

SERENITY project kicked-off.

A step forward in Search and Rescue (SAR) / Galileo Return Link Service (RLS), to save lives.

The European Union is pursuing its ambition to make Galileo a unique asset to help Search and Rescue teams to save lives around the world.

Galileo became a game-changer in the Search And Rescue community since December 2016 by bringing the power of a global constellation of MEOSAR satellites to the Cospas-Sarsat network.

Global 24/7 watch, unprecedented detection speed of the distress signals, improved accuracy were the starters, and a major innovative step was taken with the release of the SAR/Galileo Return Link Service in January 2020.

As part of this vision, the European Commission entrusted the SERENITY consortium, led by Telespazio France, to prototype and demonstrate a planned evolution of the SAR/Galileo service, to be fully integrated into the existing Cospas-Sarsat system: the Two Way Communication Service (TWC). SERENITY project was kicked-off on January 14th 2021 and will last 18 months.

Two Way Communication: a step forward to save more lives

The SAR/Galileo service is already providing both following services:

- SAR/Galileo Forward Link for which Galileo satellites relay signals from Cospas-Sarsat compatible 406MHz distress beacons to specific ground terminals;
- SAR/Galileo Return Link: a Galileo unique feature, which allows the relay of data back to the originating distress beacon, providing the user with the confirmation that the alert has been localised by the Cospas-Sarsat system.

The SAR/Galileo Two Way Communication (TWC) service will take a step further by enabling communication between compatible distress beacons and the Rescue Coordination Centre in charge of the rescue mission, through predefined questions and answers. Such a service will help rescue teams to deploy adequate resources, improving worldwide SAR operations. The TWC service will also reinforce the Return Link Service benefit of reducing the panic level of the distress beacon user and further boost survival rates.

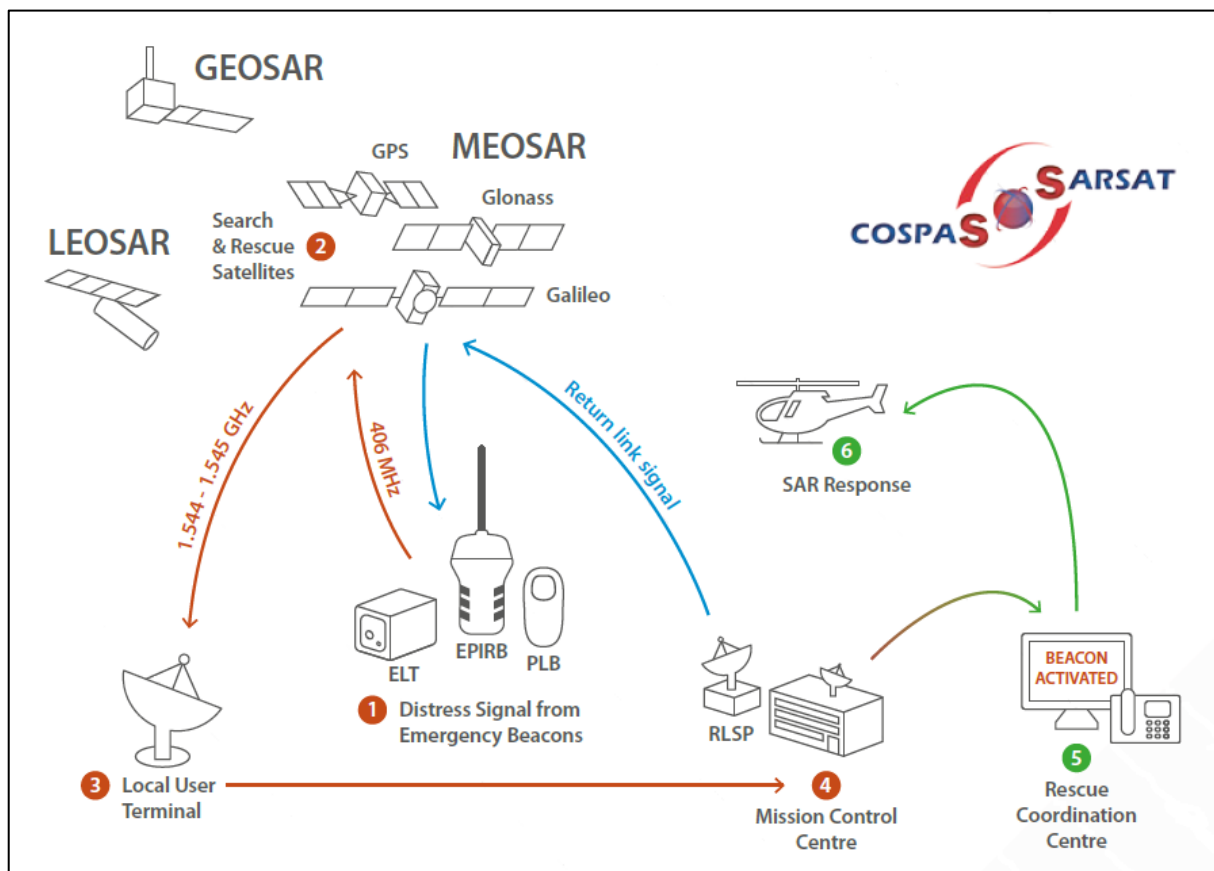
SERENITY will establish the TWC service and mission requirements meeting the users' needs that will be collected through a wide consultation of the SAR community. Based on these requirements, specification, design and development of a prototype beacon will be conducted, leading to the service demonstration involving this prototype and the whole SAR operational chain, to be disseminated towards the SAR community including the Cospas-Sarsat programme.

