Information Bulletin

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COSPAS SARSAT

Search-and-Rescue Payload Launch Inaugurates MEOSAR Satellite Constellation

Model of Glonass-K No. 1, the first satellite of the Russian Global Navigation Satellite System carrying a transponder to detect distress-beacon signals.

With the successful launch 26 February 2011 of Russia's Glonass-K No. 1 satellite, Cospas-Sarsat has welcomed the first spacecraft in what promises to be a new fleet of satellites for detecting distress signals from ships, aircraft and backcountry hikers. Glonass-K No. 1 hosts the first operational MEOSAR (Medium-altitude Earth-Orbit Search and Rescue) payload, joining ten experimental DASS (Distress Alerting Satellite System) payloads currently available on the USA's GPS satellites.

The Cospas-Sarsat Programme first began investigating in 2000 the benefits of using global navigation satellites (e.g. Glonass, GPS and Europe's Galileo) to supplement the existing low-altitude Earth-orbit (LEOSAR) and geostationary Earth-orbit (GEOSAR) fleets in the search and rescue (SAR) network. The MEOSAR Proof-of-Concept work, completed in 2010, identified many SAR alerting benefits to be realized from a MEOSAR architecture. These include near instantaneous global coverage with highly accurate location capability (that is independent of the need for GPS data from the beacon), robust beacon-to-satellite communication links with high levels of satellite redundancy and availability, resilience against beacon-to-satellite obstructions (such as blocking by mountains or canyon walls), and the possible provision of enhanced SAR services, such as the addition of a return link to enable confirmation indicators for beacon users in distress.

In 2012, work towards the operational implementation of the MEOSAR system will continue with finalization of plans for a Demonstration and Evaluation (D&E) programme scheduled to commence in 2013. Provided that a sufficient number of MEOSAR spacecraft will be available at that time, work will begin to confirm the expected capabilities and benefits, and to fine tune the technical and operational performance characteristics of the MEOSAR system.

MEOLUT (MEOSAR Local User Terminal) in Hawaii. Installed for the U.S. government in September 2011, it is the first six-antenna ground station of its type in the world. Its 3.7 m antennas track MEOSAR satellites orbiting 22,000 km above the Earth that listen for distress signals.

One of two MEOLUT antennas installed in Ankara, Turkey in August 2010. The Turkish MEOLUT is part of a five-MEOLUT network distributed across five countries on four continents — a network currently featuring a total of fifteen MEOSAR antennas to receive and share distress alerts.

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INTERNATIONAL SATELLITE SYSTEM COSPAS SARSAT SEARCH AND RESCUE

POINTS OF INTEREST

- In 2010, Cospas-Sarsat alert data assisted in 641 distress incidents in which 2,338 persons were rescued.
- The 406-MHz beacon population reached over 1 million units at the end of 2010, more than double the population in 2004.

The UK Distress and Security Beacon Registry

By Jacqui Rowe & Louise Iggulden, UK Distress & Security Beacon Registry

The UK Distress & Security Beacon Registry is based at the Falmouth, Cornwall, Maritime Rescue Coordination Centre (MRCC), and consists of three full-time and two part-time staff, headed by the Beacons and SARCP Indices Manager, Linda Goulding. The team manages and maintains the UK beacon database which currently holds in excess of 47,000 records. The Registry staff is available 08:30 to 17:00 Monday to Friday, but the MRCC has access to the registration database around the clock.

The staff of the UK Distress & Security Beacon Registry, MRCC Falmouth

A typical day commences with staff prioritising the workload of registrations received via online applications, fax, email, post or in person. If a registration application is straightforward it should contain details of a correctly programmed beacon, the owner's address and relevant contact information, including the very important designated emergency contacts.

Having correct and current information is vital to SAR agencies, as incorrect or obsolete data can possibly delay response times and hinder the deployment of appropriate rescue resources. Conveniently located in the same building, the Registry team works closely with the operational SAR staff to analyse and resolve issues of beacon data, including alerts that originate from unregistered beacons.

The 406-MHz beacon population has vastly increased over the last few years as mariners, aviators and hikers heed the message that… **"Beacons Save Lives".** The decreasing costs of these life saving devices and a vast range of models (including models that incorporate a GPS receiver chip to improve location data) also have increased the popularity and number of beacons purchased. With this expansion in beacon ownership comes an increase in issues that need to be resolved as owners act to register their beacons. Red-Ensign group vessels (for which the UK acts as regulatory authority for beacon registration), anomalies in protocols that can occur when a beacon is being digitally encoded when first installed, incorrect beacon ID data (Hex IDs), and queries on changes in beacon ownership or ownership of the vessel/aircraft on which it is installed, are all examples of some of the issues registry staff have to deal with on a daily basis.

The registry works alongside internal and external customers such as the Maritime and Coastguard Authority (MCA) Navigation and Safety Branch, MCA Surveyors, Selex or other radio surveyors worldwide, the UK's Ministry of Defense and OfCom radio regulatory agency, as well as manufacturers and suppliers. It also provides advice and guidelines on coding protocols to national and international authorities including Cospas-Sarsat.

