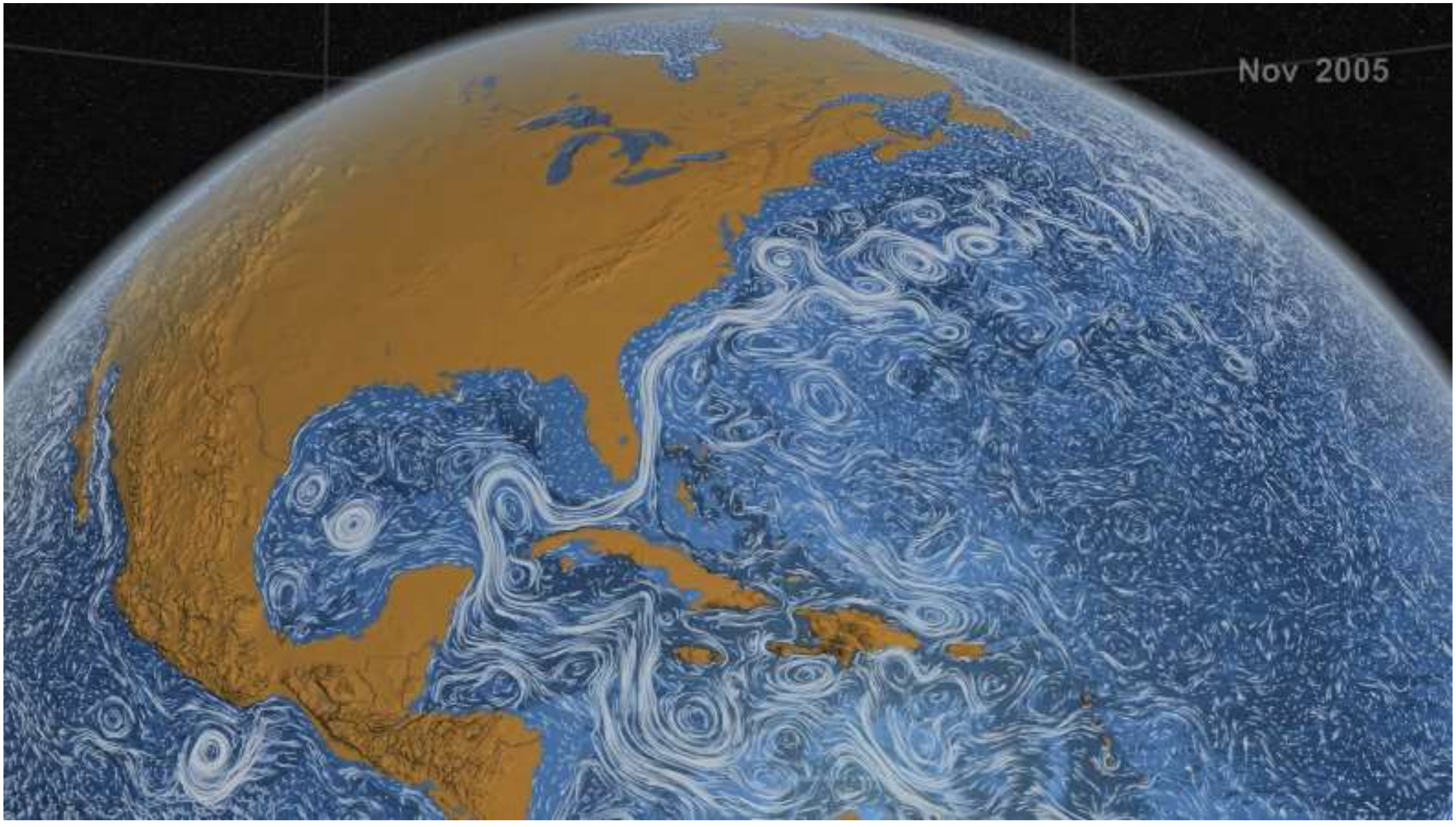
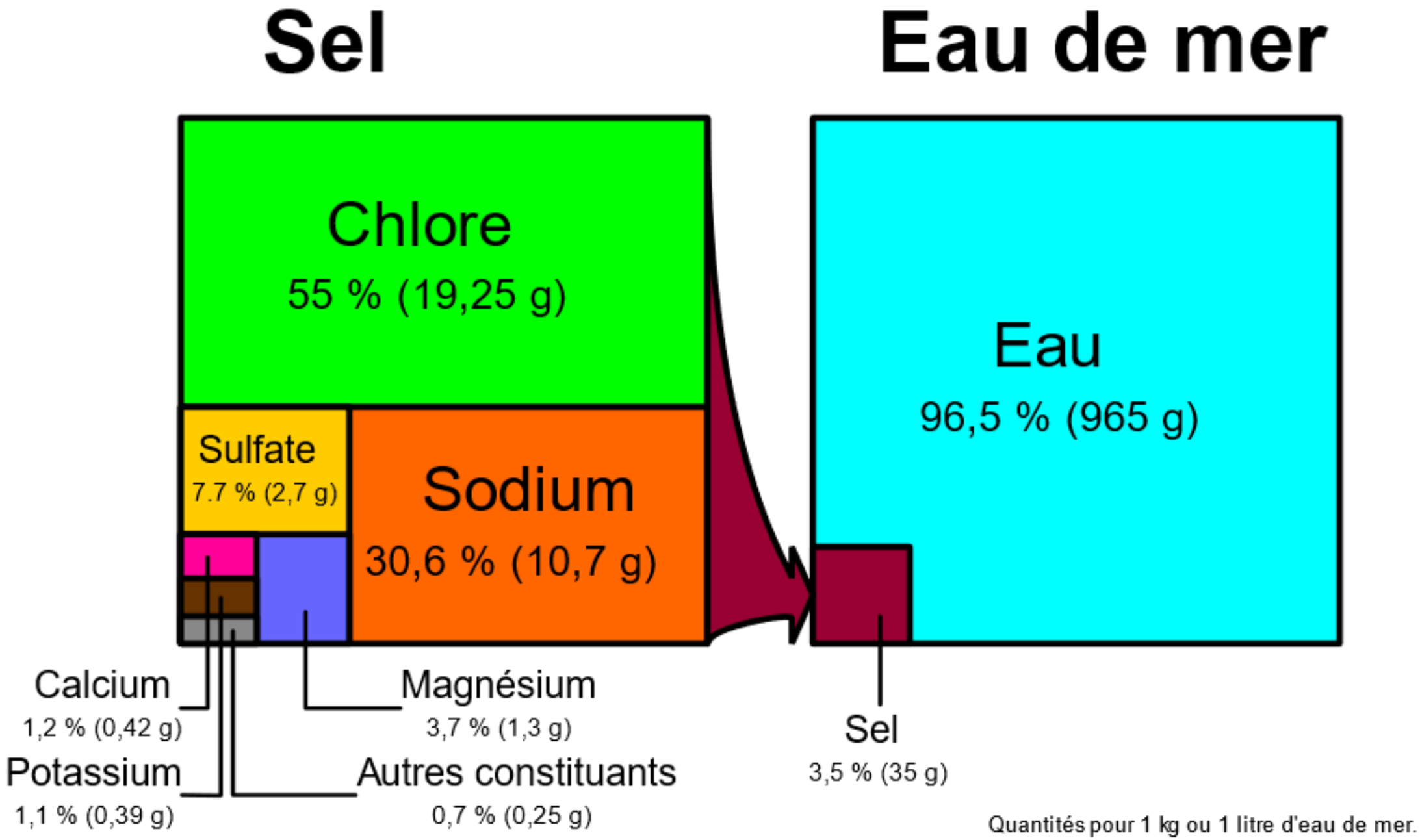
TP 27 : L’océan

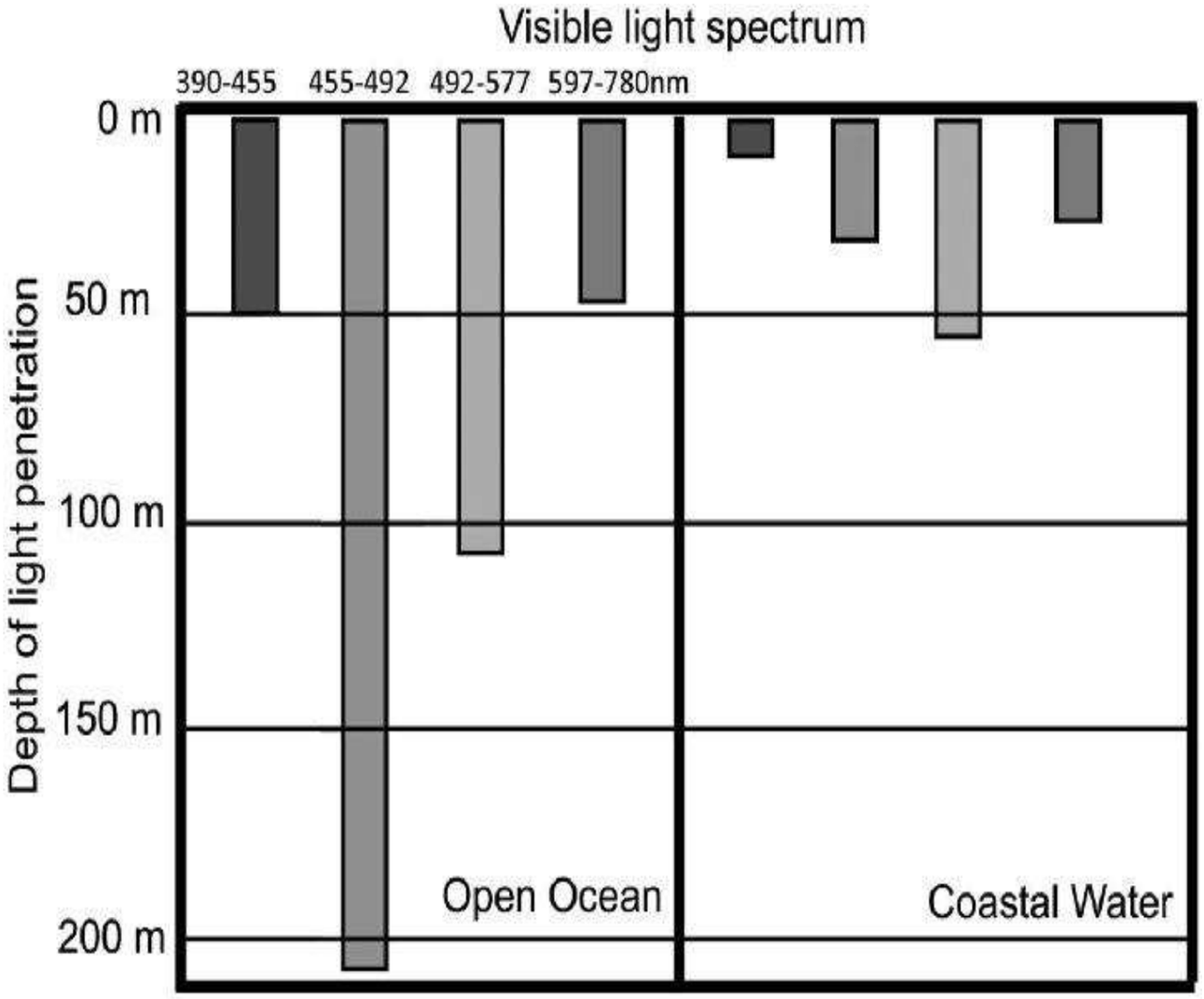


https://svs.gsfc.nasa.gov/3827

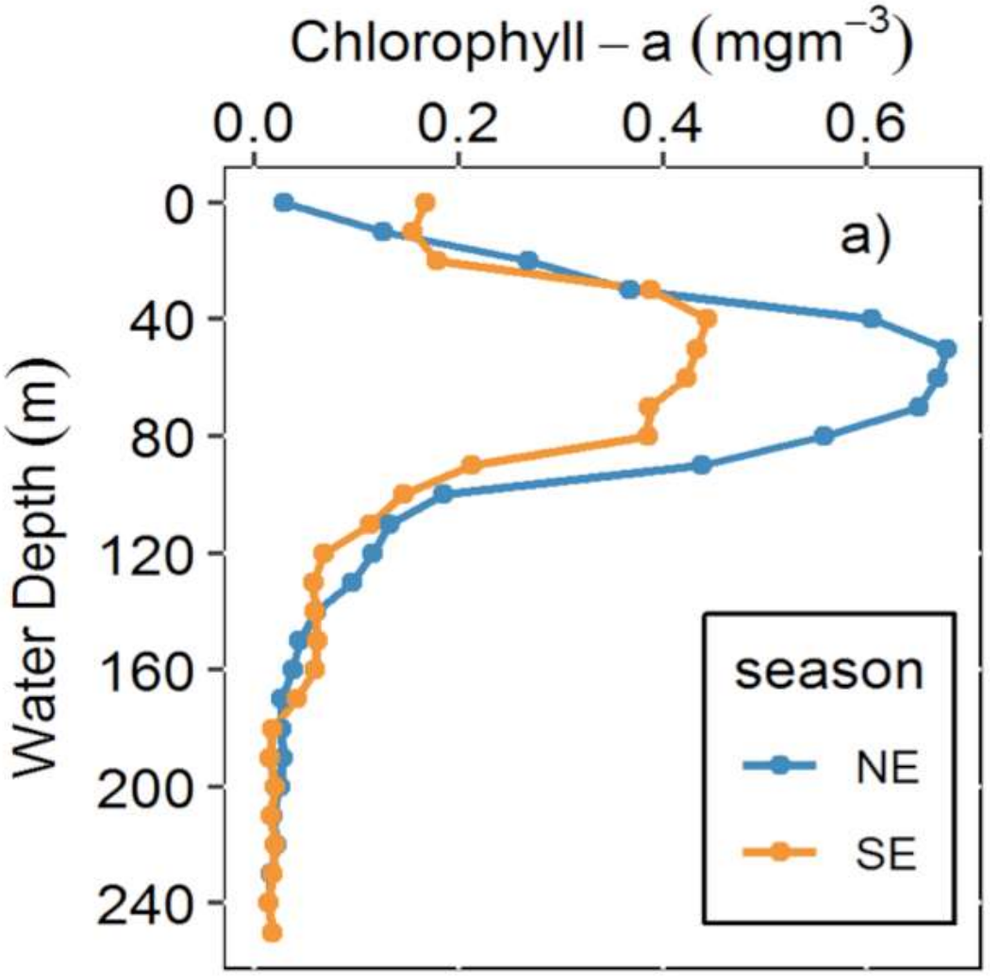


<u>Document 1</u>. Composition moyenne de l'eau de mer.

