United States Coast Guard

Office of Navigation Systems

Providing navigation safety information for America's waterways

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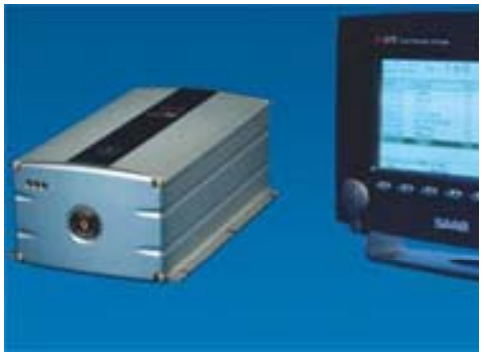
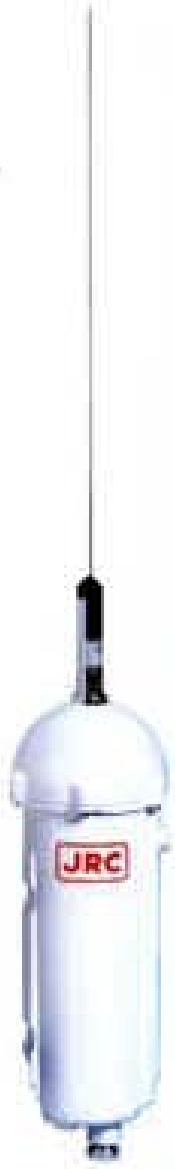
U.S. Coast Guard Headquarters
Washington, DC

Automatic Identification System (AIS)

- ✓ Background...Why?
- ✓ Regulations...Who? Where? When?
- ✓ What is it?
- ✓ How it works?
- ✓ USCG AIS efforts
  - ✓ Nationwide AIS Project
    - What, where, when & how

Shipboard AIS





AIS Timeline

WRC'97
AIS1 Ch.87B
AIS2 Ch.88B

SOLAS
V/19.2.4

2002 IMO
Diplomatic
Conference

SOLAS
V/19.2.4

IMO
MSC 74 (69)
Performance

ITU-R M.1371-1
Technical

IEC 61993-2
Testing &
Certification

1990---------1994--------1997----1998----1999----2000----2001----2002---2003--2004

OPA
'90

ADSSE
ITU-R
M.825-3

National
Dialog
Group

Marine Board
Ports &
Waterways
Study

FCC
Notice
DA-02-1362

105th
Congress

VTS LMR
Public
Meeting

MTSA - 11/02
Interim - 7/03
Final - 10/03
Deadline - 1/04

What started the USCG on AIS?

In 1990, Congress passed the Oil Pollution Act which participation in VTS mandatory and directed the USCG to seek ways to have 'dependent surveillance' of all tankers bound for Valdez, Alaska.

To that end, in 1993 the USCG developed *Automated Dependent Surveillance Shipboard Equipment (ADSSE),* based on Digital Selective Calling (DSC) protocol.

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Congress supports/mandates AIS!

In 1997, Congress...stated that AIS "technology should be the foundation of any future VTS system" and that it "strongly believes that this technology will significantly improve navigational safety, not just in select VTS target ports, but throughout the navigable waters of the U.S", and, that we "continue working with stakeholders..."

H.R. Rep. No. 236, 105th Cong., 1st Sess. (1997)

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Industry endorses AIS!

In 1999, the National Dialog Group, comprised of the marine private and public representatives, stated they:

"strongly endorse the widespread use of AIS employing dGPS and onboard transponder technologies...that national use of AIS technology on the greatest number of vessels is essential both as a foundation of a VTS system...improving navigation safety...strongly urge the USCG to take the lead...in developing equipment and procedural standards that will promote universal use of AIS technology", which will "be less intrusive and distracting to the mariner than will a voice-based control system..."

Marine Board recommends AIS

To achieve the committee's vision of the future, all major vessels must be required to carry certain advanced navigation information systems so they can participate in traffic management schemes and navigate safely in and out of all U.S. ports.

The USCG should work toward the implementation of international carriage requirements for electronic navigation and identification/location systems on board all major vessels using U.S. ports and should continue to take steps to provide necessary communications frequencies to ensure the international compatibility of AIS.

Applying Advanced Information Systems to Ports and Waterways Management (1999), Marine Board

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Public Meeting to establish AIS carriage

September 1998, the USCG conducted a public meeting to solicit comments on the establishment of a new Vessel Traffic Service in the Lower Mississippi River area and a potential Automatic Identification System (AIS) carriage requirement for certain vessels operating in the new VTS area.

The primary purpose of the meeting was to discuss which vessels should carry AIS and what performance, technical, testing, and certification standards the systems should meet.

- Ref: 63 FR 49939, Sep. 18, 1998

Towards an AIS-based VTS

In an effort to facilitate vessel transits, enhance good order, promote safe navigation, and improve upon existing operating measures on the waterway. The USCG proposed to establish a Vessel Traffic Service (VTS) on the Lower Mississippi River and transfer certain vessel traffic management provisions on the river.

By implementing a proposed transition to VTS in a phased manner which would allow for the orderly transition from existing regulations and practices to operating procedures appropriate to an AIS-based VTS.

- Ref: 65 FR 24616, Apr. 24, 2000

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Maritime Transportation Security Act

46 U.S.C. 70114 - Automatic identification system

On the navigable waters of the United States, each…

- Self-propelled commercial vessel of at least 65 feet,
- Towing vessel of more than 26 feet and 600 hp,
- Passenger vessels as determined by the USCG,
- Any other vessel deemed necessary for the safe navigation of the vessel.

shall be equipped with and operate an AIS under regulations prescribed by the USCG.

AIS Carriage Regulations 33 CFR 164.46

The following must have a properly installed, operational, type-approved AIS

- *On international voyage:*
  - ✓ Tankers, Passenger ≥ 150 GT, all others ≥ 300 GT
    - ❑ Per SOLAS Regulation V/19.2.4
  - ✓ Self-propelled commercial vessels ≥ 65 feet
    - ❑ Except fishing and small passenger vessels (<150 passengers)
- *Within a VTS area:*
  - ✓ Self-propelled commercial vessel 65+ feet
    - ❑ Except fishing & small passengers vessels
  - ✓ Towing vessel ≥ 26 feet and ≥ 600 hp
  - ✓ Vessel certificated to carry ≥ 150 passengers

AIS Regulatory History…recap

- ✓ Oil Pollution Act of 1990, precursor AIS (ADSSE) on Alaskan tankers
- ✓ CG Authorization Act ’97, Congress seeks AIS-based VTS and AIS carriage
- ✓ Nat’l Dialog Group & Public Meeting in NOLA, AIS-Based VTS (1998)
- ✓ NPRM VTS Lower Mississippi River (2000), towards an AIS-Based VTS
- ✓ Safety of Life at Sea Convention (SOLAS) V/19.2.4 (2000), 12/02 (amended)
- ✓ Marine Transportation & Security Act of 2002
- ✓ USCG AIS Temporary Final Rule: 07/01/03
  - o Implements SOLAS (Int’l) & MTSA (domestic) in VTS areas
- ✓ USCG AIS Final Rule: 10/22/03, effective 11/24/03, deadline: 12/31/04
  - o Deferred requirements on F/V and small passenger vessels
  - o Request for Comments: 10 questions on AIS Expansion prior to 1/9/04
    - o 3 Public Meetings, 180+ commenter's
- ✓ CG&MT’04 mandates electronic charts on same population as MTSA AIS
- ✓ CG expanding carriage beyond VTS
  - o NPRM published 12/16/08, comments NLT 4/15/09

Proposed AIS Rule Changes

- 31-Oct-2005, USCG announced its intent to extend AIS carriage to all U.S. navigable waters (70 FR 64171)
- 16-Dec-2008, USCG publishes Notice of Proposed Rulemaking (73 FR 78295)
- Potentially could effect 17,000 vessels:
  - ✓ Commercial self-propelled vessels of ≥ 65 feet
    - **No exceptions**
  - ✓ Towing vessels ≥ 26 feet and > 600 hp
  - ✓ Vessels with ≥ **50** passengers (vice 150 for hire)
  - ✓ **Hi-Speed vessels with ≥ 12 passengers for hire**
  - ✓ **Certain dredges & floating plants, and**
  - ✓ **Vessel moving certain dangerous cargoes**
- Proposed compliance date: NLT 7 month after Final Rule
- Waiver process already exist for certain circumstances

Docket Details

Notification: Bookmark: Learn more

Title	Vessel Requirements for Notices of Arrival and Departure, and Automatic Identification System
Type	Rulemaking
Sub Type	Commercial Vessels
Sub Type Level 2	
Disposition	Pending
Action Office	G-LRA
Docket Subject	Subject: Vessel Requirements for Notices of Arrival and Departure, and Automatic Identification System
Docket Parties	
DMS Docket No.	
RIN	
Docket Close Date	nulldate

Documents

Number of Results to Display 25

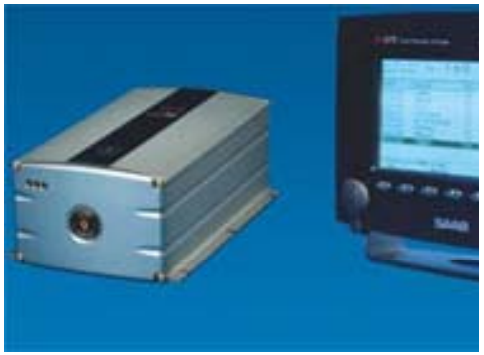
Show Me All All Documents Posted within the Past Show All Go

Document ID	Title	Date Posted	Type	Views	Add Comments
USCG-2005-21869-0001	Vessel Requirements for Notices of Arrival and Departure, and Automatic Identification System	12/16/2008	RULES		
USCG-2005-21869-0002	Regulatory Analysis & Initial Regulatory Flexibility	12/16/2008	SUPPORTING & RELATED MATERIALS		
USCG-2005-21869-0002.1	Regulatory Analysis & Initial Regulatory Flexibility	12/16/2008	SUPPORTING & RELATED MATERIALS		
USCG-2005-21869-0003	Valuing Mortality Risk Reductions in Homeland Security Regulatory Analyses - Final Report June 2008	12/16/2008	SUPPORTING & RELATED MATERIALS		
USCG-2005-21869-0003.1	Valuing Mortality Risk Reductions in Homeland Security Regulatory Analyses - Final Report June 2008	12/16/2008	SUPPORTING & RELATED MATERIALS		
USCG-2005-21869-0004	Environmental Checklist	12/16/2008	SUPPORTING & RELATED MATERIALS		
USCG-2005-21869-0004.1	Environmental Checklist	12/16/2008	SUPPORTING & RELATED MATERIALS		
USCG-2005-21869-0005	AIS Regulations - Now and Proposed	01/05/2009	SUPPORTING & RELATED MATERIALS		

U.S. AIS Carriage Population

Vessel Service	SOLAS	IR 7/1/02	FR 11/23/03	NPRM 12/16/08
Fishing Boat	1	749	-	5,520
Cargo Ship	154	77	77	298
Industrial Vessel	21	11	11	748
MODU	1	-	-	210
Offshore Supply Vessel	55	433	432	553
Passenger Vessel	81	576	171	3,235
Public/Research/School	10	18	16	116
Tank Ship	102	15	15	122
Towboat/Tug	13	2,215	2,212	4,560
Dredge	-	-	-	35
Other	-	11	13	385
Unknown	-	16	16	541
Foreign >65'<300GT				1,119
Totals	438	4,121	2,963	17,442

Shipboard AIS



What is AIS?

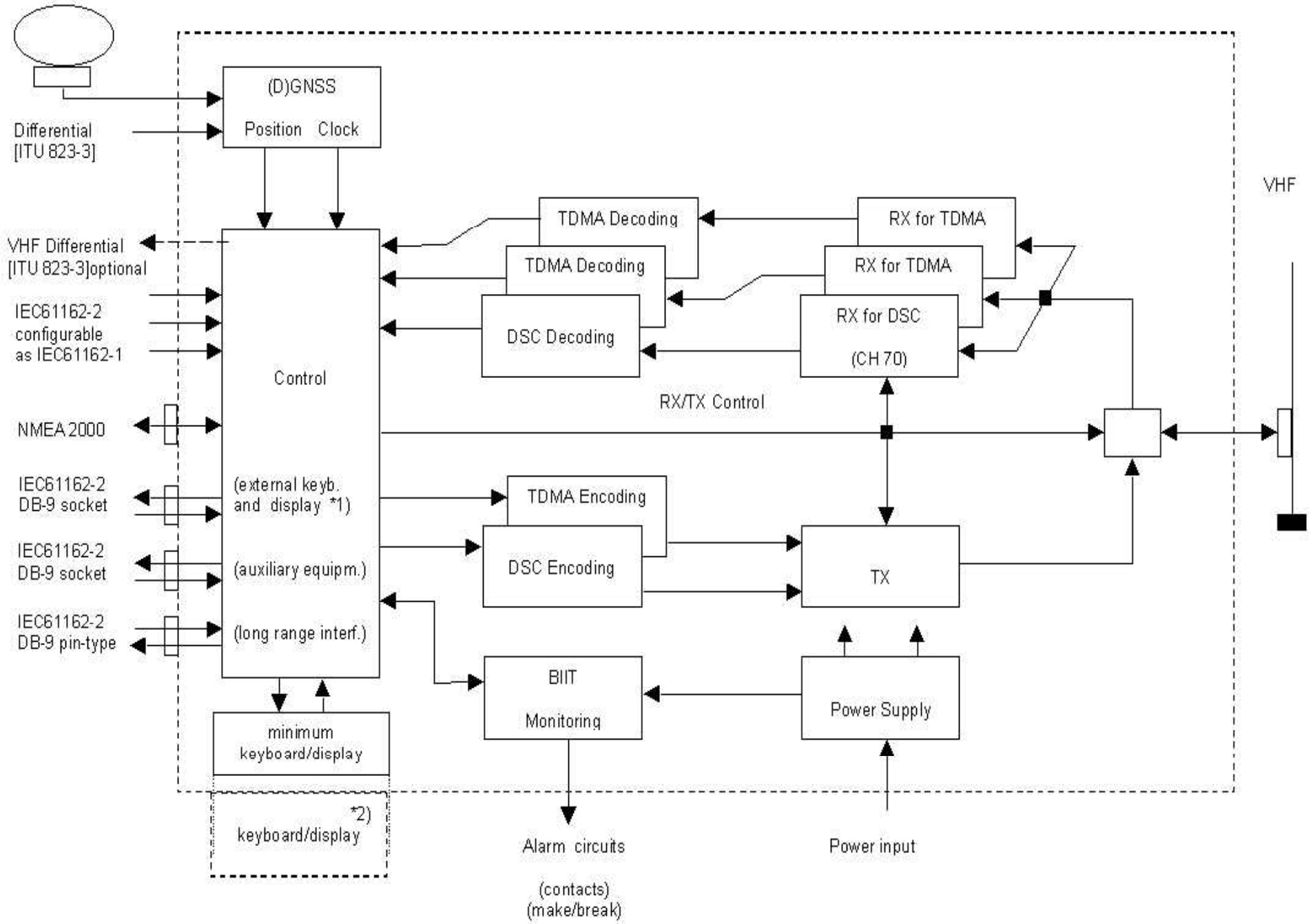
An Autonomous Continuous Non-Proprietary Ship-to-Ship Navigation Broadcast System

Internationally adopted (ITU-R M.1371) & required (IMO SOLAS Regulation V/19.2.4) on all tankers & passenger vessels irrespective of size, ships of 300 gross tonnage or greater on international voyage; of 500 gross tonnage or greater on domestic voyage.

Purpose	3 Modes of Operation	Frequency agile
➢collision avoidance ➢vessel traffic service tool ➢coastal surveillance	➢self-reporting (autonomous) ➢polling (interrogation) ➢tele-command (assignment)	➢any 2 VHF-FM Marine Channels ➢Ch. 87B & 88B world-wide ➢2250 reports/min./channel

Multiple standard interfaces (NMEA 183) & display options (e.g. ECDIS/radar/PC)

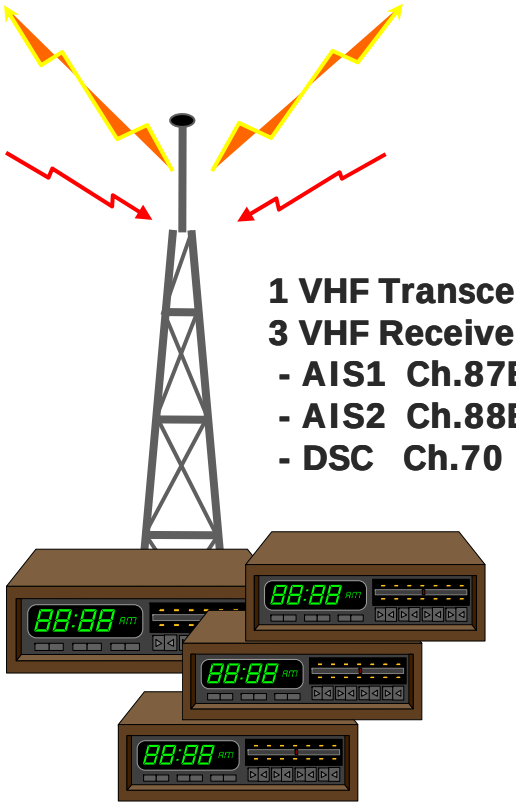
What's inside the box?



*1) The external keyboard/display may be e.g. a radar, ECDIS or dedicated devices.
*2) The internal keyboard/display may optionally be external [Functionality t.b.d.]

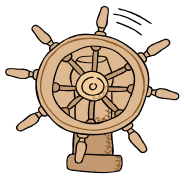
AIS how…

Time-Division Multiple Access (TDMA)

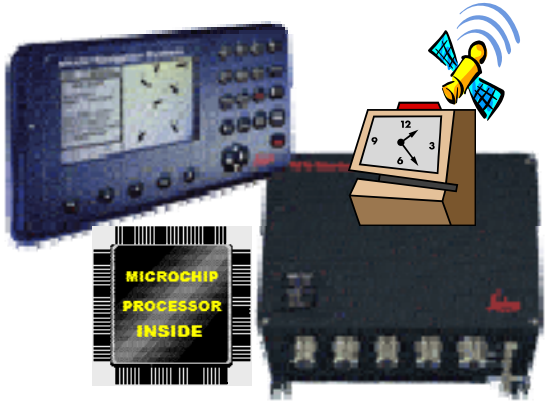


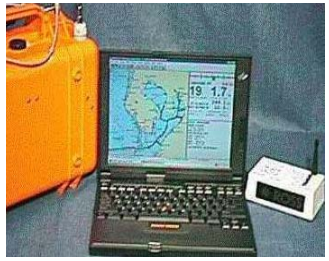
GNSS
GPS
Loran
Manual

Inputs



Gyro / Heading
Rate of Turn
per SOLAS requirements
Speed Log (optional)





←!AIVDM,2,2,7,A,2220<5<PTq2r7P2222220p4q@T<tdE2r`P0,2*4E...

NMEA-0183 / IEC61162

!ECBBM,2,2,0,0,8,>@fQp0PPPPPP>1>D93?;5@fb80,0*64→

COMMUNICATE

Broadcasts and manages the flow of AIS data sentences

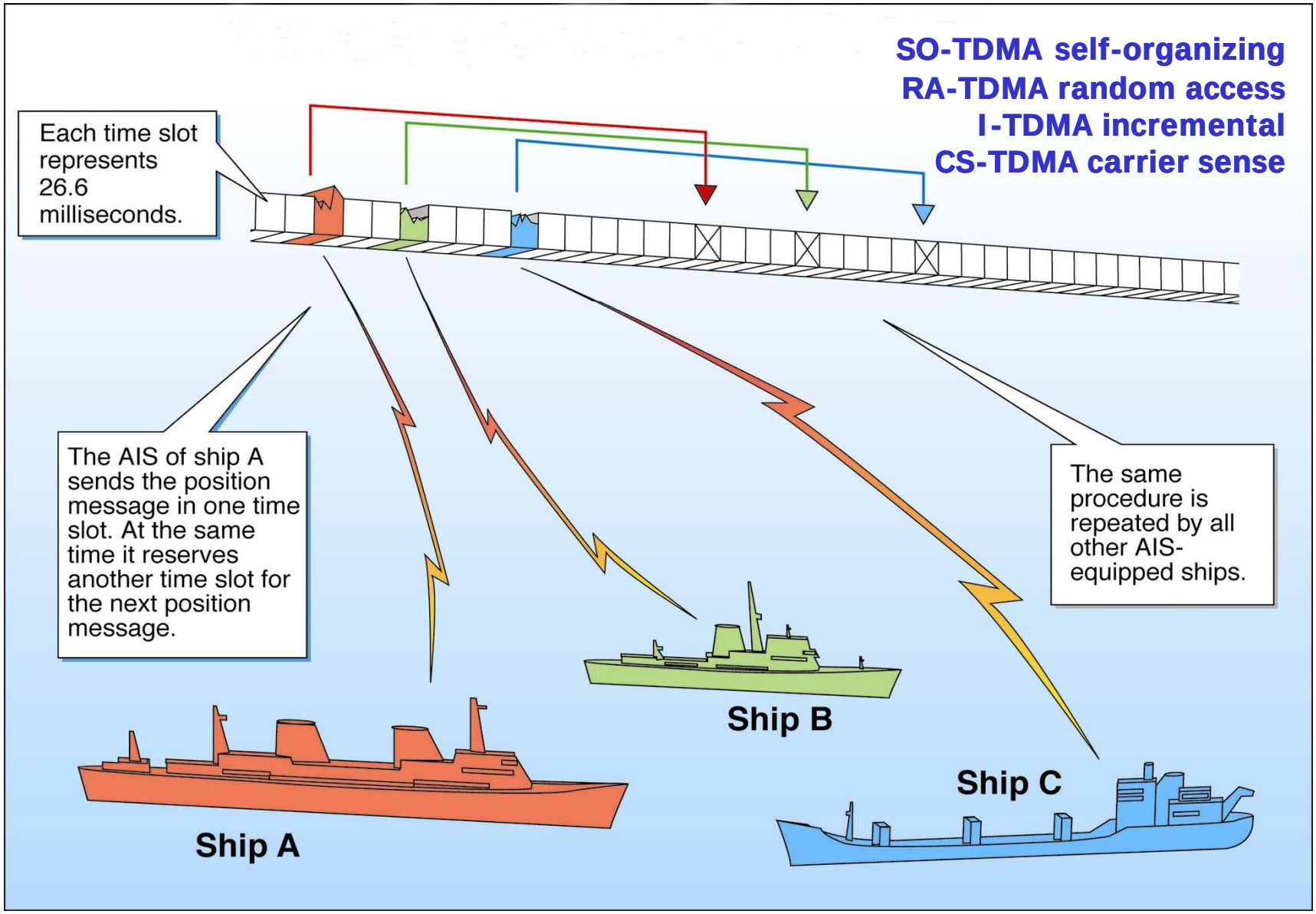
ASSEMBLE

Gathers positioning, heading, vessel data and assembles it into an AIS compliant data sentences

READ

AIS data sentences may be read/sent on/to multiple devices

time-division multiple access protocol (TDMA)



What's AIS Look Like?

!AIVDM,1,1,,A,13u?etPv2;0n:dDPwUM1U1Cb069D,0*24

!AIVDM,1,1,,A,13u?etPv2;0n:dDPwUM1U1Cb069D,0*24

!AIVDM,2,1,7,A,8030ot1?0P65inC<CO<l5nsv`Tst5P22220lT
hTr0d4l4e2q90222222,0*12

!AIVDM,2,2,7,A,2220<5<PTq2r7P2222220p4q@T<tdE2r`P0
,2*4E

!AIVDM,2,1,9,A,8030ot1?0P65inC<CO<lGnsvJ4st5P22220`
4pF04pr0UK2qM022210E,0*47

!AIVDM,2,2,9,A,@U@F0Hu9@G30gP220HD@E84j1UDdts31o
00,2*78

ID#	ITU-R M.1371 AIS Message Descriptions	AU	AS	IN	Slots
1,2,3	Position Reports – autonomous (au), assigned (as), or interrogated (in)	x	x	x	1
4	Base Station Report – UTC/date, position, slot nr.		x		1
5	Class A Report - static and voyage related data	x	x	x	2
6,7,8	Binary Message – addressed, acknowledge or broadcast	x	x	x	5/2
9	SAR aircraft position report	x	x	x	1
10,11	UTC/Date - enquiry and response		x	x	1
12,13,14	Safety Text Message – addressed, acknowledge or broadcast		x	x	5/2
15	Interrogation – request for specific messages		x	x	1
16	Assignment Mode Command	x	x		1
17	Binary Message – DGNSS Correction		x		1
18,19	Class B Reports – position & extended	x	x		2
20	Data Link Management – reserve slots		x		1
21	ATON Report – position & status	x	x	x	2
22	Channel Management		x		1
23	Group Assignment				1
24	Class B-CS Static Data			x	1
25	Binary Message - single-slot				1
26	Binary Message - multi-slot (STDMA)				5

AIS Position Report

TABLE 15a

Parameter	Number of bits	Description
Message ID	6	Identifier for this message 1, 2 or 3
Repeat indicator	2	Used by the repeater to indicate how many times a message has been repeated. Refer to § 4.6.1; 0-3; 0 = default; 3 = do not repeat any more
User ID	30	MMSI number
Navigational status	4	0 = under way using engine, 1 = at anchor, 2 = not under command, 3 = restricted manoeuvrability, 4 = constrained by her draught, 5 = moored, 6 = aground, 7 = engaged in fishing, 8 = under way sailing, 9 = reserved for future amendment of navigational status for ships carrying DG, HS, or MP, or IMO hazard or pollutant category C (HSC), 10 = reserved for future amendment of navigational status for ships carrying DG, HS or MP, or IMO hazard or pollutant category A (WIG); 11-14 = reserved for future use, 15 = not defined = default
Rate of turn ROT_{AIS}	8	±127 (–128 (80_h) indicates not available, which should be the default). Coded by $ROT_{AIS} = 4.733\ SQRT(ROT_{INDICATED})$ degrees/min $ROT_{INDICATED}$ is the rate of turn (720°/min), as indicated by an external sensor. +127 = turning right at 720°/min or higher –127 = turning left at 720°/min or higher
SOG	10	Speed over ground in 1/10 knot steps (0-102.2 knots) 1 023 = not available, 1 022 = 102.2 knots or higher
Position accuracy	1	1 = high (<10 m; differential mode of e.g. DGNSS receiver) 0 = low (>10 m; autonomous mode of e.g. global navigation satellite system (GNSS) receiver or of other electronic position fixing device); 0 = default
Longitude	28	Longitude in 1/10 000 min (±180°, East = positive, West = negative. 181° ($6791AC0_h$) = not available = default)
Latitude	27	Latitude in 1/10 000 min (±90°, North = positive, South = negative. 91° (3412140_h) = not available = default)
COG	12	Course over ground in 1/10° (0-3599). 3600 ($E10_h$) = not available = default. 3 601-4 095 should not be used
True heading	9	Degrees (0-359) (511 indicates not available = default)
Time stamp	6	UTC second when the report was generated (0-59 or 60 if time stamp is not available, which should also be the default value or 62 if electronic position fixing system operates in estimated (dead reckoning) mode or 61 if positioning system is in manual input mode or 63 if the positioning system is inoperative)
Reserved for regional applications	4	Reserved for definition by a competent regional authority. Should be set to zero, if not used for any regional application. Regional applications should not use zero
Spare	1	Not used. Should be set to zero
RAIM-flag	1	RAIM (Receiver autonomous integrity monitoring) flag of electronic position fixing device; 0 = RAIM not in use = default; 1 = RAIM in use
Communication state	19	See below
Total number of bits	168	

3.3 Message 5: Ship static and voyage related data

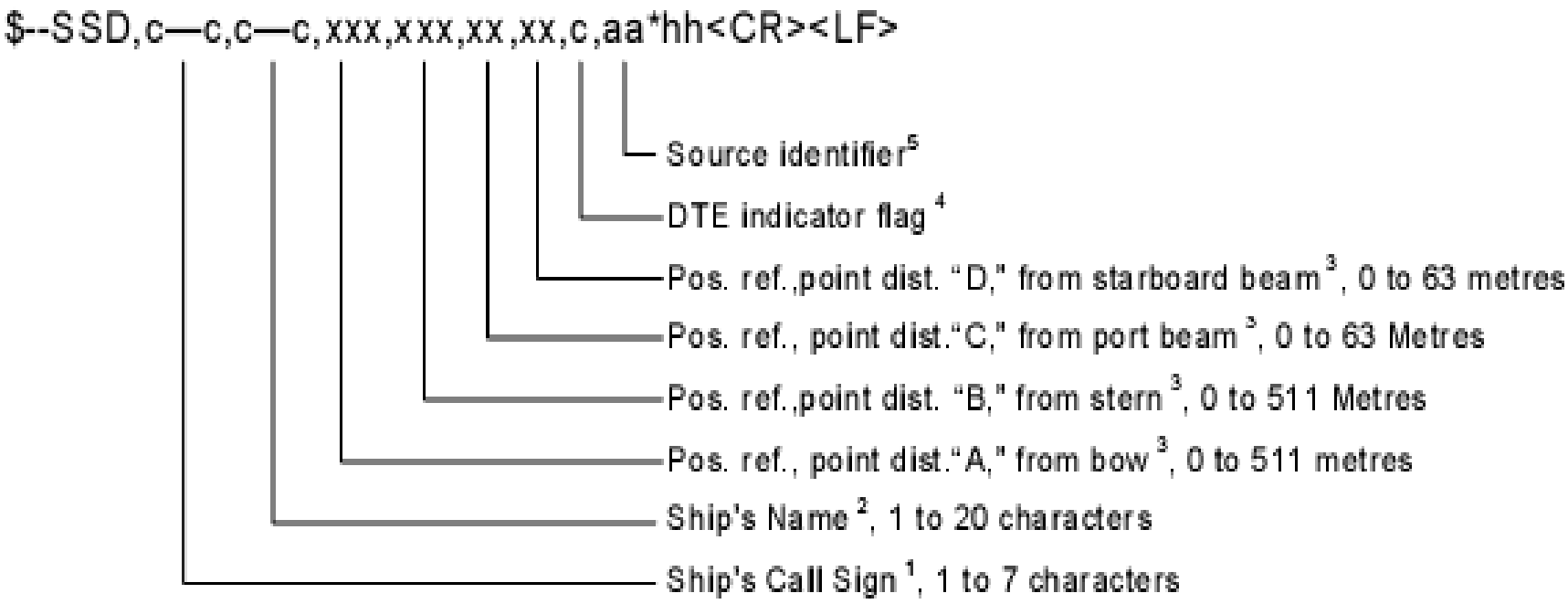
Should only be used by Class A shipborne mobile equipment when reporting static or voyage related data.

