International Civil Aviation Organization

Eleventh Meeting of the ICAO Asia/Pacific Search and Rescue Workgroup (APSAR/WG/11)

Bangkok, Thailand, 5 – 8 May 2026

Agenda Item 3: Global Update

STATUS OF THE COSPAS-SARSAT PROGRAMME

(Presented by the Cospas-Sarsat Secretariat)

SUMMARY

This paper presents a status report on the Cospas-Sarsat Programme, including system operations, significant developments, space and ground segments, beacons, false alerts, reporting by Rescue Coordination Centres (RCCs) on use of the distress alert data provided, and results of Cospas-Sarsat Mission Control Centers (MCCs) - Search and Rescue Point of Contact (SPOC) communication tests. It seeks ICAO APSAR/WG participants' views on these matters.

1. INTRODUCTION

1.1 Cospas-Sarsat is an international intergovernmental Programme of 45 Participants (see **Figure 1**), merging their efforts to design and maintain an efficient satellite-aided tracking system to provide distress alerts and associated location to SAR Authorities.

Figure 1: Cospas-Sarsat Participants (May 2025)

1.2 The geographic distribution of all reported SAR events for which Cospas-Sarsat alert data was used in 2024, the latest year for which statistics have been compiled and reviewed, is presented in **Figure 2**. In 2024, Cospas-Sarsat alert data assisted in 1,171 distress incidents and 3,211 persons were rescued. Participants often provide synopses of recent SAR cases supported by Cospas-Sarsat for publication on the Cospas-Sarsat webpage and Facebook page. In 2024, the distribution of all SAR events was: 17% for aviation, 42% for land and 41% for maritime. The rate of false alerts was 96.6%, i.e., one SAR event for 29 activations received.

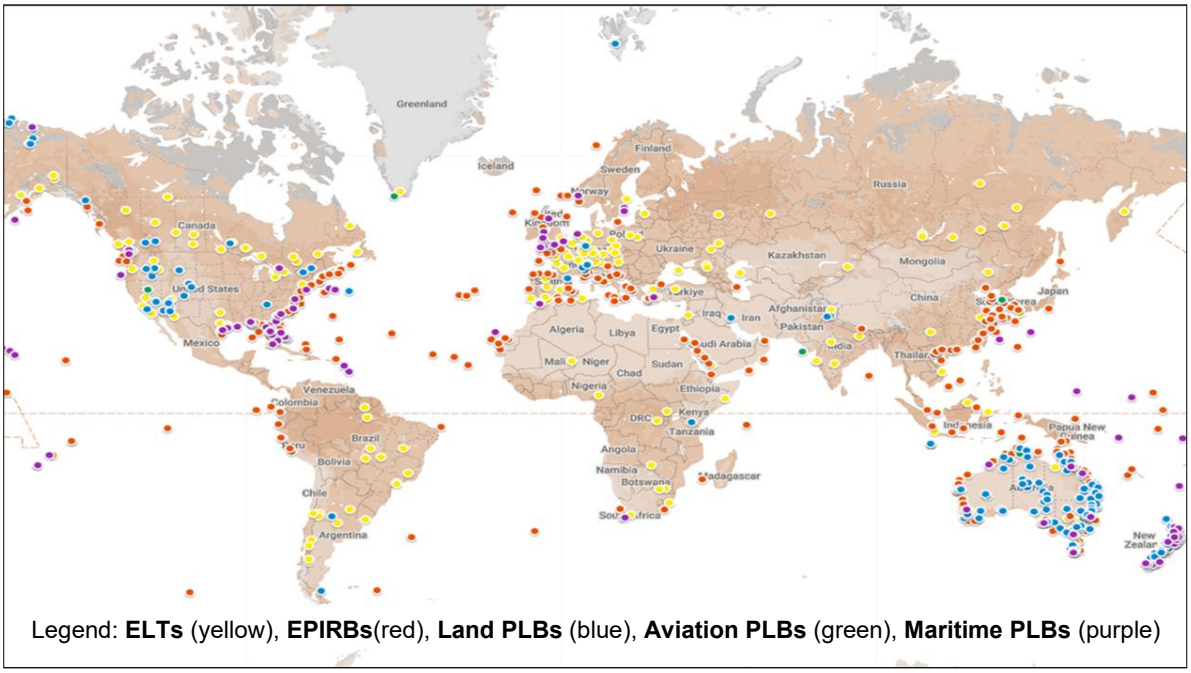

Figure 2: 2024 Geographic Distribution of SAR Events in 2024

1.3 Since September 1982, the Cospas-Sarsat System has provided assistance in rescuing at least 67,000 people in more than 21,000 SAR events (see **Figure 3**).

