

EMSA Integrated Service for TRACECA

TRACECA II Project

Paulo NEIVA FERNANDES / Project Officer
Department C: Operations / C.2.1 Integrated Services

Lisbon / 27-04-2015





- 12 December 1999 off the coast of Brittany

Erika sinks



Decision to reinforce the EU maritime legislation

- Erika I safety package
- **Erika II** safety package

- EMSA established

Reg. EC
1406/2002

- Established in 2002
- Operational since 2003
- Now sits in Lisbon, Portugal
- Currently staffed with ~ 250 from 25 EU countries
- Annual budget of 54 M euros (2013)
- Core Tasks:
 - Implementation (Visits, inspections, training, etc)
 - Operations (Maritime surveillance, pollution preparedness and response)

1. EMSA Provider of Maritime Services
2. EMSA's TRACECA Integrated Service
3. Service Commissioning Plan
4. Service Level Agreement

Initial EMSA Services

Since the establishment in 2002 4 services were setup independently, driven by EU legal framework.

- SafeSeaNet
- CleanSeaNet
- LRIT
- Thetis (PSC)

Integrated Services

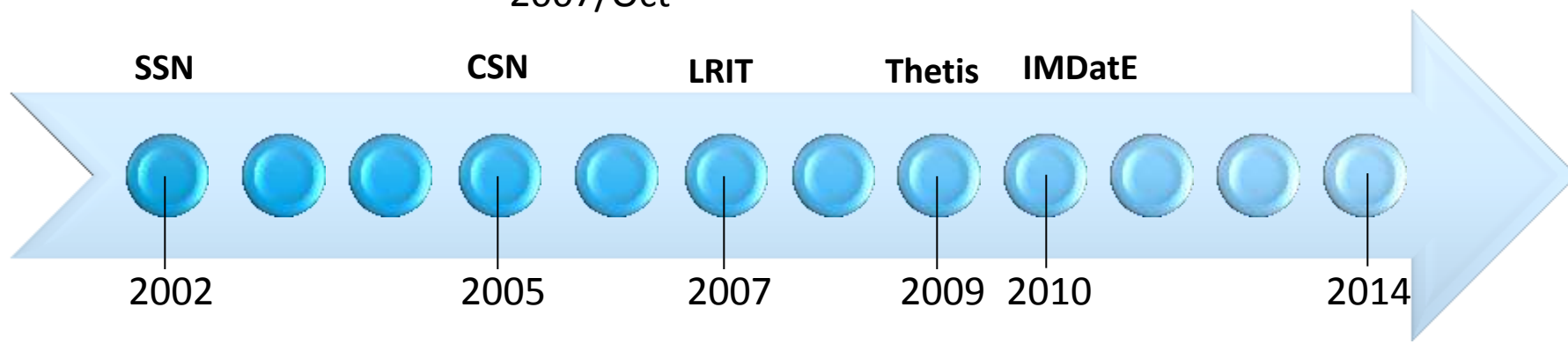
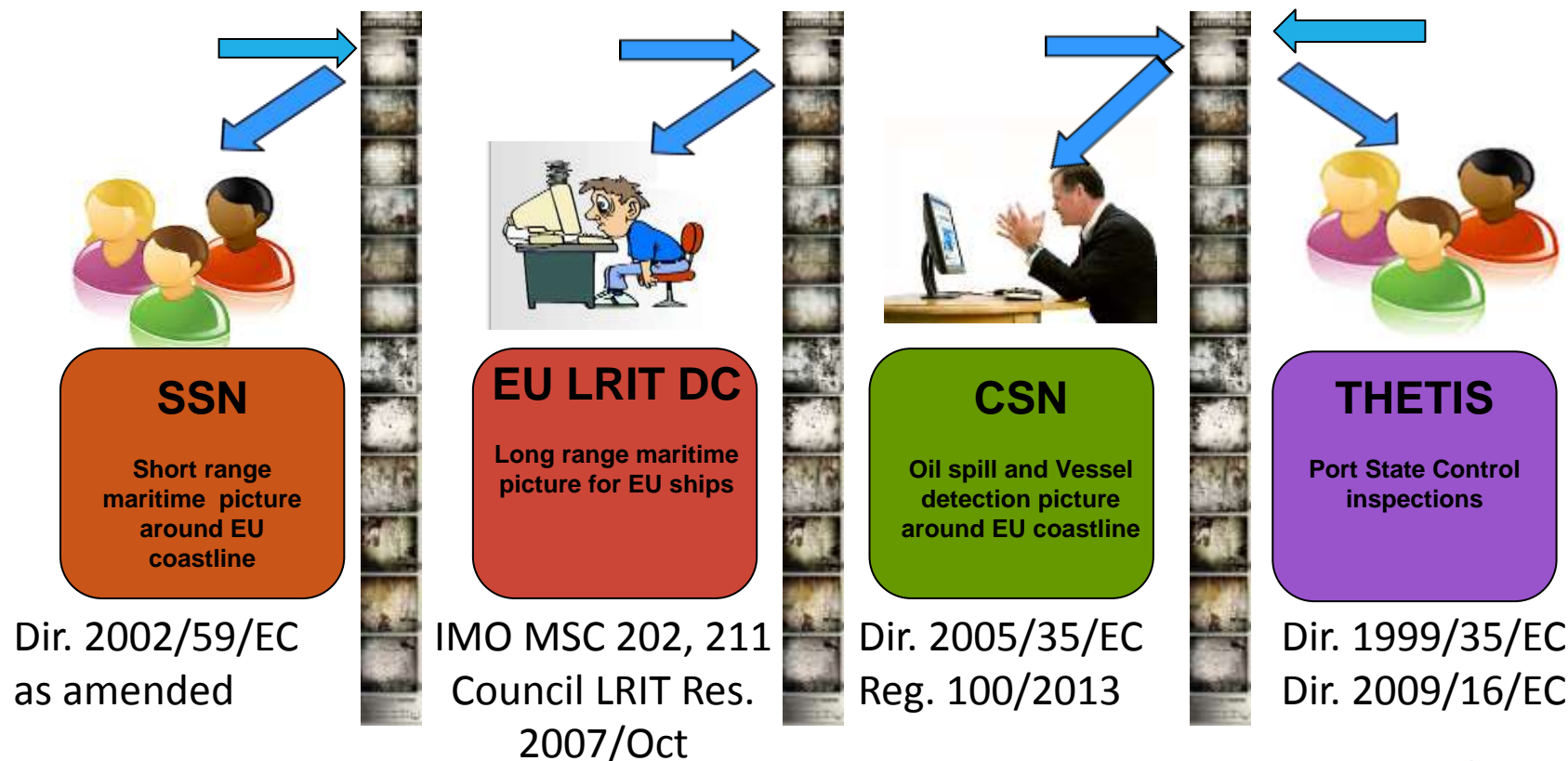
End of 2010 a New vision towards integration translated into an Integrated Maritime Data Environment (IMDatE). New Operations were setup:

- EU NAVFOR (Piracy)
- EFCA (Fisheries)
- FRONTEX (border surveillance)
- EU MS (National Administrations of EU Member States)
- EUROPOL (law enforcement)
- MAOC-N (Anti Drug Smuggling)
- SAFEMED (Southern ENP)
- TRACECA (Eastern ENP)

