

BlackSeaTrack Web

The oil drift forecasting system, developed by SMHI and DAMSA, adopted by MHI to the Black Sea and administrated by the Black Sea Commission

Black Sea

Start BlackSeaTrack Web

User Manual

Technical Documentation

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User news »

2011-04-30 New forcing data. The new MyOcean forcing data of the Black Sea MFC will be uploaded from the 1st May

2011-02-25 Downtime for maintenance. For maintenance please note that the server will be down between 10 March 2011 to 12 March 2011

2011-02-22 the STW server is being put online these days, please stay tuned. This is the first production test to serve STW server on the web

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New tool for the Black Sea environmental safety: BlackSeaTrack Web

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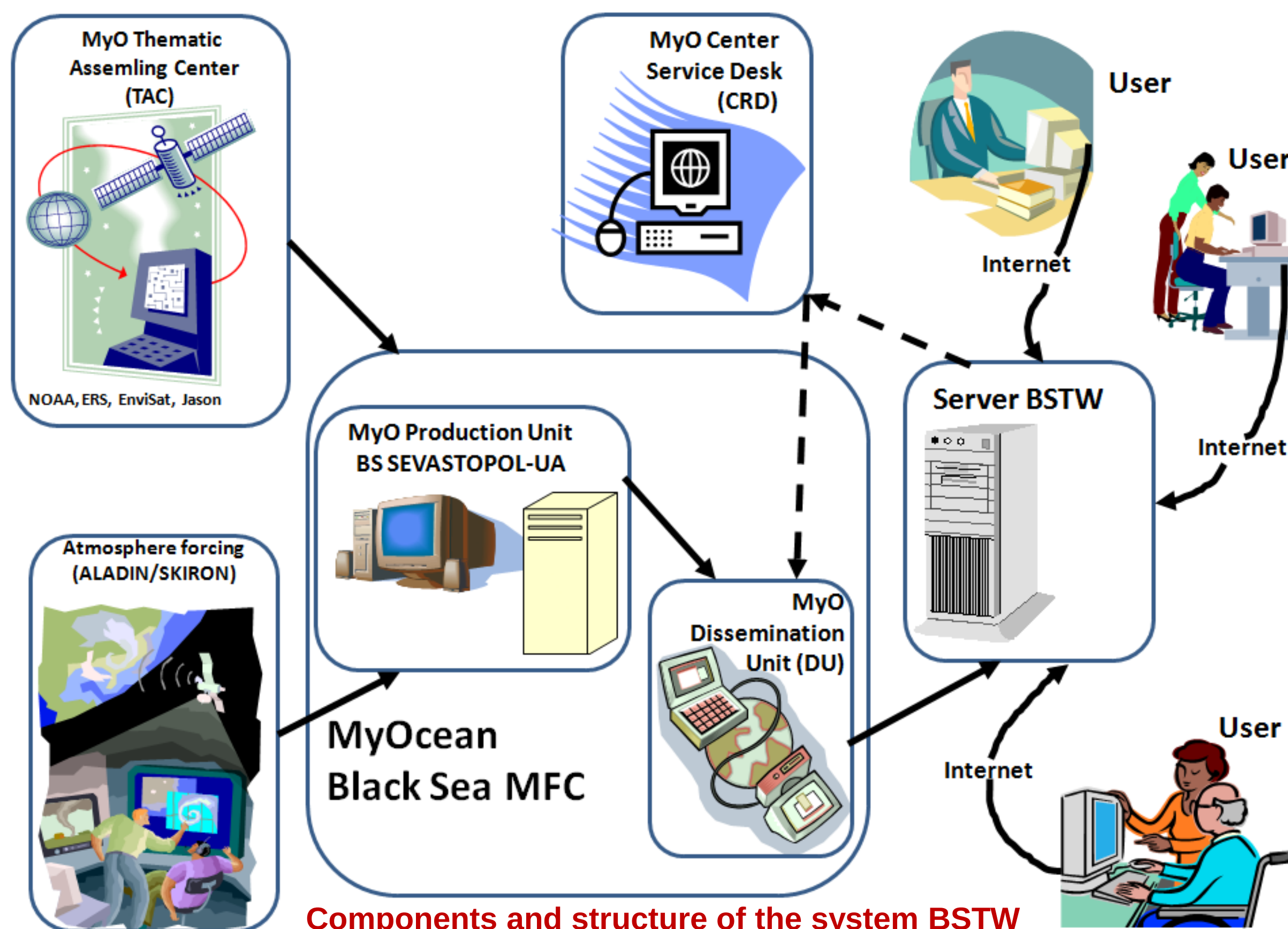
²Associate at Ventura Associates, consultant for the MONINFO project, France

