



Press Release

Toulouse, France - 8th April 2024

The Ocean absorbed a record high level of heat energy in 2023, reveals a new study published in Nature magazine

A new paper in *Nature Reviews Earth & Environment*, "Ocean Heat Content in 2023" co-authored by Mercator Ocean's Karina von Schuckmann and Audrey Minière, sheds light on the global accumulation of Ocean Heat Content (OHC), which indicates the quantity of energy absorbed by the Ocean at varying depths and locations. The paper revealed that OHC reached a record high in 2023, continuing the long-term increase registered since 1960. Ocean Heat Content has been breaking records yearly since 2017. Trends found in the research paper confirm a robust long-term Ocean warming acceleration.

The repercussions of Ocean warming have already surfaced in different forms, including modifications to Ocean circulation, sea level rise, vertical stratification, heightened intensity of tropical cyclones, decreased levels of Ocean oxygen and melting of sea ice. The group of scientists recommends that sustained monitoring of Ocean Heat Content is crucial to designing informed policies for adaptation and mitigation.

Advanced Ocean observation systems developed over the last decades have shown that [approximately 90% of the extra heat](#) stored in the climate system from 1960 to 2020 due to human activities is absorbed by the Ocean, resulting in OHC increases. Such variations in OHC have been recorded in long timescales (from 1960 up to 2023) as well as in shorter timescales, as shown in yearly measurements.

Global OHC has broken records every year since 2017, with levels in 2023 being the largest recorded to date. OHC accumulates at various rates depending on Ocean depth and spatial features—the study has observed that most heat is stored in the Atlantic and Southern Oceans, which are heating faster than the Pacific and Indian Oceans. The authors' conclusions are supported by diverse evidence, including *in situ* observations, satellite observations, climate models along variations in the Earth Energy Imbalance (EEI).

Read the paper at the following link: <https://www.nature.com/articles/s43017-024-00539-9>

Read a dedicated article on Mercator Ocean's website: <https://www.mercator-ocean.eu/en/news/new-paper-co-authored-by-moi-oceanographers-reports-record-breaking-ocean-heat-content-levels-in-2023/>

About Mercator Ocean International

Mercator Ocean International (MOi) is a non-profit organization (in the process of transforming into an intergovernmental organization) committed to building a science-based digital Ocean to support the conservation and sustainable use of the Ocean.

MOi provides an operational digital description of marine environments worldwide and assists international organisations in implementing community and institutional programs, projects, and initiatives. MOi continually fosters interactions between scientists, policymakers, public and institutional decision-makers, and civil society.

Led by Director General Pierre Bahurel, MOi is based in Toulouse and has over 100 employees. Its ten current associate/shareholder entities are leading international scientific actors: CNR (National Research Council of Italy), CNRS (National Center of Scientific Research, France), Ifremer (French Research Institute for Exploitation of the Sea), IRD (Institute of Research for Development, France), Météo-France, SHOM (Hydrographic and Oceanographic Service of the French Navy), CMCC (Centro Euro-Mediterraneo sui Cambiamenti Climatici, Italy), MetOffice (UK), NERSC (Nansen Environmental and Remote Sensing Center, Norway), and Puertos del Estado (Spain).

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