TABLE 49

Parameter	Number of bits	Description
Message ID	6	Identifier for this Message 5
Repeat indicator	2	Used by the repeater to indicate how many times a message has been repeated. Refer to § 4.6.1, Annex 2; 0-3; 0 = default; 3 = do not repeat any more
User ID	30	MMSI number
AIS version indicator	2	0 = station compliant with Recommendation ITU-R M.1371-1 1 = station compliant with Recommendation ITU-R M.1371-3 2-3 = station compliant with future editions
IMO number	30	1-999999999; 0 = not available = default
Call sign	42	7 × 6 bit ASCII characters, @@@@@@@ = not available = default
Name	120	Maximum 20 characters 6 bit ASCII, as defined in Table 44 "@@@@@@@@@@@@@@@@@@@@" = not available = default
Type of ship and cargo type	8	0 = not available or no ship = default 1-99 = as defined in § 3.3.2 100-199 = reserved, for regional use 200-255 = reserved, for future use
Overall Dimension/ reference for position	30	Reference point for reported position. Also indicates the dimension of ship (m) (see Figure 41 and § 3.3.3)
Type of electronic position fixing device	4	0 = undefined (default) 1 = GPS 2 = GLONASS 3 = combined GPS/GLONASS 4 = Loran-C 5 = Chayka 6 = integrated navigation system 7 = surveyed 8 = Galileo, 9-15 = not used
ETA	20	Estimated time of arrival; MMDDHHMM UTC Bits 19-16: month; 1-12; 0 = not available = default Bits 15-11: day; 1-31; 0 = not available = default Bits 10-6: hour; 0-23; 24 = not available = default Bits 5-0: minute; 0-59; 60 = not available = default
Maximum present static draught	8	in 1/10 m, 255 = draught 25.5 m or greater, 0 = not available = default; in accordance with IMO Resolution A.851
Destination	120	Maximum 20 characters using 6-bit ASCII; @@@@@@@@@@@@@@@@@@@@ = not available
DTE	1	Data terminal ready (0 = available, 1 = not available = default) (see § 3.3.1)
Spare	1	Spare. Not used. Should be set to zero. Reserved for future use.
Number of bits	**424**	**Occupies 2 slots**

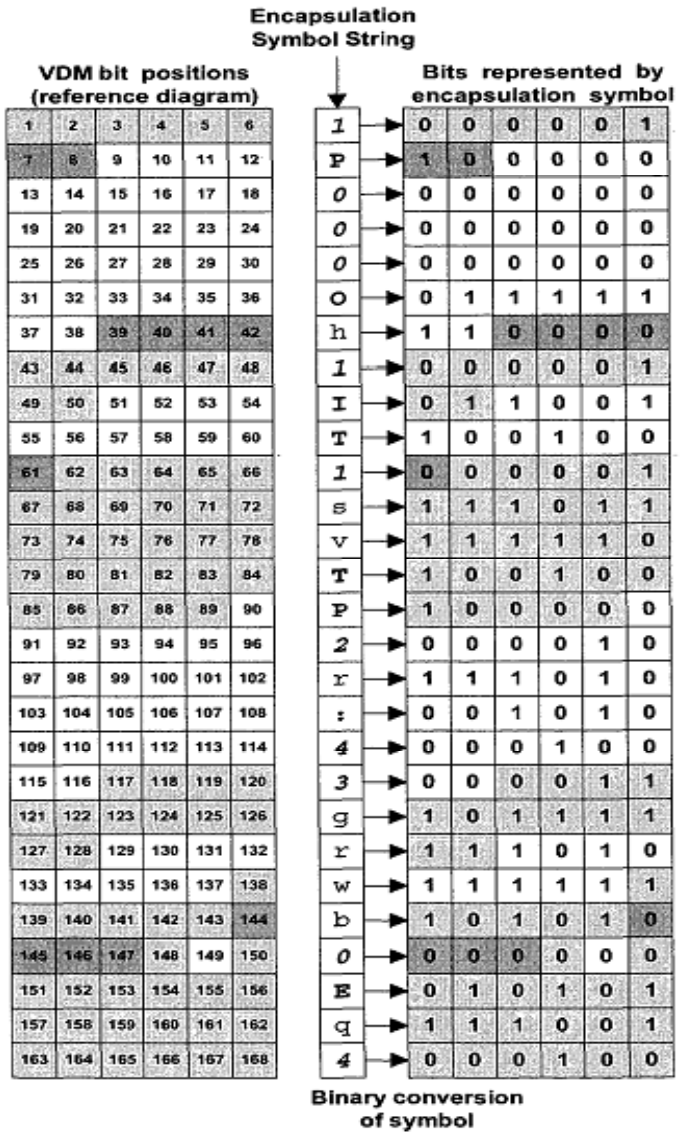
SSD – AIS Ship static data

This sentence is used to enter static parameters into a shipboard AIS unit. The parameters in this sentence support a number of the ITU-R M.1371 messages.



Work sheet for decoding and interpreting encapsulated string:

1P000Oh1IT1svTP2r:43grwb0Eq4



VDM bit positions						Encapsulation Symbol String	Bits represented by encapsulation symbol					
1	2	3	4	5	6	1	0	0	0	0	0	1
7	8	9	10	11	12	P	1	0	0	0	0	0
13	14	15	16	17	18	0	0	0	0	0	0	0
19	20	21	22	23	24	0	0	0	0	0	0	0
25	26	27	28	29	30	0	0	0	0	0	0	0
31	32	33	34	35	36	O	0	1	1	1	1	1
37	38	39	40	41	42	h	1	1	0	0	0	0
43	44	45	46	47	48	1	0	0	0	0	0	1
49	50	51	52	53	54	I	0	1	1	0	0	1
55	56	57	58	59	60	T	1	0	0	1	0	0
61	62	63	64	65	66	1	0	0	0	0	0	1
67	68	69	70	71	72	s	1	1	1	0	1	1
73	74	75	76	77	78	v	1	1	1	1	1	0
79	80	81	82	83	84	T	1	0	0	1	0	0
85	86	87	88	89	90	P	1	0	0	0	0	0
91	92	93	94	95	96	2	0	0	0	0	1	0
97	98	99	100	101	102	r	1	1	1	0	1	0
103	104	105	106	107	108	:	0	0	1	0	1	0
109	110	111	112	113	114	4	0	0	0	1	0	0
115	116	117	118	119	120	3	0	0	0	0	1	1
121	122	123	124	125	126	g	1	0	1	1	1	1
127	128	129	130	131	132	r	1	1	1	0	1	0
133	134	135	136	137	138	w	1	1	1	1	1	1
139	140	141	142	143	144	b	1	0	1	0	1	0
145	146	147	148	149	150	0	0	0	0	0	0	0
151	152	153	154	155	156	E	0	1	0	1	0	1
157	158	159	160	161	162	q	1	1	1	0	0	1
163	164	165	166	167	168	4	0	0	0	1	0	0

Bits 1-6 = Identifier for this message

000001 = **message 1** (Reference table 15 of ITU-R M.1371-1 to interpret following bits 7-168.)

Bits 7-8 = Repeat Indicator

2 = **message repeated twice**

Bits 9-38 = MMSI number of broadcasting unit

00000000000000000000001111111 = **127**

Bits 39-42 = Navigational status

0000 = underway using engine

Bits 43-50 = Rate of turn (equation used)

00000101 = +1.1 degrees/minute

Bits 51-60 = Speed over ground

1001100100 = **61,2 knots**

Bit 61 = Position accuracy

0 = **low (greater than 10 metres)**

Bits 62-89 = Longitude in 1/10000 minutes

00001111011111110010010000 = **27 degrees 5 minutes East**

Bits 90-116 = Latitude in 1/10000 minutes

00000101110100010100010000 = **5 degrees, 5 minutes North**

Bits 117-128 = Course over ground in 1/10 degrees

001110111111 = **95,9 degrees true**

Bits 129-137 = True Heading

101011111 = **351 degrees true**

Bits 138-143 = UTC second when report generated

110101 = **53 seconds past the minute**

Bits 144-147 = Regional Application

0 = **no regional application**

Bit 148 = Spare

Bit 149 = RAIM Flag

0 = **RAIM not in use**

Bit 150-168 = Communications State

00 = **UTC Direct**

101 = **5 frame remaining until a new slot is selected, UTC hour and minute follow,**

01111001000100 = 01111:0010001 = **15:17 UTC**

IEC 2544/01

RL.SE

AIVDM & AIVDO NMEA sentence decoder

Start
Vädret
Valutor
1000 i topp
RT90
Soluppgång
Rätt tid
PIN-koder
Biorytmer
Krypto
Om dig
AIS
AIVDM
Kontakt

Also check out my old AIS page

Convert from/to RT90 and WGS84

AIS receivers and transponders report received messages over the NMEA protocol in AIVDM sentences. They look something like this:

```
!AIVDM,1,1,,A,13u?etPv2;0n:dDPwUM1U1Cb069D,0*24
```

AIVDM messages are AIS position reports from other vessels, and AIVDO messages contain your own ship's position.

Below is a very simple decoder for NMEA AIVDM sentences. Currently it only decodes message types 1, 2, 3 and 4 – i.e. position reports for class A shipborne equipment and base station reports. Some less interesting data is left out from the result, but the interesting stuff is there. You will also be rewarded with a link to Google Maps where you can check the sender's position.

Insert your AIVDM or AIVDO string into the text field below and press "Decode".

!AIVDM,1,1,,A,13u?etPv2;0n:dDPwUM1U1Cb069D,0*24

Decode

AIS receivers and transponders report received messages over the NMEA protocol in AIVDM sentences. They look something like this:

```
!AIVDM,1,1,,A,13u?etPv2;0n:dDPwUM1U1Cb069D,0*24
```

AIVDM messages are AIS position reports from other vessels, and AIVDO messages contain your own ship's position.

Below is a very simple decoder for NMEA AIVDM sentences. Currently it only decodes message types 1, 2, 3 and 4 – i.e. position reports for class A shipborne equipment and base station reports. Some less interesting data is left out from the result, but the interesting stuff is there. You will also be rewarded with a link to Google Maps where you can check the sender's position.

Insert your AIVDM or AIVDO string into the text field below and press "Decode".

!AIVDM,1,1,,A,13u?etPv2;0n:dDPwUM1U1Cb069D,0*24

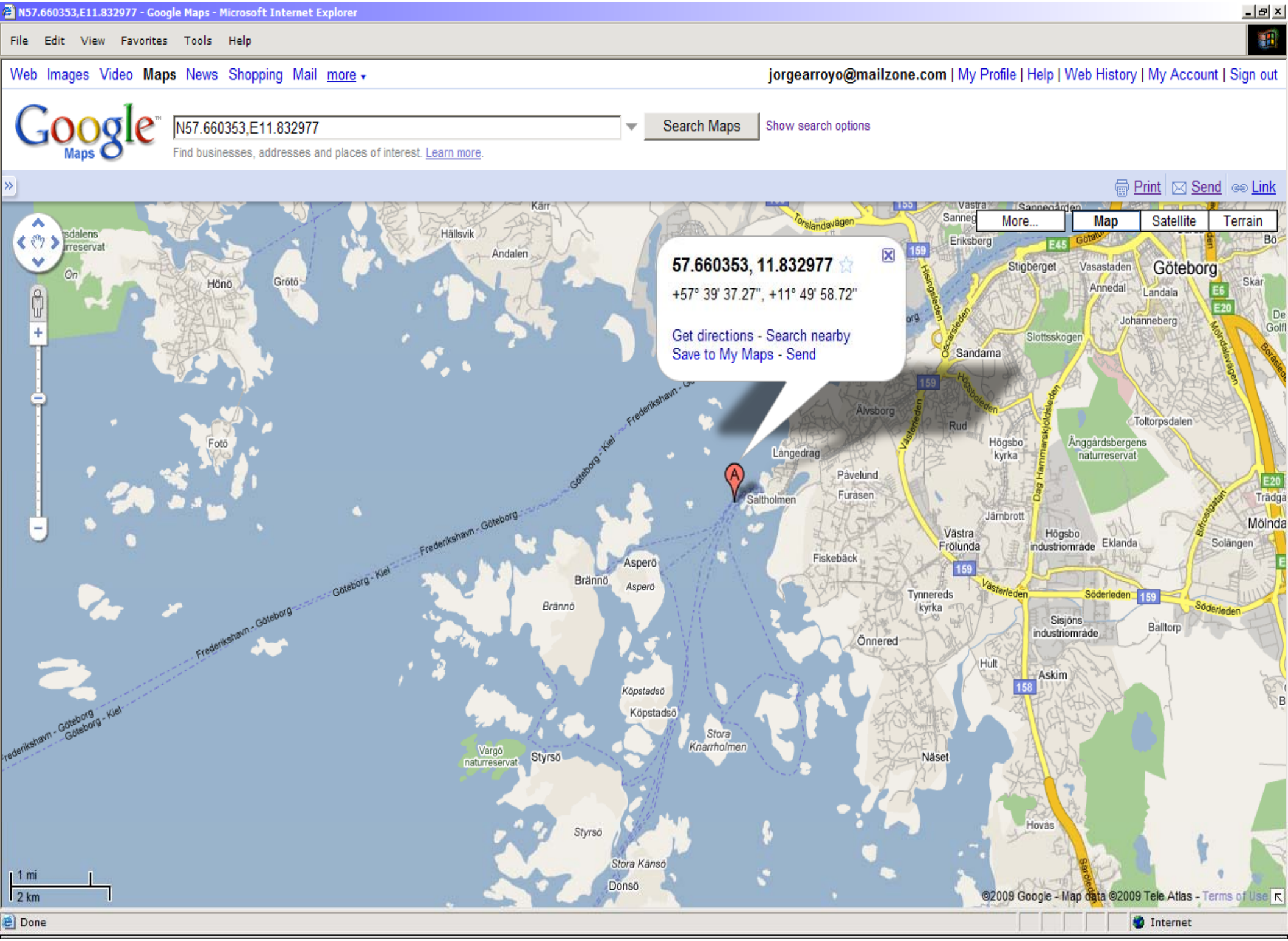
Decode

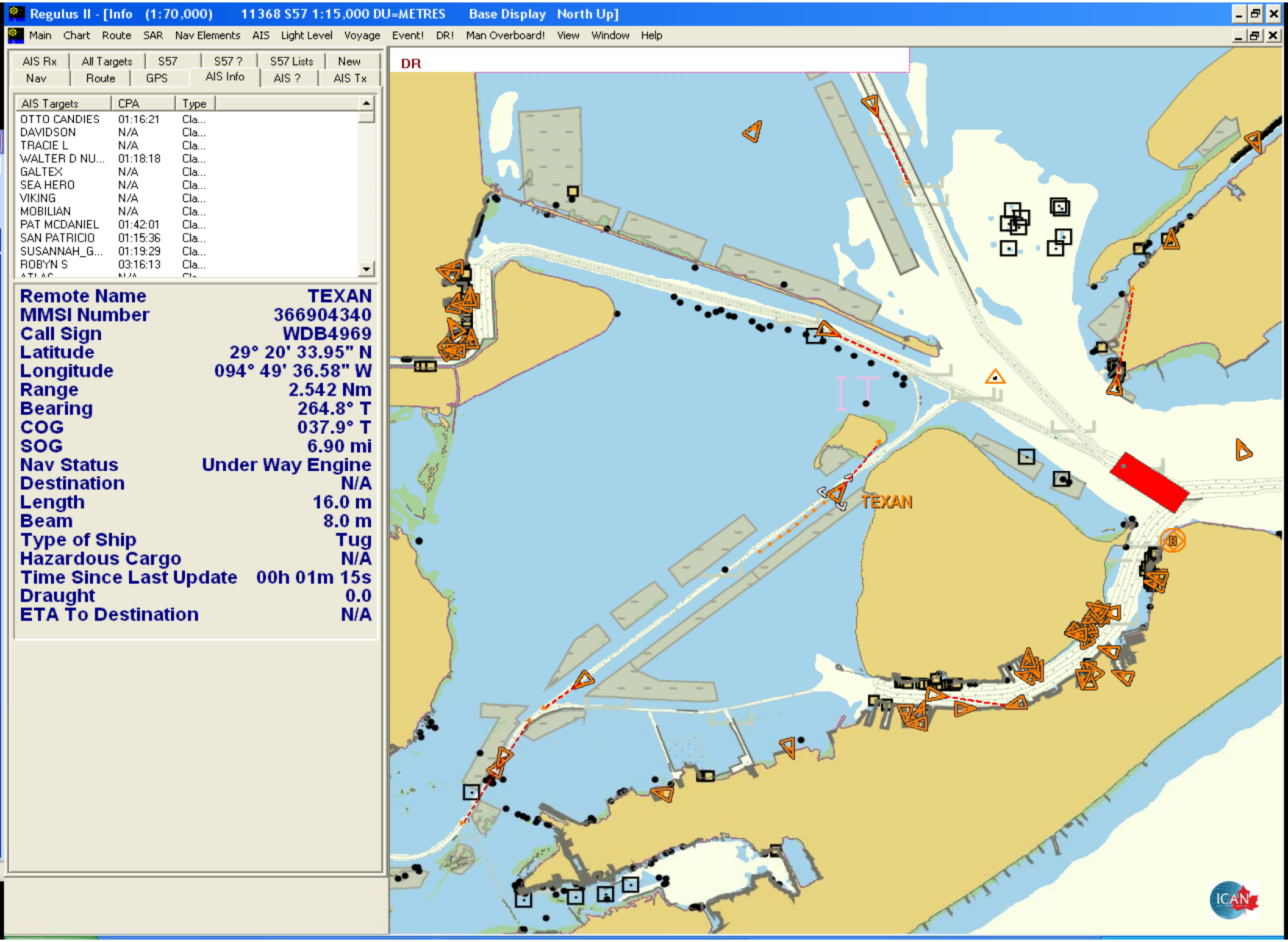
!AIVDM,1,1,,A,13u?etPv2;0n:dDPwUM1U1Cb069D,0*24

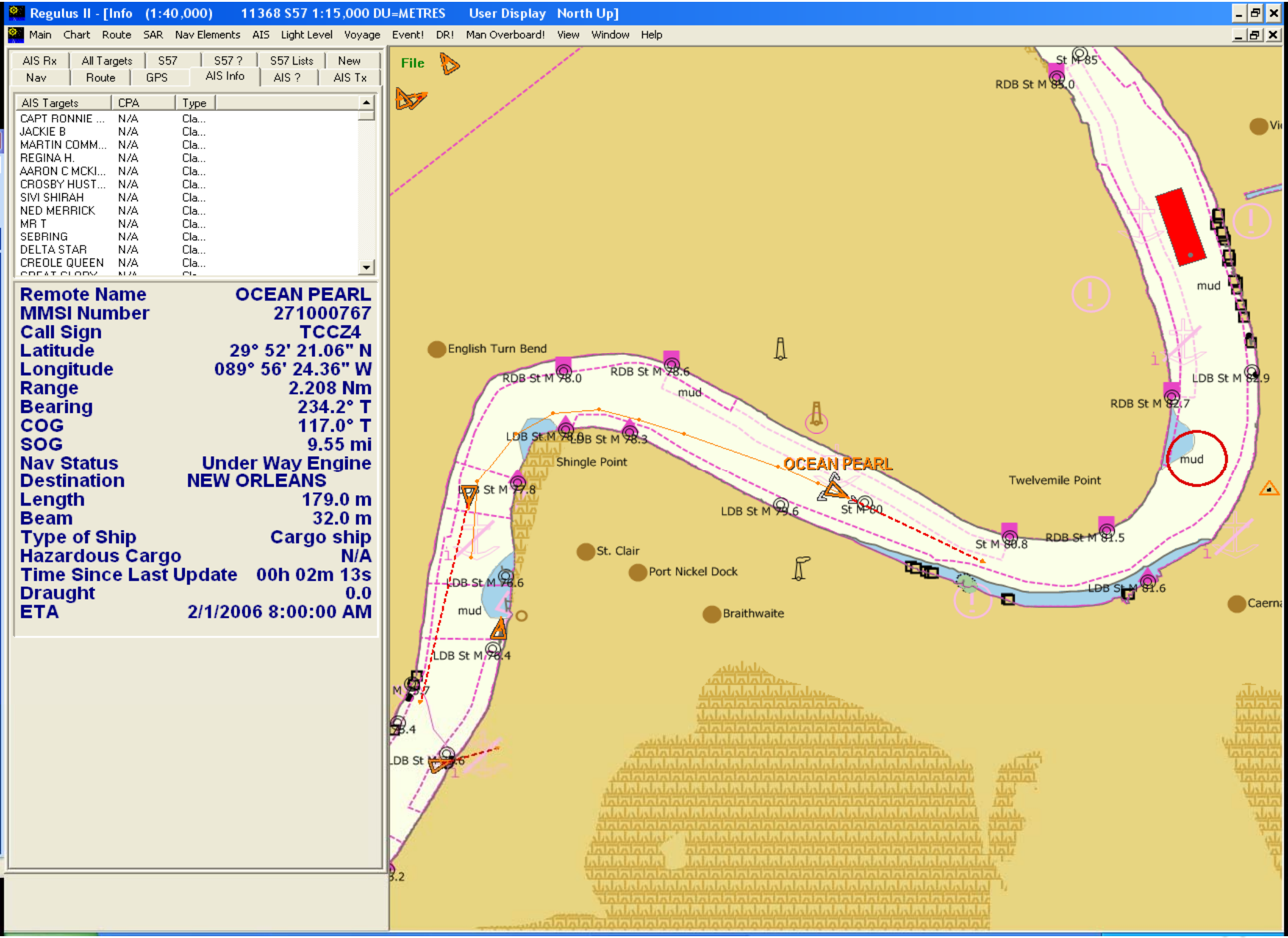
Message sent (UTC) : 17:21:53
MMSI : 265547250
Latitude : 57.660353°
Longitude : 11.832977°
Speed : 13.9 knots
Heading : 41°
Course over ground : 40°
Rate of turn : -2°/min
Navigational status: 0

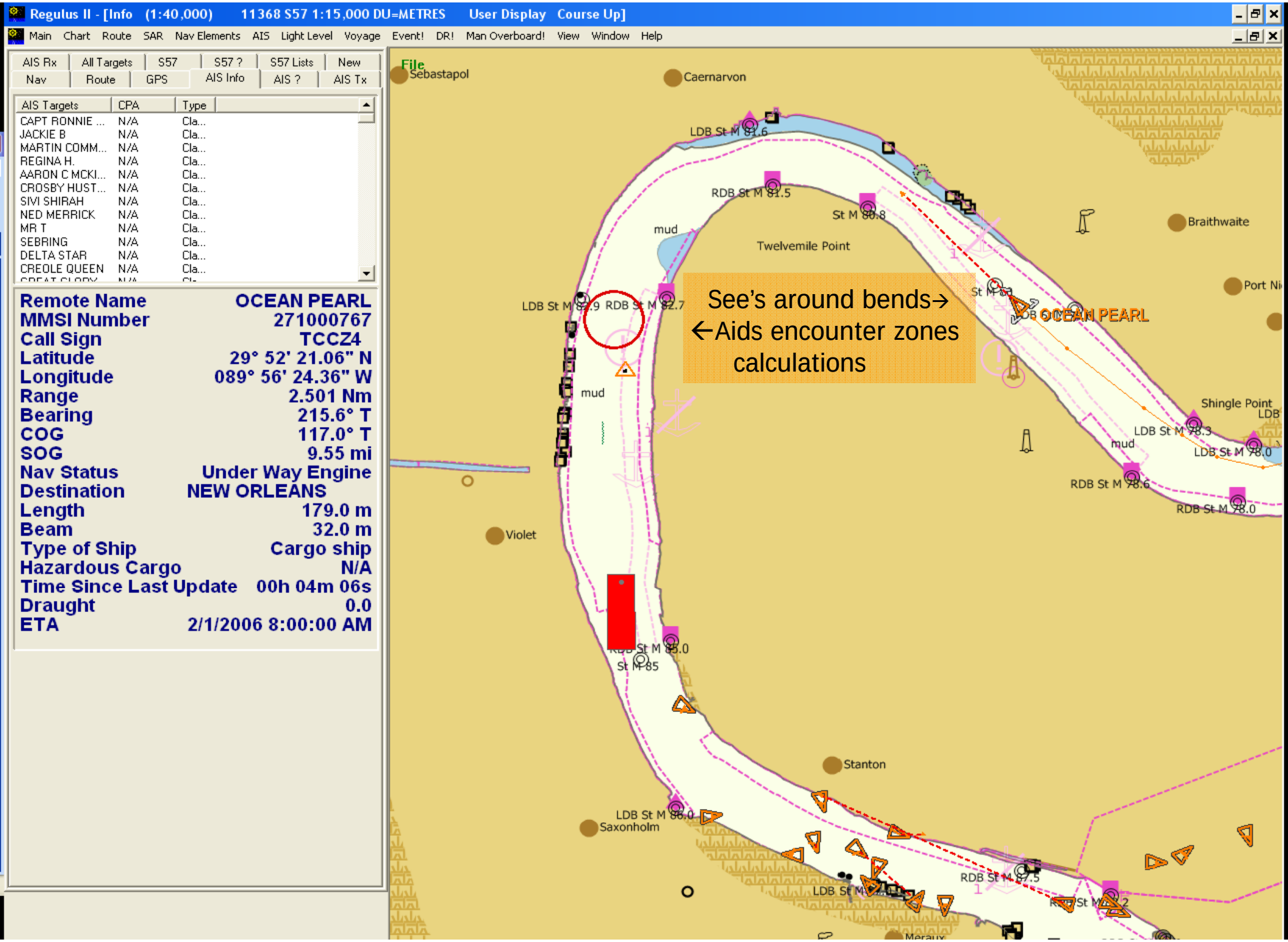
Show position in Google Maps

RL.SE AIVDM/AIVDO Web $Revision: 1.10 $


N57.660353,E11.832977 - Google Maps - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Web Images Video Maps News Shopping Mail more
jorgearroyo@mailzone.com | My Profile | Help | Web History | My Account | Sign out
Google Maps
N57.660353,E11.832977
Search Maps
Show search options
Find businesses, addresses and places of interest. Learn more.
Print Send Link
More... Map Satellite Terrain
57.660353, 11.832977
+57° 39' 37.27", +11° 49' 58.72"
Get directions - Search nearby
Save to My Maps - Send
Hällsvik
Andalen
Kärr
Hönö
Grötö
Fotö
Torslandavägen
Eriksberg
Stigberget
Vasastaden
Göteborg
Annedal
Landala
Johanneberg
Slottsskogen
Sandarna
Oscarsleden
Älvsborg
Rud
Högsbo kyrka
Änggårdsbergens naturreservat
Toltorpsdalen
Langedrag
Pävelund
Furasen
Saltholmen
Järnbrott
Västra Frölunda
Högsbo industriområde
Eklanda
Fiskebäck
Tynnereds kyrka
Sisjöns industriområde
Balltorp
Önnered
Hult
Askim
Asperö
Brännö
Köpstadsö
Stora Knarrholmen
Vargö naturreservat
Styrsö
Näset
Hovås
Stora Känsö
Donsö
Frederikshavn - Göteborg
Göteborg - Kiel
1 mi
2 km
©2009 Google - Map data ©2009 Tele Atlas - Terms of Use
Done
Internet


Regulus II - [Info (1:70,000) 11368 S57 1:15,000 DU=METRES Base Display North Up]
Main Chart Route SAR Nav Elements AIS Light Level Voyage Event! DR! Man Overboard! View Window Help
AIS Rx All Targets S57 S57 ? S57 Lists New
Nav Route GPS AIS Info AIS ? AIS Tx
AIS Targets CPA Type
OTTO CANDIES 01:16:21 Cla...
DAVIDSON N/A Cla...
TRACIE L N/A Cla...
WALTER D NU... 01:18:18 Cla...
GALTEX N/A Cla...
SEA HERO N/A Cla...
VIKING N/A Cla...
MOBILIAN N/A Cla...
PAT MCDANIEL 01:42:01 Cla...
SAN PATRICIO 01:15:36 Cla...
SUSANNAH_G... 01:19:29 Cla...
ROBYN S 03:16:13 Cla...
Remote Name TEXAN
MMSI Number 366904340
Call Sign WDB4969
Latitude 29° 20' 33.95" N
Longitude 094° 49' 36.58" W
Range 2.542 Nm
Bearing 264.8° T
COG 037.9° T
SOG 6.90 mi
Nav Status Under Way Engine
Destination N/A
Length 16.0 m
Beam 8.0 m
Type of Ship Tug
Hazardous Cargo N/A
Time Since Last Update 00h 01m 15s
Draught 0.0
ETA To Destination N/A
DR
TEXAN


