The Catlin Arctic Survey: essential scientific research combined with human adventure

Taking 13 million measurements of Arctic ice. Traveling 1,300 kilometres on foot to the North Pole. Swimming across the leads between ice floes. Enduring temperatures as low as minus 50 degrees Celsius. The Catlin Arctic Survey is as tough as science gets.

The expedition, led by veteran polar explorer Pen Hadow, is a test of human endurance in the spirit of the great polar explorations, but there is much more than bravado at stake. The team is risking the possibility of polar bear attacks, precariously thin ice and punishing blizzards because there is no other way of taking the precise measurements scientists need to determine the status of the Arctic's rapidly disappearing sea ice. The Catlin Arctic Survey is both serious science and high adventure.

Why do we need to measure the ice cap?

Scientists will use the detailed measurements of the depth of the ice cap made by the Catlin Arctic Survey to develop a better understanding of how global warming is impacting Arctic sea ice and to predict more precisely when this ice will no longer be permanent. This data is essential to assess the potentially devastating impact that the loss of Arctic sea ice each summer would have on millions of people around the world.

The stakes are high

The Arctic sea ice acts as a natural ‘reflective heat shield’, reflecting 80% of incoming solar energy. As the sea ice disappears, the water below absorbs energy, resulting in thermal expansion, unpredictable weather patterns and rising sea levels. Sea levels rose between 10 and 20 centimetres during the 20th century, and a further increase of between 20 and 80 centimetres could cause as many as 300 million people to be flooded each year.

Every summer, portions of Arctic sea ice melt, while the rest, known as perennial ice, remains. The entire area of Arctic sea ice – including both perennial and seasonal portions – has shrunk measurably in recent years as the melt rate has accelerated. Current estimates as to how long ice will be a year-round feature around the North Pole vary considerably, with scientific predictions now ranging between five and 100 years.

The Catlin Arctic Survey aims to gather the information that scientists say is essential to understand the social, economic, political and business ramifications that the near total loss of Arctic sea ice would have on the world’s population.

The science

The Catlin Arctic Survey is necessary to increase our understanding of the impact of climate change on the Arctic sea ice.

By using a specially-designed portable ground-penetrating radar, the Survey team will make as many as 13 million surface measurements of the sea ice. The team will take density measurements of the snow and ice and record the depth of the water column under the sea ice. They will collect samples of snow, ice, water and air. They will also take manual measurements by drilling into the sea ice.

“There is an extremely important data set that scientists currently do not have, and the only people who can get this information are polar explorers making a surface journey,” Pen Hadow explained. Neither satellites nor submarines have proved capable of taking the detailed measurements needed, largely because this technology is unable to differentiate between ice and snow layers.

A number of scientific partners will process and analyze the data collected and their findings will be published in a report due to be presented by WWF International to the United Nations Climate Change Conference of Parties, to be held in Copenhagen in November 2009.

The Survey’s lead scientific partner is Professor Wieslaw Maslowski of the US Navy’s Department of Oceanography in California, one of the world’s leading experts in the field of Arctic sea ice. He will integrate the Survey’s actual observations with same-day weather data to obtain near real-time model estimates of sea ice conditions on a daily basis. “In this way we can test the accuracy of our modeling of the ice’s thickness and reassess our projections as to how long the surviving thicker ice is likely to last as a perennial feature,” he said.

The team

Pen Hadow, director of the Catlin Arctic Survey, will be accompanied on the expedition to 90 degrees North by two experienced explorers: Ann Daniels, who is in charge of operations and navigation, and photographer Martin Hartley, who will send images of the journey back to the Survey’s operations headquarters, located in the City of London in premises provided by Catlin.

The intrepid trio will start their journey from 80 degrees North, 140 degrees West in February 2009, hauling sledges weighing nearly 200 kilos across disintegrating and shifting polar pack ice. To make their objective of reaching the North Geographic Pole in May, the team will have to cover approximately 18 kilometres per day and, depending on the conditions they encounter, they could be forced to swim with their sledges in water as cold as minus 1.8 degrees Celsius.

The Catlin Arctic Survey team

Pen Hadow, Director of the Survey

Looking forward to this, his fifteenth polar expedition, Hadow is the only person in history to have trekked solo from Canada to the North Geographic Pole without outside support. He first got hooked on the explorer’s life when he found himself photographing polar bears on the edge of the Arctic Ocean while working for sports agency IMG in 1989.

