

Objectives

ADRICOSM-EXT contributes to the Partnership (Type II Initiative WSSD launched in Johannesburg in 2002), coordinated by the Italian Ministry for the Environment and Territory, by:

- enlarging the ADRICOSM Pilot Project experience to all Adriatic Countries, i.e. Italy, Slovenia, Croatia, Albania, Bosnia-Herzegovina and Serbia-Montenegro;
- continuing the implementation of a state of the art monitoring and forecasting system for the marine coastal areas and the river catchments.

Geographical area: Adriatic Sea

Launched in: 2004

Sponsored by: Italian Ministry of Foreigner Affairs

Executed by: UNESCO/IOC with the scientific coordination of the Italian National Institute of Geophysics and Volcanology.

Research focus: Operational Oceanography, forecasting system, Real time observing system, integrated catchments modeling and monitoring.

The overall objectives of ADRICOSM-EXT are the following:

OBJ-1: Activate the participation of Bosnia-Herzegovina, Serbia-Montenegro and Albania in the activities of ADRICOSM;

OBJ-2: Continuation and further enhancement of the ADRICOSM observational network with the active participation of the new entering countries;

OBJ-3: Expansion of the Integrated Catchment Simulator System implementation in one of the new entering countries;

OBJ-4: Expansion and implementation of a data management system for real time exchange and historical data archiving;

OBJ-5: Activate training courses and workshops on different aspects of real time monitoring and forecasting

Partners

NIB.MBS: National Institute of Biology (NIB), Marine Biological Station (MBS), SLOVENIA

RBI.CMR: Rudjer Boskovic Institute (RBI), Center for Marine Research (CMR), CROATIA

IOF: Institute of Oceanography and Fisheries (IOF), Split, CROATIA

UZ.AMGI: University of Zagreb, Andrija Mohorovicic Geophysical Institute (AMGI), CROATIA

FCE: Faculty of Civil Engineering, University of Split, CROATIA

HEIS: Hydro-engineering Institute, BOSNIA-HERZEGOVINA

FCE-Mostar: Faculty of Civil Engineering, University of Mostar, BOSNIA-HERZEGOVINA

UNIBE: University of Belgrade, SERBIA-MONTENEGRO

IBM: Institute of Marine Biology, SERBIA-MONTENEGRO

HI: Hydrometeorological Institute, ALBANIA

INGV: Istituto Nazionale di Geofisica e Vulcanologia (INGV), ITALY

UNIBO.CIRSA: Università di Bologna, ITALY

SGI SpA, ITALY

ENEA.CRAM: Ente per le Nuove Tecnologie, l'Energia e l'Ambiente, Centro Ricerche Ambiente Marino, ITALY

ARPA.DAPHNE: Agenzia Regionale Prevenzione e Ambiente dell'Emilia Romagna (ARPA), Struttura Oceanografica Daphne, ITALY

CNR.ISAC: Consiglio Nazionale delle Ricerche, Istituto di Scienze dell'atmosfera e del Clima, ITALY

OGS: Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS), Dipartimento di Oceanologia, ITALY

CNR.ISMAR/IGM: Consiglio Nazionale delle Ricerche (CNR), Istituto di Scienze Marine, Sezione di Geologia Marina, ITALY

CNR.ISMAR/Ancona: Consiglio Nazionale delle Ricerche (CNR), Istituto di Scienze Marine, ITALY

CLU Communications, Learning and Understanding, SrL, ITALY

APAT: Environmental and Territory Protection Agency, ITALY

UNESCO-IOC: Intergovernmental Oceanographic Commission, UNESCO, FRANCE (Coordinator)



Italian Ministry of Foreign Affairs and
Italian Ministry for the Environment and Territory

ADRICOSM EXTENSION Project

**ADRIatic sea integrated
COastal areaS and
river basin Management
system - EXTension**



Web site:

<http://www.bo.ingv.it/adricosm-ext>

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National Institute of
Geophysics and
Volcanology



Intergovernmental
Oceanographic
Commission
UNESCO



University of Bologna
Environmental Sciences
Ravenna

Major results:

The ADRICOSM-EXT large scale Observing System contribution:

- The project has contributed to the VOS-SOOP program in the Southern Adriatic Sea performing monthly monitoring.

Figure 1 represents the Temperature profiles (°C) collected in the Southern Adriatic Sea down to 850 meters depth during the ADRICOSM-EXT VOS-SOOP campaign in November 2005. The VOS-SOOP system will be upgraded through the installation of Meteo Station on the two ship tracks.

The project produces and deliver in Real Time satellite products for the Adriatic Sea:

- Surface Chlorophyll (Figure 2)
- CASE I vs CASE II waters (Figure 2)
- Sea Surface Temperature (Figure 3)

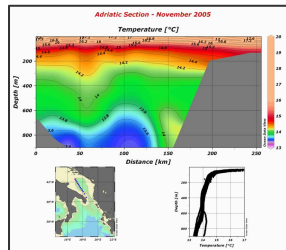


Fig. 1: Temperature profiles (°C) collected in the Southern Adriatic Sea 850 meters depth during the ADRICOSM-EXT VOS campaign in November 2005. The left bottom panel represent the collection points where the XBT are launched and the right bottom panel represents the temperature profiles.

