Information technology for Safety: a joint Italian and Croatian perspective for the Adriatic Sea

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The VTMIS: a measure for maritime safety

After Erika disaster (1999) the European Union lauched several measures to enhance maritime safety

ERIKA packages:

- Port State Control

- Flag State Control

- Classification Societies

- Single hull oil tanker

- European Maritime Safety Agency

- Maritime Traffic Monitoring

- ………

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Directive 2002/59/EC of the European Parliament and the Council of 27 June 2002

establishes

a community vessel traffic monitoring and information system (VTMIS)

SafeSeaNet: the community maritime information exchange system developed by the Commission in cooperation with the Member States to ensure the implementation of Community legislation

Legislation:
- **Directive 2000/59/CE (Waste)**
- **Directive 2002/59/CE (VTMIS)**
- **Regulation CE 725/2004 (Security)**
- **Directive 2009/16/CE (PSC)**
- **Directive 2010/65/CE (Single Window)**

EMSA

Regulation n. 1406 of 27 June 2002 Facilitates cooperation between the Member States and the Commission in the field covered by Directive 2002/59/EC

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Directive 2002/59/EC

At least 24 hours in advance the operator, the master or the agent of a vessel bound for a port of a MS has to communicate to the LCA several information:

- Ship identification (MMSI, IMO, IRCS, …)
- Port of destination
- ETA, next port of destination, ETD
- persons on board
- etc..

Dangerous goods on board have to be notified according to the directive:

- ship leaving a port of a MS, at the latest at the moment of departure
- ship bound for a port of a MS, at the departure or as soon as the port of destination is known

Waste on board has to be notified to the Local Competent Authority

Information have to be shared among MSs through SafeSeaNet

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Directive 2002/59/EC & the Automatic Identification System

Application:

- All ships ≥ 300 GT
- Fishing vessels > 15 mt
- Recreational boats > 45 mt

- MSs had to implement shore based network **for receiving** and utilising the AIS information transmitted by the vessels

