

Space Activity Working Group (SAWG)

Submitted by New Zealand/United States of America

SUMMARY

Executive Summary: WWNWS14 established a group to investigate the operational challenges posed by space activity throughout the World-Wide Navigational Warning Service (WWNWS). This paper discusses the activity of the group since WWNWS14 and proposes that WWNWS15 re-establish the group to continue discussions with space operators worldwide while encouraging NAVAREA coordinators to be proactive in working with space operators within their NAVAREA.

Action to be taken: 4

Related documents: None

1. Background

1.1 The fourteenth meeting of the International Hydrographic Organization (IHO) Sub-Committee on the World-Wide Navigational Warning Service (WWNWS-SC) agreed to establish a collaborative group to investigate navigational warnings on space activity throughout the WWNWS and how organizations handled space activity MSI.

1.2 The NAVAREA XIV Coordinator (New Zealand) and the Deputy NAVAREA IV/XII Coordinator (United States) agreed to co-lead the collaborative effort with a view to report back to WWNWS15.

2. Discussion

Initial NAVAREA Coordinator Meeting

2.1 An initial call for participants was sent to the WWNWS-SC on the 3rd of October for a virtual planning meeting to be held on the 13th of October. Six NAVAREA Coordinators attended the meeting and shared internal operational procedures, identified challenges to MSI providers posed by space operations, proposed potential solutions to these challenges, and agreed to an agenda for an initial virtual meeting between space operators and MSI providers.

2.2 The initial MSI provider meeting was attended by representatives from NAVAREAS IV/XII, VII, IX, X, XIV, and XVII/XVIII. This group took an

action to develop a template for Space Operators to facilitate a consistent and concise format for space activity MSI.

- 2.3 The Group agreed to the following agenda for the initial meeting with space operators:
- NAVAREA Coordinator presentation detailing the potential impact to mariners from space operations, highlighting the current operational challenges faced by seafarers.
 - Space Operators discussion to convey their notification obligations.
 - Discussion on the challenges faced by both MSI providers and space operators.
 - Considering Space Operator obligations, discussion of proposed solutions including template documents.
 - Any other business.

Meeting with Space Operators

- 2.4 The main meeting of the space activity working group was held virtually on February 2nd, 2023. There were 49 participants representing NAVAREAS, National Coordinators, Space Operators, and other organizations including aviation authorities. For a full list of represented organization see Annex A.
- 2.5 The initial conversations were focused on the MSI provider responsibilities as described in WNWNS guidance documentation and the challenges a seafarer currently faces with space operations information.
- 2.6 NAVAREA X noted the inability to contact individual vessels that could be negatively impacted. NAVAREA I commented on the length of space navigational warnings with respect to the ten-minute NAVTEX broadcast time slots. NAVAREA IV/XII and NAVAREA XIV stressed the fact that a navigational warning has no legal authority to close any area to marine navigation.
- 2.7 Representatives from the Space Exploration Technologies Corporation (SpaceX) noted that the United States Federal Aviation Administration (FAA) regulations required confirmation that the WNWNS promulgated a navigational warning prior to launch. While Gilmour Space Technologies and Southern Launch noted that different requirements throughout the world for maritime and aeronautical warnings is a challenge.
- 2.8 Multiple space operators noted that a potential common GIS solution could be an efficient platform to provide confirmation of a promulgated navigational warning.
- 2.9 Multiple MSI providers noted the need to work with ships to determine how vessels respond to space warnings.
- 2.10 Rocket Lab USA Inc. discussed the challenges with notifying non-SOLAS class vessels and discussed their use of Virtual – AIS to mark hazard areas. The co-chairs noted their concerns and advised that local warnings were out of scope for the WNWNS.

2.11 NAVAREA XIV gave a presentation on un-planned re-entry requirements and a there was a discussion on how NAVAREA Coordinators addressed drifting hazards and space operators' requirements to notify mariners of drifting space debris.

2.12 NAVAREA IV/XII presented the source template developed following the first meeting of NAVAREA coordinators and NAVAREA I presented a form they developed for use within their NAVAREA. The Space Activity Worksheet, at Annex B, was finalized follow feedback from various members.

3. Recommendation

3.1 Post the optional source template, developed by the working group, to the basic subcommittee document section of the WNWNS-SC webpage.

3.2 Encourage NAVAREA Coordinators to be proactive in working with space operators in their region and to provide education and guidance on how to best promulgate their Maritime Safety Information.

3.3 Encourage NAVAREA Coordinators to promptly notify Space Operators of navigational warning dissemination to satisfy regulatory requirements.

