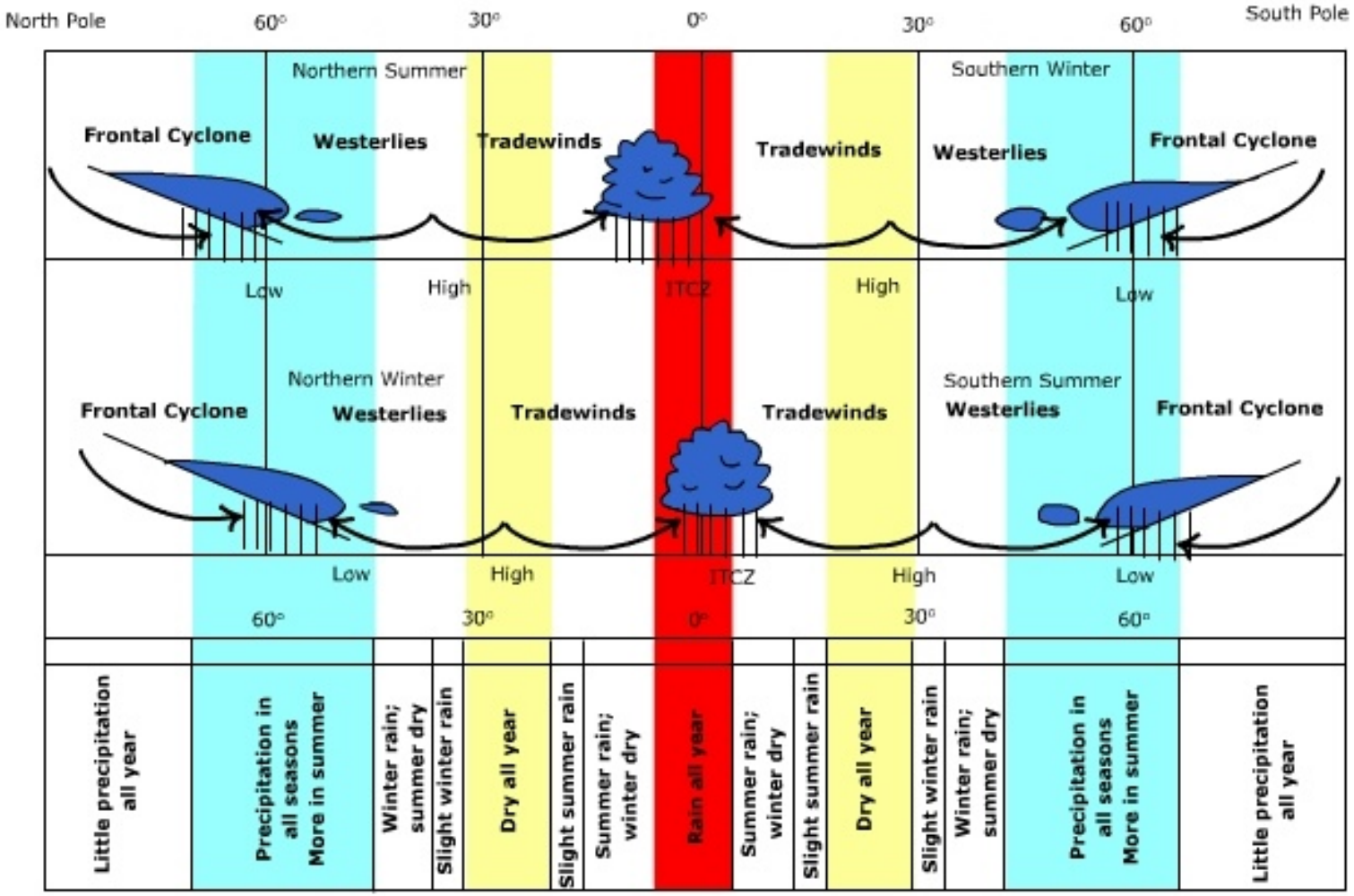

ITCZ


1000
1005
1010
1015
1020
1025
1020
1015
1010
1005
1015
1020
1010
1005
1015
1020
Enero

