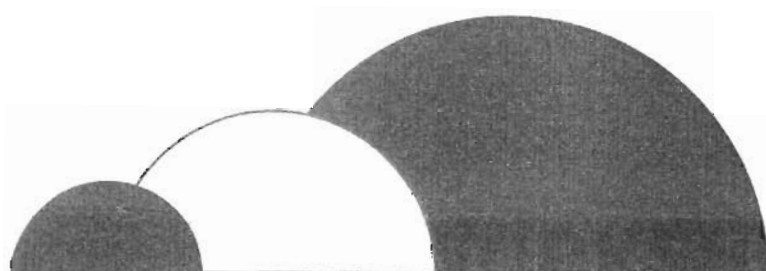


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F I S T

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W10-161 Orale Zambianchi, Enrico

10.1474/Epitome.02.0161.Geoitalia2007

PRELIMINARY RESULTS OF VECTOR ACTIVITIES ON THE SURFACE CIRCULATION IN THE GULF OF NAPLES

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Key terms: *Gulf of Naples; meteorological data; surface transport phenomena*

Wind represents the main forcing of the short term surface circulation in the Gulf of Naples. In this presentation we thus first of all characterize the area of the Gulf on the basis of three years worth of meteorological data collected in three sites: one weather station managed by the Department of Environmental Sciences of the Parthenope LRU of CoNISMa, located along the urban littoral in Naples, one weather station managed by APAT, the Italian agency for the protection of the environment and for the associated technical services, located in the harbour of the same city, and one grid point of the ECMWF atmospheric model.

After identifying the main meteorological regimes in the area, we selected surface current data collected by a coastal radar system managed in the area by the Parthenope LRU, corresponding to the typical wind patterns measured in the Gulf.

After a first, qualitative analysis, we present results of the investigation on the connections between wind and currents, carried out on the basis of the cross-correlation function between the two data sets. In particular, the surface currents have been examined in two sites, one in the Bay of Naples and the other in the interior of the Gulf, so as to detect possible differences in the response of the two sea sectors to wind action. The results show that the interior surface currents are well correlated with northeasterly winds within a 20 hr time lag; no significant correlation shows up in the Bay. Southwesterly winds do not show any strong correlation with the surface currents measured in the two locations.

We finally present the results of a preliminary implementation of a lagrangian code for the study of surface transport phenomena in the Gulf of Naples, estimating residence times and water renewal and focussing the attention on exchanges between coastal subareas and the interior of the Gulf.

remarkable regularity in their annual patterns of occurrence that does not match the wide interannual variability of the majority of environmental parameters. A possible explanation for the regular species-specific patterns of occurrence is that endogenous mechanisms similar to those regulating phenological traits of higher plants may also operate in unicellular algae.

W10-164 Poster Zingone, Adriana

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POTENTIALLY TOXIC AND HARMFUL MICROALGAE OF THE CAMPANIA COASTAL WATERS

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Key terms: *potentially harmful microalgae; Campania coastal waters; VECTOR*
A total number of 45 potentially harmful microalgae have been identified along the coasts of the Campania region (South Tyrrhenian Sea, Mediterranean Sea). This number is based on a revision of the results of over 20 years of research at a coastal station in the Gulf of Naples, 4 years of monitoring activity along the Campania coasts and of a series of scattered and sporadic observations. The list includes both species so far confirmed to produce toxins and species that have caused seawater discolorations in the study area. In the frame of VECTOR activities, a study on the group of the naked dinoflagellates was carried out. The group is particularly interesting for two main reasons: 1) it comprises several potentially ichthyotoxic species, 2) it underwent a taxonomical revolution few years ago. Two species (Karlodinium sp.1, Lepidodinium viride) were identified for the first time in the Mediterranean Sea whereas Karlodinium veneficum was recognised for the first time in the Gulf of Naples. The taxonomic position of three strains (Takayama sp., Woloszynskia sp. #1 and Woloszynskia sp. #2) needs further investigations probably leading to the description of new microalgal species. Information on the most probable period of occurrence of the species indicate the late spring and summer as the time of maximum risk of harmful events. Despite the variety of potentially toxic species, no human health problems nor fish kills have ever been recorded in Campania. The reasons for this apparent paradox are probably to be found in the ecological factors that regulate the abundance, toxicity and spatial distribution of the potentially harmful species and reflect as well the relatively low number of aquaculture farms in the area.

