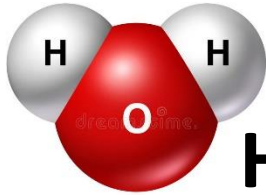
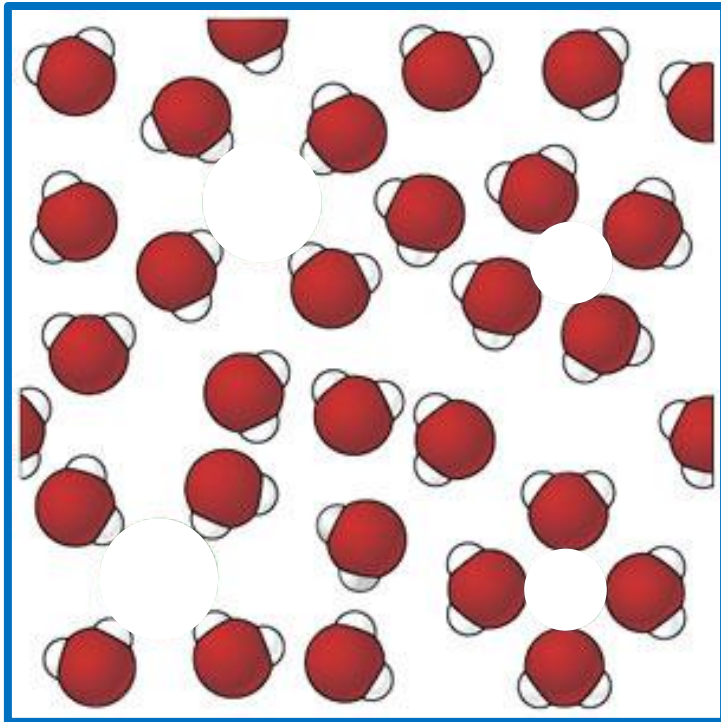


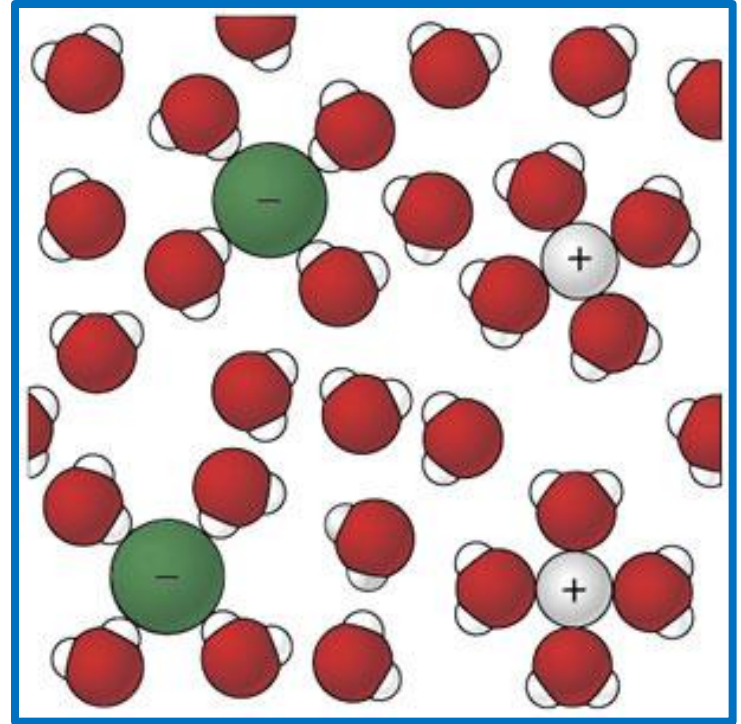
What Kind of Water?



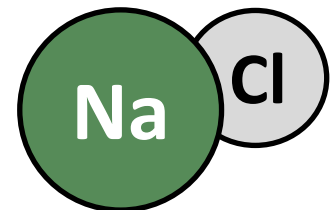
H_2O (water)