Ms. Goulding, the registry manager, also is called upon to contribute to articles used for safety literature, Royal Yachting Association publications, yachting safety magazines and, most recently, a detailed article for FISG (Fishing Industry Safety Group), on the importance of fishermen registering and regularly updating their beacon registrations. The team is always pro-active in promoting safety to all maritime users, and has attended various "safety days", providing advice and information on the use and maintenance of EPIRBs, PLBs and 406-MHz beacons generally. With a breadth of tasks and workloads, each day the Registry team faces new challenges.

Happy 30th Anniversary, Cospas-Sarsat!

By Vladislav Rogalsky, Cospas System Engineer, Russia

Having celebrated in the past couple of years the anniversary of the birth of Cospas-Sarsat (its "birthday"), we take pride this year in commemorating perhaps an even more momentous achievement: the first instance when individuals were rescued through the efforts of the International Cospas-Sarsat Programme. 2012 will see the 30th anniversary of the first "saves" that came about through the technological collaboration of four leading space nations of the world: Canada, France, the USA and the former USSR.

On 10 September 1982, a Cessna-172 aircraft crashed in a remote, mountainous area of British Columbia, Canada. The crash victims activated the aircraft's analog-technology, 121.5-MHz emergency locator transmitter (ELT), a device designed not for satellite reception, but to be heard by other pilots who might be flying nearby. However, passing in orbit above the crash site was the Soviet Union's Cospas-1 spacecraft, the first satellite of the Cospas-Sarsat System. Its SAR transponder had been successfully activated only days earlier, following a 30 June 1982 launch of the spacecraft. The distress beacon's transmission was relayed by Cospas-1 and heard by an experimental antenna at a Canadian ground station near Ottawa. The crash-site search area was quickly narrowed to within 22 km, a remarkable achievement for the time, and the victims subsequently rescued.

Today, digital 406-MHz beacons, engineered for satellite reception, and the greatly expanded Cospas-Sarsat satellite fleet, permit distress alerts to be detected more quickly and the locations of incidents to be determined with much greater accuracy. The operational MEOSAR satellite fleet will improve these capabilities further (see cover article). But how did we give birth to these achievements?

In June 1978, technical experts from Canada, France, the USA and USSR met in Washington, DC to convene the first meeting devoted to the Cospas-Sarsat project. At the time more than 250,000 analog ELTs already were installed aboard aircraft in Canada, the United States and the former USSR. The proposed use of satellites in low-altitude Earth orbit (LEO) to listen globally for 121.5-MHz beacon signals (rather than relying on the chance that another aircraft might fly nearby a crash) opened the opportunity to significantly increase the probability of detecting a distress signal and locating survivors. (story continued on p. 5)

Cospas-Sarsat People and Events

CSC-47 Session - Oct. 2011
Reception to honor
Mr. Daniel Lévesque, retiring
Head of Secretariat (1987-2011)

CSC-46 Session - April 2011
Moscow, Russia

Your Secretariat

Farewell,
Diane Hacker
Executive Assistant
(2001-2011)

Farewell,
Marie-Jo Deraspe
Conference
Coordinator
(2007-2011)

Welcome aboard,
Zuzana Ryndova (Executive Assistant)
and Denis Brisson
(Conference Coordinator)

Events Diary

Western DDR Meeting
(San Antonio, Texas, USA)
10 – 12 January 2012

South West Pacific DDR Meeting
(Bali, Indonesia)
13 -15 February 2012

TG-1/2012
Preparation for a MEOSAR D&E Phase
(Noordwijk, The Netherlands)
27 February - 2 March 2012

South Central DDR
(Maspalomas, Spain)
13 -15 March 2012

EWG-1/2012
Second Generation Beacon
Specifications
(Montreal, Canada)
26 - 30 March 2012

48th Council Session
Closed Meeting
(Montreal, Canada)
17 - 20 April 2012

Central DDR
(Izmir, Turkey)
22 - 23 May 2012

26th Joint Committee Meeting
(Montreal, Canada)
12 - 20 June 2012

49th Council Session
and 30th Anniversary Commemoration
(Victoria, British Columbia, Canada)
Closed Meeting
17 - 19 October 2012
Open Meeting
22 - 25 October 2012

