Inmarsat C EGC SafetyNET Status

IHO Commission on Promulgation of Radio Navigational Warnings (CPRNW)
9th meeting
10-14 September 2007
Monaco

Andy Fuller, Deputy Director
International Mobile Satellite Organisation (IMSO)

(on behalf of Vladimir Maksimov
Manager, Maritime Safety Operations
Inmarsat Maritime Safety Services)

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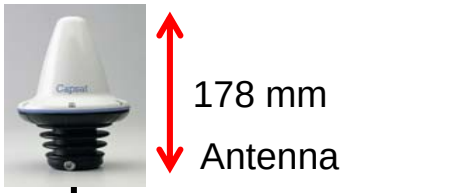
Inmarsat C and Inmarsat mini-C maritime terminals (with Distress capability)



178 mm
Antenna

0.9 Kg, 122 mm

Above deck equipment

Below deck equipment

Transceiver
(with GPS) 1.3 Kg

Printer (required for SOLAS compliant vessels)

Messaging unit

Distress Button
and signalling box

146 mm
Antenna,
Transceiver, GPS
(single unit for some models)

1.1 Kg, 163 mm

Junction box

Messaging
unit (laptop)

Distress button
(if service is supported
by the model)

Some mini-C models
are approved for GMDSS

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Inmarsat C and Inmarsat Mini-C characteristics and services

Antenna Messaging unit Transceiver (with GPS) Distress button Printer

- Global coverage (between 76º North and South)
- Store and Forward communication system (ship-to-shore, shore-to-ship and ship-to-ship)

  messages delivered to telex, fax (text, one way only), PSDN/PSTN, another mobile, SAC, Internet (e-mail)
- Non-stabilised omnidirectional antenna, small size and weight
- Low power consumption, compatible with national alphabets
- Some mini-C models are approved for GMDSS and support Distress Calling and EGC functions
- More than 78,000 Maritime Inmarsat C and more than 28,000 Inmarsat mini-C MESs
- Main part of the GMDSS satellite equipment – required by SOLAS Convention, Chapter IV
  - Distress Calling
    - distress alerting
    - distress priority messaging
  - Enhanced Group Calling (EGC)
    - EGC SafetyNET
    - EGC FleetNET
  - Data reporting and polling (position monitoring, tracking, ship security alerting)

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Number of EGC SafetyNET messages & size per ocean region

	AOR-E		AOR-W		IOR		POR		Total	
Month	Number	Size	Number	Size	Number	Size	Number	Size	Number	Size
Sep'06	4363	171331	3774	242786	8363	124912	6485	203810	22985	742839
Oct'06	4729	133642	3234	190718	8742	124620	6875	241964	23580	690944
Nov'06	4405	140580	3057	174879	8263	127588	6094	225606	21819	668653
Dec'06	2894	119485	3865	196261	10355	155896	6235	224492	23349	696134
Jan'07	4132	130070	2992	225024	10836	158667	5974	231142	23934	744903
Feb'07	3851	120467	2327	196256	8228	143618	4442	188709	18848	649050
Mar'07	3978	126161	2538	179146	11777	174276	8433	268962	26726	748545
Apr'07	4221	123582	2383	147596	7859	114229	8153	223773	22616	609180
May'07	4371	133646	3215	171086	9010	131382	10146	279286	26742	715400
Jun'07	3883	120846	3170	143929	17219*	187503*	10956	269621	35228	721899
Jul'07	4235	130356	3121	165963	9288	145069	9636	289567	26280	730955
Aug'07	4621	169428	3996	197221	9578	155406	10249	303915	28444	825970

* - Increased number is caused by multi-repeated messages due to a technical problem with Burum LES

On average 620-880 EGC SafetyNET messages of all service types are broadcast in all ocean regions per day, including repeated messages, of which:

AOR-E: 125 - 155 messages per day (120-150 of last year report);

AOR-W: 76 – 126 messages per day (60-105 of last year report);

IOR: 250 – 390 messages per day (190-370 of last year report) (up to 560 in June); and

POR: 145 – 332 messages per day (130-230 of last year report) (up to 360 in June)

(Size is given in number of units of 32 bytes/characters)

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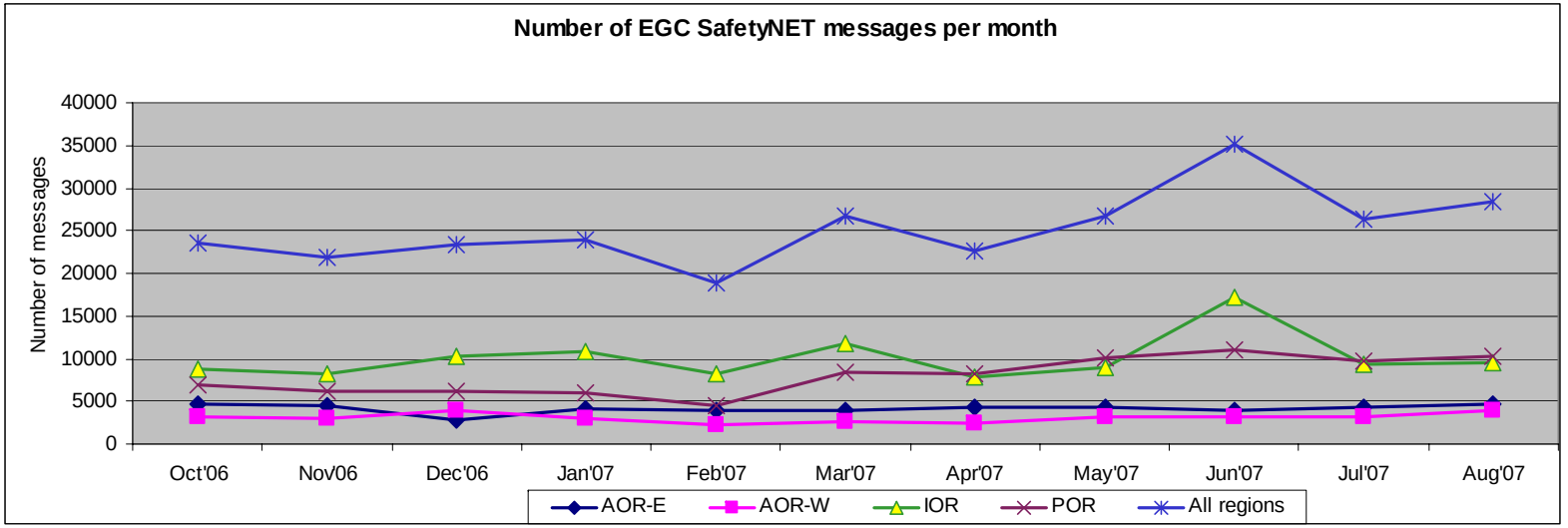
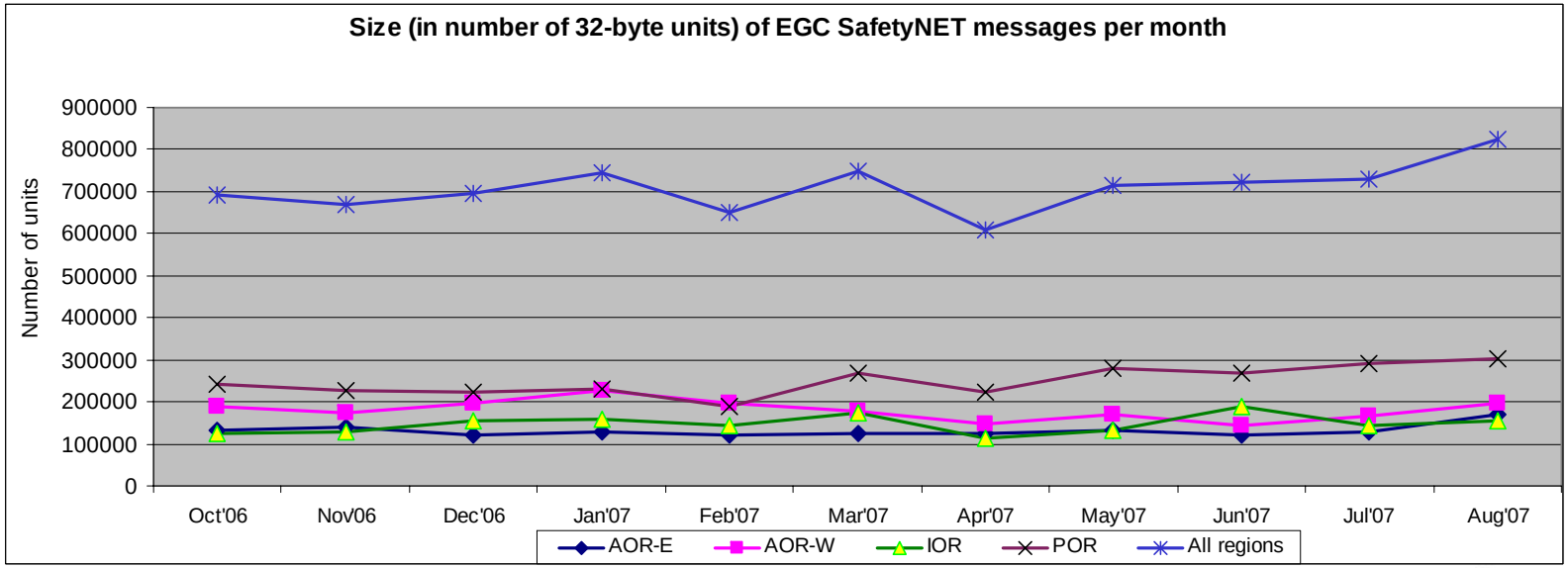
Number and size of EGC SafetyNET messages per ocean region





