

COMPOSITION OF ICE FORMATIONS OF ORDA CAVE

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Ice forms always attracted attention of scientists in Perm region. They were mentioned for first time as ago as in 1722 by V. I. Gennin who wrote about ice in Kungur Ice cave. Very big attention to ice from this cave paid also G. A. Maximovitch. He has described origin of ice, has classified it, studied ice chemistry and wrote the first instruction about cave's ice studying. He has divided cave's ice origin on hydrogeneous, atmogeneous and heterogeneous. In modern classifications are subtracted konjelation, sublimation and sedimentary metamorphic origins of cave's ice. Authors are studied the ice formations of longest underwater gypsum cave of the world — Orda cave. Length of it dry part is 400 meters and underwater one — 4000 m. the cave is situated in 100 km. to south-east from Perm. There are ice formations - stalagmites, stalactites and ice covers inside the cave. The bed-rock in the cave's area consists from sedimentary of Iren and Philippovka horizon of Kungur stage. Under Olkha breccia there is destroyed from surface gypsum and anhydrite of Shalashnino geological formation underlayered by carbonate rock of Nevolino geological formation and under it — gypsum and anhydrite of Ledyanopecsherskaya geological formation. Ledyanopecsherskaya geological formation is underlayered by dolomite and limestone of Philippovka horizon. Breccias consists from clay, loam, rock debris and pieces of destroyed carbonate and sulphate rock. In 2004 have been sampled the stalagmites in Ice chamber room. Ice's chemistry of melt stalagmite is close to chemistry of surface and underground water of area in suburbs of the cave. Water has high content of calcium (0.5 gr/1) and sulphate-ion (1.2—1.3 gr/1) and mineralization approximately 2 gr/1.

There were studied the mineral inclusions of ice stalagmite. X-ray analyze of samples made by V. Shlykov has shown the next: gypsum (45.3 %), calcite (5.2 %), quartz (2.2 %), dolomite (1.0 %) and anhydrite (0.3 %). So, inclusions are the mixture of fragments of rock from ceiling and ones brought by penetrating water.