

2.Update on ABMs

ABM and Advanced Analytics WS6

Lisbon, 14.12.2020

- **Status**
- **Recent and planned Developments**
- **Interfaces**
- **MS and EU Bodies feedback**



Automated Behaviour Monitoring (ABM) tool is a computer, rule-based system analysing vessel positions for the detection and alerting of abnormal and/or user specific vessel behaviours.



To support Integrated Maritime Service users in their maritime surveillance functions.



When specific, user-defined criteria are met, operators are alerted: in the graphical interface (and IMS Mobile App) and by means of e-mail notifications.

- **ABM admin accounts**

+260, granted to 20 MS, 1 candidate country, 5 EU Bodies and EMSA

- **ABMs**

+500 running; 1,200 additional were used during last years

- **Distribution**

+240 lists to more than 600 users

Over 6,000 alerts/day are sent to ABM users via S2S interface, by email or displayed in the SEG or IMS Mobile App graphical interfaces

- **ABM S2S interfaces**

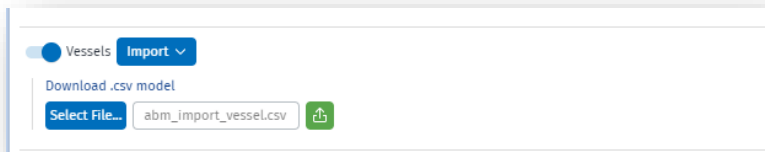
Used by:

- Frontex (for configuration and ABM alerting);
- Poland (for ABM alerting) as well as in the development of the integrated report distribution (IRD) system (for ABM alerting)

- **Most popular ABM algorithms**

Since January 2020: (I) 'In Area'; (II) 'FromAreaToArea' (III)'Not Reporting'; (IV) 'Drifting'; (V)'At Sea Encounter'

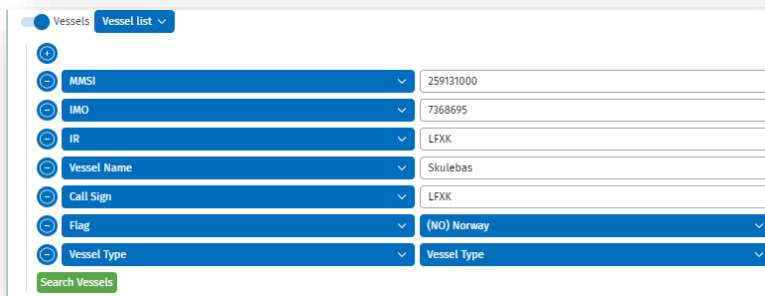
- **ABM technical module (STAR ABM) updated**
- **SEG ABM administrator upgraded**
 - Selection of 'favourite' vessels (Vessels of Interest – VOI)
 - Importing of the VOI lists
 - Area of Interest (AOI) imported from .shp (zipped) and .kml format file
 - Edit of the AOIs



Buttons: Vessels, Import

Download .csv model

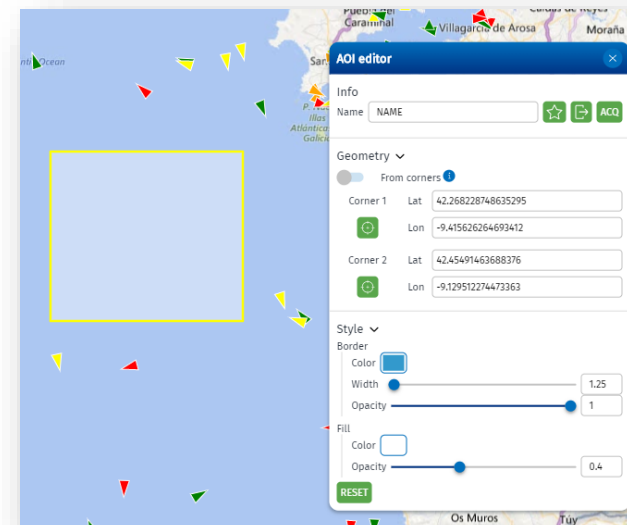
Select File... abm_import_vessel.csv



Buttons: Vessels, Vessel list

MMSI	259131000
IMO	7368695
IR	LFXX
Vessel Name	Skulebas
Call Sign	LFXX
Flag	(NO) Norway
Vessel Type	Vessel Type