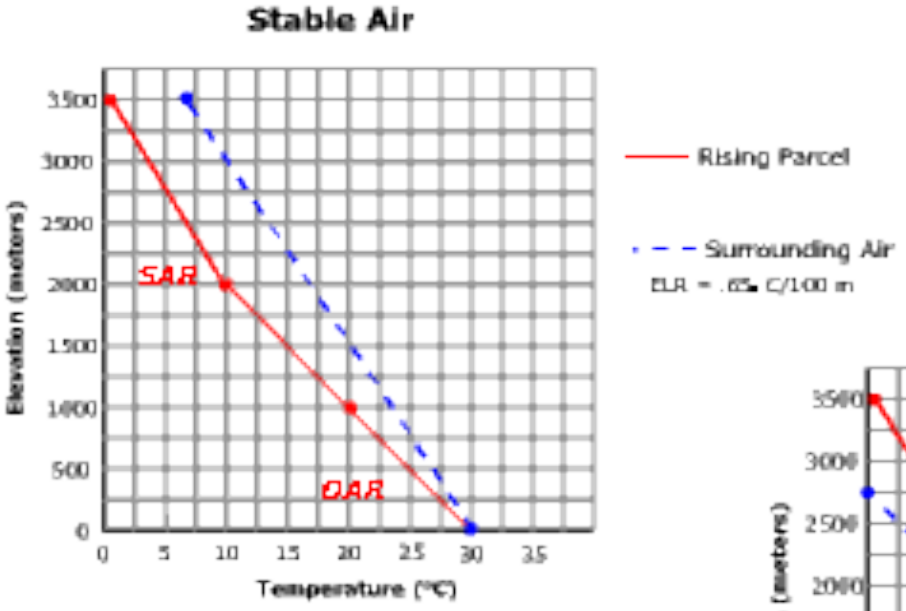

1005
1010
1015
1010
1005
1000
1020
1015
1020
1020
1015
1010
1005
Julio

# Circulación general de la at