3.4 Establish a Space Activity Advisory Group, to monitor and advise the subcommittee in developments in space activity and its applicability to seafarer safety.

4. Action to be taken.

4.1 The WNWNS-SC is invited to:

- a. Note the background provided in paragraph 1;
- b. discuss the work and outcomes of the Space activity working group provided in paragraph 2;
- c. agree to the recommendations in paragraph 3; reflecting discussions in 4.1.b;

Annexes:

- A. Organization which participated in space activity meetings this past year
- B. IHO Space Activity Work Sheet

Annex A: Organizations which participated in the Space Activity Virtual Meetings

NAVAREA Coordinators

- NAVAREA I
- NAVAREA II
- NAVAREA IV/XII
- NAVAREA VII
- NAVAREA IX
- NAVAREA X
- NAVAREA XI
- NAVAREA XIV
- NAVAREA XV
- NAVAREA XVII/XVIII
- NAVAREA XIX

National Coordinators

- United Kingdom Maritime and Coastguard Agency
- United States Coast Guard Headquarters
- United States Coast Guard District 7 (Miami)
- United States Coast Guard Station Port Canaveral

Space Operators

- Australian Space Agency
- Gilmour Space Technologies
- Rocket Lab USA Inc.
- Southern Launch
- Space Exploration Technologies Corporation (SpaceX)
- United States Space Force – Eastern Range (Cape Canaveral)
- United States National Aeronautics and Space Administration (NASA)
- Satish Dhawan Space Centre (SDSC) SHAR (Indian Space Programme)¹

Other Attendees

- United Kingdom Department of Transport
- United Kingdom Civil Aviation Authority
- United States Federal Aviation Administration

¹ SDSC did not formally participate, however following the formation of the Group, NAVAREA XIV has received from this agency, space activity notifications using the agreed Space Activity Work Sheet.

Annex B – Space Activity Work Sheet

General Notes:

- Please use the minimal amount of positional information needed to properly portray the operation, and include coordinates for the entire hazard area, not confined within a specific NAVAREA.
- Position coordinates should be in the format:

 Latitude: DD-MM.mmN or DD-MM.mmS (only to the level of accuracy required)
 Longitude: DDD-MM.mmE or DDD-MM.mmW (only to the level of accuracy required)
 Note that leading zeros should always be included. Two digits are used for reporting degrees of latitude. Three digits are used for reporting degrees of longitude.
- Note: Only Revisions with a date/time change outside of listed alternates or a geographic change will result in promulgation of new navigational warning and a cancellation of an existing warning.
- Navigational warning text may differ from the original information, if the MSI Provider believes this benefits the mariner and does not change the accuracy of the original information.
- Items listed in bold are required for promulgation of a navigational warning.

This section to be completed by Space Operator			
Date (UTC)		Space Operator	
Name of POC		Operation Number	
Telephone		Revision Number	
Email		NAVAREAs Affected	
Details of activity	(E.g. "Debris from reentry of launch vehicle upper stage", "Rocket launching operations")		

**Details of Hazardous Area/s, including type of hazard, dates/times (UTC) and coordinates
Area 1**

Type of Hazard	(E.g. "Launch hazard area", "Space debris hazard area")		
Dates/Times (UTC)	From/To		
Area Coordinates			
Amplifying text (if required)	E.g. "Support vessel [name/callsign] in attendance and monitoring VHF 16"		

**Details of Hazardous Area/s, including type of hazard, dates/times (UTC) and coordinates
Area 2 (If Required)**

Type of Hazard			
Dates/Times (UTC)	From/To		
Area Coordinates			
Amplifying text (if required)			

**Details of Hazardous Area/s, including type of hazard, dates/times (UTC) and coordinates
Area 3 (If Required)**

Type of Hazard	
Dates/Times (UTC)	From/To
Area Coordinates	
Amplifying text (if required)	

**Details of Hazardous Area/s, including type of hazard, dates/times (UTC) and coordinates
Area 4 (If Required)**

Type of Hazard	
Dates/Times (UTC)	From/To
Area Coordinates	
Amplifying text (if required)	

This section to be completed by Maritime Safety Information Provider	
Navigational Warning(s) Issued:	Y/N
NAVAREA WARNING ##	
Coastal Warning areas affected	
Coastal Warning ##	
Cancellation Details	
NAVAREA WARNING Cancellation Time:	
Coastal Warning Cancellation Time:	
Navigational Warnings to be cancelled	
Active NAVAREA WARNINGS	
Active Coastal Warnings	

NAVAREA WARNING TEXT:

COASTAL WARNING TEXT:

Notes:

Returned Work Sheet to Space Operator: Y/N

NAVAREA Representative: _____

Date: _____