Par Hannes Grobe, Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany; SVG version by Stefan Majewsky ; translation by Korrigan — Translation in French of Image:Sea salt-e hg.svg, CC BY-SA 2.5, https://commons.wikimedia.org/w/index.php?curid=3158453

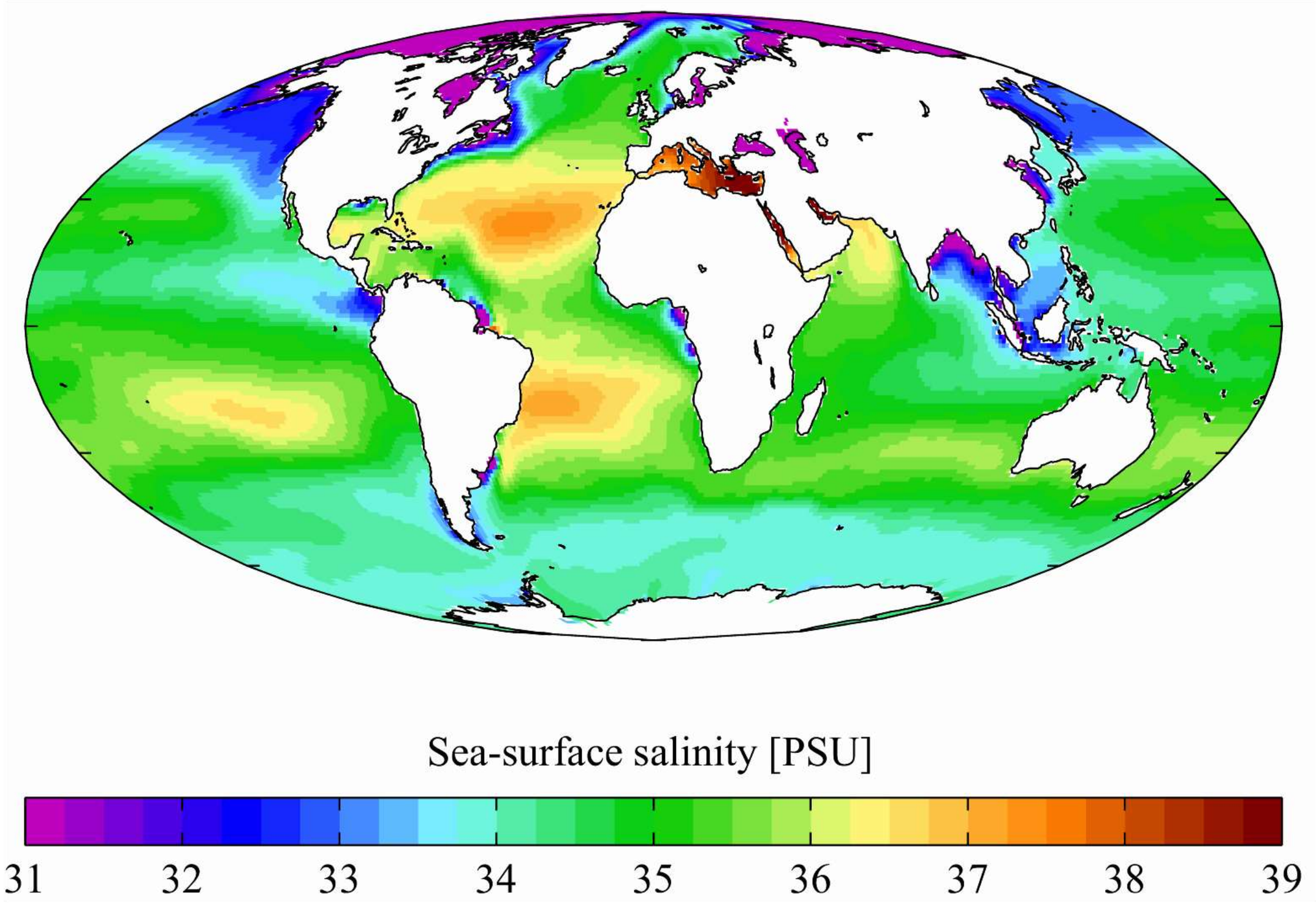


<u>Document 2</u>. Profondeur de pénétration de la lumière dans les eaux océaniques selon la longueur d'ondes.



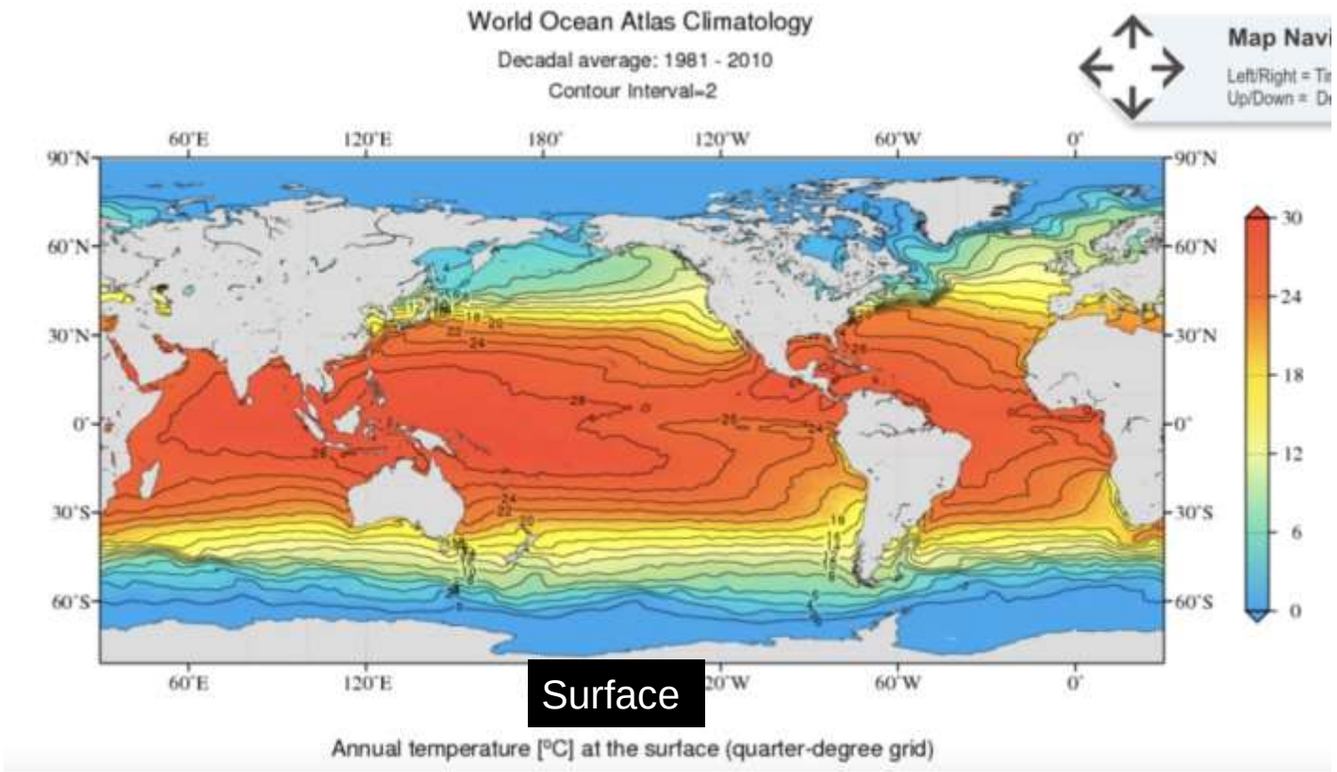
<u>Document 3.</u> Teneur en chlorophylle a en fonction de la profondeur (NE : mesures effectuées en novembre 2017, SE : mesures effectuées en juin 2018 ; étude réalisée en Tanzanie).

N. Peter, M. Semba, C. Lugomela, M. Kyewalyanga « Seasonal variability of vertical patterns in chlorophyll-a fluorescence in the coastal waters off Kimbiji, Tanzania » WIO Journal of Marine Science 20 (1) 2021 21-33

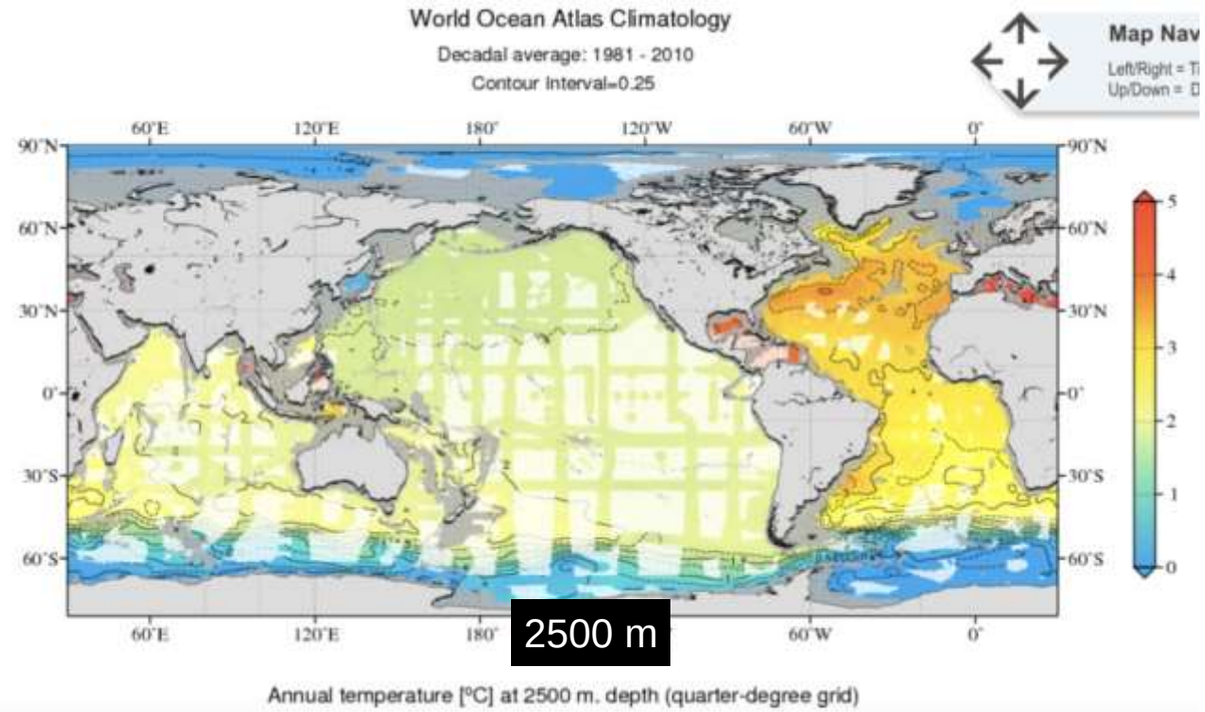


Salinité moyenne des océans, exprimée en PSU, c'est-à-dire en g de NaCl par kg d'eau de mer.

