INTERNATIONAL COSPAS-SARSAT PROGRAMME

COSPAS SARSAT

Information Bulletin

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ARE YOU READY?

Cospas-Sarsat prepares to end satellite processing at 121.5/243 MHz

Three-year old Kate Williams was saved after the automatic activation of a 121.5 MHz ELT.
(Photo courtesy of the Williams family)

On 1 February 2009 satellite processing of signals from 121.5 / 243 MHz beacons will terminate, as confirmed by the Cospas-Sarsat Council in October 2006. However, Administrations currently forecast that over 100,000 121.5 MHz beacons may still be in service in 2010, after the termination of 121.5 MHz satellite processing.

Major Mitch Leenders, the Officer in Charge of the Joint Rescue Coordination Centre, Victoria, Canada, said of a recent successful SAR case involving a 121.5 MHz ELT - "After February 2009, the results could have been different. More than likely, the rescue would have taken longer to effect because it would have taken longer to find the aeroplane."

(see "Rescuing Little Kate" p. 2)

Why Switch?

406 MHz beacons have proven superior performance capabilities. They transmit a much stronger signal and are more accurate, verifiable and traceable. 406 MHz distress signals can be accurately detected within a matter of minutes. Each 406 MHz beacon has a unique identifier encoded within its signal. As long as the beacon has been registered, rescue centres can quickly confirm that a distress is real. This means a search can be launched even before a final distress location has been determined. Position accuracy of less than 5 km decreases the amount of time SAR teams must search. This adds up to significant time savings and a major advantage over the older 121.5 MHz technology.

406 MHz ELTs or PLBs?

Many 121.5 MHz Emergency Locator Transmitters (ELTs) are still installed in light aircraft and the way ahead for a move to 406 MHz prior to the termination date of 121.5 MHz processing by Cospas-Sarsat is intensely debated. Can lower cost 406 MHz Personal Locator Beacons (PLBs) be considered an alternative to 406 MHz Emergency Locator Transmitters (ELTs)?

Switch to 406: A long process

The decision taken in 2000 to terminate the processing of 121.5 MHz transmissions on 1 February 2009 was the conclusion of a long process. Discussions were initiated in 1997, following a request by the International Maritime Organisation (IMO) that Cospas-Sarsat develop a plan for phasing-out the satellite processing of 121.5 MHz transmissions - the source of an excessive number of false alerts. Because of their limitations, in particular the lack of global coverage and unique beacon identification, 121.5 MHz beacons were not accepted as part of the Global Maritime Distress and Safety System (GMDSS) and IMO made 406 MHz or L-band satellite EPIRBs mandatory safety equipment in 1993.

On the aviation side, the dilemma was that fixed 121.5 MHz ELTs, automatically activated by a "G-switch" after a crash, were

(story continued on p. 2)

INSIDE THIS ISSUE:

POINTS OF INTEREST:

- In 2006, Cospas-Sarsat alert data assisted in 452 distress incidents in which 1,881 persons were rescued.
- Since September 1982, the Cospas-Sarsat System has provided assistance in rescuing more than 22,400 persons in about 6,200 SAR events.
- The 406 MHz beacon population was 495,000 at the end of 2006, up 15 % from 2005. At the end of 2007 it was estimated to be over 550,000.

Rescuing Little Kate

28 October 2007

Sergeant Scott Elliston knew three-year-old Kate Williams was alive when he took her pulse and she started crying. The Edmonton toddler had been hanging by the straps of her seat, upside down, for about five hours in cold Canadian winter weather when military and civilian searchers found her.

The Cessna aircraft she was traveling in crashed near Golden, B.C. about an hour after take off, killing her grandfather, Allen D. Williams, who was piloting the aircraft, and his friend Steven Sutton. Sgt Elliston, fellow SAR Tech Master Corporal Bruno Lapointe and the rest of their CC-115 Buffalo crew had already been airborne on a major search for another missing aircraft when the Joint Rescue Coordination Centre (JRCC) in Victoria diverted the mission because another emergency beacon was sending signals in the area.

The crew decided to land at the Golden airport where a civilian helicopter was waiting, having been tasked by the JRCC to assist. Sgt Elliston and MCpl Lapointe, along with a civilian ground searcher from Golden, boarded the helicopter with all of their gear and took off. The GSAR volunteer's equipment included a Radio Direction Finder, which was key to getting the crew to the downed aircraft. After about 15 minutes of passing closer and closer to the signal, the pilot flew right on top of it and saw the downed Cessna below. He landed the chopper on a logging road about 200 metres away, with daylight fading and weather still an issue.

The SAR team was amazed to find someone alive. Little Kate survived the crash with little more than black eyes and a couple of scrapes on her face. She was treated in hospital and returned to her grateful family.

406 MHz ELTs or PLBs? *(story continued from p. 1)*

mandatory equipment for a considerable number of aircraft. Furthermore, despite all known limitations of the 121.5 MHz analog technology, the Cospas-Sarsat LEOSAR system had proven highly effective in locating distresses.

In December 1998, the Air Navigation Commission of the International Civil Aviation Organization (ICAO) proposed amendments to Annexes 6 and 10 to the Convention on International Civil Aviation mandating carriage of 406 MHz ELTs on aircraft under Convention jurisdiction. The provisions would apply to new aircraft from 2002 and all aircraft from 2005 on long-range flights over water and in areas designated as "difficult to search". The ICAO Council adopted these amendments in March 1999, clearing the path for implementation of the Cospas-Sarsat Phase-Out Plan for 121.5/243 MHz Satellite Alerting Services (document C/S R.010), approved by the Cospas-Sarsat Council in October 2000.

