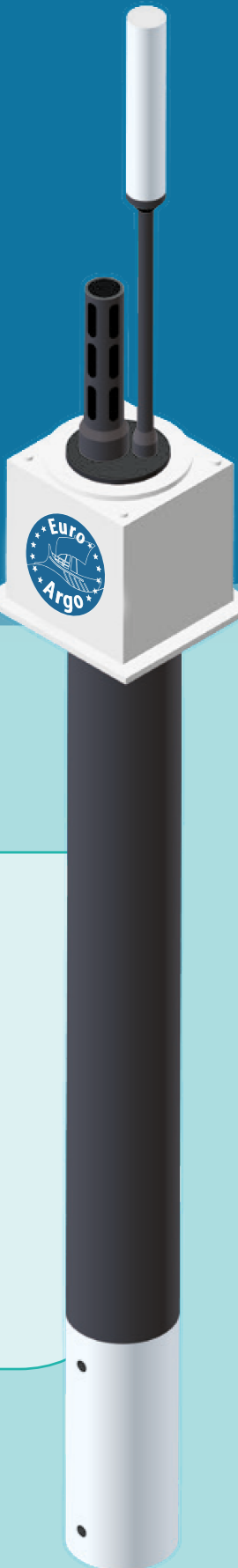


Argo floats

Ocean watchers unveiling the ocean's role in a changing climate



Why observe the ocean with Argo floats?

70% of our planet is covered by the ocean. Yet, it remains **largely unknown**. Until the early 2000s, we had no global vision of the deep ocean. The ocean plays a crucial **regulatory role** in the Earth's climate system.

90% of the **excess heat** generated by human-induced CO₂ emissions are absorbed by the ocean.

1

50% of the **sea level rise** is due to **ocean heat storage**.

2

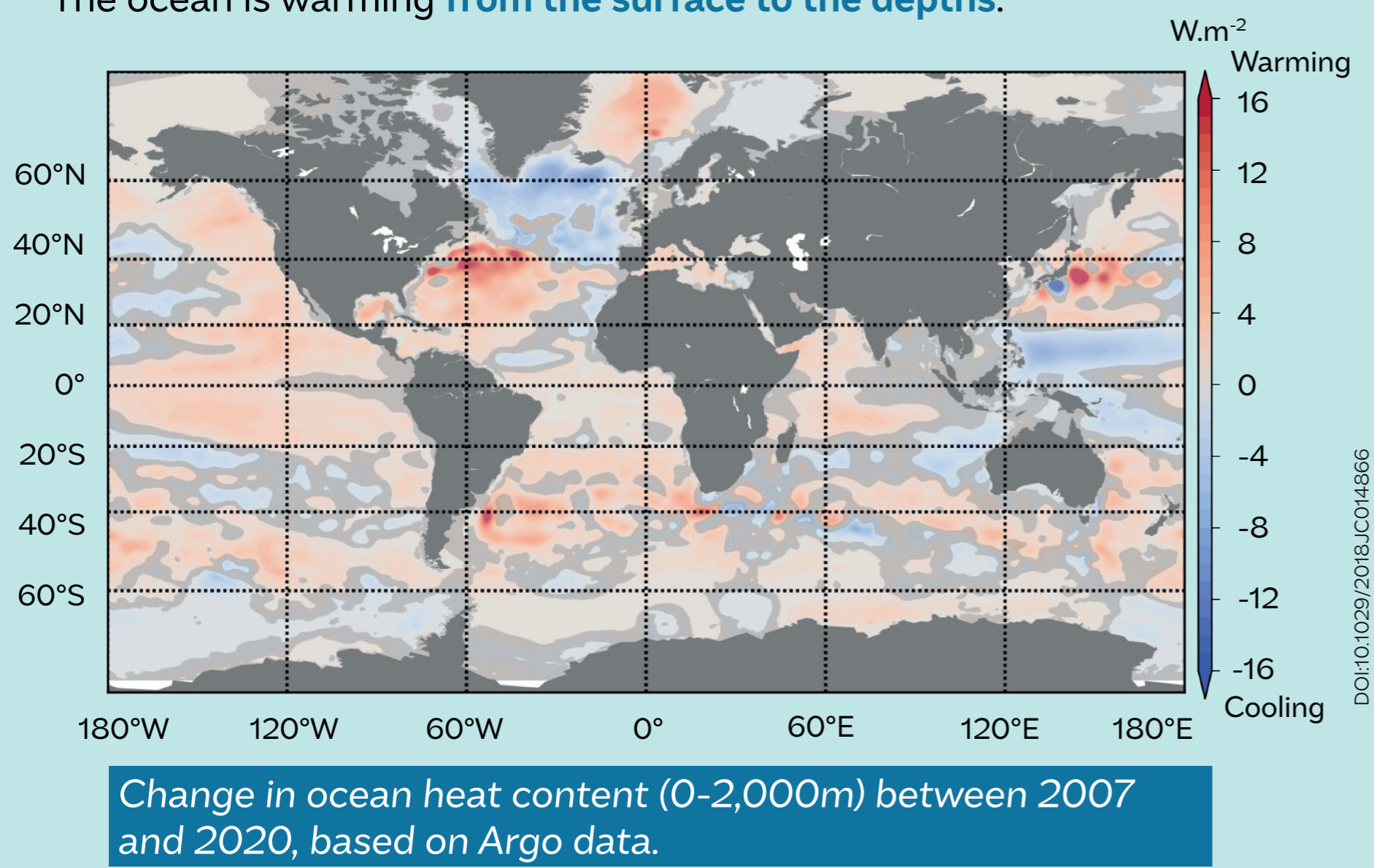
25% of human-induced CO₂ emissions are absorbed by the ocean.

