Information Bulletin

COSPAS SARSAT

ISSUE 23 - FEBRUARY 2011

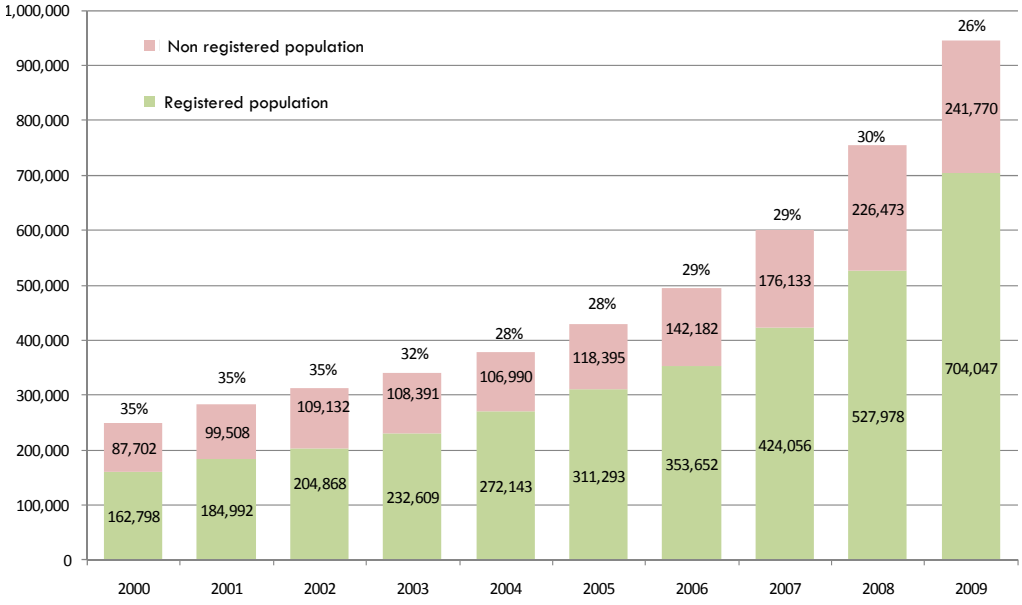
Register your Beacon

It Might Save your Life!

In August 2009, an Australian yachtsman on a solo ocean voyage unexpectedly found himself in distress when his yatch overturned off the coast of Australia. After assessing his situation, he activated his 406 MHz PLB to urgently summon assistance. Unfortunately, he had not registered his beacon.

Mike Barton, Chief of the Australian Rescue Coordination Centre said "Unregistered beacons really delay search action, therefore putting the survivors at greater risk of not being rescued in time. In this recent incident, the Australian MCC received an unregistered, unlocated alert from the New Zealand GEOLUT at around midnight. RCC Australia was unable to immediately respond, because the PLB was not registered, therefore information on the owner or where they might be was unavailable. It was nearly an hour later before an initial location was received from the LEOLUT and we were able to start responding. The yachtsman was subsequently rescued by the local Volunteer Marine Rescue Unit. The outcome could have been much worse but luck was on his side, this time."

With the phase-out of Cospas-Sarsat satellite alerting services at 121.5 MHz in 2009, 2010 was the first year where the beacon population consisted solely of 406 MHz beacons, all with the potential to be registered. And yet, despite the importance of beacon registration, a consistent 30% of the global beacon population remains unregistered. Beacon owners need to verify that their beacons are registered. Many beacon owners falsely believe that their beacon was registered at the point of sale or installation, however, this is not the case.



Global beacon population: registered versus non-registered beacon trends (2000-2009)

Global Registration Statistics

Each year, the Cospas-Sarsat Secretariat conducts a survey of beacon manufacturers to provide a count of beacons produced annually. A global beacon population is estimated. This information, when combined with the number of beacons registered in each country worldwide which is collected as part of the annual report by Administrations, gives an indication of the fraction of the global beacon population that is registered.

Since 2000, unregistered beacons have consistently comprised about 30% of the total beacon population (see figure above).

Strategic Performance Measure

As part of the Cospas-Sarsat strategic planning process, a series of performance measures were developed to track progress towards the Programme's strategic goals and objectives. Several measures relate directly to bea-

See REGISTRATION on page 2

INSIDE THIS ISSUE:

POINTS OF INTEREST

- In **2009**, Cospas-Sarsat alert data assisted in **478 distress incidents** in which **1,596 persons** were rescued.
- The **406 MHz beacon** population reached over **945,000 units** at the end of 2009, more than double the population in 2004.

REGISTRATION (continued from p.1)

con registration, indicating the importance to SAR authorities of having properly registered beacons. The table below shows one performance measure, the percentage of detected beacons reported by Cospas-Sarsat Participants in 2009 on beacons with their own country code that were registered, again showing that somewhere between 25 to 30% of the global beacon population remains unregistered.

IBRD Registration

Cospas-Sarsat maintains an online International Beacon Registration Database (IBRD) for 406 MHz beacons. It is designed primarily for States who do not maintain national beacon registries accessible on a 24x7 basis, but is also used by some States to make their national beacon registration data more readily accessible to SAR services. Since its inception in 2006, more than 25,000 beacons have been registered supporting 109 different national Administrations. SAR personnel access the database an average of 300 times a month.

An objective documented in the Cospas-Sarsat Strategic Plan is to "Encourage a wider use of the IBRD to make beacon registration data readily available to SAR authorities." To support this objective, Cospas-Sarsat is undertaking a redesign of the IBRD, expected to be online by April 2011, with an improved user interface and enhanced capabilities.

Why register your beacon?

When asked about the importance of beacon registration to SAR operations, Mr. Dave Fuhrman of the US Air Force Rescue Coordination Centre said "Proper registration is vital in the early minutes of an emergency. Rescue centers use the beacon registration databases to obtain critical data about a beacon's owner, including emergency contacts and other information that allow a search to begin even before a final location of the activated beacon is determined. When a beacon is not registered, there is no point of contact available to verify whether an emergency requiring response is even necessary. When a beacon is inadvertently activated and is not registered, rescue personnel may be put at risk trying to find this beacon when a simple phone call could have determined it to be a non-emergency."