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Contingency arrangement

- Recent problems with promulgating MSI via the EGC SafetyNET:
  - Arvi LES (India) – LES was relocated and off air for some time. A few days were spent to negotiate a new traffic arrangement with Telenor and EGC SafetyNET traffic was routed via Eik LES (Norway)
  - Burum LES (Australia) – software problems, which caused multiple repetition of messages, and traffic was routed via Perth LES
- In case of any problem with the addressed LES, e.g. outages, service interruption, etc., MSI providers are recommended to have (should have) a contingency arrangement with a secondary LES
- It is a commercial decision for MSI providers and Inmarsat is not able to recommend a secondary LES(s)
- Should/will CPRNW formally record a recommendation in the meeting report

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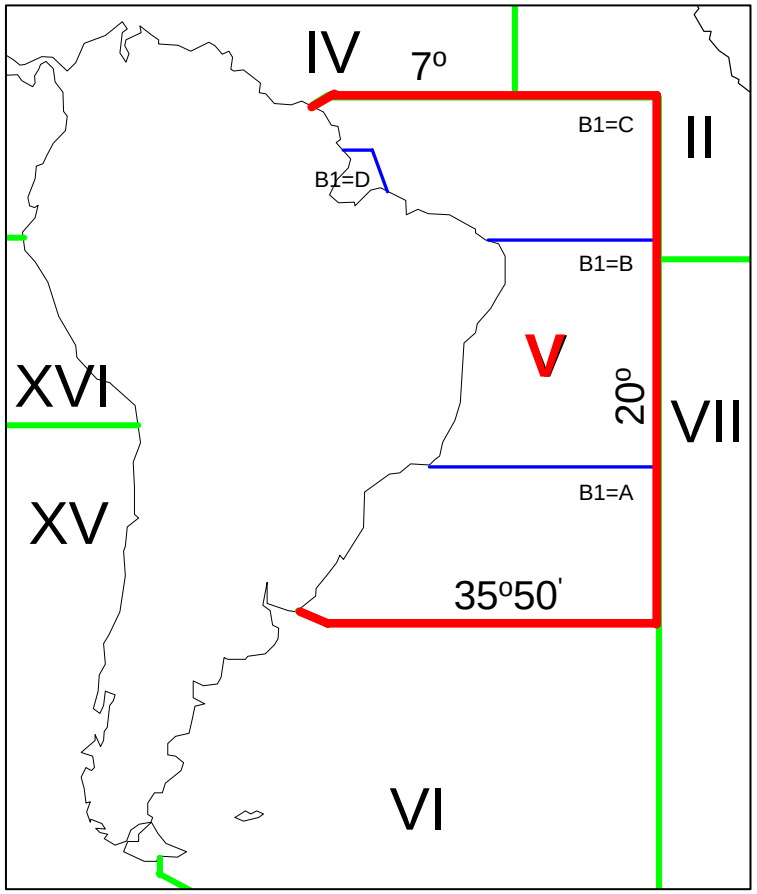
Coastal areas for NAV/METAREA V



- 4 coastal areas (B1) are set up – A, B, C and D
- To receive coastal warnings ships' EGC receivers shall be set up accordingly with B1 and B2 codes
  - Note: coastal warnings are not mandatory messages to receive automatically via SafetyNET and can be missed if mobile terminals are not set up
  - Mariners can set up one coastal area, two, three or all areas (B1 code) and any/all type of messages (B2 code)
- Similar map and other information on the new service shall be published in the ALRS, Vol 5
  - See example in ALRS, Vol. 5 for NAV/METAREA X
- Area V broadcast shall be done to inform all ships about the new service including B1 and B2 codes *(not sure if it has already been done or not)*
- 58 Coastal Warnings were sent via Tangua LES in the AOR-E in August

