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Università degli Studi di Napoli "Parthenope"

Via Amm. F. Acton, 38 - 80133 Napoli, ITALY

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Topic: Marine geology and geophysics.

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ABSTRACT Subject :

pre-LGM paleoenvironmental evolution at Central Basin (Western Ross Sea, Antarctica)

Abstract 15/02/2023 22:02:41

We present a multiproxy investigation of three gravity cores collected in the Central Basin on western Ross Sea continental shelf margin. Central Basin is located at the mouth of JOIDES basin (Western Ross Sea, Antarctica) and it represents one of the possible preferential paths of the dense and salty High Salinity Shelf Water (HSSW) which forms in the Terra Nova Bay polynya and then descends from the continental shelf into the deep ocean mixing with the Antarctic Bottom Water (AABW). On the other hands the Central Basin represents one of the preferred pathways for warm Circumpolar Deep Water (CDW) which flows onto the continental shelf providing the main source of heat and nutrients to the Ross Sea continental shelf. A great deal of physical (paleomagnetism, magnetic susceptibility, grain size), chemical-geochemical (organic carbon, biogenic silica and CaCO₃ content, major and trace elements) and biological (diatoms and foraminifera assemblages) analyses were performed on the studied sediments. The chronological framework obtained combining ¹⁴C radiocarbon dating on organic matter matrix, paleomagnetic measurement and diatom biostratigraphy indicates that the investigated sedimentary sequence covers the last geomagnetic reversal, the Matuyama–Brunhes transition. Here we present the main sedimentary facies recognized identifying the main sedimentological processes and characterizing different environments which permit to reconstruct the oceanographic dynamics in this area.