He further stated "The registration process is simple and the few minutes it takes could provide rescuers with vital information that may make the difference between being rescued alive or not."

How to register your beacon

There are 2 ways to register a beacon, either:

1. With the national authority associated with the country code in the beacon hexadecimal identification (15 Hex ID); **or**
2. With the IBRD at www.406registration.com if the country code of the beacon is not associated with a registration facility and the country has allowed direct registration in the IBRD.

A list of countries allowing direct registration by beacon owners in the IBRD is available on the Cospas-Sarsat website at www.cospas-sarsat.org. Detailed contact information for national beacon registries is also available.

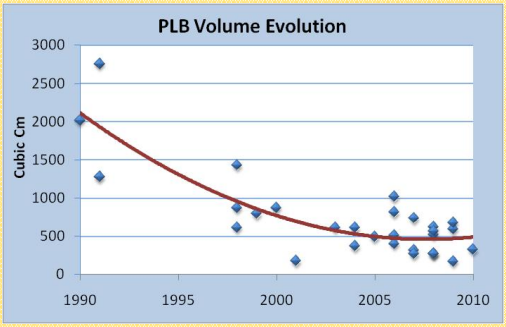
Beacon Type	% of registered beacons
EPIRB	75%
ELT	60%
PLB	75%

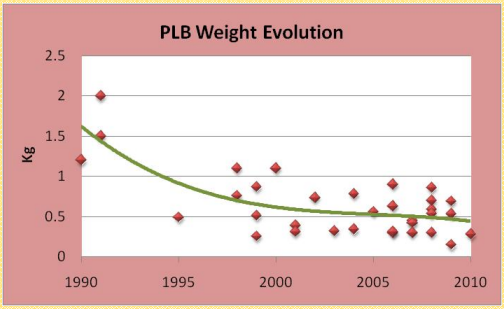
$$\frac{\text{Total number of registered beacons}}{\text{Total number of detected beacons}} = \frac{10{,}327}{15{,}504} = 67\%$$

Percentage of detected beacons that were registered (2009)

Today's 406 MHz Beacons: Smaller, Better, More Affordable

Since Cospas-Sarsat approval of the first models of 406 MHz beacons in 1989, their design has evolved significantly. Technologies allowing more compact electronic packaging combined with the use of more efficient electrical components, particularly oscillators and batteries, have allowed a drastic reduction of the size and weight of beacons. This trend is particularly noticeable for Personal Locator Beacons (PLBs), which are designed for a less stringent environment than maritime or aviation beacons and for which reduced size and weight are particularly desirable. A review of the PLBs approved by Cospas-Sarsat since 1990 indicates that, on average, weight and size have been cut back by a factor of 3 to 4. This is a remarkable achievement considering that today's PLBs are often more capable than earlier models and usually offer added features such as GNSS positioning capability. The technological changes also translate into a reduction in cost with many PLB models now sold for under US$ 500, resulting in a significant increase in customers interest in today's smaller, better and more affordable 406 MHz beacons.





Cospas-Sarsat People and Events

EWG-1/2010 Meeting on the MEOSAR POC/IOV Phase in Rio de Janeiro, Brazil March 2010

New Finance & Administration Officer at the Cospas-Sarsat Secretariat

In July 2010, after 10 years with the Programme, Anthony Boateng resigned as Finance and Administration Officer at the Cospas-Sarsat Secretariat to return to Ghana where he now works as Director, Finance and Administration, at the African Centre for Economic Transformation (ACET). Anthony was replaced by Craig Aronoff. Craig is from Montreal and a Canadian chartered accountant.

Farewell, Anthony!

Welcome aboard, Craig!

Events Diary

EWG-1/2011
Next Generation Beacon Requirements
(Montreal, Canada)
31 January – 4 February 2011

South Central DDR
(Abu Dhabi, UAE)
8 – 10 March 2011

EWG-2/2011
MEOSAR Proof-of-Concept (POC) / In-Orbit Validation (IOV) Phase
(Brussels, Belgium)
16 – 18 March 2011

TG-1/2011
Preparation for a MEOSAR D&E Phase
(Antalya, Turkey)
21 - 25 March 2011

Central DDR
(Toulouse, France)
5 – 7 April 2011

46th Council Session - Closed Meeting
(Moscow, Russia)
12 – 15 April 2011

NOAA Beacon Manufacturers' Workshop
(St. Petersburg, Florida, USA)
20 May 2011

25th Joint Committee Meeting
(Hong Kong, China)
13 – 21 June 2011

47th Council Session
(Montreal, Canada)
Closed Meeting
19 – 21 October 2011
Open Meeting
24 – 27 October 2011