An incomplete transition

At the time, nine years seemed a very long advance notice of the phase-out of 121.5/243 MHz processing. However, in 2008, less than a year from the actual switch-off date, a large number of 121.5 MHz signals are still being detected and located by the Cospas-Sarsat System. This is a clear indication that a very large number of 121.5 beacons are still deployed on aircraft and pleasure craft.

Many aircraft owners claim that the replacement of the "old" fixed, automatic 121.5 MHz ELT by a 406 MHz ELT is too costly. Not only is the price of a 406 ELT higher as a result of more stringent specifications and standards, but the installation is not straightforward. For commercial aviation, the fitting costs also include the time the aircraft is unavailable due to installation work.

Revised ICAO requirements

Although the ICAO requirements for fixed 406 MHz ELTs became applicable to new aircraft from 2002 and all aircraft from 2005, not all commercial operators could meet the 2005 deadline for refitting existing fleets. After much debate, ICAO agreed in 2007 to amend its requirements.

The new provisions require carriage of 406 MHz ELTs on all aeroplanes, but the type and number of ELTs required are different for aeroplanes that have a passenger capacity of more than 19 and for those of 19 and less. All commercial aeroplanes for which the certificate of airworthiness is first issued after 1 July 2008 will be required to carry at least one fixed automatic 406 MHz ELT.

Aeroplanes with an airworthiness certificate issued before 1 July 2008 will have to be equipped with a minimum of one ELT of any type (e.g. automatic fixed or manual / survival 406 MHz ELT) if they are authorised to carry 19 passengers or less, and at least one automatic ELT or two ELTs of any type if they are authorised to carry more than 19 passengers.

In practical terms, the installation of automatic ELTs operating on 406 MHz (and 121.5 MHz for homing purposes) is the recommended practice. However, for "old" aircraft, the new requirements could be satisfied with one or several manual 406 MHz "Survival ELTs".

Are 406 MHz PLBs a solution?

The ICAO decision triggered requests in some countries that aviation authorities accept 406 MHz Personal Locator Beacons (PLBs) as a substitute for the automatic 406 MHz ELT, or as a complement to the 121.5 MHz automatic ELT already installed in light aircraft.

The issue is complex and presents a number of pros and cons, which we tried to summarise in a table (see p. 10). As always with complicated regulatory issues, simple answers do not fit all questions. The basic difficulty is to reconcile the considerable diversity of distress scenarios that need to be addressed with acceptable costs to *(story continues on p. 10)*

Cospas-Sarsat News

JC-21 Meeting
Bosphorus Cruise, Istanbul, Turkey
June 2007

CSC-39 Meeting
Washington, DC, USA
October 2007

FMCC 25th Anniversary Celebration
Toulouse, September 2007

South Central DDR Meeting
Algiers, March 2007

Vice Admiral Conrad C. Lautenbacher, U.S. Navy (Ret.), NOAA Administrator; Mr. Rudi Snel (rescued 7 May 2007) and the Cospas-Sarsat Parties' Representatives (F. Bergeron, Canada; V. Bogdanov, Russia; M. Hucteau, France) at the 25th Anniversary Celebration, Washington, DC, USA, October 2007

North West Pacific DDR Meeting
Tokyo, September 2007

Hail...

