

Seal behaviour to inform on rising sea levels

January 29 2019, by Fiona Macleod



Credit: CC0 Public Domain

Seal behaviour in the Antarctic will be studied by academics from the University of St Andrews to find out how fast a massive glacier is melting.

Dr. Lars Boehme and Guilherme Bortolotto De Oliveira from the Sea

Mammal Research Unit at the University of St Andrews will set sail today (Tuesday 29 January) on the first ship-based research expedition to Thwaites Glacier in West Antarctica as part of the International Thwaites Glacier Collaboration.

The 50-day scientific cruise on board the US icebreaker Nathaniel B Palmer is part of a five-year project to understand how quickly the glacier, which is the size of the UK, could melt. If Thwaites Glacier were to melt completely, sea levels would rise by 80cm.

Seal ecologist Dr. Boehme is overseeing the [tagging](#) of [elephant seals](#) and Weddell seals which live near the ice front of the glacier, and so are ideally positioned to provide information about these areas which are hard for researchers to access.

The mammals will be tagged with sensors to help researchers understand more about their behaviour and the [ocean](#) conditions where the ice front of the glacier meets the ocean.

Dr. Boehme said: "These tiny sensors, which are temporarily glued to the animals' fur and fall off during moulting, will allow us to measure the ocean's heat, which can highly affect the melting rate of the floating part of the glacier.

"Getting the right data is particularly difficult, especially during the winter when the ocean surface is covered by sea ice and inaccessible for research ships. We will therefore tag 18 seals in this area. Oceanographic and behavioural data are then collected whenever the seal dives and sent back using satellites while the seal is back at the surface to take a breath."

The St Andrews scientists will work within the TARSAN (Thwaites-Amundsen Regional Survey and Network) project, led by Karen

Heywood of the University of East Anglia, and Erin Pettit of the University of Alaska, Fairbanks, to measure the oceanic heat in front of the glacier and its potential to increase the glacier's melting rate.

The ship will spend seven weeks in front of Thwaites Glacier conducting a range of scientific experiments and deploying a range of instruments.

The research expedition is part of the International Thwaites Glacier Collaboration (ITGC), funded by the UK Natural Environment Research Council and the US National Science Foundation. The ITGC is the largest joint project undertaken by the UK and US in Antarctica for more than 70 years – since the conclusion of a mapping project on the Antarctic Peninsula in the late 1940s. This joint £20m research programme started this season and is one of the most detailed and extensive examinations of a massive Antarctic glacier ever undertaken.

Antarctica's [glaciers](#) contribute to sea-level rise when more ice is lost to the ocean than is replaced by snow. To fully understand the causes of changes in ice flow requires research on the ice itself, the nearby ocean, and the Antarctic climate in the region.

Thwaites Glacier is one of the largest in Antarctica with an area similar in size to the UK, meeting the ocean with a cliff face spanning 120km. Its flow rate has increased from 3km per year to 4km per year since 2006 and dumps 126 GigaTonnes of ice into the ocean every year.

Provided by University of St Andrews

Citation: Seal behaviour to inform on rising sea levels (2019, January 29) retrieved 20 April 2024 from <https://phys.org/news/2019-01-behaviour-sea.html>

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.