VS

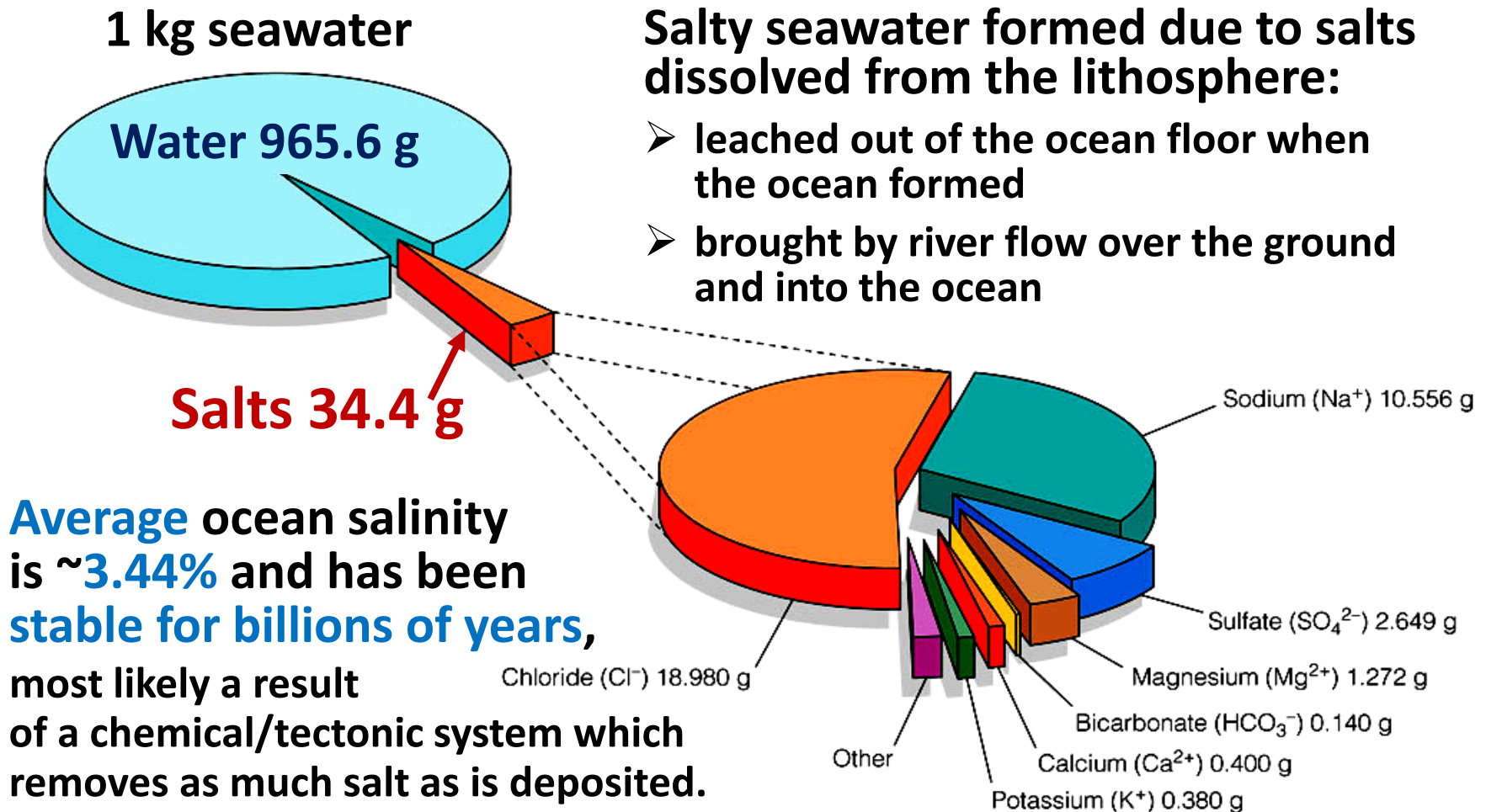


NaCl
(table salt)

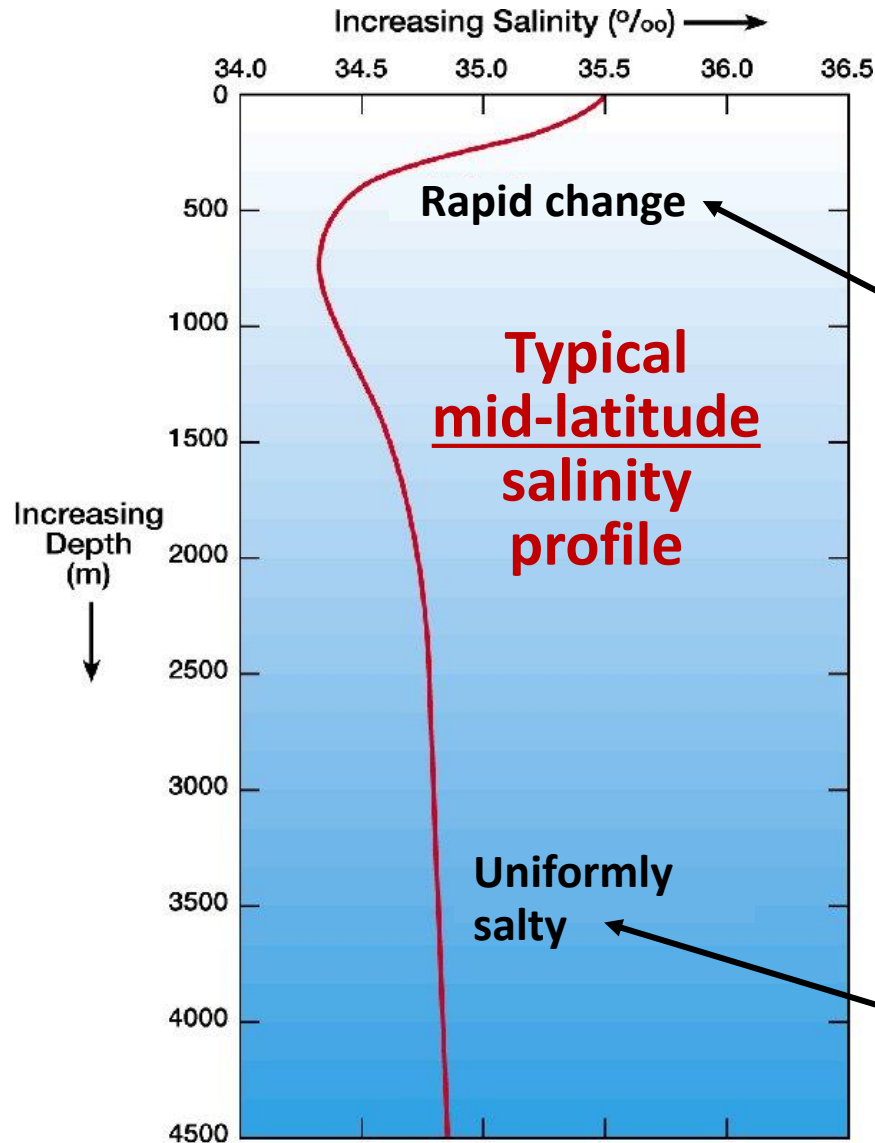


How Salty is the World Ocean?

