

## Nanoparticles of X-ray amorphous mineralogical substances

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Representations about the particular ultradisperse structural state of x-ray amorphous mineralogical substances (mineraloids), distinct from atomic-molecular are developed [1-4]. For mineraloids it are find out and in details described submicro-nanoscale structures of natural solid bitumens, fossil resins, of some inorganic metacolloids by HRTEM, STM, AFM, SEM. This has allowed revealing various species of superstructural orderings in mineraloids, to define its mechanisms, to allocate key value of influence of the heating factor for the sizes nanoparticles in organic mineraloids.

Results of studying submicro-nanoscale structures and mechanisms of their ordering are important for modifying technological properties of natural substances, making of geomaterials. Special interest cause mineraloids with periodically-ordered nanoscale structures like noble opal has aroused. The similar regular structures are characteristic for a row organic and inorganic mineraloids.

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## Statistical evaluation of the Holocene climate parameters in the NE of European Russia (from palynological data)

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In the given work present paleoclimatic investigation included palynological and statistical analyses, radiocarbon dating of the Holocene lake, alluvial (oxbow lake) and swamp sediments in middle and northern taiga subzones of the Komi Republic. On the basis of cores of four boreholes and fourteen outcrops, synchronous spectra correlation and Holocene separation were accomplished [1].

Mean annual and July temperatures were estimated by zonal method of the Holocene paleoclimates reconstruction [2], based on palynological assemblages for characteristics of environmental changes during the interval. It has been established that the sediments accumulated during the Preboreal-Subatlantic interval, when repeated climatic changes occurred.

To determine the main trends of paleoclimate changes climatic curves have been drawn. The curves show deviations of the mean annual and July temperatures during the Holocene from their current values. For this purpose, the statistical weight of mean temperature values are taken into account in paleoclimatic curves approximating, as the temperature ranges in certain intervals of the Holocene vary considerably.

According to the palynological data and statistical analyses three periods with warmer climatic conditions (Early Boreal, Middle Subboreal and Late Atlantic) were estimated. It is established, that climatic optimum have developed at the end of the Atlantic period to what distribution of the most thermophilic tree species (oak, elm, hazel and maple) and the highest temperatures testifies. The Atlantic period is characterized by mean July temperature on 2.5–3.5 °C and mean annual temperature on 2–3 °C warmer, than at the present time. The Boreal and Subboreal temperature maxima had the subordinated value. Thus, from the Preboreal period the increase tendency of temperatures up to the maximal values at the end of the Atlantic period is observed. Then reduction of temperatures to the present has followed.

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