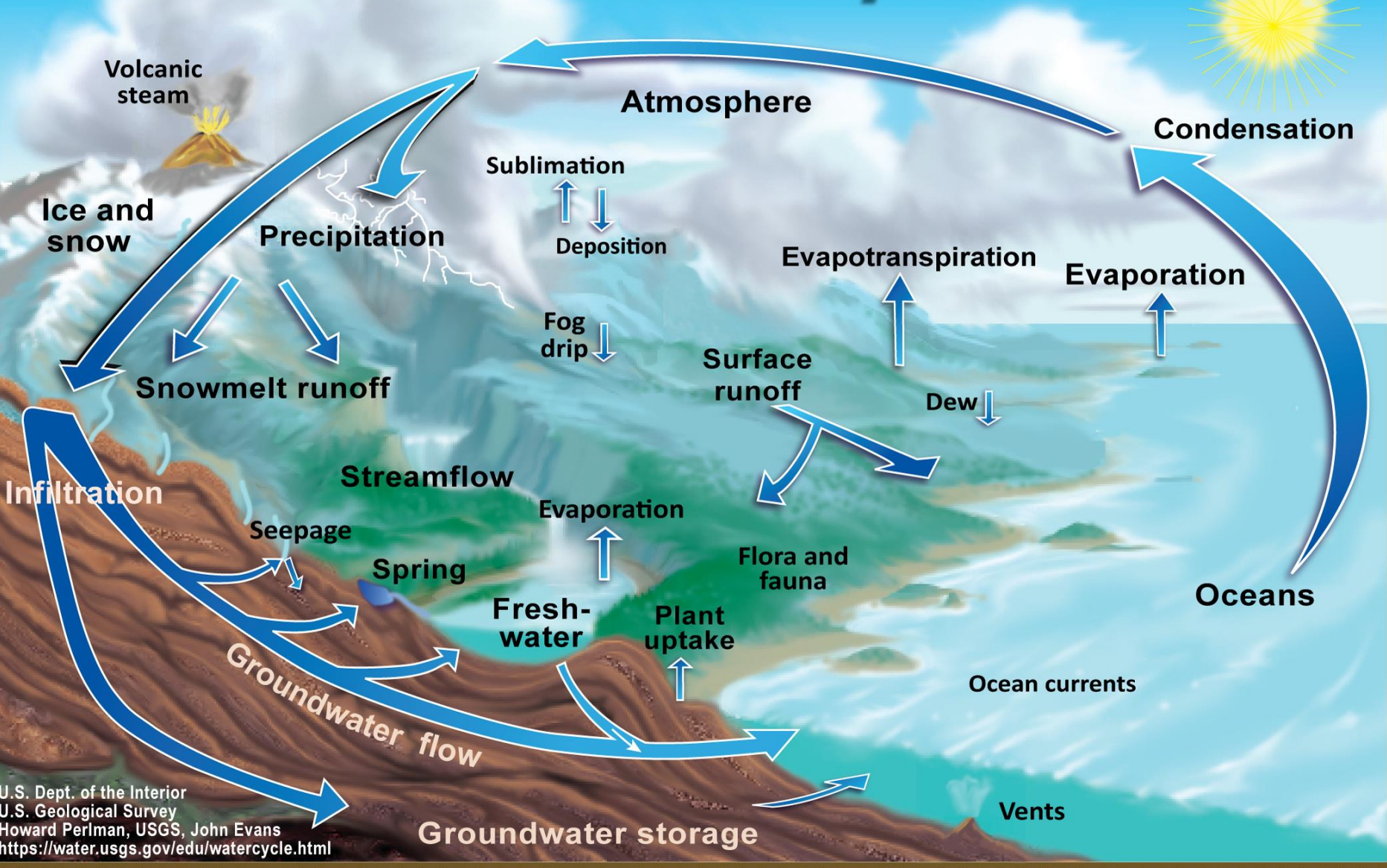
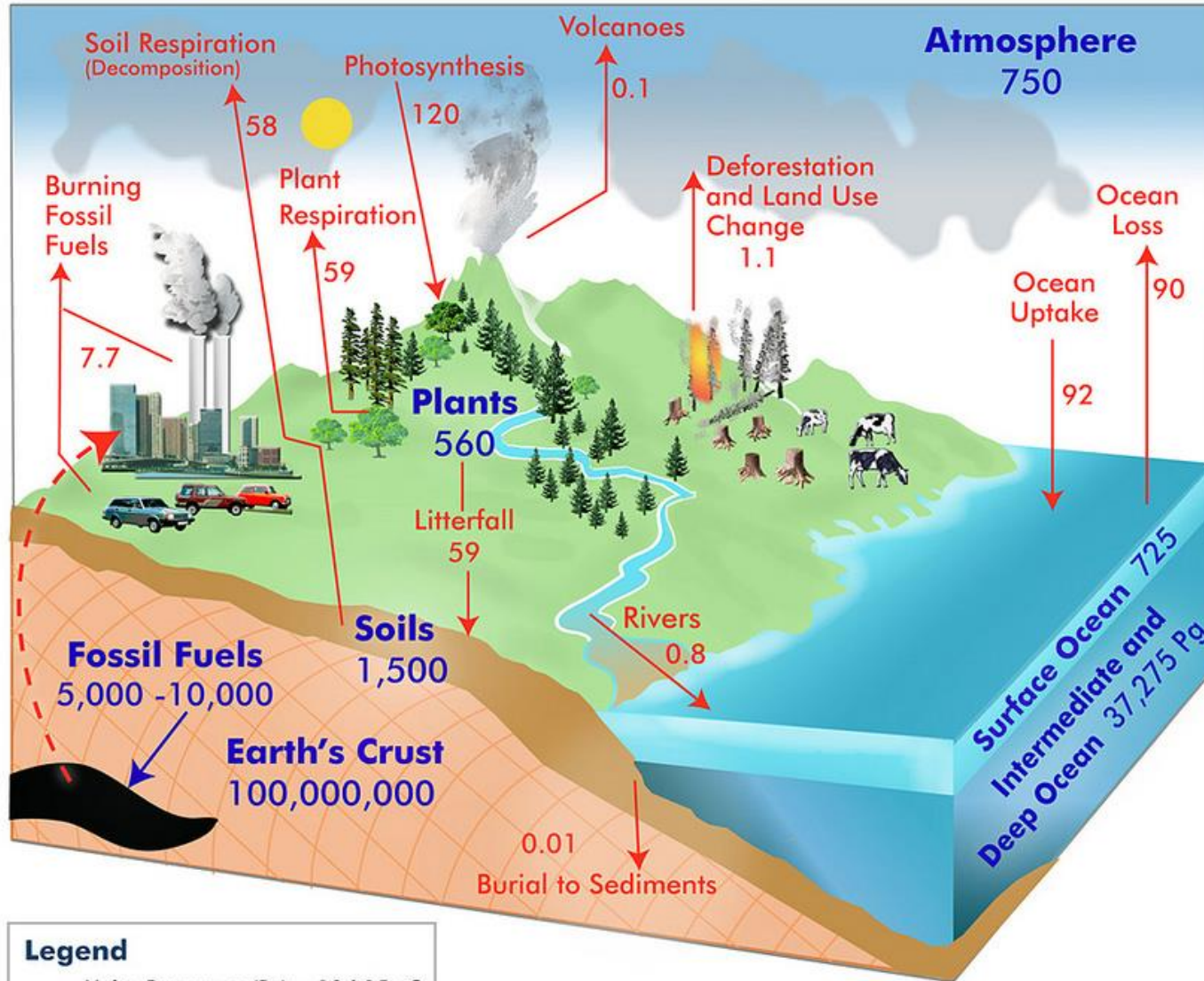


