

# ROVER USE CASE

## UNIVERSITY OF TROMSØ (UiT)

In November of 2018, Xeos was approached by a research team from the University of Tromsø (UiT) in Norway. They were looking for a tracker to put on buoys following ice flows for the ArcticABC project.



The ArcticABC project is a multinational collaboration between several organizations, including the Norwegian Research Council and Tromsø Forskningsstiftelse. The main goal of the project is to use autonomous technology and satellite communications to improve our understanding of the behaviour of fish and plankton in the water column under Arctic Sea Ice during polar night.

Given the extreme conditions and remote geography, collecting long-term time series data in the Arctic Ocean is complicated, expensive and dangerous. With the increasing climate change driven focus on the Arctic ecosystem, the ArcticABC scientists from UiT wanted to design and deploy autonomous drifting buoys (pictured left) equipped with echosounders that detect the location and depth of key organisms in the water column. A critical piece of this system would be the satellite transceiver used to track the buoy's position and report back to home base.

During the buoy design phase, UiT tried multiple tracking beacons from different suppliers and tested each one to see which would be the best fit for their project. Xeos recommended the Rover surface iridium beacon (tracking beacon used by Liquid Robotics on the Wave Glider) for the test, as it is robust enough to last in the Arctic environment, while providing accurate GPS positions, and is power efficient enough to be deployed for over a year without maintenance. This combination of features suited the application perfectly and UiT decided to go with the Rover.

The Rover was used on a buoy that travelled from the coast of Iceland to the ice in the Fram Passage between Greenland and Svalbard, Norway (path pictured below). The onboard system transmitted successfully throughout the duration of the deployment and so did the Rover. In this specific case, the Rover was placed on a surface buoy that housed an echosounder under the surface.

After the success of the initial Rover tracked buoy, several other echosounder buoys were retrofitted with Rover tracking beacons, replacing outdated alternatives. Pre-field operations have been performed, and more field deployments await. Xeos is eager to continue its work with UiT and is looking forward to tracking the results of this timely and ambitious project.



"It is relieving to know that if something goes out of plan, the Rover will continue to track our asset"

– Pedro D, University of Tromsø



**Xeos**  
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