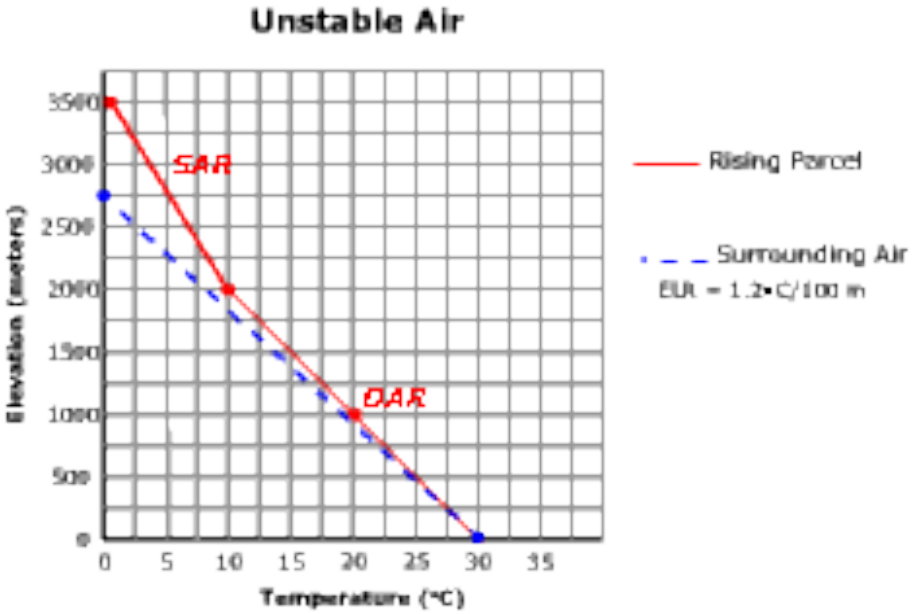


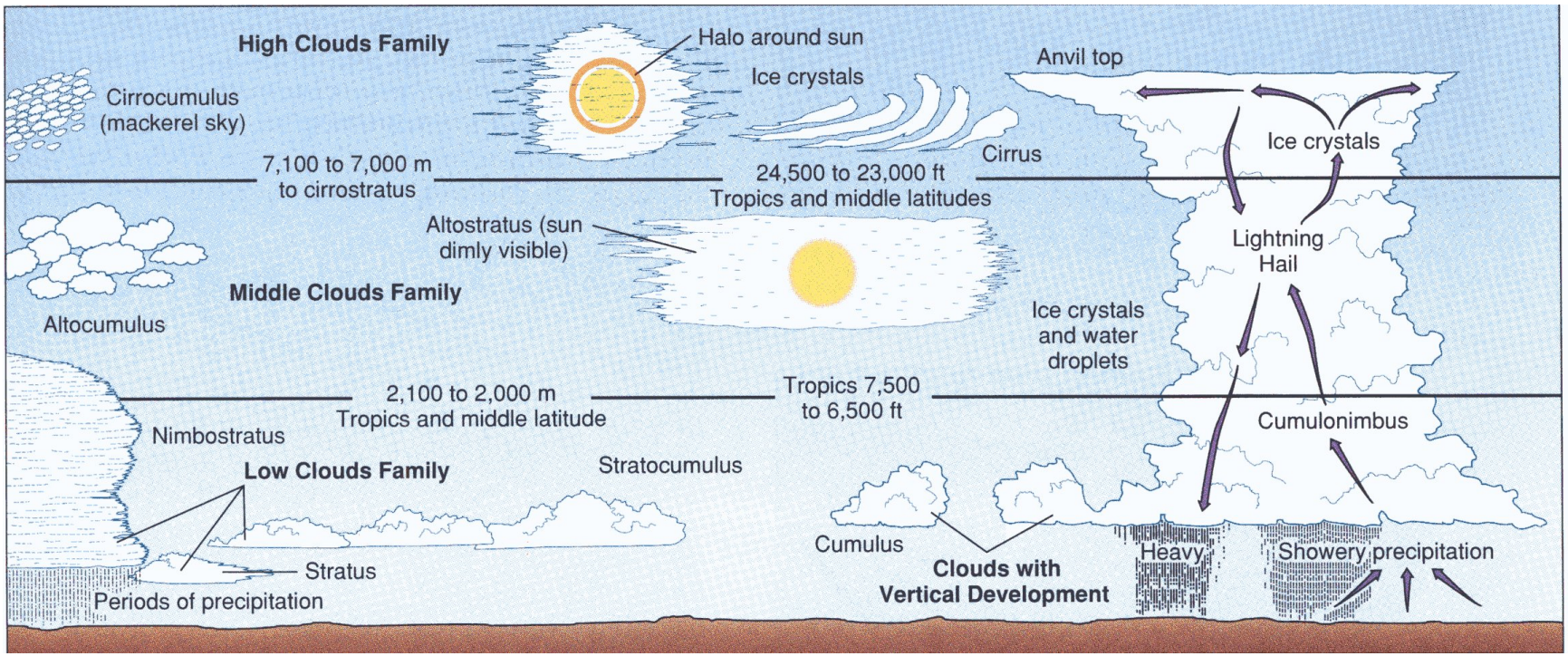
# Establidad- Lapse rate- Variación de temperatura con la elevación



