

EMSA workshop

Vessel Traffic Monitoring

Brussels 21-22 November 2005

Regional approach – The Baltic example

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Content

- Background
- The Helcom organisation and the Copenhagen Declaration
- The functional requirements
- The technical solution
- Legal considerations - the agreement
- The result
- Conclusions

IMO Performace standard for AIS

MSC 69/22/Add. 1

”The AIS should improve the safety of navigation by assisting in the efficient navigation of ships, protection of environment, and operation of Vessel Traffic Services (VTS), by satisfying the fiollowing functional requirements:

- **in a ship to ship mode for collision avoidance**
- **as a means for littoral States to obtain information about a ship and its cargo**
- **As a VTS tool, i.e. ship to shore (traffic management)**

IMO SOLAS Amendments 2000

- **Chapter V, Regulation 19**

Carriage requirement for AIS and implementation schedule

- **IMO Diplomatic Conference 2002**

Accelerated implementation

Helsinki Commission - HELCOM

- The Helsinki Commission, or HELCOM, works to protect the marine environment of the Baltic Sea from all [sources of pollution](#) through intergovernmental co-operation between Denmark, Estonia, the European Community, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden.



Copenhagen Declaration

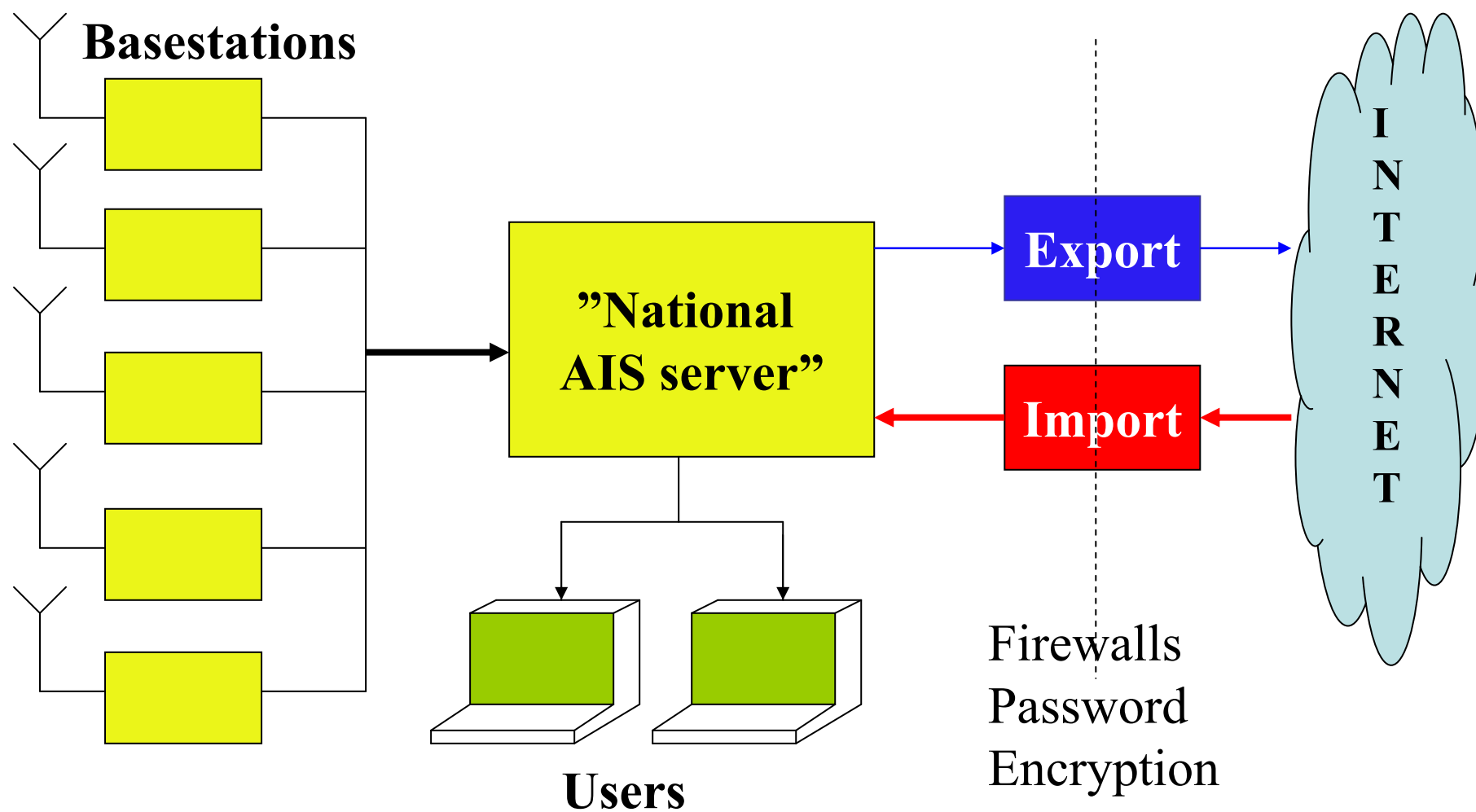
- Ministerial meeting 10 september 2001 decided to **Enhance the use of AIS** by
 - Establish national AIS based monitoring systems before 1 July 2005.
 - Establish a common Baltic Sea monitoring system, based on and with access to all national AIS systems.
 - Prepare reliable statistics on ships traffic in the Baltic Sea (based on AIS).

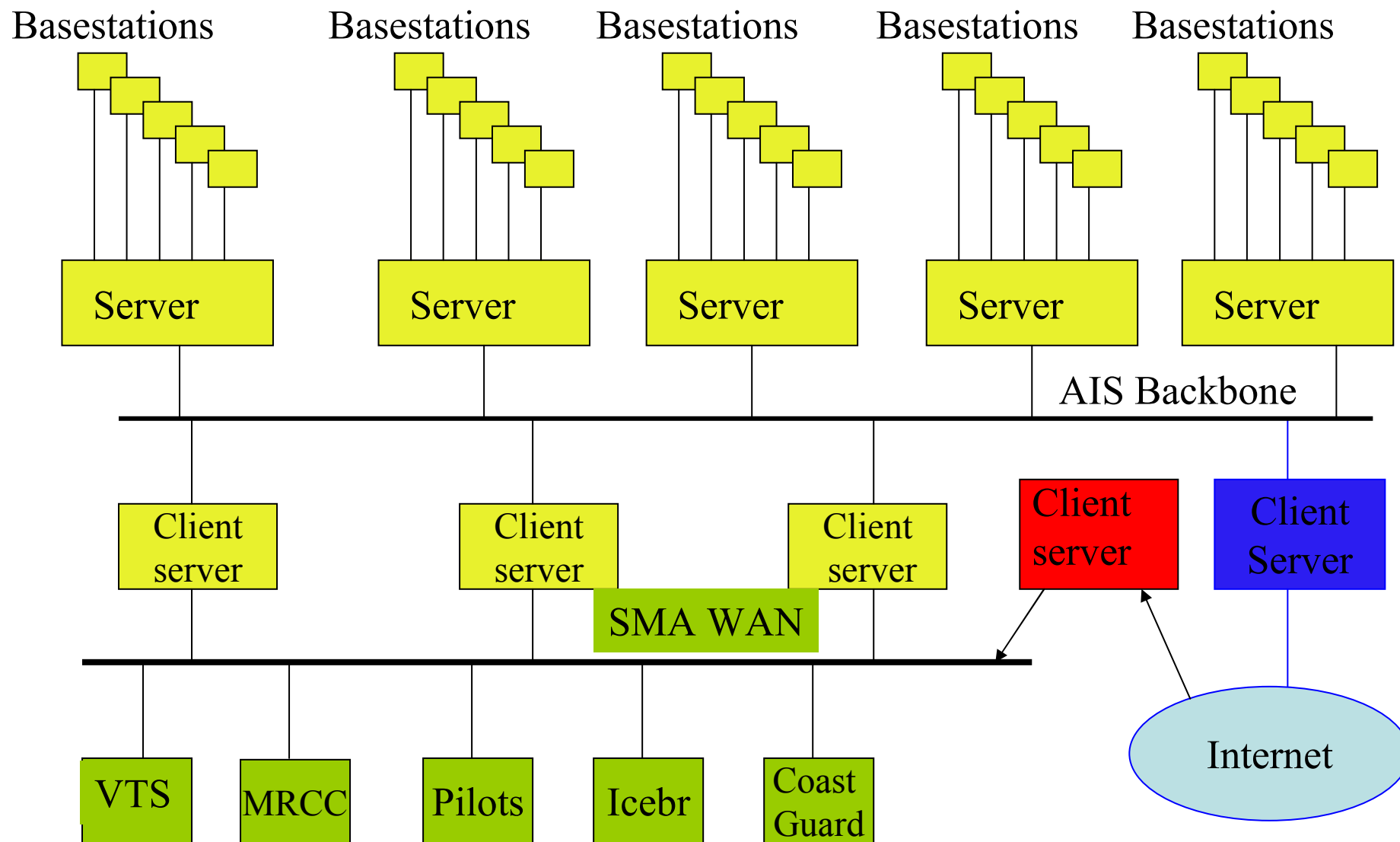
AIS Expert Working Group

- Ensure mutual support and exchange of information and experiences
- Ensure that the national AIS systems can be linked to each other
- Propose technical solutions
- Agree on information to be recorded and statistics to be produced
- Consider the legal framework
- Norway is participating in this co-operation