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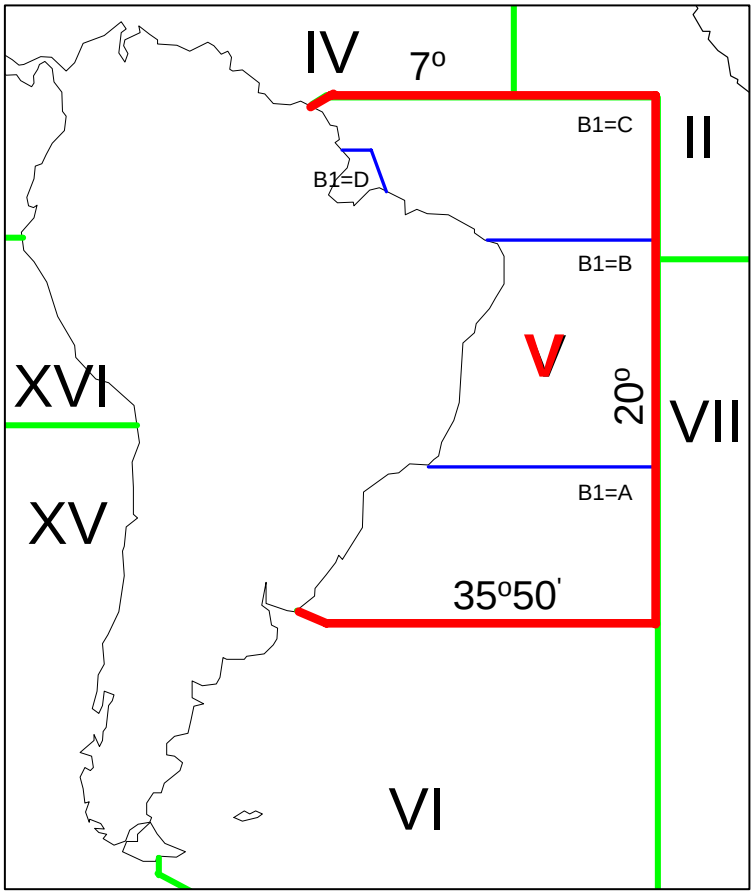
Coastal areas for NAV/METAREA V

sample of a coastal warning as received on Inmarsat C/mini-C terminal



LES 114 - MSG 759 - CoastalWarn Safety Call to Area: 5 A A - NoPos

VIA EMBRATEL 114 TANGUA 72412172147 4-SEP-2007 04:04:15 142659

C O A S T A L
N 4720/07 BAIA DO OIAPOQUE - CHART 110
ORANGE LIGHT G 0005 - 04-25.86N 051-32.52W EXTINGUISHED ST

N 4677/07 GUAMARE VICINITY CHART 720
VESSEL OCEAN SURVEYOR GRAY HULL AND WHITE SUPERSTRUCTURE CARRYING OUT SEISMIC SURVEY AMONG PSN: 04-54.37S 036-23.05W, 04-54.35S 036-19.27W 05-05.23S 036-22.10W AND 05-04.10S 036-25.32W TOWING 150 M LENGTH CABLE AT 15 M DEPTH PERIOD: 31/JUL TO 20/OCT/07. WIDE BERTH REQUESTED MORE THAN 1 NM. CANCEL THIS WARNING 210359Z/OCT/07 ST

5AA – address of the message where:
5 – NAVAREA V
A – B1 code – southern area
A – B2 code – navigational warnings
All ships in area V whose Inmarsat C/mini-C terminals are programmed with codes B1=A and B2=A will receive this warning

Important: to receive Coastal warnings ships do not need to be (navigate) inside the main NAV/METAREA, e.g. area V. Coastal warnings for the required area(s) will be received if the main NAV/METAREA is set up as a secondary (additional) area.

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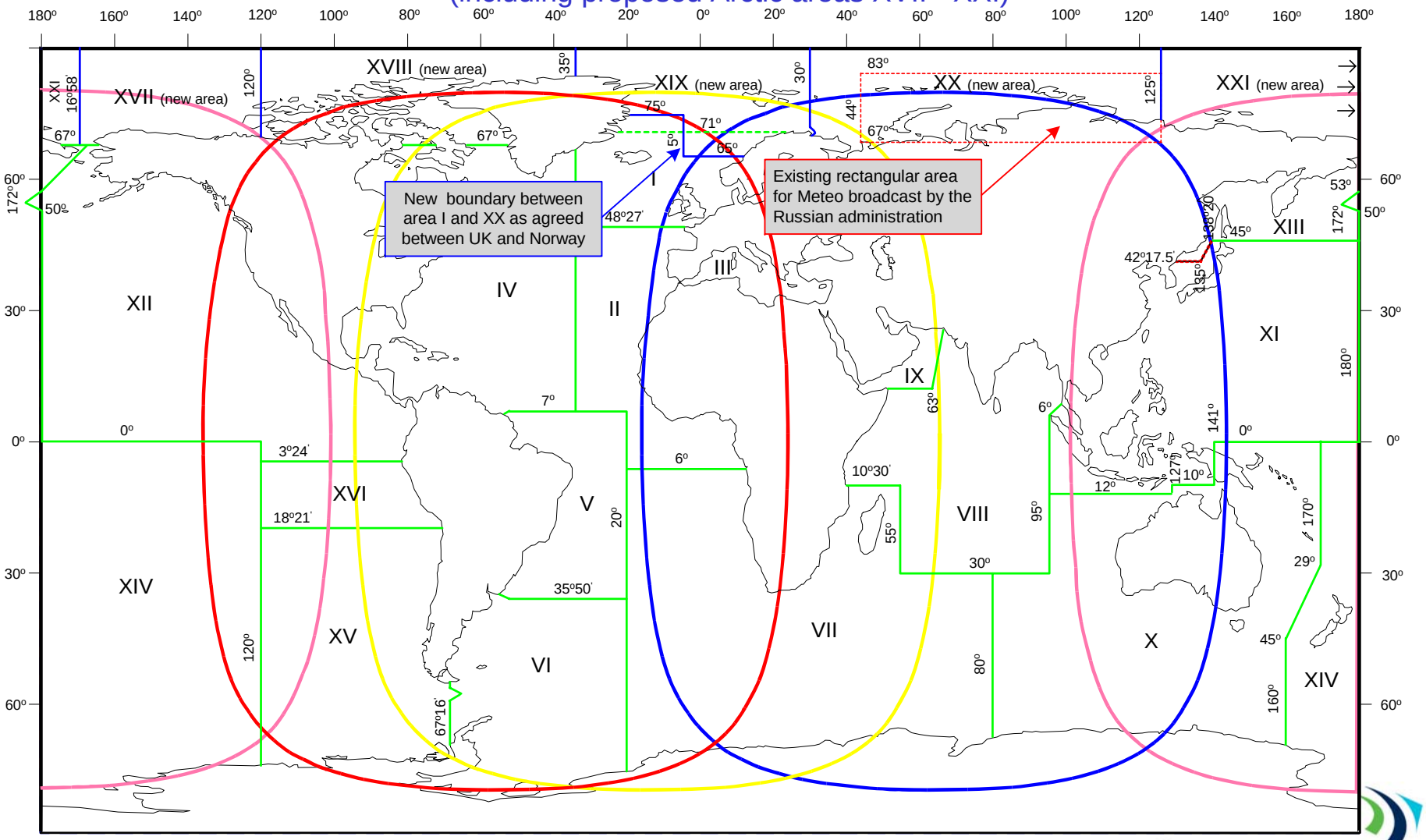
NAV/METAREAs for co-ordinating and promulgating MSI

