

The Circle of Life-saving Satellites

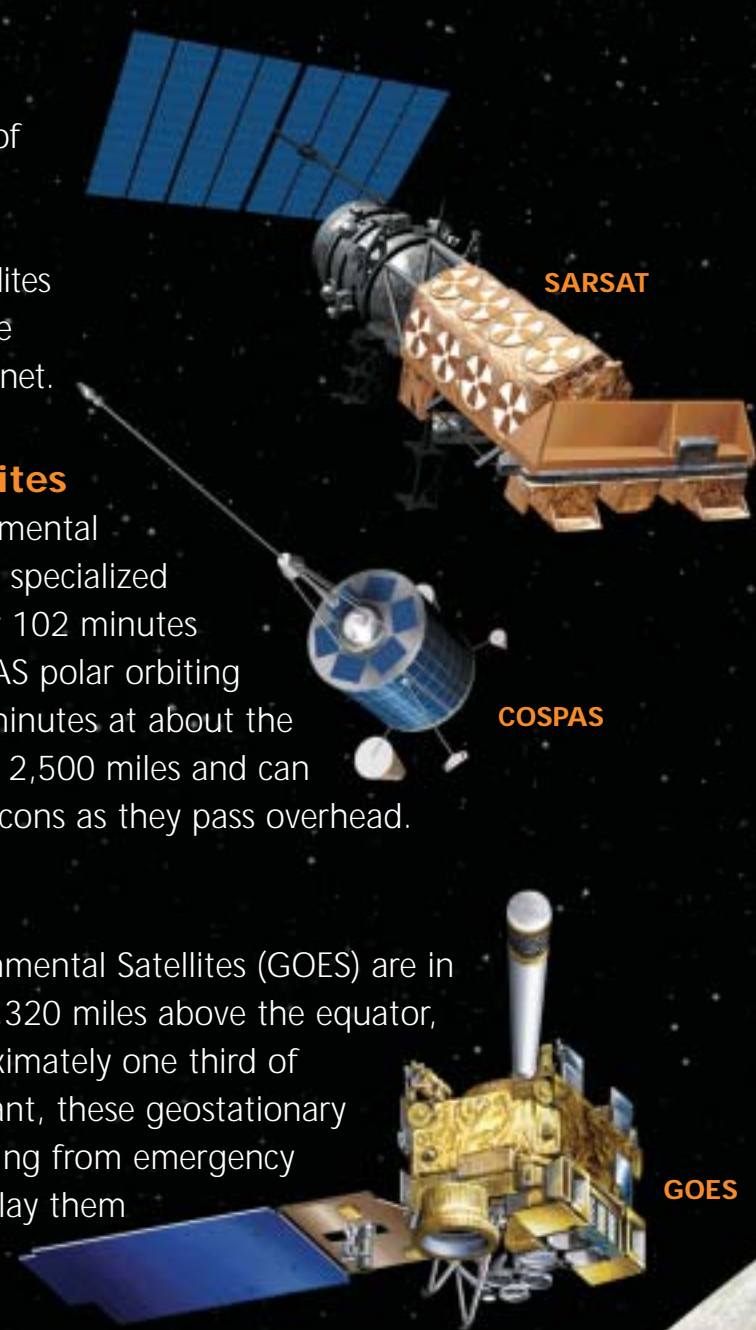
The **COSPAS-SARSAT** system is made up of a number of different satellite constellations. They include both low earth-orbiting and geostationary satellites. Together, these satellites enable distress signals to be picked up by the system from just about anywhere on the planet.

Polar (low earth orbiting) Satellites

NOAA's Polar-orbiting Operational Environmental Satellites (POES), which are equipped with specialized SARSAT instruments, circle the Earth every 102 minutes at an altitude of 528 miles. Russian COSPAS polar orbiting satellites also circle the planet every 105 minutes at about the same altitude. Both scan an area of about 2,500 miles and can pick up signals from activated distress beacons as they pass overhead.

Geostationary Satellites

NOAA's Geostationary Operational Environmental Satellites (GOES) are in a synchronized orbit with the earth, at 22,320 miles above the equator, giving each satellite a fixed view of approximately one third of the planet. Because the coverage is constant, these geostationary satellites can pick up distress signals emitting from emergency beacons within their coverage area and relay them almost immediately to ground stations for verification and response.



"It's been very hard to come up with words that say thank you with meaning. I'm just one person with one life, but I owe my life to them."