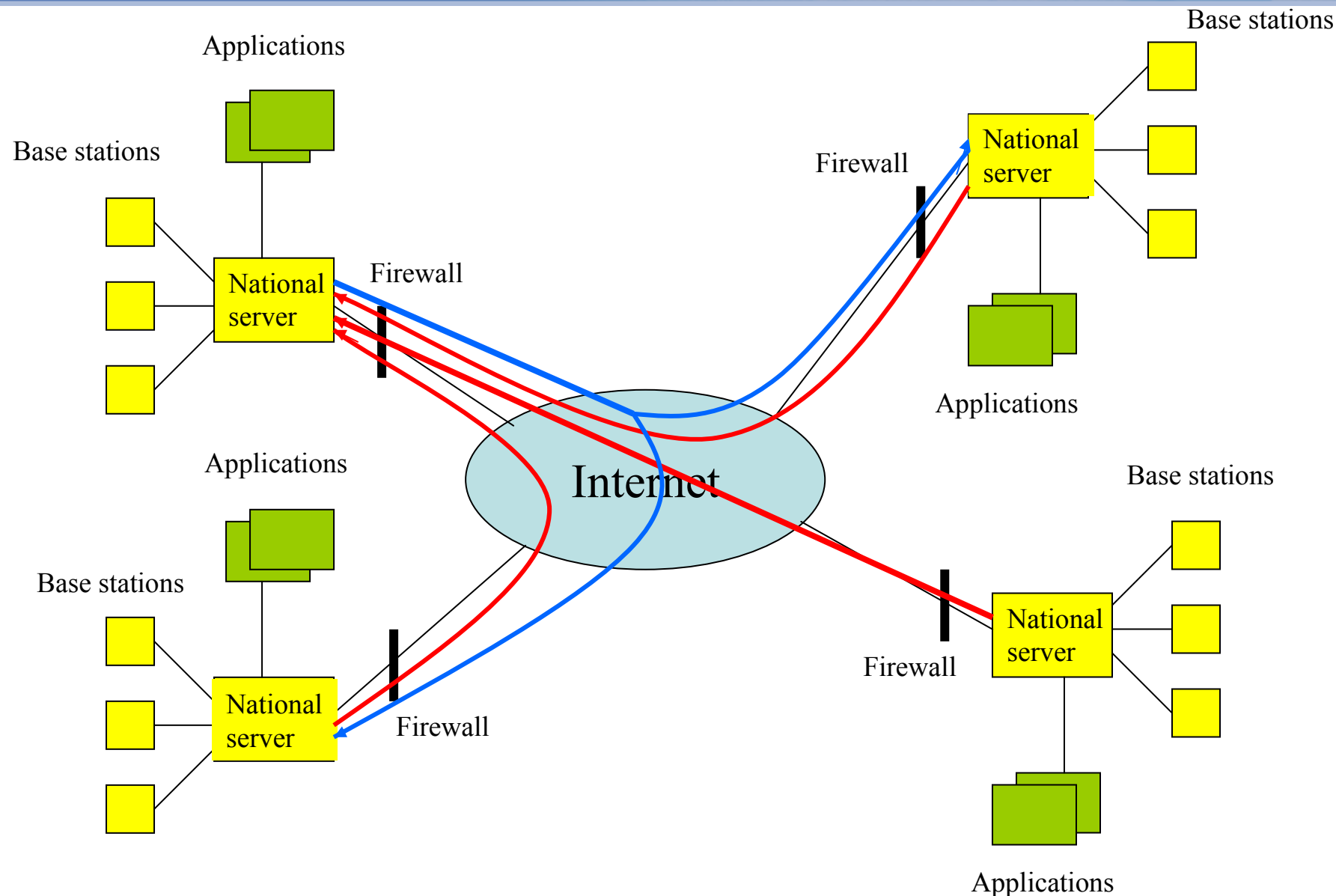
Stepwise implementation

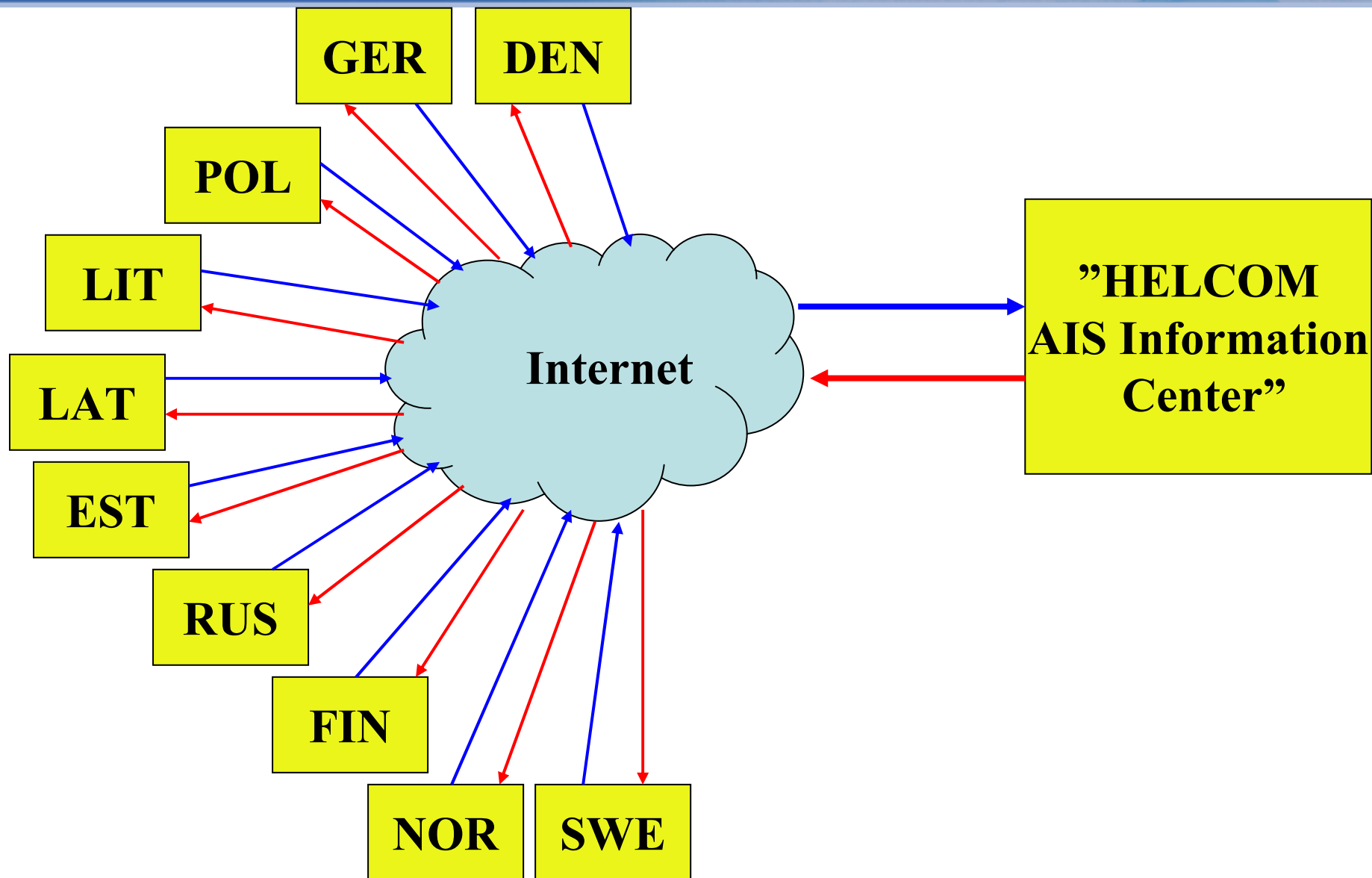
- Implementation of national AIS networks
- The Helcom AIS Demonstrator – bilateral exchange of AIS data
- The Helcom AIS Information Center
 - Realtime data collection and distribution
 - Storage of data and production of statistics





