Poles apart: Arctic sea ice has shrunk but Antarctic sea ice has grown

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A new study of satellite sea ice measurements shows that over the last 35 years there have been dramatic changes in sea ice cover around the world.

Lead investigator, Professor Ian Simmonds, from the School of Earth Sciences at the University of Melbourne said, "The late-summer Artic sea ice coverage has shrunk by 3 million square kilometres since 1979."

"There were significant decreases for every month of the year, with the greatest rate of decrease in September. Some are now suggesting that September sea ice could disappear from the Arctic in as little as 25 years.

"In contrast, Antarctic sea ice has been expanding, and 2013 was a record-breaking year. In September, we saw the greatest coverage of sea ice since satellite records started in 1979," said Professor Simmonds.

Overall, sea ice around the world is shrinking by about 35,000 square kilometres per year.

These dramatic changes are of concern as the polar regions influence global climate patterns.

Professor Simmonds said, "It seems counter-intuitive, but the growth in the Antarctic sea ice is consistent with global warming and the effects of increased atmospheric carbon dioxide. There is strong evidence to indicate changes in the concentration of greenhouse gases in the atmosphere are leading to region-specific changes in climate."

"The greenhouse effect is strengthening the westerlies over the Southern Ocean and this could be causing the increase in the Antarctic sea ice zone. Ultimately ocean warming will counteract this but it may be a number of years before that takes place."

This study is published online in the *Annals of Glaciology*.

More information: *Annals of Glaciology*, www.igsoc.org/annals/56/69/a69A909.html

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