GEOPOSITIONAL EARLY WARNING SYSTEM INTEGRATION FOR DISASTER PREVENTION IN THE BALTIC SEA

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Baltic Sea oil spill may be inevitable

Magnus von Schenck,

manager “Baltic Master II”

Baltic Sea oil spill is inevitable

A pine oil slick was heading towards Finland from Sweden across the Gulf of Bothnia. Shortly before Christmas approx. 800 m³ of pine oil spilled into the Baltic Sea from the Arizona Chemicals refinery on the eastern coast of Sweden in Sandarne.

On September 15 the Swedish Coast Guard (SCG) received the first alert of oil contaminated shores on the south west coast of Sweden. It immediately led to activation of OSR actions in the area and Operation Kyrkesund was triggered to immediate responders.

Sunday 17 October 2010

Smoke still rises from vehicles on the top deck of the 650-foot ferry Lisco Gloria which floundered in the Baltic Sea, near the island of Langeland in Denmark. An explosion on its upper deck engulfed the vessel in flames and forced the evacuation of almost 250 people aboard.

Photo: AP Photo/Polfoto, Lars Skaaning

Costs associated with a major oil spill in the Baltic Sea

Baltic Masters II project did three case studies for oil spills in the Baltic Sea.
Case 1: Blekinge, Case 2: Skåne and Case 3: the Polish coast of the Baltic Sea

Costs associated with a major oil spill in the Baltic Sea

	Sweden (Blekinge)	Sweden (Skåne)	Poland
Clean-up	12	11	5
Financial costs	--	--	--
Sum Direct costs	**12**	**11**	**5**
Tourism	20	98	14-35
Fishery	2	2	15-30
Sum Market costs	**22**	**100**	**29–65**
Recreational fishing	1	1	5.5
Beachside recreation	12	92	336
Non-use values	--	--	--
Sum Non-market costs	**13**	**93**	**341.5**
Total costs	**99**	**204**	**376–412**

Summary of cost estimates for Sweden and Poland (MEUR) performed by the Baltic Masters II project. The figures should be seen as indicative rather than precise estimates.

Combine available multiple sensors in a comprehensive dynamic situation plot

Available technologies
Satellite SAR

Between 30-50% of actual oil pollutions are not detected on single-polarization SAR images

Uncorrected for wind, ice, upwelling events and cyanobacterial blooms

Available technologies
Aerial surveillance

Co-ordinated Extended Pollution Control Operations take only place during 6 days twice a year

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Available technologies
simulation of oil spill drift

Result of Sea Track Web showing that the oil stops at the coastline.

New technologies
in-situ sensors

Typical LIF (Laser Induced Fluorescence) spectrum of seawater

Hyperspectral LiDAR (Light Detection And Ranging system)

New technologies

UAVs

Need for a technology roadmap on an integrated system of oil spill monitoring

- To improve accuracy of information.
- Interconnect different data sources.
- To improve the quality and accuracy of information.
- Improve response time
- Efficient and reliable forecasts of oil spills in order to minimize the effects on sea life and human resources.

Thank you!

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