

Wind patterns could mask effects of global warming in ocean

February 7 2008

Scientists at the University of Liverpool have found that natural variability in the earth's atmosphere could be masking the overall effect of global warming in the North Atlantic Ocean. The research is published in journal *Science*.

Scientists have previously found that surface temperatures around the globe have risen over the last 30 years in accord with global warming. New data, however, shows that heat stored in the North Atlantic Ocean has a more complex pattern than initially expected, suggesting that natural changes in the atmosphere also play a role.

The Liverpool team, in collaboration with the University of Duke in the US, analysed 50 years of North Atlantic temperature records and used computer models to assess how the warming and cooling pattern was controlled. They found that the tropics and mid-latitudes have warmed, while the sub-polar regions have cooled.

Professor Ric Williams, from the University's School of Earth and Ocean Sciences, explains: "We found that changes in the heat stored in the North Atlantic corresponded to changes in natural and cyclical winds above the North Atlantic. This pattern of wind movement is called the North Atlantic Oscillation (NAO), which is linked to pressure differences in the atmosphere between Iceland and The Azores.

"The computer model we used to analyse our data helped us to predict how wind and heat exchange with the atmosphere affects the North

Atlantic Ocean's heat content over time. We found that the warming over the mid latitudes was due to the wind redistributing heat, while the gain in heat in the tropics and loss in heat at high latitudes was due to an exchange of heat with the atmosphere.

“These local changes in heat storage are typically 10 times larger than any global warming trend. We now need to look at why changes are occurring in wind circulation, as this in itself could be linked to global warming effects.”

Although natural variability appears to be masking global warming effects in the ocean, scientists still believe that global warming is occurring, as evident through a wide range of independent signals such as rising surface and atmospheric temperatures, reduced Arctic summer sea ice and the reduced extent of many glaciers showing changes in the environment.

Source: University of Liverpool

Citation: Wind patterns could mask effects of global warming in ocean (2008, February 7)
retrieved 18 April 2024 from

<https://phys.org/news/2008-02-patterns-mask-effects-global-ocean.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--