HELCOM AIS Demonstrator architecture



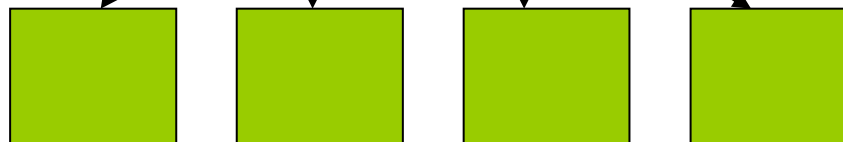


National distribution of Helcom AIS information

**”HELCOM
AIS Information
Center”**

**National AIS
Center**

Users of AIS info acc.
to AIS Agreement



The AIS Agreement

- **Objective:** Regulate the exchange, distribution and use of AIS-data in accordance with the Copenhagen Declaration
- How to do it
- Who will have access
- For what purpose

The AIS Agreement:

“APPLICATIONS FOR RETRIEVED AIS DATA FROM THE COMMON BALTIC SEA AIS MONITORING SYSTEM

Only competent authorities shall have access to the common Baltic Sea monitoring system and these authorities shall only be allowed to use retrieved AIS data for the applications specified below”.

Information			Rate	Functionality	Accessibility	
						HELCOM
		C	2,5	No direct access req.	HELCOM secretariat	1. Statistics 1.1. Call sign 1.2. Position 1.3. Cargo 1.4. Etc...to be determined
						National competent authorities
L	A	C	1,2,3	Bi-directional communication*	Countries involved	1. Pollution combating
L	A	C	1,2,3	Bi-directional communication*	Countries involved	2. <i>Contingency planning</i>
L	A	C	1,2,3	Bi-directional communication*	Countries involved	3. <i>International Ship and Port security (ISPS)</i>
						SAR
L	A	C	1,2,3	Bi-directional communication*	Countries involved, MRCC	<ul style="list-style-type: none"> To supply the on-line information for SAR needs, including adjacent sea areas, to get an overall traffic picture To search for a specific ship in the HELCOM data base
						VTS
L	A	C	1,2	Bi-directional communication*	Adjacent authorities, VTS centres	Traffic management etc.
						Paris MOU (Port state control)
		C	2,4	Only listening	Port State Control authorities	Monitor and compare against banned ships.
						EU HAZMAT reporting requirement
L	A		2,4			1. Mandatory reporting system
						Ice Breaker Service
L	A	C	1,2	Bi-directional communication*	Competent authority and Ice Breakers	To get a holistic assessment of the conditions and of the speeds of ships in ice covered waters
						Port Authorities
L	A	C	1, 2	Only listening		Filtered information for ships entering or leaving the port

Functionality

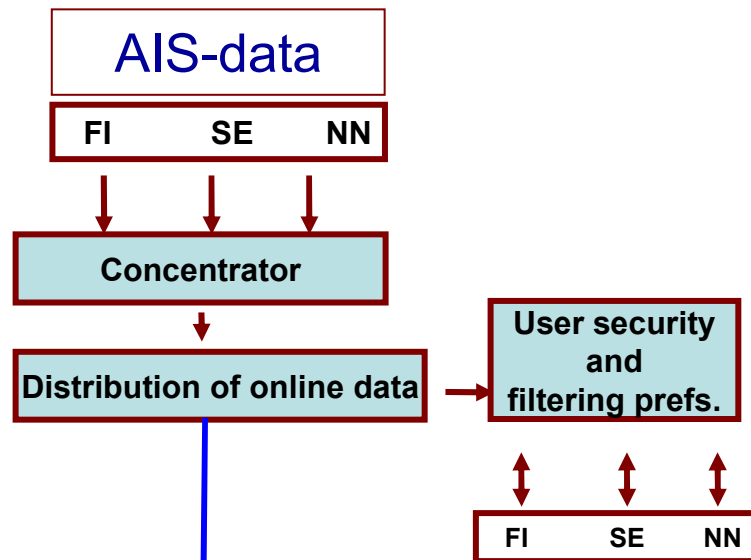
Real time data

- Reduced update rate
- AIS Class A messages
- One way communication – no routing of messages to ships.

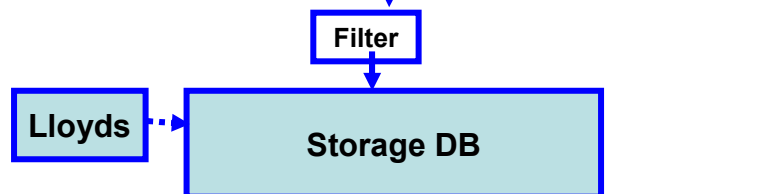
Historical data

- Storage of data for statistics, research, investigations etc.

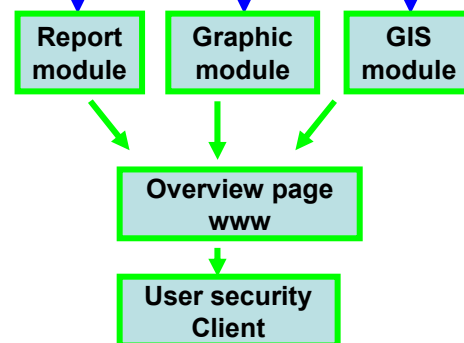
Part 1
Data capture



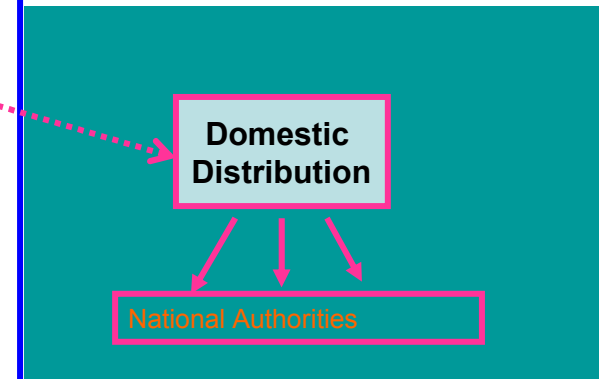
Part 2
Storage



Part 3
Retrieval



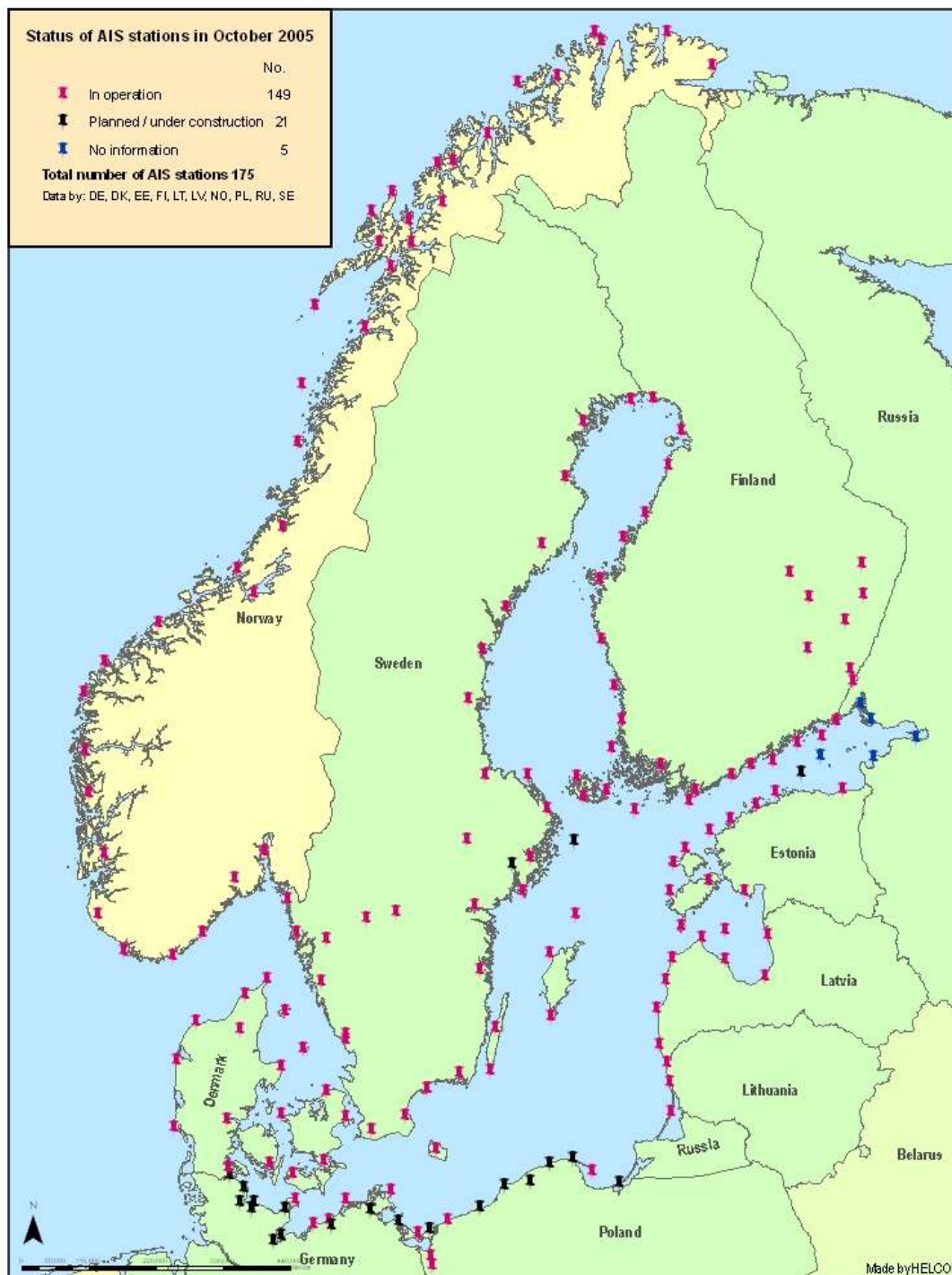
Distribution of online AIS data.