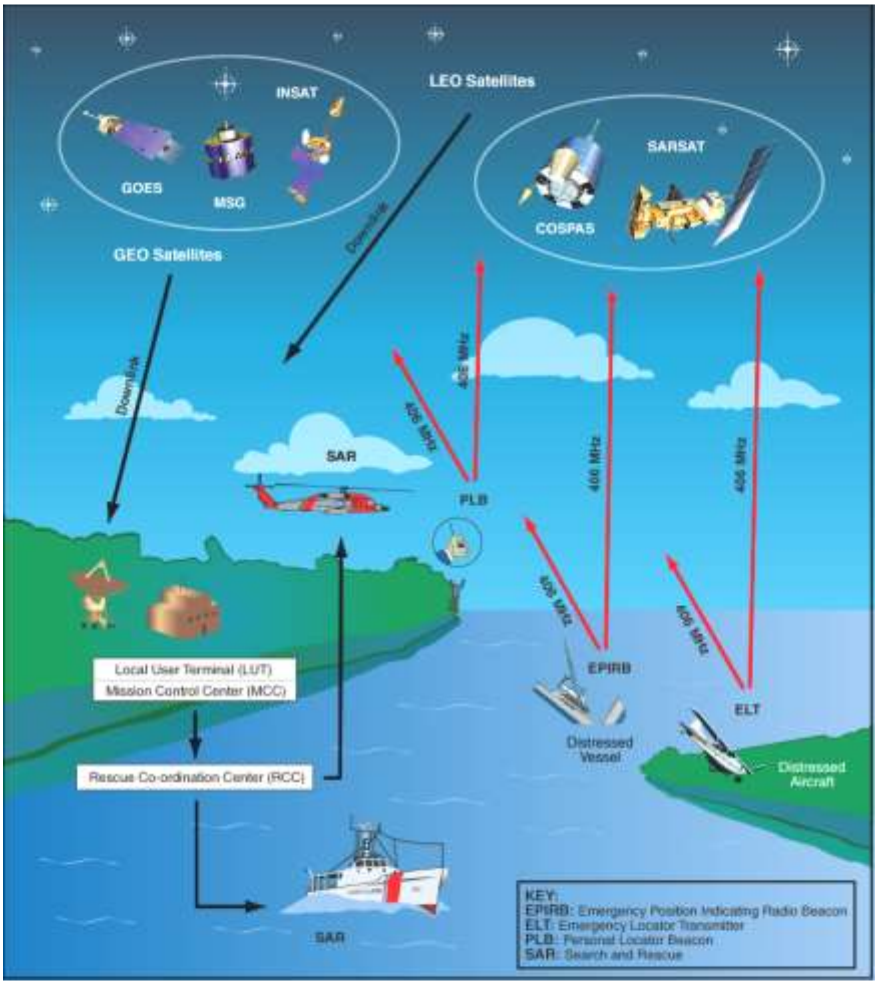
JC-25 Meeting in Hong Kong, June 2011

How Does the Cospas-Sarsat System Work?

The Cospas-Sarsat System provides distress alert and location information to search and rescue (SAR) services throughout the world for maritime, aviation and land users in distress. The System is comprised of:

- satellites in low-altitude Earth orbit (LEOSAR) and geostationary orbit (GEOSAR) that process and / or relay signals transmitted by distress beacons;
- ground receiving stations called local user terminals (LUTs) which process the satellite signals to locate the beacon; and
- mission control centres (MCCs) that provide the distress alert information to SAR authorities.

The Cospas-Sarsat System detects distress beacons that operate at 406 MHz. Satellite reception and processing of legacy analogue-technology, 121.5-MHz beacon signals ended on 1 February 2009.



PARTICIPATING COUNTRIES AND ORGANISATIONS

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

Total: 43 Participants

Cospas-Sarsat distress alert and location data are provided to national SAR authorities worldwide, without discrimination, and independent of whether their government is formally associated with the Programme.

Happy 30th Anniversary, Cospas-Sarsat!

(continued from p. 2)

Mr. Bernard D. Trudell (USA)

Canada, France and the United States collaborated on the Sarsat component of the Programme, while the USSR developed Cospas. Canada and the United States contributed experience from the research and development work carried out for a Doppler-based navigation system known as TRANSIT (later supplanted by GPS). France developed designs for beacons that could operate on the new 406-MHz frequency, drawing from its work with similar technology used in the ARGOS system (still in use today). In the former USSR, knowledge gained from development of a Doppler navigation system known as THIKADA contributed to the design of the Cospas system.

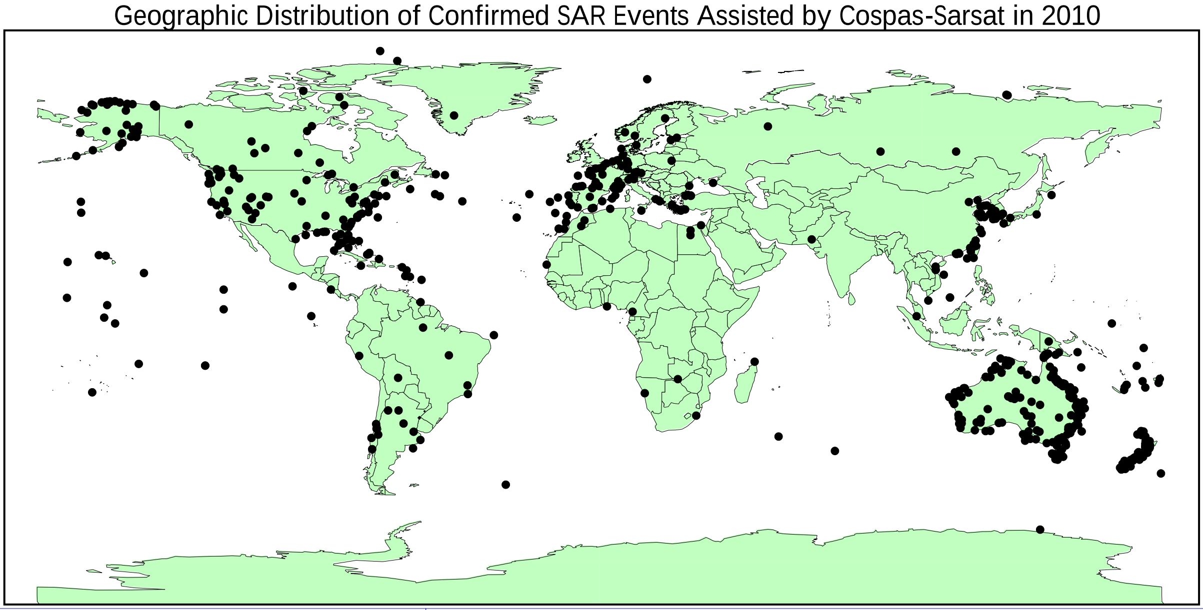
This collective experience allowed for the rapid establishment of the Cospas-Sarsat System. Outstanding efforts from technical managers on the twin parts of the system (Sarsat and Cospas) are worthy of special note.