W10-162 Orale Zavatarelli, Marco

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ADRIATIC SEA DENSE WATER FORMATION AND BIOGEOCHEMICAL CYCLES

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Key terms: *Ecological modelling; Biogeochemical cycles; Adriatic Sea; dense water formation*

The influence of the (highly variable) dense water formation occurring over the shallow northern Adriatic sea and over the deep southern Adriatic is investigated by mean of a coupled physical/ecological three-dimensional numerical model.

The modeling system used is constituted by the Princeton Ocean Model (POM) for the physical/hydrodynamical part and by the Biogeochemical Flux Model (BFM) for the biogeochemical/ecological part.

The modeling system is implemented in the Adriatic Sea with an horizontal resolution of about 5 km and with 21 sigma layers. Surface forcing is climatological.

Simulations are analysed in order to highlight the role exerted by the dense water formation processes (and the associated spreading) in transporting nutrient and organic matter to the deeper Adriatic (northern Adriatic shelf dense water formation) and in controlling the surface phytoplankton dynamics (southern Adriatic dense water formation).

The work is preliminary to the activities of national and international research projects aiming to highlight the role of climatic variability in constraining the ecosystem dynamics.

W10-163 Orale Zingone, Adriana

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INTERANNUAL VARIATIONS IN PHYTOPLANKTON ASSEMBLAGES FROM THE GULF OF NAPLES AND THEIR RELATIONSHIPS WITH CLIMATE CHANGE

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Key terms: *phytoplankton; long term variations; climate; hydrography; Mediterranean Sea*

Climatic variations may directly affect phytoplankton communities due to the impact of changing temperature on geographic ranges and seasonal patterns of single species. In addition, hydrographic variations resulting from changing atmospheric forcing may significantly affect different phases of the seasonal cycle. We use our time series to trace seasonal and interannual variability in the atmospheric forcing (local and basin scale) and hydrographic conditions and the concurrent variability in phytoplankton communities in the Gulf of Naples. The analysis will consider different aspects of phytoplankton populations, including the seasonal patterns of occurrence of single species and of the species assemblages, as well as the size spectrum of microalgal populations. Preliminary results suggest that the abundance and dominance of phytoplankton assemblages varies over the years in relation with the external forcing. In contrast, a large number of phytoplankton species exhibit a

WORKSHOP W11

Partecipazione italiana al progetto di perforazione oceanica. IODP (Integrated Ocean Drilling Program).

W11-165 Orale Camerlenghi, Angelo

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SUBMARINE GEOHAZARDS. A NEW VENUE FOR SCIENTIFIC DRILLING

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Key terms: *Scientific drilling; Submarine geohazards; Submarine landslides; Tsunami; Earthquakes*

The international scientific community, supported by IODP, the European Consortium for Ocean Drilling (ECORD), and the European Science Foundation (ESF), is active promoting initiatives that will generate new drilling proposals focusing on submarine geohazards.

From October 25 to 27 2006, the workshop 'Scientific Ocean drilling behind the assessment of geo-hazards from submarine slides' was held in Barcelona (Spain). The workshop, sponsored primarily by the ESF, grouped 50 scientists and representatives of private companies, mainly from the European area, representing a wide spectrum of disciplines such as geophysics, stratigraphy, sedimentology, paleoceanography, marine geotechnology, geotechnical engineering and tsunami modeling. (Camerlenghi et al., 2007; Urgeles et al., 2007).

There are several reasons why submarine slope instability is to be considered as an important objective of scientific investigations in general:

- It affects offshore infra-structures (platforms, pipelines, cables, sub-sea installations);
- It may affect directly the stability of coastal areas;
- It may trigger tsunamis and affect coastal structures and population;
- It can be used as proxy of paleo-seismicity;
- It affects (destructively and constructively) the marine environment;
- It may trigger or it may be triggered by gas hydrate dissociation;
- It has a relevance to the understanding of natural climate changes;
- There is a relationship between volcanic eruptions and stability of volcanic island flanks;
- It helps understanding sedimentary basin evolution;
- It helps in reservoir characterization.

It is to be recognized that until now geohazards have been only tackled by scientific drilling as a complementary goal. In the view of the ESF workshop participants, there is a need of an explicit reference to geohazards in the next revised version of the IODP Initial Science Plan. The participants agreed that both mega slides and smaller size slides should be addressed by drilling where slope instability is recognized as a recurrent phenomenon in the stratigraphic succession. Not only sediments that have failed should be studied, but also sediments that are presently undergoing deformation and un-failed slopes should be addressed. The drilling strategies should include classical stratigraphic drilling, dedicated geotechnical drilling, and installation of borehole observatories as well as sea-floor observatories.

Another workshop, sponsored by IODP-MI, entitled Addressing Geologic