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⁴Swedish Meteorological and Hydrological Institute, Norrköping, Sweden



Oil hydrocarbons are one of the main products of anthropogenic origin, polluting the marine environment. Increased oil transportation in the Black Sea produces risk of catastrophic oil spill. Oil pollution could produce significant damage to the Black Sea ecosystem, which could have a negative impact on human health. Oil spills cause significant harm to fishing and recreational industry.



The BlackSeaTrack Web (BSTW) system for accidental oil spill forecasts in the Black Sea has been developed on the base of the Seatrack Web (STW) model created by a consortium of the Baltic Sea countries. It is adapted to the configuration of the Black Sea observing system and is implemented according to the regional contingency plans.

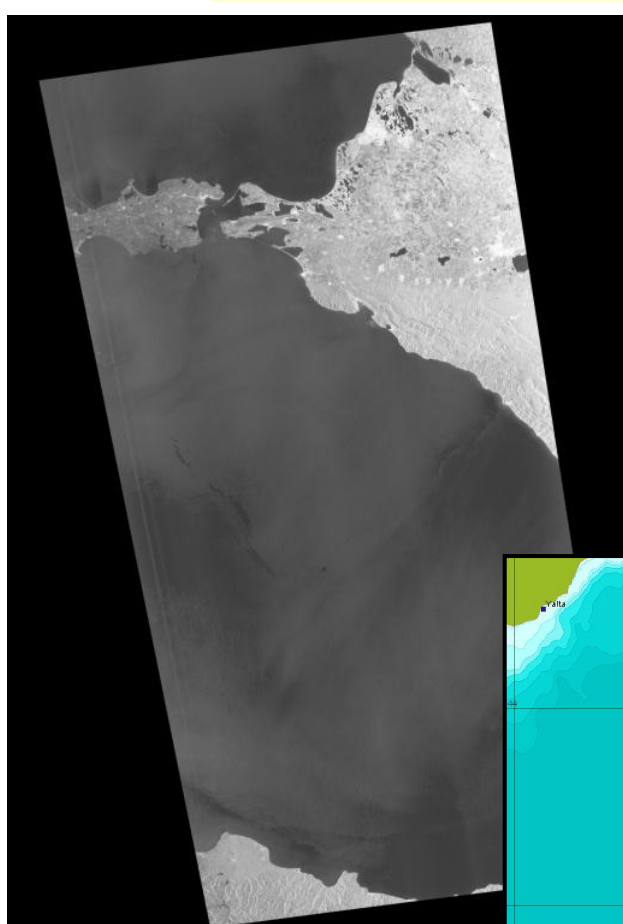
The BSTW system consists of three parts:

- 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 produces weather and ocean forecasts;
- an 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 and chemical processes affecting an oil spill;
- a graphical user interface developed by SMHI and based on open source GIS-server technology.

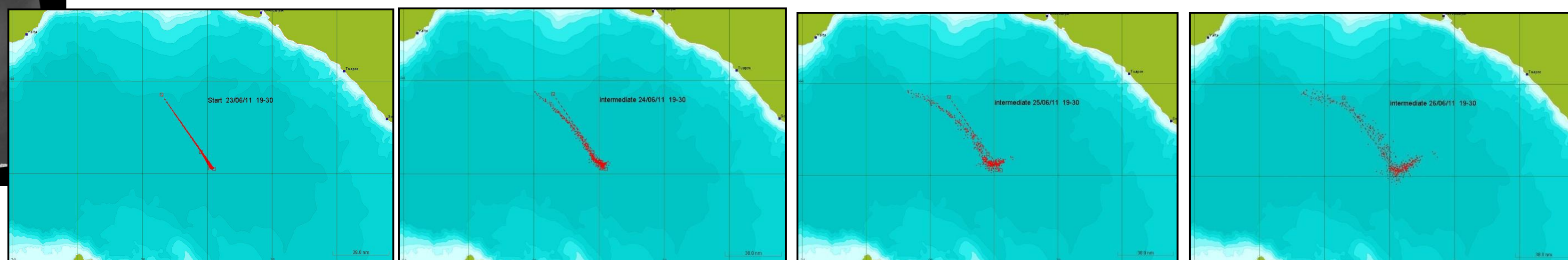
The BSTW system is available via the Internet, fully operational 24 hours a day and user friendly. It allows immediate access to the latest forecasts that drives the system. In addition, it provides other floating objects and backtracking.