Western DDR
(Miami, Florida, USA)
10 – 12 January 2012

South West Pacific DDR
(Djakarta, Indonesia)
February 2012

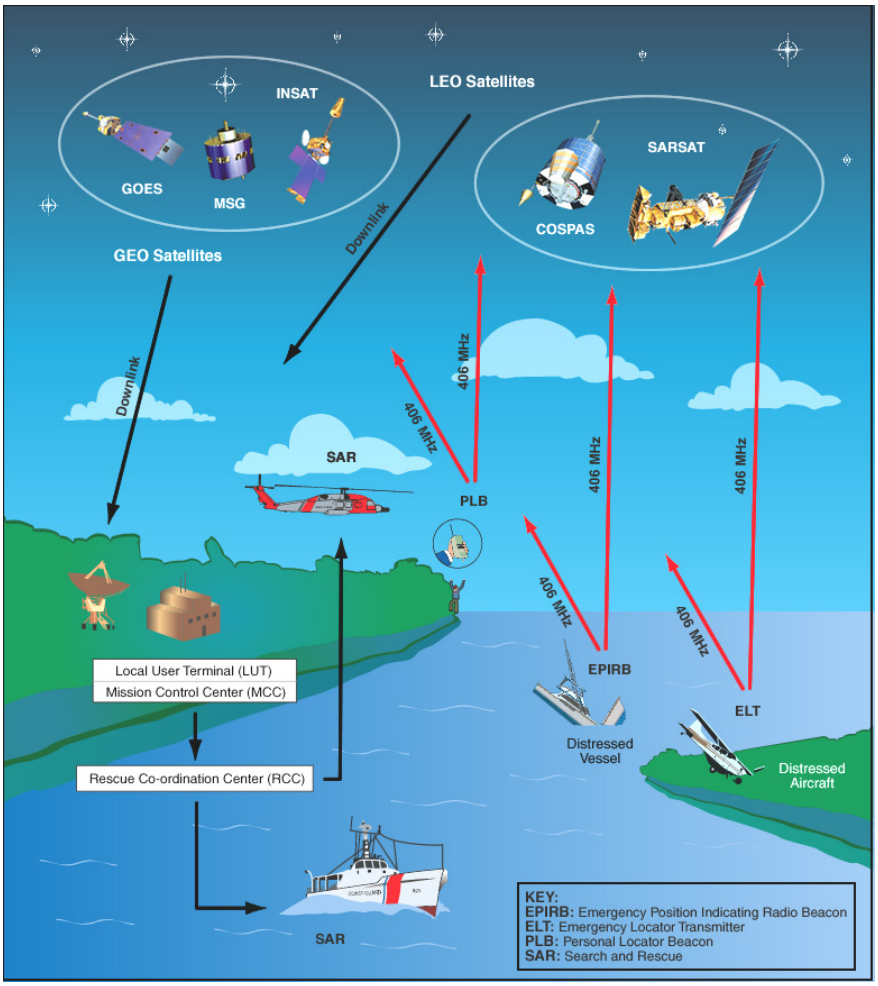
South Central DDR Meeting in Maspalomas, Spain March 2010

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.

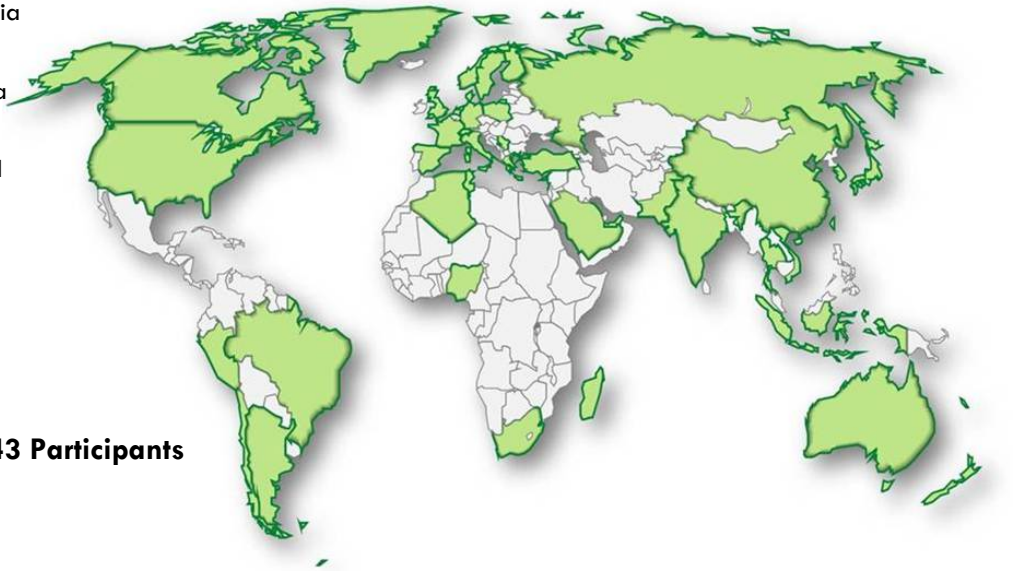
The Cospas-Sarsat System detects distress beacons that operate at 406 MHz. Satellite processing of old analogue technology beacons that transmit at 121.5 MHz ended on 1 February 2009.



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



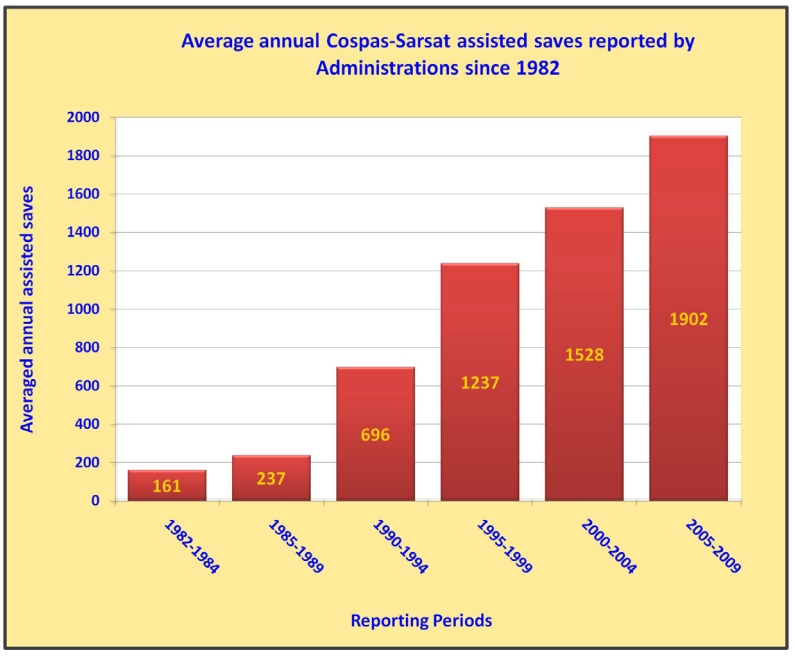
Cospas-Sarsat distress alert and location data are provided to national SAR authorities worldwide, with no discrimination, independent of the participation of countries in the management of the Programme.