(including proposed Arctic areas XVII - XXI)



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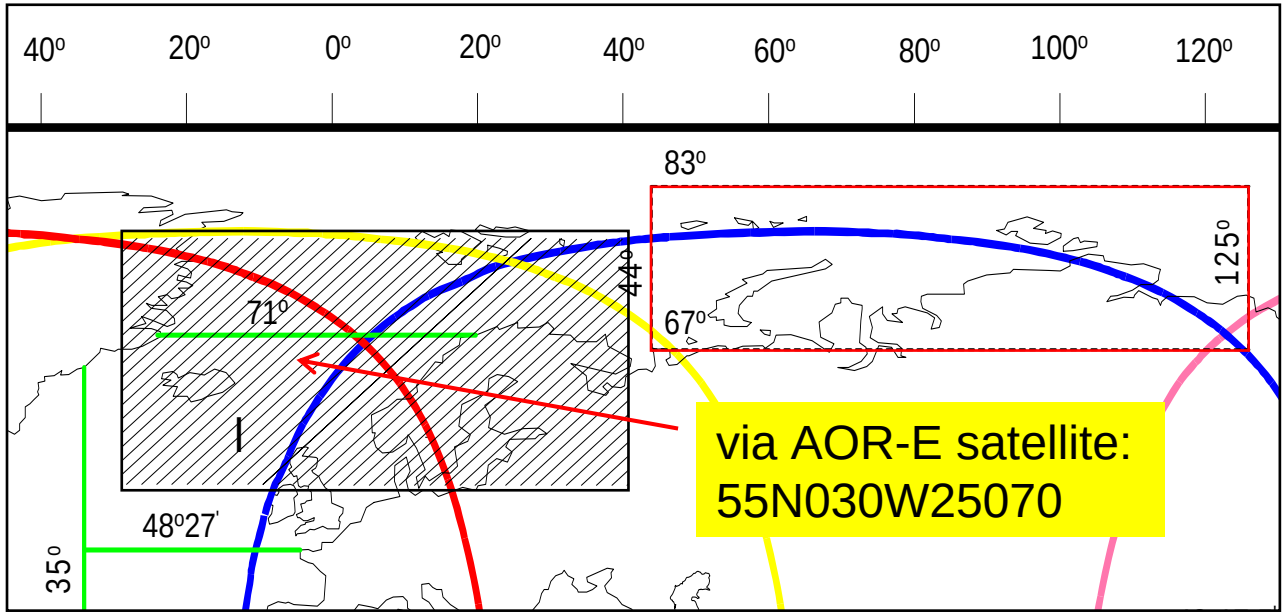
EGC message addressing and coverage area

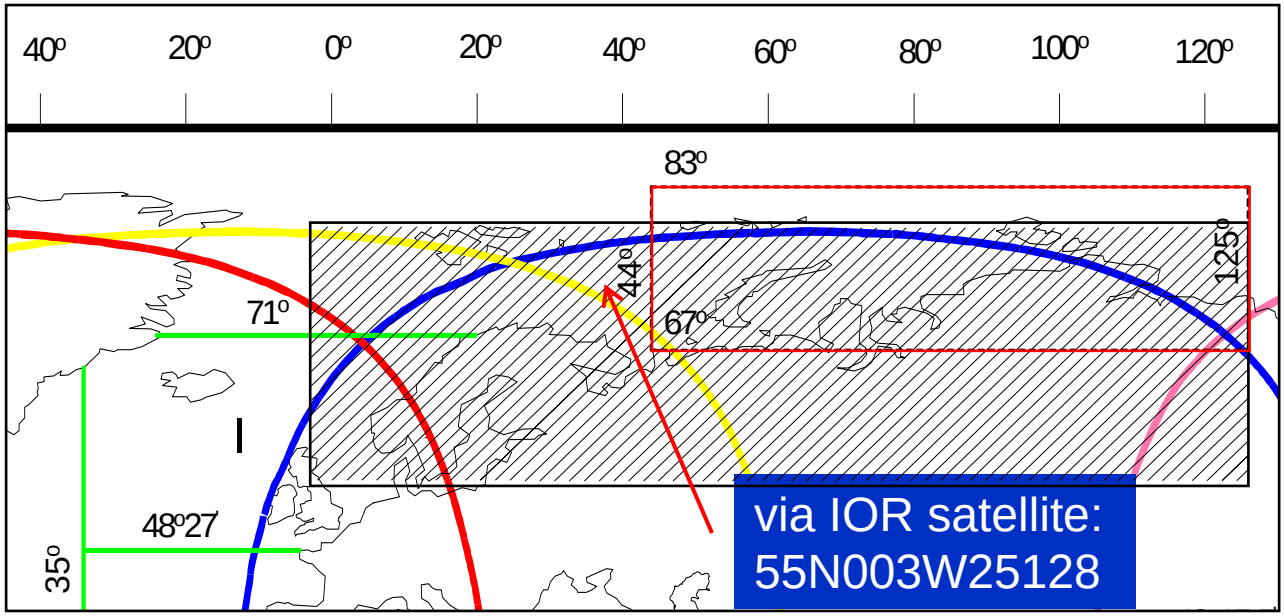
To: All ships in the Arctic area to the North of 71 deg.

The IMO International SafetyNET Panel is planning to enhance EGC services via the Inmarsat C system and include new Arctic areas to broadcast navigational and meteorological information. To define possible new Arctic areas, it is important to know the practical limits of Inmarsat coverage where future maritime safety information may be made available. This message is to ask all ships navigating in high latitudes, close to the Inmarsat satellite coverage limit, to report to Inmarsat Maritime Safety Services the following information:

1. ship's name
2. position (lat and long) above 71 deg North
3. date/time of position
4. maximum known latitude from your current or previous voyages where Inmarsat reception is constantly available

Inmarsat will treat your position information as confidential and will not disclose it to third parties.





