



Cospas-Sarsat System Overview (Part 1)

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Cospas-Sarsat History

Aircraft ELTs: C/S Heritage

- 121.5/243 MHz Emergency Locator Transmitters (ELTs) installed first on military aircraft, then on civilian light aircraft in USA/Canada (from 1970)
- No identification of aircraft/beacon
- Designed for audio detection by over-flying aircraft and homing to the signal
- No means of accurately locating ELTs



Chance of survival in the event of a distress decreases significantly with time

Time and cost of rescue increases significantly with increasing search area



Cospas-Sarsat History

International Cooperation

- 1978: Canada, France and the USA agree to co-operate on the development of the SARSAT low-altitude polar orbiting satellite system to:
 - Locate existing 121.5 MHz beacons
 - Develop new 406 MHz technology for improved performance
- Russia declares interest in co-operating with the objective of ensuring inter-operability of their COSPAS system with SARSAT

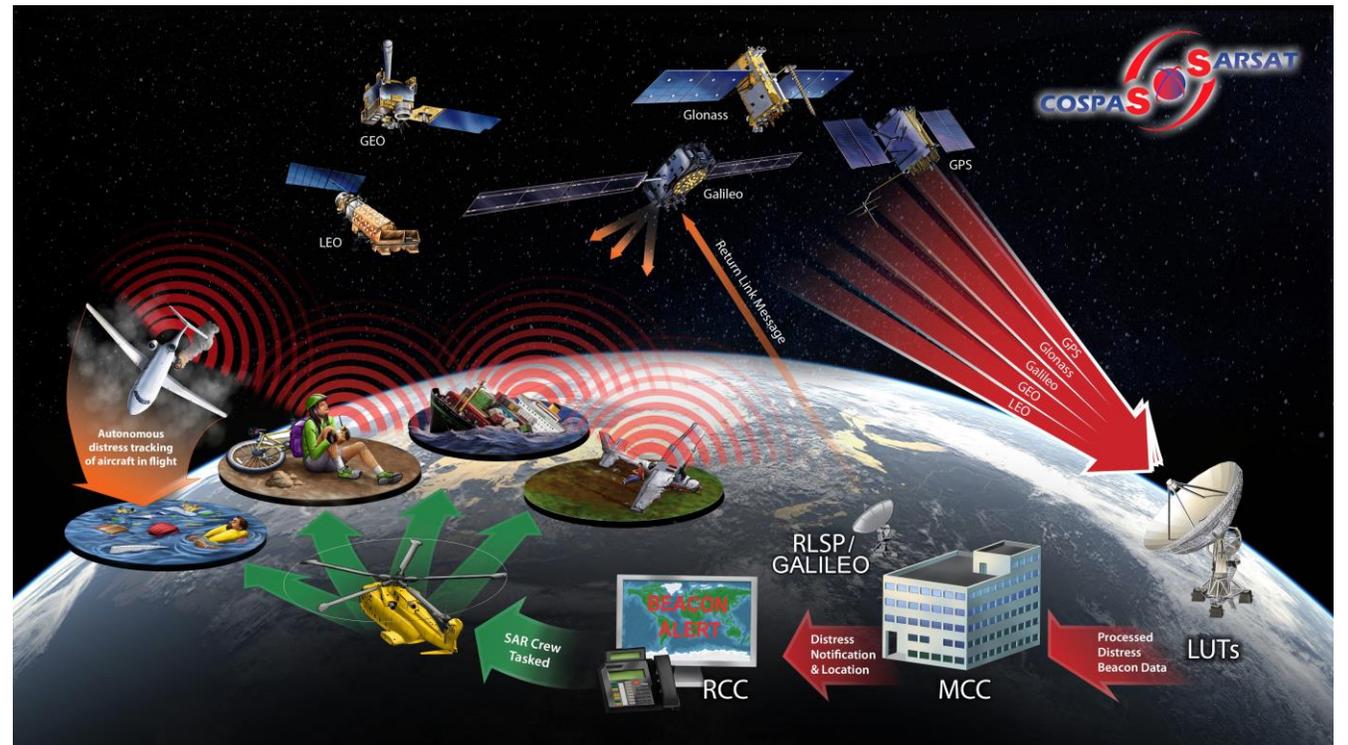




Cospas-Sarsat : What's in a name?