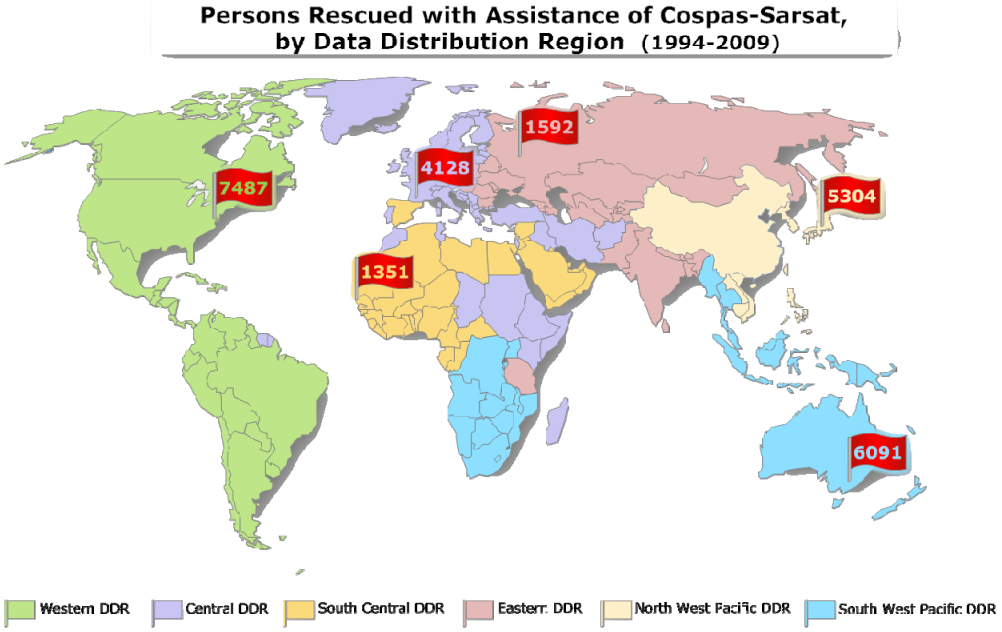
Statistics on System Use

The Cospas-Sarsat System has been in operation since 1982 and has since provided assistance in rescuing a growing number of people. From 1982 until 1990, Administrations reported approximately 210 persons per year rescued with assistance from the System. The continuous growth of the beacon population and the increasing number of Participants and Administrations reporting on Cospas-Sarsat assisted rescues significantly increased this average to about 967 saves per year for the decade spanning from 1990 until the end of 1999. During that period, the majority of rescues were related to maritime incidents. These trends continued between 2000 and 2004, with assisted rescues averaging 1,528 saves per year. Since 2005, the rapid development of smaller and less expensive 406 MHz beacons further increased the popularity of 406 MHz beacons in the aviation, land and maritime communities contributing to a wider utilisation of the Cospas-Sarsat System. For the 2005-2009 period, the average number of reported saves rose to 1,902 persons per year.

The reported number of people rescued with assistance from the System has also been well distributed worldwide, with each Data Distribution Region (DDR) contributing a sizeable portion of the assisted rescues since 1994 (see map below).

The tangible and growing benefits provided by the Cospas-Sarsat Space and Ground infrastructures confirm the continued relevance of the Programme and its pertinence in addressing the needs of the international SAR community.





Cospas-Sarsat System Status

As at February 2011, the Cospas-Sarsat System comprised:

- 6 LEOSAR satellites in low-altitude polar orbits
- 5 GEOSAR satellites
- 57 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 1,000,000 406 MHz beacons worldwide

2010 Notable Saves

1 North Pole Adventurer Rescued in Nunavut, Canada


Photo credit: www.onemanepic.com

On 26 February 2010, Australian citizen Tom Smitheringale, 39, set out from McClintock Inlet at the northernmost edge of Canada with the aim of reaching the geographic North Pole solo and unsupported. He hoped to become the third person in history to accomplish this feat but the adventurer's journey came to an abrupt end about 300 km short of his goal. On 15 April 2010 he fell through the ice into freezing water, still attached to his skis and sled. "I tried and failed on numerous attempts to get myself out of the water," said Smitheringale. "I finally managed to pull myself out."

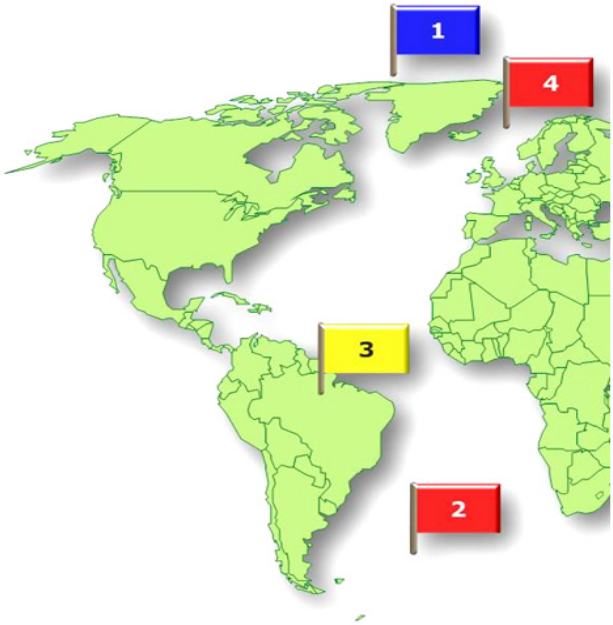
Running on adrenalin alone, Smitheringale set up a tent and quickly started his cooker to warm the temporary shelter. He activated his **EPIRB** which immediately generated a distress alert. By pure coincidence, the Canadian Forces were conducting their annual Arctic exercise in Nunavut, Northern Canada. The Canadian military found Smitheringale on the ice, about 200 km north of the town of Alert on Ellesmere Island. A military aircraft took him to Alert where he received medical treatment. Through this expedition, Tom Smitheringale was raising funds to fight HIV, Tuberculosis, and malaria in Africa. For further information and photos, visit www.onemanepic.com.

Cospas-Sarsat provided the first and only alert in this incident.