24 hour Maritime Support Services (MSS)



Operational status - 2010



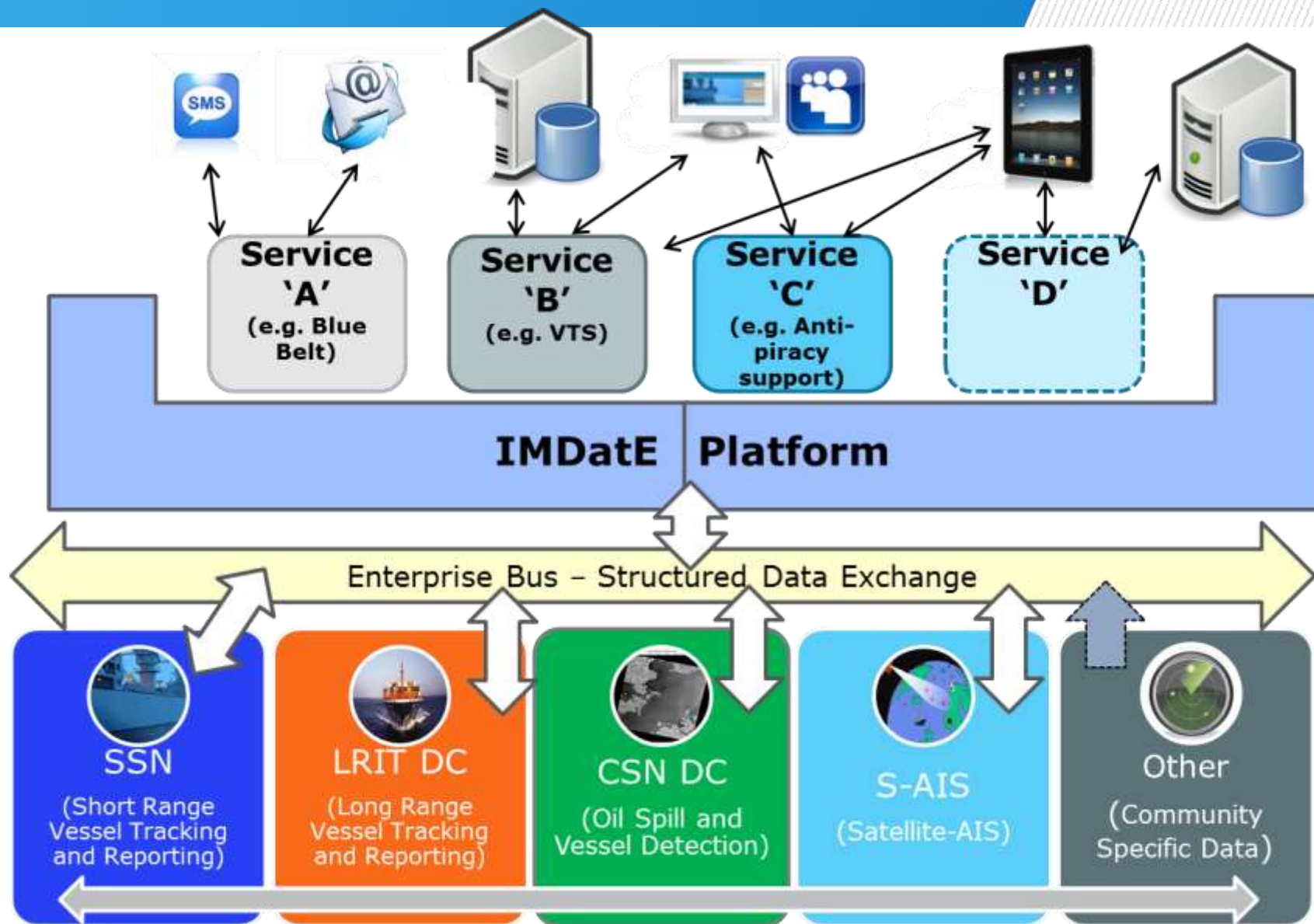
Integration = user driven approach

- Over 3.000 users of EMSA VTMISS-related systems
- Applications have large number of common users
- Individual (different) user management systems at application level
- 4 interfaces and 4 sets of uncorrelated data