COSPAS = Космическая Система Поиска Аварийных Судов*

SARSAT = Search And Rescue Satellite Aided Tracking



*Cosmicheskaya Sistyema Poiska Avariynich Sudov



International Organization

- Initially developed under interagency Memorandum of Understanding signed in 1979 (USSR, USA, Canada, France)
- System declared operational in 1985
- 406 MHz beacons accepted by IMO for GMDSS in 1988
- International Cospas-Sarsat Programme Agreement (ICSPA) signed on July 1, 1988 among the governments of Canada, France, the former U.S.S.R and the United States
- ICSPA ensures continuity of the space system and availability to all States on a non-discriminatory basis



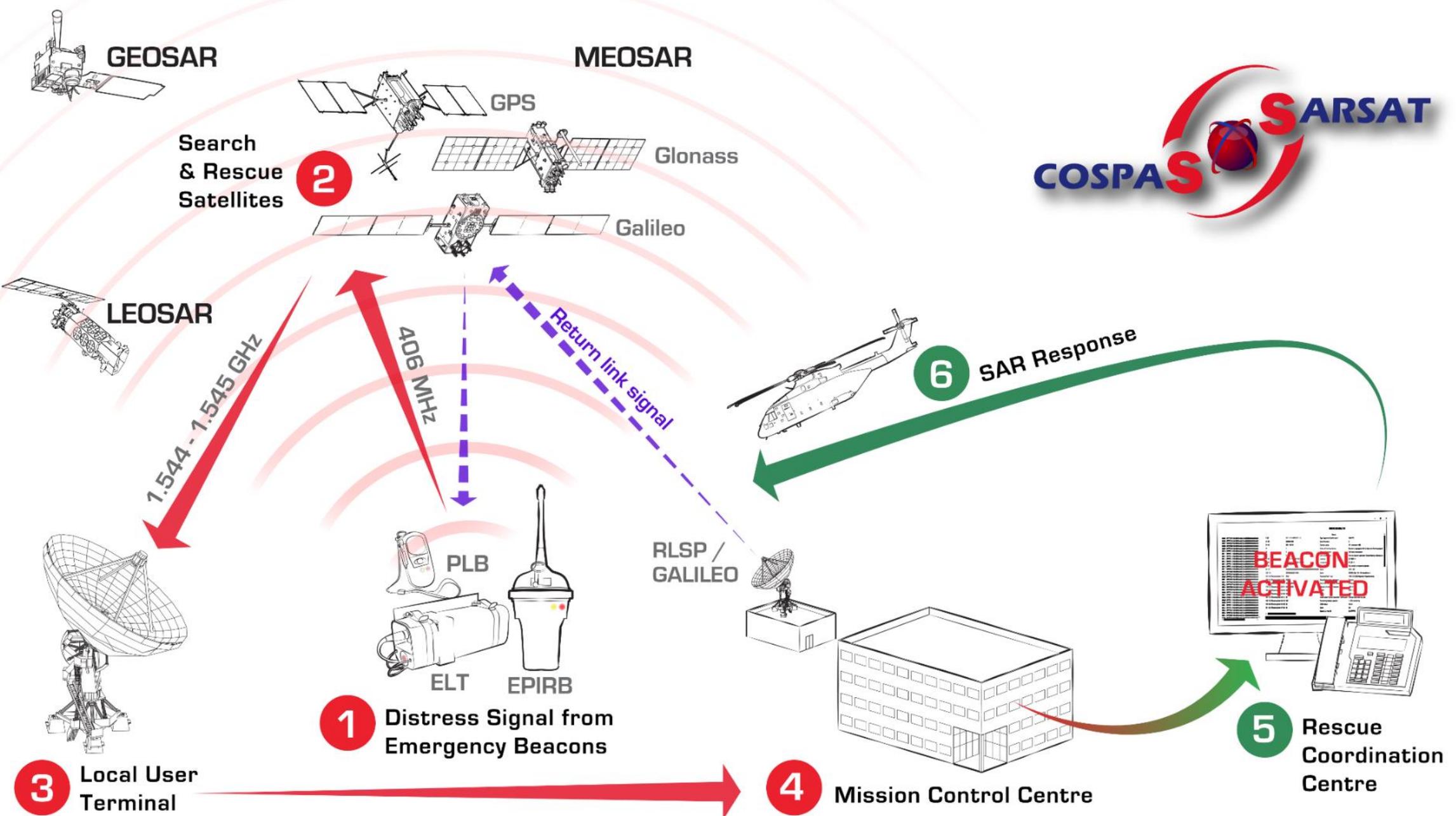


International Cospas-Sarsat Programme



- C/S provides distress alert and location information to Rescue Coordination Centres (RCCs) for aviation, maritime and land users in distress
- Services are provided world-wide and **free of charge** for the user in distress
- Alerts are provided using satellite systems to relay and process the transmissions of distress radio-beacons operating on 406 MHz (Satellite detection of 121.5 MHz alert ended in Feb 2009)





GEOSAR

MEOSAR

Search & Rescue Satellites

GPS

Glonass

Galileo

LEOSAR

1.544 - 1.545 GHz

406 MHz

Return link signal

6 SAR Response

PLB

ELT

EPIRB

RLSP / GALILEO

BEACON ACTIVATED

3 Local User Terminal

1 Distress Signal from Emergency Beacons

4 Mission Control Centre

5 Rescue Coordination Centre



Participating Countries in 2021



- 4** Founders: Canada, France, Russia and the USA
- 30** Ground Segment Providers
- 9** User States
- 2** Organisations
- 45 PARTICIPANTS**

- | | |
|---------------|--------------|
| Algeria | New Zealand |
| Argentina | Nigeria |
| Australia | Norway |
| Brazil | Pakistan |
| Canada | Peru |
| Chile | Poland |
| China (P.R.) | Qatar |
