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Subfossil spore-pollen spectra of mountainous areas: the case of the Kamchatka Peninsula

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Abstract. The article presents the results of the composition analysis of 27 recent (surface) pollen assemblages collected in typical plant communities in the northern part of the Central Kamchatka Depression and on the surrounding slopes of the Sredinny Range and Klyuchevskaya Sopka volcano. Our data show that spore-pollen spectra reliably represent the composition of forest plant communities. However, the proportions of pollen in the spectra of some arboreal taxas does not always correspond to their role in plant communities The adequacy of the spectra for plant communities is confirmed by cluster analysis, according to which the most statistically similar spore-pollen spectra are formed in similar plant communities. Regional components of the spectra in surface samples distort the ratios of main taxa in plant communities, especially in the high altitudinal vegetation belt. The participation of coniferous tree pollen in the spectra is underestimated compared to their actual presence in plant communities. These features must be considered when interpreting fossil spore-pollen spectra. Our materials made it possible to identify taxa whose pollen is often found in the spectra of the subalpine and alpine zones: *Alnus alnobetula*, Liliaceae, Polygonaceae, Asteraceae, *Saussurea,* and *Sanguisorba*. The strongest influence of local vegetation is observed in the spectra of swamps and coastal plant communities. The spectra of these communities usually contain pollen of *Alnus hirsuta*, *Salix*, and *Populus*, as well as Rosaceae, Cyperaceae, *Comarum, Myrica,* and *Menyanthes*, and spores of Polypodiaceae and *Equisetum*. Our materials will facilitate more reasonable reconstructions of Kamchatka vegetation based on the pollen analysis in the study of fossil pollen spectra of the Kamchatka Peninsula, as well as in the interpretation of pollen data from other mountainous regions.

Keywords:
subfossil spore-pollen spectra, pollen analysis, Kamchatka, Central Kamchatka Depression

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