2 Family Rescued after Iceberg Crash in South Atlantic Ocean

On 7 May 2010, Carl Thomas, Tracey Worth and their 2 daughters were heading to Cape Town, South Africa on their yacht *Hollinsclough* in the South Atlantic Ocean some 600 km north east of South Georgia Island when they suddenly hit a low-lying iceberg. The family decided to activate their **EPIRB** after realising the *Hollinsclough* was seriously damaged, taking on water and suffering engine failure. The emergency signal was received and processed by the ARMCC, and the SAR operation conducted by the Argentinean SAR Agency in coordination with RCC Ushuaia and RCC Malvinas. British warship *HMS Clyde* arrived on scene 20 hours later to safely bring the entire family on board.

Cospas-Sarsat provided the first and only alert in this incident.



3 Forced Landing in Brazil

On 31 October 2010 an aircraft departed from Oriximiná, Pará State (PA) with two persons on board for an aerial photo flight. At 17:17 UTC, BRMCC received the first Cospas-Sarsat alert from a non-registered **ELT.** The beacon message did not contain a location. At 18:23 UTC, BRMCC received the first alert with a location provided by the System. At 18:48 UTC the position ambiguity was resolved. A SAR operation was immediately initiated. RCC Manaus contacted the Brazilian Air Force who sent a SC-105 (Casa 295 aircraft) and an H-60 Black Hawk helicopter to the scene.

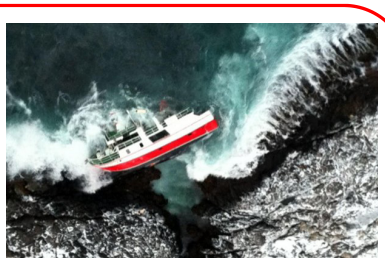
The H-60 departed from Manaus at 19:38 UTC and arrived on scene at 21:40 UTC. The pilot of the downed aircraft had attempted an emergency landing close to Trombetas (PA) due to low fuel levels. The two persons on board received medical care and were transported to the nearest hospital.

After the incident, the SAR crew and survivors got together. "We were reborn today. The Brazilian Air Force guys saved our lives" said Roberto Busellato, the pilot of the downed aircraft. "The Cospas-Sarsat coordinates were so accurate we arrived exactly over the searched object" said Lt. Av. Ailson, helicopter pilot in command of the SAR operation.

Cospas-Sarsat provided the first alert in this incident.

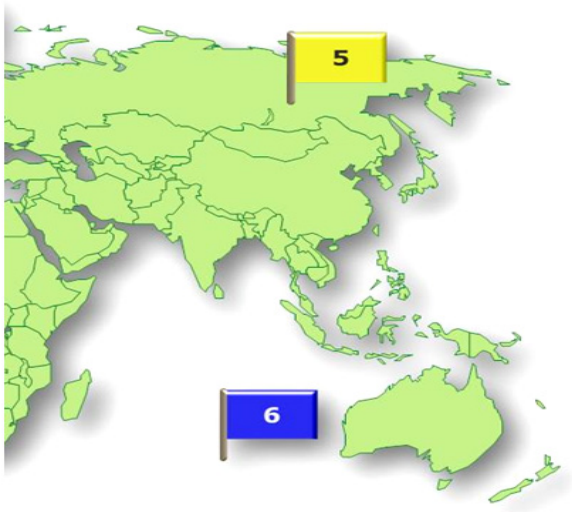
Assisted by Cospas-Sarsat

4 Fishing Vessel off the Norwegian Coast Caught in Severe Storm



On 22 November 2010 at 00:24 UTC, the Cospas-Sarsat System detected an unlocated Norwegian-coded **EPIRB** registered to the fishing vessel *Idarson*. Using beacon registration data, JRCC North-Norway confirmed that the vessel was out fishing, but its location was unknown. At 00:50 UTC the EPIRB was detected by Sarsat-7 and a position was provided. All attempts to contact the vessel on VHF and mobile phone failed. The JRCC launched a rescue helicopter and issued a "mayday" relay. A Rescue Cutter, a Coast Guard vessel and four merchant vessels responded to the call. At 01:20 UTC the distress position ambiguity was resolved to 70°14' N 21°11' E, and all rescue units were directed to the position near Loppa, Norway. The weather in the area was severe with strong winds, high waves and heavy snow fall. At 04:02 UTC one of the vessels spotted some dim lights close to shore and the rescue helicopter was diverted to the position. The vessel was found capsized on the shoreline and the helicopter lowered the rescue swimmer. Trapped inside the vessel were two crewmembers. Breaking a window, the rescue swimmer managed to get them both out and hoisted to safety. Unfortunately, a third crewmember was found deceased near the vessel.

Cospas-Sarsat provided the first and only alert in this incident.



5 ELT Activation in Russia

On 1 October 2010, the Cospas-Sarsat System detected a 406 MHz **ELT** with a Russian country code. The Russian beacon database indicated that this ELT belonged to the light aircraft Antonov-2 ("Kukuruznik") registred to Buryat Airlines.

The aircraft was flying from Uakit to Bagdarin (Buryatiya Republic, Russia) and crash-landed 350 km north of the Siberian city of Chita at position 55°00' N 114°10' E after flying around a thundercloud.

There were three crewmen and eight passengers (including one child) on board. All persons were rescued after the forced landing and delivered to a nearby reindeer breeding stand. One person, the pilot, was injured with a broken leg. Medical first aid was rendered to him.

Cospas-Sarsat provided the first alert in this incident.

6 Teenaged Lone Sailor Rescued in the Southern Indian Ocean

US citizen Abby Sunderland, 16, left California on 23 January 2010 on a solo voyage to circumnavigate the globe in the yacht *Wild Eyes*. On 11 June the Australian Maritime Safety Authority's RCC detected transmissions from two **EPIRBs** registered to the *Wild Eyes*. Sunderland had set off the beacons when her yacht became damaged by high waves. The detections were resolved to a very remote location approximately 2,033 nautical miles west south west of Perth in the central southern Indian Ocean. Repeated attempts to communicate with the *Wild Eyes* were unsuccessful.