Regulus II - [Info (1:40,000) 11368 S57 1:15,000 DU=METRES User Display North Up]
Main Chart Route SAR Nav Elements AIS Light Level Voyage Event! DR! Man Overboard! View Window Help
AIS Rx All Targets S57 S57 ? S57 Lists New
Nav Route GPS AIS Info AIS ? AIS Tx
AIS Targets CPA Type
CAPT RONNIE ... N/A Cla...
JACKIE B N/A Cla...
MARTIN COMM... N/A Cla...
REGINA H. N/A Cla...
AARON C MCKI... N/A Cla...
CROSBY HUST... N/A Cla...
SIVI SHIRAH N/A Cla...
NED MERRICK N/A Cla...
MR T N/A Cla...
SEBRING N/A Cla...
DELTA STAR N/A Cla...
CREOLE QUEEN N/A Cla...
Remote Name OCEAN PEARL
MMSI Number 271000767
Call Sign TCCZ4
Latitude 29° 52' 21.06" N
Longitude 089° 56' 24.36" W
Range 2.208 Nm
Bearing 234.2° T
COG 117.0° T
SOG 9.55 mi
Nav Status Under Way Engine
Destination NEW ORLEANS
Length 179.0 m
Beam 32.0 m
Type of Ship Cargo ship
Hazardous Cargo N/A
Time Since Last Update 00h 02m 13s
Draught 0.0
ETA 2/1/2006 8:00:00 AM
File
English Turn Bend
RDB St M 78.0
RDB St M 78.6
mud
LDB St M 78.0
LDB St M 78.3
Shingle Point
OCEAN PEARL
LDB St M 77.8
LDB St M 79.6
St M 80.0
St M 80.8
RDB St M 81.5
LDB St M 81.6
Twelvemile Point
St. Clair
Port Nickel Dock
Braithwaite
LDB St M 76.6
mud
LDB St M 76.4
St M 85
RDB St M 85.0
mud
LDB St M 82.9
RDB St M 82.7
mud


Regulus II - [Info (1:40,000) 11368 S57 1:15,000 DU=METRES User Display Course Up]
Main Chart Route SAR Nav Elements AIS Light Level Voyage Event! DR! Man Overboard! View Window Help
AIS Rx All Targets S57 S57 ? S57 Lists New
Nav Route GPS AIS Info AIS ? AIS Tx
AIS Targets CPA Type
CAPT RONNIE ... N/A Cla...
JACKIE B N/A Cla...
MARTIN COMM... N/A Cla...
REGINA H. N/A Cla...
AARON C MCKI... N/A Cla...
CROSBY HUST... N/A Cla...
SIVI SHIRAH N/A Cla...
NED MERRICK N/A Cla...
MR T N/A Cla...
SEBRING N/A Cla...
DELTA STAR N/A Cla...
CREOLE QUEEN N/A Cla...
Remote Name OCEAN PEARL
MMSI Number 271000767
Call Sign TCCZ4
Latitude 29° 52' 21.06" N
Longitude 089° 56' 24.36" W
Range 2.501 Nm
Bearing 215.6° T
COG 117.0° T
SOG 9.55 mi
Nav Status Under Way Engine
Destination NEW ORLEANS
Length 179.0 m
Beam 32.0 m
Type of Ship Cargo ship
Hazardous Cargo N/A
Time Since Last Update 00h 04m 06s
Draught 0.0
ETA 2/1/2006 8:00:00 AM
File
Sebastapol
Caernarvon
LDB St M 81.6
RDB St M 81.5
St M 80.8
mud
Twelvemile Point
Braithwaite
Port Ni
LDB St M 82.9
RDB St M 82.7
See's around bends→
←Aids encounter zones
calculations
OCEAN PEARL
mud
Shingle Point
LDB
LDB St M 78.3
mud
LDB St M 78.0
RDB St M 78.6
RDB St M 78.0
Violet
St M 85
Stanton
LDB St M 86.0
Saxonholm
RDB St M 87.5
Meraux

What Shipboard AIS broadcasts…

- MARITIME MOBILE SERVICE INDENTIFIER
- UNIVERSAL TIME STAMP (GPS)

Dynamic Data

-every 2-10 seconds per speed and course change

- POSITION & ACCURACY (+/-10m)
- COURSE OVER GROUND
- SPEED OVER GROUND
- HEADING
- RATE OF TURN

- VESSEL IMO NUMBER
- COLREG NAVIGATION STATUS

Static & Voyage Data

-every 6 minutes or upon change

- VESSEL NAME & CALL SIGN
- VESSEL TYPE & DIMMENSIONS

- STATIC DRAFT
- HAZARDOUS CARGO FLAG
- DESTINATION & ETA

Safety Related & Binary Applications

- SHORT TEXT MESSAGING < 156 characters
- DATA MESSAGING & BINARY APPLICATIONS

Weather & Hydrological Information-

- NOAA Physical Oceanographic Real Time System
- NWS-Real-time weather buoy (C-MAN station)
- USACE Real-time Current Meter System (RTCM)

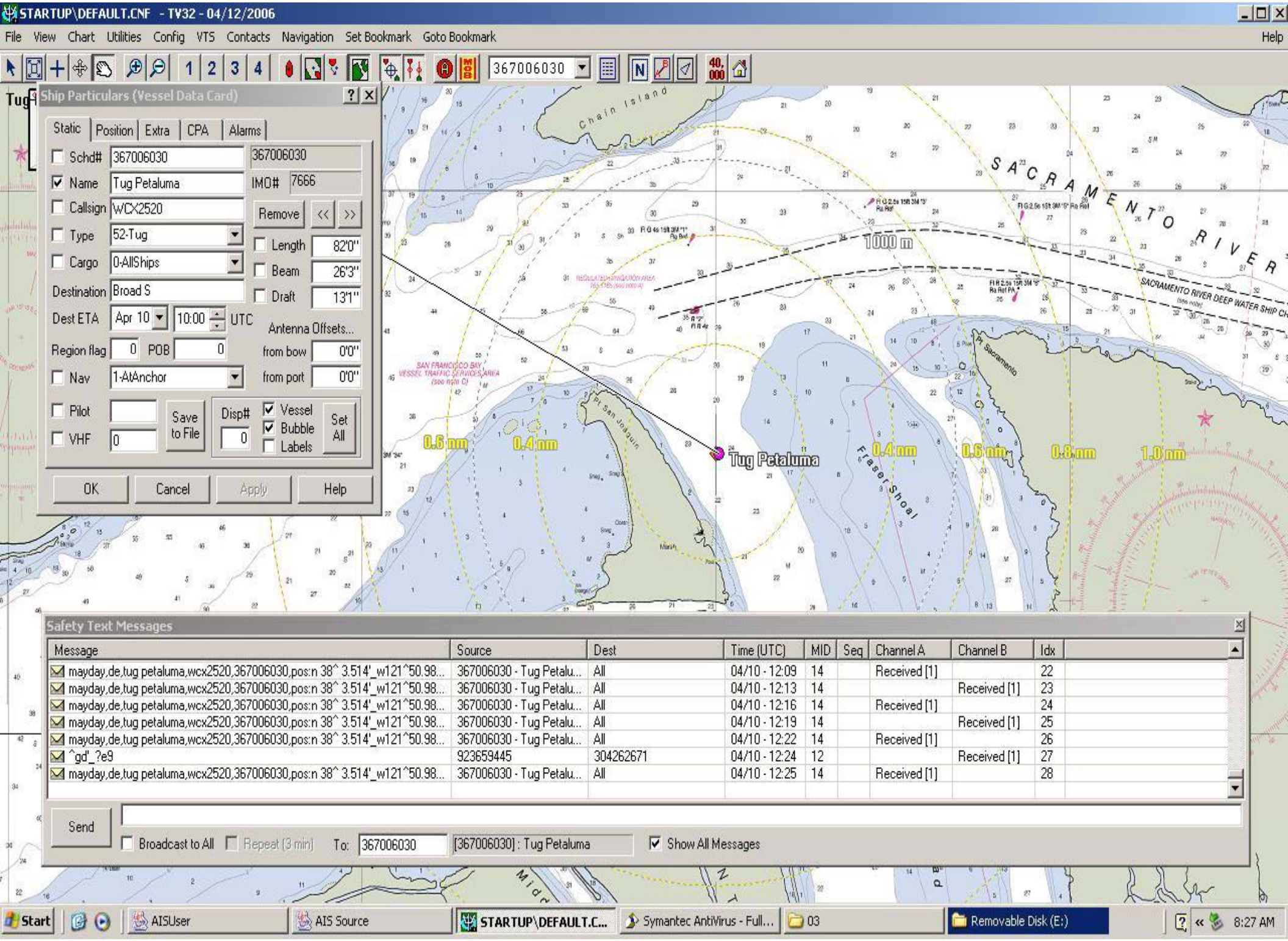
Vessel Traffic Service (VTS)-

- ATON Discrepancies
- Distress Alerts
- Urgent Notices & Warnings
- Traffic Advisories
- Radar Overlay / Pseudo-targets
- Additional Hydro & Meteorological Information

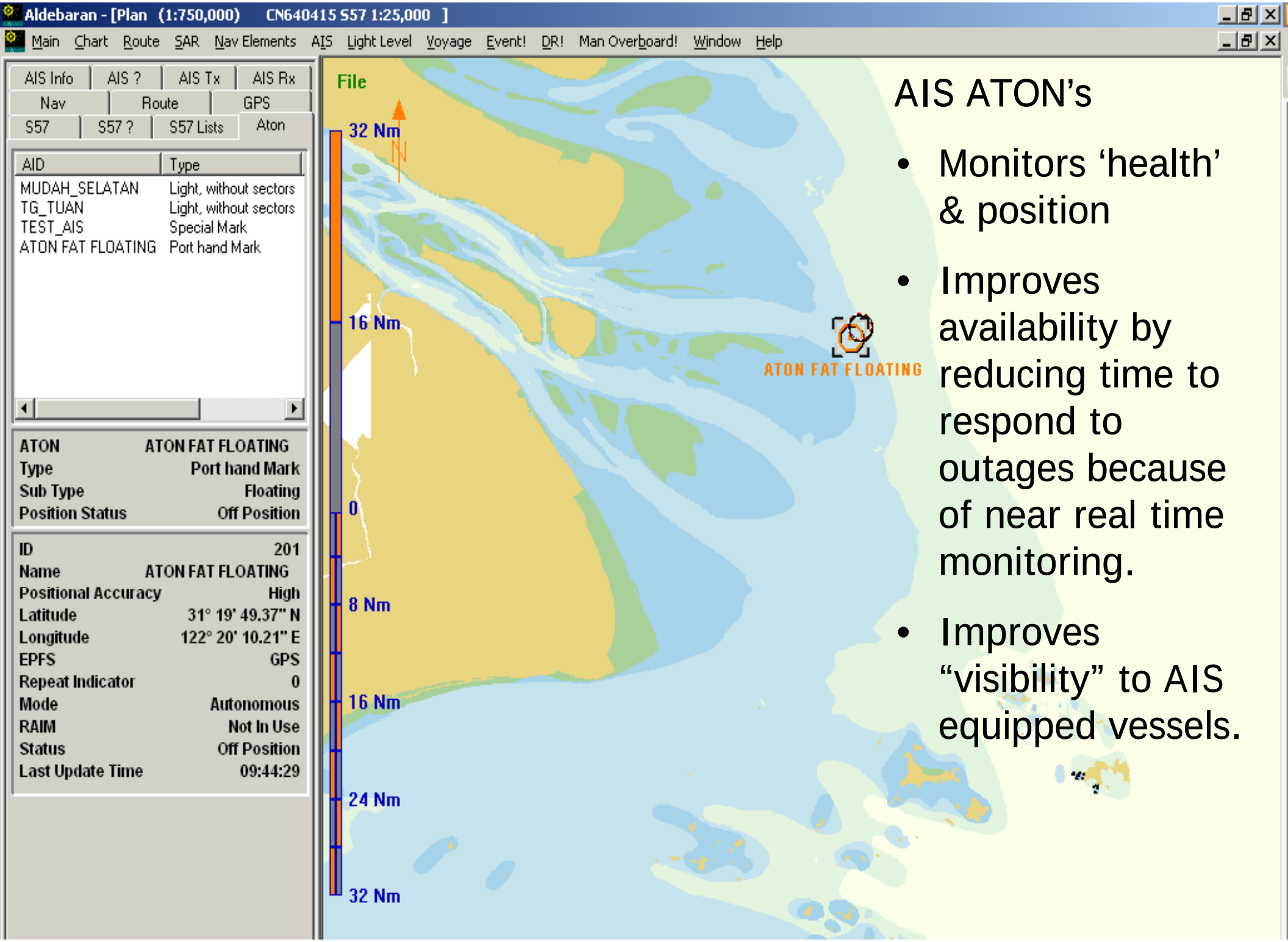
Other possible uses-

- Aids to Navigation
- Search and Rescue
- Port Partners
- Lock/Canal operations
- … endless opportunities!

ID#	ITU-R M.1371 AIS Message Descriptions	AU	AS	IN	Slots
1,2,3	Position Reports – autonomous (au), assigned (as), or interrogated (in)	x	x	x	1
4	Base Station Report – UTC/date, position, slot nr.		x		1
5	Class A Report - static and voyage related data	x	x	x	2
6,7,8	Binary Message – addressed, acknowledge or broadcast	x	x	x	5/2
9	SAR aircraft position report	x	x	x	1
10,11	UTC/Date - enquiry and response		x	x	1
12,13,14	Safety Text Message – addressed, acknowledge or broadcast		x	x	5/2
15	Interrogation – request for specific messages		x	x	1
16	Assignment Mode Command	x	x		1
17	Binary Message – DGNSS Correction		x		1
18,19	Class B Reports – position & extended	x	x		2
20	Data Link Management – reserve slots		x		1
21	ATON Report – position & status	x	x	x	2
22	Channel Management		x		1
23	Group Assignment				1
24	Class B-CS Static Data			x	1
25	Binary Message - single-slot				1
26	Binary Message - multi-slot (STDMA)				5


STARTUP\DEFAULT.CNF - TV32 - 04/12/2006
File View Chart Utilities Config VTS Contacts Navigation Set Bookmark Goto Bookmark Help
367006030
Ship Particulars (Vessel Data Card)
Static Position Extra CPA Alarms
Schd# 367006030 367006030
Name Tug Petaluma IMO# 7666
Callsign WCX2520
Remove << >>
Type 52-Tug
Cargo 0-AllShips
Length 82'0"
Beam 26'3"
Draft 13'1"
Destination Broad S
Dest ETA Apr 10 10:00 UTC
Antenna Offsets...
Region flag 0 POB 0
from bow 0'0"
Nav 1-AtAnchor
from port 0'0"
Pilot
VHF 0
Save to File
Disp# 0
Vessel
Bubble
Labels
Set All
OK Cancel Apply Help
Chain Island
SACRAMENTO RIVER
1000 m
SACRAMENTO RIVER DEEP WATER SHIP CH
SAN FRANCISCO BAY VESSEL TRAFFIC SERVICE AREA
Pt San Joaquin
Sacramento
0.6 nm
0.4 nm
Tug Petaluma
Fraser Shoal
0.4 nm
0.6 nm
0.8 nm
1.0 nm
Safety Text Messages
Message Source Dest Time (UTC) MID Seq Channel A Channel B Idx
mayday,de,tug petaluma,wcx2520,367006030,pos:n 38^ 3.514'_w121^50.98... 367006030 - Tug Petalu... All 04/10 - 12:09 14 Received [1] 22
mayday,de,tug petaluma,wcx2520,367006030,pos:n 38^ 3.514'_w121^50.98... 367006030 - Tug Petalu... All 04/10 - 12:13 14 Received [1] 23
mayday,de,tug petaluma,wcx2520,367006030,pos:n 38^ 3.514'_w121^50.98... 367006030 - Tug Petalu... All 04/10 - 12:16 14 Received [1] 24
mayday,de,tug petaluma,wcx2520,367006030,pos:n 38^ 3.514'_w121^50.98... 367006030 - Tug Petalu... All 04/10 - 12:19 14 Received [1] 25
mayday,de,tug petaluma,wcx2520,367006030,pos:n 38^ 3.514'_w121^50.98... 367006030 - Tug Petalu... All 04/10 - 12:22 14 Received [1] 26
^gd'_?e9 923659445 304262671 04/10 - 12:24 12 Received [1] 27
mayday,de,tug petaluma,wcx2520,367006030,pos:n 38^ 3.514'_w121^50.98... 367006030 - Tug Petalu... All 04/10 - 12:25 14 Received [1] 28
Send
Broadcast to All Repeat (3 min) To: 367006030 [367006030] : Tug Petaluma Show All Messages
Start AISUser AIS Source STARTUP\DEFAULT.C... Symantec AntiVirus - Full... 03 Removable Disk (E:) 8:27 AM

ID#	ITU-R M.1371 AIS Message Descriptions	AU	AS	IN	Slots
1,2,3	Position Reports – autonomous (au), assigned (as), or interrogated (in)	x	x	x	1
4	Base Station Report – UTC/date, position, slot nr.		x		1
5	Class A Report - static and voyage related data	x	x	x	2
6,7,8	Binary Message – addressed, acknowledge or broadcast	x	x	x	5/2
9	SAR aircraft position report	x	x	x	1
10,11	UTC/Date - enquiry and response		x	x	1
12,13,14	Safety Text Message – addressed, acknowledge or broadcast		x	x	5/2
15	Interrogation – request for specific messages		x	x	1
16	Assignment Mode Command	x	x		1
17	Binary Message – DGNSS Correction		x		1
18,19	Class B Reports – position & extended	x	x		2
20	Data Link Management – reserve slots		x		1
21	ATON Report – position & status	x	x	x	2
22	Channel Management		x		1
23	Group Assignment				1
24	Class B-CS Static Data			x	1
25	Binary Message - single-slot				1
26	Binary Message - multi-slot (STDMA)				5



AIS ATON's

- Monitors 'health' & position
- Improves availability by reducing time to respond to outages because of near real time monitoring.
- Improves "visibility" to AIS equipped vessels.

ID#	ITU-R M.1371 AIS Message Descriptions	AU	AS	IN	Slots
1,2,3	Position Reports – autonomous (au), assigned (as), or interrogated (in)	x	x	x	1
4	Base Station Report – UTC/date, position, slot nr.		x		1
5	Class A Report - static and voyage related data	x	x	x	2
6,7,8	Binary Message – addressed, acknowledge or broadcast	x	x	x	5/2
9	SAR aircraft position report	x	x	x	1
10,11	UTC/Date - enquiry and response		x	x	1
12,13,14	Safety Text Message – addressed, acknowledge or broadcast		x	x	5/2
15	Interrogation – request for specific messages		x	x	1
16	Assignment Mode Command	x	x		1
17	Binary Message – DGNSS Correction		x		1
18,19	Class B Reports – position & extended	x	x		2
20	Data Link Management – reserve slots		x		1
21	ATON Report – position & status	x	x	x	2
22	Channel Management		x		1
23	Group Assignment				1
24	Class B-CS Static Data			x	1
25	Binary Message - single-slot				1
26	Binary Message - multi-slot (STDMA)				5

AIS can transfer data via binary messages…

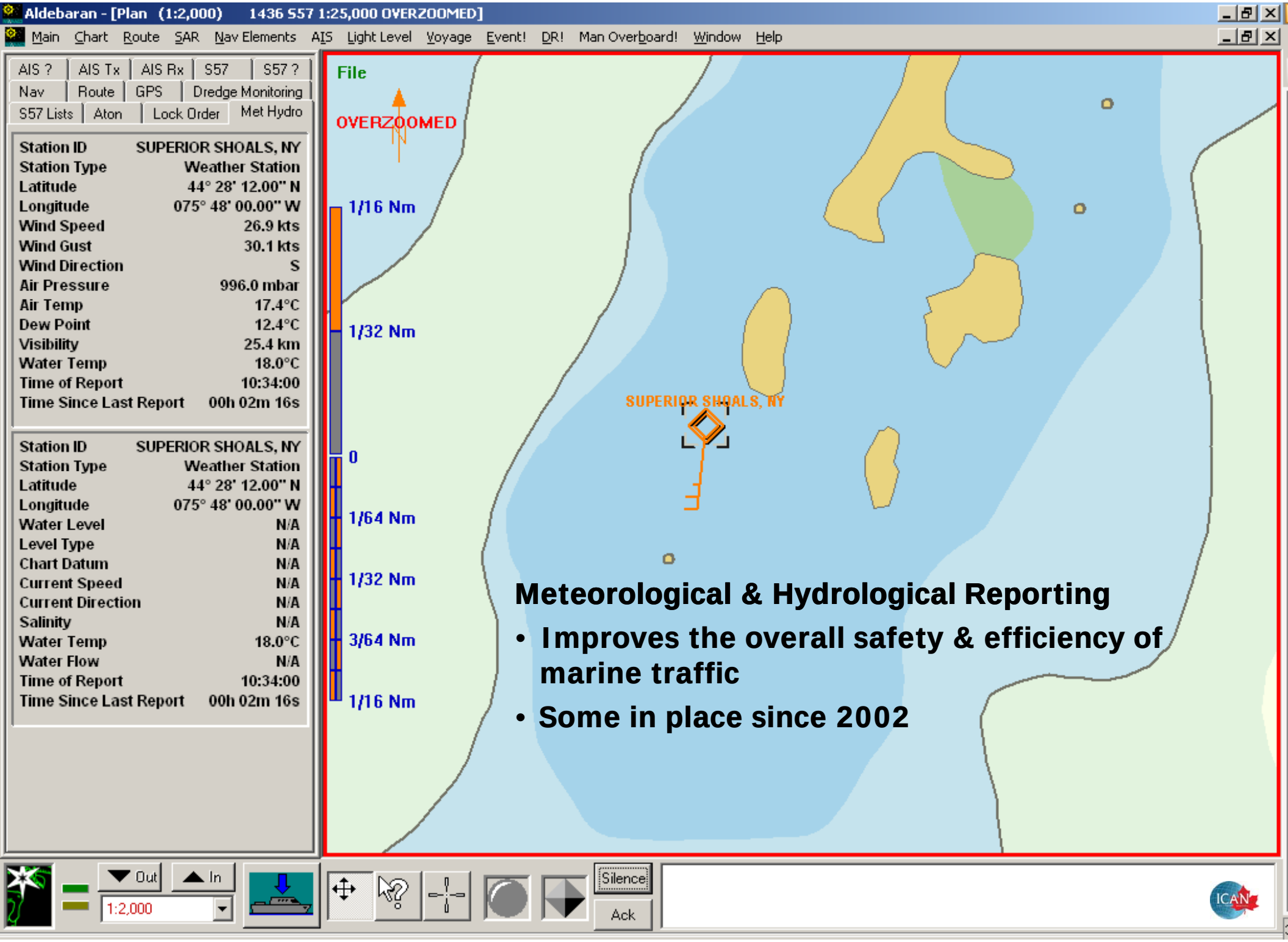
- Provides a means to use other applications
  - Encode application on the transmission side
  - Decode application on the receive side
  - Sent as either General or Addressed broadcast
    - Addressed messages (MMSI-to-MMSI) receives an acknowledgement that the binary message was received

3.3.8.2.6 Message 8: Binary broadcast message

This message will be variable in length, based on the amount of binary data. The length should vary between 1 and 5 slots.

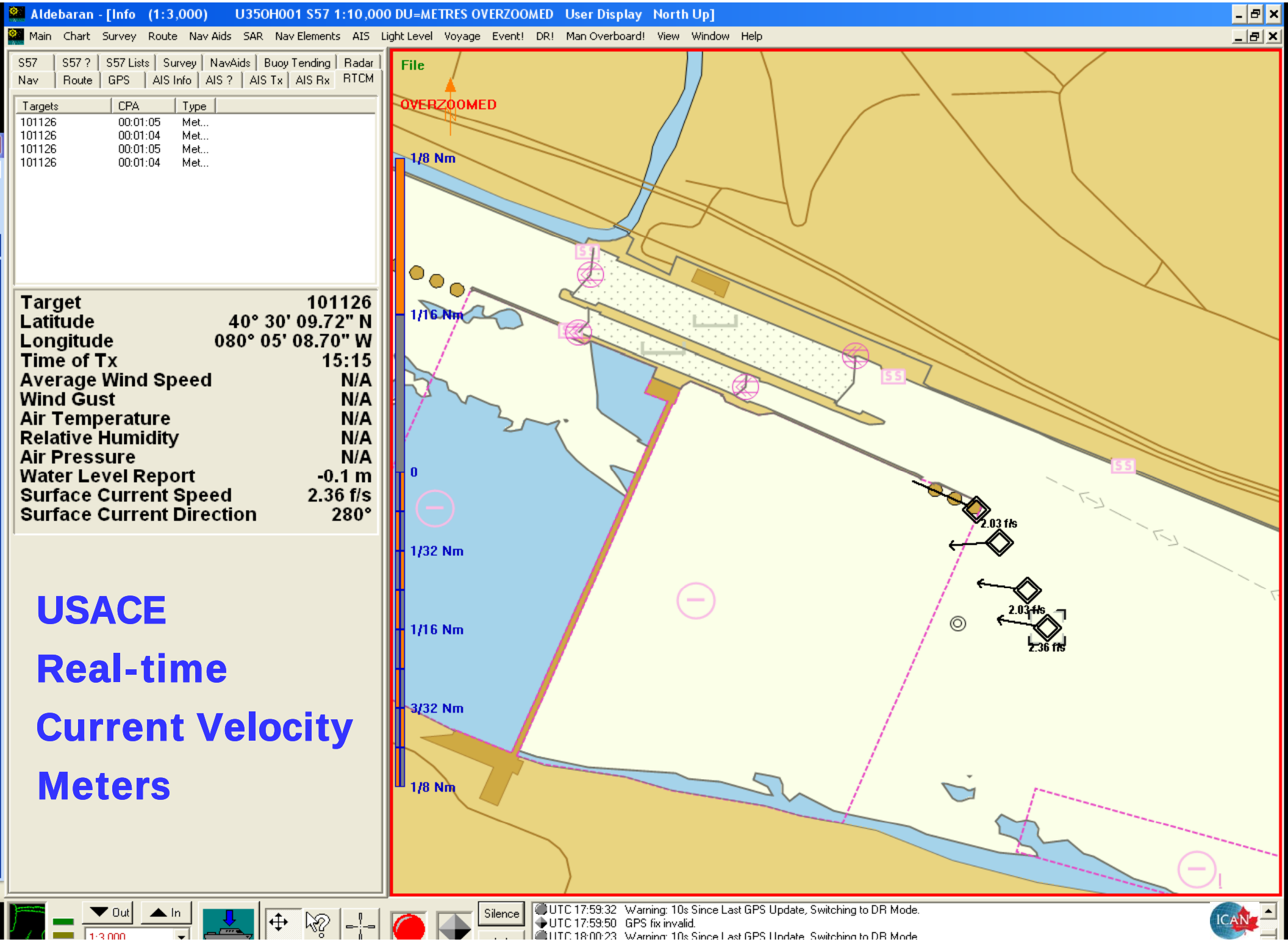
TABLE 22

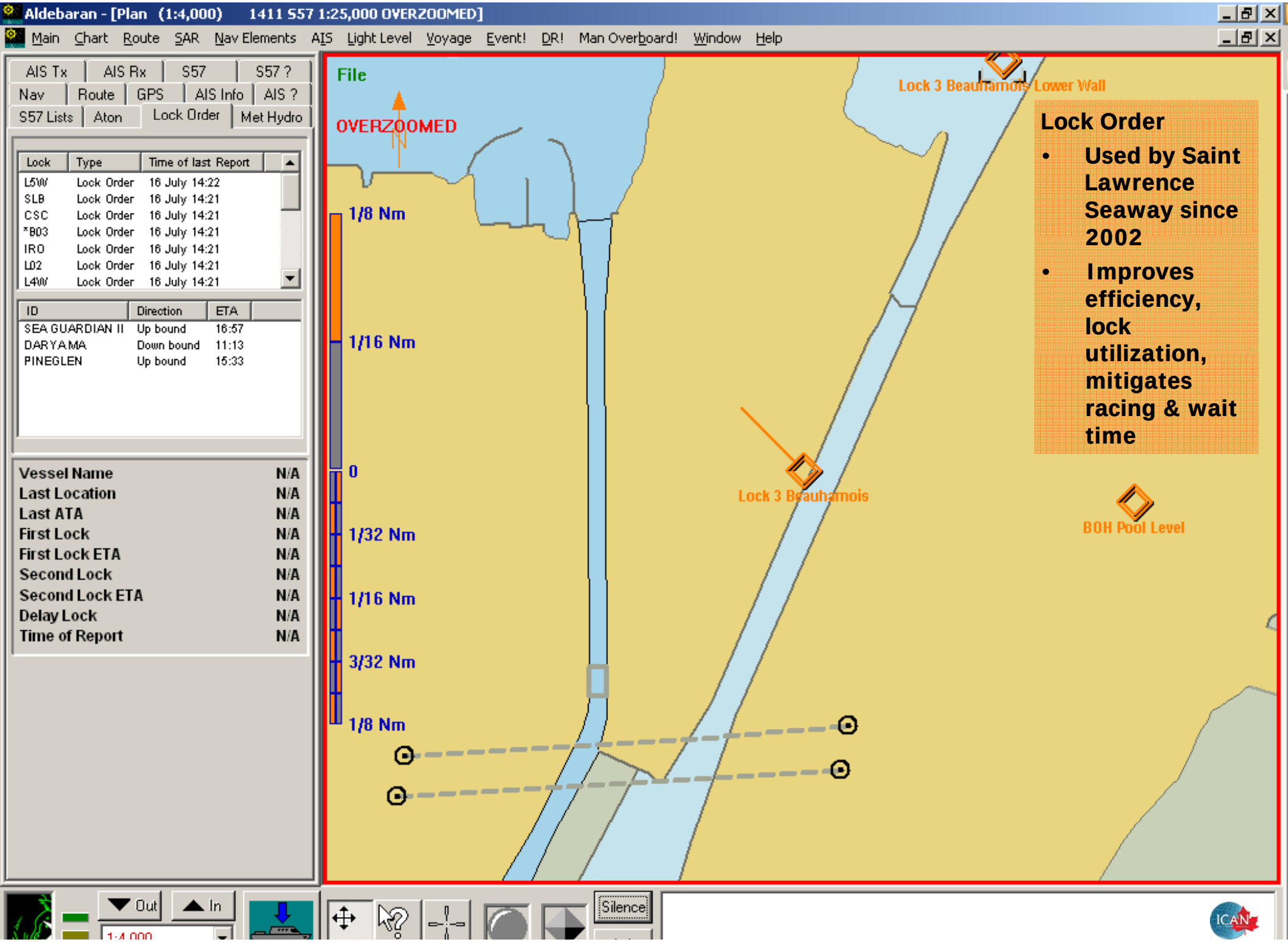
Parameter	Number of bits	Description		
Message ID	6	Identifier for Message 8; always 8		
Repeat indicator	2	Used by the repeater to indicate how many times a message has been repeated. See § 3.3.8.2.1.1		
Source ID	30	MMSI number of source station		
Spare	2	Not used. Should be set to zero		
Binary data	Maximum 968	Application identifier	16 bits	Should be as described in § 3.3.8.2.4.1
		Application data	Maximum 952 bits	Application specific data
Total number of bits	Maximum 1 008	Occupies 1 to 5 slots		

