



## **A supporting programme for capacity building in the Black Sea region towards operational status of oceanographic services**

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Communications, data and information exchange are the key elements of the operational ocean monitoring and forecasting networks, defined in the Global Ocean Observing System (GOOS). Development of observing and closely related operational forecasting system in the Black Sea region requires the exchange of significant data and information volumes. ASCABOS is designed to strengthen the communication system ensuring flexible and operative infrastructure for data and information exchange between partners and end users.

ASCABOS aims to increase public awareness and to stimulate and motivate the utilization of operational oceanographic information in regional management and decision-making practices. To support and to strengthen the exchange between scientists, governmental managers and other users ASCABOS is planning to combine experiences and instruments in order to develop a Black Sea information system, containing all available metadata, validated and efficiently updated through the Internet. ASCABOS plans to organize a cost-effective VOS pilot programme, applying modern technologies and developments for data collection, transmission, storage, use and dissemination. The VOS programme will respond to the GOOS demand for long-term monitoring of the marine ecosystems.

In conformity with the above set the project strategic objectives are: to build capacity through establishment and strengthening of the communications between partners and education and training of young scientists and end-users; to prepare necessary organizational, technological and technical prerequisites for integrated and operative Black Sea observing system; to establish an effective dialogue among all relevant Black Sea institutions and with international programmes, for a coherent implementation of the

regional information and forecasting system; to promote the European contribution to the global ocean and climate observing systems, as planned in the GMES and GEOSS; to optimise the use of the best human resources in the Black Sea region, encouraging greater participation by women scientists; to encourage the young scientists and technologists to master innovative thinking and emerging technologies for sustained cost-effective ocean monitoring and forecasting, and to contribute to the integration, strengthening, extension and internationalisation of the European Research Area.

The ultimate goal of modern oceanography is an end user oriented product. ASCABOS will improve the regional resources aiming to provide data and services to meet societal needs. The potential users and beneficiaries include shipping industries, oil and gas industries, port and harbour authorities, commercial fisheries, mariculture operations, re-insurance industries, tourism and recreation industries, governmental agencies that support the needs of marine related industries, coastal zone managers, marine-science community, and non-governmental organisations.

The assessment of capabilities of the existing observational systems, numerical models used, and available data carried out has revealed the weak points in the present state of affairs. The ASCABOS is called for to sustain the BSGOOS mission complementing ongoing and initiating new relevant actions.

The problem, which is particularly acute, concerns the communication capabilities in the region and easy and reliable access to data and information services. The development of distributed observing system and a closely related operational forecasting system in the Black Sea requires the exchange of significant data and information volumes and is dependant on this issue.

Very serious requirement is education and training of wide spectrum of end-users, including young scientists, in order to be achieved and retained high level of the operational forecasting system, on one hand, and to be created proper awareness and socio-economic impact, on the other. The extension of existing practices focusing on issues with particular relevance for operational services is considered in ASCABOS.

Historical and metadata related to the Black Sea have been collected within different international initiatives and are available in the partners' institutions. Strengthening of connections to access data and update the metadata base is an essential user requirement, which is going to be settled. To sustain the exchange between scientists, governmental managers and other users ASCABOS aims to develop a fully operational Black Sea information system, able to be updated through the Internet.

The analysis of operational observing systems shows that components in function are concentrated predominantly in the coastal zone. However, assimilation data proce-

dures are the key requisite for modelling enabling reliable forecasting to be produced. Thus, collection the meteorological and hydrological data in the open sea is especially valuable and strongly desired. This refers markedly to the Black Sea as a unique European basin. Therefore, a ship-of-opportunity observational programme is to be organised in ASCABOS, which results extremely cost-effective. Suitable conditions exist in the Black Sea as there is sufficient number of regular ship routes crossing the basin.

ASCABOS is designed as a three-year programme. The specific project objectives are: Co-ordination of a flexible and operative infrastructure for data and information exchange between key Black Sea scientific institutions to serve reliably observing and predicting the sea state and the ecosystem state; Build the scientific capacity of human resources in the Black Sea region aimed at further development, maintenance and improvement of an operational observing and forecasting system through especially designed educational and training programme; Collecting and updating of the historical databases and metadata bases in a regular manner and extending the access of the end-users to these information sources by development of a Black Sea information system, that will contain all available metadata, compiled in the past (after validation), and efficient updating mechanisms by the Internet; To organize a cost-effective VOS pilot programme, applying modern technologies and developments for data collection, transmission, storage, use and dissemination; Build consensus, trust and co-operation between partners to ensure a well co-ordinated effort and harmonisation of the project activities.

Undertaking the above-mentioned crucial actions will assist an optimal realization of the Black Sea GOOS objectives. The ASCABOS supporting programme will also respond to the GEOSS requirement to turn the observations into knowledge products. It is in unison with the GMES and GEO approach to start with the existing systems enhancing them with co-ordinated calibration and data exchange. It also addresses the very important element of the Earth Observation system, namely communication links and computing capacity. Methodology to exchange multiple sources data and operational portal system, designed in ASCABOS, will enable understanding and facilitate decision making, thus, yielding information products useful to society.

The consolidation of long-term observations requires national and international commitments. ASCABOS is supporting the dialogue and collaboration between the Black Sea relevant oceanographic and meteorological institutions, BS GOOS members, and the international bodies (IOC-IODE, WMO) to optimise the observing system. Furthermore, ASCABOS is underpinning other ongoing regional initiatives and programs seeking the interoperability and coherence of all key actions. This ensures a rational development of long-term sustained GOOS.