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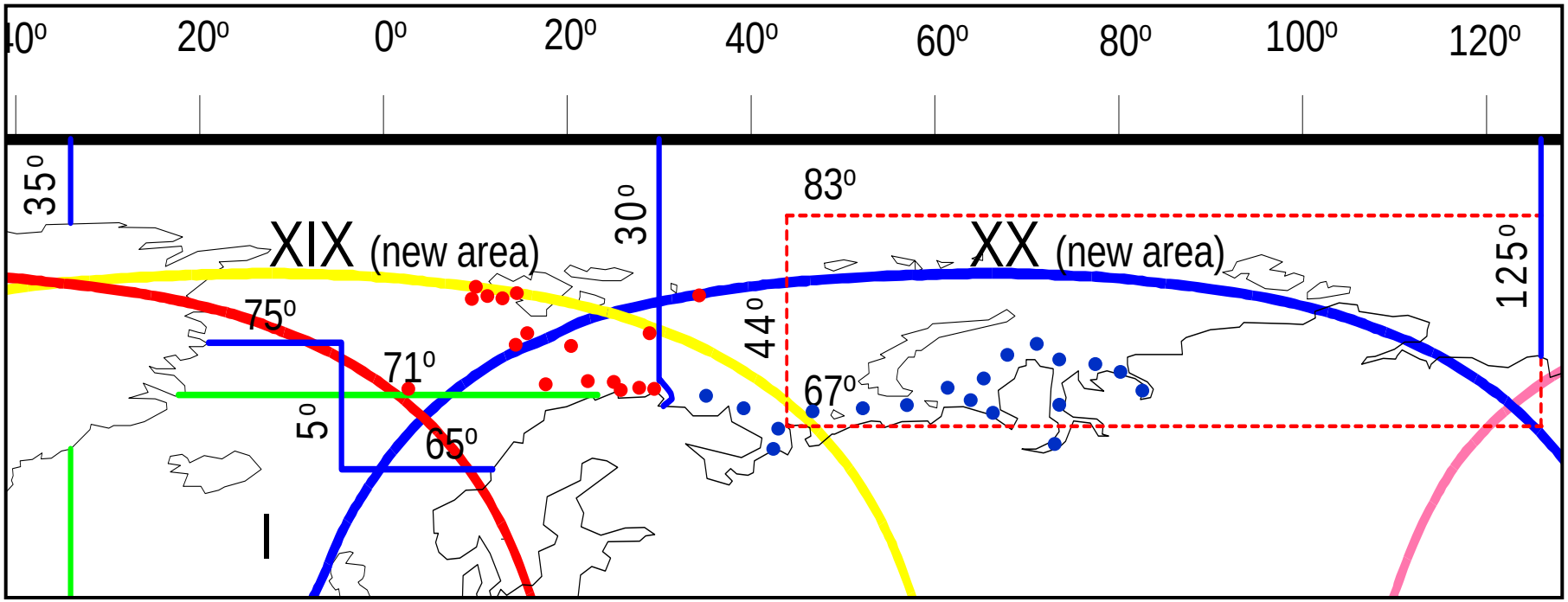
Position of reporting vessels

(some information is from private sources and not confirmed officially)



Position info from vessels:
71.15N 24.40E (AOR-E)
71.20N 02.61E (AOR-E)
……
74.30N 20.34E (IOR)
74.36N 16.24E (AOR-E)
75.18N 15.48E (AOR-E)
……
77.50N 14.00E (AOR-E)
78.00N 13.00E (AOR-E)
78.00N 35.00E (IOR)
78.15N 15.32E (AOR-E)
79.30N 09.15E (AOR-E)

General overview: Inmarsat service is available up to 79⁰ North (not 24 hrs)

- More than hundred Russian flag vessels use NSR in summer time from West to Siberian rivers and inside inland waterways on long 60-80 deg East and back (shown as blue dots – position info received from shipping companies). Some traffic goes from East as well. All have Inmarsat-C.
- A few dozens Russian flag vessels plus icebreakers are in the western part in winter time. All have Inmarsat-C.
- Foreign flag vessels go to Murmansk and Arkhangelsk
- More passages are expected due to “global warming”

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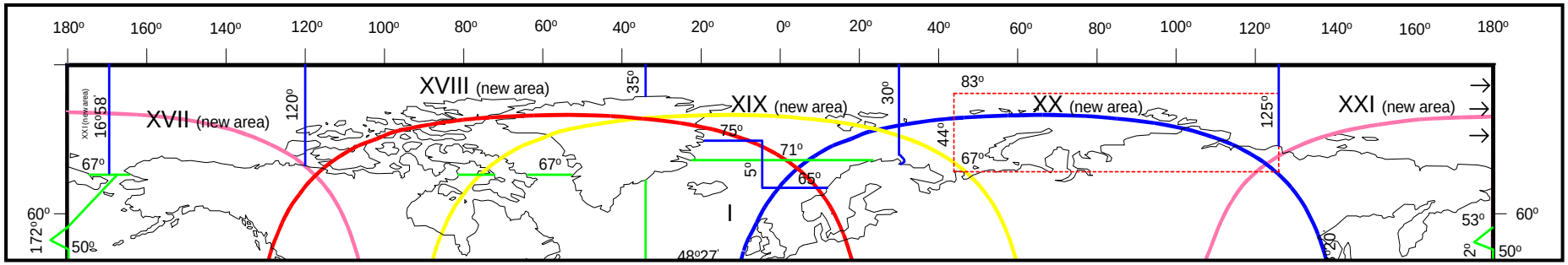
Some facts about MSI in Arctic waters under IOR satellites

(some information is from private sources and not confirmed officially)



- MSI (meteo) is broadcast via IOR satellite to the rectangular area 67N044E16081 (shown as red dotted area) by St. Petersburg Arctic-Antarctic institute, C2 service code = 04
- MSI for Barents Sea is provided by Norway, Murmansk and Arkhangelsk via Navtex. Weather charts are transmitted by Germany and UK on HF
- During summer time MSI for the western par of the Northern Sea Route (NSR) is broadcast by some northern ports via telephone. No facsimile service is available
- The Russian administration of the Northern Sea Route (NSR) supports the idea of using EGC SafetyNET for the entire route (to Bering strait) in summer and the western part in winter time
- Icebreakers receive facsimile weather maps via satellite from Moscow (commercial service)
- Many “traditional” HF radio stations are closed.

Northern Sea Route is now open but foreign vessels (except Russian flag vessels) do not use it yet mainly due to the lack of ice-class vessels. Ice-breaker support/escort is compulsory (in some areas???)

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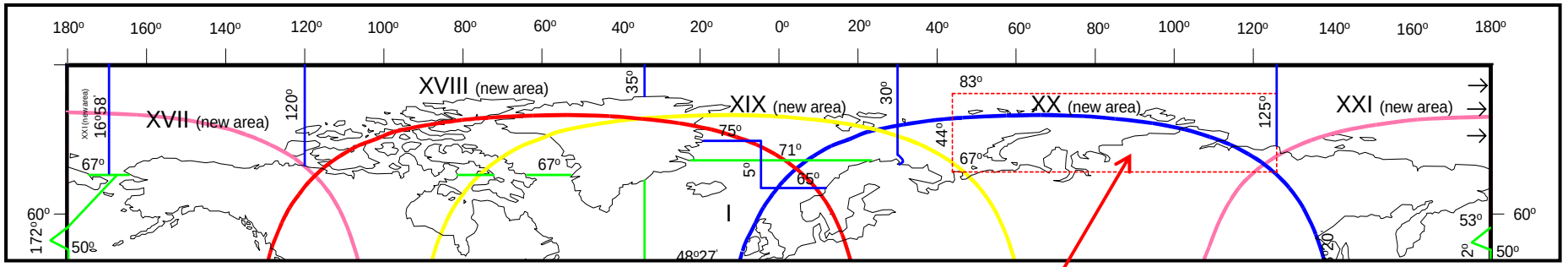
Sample of MSI (meteo) for Arctic area via EGC SafetyNET, C2=04