Presentation of statistical AIS data:

- predefined reports
- reports
- graphical display

AIS Basestations in the "Helcom – system"





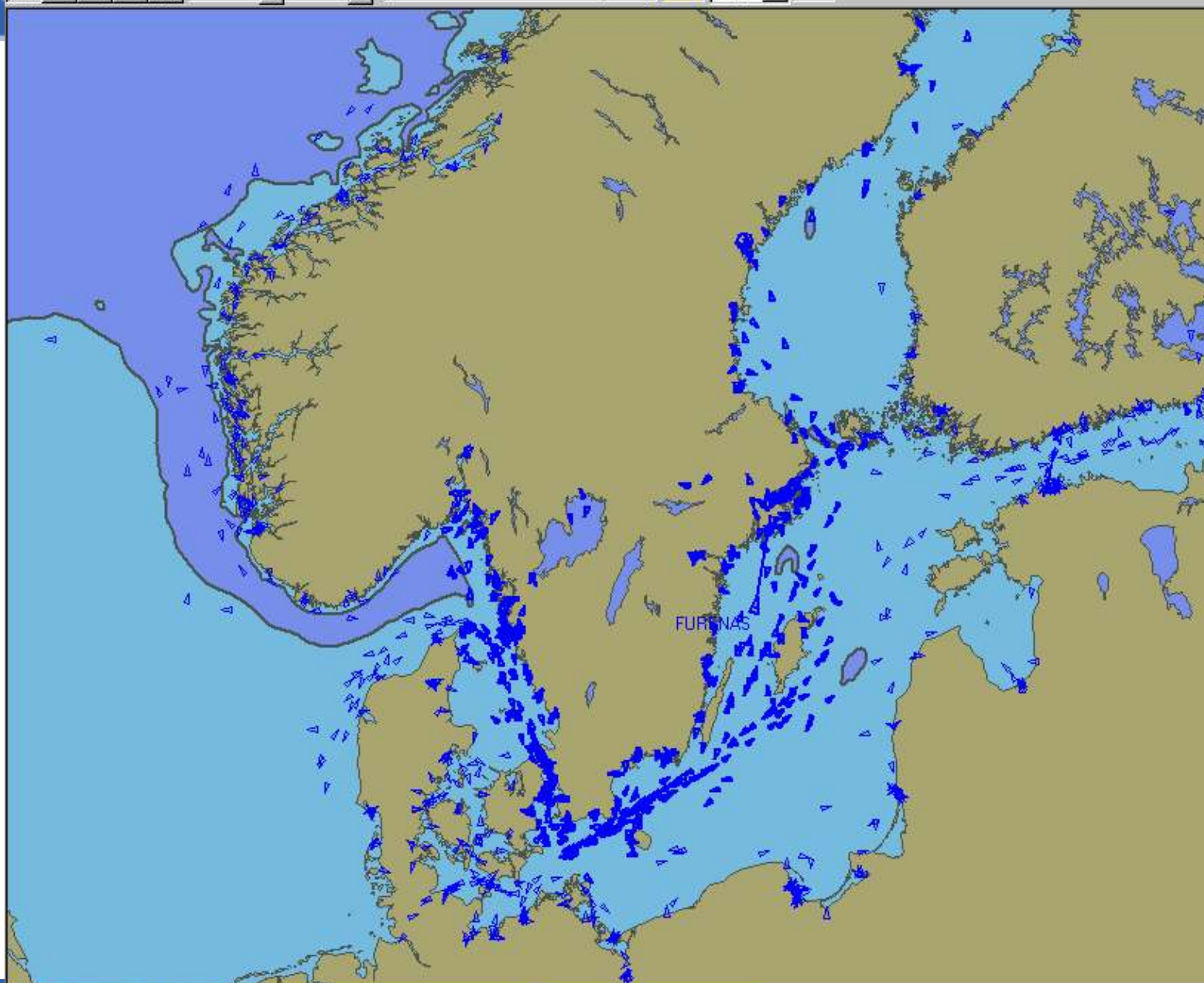
SWEDISH MARITIME
SAFETY INSPECTORATE

Adveto CVTS Standard V3.46 - Elicens: 200411 Frankavärd VTS

