



Local natural electric fields is a factor of formation of placers in the Arctic shelf

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Regional assessment of prospects of the offshore zone for solid minerals must take into account all genetic factors of mineral formation and, among them, the influence of local natural electric fields on the transport and deposition of mineral suspension from water.

We estimated the structural features of modern and paleostatic local natural electric fields and their effect on the transport of suspended material for shelf of the eastern Arctic seas based on lithofacies, geo-and hydrochemical characteristics of the hydrosphere and lithosphere.

Reconstruction of the paleofield was performed by analyzing paleoelectrochemical environment. Its main indicators are mineral composition of sediments and the presence of organic matter and authigene minerals.

We determined the position of the redox boundary and the sign of Eh. We reconstructed paleostatic field and assessed its impact on the lithodynamic transportation of suspended ore mineral particles based on the relationship between Eh and local substatic electric field of the shelf.

A map indicating the influence of electric field on the precipitation and transportation of ore minerals was composed.

In this map, we defined areas of positive influence of natural electric fields on the formation of Holocene placers of ilmenite, cassiterite and gold in Laptev, East Siberian, Chukchi and Bering seas.

The reliability and accuracy of this study is determined by the accuracy of detailed geological and lithogeochemical studies of the sedimentary cover forming deposits and amount of data for reconstruction of modern and paleostatic electric fields.