LES 317 - MSG 290 - NavWarn Safety Call to Area: 67+16 N 44+81 E

SECURITY
WEATHER BULLETIN FOR WEST NORTHERN SEA ROUTE
67N44E/80N44E/67N125E/80N125E ISSUED BY THE ARCTIC AND ANTARCTIC RESEARCH INSTITUTE ST PETERSBURG ON THE 14 AUGUST 2007 AT 1800UTC

PART 1. GALE WARNING AT 141800UTC …

PART 2. SINOPSIS AT 141800UTC …

PART 3. FORECAST FROM 141800UTC TO 151800UTC
PECHORSKOYE SEA …
SOUTHWEST PART OF THE KARA SEA STRAITS OF NOVAYA ZEMLYA
YENISEYSKIY GULF …
KHATANGSKIY GULF …
REGION KHATANGA …

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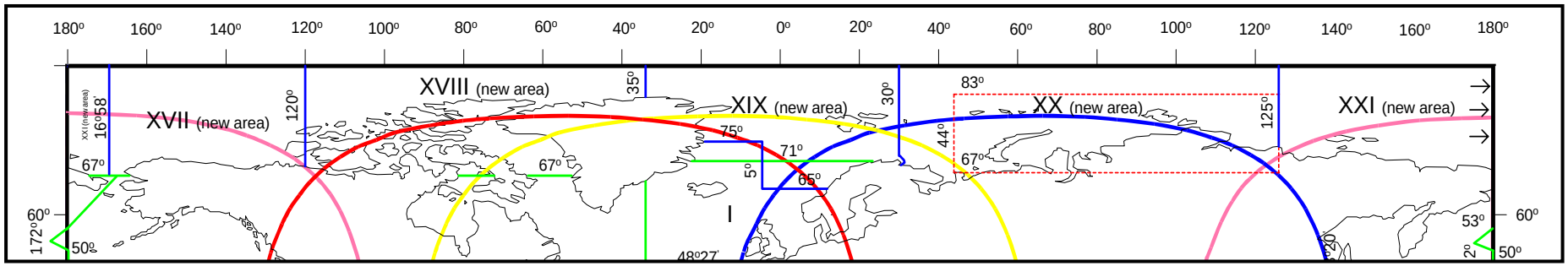
Nominated satellites and recommended time for Arctic broadcast



- Nominated Satellites (for scheduled broadcast)
  - Area XVII and XXI - Pacific Ocean Region (POR) satellite
  - Area XVIII - Atlantic Ocean Region - West (AOR-W) satellite
  - Area XIX - Atlantic Ocean Region – East (AOR-E) satellite
  - Area XX - Indian Ocean Region (IOR) satellite
- Satellites for unscheduled broadcast (Urgent warnings, Distress alert relays, SAR coordination)
  - Area XVII and XXI - POR satellite
  - Area XVIII and XIX - AOR-W and AOR-E satellites
  - Area XX - IOR and possible AOR-E satellites (due to a small area of Barents and White Sea covered by AOR-E satellite)
- Time for MSI broadcast to be avoided (to be checked and confirmed when the service is launched)
  - AOR-E/W – 08:00-09:00 UTC and 15:00-16:00 UTC
  - IOR – 07:00-09:00 UTC and 19:00-20:00 UTC
  - POR - 07:00-09:00 UTC and 17:00-20:00 UTC

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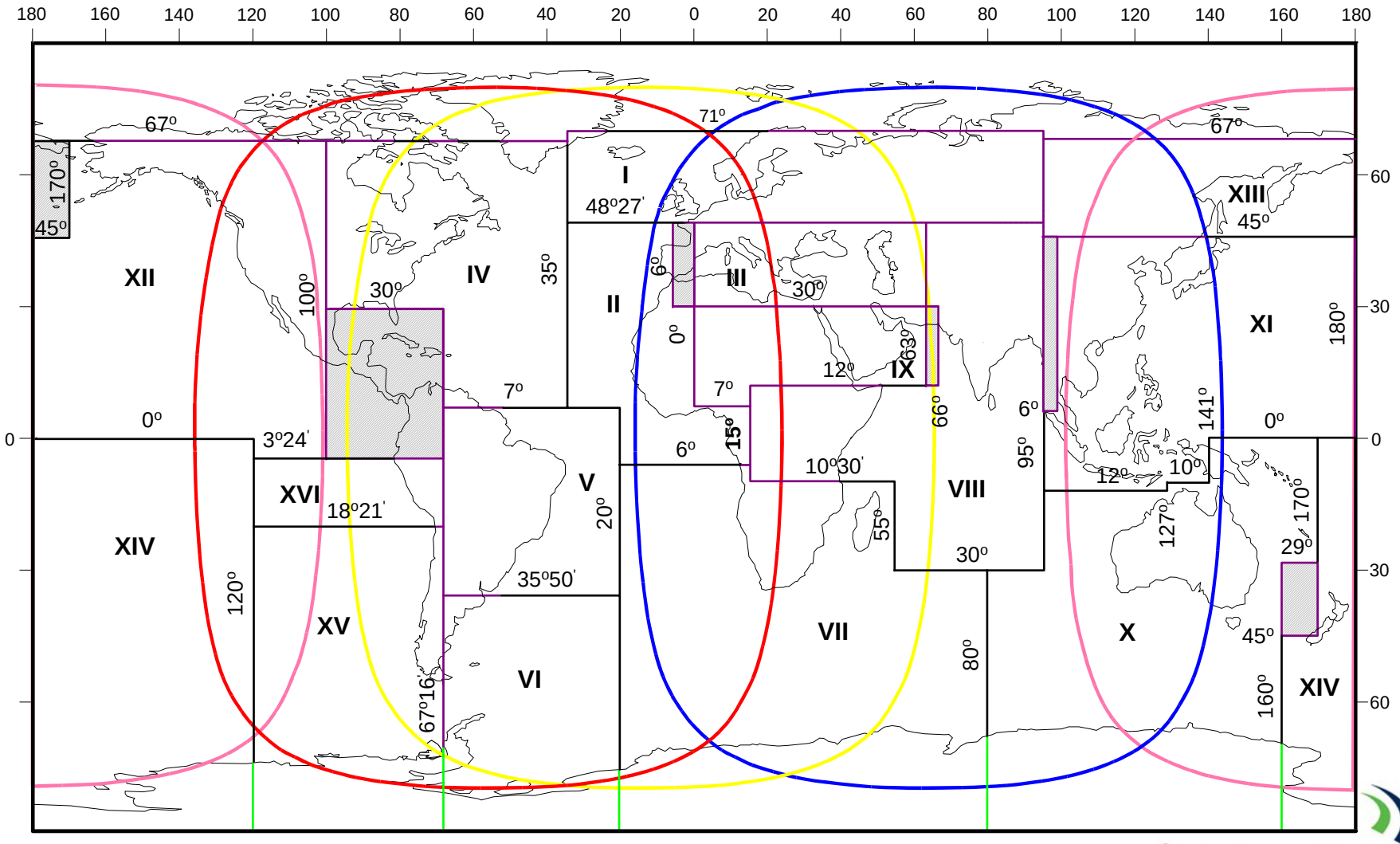
Existing NAV/METAREA boundaries

as in the Inmarsat-C System Definition Manual (without Arctic areas)



