

20 March 2025

14:00 CET

DATAVIZ

WEBINAR SERIES 

#3

EXPRESS
OCEAN DATA



PROGRAMME OF
THE EUROPEAN UNION



Copernicus
Marine Service



implemented by
MERCATOR
OCEAN
INTERNATIONAL

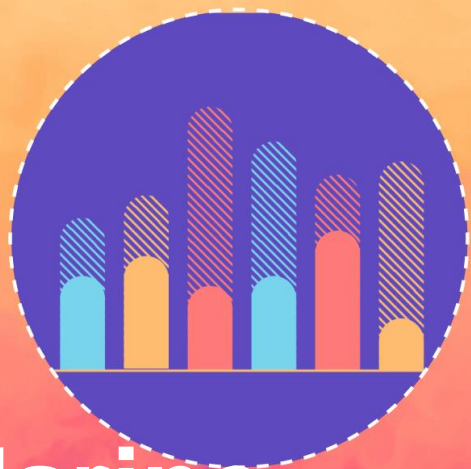
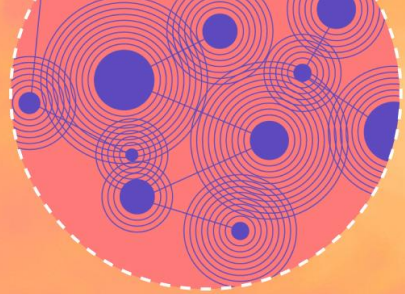


Amélie Loubet

Mercator Ocean International

*Oceanographer specialised in
ocean monitoring*

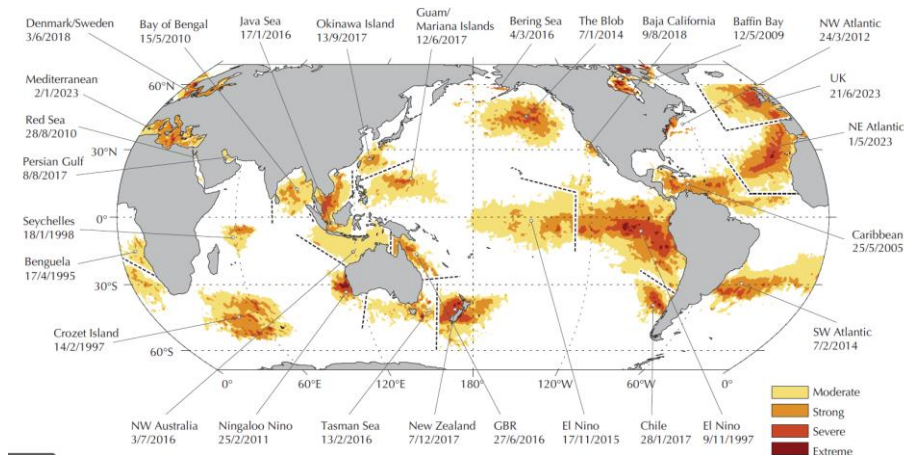




Marine Heatwaves



Extreme rises in ocean temperature for an extended period of time



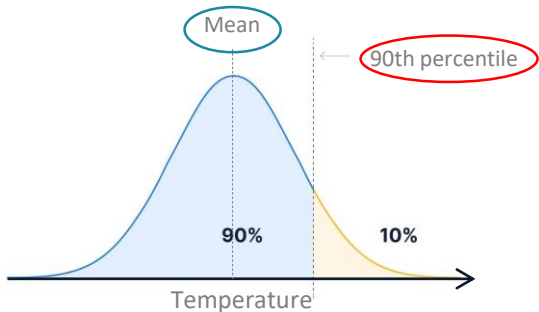
Major MHW events since 1995

Source: www.marineheatwaves.org

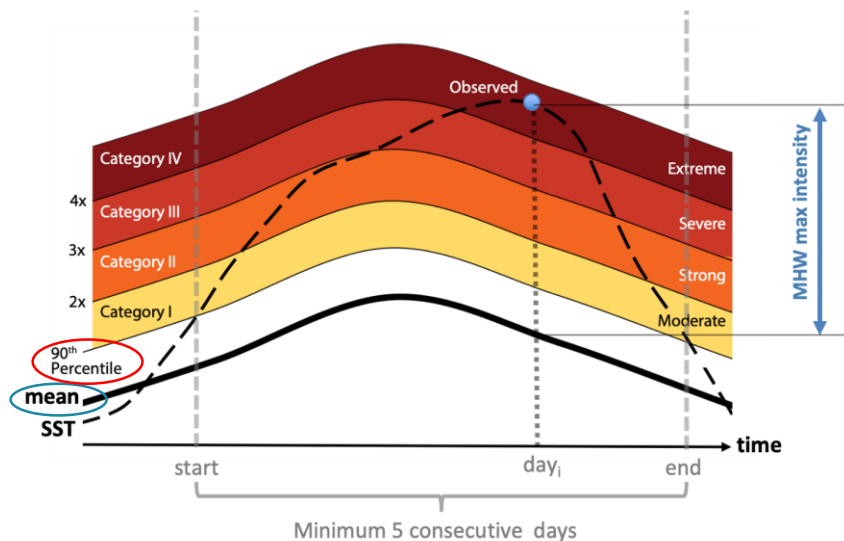
→ Becoming longer, warmer and more frequent

