

## Hydrogeochemical studies of the distribution of rare earth elements in surface waters on kudurs of Sikhote-Alin (Primorye, Russia)

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In 2016 A.M. Panichev proposed a "rare earth" hypothesis, according to which the main cause of geophagy in animals is determined by disorders of the exchange of rare earth elements (REE) in the composition of the most important neuro-humoral regulatory systems in the body. To prove it, in the summer of 2020, large geochemical studies were carried out in places of active geophagy of animals in two regions of the Sikhote-Alin, which makes it possible to assess the validity of the "rare earth" hypothesis.

One of the first stages of work, were selected surface water (112 samples) on the territory of the kudurs. All waters are ultra-fresh, hydrocarbonate-sodium-calcium with a small proportion of sulfate and chloride ions. Mineralization from 19.26 to 91.6 ppm; pH - from 3.54 to 7.46. The total concentration of dissolved forms of REE is from 0.44 to 108.6 ppb. The predominance of light REE over severe with a variation in the amount of lungs from 59 to 91%. When comparing the average values of the REE sum of the study area (4.48-8.34), with the data for the region of the study, for Primorye and world values (0.40-0.75), we see exceeding tenfold.

When constructing the profiles of the distribution of the concentrations of NASC-normalized REE in water samples (pic. 1). Obviously, their enrichment of HREE. Thus, the average indicators of HREE concentrations in the waters in both studied sites are tens and hundreds of times higher than the average statistical indicators for the rivers of Primorye and the rivers of the world. The ration of Lan / Ybn (from 0.25 to 1.81) reflects the enrichment of waters with heavy and depletion with light.

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