Users are asking for value added information based on integrated data



IMDatE – the Conceptual View



Discover EMSA's Integrated Maritime Services

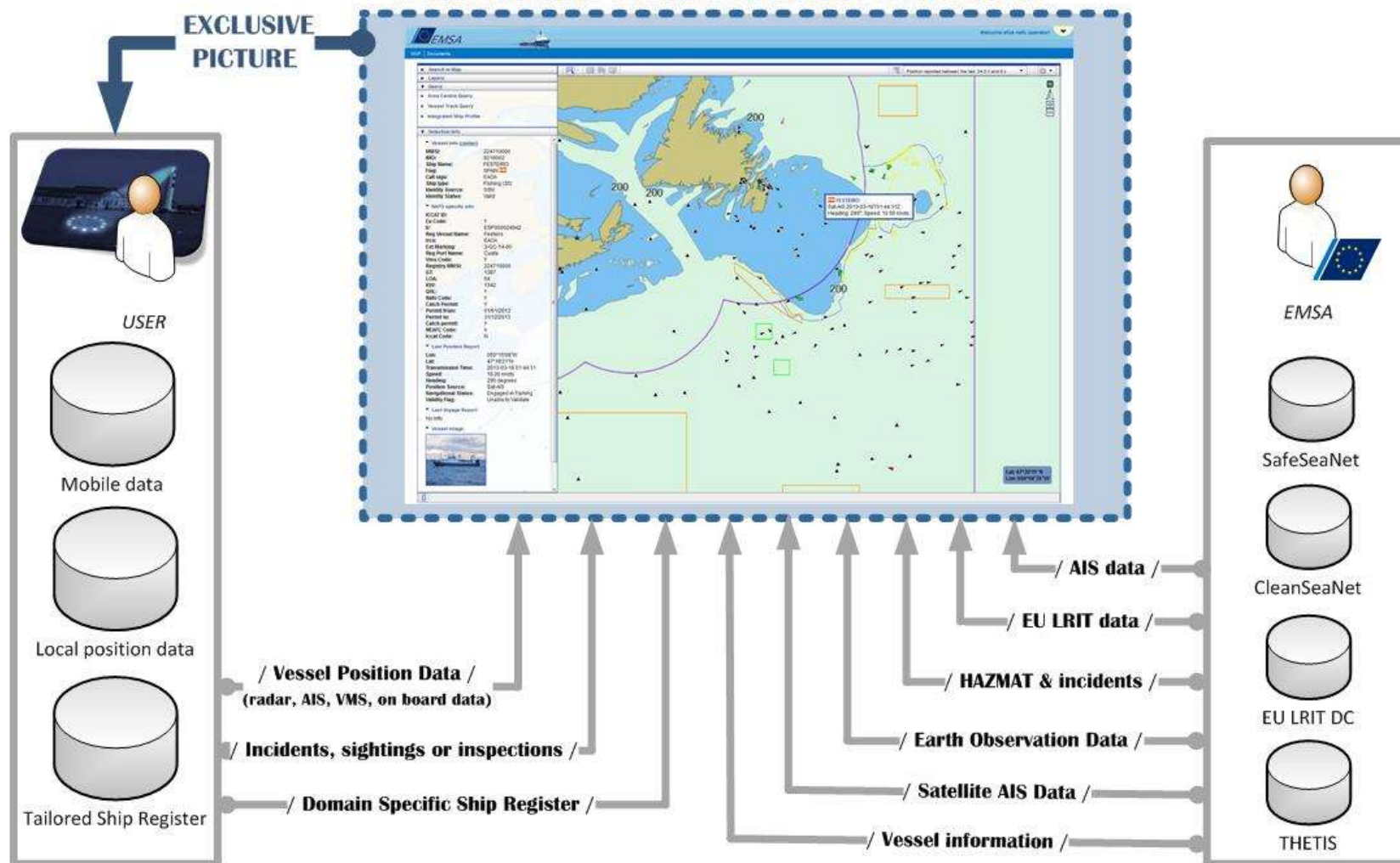
Public video and more on EMSA Website

- <http://www.emsa.europa.eu/operations/maritime-monitoring.html>



Maritime Awareness through a tailor-made picture

Tailor-made Integrated Maritime Awareness Picture



Some examples of EMSA operations

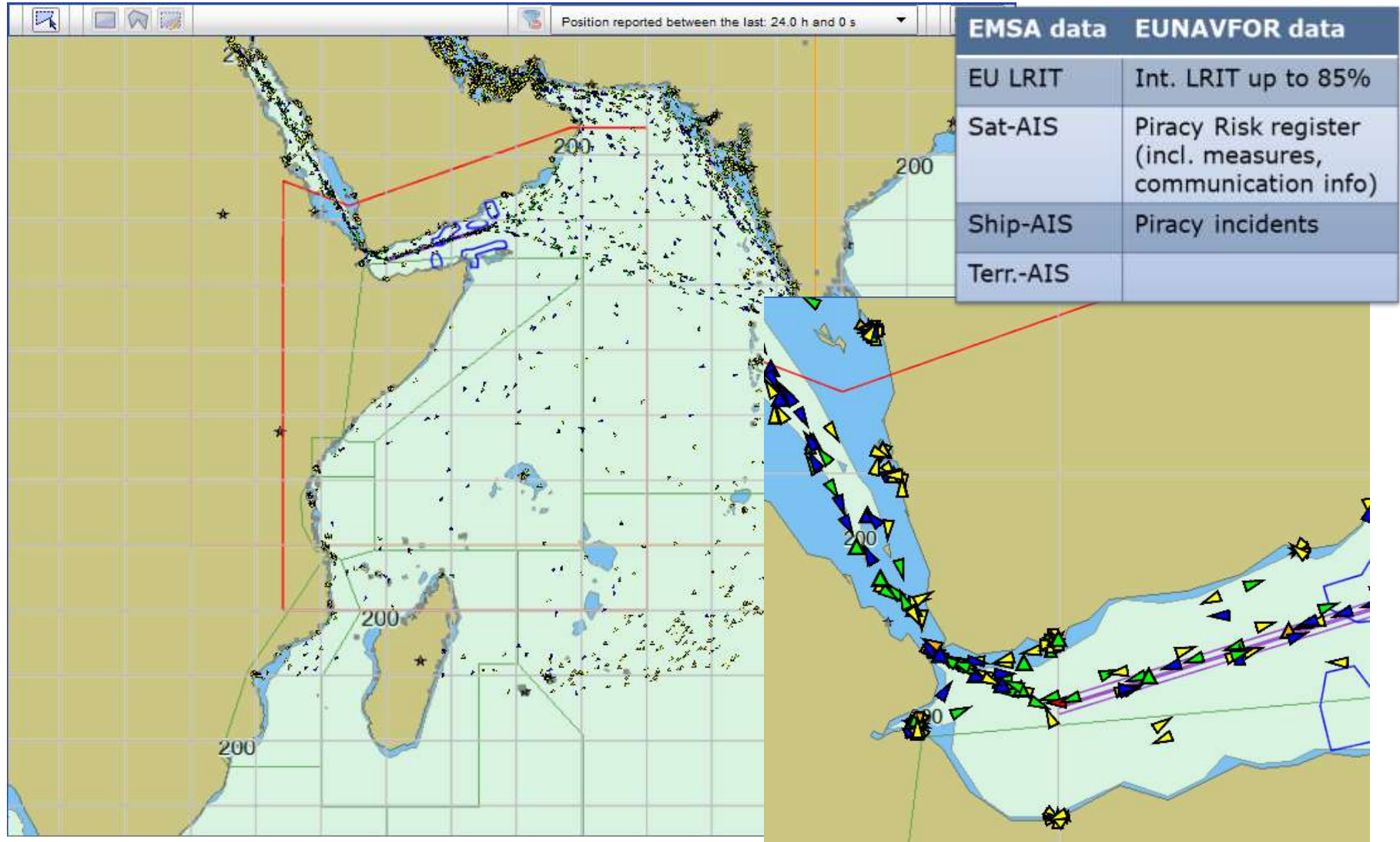


End 2008 the EU launched the European Union Naval Force (EU NAVFOR) Somalia – Operation Atalanta in response to the rising levels of piracy and armed robbery off the Horn of Africa and in the Western Indian Ocean



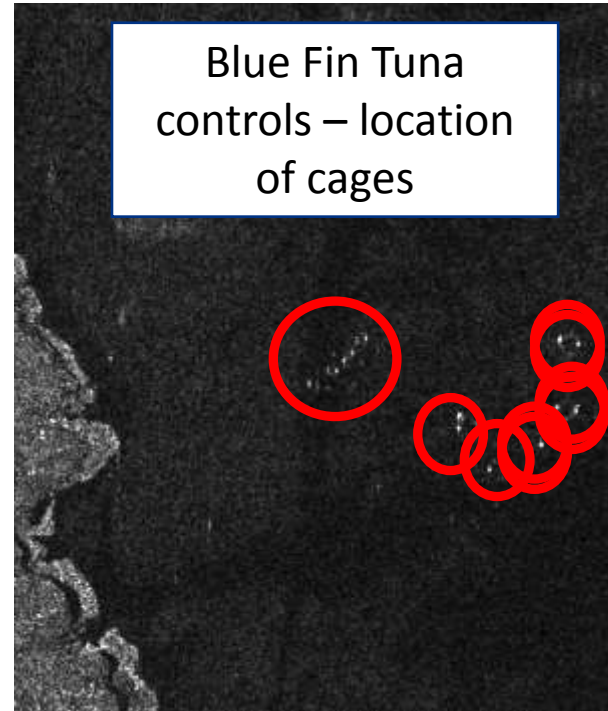
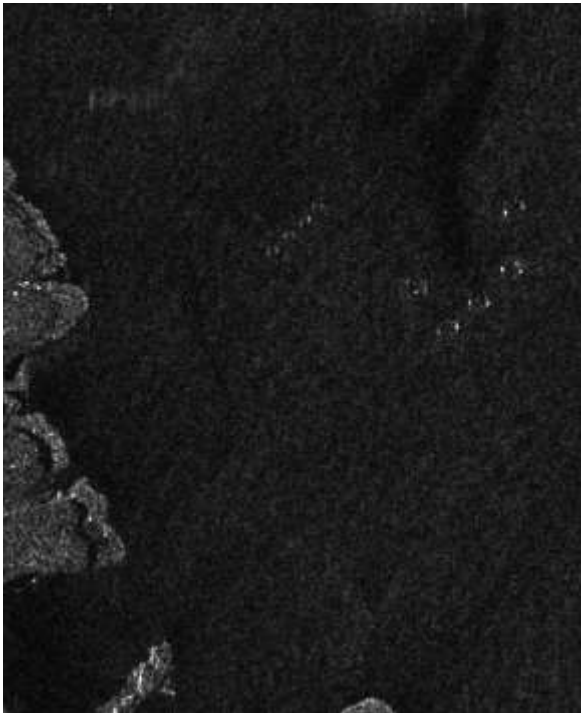
The Maritime Security Centre – Horn of Africa (MSCHOA) provides 24-hour manned monitoring of vessels transiting through the Gulf of Aden.

