

Antarctic continent is one of the most severe regions on Earth and it is characterized by low annual temperatures, low precipitation, extensive ice cover and low energy input from the Sun. Nevertheless its lakes host not only microbial communities and protists but in many cases even in the most extreme localities also metazoans, especially rotifers and crustaceans. For at least the last 15 million years Antarctica has experienced massive glaciations that shape the distribution of organisms on this continent. Although it was originally thought that freshwater animals did not survive Quaternary glaciations in situ but migrated to milder regions in the north, nowadays it appears that at least in some cases it is not true. Direct evidence of survival of rotifers (*Notholca* sp.) and crustaceans (*Daphniopsis studeri*) in Antarctica was given by paleolimnological studies that were carried out in the Larsemann Hills and circumstantial evidence for permanent survival of crustaceans in Antarctica (e.g. *Gladioferens antarcticus*) is also growing. Antarctica is currently inhabited by about 14 species of freshwater crustaceans but recent climate changes and rapid warming of Antarctic Peninsula will probably lead to changes in the distribution of some species (e.g. *Bockella poppei*, *Branchinecta gaini*) that could, combined with their paleolimnological record, help us to understand development of the Antarctic environment during Holocene.