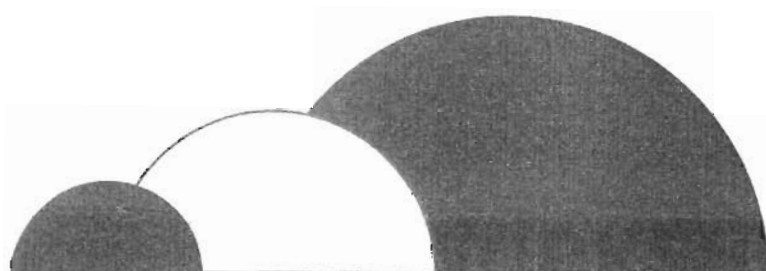


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F I S T

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and western Mediterranean basin, both in term of water masses and their associated properties. Variations of volume and of hydrographic characteristics can induce important modification in the adjacent basins. This is particularly evident during the last 15 years, when the Eastern Mediterranean Transient (EMT), reached the Strait and propagated in the Western Basin.

The effects of the EMT in the eastern basin are far to be concluded and its perturbation still propagate through the Sicily strait. In previous works, different characteristics and phases of propagation have been described. Changes in the hydrographic conditions went to modify firstly the deep layer and successively the intermediate. Recently, starting from 2006, a new deep phase seems to be active in the Strait. A denser water was observed to cross the western sill, sinking at greater depth when reached the Tyrrhenian sea. Two currentmeter moorings, positioned in correspondence of the western sill of the Strait, are maintained for a long term monitoring of water mass exchanges through the Strait. The principal time scales have been investigated together with the response to the wind forcing. Transport has been estimated along the examined period and related to the hydrographic conditions.

W10-120 Poster Ghezzi, Michol

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MODELLING HYDRODYNAMICS AND WATER QUALITY OF THE TARANTO SEA: EARLY RESULTS

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Key terms: numerical model; Taranto sea; hydrodynamic; water quality

The Taranto sea (Mar Grande and Mar Piccolo) is a remarkable site for trading, strategical and ecological aspects. It is divided into two sub-basins: the Mar Grande and the Mar Piccolo connected to the sea and one each other by the First Inlet and the Second Inlet. The Northern-most area of the Mar Piccolo and the south-eastern area of the Second Inlet are subjected to environmental safeguarding restrictions.

Informations about the physical and biochemical processes that drive the ecosystem have been provided by bibliographic data. We have applied the hydrodynamic and water quality modules of the numerical model SHYFEM-EUTRO to study some features of this site. The SHYFEM-EUTRO is a well tested numerical model already adopted to study coastal areas characterized by complex bathymetry.

We analysed the available meteorological data of this site in order to evaluate the most frequent wind intensities and directions in the Taranto sea. The model have been applied in bi-dimensional version with realistic forcings in order to study the spatial and temporal variability of the velocity fields in the monthly time scale. Other similar simulations lasting one full year have been carried out to examine the seasonal evolution of the temperature, salinity, chlorophyll a and zooplankton fields.

We compared the numerical results of hydrodynamical and ecological variables with available bibliographical data. In particular results about temperature, salinity and chlorophyll have been compared with spatially averaged data for the three different basins. From an hydrodynamic standpoint the current velocity is generally low and mainly influenced by the wind action. In particular, in the Second Inlet of the Mar Piccolo, where the hydrodynamic activities is generally low, the southern wind can often strengthen the water circulation. The model can suitably simulate the evolution of the temperature field but overestimates the salinity, particularly in the Second Inlets, probably due to unknown fresh water input. What concerns the water quality, the model can reproduce the spatial and temporal variability of the phytoplankton and zooplankton dynamics but it is not able to fit appropriately the measurements. This preliminary results shows some critical points: the quality and the quantity of input data need to be improved, some assumptions of the setup of the hydrodynamical model of the basin should be re-evaluated (barotropic system) and some aspects of the water quality code could not be adequate for the Taranto Sea.

The future developments of this work will be to estimate the different inputs for the system and to compare the hydrodynamical results with velocity or level measurements in order to validate the circulation field. The availability of long and complete ecological data timeseries will allow the calibration of some ecological variables and eventually to develop some parts of the code to adapt it to the Taranto sea features.

W10-121 Orale Giani, Michele

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FLUXES OF SETTLING PARTICULATE MATTER AND ORGANIC CARBON IN THE ADRIATIC SHELF: A REVIEW OF EXISTING DATA

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Key terms: Organic carbon; settling particulate matter; Adriatic sea

The waters overlying the Adriatic shelf receive the contribution of the riverine discharges and are among the most productive areas of the Mediterranean Sea. The fluxes of settling particulate matter are elevated and contribute to the sustenance of benthic fauna (e.g.: filter and suspension feeders) and to the bacterial activity whereas only a fraction is definitively buried.