Marie-Jo Deraspe
Conference Coordinator

... and Farewell

Mario Hucteau
French Representative and past Council Chair

France Bergeron
Canadian Representative and past Council Chair

Hannah Bermudez
Conference Coordinator

2008 Events Diary

TG-1 – Quality Management System (Southampton, UK) 4 – 8 February

EWG-1 – MEOSAR (Brussels, Belgium) 3 – 7 March

Central DDR (Tromsø, Norway) 11 – 13 March

South Central DDR (Maspalomas, Spain) 1 – 3 April

Closed Council 40 (Montreal, Canada) 16 – 18 April

EWG-2 – Strategic Planning (Montreal, Canada) 21 – 25 April

Beacon Manufacturers Workshop (San Diego, USA) 7- 9 May

Joint Committee 22 (Montreal, Canada) 10 – 17 June

South West Pacific DDR (Fremantle, Australia) 24 – 26 September

Closed Council 41 (TBD, France) 23 – 24 October

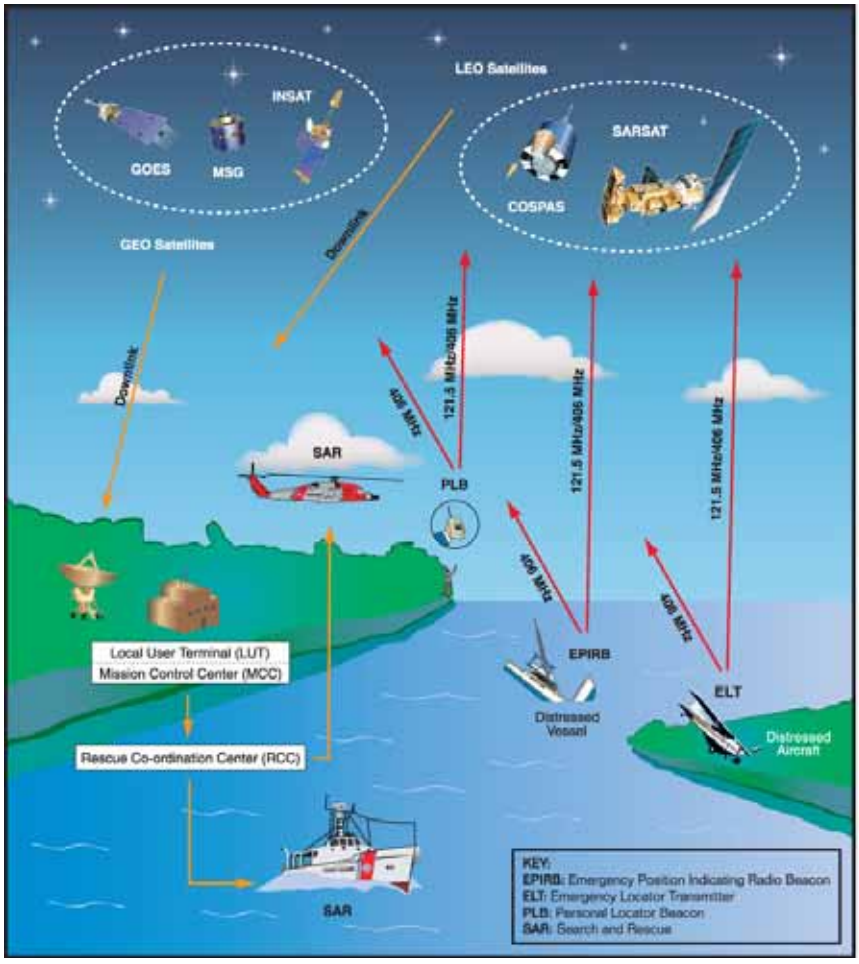
Open Council 41 (TBD, France) 27 – 30 October

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 supports two types of distress beacons: old analogue technology beacons that transmit at 121.5 MHz and newer generation digital beacons that operate at 406 MHz. Satellite processing of 121.5 MHz transmissions will cease on 1 February 2009.



Australia : Torres Strait Marine Safety Programme

Australia recently began a programme to replace soon-to-be obsolete 121.5 MHz beacons with subsidized 406 MHz beacons in support of a Torres Strait Marine Safety Program being run by Marine Safety Queensland (MSQ) and Australian Maritime Safety Authority (AMSA). People routinely travel between islands in the area in small boats and weather conditions and currents can quickly become difficult, resulting in numerous SAR cases in the region.

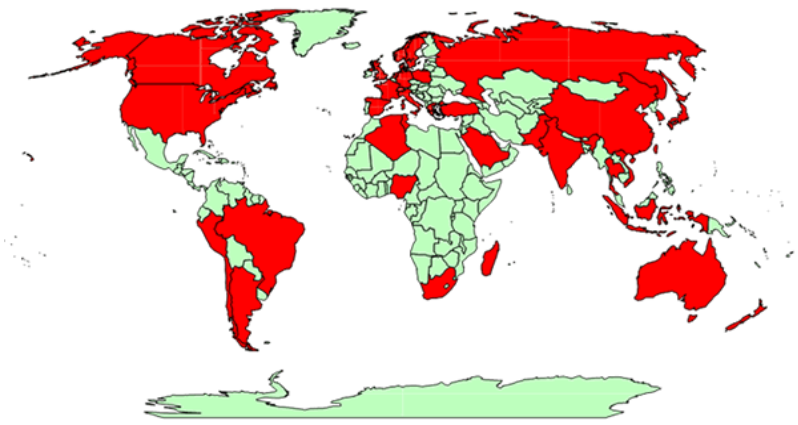
AMSA employee Linda Berryman and Frank Thomson of Marine Safety Queensland distribute a 406 MHz EPIRB to a Hammond Island resident

In December 2007, AMSA and MSQ staff visited many islands in the Torres Straits area. Islanders were issued with a 406 MHz EPIRB at a very low price, after turning in their 121.5 MHz EPIRB for proper disposal by MSQ. Registration of the new EPIRBs was accomplished on the spot.

The pay-off from this programme was observed very quickly. On 2 January 2008, RCC Australia received an unlocated Australian coded 406 MHz EPIRB alert. Using the emergency contact provided in the beacon's registration data, SAR operators were able to confirm that a vessel with four adults and one child aboard had not returned from a fishing trip. SAR resources despatched to the area found the vessel broken down on a reef in severe weather conditions. All persons aboard were transferred to a police vessel and safely taken ashore.

In the initial phase of the 406 MHz EPIRB distribution programme, 250 units were purchased. The money collected will be used by MSQ towards possible purchase of additional EPIRBs for the Torres Strait region. Linda Berryman, the Australian 406 MHz/MMSI Database Manager, said, "I'm pleased to say we were more successful than I had originally anticipated. Our hard work in distributing these EPIRBs has paid off with five lives saved so far. This is what makes this job so satisfying and rewarding."

PARTICIPATING COUNTRIES AND ORGANISATIONS



Cospas-Sarsat Participants 2008

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

Association with Cospas-Sarsat as a Participant in the Programme

In order to benefit from the Cospas-Sarsat System, it is not necessary to become formally associated with Cospas-Sarsat. All countries not currently formally associated as a Participant are supported by the Mission Control Centres (MCC) of neighboring countries. Cospas-Sarsat requirements for delivery of Cospas-Sarsat distress alerts include establishing:

- reliable communication links with the designated MCC, including providing the full address/email/telephone/fax contact information for a Search and Rescue Point of Contact (SPOC),

- appropriate regulations for the use of 406 MHz beacons , and

- a beacon register with a 24-hour point of contact for 406 MHz beacons, though Cospas-Sarsat allows registration of beacons in the International 406 MHz Beacon Registration Database (www.406registration.com) when a national beacon registry is not available.