Shaded areas are with overlap reception from the adjacent NAV/METAREAs

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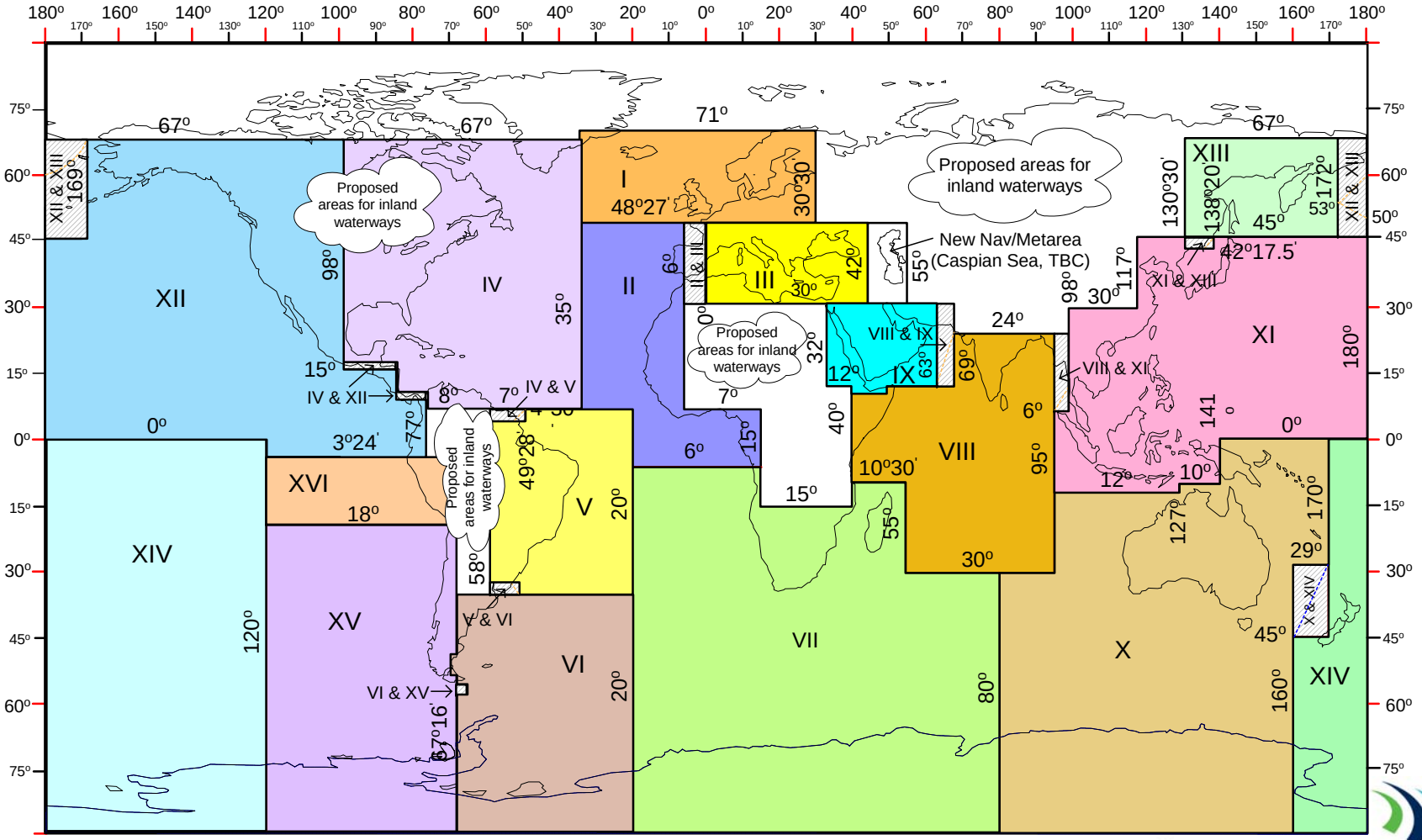
Modified (proposed) NAV/METAREA boundaries

for Inmarsat-C System Definition Manual (without Arctic areas)