Fig. 2: The left panel shows the Surface Chlorophyll as produced for day 14 February 2006; right panel shown the CASE I vs CASE II waters product for the day 14 February 2006.

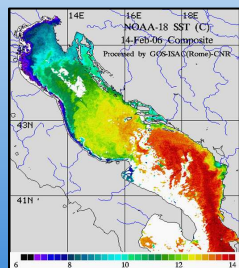
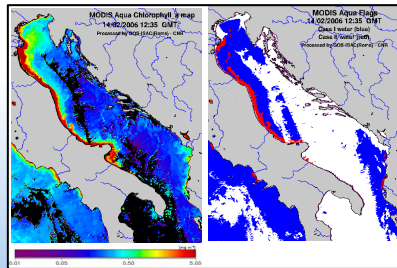


Fig. 3: Sea Surface Temperature for day 14 February 2006.

The ADRICOSM-EXT coastal monitoring networks (Figure 4):

- Upgrade of the buoy located in front of the Po River mouth with a bottom mounted ADCP.
- Upgrade of the coastal CTD network with vessel mounted ADCP. Figure 5 shows the CTD casts collected in the Emilia-Romagna coastal zone and that are transmitted in real time.
- A new sea level station located in the Narta lagoon, Albania.

A new CTD monitoring network has been designed in the Bar-Duress coastal areas and seasonal data collection has been performed. Figure 6 shows the results of the first cruise performed during November 2005.

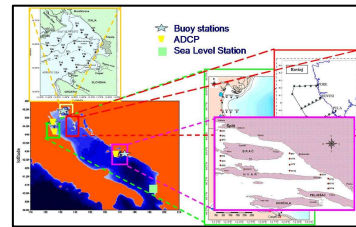


Fig. 4: The ADRICOSM-EXT observing system: the coastal monitoring network is constituted by 4 CTD networks and 3 coastal buoys. Part of the network is upgraded during the project.

Fig. 5: CTD cruise in Emilia-Romagna coastal zone performed in February-March 2006.

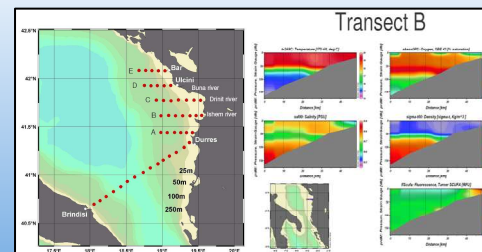
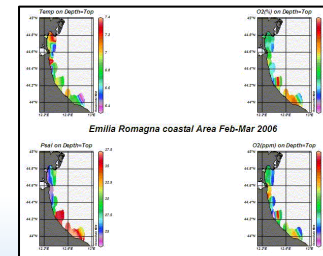


Fig. 6: CTD casts collected in the new coastal network the Bar-Duress and in the Brindisi-Duress track during November 2005.

The ADRICOSM-EXT modelling system:

- The Adriatic forecasting system produces forecasts for the Adriatic Sea relevant environmental variables, i.e., currents, temperature, salinity, sea level once a week for seven days (www.bo.ingv.it/adricosm-ext); Figure 7 shows the forecast of currents velocity (m/s) and streamlines representing currents direction for the Adriatic Sea for the day 28 May 06.
- An Integrated Catchment Simulator System (ICSS) model will be set up in Albania for River Ishem near Tirana.
- ADRICOSM forecasting system products are coupled operationally to an oil spill model MEDSLIK to perform numerical predictions of open ocean contaminants and oil dispersion. Figure 8 shows the forecast of the oil dispersion from a possible oil spill in the Montenegrin coastal zone.

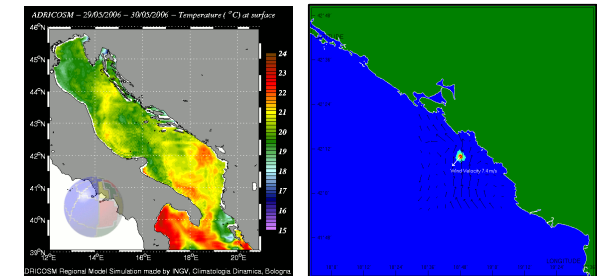


Fig. 7: Forecast of currents velocity (m/s) and streamlines representing currents direction for the Adriatic Sea (28 May 06).

Figure 8: Forecast of the oil dispersion from a possible oil spill in the Montenegrin coastal zone.

Training:

- UNESCO-IOC together with APAT have organized a Data Management Workshop and a Sea Level Station Data Management Workshop on the 29-31 of March 2006 in Trieste
- UNESCO-IOC together with INGV, UNIBO, OGS, ENEA and SGI have organized a course on Data Mapping and Numerical Modelling at ICTP, Trieste, Italy, 12 to 15 June 2006