

Coastal dunes of Urup Island (Kuril Islands, North-Western Pacific): palaeoclimatic and environmental archive

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Abstract. The Late Holocene phases of aeolian processes have been reconstructed on the basis of dune fields construction. The palaeoenvironmental studies were targeted to following problems: 1) to determine the periods of higher and lower activity of aeolian processes; 2) to establish the age of aeolian deposits and buried soils; 3) to retrace the development of coastal landscapes. The age was determined by radiocarbon dating of paleosols and tephrostratigraphy. The correlation of tephra was performed using data on the volcanic glass chemical composition. The dunes formed during the cooling accompanied by a minor regression. Six buried soils found in the dunes reflect stabilization and overgrowing of dune fields. The longest period of dune stabilization began after a cold event 2800–2600 cal yr BP and lasted until the Little Ice Age. Paleosols contain the tephra of large volcanic eruptions on Urup (Kolokol volcano), Simushir (Zavaritsky volcano) and Iturup (tephra). Pollen analysis allows us to retrace the development of coastal landscapes. Thickets of dwarf pine developed during cooling, birch forests spread in the Medieval Warm Period, and herb meadows were widely represented on the dunes. Human impact on the coastal palaeovegetation was found. Aeolian sedimentation was high during the Little Ice Age. One of the factors of dune reactivation during the Little Ice Age was increased winter storminess associated with the East Asian winter monsoon. Evidence of active cyclogenesis is the increasing proportion of allochthonous pollen. The modern reactivation of aeolian processes is associated with human activity and storm erosion of dunes.

Keywords:

**aeolian deposits, paleosol, minor regressions, tephra,
coastal landscape, human impact**

For citation: Razjigaeva N.G., Ganzey L.A., Arslanov Kh.A., Pshenichnikova N.F. Coastal dunes of Urup Island (Kuril Islands, North-Western Pacific): palaeoclimatic and environmental archive. *Geosistemy pererodnykh zon = Geosystems of Transition Zones*, 2022, vol. 6, no. 2, pp. 100–113. (In Engl., abstr. in Russ.). <https://doi.org/10.30730/gtr.2022.6.2.100-113> ; <https://www.elibrary.ru/afcofs>

Для цитирования: Разжигаева Н.Г., Ганзей Л.А., Арсланов Х.А., Пшеничникова Н.Ф. Береговые дюны острова Уруп (Курильские острова, северо-западная Пацифика): архив изменений палеоклимата и природной среды. *Геосистемы переходных зон*, 2022, т. 6, № 2, с. 100–113. (In Engl., abstr. in Russ.). <https://doi.org/10.30730/gtr.2022.6.2.100-113> ; <https://www.elibrary.ru/afcofs>

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