Salinity (measured in *percent*, %, or *parts per thousand*, ppt or ‰) is a measure of the **amount of salt dissolved in a liquid**.



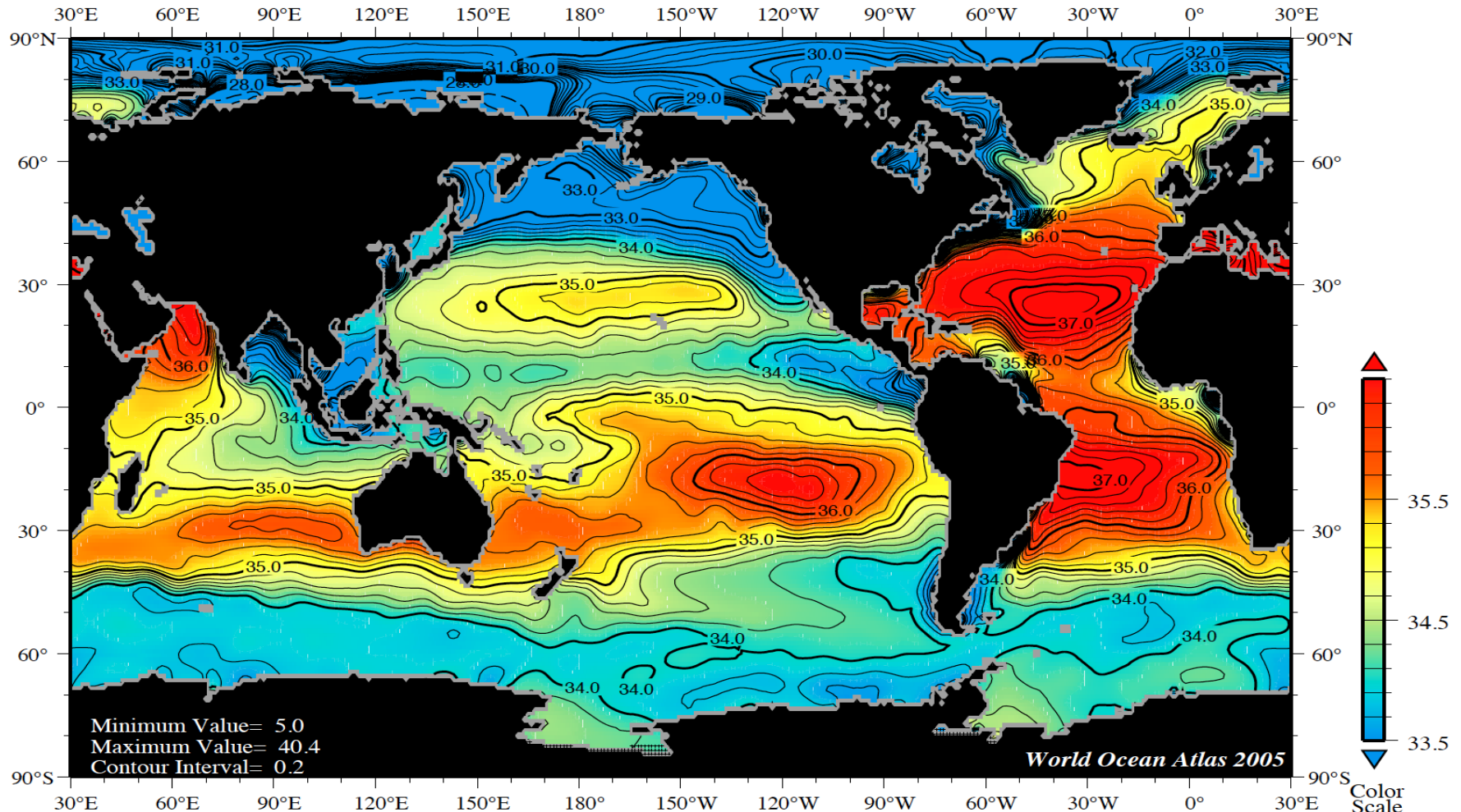
Salinity Varies with Depth



Seawater is **not uniformly saline** throughout the world.

- Surface (mixed) layer salinity is influenced by:
 - evaporation of water (‰↑)
 - precipitation (‰↓)
 - ice formation (‰↑)
 - ice melting (‰↓)
- Saltier water is denser and consequently, it sinks down.
- Beyond ~2000 m, salt content changes very little.