Alternatively, the International Cospas-Sarsat Programme Agreement provides for the association with Cospas-Sarsat of States that did not sign the original 1988 Agreement. Countries may wish to establish themselves as a Cospas-Sarsat Ground Segment Provider and receive and process alert data directly from the satellites. A ground receiving station (LUT) and Mission Control Centre (MCC) may be purchased and installed. LUT and MCC manufacturers should be contacted directly using the contact details available on the Cospas-Sarsat website. Manufacturers of type approved beacons are also listed on the Cospas-Sarsat website (www.cospas-sarsat.org).

A third option is for a country to formally associate with Cospas-Sarsat as a User State. Such association is welcomed by the Cospas-Sarsat Parties and is considered mutually beneficial. Under this arrangement, no purchase or operation of ground station equipment is required (alerts would continue to be delivered via the supporting MCC) but the country would be able to participate in the management of the International Cospas-Sarsat Programme.

Use of the System is free-of-charge; however, countries that choose to formally associate themselves with the International Cospas-Sarsat Programme are requested to contribute an annual fee towards the administrative costs of the Programme. This fee is currently CAN$ 42,000 per annum.

Procedures for participating in Cospas-Sarsat are provided in document C/S P.007 “Guidelines for Participating in the Cospas-Sarsat System”. It is available on the Cospas-Sarsat website under the “Documents” tab. Document C/S P.002 “Procedure for the Notification of Association with the International Cospas-Sarsat Programme by States Non-Party to the Cospas-Sarsat Agreement” is available at the same location.

Cospas-Sarsat System Status

As at February 2008, the Cospas-Sarsat System comprised:

- **5 LEOSAR satellites in low-altitude polar orbits (from 700 to 1,000 km);**
- **4 GEOSAR satellites;**
- **46 LUTs receiving signals transmitted by LEOSAR satellites;**
- **20 LUTs receiving signals transmitted by GEOSAR satellites;**
- **29 Mission Control Centres for distributing distress alerts to SAR services; and**
- **More than 550,000 406 MHz beacons and an estimated 500,000 121.5 MHz beacons.**

Cospas-Sarsat Operations : What's New?

Staff of the Nigeria MCC, which reached Full Operational Capability (FOC) in July 2007

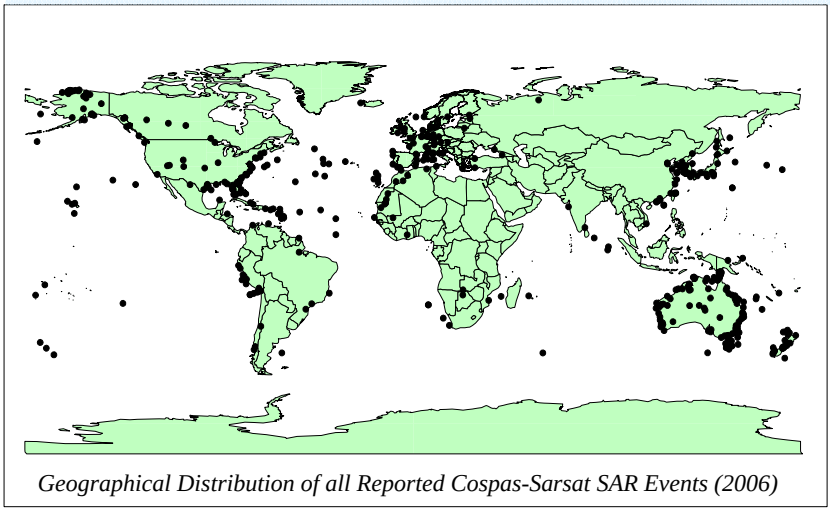
Saudi Arabia renewed their ground segment and the SAMCC reached Initial Operational Capability (IOC) in October 2007

Staff of the Vietnam MCC, which reached IOC in December 2007

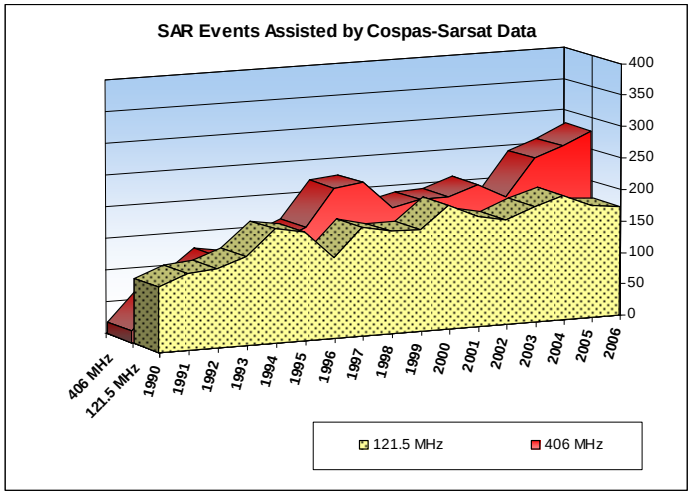
The new Greece MCC, sited at the Ministry of Mercantile Marine Aegean and Islands Policy Building at Piraeus Port, reached FOC in January 2008