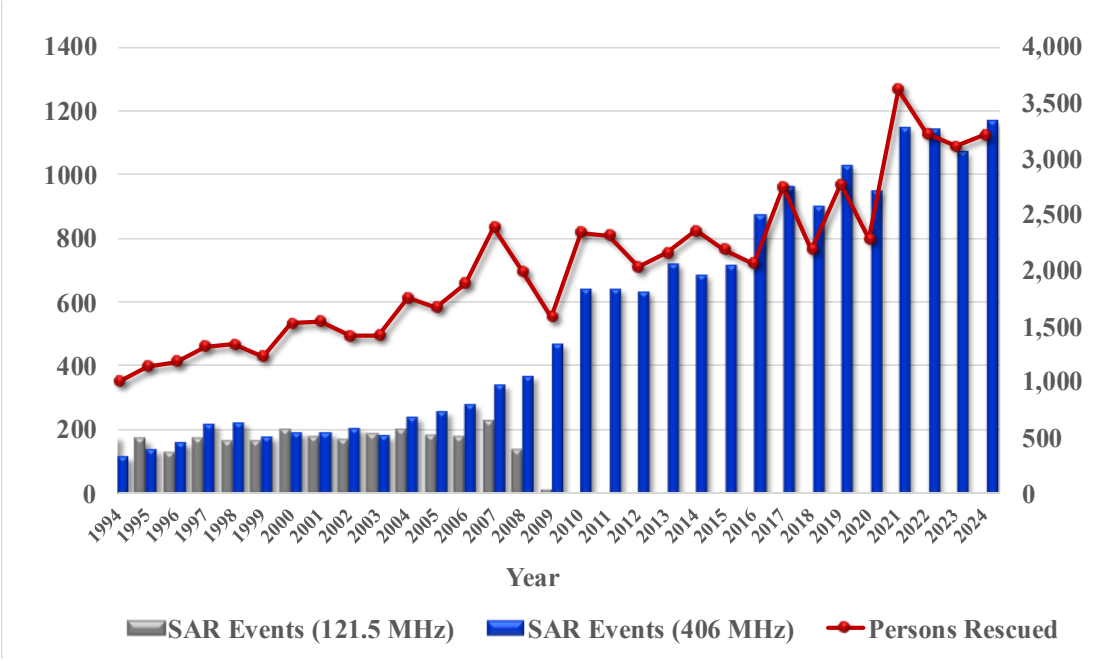

Figure 3: SAR Events with the Assistance of Cospas-Sarsat Data (Jan. 1994 - Dec. 2024)

2. DISCUSSION

406 MHz Beacons

2.1 Based on estimates made using beacon-registration data and the number of activated beacons that had been registered, there were about 3,354,000 Cospas-Sarsat beacons deployed worldwide at the end of 2024, an increase of about 12% over that reported in 2023. We estimate that more than 80% of beacons deployed globally are equipped with global navigation satellite system (GNSS) receivers that allow the beacon location to be reported in the distress message (in addition to independent localization of the beacon processed by the Cospas Sarsat System).

2.2 The Cospas-Sarsat Secretariat maintains an International Beacon Registration Database (IBRD) as an internet portal that is available for beacon registration for 167 Administrations that allow its use in place of a national registration mechanism for at least one type of beacon. The IBRD also allows bulk upload and duplication of existing national databases as a means of making national records easily available on a 24/7 basis. As of April 2026, there were 127,000 beacons registered in the IBRD (118,000 in May 2025). The new IBRD user interface, deployed in 2022, accommodates the registration of new beacon types, such as the ELT(DT)s, and "second generation" beacons (SGBs) which use more modern "spread spectrum" transmission technology. This new IBRD, with a more user-friendly interface, is available at https://www.406registration.com/; it allows connection from SAR software via Application Programming Interface (API). Version 2.0 of the IBRD is in progress.

The Cospas-Sarsat System

2.3 Cospas-Sarsat relies on three satellite-constellation types: the original Low-Altitude Earth Orbiting Satellites (LEO) (three in operation); Geostationary Earth Orbiting Satellites (GEO) (11 in operation); and the newest-technology payloads aboard Medium-Altitude Earth Orbiting Satellites (MEO) (about 50 in operation).