Ocean Surface Salinity Pattern



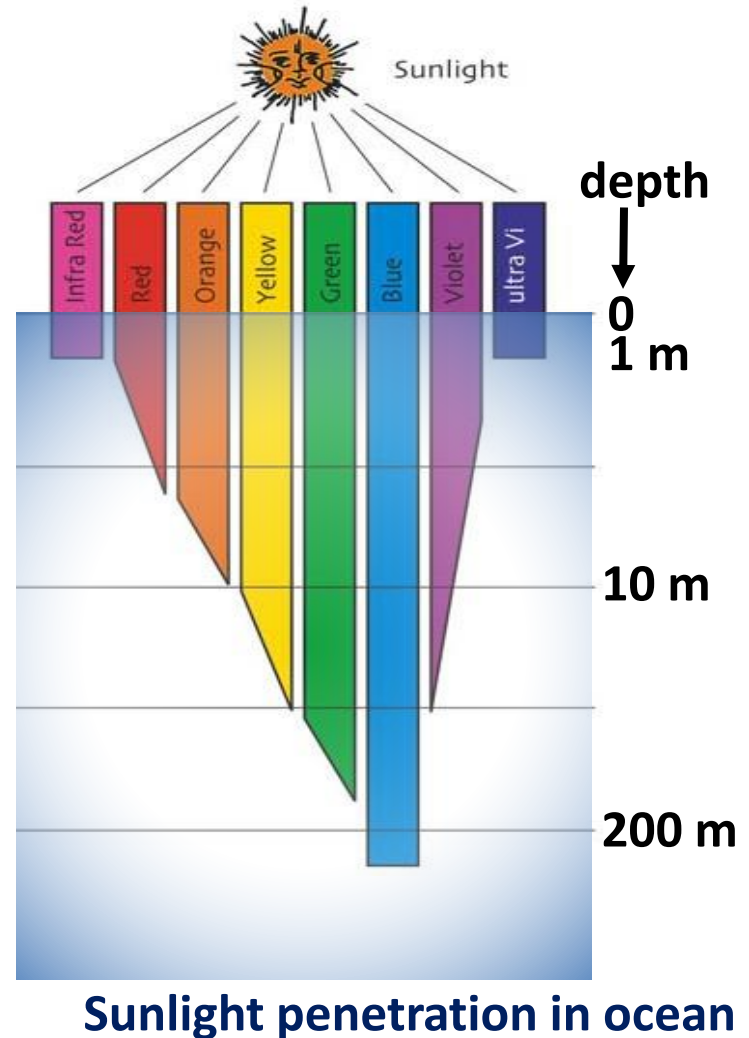
Salinity is an **ecological factor** of great importance, influencing:

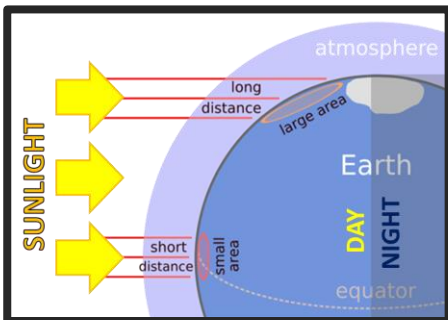
- the types of organisms that live in a body of water,
- the kinds of plants that grow either in a water body, or on nearby land.

Ocean Temperature

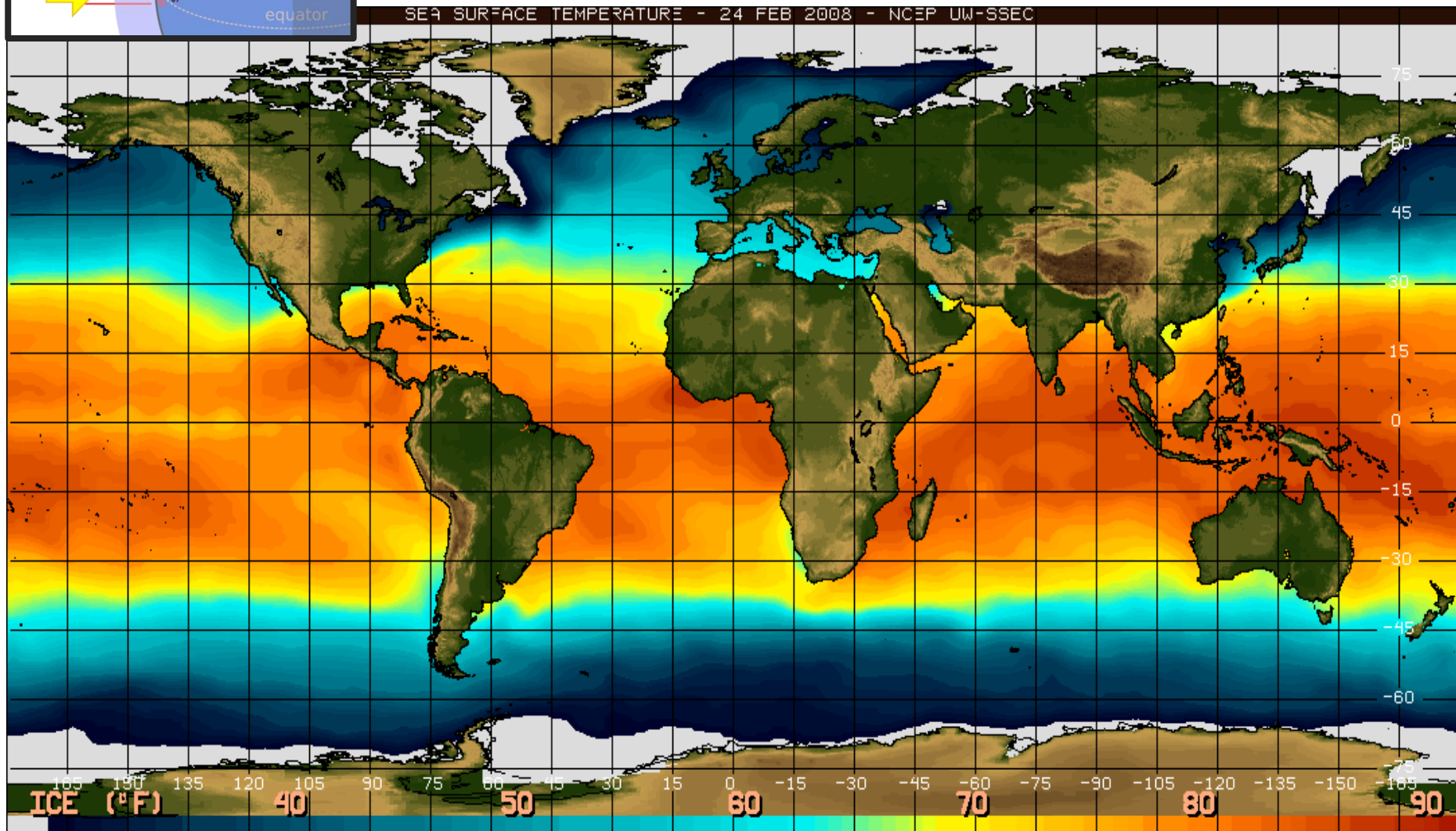
Ocean temperature varies with depth, latitude, and season.