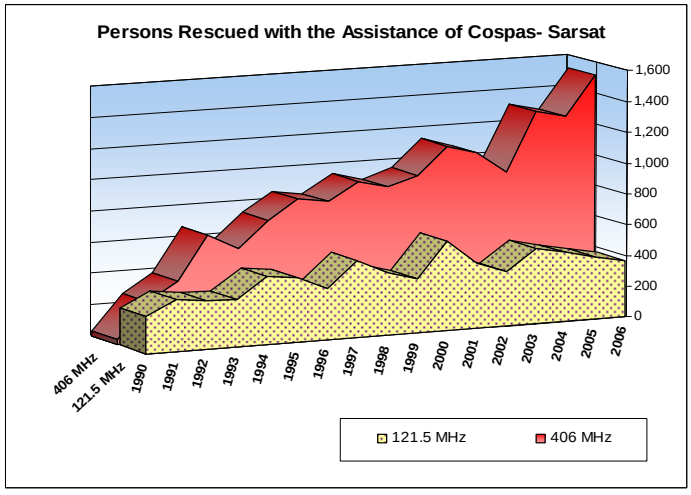
System Use Statistics

The figures below show the evolution of use of the System since 1990. Since the beginning of its operation in September 1982 through the end of 2006, Cospas-Sarsat provided alerts that assisted in the rescue of more than 22,400 persons in about 6,200 SAR events.



Geographical Distribution of all Reported Cospas-Sarsat SAR Events (2006)

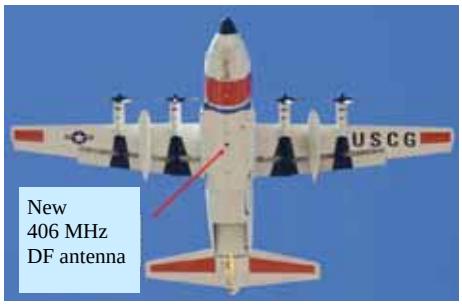




New Technology : 406 MHz Direction Finding

With February 2009 phase-out date for 121.5 MHz satellite alerting rapidly approaching, SAR authorities have been investigating how to benefit from the more widespread adoption of 406 MHz beacons. One possible aid to SAR services is the recent commercial availability of direction finding (DF) equipment operating at 406 MHz.

LCDR Joseph Deer, US Coast Guard (USCG), described how the technology works as follows, "The 406 MHz EPIRB emits a low power, 25 milliwatt sweeping-tone signal constantly on 121.5 MHz, but emits a 5 watt burst about every 52 seconds at 406 MHz. The 406 MHz emission is 200 times stronger than the 25 milliwatt sweeping-tone signal. If the EPIRB is equipped with an internal or external GPS capability, not only can the 406 MHz DF accurately track the course to the 406 MHz signal, but future capabilities will allow the operator to read a GPS position on a monitor inside the search aircraft. Proper registration of a beacon can further assist SAR services by providing immediate access to data critical to mission success."



In April 2007, the US Coast Guard installed its first operational 406 MHz DF unit on an Elizabeth City, North Carolina C-130 aircraft

The USCG has locked-on to 406 MHz beacons from as far away as 150 nm (at 25,000 ft) and has several examples of locking-on from 80-100 nm (at 10-20,000 ft). Since installation, this 406 MHz upgrade has allowed the USCG to save or assist 16 lives in several cases when older 121.5 MHz DF equipment was unable to locate the mariner in distress.

NOCR Service

Cospas-Sarsat provides distress alerts to SAR authorities responsible for the search and rescue region (SRR) where the distress is located. In addition, a Notification of Country of Beacon Registration (NOCR) Service is available, where the SPOC associated with a beacon's country code is notified when an alert is located outside of that country's SRR.

The NOCR service ensures that a country is notified whenever one of its beacons is activated. It is especially beneficial when the distress is located in an area of the world where suitable resources may not be available to perform the SAR mission. This provides the parties responsible for the vessel, aircraft, or persons in distress an opportunity to assist the SAR authorities in their response to the emergency situation.

Until recently, the NOCR service was provided only to those countries who requested it. The Cospas-Sarsat Council, in November 2007, agreed that Cospas-Sarsat should provide routine NOCR service to all countries, regardless of whether they requested the service.

India / Cospas-Sarsat Understanding Now Officially Signed

The signing of the Understanding between the Cospas-Sarsat Parties and India concerning the long-term provision of INSAT GEOSAR services was completed in early 2007 and the document became effective on 25 March 2007.

Although the absence of a formal agreement did not impact the cooperation with the Indian Space Research Organisation (ISRO) and the distribution of distress alerts provided by the INSAT-3A satellite and the GEOLUT in Bangalore, the signature of a formal Understanding is a welcome development which recognises India's significant contribution to the Cospas-Sarsat System. It is also expected that the Understanding will provide the foundation for closer cooperation between ISRO and Cospas-Sarsat on GEOSAR operations, including the formal commissioning into the Cospas-Sarsat System of the INSAT GEOSAR system.

An additional satellite, INSAT-3D, equipped with a GEOSAR payload, is scheduled for launch in 2009.