3

The ocean is warming: Argo floats reveal changes in seawater temperature

1

The ocean is warming **from the surface to the depths**.

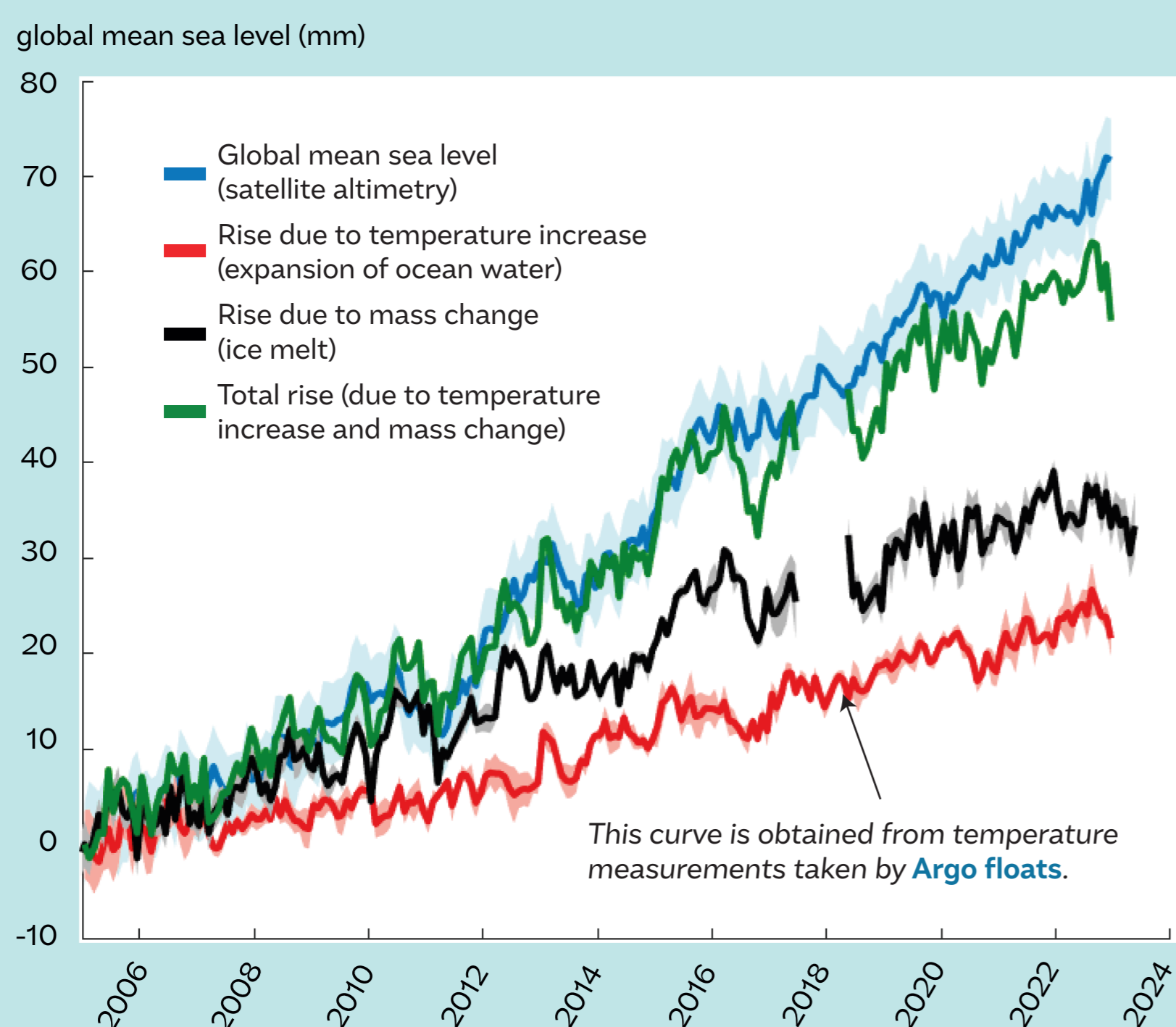


➔ **It impacts** pack ice and floating ice shelves which are melting, for example.

The sea level is rising: Argo floats reveal the expansion of seawater

2

Sea level rise is due to both **seawater expanding as it warms** and **ice melting**.



