# Distribution of Hg in rivers of Gorny Altai with a natural and man-made pollution source of environment

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Recently, attention is being increasingly focused on natural geochemical background of the environment and people places residence. Gorny Altai is part of Ob-Altai recreation region of Russia. The part of the Kurai Hg ore field of Gorny Altai (a branch of the Kuznetsk-Altai Hg belt) was investigated. Hg deposits and ore occurrences (Aktash, Chagan-Uzun, Cheremshan, Koksair etc.) as well as the remnants of a mine factory (removed rocks and wastes from the Aktash mine, which is currently not operational) are located here. Eecogeochemical study of rivers and lakes around Aktash was carried out in September 2018, when amount of suspended matter in rivers was the lowest. The main ion composition of freshwater was characterized. Speciation of Hg (dissolved together with colloids and suspended) was studied.

Water bodies have mainly Ca-$HCO_3$ composition; TDS is 0.14-0.37 g/L; pH is 7.8-9.13; Eh is 234-460 mV; TOC is 1.6-5.8 mg/L. The total Hg content in waters ranges from 0.07 to 0.31 μg/L. These are above maximum allowable concentrations for fishery uses approved in Russia (0.01 μg/L) from 7 to 31 times. Although Hg content in waters is below the maximum allowable concentrations for drinking and household uses approved in Russia (0.5 μg/L), but the total element background is high. Mercury elevated levels were established in most waters of the region, not only in waters contacting with ore occurrences or Hg ore wastes. Dissolved together with colloids mercury (70.5-94 %) predominates above the suspended one in the autumn. Inverse relationship between the total Hg content and its fraction per suspended substance was found: an increase of suspended matter proportion is accompanied by decrease of the total content.

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