



Water dynamics and sediment transport associated with Bari Canyon in the southern Adriatic Sea

S. Miserocchi (1), M. Turchetto (2), A. Boldrin (2) and L. Langone (1)

(1) Istituto Scienze Marine CNR, Sez. Geologia Marina, Bologna, Italy, (2) Istituto Scienze Marine CNR, Sez. Sistemi Marini e Costieri, Venice, Italy, (stefano.miserocchi@ismar.cnr.it / Fax + 39 051-6398940 / Tel +39 051-6398880)

To better understand the importance and functioning of the Bari canyon system on sediment dynamics and transport, three moorings were deployed in the southern Adriatic basin. This was done as part of the Eurostrataform-WP2 Project with the aim to determine, characterise and quantify particle transport, fluxes and accumulation associated with and forced by canyon dynamics.

On the base of a detailed bathymetric map, two parallel channels were identified within the Bari Canyon. In each channel a mooring line, including a sediment trap and a current meter provided of temperature and conductivity sensors, has been deployed near the bottom. Moreover an additional line was moored as a reference, on the open slope north of the canyon. The depth of the three mooring sites was similar, ranging from 580 to 630 m. The moorings will be maintained for one year; here the results of the first five months (March-July 2004) of deployment and, possibly the preliminary results of the second deployment (July 04-March05), will be presented.

Water column and suspended matter distribution and characterisation by using CTD probes have been conducted at the shelf edge and within the canyon.

Water circulation in the two canyon branches and outside the canyon, on the open slope, showed different patterns in current direction and speed. In the station outside the canyon (st. A) the current direction was nearly steady southward and parallel to the isobaths with a slight downslope component. Also in the northern branch of the canyon (st. B) the prevailing direction was parallel to the isobaths, although in April, strong current events (speed up to 72 cm/s) flowing in the same direction of the canyon axis were observed. In the southern branch (st. C) the current flowed steadily eastward,

along the canyon axis, with a maximum intensity of 66 cm/s. At all stations, the across-shelf current component were higher during April-May associated with a decrease of temperature. This suggest the influx of the North Adriatic Dense Water in the area.

The vertical fluxes of particulate matter, determined by sediment traps, showed the highest values in st. C, roughly double of st. B, and the lowest in st. A, about 1/3 of st. C. Particle fluxes showed a marked temporal variability occurred simultaneously in the three stations. Maximum particle flux values were recorded in April-May along the canyon axis, in phase with the highest current speeds, evidencing the important role of Bari canyon in sediment-transport from the continental shelf to the deep sea.

Comparison of vertical flux with modern sediment accumulation rates (Pb-210, Cs-137,) at mooring sites will be also presented.