

CENOZOIC GLACIATIONS AND BIOTA EVOLUTION: EVIDENCE FROM WEST ANTARCTICA

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The Antarctic Cenozoic contains an important record of deterioration of global climate, environments and biota evolution. While Cenozoic glacial history of Antarctica has been mostly revealed from deep sea drillings, West Antarctica shows a fairly well-preserved glacial record exposed on South Shetland Islands and the Antarctic Peninsula. The Paleogene-Neogene strata on King George Island display a sequence of alternating glacial and interglacial events, with at least two regional ice sheet expansions during the Oligocene Polonez Glaciation (32-26 Ma) and the Miocene Melville Glaciation (23-20 Ma). Recently the Polish geologists have discovered on King George Island the first Eocene mountain glaciers, that preceded major ice sheet formation in Antarctica (Birkenmajer et al. 2005). A terrestrial, valley-type tillite up to 65 metres thick was revealed between two basaltic lava sequences in the Point Thomas Formation on King George Island. K-Ar dating of the lavas suggests the age of the glaciation at 45-41 Ma (Middle Eocene). It is the oldest Cenozoic record of alpine glaciers in West Antarctica, providing insight into the onset of glaciation of West Antarctica.

The paleobiological records from Seymour King George and Cockburn Islands are important in providing information on the spatiotemporal pattern of paleoenvironmental changes and biota evolution that occurred during the crucial Eocene to Pliocene time interval. Gradual cooling of climate, changes of environment and trophic relationships were most probably responsible for the intense speciation and taxonomic diversification of the Antarctic Paleogene-Neogene biota.

Birkenmajer K., Gaździcki A., Krajewski K.P., Przybycin A., Solecki A., Tatur A. and Yoon Ho Il. 2005. First Cenozoic glaciers in West Antarctica. *Polish Polar Research* 26 (1): 3-12.