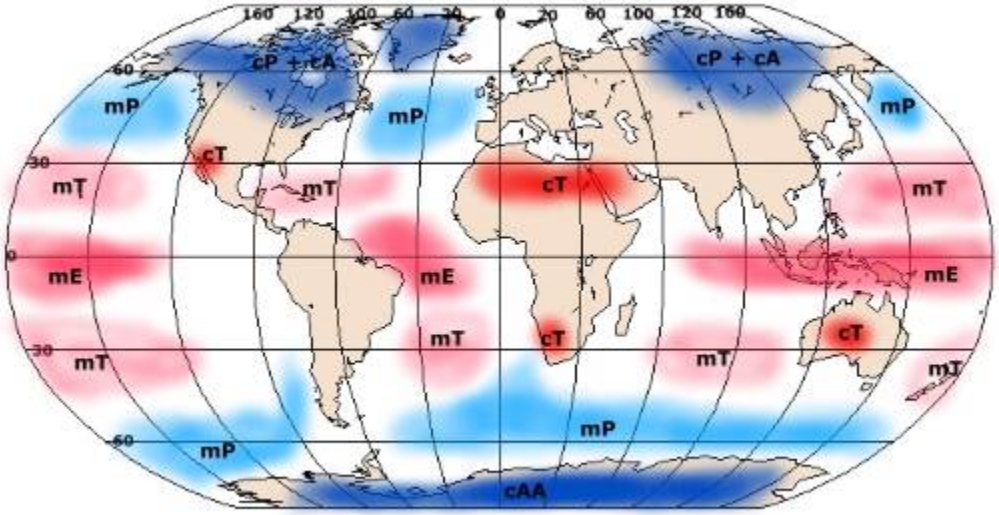

SLR=6.5°km



# Cuando el aire húmedo asciende forma nubes



# Masas de aire y frent