| Cyprus | Russia |
| Denmark | Saudi Arabia |
| Finland | Serbia |
| France | Singapore |
| Germany | South Africa |
| Greece | Spain |
| Hong Kong | Sweden |
| India | Switzerland |
| Indonesia | Thailand |
| Italy | Togo |
| ITDC | Tunisia |
| Japan | Turkey |
| Korea (R. of) | UAE |
| Malaysia | UK |
| Netherlands | USA |
| | Vietnam |



Cospas-Sarsat welcomes new Participating States!

Contribute to the distress alerting system and management of the Programme

As a Ground Segment Provider -

Acquire/Manage your own alert data

- Manage your Mission Control Center
- Receive your own alerting data
- Share the data via the C/S Network
- (Distribute the data to SPOCs)

As a User State -

Participate in C/S Meetings to

- Learn more about Cospas-Sarsat
- Develop relationships with neighbours
- Discuss beacons standards
- Improve alert data distribution
- Discuss System evolution
- Bring your feedback and experience

Membership: CAD 68,000 ~ USD 50,000 / year

Membership is not required to benefit from the Alerting System





Principles of Participation

All States, including States not formally associated with **Cospas-Sarsat** should:

- Designate a SAR Point of Contact (SPOC) to receive alerts from Cospas-Sarsat MCC
- Decide on 406 MHz beacon coding, national beacon approval requirements
- Ensure that 406 MHz beacons authorised for use have received a Cospas-Sarsat type-approval certificate (or letter of compatibility)
- Establish a 406 MHz beacon register as required by ICAO and IMO or opt to use the international registry





How to Associate

C/S P.002(E)

- Procedures are outlined in document C/S P.002
- Letter of notification using standard text should be:
 - Signed by the Head of State, Head of Government, Minister of Foreign Affairs, or duly authorized government agency
 - Deposited with the Secretary General of IMO or ICAO

