

Authoritative Geospatial Coordinates for the GMDSS Module of GISIS

Submitted by FRA/GBR/USA

SUMMARY

Executive Summary: DRWG21 action 16 requested FRA/GRB/USA to “Research the origins of NAVAREA/METAREA boundaries with a view to create authoritative geospatial files to be contained within the GMDSS Module of GISIS.” After investigating these boundaries, it remained clear that the sub-committee will need to provide additional guidance on how to reference geospatial coordinates for NAVAREA boundaries that travel along the coastline.

Action to be taken: 4

Related documents: Resolution MSC.469(101), MSC.1/Circ1288, MSC.1/circ1288/Rev.1, Resolution A.706(17), Resolution A.419(XI), Resolution A.381(X), The report of Maritime Safety Committee XXXVI, The Report of the Committee on the Radio Promulgation of Navigation Warnings (CPRNW1), IEC 61097-4, and the work of the Ad Hoc Joint IHO/IMCO Committee on Radio Navigational Warnings.

1. Background

1.1 The 21st meeting of the World-Wide Navigational Warnings Service’s (WWNWS-SC) Document Review Working Group (DRWG) established an action to “Research the origins of NAVAREA/METAREA boundaries with a view to create authoritative geospatial files to be contained within the GMDSS Module of GISIS.”

1.2 The NAVAREA II Coordinator (France), Deputy NAVAREA IV/XII Coordinator (United States), and Chair NAVTEX Coordinating Panel (United Kingdom) agreed to take on the action and report back to WWNWS15.

2. Discussion

IMO Documentation

2.1 When looking at historical sources to delimitate NAVAREAS, METAREAS, and Coastal Areas, it was natural to start with IMO Documentation. It was also clear that the Recognized Mobile Satellite Services (RMSS) would need to be consulted.

- 2.2 The first resolution which had a graphical depiction of NAVAREAS was IMCO Resolution A.381(X) “PLAN FOR THE ESTABLISHMENT OF A WORLD-WIDE NAVIGATION WARNING SYSTEM.” Appendix 1 of this resolution featured the geographical areas for co-ordinating and promulgating radio navigational warnings. It also noted that geographical co-ordinates are approximate.
- 2.3 IMCO Resolution A.419(XI) “WORLD-WIDE NAVIGATIONAL WARNING SERVICE” revoked resolution A.381(X). Appendix 1 of A.419(XI) contained the same depiction of Geographical Areas as A.381(X). This Depiction is contained in this document as Annex A.
- 2.4 IMO Resolution A.706(17) revoked IMCO A.419(XI). MSC.1/Circ.1288 “Amendments to Resolution A.706(17)”, introduced the graphical depiction of the 5 Arctic NAVAREAS with the note that NAVAREAS XVII to XXI were not yet operational. In addition, this document added the clarifying remark “The delimitation of these NAVAREAS is not related to and shall not prejudice the delimitations of any boundaries between States.”
- 2.5 MSC.1/Circ.1288/Rev.1 removed the comment on non-operational NAVAREAS. This is the graphical depiction currently seen in resolution MSC.469(101) and is contained in this document as Annex B.
- 2.6 NAVAREA II provided their agreement with NAVAREA III stating that 5° 45' W would be used to define the boundary between their NAVAREAS within the Strait of Gibraltar.

Recognized Mobile Satellite Service Providers

- 2.7 Iridium noted that its terminals use the NAVAREA boundaries as they are represented in the UKHO Admiralty List of Radio Services Volume 5.
- 2.8 Inmarsat noted that its EGC System sends messages to the entire satellite footprint and the ship earth station (SES), programmed with the NAVAREA, METAREA, and Coastal Area boundaries, determines if it should receive that message, primarily based on the ships position. The coordinates in the SES would seem to be the authoritative source, however, extracting those from a SES remains quite challenging.

Analysis

- 2.9 After reviewing the historical documentation and comments from the Recognized Mobile Satellite Service (RMSS) currently in use, it was clear that geospatial coordinates of NAVAREA and METAREA boundaries on the high seas were clear and unambiguous.
- 2.10 The boundary positions that fall along the coastline are purposely not well defined. However, it seems that a SES uses—is programmed with—generalized boundaries along the coastline or possibly even well inshore to receive EGC

broadcast from NAVAREAS, METAREAS, and Coastal Areas. These generic positions could not be found within any nautical publication or performance standard including IEC 61097-4

- 2.11 With the modernization of the GMDSS and implementation of S-100 products, having an agreed upon geospatial file representing the delimitation of NAVAREAS, METAREAS, and Coastal Areas will be essential.