Mr. Yuri F. Makarov (former USSR)

Bernard D. Trudell, who was the SAR mission manager at NASA's Goddard Space Flight Center in the United States, graduated from the electro-technical faculty of the University of Vermont. By June of 1978, he had 18 years of experience in satellite radio communications. Yuri F. Makarov, coincidentally the same age as Mr. Trudell, was a technical manager of the Cospas project in the former Soviet Union and had graduated from the radio engineering faculty of the Moscow Power Engineering Institute. He had 20-years of experience in developing radio communication systems for the Soviet Union's early satellites and with its spacecraft missions to the Moon, Venus and Mars. Impressive contributions to the development efforts also were made by Mr. Daniel Ludwig (France), SARSAT project manager at CNES, and Mr. Harvey Werstiuk (Canada), SARSAT technical manager at the Communications Research Centre (CRC). The main scientific and technical challenge to be resolved within the framework of the Cospas-Sarsat project was the requirement for compatibility and interoperability of the different satellites, beacon signals and the alert messages transmitted among system components.

As a result of the dedicated work of these and many other individuals, on 22 May 1980, Morflot (USSR), CRC (Canada), CNES (France) and NASA (USA) were able to approve and sign the Cospas-Sarsat Implementation Plan (CSIP). The CSIP contained detailed descriptions of signal characteristics and messages for points-of-contact between the two parts of the Cospas-Sarsat System and provided the overall schedule for the system's development. The launch of the first Cospas-Sarsat satellite was then scheduled for mid-1982. By September of that year three people very possibly owed their lives to these dedicated individuals.

Geographic Distribution of Confirmed SAR Events Assisted by Cospas-Sarsat in 2010



Cospas-Sarsat System Status

As at February 2012, the Cospas-Sarsat System comprised:

- 6 LEOSAR satellites in low-altitude polar orbit
- 6 GEOSAR satellites in geostationary orbit
- 58 LUTs receiving signals transmitted by LEOSAR satellites
- 20 LUTs receiving signals transmitted by GEOSAR satellites
- 30 Mission Control Centres for distributing distress alerts to SAR services
- More than 1 million 406-MHz beacons worldwide

2011 Notable Rescue "Saves"

1 Students Survive Grizzly Bear Attack in the Alaskan Wilderness

On 24 July 2011 at about 04:30 UTC a group of seven teenagers were attacked by a grizzly bear while hiking 30 miles east of Talkeetna, Alaska. The students were attending the National Outdoor Leadership School which had provided the group with survival training and issued them a properly registered personal locator beacon (PLB). Several days into a trek the group suddenly encountered a female grizzly bear and her cub. Two of the hikers suffered life-threatening injuries, while others sustained somewhat less serious injuries and hypothermia. After the encounter the students regrouped, administered aid to the injured, and activated the PLB. Within seconds of the activation one of the many Sarsat satellites relayed the information to the Sarsat ground station near Fairbanks, Alaska. The alert was automatically forwarded to the USMCC in Maryland. Eight minutes later, the coordinates and beacon registration information were in the hands of the Alaska Rescue Coordination Center, an Air National Guard unit at Joint Base Elmendorf Richardson in Anchorage, Alaska. Two helicopters, one provided by the Alaska State Troopers and the other by a U.S. Air Force rescue unit, were used to evacuate the students. While all seven students survived the attack, the two most seriously injured remained in critical condition for several days.


(AP Photo/Mark Thiessen)

Cospas-Sarsat provided the only alert of this incident to rescue authorities.

2 Search and Rescue Operation in White Sea

On 15 November 2011 at 03:51 UTC, the CMC Moscow detected distress signals from two EPIRBs registered to the cargo ship *Captain Kuznetsov*. The distress location was resolved at 04:08 UTC to the location 68 10 N 042 27 E. A SAR operation was launched, but severe weather conditions slowed the rescue efforts. CMC Moscow continued to receive location data from the ship in distress with 11 persons aboard that had run aground and lost all power. Its only communication means were the two EPIRBs. On 16 November at 07:23 UTC the *Captain Kuznetsov* was found by the Air Force of the Northern Fleet using the Cospas-Sarsat location data. Two injured crew members received first aid and were evacuated by helicopter. At 12:34 UTC the ice breaker *Dikson* began towing the *Captain Kuznetsov* to the port of Arkhangelsk. The two injured crew members were sent to hospital for treatment, one with serious head trauma and one with two broken legs.