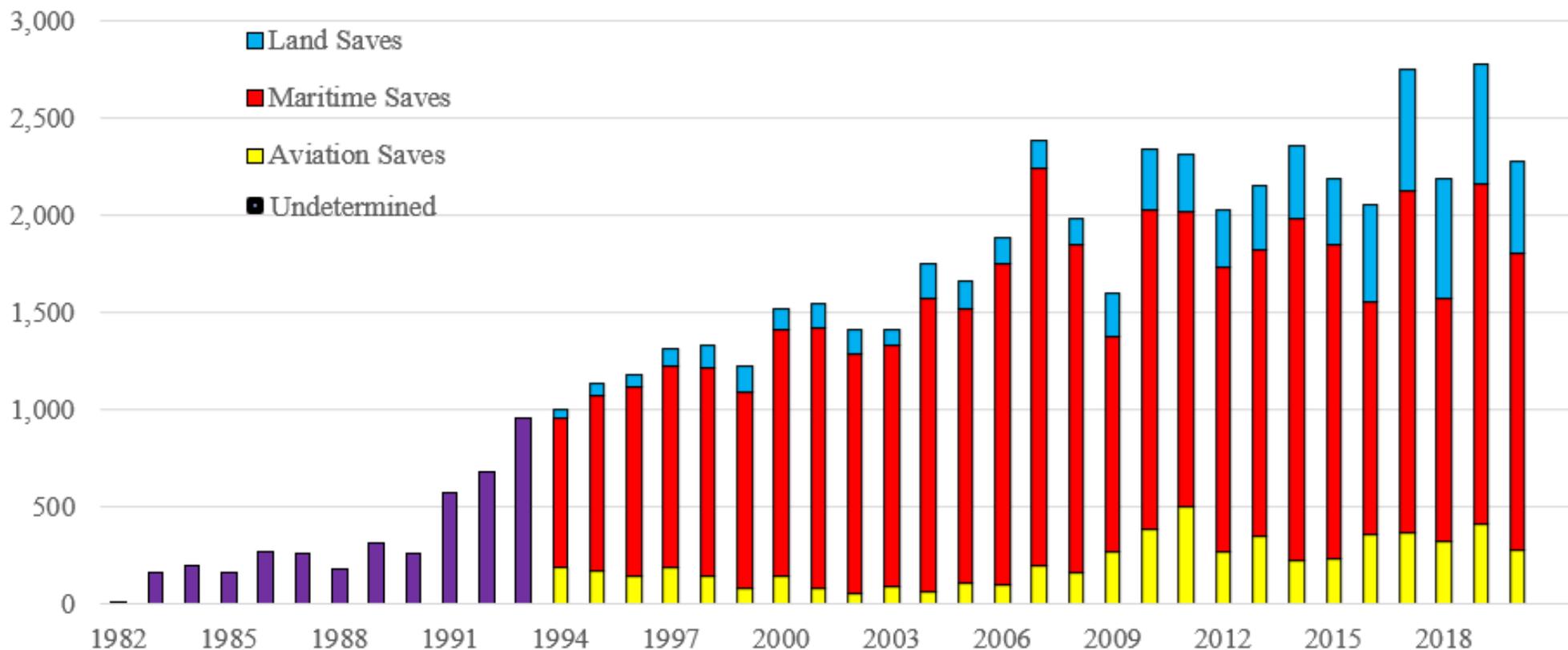
PROCEDURE FOR THE NOTIFICATION OF
ASSOCIATION WITH THE INTERNATIONAL
COSPAS-SARSAT PROGRAMME
BY STATES NON-PARTY TO THE
COSPAS-SARSAT AGREEMENT

STANDARD LETTER OF NOTIFICATION OF
ASSOCIATION WITH THE INTERNATIONAL
COSPAS-SARSAT PROGRAMME
AS A GROUND SEGMENT PROVIDER

