ELEMENTS-ADMIXTURES IN THE MODERN MUD BRECCIAS ON THE MUD VOLCANOES IN SAKHALIN ISLAND

A.V. Sorochinskaya, R.B. Shakirov, A.L. Venikova, N.L. Pestrikova

V.I.Il`ichev Pacific Oceanological Institute of the Far Eastern Branch of Russian Academy of Sciences (POI FEB RAS)

The paper describes the features of admixture-element distribution in the samples from mud volcano breccias of Yuzhno-Sakhalinskiy (YSMV), Pugachevsky (PMV) mud volcanoes and Dagi geothermal system (DGS) in Sakhalin Island. The samples from breccias of YSMV and PMV based on content of microelements are similar to each other, and main volume of admixture-elements has the clark concentrations (1.3-5.8)×UCC. Increased concentrations of the Li and As, K_k 2.96-5.75 were revealed in mud volcanoes. The mud samples from DGS show a low content of microelements and C_{sample}/C_{UCC} value for most elements is 0.7-1.3×UCC, but show increased value for As (2.1-3.7). The europium negative anomaly (0.59-0.73) was revealed for all samples from mud volcanoes, anomaly of cerium is either absent or is weakly positive. La_N/Yb_N value is 3.33-5.80 in the samples from YSMV, PMV, and the value in the pulp from Dagi geothermal system is 8.38-11.63. Obtained data are an important informational contribution for solution of such questions as deep fluid genesis and naftidogenesis. Analyses of the geochemical parameters (K_k, Strakhov and Bostrem modules, rare earth spectrums, Eu/Eu*, Ce/Ce*, Zr/Hf) show similarity of the YSMV and PMV mud breccias. Samples from DGS indicates similarity to continental terrigenous formations influenced by active deep fault and affected by methane venting.

Keywords: Sakhalin, mud volcano, geothermal system, hydrocarbons, elements-admixtures.