2.4 As of April 2026, 38 MEO earth stations (local user terminals known as MEOLUTs), capable collectively of simultaneously tracking up to 400 satellites, were commissioned for MEO search-and-rescue satellite payloads (MEOSAR), and at least eight more MEOLUTs (with multiple antennas/channels each) are planned between 2026 through 2027. These new antennas complete the regular LEOLUTs and GEOLUTs.

2.5 In November 2022, the declaration of intent between the Cospas-Sarsat Programme and the People's Republic of China for co-operation on the MEOSAR satellite system was signed, associating the six SAR/BDS (BeiDou) payloads to the System as the fourth MEOSAR constellation, in addition to the European Galileo, the Russian GLONASS and USA's GPS. Full details of the operational space and ground segments are available at https://www.cospas-sarsat.int/en/.

SPOC Communication

2.6 Since 2008, Cospas-Sarsat has conducted regular testing of communications links between MCCs that distribute distress alerts to their supported SPOCs. ICAO and IMO requested Cospas-Sarsat to report on these MCC-SPOC communication tests.

2.7 The following **Table 1** information is a summary of results for the period 2020-2024. For that five-year period, operational MCCs reported results of MCC/SPOC communication tests results. Some MCCs do not support SPOCs outside of their country and therefore are not required to conduct these tests.

Table 1: SPOC Communication Test Results (2020 – 2024)

	2020	2021	2022	2023	2024
Number of SPOCs tested by MCCs	166	171	171	161	165
Non-responsive SPOCs (no response to tests)	7.23%	8.19%	5.26%	4.97%	6.66%
Rarely responsive SPOCs (less than 20% successful tests)	6.02%	3.51%	5.85%	4.97%	4.84%
SPOCs with low success ratio (between 20 and 50% successful tests)	7.23%	9.94%	8.19%	11.18%	10.30%
Insufficiently responsive SPOCs	**20.48%**	**21.64%**	**19.30%**	**21.12%**	**21.80%**

2.8 The statistics in **Table 1** are based on the proportion of successful tests between MCCs and SPOCs. A successful test means that the requested positive feedback (not an automatic acknowledgement) was received from the SPOC. When available, several communications links (e.g. AFTN, fax, phone, e-mail, FTP, even WhatsApp) were tested each month. In many cases, each available link was tested separately and counted as a unique test. Table 1 specifically indicates the percentage of SPOCs that are insufficiently (low or rarely) or even non-responsive to communication tests; this number remains consistent around 20%.

2.9 **Figure 4** shows the insufficiently responsive SPOCs, mostly situated in Africa around the equator line, despite extensive efforts, including by ICAO and IMO, to directly engage with them.

Figure 4: Map of Non-Responsive and Poorly Responsive SPOCs (2024)

2.10 As an approach to prompting better communications between MCCs and their supported SPOCs, Cospas-Sarsat has prepared a “model agreement/arrangement” or “understanding” (depending on the degree of formality that the signatories are comfortable with) that can be executed between MCCs and their supported SPOCs. The model agreement/arrangement can be found on the Cospas-Sarsat website (https://www.cospas-sarsat.int/en/documents-pro/documents/document-templates-doc).

2.11 Since 2013, 56 SPOC agreements were signed between MCCs and SPOCs and deposited with the Cospas-Sarsat Secretariat (including six agreements in the Asia-Pacific Region). SPOCs that entered into agreements have generally exhibited improvements in response to tests, proving the value of establishing a strong link between the SPOC and supporting MCC.

2.12 The Cospas-Sarsat Secretariat currently holds copies of agreements/arrangements between:

MCC	SPOC	Region	Initial date	Revised
FMCC	France, JRCC Tahiti	Asia-Pacific	Feb-20	
FMCC	France, MRCC La Réunion - SOI	Indian Ocean	Dec-19	Feb-26
INMCC	Maldives	Indian Ocean	Jun-23	
INMCC	Nepal, CAA	Asia-Pacific	Jan-15	
VNMCC	Cambodia	Asia-Pacific	Mar-13	
VNMCC	Laos	Asia-Pacific	Dec-13	

New Format of the SIT 185 Distress Alert Message

2.13 Distress-alert messages are sent to SAR authorities in the "SIT 185" human-readable text format. Beginning in 2023, distress information is now delivered in a revised-format message, designed for greater clarity. The goal of this reorganization is to use clear terminology and to provide position information in a better order. Two significant changes were made, to use "MCC Reference position" instead of "Confirmed position", which could be misunderstood by RCCs as the "best" position, where this is indeed a position used by MCCs as a reference for processing other positions, and "GNSS position" to replace "Encoded position". This line is now the first of the fourth paragraph when the information is available. Full details of the new SIT 185 message format can be found in the RCC Handbook, document C/S G.007, available free of charge at https://www.cospas-sarsat.int/en/documents-pro/system-documents/system-documents, selecting "G. Series" then "G.007".

