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STRATIGRAPHY AND FACIES OF OLIGOCENE ROCKS OF CAPE VAUREAL, KING GEORGE ISLAND: IMPLICATIONS FOR THE CLIMATIC HISTORY OF WESTERN ANTARCTICA

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Restudy of sedimentary rocks of the Krakowiak Glacier and Low Head Members (Polonez Cove Formation) and overlying Vaureal Peak Formation cropping out at Cape Vaureal, King George Island provides evidence of two glacial events of Tertiary age in Western Antarctica. The strata rest disconformably on basalts of the Mazurek Point Formation and are presumably separated from each other by an erosional uncorformity. The local stratigraphic succession includes, besides the two units, volcanic rocks of the Boy Point Formation that recover the Polonez Cove Formation, and of the Martins Head Formation, that underly the Vaureal Peak Formation. Their age is considered respectively as Early and Late Oligocene (Birkenmajer, 2001, 2003). This succession is cut by intrusive bodies (dykes, sills and plugs) of the Cape Syrezol Group.

Rocks of the Krakowiak Glacier Member are badly exposed and include polimictic diamictites bearing exotic clasts of igneous and metamorphic lithologies. Facets clasts have been found, but striated ones seem to be missing.The Low Head Member is made up of intercalated, matrix-supported conglomerates, sandstones and sandy diamictites bearing marine fossils. Strata of the Vaureal Peak:Formation include oligomitic diamictites with clasts of volcanic rocks eroded mainly from local sources (Martins Head e Boy Point formations) associated with deposits of debris flow of the lahar type. Faceted and/or striated clasts have not been found.

Results of stratigraphic and sedimentological investigations performed broadly agree with previous studies (Birkenmajer, 2001, 2003). Accordingly, the Krakowiak Glacier e Low Head members are interpreted as representing a proximal deglacial sequence deposited in a marine environment. No evidence of deposits related to ice advance have so far been found. Specimens of fossil brachiopods and bivalves collected from the Low Head Member, presently under study (Quaglio *et al.*, this volume), include both complete and fragmented shells of bivalves and brachiopods and of other invertebrate groups. The oligomitic nature of diamictites from the Vaureal Peak Formation suggests that they are products of a local glaciation, younger than the one documented in the Polonez Cove Formation. The far-travelled nature of clasts from diamictites of the latter unit indicates more extensive glacial conditions. Interpretation of age of the two events is still uncertain and is being investigated through radiometric dating. Wedge-shaped sand and gravel bodies cutting down the Vaureal Peak Formation are remindful of sand wedges and may indicate occurrence of rigorous periglacial conditions in the area.

Birkenmajer, K. 2001 – Mesozoic and Cenozoic Stratigraphic Units in Parts of the South Shetland Islands and Northern Antarctic Peninsula. Studia Geologica Polonica, vol. 118, 188 p.

Birkenmajer, K. 2003 – Admiralty Bay, King George Island (South Shetland Islands, West Antarctica): a Geological Monograph. Studia Geologica Polonica, vol. 120, 73 p.

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