

Antarctic lake could reveal evolution, new life: scientists

February 9 2012, by Anna Malpas

Russian scientists said Thursday a probe to a pristine lake deep under the ice of Antarctica could bring revelations on the evolution of the planet Earth and possibly even new life forms.

A Russian team drilled down to the surface of Lake Vostok, which is believed to have been covered by ice for more than a million years, in a breakthrough officially announced Wednesday by the Institute of the Arctic and Antarctic.

Scientists said that water samples to be taken from the lake later this year could reveal new forms of life, despite the extreme conditions.

"We expect to find life there like nothing on Earth", Sergei Bulat, a molecular biologist at the Petersburg Nuclear Physics Institute, told AFP.

Any living organism in the lake would have adapted to survive without light, under high pressure and in water with a temperature of minus two degrees Celsius (28.4 degrees Fahrenheit) and a very high level of oxygen, he said.

"If there is life there, it will be a form of life that is unknown to science. In that case we are talking about a fundamental discovery, a new page in our scientific understanding of life."

Conversely, a lack of life would be unique on Earth, he said.

"If we find nothing, it is also a discovery, because on Earth at the moment nowhere has been found that is sterile without bacteria."

"We have discovered a new subject for science, no one has ever seen anything like this," added Vladimir Syvorotkin, a geology and mineralogy specialist at Moscow State University.

"Biologists will probably find some unknown bacteria that has adapted to such conditions," he told AFP, stressing that the lake should not be seen as a completely unchanging system.

"It is an actively living dynamic system, not a lost world. From below is a flow of hydrogen and methane and the ice above is melting at a huge speed of three metres per year."

The lake's sediment will reveal changes to the Earth and its climate over the last 20 million years, said German Leichenkov of the Institute of Geology and Mineral Resources of the Ocean in Saint Petersburg.

"For geologists, it is important to drill down and bring back the bottom sediments. They contain information about changes to the natural environment, the climate in the last 15 to 20 million years," he told AFP.

"We have very little information on this in the Antarctic and this could be a unique source of information."

Working in extreme conditions in eastern Antarctica, where the average temperature is around minus 50 degrees Celsius (minus 58 Fahrenheit), the expedition drove a probe through the ice over many months, using kerosene as antifreeze.

"It's an important technical and psychological victory. It's important to congratulate them on this, especially as there are no other victories.

These people are heroes," said Syvorotkin.

Expedition leader Valery Lukin on Wednesday proudly compared the success of the long-running project to the first flight into space.

In a sign of its importance to the Russian government, the minister of natural resources and ecology, Yury Trutnev, visited the site just before the breakthrough.

The scientists behind the expedition have said the probe would not contaminate the waters, but a Greenpeace expert warned of a risk of pollution.

"Many scientists say that they have doubts and that drilling fluid could get into this unique lake with unknown flora and fauna. This is a risk," said Vladimir Chuprov, head of Greenpeace Russia's energy team.

The complex task of reaching the bottom of the lake will also require developing a safe drilling method, said geologist Leichenkov. "This problem is already being solved, we have very good specialists working on it."

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