

# ARCTIC MISSION WILL TRAP SCIENTISTS IN ICE TO STUDY CLIMATE

Relevant for: Environment | Topic: Environmental Degradation - GHGs, Ozone Depletion and Climate Change

Markus Rex, an atmospheric scientist and leader of the MOSAiC expedition, stands on the bridge of the research vessel. The group of scientists from 17 nations will be rotated every two months . | Photo Credit: [AP](#)

In a couple of months, the German icebreaker RV Polarstern, a hulking ship will set out for the Arctic packed with supplies and scientific equipment for a year-long mission to explore the planet's frigid far north. The icebreaker will be the base for scientists from 17 nations studying the impact of climate change on the Arctic and how it could affect the rest of the world.

Scientists plan to sail the ship into the Arctic Ocean, anchor it to a large piece of sea ice and allow the water to freeze around them, effectively trapping themselves in the vast sheet of white that forms over the North Pole each winter. The organizers say that the project is unprecedented in scale and ambition.

As temperatures drop and the days get shorter, they'll race against time to build temporary winter research camps on the ice, allowing them to perform tests that wouldn't be possible at other times of the year or by satellite sensing.

"So far we have always been locked out of that region and we lack even the basic observations of the climate processes in the central Arctic from winter. We are going to change that for the first time," said Markus Rex of Germany's Alfred Wegener Institute, who will lead the 140-million euro (\$158 million) expedition. The mission's aim to understand global warming means there's no time for national rivalry, said Rex.

Scientists from United States, China, Russia and other countries will be rotating every two months as other icebreakers bring fresh supplies.

By combining measurements on the ice with data collected from satellites, scientists hope to improve the increasingly sophisticated computer models for weather and climate predictions. "We can do a lot with robotics and other things but in the end the visual, the manual observation and also the measurement, that's still what we need," Marcel Nicolaus, a German sea ice physicist who will be part of the international mission, said.

The mission has received funding from U.S. institutions such as the National Science Foundation, the Department of Energy, the National Oceanic and Atmospheric Administration, and NASA.

Once the Polarstern is carried into the depth of the Arctic night, far off the coast of northern Greenland, the scientists will be on their own, making any emergency evacuation almost impossible. Nonetheless, the ship has a fully equipped medical station to avoid any calamity on board, said Verena Mohaupt, a logistics expert who has prepared elaborate safety measures for the ship.

The MOSAiC mission, which stands for Multidisciplinary drifting Observatory for the Study of Arctic Climate, comes about 125 years after Norwegian explorer Fridtjof Nansen first managed to seal his wooden expedition ship, Fram, into the ice during a three-year expedition to the North

Pole.

Scientists now believe that the cold cap that forms each year is key to regulating weather patterns across the Northern Hemisphere. Mr. Rex cited the polar vortices that blasted cold air as far as Florida last winter and the early summer heat wave in Europe as prime examples of the impact.

“The dramatic warming of the Arctic doesn’t stay in the Arctic. We as scientists, I think, have the obligation to produce the robust scientific basis for political decisions,” Mr. Rex said, adding that understanding the processes is crucial for world leaders to tackle climate change effectively.

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