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PRESS RELEASE

A "SMALL WINDOW" TO THE UNKNOWN WORLD OF SUBGLACIAL LAKE VOSTOK IS OPEN

Today the Arctic and Antarctic Research Institute has received the following formal report from A.M.Yelagin, Head of Vostok station of the 57th RAE and Dr. N.I. Vasilyev, Head of the glacial-drilling team of the 57th RAE.

The event at the inland Antarctic station Vostok waiting for which kept in suspense the international scientific community and many mass media in this country and abroad for the few past months has happened at last on 5 February at 20.25 Moscow time. Penetration to relict water of subglacial Lake Vostok through the deep ice borehole 5G was performed by drillers of the glacial-drilling team of the 57th Russian Antarctic Expedition. The day before on 4 February there was a contact of the drill with the water lens at the borehole depth of 3766 m. The ice core bottom segment extracted from this depth served as evidence – the surface of the lower 70 cm of the ice core was glazed, as if it were submerged to water just before recovery. No ducts or capillaries in the ice core body were visually observed at this. Exactly this contact with the water lens in the borehole was erroneously interpreted by some mass media as a real penetration to the lake water layer.

The next launch of the drill to the borehole bottom showed the drilling process to stop. The drill pump intended for pumping away the drilling fluid with the ice slime from the boring bit cutters, began pumping water to the inner space of the drill. As it turned out, during the next drill rise, about 30-40 liters of water, frozen in the process of recovery, was lifted to the drilling complex. We remind that the constant ice sheet temperature in its upper part at Vostok station is -55^{0}C. Samples of "fresh frozen" water were collected to special sterile laboratory vessels. Drilling of the ice sheet was continued after this operation and the next day the drill contact with the real water body of subglacial lake occurred at a mark of 3769.3 m. Sensors have registered a sharp increase of pressure at the bottom and of the thrust moment at rotation of the drill boring bit. After this N.I. Vasilyev, Head of the team and Zubkov V.M., lead engineer-driller, who were at this time on the watch, began to urgently recover the drill to the surface. As envisaged by the technology of environmentally clean penetration to subglacial Lake Vostok developed in 2000 at the St.

Petersburg State Mining Institute and the Arctic and Antarctic Research Institute, the water rise from the lake in the near-bottom part of the borehole occurred at a height of about 30-40 m from the lower surface of the ice sheet. The drilling fluid consisting of a mixture of kerosene and Freon, which is less dense than lake water, began to rapidly rise along the borehole. As a result, about 1.5 m^3 of this fluid poured out through the upper surface of the borehole to special trays, installed in the drilling complex and was then pumped out to the barrels. So the results theoretically predicted 11 years ago, were fully proved in practice.

It is symbolic that several hours before this outstanding event the Vostok station was visited by Mr. Yu.P. Trutnev, Minister of Natural Resources and Ecology of the Russian Federation and Dr. A.V. Frolov, Head of the Federal Service on Hydrometeorology and Environmental Monitoring.

On 6 February, the last flight of DC-3 BT 67 "TurboBasler" to Vostok station in this Antarctic summer season was made. By this flight all glacial-drilling team members departed for the Russian Antarctic Progress station for subsequent embarkation onboard the R/V "Akademik Fedorov". Arrival of the Project participants to St. Petersburg from port Capetown by regular flight is planned for 24 February this year.

This achievement of Russian polar explorers and engineers has become an excellent gift for the Day of Russian Science, which this country celebrates on 8 February.

Lukin V.V., RAE Head
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