Beacon Owner Guidelines for the Operation of 406 MHz Beacons

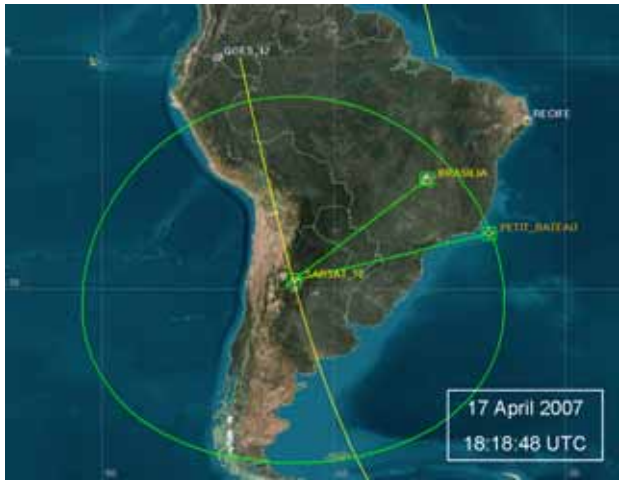
In order to ensure proper operation in the event of a distress, beacon owners should be aware of some responsibilities they hold. On purchasing a beacon, beacon owners should:

- ensure that their beacon satisfies their specific needs;
- register their beacon with the appropriate national authority or in the International 406 MHz Beacon Registration Database (www.406registration.com);
- become aware of any required maintenance procedures for their beacon;
- learn how to use the beacon in an emergency; and
- understand the self-test features of their beacon.

406 MHz beacons are designed with a self-test capability for evaluating key performance characteristics. Initiating the beacon self-test function will not generate a distress alert in the Cospas-Sarsat System. However, it will use some of the beacon's limited battery power and should only be used in accordance with the beacon manufacturer's guidance. In case of any doubt regarding the beacon's self-test mode, the beacon manufacturer should be contacted before a self-test is attempted. Contact details for manufacturers of type approved 406 MHz beacons can be found on the Cospas-Sarsat website under the "Beacons" tab.

Recent Notable Saves

17 April 2007 (22º 56´20´´ S / 039º 54´40´´ W)



Izabel Pimental, a highly experienced Brazilian sailor, planned to sail solo from Rio de Janeiro, Brazil on 24 March 2007 to Trinidad and then back to Rio. However because the wind was not strong enough, the almost 2,000 nm journey took much longer than expected. After 21 days at sea, on 17 April 2007, the main mast of her yacht *Petite Bateau* broke. With limited supplies of food and water, Izabel could only see the very large open sea. Her radio had failed. She decided to activate her EPIRB.

Her unlocated distress signal was received at 18:14 UTC by the GEOSAR System and passed to the Brazilian Mission Control Center (BRMCC) in Brasilia, where the search and rescue process immediately began. "This was possible only because we had her registration in our national beacon database. The beacon did not provide an encoded location, but the registration data provided sufficient information to allow the Search and Rescue Service to begin operations," said Lt Gilvan Jorge, head of the Brazilian Mission Control Center.

The first LEOSAR System detection was at 18:18 UTC. Soon after, the distress position of 22º56´16"S / 039º55'32"W was calculated and rapidly reported to the Southeast MRCC. "That day, we warned them by phone to speed the process. We have automated procedures to send alerts to the Aeronautical RCCs, and a good communications link between the BRMCC in Brasilia and our RCCs", explained Lt Jorge.

In a joint air/sea operation, the Navy patrol ship Guaporé was tasked and Izabel Pimentel was rescued. "If I hadn't been rescued quickly, the situation would have rapidly become much worse for me", said a grateful Ms Pimental after her rescue. "Everything worked well and I am alive, but I'll never forget this day", she stated.

The French MCC, located in Toulouse, celebrated 25 years of operation in 2007

12 October 2006

"You were my lucky star" ... With these words, the French special correspondent Daniel Grandclément paid tribute to the work of the FMCC during his visit to the space centre in Toulouse in November 2006, one month after a drama that almost cost him his life.
This man will long remember the night of 12 October 2006 when, during coverage of illegal immigration between Somalia and Yemen, he was thrown into the sea during a difficult passage on a ship smuggling stowaways. He tried to swim to reach the Yemeni coast, but was soon at the edge of exhaustion. He switched on the PLB beacon with which he was fitted and triggered the Cospas-Sarsat System, which quickly located him and facilitated his rapid rescue.

Once again it was a happy ending for a SAR case supported by the French MCC, which in 2007 celebrated 25 years of operation. In addition to assisting in various crises that have punctuated the transoceanic races and other ground races in recent decades, the FMCC has helped save people involved in over 3700 aviation, maritime and land SAR events. In addition to the thousands of survivors, the FMCC also assisted in the rescue of the famous French skippers Isabelle Autissier and Eric Tabarly.

CMC: The New Cospas Mission Centre

CMC, the Cospas Mission Centre located in Moscow, Russia, has operated in Cospas-Sarsat System since 1982 and performs Russian nodal MCC function. In 2007, new equipment and software were installed and commissioned. The new CMC has been successfully operating at FOC since 5 October 2007.

Beacon Coding versus Beacon Type

Current Cospas-Sarsat practice allows beacons to be type approved for encoding with multiple protocols (e.g. ELT, EPIRB and PLB), independent of the type of beacon. From the SAR perspective, however, there are important differences between beacon types. For example, some Administrations require that EPIRBs transmit continuously for 48 hours and float upright, whereas PLBs are required to transmit for 24 hours only and in some cases are not required to be waterproof and capable of floating.

Civil aviation authorities in some cases have allowed the use of PLBs in lieu of fixed ELTs in general aviation aircraft. Due to the cost savings involved, this had led to a large number of pilots relying on PLBs (see related article on p.1).

In general, there is no problem with PLB use in multiple environments, as long as beacon owners are fully cognizant of the beacon's limitations.