File Database Recording Trail ECDIS Display WGS84 Configure Tides Emulator About

Usage: Overview

380 nm 5 min 62 44.3869 N 010 37.6695 E Ready Free Day H Rec



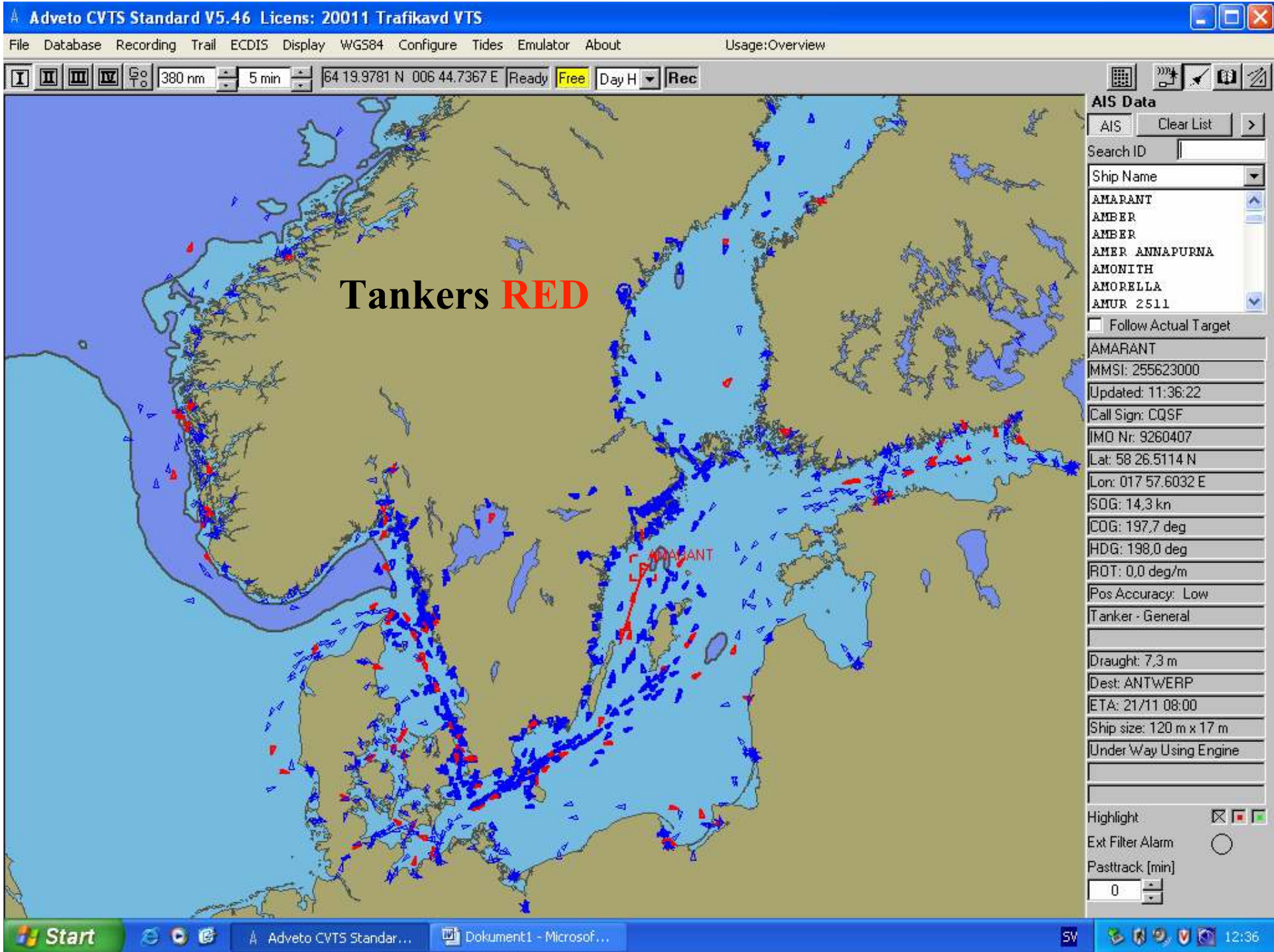
Safe shipping

Start

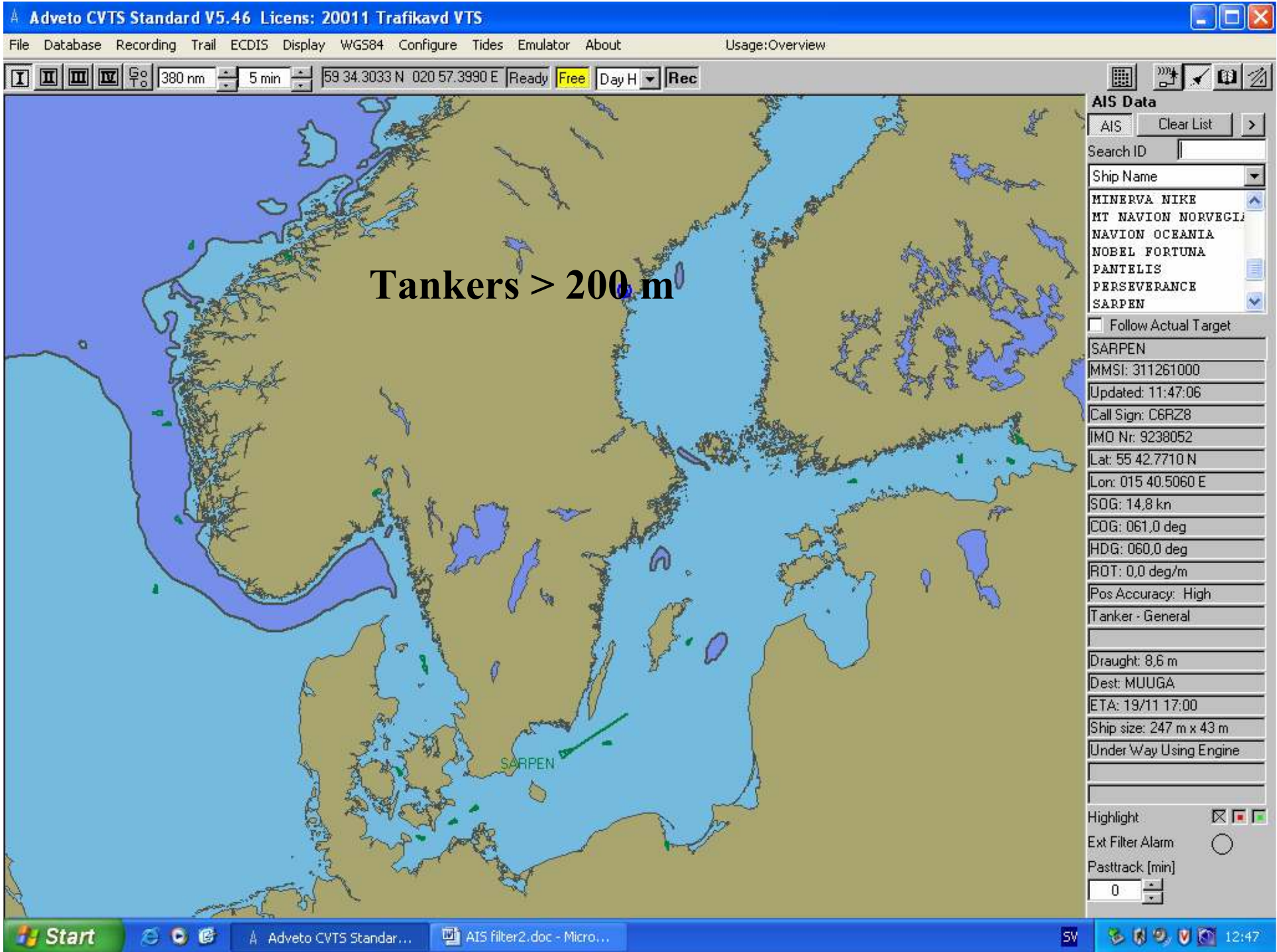


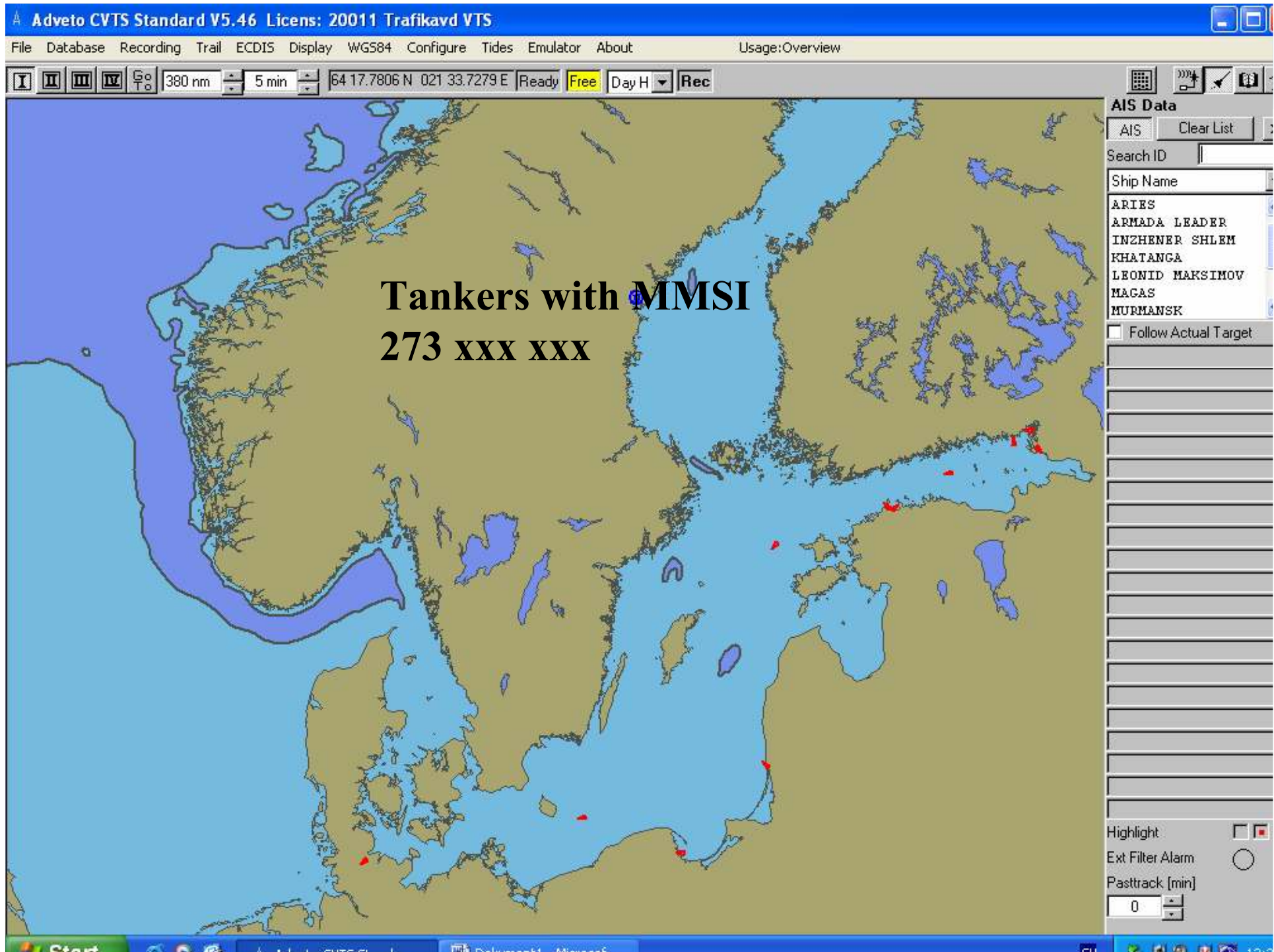
Adveto CVTS Standar...