The Water Cycle

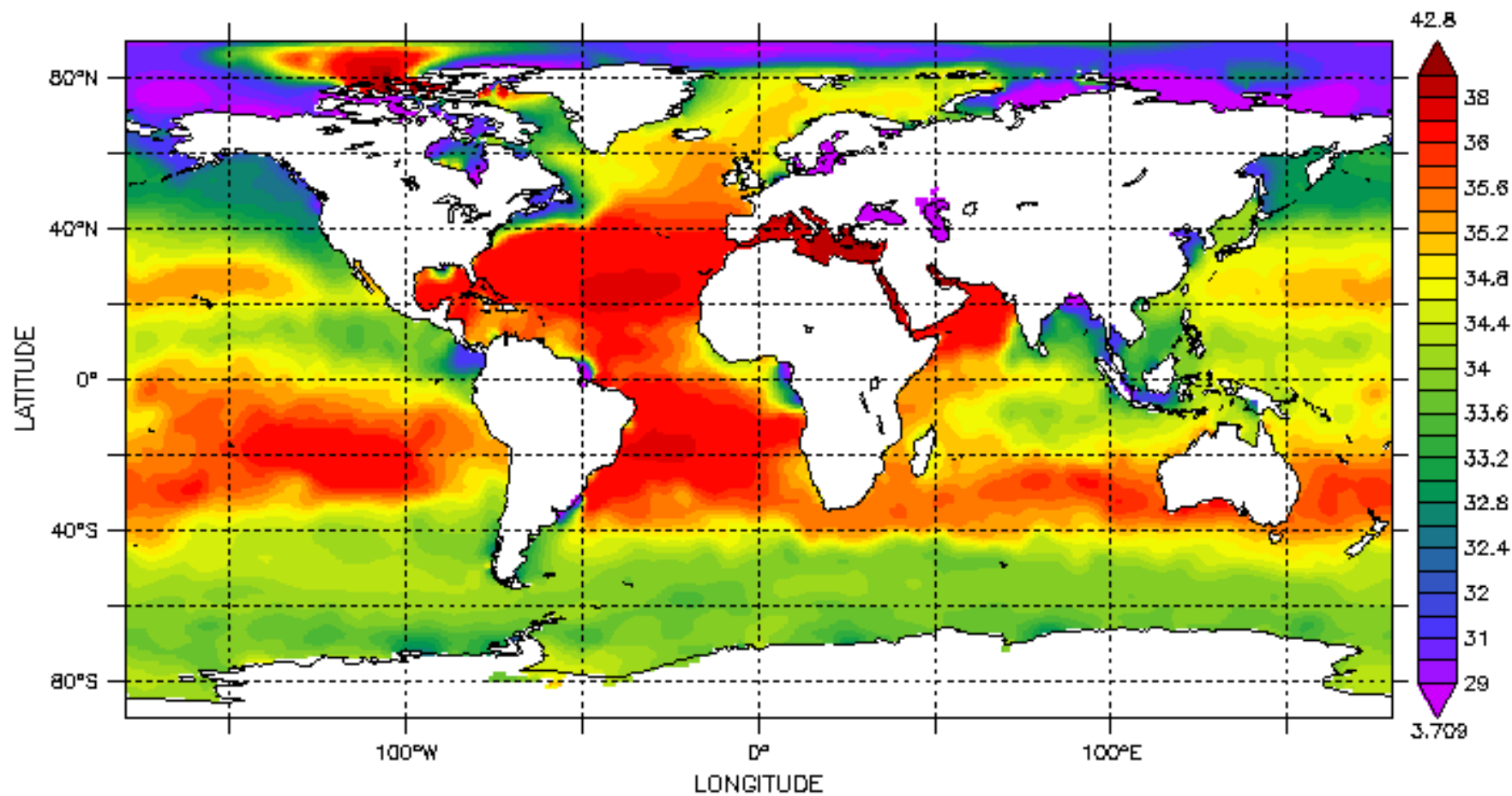


Global Carbon Cycle



DEPTH (m) : 0
TIME : 15-JAN 12:00

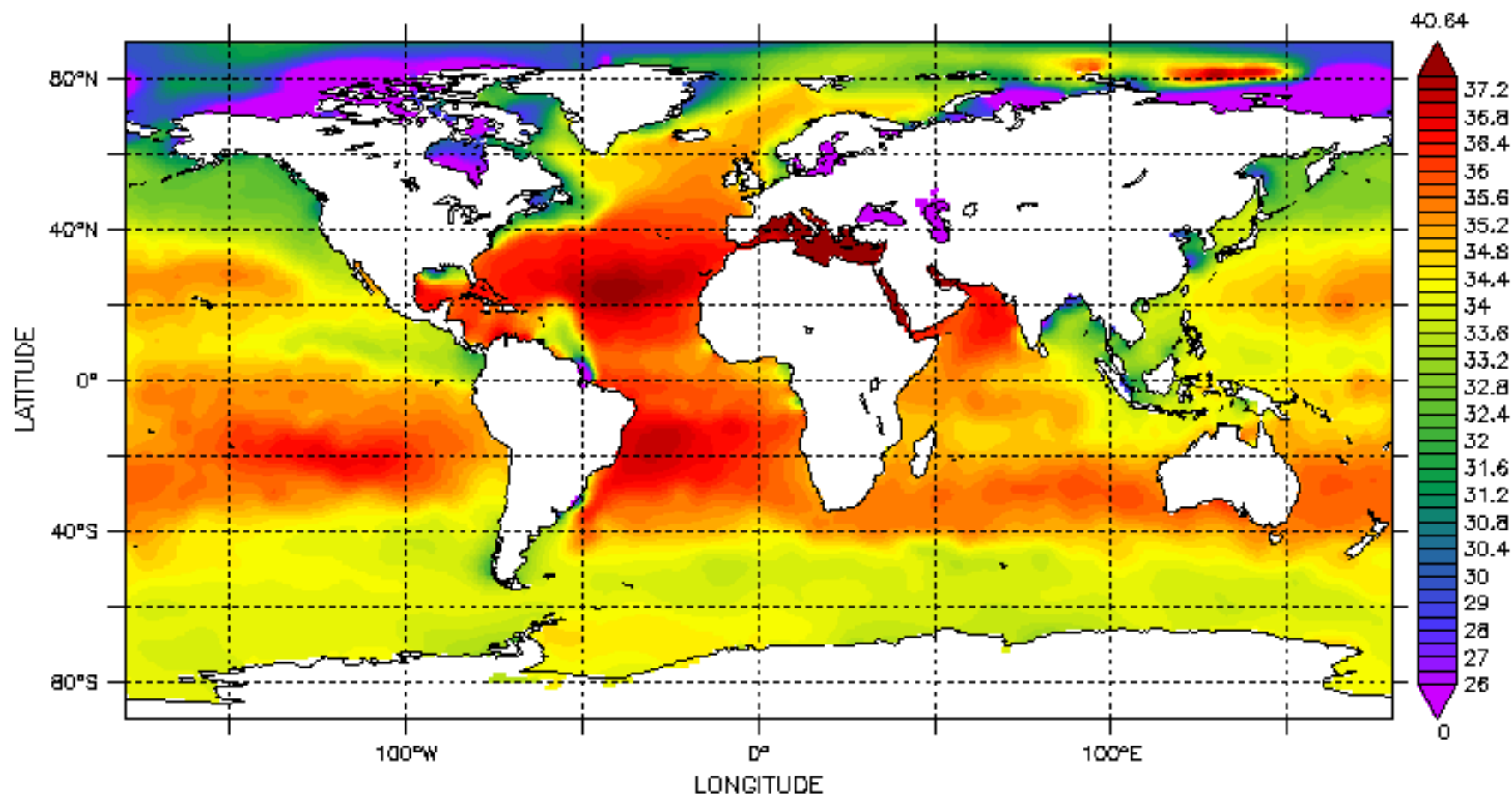
DATA SET: World Ocean Atlas 2001 1x1 degree Monthly means



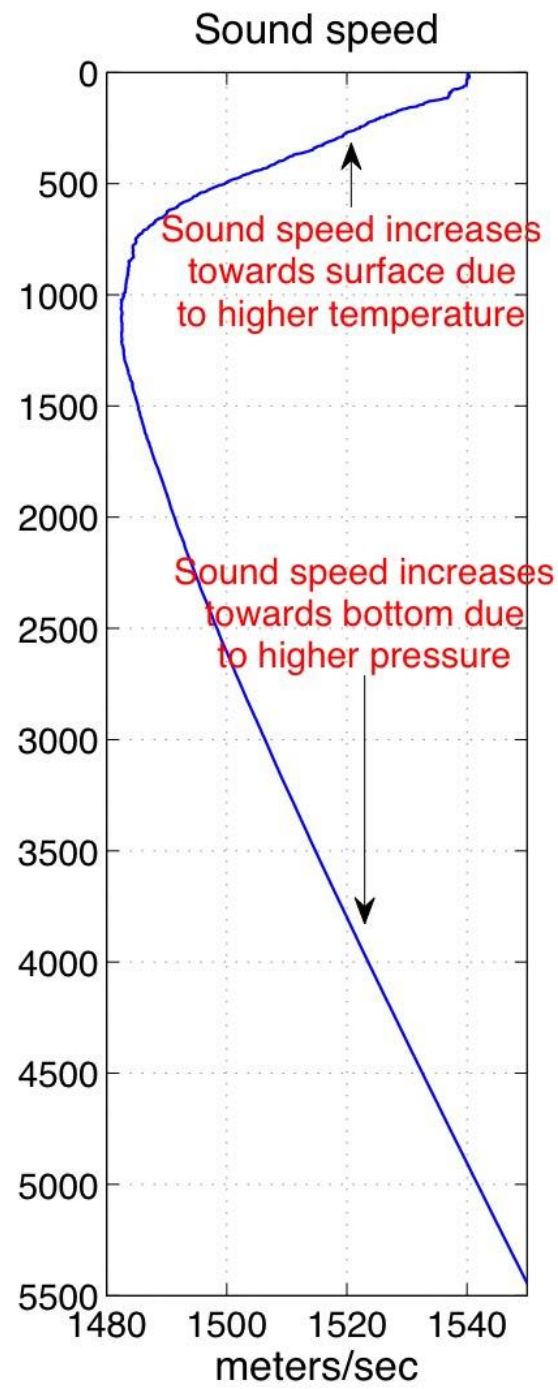
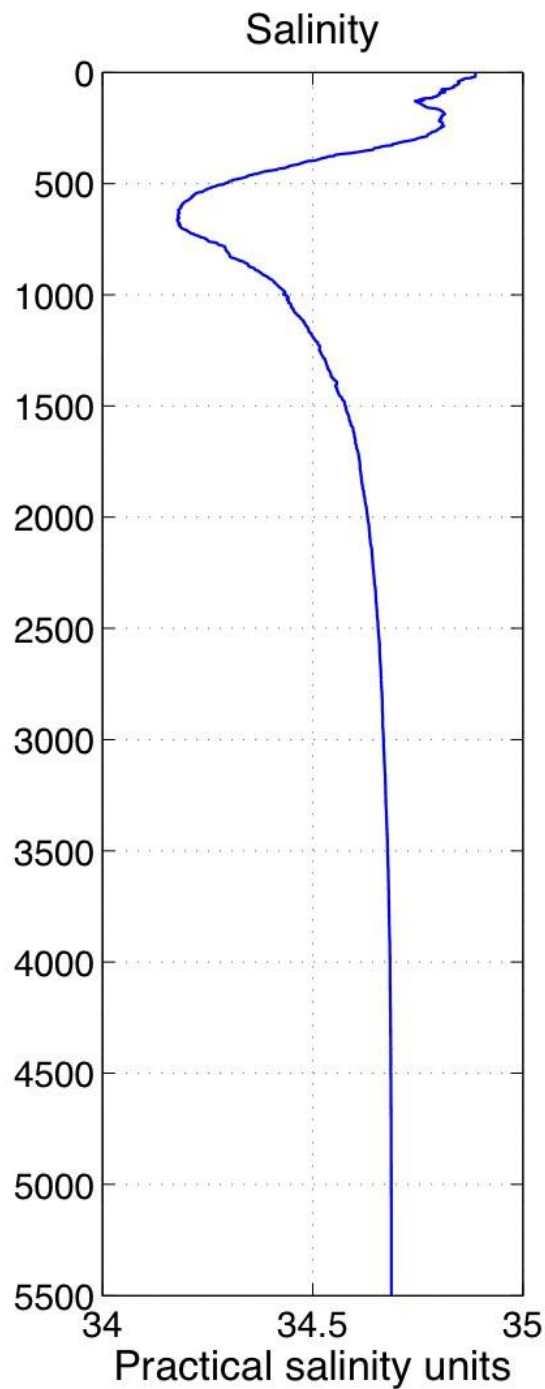
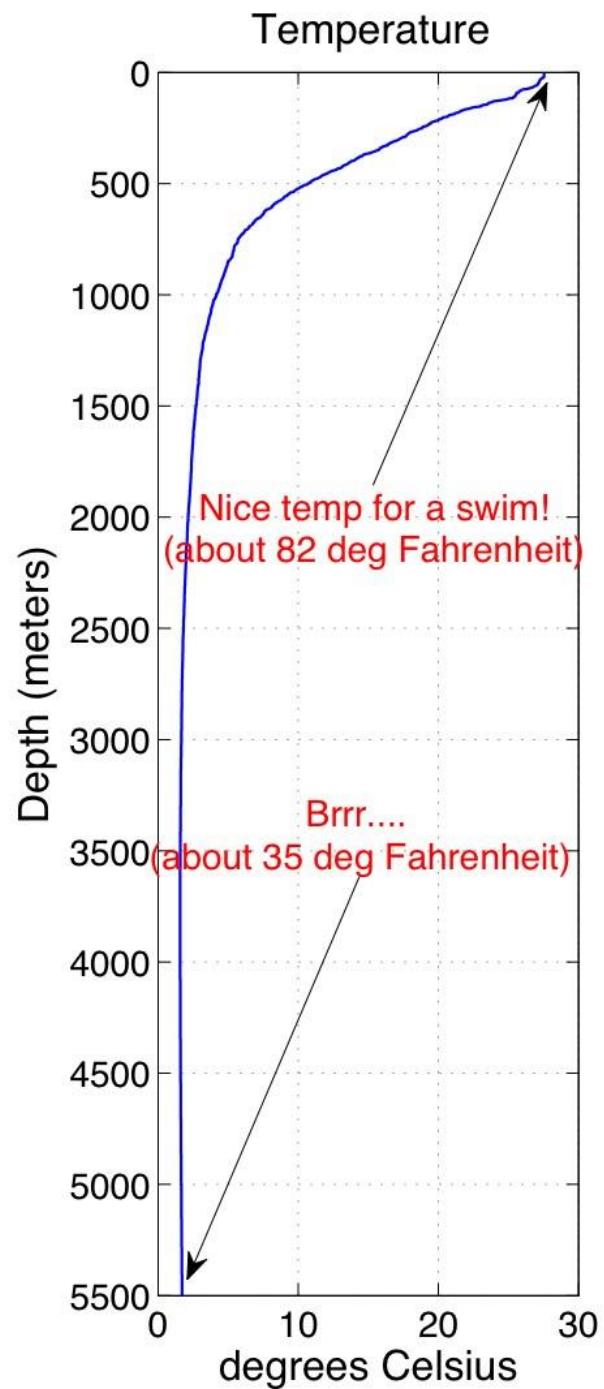
salinity (analyzed) (PPS)

