



Press Release, 19 June 2023

# State of the climate in Europe 2022 report

*World Meteorological Organization and the Copernicus Climate Change Service, with contributions from Mercator Ocean International*

The [State of the Climate in Europe 2022](#) report was published today, and it is the second edition of this annual series. This joint publication by the World Meteorological Organization (WMO) and the European Union's Copernicus Climate Change Service summarizes the state of the climate, and the extreme and high-impact weather and climate events in 2022 for the Regional Association for Europe WMO RA VI (Europe) domain, in the context of long-term climate variability and climate change. Mercator Ocean International has contributed with analysis surrounding sea surface temperature, ocean heat content and marine heatwaves, supported with Copernicus Marine Service data and indicators.



Caption: State of the Climate in Europe 2022, report cover.

## Key findings for the ocean

- In 2022, sea-surface temperatures across the North Atlantic area of the WMO Europe region were the warmest on record and large portions of the region's seas were affected by strong or even severe and extreme marine heatwaves.
- Regional rates of surface ocean warming, particularly in the eastern Mediterranean Sea, the Baltic and Black Seas, and the southern Arctic were more than three times the global average.
- In 2022, large portions of the region were affected by strong or even severe and extreme marine heatwaves. Some marine heatwave periods lasted approximately 4–5 months, such as in the western Mediterranean Sea, the English Channel, the southern Arctic and the northern Barents and Kara Seas.
- In the Mediterranean Sea, sea-surface temperature anomalies for summer 2022 (June–August) reached values as high as +4.6 °C locally, exceeding the values of summer 2003, which held the previous record high.
- At its annual minimum in September, the monthly mean sea ice extent of the European Arctic sector was 6% below average, the fourteenth lowest in the 1979–2022 satellite record. It then remained consistently below average from October onwards. September 2022 was in sharp contrast with September 2021, when sea ice in the European Arctic sector reached its lowest extent on record, at 40% below average.

## Mercator Ocean International's contribution

Mercator Ocean International has contributed expertise surrounding Ocean warming, sea surface temperature, and marine heatwaves. Dr. Karina von Schuckmann, oceanographer at Mercator Ocean International, with the assistance of her team, led this contribution. She also led the MOi contributions to the latest [WMO State of the Global Climate 2022](#). Von Schuckmann is globally recognized for her work in Ocean climate monitoring and was a lead author of the IPCC (AR6) WG1 6th assessment report (Chapter 2) as well as a lead author of the IPCC (AR6) Special Report on the Ocean and Cryosphere in a Changing Climate (Chapter 1). Most recently, she has led MOi participation in an initiative of leading scientists (that contributed to the IPCC AR6 report, working group 1 on climate change) in the development of an open data, open science platform – the [Indicators of Global Climate Change](#).

The *State of the Climate in Europe 2022* draws upon MOi expertise as well as ocean data and indicators from the Copernicus Marine Service, implemented by MOi. As a sister service of the Copernicus Climate Change Service, various ocean indicators and datasets are collaboratively produced with the Copernicus Marine Service.

## About the State of the Climate in Europe 2022 Report

The report makes use of climate observing systems and brings together valuable contributions from Members, while supporting their needs on climate monitoring, climate change and climate services. The latest data and information on impacts, risks and policy from United Nations agencies and European Union (EU) partners complement the physical science overview. The present report also considers the scientifically robust findings from the recent Sixth Assessment Report and Synthesis Report of the Intergovernmental Panel on Climate Change (IPCC), and from the Copernicus European State of the Climate 2022

report.

Europe is the fastest-warming of the six defined WMO regions and in 2022 many countries in western and south-western Europe had their warmest year on record. Summer was the hottest ever recorded: the high temperatures exacerbated the severe and widespread drought conditions, fuelled violent wildfires that resulted in the second largest burnt area on record, and led to thousands of heat-associated excess deaths.

**Launch of the report:** 19 June 2023 at 14:00 – 16:00 (Irish Standard Time) in Dublin City Hall, Dame St, Dublin, Ireland and online via Zoom in connection to the 6th European Climate Change Adaptation Conference 2023 (ECCA2023).

## Important Links

- [State of the Climate in Europe 2022](#): World Meteorological Organization and the Copernicus Climate Change Service
- MOi reports: [New Indicators Project for Tracking Our Changing Climate](#)
- MOi reports: [WMO State of the Global Climate 2022: Mercator Ocean expertise contributes](#)
- MOi reports: [Global sea surface temperatures reach record high](#), April 2023
- MOi reports: [Global Warming and the Ocean: a new study led by Mercator Ocean International expert sheds light on the Earth's Energy Imbalance](#)
- MOi reports: [Record-high Marine Heatwaves in the Mediterranean Sea, Summer 2022](#) (cited in the WMO State of the Climate in Europe 2022)

## About Mercator Ocean International

[Mercator Ocean International](#) (MOi) is a non-profit organisation committed to building a science based [Digital Ocean](#). MOi delivers an operational digital description of marine environments worldwide and helps organisations implement community and institutional programmes, projects and initiatives supporting international ocean governance. Illustrating this point, MOi implements the Copernicus Marine Service of the European Union on behalf of the European Commission. Also entrusted by the European Commission, MOi works to bring an enhanced and fit-for-purpose global ocean observing system by implementing the European coordination of the Group on Earth Observation's Blue Planet Initiative (GEO Blue Planet) and the G7 Future of the Seas and Oceans Initiative under the framework of EU4OceanObs. MOi has been playing a leading role in the Global Ocean Observing System (GOOS), an Intergovernmental Oceanographic Commission (IOC-UNESCO)-led programme, through its support to the GOOS Expert Team on Operational Ocean Forecasting Systems (ETOOS) chaired by **Pierre Bahrel, the Director General of MOI**. Moreover, it is strongly engaged in OceanPredict, the international network and science programme dedicated to operational oceanography. Since January 2023, MOi has been hosting the "OceanPrediction" Decade Collaborative Centre in the context of the UN Decade of Ocean Science for Sustainable Development through IOC-UNESCO; it is a powerful platform that connects and strengthens communities to support stronger ocean forecasting systems worldwide, serving society at large and our planet.

MOi is based in Toulouse, France and has over 100 employees.

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