Search Vessels



Buttons: AOI editor

Info

Name NAME

Geometry

From corners

Corner 1 Lat 42.268228749635295 Lon -9.415626264693412

Corner 2 Lat 42.45491463688376 Lon -9.129512274473363

Style

Border

Color

Width 1.25

Opacity 1

Fill

Color

Opacity 0.4

RESET

- **New ABM algorithms**

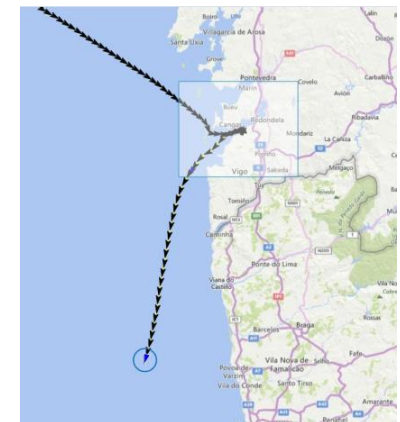
- 'Zone Around the Ship'
- 'Uncorrelated VDS in Area'
- 'Navigational status change'
- 'Line crossing'



- **New data:** Use of the 'SafeSeaNet enrichment' in the filtering of vessels of interest

- **Detection of Port Calls:** Implementation in the Cloud-based infrastructure

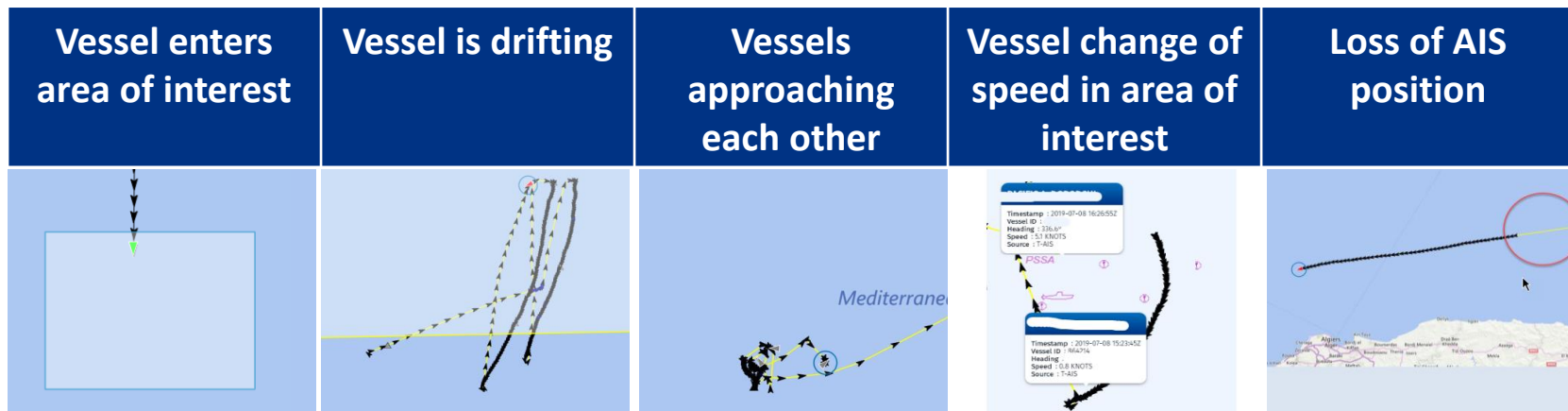
- **Technical adaptations in the STAR ABM module**



- Combined ABM algorithms

- DriftingThenHeadingToShore
- OutAreaThenDrifting
- OutAreaThenEncounterAtSea
- ZoneAroundShipThenDrifting
- UncorrelatedVDSThenZoneAroundShip