The User Consultation has already started. It is performed through a questionnaire including specific questions for each type of user. The questionnaire is available online here: <http://tinyurl.com/EU-TWC-User-consultation-2021>.

What is Cospas-Sarsat?

The International [Cospas-Sarsat](#) Programme is a satellite-based search and rescue distress alert detection system. The system consists of a user segment equipped with distress beacons broadcasting at 406MHz, a space segment made of various satellites and a ground segment. All together, they allow to detect and locate signals from the distress beacons carried on boats, aircrafts, and by individuals. The distress alert information, carrying in particular the position of the distress beacon, is relayed by Cospas-Sarsat to the appropriate SAR authorities.

The SAR/Galileo service is the biggest contributor to the Cospas-Sarsat MEOSAR system in terms of ground segment and space segment assets (Medium altitude Earth Orbit satellites and associated ground Location User Terminals), improving greatly the system performances compared to the original LEOSAR and GEOSAR systems (shorter distress detection time, better distress localisation ...).



Source: SAR/Galileo Service Definition Document

The SERENITY Consortium:

The SERENITY consortium is composed of Telespazio France, CNES, Thales Alenia Space France, Orolia, and Pildo Labs that all together gather key expertise and experience to fulfil the mission.

- **Telespazio France**, involved in Cospas-Sarsat and SAR/Galileo operations, engaged with emergency services through its partnership to [EENA](#) and involved in several initiatives (HELP112 projects, GRALLE project, SBAS ASECNA project) aiming at leveraging Galileo added-value in emergency services;
- **CNES**, SAR/Galileo Data Service Provider and French representative at Cospas-Sarsat;
- **Oroli**, the industry's first single vendor of end-to-end lifesaving, satellite-aided SAR solutions, deeply engaged with the European GNSS Agency to develop next-generation SAR distress beacons Galileo enabled and foster Galileo adoption by SAR community (H2020 HELIOS, Fundamental Elements TAUCETI);
- **Pildo Labs**, a well-known Spanish SME, deeply committed with European Commission and the European GNSS Agency (GSA) to promote European GNSS towards end-users since more than 20 years, working closely with Rescue Coordination Centres, providing SAR emergency management platforms to RCCs, involved in several initiatives aiming the improvement of SAR operations in Aviation domain (H2020 GRICAS, H2020 GRIMASSE);
- **Thales Alenia Space France**, key provider of SAR technologies with unique features (MEOLUT Next), supporting SAR innovation since more than 10 years (SGB CNES, H2020 SAT 406M, H2020 GRICAS, H2020 SINSIN, H2020 GRIMASSE...).