TEMPERATURE

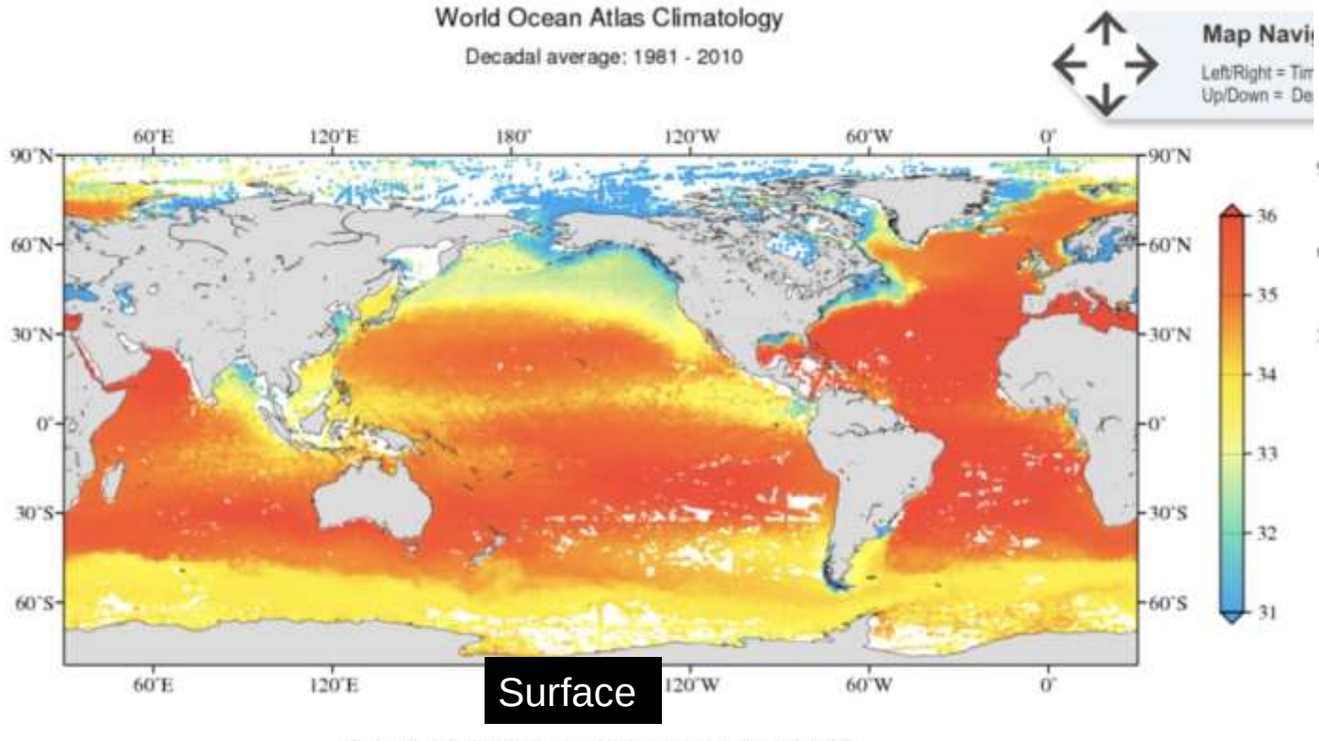


Annual temperature [°C] at the surface (quarter-degree grid)

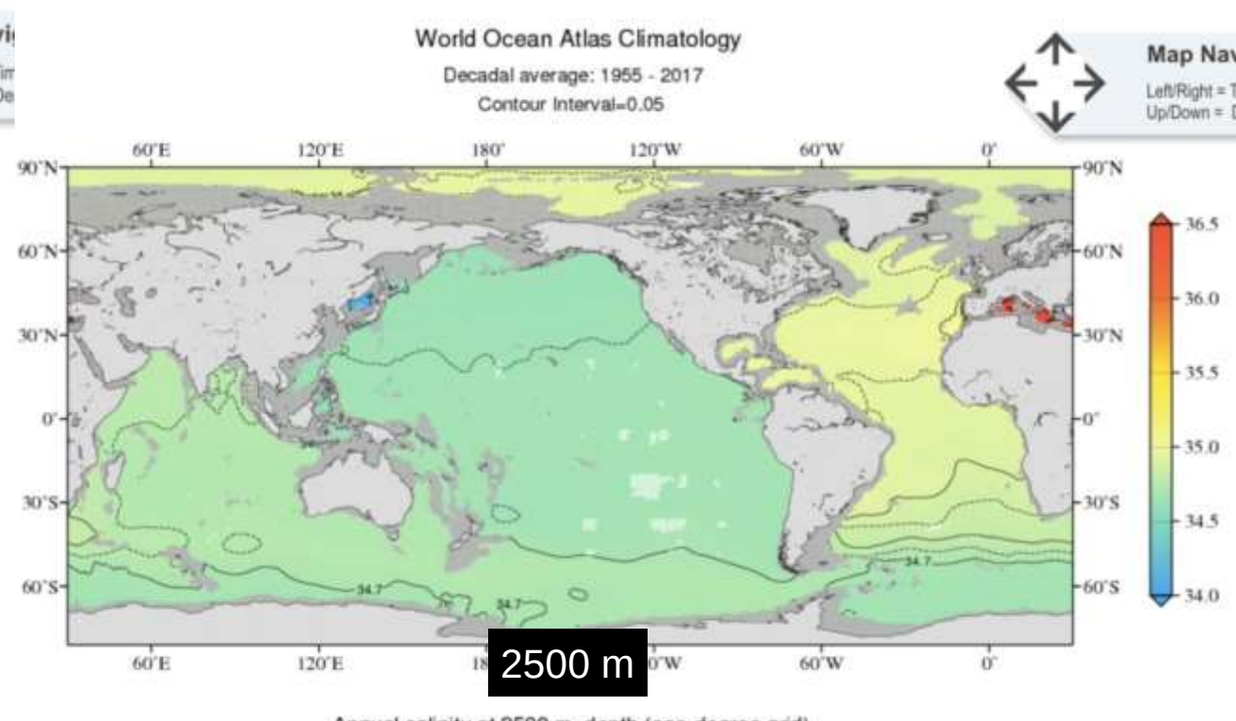


Annual temperature [°C] at 2500 m. depth (quarter-degree grid)

SALINITE

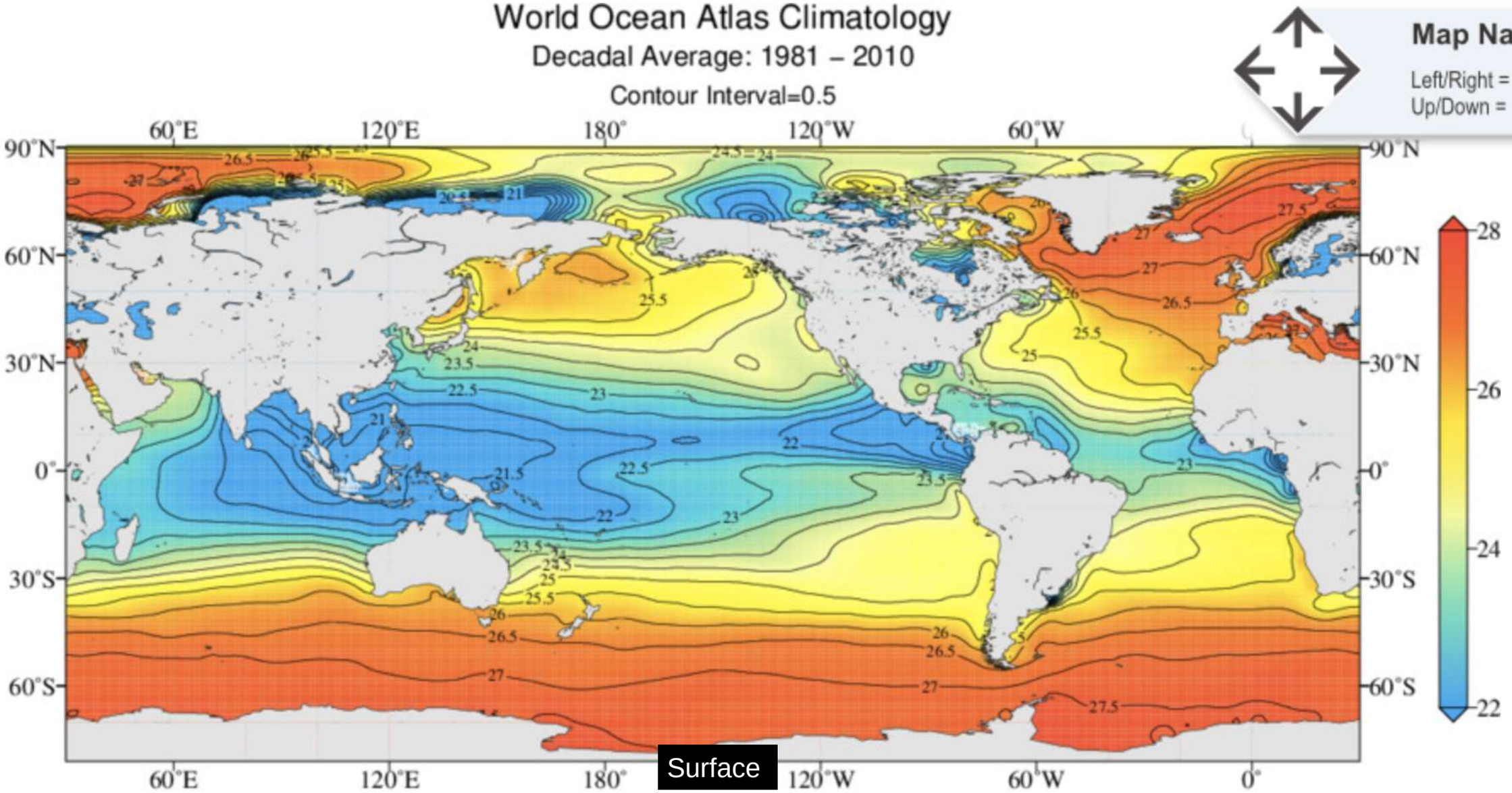


Annual salinity at the surface (quarter-degree grid)



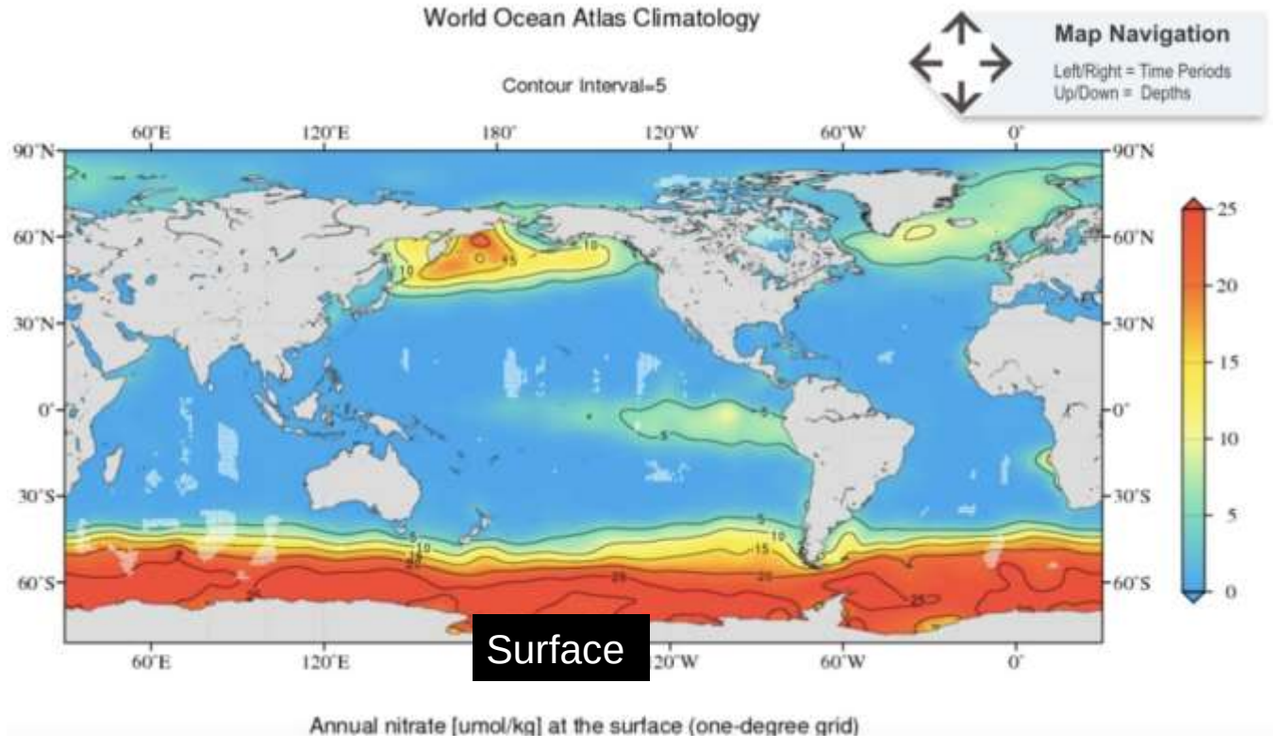
Annual salinity at 2500 m. depth (one-degree grid)