Anti-piracy support for merchant fleet monitoring



- **Users:** EFCA
- **User Community:** Fisheries
- **Status:** Operational from May 2012
- **Objective:** Identification of illegal fisheries activities through the provision of an integrated maritime picture (complementing traditional VMS). Allows for fisheries monitoring in international waters.
- **Satellite data:**
 - Satellite-AIS data;
 - LRIT;
 - VMS;
 - SAR and optical EO products;
 - Met-ocean data.





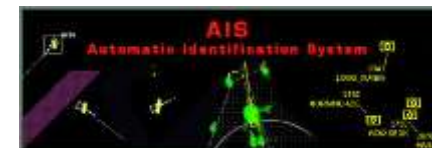
- EMSA has the capacity to setup Maritime Services tailor made to the specific user communities.
- IMDatE is the technical platform allowing for the integration of different sources of maritime data, including Terrestrial-AIS, Satellite-AIS, CSN products, amongst others.
- EMSA has moved from a technology driven to a user driven process, understanding the usefulness and readiness of maritime surveillance needs of different user communities.
- EMSA will setup an integrated service under TRACECA II for the participant beneficiaries user community

1. EMSA Provider of Maritime Services
2. EMSA's TRACECA Integrated Service
3. Service Commissioning Plan
4. Service Level Agreement

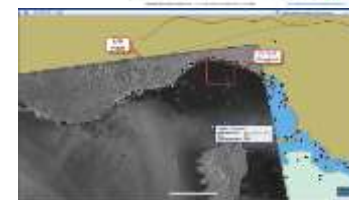
EMSA will setup an Integrated Service for the TRACECA User Community

The IMDatE system will host the service including

- IMDatE Standard Package
 - Web User Portal
 - Maritime Awareness Picture (Map)
 - Ship Information Database
 - Configurable data layers
- Integration of Ship Position data
 - Free Satellite-AIS data for TRACECA area of Interest
 - FUTURE (TRACECA III): Terrestrial-AIS data from TRACECA participant beneficiaries
- CleanSeaNet Service
 - Detection of Oil Spill, including satellite images and oil spill polygons displayed over the maritime picture
 - Oil Spill email alerting system
- Service Provided Free of Charge



TRACECA
Integrated
Service



IMDatE Standard Package (1/2)

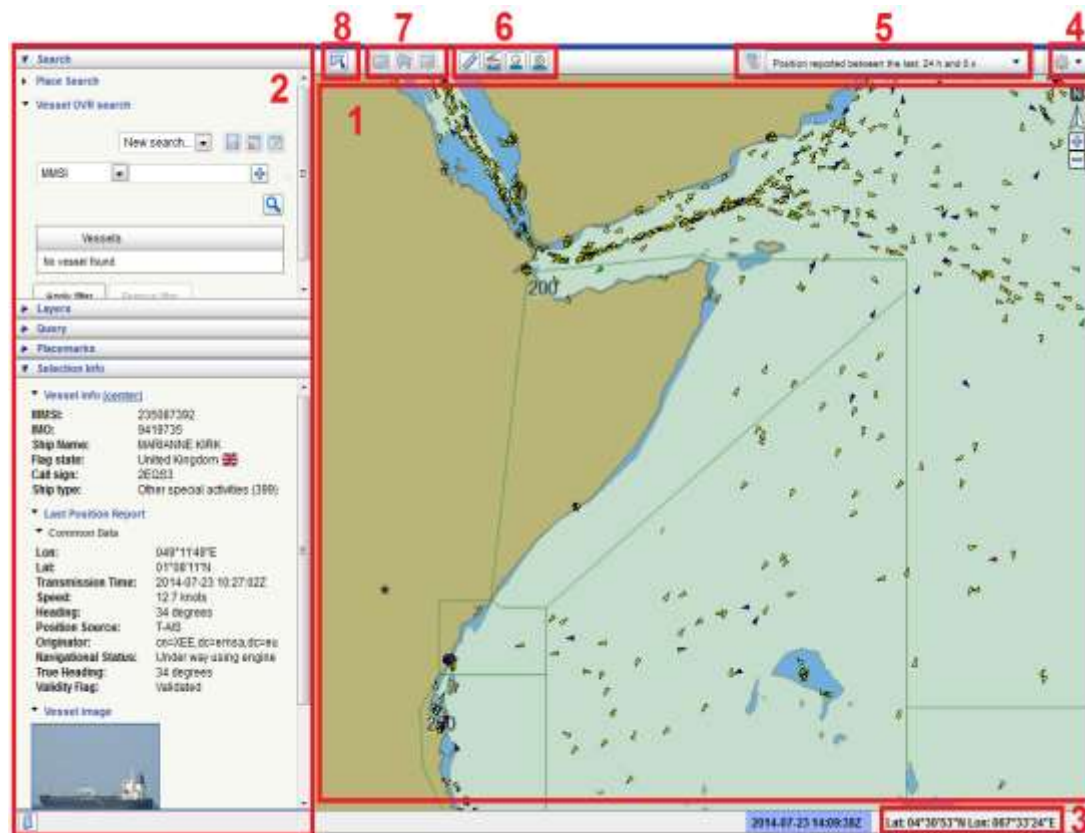
The service will be provided through a Portal

- Features:

- A map is available showing the maritime picture with the recent vessel positions, CSN Satellite Images and oil spills
- User can query the system for historical data
- Database with details on the vessels
- Placemarks
- Other

- Web User Portal (WUP)

1. Map
2. Control Panel
3. Position
4. Client Control
5. Position reported time range
6. Measurements buttons
7. Draw and Edit Areas Buttons
8. Select Button



