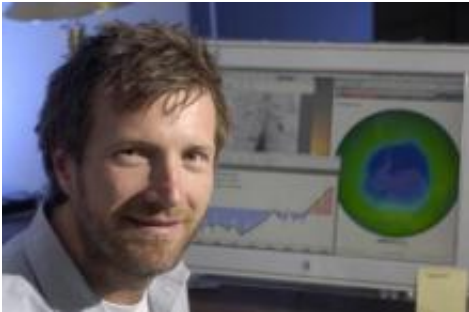


Ocean cooling contributed to mid-20th century global warming hiatus

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David W.J. Thompson, professor of atmospheric science at Colorado State University, is the lead author of a *Nature* paper that shows sudden ocean cooling contributed to a global warming hiatus in the middle 20th century in the Northern Hemisphere. Credit: Colorado State University

The hiatus of global warming in the Northern Hemisphere during the mid-20th century may have been due to an abrupt cooling event centered over the North Atlantic around 1970, rather than the cooling effects of tropospheric pollution, according to a new paper appearing today in *Nature*.

David W. J. Thompson, an [atmospheric science](#) professor at Colorado State University, is the lead author on the paper. Other authors are John M. Wallace at the University of Washington, and John J. Kennedy at the Met Office and Phil D. Jones of the University of East Anglia, both in the United Kingdom.

The international team of scientists discovered an unexpectedly abrupt cooling event that occurred between roughly 1968 and 1972 in Northern Hemisphere [ocean temperatures](#). The research indicates that the cooling played a key role in the different rates of warming seen in the Northern and Southern Hemispheres in the middle 20th century.

"We knew that the Northern Hemisphere oceans cooled during the mid-20th century, but the sudden nature of that cooling surprised us," Thompson said.

While the temperature drop was evident in data from all Northern Hemisphere oceans, it was most pronounced in the northern North Atlantic, a region of the world ocean thought to be climatically dynamic.

"Accounting for the effects of some forms of natural variability - such as [El Nino](#) and [volcanic eruptions](#) - helped us to identify the suddenness of the event," Jones said.

The different rates of warming in the Northern and Southern Hemispheres in the middle 20th century are frequently attributed to the larger buildup of tropospheric aerosol pollution in the rapidly industrializing Northern Hemisphere. Aerosol pollution contributes to cooling of the Earth's surface and thus can attenuate the warming due to increasing [greenhouse gases](#).

But the new paper offers an alternative interpretation of the difference in mid-century temperature trends.

"The suddenness of the drop in Northern Hemisphere ocean temperatures relative to the Southern Hemisphere is difficult to reconcile with the relatively slow buildup of tropospheric aerosols," Thompson said.

"We don't know why the [Northern Hemisphere](#) ocean areas cooled so rapidly around 1970. But the cooling appears to be largest in a climatically important region of the ocean," Wallace said.

Provided by Colorado State University

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