DENSITE

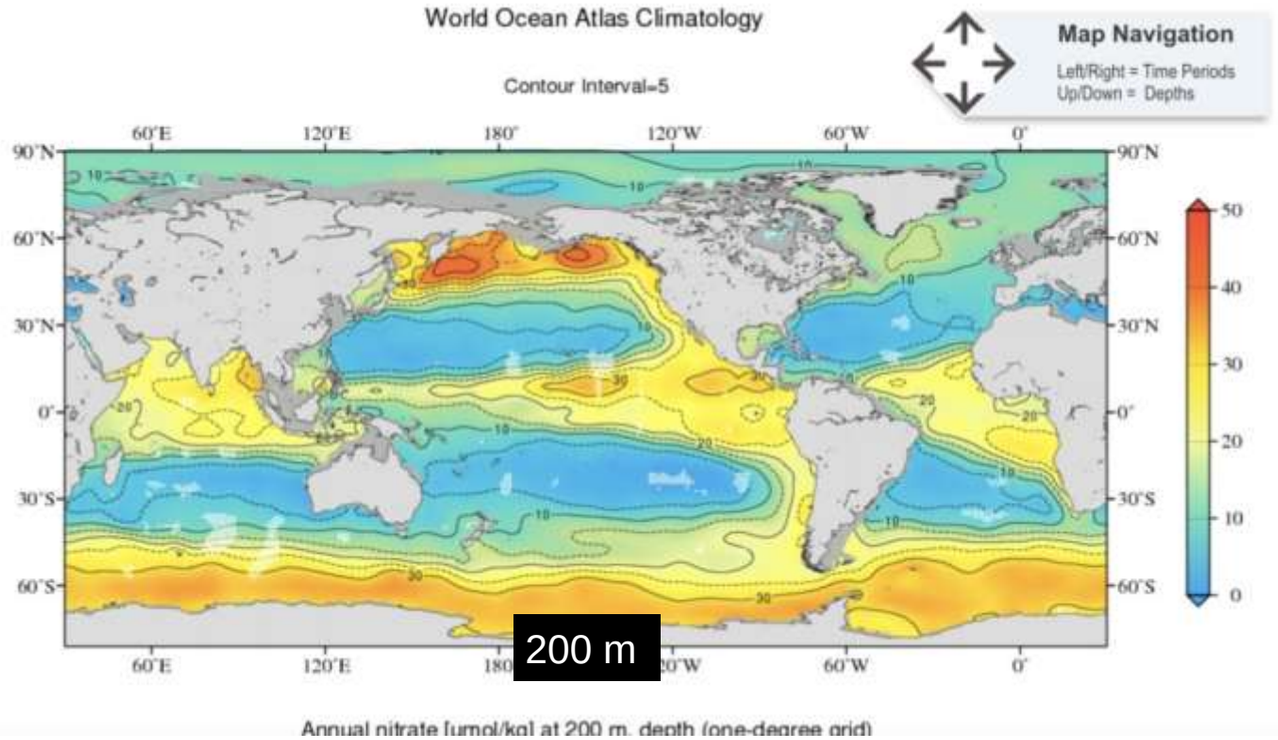


Annual density (sigma) at the surface (one–degree grid)

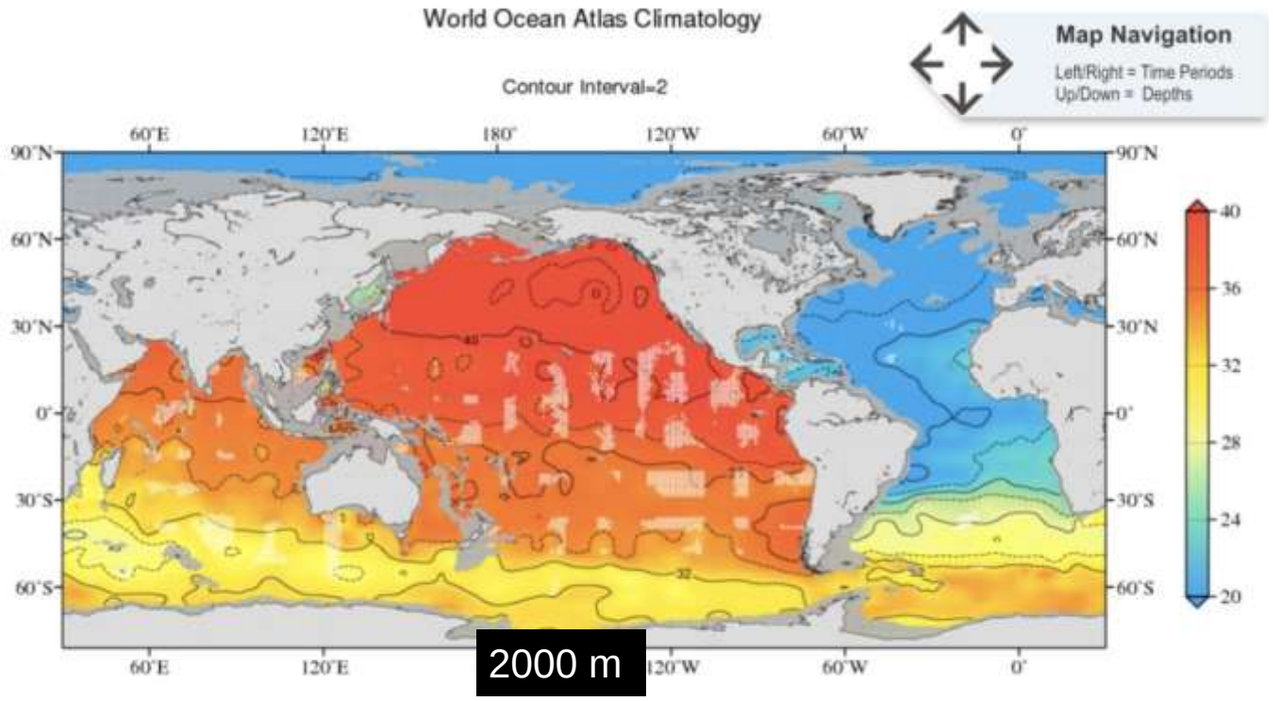
[NITRATES]



Annual nitrate [umol/kg] at the surface (one-degree grid)

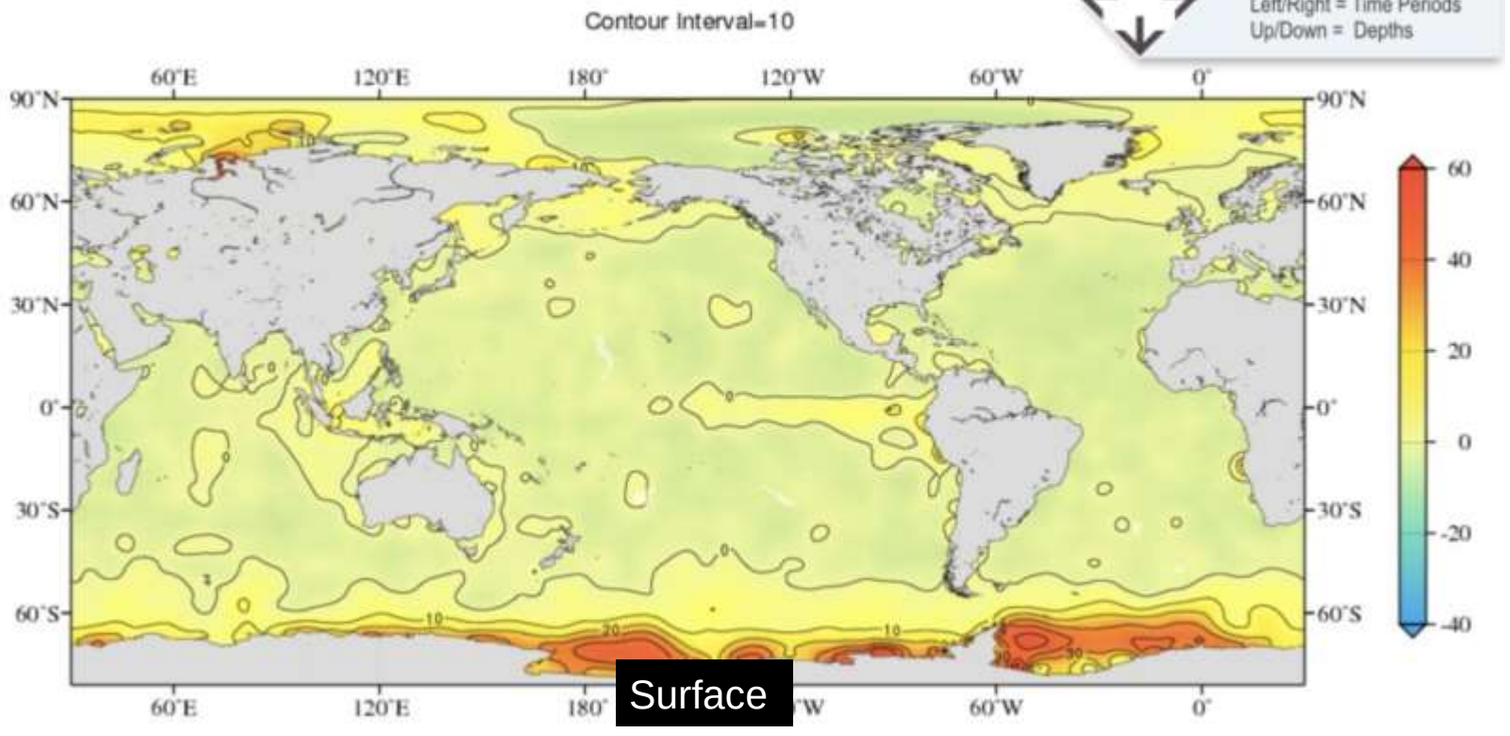


Annual nitrate [umol/kg] at 200 m. depth (one-degree grid)

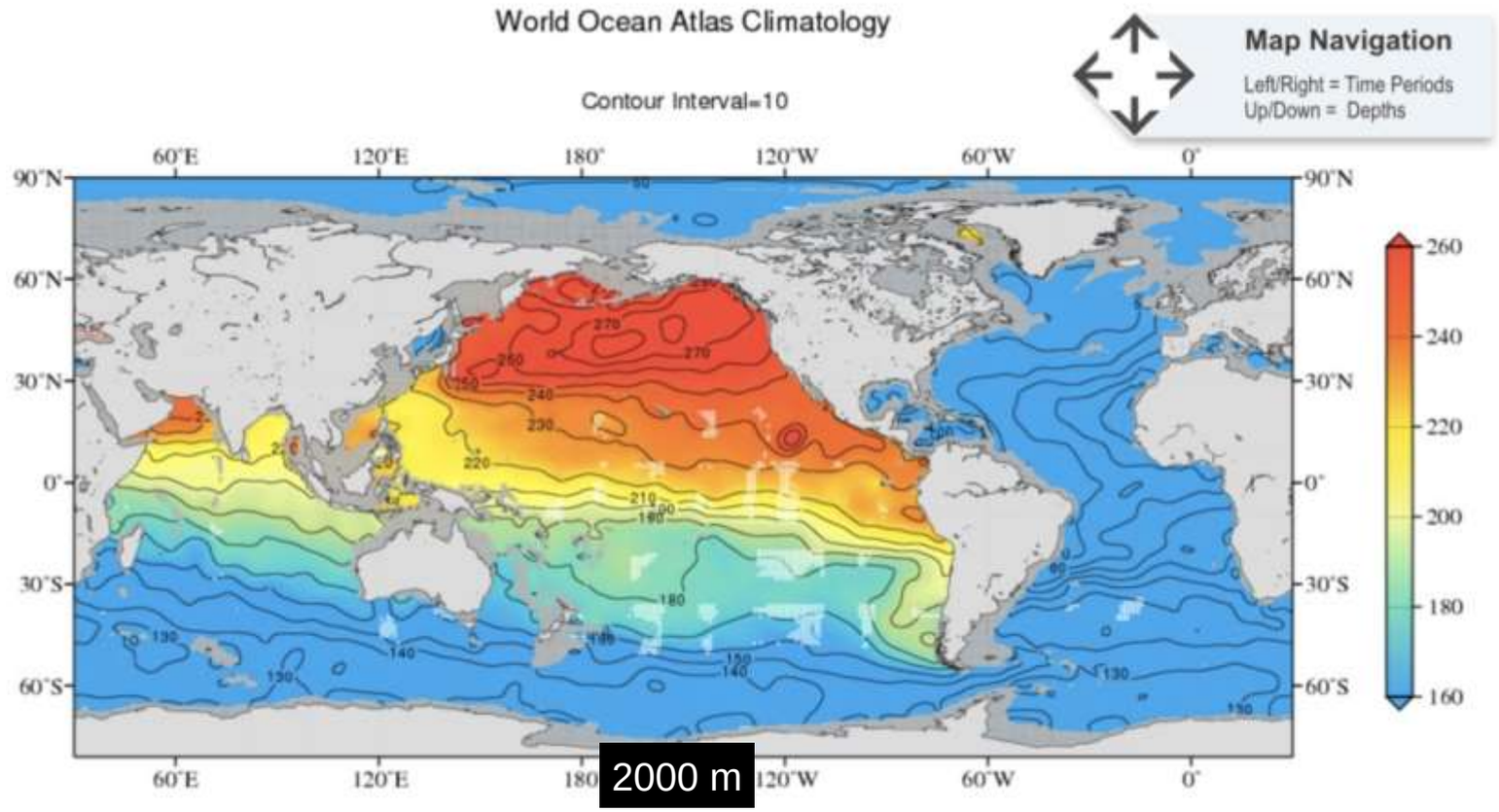


Annual nitrate [umol/kg] at 2000 m. depth (one-degree grid)