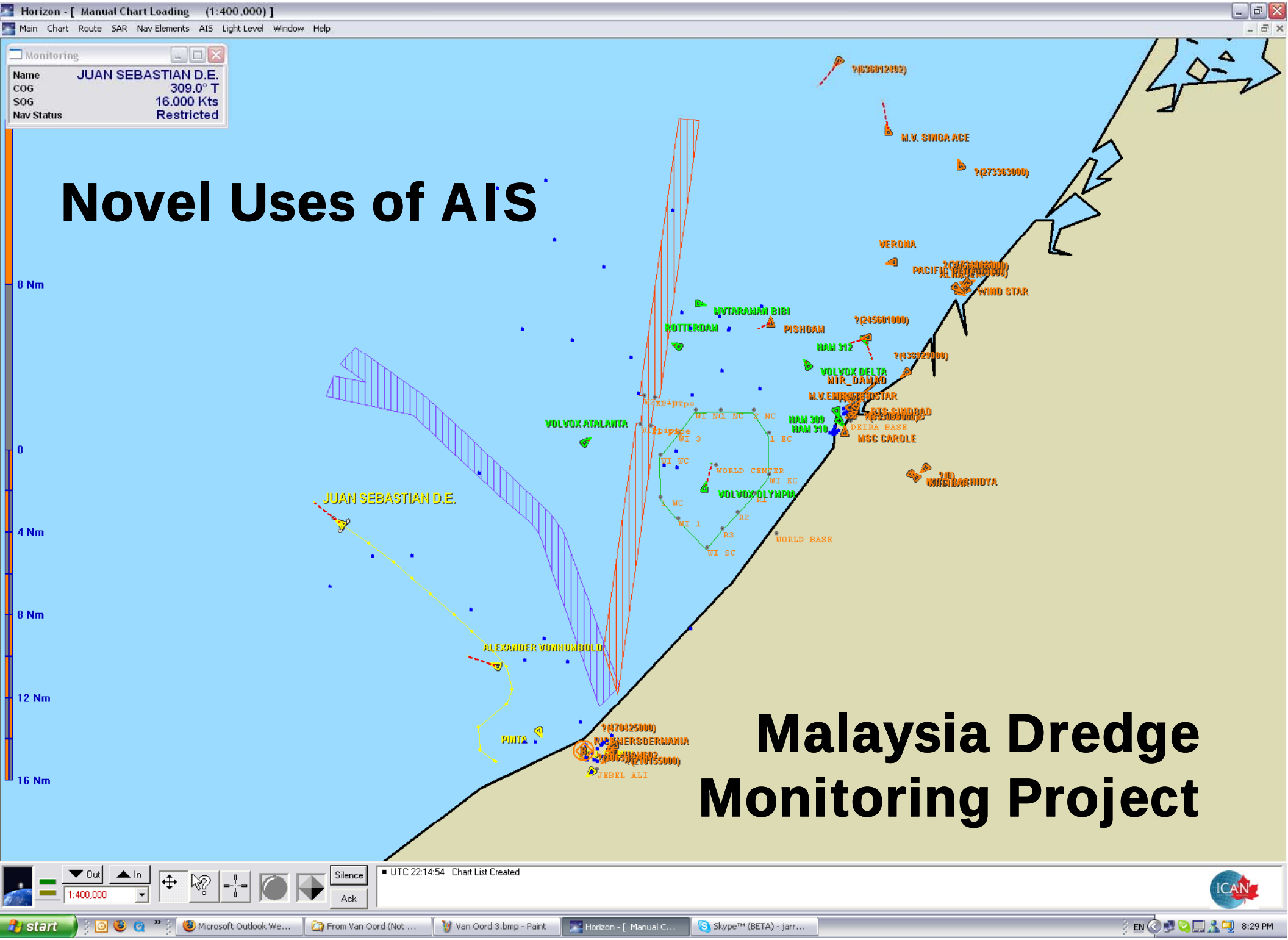


Meteorological & Hydrological Reporting

- Improves the overall safety & efficiency of marine traffic
- Some in place since 2002


Aldebaran - [Info (1:3,000) U350H001 S57 1:10,000 DU=METRES OVERZOOMED User Display North Up]
Main Chart Survey Route Nav Aids SAR Nav Elements AIS Light Level Voyage Event! DR! Man Overboard! View Window Help
S57 S57 ? S57 Lists Survey NavAids Buoy Tending Radar
Nav Route GPS AIS Info AIS ? AIS Tx AIS Rx RTCM
Targets CPA Type
101126 00:01:05 Met...
101126 00:01:04 Met...
101126 00:01:05 Met...
101126 00:01:04 Met...
Target 101126
Latitude 40° 30' 09.72" N
Longitude 080° 05' 08.70" W
Time of Tx 15:15
Average Wind Speed N/A
Wind Gust N/A
Air Temperature N/A
Relative Humidity N/A
Air Pressure N/A
Water Level Report -0.1 m
Surface Current Speed 2.36 f/s
Surface Current Direction 280°
USACE
Real-time
Current Velocity
Meters
File
OVERZOOMED
1/8 Nm
1/16 Nm
0
1/32 Nm
1/16 Nm
3/32 Nm
1/8 Nm
2.03 f/s
2.03 f/s
2.36 f/s
Out In
1:3,000
Silence
UTC 17:59:32 Warning: 10s Since Last GPS Update, Switching to DR Mode.
UTC 17:59:50 GPS fix invalid.
UTC 18:00:23 Warning: 10s Since Last GPS Update, Switching to DR Mode.


Aldebaran - [Plan (1:4,000) 1411 S57 1:25,000 OVERZOOMED]
Main Chart Route SAR Nav Elements AIS Light Level Voyage Event! DR! Man Overboard! Window Help
AIS Tx AIS Rx S57 S57 ?
Nav Route GPS AIS Info AIS ?
S57 Lists Aton Lock Order Met Hydro
Lock Type Time of last Report
L5W Lock Order 16 July 14:22
SLB Lock Order 16 July 14:21
CSC Lock Order 16 July 14:21
*B03 Lock Order 16 July 14:21
IRO Lock Order 16 July 14:21
L02 Lock Order 16 July 14:21
L4W Lock Order 16 July 14:21
ID Direction ETA
SEA GUARDIAN II Up bound 16:57
DARYA MA Down bound 11:13
PINEGLEN Up bound 15:33
Vessel Name N/A
Last Location N/A
Last ATA N/A
First Lock N/A
First Lock ETA N/A
Second Lock N/A
Second Lock ETA N/A
Delay Lock N/A
Time of Report N/A
File
OVERZOOMED
1/8 Nm
1/16 Nm
0
1/32 Nm
1/16 Nm
3/32 Nm
1/8 Nm
Lock 3 Beauharnois Lower Wall
Lock 3 Beauharnois
BOH Pool Level
Lock Order
• Used by Saint Lawrence Seaway since 2002
• Improves efficiency, lock utilization, mitigates racing & wait time
Out
In
Silence


Horizon - [Manual Chart Loading (1:400,000)]
Main Chart Route SAR Nav Elements AIS Light Level Window Help
Monitoring
Name JUAN SEBASTIAN D.E.
COG 309.0° T
SOG 16.000 Kts
Nav Status Restricted
Novel Uses of AIS
8 Nm
0
4 Nm
8 Nm
12 Nm
16 Nm
JUAN SEBASTIAN D.E.
ALEXANDER VONHUMBOLD
PINTA
VOLVOX ATALANTA
ROTTERDAM
HVTARAMAN BIBI
PISHGAM
HAM 312
VOLVOX DELTA
MIR_DAMAD
VERONA
WIND STAR
M.V. SINGA ACE
HAM 309
HAM 310
DEIRA BASE
MSC CAROLE
WORLD CENTER
VOLVOX OLYMPIA
WORLD BASE
JEBEL ALI
Malaysia Dredge
Monitoring Project
Out
In
1:400,000
Silence
Ack
UTC 22:14:54 Chart List Created
start
Microsoft Outlook We...
From Van Oord (Not ...
Van Oord 3.bmp - Paint
Horizon - [Manual C...
Skype™ (BETA) - jarr...
8:29 PM

Aldebaran - [Plan (1:3,000)]

Main Chart Route SAR Nav Elements AIS Light Level Voyage Event! DR! Man Overboard! Window Help

File

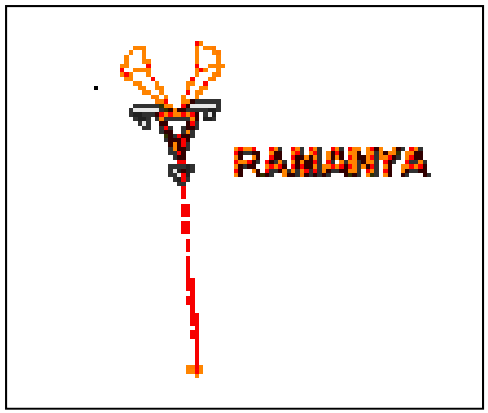
Dredge Monitoring

Remote Name	RAMANYA
MMSI Number	5050
Call Sign	XYIV
Latitude	34° 31' 12.66" N
Longitude	133° 40' 14.77" E
Range	6879.388 Nm
Bearing	092.1° T
COG	223.4° T
SOG	0.000 Kts
ETA to Cursor Local	N/A
Nav Status	Under Way Engine
Destination	N/A
Channel	Own Position
DTE Status	Connected
Positional Accuracy	Low
Time Since Last Update	00h 00m 02s
Operating Mode	Autonomous
Door Status	Closed
Time Since Last Update	00h 00m 44s

1/16 1/32 0 1/64 1/32 3/64 1/16

Malaysia Dredge Monitoring Project

RAMANYA

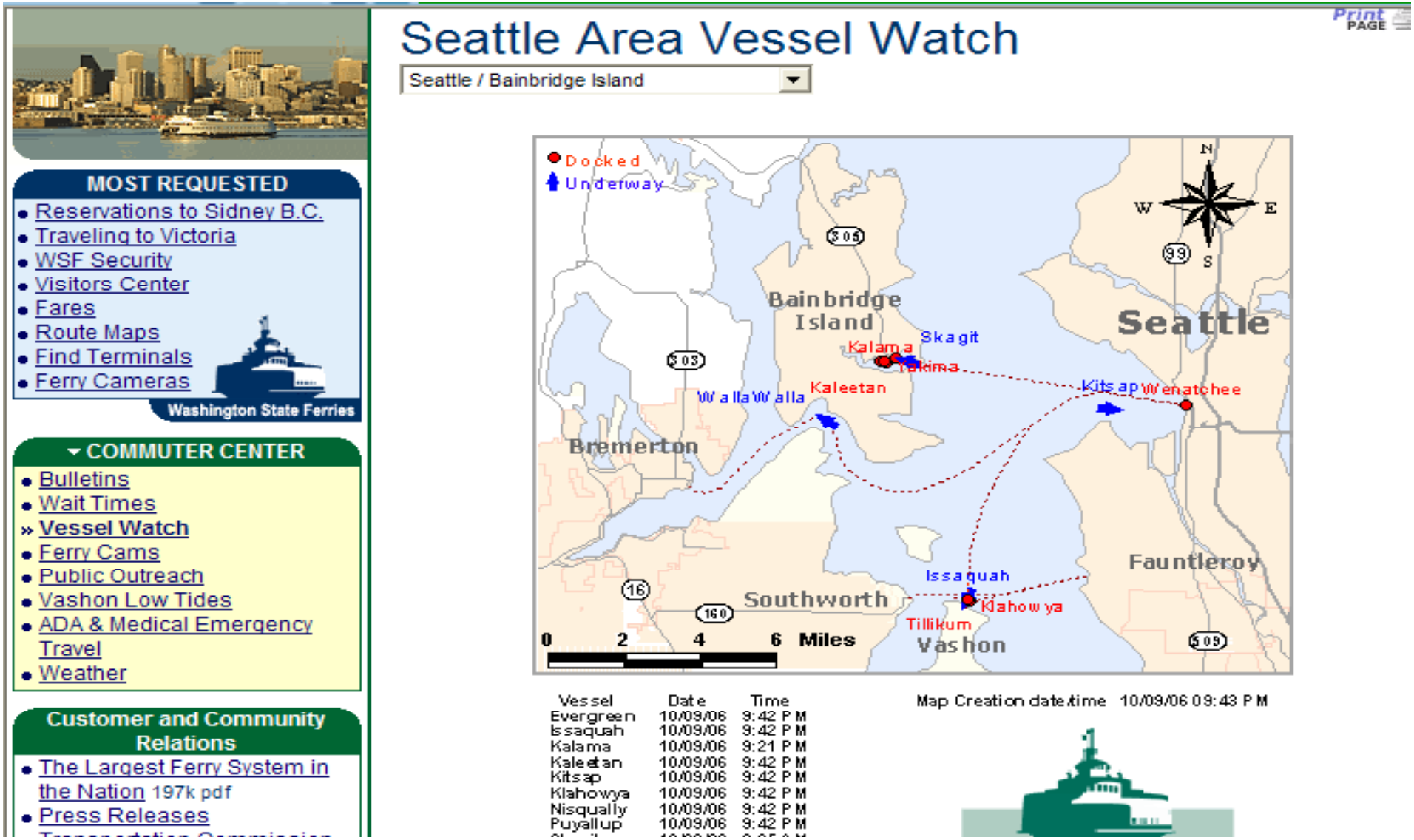


ICAN

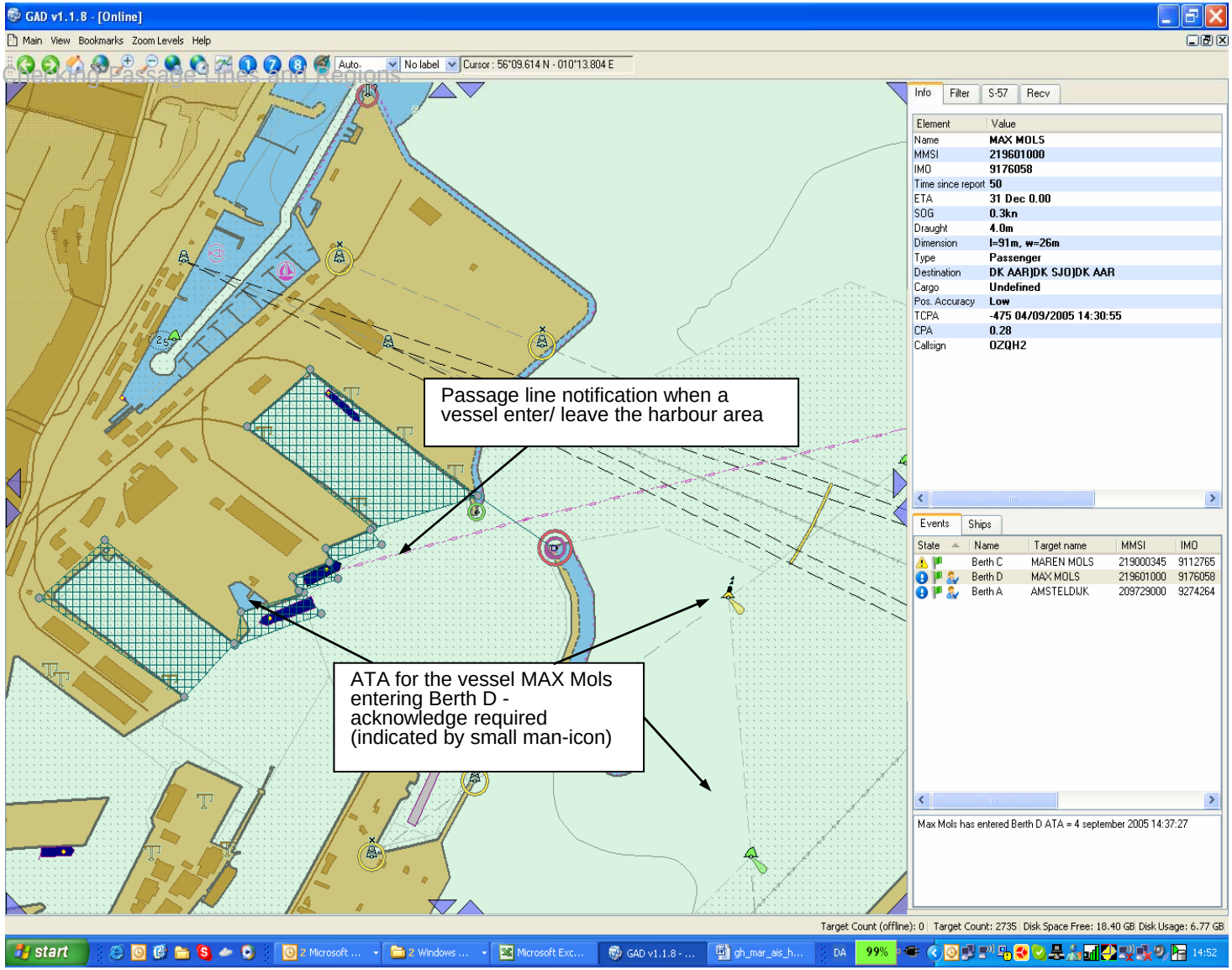
Out In 1:3,000 Silence Ack

UTC 13:24:05 RAMANYA Hopper doors are closed.
UTC 13:24:08 RAMANYA Hopper doors are open outside of damping area.
UTC 13:24:09 RAMANYA Hopper doors are closed.

Industry is using AIS – Washington St. Ferries

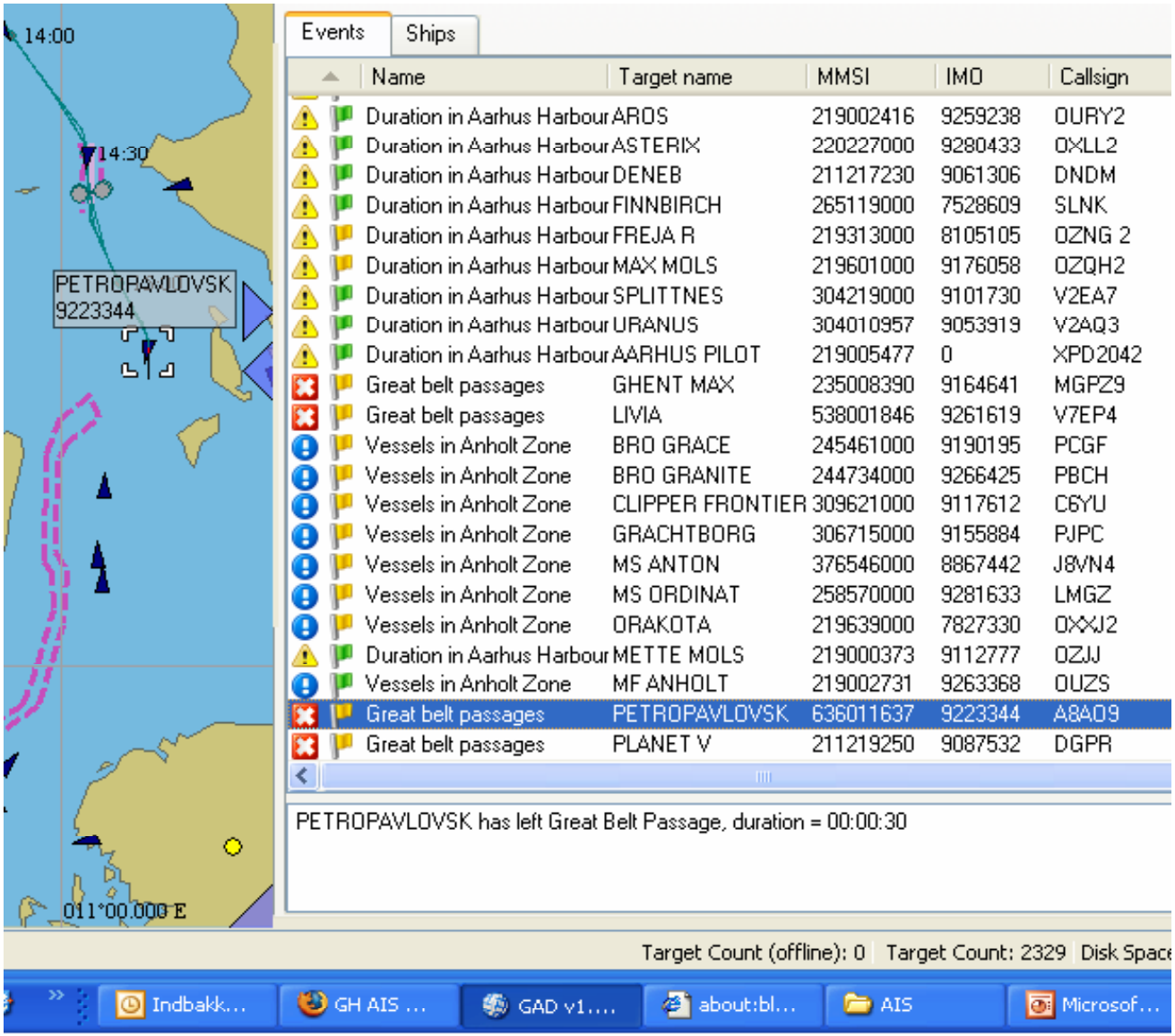


Commercial applications of AIS



Homeland Security

AIS Event Detection



Automatic event detection

- User specified event types
- Flag to indicate status of event
- Find vessel involved in event
- Forward event information via:
  - System Integration Module
  - SMS or email
- Speech integrated

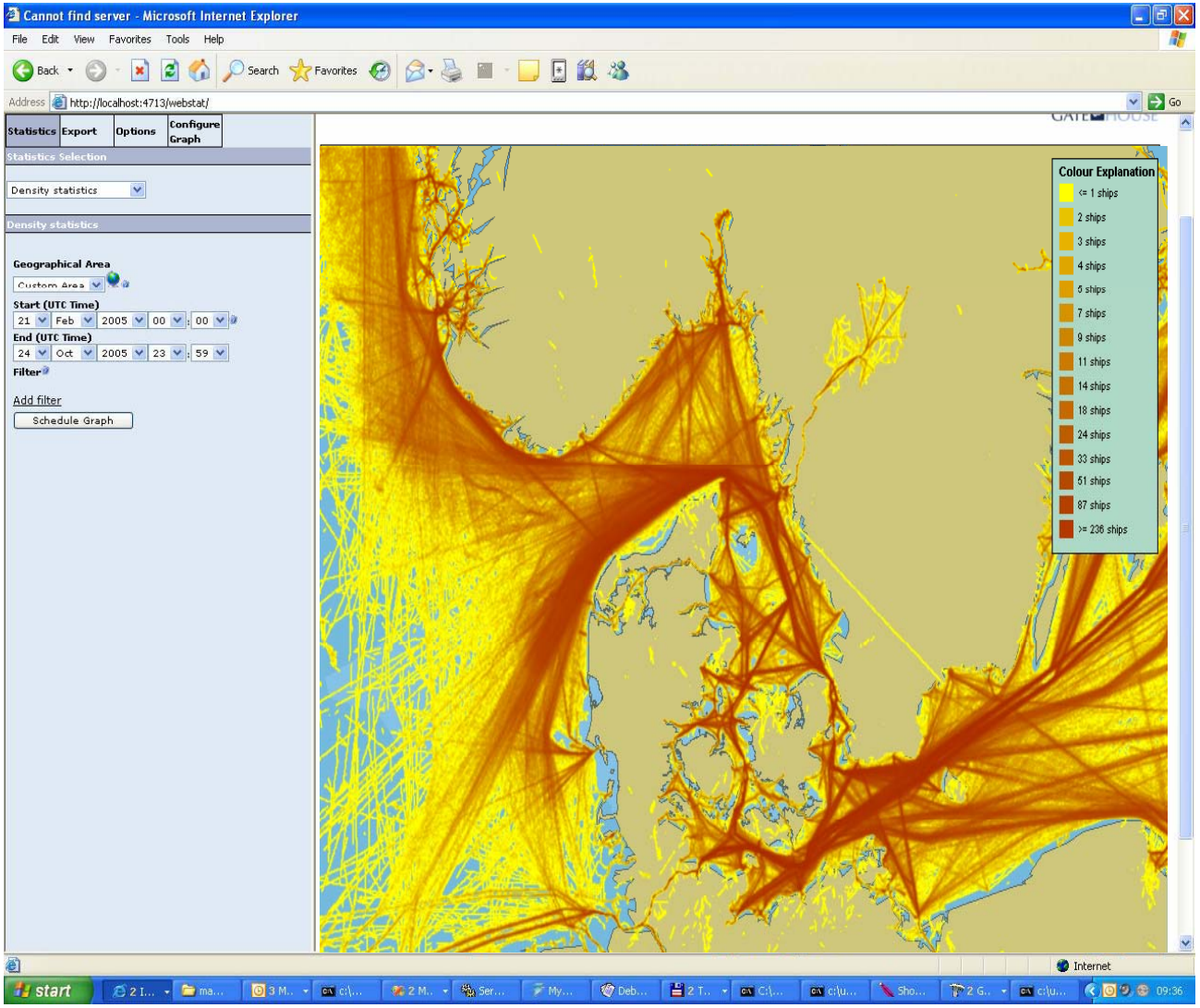
GATEHOUSE

Homeland Security

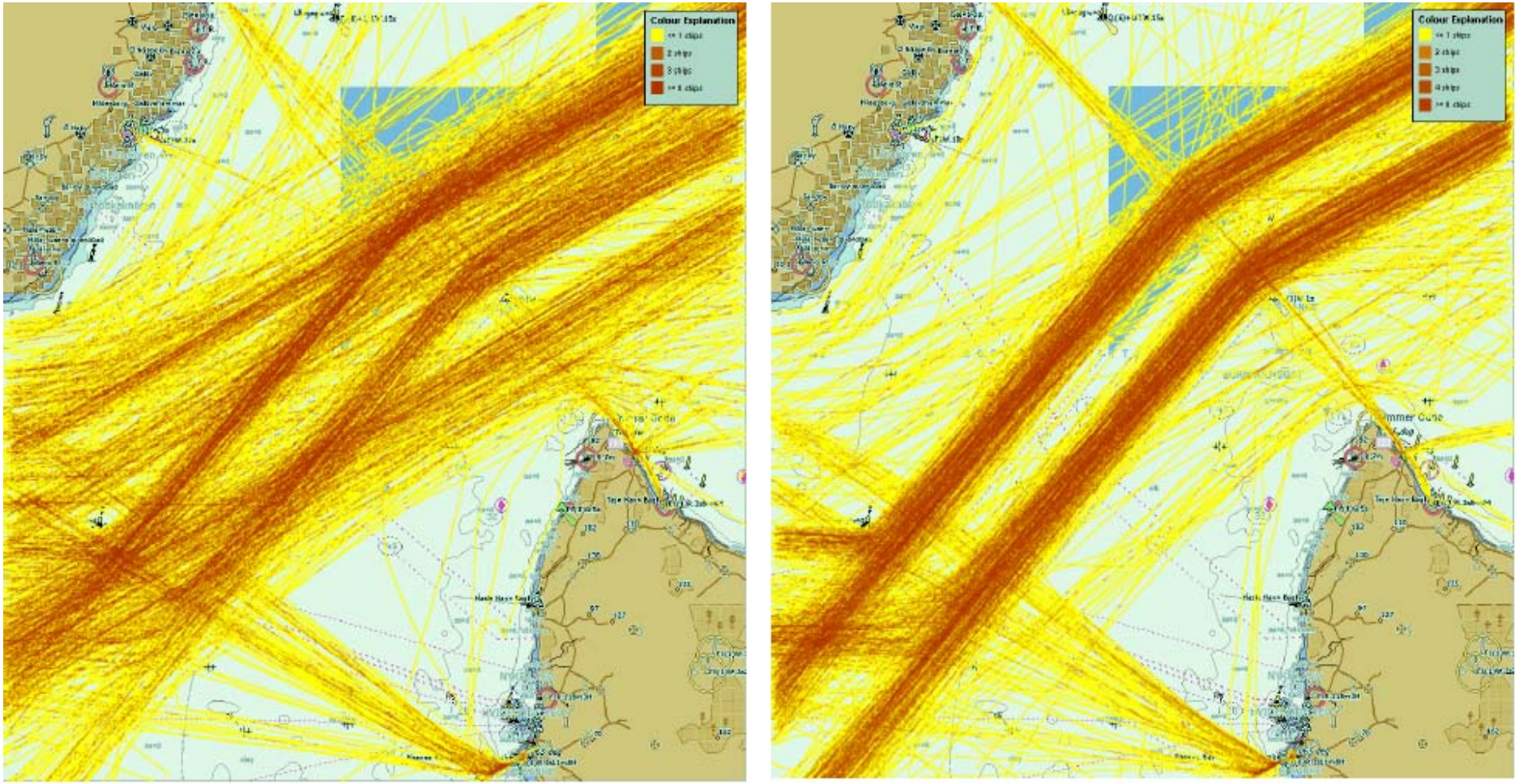
AIS used for Vessel Traffic Management

Traffic Density

- Traffic density coloured according to amount of ships over a defined period of time.
- Independent cell variable: #targets, average speed, length, draught.