To facilitate the optimal use of each beacon, information about test configurations will be published in the type approval reports on the Cospas-Sarsat website. Pertinent information about restrictions on beacon use, beacon hardware configurations, operational temperature range, operating lifetime and environmental restrictions are also recorded on the type approval certificate and in the reports published on the Cospas-Sarsat website.

Cospas-Sarsat type approval testing requirements only address the electrical performance of the beacon at 406 MHz. Conformance of the beacon to operational or environmental requirements, including coding options for EPIRBs, ELTs and PLBs and authorisation for use in multiple environments, remain the responsibility of Administrations.

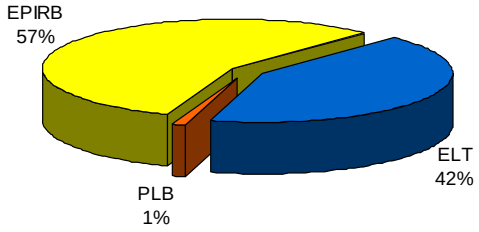
The International 406 MHz Beacon Registration Database (IBRD)

The International 406 MHz Beacon Registration Database (IBRD) is available online at www.406registration.com and provides beacon owners the opportunity to register their beacons when national facilities are not available. In January 2008, after two years of operation, over 5,500 beacons from over 60 countries have been registered in the IBRD. SAR services have steadily increased their use of the IBRD.

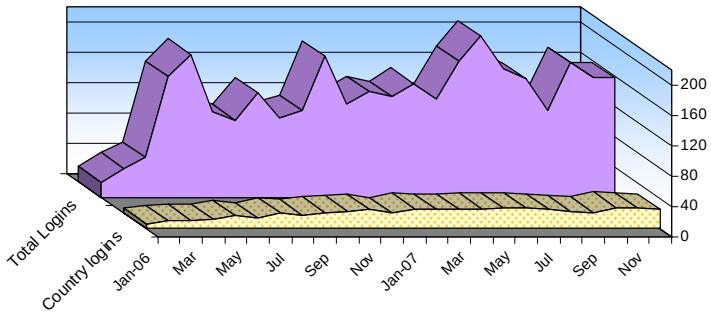
Register Your Beacon, It Might Save Your Life!

For more information on beacon registration, including a list of countries that allow registration of beacons with their country code in the IBRD, click on the beacon registration tab under "Beacons" at www.cospas-sarsat.org.

Beacon Registrations by Type



IBRD SAR Services Usage



406 MHz ELTs or PLBs? *(story continued from p. 2)*

users and the Administration. Excessive costs to users could trigger a rejection of new regulations for 406 carriage which, in turn, would result in increased costs of searches if distress locations are not available to SAR authorities.

The final decision in terms of carriage requirements is clearly the responsibility of regulatory authorities, not Cospas-Sarsat, as the debate is less about a comparison between 121.5 MHz and 406 MHz beacon capabilities and System performance than the cost/benefit balance of possible options for distress alerting.

The only choice: Be prepared or risk serious disappointment!

From the Cospas-Sarsat perspective, the termination of 121.5/243 MHz satellite processing was confirmed by Council in 2006 and the "Switch to 406" is imperative.

Many efforts have been made to allow for lower cost 406 MHz beacons, including 406 MHz ELTs, and prices have decreased steadily.

A number of countries have developed and implemented comprehensive plans mandating the transition to 406 MHz beacons well in advance of the 2009 deadline. Even so, the transition to 406 raises issues such as the safe disposal of old beacons and the effective and accurate registration of a large number of 406 MHz beacons.

In other countries, many users are still unaware of the imminent termination of 121.5 MHz satellite processing. Retailers continue to offer 121.5 MHz beacons for sale and provide little or no information to customers on the consequences of the February 2009 termination of 121.5 MHz processing by Cospas-Sarsat. Urgent action is needed now to avoid grave disappointment after 1 February 2009.

OPTIONS FOR THE REPLACEMENT OF 121.5 MHz ELTS

	121.5 MHz Automatic–Fixed ELTs	406 MHz Automatic-Fixed ELTs	406 MHz Manual / Survival ELTs	406 MHz PLBs
Advantages	Low price. Automatic activation. Already installed in aircraft.	Rapid GEO alerts. LEO Doppler processing. Better 406 MHz performance: - location accuracy, - identification, - survivability, and - automatic activation.	Rapid GEO alerts. LEO Doppler processing. Better 406 MHz performance: - location accuracy, - identification, and - survivability.	Rapid GEO alerts. LEO Doppler processing. Better 406 MHz performance: - location accuracy, and - identification. Lower purchase price than ELTs.
Drawbacks	Many false alerts and no identification of transmitter. Lower accuracy of Doppler location and ambiguity resolution requires second satellite pass. Low survivability. No GEO alerts. Local coverage only. **No detection by Cospas –Sarsat after 1 February 2009.**	Higher purchase price and installation costs. External Antenna, cable may be destroyed on impact.	Higher purchase price. No automatic activation.	No automatic activation. Not designed for crash survivability. Not fire resistant. PLB coding ambiguity regarding aviation / maritime usage.

New 406 MHz Beacon Models

About 40 beacon manufacturers are currently actively producing 406 MHz beacons. In 2007, almost half of them developed new 406 MHz models or introduced changes to designs already type approved by Cospas-Sarsat. In summary, 39 Change Notices and 10 new models (2 ELT, 3 EPIRB and 5 PLB models) were approved in 2007. These figures are linked to a healthy growth of the 406 MHz beacon population (see page 1) and market prospects resulting from the phase-out of satellite processing of 121.5 MHz transmissions. It is expected that the beacon development activity will continue with record figures in 2008. This should also further encourage the steady decrease of 406 MHz beacon costs.

