



Deep-water agglutinated foraminiferal assemblages from the Middle Pleistocene of the Central Arctic Ocean

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The Pleistocene glacial sediments of the Central Arctic Ocean contain a foraminiferal assemblage consisting entirely of agglutinated foraminifera. We are currently investigating the mid-Pleistocene agglutinated benthic foraminifera in long gravity cores collected from the Lomonosov Ridge in the Central Arctic Ocean during R/V Polarstern Expedition 87 (the ALEX Expedition) in the summer of 2014, in preparation for the planned IODP Arctic Drilling expedition.

The agglutinated foraminiferal assemblages in Core PS-87/30-1 are more diverse than previous reports. The assemblages are mostly sparse and strongly dominated by *Reticulophragmium pusillum* (Brady), accompanied by about 20 other species of agglutinated foraminifera. The diversity and abundance of agglutinated foraminifera correlate with the glacial/interglacial cycles observed in the core. The abundance of foraminifera is lowest in the glacial intervals. *Reticulophragmium pusillum* strongly dominates the glacial assemblages, comprising as much as 80% of the assemblage. This species is also known from the North Atlantic and Norwegian-Greenland Sea, but in these areas it is never a dominant species. The subdominant forms in these glacial assemblages are species that are endemic to the Lomonosov Ridge – the newly described species *Haplophragmoides articus* Kaminski, Waskowska and Chan, and *Trochammina lomosoensis* Evans & Kaminski. Other species include cosmopolitan monothalamids. We recognise several species of *Psammosphaera*, and additionally, *Saccamina sphaerica* Brady, *Hemispherammina batalleri* Loeblich & Tappan, *Placopsinella auriantica* Earland, a new species of *Ammopemphix*, as well as tubular forms belonging to *Rhizammina*, *Hyperammina* and *Psammosiphonella*. Species of *Reophax* (and possibly *Hormosina*) are also present. However, the fossilization potential of these forms is low and specimens are fragmentary, which complicates both their taxonomic identification and establishing their quantitative contribution to the assemblage. The most common hormosinid is a species that most closely resembles *Reophax davisii* Parr, but our specimens have a bilamellar wall, which suggests they in fact belong in the genus *Hormosina*.

At some horizons in the core additional species are sporadically found, including *Alveolophragmium polarensis* O'Neill, *Cystamina pauciloculata* (Brady), *Glomospira charoides* (Jones & Parker), and *Glomospira gordialis* (Jones & Parker). In conclusion, the DWAF from Core PS-87/30-1 is the most diverse assemblage reported so far from the Arctic Pleistocene. Because of the harsh conditions that prevailed during the Pleistocene glacial periods when the Arctic Ocean was subjected to maximum ice cover, the benthic foraminiferal community needed to adapt to extremely oligotrophic conditions. These species are therefore regarded to be survivors.