Cospas-Sarsat provided the only alert in this incident.

3 Atlantic Rowers Rescued from Life Raft

Two individuals participating in an Atlantic Ocean rowing competition were rescued by a cruise liner through the help of their Cospas-Sarsat EPIRB, and the Falmouth MRCC and Coastguard. At 19:54 UTC on 14 December 2011, the Falmouth Coastguard received the alert and coordinated the rescue. The distress signal originated 480 miles southwest of the Canary Islands from a UK registered beacon belonging to the rowing boat *PS Vita*. The race organisers also confirmed that they had lost polling contact with *PS Vita* just after 19:00 UTC. Falmouth Coastguard broadcast an alert to all vessels in the area. The Bahamian registered cruise ship *Crystal Serenity* responded to the call, despite being approximately 120 miles from the location of the alert signal. Proceeding at speed through the night, the *Crystal Serenity* had moved to within seven miles of the reported location when a red flare was spotted. Shortly afterwards, at about 06:00 UTC, the two rowers were found in their life raft and brought aboard the cruise ship. The rowers were a Dutch and a British national. The *PS Vita* is a 7.3 metre, two-person ocean rowing vessel. It was being used in the Woodvale Challenge, a trans-Atlantic race from the Canary Islands to Barbados. The two rowers were reported to be uninjured despite at least ten hours adrift in their life raft. Conditions on scene were 25-knot winds with a three-metre swells.

Cospas-Sarsat provided the only alert of this incident to rescue authorities.

Assisted by Cospas-Sarsat

4 Ship Collision in the Gulf of Finland

On 22 October 2011 at 03:30 UTC MRCC Turku in Finland received a Cospas-Sarsat distress alert via MCC Bodø in Norway. The location of the incident was in the middle of the Gulf of Finland at the boundary between the Finnish and Estonian search and rescue regions. All attempts to contact the vessel to which the beacon was registered on VHF and mobile phone failed. The 172-metre-long general cargo vessel *Amazon* had collided with the 23-metre-long fishing vessel *Florence* in thick fog. The *Amazon* had left St. Petersburg, Russia bound for India when it struck the fishing vessel in zero visibility. The *Florence* was severely damaged and sank in a few minutes. The *Florence's* Estonian crew of four was able to board a life raft and activate their EPIRB. JRCC Tallinn in Estonia launched a rescue helicopter to the area and surface units from both Estonia and Finland were sent to the area. After approximately three hours of searching with a total of three Coast Guard vessels and one merchant vessel, a Finnish Coast Guard vessel spotted a life raft with the four fishermen on board. They were later rescued by a Finnish patrol boat, having suffered only minor bruises from the collision with the *Amazon*. There were no reports of injury to the 24 crew members of the *Amazon*.
Cospas-Sarsat provided the only alert in this incident.

5 Helicopter PLB Incident in New South Wales

At 00:08 UTC on 3 June 2011 the Cospas-Sarsat system relayed to RCC Australia a distress signal from a PLB registered to a Hughes 500 helicopter. Its position was calculated to be in the Brindabella Mountain Ranges, New South Wales, just to the west of the Australian Capital Territory.

Enquiries with the registered owner indicated two pilots were onboard. A rescue helicopter was tasked from Canberra and at 01:19 UTC it located and recovered two individuals from the crash site in rugged terrain. One person was uninjured, while the other suffered some lacerations. Both were transported to a Canberra hospital for assessment and treatment. The pilots had been conducting currency-training in remote-area flying. The helicopter was destroyed.

Cospas-Sarsat provided the only alert in this incident.

6 EPIRB the Last Hope for Fishing Vessel

A fire erupted in the engine room of the 40-ton fishing vessel *Yong Tai Li* at 11:00 UTC on 15 August 2011. The vessel was operating 760 kilometres south of Kochi's Cape Muroto on the southern coast of Shikoku Island. About three hours after the fire started, the EPIRB was activated and subsequently detected at 14:08 UTC by Sarsat-11. Unfortunately, because the beacon was not properly registered, the Japan Coast Guard RCC could not quickly get any information about the ship (beyond the vessel's MMSI number encoded in the beacon signal). While the RCC began coordinating the rescue operation, the EPIRB continued transmitting as the fire grew more fierce. A location was eventually resolved by Sarsat-10.

The RCC requested vessels in the vicinity to begin rescue operations and several vessels rushed to the distress position calculated by Cospas-Sarsat, approximately 400 miles south of mainland Japan. The homing signal of the EPIRB continued to transmit, and at 17:20 UTC a search aircraft following the signal spotted the fire-engulfed ship and passed the precise location of the distress to vessels navigating in the vicinity.

At 20:10 UTC, a container vessel and a sister ship arrived at the scene, and all seven crew members were rescued.

Cospas-Sarsat provided the only alert in this incident.

What's New?