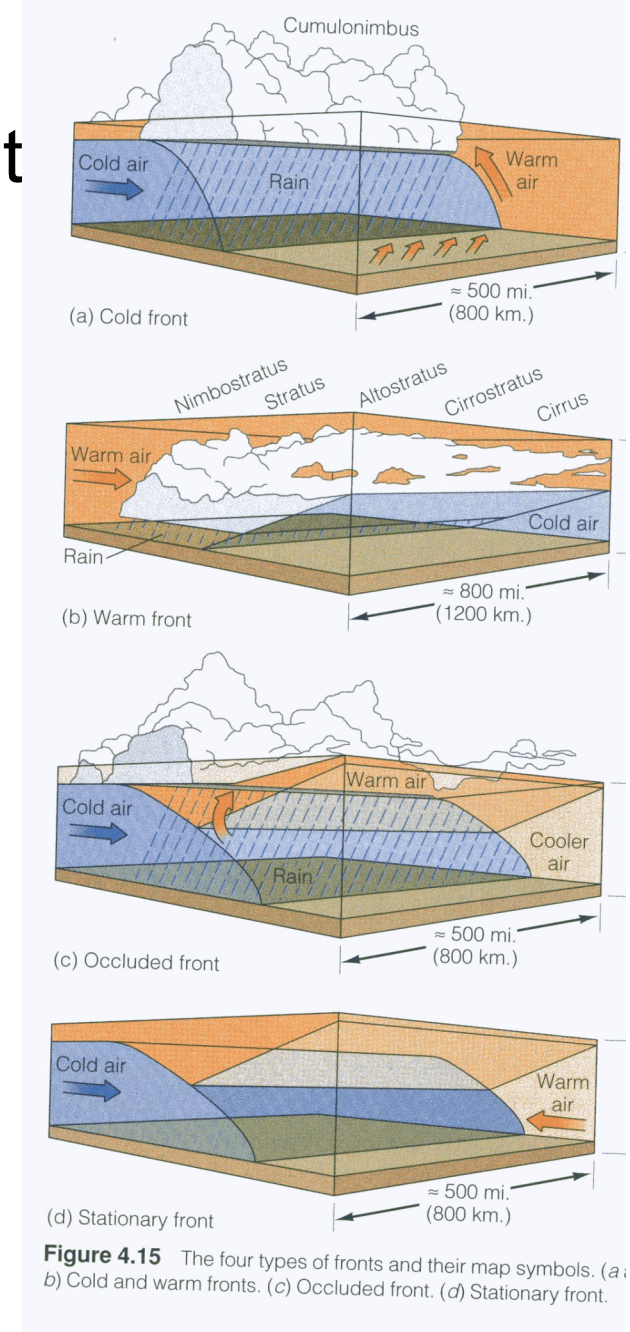
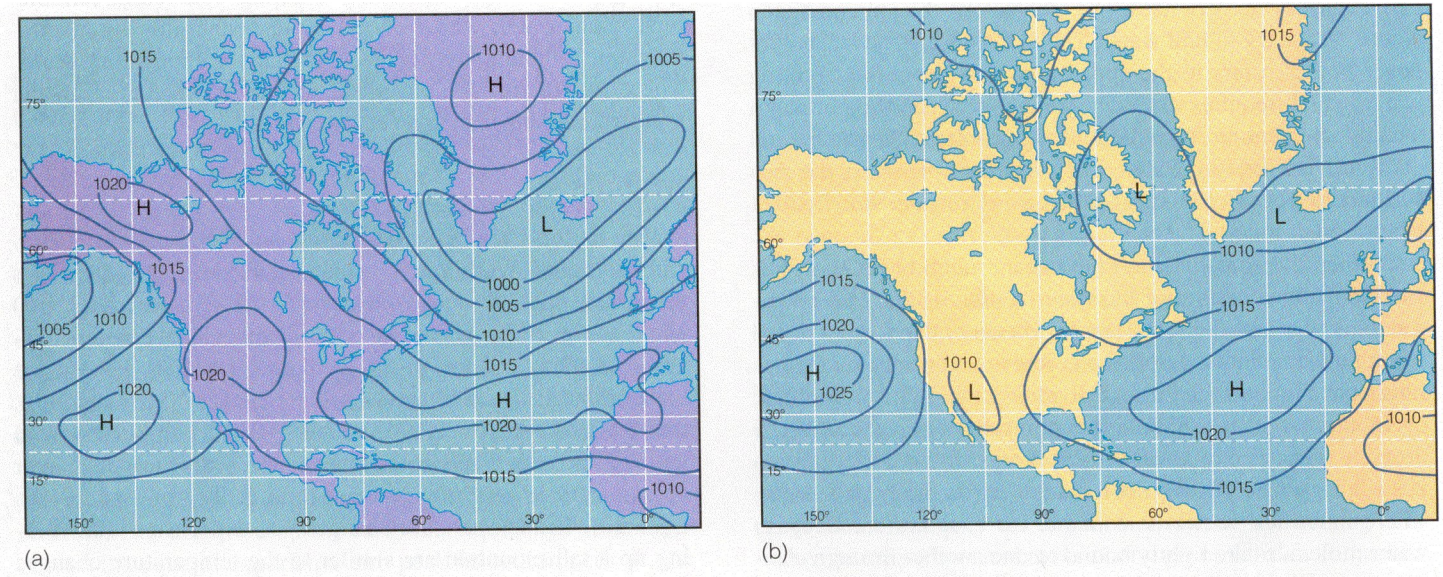
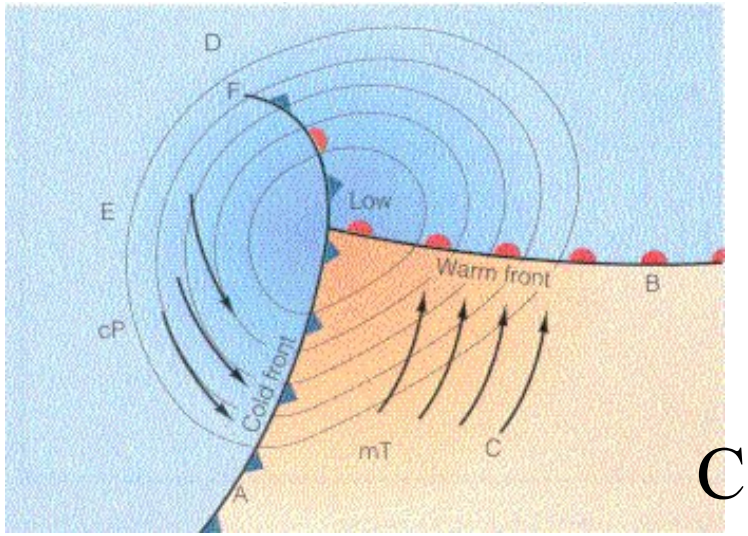




