

Operational monitoring of oil spills in Baltic Sea using ENVISAT ASAR

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Since June 2004 Russian oil company *ŸŸLukoilŸŸ* has launched the exploitation of oilfield *ŸŸKravtsovskoeŸŸ* on platform raised on Russian Baltic shelf near Kaliningrad. Obviously, the least accident on oil platform and pipelines connecting platform and coast terminal is capable to cause the ecological disaster in the region. In order to control the situation, timely taking measures and operationally predict the propagation of pollution in the case of disaster the experimental monitoring of the area using satellite remote sensing has been established. The key remote sensor used for monitoring, capable to operate regardless weather and daylight, is the ENVISAT ASAR. During 6 months about 100 ASAR wide swath fast delivery scenes were and should be (until the end 2004) acquired and analyzed jointly with meteorological data, satellite wind data (QuickScat), AVHRR and MODIS images. The prediction of potential oil spill propagation in the case of probable leakage from platform has been calculated for every day using the Swedish meteorological and hydrological institute model *ŸŸSeatrack WebŸŸ*. During 5-month operational period few tens of oil spills were detected and mapped in the vicinity of oil platform (within the area as large as 2, a in latitude and 2,5, a in longitude around the platform). Most of these spills are produced by ships. No spills caused by leakage from oil exploitation installations were detected. It is shown that the current circulation in Russian sector of Baltic leads to the transport of oil spills predominantly from Polish sector through Russian sector towards Lithuanian sector. Due to prevalence of high winds (especially in autumn) the moderate oil spills, as a rule, dissipate very quickly. So, it would be reasonable to monitor the area more often, using another SAR satellite *ŸŸV e.g. RADARSAT*. The general conclusion is that the regular monitoring of oilfields based on satellite SAR is very effective means of oil spills primary detection and tracking.