CONSOMMATION D'O_2

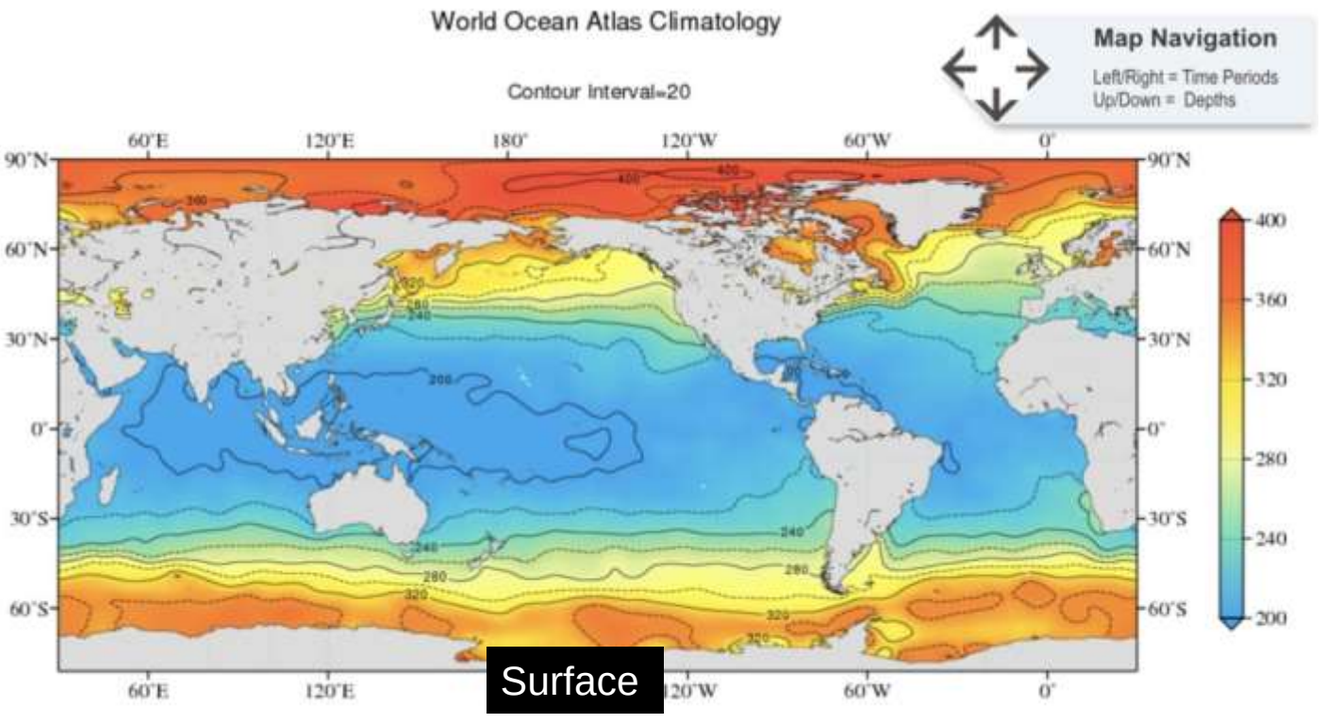


Annual apparent oxygen utilization [umol/kg] at the surface (one-degree grid)

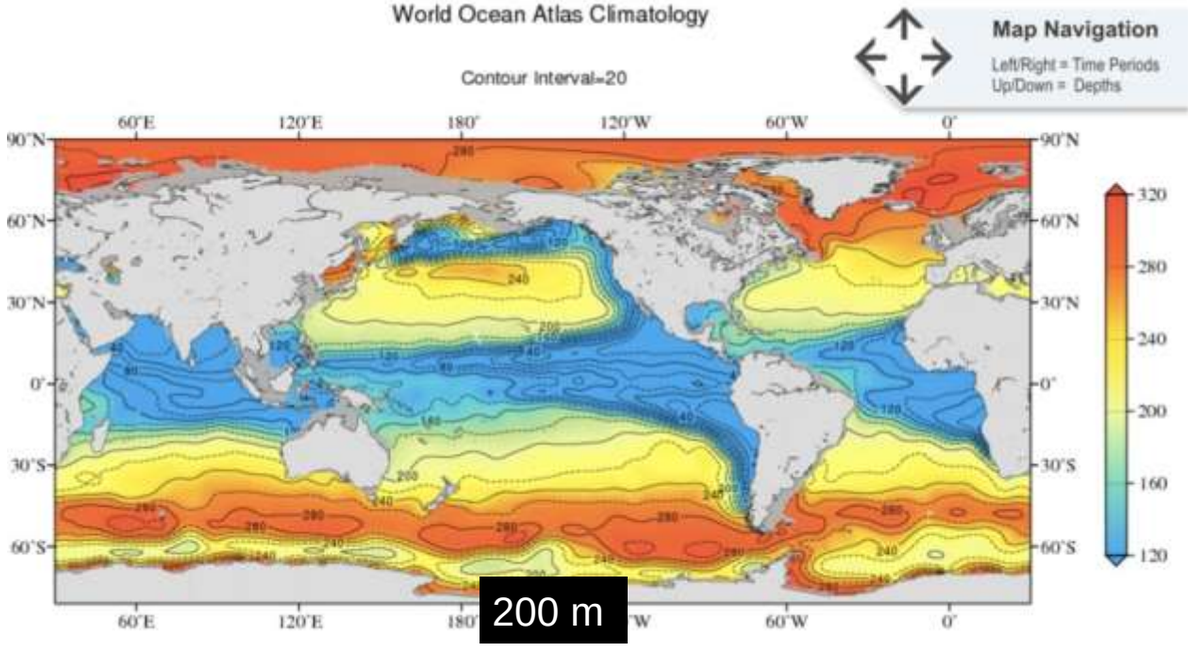


Annual apparent oxygen utilization [umol/kg] at 2000 m. depth (one-degree grid)

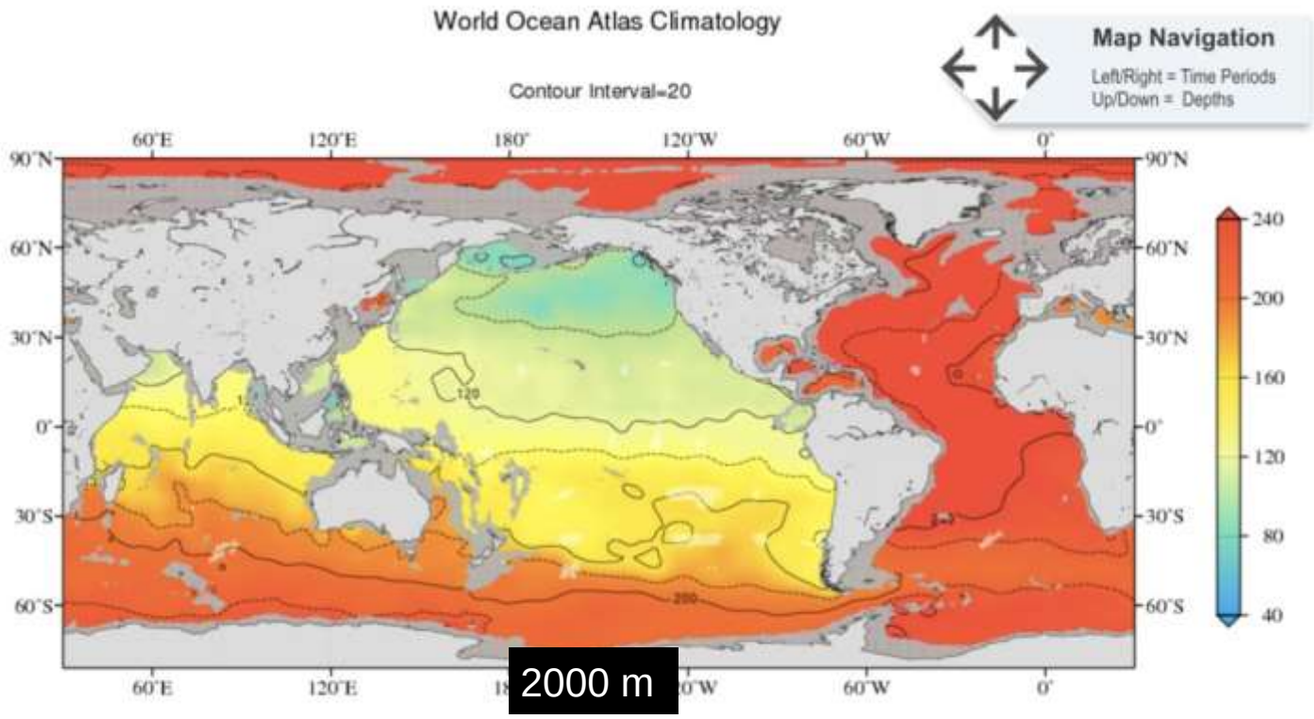
[O_2 dissous]



Annual oxygen [umol/kg] at the surface (one-degree grid)

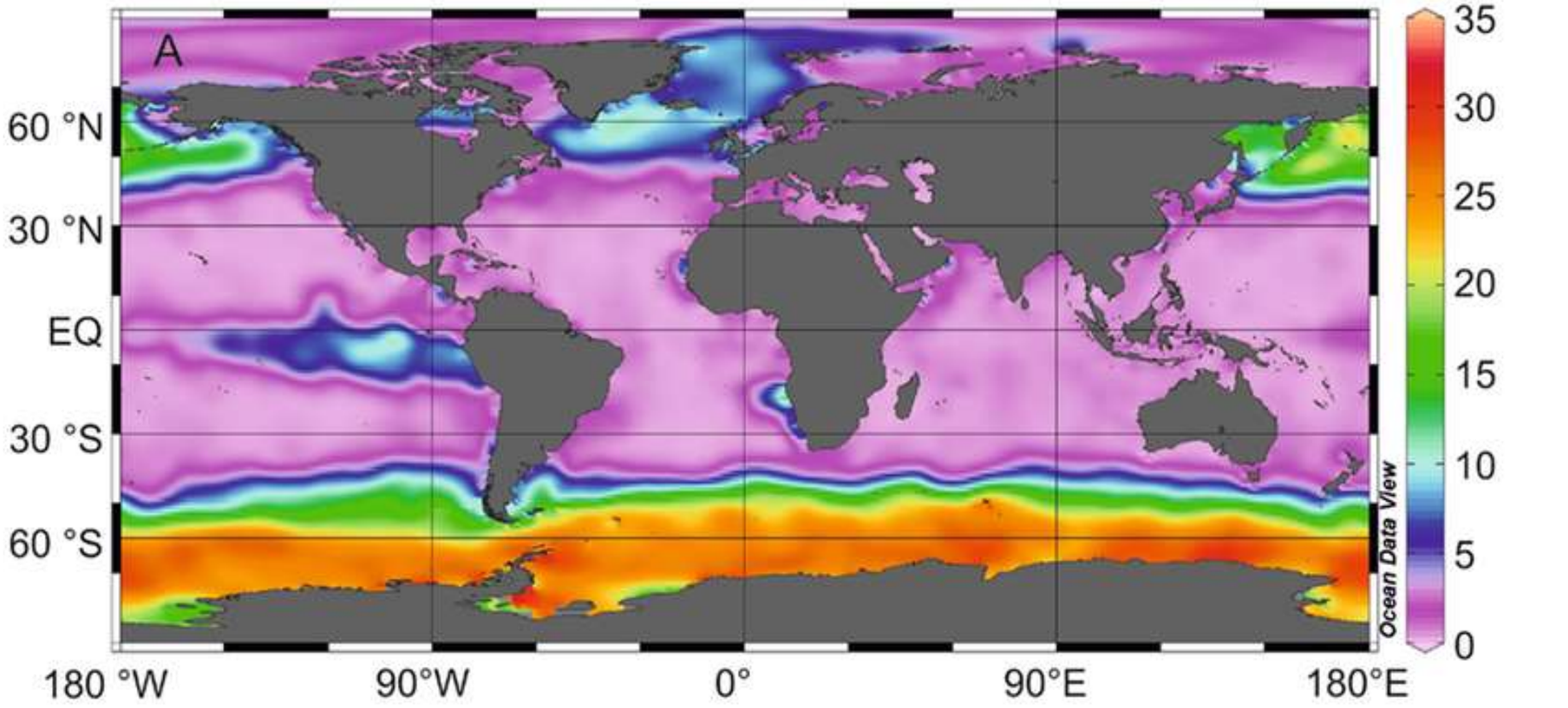


Annual oxygen [umol/kg] at 200 m. depth (one-degree grid)