**Figure 4.15** The four types of fronts and their map symbols. (*a* and *b*) Cold and warm fronts. (*c*) Occluded front. (*d*) Stationary front.

# Clima a escala continental



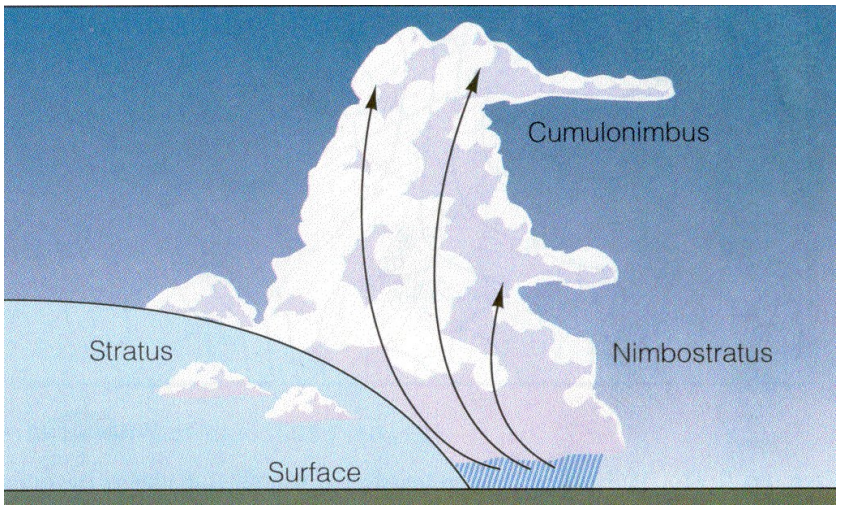

Alto de las Bermudas



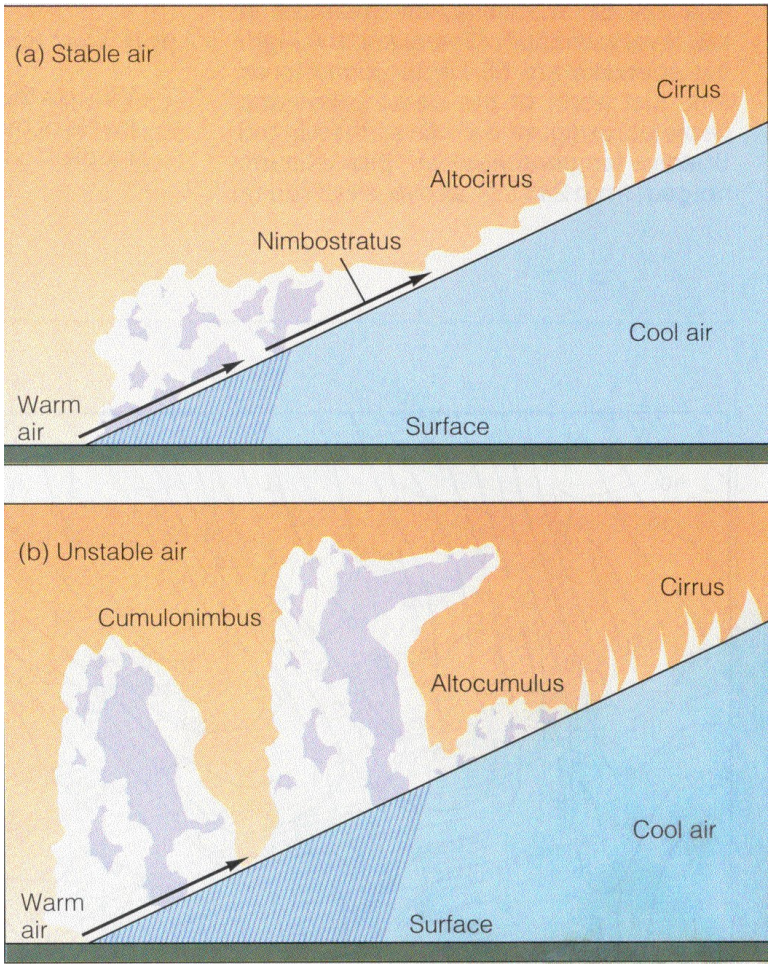

