RESEARCH » CHARTING CANADA'S CHANGING ENVIRONMENT

Quebec crater is out of this world

Revered by local Inuit for its clear waters, scientists hope to unlock 120,000 years of secrets about climate change

BY INGRID PERITZ MONTREAL

A massive crater in Northern Quebec has been luring the curious for over 50 years. Diamond prospectors, Second World War pilots and National Geographic all made pilgrimages to the distant natural wonder.

Now, an international team led by Laval University in Quebec City has journeyed to the Pingualuit Crater near the Hudson Strait in hopes of unlocking 120,000 years worth of secrets about climate change.

The four-country expedition has just returned with sediments from the crater, formed 1.3 million years ago when a meteorite crashed to Earth with 8,500 times the force of the Hiroshima atomic bomb.

"This is like a natural archive of climatic and environmental change," said lead researcher Reinhard Pienitz, a Laval University geography professor.

Prof. Pienitz is the latest in a string of scientists and adventurers drawn to the haunting formation, described by a Globe and Mail correspondent on a 1950 expedition as the eighth wonder of the world.

Largely unknown to the outside world, the lake-filled crater had long been revered by local Inuit and known locally as the Crystal Eye of Nunavik for its limpid waters. Second World War pilots used the perfectly circular landmark as a navigational tool during reconnaissance missions.

Their observations spurred expeditions sponsored by the Royal Ontario Museum and later the National Geographic Society, whose 1952 magazine featured at story entitled, "Solving the Riddle of Chubb Crater." The article's title referred to pioneering Ontario prospector Fred Chubb, who initially believed the crater could be a source of diamonds.

The crater was later renamed New Quebec Crater and, finally, Pingualuit Crater.

The crater is considered a scientific treasure trove because it's one of the deepest lakes in North America, fed almost exclusively by the skies above.

An international team of scientists led by Laval University in Quebec City is studying climate change at the Pingualuit Crater in northern Quebec. REINHARD PIENITZ/LAVAL UNIVERSITY

"It's like a huge rainwater collector set out in the tundra, catching rainwater for 1.3 million years," said Prof. Pienitz, whose expedition was funded by the Canadian Foundation for Climate and Atmospheric Sciences. "This lake is really special."

Working with Inuit from the nearby community of Kangiqsujuaq, Prof. Pienitz's team travelled in freezing temperatures by snowmobile to the edge of the crater rim. They then slid down the rim and trekked to the centre of its ice-covered surface. They travelled on foot because the crater, located in a new provincial park, is subject to stringent conditions that ban fuel-powered vehicles.

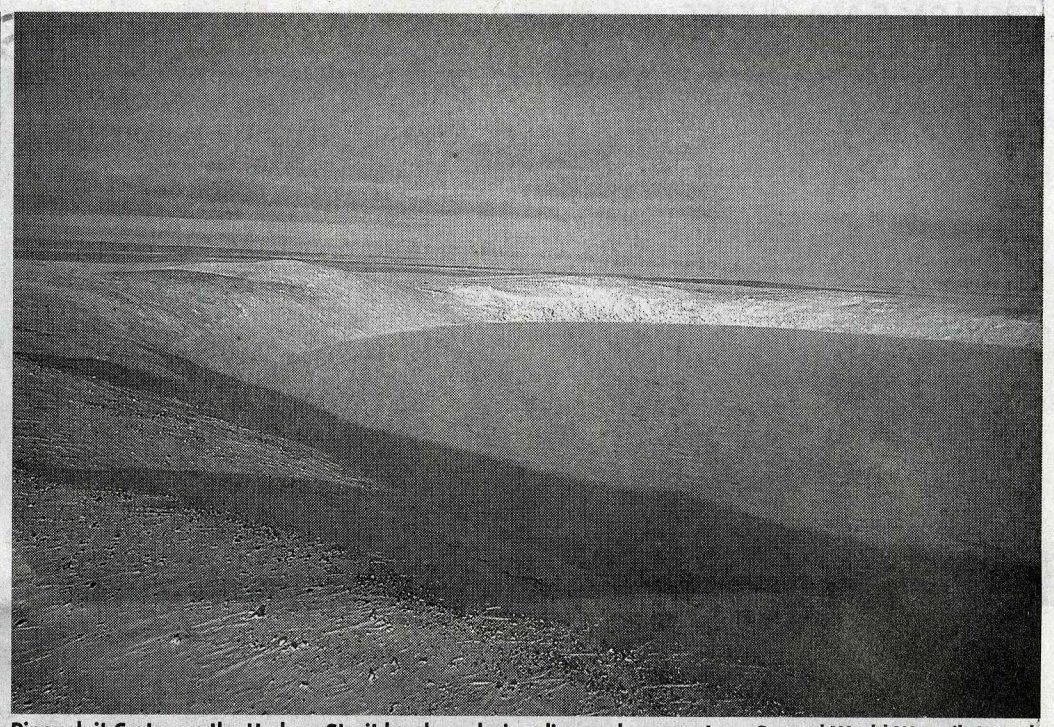
The team then drilled a hole through the ice to open a window into natural history.

Lowering their equipment through the ice, scientists reached into the extreme depths of the lake bottom to extract a nine-metre sediment core. A scientific time capsule, it's filled with fossils of pollen, algae and tiny insect larvae that researchers hope will yield clues about climate change dating to the last interglacial period 120,000 years ago.

"These fossils will tell us the story about the past environment," Prof. Pienitz said. "We can learn about the fragility of the climate system, and how it responds to external forces."

Until now, most clues about Earth's climatic past have come from the ocean floor or from ice cores from Greenland and the Antarctic. The crater sediment provides another piece of the puzzle. Ultimately, scientists hope the various clues will help shed light on current climate change.

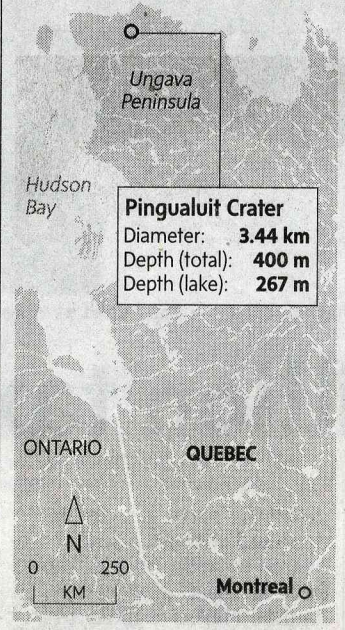
"To read the past," Prof. Pienitz said, "makes it much easier to read the future."



Pingualuit Crater on the Hudson Strait has been luring diamond prospectors, Second World War pilots and the curious for over 50 years. REINHARD PIENITZ/LAVAL UNIVERSITY

The Pingualuit Crater

The crater, largely unknown outside Canada, was formed by a meteorite 1.3 million years ago.



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