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Geochemical map of the Russian polar sector of the Arctic region

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The scientific basis for geochemical mapping of the Arctic Ocean (AO) floor and its shore is formed of sketch maps compiled by the authors that include structural geomorphologic sketch-map, sketch-map of structural and compositional complexes, of potential fields, isotopic geochemical sketch-map and others) and petrologic and geological model of the evolution of the Earth's crust of circumpolar Arctic [1]. These data as well as geochemical maps of the Russian polar sector of the Arctic region that were compiled for the first time from data on floor sediments and bedrocks of the ocean floor and the shore of the AO allowed us (1) to compile a sketch map of geochemical zoning for the land – sea area (Fig. 1) with separating two groups of geochemical associations (a) typical for shore zone, shelf and deep-sea areas of the ocean and (b) recurrent and recording the inherited character of the structures as they move father from the shore to the North Pole;

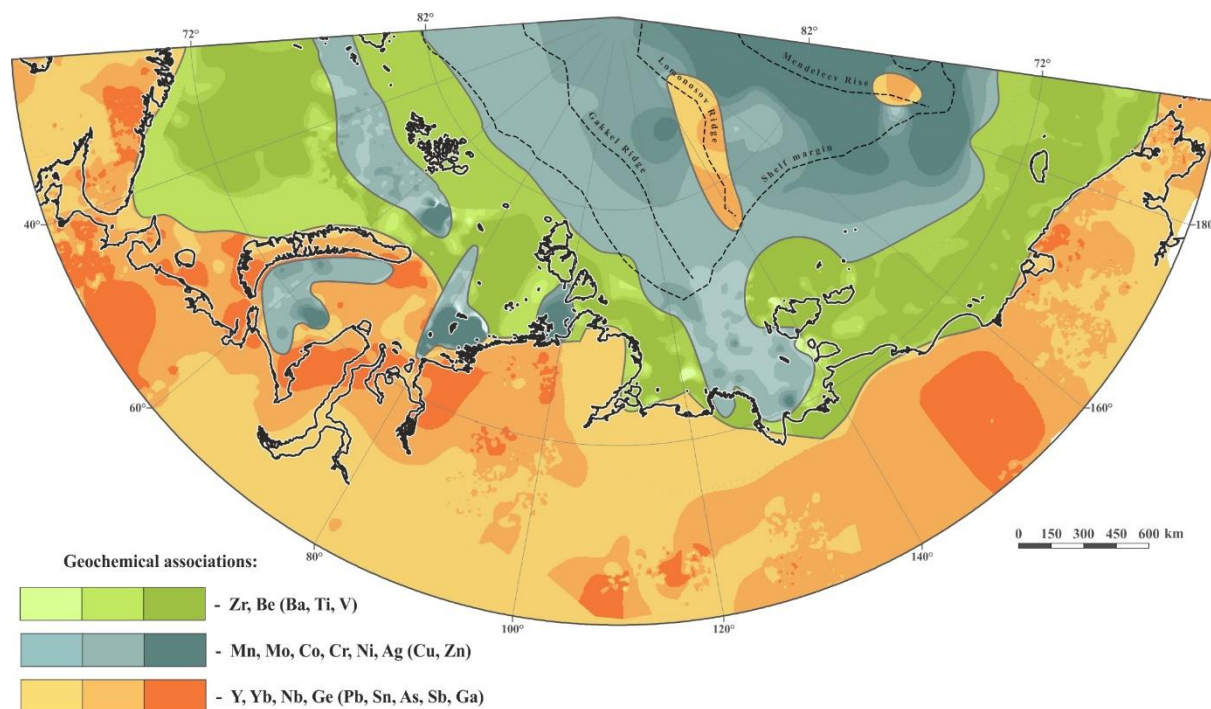


Figure 1: Map of geochemical zoning of floor sediments in the land – sea system of the Russian polar sector of the Arctic Region.

(2) to establish that rocks composing Eurasian and Amerasian areas of AO have different geochemical specialization, which is determined by the composition of corresponding blocks of the continental crust; (3) similarity of geochemical characteristics of the rocks of Verkhoyansk-Chukotka shore, Novosibirskiy Archipelago islands and submarine Mendeleev Rise suggest the unity of Central Arctic block as a periphery of Yana-Chukotka-Alaska block of continental crust; (4) deep-sea bed of Amerasian Basin of the Arctic Ocean including under-sea Lomonosov Ridge and Mendeleev Rise is a natural continuation of the continental part of Eurasia.

References:

[1] Kremenetskiy A. A. et al. (2015) Razvedka i okhrana nedr (Exploration and protection of subsurface) 6/2015: 8-21

