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Interannual variability of the isotopic composition in the Ladoga Lake from 2015 to 2017.

Yury Shibaev (1), Ivan Frolov (1), Anna Kozachek (1), Sergey Karetnikov (2), and Vladimir Rybakin (2)

(1) Arctic and Antarctic research institute, polar regions geography , Saint-Petersburg, Russian Federation (shibaev@aari.ru), (2) Institute of Limnology, Russian Academy of Sciences

In 2015 AARI and Institute of Limnology started the sampling of water from different layers of the Ladoga Lake. The aim was to study the isotopic composition of the lake's water in order to better understand the water budget of the lake. We used the regular monitoring net to choose the sampling points. Also, the samples of precipitation and of water from the lake's tributaries were regularly taken. Water samples were measured in Climate and Environmental Research Laboratory (CERL) in AARI using Picarro L-2120i.

We found that the isotopic composition of precipitation has a distinct seasonal cycle. For example, 18O concentrations change from 5.98 ‰ in July to -20.89 ‰ in December. Isotopic composition of rivers that run into Ladoga highly correlate with the isotopic composition of precipitation, and has a seasonal cycle as well. However, isotope composition of Ladoga doesn't have any statistically significant temporal and spatial variations. This could be explained by high homogenizations of Ladoga's water and high speed of water replacement.

For the better understanding of the water budget of the lake we need to measure the isotopic composition of the atmospheric water vapour.