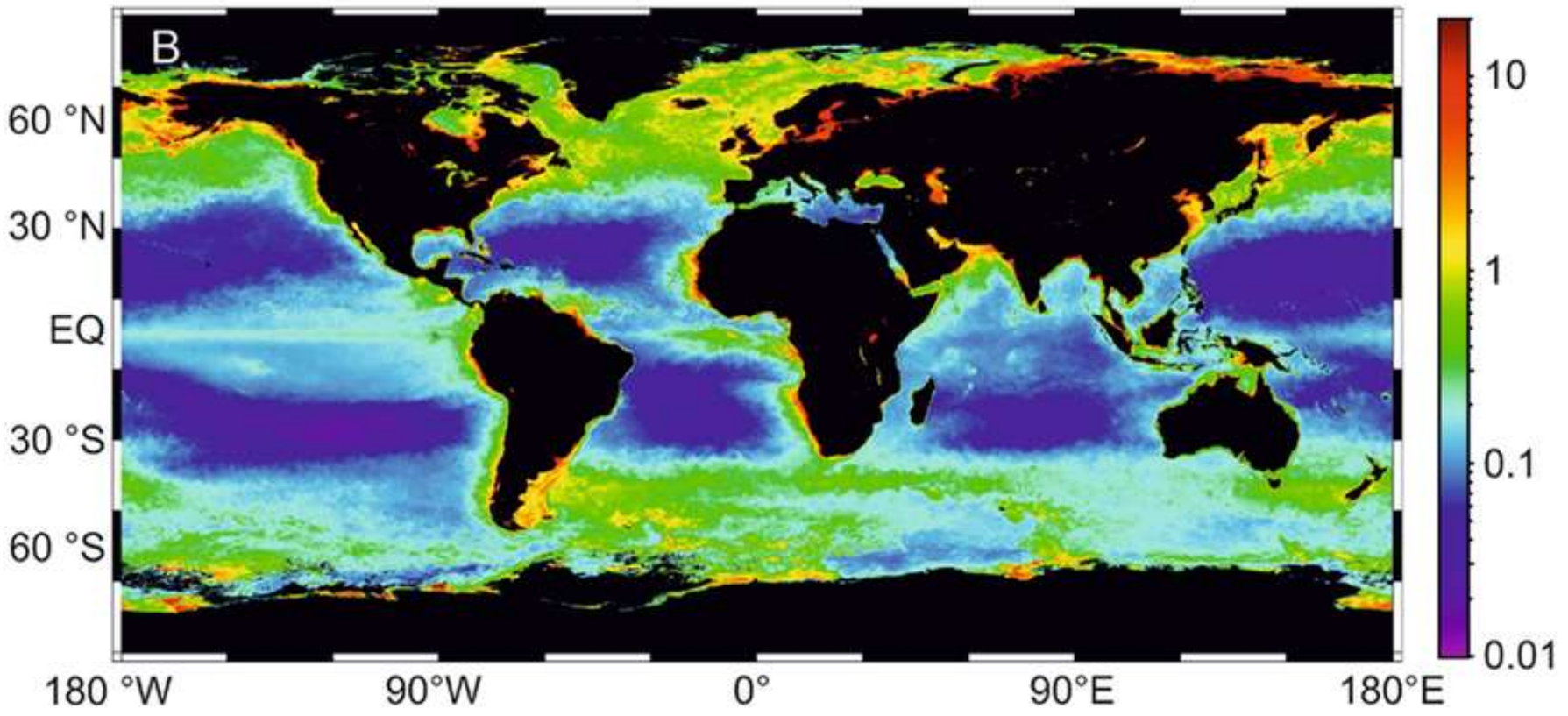


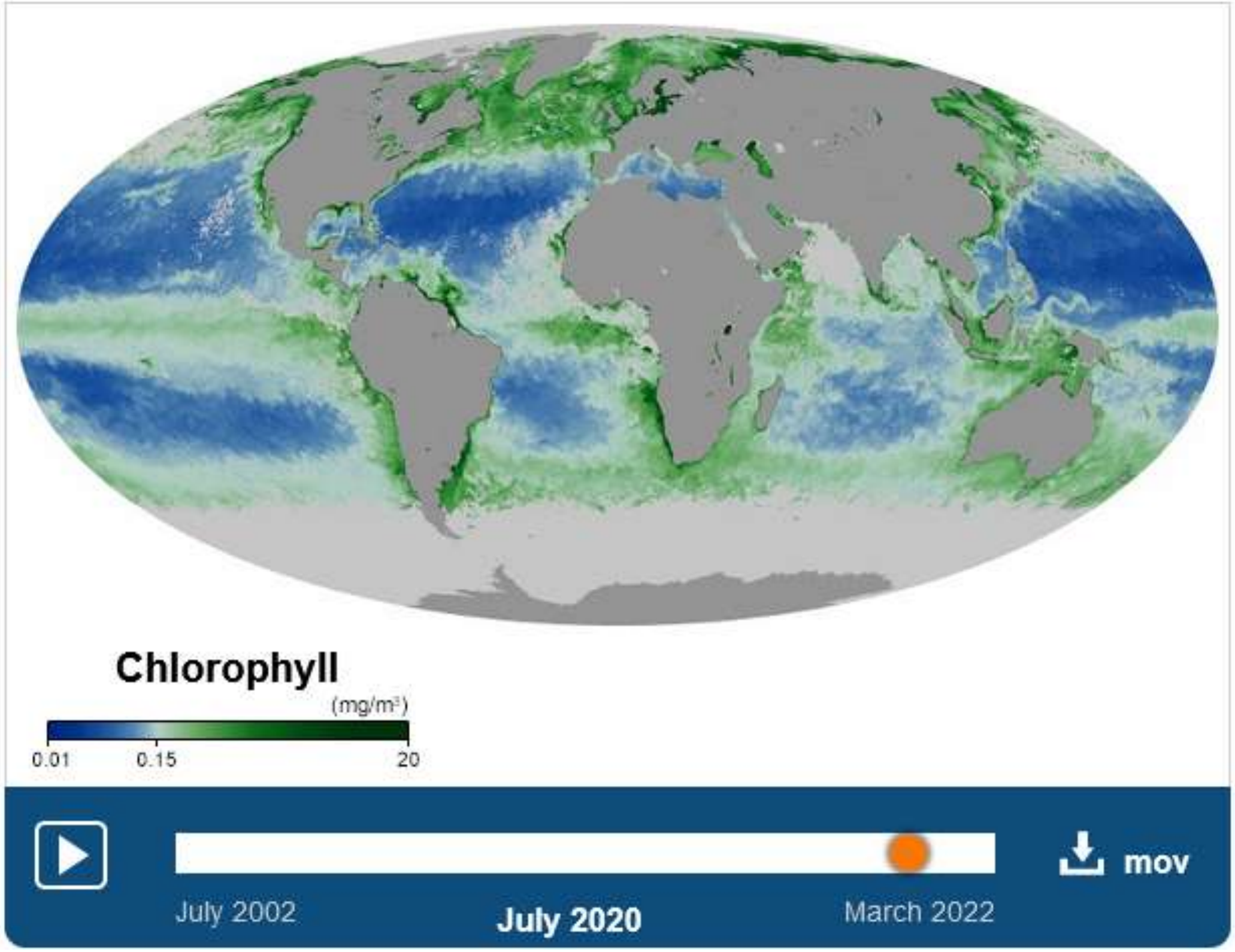
Annual oxygen [umol/kg] at 2500 m. depth (one-degree grid)

Surface water nitrate concentration (μM)

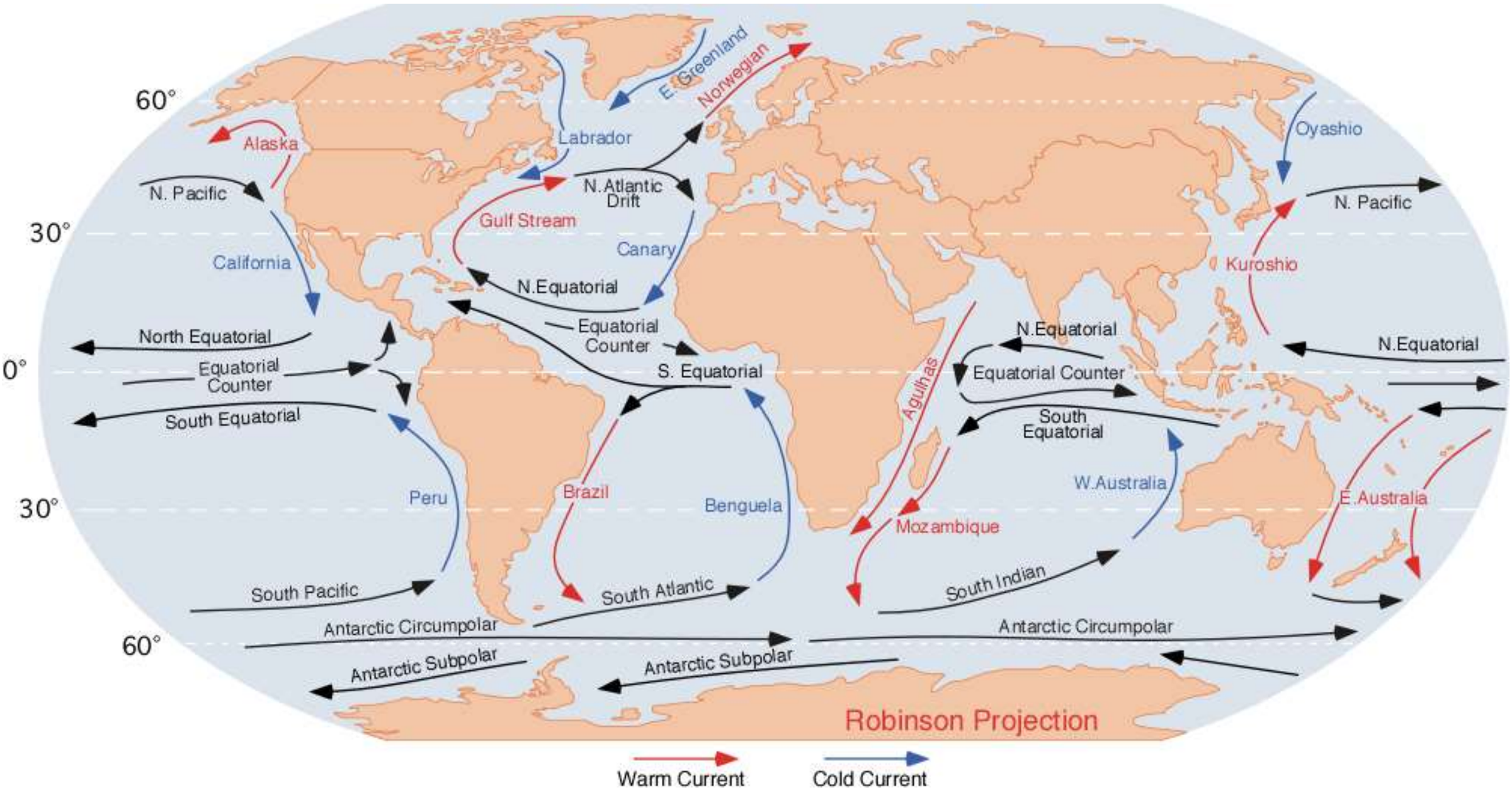


Surface water chlorophyll concentration (μg L^{-1})



