

Hydrogeochemical conditions of the West Siberian megabasin

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Hydrogeochemistry of groundwater of the West Siberian megabasin is determined by the history of its development, the composition of sedimentary rocks and organic matter, which accumulated as the West Siberian geosyncline was filled. The hydrogeological model of the megabasin was developed by V.M. Matusevich and O.V. Bakuev in 1986. It is according to this model that the basement of the West Siberian megabasin is represented by large megablocks of different ages.

There are clear links between the patterns of groundwater distribution and the distribution of macro- and microcomponents in them (both in area and in depth) with the presence in the foundation of the West Siberian megabasin of megablocks of the earth's crust of different ages. The boundaries of megablocks and smaller blocks of the earth's crust within megablocks are the channels of vertical migration of groundwater. Within these megablocks large infiltration and elision water pressure systems have formed. Hydrogeochemistry of groundwater of the West Siberian megabasin together with geothermal and geodynamic conditions determine the nature of migration, accumulation and destruction of the hydrocarbon forming components.

Three separate basins stand out in the vertical section of the megabasin: Cenozoic, Mesozoic and Paleozoic. Hydrogeochemical conditions of these basins are fundamentally different. The groundwaters are characterized at great depths by a strong metamorphization of the composition and the presence in their composition of solutions of deep (mantle) origin.

The vertical zonality of the composition of groundwater is found both classical and inversion. Lateral megabasin conditions (by area) are characterized by the presence of marginal, external and internal zones. These zones are very different in chemical composition and mineralization.