The French Maritime RCC at La Reunion initially coordinated the SAR response. La Reunion requested air search assistance to assess the situation on scene as the remote location prevented a rapid response by ship. A Qantas A-330 Airbus passenger aircraft from Perth was sent on scene. Meanwhile, La Reunion coordinated a sea based response which involved three vessels.

About 12 hours into the operation, the coordination of the SAR activities was transferred to Australia as the *Wild Eyes* had drifted into the Australian SAR region. The vessel was located by the Qantas aircraft and radio contact was made with Ms. Sunderland. RCC Australia also tasked a Global Express aircraft to the scene to serve as a communication relay between *Wild Eyes* and the fishing vessel *Ile De La Reunion,* which successfully conducted the rescue of Ms. Sunderland on 12 June, about 40 hours after the initial alert was received.

Cospas-Sarsat provided the first alert in this incident.

What's New?

Association of Finland and Serbia with the Programme

In 2010, Finland and Serbia respectively became the 42nd and the 43rd Participants in the International Cospas-Sarsat Programme, both joining as User States. Finland's association became effective in March 2010 when its letter of association was deposited with IMO.

Serbia deposited its letter of Association with the Programme to ICAO during the JC-24 Meeting in June 2010. Shown on the occasion (from left to right) are: Mr. Ove Urup-Madsen, Royal Danish Air Force, Head of International Cooperation; Mr. Denys Wibaux, Director, Legal Affairs and External Relations Bureau, ICAO; Ms. Cheryl Bertoia, Deputy Head, Cospas-Sarsat Secretariat; Mr. Goran Jovicic, Deputy Director General, Civil Aviation Directorate of Serbia; and Mr. Milorad Jeremic, Serbian Air Force, Head of SAR Office.

A State Non-Party to the International Cospas-Sarsat Programme Agreement, desiring to associate itself formally with the Cospas-Sarsat Programme either as a Ground Segment Provider or as a User State, should submit the appropriate standard letter to one of the Depositaries of the International Cospas-Sarsat Programme Agreement, i.e. ICAO or IMO.

Steve Huxley Receives MBE Award

On 7 December 2010 at Buckingham Palace, Mr. Steve Huxley, Maritime and Coastguard Agency (MCA) SAR Communications Manager, received the Member of the British Empire (MBE) award from Her Majesty The Queen. This award acknowledges outstanding service to the community.

Mr. Steve Huxley has worked in various roles for the MCA for 24 years. He is now based at Falmouth MRCC. He has been actively involved with Cospas-Sarsat since 1999, chairing the Joint Committee OWG from 2004 to 2006. He also chaired various Experts' Working Group and Task Group meetings on the Cospas-Sarsat QMS and Performance Measures.

Congratulations, Steve!

Newly Appointed Head of Secretariat

The Cospas-Sarsat Parties have announced the recruitment of Mr. Steven Lett as new Head of the Cospas-Sarsat Secretariat.

Mr. Lett, Deputy United States Coordinator, International Communications and Information Policy at the U.S. State Department, will join the Secretariat on 1 June 2011. He will later on 1 August 2011 officially replace Mr. Daniel Levesque, who will retire after having served as the Head of Cospas-Sarsat Secretariat for 24 years.

Steven Lett

Cospas-Sarsat wishes Mr. Lett a warm welcome!

Signing of the Arrangement with EUMETSAT

Signing ceremony on 25 October 2010 during the 45th Session of the Cospas-Sarsat Council, in Montreal, Canada.
From left to right: Mr. S. Burns, EUMETSAT; Dr. V. Rogalsky, Roscosmos (Russia); Ms. A-M. Pelletier, NSS (Canada); Mr. M. Margery, CNES (France); Mr. A. Mehta, NOAA (USA).

The signing of the Arrangement on Cooperation between the Cooperating Agencies of the Cospas-Sarsat Parties to the International Cospas-Sarsat Programme Agreement and the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) on the EUMETSAT Contribution to the Cospas-Sarsat GEOSAR System (document C/S P.008) was completed at the 45th Session of the Cospas-Sarsat Council in October 2010. The signature of this Arrangement recognises EUMETSAT's significant contribution to the Cospas-Sarsat Space Segment. The arrangement formalises in a specific instrument a longstanding cooperation, with a view to continuing a GEOSAR mission onboard the EUMETSAT MSG-4 and the MTG imaging satellites.

Cospas-Sarsat Operations

Commissioning of New United Arab Emirates MCC (AEMCC)

AEMCC Staff

The new UAE Ground Station, located Abu Dhabi, consists of an MCC (AEMCC), a GEOLUT and a LEOLUT. The AEMCC was commissioned under the auspices of the nodal Spanish MCC (SPMCC). Initial Operational Capability (IOC) was announced on 1 September 2010. The AEMCC later reached Full Operational Capability (FOC) on 1 December 2010.

GEOLUT installed at the UAE Ground Station (AEMCC)

PLB Testing in North and South Poles

Tests of PLBs and ELTs were conducted by Russia in February 2010 near the South Pole (at about 62°S), and in April 2010, near the North Pole (at about 89°N). Results included Doppler location accuracies of 900m to 1,200m. Testing of these beacons in the harsh conditions of Antarctica and Arctic regions has confirmed the following:

- the ability of the Cospas-Sarsat LEO System to detect beacons located at high latitudes,
- that excellent location accuracy can be provided by built-in navigation receivers, and
- the successful operation of radiobeacons in extreme conditions - at the North Pole the temperature was minus 27°C with wind speeds up to 20m/sec.

Launch of Electro-L No. 1 (GEOSAR)

The Russian geostationary weather satellite, Electro-L, was successfully launched by carrier rocket Zenit-3SB on 20 January 2011 at 12:29 GMT from the Baikonur space centre in Kazakhstan.

Electro-L carries the first Russian GEOSAR payload.

The satellite is expected to operate in orbit for over 10 years.