Dokument1 - Microsof...

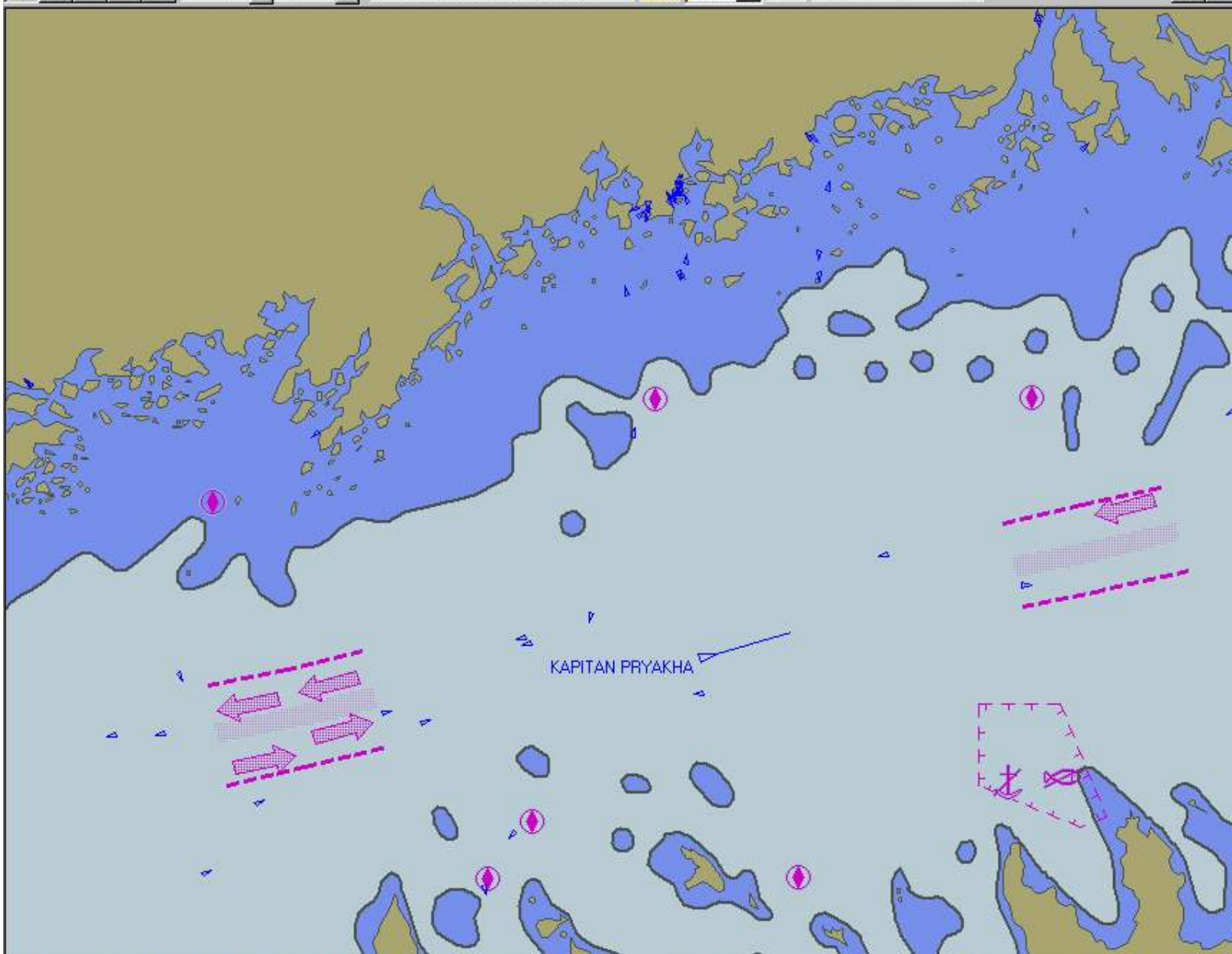








24 nm 15 s 59 41.5942 N 025 22.9598 E Ready Free Day H Rec / m



AIS Data

AIS Clear List >

Search ID

Ship Name

KAPITAN PRYAKHA
KAPITAN RYNTSYN
KAPITONAS KAMINSKI
KAPTEIN SKAUGEN
KAPTEINIS KULINIC
KARI
KARL AF KARLSTAD

☐ Follow Actual Target

KAPITAN PRYAKHA

MMSI: 273811020

Updated: 12:43:40

Call Sign: UIWB

IMO Nr: 8834483

Lat: 59 47.6400 N

Lon: 025 00.5294 E

SOG: 13,0 kn

COG: 074,5 deg

HDG: 074,0 deg

ROT: 0,0 deg/m

Pos Accuracy: Low

Unknown ship type

Draught: 7,8 m

Dest: SAINT PETERSBURG

ETA: 19/11 03:30

Ship size: 134 m x 18 m

Under Way Using Engine

Highlight ☒ ☐ ☐

AIS Alarm

CPA 1,0 nm

TCPA 5 min

Pasttrack [min]

Statistics on ships traffic

HELCOM - passage lines:

In order to achieve a general overview of the traffic entering and exiting the Baltic area the following passage lines have been established.



Statistics menu

Export menu

Passage line Statistics

Passage line name

The Skaw

Statistics grouping

Ungrouped

Start (UTC Time)

17 Aug 2005 00:00

End (UTC Time)

17 Nov 2005 23:59

Plot type

barplot

Interval

Years

Filter

Add filter

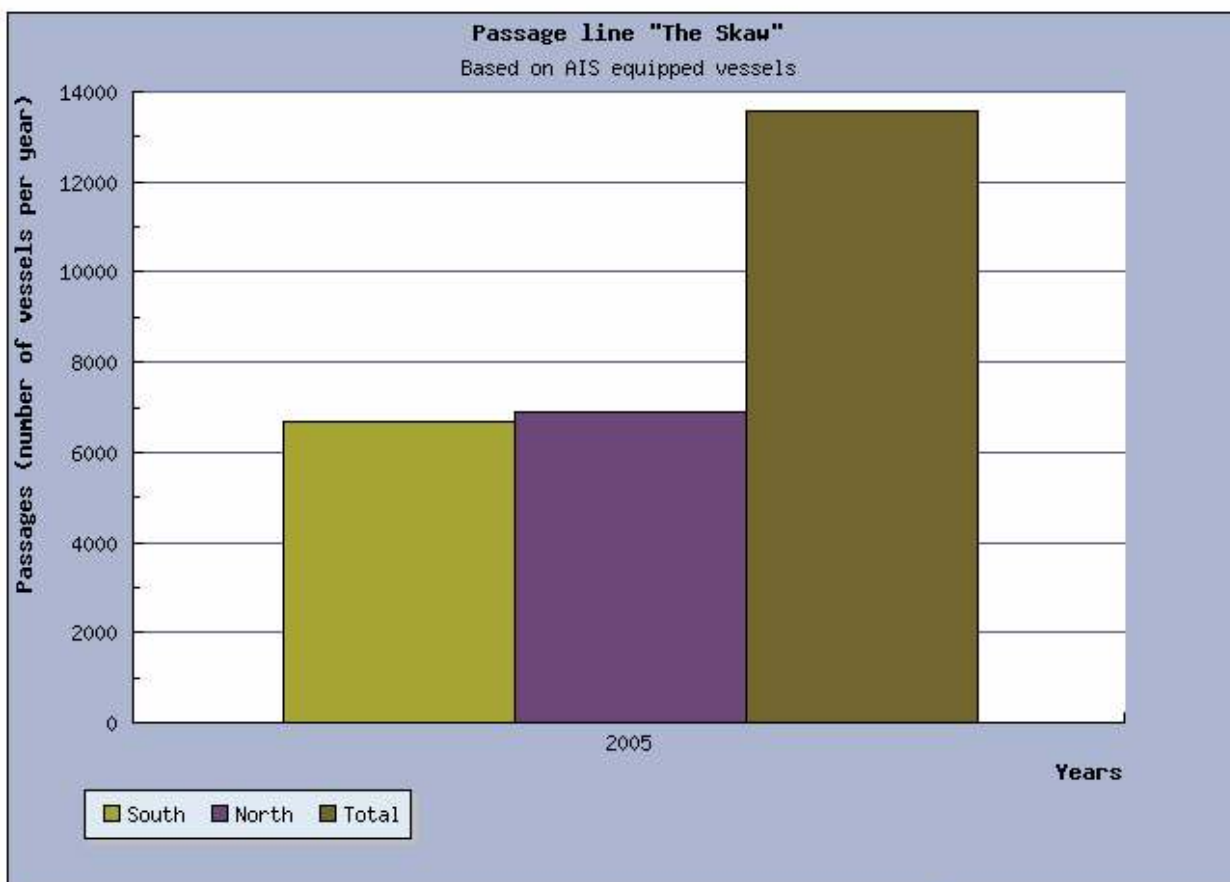
Generate graph

Passage Line Report

Passage line : "The Skaw"