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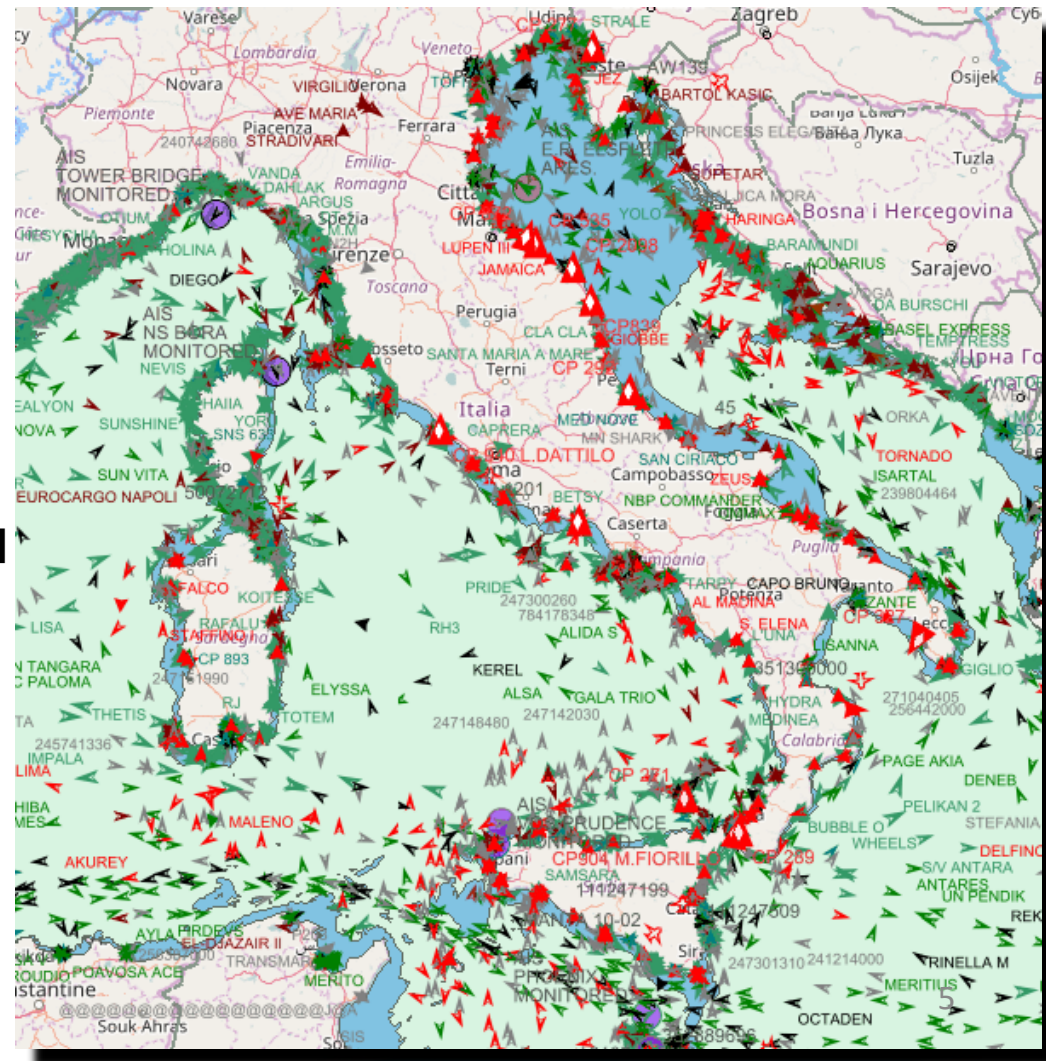
Directive 2002/59/EC & the Automatic Identification System
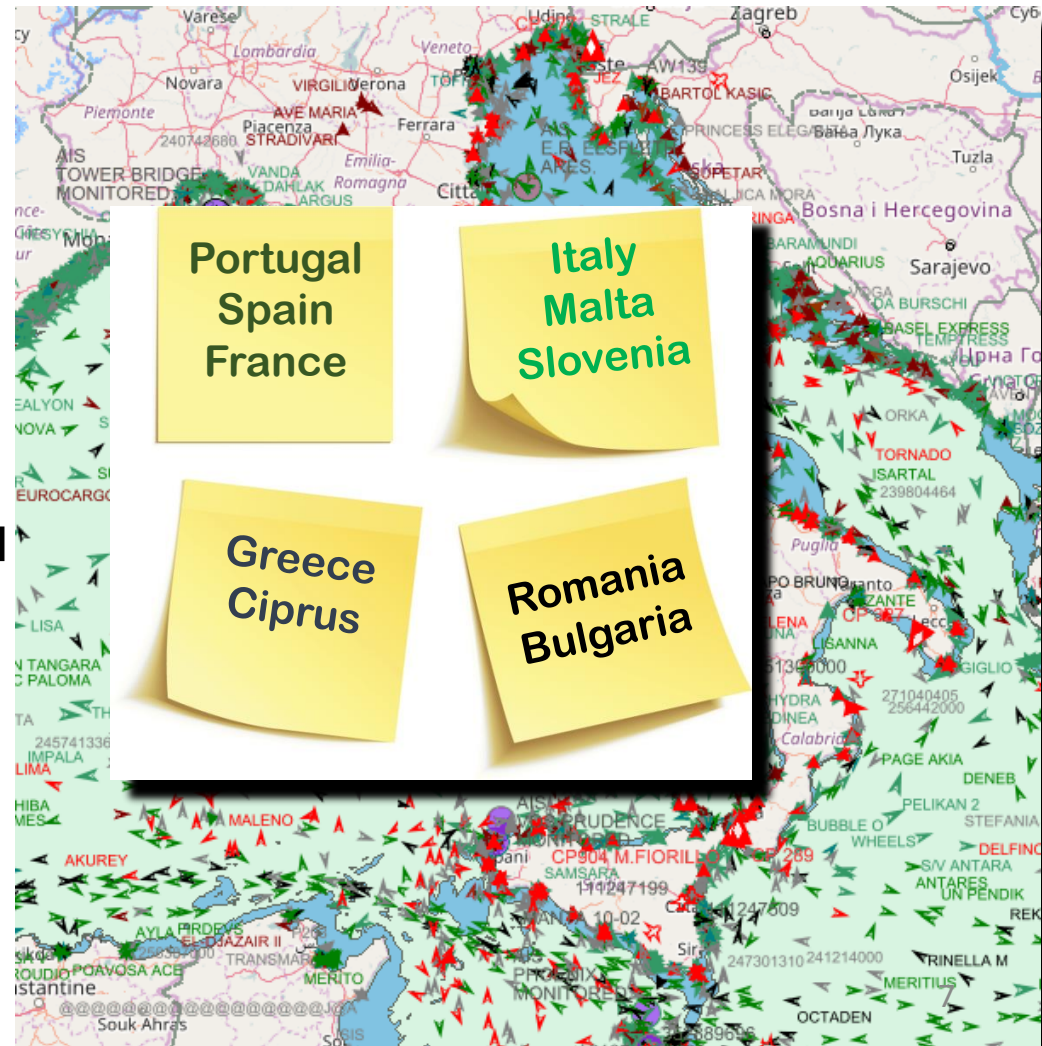
Italian AIS network:

- based on 63 Shore Stations
- integrated with information acquired by OPV
- coverage of the italian coastline up to 100 NM
- Warship-AIS capability
- compliant to IMO, IEC, ITU and IALA-124
- able to provide services to the mariners
- ~ 1,500 Minfo/month
- 12 months on line
- open source DBMS

Directive 2002/59/EC & the Automatic Identification System

Application:

- **All ships ≥ 300 GT**
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- **Recreational boats > 45 mt**

- **MSs had to implement shore based network for receiving and utilising the AIS information transmitted by the vessels**

- **MSs have to share AIS information among them**

Portugal
Spain
France

Italy
Malta
Slovenia

Greece
Ciprus

Romania
Bulgaria

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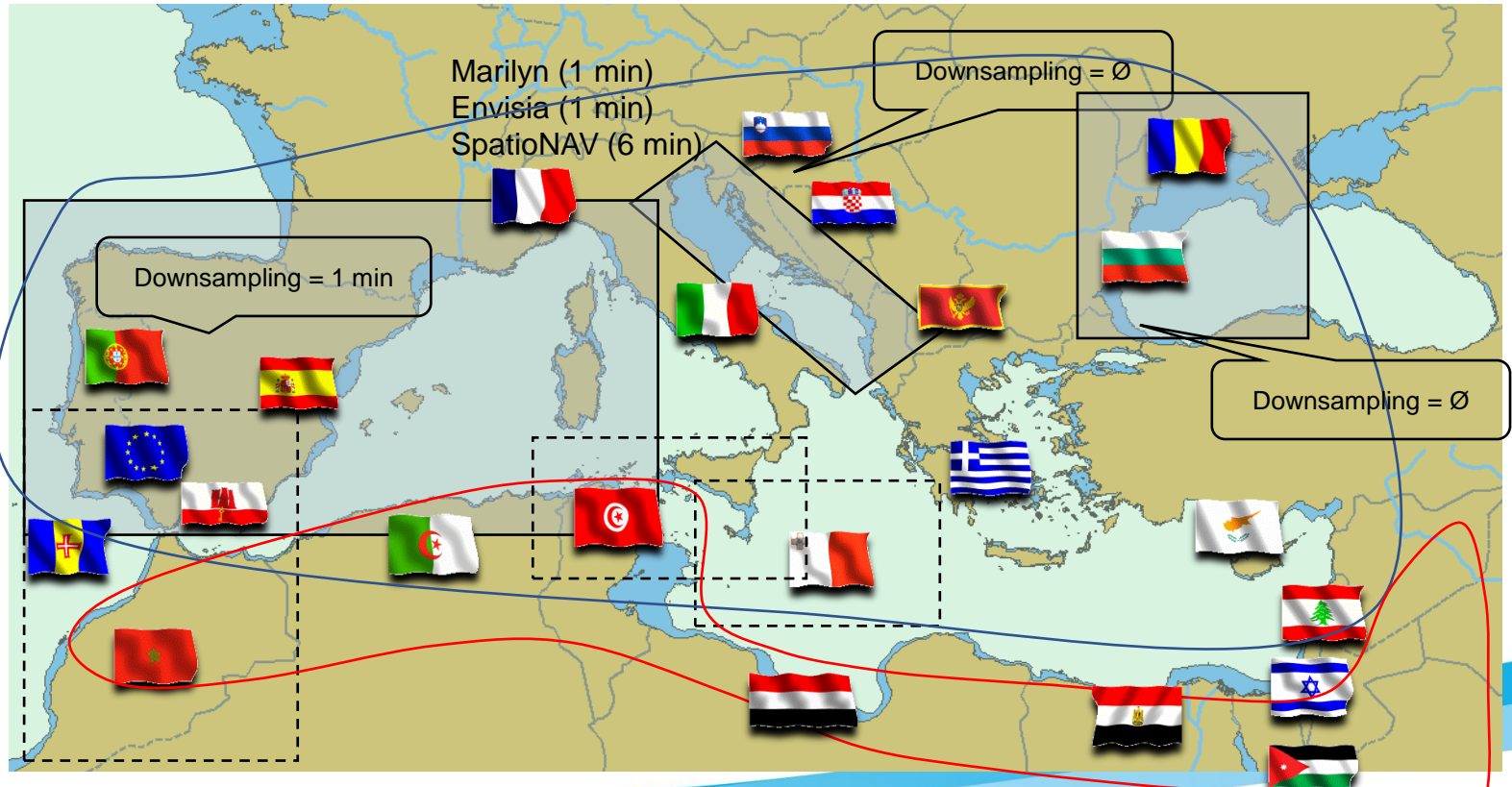
the outcome of cooperation ……

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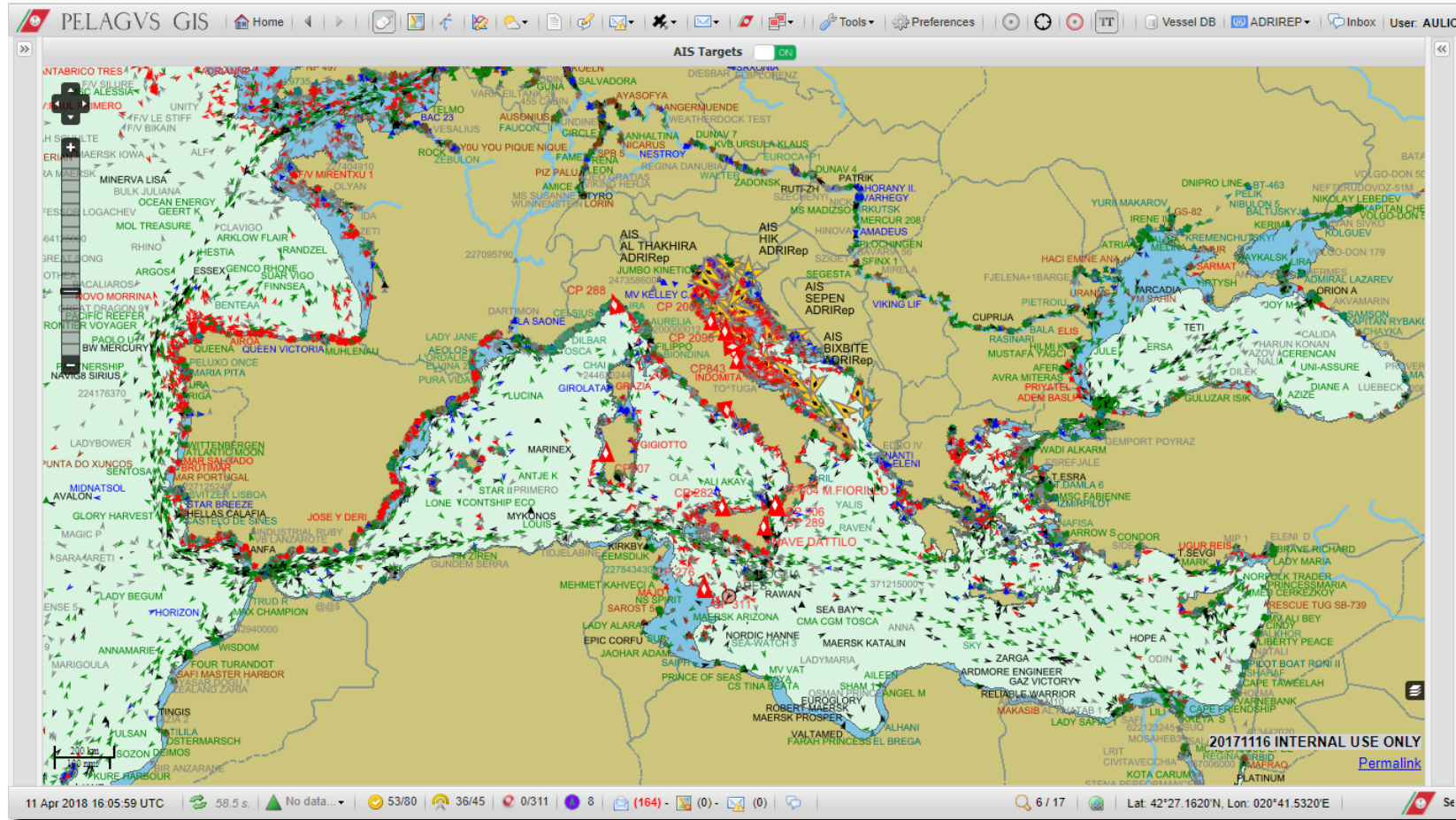
The AIS as a VHF Data Link

External services provided by an AIS network
IALA A-124

Service name	Tx/Rx	Description
A_DYN	Rx	Receive dynamic ship data from Class A shipborne mobile AIS stations
A_STAT	Rx	Receive static ship data from Class A shipborne mobile AIS stations
A_VOY	Rx	Receive voyage related ship data from Class A shipborne mobile AIS stations
B_DAT	Rx	Receive Ship data from Class B shipborne mobile AIS stations
SAR_DAT	Rx	Receive data from SAR airborne AIS stations
SART_DAT	Rx	Receive data from AIS-SART mobile AIS stations
ATON_DAT	Tx & Rx	Send or receive AtoN AIS stations data
ASC_AD	Tx & Rx	Addressed application specific messages
ASC_BR	Tx & Rx	Broadcasted application specific messages
SAFE_AD	Tx & Rx	Safety related addressed message
SAFE_BR	Tx & Rx	Safety related broadcasted message
DGNS_COR	Tx	DGNSS corrections sent through AIS
INT_TDMA	Tx	Interrogation via AIS VDL
ASGN_RATE	Tx	Assignment of report rate and slot to specific mobile unit
ASGN_GROUP	Tx	Assignment of transmission parameters to group of mobile
AIS_MON	Rx	Monitoring of AIS Service and VDL to provide status to AIS clients
STA_PROFILE	Rx	Monitoring of specific AIS stations external to the own AIS Service to provide status to AIS clients

The VDL: the media used by AIS stations to exchange information

Application Specific Message

Information to improve the safety of navigation

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The AIS Application Specific Messages

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Ref. T2-OSS/2.7.1

SN.1/Circ.289
2 June 2010

GUIDANCE ON THE USE OF AIS APPLICATION-SPECIFIC MESSAGES

1   The Maritime Safety Committee, at its seventy-eighth session (12 to 21 May 2004), approved SN/Circ.236 on Guidance on the application of AIS binary messages as prepared by the Sub-Committee on Safety of Navigation at its forty-ninth session (30 June to 4 July 2003).

2   The Sub-Committee on Safety of Navigation, at its forty-ninth session (30 June to 4 July 2003), selected seven (7) binary messages as shown in annex 2 to SN/Circ.236 to be used as a trial set of messages for a period of four years with no change. It was noted that four additional system-related messages were identified in Recommendation ITU-R M.1371 for the operation of the system.

3   The Sub-Committee on Safety of Navigation, at its fifty-fifth session (27 to 31 July 2009), after evaluating the use of binary messages in the trial period defined in SN/Circ.236, agreed on Guidance on the use of AIS Application-Specific Messages, including messages which are recommended for international use.

4   The Maritime Safety Committee, at its eighty-seventh session (12 to 21 May 2010), concurred with the Sub-Committee's views and approved the Guidance on the use of AIS Application Specific Messages, as set out at annex.

5   Member Governments are invited to bring the annexed Guidance to the attention of all concerned.

6   This circular revokes SN/Circ.236 as from 1 January 2013.

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Summary of AIS Application-Specific Messages recommended for international use

FI	Message Name	Comments	Section
16	Number of persons on board	SN/Circ.236 Trial message 6; corrected	5
17	VTS-generated/synthetic targets	SN/Circ.236 Trial message 7; renamed to "VTS-generated/Synthetic targets"	6
18	Clearance time to enter port	New message	7
19	Marine traffic signal	New message	8
20	Berthing data	New message	9
21	Weather observation report from ship	New message	10
22	Area notice – broadcast	New message	11
23	Area notice – addressed	New message	11
24	Extended ship static and voyage-related data	New message	4
25	Dangerous cargo indication	New message	2
26	Environmental	New message	12
27	Route information – broadcast	New message	13
28	Route information – addressed	New message	13
29	Text description – broadcast	New message	14
30	Text description – addressed	New message	14
31	Meteorological and Hydrographic data	New message	1
32	Tidal window	New message	3
33-63		**Reserved for Future Use**	

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The AIS Application Specific Messages: aboard, on ECDIS
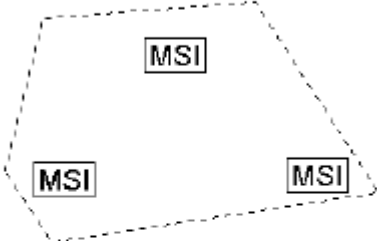
IEC 62288:2014 © IEC 2014 — 93 —

	Description	Symbol(s)
5.4	**Maritime Safety Information, MSI** MSI point symbol shall be presented as box with the "MSI" inscribed inside it. The box shall be centred at the position derived from MSI message. The box shall not be more than 6 mm in height, drawn using a thick solid line style. MSI area symbol shall be presented as a series of lines bounding a geographic area designated as "caution" to navigation. Connecting lines shall be drawn using thin dashed line style and using same basic colour as the symbol itself. The area shall be filled with a sparse pattern of MSI point symbols separated by 50 mm. MSI symbols shall be in a separate user selectable layer or group, removable by single operator action. The removal may be connected to generic removal functionality of non-chart object layers. The user dialog area shall have an indication if MSI notices are available in the area currently displayed, but the MSI layer is not automatically selected for display. MSI symbols may be connected to a date range and in such case each MSI notice symbol shall be displayed only when user selected date is within data range. It shall be possible to cursor pick an MSI symbol for further details. When presentation of MSI point and area symbols are provided as overlay on chart or radar, then means shall be provided for cursor pick of the symbol to provide further information in the user dialog area of the display. Note that the source of MSI maybe NAVTEX, AIS ASM function identifier 22 or 23 (SN.1/Circ. 289), etc.	Example of point symbol MSI Example of area symbol

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The AIS Application Specific Messages: benefits

NAVTEX Messages

Messages List | **Message Details**

Duration (s): 191

Message:

ZCZC VA45
271130 UTC MAR 19
SELLIA MARINA RADIO

COASTAL WARNING NR. 064/19 MAR 16 (3 RELEASE)
SICILY STRAIT SEA ZONE
FROM DECEMBER 19TH, 2018 UNTIL APRIL 30TH, 2019, R/V ODIN FINDER
WILL CARRY OUT AN ACTIVITY FINALIZED TO EXECUTION OF GEOPHYSICAL
SURVEY ALONG A GAS PIPELINE TRACK BETWEEN ITALY AND MALTA IN THE
FOLLOWING POINTS:
37 02 59.94N - 014 17 15.29E,
36 57 19.72N - 014 12 46.88E,
36 22 19.31N - 014 33 14.70E,
36 20 04.89N - 014 38 29.48E,
36 28 12.86N - 014 37 49.02E,
36 59 16.53N - 014 18 45.70E,
37 02 13.50N - 014 19 06.25E,
37 02 59.94N - 014 17 15.29E.
ALL SHIPS IN TRANSIT OR IN PROXIMITY OF THE POINTS DESCRIBED,
WILL HAVE TO PROCEED TO REDUCED SPEED OF THE R/V ODIN FINDER,
THAT IT WILL BE CONSIDERED A SHIP MANOUVERING WITH DIFFICULTY.
SHIPS AND FLOATINGS IN TRANSIT BEWARE.
NNNN

- paperless, the Maritime Safety Information are automatically displayed on ECDIS, without human intervention
- more frequently transmitted (minutes instead of houres), limited only by the VDL load
- more widespread distribution (VHF instead of MF)
- possibility to integrate the messagges in the VTMIS
- possibility to be transmitted by other neighbouring AIS networks

It does not replace the traditional means of broadcast

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