Ann Daniels, Operations

An experienced explorer of both poles, Daniels got her start as part of a select team of women to participate in the 1997 McVities Penguin Polar Relay. On one trip, she was stalked for five straight days by a nine-foot male polar bear. Luckily, as the mother four children, three of them triplets, she’s quite unflappable.

Martin Hartley, Photography

One of the world’s leading expedition photographers, with ten Arctic and Antarctic journeys to his name, Hartley’s role, in his words, is “to document the people and places at the ends of the Earth, recording the natural beauty and strength found in the most harsh and inaccessible places on the planet.”

"None of us know the true impact that global warming will have on the Earth and its inhabitants. That is why we are proud to sponsor the Catlin Arctic Survey, which will provide critical data on how quickly the Arctic ice cap is disappearing due to climate change. Projects like the Catlin Arctic Survey are crucial to produce the information necessary to secure our future."
-*Stephen Catlin*

CATLIN arctic survey

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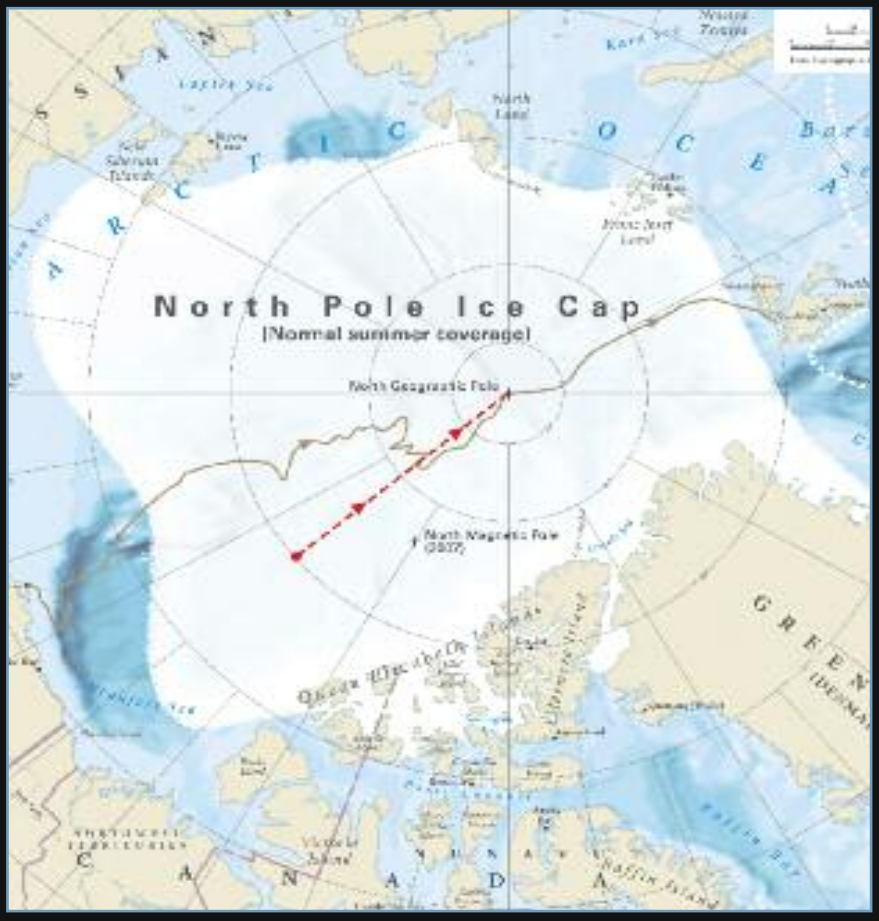
Catlin's continued commitment

Catlin Group Limited is sponsoring the expedition because the implications of global warming for the insurance industry and policyholders are stark and could impact a wide range of insurable events. Because of the gaps that exist in scientific knowledge, the rate of global warming is not yet proven. By sponsoring the Catlin Arctic Survey, Catlin will help scientists obtain the information they need to improve the accuracy of their models.

"It is rare to have the opportunity to sponsor a project that has such global importance and indeed such global interest," said Stephen Catlin, chief executive of Catlin Group Limited. "Projects like the Catlin Arctic Survey are crucial to produce information that is necessary to secure our future."

Over the next six months we will provide the market with regular progress reports on the Catlin Arctic Survey following Hadow, Daniels and Hartley as they make their way to the Pole.



Each of us has a stake in the issue of climate change, as both an insurance professional and a citizen of the world. Follow this historic journey at www.CatlinArcticSurvey.com.

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