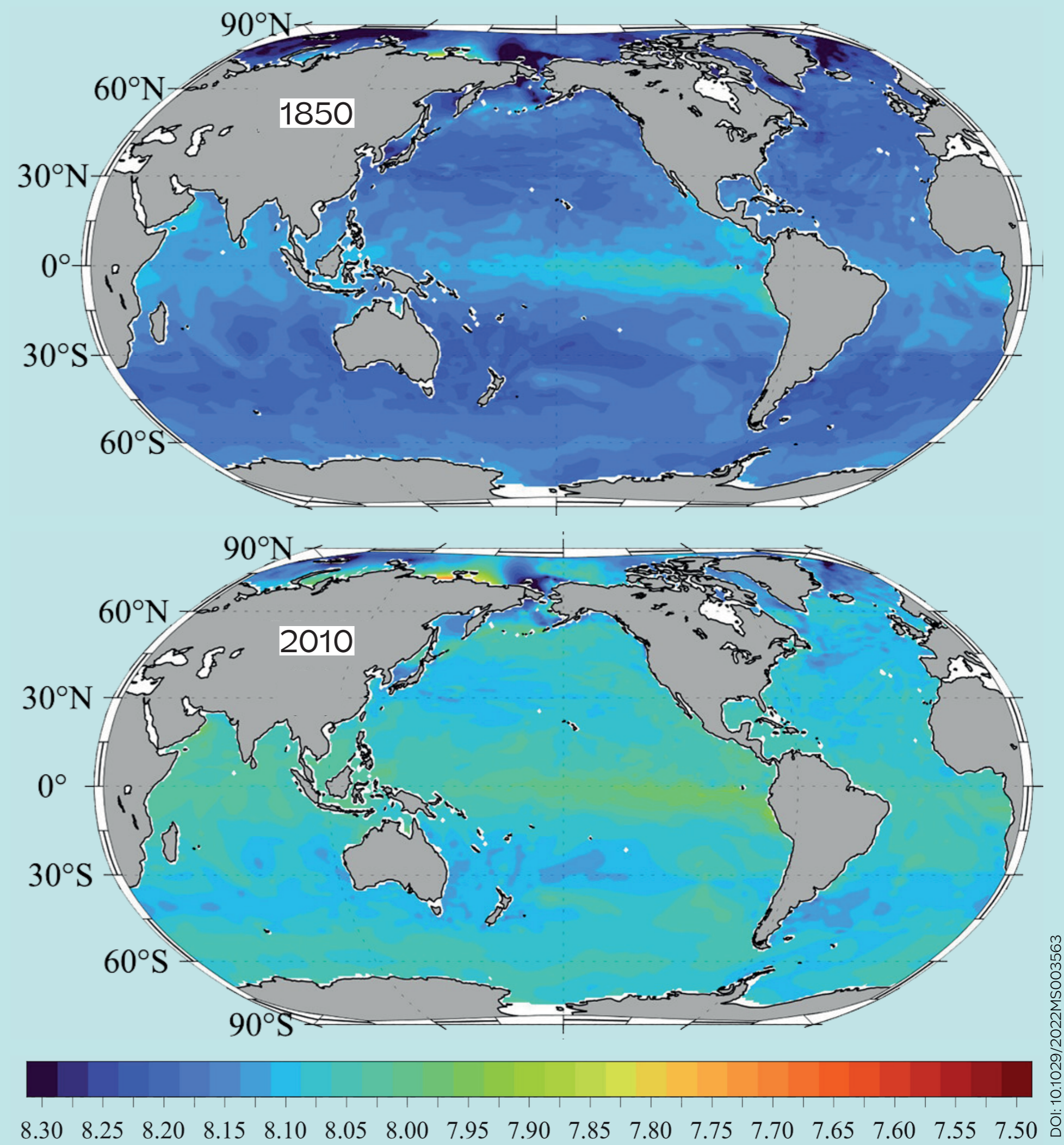
Evolution of global mean sea level, from 2006 to 2024. The difference between the blue and green curves indicates that the observations need to be improved.

➔ **It impacts** the populations residing near the coast, for example.

The ocean is acidifying: Argo floats reveal changes in seawater pH

3

The ocean is absorbing rising amounts of atmospheric carbon dioxide (CO₂) due to increased emissions. This causes a change in the chemistry of seawater: the **pH decreases**, meaning that the ocean is **acidifying**.



Mapping of ocean surface pH levels in 1850 and 2010.

➔ **It impacts** living species, for example, causing extinctions, migrations, proliferations. This notably modifies marine food resources.

Argo is a **global, real-time in situ ocean observation network** comprising around **4,000** autonomous submersible robotic instruments known as "**floats**". These autonomous platforms **monitor the state of the ocean** in order to **better understand and predict its role in the climate system** and its **health**. They are equipped with various **sensors** that measure seawater parameters such as temperature, salinity and pH. **Data** are collected as the float moves through the water column and is regularly **transmitted to data centres via satellites** when the float reaches the surface.

Learn more:

