

## Subfossil pollen spectra as evidence of the altitudinal zonation of the Southern Sikhote-Alin

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**Abstract.** The correspondence of pollen spectra from surface soil samples from the Olkhovaya Mountain (height 1669 m) to vertical belt vegetation (coniferous-broadleaved forests, spruce-fir forests and golets belt) was analyzed. Attention is paid to the analysis of the pollen spectra formed under alpine vegetation, including spruce forests at an altitude of 1600 m and on a swampy area near the Alekseevskoye Lake, a unique alpine lake in the Southern Sikhote-Alin. Pollen of woody vegetation prevailed in subfossil spectra from all vegetation belts, the composition of pollen of herbaceous plants and spores was poor. 16 taxa of arboreal, 8 taxa of nonarboreal, 5 taxa of spores were identified. It was found that the ratio of the main taxa, in general, corresponds to the dominant plants of the vegetation cover. It is shown that the local vegetation is not fully reflected in the subfossil spectra in the alpine belt, especially there is little pollen from shrubs and grasses, and waterlogged habitats are poorly reflected. It was revealed which pollen from the leading plant families and genera of flora of the highlands is not reflected in the pollen spectra. It has been established how much allochthonous pollen and what taxa were carried by the wind from lower relief levels. Taxa with remote sources were found. In general, the pollen spectra from the Olkhovaya Mountain highlands reflect the widespread development of spruce forests near the peak. Presence of spruce forests and a small area of the alpine zone are the main reasons explaining why forest pollen spectra with a predominance of dark coniferous pollen were obtained above the forest boundary. The results obtained were compared with the data on subfossil spectra from soils and surface peat of the bogs of the Sergeevskoye and Shkotovskoye plateaus, as well as the Partizanskaya and the Kievka rivers basins. The data obtained are important for more correct paleogeographical reconstructions: biomization methods in the mountainous areas of the south Far East and the development of methodological techniques for assessing quantitative paleoclimatic parameters.

*Keywords*

**Olkhovaya Mountain, Alexeevsky Ridge, golets belt, spruce-fir forests, Korean pine-broadleaved forests, pollen analysis**

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