STANDARD LETTER OF NOTIFICATION OF
ASSOCIATION WITH THE INTERNATIONAL
COSPAS-SARSAT PROGRAMME
AS A USER STATE



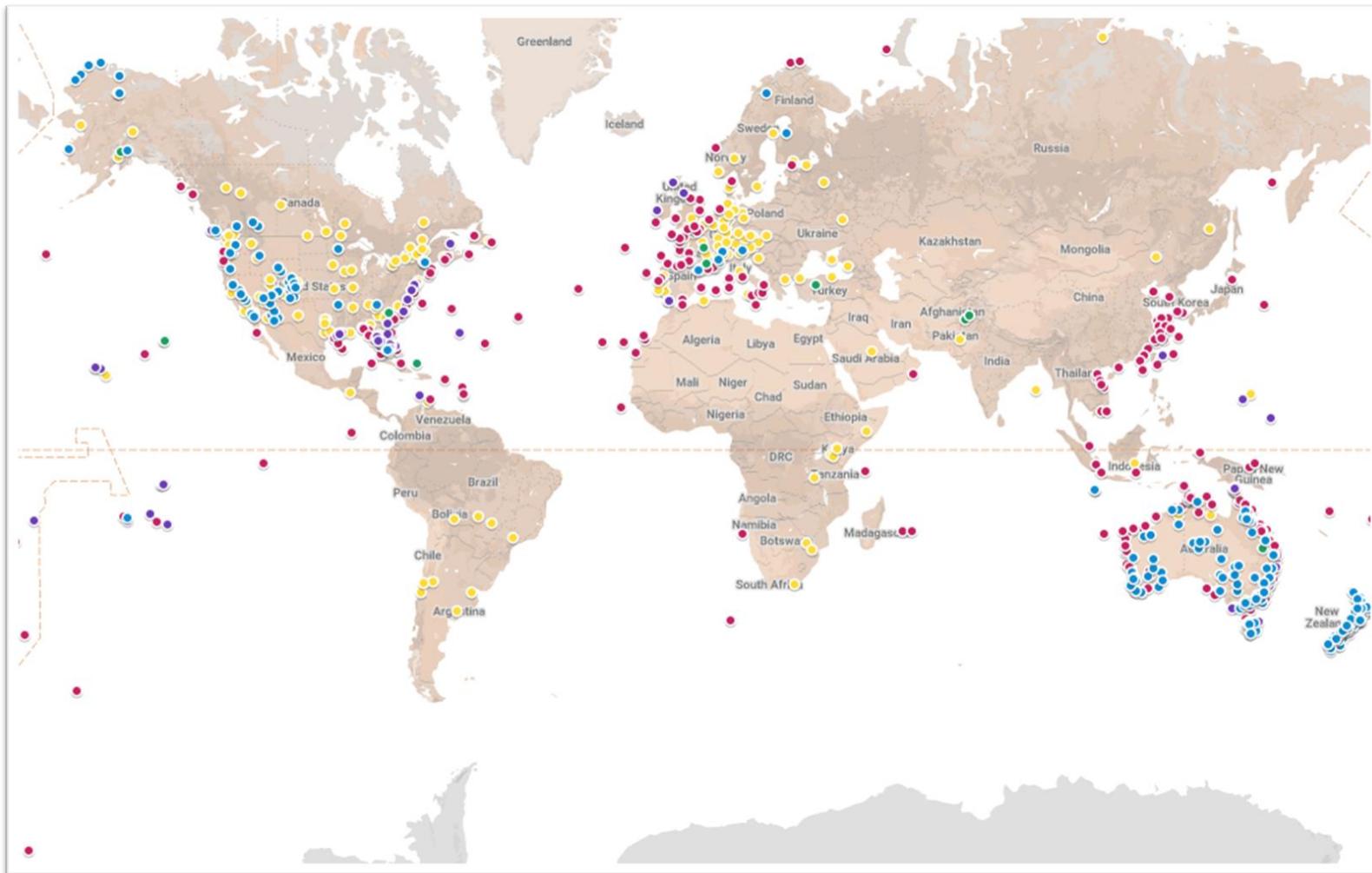
Steady Growth and Exponential Success



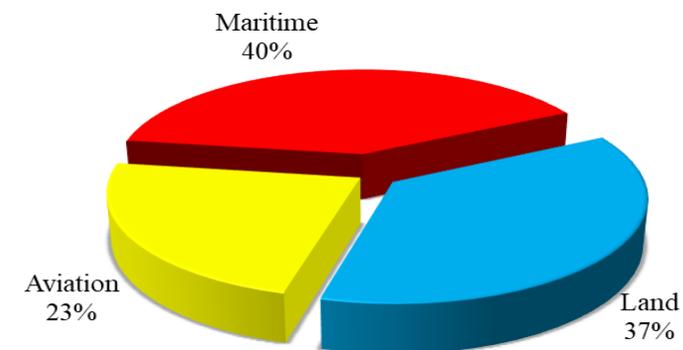
Since September 1982, the Cospas-Sarsat System has provided assistance in rescuing at least 53,700 persons in 16,500 SAR events



Type of SAR Events and Persons Rescued 2020



Type	Events	Persons Rescued
Aviation	220	280
Maritime	382	1,528
Land	349	470
Total	951	2,278