New Cospas-Sarsat Party Representatives

The Cospas-Sarsat Programme welcomed three new Party representatives to the Cospas-Sarsat Council in 2011: Andrey Kuropyatnikov for the Russian Federation, Christopher O'Connors for the United States, and Michael Donald for Canada (shown with former Head of Secretariat Daniel Lévesque, center, and 2012 Council Chairman Michel Margery (France)).

Mr. Kuropyatnikov was appointed as the new Director-General of Morsviazsputnik in March 2011, having joined the company in 1997. His responsibilities have included Cospas-Sarsat, Inmarsat and the Glonass navigation satellite system. During his career he modernized the Russian Cospas ground segment and was involved in the creation of the Russian segment of the Inmarsat system. Mr. Kuropyatnikov was the Deputy Director-General of Morsviazsputnik from 2005 until 2011. He graduated from St. Petersburg Military Space Engineering Academy and St. Petersburg State University, and in 2001 received a PhD degree in the field of global navigation satellite systems.

Mr. Christopher O'Connors currently is a branch chief at the National Oceanic and Atmospheric Administration (NOAA), with responsibility for satellite direct services, including the GOES and Argos data collection systems on geostationary satellites and polar-orbiting satellites, real time satellite imagery broadcast services, satellite re-broadcast services (such as GEONETCast Americas), and Search and Rescue Satellite-Aided Tracking (Sarsat). As the Sarsat Program Manager he has the lead for interagency cooperation between the U.S. Coast Guard, U.S. Air Force and the National Aeronautics and Space Administration (NASA). Mr. O'Connors has a bachelor of science degree in meteorology from the State University of New York at Oneonta and a master's degree in public administration from George Mason University in Virginia. He has been with NOAA for 17 years providing weather forecasting, satellite imagery analysis of sea ice, and as the program lead for the Argos Data Collection System, prior to starting his work with Sarsat in 2007.

Mr. Michael Donald, working at Canada's National Search and Rescue Secretariat (NSS) since 2008, is the Senior Analyst, Knowledge Management and Emerging Technologies. He has broad responsibility for issues related to technologies that affect Canadian and international search and rescue systems, working closely with overseas partners. Mr. Donald began his career in 1983 as a navigating officer with the Canadian Coast Guard, leaving in 2002 as a Master Mariner to join Transport Canada. There he was responsible for navigation safety and radiocommunication issues, including regulations and policies pertaining to collision-avoidance at sea, ship routing and e-navigation. That work involved harmonization of policies through extensive collaboration at agencies such as the IMO's NAV Subcommittee.

We are fortunate that these new representatives have long experience with Cospas-Sarsat and its life-saving functions. Similarly, we are fortunate that the Cospas-Sarsat Council will be led in 2012 by veteran French Representative Michel Margery.

Mr. Margery has had increasing responsibilities at Centre National d'Études Spatiales (CNES) for over two decades, where since 2007 he has been the programme manager for search and rescue, localization and data collection. This role particularly includes Cospas-Sarsat, and the Argos international tracking and environmental satellite project. He previously has had extensive experience at CNES in other satellite programs involving radiocommunications, signal (and image) processing and innovative applications. Mr. Margery also brings to his Cospas-Sarsat duties experience in technical relations with political, economic, and developmental bodies. He has master's degrees in engineering and aerospace electronics from France's Institut national des sciences appliquées, and the École nationale supérieure de l'aéronautique et de l'espace.

New IDMCC

In January 2012, the completion of commissioning tests and Initial Operational Capability (IOC) of a new MCC at Jakarta and new LEOLUT (Cengkareng) in Indonesia was announced. In September 2011, the AUMCC provided a well-received training session for Indonesia's MCC operators.

New INMCC

The new INMCC at Bangalore, India, was commissioned on 10 February 2012, following successful testing 18-20 January 2012.

Cospas-Sarsat Operations

Launch of Loutch-5A (GEOSAR)

In addition to the recently commissioned Russian geostationary satellite Elektro-L No.1, another geostationary satellite with a Cospas-Sarsat SAR payload was launched by Russia on 11 December 2011. The Loutch-5A satellite was launched from the Russian space launch centre Baikonur and will receive 406-MHz Cospas-Sarsat beacon signals and relay them in the "L-band" to the ground data receiving stations (GEOLUTs).

IBRD New Look and Features

The new IBRD (International Beacon Registration Database, www.406registration.com) interface was made available online in June 2011. New features include:

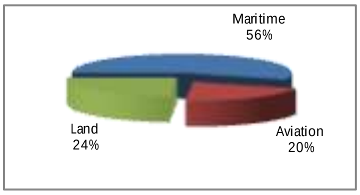
- Improved login interface.
- Improved password retrieval for beacon owners.
- Beacon owners can now manage multiple beacons under one username.
- New search feature for National Data Providers.
- Registration permissions by beacon type instead of only by country code.
- Integrated off-line version of website for National Data Providers with slow internet connections.

IMO Award for Exceptional Bravery at Sea

The crew from the Maritime Rescue Coordination Centres of Falmouth pose with their Cetificate of Commendation. IMO 2011 Bravery at Sea Awards.