Examples of simulation of real emergency situations using the BSTW system:

1. Oil spill in the eastern part of the Black Sea

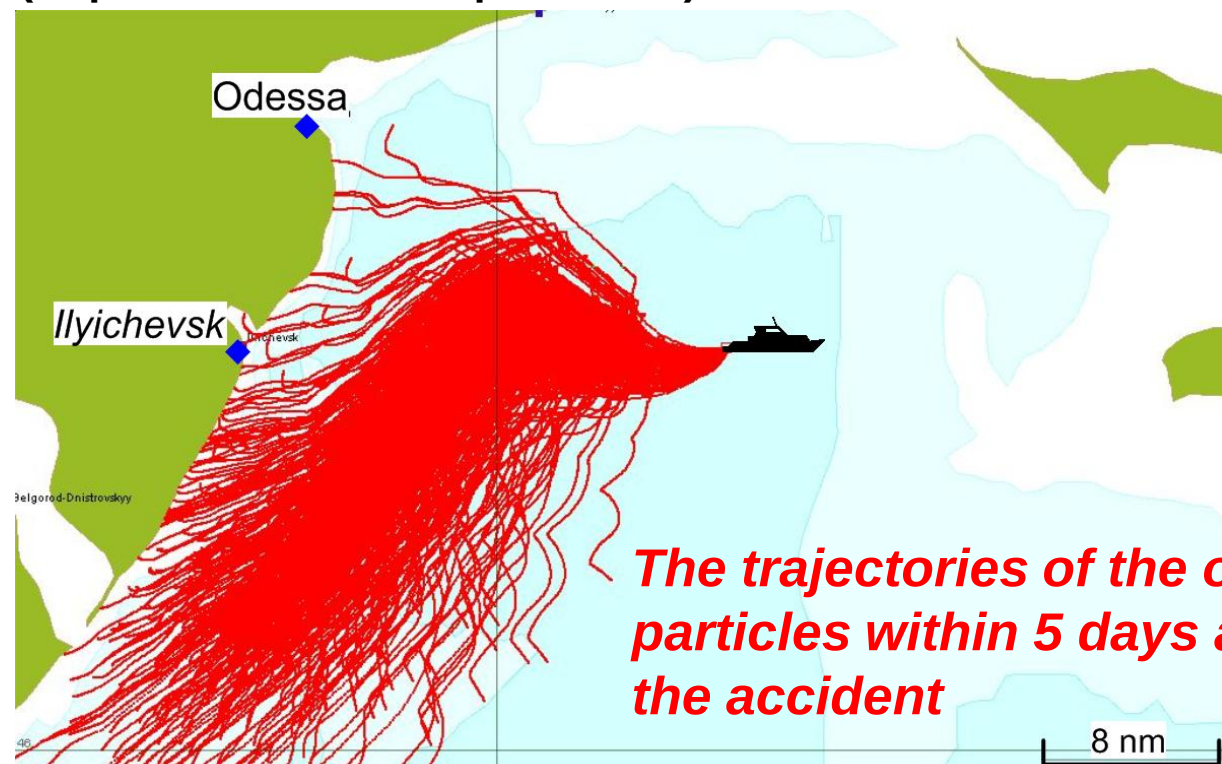


While carrying out satellite imagery of the Black Sea, experts of the Russian company ScanEx found an extensive pollution film on the surface on 24 June, apparently originating from a ship. The estimated area of the stain was 320,5 sq. km. The optical satellite images by Terra and Aqua (gages MODIS) from 6/24/2011 confirmed the presence of extensive film pollution in the given area. The satellite ENVISAT-1 images from 23.06.2011_19:29 UTC revealed the same film pollution at an early stage of its formation as a result of dumping of the polluted waters from a vessel. The vessel involved was identified – tanker “Yukon Star” (UK flag). The results of BSTW simulation of this oil spill pollution agrees well with observations.