New Alert Types: GADSS ELT(DT) and RLS



GADSS

Global Aviation Distress and Safety System

New ICAO SARPs are applicable to new aeroplanes with take-off mass greater than 27,000 kg (and recommended for >5,700 kg) from 1 January 2023

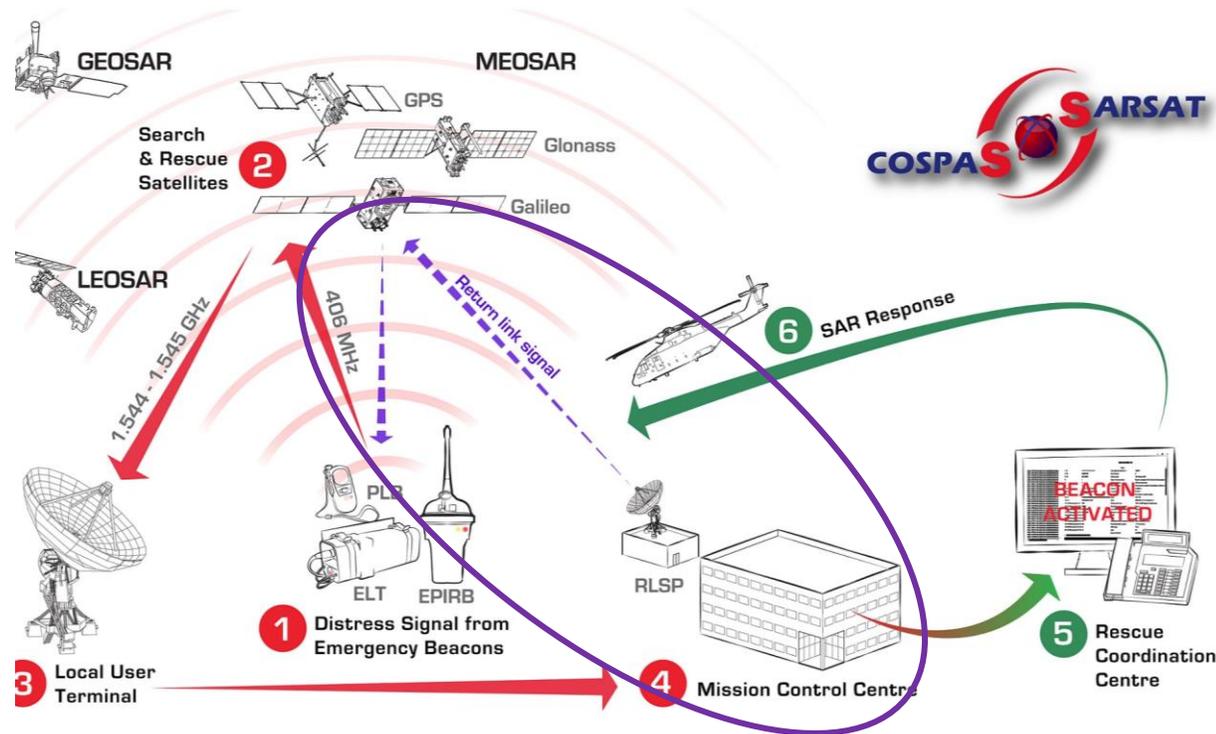
RCCs will be notified of distress situations when aircraft are still in flight

Special coordination procedures will be required: advice available in the IAMSAR Manual

ELT(DT) activates



Return Link Service



- A new service provided to RLS-capable beacons
- Declared fully operational in March 2021
- RLS-Type 1 provides acknowledgment that the beacon signal has been received by Cospas-Sarsat and the beacon is located
- RLS-Type 2 is still under study. This service would involve RCCs acknowledging that SAR response has started