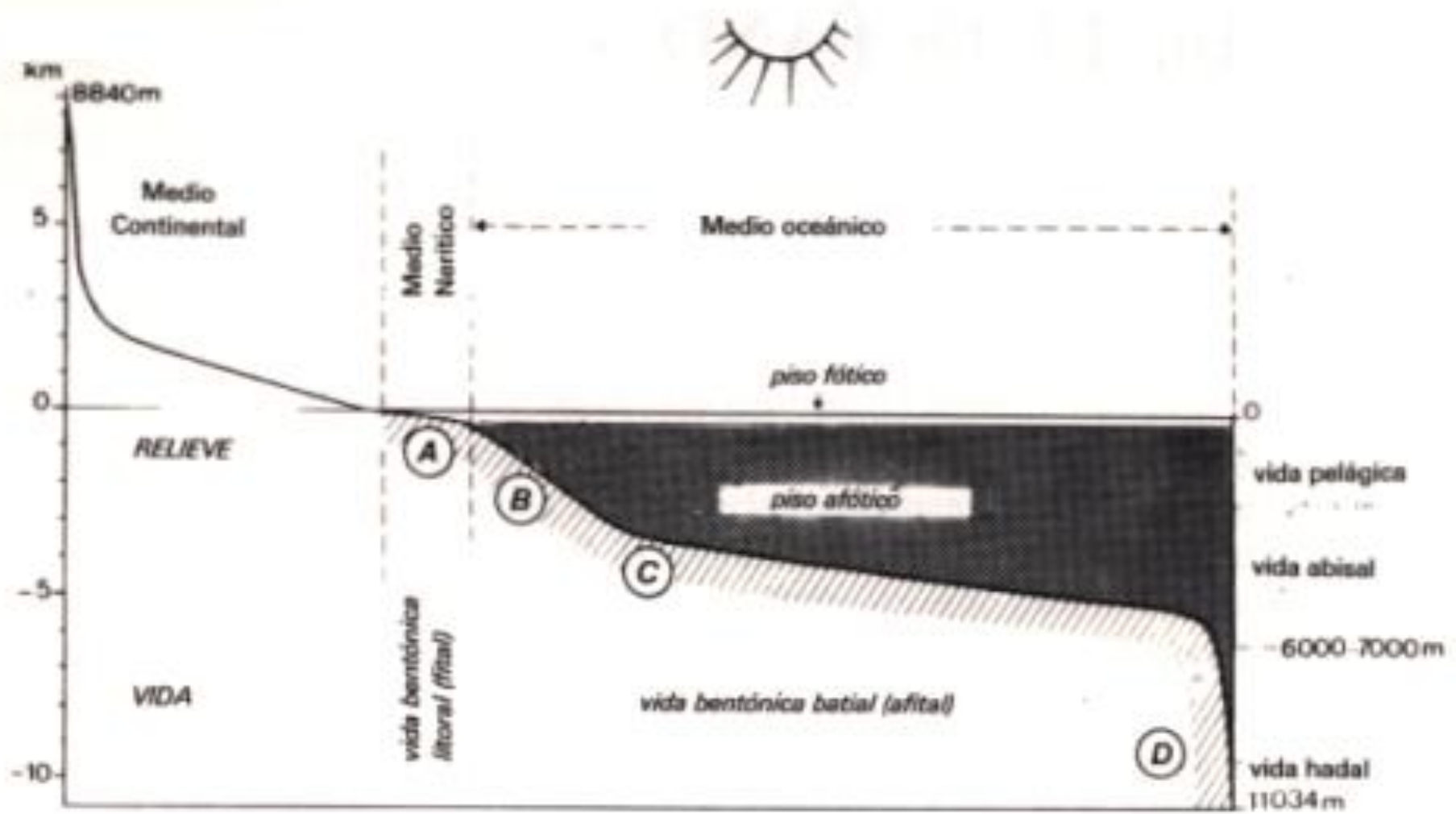
DEPTH (m) : 0
TIME : 14-JUL 12:00

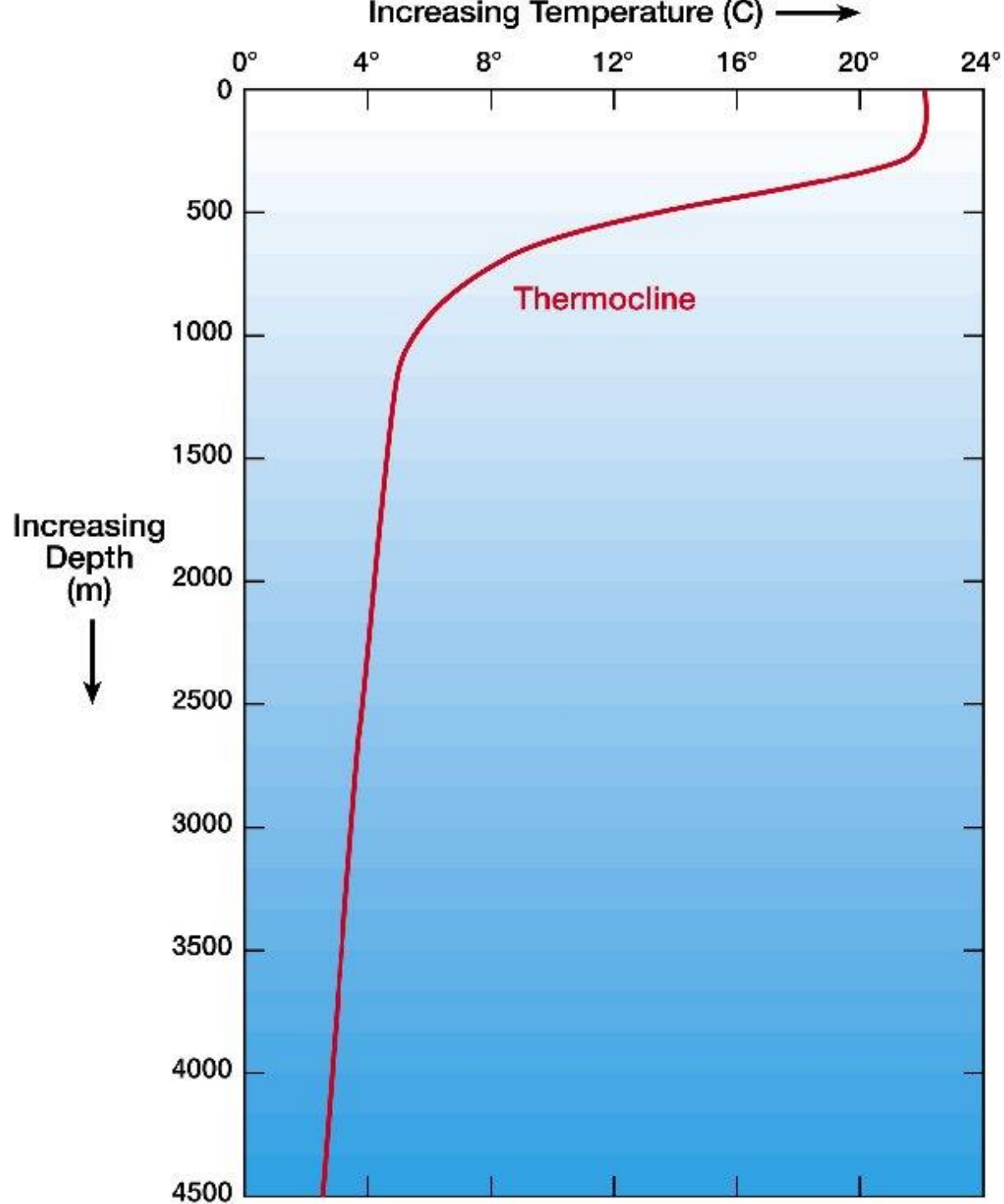
DATA SET: World Ocean Atlas 2001 1x1 degree Monthly means

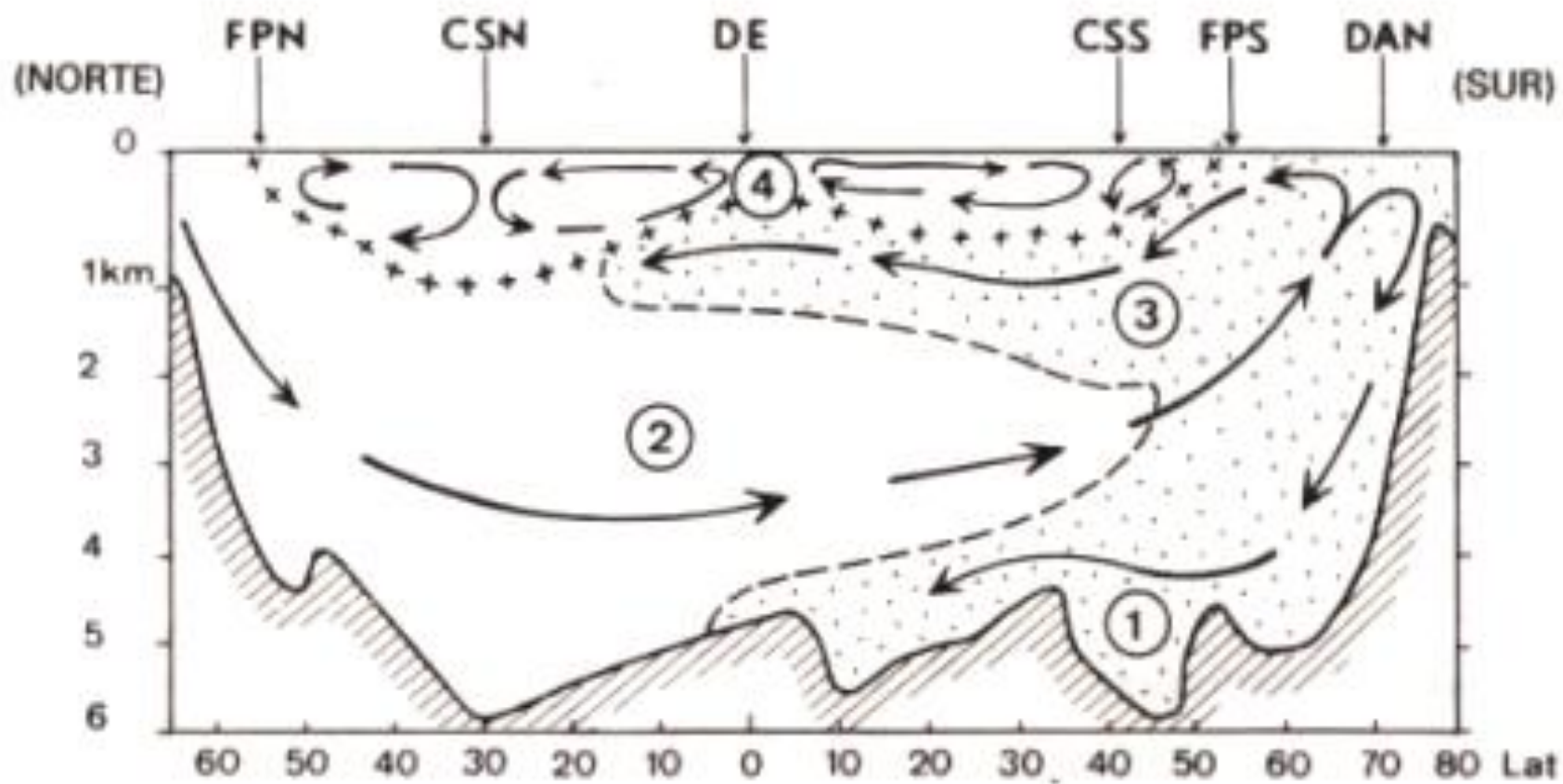


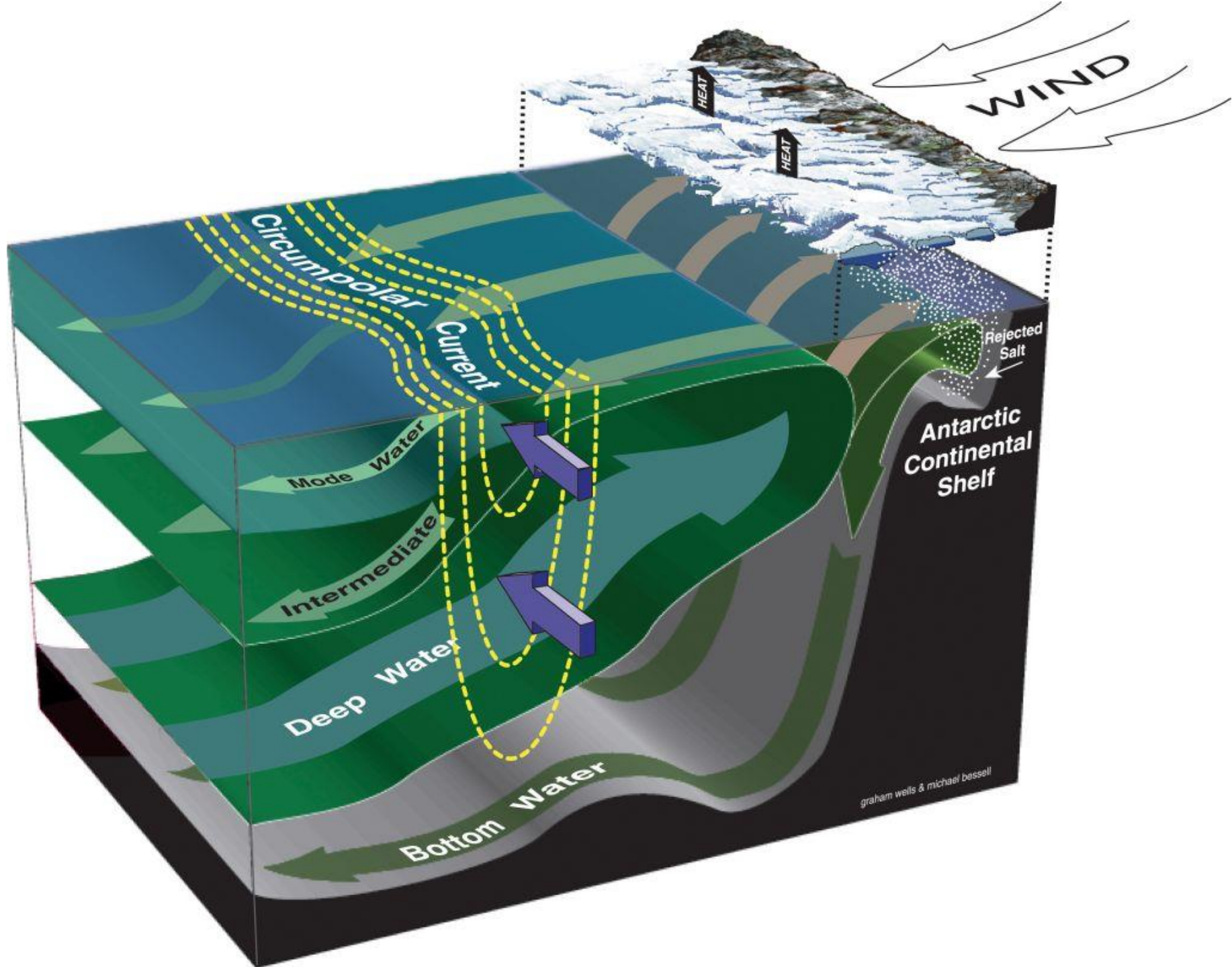
salinity (analyzed) (PPS)



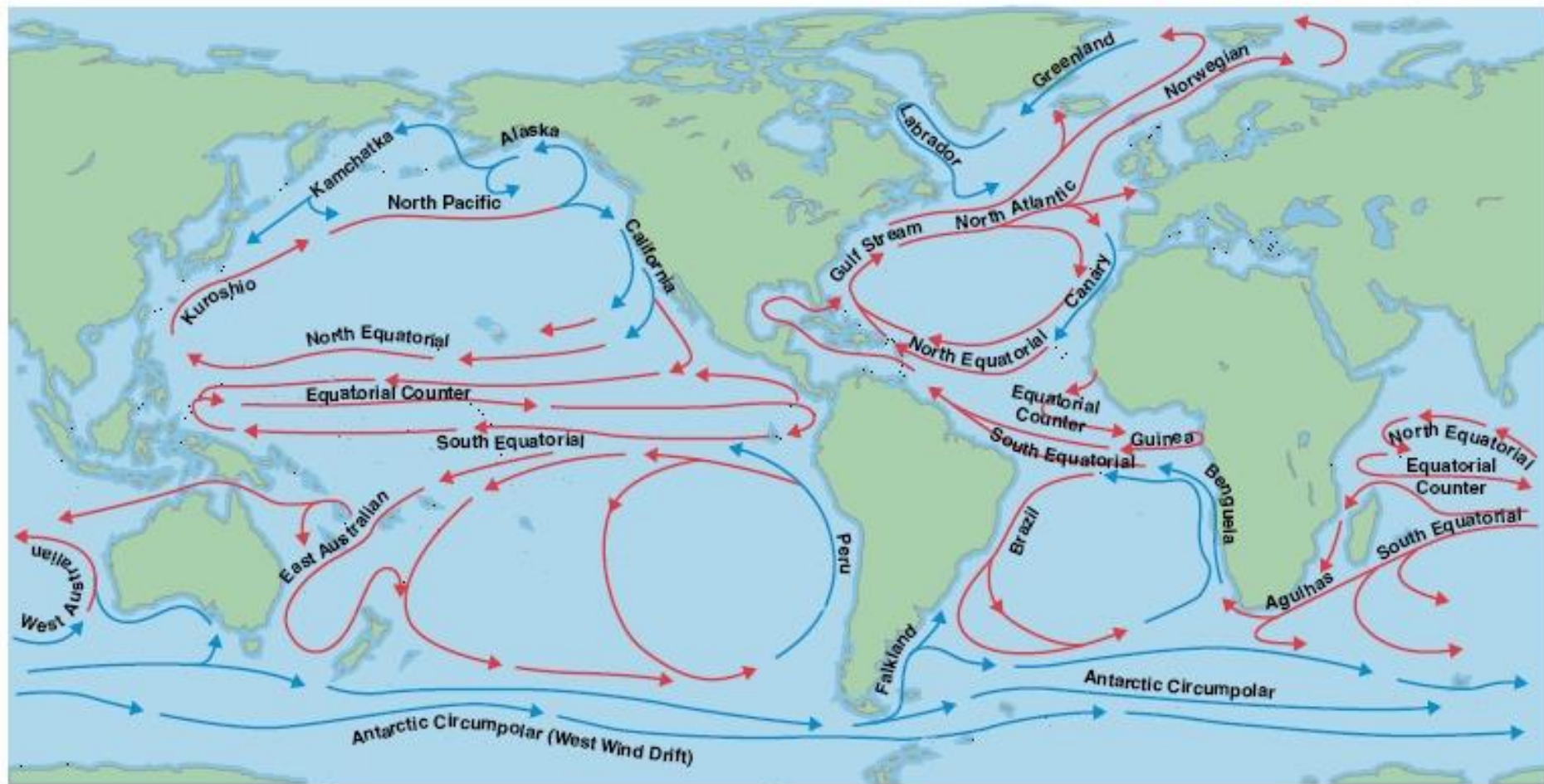




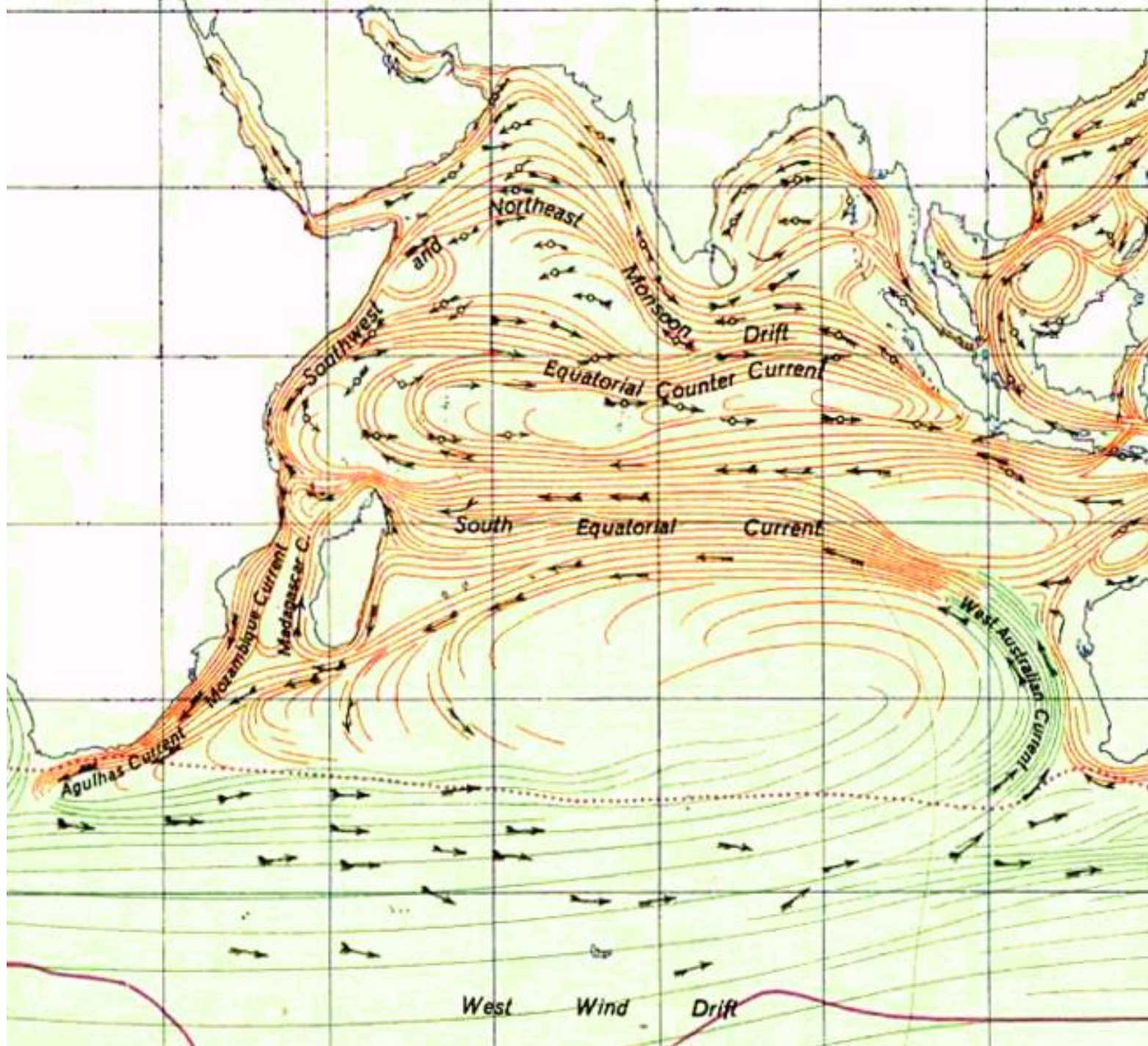




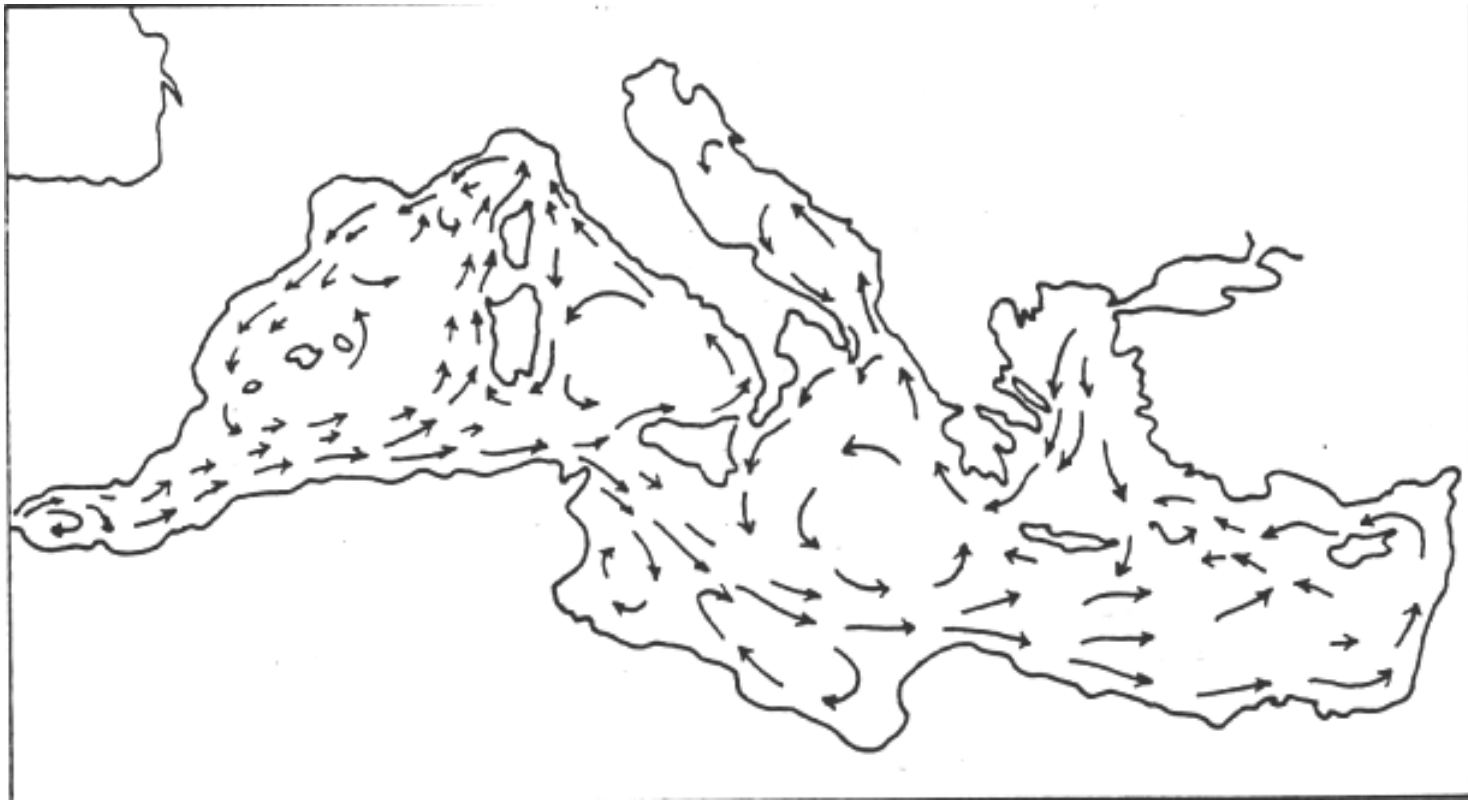
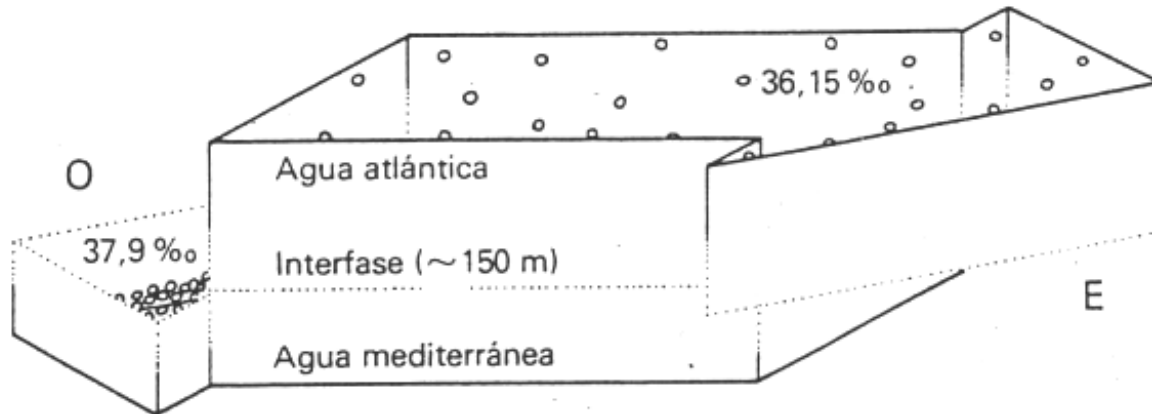
graham wells & michael bessel

