

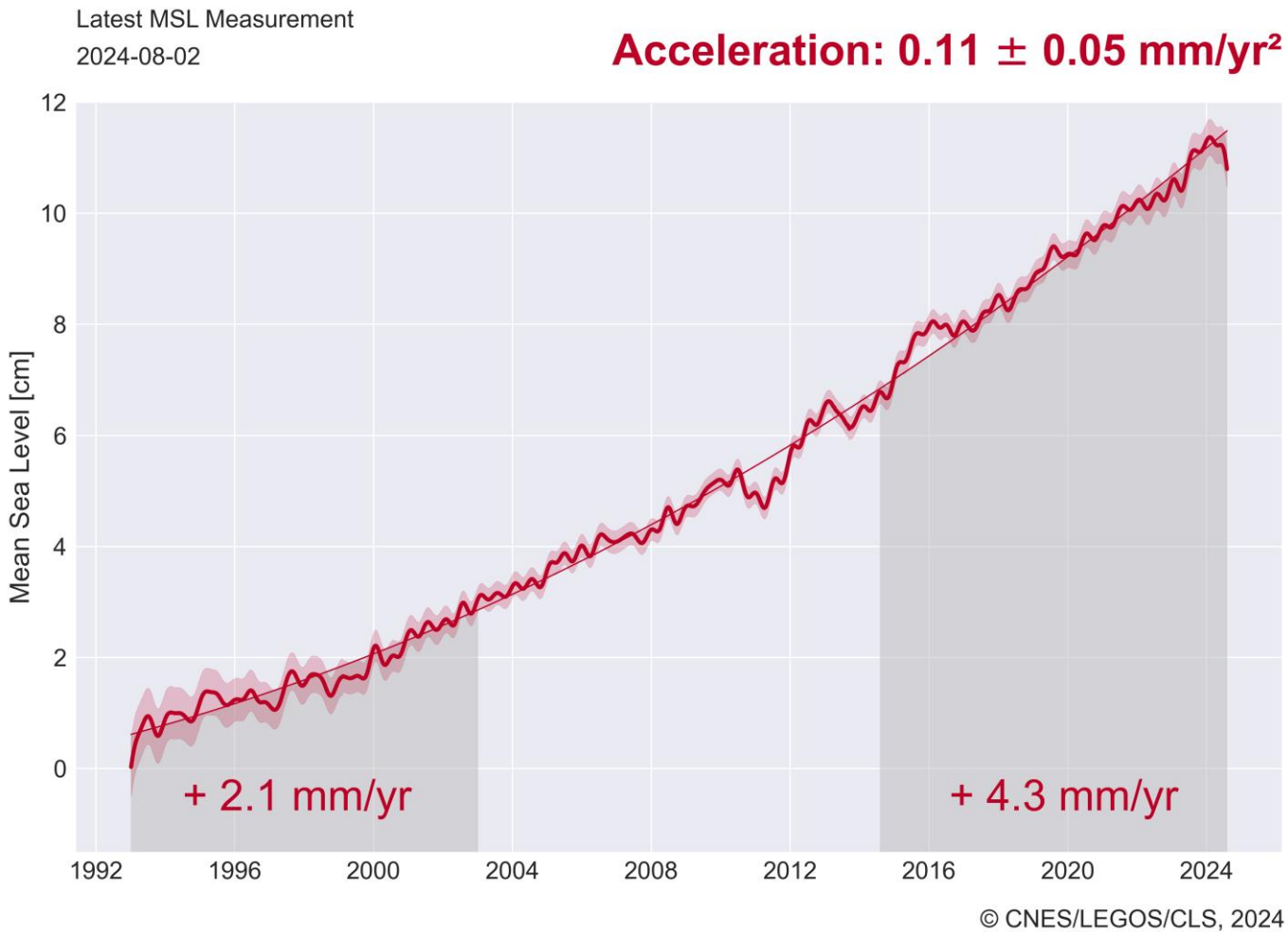


# Sea Level Rise and Ocean Warming

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LOPS/CNRS

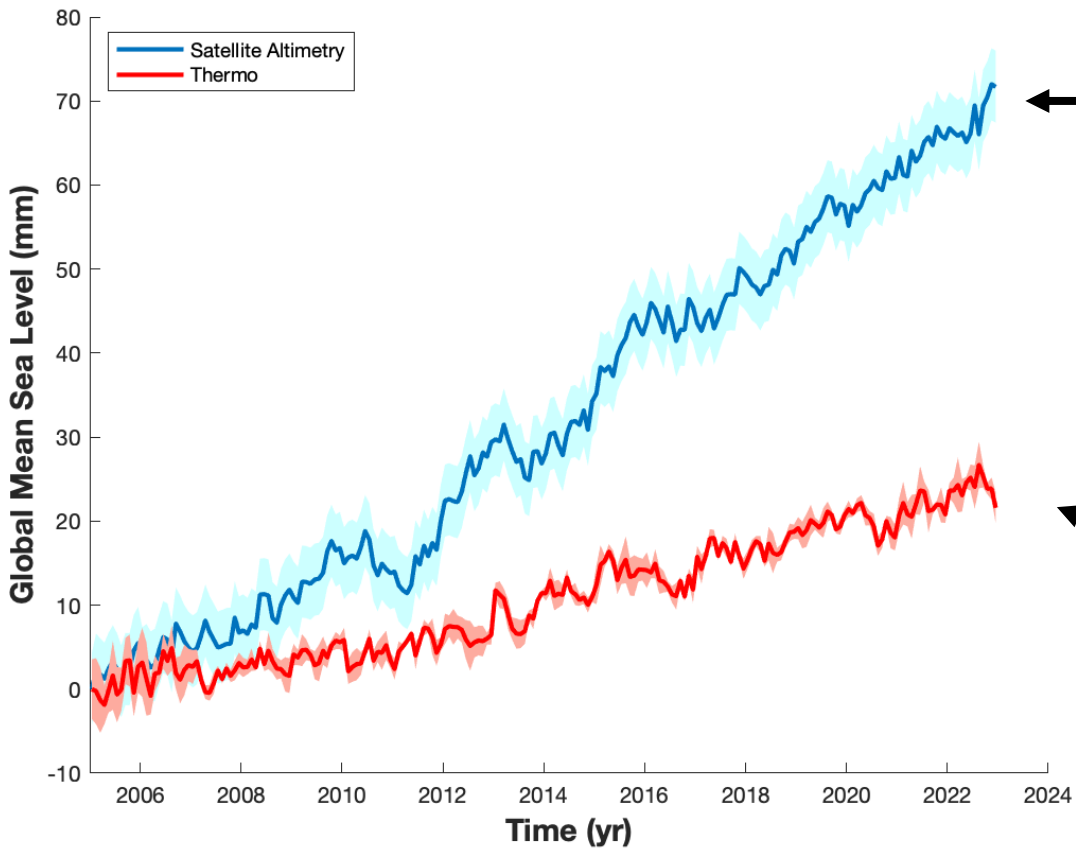