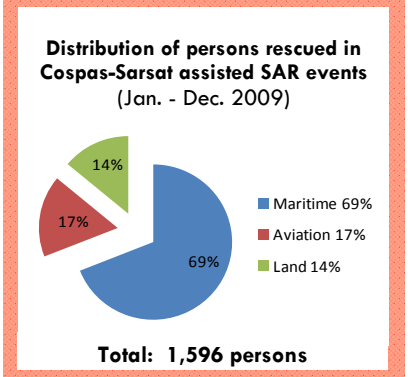
New Russian Monitoring Station

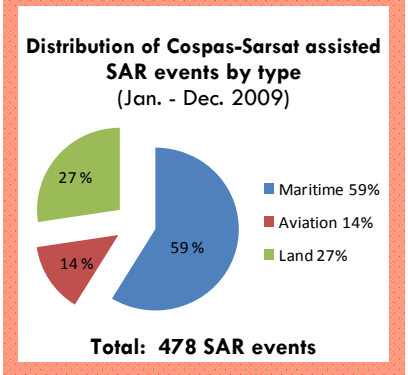
In September 2010, Russia inaugurated a new Monitoring Station in Moscow. This new Ground Station comprises one new LEOLUT, with a new GEOLUT expected to be commissioned in 2011. An experimental MEOLUT has also been established, with 4 antennas planned for installation by 2012.

Control room of new Russian monitoring station

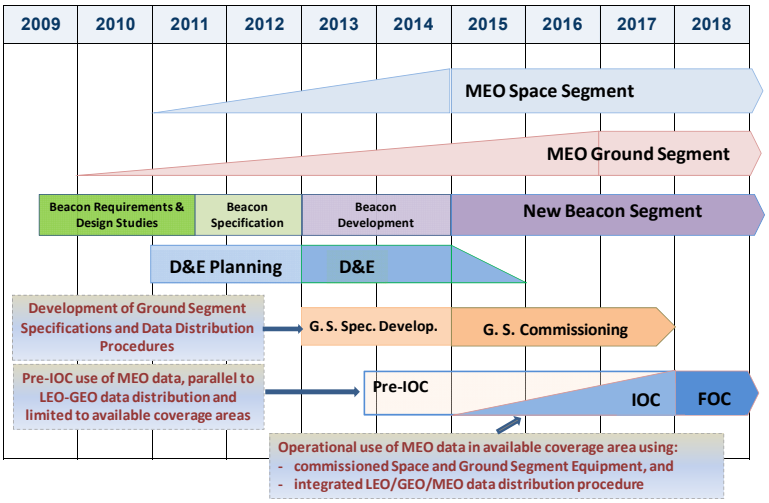
The new station is operated by the Joint Stock Company "Russian Space System". After processing, it transmits Cospas-Sarsat alert data to the Russian MCC (CMC).

MEOLUT at new Russian monitoring station





MEOSAR Demonstration and Evaluation Phase (D&E)



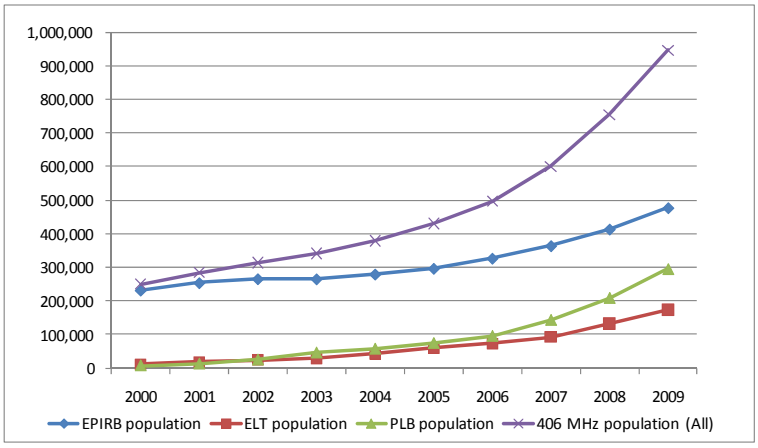
Tentative MEOSAR Time Line

2010 saw significant progress in the preparation for the next generation Cospas-Sarsat satellite system. The Medium-altitude Earth Orbiting satellites for Search And Rescue (MEOSAR) system is gradually moving through the development and proof-of-concept phases towards the first operational satellites launches, expected in 2011, and a full Demonstration and Evaluation (D&E) phase, expected to begin in 2013.

A draft D&E plan will be reviewed at the 2011 Task Group Meeting scheduled for April in Turkey. Modifications to the Cospas-Sarsat Ground Segment network required for the distribution of MEO alert data should be implemented in 2012, paving the way for the D&E phase in 2013. In addition to the 9 DASS proof-of-concept payloads already in orbit, the first operational MEOSAR payloads on board Glonass-K should be available from 2011 and on Galileo IOV satellites from 2012. A successful D&E could lead to MEOSAR initial operational capability (IOC) in 2015. Cospas-Sarsat is also considering the possible operational use of MEO alert data prior to IOC, assuming the reliability of such data can be demonstrated early during the D&E phase.

Although the future MEOSAR system is designed for full backward compatibility with existing 406 MHz beacons, the new system architecture, with only repeaters on board MEO satellites and all signal processing on the ground, will allow an evolution of beacon signal characteristics. This could lead to revised beacon specifications and enhanced performance. The first step, initiated in 2010, is to establish minimum and objective operational requirements for second generation beacons. This work should be completed in 2011 and will be followed by the development of revised beacon specifications. Second generation beacons could become available in 2015. However, global availability of MEO satellite and MEOLUT coverage may only be achieved in 2018, as illustrated above in the tentative MEOSAR timeline. This could limit the use of new beacons, if they are not compatible with the LEO system, until full operational capability (FOC) of the MEOSAR system is realised.

Beacon Population Trends



406 MHz Beacon Population Trend (2000-2009)

At the time of the phase-out of satellite alerting services at 121.5 MHz in February 2009, the 121.5 MHz beacon population was estimated at nearly 500,000 beacons. When satellite alerting services became limited to 406 MHz beacons only, the total beacon population dropped from over a million beacons to about 700,000 beacons. The phase-out of the 121.5 MHz beacons also affected the distribution of beacon types. For example, even though the PLB population has exhibited impressive growth over the past several years, it remained at less than 10% of the total (121.5 and 406 MHz) beacon population. With the phase-out of the 121.5 MHz beacons, the percentage of the total beacon population comprised of PLBs reached nearly 30%. This shift is likely responsible for the change in distribution of SAR events, where in the past, PLBs typically accounted for between 15 to 20% of SAR events. In 2009, PLBs accounted for almost 30% of SAR events. EPIRBs, which have historically been attributed with 70% of global SAR events, were involved in less than 60% of SAR events in 2009.