2.14 At its 30th meeting in 2024, the ICAO/IMO Joint Working Group (JWG) on the Harmonization of Aeronautical and Maritime Search and Rescue updated the *IAMSAR Manual Volume II Appendix B*, to provide sample ELT(DT) alerts and cancellation messages which were published in its 2025 edition.

Recent System Enhancement

2.15 The MEOSAR system transitioned to Initial Operational Capability (IOC) in April 2023, and Full Operational Capability (FOC) is anticipated to be declared in 2026. Future enhancements are focused primarily on advancing the MEOSAR system to its next operational phase. This work principally involves commissioning of new or upgraded ground segment equipment within Cospas-Sarsat Participant States and Territories to augment global coverage with the implementation of a Quality Management System Automatically-Reported (QARS).

2.16 Cospas-Sarsat also focused developments necessary to begin operational phases for SGBs (that will transmit more information in their distress message and have greater location accuracy). This work principally involves commissioning of new or upgraded Ground Segment equipment within Cospas-Sarsat Participants to ensure global coverage. For regular beacons (i.e. all beacon types except ELT(DT)s), IOC of the System is expected to be declared in 2026.

In-Flight Distress Tracking

2.17 Cospas-Sarsat announced FOC for FGB ELT(DT)s from January 2023 and for SGB ELT(DT) from January 2024. In some cases, the ELT(DT) replaces the ELT(AF), which may initially result in the loss of the 121.5 MHz homing signal; however, recent update of the ICAO regulation ensures that at least one automatic ELT (including crash-survivable ELT(DT) onboard commercial aircraft shall include a 406 MHz beacon transmitting on 121.5 MHz as well.

2.18 Cospas-Sarsat has developed guidance for use by RCCs when in receipt of an alert from an ELT(DT)) and made it available on the Cospas-Sarsat website and new *Manual on Global Aeronautical Distress and Safety System* (ICAO Doc 10165). ELT(DT) 4D-position data from the whole Cospas-Sarsat System have been pushed to the ICAO/EUROCONTROL LADR by the French nodal MCC since October 2025.

2.19 Consequently, it is of the utmost importance that all airline operators operating ELT(DT)-equipped aircraft, air traffic service (ATS) units, RCCs in charge of responding to aeronautical distress events, and any national aviation agencies if desired, ensure they are properly registered in the ICAO OPS Control directory in order to be notified of any ADT activation of interest and access the position data stored in the LADR in timely manned if necessary.

2.20 Due to the high rate of transmission of an ELT(DT), which activates after only five seconds, unintended activations must be avoided at all costs, not only to prevent the System overload, but also to reduce the flow of unnecessary distress messages received by which could disrupt normal SAR and ATC activities. Coordination between States, aircraft manufacturers, civil aviation authorities and airline operators is required to support mitigation efforts, as highlighted by Cospas-Sarsat at the ICAO 42nd Assembly held in Montreal in September 2025.

Return-Link Service and Two-Way Communication (TWC) Beacons

2.21 The Return Link Service (RLS), that provides an acknowledgement to the user of a beacon that the distress signal has been received and located (see **Figure 5**), was declared at FOC in March 2021.

