

BEHAVIOR OF COBALT AND MERCURY IN THE MIXING ZONE OF RIVER AND SEA WATERS (PHYSICO-CHEMICAL MODELING)

¹GRAMM-OSIPOV, L. M. , ²GRAMM-OSIPOVA, V. N., ¹SAVCHENKO, A. V.,
¹MAR'IASH, A. A. ¹Pacific Oceanological Institute Far Eastern Branch Russian Academy of Sciences, Vladivostok, RUSSIA; ²Far Eastern State University, Vladivostok, RUSSIA

Authors have carried out physico-chemical modeling of behaviour of a cobalt and mercury in the estuary zone of the Amour bay - Razdolnaya River (near Vladivostok). The process of simulation was made by two software - SELECTOR - C and PRODEFA2/MINTEQA2. As a result of the modeling was established, that the Co^{2+} , CoCl^+ , CoSO_4^* , CoCO_3^* are dominating in the sea water. The organic complexes are presented at minor quantity. In seawater the cobalt is predominantly in the dissolved form. The dominating forms of mercury in the seawater are different chlorine complexes, but organic ones do not play a significant role. Practically all mercury is adsorbed on suspended matter. In the river water the cobalt is predominantly as Co^{2+} , the organic complexes do not play a significant role. Up to 13 % of a cobalt is in suspended matter. The mercury in a river water exists in main as organic fulvic and humic complexes and practically all is adsorbed on suspended matter. On the basis of modeling of adsorption process of a cobalt and mercury in mixing zone is established, that the decrease of total concentration of mercury from a river water to seawater under of passing through a geochemical barrier is connected with its adsorption on a suspension and deposition last. The processes of adsorption on decrease the total cobalt concentration do not render considerable influence. The decrease of its concentrations is connected with it codeposition with ferric- and manganese hydroxides.