- **Ocean** is **heated by the Sun** from the surface *downward*.
- Most of sunlight energy is absorbed within the top layer of <200 meters.
- Ocean surface temperature can vary a lot, but **deep waters are very cold**, 75% of the ocean is between 30 to 43°F (−1 to +6°C).
- Both *seasonal* and *latitude* variation of ocean surface temperature are mostly due to the relative position of the Earth and the Sun.

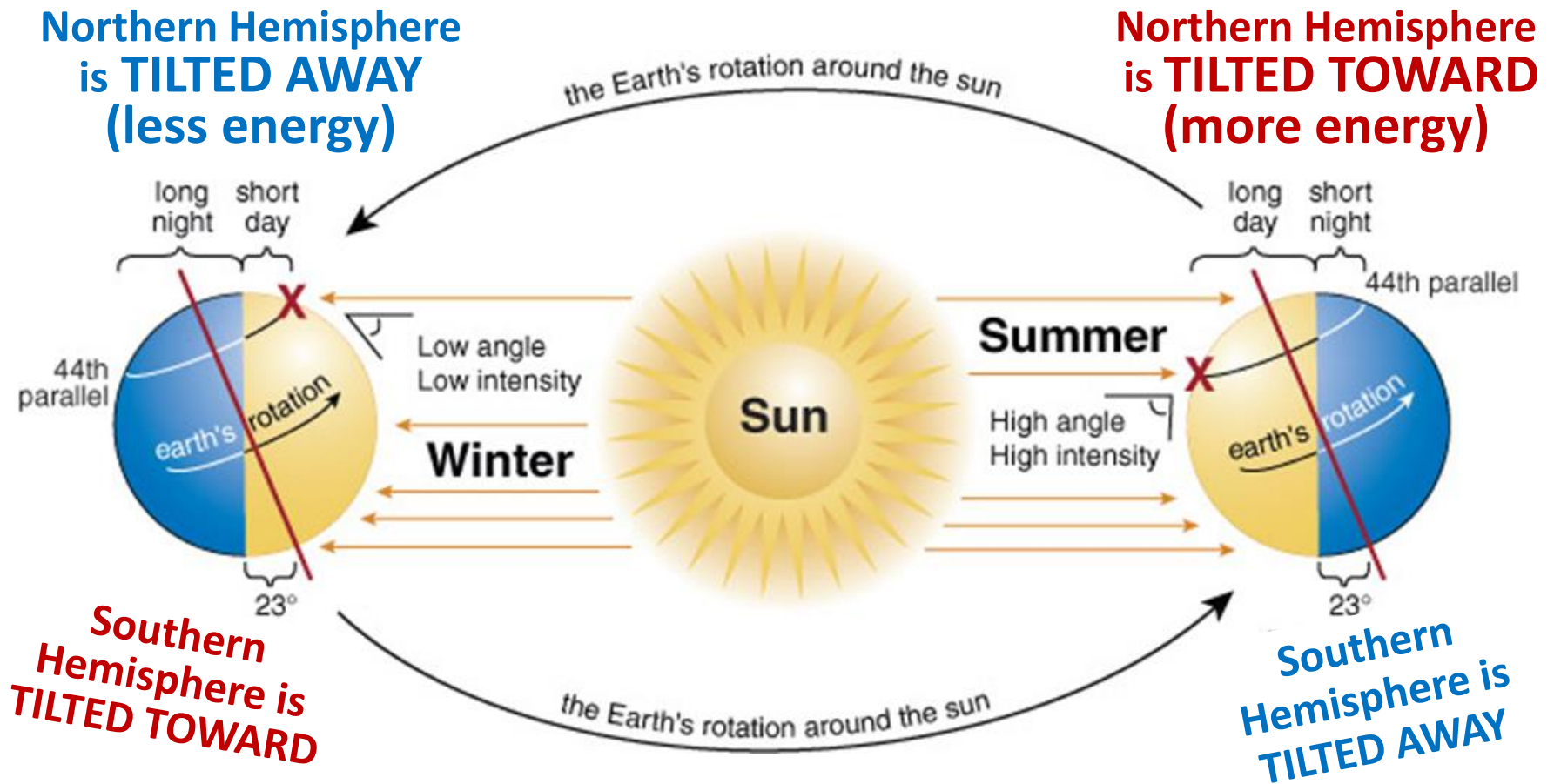




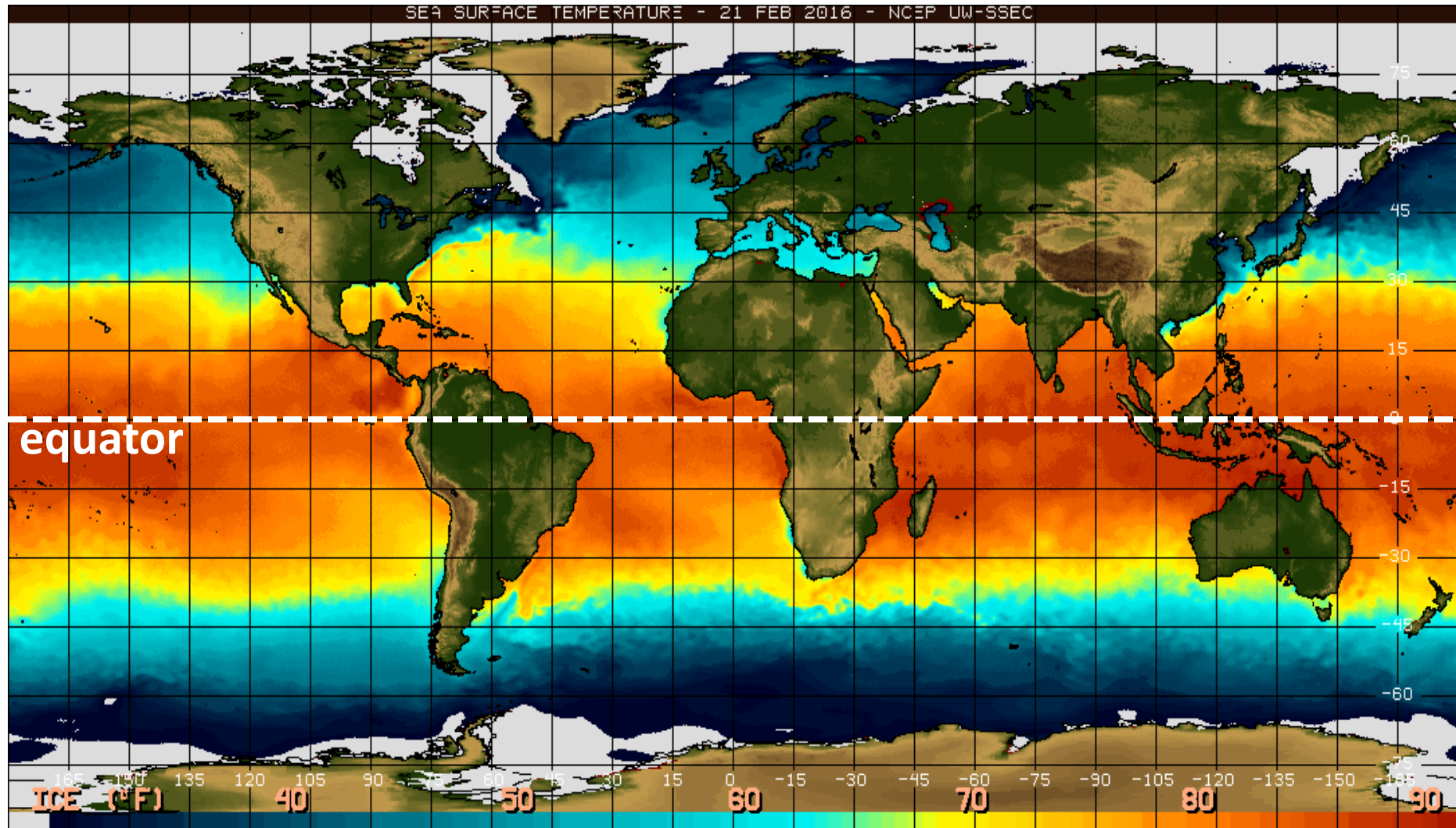
Ocean surface temperature varies greatly with latitude.



Due to the Earth's tilt with respect to its orbital plane,
the **amount of sunlight energy** reaching any given
point on the surface varies over the course of the year,
giving us **SEASONS**.

