



Operational Satellite monitoring of sea-based oil pollution *An overview*

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Satellite Monitoring and Assessment of Sea-based Oil Pollution

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Why Monitoring sea-based oil pollution?

- Support response operations in case of maritime accidents.
- Measuring the state of European seas – means, variations, trends, to inform policymaking and assess the success or otherwise of action taken.
- Detecting and deterring illegal discharges from sea-based source.



Marine Oil Pollution from Vessels the accidental part (I)

- Massive spills.
- Important impact on the local ecosystems and economic activities.
- Immediately reported to responsible Authorities.
- About 25 % of the oil released by vessel is reported to come from this source.





Marine Oil Pollution from Vessels the accidental part (II)

Date	Tanker	Tons
Nov 2002	Prestige	77,000
Dec 1999	Erika	31,000
Feb 1996	Sea Empress	131,000

Major accidents
in recent years
(source Le Cedre)

Date	Tanker	Tons
1994	NASSIA	33,000
1979	INDEPENDENTA	94,600
1977	TANKER URSS 1	22,000

Major accidents
in Black Sea
(source ITOPF)



Marine Oil Pollution from Vessels the deliberate part (I)

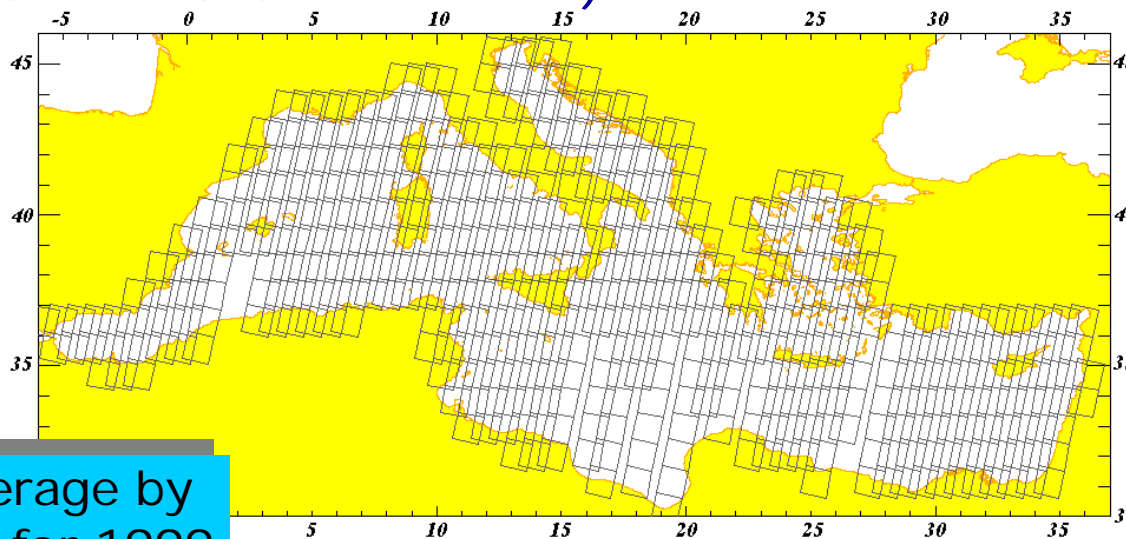
- Deliberate oil pollution by routine ship operations.
 - tank washings (mainly from oil tankers)
 - other oily mixtures (from all types of vessels).
- Difficult to be detected.
- Rarely reported to Authorities.
- About 75 % of the oil released by vessels is reported to come from this source.
- Long term impact





Marine Oil Pollution from Vessels the deliberate part (II)

- Regular patrolling activities by aerial means produce suitable observation data for long term assessment.
- Actually existing only over the North Sea and the Baltic Sea.
- Satellite capabilities by exploiting existing archives (e.g. ERS1 and ERS2 data since 1992).



Med coverage by
ers1/ers2 for 1999



Detecting and deterring illegal discharges (I)

What the system should do

- Detect the potential presence of oil.
- Identify oil spills.
- Determine oil volume and type.
- Detect potential presence of a likely pollution culprit.
- Identify the likely pollution culprit.



Detecting and deterring illegal discharges (II)

Possible role for the satellites

Aerial/naval surveillance can perform all the required tasks.

Satellite may help to optimize the process by providing early-warning, i. e. by improving significantly the capability to detect potential pollution and potential pollution culprit over large areas.

Detecting and deterring illegal discharges (III)

How the system could look like

An integrated system combining in a synergetic way all the available means will represent the optimal solution for an improved and sustained monitoring capability

