

Cretaceous Microplankton of the Russian Arctic and Pacific Rims: Superplume and Cooling during Supergreenhouse

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The Berriasian and Valanginian of the Arctic rim of Russia is represented by shale facies with radiolarians, foraminiferas (VISHNEVSKAYA et al., 2014) and calcareous dinoflagellates, while Pacific rim facies are siliceous and contain tethyan radiolarians due to superplume (VISHNEVSKAYA & FILATOVA, 2016). Hauterivian-Aptian microplankton is radiolarian and determined only in Pacific rim of Russia (KURILOV & VISHNEVSKAYA, 2011), while Albian-Cenomanian radiolarian and foraminiferal facies are widespread everywhere. Cenomanian radiolarian assemblage *Pseudodictyomitra pseudomacrocephala* of hot greenhouse phase expanded to Koryak-Kamchatka region in the Pacific rim and occurs together with planktonic foraminifera *Hedbergella globigerinellinoides*, *H. planispira*, *Globigerinelloides ultramicrus* (VISHNEVSKAYA, 2001). Turonian-Coniacian microplankton of the Arctic and Pacific rims is scarce. In the frame of the North-West Pacific in the Chukchi-Koryak-Kamchatka region foraminiferal zonal scale does not work but is used radiolarian scheme (VISHNEVSKAYA, 2001). Significant changes in radiolarian associations were fixed at the Santonian and Campanian boundary of Pacific rim sequences. *Pseudoaulophacus floresensis* assemblage of warm greenhouse phase during Santonian, comprising 46 species, replaced by *Prunobrachium crassum* assemblage of cool greenhouse conditions during the early-Campanian, where the association has 27 species, among which the spheroid and cyrtoidal groups are represented on an equal, and discoid is in a subordinate amount. Among foraminifera a warm-water Santonian plankton association (*Archaeoglobigerina bosquensis*, *Hedbergella delrioensis*, *H. holmdelensis*, *Heterohelix globulosa*, *H. reussi*) replaced into Campanian cold-water benthic ones (VISHNEVSKAYA & BASOV, 2007). In addition, the Campanian radiolarian association of Pacific rim, along with zonal species *Prunobrachium articulatum* of Arctic rim, contains *Heliodiscus borealis* Vishnevskaya, *Spongasteriscus rozanovi* Vishnevskaya, *Prunopyle stanislavi* Vishnevskaya - typical cold-water species.

Previously, it was known that many members of the Cenozoic radiolarian fauna appeared in the late Cretaceous - *Amphisphaera*, *Bathropyramis*, *Clathrocyclas* (late Campanian / Maastrichtian). But, on the example of *Heliodiscus*, *Spongasteriscus*, *Prunopyle*, it is clear that the first representatives of many Cenozoic genera could occur even earlier - in the early Campanian.

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