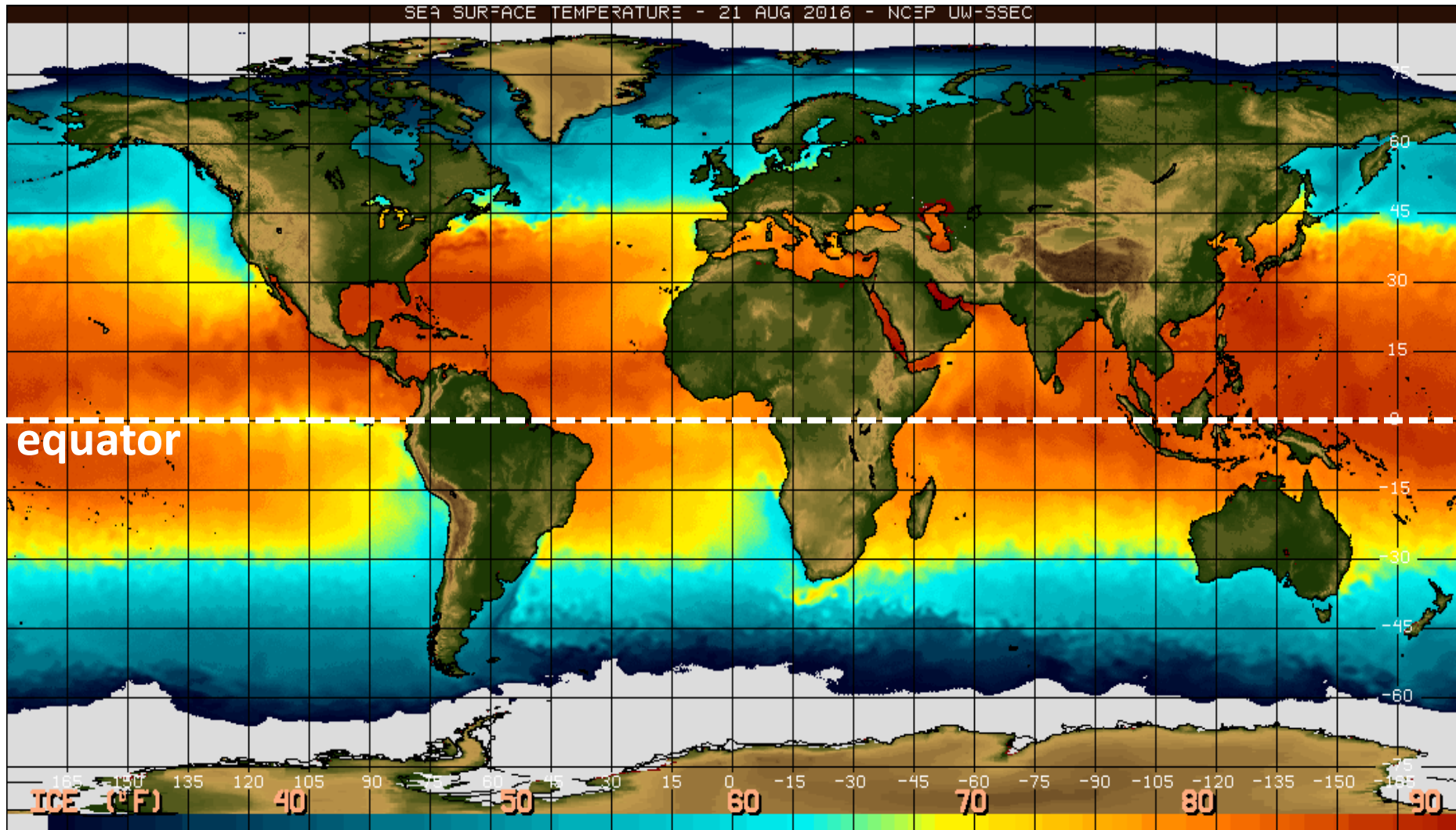


Temperature: Seasonal Variation

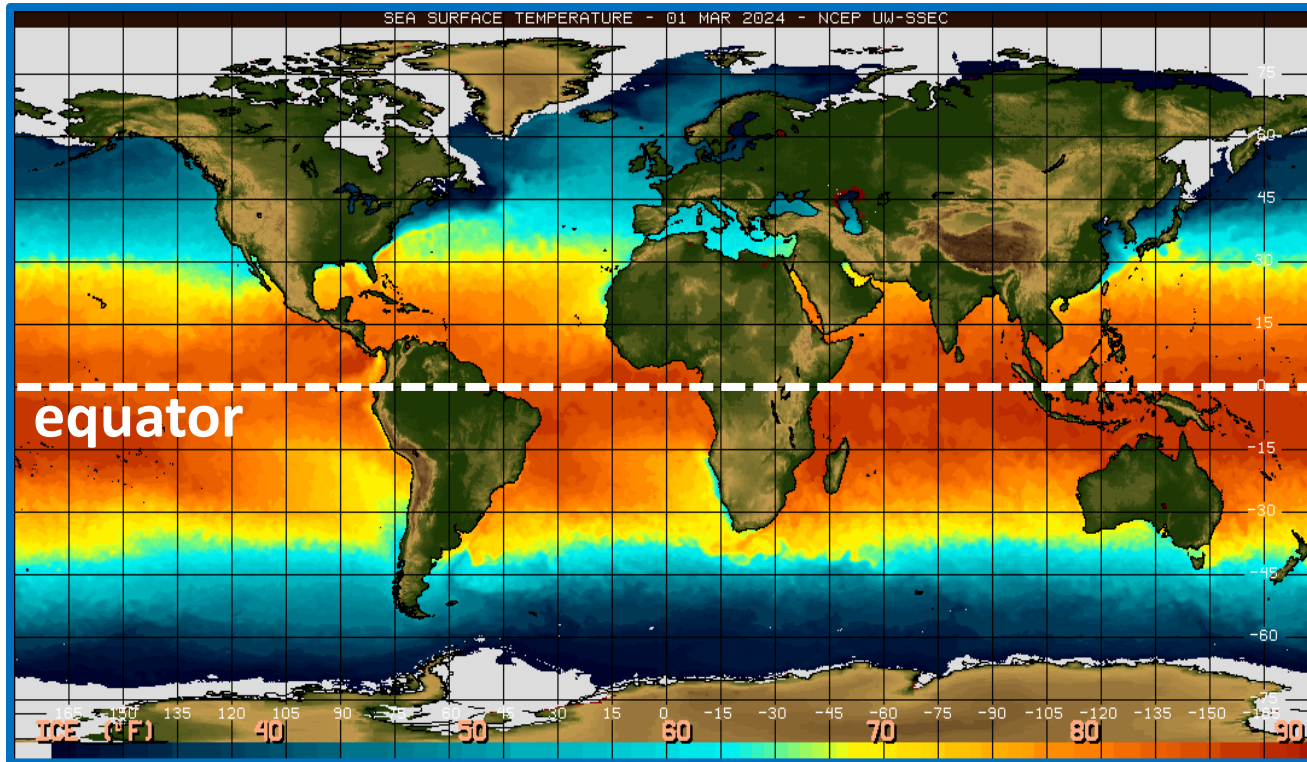


Ocean **surface temperature** on **February 21, 2016**.

Temperature: Seasonal Variation

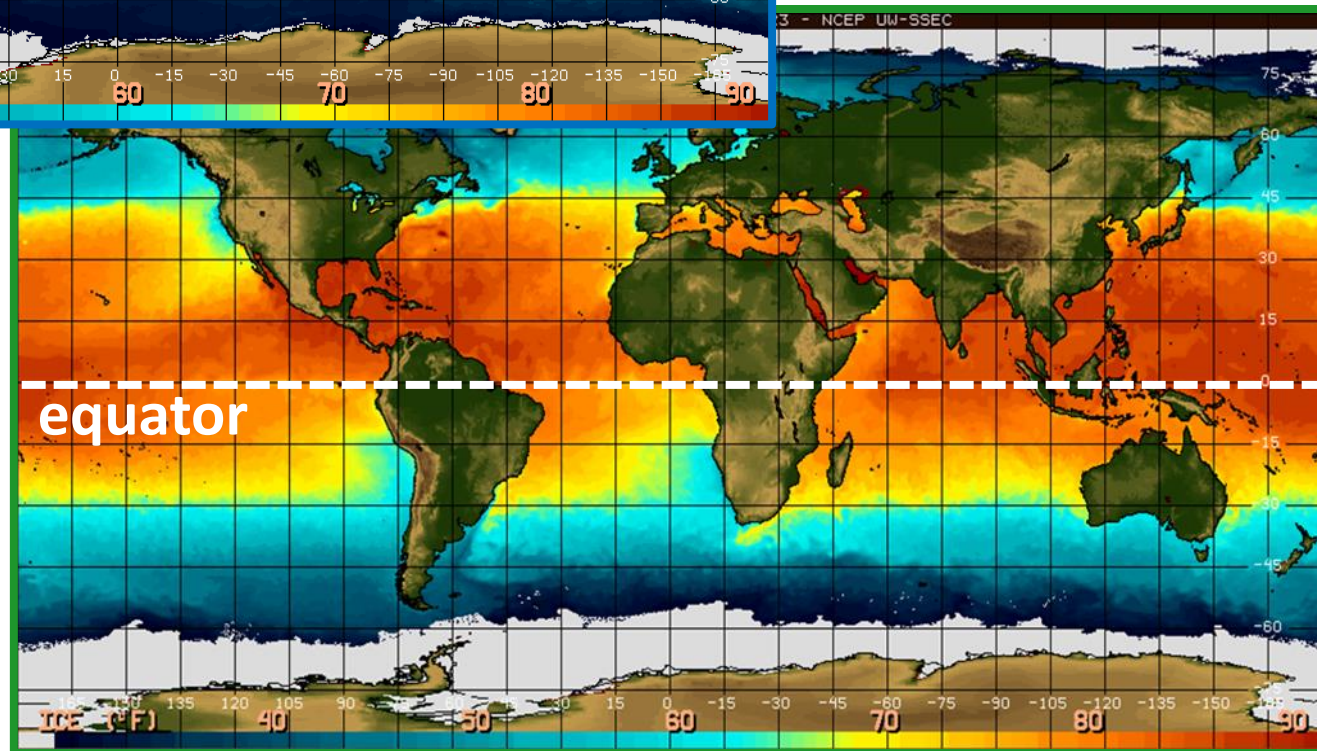


Ocean **surface temperature** on **August 21, 2016**.



↑
March 1, 2024

August 31, 2023 →



Ocean Surface Temperature:

seasonal variation is slight since water loses or gains heat much more slowly than land.