# Global mean sea level rise since 1993



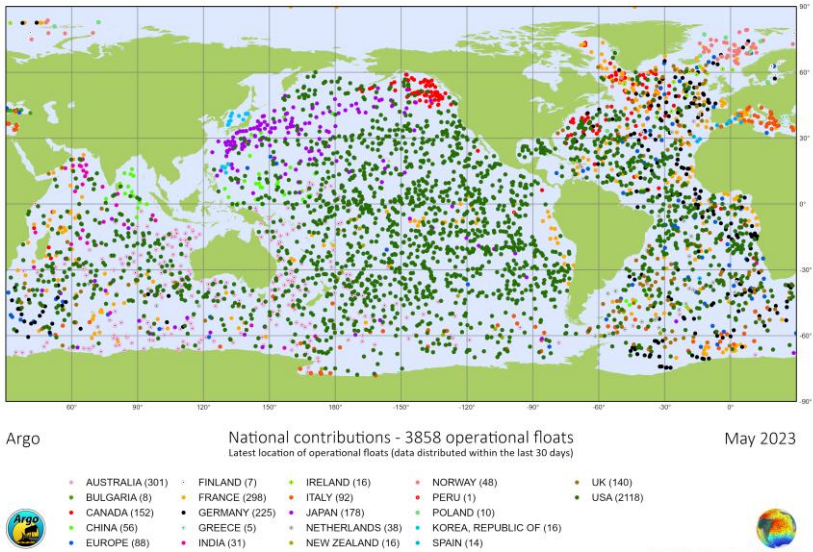
TOPEX/Poseidon (1992-2006)  
Jason 1 (2001-2013)  
Jason 2 (2008-2019)  
Jason 3 (2016- ...)  
S6-MF/Jason-CS (2020-...)