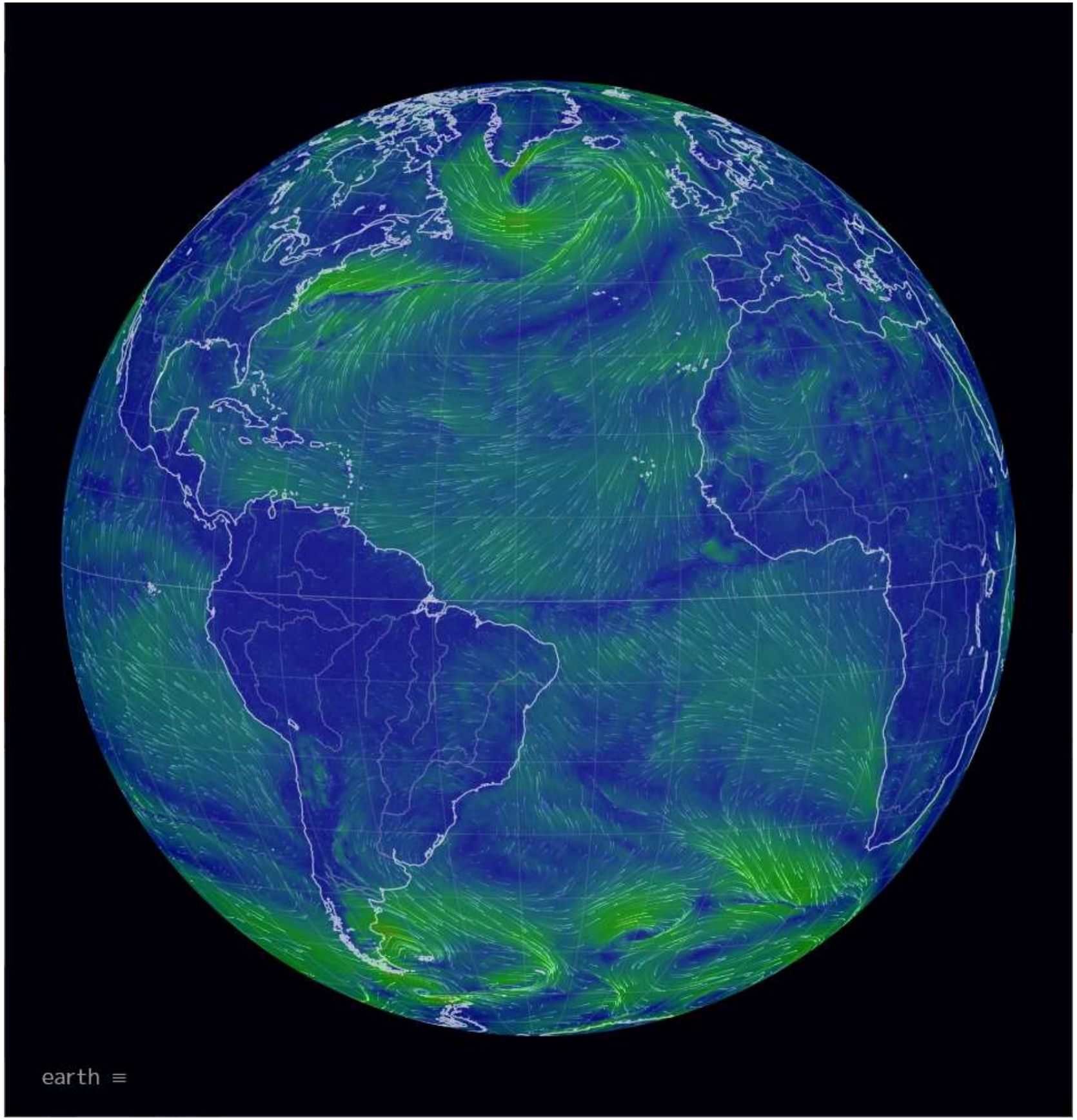


https://earthobservatory.nasa.gov/global-maps/MY1DMM_CHLORA



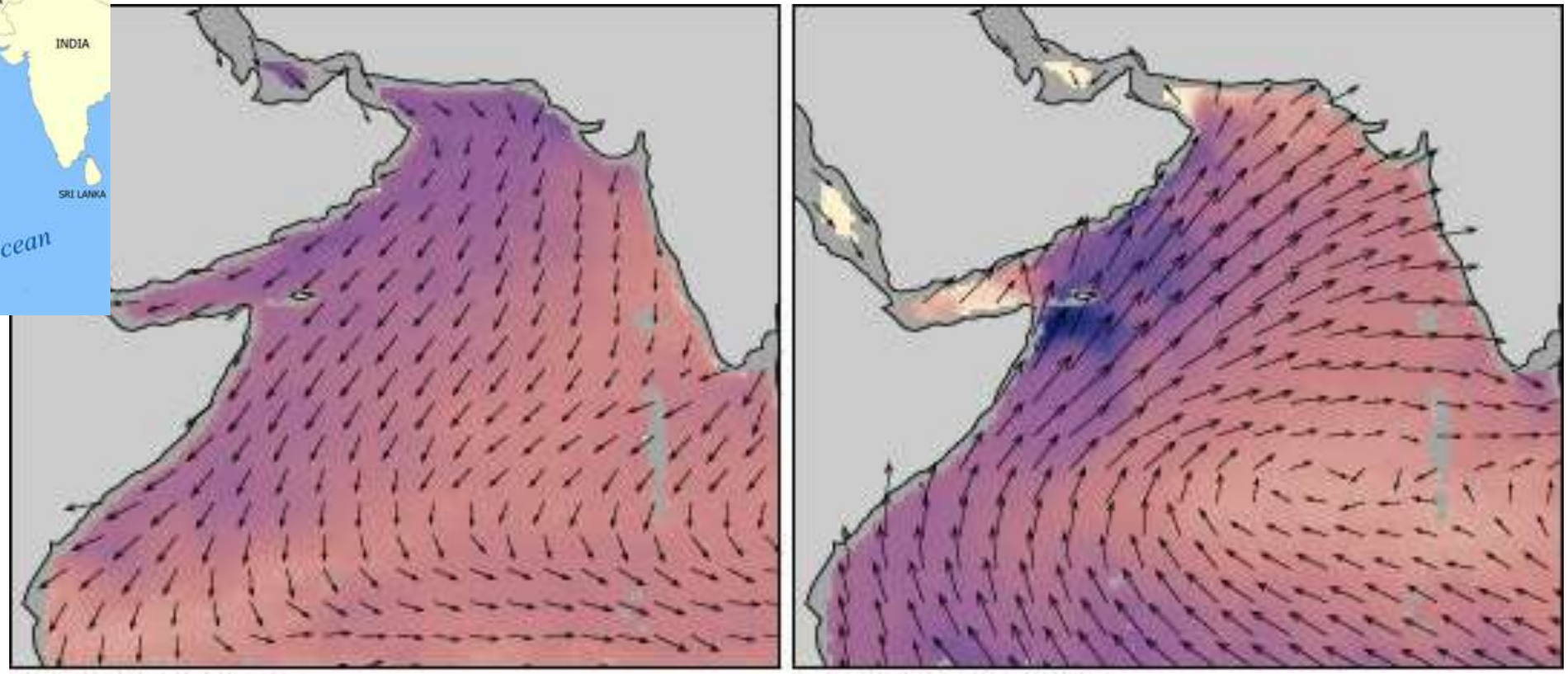
<u>Document 4</u>. Carte des principaux courants marins de surface.

Par Dr. Michael Pidwirny (see http://www.physicalgeography.net) — http://blue.utb.edu/paullgj/geog3333/lectures/physgeog.html, [http://skyblue.utb.edu/paullgj/geog3333/lectures/oceancurrents-1.giforiginal image], Domaine public, https://commons.wikimedia.org/w/index.php?curid=37108971



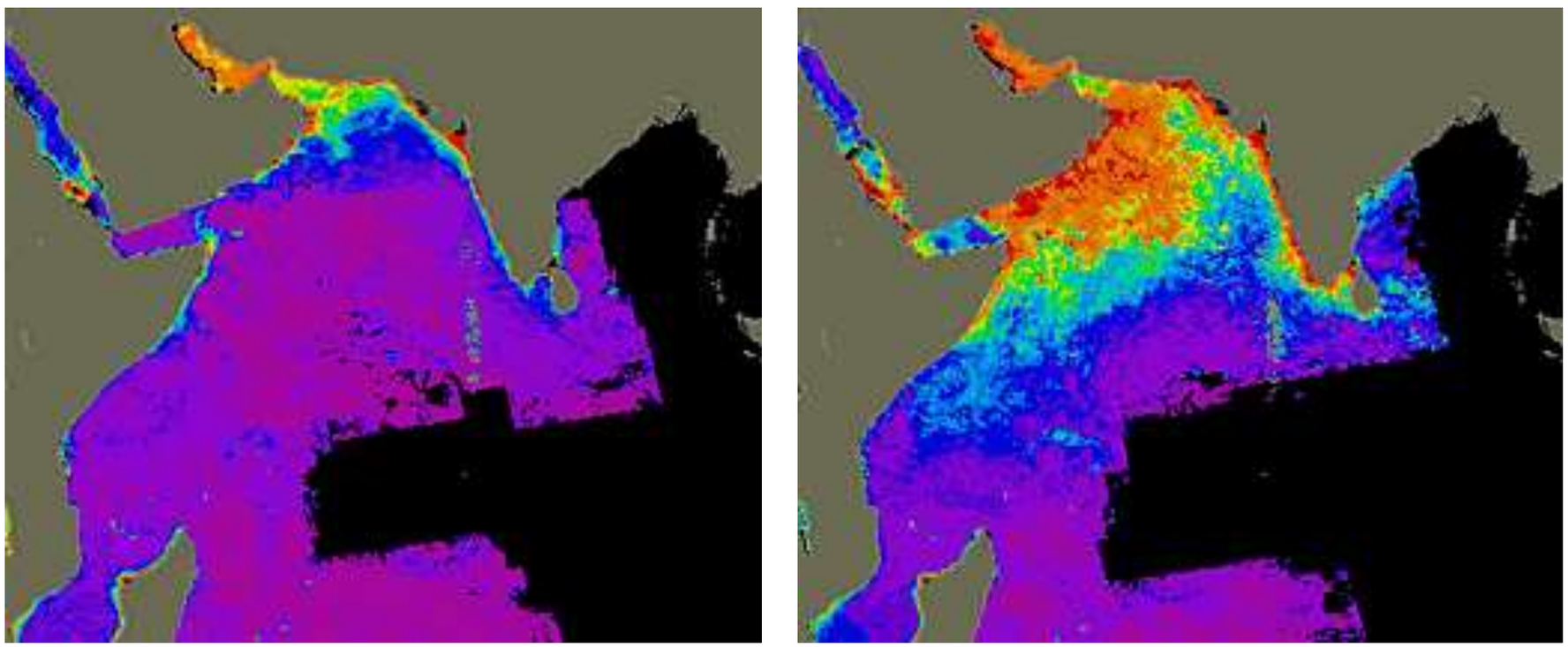
https://earth.nullschool.net/fr/#current/wind/surface/level/orthographic=-37.24,5.15,419

Température des eaux de surface et vents pendant l'hiver et l'été en mer d'Arabie
(les vecteurs indiquent la direction, le sens et la vitesse)

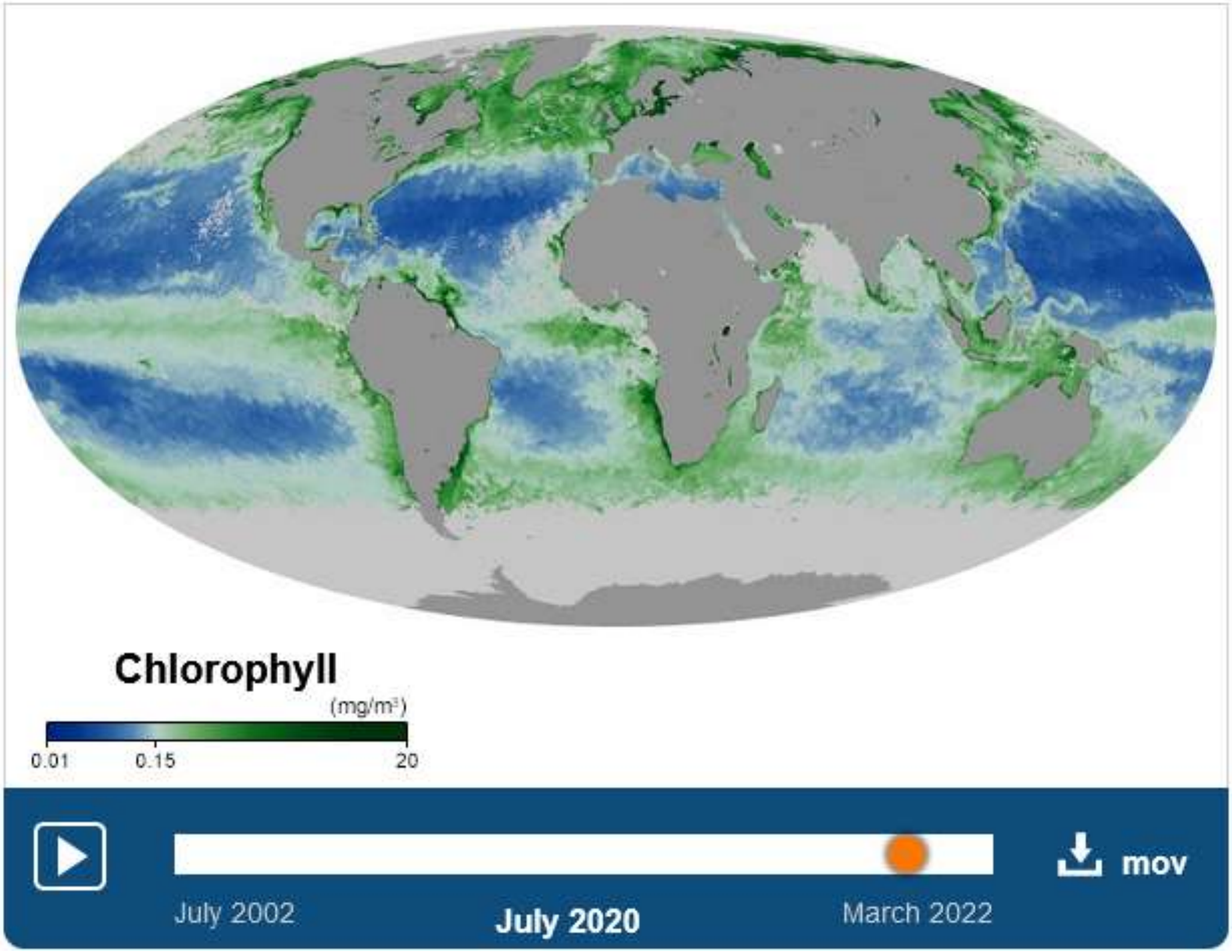


https://earthobservatory.nasa.gov/images/6308/asian-monsoon-strengthens-over-arabian-sea