Ciclón de baja presión

# Sistemas de tiempo
# Latitudes medias

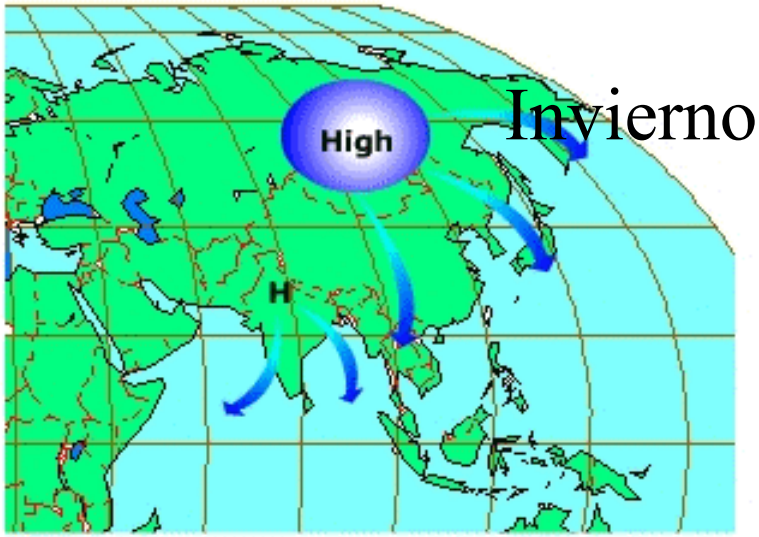
## Frente frío



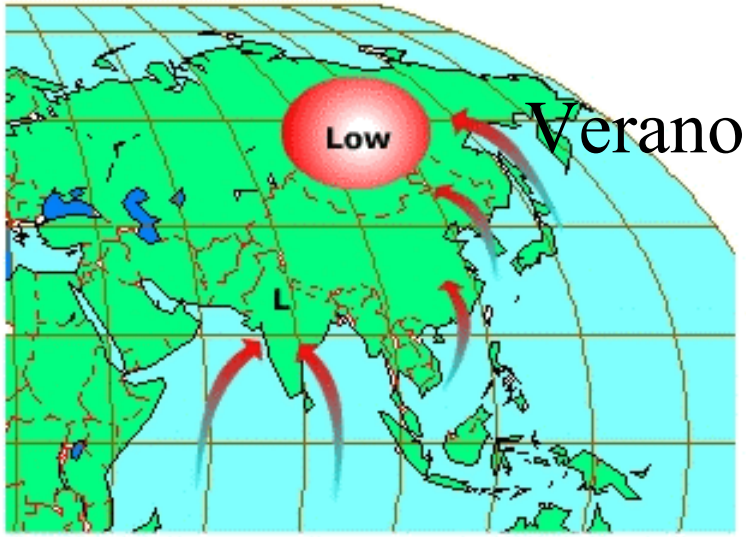

## Frente caliente



# El monsún tropical




Invierno




Verano

# Sistemas tropicales, huracanes, etc.