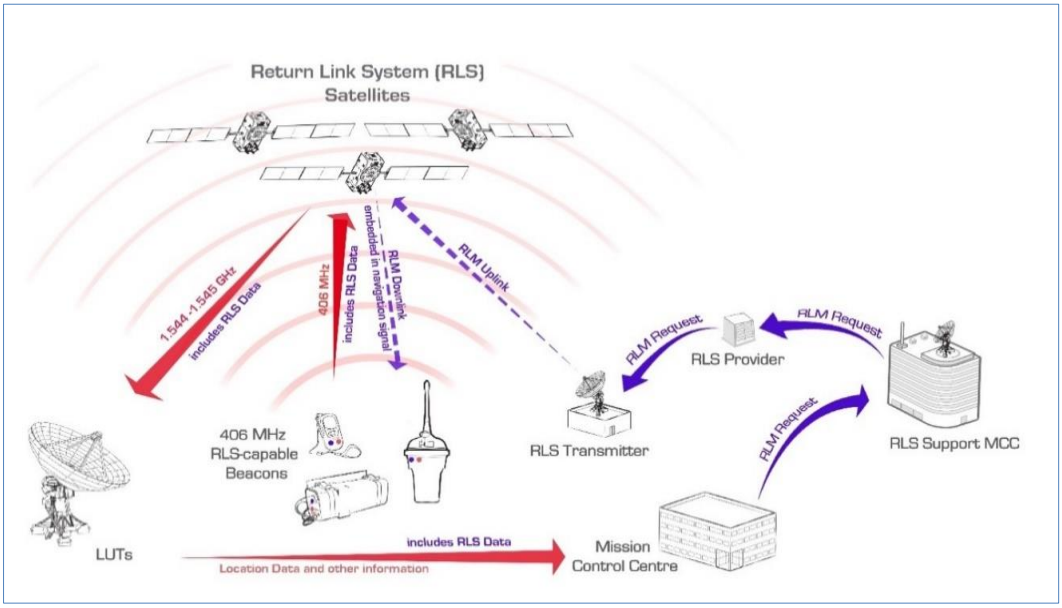

Figure 5: The Return Link Service – Type 1 and the Cospas-Sarsat System Concept

2.22 Cospas-Sarsat has begun the design of 406 MHz beacons allowing TWC between the beacon user and the RCC. Based on the RLS technology, this TWC service is seen as an enhancement of the current RLS – Type 1. This new service for second-generation beacons will provide benefits in better understanding emergency situations, including:

a) providing confirmation of receipt of the distress signal by SAR services (RCCs);

b) improving situational awareness by allowing the person in distress to provide initial (such as the number of persons in distress, the environment, the degree of emergency) and additional information, allowing rescue teams to better understand the nature of the emergency and respond appropriately;

c) providing important safety benefits by allowing the SAR services to communicate with the person in distress, possibly providing guidance on how to stay safe, and to monitor their circumstances until help arrives; and

d) reducing false alarms.

2.23 Cospas-Sarsat has held several dedicated experts working group since January 2024 to further consider matters related to TWC. Interested participants are invited to join the working group on TWC to monitor and contribute to the work being done and to assist in the further development of this capability for SGBs. The operational concept and high level requirements were approved by the Cospas-Sarsat Council in October 2025 under the new document C/S R.025. Further discussions will be held at the Cospas-Sarsat 40th Joint Committee in June 2026.

Training Material and Public Relations

2.24 Development of video material continued with the creation of a series of video FAQs. All videos can be watched free-of-charge (on YouTube® at 406.org/en/search-and-rescue/programme-videos-en and at https://moodle.406.org/) in English with subtitles in French or Russian available. Videos about the new SIT 185 format message and others on the use of the new IBRD have just been released, and another on ELT(DT) is in progress.

2.25 On the initiative of the Kingdom of Saudi-Arabia, on 10 September 2025, the Cospas-Sarsat Programme celebrated the first annual Cospas-Sarsat SAR Day in memory of the first save assisted by the System 43 years ago. Numerous communications illustrating the dedication to work of the MCC and SAR operators to save lives were posted on social media.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information provided on the status of the Cospas-Sarsat Programme;

b) provide feedback on notifications about Cospas-Sarsat System developments;

c) provide details of any existing MCC-SPOC agreements/arrangements, and proposals for improving MCC-SPOC communications during tests and real alerts;

d) noting the ICAO equipage deadline of 1 January 2025, consider making available to RCCs in their national/regional documentation guidance on management of distress alerts emanating from an aircraft that might still be in flight, including the ability of connecting 24/7 to the ICAO-EUROCONTROL LADR to retrieve ADT position information;

e) encourage Asia/Pacific ICAO Member States to coordination between States, aircraft manufacturers, civil aviation authorities and airline operators to support the efforts for mitigating ELT(DT) unintended activations;

f) encourage Asia/Pacific ICAO Member States to actively join the Cospas-Sarsat working groups on TWC to assist in the further development of the TWC capability for RLS second-generation beacons; and

g) provide feedback on the video library made available publicly for use by SAR professionals.

— END —