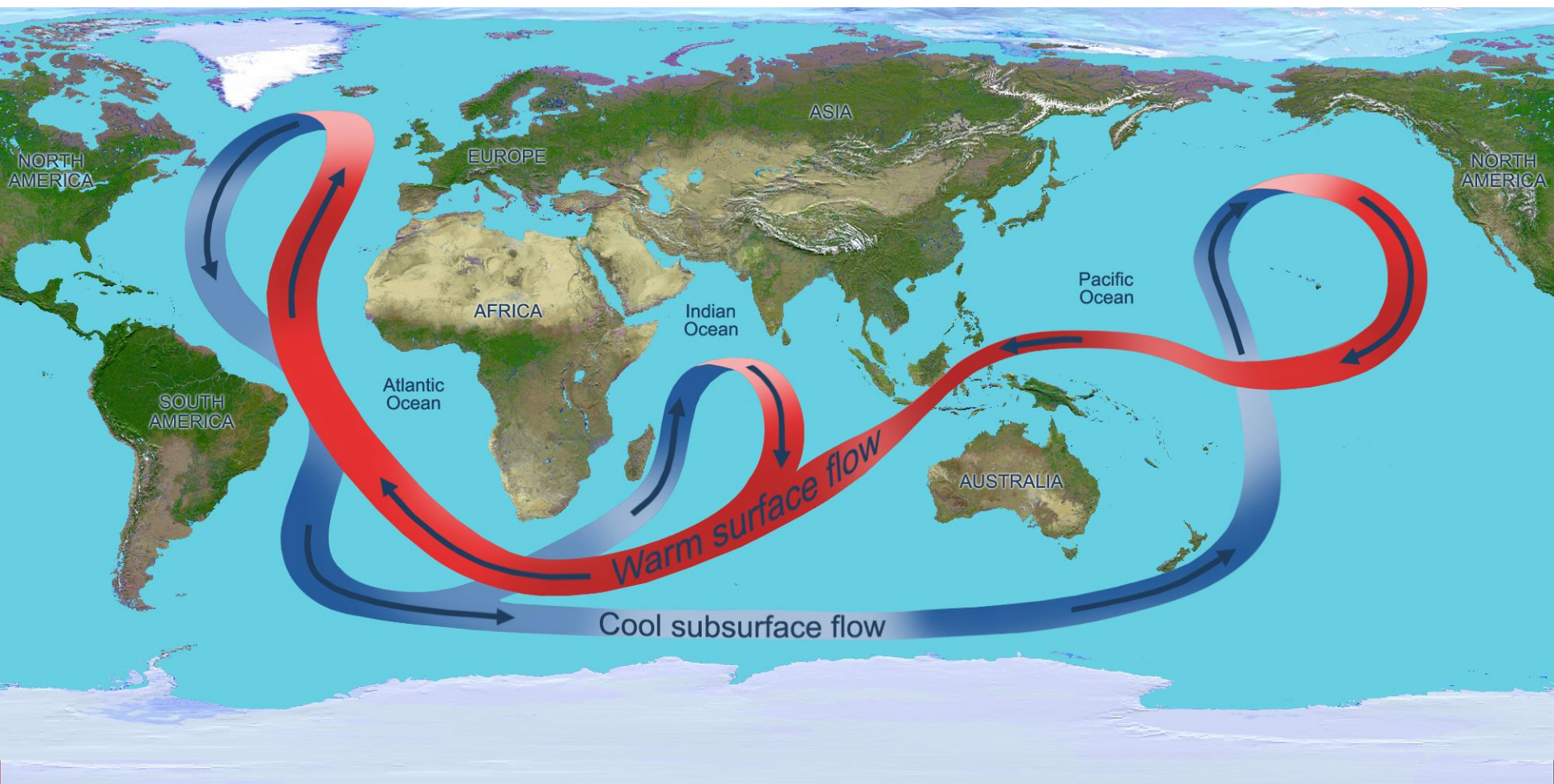


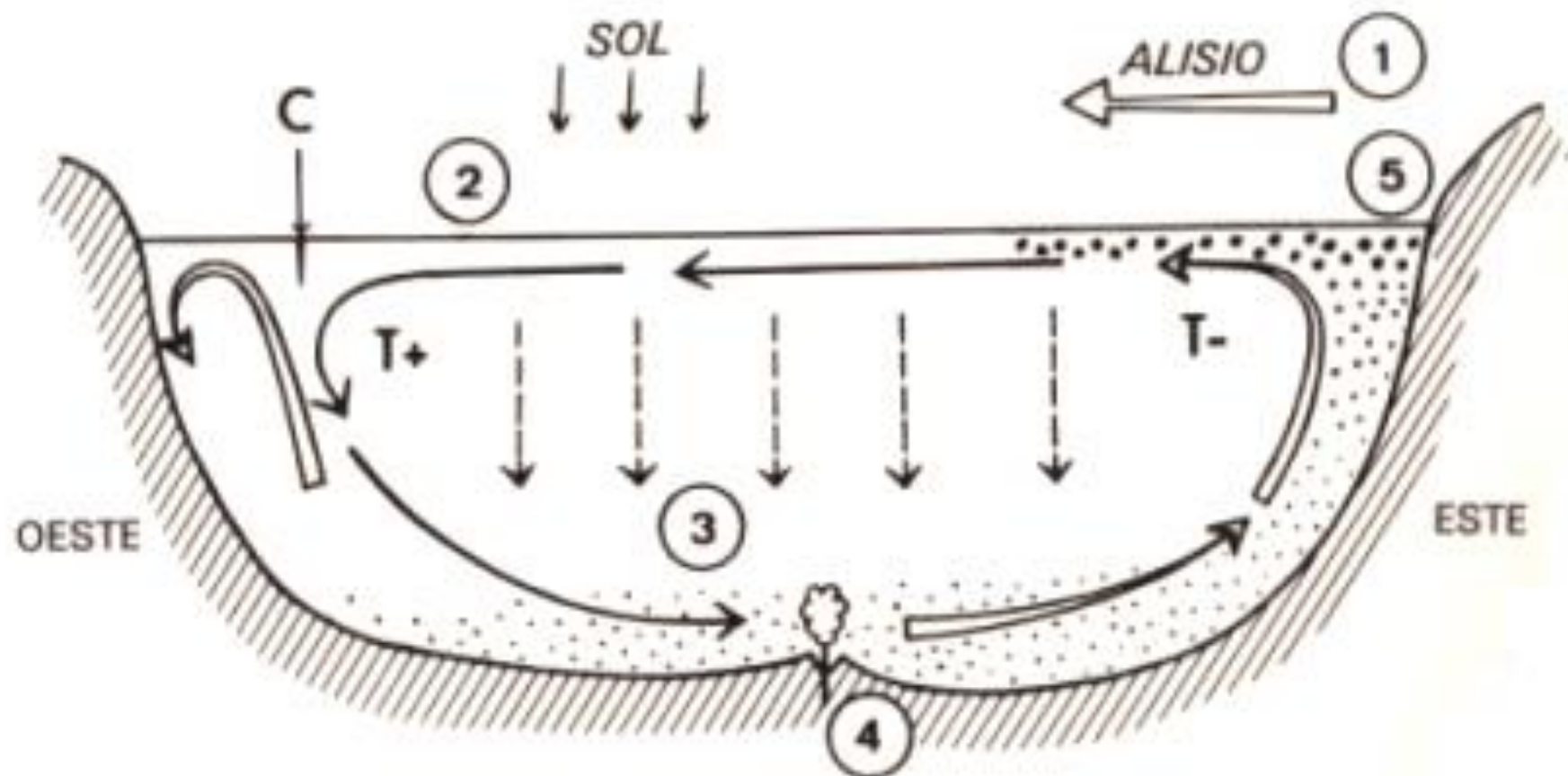
→ Warm-water current
 → Cold-water current