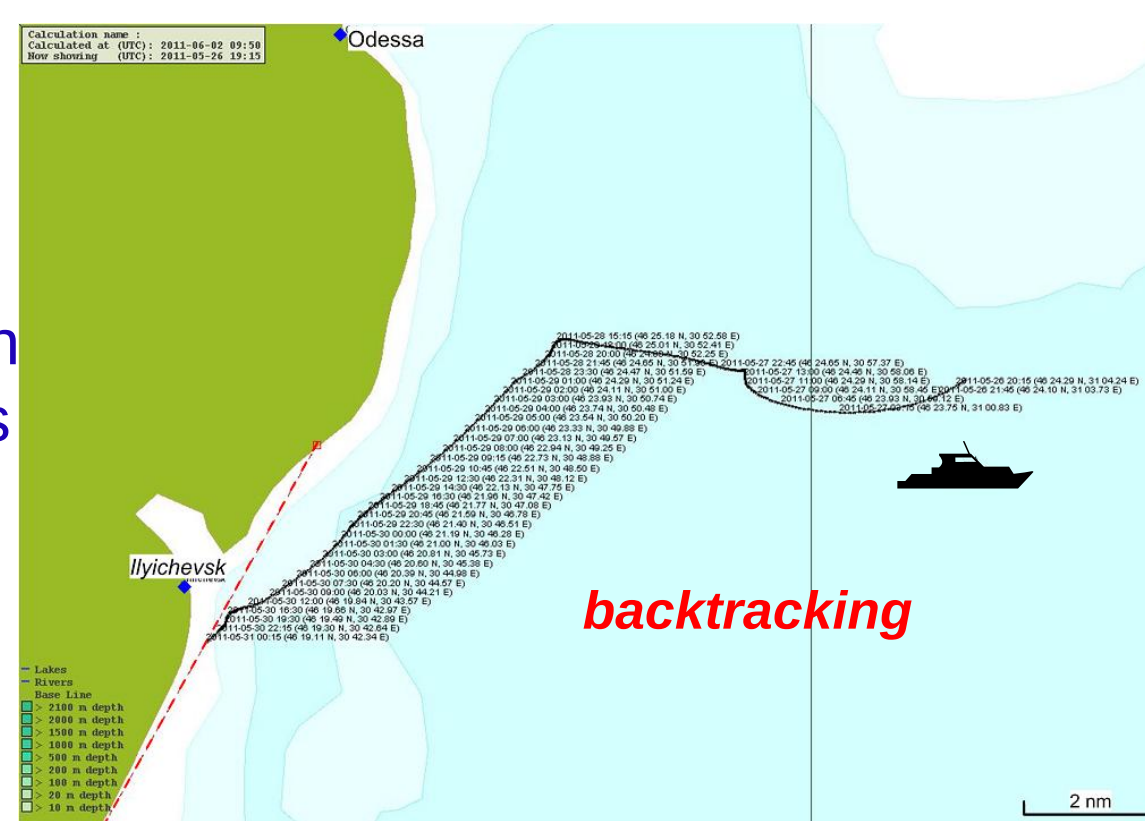


2. Oil spill in the North-Western shelf of the Black Sea

One of the biggest oil spills in recent years occurred in the Ukrainian Black Sea. Oil spilled on the beaches of Odessa and Ilyichevsk. (<http://klumba.ua/club/post-8376/>).