<https://portal.emsa.europa.eu>

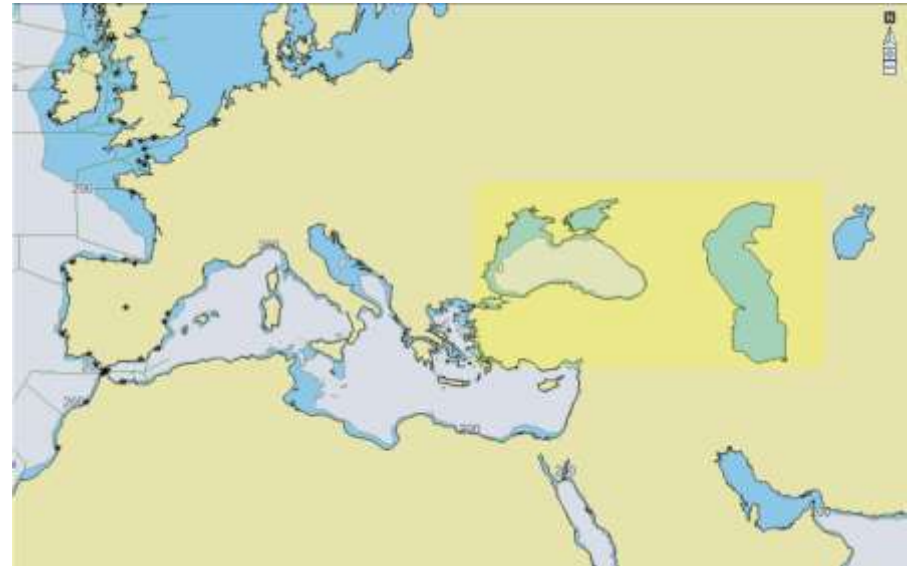
<https://portal.emsa.europa.eu>



Integration of Ship Position data (1/2)

Satellite-AIS data provision

- Characteristics:
 - Satellite-AIS coverage for TRACECA shown on the right
 - Satellite-AIS rate – 2h to 6h hours
 - Provided Free of Charge
- EMSA Satellite AIS Providers
 - **exactEarth:** EMSA – ESA project to develop an EU SAT-AIS system
 - **Norwegian Satellite-AIS data**, courtesy of the Norway government
 - **Future:** EMSA interim solution – procurement from commercial providers



Only in the next TRACECA project (III)

Integration of Ship Position data (2/2)

Terrestrial-AIS data provision from TRACECA Beneficiaries

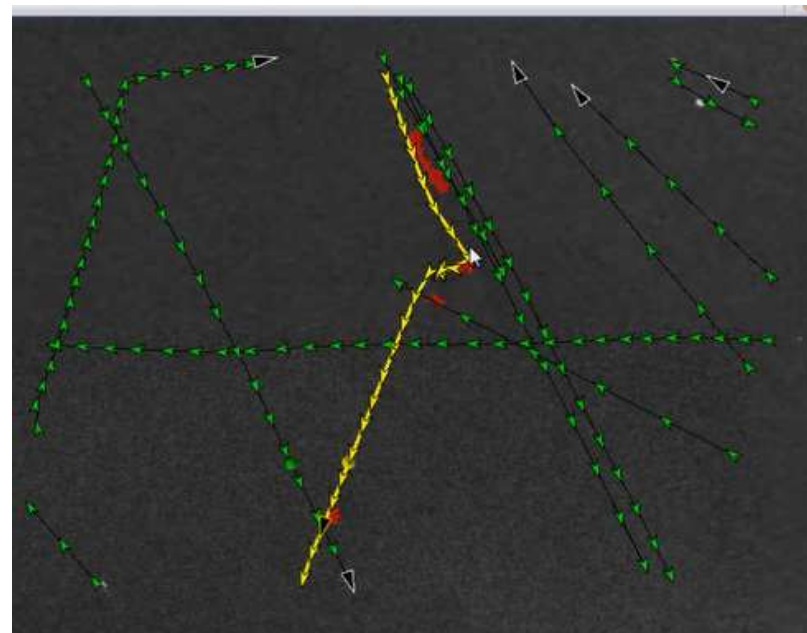
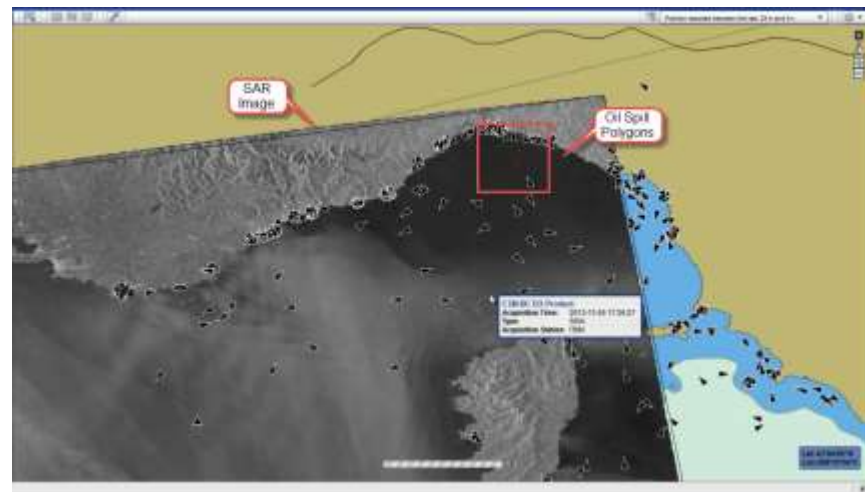
- Characteristics:
 - TRACECA Beneficiaries would setup a connection with the MARES server to send their national AIS data
 - MARES will forward the Terrestrial-AIS messages to IMDatE (EMSA) for integration into the TRACECA Integrated Service
- Access Rights:
 - In a first step, Terrestrial-AIS data from the TRACECA Beneficiaries will not be shared with the EU Member States and vice-versa
 - Data from the TRACECA Beneficiaries will only be used under the scope of the TRACECA III Project



CleanSeaNet Service Through IMDatE (1/4)

Earth Observation Images and Oil Spill Polygons are overlaid on top of the Maritime Picture

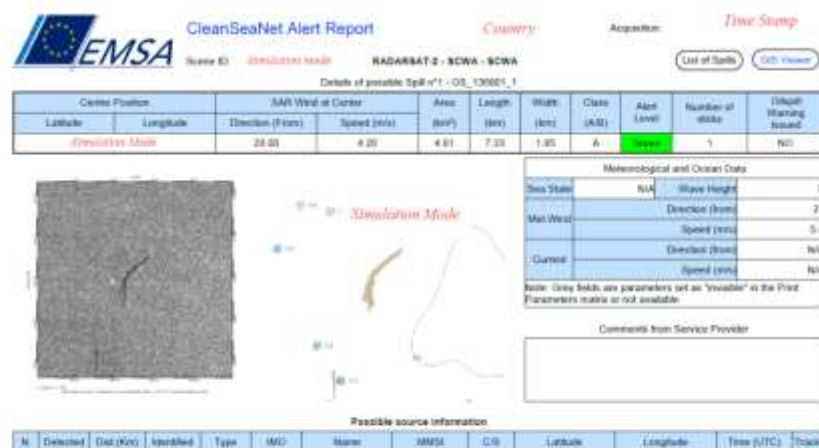
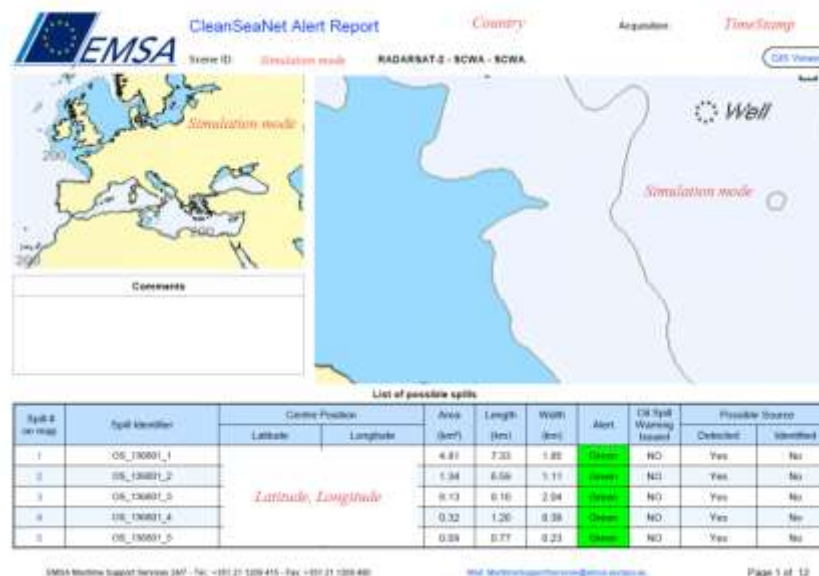
- Maritime Picture includes Satellite-AIS provided by EMSA (in the future may also include Terrestrial-AIS from TRACECA participant Beneficiaries)
- Service greatly improved in case Terrestrial-AIS from the Beneficiaries is available next to the coast near the Oil Spill
 - Satellite-AIS rate between 2h to 6h whereas for Terrestrial-AIS it is around 6 minutes
 - Higher rates make it easier to identify the polluter
- EMSA will configure the service on behalf of the participant Beneficiary. Less effort required from the Beneficiary.