MHW: Ocean temperatures in the top 10% of the hottest recorded values for at least five consecutive days.

Defining the 10% hottest recorded values:



Long-term temperature distribution (30 years)

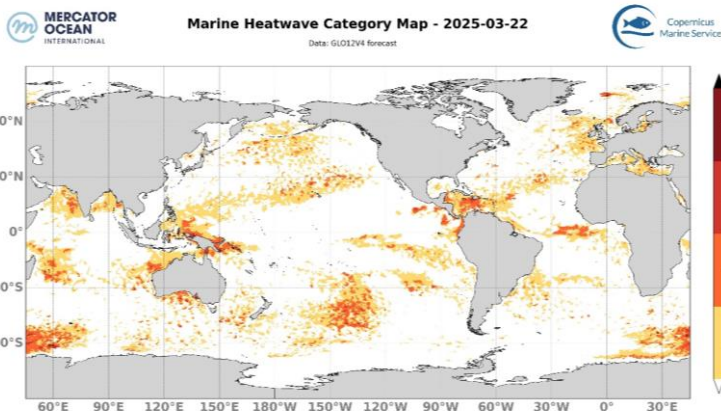


Temperature temporal evolution

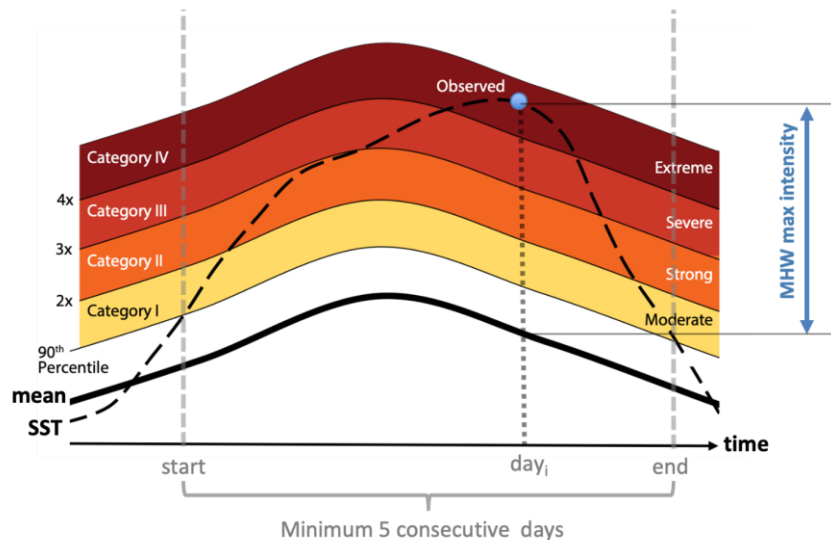
Source: Adapted from Hobday et al. (2018)

MHW: Ocean temperatures in the top 10% of the hottest recorded values for at least five consecutive days.

MHW Category map, forecast for 2025-03-22:

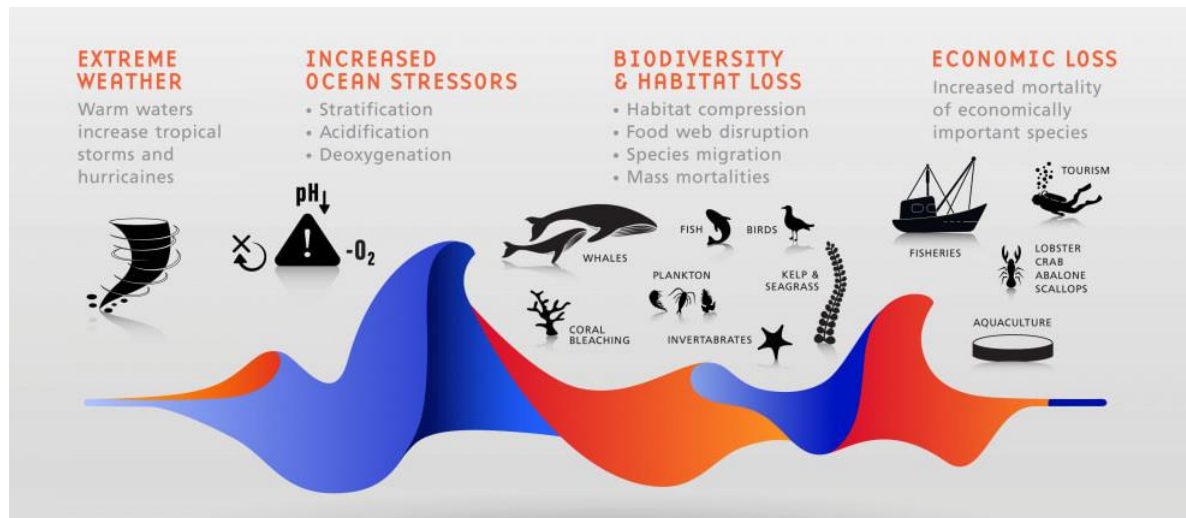


Source: Mercator Ocean's MHW bulletin



Temperature temporal evolution

Source: Adapted from Hobday et al. (2018)



Main MHW impacts

Source: www.marineheatwaves.org

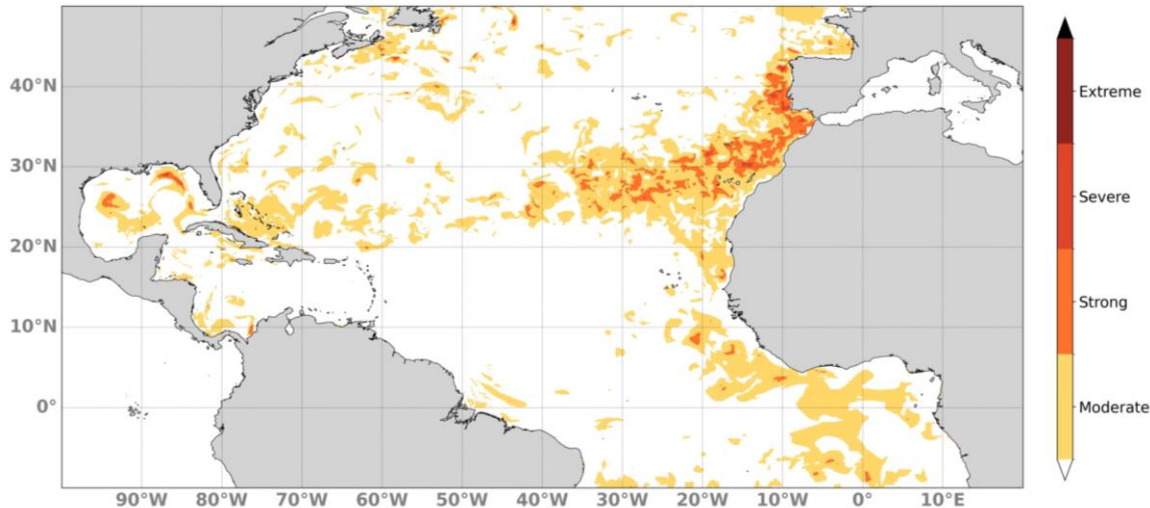
MHWs have negative impacts on biology, marine ecosystems and human society → need to monitor them