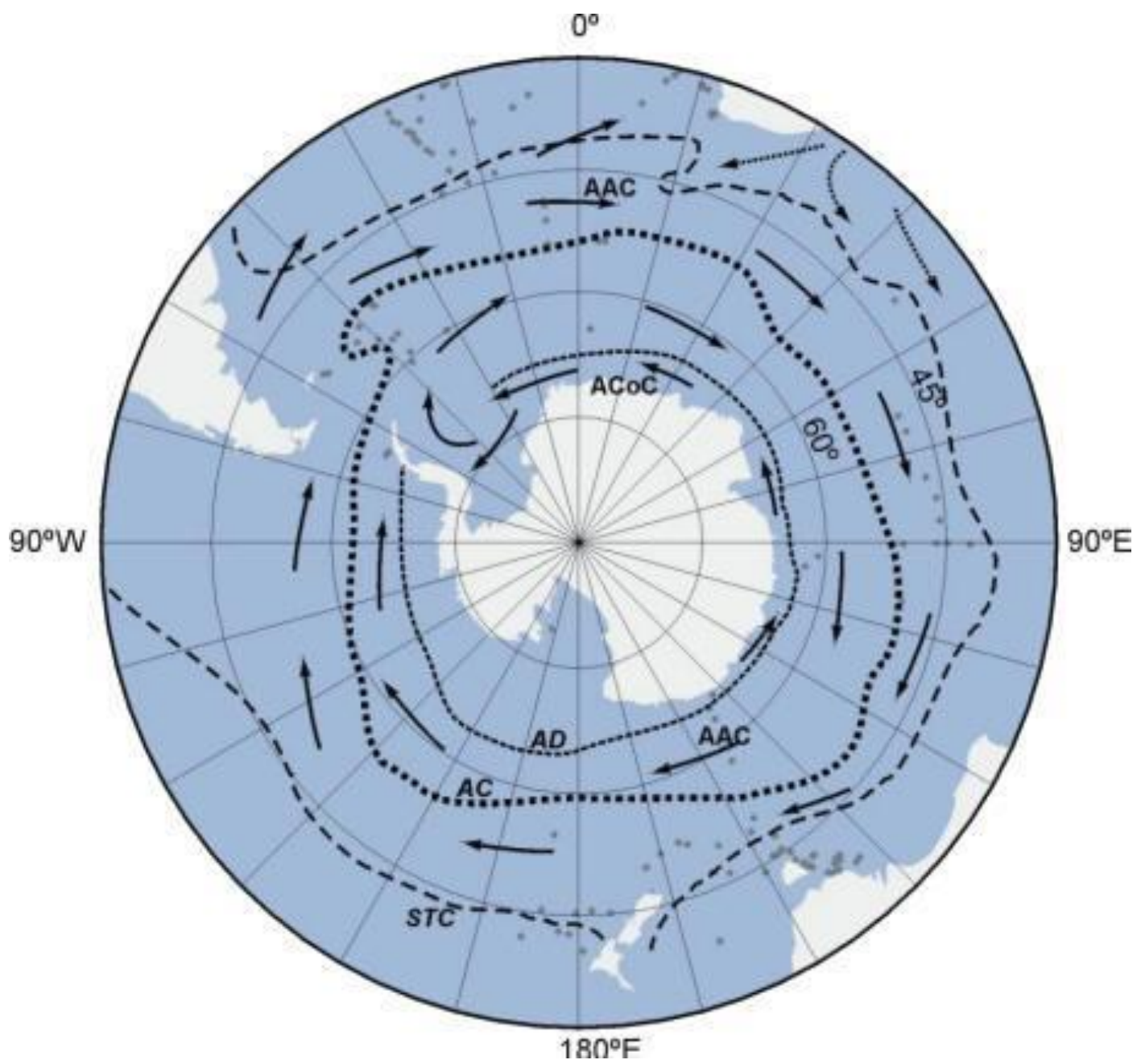
Gibraltar

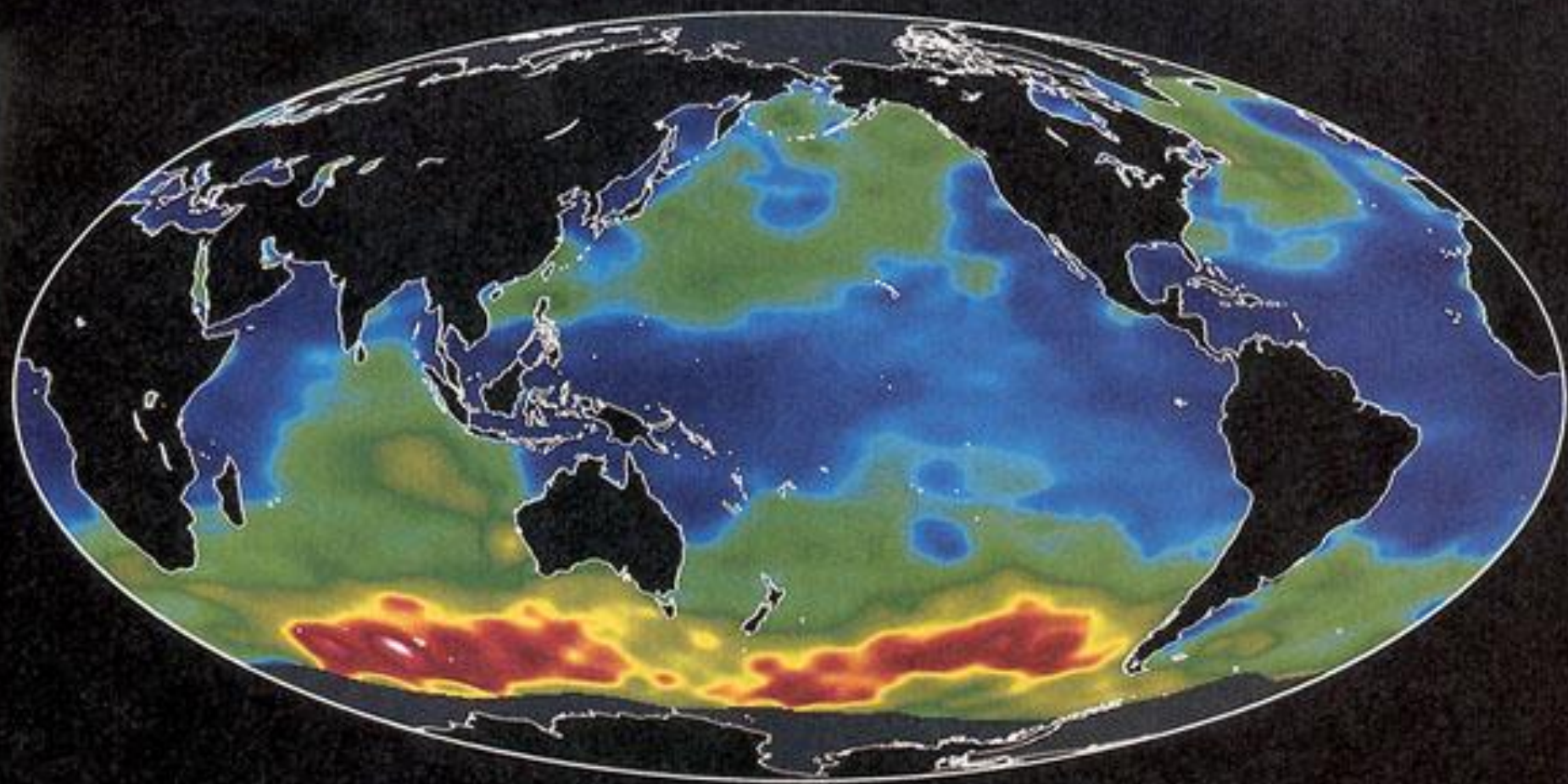






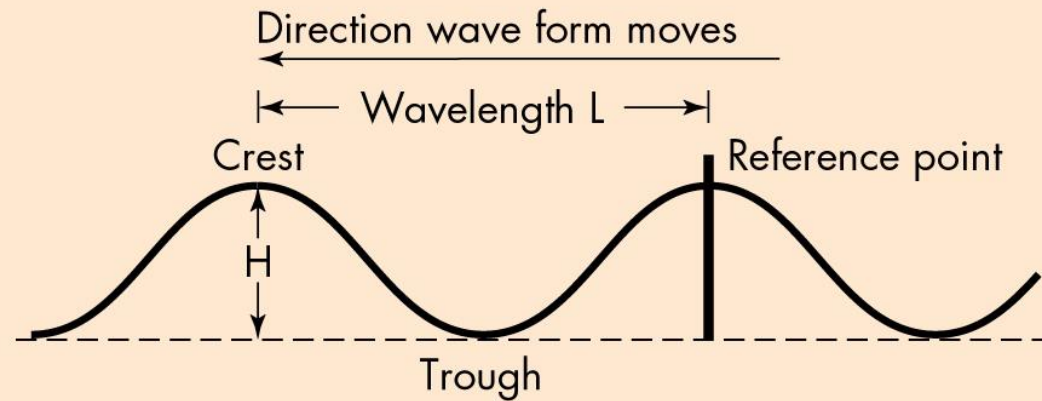






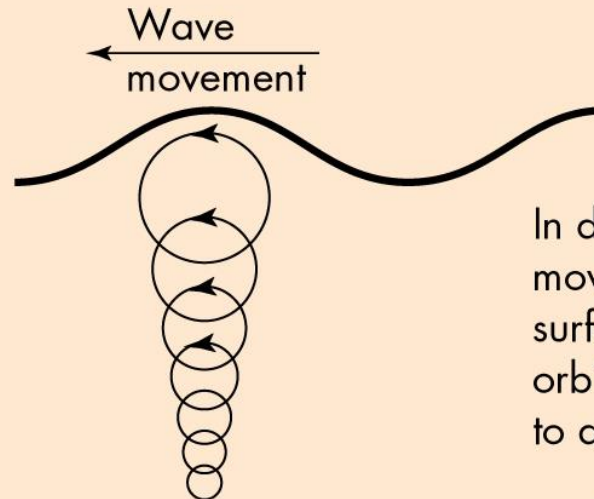
□ No Valid Data

Wave Height, meters



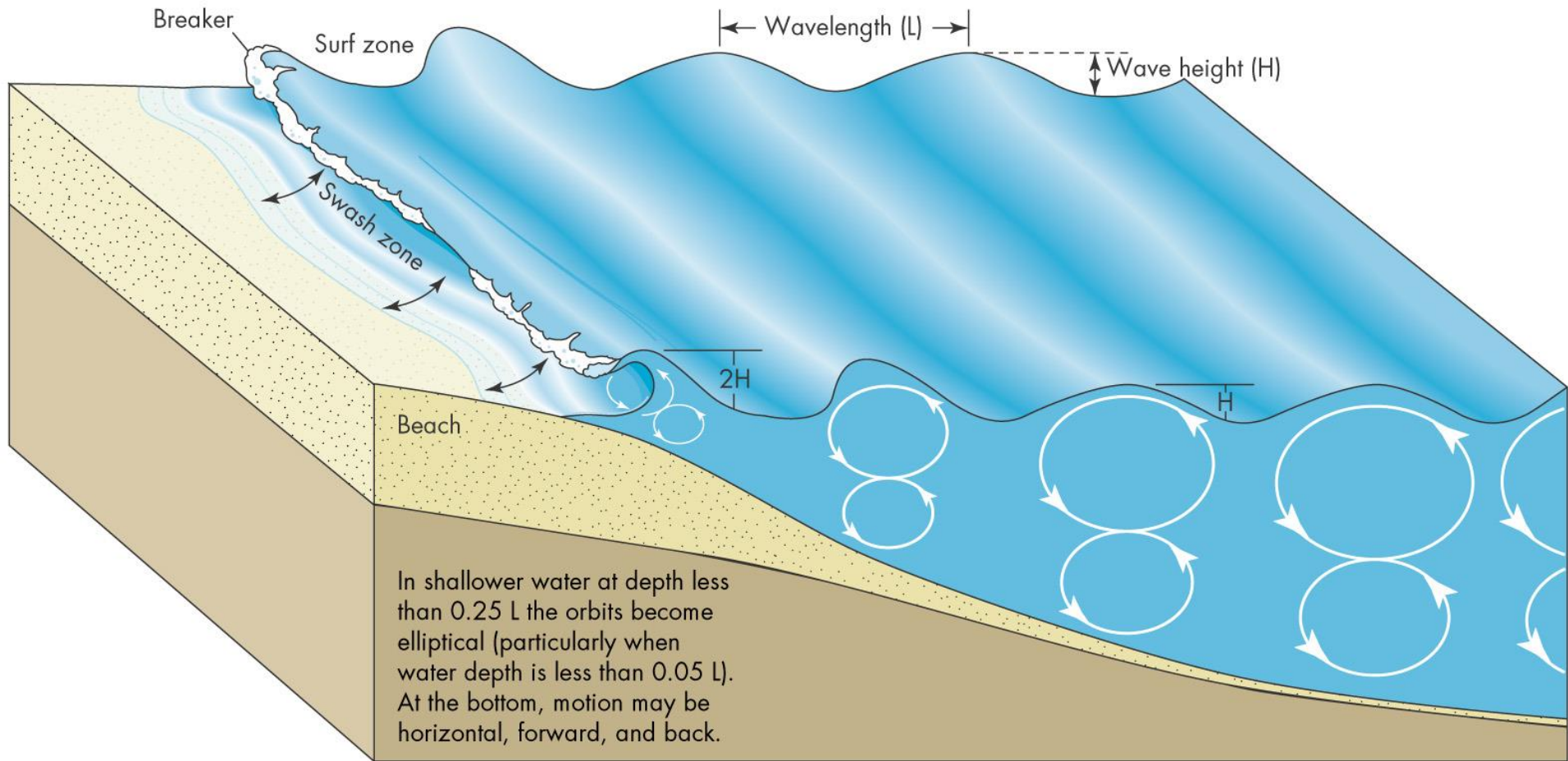
- H = Wave height
- Wave period (T) is time in seconds for successive crests to pass a reference point (typical periods are 5 to 10 sec.) producing corresponding wavelengths of 39 m to 156 m.
- Wave velocity $V = \frac{L}{T}$

(a)



In deep water, while wave form moves, water particles below the surface move in stationary circular orbits that get smaller and smaller to a depth of about 0.5 L.

(b)



(c)

Copyright © 2005 Pearson Prentice Hall, Inc.

Earthquakes CAN GENERATE TSUNAMIS



Before Earthquake.



Earthquake occurs.

Faulting pushes ocean up.



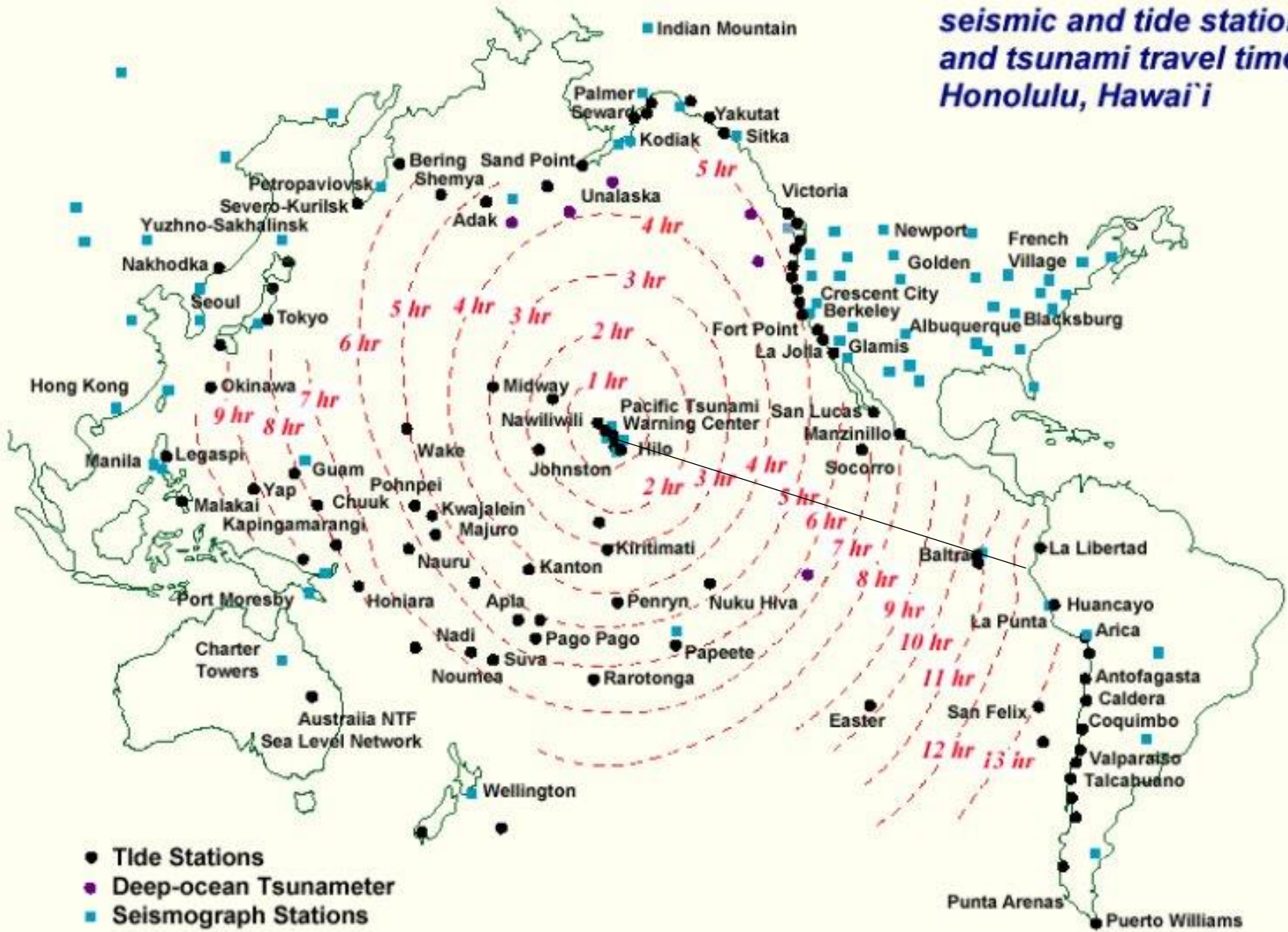
Tsunami generated.

Waves move outward.



Tsunami wave height grows towards shore.