CleanSeaNet Service Through IMDatE (2/4)

Email alerting service reports on Oil Spills detections near the coast of the Beneficiaries. Email is sent every time an image is acquired near the coast of the beneficiary. Two outcomes:

- no oil spill was identified
- oil spill was identified
 - Coordinates – centre of oil spill
 - Area, length, width of oil spill
 - Alert level

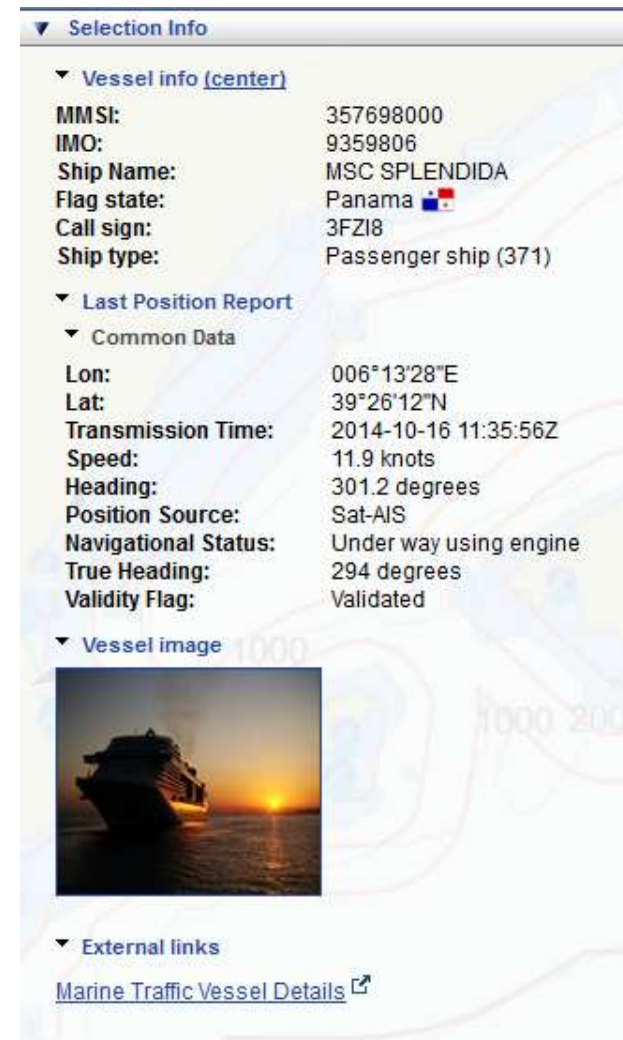


CleanSeaNet Service Through IMDatE (3/4)




Vessel Information database supports the identification of the possible polluters

- Identifiers: IMO, MMSI, ShipName, FlagState, CallSign
- Position Information including speed and heading
- Easily available links to ship details from external sources like marinetraffic.com

<http://www.marinetraffic.com/ais/details/ships/306777000>



The screenshot displays the 'Selection Info' window for a specific vessel. It is organized into several sections: 'Vessel info (center)' containing MMSI, IMO, Ship Name, Flag state, Call sign, and Ship type; 'Last Position Report' which includes 'Common Data' with coordinates, transmission time, speed, heading, position source, navigational status, true heading, and validity flag; 'Vessel image' showing a photograph of the ship; and 'External links' with a link to 'Marine Traffic Vessel Details'.

Selection Info	
▼ Vessel info (center)	
MMSI:	357698000
IMO:	9359806
Ship Name:	MSC SPlENDIDA
Flag state:	Panama 
Call sign:	3FZ18
Ship type:	Passenger ship (371)
▼ Last Position Report	
▼ Common Data	
Lon:	006°13'28"E
Lat:	39°26'12"N
Transmission Time:	2014-10-16 11:35:56Z
Speed:	11.9 knots
Heading:	301.2 degrees
Position Source:	Sat-AIS
Navigational Status:	Under way using engine
True Heading:	294 degrees
Validity Flag:	Validated
▼ Vessel image	
	
▼ External links	
Marine Traffic Vessel Details 	

CleanSeaNet Service Through IMDatE (4/4)

Demonstration video showing the identification of a polluter using IMDatE.



1. EMSA Provider of Maritime Services
2. EMSA's TRACECA Integrated Service
3. Service Commissioning Plan
4. Service Level Agreement

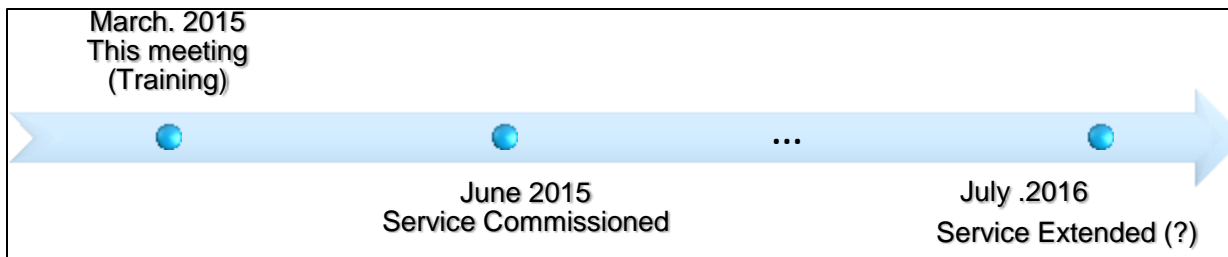
Service Commissioning Plan

EMSA will open the in June if the TRACECA beneficiary country signs the Conditions of Use.

- Service commissioning approach
 - It is a Pilot project
 - Service expected to be commissioned by June 2015
 - Feedback is welcome
 - Service will last for a year at least. Should be extended under the scope of the next TRACECA project.