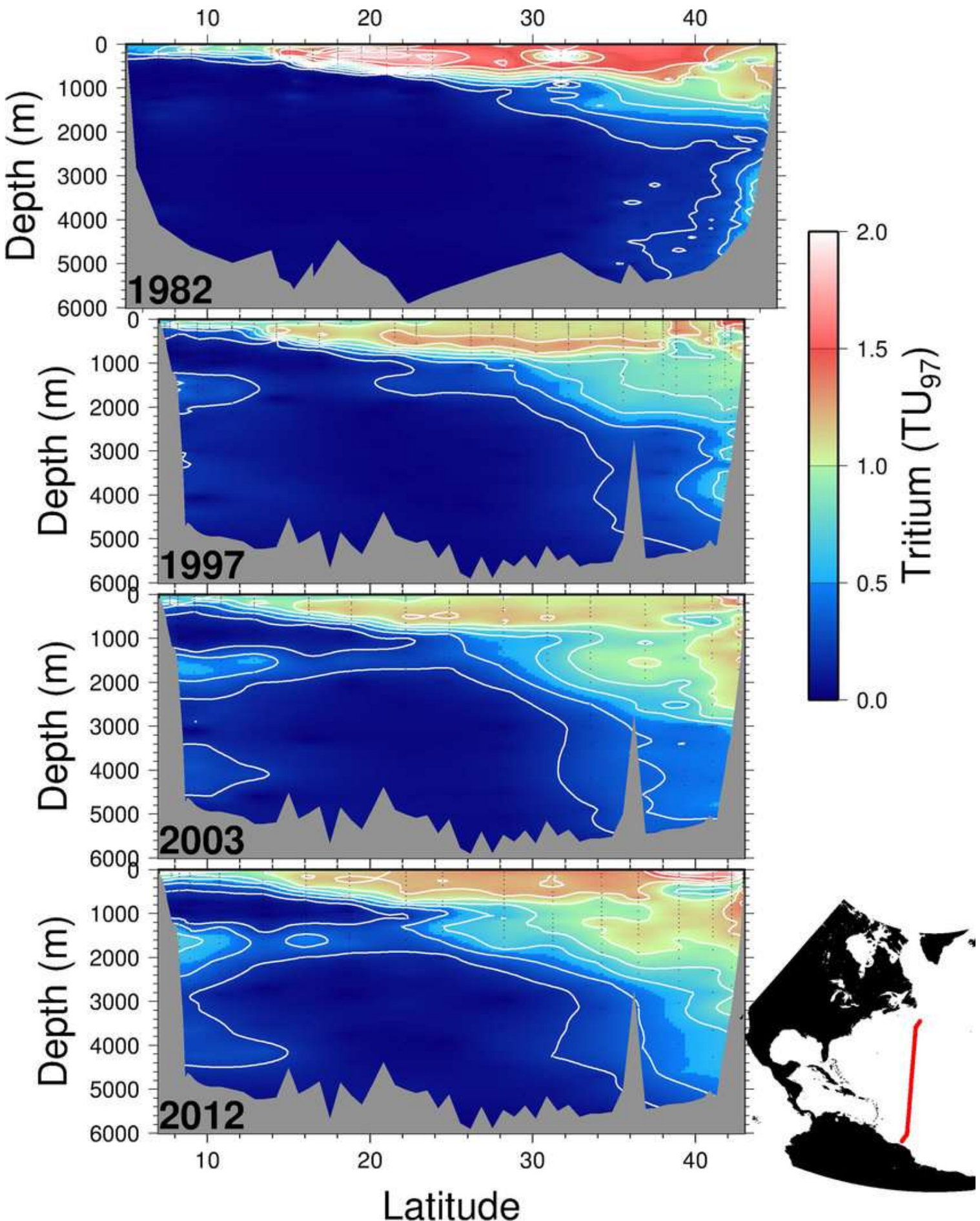
Productivité biologique du phytoplancton dans la mer d'Arabie
A gauche : avril – juin 1979
A droite : juillet – septembre 1979



https://earthobservatory.nasa.gov/features/ArabianSea



https://earthobservatory.nasa.gov/global-maps/MY1DMM_CHLORA

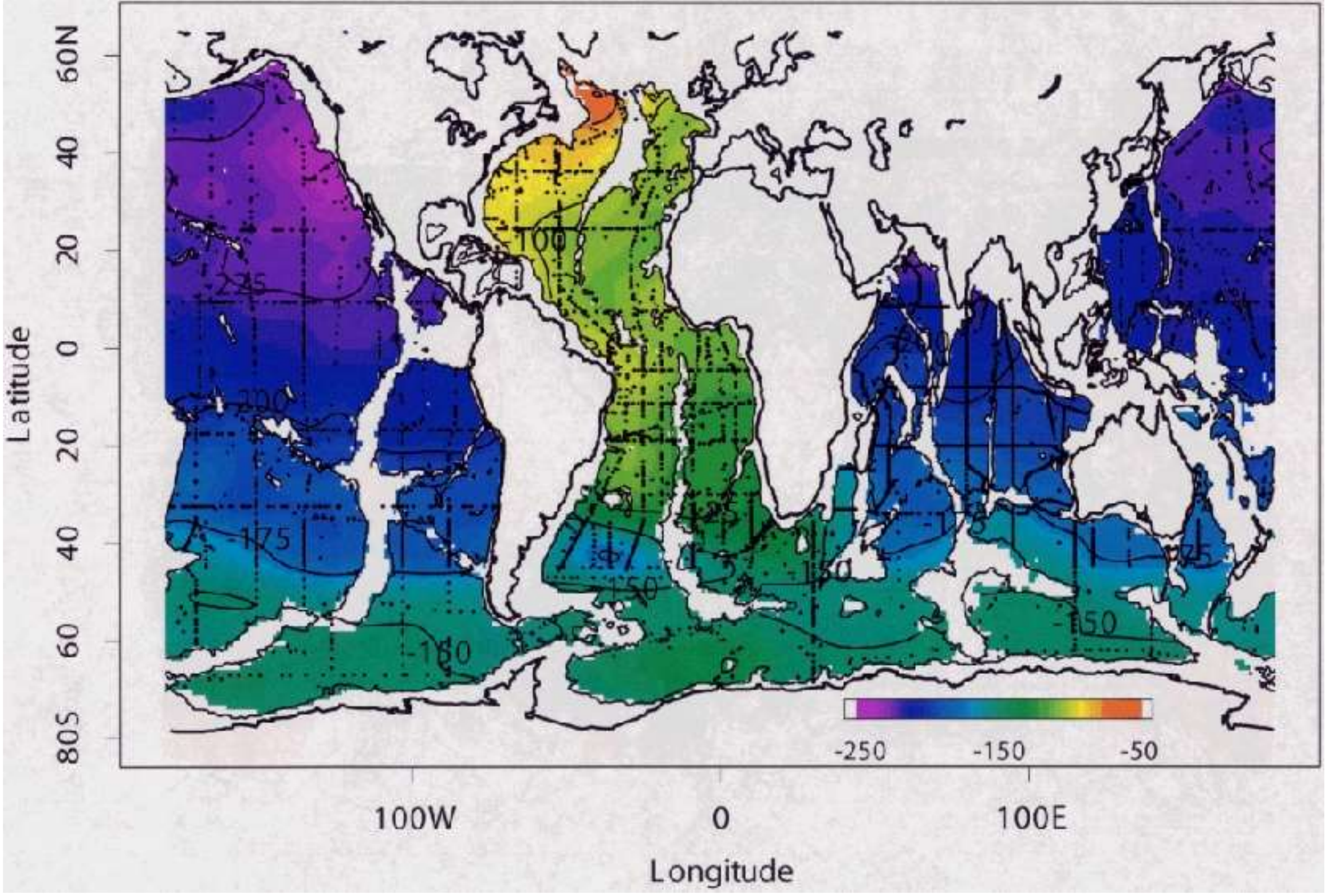


Teneurs en tritium ^3H selon la profondeur dans l'océan Atlantique, le long de transects Nord – Sud à 52°W.

La topographie pour les mesures de 1982 diffère de celles des autres campagnes en raison d'une trajectoire différente.

Le tritium a une demi-vie de 12,3 ans.

"A comprehensive global oceanic dataset of helium isotope and tritium measurements" WJ Jenkins et al. April 2019 Earth System Science Data 11(2):441-454 https://www.researchgate.net/figure/Four-meridional-tritium-sections-along-roughly-52-W-in-the-North-Atlantic-taken-in_fig4_332232291



Objectively mapped natural 14C abundance on the 3500 m water depth level. Radiocarbon abundance is expressed in ∆14C (‰). See Subsection 2.1 for data source and mapping methodology. Contours are 25‰ apart. Dots indicate station locations.

Natural Radiocarbon Distribution in the Deep Ocean K. Matsumoto, R. Key
https://www.semanticscholar.org/paper/Natural-Radiocarbon-Distribution-in-the-Deep-Ocean-Matsumoto-Key/5543297436abf8f7c4b02ae6de772fa2a640a361

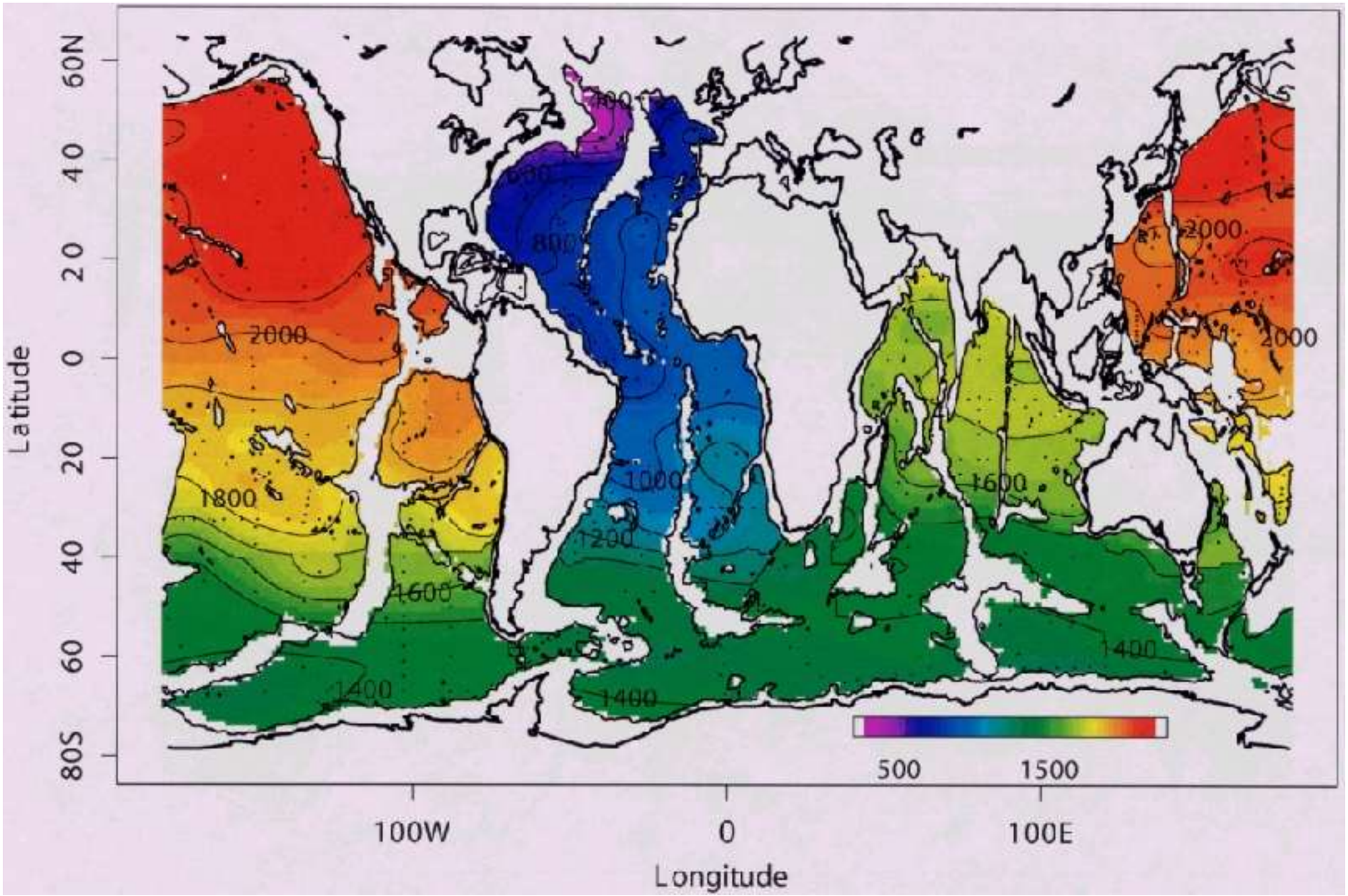


Fig. 2. Objectively mapped conventional 14C age of natural radiocarbon on the 3500 m level. This figure does not correlate exactly with natural Δ14C (Fig. 1), because 14C age is a non-linear function of 14C abundance. Also, in making this figure, Δ14C from Fig. 1 was first converted to 14C age, which was then objectively mapped (i.e., converted then mapped, not mapped then converted). Therefore the mapped variable is different in the two figures. Contours are 100 years apart.

Natural Radiocarbon Distribution in the Deep Ocean K. Matsumoto, R. Key
https://www.semanticscholar.org/paper/Natural-Radiocarbon-Distribution-in-the-Deep-Ocean-Matsumoto-Key/5543297436abf8f7c4b02ae6de772fa2a640a361