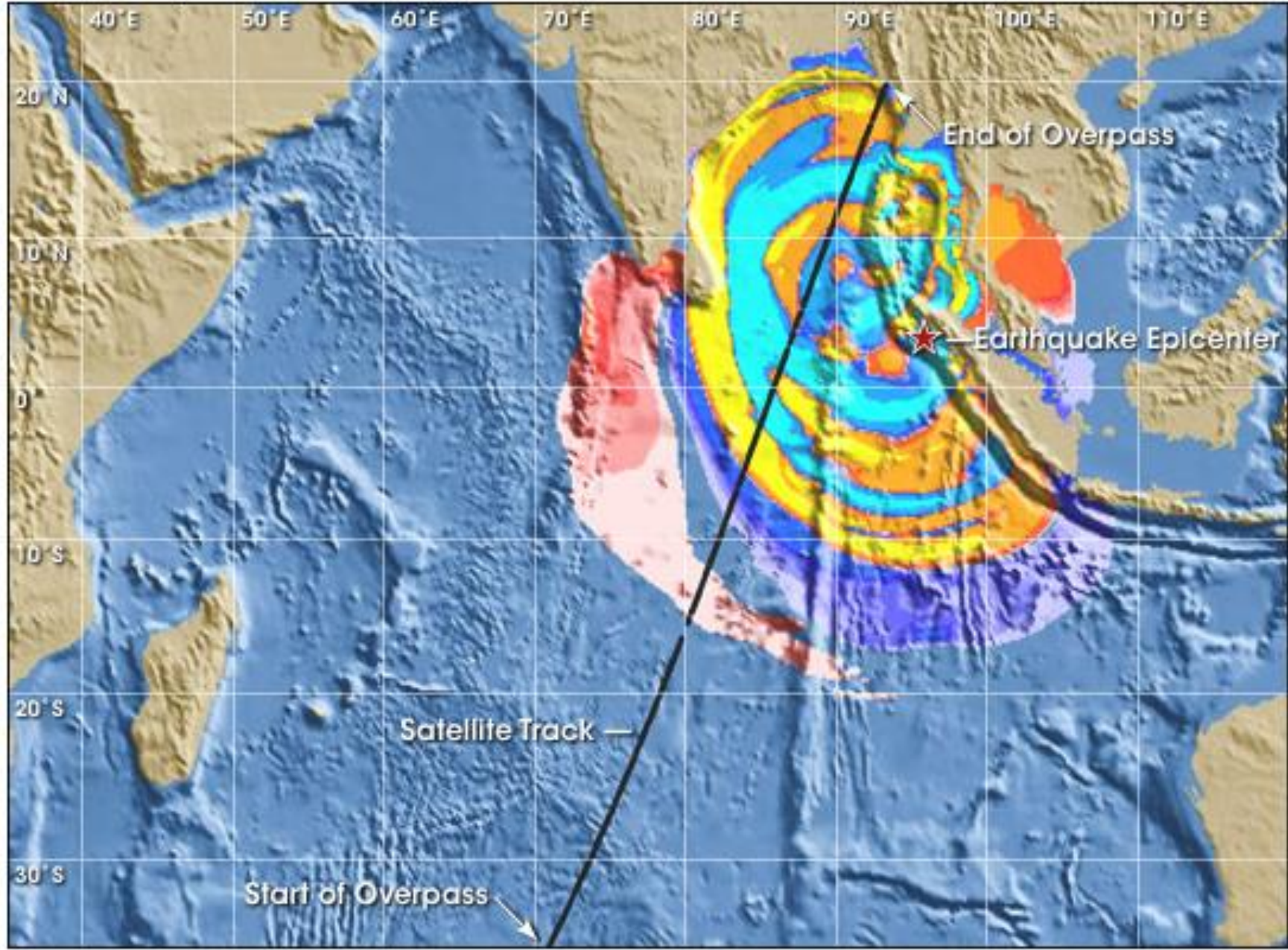
Tsunami Warning System in the Pacific



*seismic and tide stations,
and tsunami travel times to
Honolulu, Hawai'i*

- Tide Stations
- Deep-ocean Tsunameter
- Seismograph Stations





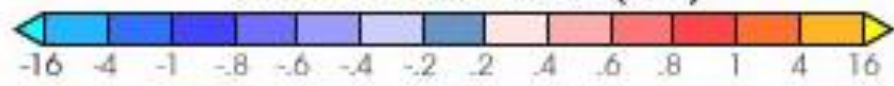
Start of Overpass

Satellite Track

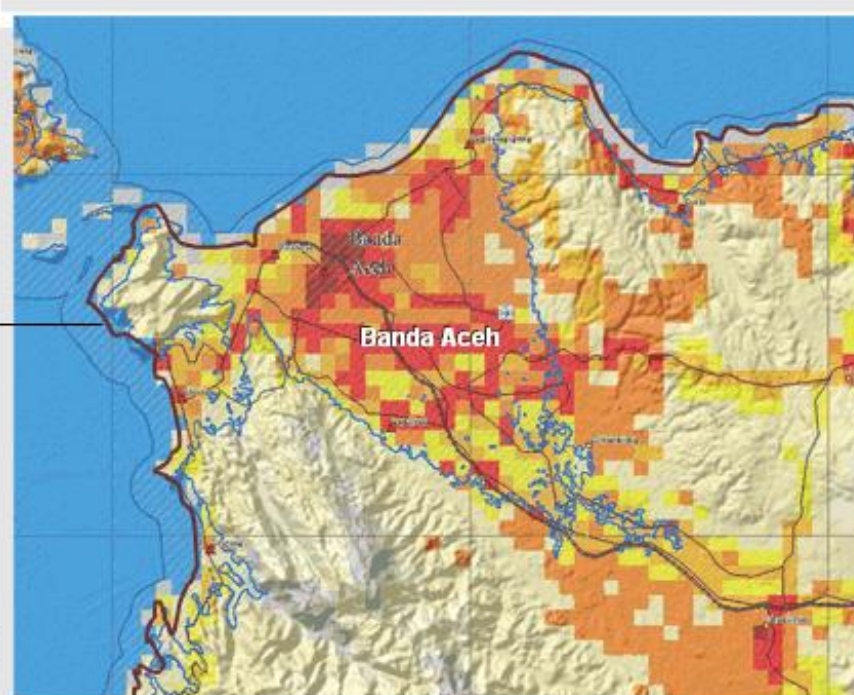
End of Overpass

Earthquake Epicenter

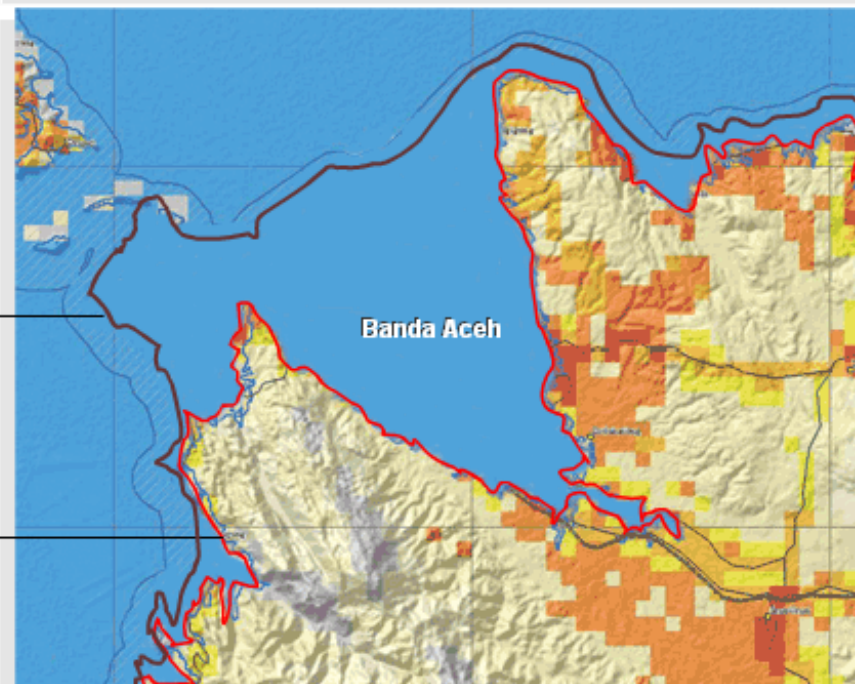
Modeled Sea Level (cm)



Línea de costa
antes del tsunami



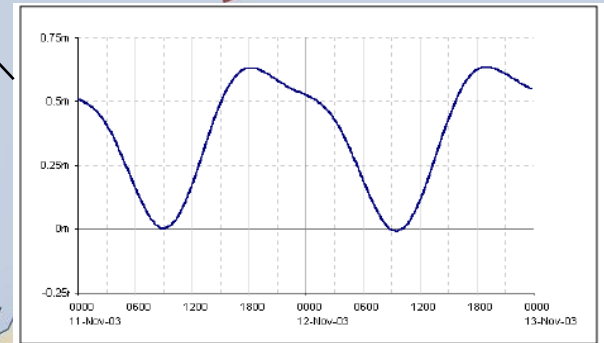
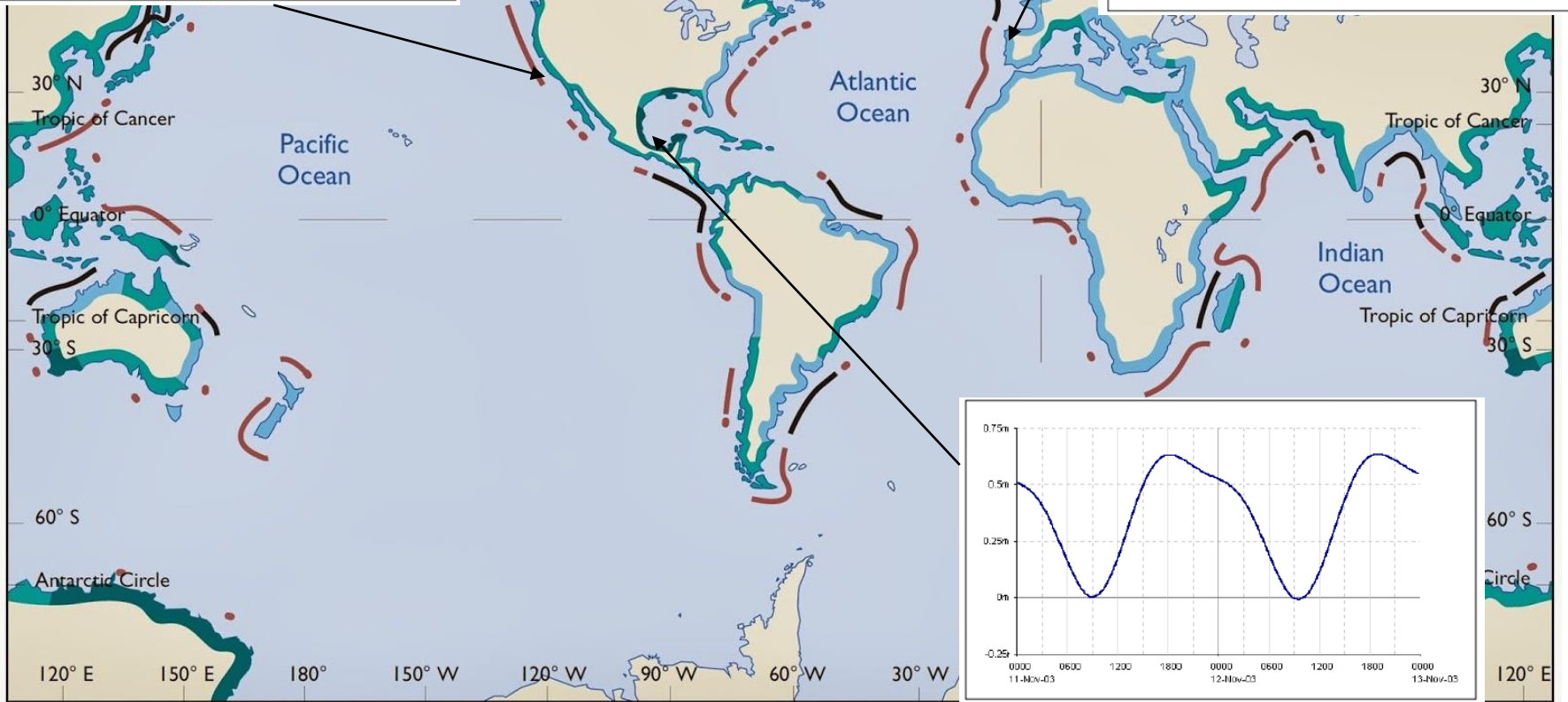
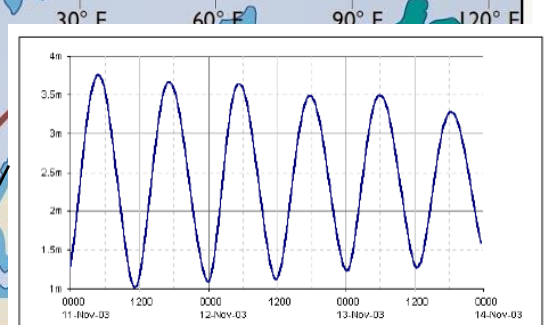
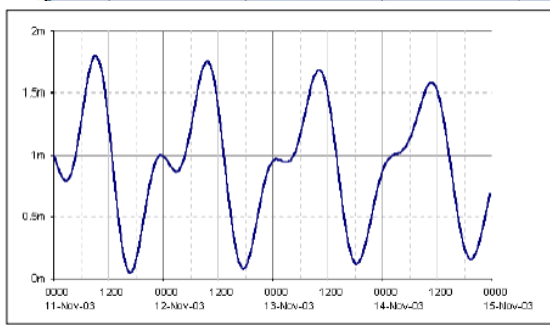
Línea de costa
antes del tsunami



