



The late Quaternary environmental history of the Rauer Group (East Antarctica)

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The Rauer Group is a coastal archipelago of ice-free islands located in the eastern Prydz Bay region, East Antarctica. Marine basins between the islands provide a valuable archive of the regional environmental and climatic history. During an expedition in 2007, a 22 m long sediment sequence was recovered from a 40 m deep marine basin, which is separated from the ocean by subaquatic sills and is characterized by anoxic bottom waters. According to texture and sediment composition the sediment sequence can be divided into two main units. The lower unit (below 19 m sediment depth) is formed by a cryogenic sapropel, which was according to radiocarbon dates deposited at c. 40,000 yr BP, i.e. prior to the local glacial maximum. The cryogenic texture is consistent with having been subject to at least one cycle of freeze-thaw, such as it could have occurred at the bottom of an advanced and overlying ice sheet. The upper unit (above 19 m sediment depth) is of Holocene age and indicates by its non-cryogenic texture that the basin was not glaciated during the past c. 10,000 yr BP. Biogeochemical analyses and XRF scanning provide high-resolution information to Holocene climatic and environmental changes, which partly differ from those of other East Antarctic coastal regions.