In the framework of the VECTOR project a review of the published data on particulate matter fluxes toward the Adriatic shelf sediments measured by sediment traps and a census of the most significant metadata available has

been carried out.

The analysed data regard coastal areas (in front of Po, Adige and Sile rivers), a offshore station (20 nautical miles E from Chioggia) and a station in the gulf of Trieste.

The considered parameters concern the fluxes of particulate matter and of organic carbon, nitrogen and phosphorus.

The settling fluxes of organic carbon were compared with the primary production, where available, to estimate the carbon exported and the importance of advective transport and resuspension processes were also evaluated.

W10-122 Poster Giani, Michele

10.1474/Epitome.02.0122.Geoitalia2007

TOWARD A SEDIMENTARY ORGANIC CARBON BUDGET FOR THE WESTERN ADRIATIC SEA

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Key terms: Adriatic continental shelf; sediment; organic carbon; mass balance; data review

The extent of the settling particulate organic carbon (OC) that escapes resuspension and bacterial degradation is ultimately buried and will be partially preserved in the sediments. Therefore, they act as a sink for the fraction of CO₂ fixed by primary production. The estimate of the OC burial in the western Adriatic continental shelf can be considered as a first step toward the calculation of a global carbon budget for the Adriatic. In this regard, a review of all available OC data has been undertaken in the framework of VECTOR project. The coupling between OC contents in surficial sediment and mass accumulation rates allows to estimate the sedimentary OC mass balance.

In the last 20 years, mass accumulation rates were obtained from 210Pb and 137Cs activity-depth profiles in a suite of papers with different purposes. Among these, Frignani et al. (2005) and Palinkas et al. (2006, 2007) show the most extended areal coverage (>210 sites). On the other hand, OC contents in sediments were measured over the years to assess sediment composition and biogeochemical characteristics, estimate the effects of eutrophication and understand the relationships with pollutant concentrations. In particular, within the PRISMA1 project, OC contents were determined in surface and subsurface sediments covering an extensive area of the Adriatic platform. High concentrations were found especially in the western part of the Adriatic shelf both due to the elevated allochthonous inputs, mainly through riverine discharges and primary and secondary production. Furthermore, OC content and isotopic composition of were used as tracers of the riverine contribution to the Adriatic shelf sedimentation in the framework of US- and EU-funded projects EUROSTRATIFORM (2000-2005). Several oceanographic cruises, carried out to study the subaqueous delta of the Po River and the north and middle Adriatic shelf, allowed the collection and analysis of 430 surface sediment and 823 suspended particulate matter samples. Major results have been discussed in Tesi et al. (2006, 2007) and Miserocchi et al. (2007).

W10-123 Poster Giorgetti, Alessandra

10.1474/Epitome.02.0123.Geoitalia2007

THE PAN-EUROPEAN INFRASTRUCTURE FOR OCEAN DATA MANAGEMENT INCLUDES VECTOR META-DATA

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Key terms: Interoperability; distributed; marine data management; meta-data

SeaDataNet EU-funded project (2006 - 2010) is developing basic tools for implementing the data management activities in conformity with internationally agreed protocols. It aims to improve the level of quality, the long term assistance and the accessibility of marine data. A distributed pan-European infrastructure for marine data management networks the existing National Oceanographic Data Centres, Satellite Data Centres and Modeling Centres from nearby all coastal states bordering the European seas. It provides through a unique portal integrated on-line access to comprehensive, standardized and validated in-situ and remote sensing marine data, meta-data and products. The development and adoption of common communication standards (common formats and vocabularies for data and meta-data), of discovery, transformation, downloading and viewing services will ensure the Centres interoperability.

OGS/NODC information system is one of the interoperable nodes linked to the infrastructure, adopting standardized methodologies and technology for quality control, data and meta-data distribution. OGS/NODC maintains a catalogue service, aiming at facilitating marine data searching, location and retrieval, containing different levels of data and information (meta-data). This includes the ROSCOP/Cruise Summary Report inventory, the pan-European Directory of Marine Environmental Data, the more recent European Directory of the Ocean Observing Systems. All the meta-data are public and accessible through OGS/NODC on-line server, while the access to the measured data follows a Data Policy, defined by the data providers.

The Vector field activities are constantly included in the high level pan-European inventories available through OGS/NODC and SeaDataNet Web Portals.

W10-124 Orale Giuseppe, Civitarese

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SEASONAL AND INTERANNUAL VARIABILITY OF THE OCEANOGRAPHIC PROPERTIES IN THE SOUTHERN ADRIATIC (VECTOR ACTIVITY 8.1).

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