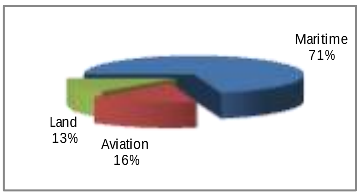
The International Maritime Organization (IMO) at its annual Bravery Awards bestowed special certificates to the Maritime Rescue Coordination Centres (MRCCs) Falmouth (United Kingdom) and Stavanger (Norway) for their contribution, on several occasions, to search and rescue operations unfolding in distant areas. Many of the initial distress alerts originated from Cospas-Sarsat beacons. The MRCC Falmouth team is pictured above receiving its award at IMO's London headquarters. Part of the citation, presented by IMO Secretary-General Efthimios E. Mitropoulos, read: "The two rescue centres … displayed standards of the highest professionalism, dedication to duty and commitment to success. May they motivate others to follow their example."

Distribution of SAR Events Assisted by Cospas-Sarsat (Jan. - Dec. 2010)



Total: 641 SAR Events

Distribution of Persons Rescued with the Assistance of Cospas-Sarsat (Jan. - Dec. 2010)



Total: 2,338 Persons

A View from MRCC Falmouth

By Peter Bullard, Senior Watch Manager

Cospas-Sarsat alerts arrive at the Search and Rescue Point of Contact (SPOC) such as a Rescue Coordination Centre (RCCs)) in various guises; Resolved, Unresolved, Conflicting, NOCR (Notification of Country of Beacon Registration), Detect only, Registered, Unregistered. Regardless of the form the alert takes, our aim is to identify its location and respond as quickly as possible. We do this by making best use of a number of respected databases, including our own beacon registries (see story on p.2). We plot potential locations, investigate any possible leads and liaise with our SAR colleagues around the globe. By combining information from a variety of sources, and sharing our expertise, we ensure that each possibility is explored and acted upon. In an ideal world all beacons would be properly registered, maintained and used in accordance with the manufacturers' instructions. Until we reach that utopia, SAR coordinators will continue to utilise their detective skills to identify the who, what and where of the distress alert – because someone's life probably depends on it.

Cospas-Sarsat coverage is global and, as such, possibly is the best insurance any vessel can carry. Just remember that a rescue coordinator knowing where you are and being able to get help to you are two different things. Always use good common sense, and be especially prepared when you are in an isolated area that may be far from rescue services.

Second Generation Distress Beacons - The Next Era in Life-Saving Technology

Cospas-Sarsat is fast approaching the MEOSAR era, and our beacon technology will ride this wave. With the launch of the Russian Glonass-K satellite in February 2011, the operational MEOSAR space segment deployment has started (see cover story). It is anticipated that in 2012 the MEOSAR space segment will be augmented by three more satellites: the second Glonass-K and two Galileo satellites will be launched into orbit. In a few years the total number of MEOSAR satellites is planned to grow to about 70, and together with the deployment of the global network of over 10 MEOLUTs, this will provide enhanced global coverage.

MEOSAR, when deployed to its full capacity, will offer a number of advantages over the current combined LEOSAR/GEOSAR system. Important improvements anticipated in the MEOSAR era include robust beacon-to-MEOLUT real-time message delivery and first-burst (e.g., less than one minute) localisation of a distress beacon.

So, what opportunity does this present in the development of the second generation of beacons? MEOSAR will have full operational compatibility with the current generation of Cospas-Sarsat beacons, ensuring that messages from these legacy beacons are reliably handled, that beacon identity and location are promptly determined, and that the alert information is distributed to SAR authorities in a timely manner. But work now is in progress to define specifications for future Cospas-Sarsat beacons, specifically built for MEOSAR, called second generation beacons. These new beacons will utilise the full potential of MEOSAR and should allow implementation of modern applications and technologies, answer future technological challenges and match growing customer expectations, including improved accessibility and reduced pricing.

In February 2011, a Cospas-Sarsat experts working group formulated a set of operational requirements for second generation beacons. The second generation beacons will benefit from a return-link service (RLS), which will allow confirmation and other signalling messages to be delivered from SAR services back to the RLS-enabled beacons. Other possible features include more flexible message formats that would allow for the transmission of additional information about the nature of the distress, higher message volume and system capacity, more detailed location data from beacons equipped with GNSS (e.g. GPS) receivers, variable data rates and reduced first burst delay.

In March 2012, a new Cospas-Sarsat experts working group will convene in Montreal to review the feasibility of beacon designs and to begin defining technical specifications and other standards for second generation beacons. It is anticipated that this meeting will be attended by representatives of beacon manufacturers and test facilities, as well as operational specialists and system design experts.

Adoption of the second generation beacon specifications and type approval standards by Cospas-Sarsat is expected to take place in October 2014, with second generation beacons becoming available on the market the following year.