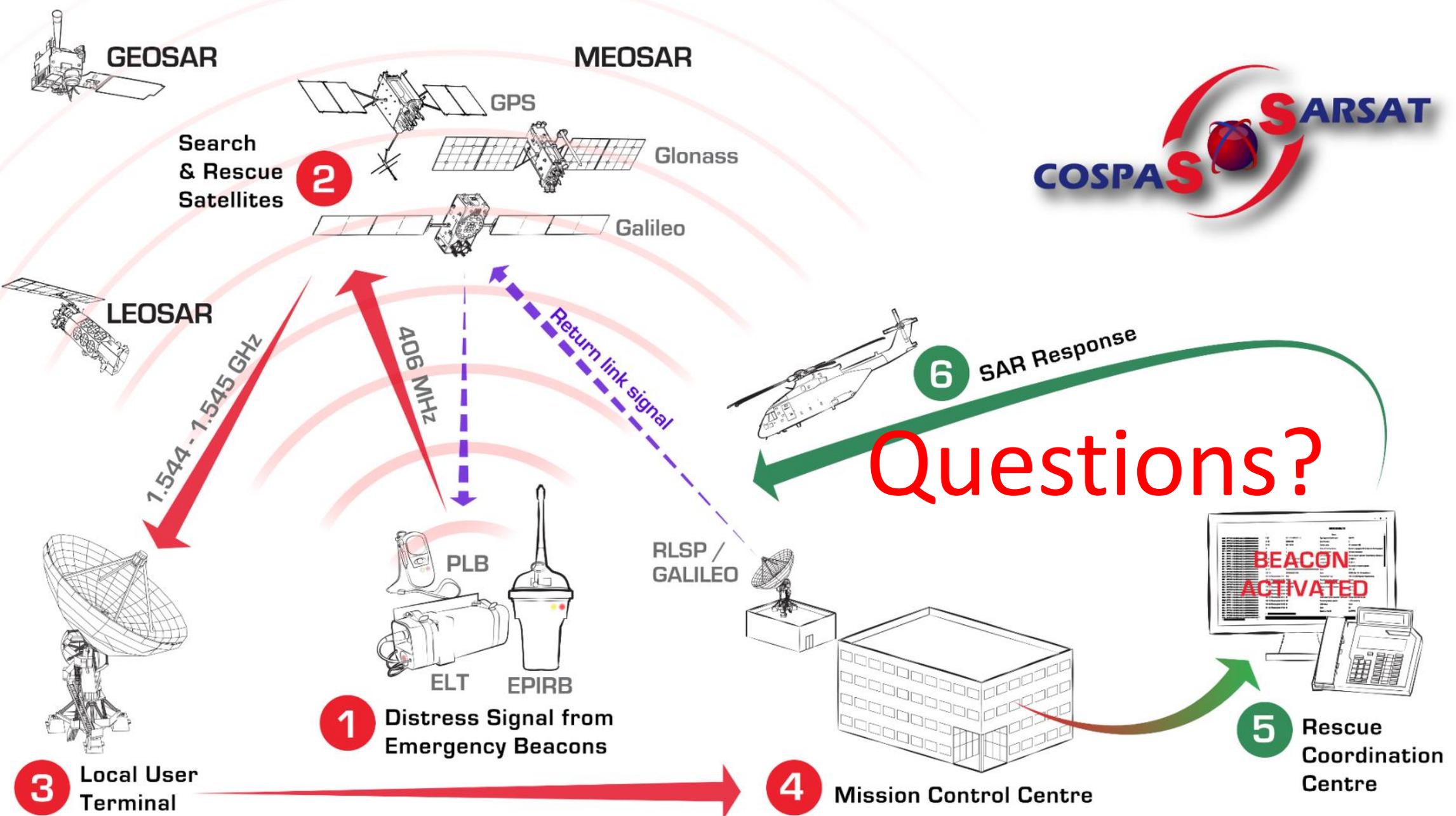
Programme Videos: A training resource

- New interface available for those who cannot access YouTube
- Fifteen training videos, and many other videos for MEOSAR, general Programme, and administration are available via the C/S website (on YouTube) and an alternative platform <https://moodle.406.org/>

Videos

YouTube channel: <https://www.youtube.com/c/InternationalCospasSarsatProgramme>

1. [Introduction](#)
2. [Beacon Ownership FAQ \(playlist\)](#)
3. [How Cospas-Sarsat Works](#)
4. [Cospas-Sarsat System FAQ \(playlist\)](#)
5. [MEOSAR](#)
6. [Saving Lives \(playlist, complementary to our Handbook for Rescue Coordination Centres, document C/S G.007\)](#)
7. [Programme and Administration FAQ \(playlist\)](#)
8. [Contributed video: Correct use of an EPIRB](#)



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Questions?

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