Línea de costa
después del tsunami



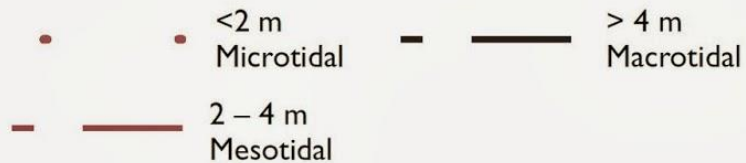




Tidal Form

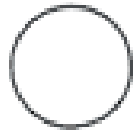


Tidal Range



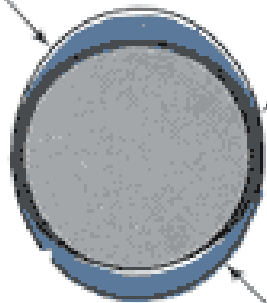
POSICIONES DE CUADRATURA

Primer cuarto



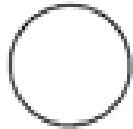
Superficie del agua

Marea solar



MAREA MUERTA

Marea lunar



Tercer cuarto

OPOSICIÓN O CONJUNCIÓN

(Luna llena)

(Luna nueva)

Luna llena



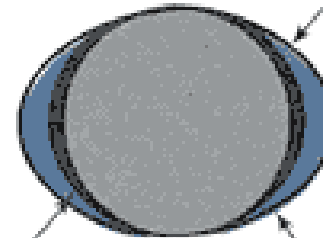
Marea solar

Superficie del agua

Luna nueva



Marea lunar



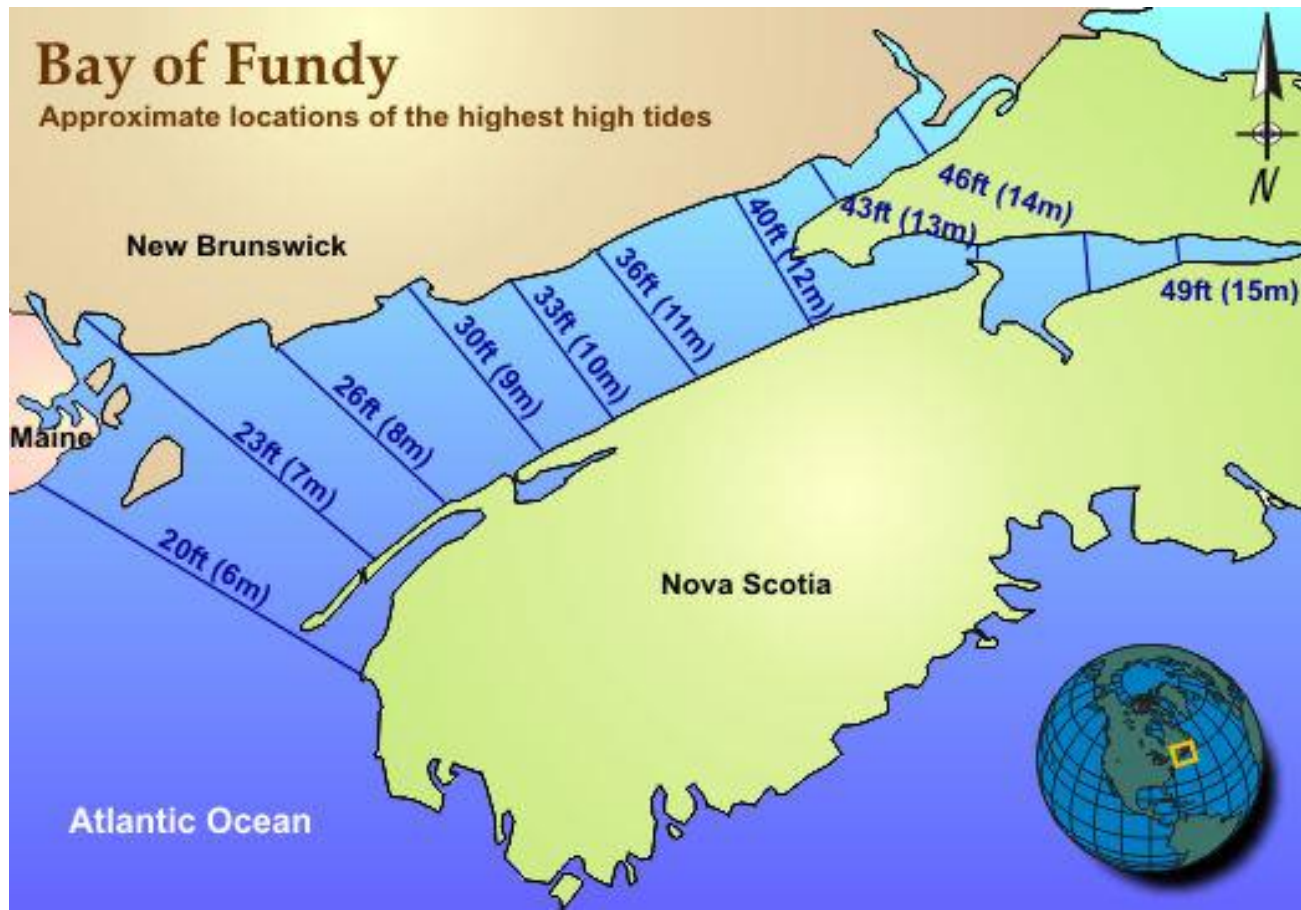
MAREA VIVA

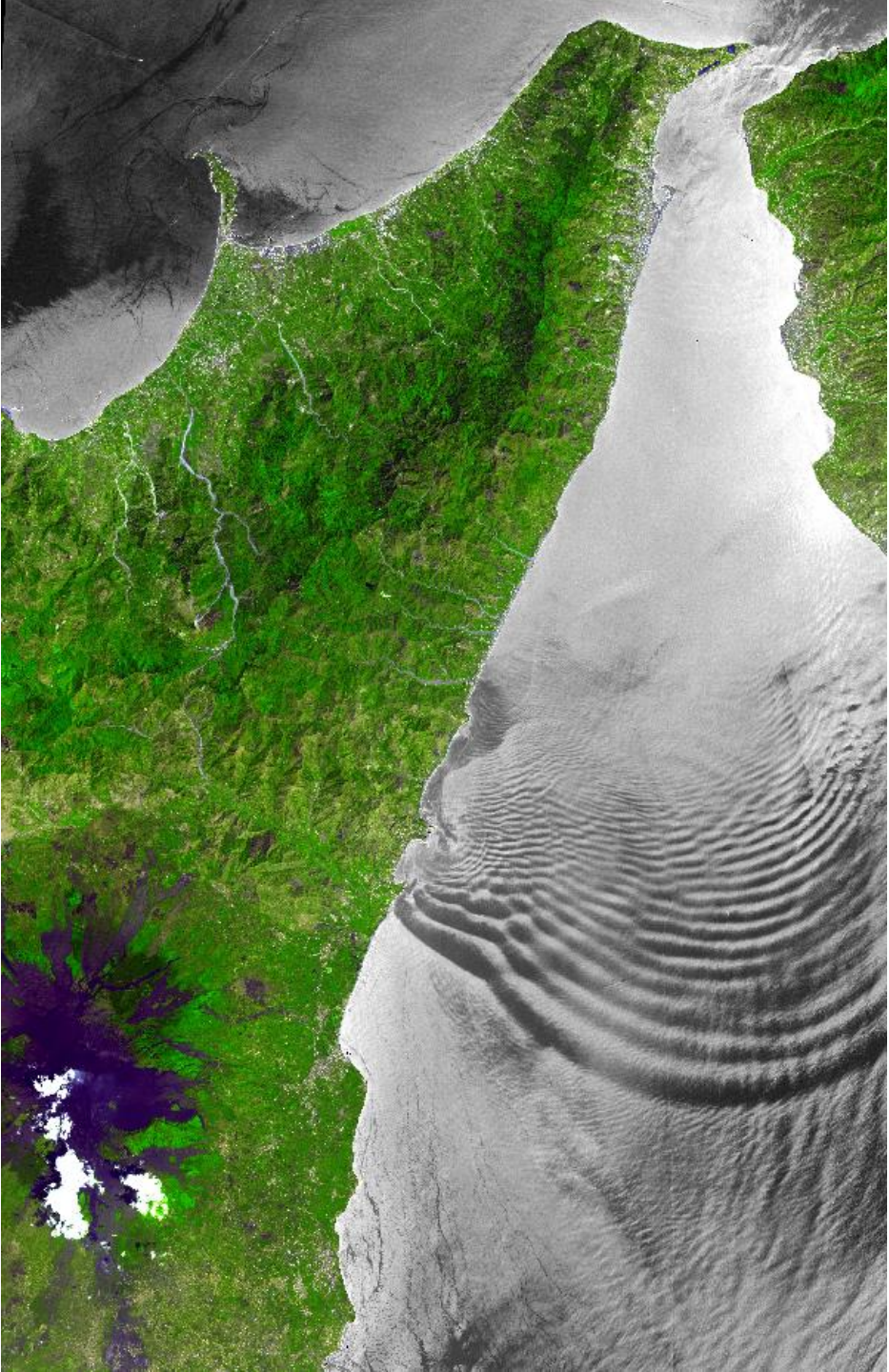
Sol









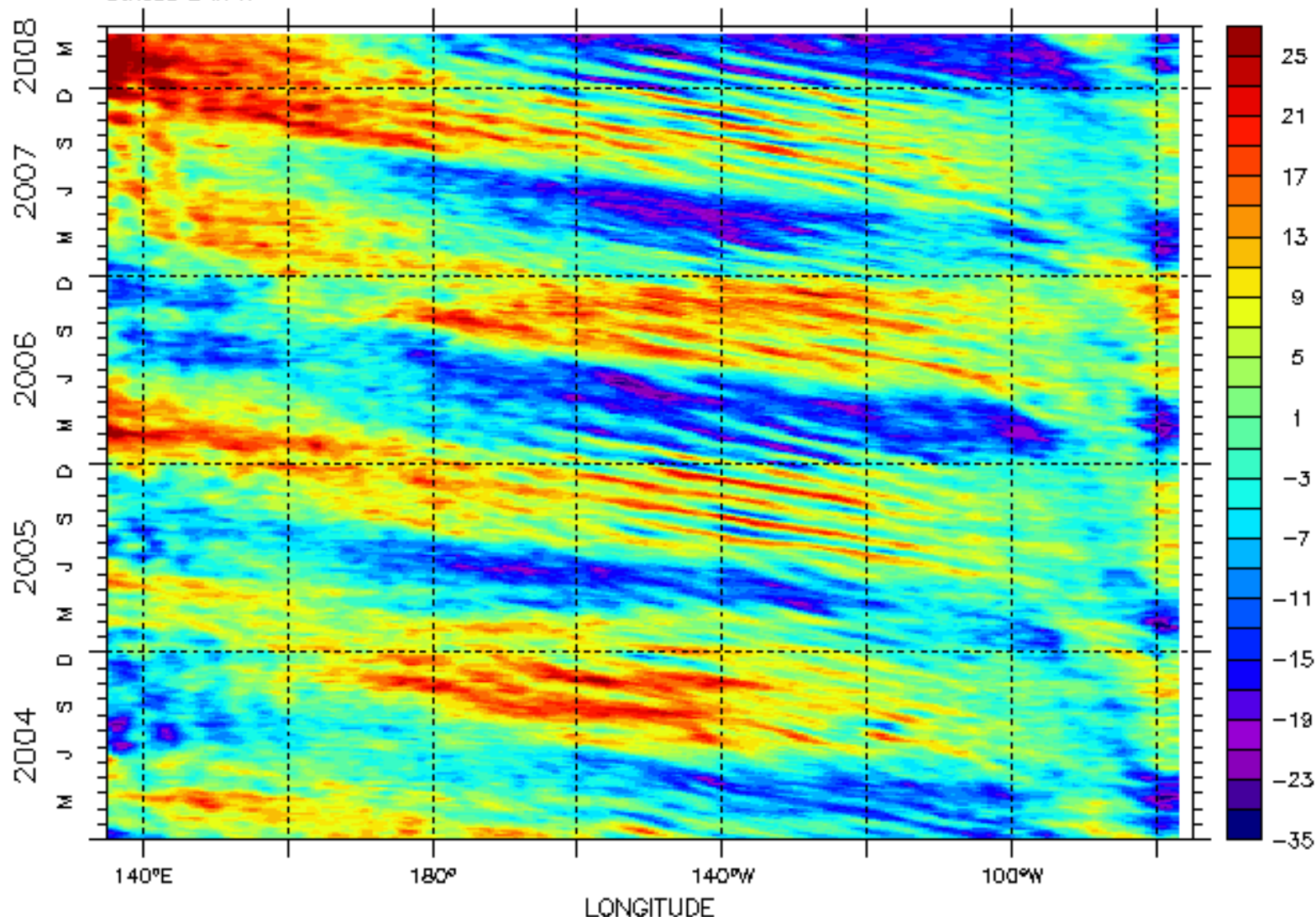


ODDS URL: <http://rdp2-joune.cis.fr:8180/thredds/dodsC/>
DATA SET: duacs_global_nrt_msla_merged_h

LATITUDE : 4.9N

SSALTO/DUACS - NRT MSLA - Merged Product

Strided 2 in X



Maps of Sea Level Anomalies Merged (cm)

SEA LEVEL ANOMALY (surface, cm) and OCEAN TEMPERATURE ANOMALY (color, C)