A Note from the Council Chair

2007 marked the 25th anniversary of Cospas-Sarsat. This event was celebrated during the 39th Cospas-Sarsat Council Session in the majestic venue of the US State Department's Benjamin Franklin Room in Washington and Russia presented the Party Representatives with unique commemorative pins. The 25th anniversary was celebrated in Canada at the annual SARSCENE Conference, held in Victoria, British-Columbia. Mr Jon Zielgelheim, the first person rescued using the Cospas-Sarsat System, gave an emotional account of his rescue.

We now have forty Participants, with new participating countries every year. In fact, Turkey, one of the newest participants, proved to be an outstanding host to the Joint Committee 21 meeting held in Istanbul in June 2007!

Twenty five years have gone by – one quarter of a century of saving lives. More than twenty thousand in fact.

Could any of the Russian, French, American or Canadian engineers and scientists who created Cospas-Sarsat, even in their most optimistic moments, have imagined such numbers?

Today we more than imagine those numbers. As outdoor adventure businesses explode on the scene and adventurers travelling to remote areas buy low cost, high quality emergency beacons, we can expect the Cospas-Sarsat System to play an even greater role in search and rescue. We are given the opportunity to plan for the challenges ahead – and challenges there are. To overcome them we look forward to:

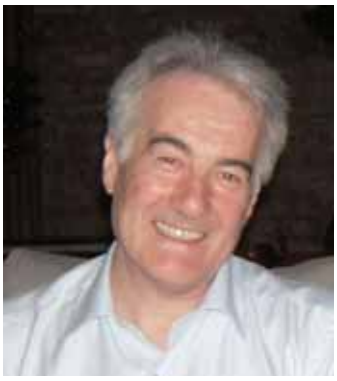
- creating an effective quality management system;
- enhancing the international beacon registry database to include even the thousands who fly a flag of convenience and may not be registered in any administration's database; and
- developing a mid-earth orbit search and rescue satellite system that will eliminate satellite pass wait times and thus provide instantaneous alert and location information.

We can do this - we need only to work together.

We must remember the mission passed to us by those who created our System twenty-five years ago. That mission, to **provide accurate, timely, and reliable alert and location data to help search and rescue authorities assist persons in distress** remains as current today as it was in 1982. It is worth noting that during the October 2007 Council Session, the Cospas-Sarsat System was fulfilling its role of saving lives. Three year old Kate Williams, the sole survivor of a light plane crash in the Rocky Mountains of Canada, was located and saved thanks to the accurate and timely location data provided by Cospas-Sarsat – and really, isn't that what it's all about?

France Bergeron, Canadian Cospas-Sarsat Representative

A Note from the Head of Secretariat



Daniel Levesque
Head, Cospas-Sarsat Secretariat

This Information Bulletin celebrates the 25th anniversary of the launch of the first satellite carrying a Cospas-Sarsat payload and the first successful rescue using alert and location data provided by Cospas-Sarsat. Stories of several successful rescues are reported in this issue and Cospas-Sarsat can claim that the satellite system assists in rescuing an average of five lives each day, somewhere in the world. These are successes worth celebrating!

More importantly, the many individuals around the world who participate in Cospas-Sarsat operations or contribute to its management can derive from these reports a powerful encouragement to continue providing high quality service to search and rescue authorities, and ultimately to users in distress.

Maritime and aeronautical professionals were the first to benefit from accurate and timely distress alerting services. However, it was foreseen that a much wider population at sea and on land could rightfully use the Cospas-Sarsat System. This was made possible with the introduction of the 406 MHz technology which provides a unique identification of the beacon and better System performance, including a much larger capacity, when compared with the 121.5 MHz system. The challenge for Cospas-Sarsat and SAR authorities will be to decide to what extent and how the predicted future increases in user numbers can be accommodated. The development of a Cospas-Sarsat Strategic Plan and a Quality Management System, two parallel efforts towards this goal, initiated in 2007, will continue in 2008.

For those users who have not moved to 406 MHz beacons, 2008 will be the last opportunity to do so before the termination of 121.5 MHz signal processing by Cospas-Sarsat on 1 February 2009. The termination is desirable because of the high false alert rate in the 121.5 MHz system and the superior performance of 406 MHz beacons. This transition is inevitable as future LEO satellites will not have a 121.5 MHz transponder capability.

The 121.5 MHz satellite service termination strategy was established and the plans carefully developed 8 years ago. The decision to terminate was then coordinated with all stakeholders, including the International Civil Aviation Organisation and the International Maritime Organization. It was advertised continuously and aggressively. However, the transition to 406 MHz is far from complete and will raise alarms for those caught unprepared. I wish, therefore, one last time, to highlight the urgency of action for the transition to 406 MHz.

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International Satellite System for Search and Rescue

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.

The Cospas-Sarsat satellite system was initially developed under a 1979 Memorandum of Understanding among Agencies of the former USSR, USA, Canada and France. The Cospas-Sarsat Low-altitude Earth Orbit (LEO) satellite system for search and rescue (LEOSAR) has been in operation since 1982 and was complemented in 1998 with geostationary satellites (GEOSAR).

Cospas-Sarsat provides global distress alerting free of charge to the user in distress. Participants include the four Parties to the International Cospas-Sarsat Programme Agreement (Canada, France, Russia and the USA), 25 Ground Segment Providers, 9 User States and 2 Organisations.

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