



New data on the Late Pleistocene and Holocene glacial, climate and relative sea-level changes at Fildes Peninsula, King George Island (South Shetlands Islands, West Antarctica)

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During the 2008-2009 austral summer, co-operative Russian - Polish paleogeographical investigations allowed to refine the understanding of the past environmental events at Fildes Peninsula, King George Island. Old marine deposits (ca. 30000 yrs BP) with shells, whale bones and marine algae in situ were found in the western coastal and northern inland territories at the altitudes of 20-40 m a.s.l. that evidences the covering of considerable part of the peninsula by relatively warm sea waters before the Last Glacial Maximum. Quite good preservation of these deposits supposes relatively small thickness and weak erosional potential of ice masses overlying the area during the LGM. The early Holocene phase of the peninsula deglaciation was caused by both climate warming and marine transgression, which left the deposits with fossil flora and fauna at heights up to 15 m a.s.l. (maximum rise of the relative sea-level 7000-8000 yrs BP). During the middle Holocene, glacier contraction in the area continued (on the whole) due to mainly favorable climatic conditions. The presence of marine and terrestrial deposit blocks (with shells, algae, mosses) in moraine ridges on the surface of Collins Ice Cap signifies that this glacier could vanish from the peninsula during climate optimum (ca. 4000-3000 yrs BP). The processes of new formation and growth of the ice cap started probably ca. 2000 yrs BP; within the last 1000 years the limited advance of the glacier occurred (likely corresponding to the Little Ice Age), and was replaced then by modern process of its decay.