



The Black Sea Monitoring and Forecasting Center (BS-MFC) in the framework of the Copernicus Marine Service

Atanas Palazov (1), Giovanni Coppini (2), Stefania Angela Ciliberti (2), Marilaure Gregoire (3), Joanna Staneva (4), Elisaveta Peneva (5), Emin Özsoy (6), Luc Vandenbulcke (3), Andrea Storto (2), Benedicte Lemieux-Dudon (2), Tomas Lovato (2), Simona Masina (2), Nadia Pinardi (7), Francesco Palermo (2), Sergio Creti (2), Francesca Macchia (2), Rita Lecci (2), Arno Behrens (4), Veselka Marinova (1), Violeta Slabakova (1), and the BS-MFC Team

(1) Institute of Oceanology, Varna, Bulgaria (palazov@io-bas.bg), (2) Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici, Lecce, Italy, (3) University of Liège, Liège, Belgium, (4) Helmholtz-Zentrum Geesthacht – Institute of Coastal Research, Geesthacht, Germany, (5) University of Sofia “St. Kliment Ohridski”, Sofia, Bulgaria, (6) Eurasian Institute of Earth Sciences – Istanbul Technical University, Istanbul, Turkey, (7) Department of Physics and Astronomy, University of Bologna, Italy

The BS-MFC entered the Copernicus Marine Environment Monitoring Service (CMEMS, <http://marine.copernicus.eu/>) in October 2016, providing regular and systematic information about the ocean state in the Black Sea in operational mode. An expert team constitutes the BS-MFC Consortium: the Institute of Oceanology, Bulgarian Academy of Sciences (IO-BAS, Bulgaria) coordinates the service and the management in collaboration with Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici (CMCC, Italy), Helmholtz-Zentrum Geesthacht – Institute of Coastal Research (HZG, Germany), the University of Liege (ULG, Belgium), the Sofia University “St. Kliment Ohridski (USOF, Bulgaria) and the Eurasia Earth Sciences Institute – Istanbul Technical University (ITU, Turkey). The system provides a complete data catalogue for the Black Sea ocean variables such as temperature, salinity, sea level, currents, biogeochemistry and waves through a technologically advanced and resilient service, which is fully interconnected with the other Centers in the Copernicus network.

The high level BS-MFC architecture is based on 3 Production Units, for Physics, Biogeochemistry and Waves products respectively, a Dissemination/Archiving Unit for the delivery of the products and their archiving/accessibility, a Local Service Desk connected to the CMEMS Service Desk devoted to support all the operational activities, and backup units for all the main service components.

Products consist of analysis/hindcast, 10-days forecast and reanalysis, describing the physical (currents, temperature, salinity, sea level, mixed layer depth and bottom temperature), the biogeochemical state and waves.

To implement and improve the service, the BS-MFC has detailed an evolution plan, actually under implementation, devoted to establish, assess and improve the systems and their operational functionalities, providing some improvements from the scientific point of view concerning the modeling components (e.g., the fully aligned Physics, Biogeochemistry and Waves systems, the open boundary conditions at the Bosphorus, the state-of-the-art core models and increased spatial resolution among the major actions) and high quality products, towards an optimal interface between the Mediterranean and the Black Seas. The contribution will present the main operational and research & development activities at the basis of the systems, given an overview on the future plans for improving the service for the delivery of new products.