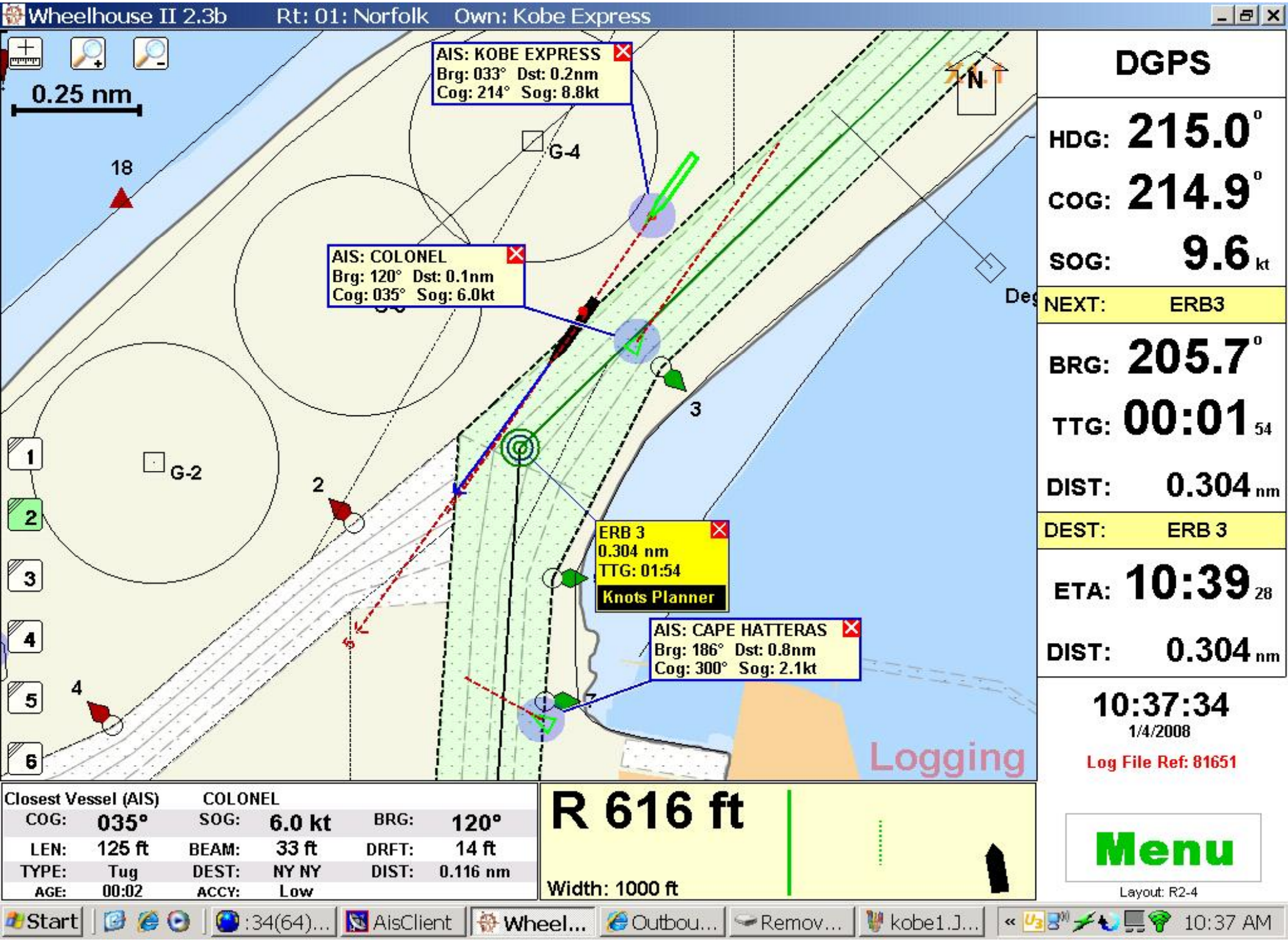
AIS Traffic Analysis & Vessel Traffic Management



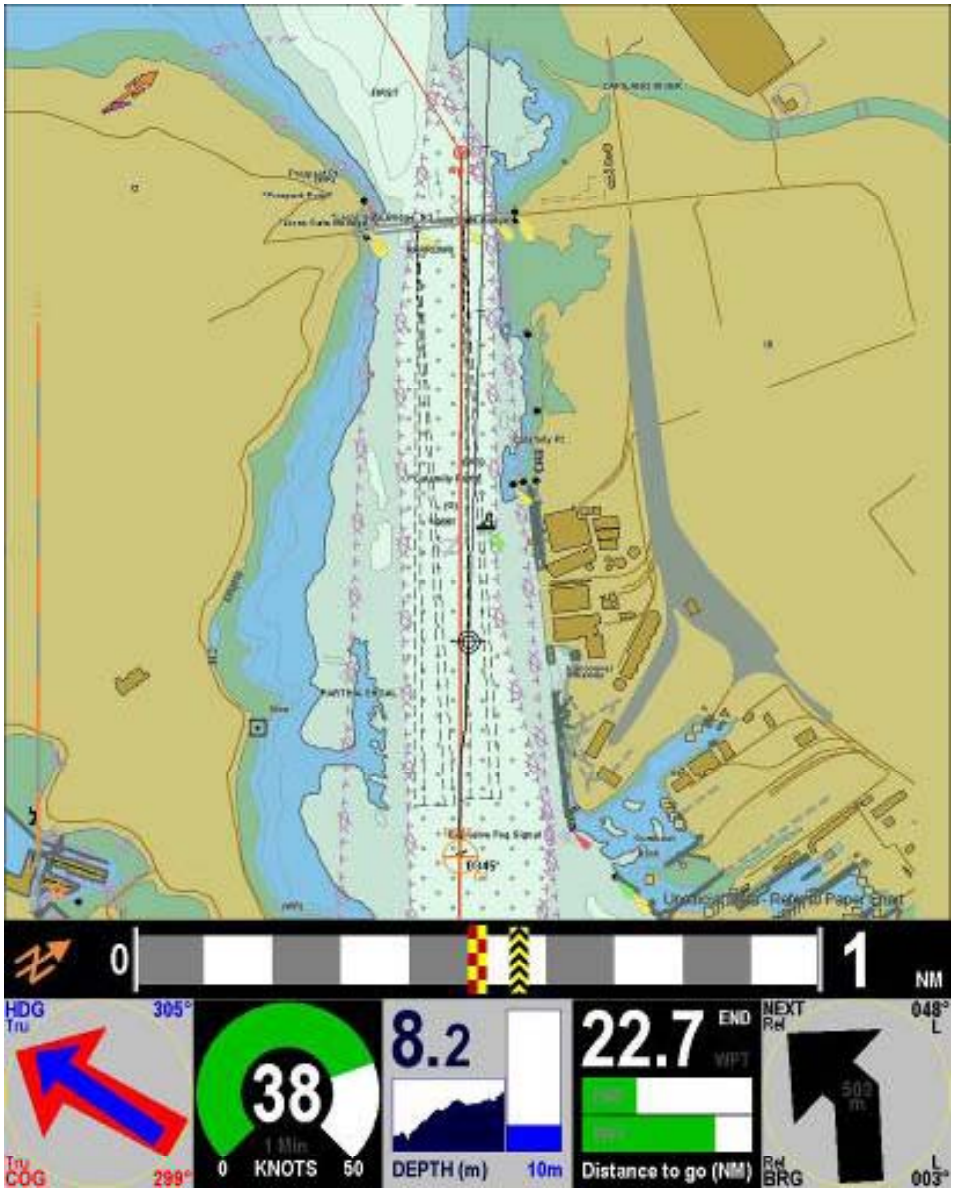
The before and after implementation of traffic separation scheme

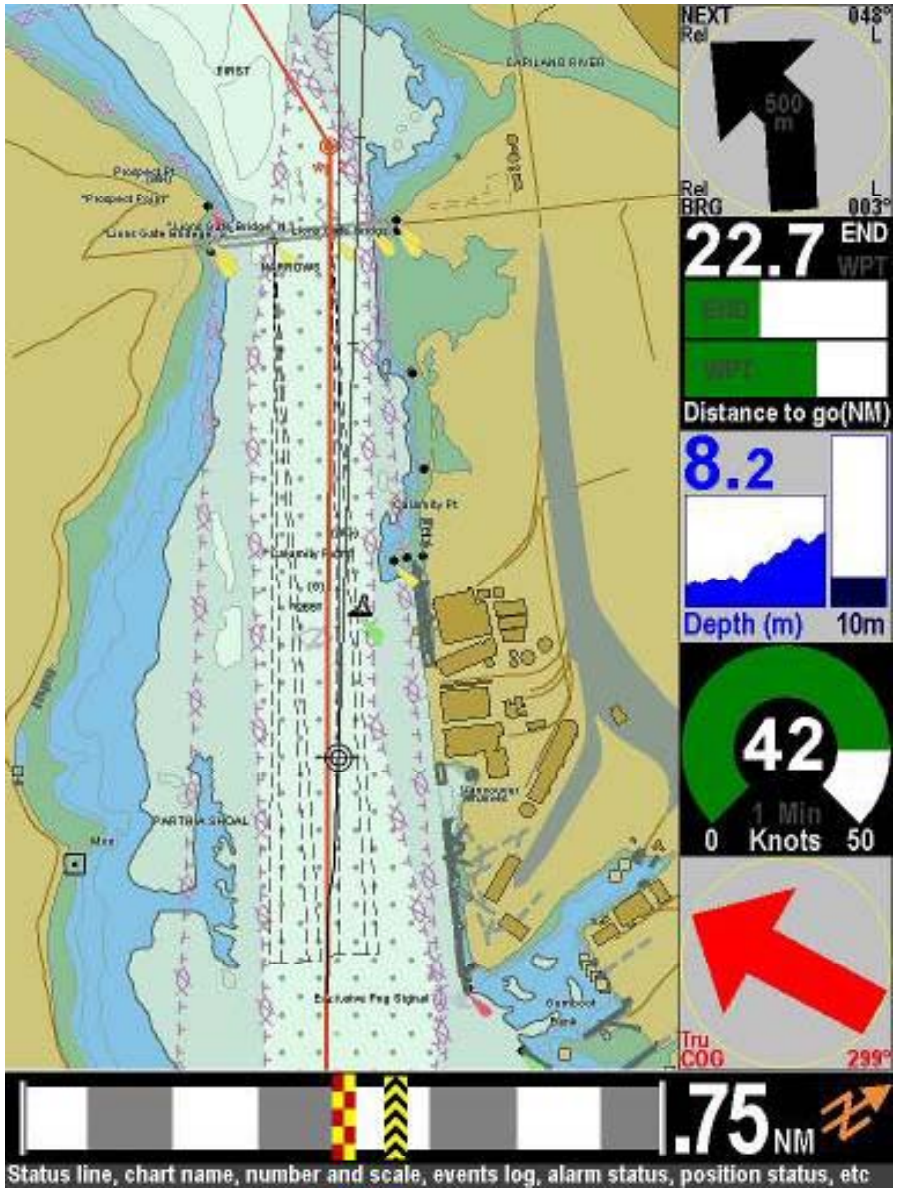
GATEHOUSE

Homeland Security


Wheelhouse II 2.3b
Rt: 01: Norfolk
Own: Kobe Express
0.25 nm
AIS: KOBE EXPRESS
Brg: 033° Dst: 0.2nm
Cog: 214° Sog: 8.8kt
AIS: COLONEL
Brg: 120° Dst: 0.1nm
Cog: 035° Sog: 6.0kt
ERB 3
0.304 nm
TTG: 01:54
Knots Planner
AIS: CAPE HATTERAS
Brg: 186° Dst: 0.8nm
Cog: 300° Sog: 2.1kt
G-4
G-2
18
N
DGPS
HDG: 215.0°
COG: 214.9°
SOG: 9.6 kt
NEXT: ERB3
BRG: 205.7°
TTG: 00:01 54
DIST: 0.304 nm
DEST: ERB 3
ETA: 10:39 28
DIST: 0.304 nm
10:37:34
1/4/2008
Log File Ref: 81651
Logging
Closest Vessel (AIS) COLONEL
COG: 035° SOG: 6.0 kt BRG: 120°
LEN: 125 ft BEAM: 33 ft DRFT: 14 ft
TYPE: Tug DEST: NY NY DIST: 0.116 nm
AGE: 00:02 ACCY: Low
R 616 ft
Width: 1000 ft
Menu
Layout: R2-4
Start
:34(64)...
AisClient
Wheel...
Outbou...
Remov...
kobe1.J...
10:37 AM

ECS – AIS Display Tailored for Hi-Speed Craft





AIS Timeline

WRC'97
AIS1 Ch.87B
AIS2 Ch.88B

SOLAS
V/19.2.4

2002 IMO
Diplomatic
Conference

SOLAS
V/19.2.4

IMO
MSC 74 (69)
Performance

ITU-R M.1371-1
Technical

IEC 61993-2
Testing &
Certification

1990---------1994--------1997----1998----1999----2000----2001----2002---2003--2004

OPA
'90

ADSSE
ITU-R
M.825-3

National
Dialog
Group

Marine Board
Ports &
Waterways
Study

FCC
Notice
DA-02-1362

105th
Congress

VTS LMR
Public
Meeting

MTSA - 11/02
Interim - 7/03
Final - 10/03
Deadline - 1/04

Maritime Transportation Security Act of 2002

Title 46, U.S. Code, Sec. 70113 – Marine Intelligence

"... shall implement a system to collect, integrate, and analyze information concerning vessels operating on or bound for waters subject to the jurisdiction of the United States, including information related to crew, passengers, cargo, and inter-modal shipments.

To deter a transportation security incident, the [Coast Guard] may collect information from public and private entities to the extent that the information is not provided by other Federal departments and agencies."

Maritime Domain Awareness

National Strategy for Combating Terrorism

Key to defending our Nation is the effective knowledge of all activities, events, and trends within any specified domain (air, land, sea, cyber) …

This "domain awareness" enables identification of threats as early and as distant from our borders… as possible, to provide maximum time to determine the optimal course of action.

Current Maritime Domain Awareness Definition

Maritime Domain Awareness is the effective understanding of objects and activities in or near the marine environment that could affect America's security, safety, economy, or environment.

Maritime Domain Awareness

Information	Collect	Analyze	Disseminate	Decisions
• Vessels • People • Facilities • Cargo • Infrastructure • Sea lanes • Threats • Friendly forces • Weather • etc.	• Sensors **- NAIS** • Operators & field personnel • Intel. agencies • Open source • Private sector data • etc.	• Collate • Fuse • Analyze • Assess • etc.	• **Common Operating Picture** • Indications & Warnings • Assessments • Estimates • etc.	• Strategic • Operational • Tactical

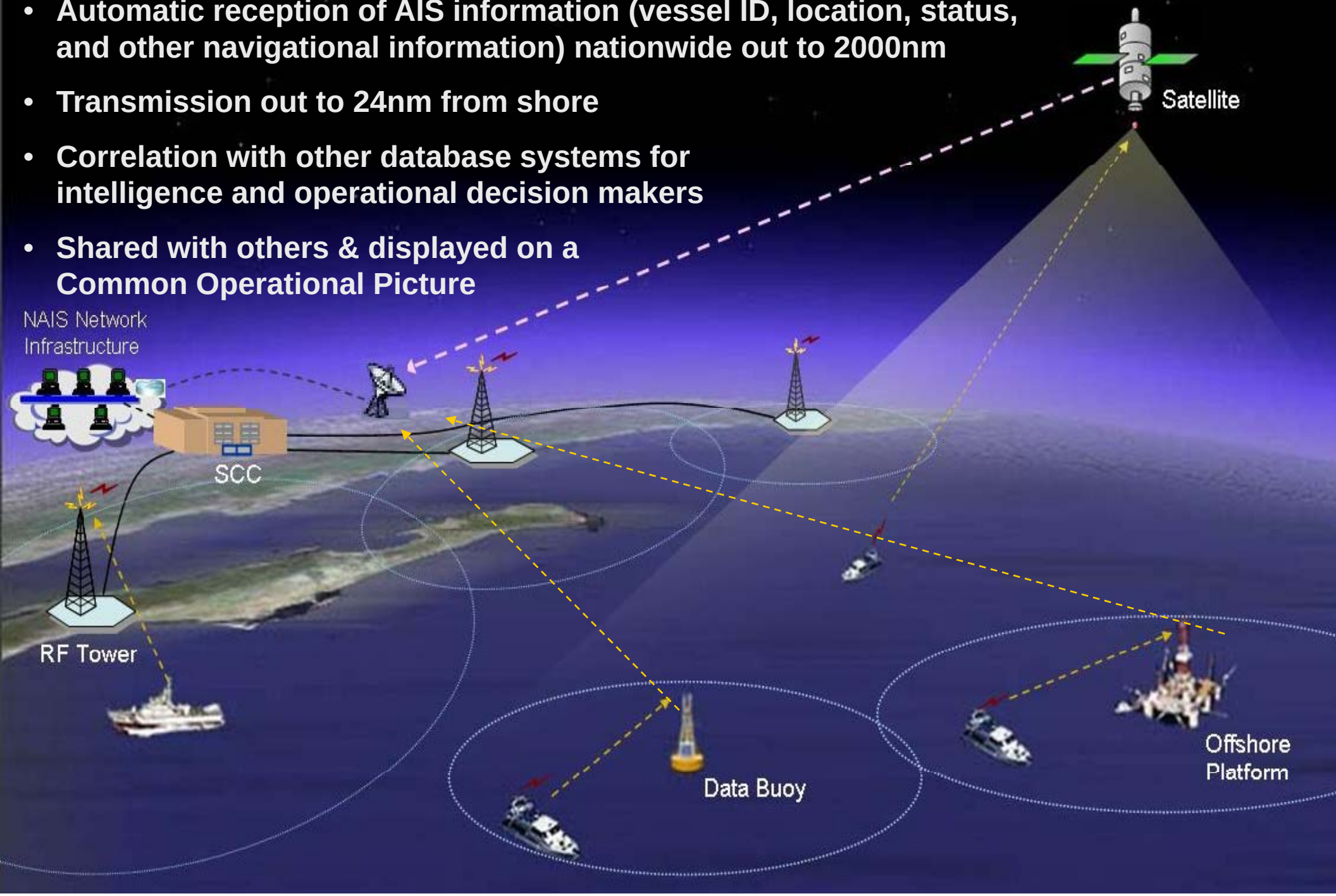
PROCESSES

PRODUCTS

Homeland Security

Nation-wide AIS Project Conceptual Overview

- Automatic reception of AIS information (vessel ID, location, status, and other navigational information) nationwide out to 2000nm
- Transmission out to 24nm from shore
- Correlation with other database systems for intelligence and operational decision makers
- Shared with others & displayed on a Common Operational Picture



NAIS Status & Other USCG AIS on goings…

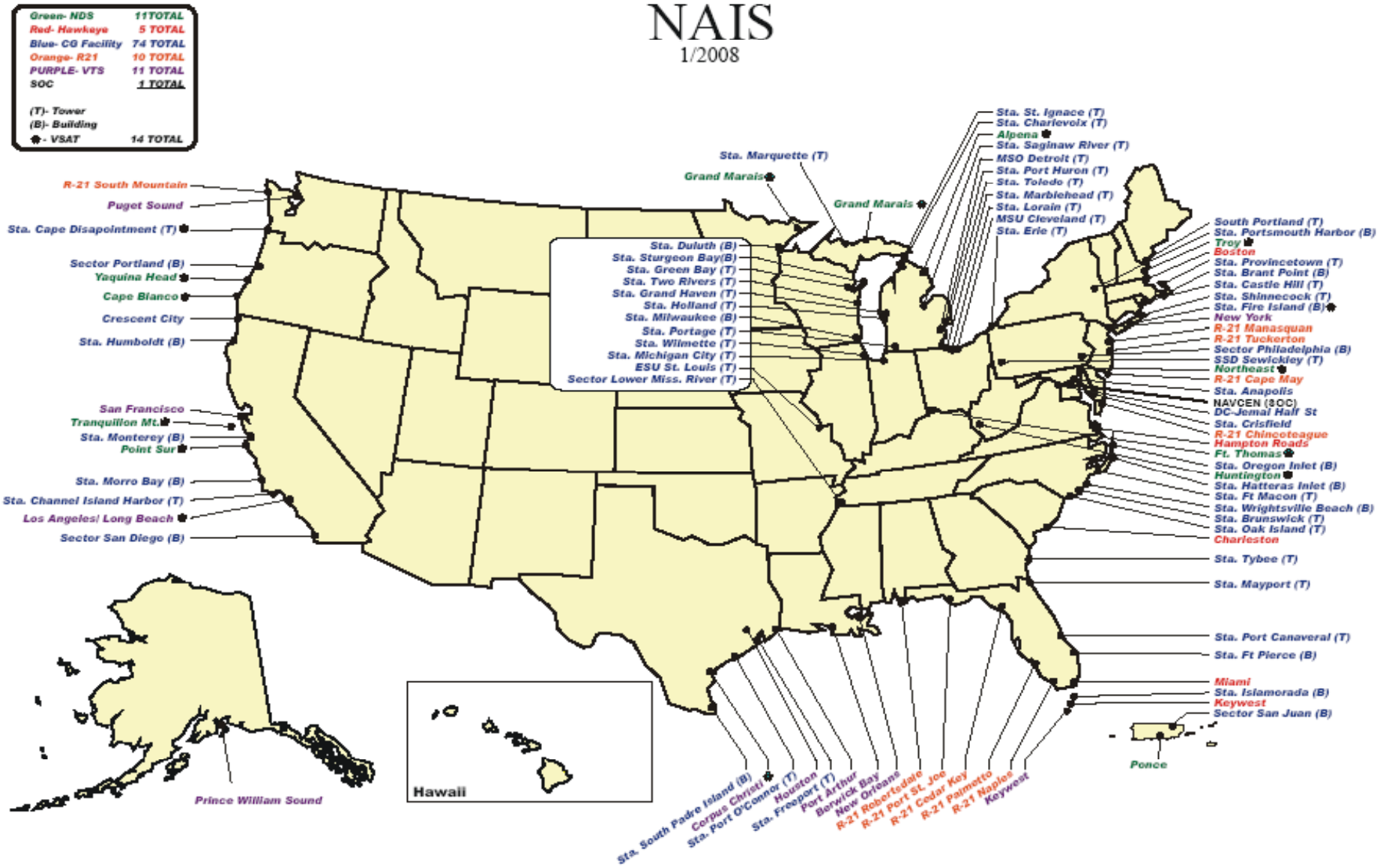
Nation-wide AIS Project (NAIS)

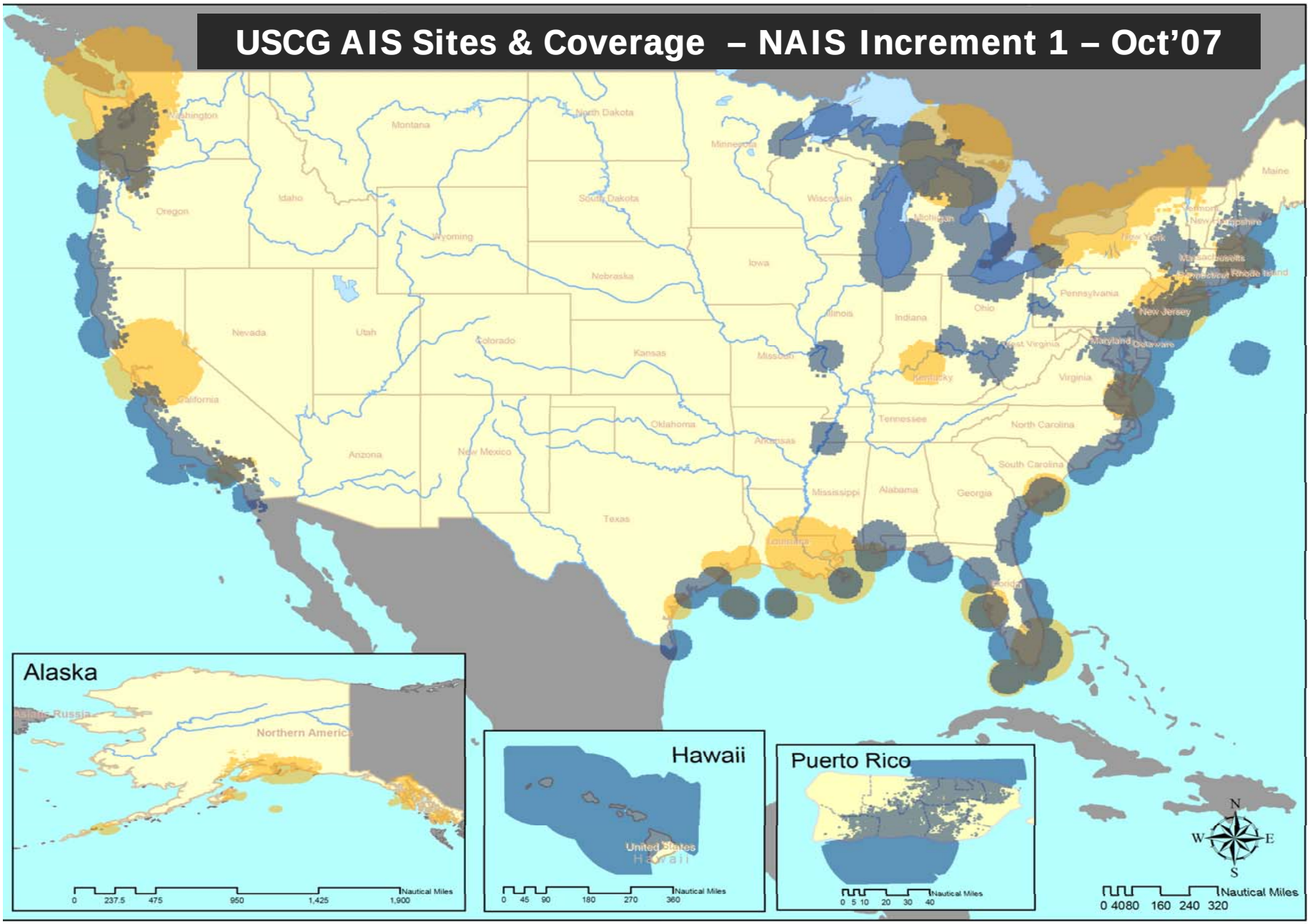
- Increment 1 – Completed Oct'07
- Increment 2 – Awarded Dec'08, IOC '11, FOC '14
- Increment 3 – Long range reception of AIS
  - Satellite reception tests in progress

VTS AIS Binaries Project

- Trials ongoing in:
  - Tampa (NOAA PORTS)
  - Stellwagen Bank (Right Whale Notifications)