About Telespazio France

As a major partner of the most successful Space programs and as a key player in space infrastructure operations for more than 30 years, Telespazio France supplies value-added satellite-based services and applications covering all of the key domains of space, from telecommunications and Earth observation to satellite system operations and navigation.

Telespazio France is the French subsidiary of the Telespazio group, which is joint venture between Leonardo (67%) and Thales (33%). Based in Toulouse, Bordeaux, Paris and Kourou (French Guiana), the flagship cities of France's space sector, Telespazio France delivers its expertise to institutional stakeholders and private firms alike.

We are convinced that a simple link between Man and Space is essential to our life on Earth, because Space is a key technological and human enabler to protect the planet and its inhabitants. Our ambition is to democratize the access to the space services of today and tomorrow, through an open logic of "Space On Demand". We bring together the skills and partnerships needed to provide the best value solutions, in a market undergoing profound change....

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About CNES

Founded in 1961, the Centre National d'Etudes Spatiales (CNES) is the government agency responsible for shaping and implementing France's space policy in Europe.

To execute the nation's space policy, CNES relies on strong shared values like excellence, enthusiasm and the desire to rise to the challenges that lie ahead. Our 2,357 men and women are working hard to lay plans for the future, make French industry more competitive and sustain scientific and operational excellence. With our four centres in Paris, Toulouse and French Guiana, we are helping to extend the influence of French space policy....

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About Orolia

Orolia is the world leader in Resilient Positioning, Navigation and Timing (PNT) solutions that improve the reliability, performance and safety of critical, remote or high-risk operations, even in GPS denied environments. With a presence in more than 100 countries, Orolia provides virtually fail-safe GPS/GNSS and PNT solutions for military and commercial applications worldwide.

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About Pildo Labs

Founded in 2001, PildoLabs is an engineering company specialized in delivering top of the edge technology and services within the aeronautics, maritime and road sectors.

Our company is well known to lead the introduction of Satellite Navigation Services (GNSS) and implementation of Performance Based Navigation (PBN) within the European aviation sector, by means of innovative and cost-effective solutions, and participation since the very beginning in most strategic initiatives related. The company portfolio includes most European public and private Air Navigation Service Providers, airlines, together with other fixed-wing and rotorcraft operators.

During the last 5 years, PildoLabs has started working on Cospas-Sarsat Search and Rescue activities through different H2020 European funded projects (GRICAS, GRIMASSE and GAMBAS) and is part of EUROCAE WG98 SG-1. In this framework, the company has developed and tested MERCCURY, an emergency management platform designed to optimize the transmission and collection of SAR information by the RCCs, ATCs and the MCCs.

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About Thales Alenia Space France

Combining 40 years of experience and a unique diversity of expertise, talents and cultures, Thales Alenia Space architects design and deliver high technology solutions for telecommunications, navigation, Earth observation, environmental management, exploration, science and orbital infrastructures. Governments, institutions and companies rely on Thales Alenia Space to design, operate and deliver satellite-based systems that help them position and connect anyone or anything, everywhere, help observe our planet, help optimize the use of our planet's – and our solar system's – resources. Thales Alenia Space believes in space as humankind's new horizon, which will enable to build a better, more sustainable life on Earth. A joint venture between Thales (67%) and Leonardo (33%), Thales Alenia Space also teams up with Telespazio to form the parent companies' Space Alliance, which offers a complete range of services and solutions. Thales Alenia Space posted consolidated revenues of about 2.15 billion euros in 2019 and has around 7,700 employees in nine countries.

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