Linear trend (1993-2024):  $3.3 \pm 0.4 \text{ mm/yr}$

# Global mean sea level rise since 1993



Argo network



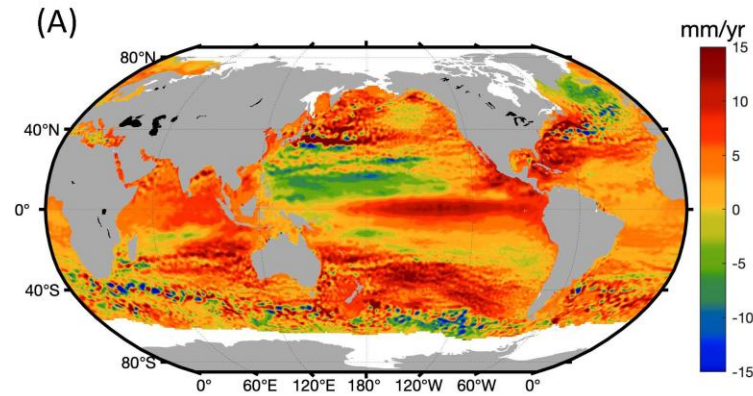
2005-2022 :

-> Global mean sea level rise 4.1 mm/yr

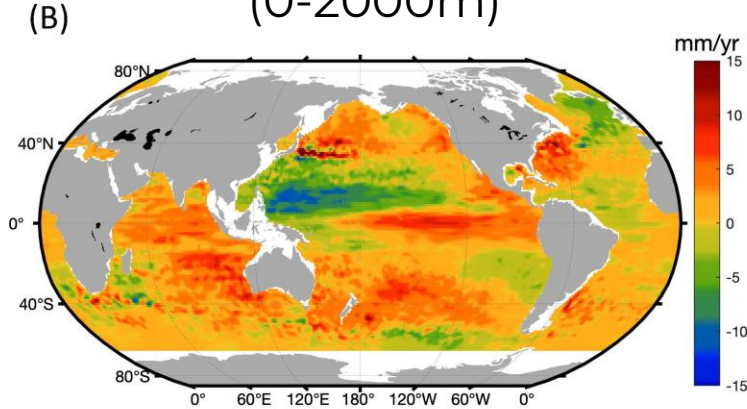
-> Global ocean warming explains 35%

# Maps of regional sea level trends over 2005-2015

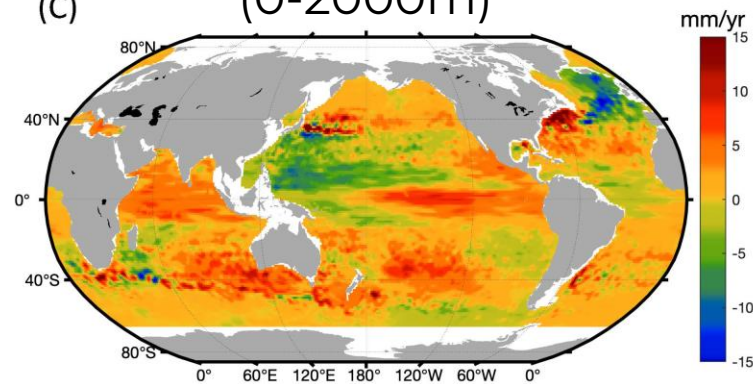
Satellite altimetry



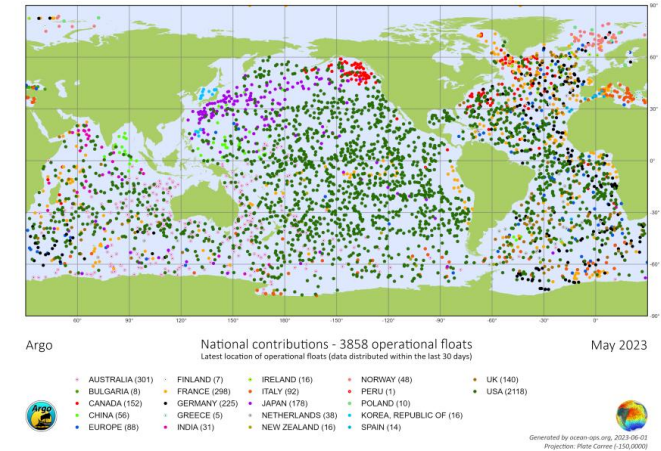
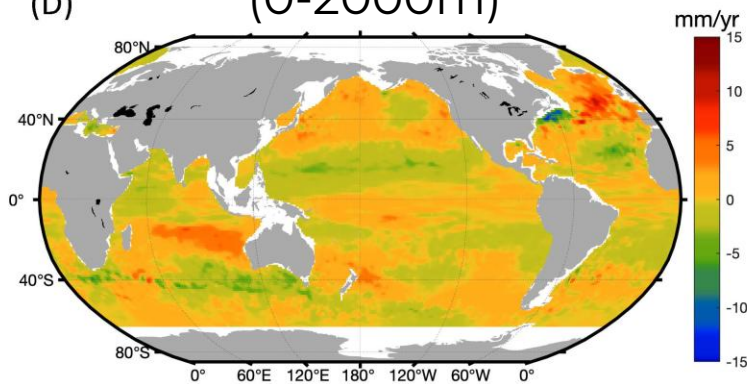
Argo-based steric sea level  
(0-2000m)



