

High-Bandwidth Satellite Service Finally Available in the Arctic



Kepler Communications, a Toronto (Canada) based communications company, is said to be the first to successfully deliver more than 100 Mbps broadband connectivity, via its nanosatellite network, to scientists taking part in a massive research expedition in the Arctic region.

Kepler Communications, a pioneer in nanosatellite telecommunication services, has demonstrated the delivery of over 100Mbps connectivity in the Arctic region to the German icebreaker *Polarstern*. The vessel is located at around 85°N and is home to the MOSAiC scientific expedition. The demonstration marks the first time in history that the central Arctic has been successfully connected through a high-bandwidth satellite network (see

our article on the expedition in our September/October issue).

Polar-orbiting Satellites

Kepler's two polar-orbiting satellites are being used to transfer data for scientists taking part in MOSAiC, the most extensive research expedition ever to the North Pole. MOSAiC is an international expedition consisting of hundreds of scientists and operations crew, which will remain locked into the Arctic ice sheet to study the environment. The team will spend the next 12 months drifting along with the ice sheet, the purpose of the mission being to take the closest look ever at the effects of climate change on the Arctic.

High-bandwidth Satellite Data Link

Thanks to Kepler, the *Polarstern* is equipped with the world's only high-bandwidth satellite data link delivered from low-Earth orbit (LEO) that is available in the Arctic. With the vessel operating well outside the range of traditional high-throughput satellites, Kepler is providing 100x higher data speeds, as the satellite passes the vessel, than would be otherwise available to the ship. This improved data transfer capability means scientists can share large data files between ship and shore, improving the ability to share, analyze, and disseminate information.

Transfer Large Data Volumes

"Our Global Data Service provides a cost-effective means to transfer large data volumes that will be gathered over the course of MOSAiC," explained Mina Mitry, CEO at Kepler. "Rather than only storing data locally and analyzing once physical storage can be sent back with supply vessels, we are giving scientists the ability to continuously transfer test and housekeeping data sets over our unique LEO satellite network."

Largest Expedition to the North Pole Ever

In charge of MOSAiC's logistics is the Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research (AWI), from Germany. They are responsible for leading this international expedition that involves the joint efforts of 19 countries around the world. With over USD 158 million in funding, the most advanced technology on a research icebreaker, and an astonishing quantity of planning and logistics, MOSAiC is the largest expedition ever to the North Pole.

Very Small Aperture Terminal

"The high polar regions are the last frontiers of the globe where high bandwidth data connections could not be established so far," outlined Professor Markus Rex, MOSAiC project leader and atmospheric scientist at the Alfred Wegener Institute in Potsdam. "Kepler's new Global Data Service now enables us to send back bulk data, including key data files for monitoring the status of instruments, together with experts at home. This will contribute to the success of MOSAiC."

Kepler provides high-bandwidth satellite services at the poles. Aboard the *Polarstern*, Kepler has demonstrated data rates of 38 Mbps downlink and 120 Mbps uplink to a 2.4m Ku-band VSAT (Very Small Aperture Terminal).

Photo caption: The demonstration marks the first time ever that the central Arctic has been successfully connected through a high-bandwidth satellite network. (Stephan Hendricks/Kepler Communications)

<https://www.hydro-international.com/content/article/high-bandwidth-satellite-service-finally-available-in-the-arctic>