Over the last decade, beacons have become smaller and lighter, while at the same time the purchase price has dropped dramatically. The increased emphasis on use of 406 MHz beacons has resulted in impressive growth rates. In 2009 alone, manufacturers reported that a total of 228,609 new 406 MHz beacons were produced, an increase of 22.5% over 2008 production figures and a number nearly equivalent to the global beacon population in the year 2000. In 2009, PLBs continue to lead the production growth figures with 33% growth, followed by EPIRBs (24%) and ELTs (3%).

For the last 10 years, the average growth rate of beacon production worldwide was over 20% per annum. Between the years 2000-2009, the global beacon population increased by 277% and the PLB population grew at an impressive 3,986%!

Based on survey results and manufacturer's forecasts, it is expected that the global beacon population will continue, for the next several years at least, to grow at a rate consistent with that observed over the past decade.

A Few Words from the 2010 Council Chair

It has been a short four years since the last time I had the privilege to provide this note; while it only seems like yesterday, a lot has transpired with regard to the System as well as the people in Cospas-Sarsat. In terms of the System, we have more than one million beacons in use, a number that is significant as it points to the increase in the use of Cospas-Sarsat by non-mandated users. This transition from mandated to recreational users is critical to the future relevance of the Programme as it shows people are voluntarily choosing to use Cospas-Sarsat, even as more options are becoming available to them. On the Space Segment side, Cospas-Sarsat concluded an agreement with EUMETSAT that will ensure geostationary coverage well into the future. Cospas-Sarsat continues to work with Global Navigation Satellite System providers to plan for the future MEOSAR system – ensuring that the long-term commitment to providing satellite distress alerting services will be realised.

Ajay Mehta
Deputy Director
Office of Satellite Data Processing and Distribution
NOAA, USA
2010 Council Chair

While all these changes are important to the future of the System, technology is only part of the reason for Cospas-Sarsat's success. The people behind the technology are equally important. In this regard, it saddens me to have to bid farewell to key members of the Secretariat staff. First, I want to recognise the contributions that Anthony Boateng has made to the Programme, especially his efforts to help establish the Secretariat in Montreal. And with Daniel Levesque's upcoming retirement I want to acknowledge his role in helping to establish and shape the Cospas-Sarsat Programme. I know over the course of the upcoming year there will be many tributes paid to Daniel; however, I want to take this opportunity to say a few words in this forum with the hope that they will be captured for posterity. I first met Daniel in 1990 and he made an immediate impression on me. One word comes to mind to describe that initial impression, which has been confirmed many times over the 20 years I've known him – *energy*. When it comes to people we use the word *energy* to define stamina, motivation and of course physical activity, and while energy itself is intangible, the effects are easily recognised. Daniel's technical competency, diplomatic savvy, and knowledge of the Programme are all well known. This combined with his stamina and motivation have helped the Programme evolve – a Programme with almost a million users, credited with rescuing more than 28,000 people, and 43 countries and organisations participating. Daniel's efforts have brought the Programme recognition from international organisations, National Administrations and the aviation, maritime and safety industries. Whether it's staying up through the night to write technical documents or summary records, negotiating international agreements, managing the Secretariat, or just being persistent in trying to do the right thing, as is so often required in international fora, Daniel's energy has carried him, and with him, the Programme forward. "Energy and persistence conquer all things" is a quote attributed to the American author, politician, scientist, and statesman, Benjamin Franklin. I can't think of a more fitting description of Daniel's career in Cospas-Sarsat. I don't see Daniel's energy diminishing after retirement, it will just be redirected; and someone else will be lucky to benefit from it.

A Few Words from the Head of Secretariat

2010 was a year of transition, between the termination of satellite processing of 121.5 MHz beacons in 2009 and the first MEO satellite with an operational 406 MHz payload expected to be launched in 2011. Experts met for the first time in 2010 to consider new operational requirements for 406 MHz distress beacons, paving the way for a future generation of beacons which will take full advantage of the MEOSAR system architecture and of new technologies.

2011 carries the promise of new beginnings. A new International Beacon Registration Database is under development. It should become operational by April, providing users, Administrations and SAR authorities with enhanced functionalities. It should also help in improving the current situation whereby 30% of beacons remain unregistered. A MEOSAR Demonstration and Evaluation Plan will be developed and plans will be made for Ground Segment upgrades to accommodate the distribution of MEO alert data. 406 MHz beacon production has been growing at a steady rate, close to 20% annually for the last 10 years (see page 10). Final figures are not available at this time for 2010, but preliminary data indicate a healthy production and continued growth of the worldwide beacon population, which has actually doubled since 2005.

Daniel Levesque
Head of Secretariat
International Cospas-Sarsat Programme

On a final personal note, I joined the Cospas-Sarsat Programme in 1979, when it was still in its infancy as a joint experiment run by four agencies focused on space hardware and communication systems development. It is customary to recall the swift success that followed the first satellite assisted rescue of injured passengers after the crash of a light aircraft in British Columbia, Canada, in September 1982. However, my early memories also include many sceptics, in all sorts of professional gatherings. It is, therefore, very comforting to see, thirty years later, the reality of things that were accomplished. As I prepare to retire from the Cospas-Sarsat Secretariat in July 2011, I wish to thank all those who participated in this adventure. Many of them have already moved on. New blood is joining to continue the task and take Cospas-Sarsat into the MEOSAR era. There will still be many sceptics to win over, but I am confident that Cospas-Sarsat will gather the great enthusiasm required to rise above the challenges of these new developments.

This time has the unique flavour of things accomplished and of new beginnings.

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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