- Historical ABMs

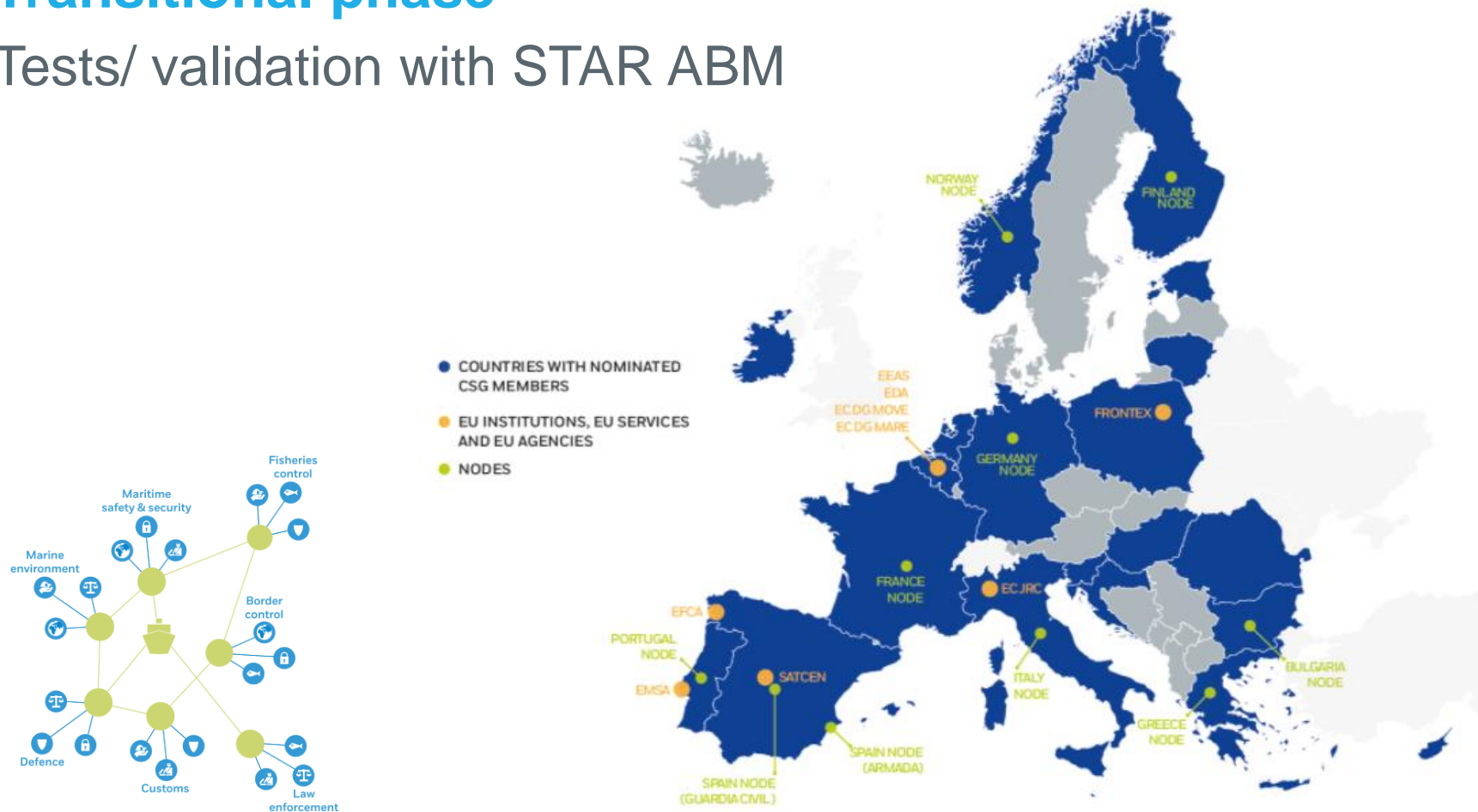





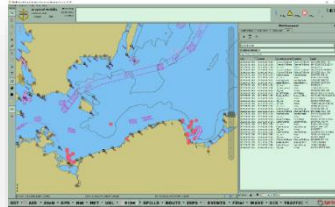

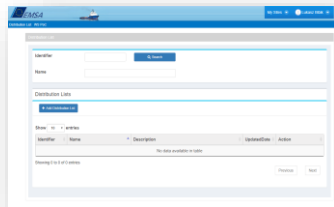

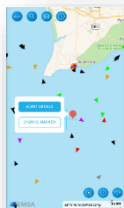
Quality indicator Sat-AIS and possible values to be processed:

- V=valid
- I=invalid
- U=uncertain
- **All algorithms – ‘I’ not used**
- **Spoofing algorithms – ‘I’ to be used**
- **Potential new algorithms – alerting on the ‘I’ in an area of interest**

Common Information Sharing Environment (CISE) – Transitional phase

Tests/ validation with STAR ABM



Functionality	ABM configuration	ABM- alerting mechanism	Configuration of the ABM alerts distribution lists
Interfaces	 S2S 	 S2S 	 EMSA Maritime Portal (new interface) 
	SEG (new interface) 	SEG (new interface) IMS Mobile App E-Mail 	

- **Top most used ABMs?**
- **Operational application/ use cases/ scenarios?**
- **Biggest issue/ problem in the ABM admin current interfaces or ABM operations?**
- **Operational needs? New scenarios/ filters/ algorithms?**



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European Maritime Safety Agency