Service
Commissioned

Implementation
Phase

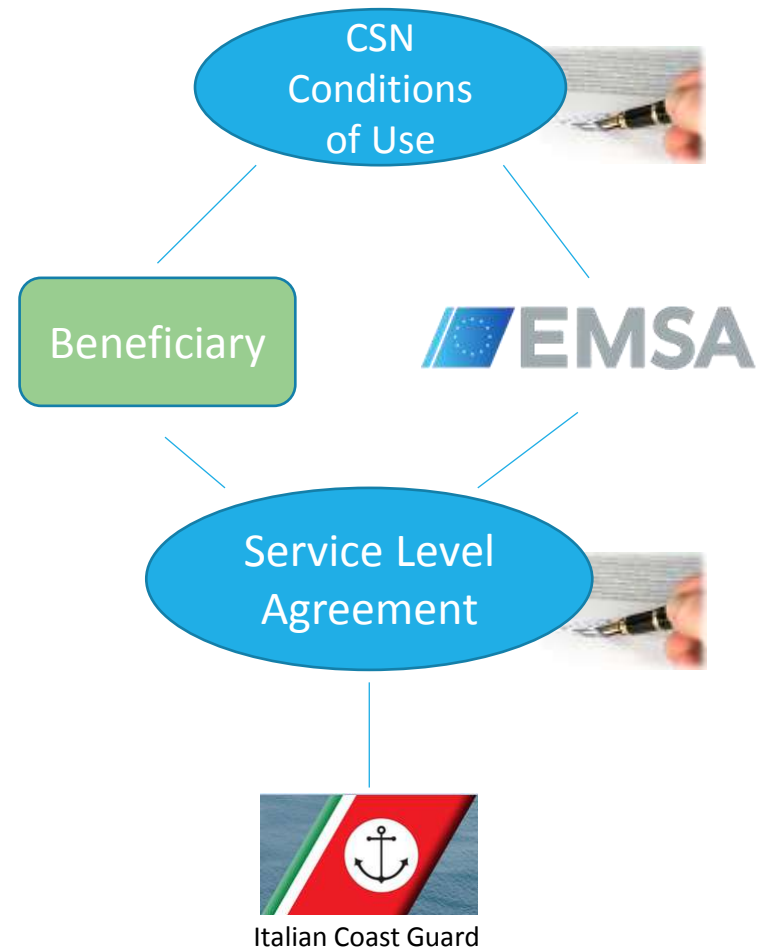


1. EMSA Provider of Maritime Services
2. EMSA's TRACECA Integrated Service
3. Service Commissioning Plan
4. Conditions of Use

Conditions of Use

The Conditions of Use (CoU) formalizes access to the TRACECA Integrated Service through the IMDatE system.

- CoU signed beneficiary has access to
 - IMDatE package
 - Satellite-AIS with coverage over the whole the Black and Caspian Sea
 - CleanSeaNet products
 - SAR images
 - Oil spill polygons
 - Oil spill alert reports
- Responsibilities:
 - provide list of national organizations using the service
 - enforce the restriction of the use of the service to those organizations
 - other





emsa.europa.eu

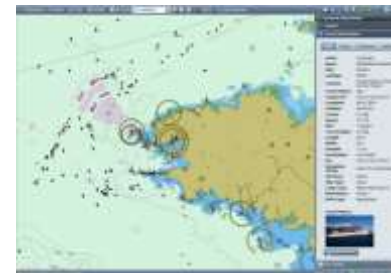
 twitter.com/emsa_lisbon

 facebook.com/emsa.lisbon

 **EMSA**
European Maritime Safety Agency

Community vessel traffic monitoring and information system, established by Directive 2002/59/EC (as amended), for:

- maritime safety
- port and maritime security
- marine environment protection
- the efficiency of maritime traffic and maritime transport



33

Initiated in October 2004, and operational since 2009.

Central SSN managed by COM/EMSA and National SSN managed by MS.

Approximately 2500 users (VTS, MRCC, Ports).

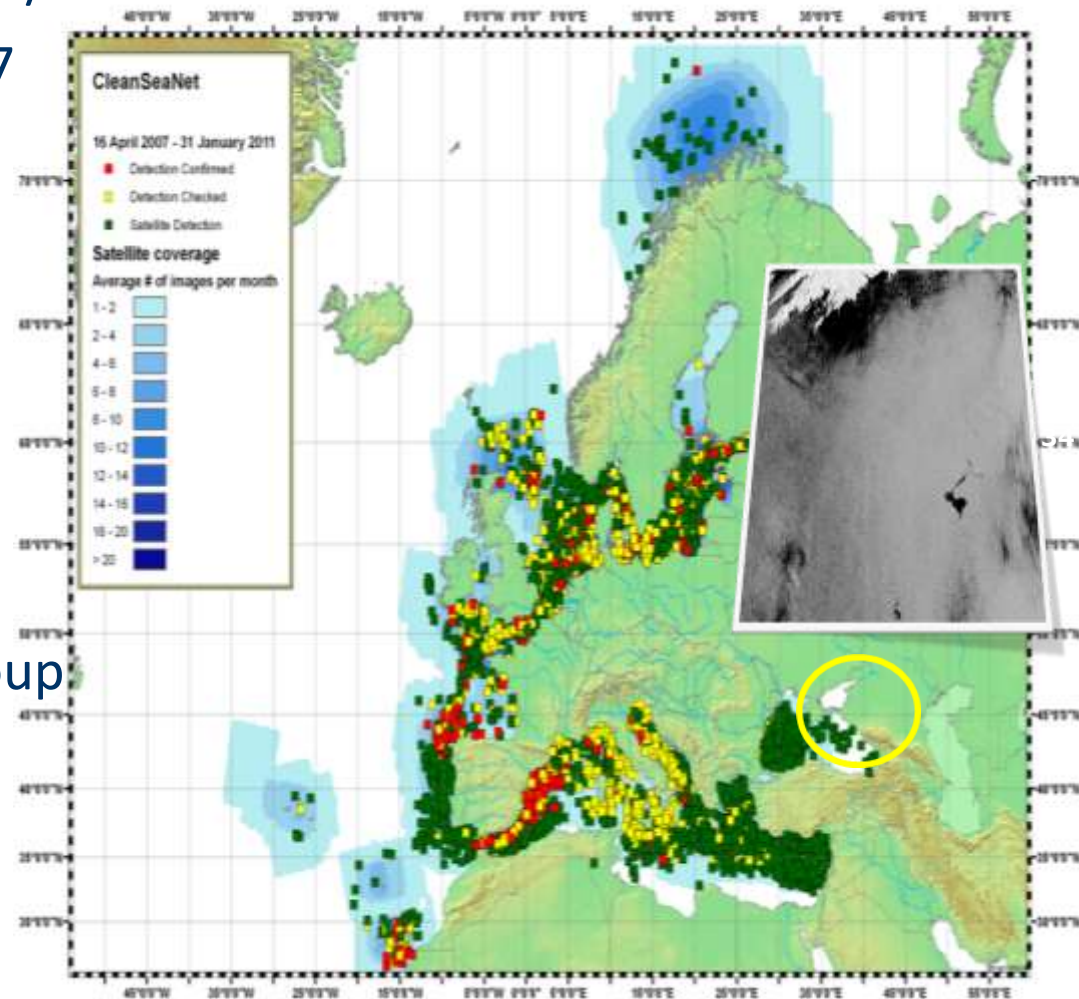
Governance body = SSN High Level Steering Group (MS+COM).

