

Extinction of high latitude Kakanaut biota, North-East of Russia

Golovneva, L.¹

1) Komarov Botanical Institute, Russian Academy of Sciences, St.-Petersburg, Russia,
E mail: Lina_Golovneva@mail.ru

The association of fossil plants and vertebrate remains was discovered in the late Maastrichtian volcanogenic-terrigenous deposits of the Kakanaut Formation in the southeastern part of the Koryak Upland, North-East of Russia. The Kakanaut Formation contains the richest Maastrichtian plant assemblage of the Arctic region, dinosaurs and fish. This allows estimating the climatic and environmental conditions in which diverse dinosaur fauna could exist. Troodontids, dromaeosaurids and tyrannosaurid were identified among the carnivorous dinosaurs. Herbivorous dinosaurs are represented by basal ornithomimids, hadrosaurids, ankylosaurians and neoceratopsians. Dinosaur eggshell fragments have also been discovered at the Kakanaut. The Kakanaut paleoflora includes more than 50 taxa. Among them conifers and angiosperms predominate. Horsetails, liverworts and ferns occur rarely and are represented by 1–3 species in each group. The remains of cycadophytes and *Ginkgo* formed monodominant associations. Conifers are assigned to the Taxodiaceae, Cupressaceae and Pinaceae. Angiosperms include about 30 species. Families that can be confidently recognized are Platanaceae (*Platanus*), Cercidiphyllaceae (*Trochodendroides*), Betulaceae (*Corylus*), Fagaceae (*Fagopsisphyllum*), Rosaceae (*Peculnea*, *Arctoterum*). The remains of large-leaved platanoids and *Trochodendroides* usually prevail in fossil assemblages. The floral change near the K/T boundary was the result of climatic change, which was expressed in an increase of latitudinal temperature gradient, sharper seasonality, and increased humidity and cooling. The change of climate near the K/T boundary led to the destruction of the Cretaceous plant communities and extinction of the majority of specialized stenobionts, which were dominant in the climax vegetation.

The fossiliferous Kakanaut Formation is about 1000 m thick and consists of tuffaceous sandstone and siltstone, tuff, and andesitic rocks, which represent lacustrine and fluvio-deltaic deposition of coastal lowland. The presence of lava flows and tuff material in the sediments indicates the close vicinity of an active volcano. The Maastrichtian strata are covered by effusive-pyroclastic deposits about 600 m in thickness, which were formed during the Cretaceous–Paleogene transition (part of the Bristol-Anadyr volcanic belt). We supposed that intensive flood volcanism can also be responsible for declining and extinction of dinosaur fauna in this region.