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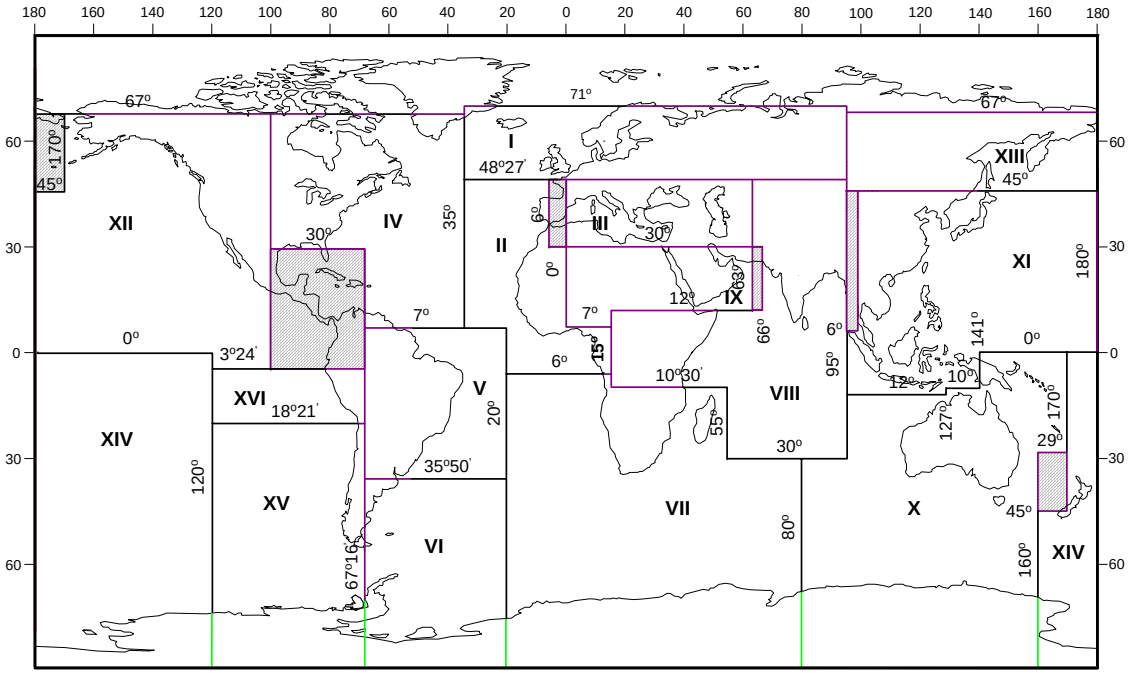
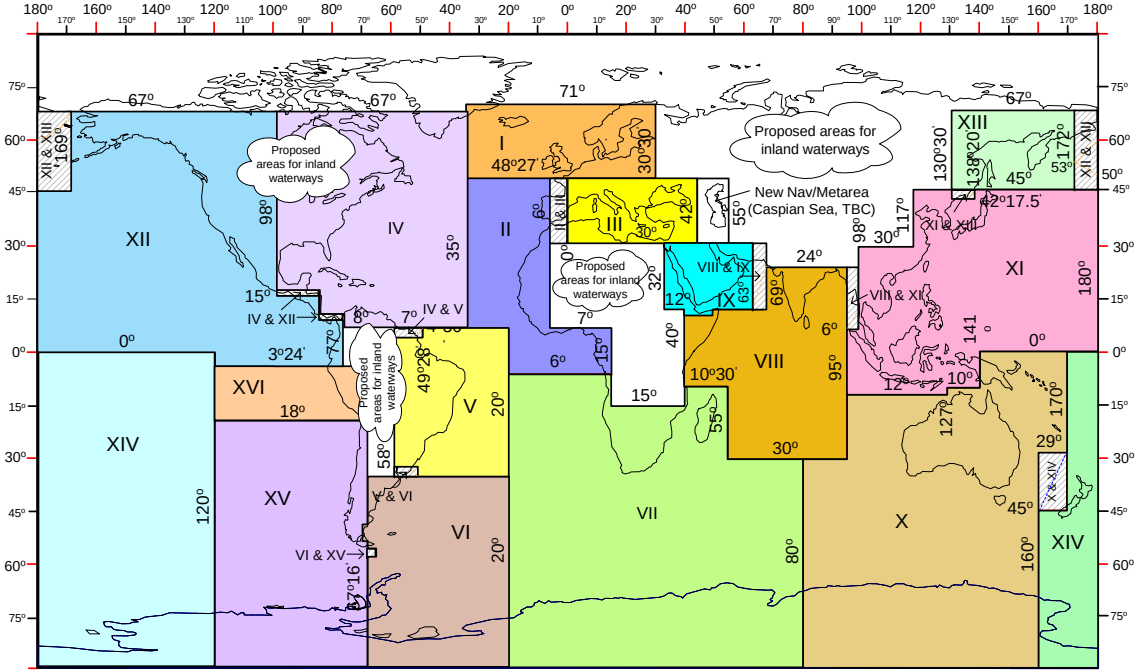
See the difference in the existing and proposed NAV/METAREA boundaries plus “reservations (recommendations)” for inland waterway areas (without Arctic areas) …





Areas affected:
I, III, IV, VI, VIII, IX, XI, XII, XIII, XV and new Arctic areas

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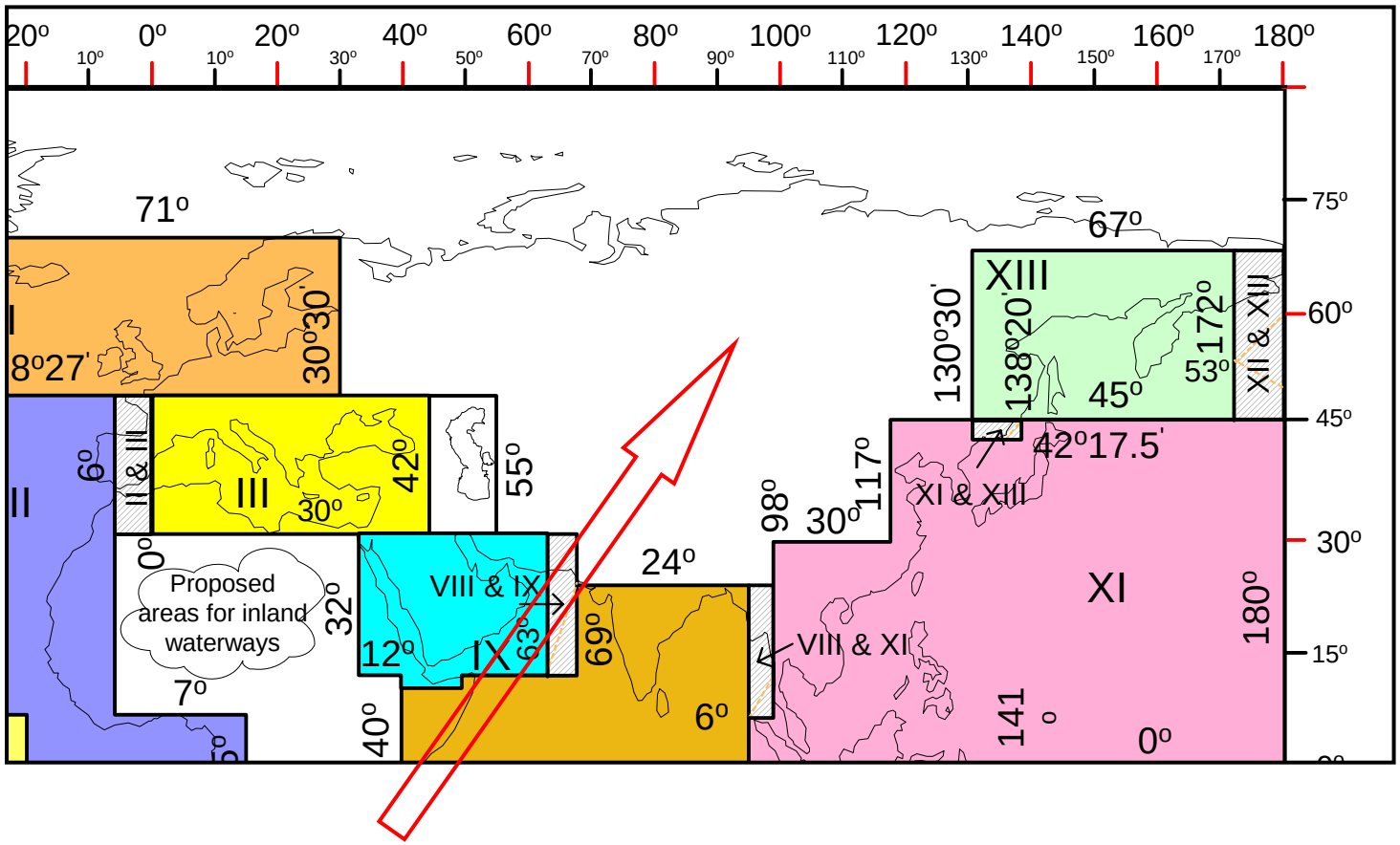
National SafetyNET Service (as defined in the International SafetyNET Manual)



- Some Russian inland waterway shipping companies would like to use National SafetyNET Service on Siberian rivers for promulgating MSI.
- Do we know about other areas - N and S America, Africa?
- What is position of the SafetyNET Panel?
- What are recommendations?

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Thank you for your attention

Any Questions?

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