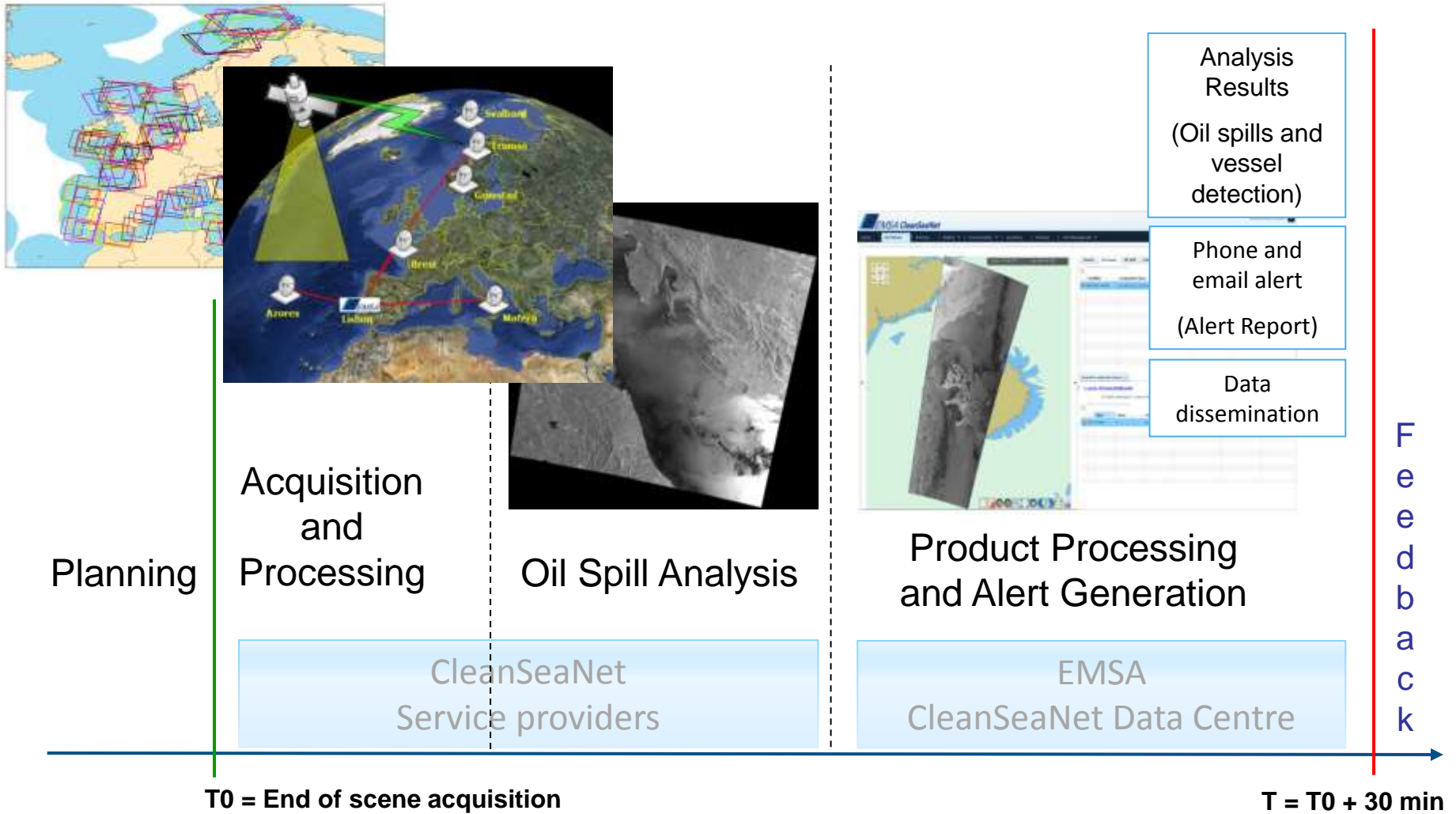
Around 17,000 ships per day are tracked in European waters

Over 100,000,000 AIS positions per month are recorded

Over 99% availability

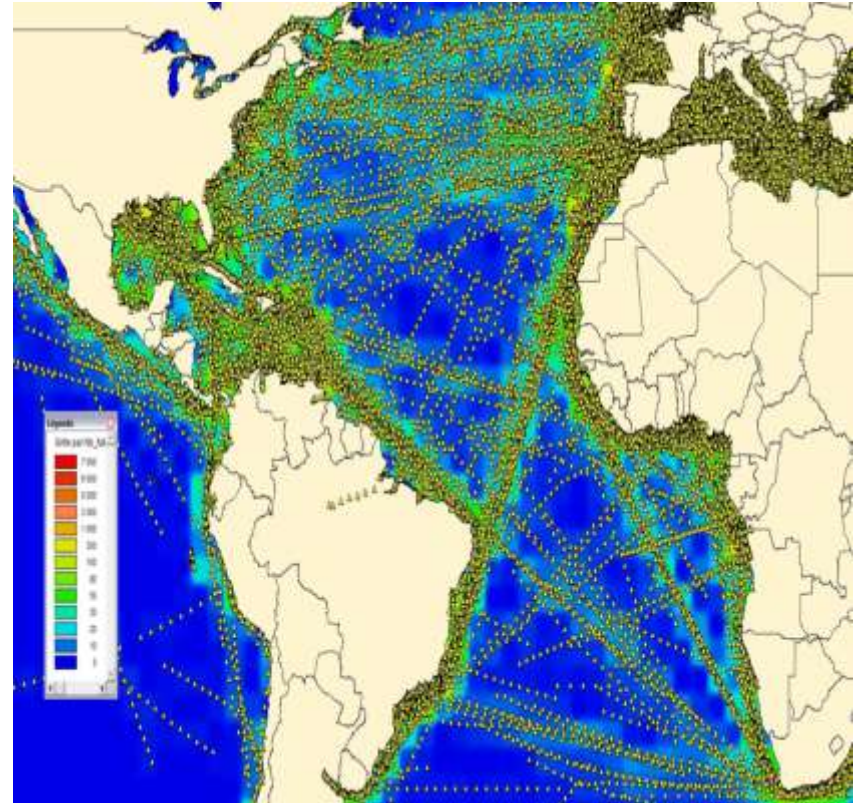
- Legal basis: Directive 2005/35/EC
- Designed and set-up 2005-07
- Use satellite radar detection (2000 images/year)
- Objective: EU oil spill and ship target detection
- Approx. 500 users (Pollution control)
- Governance = CSN Users Group (MS+COM)





IMO SOLAS amendment & EU Council LRIT Res. 2007

- Designed and set-up 2008 – 2009
- Based on communication satellites (Inmarsat, Iridium).
- Monitoring EU ships worldwide (around 8500 ships)
- All ships within 1,000 Nm
- Long range maritime picture
- Approx. 500 users (Flag State, Coastal State, SAR)
- Governance body = LRIT NCA Group (MS+COM).
- LRIT International Data Exchange (IDE) is also operated by EMSA



- An information system for Port state control inspections
- A tool for PSC inspectors to target ships and report inspection results
- A reference repository of information on ships connected to several databases
- Statistical analysis in real time
- Data exchange with SSN

