Multidisciplinary study of sediments deposited in the Ross Sea (Antarctica): information on changes of ice extent during the last 130 ka

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In the Ross Sea (Antarctica), sedimentation is controlled by the dynamics of the ice shelves, fluctuations of the ice sheets extensions (Eastern and Western) and volcanic activity from several volcanic complex of the Victoria Land. Marine sediments consisting of alternated glacigenic, biogenic and volcanic deposits can be interpreted in terms of changes in paleoclimate and paleoenvironment conditions. We present a multidisciplinary study of the sediments recovered in selected cores from Ross Sea during 1999 and 2000 cruises and stored in the Italian archive at Museo Nazionale dell'Antartide (Trieste). The study is based on tephrostratigraphy, petrology, paleomagnetism, rock magnetism, TIC/TOC geochemistry, Ar/Ar dating, palinology and integrated biostratigraphy of forams and calcareous nannoplankton of the sediments. Results provide new data on local and/or global changes of paleoclimate and paleoenvironmental conditions over the past 130 Ka. Furthermore, the study of the recovered volcanic deposits adds new information about the poorly known, recent volcanic activity in the Victoria Land area.

Sediment dynamics on the Ross Sea continental slope: results from the Rosslope Project

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KEYWORDS: paleoenvironment, Antarctica, sediment core

We present the main results concerning the PNRA Rosslope Project (Past and present sedimentary dynamic in the ROSS Sea: a multidisciplinary approach to study the continental SLOPE). The project aims to investigate the relationships among geological, geomorphological, geophysical characteristics of the sea floor, water-mass circulation and Late Cenozoic environmental variations in two selected areas of the Ross Sea 1) the outer–shelf and the continental slope of the Adare and Central Basins, as outlet areas of the High Salinity Shelf Water (HSSW) into the Southern Ocean 2) the outer–shelf and the continental slope East of the Pennell-Iselin Banks, as the main overflow area of the Ice Shelf Water (ISW). Four cores were selected: three in the East part of the Iselin Bank and one in the Central Basin. Magnetic susceptibility, X-radiographs, grain-size, organic matter, micropaleontological, geochemical and mineralogical data were performed Micropaleontological data on diatom assemblages from selected samples demonstrate the existence of a strong reworking at least in eastern site, considering the widespread occurrence of fossil taxa along the investigated sediment cores ^{14}C measurements gave ages ranging from 6 ky to 34 ky BP on selected samples. Geophysical data (2D seismic line) were acquired from the outer shelf to the upper slope of the East part of Iselin Bank . The results of the processed data were correlated to the adjacent existing seismic lines in order to define a more detailed model representing the Late Cenozoic sedimentation of this zone. Data processing is ongoing, but it is already possible to identify the main factors that are conditionig and have conditioned the sedimentation processes in the area.

The Ross Sea 2013 cruise: the Italian - South Korean collaboration and preliminary results

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KEYWORDS: Ross Sea, slope sedimentation, geophysics

In February 2013 the Korean oceanographic cruise ANA03B was conducted on board of the IBRV ARAON (Kopri) in the Ross Sea (Antarctica). During the cruise a collaborative work between Korea and Italy was performed. The Italian participation was supported by PNRA in the framework of the ROSSLOPE Project (Past and present sedimentary dynamic in the ROSS Sea: a multidisciplinary approach to study the continental SLOPE). The goal of the Rosslope and Kopri team collaboration was to collect geophysical and sedimentological data in the Central Basin area. In this presentation we report the preliminary results.

Stable isotope composition of Mytilus edulis from Holocene beach ridges in the area of Camarones (Chubut Province, Argentina)

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Patagonia is the only continental landmass emerging along the mid to low-latitudes in the Southern Hemisphere, and this make Patagonia a unique region of the world. This represents a key area for understanding the role of the southern hemisphere in regulating climate during the last hundredth of thousand years. Overall, the collection of climatic data from Patagonian on land and on coastal deposits is of paramount importance for a