

# Scientists warn of current 'tipping point' in Atlantic Ocean: 'Significant' effects on climate

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A critical system of Atlantic Ocean currents may be approaching

collapse, which scientists warn will have a dangerous impact on our global climate.

The Atlantic meridional overturning circulation (AMOC), which "effectively transports heat and salt through the global ocean," has recently shown signs of trending toward a crucial "tipping point" according to a study published in the journal *Science Advances*.

Scientists have been warning of the potential collapse for decades, as the currents' strength has been weakened by rising temperatures which affect the system's balance of heat and salt.

While the study offers no timetable for when a collapse could occur—the AMOC has only been closely observed since 2004—it predicts devastating effects in particular for Europe and the Amazon rainforest.

If the AMOC collapses, some regions of Europe could see average temperatures decrease by 30 degrees Celsius over a century, according to the study.

While a century seems like a long time, scientists say the possible changes would be significantly felt over the course of just decades. For example, February temperatures in Norway could drop by 3.5 degrees Celsius per decade.

"No realistic adaptation measures can deal with such rapid [temperature](#) changes," the study authors write.

Similarly in the Amazon, scientists notice a "drastic change in their precipitation patterns" from their model, showing "the dry season becomes the wet season and vice versa."

These changes, the authors argue, could "severely disrupt the ecosystem of the Amazon rainforest."

In 2021, the AMOC was determined to be at its weakest point in the last 1,000 years, according to a separate study published by *Nature Geoscience*.

If the system were to collapse, it "would affect every person on the planet—it's that big and important," Peter de Menocal, the president of the Woods Hole Oceanographic Institution in Massachusetts, told CNN.

**More information:** René M. van Westen et al, Physics-based early warning signal shows that AMOC is on tipping course, *Science Advances* (2024). [DOI: 10.1126/sciadv.adk1189](https://doi.org/10.1126/sciadv.adk1189)

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