The 2023 MHW in the North Atlantic Tropical Ocean

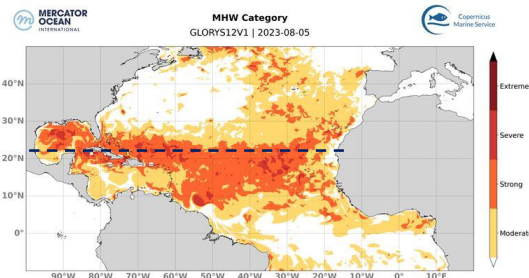
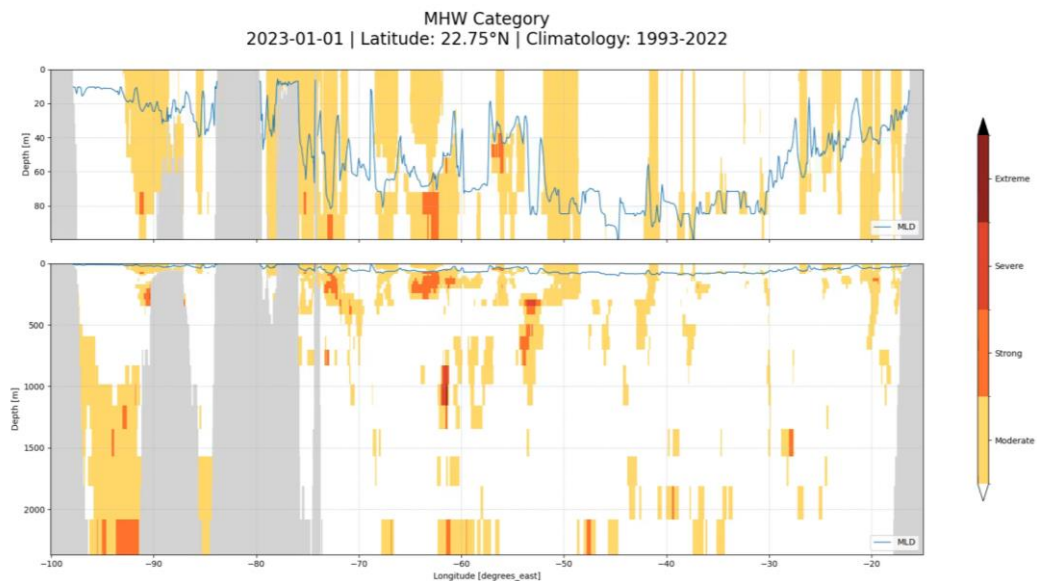


MHW Category
GLORYS12V1 | 2023-01-01



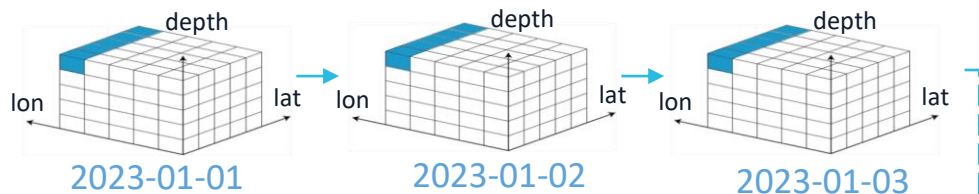
- Intense and long lasting surface MHW
- **+99%** of the area experienced a MHW

Vertical cut of the 2023 MHW category at 22°N

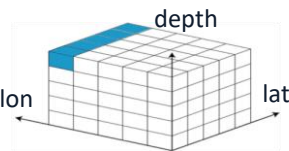


Surface MHW Category on 2023-08-05.
Black line indicates the location of the
vertical cut.

- MHW extends at depth
- Develops at the surface and deepens



2023-12-26

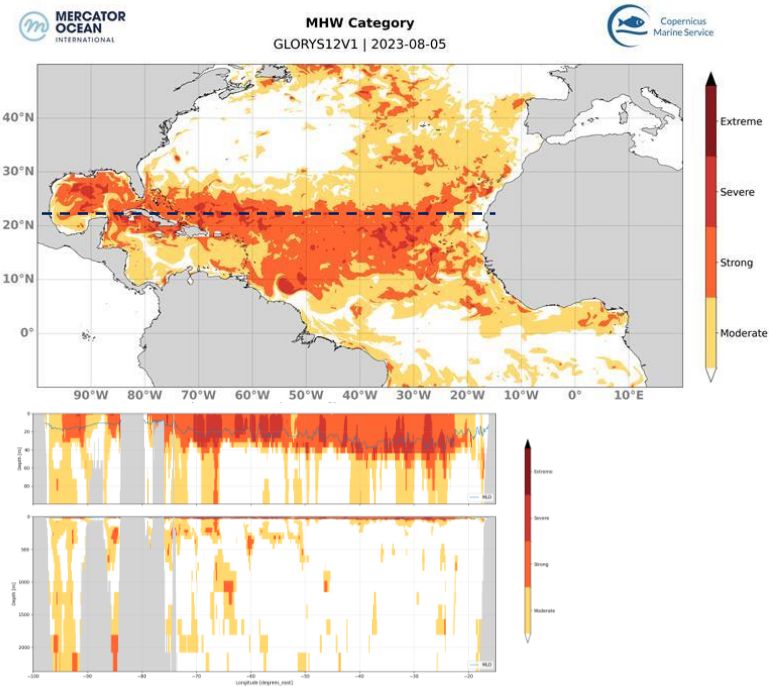


Download data:



- The 2023 evolved from east to west and from surface to subsurface
- How to visualised the 3D evolution of the event ?

MHW Category for 2023-08-05 at surface (top) and at depth (bottom)





To sum up

MHW: extrem temperatures over a prolonged period

Unprecedented events in 2023 in the North Atlantic Tropical Ocean, extending to depth

→ How can we visualise its 3D evolution?