Start : 17th of August 2005, 00:00

End : 17th of November 2005, 23:59



Statistics menu Export menu

Passage line Statistics

Passage line name

The Skaw

Statistics grouping

Grouped by Ship type

Start (UTC Time)

17 Aug 2005 00:00

End (UTC Time)

17 Nov 2005 23:59

Plot type

barplot

Interval

Years

Filter

Add filter

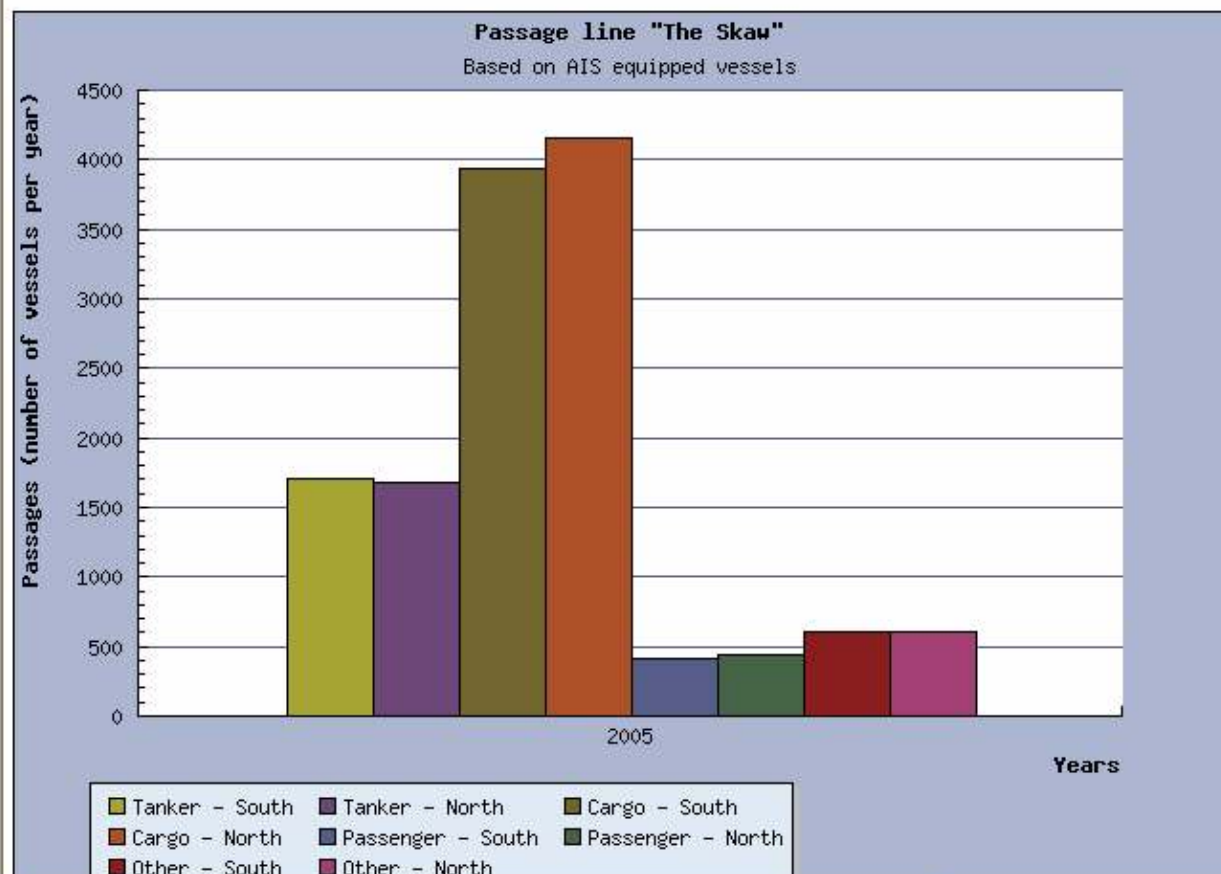
Generate graph

Ship Type Report

Passage line : "The Skaw"

Start : 17th of August 2005, 00:00

End : 17th of November 2005, 23:59



Statistics menu Export menu

Passage line Statistics

Passage line name

The Skaw

Statistics grouping

Ungrouped

Start (UTC Time)

17 Aug 2005 00:00

End (UTC Time)

17 Nov 2005 23:59

Plot type

barplot

Interval

Years

Filter

SOG

>

15

Remove

Add entry Delete

Add expression Add subexpression

Generate graph

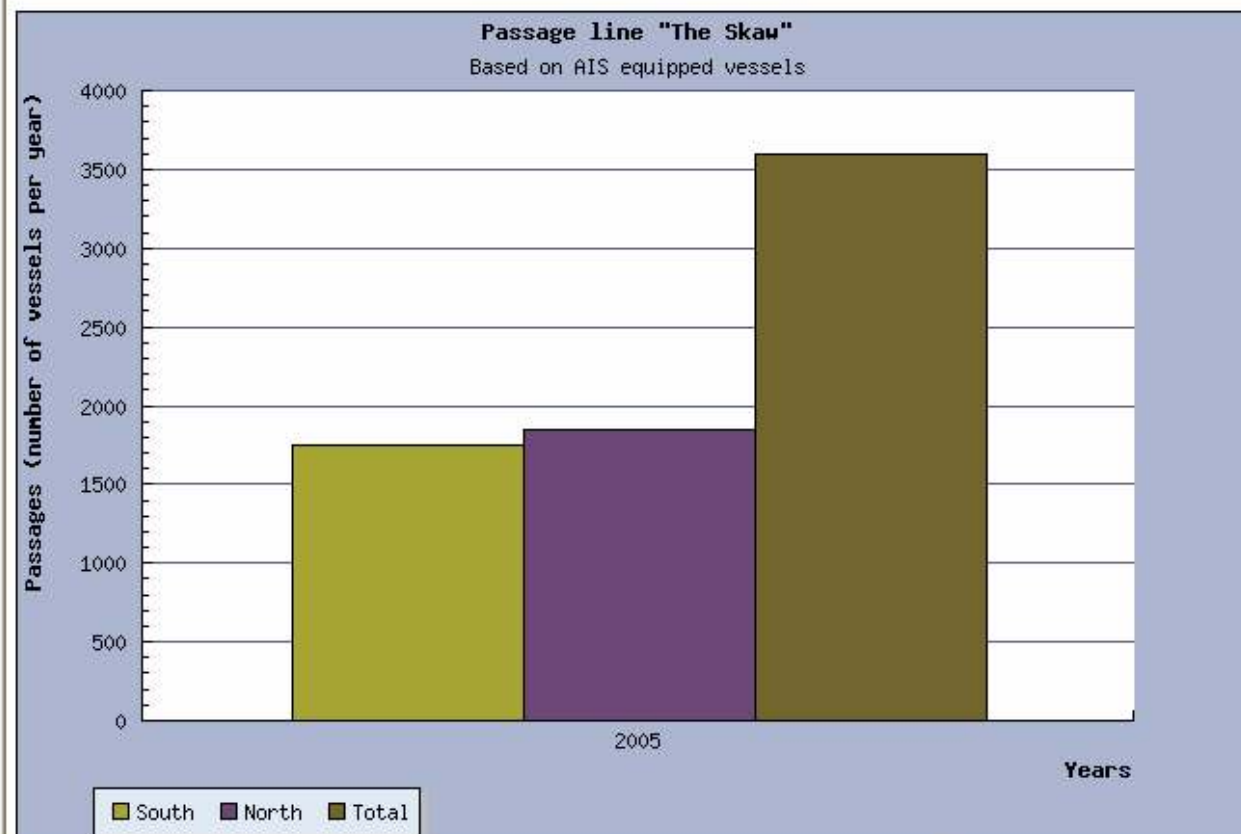
Passage Line Report

Passage line : "The Skaw"