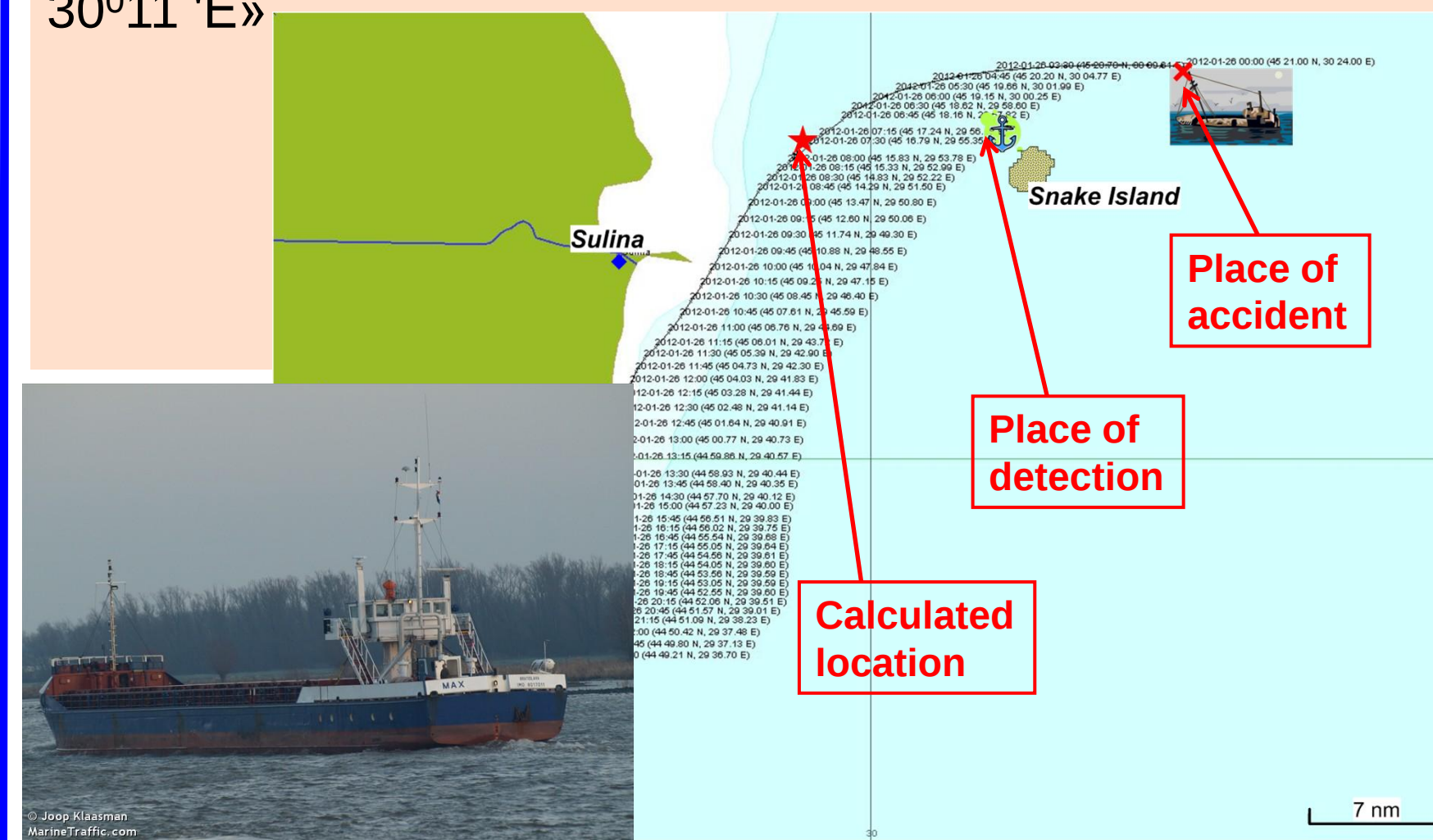


Petroleum products spilled on May 26, 2011 because of "irresponsible attitude" of the crew. (<http://eho-ua.com/2011/06/01>)



3. Ship accident near the Snake Island

The engine of the ship “Max” broke down and the ship became unmanageable at 00.00 hours on 26.01.2012 in the point with coordinates 45°21 'N; 30°24' E. From the Captain's message: "...we were in a drift...", at the 08-00 26.01.2012 we hooked for the bottom in shallow water, and stopped at the point with coordinates: 45°18'N; 30°11 'E»



The BSTW system demonstrates good results when calculating the actual oil spills.

Therefore, the system can be used as a tool to address issues of ecological safety of the Black Sea.

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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. 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, an oil spill will definitely pollute the coastline of the basin incurring great losses to the recreation industry and potentially threatening 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 risk of shipwrecks and resulting catastrophic oil spill necessitates the use of the modern technologies to effectively protect the marine environment. In turn, such technologies require high-quality products based on operational oceanography. Recently such products have been the outcome of the MyOcean project.

The development of Black Sea operational oceanography has made it possible to transfer cost-efficient technologies to the region in order to create a new tool for addressing oil pollution and for search and rescue in case of a shipwreck.

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