THE ARCHITECTURE OF MANTLE IN THE NORTH-EAST EUROPE

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We have constructed a three-dimensional model of the mantle along regional profiles perpendicular to the Urals. This model, fitting the potential field data, includes free active structural stages: the upper, extending to 100km in depth; the middle, from 100km to 200-400km deep; and the lower, from 200-400km to 670km deep. We believe that the boundaries of density inhomogeneities in the lower stage laterally control the position of the super-order structures like the East-European and West-Siberian plates. Every structural stage, in it`s turn, is subdivided into large-scale inhomogeneities. Thus, position of density inhomogeneities in the middle stage controls the position of the large-order structures such as Pechorian, Uralian and ZaUralian. As a result of the modelling, we have disclosed in the upper stage two systems of mantle inhomogeneities different in age: north-western and north-north-eastern.Lateral inhomogeneities of the north-western system correlate with the permanent structures of Pechora basement, such as Pechora-Kolva, Khoreiver, Varandey-Adz`va. North-western orientation is observed in structure of ancient polymetamorphic complexes within limits of the Uralian region. These data suggest the PreCambrian age for these mantle inhomogeneities. North-north-eastern system of mantle inhomogeneities is observed within the Uralian region. In modern plan, this system is correlated with Paleozoic formations of the Urals. At the upper mantel level, East-Uralian structural zone extends north-eastwards (towards Taimyr region). We assume that the north-north-eastern system of mantle inhomogeneities was formed in the Paleozoic.