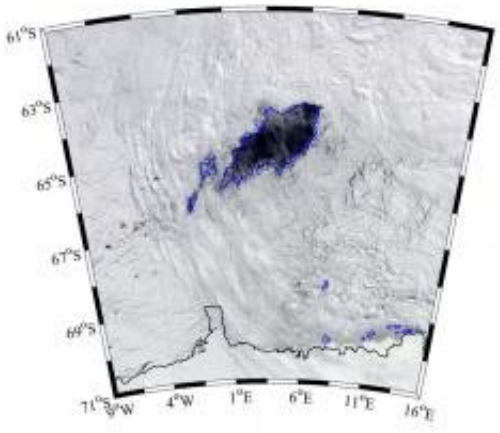
Massive hole reopens in Antarctic sea ice

October 12 2017



The polynya is the dark region of open water within the ice pack. Credit: NASA Worldview

A mysterious, massive hole, as large as Lake Superior or the State of Maine, has recently been spotted in the winter sea ice cover around Antarctica. This opening, known as a polynya, is the largest observed in the Weddell Sea since the 1970s. At its largest extent, this winter's polynya had an area of open water close to 80,000km^2. This marks the second year in a row in which the polynya has formed, although it was not as large last year.

Without the insulating effect of sea ice cover, a polynya allows the atmosphere and ocean to exchange heat, momentum and moisture leading to significant impacts on climate. Ocean convection occurs

within the polynya bringing warmer water to the surface that melts the sea ice and prevents new ice from forming. Professor Kent Moore of the University of Toronto Mississauga's Department of Chemical and Physical Sciences has been collaborating with members of the Southern Ocean Carbon and Climate Observations and Modeling (SOCCOM) project to investigate these polynyas and their climate impacts.

Due to the harshness of the Antarctic winter and the difficulties of operating within its pack ice, there exist few direct observations of these polynyas and their impacts on the atmospheric and oceanic circulation. As part of the SOCCOM project, robotic profiling floats capable of operating under sea ice have deployed in the region for the past number of years. Last month, one of these floats surfaced inside the Weddell Sea polynya, making contact with researchers and providing unique data on its existence. With these new ocean measurements, along with space-based observations and climate models, comes the possibility that these polynyas' secrets and their impacts on the climate may finally be revealed.

Provided by University of Toronto

Citation: Massive hole reopens in Antarctic sea ice (2017, October 12) retrieved 2 May 2024 from https://phys.org/news/2017-10-massive-hole-reopens-antarctic-sea.html