

Dynamics of vegetation of the southern Primorye during the climatic rhythm of the Little Ice Age

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Abstract. Six stages of vegetation development have been identified on the basis of a palynological study of floodplain deposits of the Tsukanovka River (southern Primorye). The first stage is transitional from the medieval warm period, the next four stages are comparable with the climatic phases of the Little Ice Age. The sixth stage in the development of vegetation reflects the modern warming in the 20th century, when modern landscapes have been formed with the participation of the anthropogenic factor. The specific development of a complex of atmospheric-hydrospheric processes, which developed under the direct influence of long-term variations in solar activity, was the reason for the emergence of the Little Ice Age. The coldest phase in the territory of southern Primorye occurred at the end of the 17th century and coincided with the Maunder Grand Minimum of solar activity (1645–1715), it is also characterized by a decrease in humidity. The development of forest vegetation in the valley of the Tsukanovka River recorded alternating warm and cold episodes during the Little Ice Age. In relatively warm phases, the proportion of oak and other broad-leaved trees increased in the forest vegetation in southern Primorye, while in cold phases the proportion of alder increased. In the first half of the XVI century on the territory of southern Primorye, an increase in humidity due to an increase in precipitation is noted. The correlation of paleoclimatic rhythms identified on the basis of spore-pollen analysis results during the Little Ice Age in southern Primorye, with dendrochronological data for the southern Sikhote-Alin and other regions of the northern hemisphere, as well as with historical evidence from neighboring China, has showed the synchronism of the onset of climatic events in the regions, which reflects their global nature and global scale.

Keywords:

pollen analysis, vegetation, Sikhote-Alin, Northern Hemisphere, Little Ice Age, solar activity minimum

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