3. Recommendation

- 3.1 Encourage NAVAREA Coordinators to be proactive in working with their neighbouring NAVAREA Coordinators to determine agreed upon geospatial coordinates marking the boundaries between areas. With the expectation that the delimitation of NAVAREAS is not related to and shall not prejudice the delimitations of any boundaries between States.
- 3.2 Allow the parties responsible for this action to continue to work with the RMSS to determine the geospatial coordinates of how Inmarsat and Iridium ship earth stations are programmed.
- 3.3 Allow for geospatial coordinates found in recommendation 3.2 to be used as a starting point to create standard Open Geospatial Consortium (OGC) files such as Keyhole Markup Language (KML) or Geopackage to display the delimitation of NAVAREAS, METAREAS, and Coastal Warning Areas. These files would then be contained within the GMDSS module of GISIS.
- 3.4 Invite the parties responsible for this action to update the sub-committee of the progress of their work at DRWG22 and WNWWS16.

4. Action to be taken

- 4.1 The WNWWS-SC is invited to:
- a. Note the background provided in paragraph 1;
 - b. Discuss the investigation and analysis of this action item provided in paragraph 2;
 - c. Agree to the recommendations in paragraph 3; reflecting discussions in 4.1.b;

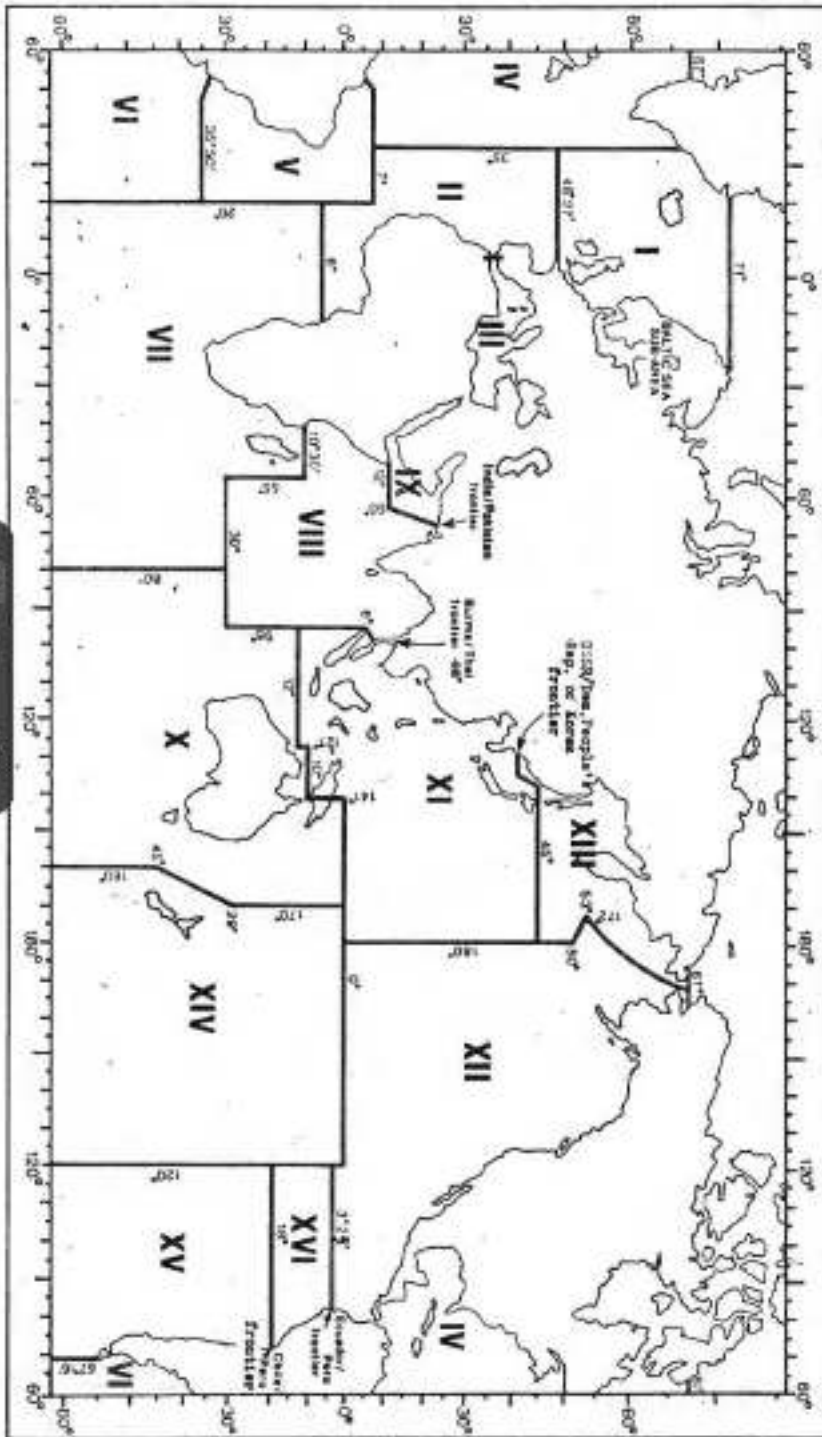
Annexes:

- A. IMCO Resolution A.381(X) Appendix 1
- B. MSC.1/Circ.1288/Rev.1 Appendix

ANNEX A

GEOGRAPHICAL AREAS FOR CO-ORDINATING AND PROMULGATING RADIO NAVIGATIONAL WARNINGS

Note : Geographical co-ordinates are approximate



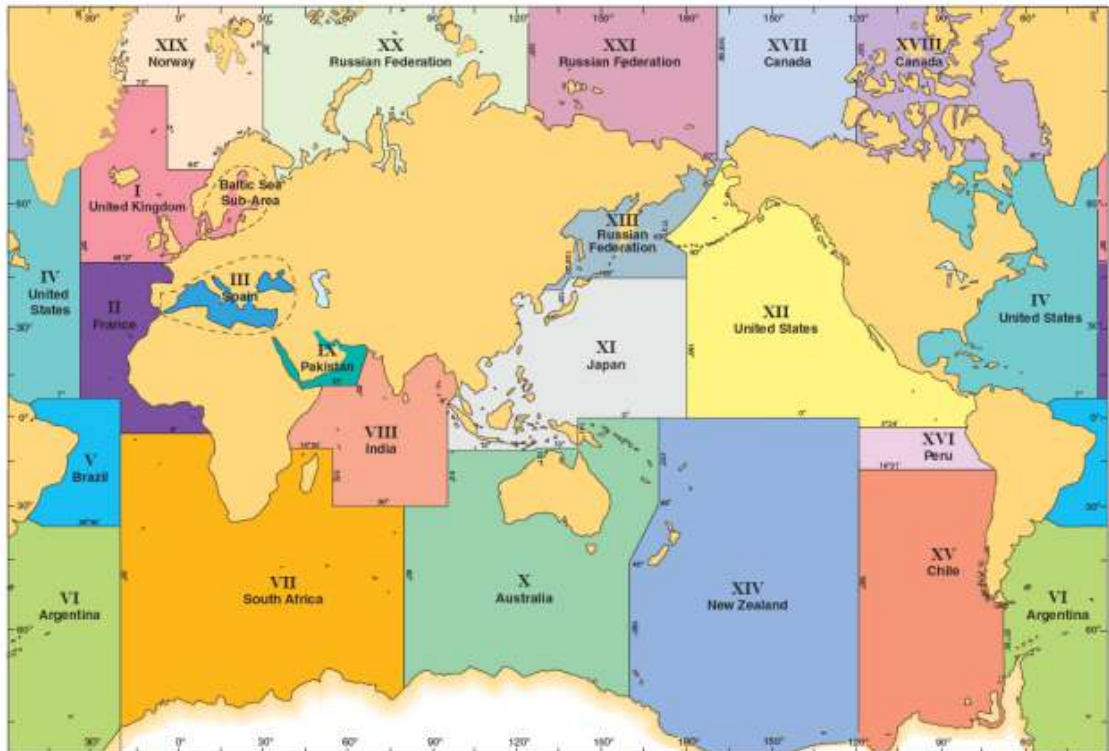
Appendix 1

ANNEX B

MSC.1/Circ.1288/Rev.1
Annex 2, page 2

Appendix

GEOGRAPHICAL AREAS FOR COORDINATING AND PROMULGATING NAVAREA WARNINGS



The delimitation of these NAVAREAs is not related to and shall not prejudice the delimitations of any boundaries between States.