NAIS
1/2008

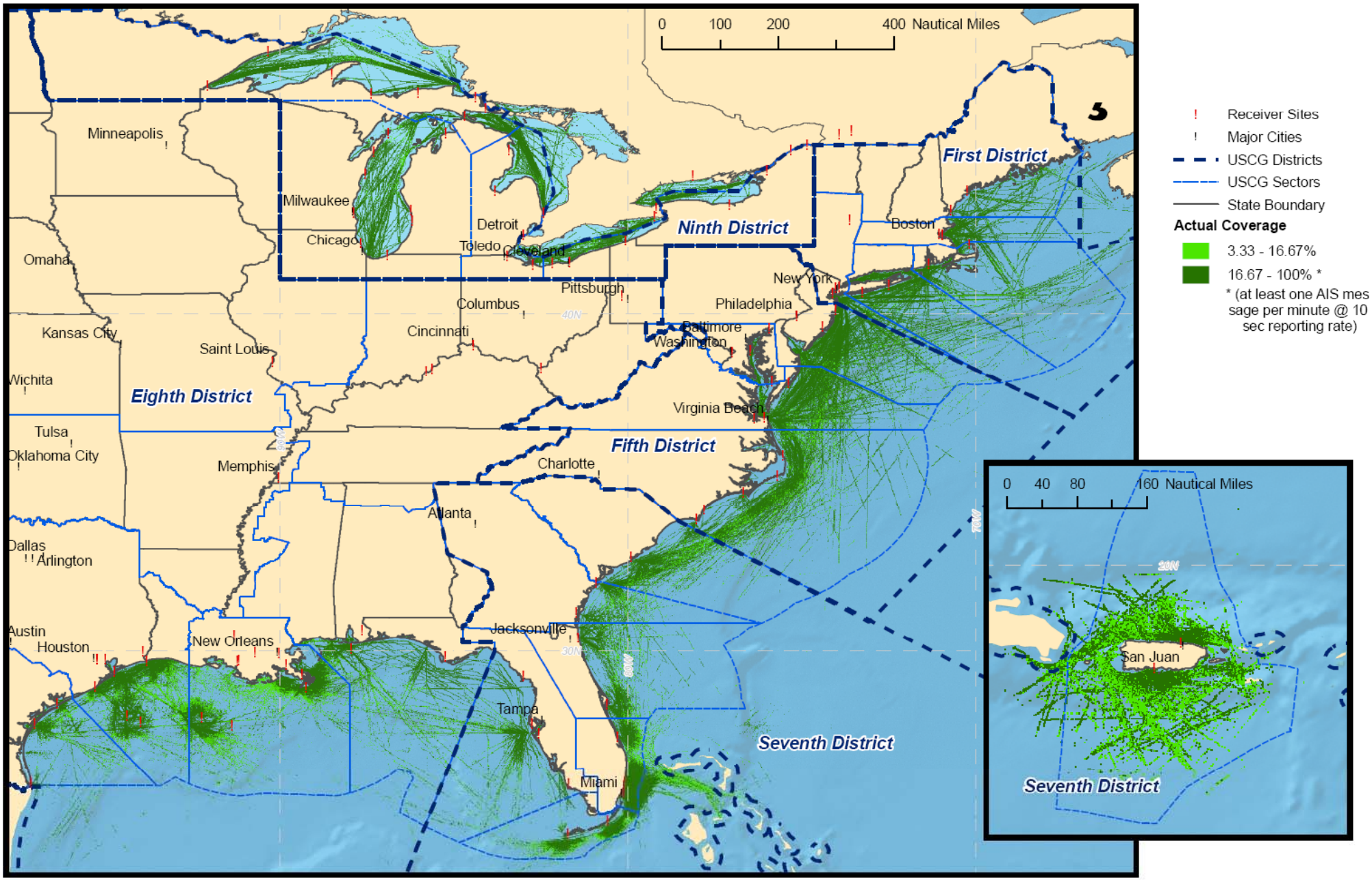

Green- NDS 11TOTAL
Red- Hawkeye 5 TOTAL
Blue- CG Facility 74 TOTAL
Orange- R21 10 TOTAL
PURPLE- VTS 11 TOTAL
SOC 1 TOTAL
(T)- Tower
(B)- Building
- VSAT 14 TOTAL
R-21 South Mountain
Puget Sound
Sta. Cape Disapointment (T)
Sector Portland (B)
Yaquina Head
Cape Blanco
Crescent City
Sta. Humboldt (B)
San Francisco
Tranquillon Mt.
Sta. Monterey (B)
Point Sur
Sta. Morro Bay (B)
Sta. Channel Island Harbor (T)
Los Angeles/ Long Beach
Sector San Diego (B)
Prince William Sound
Hawaii
Sta. Marquette (T)
Grand Marais
Grand Marais
Sta. Duluth (B)
Sta. Sturgeon Bay(B)
Sta. Green Bay (T)
Sta. Two Rivers (T)
Sta. Grand Haven (T)
Sta. Holland (T)
Sta. Milwaukee (B)
Sta. Portage (T)
Sta. Wilmette (T)
Sta. Michigan City (T)
ESU St. Louis (T)
Sector Lower Miss. River (T)
Sta. St. Ignace (T)
Sta. Charlevoix (T)
Alpena
Sta. Saginaw River (T)
MSO Detroit (T)
Sta. Port Huron (T)
Sta. Toledo (T)
Sta. Marblehead (T)
Sta. Lorain (T)
MSU Cleveland (T)
Sta. Erie (T)
South Portland (T)
Sta. Portsmouth Harbor (B)
Troy
Boston
Sta. Provincetown (T)
Sta. Brant Point (B)
Sta. Castle Hill (T)
Sta. Shinnecock (T)
Sta. Fire Island (B)
New York
R-21 Manasquan
R-21 Tuckerton
Sector Philadelphia (B)
SSD Sewickley (T)
Northeast
R-21 Cape May
Sta. Anapolis
NAVCEN (SOC)
DC-Jemal Half St
Sta. Crisfield
R-21 Chincoteague
Hampton Roads
Ft. Thomas
Sta. Oregon Inlet (B)
Huntington
Sta. Hatteras Inlet (B)
Sta. Ft Macon (T)
Sta. Wrightsville Beach (B)
Sta. Brunswick (T)
Sta. Oak Island (T)
Charleston
Sta. Tybee (T)
Sta. Mayport (T)
Sta. Port Canaveral (T)
Sta. Ft Pierce (B)
Miami
Sta. Islamorada (B)
Keywest
Sector San Juan (B)
Ponce
Sta. South Padre Island (B)
Corpus Christi
Sta. Port O'Connor (T)
Houston
Sta. Freeport (T)
Port Arthur
Berwick Bay
New Orleans
R-21 Robertsdale
R-21 Port St. Joe
R-21 Cedar Key
R-21 Palmetto
R-21 Naples
Keywest


USCG AIS Sites & Coverage – NAIS Increment 1 – Oct'07
Alaska
Northern America
0 237.5 475 950 1,425 1,900 Nautical Miles
Hawaii
United States
Hawaii
0 45 90 180 270 360 Nautical Miles
Puerto Rico
0 5 10 20 30 40 Nautical Miles
N
W
E
S
0 4080 160 240 320 Nautical Miles

United States Coast Guard
U.S. Department of Homeland Security

EAST COAST AND PUERTO RICO

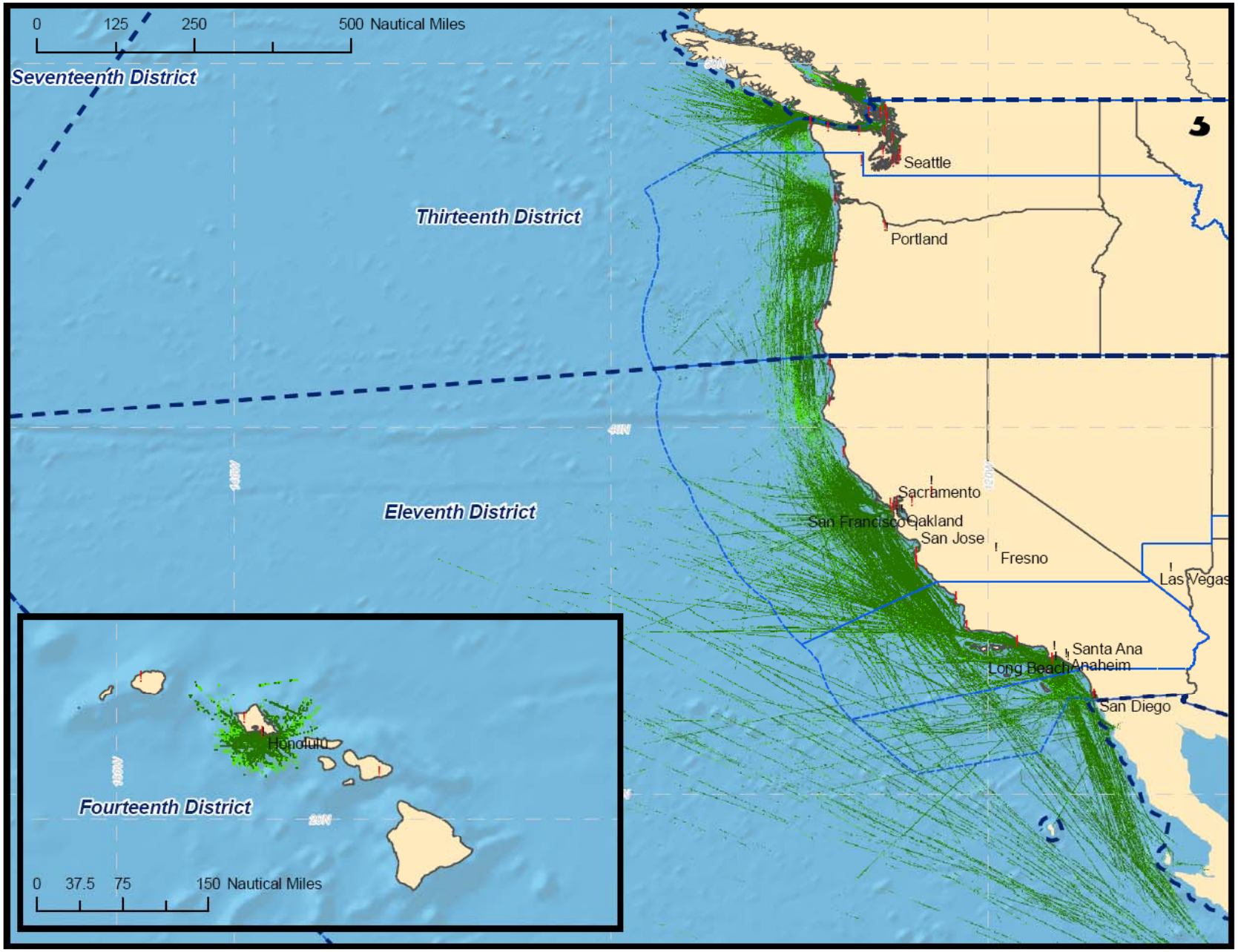
NAIS I-1 Actual Coverage for 01-16 October 2007



United States Coast Guard
U.S. Department of Homeland Security

WEST COAST AND HAWAII

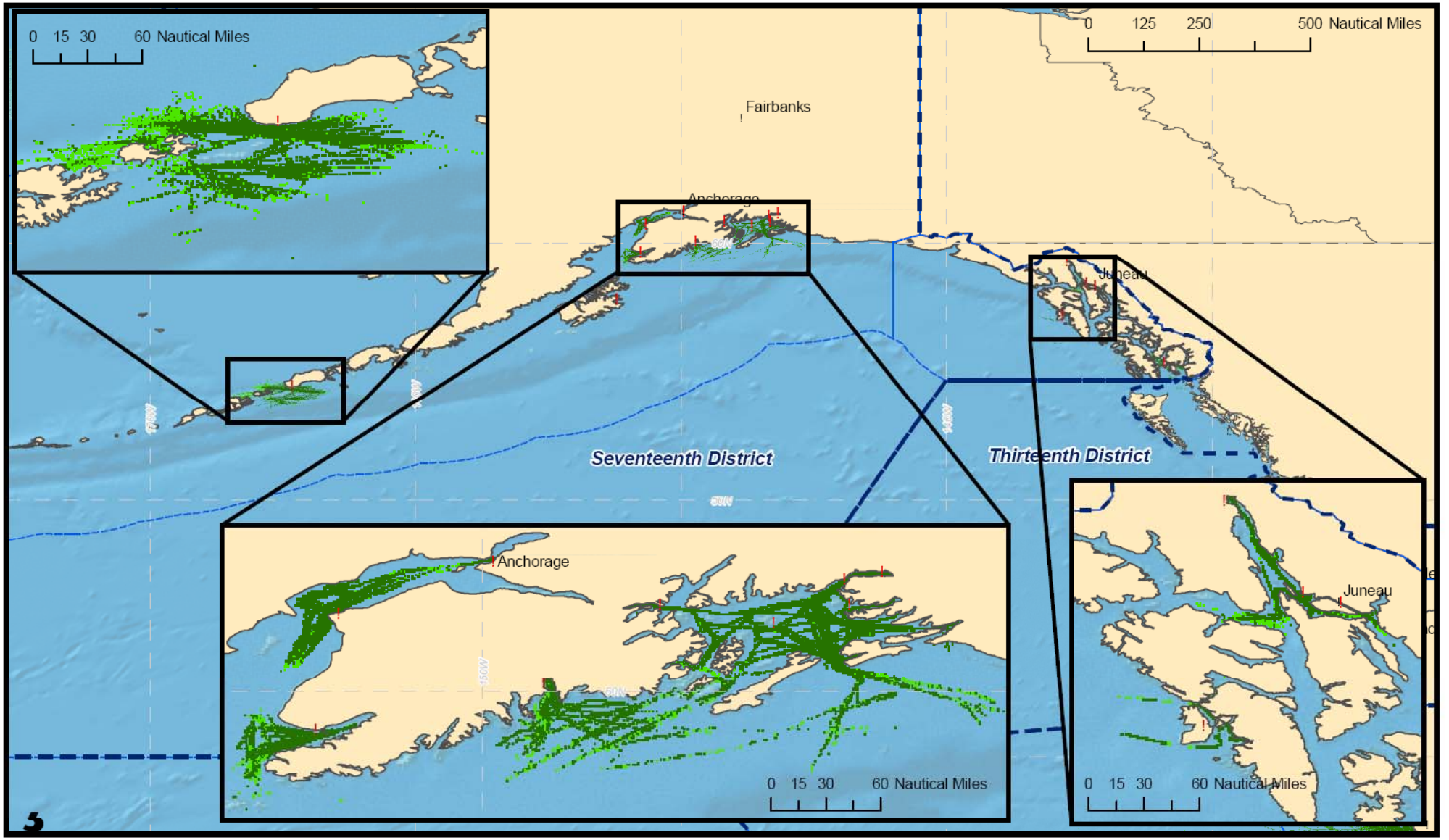
NAIS I-1 Actual Coverage for 01-16 October 2007



United States Coast Guard
U.S. Department of Homeland Security

ALASKA

NAIS I-1 Actual Coverage for 01-16 October 2007



Maritime Domain Awareness

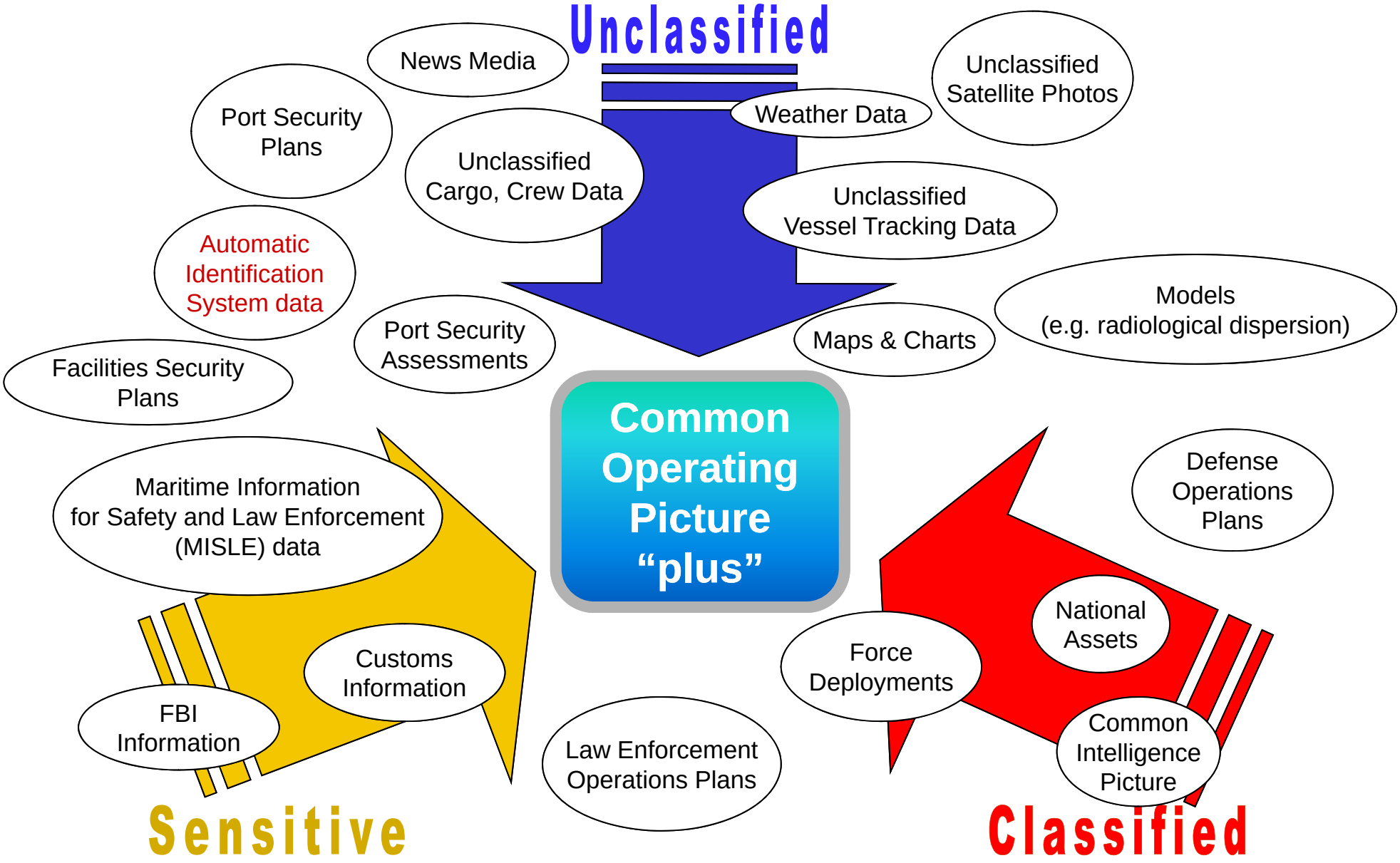
Information	Collect	Analyze	Disseminate	Decisions
• Vessels • People • Facilities • Cargo • Infrastructure • Sea lanes • Threats • Friendly forces • Weather • etc.	• Sensors **- NAIS** • Operators & field personnel • Intel. agencies • Open source • Private sector data • etc.	• Collate • Fuse • Analyze • Assess • etc.	• **Common Operating Picture** • Indications & Warnings • Assessments • Estimates • etc.	• Strategic • Operational • Tactical

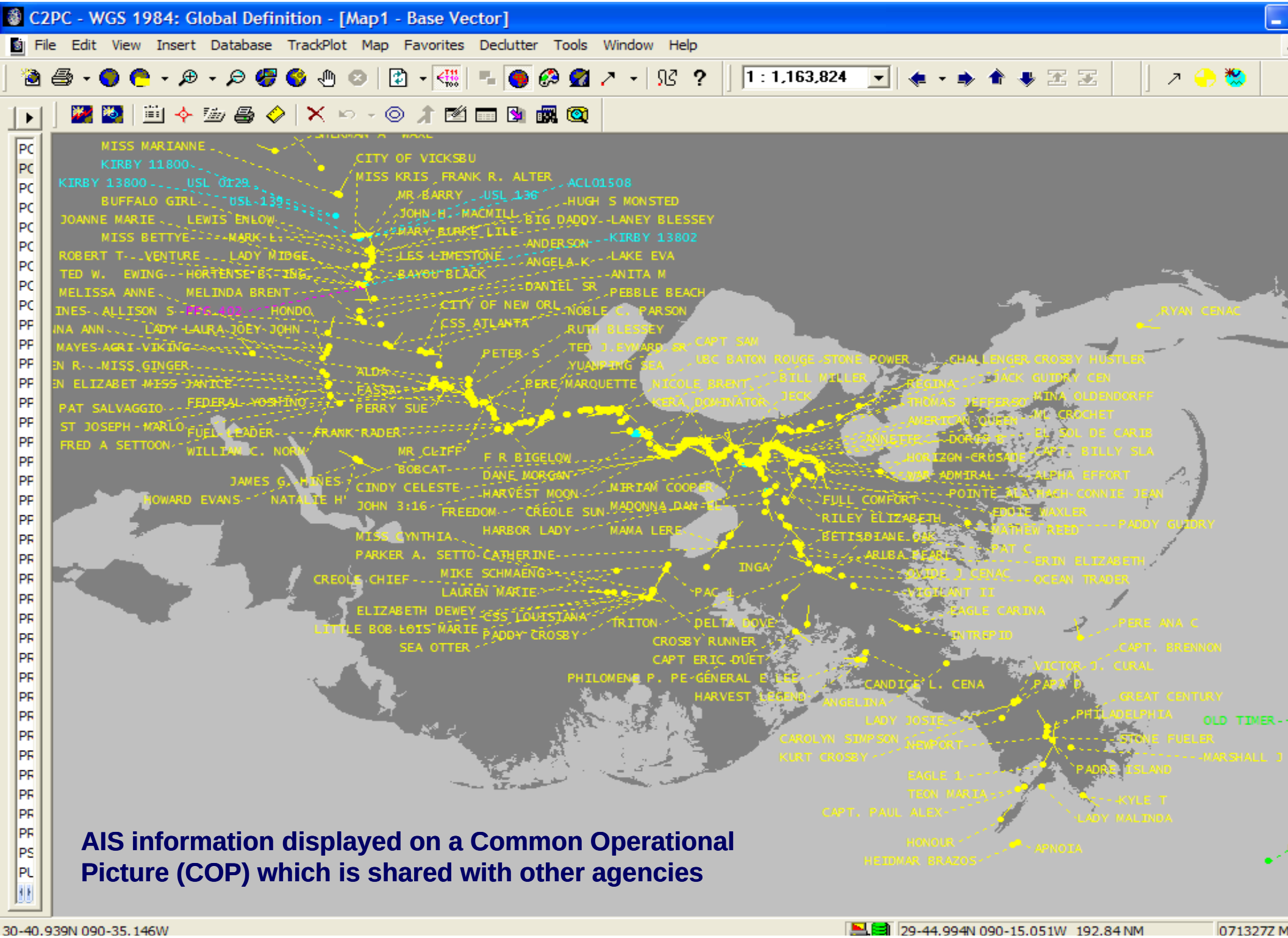
PROCESSES

PRODUCTS

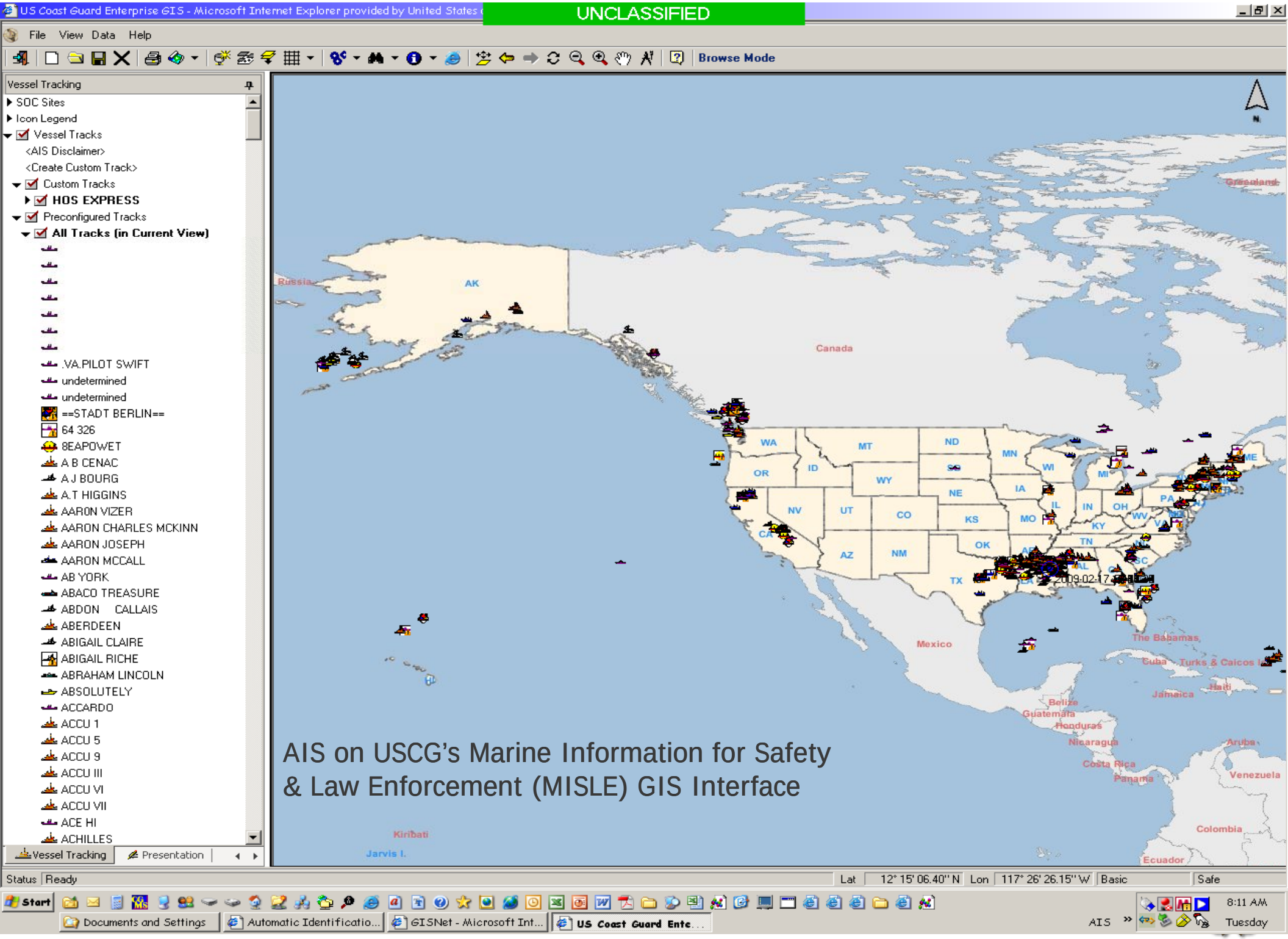
Homeland Security

One known need: Common Operating Picture "plus"





AIS information displayed on a Common Operational Picture (COP) which is shared with other agencies


US Coast Guard Enterprise GIS - Microsoft Internet Explorer provided by United States
UNCLASSIFIED
File View Data Help
Browse Mode
Vessel Tracking
SOC Sites
Icon Legend
Vessel Tracks
<AIS Disclaimer>
<Create Custom Track>
Custom Tracks
HOS EXPRESS
Preconfigured Tracks
All Tracks (in Current View)
.VA.PILOT SWIFT
undetermined
undetermined
==STADT BERLIN==
64 326
8EAPOWET
A B CENAC
A J BOURG
A.T HIGGINS
AARON VIZER
AARON CHARLES MCKINN
AARON JOSEPH
AARON MCCALL
AB YORK
ABACO TREASURE
ABDON CALLAIS
ABERDEEN
ABIGAIL CLAIRE
ABIGAIL RICHE
ABRAHAM LINCOLN
ABSOLUTELY
ACCARDO
ACCU 1
ACCU 5
ACCU 9
ACCU III
ACCU VI
ACCU VII
ACE HI
ACHILLES
Vessel Tracking
Presentation
Russia
AK
Canada
Greenland
WA
OR
CA
ID
NV
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
LA
WI
IL
MS
MI
IN
OH
KY
TN
AL
GA
SC
NC
VA
WV
PA
NY
ME
2009-02-17
Mexico
The Bahamas
Cuba
Haiti
Jamaica
Belize
Guatemala
Honduras
Nicaragua
Costa Rica
Panama
Aruba
Venezuela
Colombia
Ecuador
Kiribati
Jarvis I.
AIS on USCG's Marine Information for Safety & Law Enforcement (MISLE) GIS Interface
Status Ready
Lat 12° 15' 06.40" N
Lon 117° 26' 26.15" W
Basic
Safe
Start
Documents and Settings
Automatic Identificatio...
GISNet - Microsoft Int...
US Coast Guard Ente...
AIS
8:11 AM
Tuesday

US Coast Guard Enterprise GIS - Microsoft Internet Explorer provided by United States Coast Guard

UNCLASSIFIED

File View Data Help

Browse Mode

Vessel Tracking

All Tracks (in Current View)

undetermined
JESSICA LYN
AALBORG
AARON VIZER
AB YORK
ACCU 9
ACCU VI
ACE HI
AET DISCOVERY
AET ENDEAVOUR
AET EXPLORER
AET HARRIS
AET LIBERTY
AET NUECES
AET SHELBY
AIS.354408828
AJAX
AL MIDDLETON
ALEX B
ALGARVE
ALICE JEAN
ALKYONIS
ALLIANCE ST. LOUIS
ANDREW K
ANGELINA
ANGISTRI
ANICHKOV BRIDGE
ANN BLESSEY
ANNAPOLIS
ANNIE JEANNE
ANTIKEROS
APACHE
APOLLO
APOLLONIA
ARABIAN
ARGO
ASHTON T
ATLANTIC
ATLANTIC.EAGLE
ATLAS
ATLAS
AUDREY
AUDREY GUIDRY
B L DARNELL
BARBARA WAXLER

Database | Vessel Tracking | Pre

Close Banner

The Search GIS Data Catalog function is in the process of being upgraded and is currently unavailable.

