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New tool for the Black Sea environmental safety: BlackSea Track Web

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Huge increases in the volume of oil being transported across the Black Sea have greatly increased the risk of oil pollution. Remote sensing data show that the majority of oil spills occur along major shipping routes, suggesting that shipping, rather than land-based oil installations have been the principal cause of concern. However, a single large spill from ships, platforms or land-based oil installations could severely impact biota and the economies of all coastal countries and could produce significant damage of the Black Sea ecosystem and fishing. Also, due to the semi-enclosed character of the basin, oil spill will definitely pollute coast of the basin suffering great losses to the recreation industry and potentially to the human health. Fighting oil pollution in the Black Sea is a great challenge. The challenge is likely to become even greater in the future as maritime traffic is expected to increase over the next few years, making offences and accidents more likely. The risks of shipwrecks and catastrophic oil spill necessitate the use of the modern technologies to effectively protect the marine environment. In turn, such technologies require high-quality products of operational oceanography. Recently such products are the products of the MyOcean project.

The development of the Black Sea operational oceanography made it possible to transfer of cost-efficient technologies to the region to create a new tool against oil pollution and for life-saving in case of a shipwreck.

The Black Sea Track Web (BSTW) system of accidental oil spill evolution forecast in the Black Sea has been created in the framework of MONINFO project. The system is based on the Seatrack Web (STW) model developing by the consortium of the Baltic Sea countries. It is adapted to the configuration of the Black Sea observing system and is implemented to the regional contingency plans.

The BSTW system consists of three parts:

- forcing in the form of forecasted stratification, sea currents and wind fields, which is provided by the Black Sea MFC located at MHI in Sevastopol. The Black Sea MFC is the MyOcean regional marine forecasting center. It runs operationally and forms weather and ocean forecasts;
- the oil drift model jointly developed by SMHI and the Royal Danish Administration of Navigation and Hydrography and which takes into account and adequately describes almost all physical processes affecting the oil spill;
- the graphical user interface developed by SMHI and based on open source GIS-server technology.

The developed BSTW system is available via the Internet, fully operational 24 hours a day and user friendly. It allows immediate access to the latest forecasts that drives the system. And in addition, it provides other floating objects and back tracking.