Argo-based thermosteric sea level  
(0-2000m)

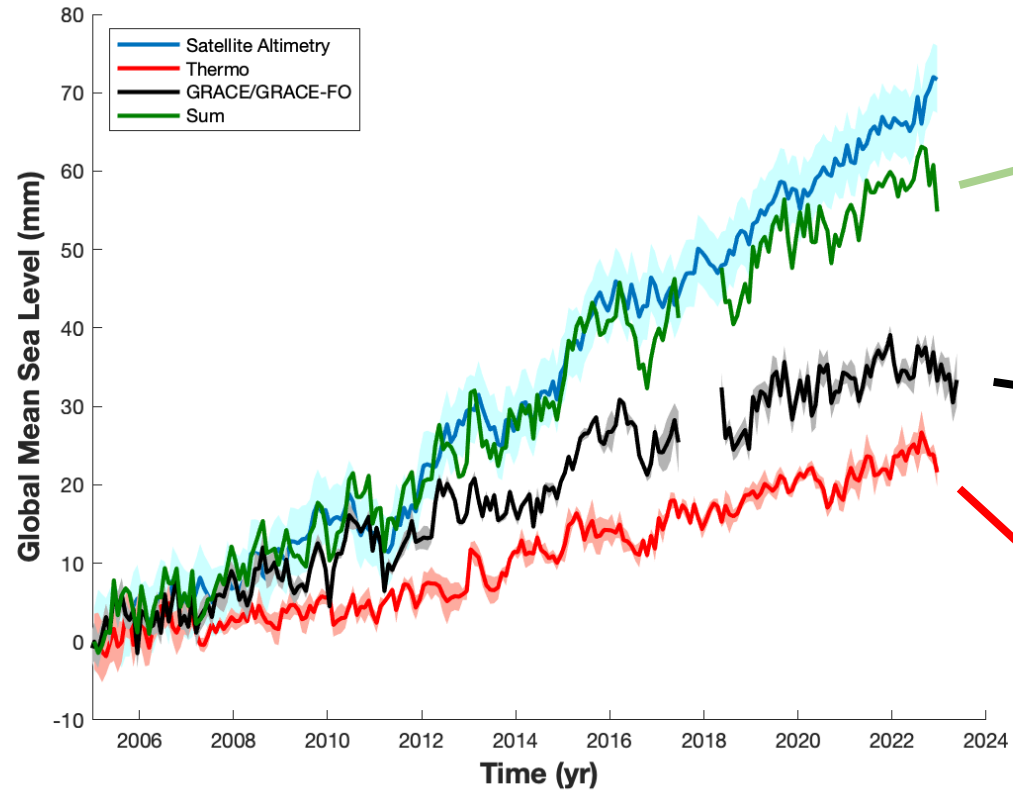


Argo-based halosteric sea level  
(0-2000m)

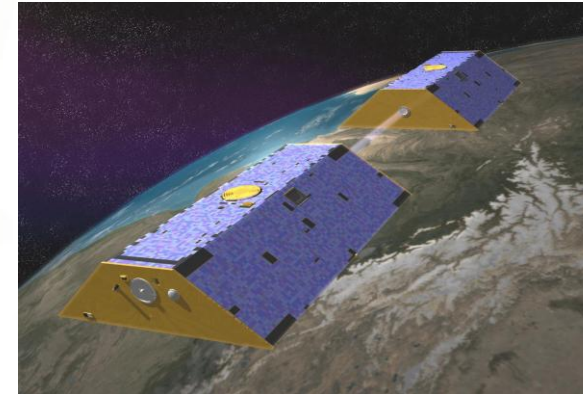


-> Regional variability in  
observed sea level trends  
-> Steric origin  
-> Mainly explained by  
temperature

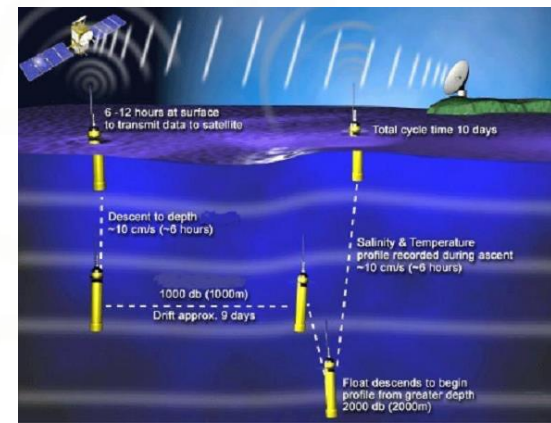
# Global Mean Sea Level Budget over 2005-2020



Argo + GRACE/GRACE-FO



GRACE / GRACE-FO



Argo floats