

Oceans Smaller And Warmer

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Credit: Anderson Mancini

Two new studies out this week give the best scientific estimates of the average depth of the world's oceans, the total amount of water they contain, and the extent to which this water warmed over the last two decades - the latter being an important measure of climate change.

In the first study, reported in the journal [Oceanography](#), a team from Woods Hole Oceanographic Institution in Massachusetts analyzed global satellite data and made the best-ever estimate of the amount of [water](#) in the world's oceans. They put the figure at more than 1.3 billion cubic kilometers. Though that's slightly less water than scientists had previously estimated, it's still enough to fill more than 1.5 million Olympic-size swimming pools for each person in the United States.

The Water-Climate Relation

The second study, reported in this week's issue of the journal [Nature](#), addresses how all this water can help scientists track [global warming](#) and predict its effects.

Led by John Lyman at the National Oceanic and Atmospheric Administration, this study involved a team of researchers from the United States, Germany, and Japan. They analyzed several different sets of ocean temperature measurements collected around the world from 1993 through 2008.

These measurements were made by different groups over this 16-year period using different assumptions. Some discrepancies between them arose because of the way the data was processed. Some swaths of ocean were not sampled as widely or as often as others. Changes in instrumentation have confused the issue further.

However, Lyman and colleagues standardized all the measurements and in doing so they found the same general trend for all the data.

"Although you see differences, they are all fairly consistent," said Lyman.

They also averaged the results from these groups, which gave them the best estimate to date of the extent to which the top layers of the ocean have warmed over the last two decades. Lyman said that information is important because it is a good measure of global warming.

"Ninety percent of the energy [trapped by increased greenhouse gasses] goes into the ocean," said Kevin Trenberth of the National Center for Atmospheric Research in Boulder, Colorado, an expert who was not involved in the NOAA study.

"It's important to track this in order to properly understand what is

happening in the climate system," Trenberth said. "If you dump heat in the ocean and it gets moved around and reappears somewhere, it has consequences in terms of the weather patterns."

A climatologist at NASA who was not involved in the research said this week that the long-term trends in [ocean](#) warming presented in the new study have confirmed other results in the field.

"That's what the climate models were predicting would be happening," said Gavin Schmidt, the NASA climatologist. "It's a great paper."

Provided by Inside Science News Service

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