AIS on USCG's Marine Information for Safety & Law Enforcement (MISLE) GIS Interface

Texas

Houston

Louisiana

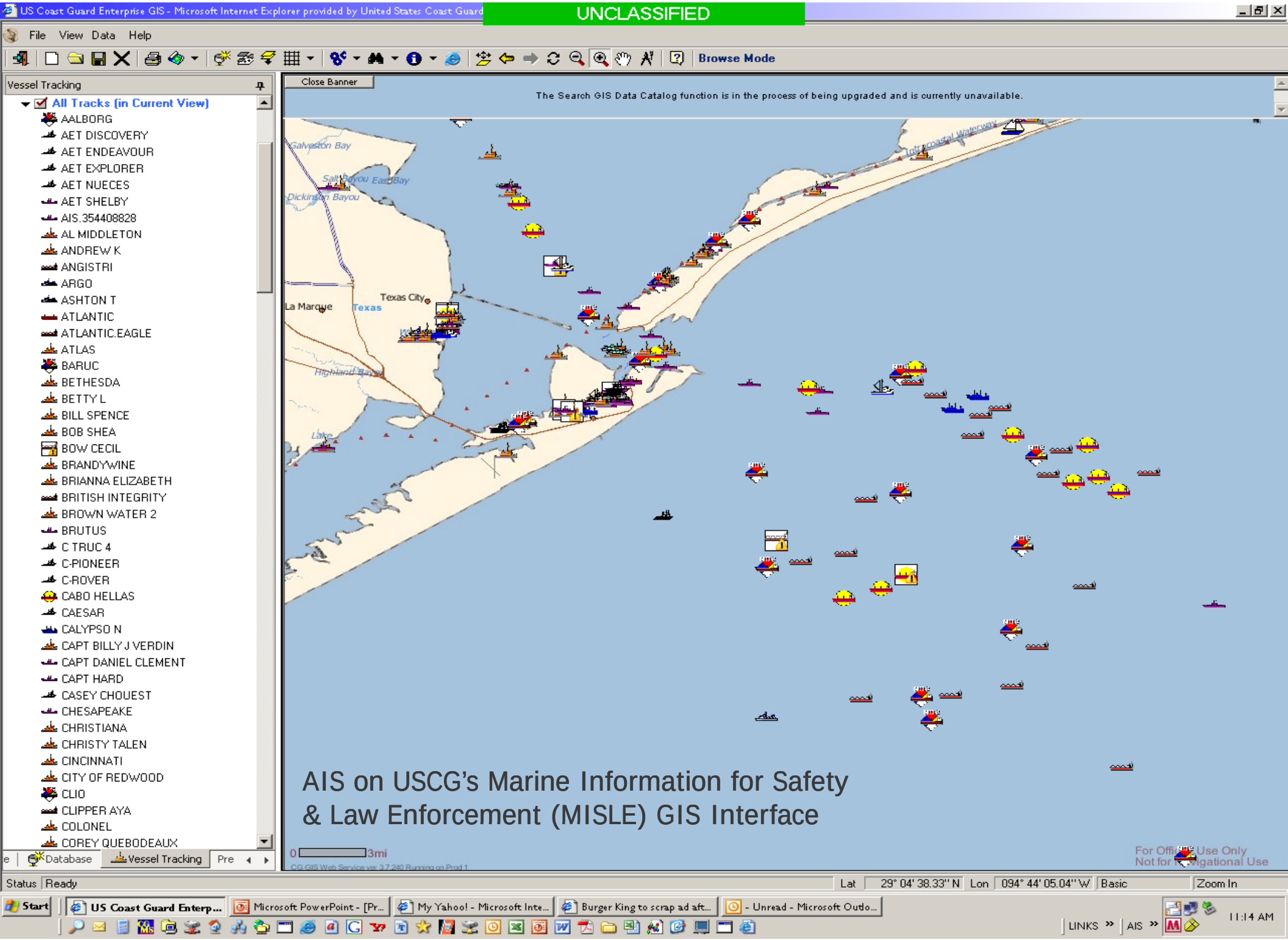
0 14mi

For Official Use Only

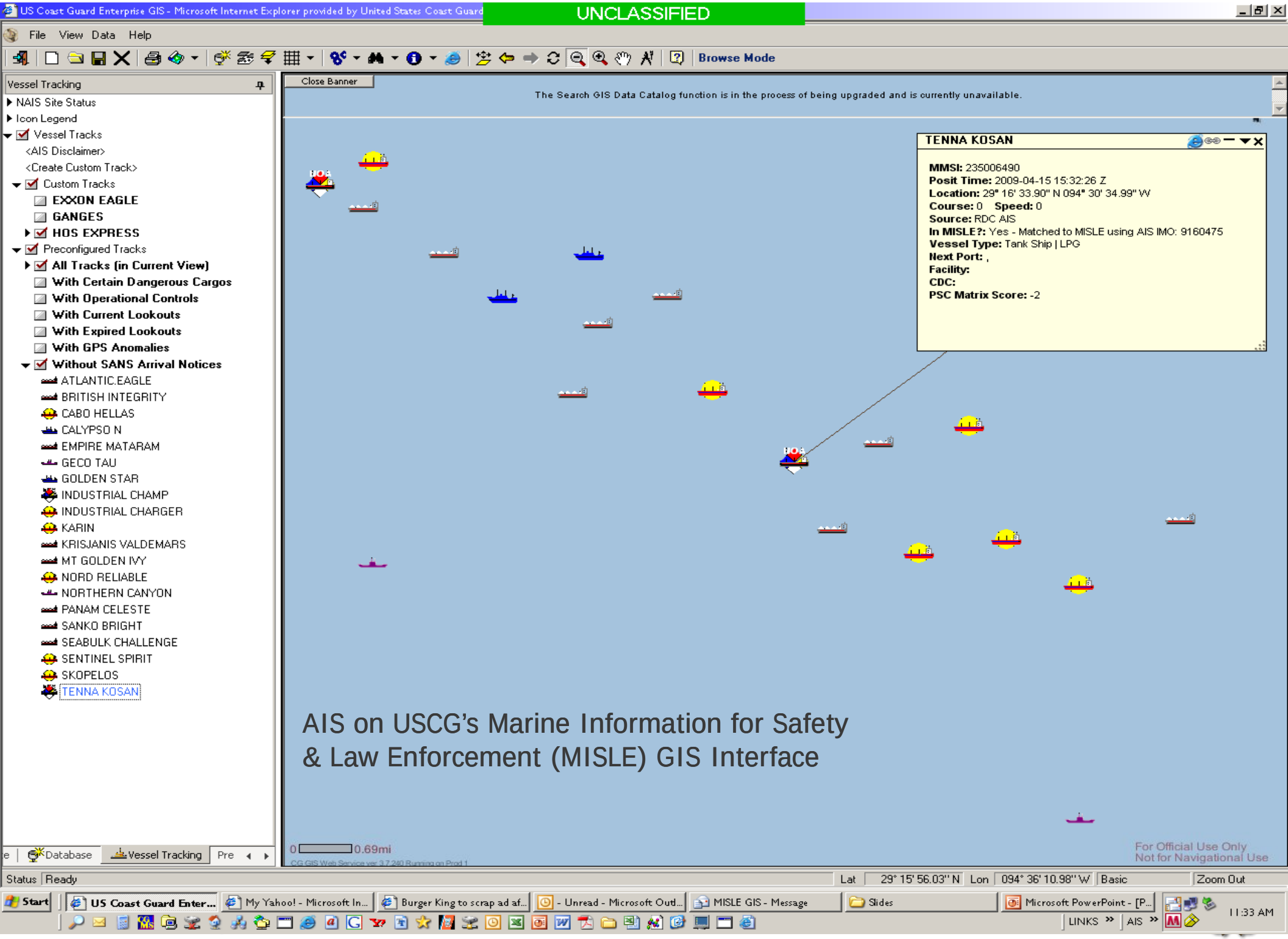
Flower Garden Banks National Marine Sanctuary Stetson Bank

Status Ready | Lat 28° 16' 15.74" N | Lon 095° 31' 38.82" W | Basic | Zoom In

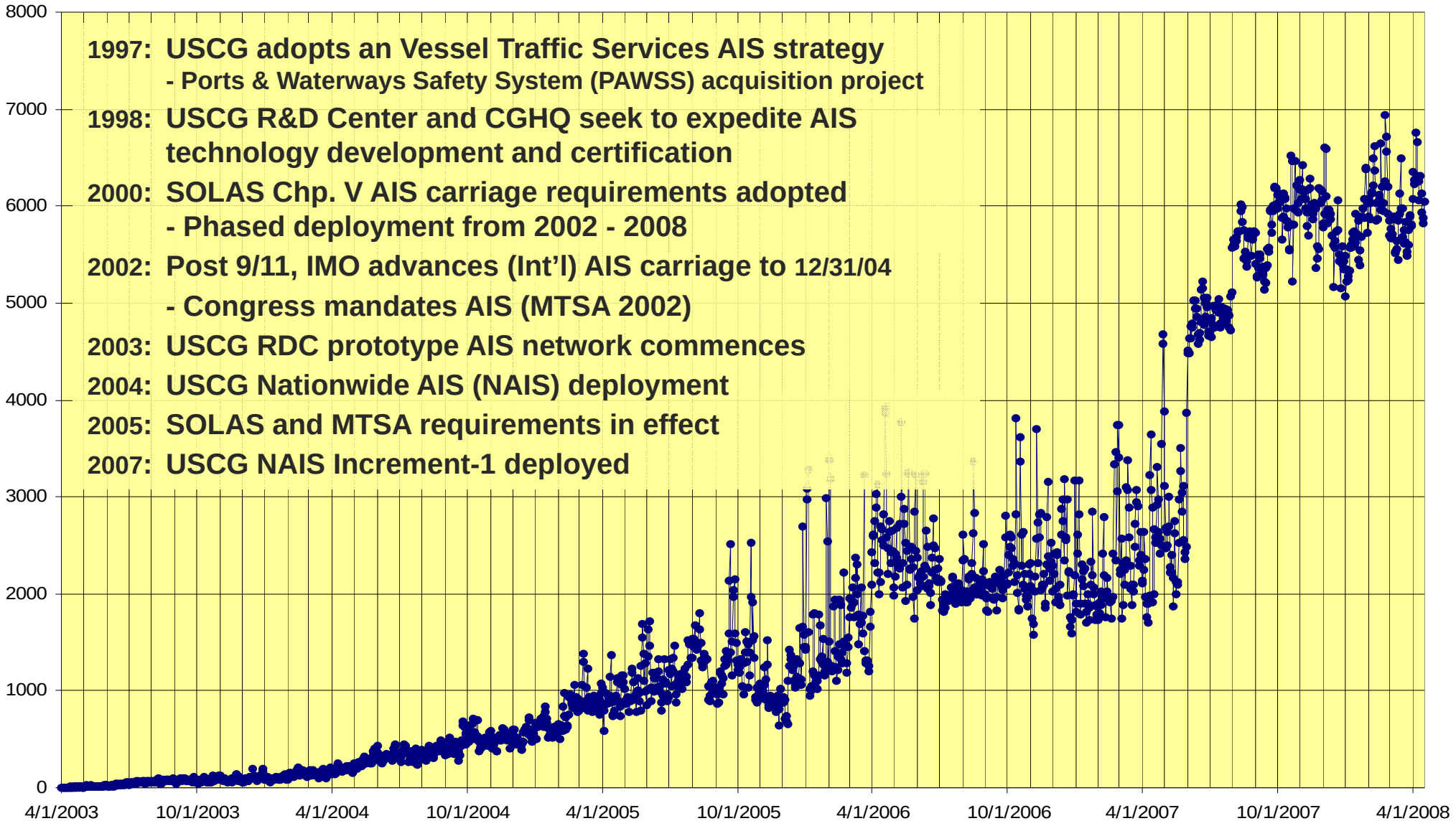
Start | US Coast Guard Enterp... | Microsoft PowerPoint - [Pr... | My Yahoo! - Microsoft Inte... | Burger King to scrap ad aft... | Yay! French Elle's amazing n...



AIS on USCG's Marine Information for Safety & Law Enforcement (MISLE) GIS Interface


US Coast Guard Enterprise GIS - Microsoft Internet Explorer provided by United States Coast Guard
UNCLASSIFIED
File View Data Help
Browse Mode
Vessel Tracking
NAIS Site Status
Icon Legend
Vessel Tracks
<AIS Disclaimer>
<Create Custom Track>
Custom Tracks
EXXON EAGLE
GANGES
HOS EXPRESS
Preconfigured Tracks
All Tracks (in Current View)
With Certain Dangerous Cargos
With Operational Controls
With Current Lookouts
With Expired Lookouts
With GPS Anomalies
Without SANS Arrival Notices
ATLANTIC.EAGLE
BRITISH INTEGRITY
CABO HELLAS
CALYPSO N
EMPIRE MATARAM
GECO TAU
GOLDEN STAR
INDUSTRIAL CHAMP
INDUSTRIAL CHARGER
KARIN
KRISJANIS VALDEMARS
MT GOLDEN IVY
NORD RELIABLE
NORTHERN CANYON
PANAM CELESTE
SANKO BRIGHT
SEABULK CHALLENGE
SENTINEL SPIRIT
SKOPELOS
TENNA KOSAN
Close Banner
The Search GIS Data Catalog function is in the process of being upgraded and is currently unavailable.
TENNA KOSAN
MMSI: 235006490
Posit Time: 2009-04-15 15:32:26 Z
Location: 29° 16' 33.90" N 094° 30' 34.99" W
Course: 0 Speed: 0
Source: RDC AIS
In MISLE?: Yes - Matched to MISLE using AIS IMO: 9160475
Vessel Type: Tank Ship | LPG
Next Port: ,
Facility:
CDC:
PSC Matrix Score: -2
AIS on USCG's Marine Information for Safety & Law Enforcement (MISLE) GIS Interface
0 0.69mi
For Official Use Only
Not for Navigational Use
Database
Vessel Tracking
Status Ready
Lat 29° 15' 56.03" N Lon 094° 36' 10.98" W Basic Zoom Out
Start
US Coast Guard Enter...
My Yahoo! - Microsoft In...
Burger King to scrap ad af...
- Unread - Microsoft Outl...
MISLE GIS - Message
Slides
Microsoft PowerPoint - [P...
11:33 AM

AIS units logged / tracked each day by USCG network



Homeland Security

NAIS Status & Other USCG AIS on goings…

Nation-wide AIS Project (NAIS)

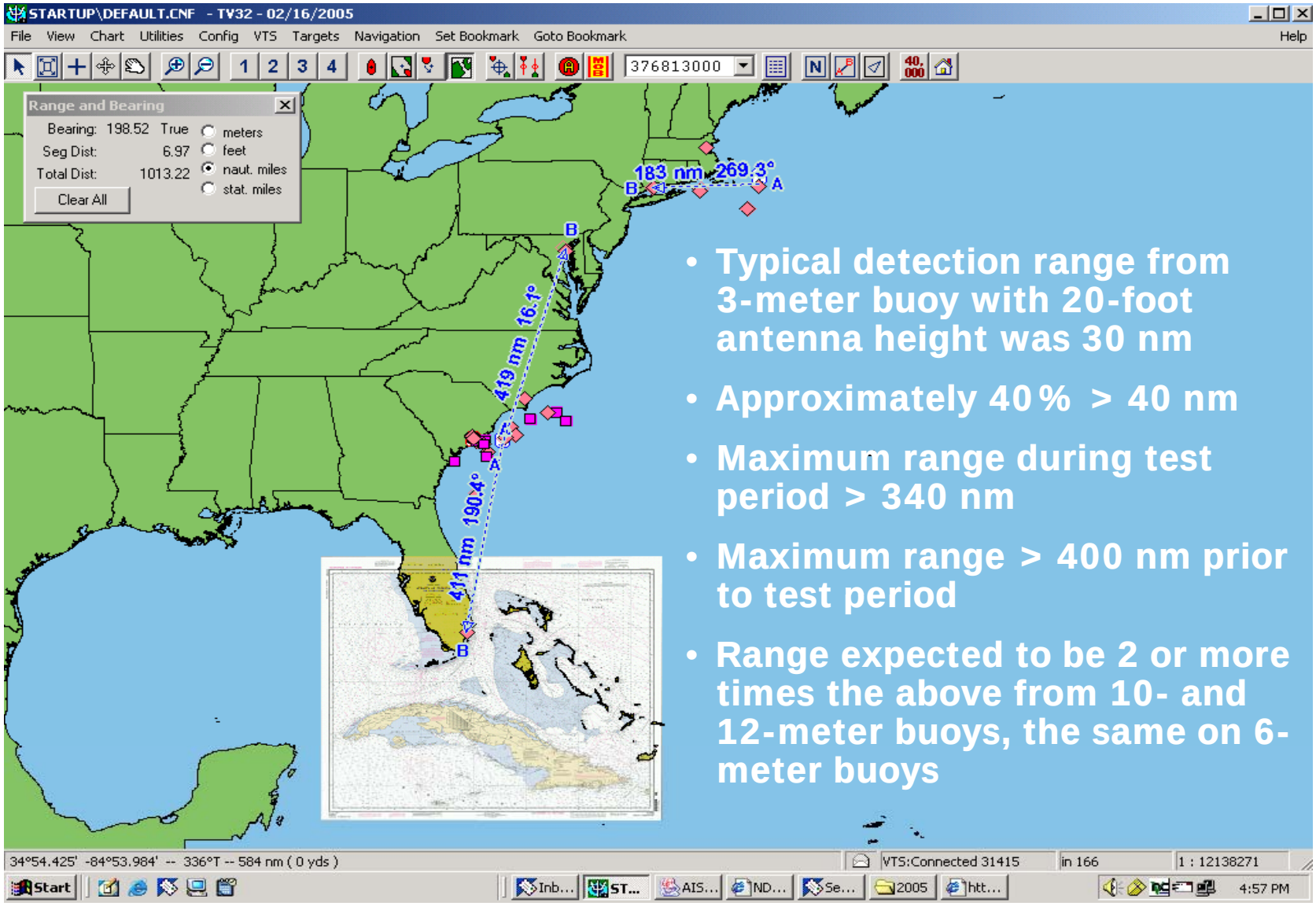
- Increment 1 – Completed Oct'07
- Increment 2 – Awarded Dec'08, IOC '11, FOC '14
- Increment 3 – Long range reception of AIS
  - Off-shore reception on buoys & oil platforms
  - Satellite reception tests in progress

VTS AIS Binaries Project

- Trials ongoing in:
  - Tampa (NOAA PORTS)
  - Stellwagen Bank (Right Whale Notifications)

AIS on NOAA Weather Buoys 3 meter disc buoys

AIS on NOAA Weather Buoys



- Typical detection range from 3-meter buoy with 20-foot antenna height was 30 nm
- Approximately 40 % > 40 nm
- Maximum range during test period > 340 nm
- Maximum range > 400 nm prior to test period
- Range expected to be 2 or more times the above from 10- and 12-meter buoys, the same on 6-meter buoys

NAIS Status & Other USCG AIS on goings…

Nation-wide AIS Project (NAIS)

- Increment 1 – Completed Oct'07
- Increment 2 – Awarded Dec'08, IOC '11, FOC '14
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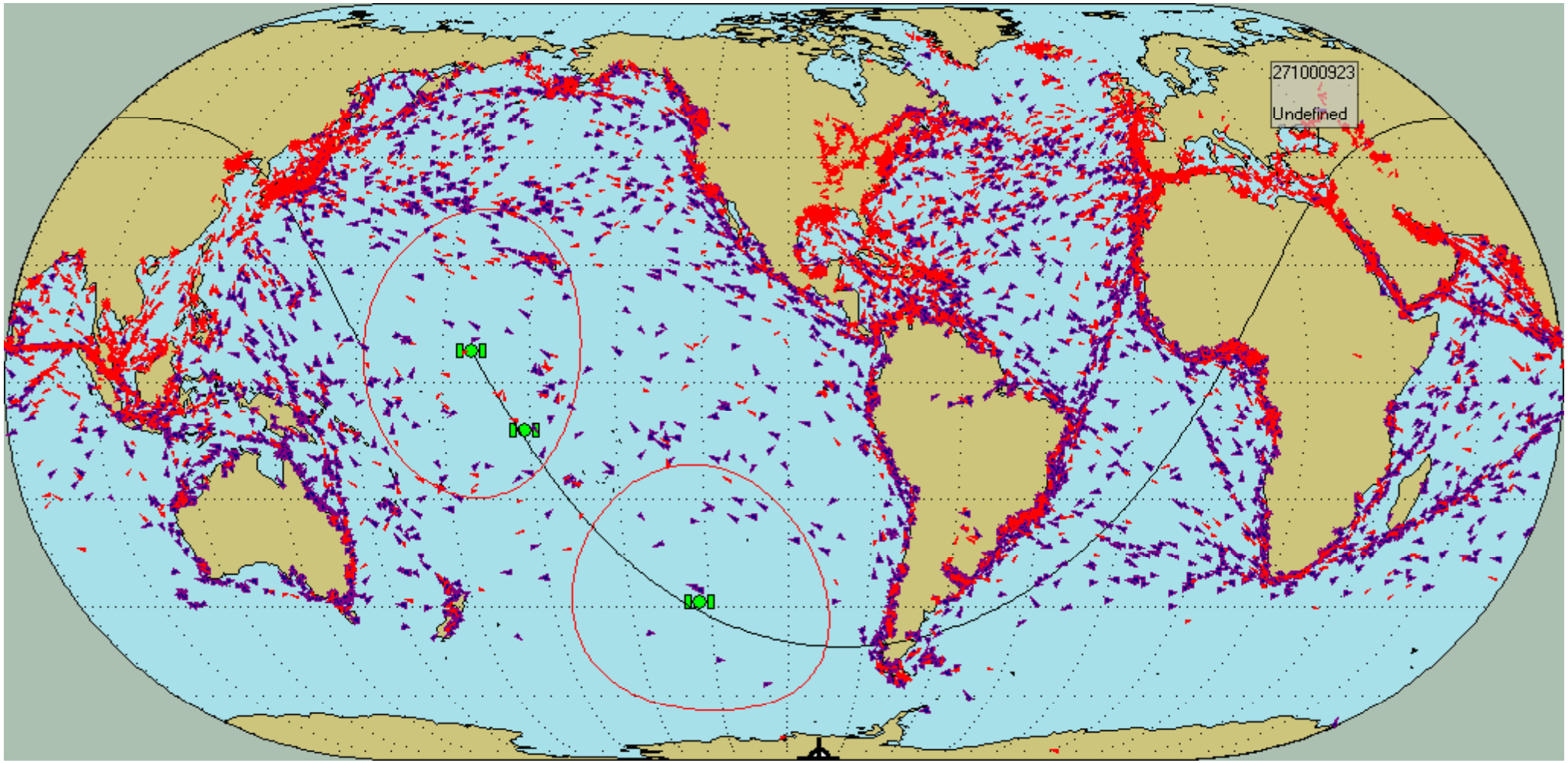
  - Satellite reception tests in progress

VTS AIS Binaries Project

- Trials ongoing in:
  - Tampa (NOAA PORTS)
  - Stellwagen Bank (Right Whale Notifications)

Satellite Reception of AIS



05:22:38 NOV 08 UTC / Vessel count: 11703

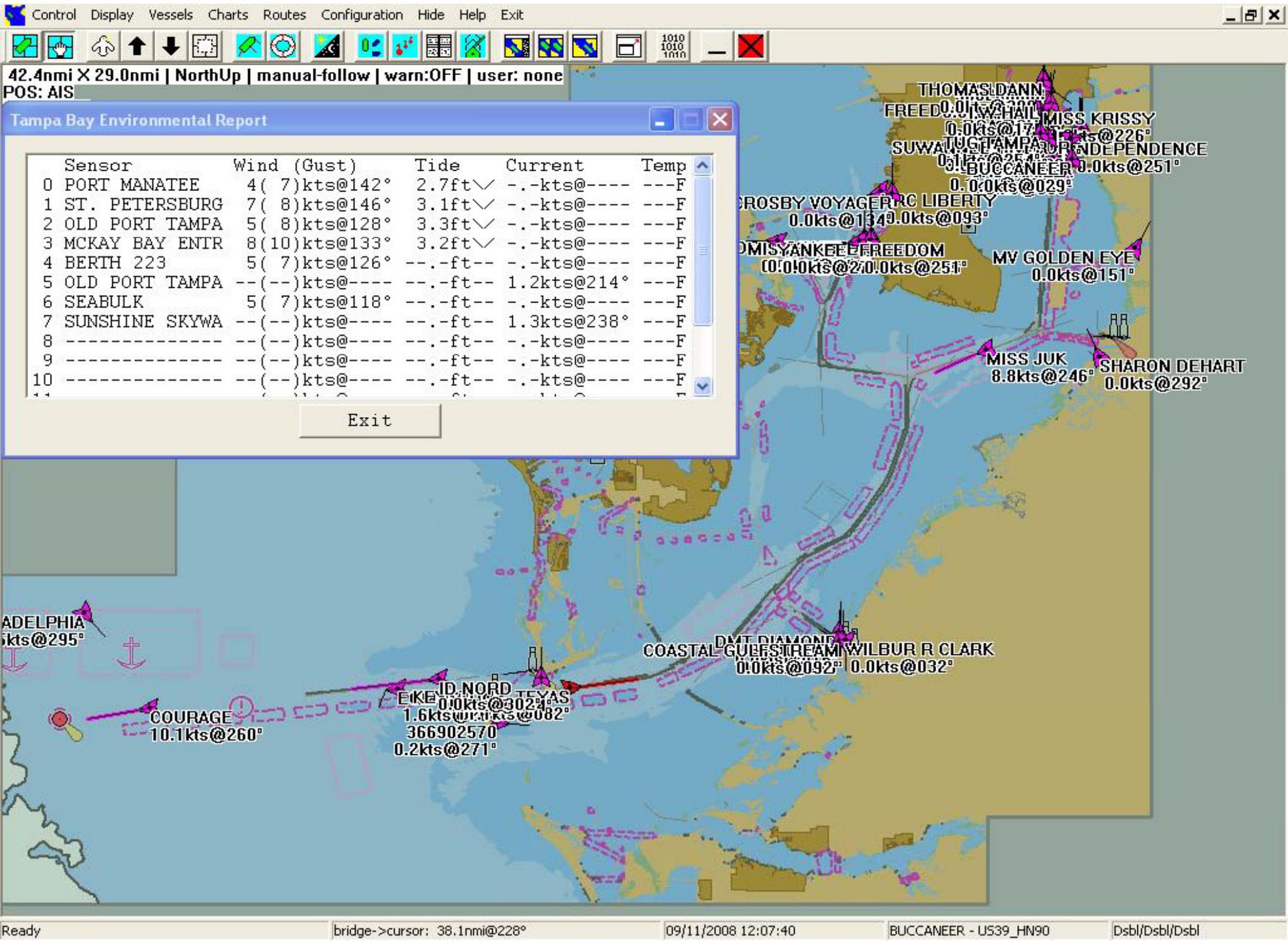
NAIS Status & Other USCG AIS on goings…

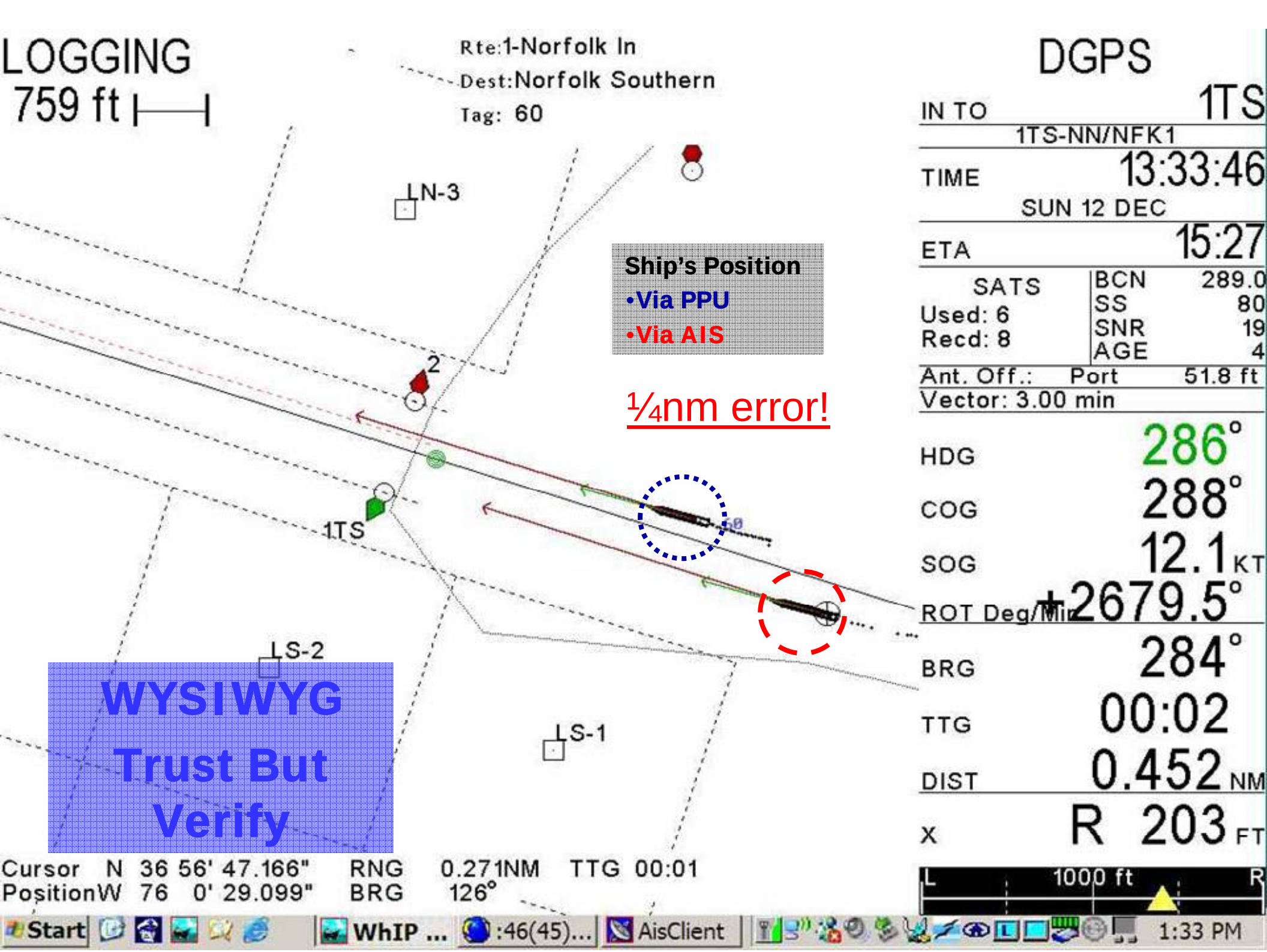
Nation-wide AIS Project (NAIS)

