

Temperature of world's oceans highest ever recorded

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A recent scientific study published in the journal “Advances in Atmospheric Sciences” reported that in 2022, the world’s oceans reached the hottest temperature every recorded.

Last year’s record warmth was the fourth year in a row of records previously set in 2021, 2020, and 2019. Driven by anthropogenic (human caused) greenhouse gas emissions, 90% of the excess atmospheric heat is absorbed by the world’s oceans. Records going back to the late 1950’s have shown a relentless rise in ocean temperatures, with the warming trend accelerating after 1990.

Though the ocean warming trend is consistent, it’s not uniform, with the North Pacific, North Atlantic, Mediterranean, and Southern Oceans experiencing the most rapid warming.

The rising ocean temperature is affecting ocean circulation patterns, salinity, and nutrient levels, while increasing the stratification of layers of ocean water. As a result of the warming ocean, there is less “vertical mixing.”

In normal conditions, water from the top layers of the ocean transfers heat and valuable oxygen to the bottom layers as it sinks, while water from the bottom layers moves up, carrying vital nutrients. The decreased vertical mixing of ocean water is leading to die-offs of marine life.

Warmer ocean surface water also provides more energy and moisture which can fuel rapid intensification of storms, leading to higher winds, more intense rainfall and floods.

Extreme weather linked to climate change led to at least 474 deaths and caused \$165 billion in damage in the U.S. in 2022.

Michael Mann, a U.S. climate scientist who was one of 16 international researchers who authored the study, said “that until we reach net zero emissions, we’ll continue to break ocean heat content records.” According to the U.N. Intergovernmental Panel on Climate Change, “even if humanity take the drastic, necessary actions to avoid the worst effects of climate change, ocean warming is likely locked in for the next 75 years.”

In October, the World Meteorological Organization (WMO) reported that the atmospheric concentration of the three main greenhouse gases, carbon dioxide, methane and nitrous oxide, had reached record highs. “We are heading in the wrong direction” said WMO head Petteri Taalas.