Start : 17th of August 2005, 00:00

End : 17th of November 2005, 23:59

Filter : ((SOG > 15))



Statistics menu Export menu

Passage line Statistics

Passage line name

Bornholm North

Statistics grouping

Ungrouped

Start (UTC Time)

1 Aug 2005 00:00

End (UTC Time)

31 Oct 2005 23:59

Plot type

barplot

Interval

Months

Filter

Add filter

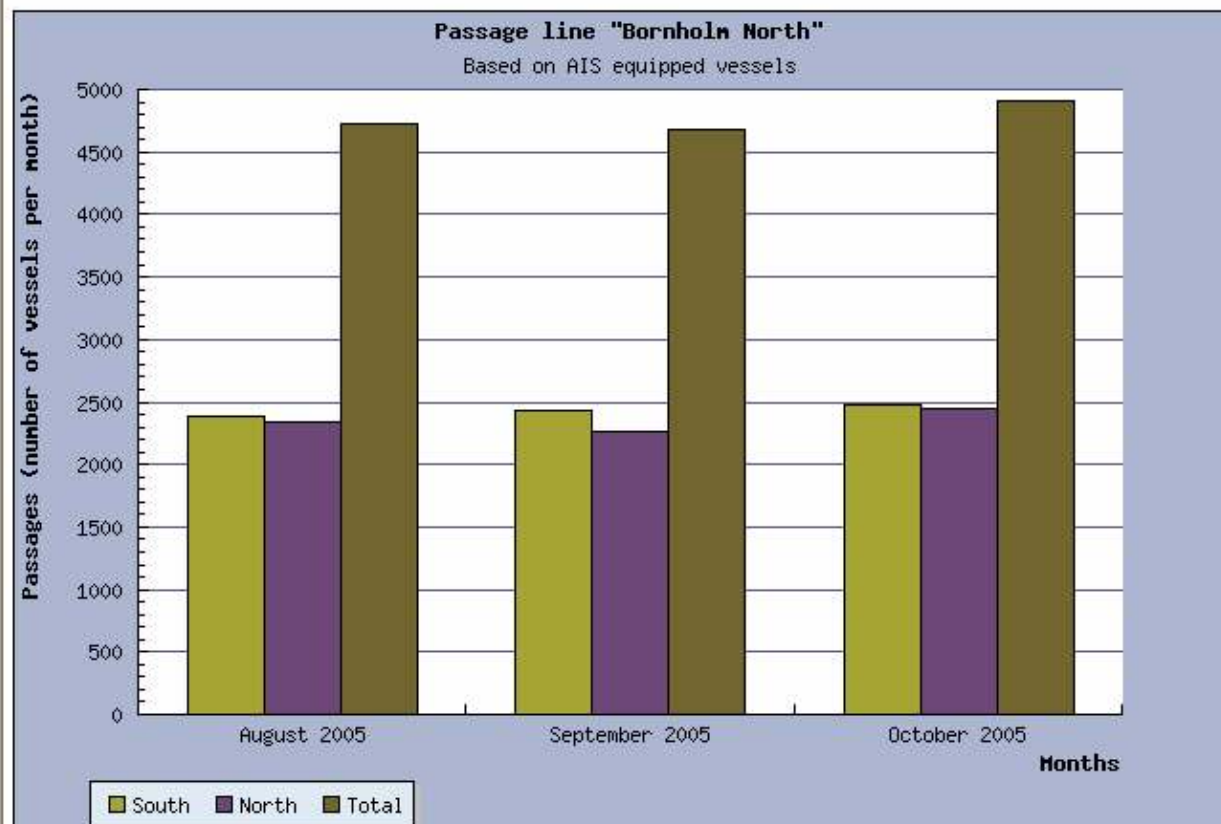
Generate graph

Passage Line Report

Passage line : "Bornholm North"

Start : 1st of August 2005, 00:00

End : 31st of October 2005, 23:59



Statistics menu Export menu

Passage line Statistics

Passage line name

Bornholm North

Statistics grouping

Ungrouped

Start (UTC Time)

1 Aug 2005 00:00

End (UTC Time)

31 Oct 2005 23:59

Plot type

barplot

Interval

Months

Filter

DRAUGHT-AIS

>

10 Remove

Add entry Delete

Add expression Add subexpression

Generate graph

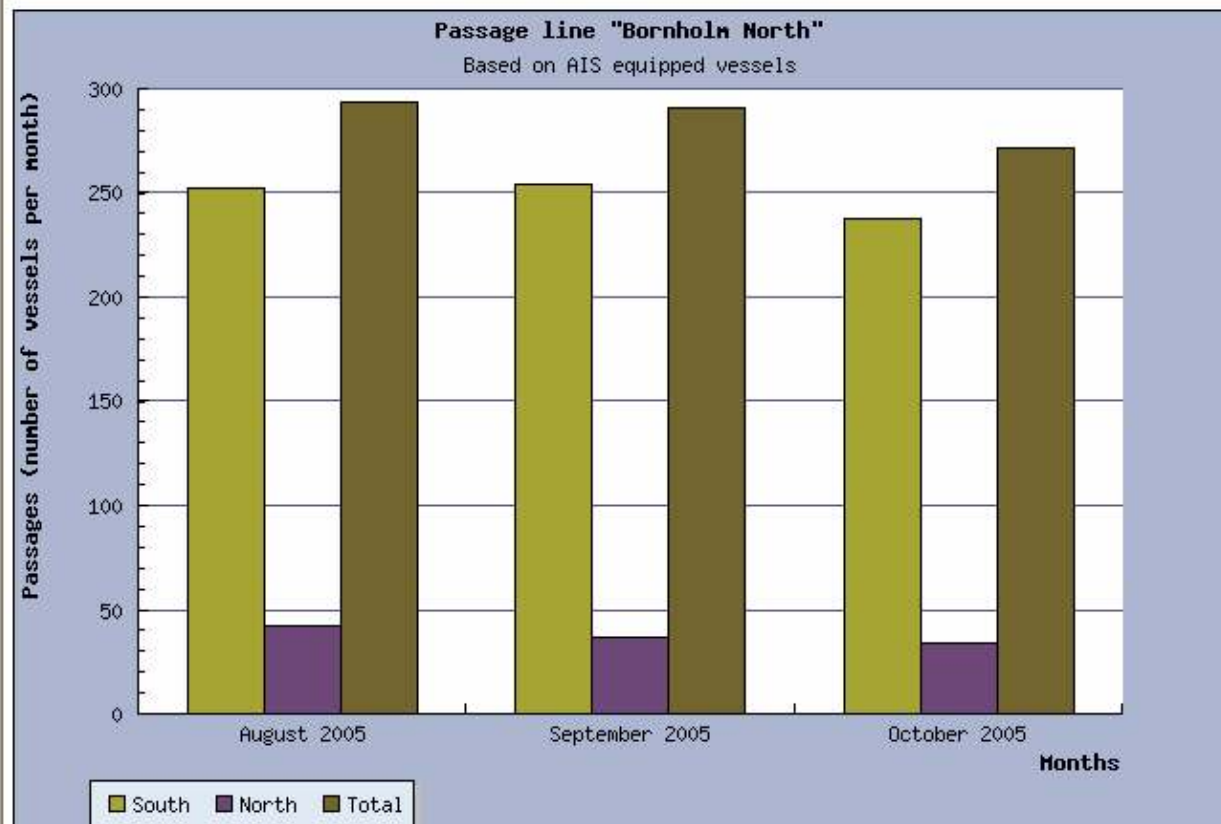
Passage Line Report

Passage line : "Bornholm North"

Start : 1st of August 2005, 00:00

End : 31st of October 2005, 23:59

Filter : ((DRAUGHT-AIS > 10))



Experiences from establishing the Helcom AIS information system

- "No" technical problems
- Existing standards are sufficient
- Time-consuming to develop agreement on the exchange and use of AIS information
- Low cost for establishment and operation of the system
- The information is very useful
- Systems for the utilisation of the information are national – not standardized

Future development

- Improved coverage
- Increased flexibility for retrieval of statistics
- Improved reliability of national networks
- Connection to other "AIS regions"

Thank You for your attention!



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