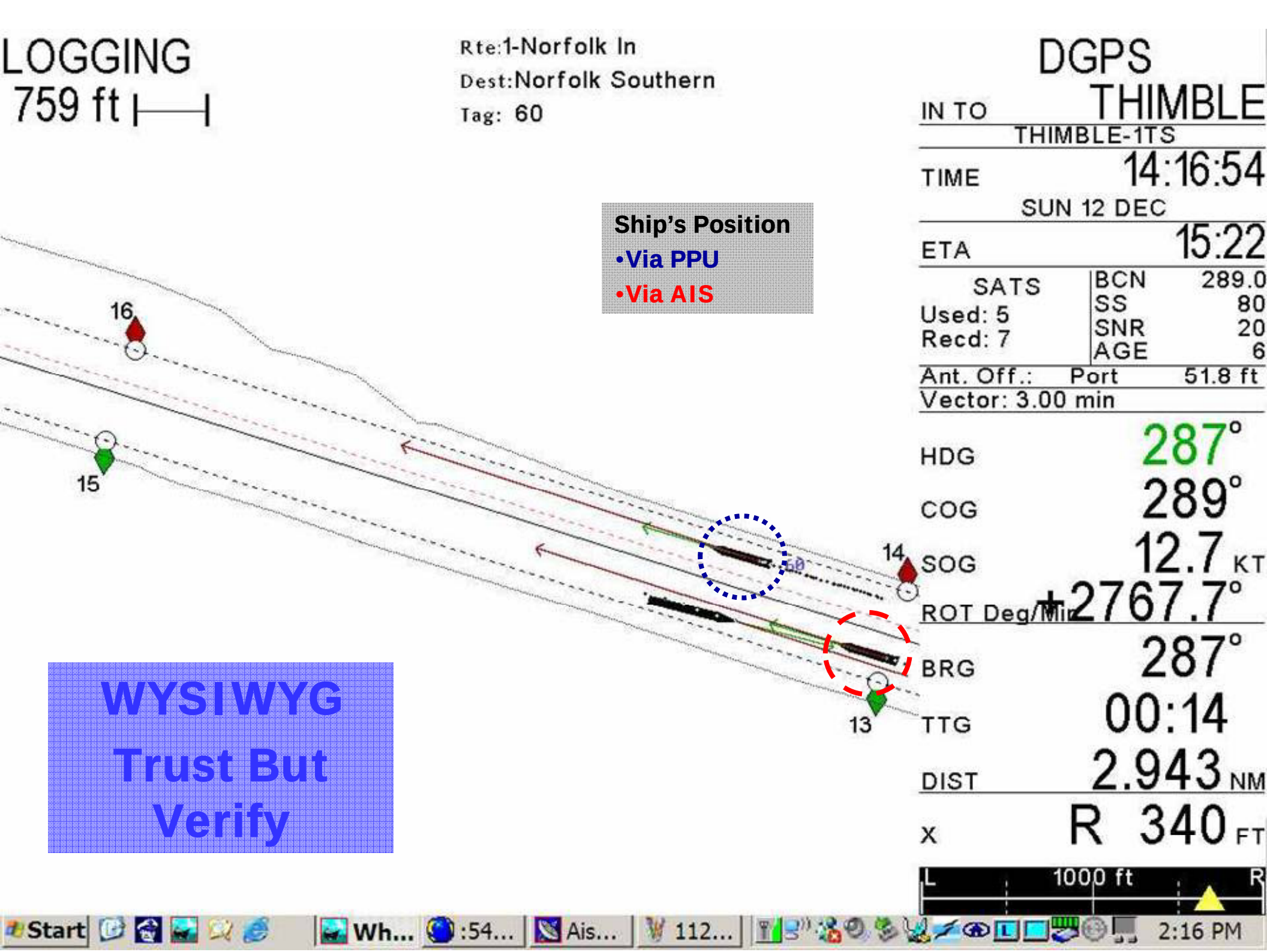
- Increment 1 – Completed Oct'07
- Increment 2 – Awarded Dec'08, IOC '11, FOC '14
- Increment 3 – Long range reception of AIS
  - Off-shore reception on buoys & oil platforms
  - Satellite reception tests in progress

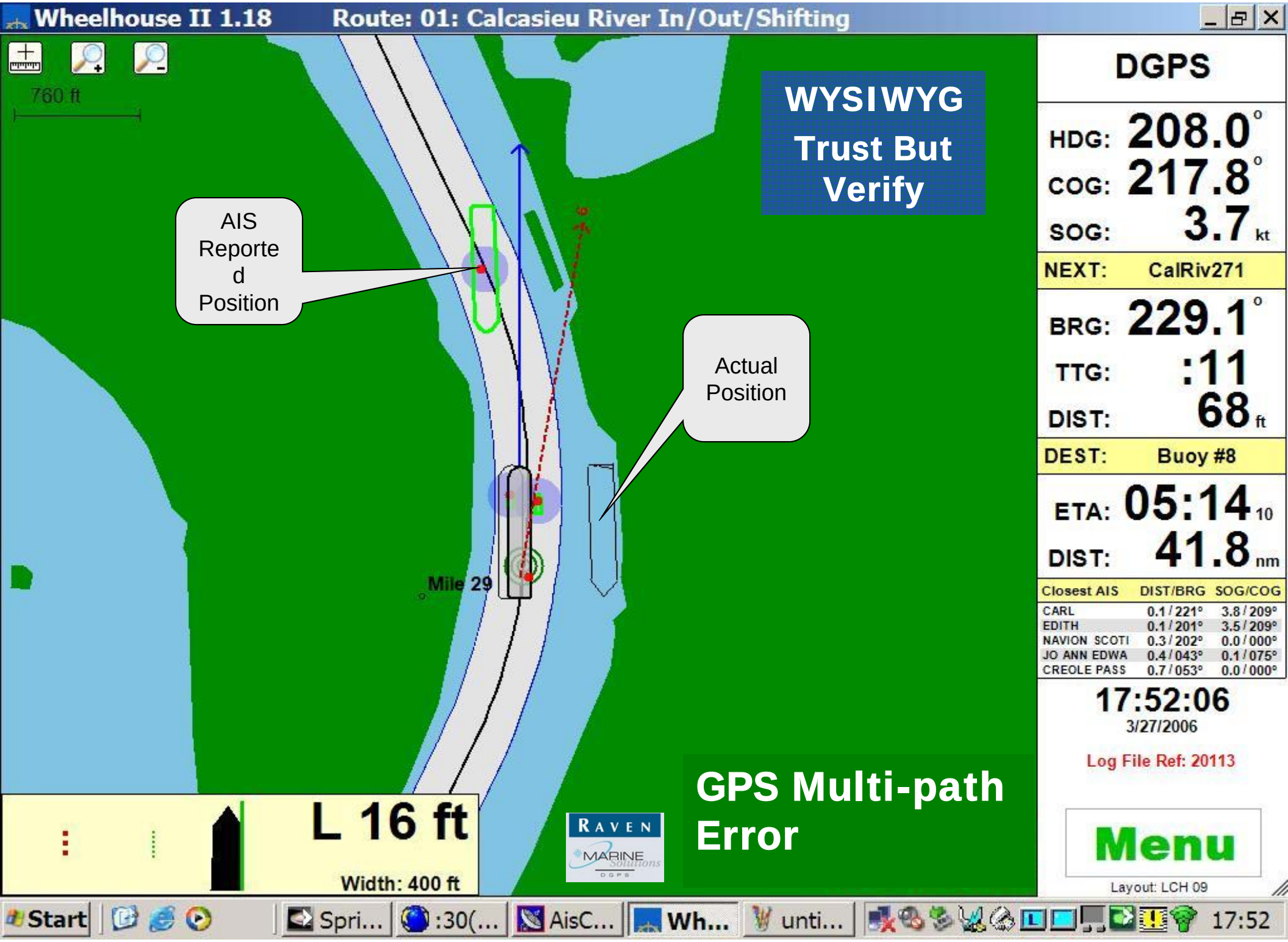
VTS AIS Binaries Project

- Trials ongoing in:
  - Tampa - NOAA PORTS
    - PORTS - Physical Oceanographic Real-time System
  - Stellwagen Bank (Right Whale Notifications)


Control Display Vessels Charts Routes Configuration Hide Help Exit
42.4nmi X 29.0nmi | NorthUp | manual-follow | warn:OFF | user: none
POS: AIS
Tampa Bay Environmental Report
Sensor Wind (Gust) Tide Current Temp
0 PORT MANATEE 4(7)kts@142° 2.7ft⟋ -.-kts@---- ---F
1 ST. PETERSBURG 7(8)kts@146° 3.1ft⟋ -.-kts@---- ---F
2 OLD PORT TAMPA 5(8)kts@128° 3.3ft⟋ -.-kts@---- ---F
3 MCKAY BAY ENTR 8(10)kts@133° 3.2ft⟋ -.-kts@---- ---F
4 BERTH 223 5(7)kts@126° --.-ft-- -.-kts@---- ---F
5 OLD PORT TAMPA --(--)kts@---- --.-ft-- 1.2kts@214° ---F
6 SEABULK 5(7)kts@118° --.-ft-- -.-kts@---- ---F
7 SUNSHINE SKYWA --(--)kts@---- --.-ft-- 1.3kts@238° ---F
8 ---------- --(--)kts@---- --.-ft-- -.-kts@---- ---F
9 ---------- --(--)kts@---- --.-ft-- -.-kts@---- ---F
10 ---------- --(--)kts@---- --.-ft-- -.-kts@---- ---F
Exit
THOMAS J DANN
MISS KRISSY
TUG TAMPA
INDEPENDENCE
BUCCANEER
0.0kts@029°
CROSBY VOYAGER
RC LIBERTY
0.0kts@093°
MV GOLDEN EYE
0.0kts@151°
MISS JUK
8.8kts@246°
SHARON DEHART
0.0kts@292°
COASTAL GULFSTREAM
WILBUR R CLARK
0.0kts@092°
0.0kts@032°
COURAGE
10.1kts@260°
366902570
0.2kts@271°
Ready
bridge->cursor: 38.1nmi@228°
09/11/2008 12:07:40
BUCCANEER - US39_HN90
Dsbl/Dsbl/Dsbl

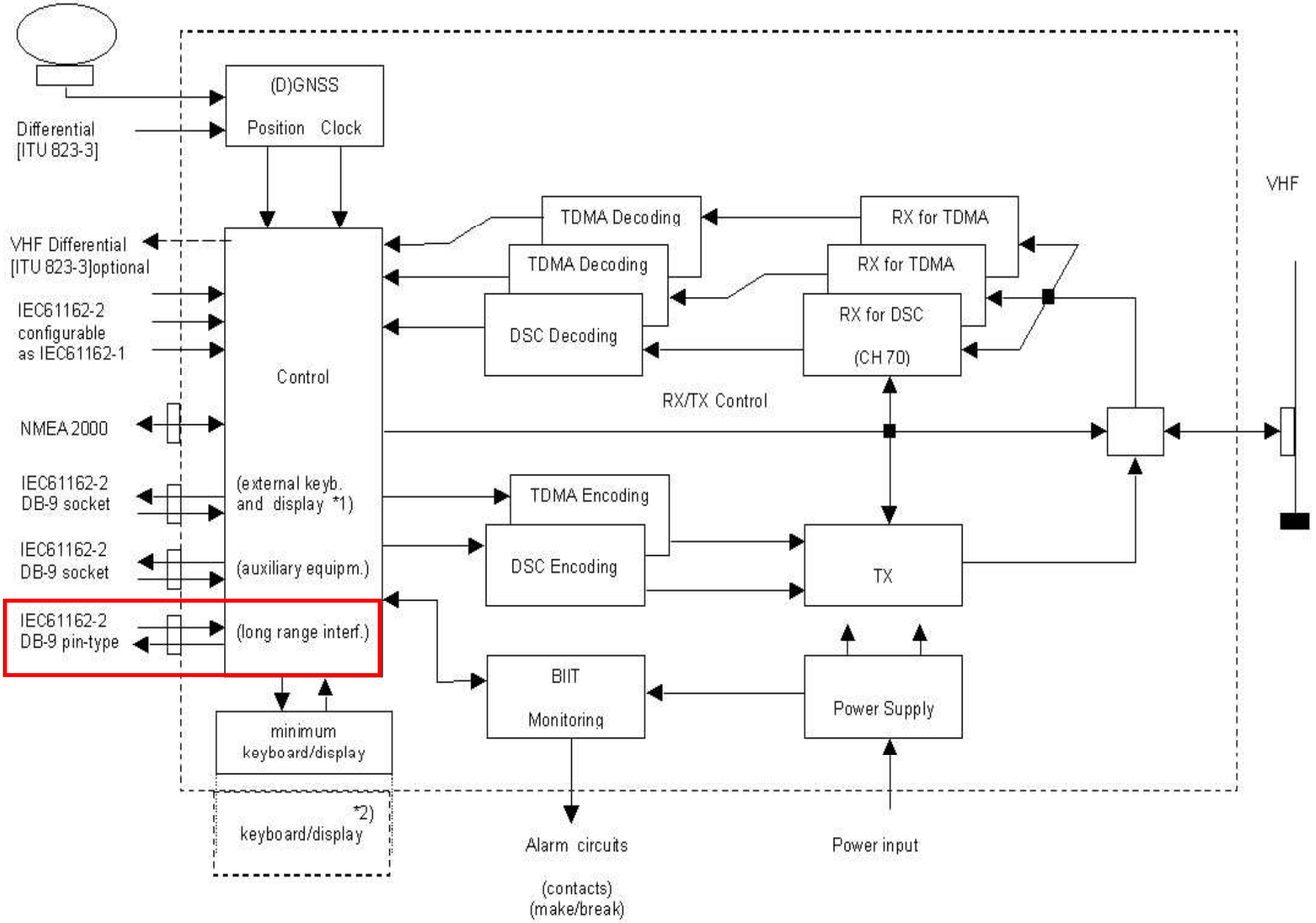

LOGGING
759 ft
Rte:1-Norfolk In
Dest:Norfolk Southern
Tag: 60
LN-3
2
1TS
LS-2
LS-1
Ship's Position
•Via PPU
•Via AIS
¼nm error!
WYSIWYG
Trust But
Verify
DGPS
IN TO 1TS
1TS-NN/NFK1
TIME 13:33:46
SUN 12 DEC
ETA 15:27
SATS
Used: 6
Recd: 8
BCN 289.0
SS 80
SNR 19
AGE 4
Ant. Off.: Port 51.8 ft
Vector: 3.00 min
HDG 286°
COG 288°
SOG 12.1 KT
ROT Deg/Min +2679.5°
BRG 284°
TTG 00:02
DIST 0.452 NM
X R 203 FT
L 1000 ft R
Cursor N 36 56' 47.166" RNG 0.271NM TTG 00:01
Position W 76 0' 29.099" BRG 126°
Start
WhIP ...
:46(45)...
AisClient
1:33 PM


LOGGING
759 ft
Rte:1-Norfolk In
Dest:Norfolk Southern
Tag: 60
Ship's Position
•Via PPU
•Via AIS
16
15
14
13
WYSIWYG
Trust But
Verify
DGPS
IN TO THIMBLE
THIMBLE-1TS
TIME 14:16:54
SUN 12 DEC
ETA 15:22
SATS
Used: 5
Recd: 7
BCN 289.0
SS 80
SNR 20
AGE 6
Ant. Off.: Port 51.8 ft
Vector: 3.00 min
HDG 287°
COG 289°
SOG 12.7 KT
ROT Deg/Min +2767.7°
BRG 287°
TTG 00:14
DIST 2.943 NM
X R 340 FT
L 1000 ft R
Start
Wh...
:54...
Ais...
112...
2:16 PM


Wheelhouse II 1.18
Route: 01: Calcasieu River In/Out/Shifting
760 ft
WYSIWYG
Trust But
Verify
AIS
Reporte
d
Position
Actual
Position
Mile 29
DGPS
HDG: 208.0°
COG: 217.8°
SOG: 3.7 kt
NEXT: CalRiv271
BRG: 229.1°
TTG: :11
DIST: 68 ft
DEST: Buoy #8
ETA: 05:14 10
DIST: 41.8 nm
Closest AIS DIST/BRG SOG/COG
CARL 0.1 / 221° 3.8 / 209°
EDITH 0.1 / 201° 3.5 / 209°
NAVION SCOTI 0.3 / 202° 0.0 / 000°
JO ANN EDWA 0.4 / 043° 0.1 / 075°
CREOLE PASS 0.7 / 053° 0.0 / 000°
17:52:06
3/27/2006
Log File Ref: 20113
L 16 ft
Width: 400 ft
RAVEN
MARINE Solutions
DGPS
GPS Multi-path
Error
Menu
Layout: LCH 09
Start
Spri...
:30(...
AisC...
Wh...
unti...
17:52

AIS and VMS Comparison

	Automatic Identification System (AIS)	Vessel Monitoring System (VMS)
System Type	International (ITU-IMO) Digital VHF-FM Radio Broadcast (Ch. 87B & 88B)	Proprietary Digital Satellite Network, primarily INMARSAT-C
Service Provider	Open, non-proprietary protocol; not protected	Closed, proprietary protocols; strict data usage rules under Magnuson
Reporting Mode(s)	Two-way autonomous & continuous Can also be polled or assigned > rate Class A: 2-10 seconds, Class B: 30s Both at 3min <3kt. Static Report: 6min.	Primarily, one-way (ship-shore) Reports via polling or scheduled (usually every 10-60 min.)
Range	Line of sight from each station ~40 nm	Line of sight within satellite coverage
Applicability Population	REQUIRED for navigation safety per: • SOLAS (V/19.2.4) – 60,00 vessels • MTSA (46 USC 70114) — 19, 000	REQUIRED by Fishery Management Councils (FMC) FMC: 2000 Atlantic, 1500 Pacific
Cost	Class A (SOLAS): $2,800 - $5,000 Class B: $700 - 1,500 No additional transmission costs	Approx $3,000 – 5,000, plus additional transmission costs/message

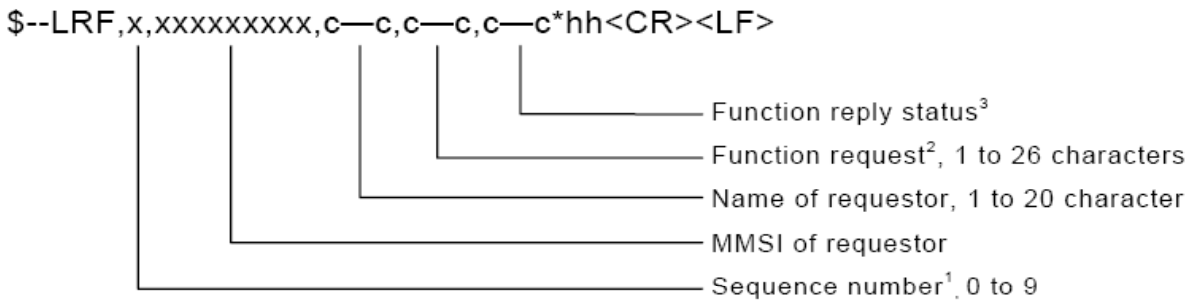


*1) The external keyboard/display may be e.g. a radar, ECDIS or dedicated devices.
*2) The internal keyboard/display may optionally be external [Functionality t.b.d.]

LRF - AIS Long-Range Function

This sentence is used in both long-range interrogation requests and long-range interrogation replies. The LRF-sentence is the second sentence of the long-range interrogation request pair, LRI and LRF (see the LRI-sentence).

The LRF-sentence is also the first sentence of the long-range interrogation reply. The minimum reply consists of a LRF-sentence followed by a LR1-sentence. The LR2-sentence and/or the LR3-sentence follow the LR1-sentence if information provided in these sentences was requested by the interrogation. When the AIS unit creates the LRF-sentence for the long-range interrogation reply, fields 1, 2, 3 and 4 should remain as received in the long-range interrogation request; and field 5 (function reply status) and the new checksum are added to the LRF reply sentence.

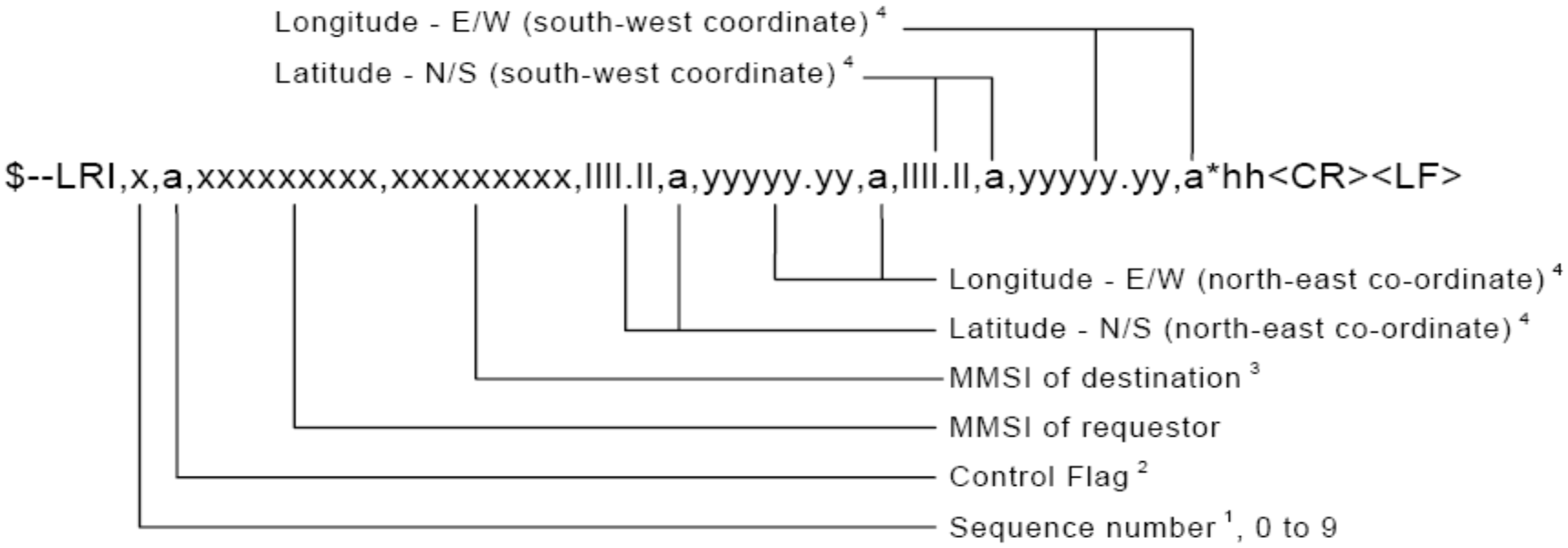


NOTE 1 This is used to bind the contents of the LRI and LRF sentences together. The LRF sentence shall immediately follow the LRI sentence and use the same sequence number. The requestor process shall increment the sequence number each time a LRI/LRF pair is created. After 9 is used the process shall begin again from 0. The Long-range interrogation is not valid if the LRI and LRF sequence numbers are different.

NOTE 2 The Function request field uses alphabetic characters, based upon IMO Resolution A.851(20), to request specific information items. Specific information items are requested by including their function identification character in this string of characters. The order in which the characters appear in the string is not important. All characters are upper-case. Information items will not be provided if they are not specifically requested - even if available to the AIS unit. The IMO Resolution defines the use of all characters from A to Z, but not all defined information is available to the AIS unit. The following is a list of the function identification characters, with the information they request:

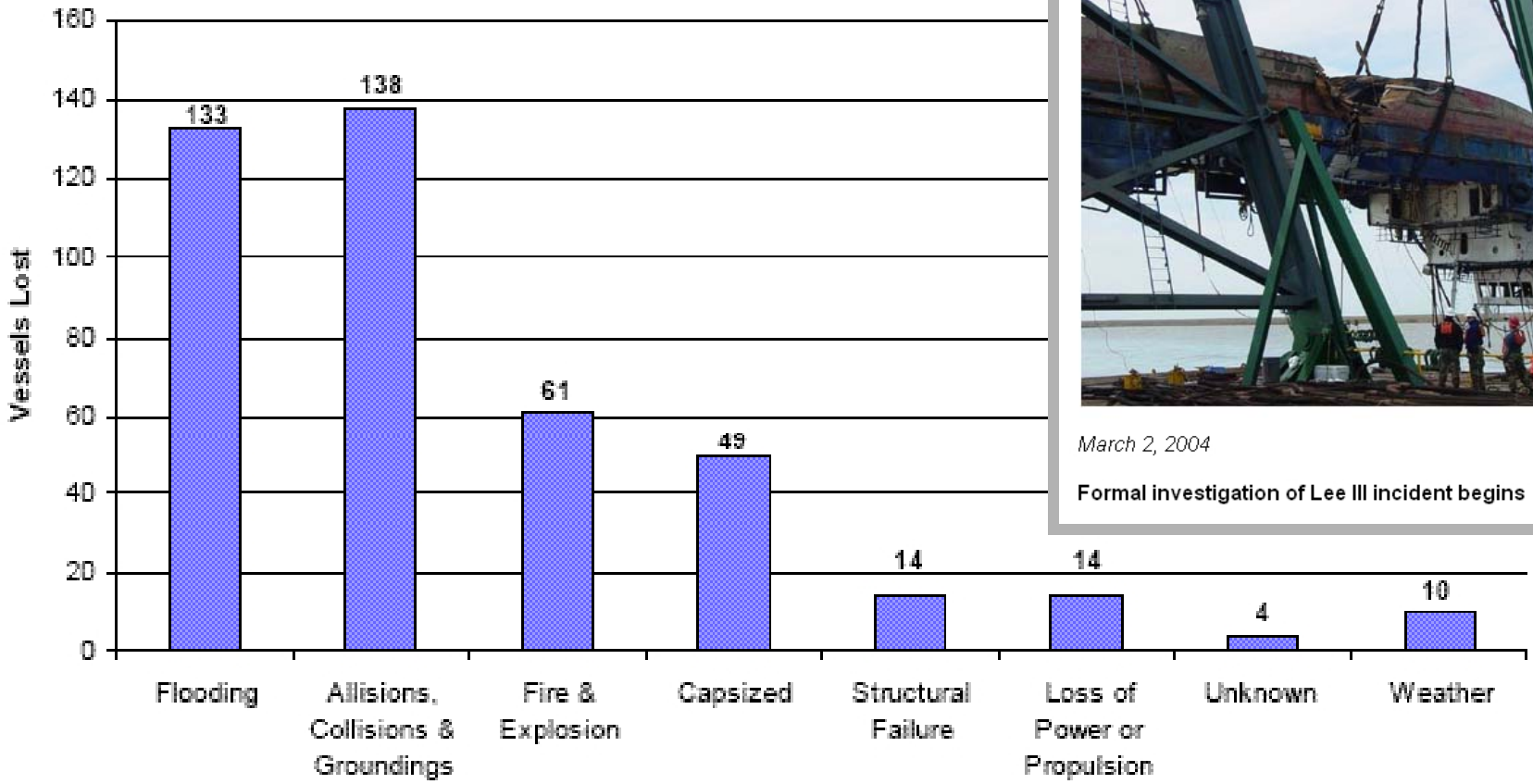
LRI - AIS Long-range Interrogation

The Long-range interrogation of the AIS unit is accomplished through the use of tv sentences. The pair of interrogation sentence formatters, a LRI sentence followed by a LF sentence, provides the information needed by a universal AIS unit to determine if it mu construct and provide the reply sentences (LRF, LR1, LR2, and LR3). The LRI senten contains the information that the AIS unit needs in order to determine if the reply sentenc need to be constructed. The LRF sentence identifies the information that needs to be in tho reply sentences.



NOTE 1 This is used to bind the contents of the LRI and LRF sentences together. The LRF sentence sh immediately follow the LRI sentence and use the same sequence number. The requestor process shall increm

Causes of Vessel Loss While Underway & Maneuvering
Calendar Years 1994 - 2000



March 2, 2004

Formal investigation of Lee III incident begins

Vessels lost while Underway & Maneuvering = 423

Vessels lost from all operations = 907

Home > News & Opinion > Local / Regional News > RSS Feed

Massive freighter ends fishermen's bountiful excursion

By **Brian Ballou**
Monday, May 24, 2004

E-mail article View text version View most popular

Until the time a mammoth 700-foot freighter sliced their puny boat in half Saturday morning, three Connecticut fishermen were grabbing quite a haul of monkfish off the coast of New York.

``It was looking pretty good for us,'' Geal Roderick, 29, of Mystic, Conn., said yesterday. He and Benjamin Schober...

Homeland Security

AIS Class A & B Comparison	Class A	Class B/CS
Transmit Power	2w	12.5w / 2w (low-power)
Reporting Rate	2 - 10 sec - speed and/or course dependent	30 sec. fixed
Communication Protocol	SO-TDMA Self-Organizing amongst Class A's	CS-TDMA Carrier-Sense(s), polite to Class A's
Frequency Range & Bandwidth	156.025 -162.025 MHz @ 12/25 kHz DSC Required	161.500 - 162.025 MHz @ 25 kHz DSC & 12.5 kHz Optional
Position Source	External GNSS & Internal GPS	Internal GPS
Digital Interfaces	2 Input-Output Ports & Multiple Outputs	Optional
Display	Multiple Keyboard Display (MKD)	Optional
Safety Text Messaging	Receive & Transmit	Transmit Optional & Pre-configured
Data	All	No Rate of Turn, Navigation Status, Destination, ETA, Draft, IMO#
CG Type-Approvals	22 Models - 16 Manufacturers	8 Models - 8 Manufacturers
Approximate Cost	$2,800 - 4,000	$700 - 1,500

NAVIGATION CENTER

The Navigation Center of Excellence

U.S. Department of Homeland Security

UNITED STATES COAST GUARD

Consolidated Nav Info | DGPS Advisories | GPS Advisories / NANUs | GPS Interference Notices | LNMs | Almanacs | Nav Rules | AIS | Contact Us | Search | Home

Automatic ID System (AIS)

- AIS Overview - What is AIS?
- How AIS Works
- What AIS Broadcasts
- AIS Standards
- Types of AIS
- AIS Certification
- Carriage Requirements
- AIS Notices
- Frequently Asked Questions
- Report an AIS problem

Primary Mission Areas:

- Global Positioning System
- Differential GPS
- Nationwide DGPS
- LORAN C

AIS NOTICES

AIS Advisory

The Coast Guard has noticed that many Automatic Identification System (AIS) users are not updating their unit to accurately reflect voyage related information—navigation status, static draft, destination, ETA, etc. Further, the Coast Guard has encountered AIS units that either do not transmit at all or improperly transmit the vessel's dynamic data—position, course, speed, heading, etc. The former problem requires due diligence on behalf of the user, the latter is most likely due to the improper installation or operation of external sensors—gyro or heading device and vessel GPS system—inputted into the AIS. AIS users are compelled to properly operate their AIS at all times (33 CFR § 164.46). They should pay close attention to these matters, and are encouraged to make each other aware of AIS discrepancies they come upon. Improper operation of AIS could subject the user to civil penalties not to exceed $25,000.

Note, AIS data can be invaluable, however, as with any source of navigation information; it should not be solely relied upon in making navigational and collision-avoidance decisions. Further, while AIS allows for safety related ship-to-ship text messaging to communicate with others and make passing arrangements, these communications do not meet the requirements of the Vessel Bridge-to-Bridge Radiotelephone Act (33 U.S.C. 1201 et. seq.) for broadcasts on the designated bridge-to-bridge channel, nor do they relieve a vessel operator from the Navigation Rules requirement to sound whistle signals or display signals.

To report an AIS problem or for further information regarding AIS >>

For further information on AIS visit: www.navcen.uscg.gov

Homeland Security

United States Coast Guard

Office of Navigation Systems

Jorge.Arroyo@uscg.mil
1-202-372-1563
www.navcen.uscg.gov/enav
cgnav@uscg.mil

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Washington, DC 20953