A Few Words from the 2011Council Chair

It was indeed a pleasure to spend my last days in Cospas-Sarsat chairing the Council meetings in 2011. Over the years I have worked in most areas of the Cospas-Sarsat Programme and am keenly aware of the efforts each member puts forward in keeping the System at its operational peak. What is seen at the annual meetings is a culmination of the day-to-day work that goes on around the world, by every Participant, with the aim to ensure that all, and the word "all" here cannot be overstressed, all first responders receive the most accurate and timely data possible. Whether it's an adventurer in trouble in the Canadian Arctic, a young sailor in distress in the Indian Ocean or air crash survivors awaiting rescue in South America, it is the work of the Cospas-Sarsat Participants that gets first responders to the correct location in the shortest time possible. While the work is varied and may often seem like drudgery (for much of it really is drudgery), it is all necessary. Things like resource allocation and justification, contract development, legal reviews, MOUs, MOAs, letters of support – and the list goes on – are all needed to keep the payloads operating, the ground segments connected and the response time immediate. Therefore, all Participants should be proud of their involvement, for even the most seemingly trivial Cospas-Sarsat related job has in some way allowed thousands of lives to be saved.

Randy Rodgers
National Search and Rescue Secretariat, (NSS) Canada
2011 Council Chair

One whose efforts have been far from trivial is Daniel Lévesque. It was an honour to chair the last Council meeting he attended and it was wonderful to see the warm farewell he received during the Open Council. Of course, as is the case with all Cospas-Sarsat functions and meetings, the outstanding farewell would not have happened without the incredible (and I do not use the word "incredible" lightly) coordination and planning skills of the Secretariat. The work they did was clearly reflected in the flawless execution of the evening event – from the speeches, presentations and video to the string quartet and the champagne toast. It was truly outstanding.

I would like to close my "few words" by welcoming Steven Lett to the Programme. Steve was extremely supportive both in advance of and during the Fall Council meetings. He clearly has a background and leadership style that I believe will benefit the Programme as it moves forward with the MEO system. Large coverage overlaps that perhaps may lead to some modified service areas and changes to the current data distribution plan may call for some discussions where negotiation will offer the best way forward. For that, Steven is the right person, in the right place, at the right time.

It has been an absolute pleasure working in Cospas-Sarsat and I now take the opportunity to employ the phrase coined by the Canadian Sarsat senior maintenance engineer (Richard Corrigan) many years ago - I will now, "Support Search and Rescue and Get Lost".

A Few Words from the Head of Secretariat

My first half-year as Head of the Cospas-Sarsat Secretariat has been a whirlwind of exciting activities and challenges. I was fortunate to have been warmly welcomed into the Programme by the honourable representatives of the Cospas-Sarsat Participants (led by outstanding Council Chairman Randy Rodgers), by the talented Secretariat staff and, especially, by the irreplaceable Daniel Lévesque, my predecessor and veteran of the Programme since its inception. My heartfelt appreciation goes out to these individuals who have supported me in my transition into this inspiring new chapter of my professional life.

Steven Lett
Head of Secretariat

Looking ahead, mariners, aviators and people around the globe will see the vital life-saving functions of Cospas-Sarsat augmented through the efforts of Cospas-Sarsat Participant countries and agencies. The demonstration and evaluation (D&E) phase of the MEOSAR project will move us closer to the establishment of a satellite constellation that will guarantee quicker and more accurate distress-beacon detection and location. Development of second generation beacon specifications will enable 21st century technologies to be incorporated into smaller, more flexible and more robust end-user products.

With these opportunities for advancement come new challenges. As we plan for the success of the D&E we must recognize that, once proven, MEOSAR will become the heart of the Cospas-Sarsat Programme. This will have long-term implications for the way that we do business, both operationally and administratively and must be taken into account to ensure a seamless transition into the future. We also must be vigilant about broader developments in the world around us. Commercial satellite operators and their partners are more aggressively rolling out so-called SEND devices (satellite emergency notification devices) that have functions similar to Cospas-Sarsat beacons, often with more flexible features but less rigorous performance standards and testing. As an intergovernmental programme, Cospas-Sarsat is not in competition with these SEND service providers. But Programme Participants will need to carefully reflect on the most appropriate means of preserving Cospas-Sarsat's relevance, and best utilizing its strengths, among the widening menu of telecommunications technologies that are used to save lives.

There is no mission nobler than that of helping to protect the lives of persons in distress. I am honoured to have been selected to fill a modest role in advancing that mission. I very much look forward to collaboration in the years to come as we jointly expand our efforts to take the "search" out of "search and rescue".

International Cospas-Sarsat Programme

Mission Statement

The International Cospas-Sarsat Programme provides accurate, timely and reliable distress alert and location data to help search and rescue authorities assist persons in distress.

Objective

The objective of the Cospas-Sarsat system is to reduce, as far as possible, delays in the provision of distress alerts to SAR services, and the time required to locate a distress and provide assistance, which have a direct impact on the probability of survival of the person in distress at sea or on land.

Strategy

To achieve this objective, Cospas-Sarsat Participants implement, maintain, co-ordinate and operate a satellite system capable of detecting distress alert transmissions from radiobeacons that comply with Cospas-Sarsat specifications and performance standards, and of determining their position anywhere on the globe. The distress alert and location data is provided by Cospas-Sarsat Participants to the responsible SAR services.

Cospas-Sarsat co-operates with the International Civil Aviation Organization, the International Maritime Organization, the International Telecommunication Union and other international organisations to ensure the compatibility of the Cospas-Sarsat distress alerting services with the needs, the standards and the applicable recommendations of the international community.

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