Mike Ryan,
Hollywood, California

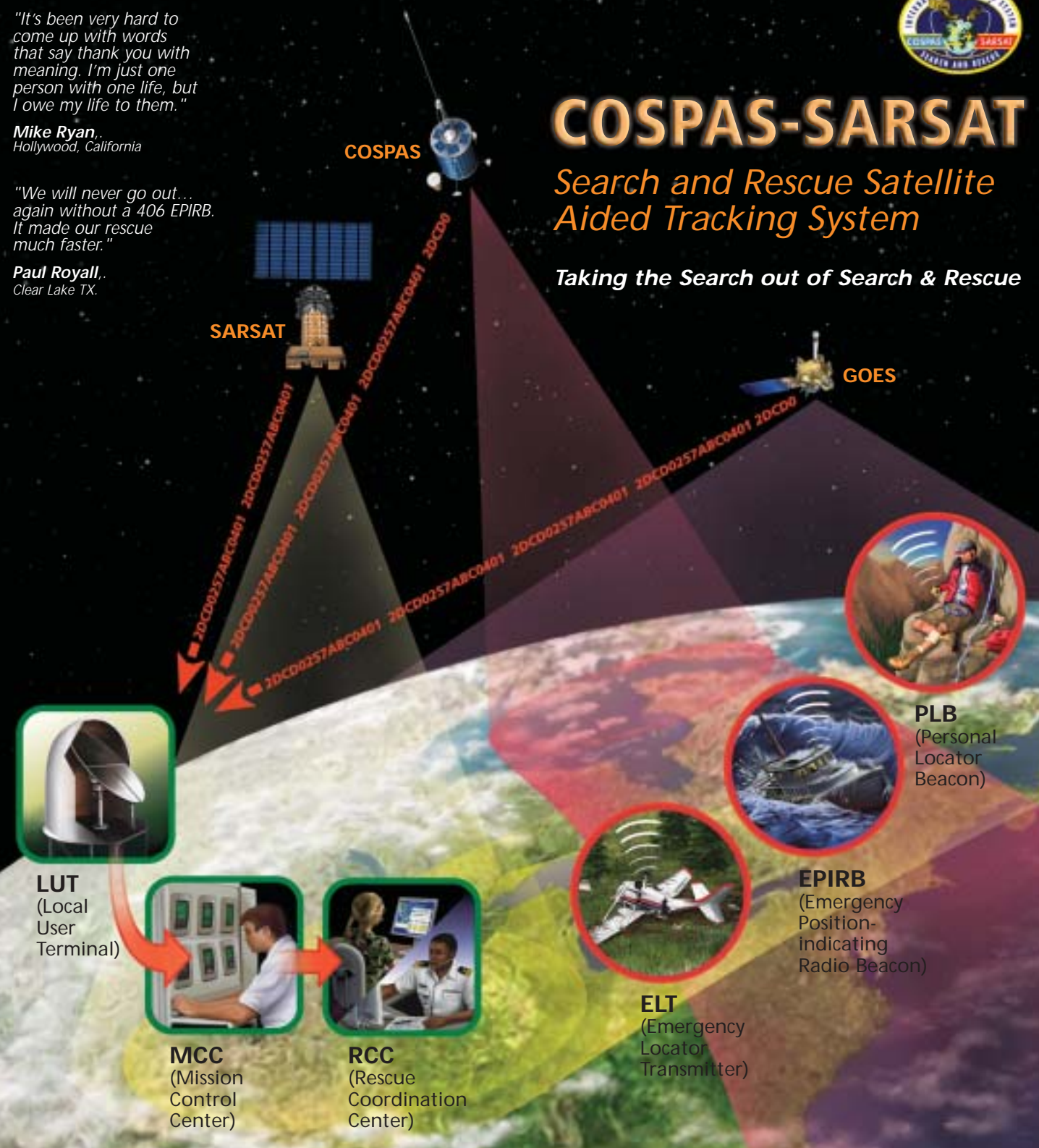
"We will never go out... again without a 406 EPIRB. It made our rescue much faster."

Paul Royall,
Clear Lake TX.

COSPAS-SARSAT

Search and Rescue Satellite Aided Tracking System

Taking the Search out of Search & Rescue



LUT
(Local User Terminal)



MCC
(Mission Control Center)



RCC
(Rescue Coordination Center)



ELT
(Emergency Locator Transmitter)



PLB
(Personal Locator Beacon)



PLB
(Personal Locator Beacon)



EPIRB
(Emergency Position-Indicating Radio Beacon)



The COSPAS-SARSAT Satellite System: Saving lives is our mission

COSPAS-SARSAT, the international, humanitarian Search and Rescue Satellite-Aided Tracking System, has been providing emergency distress alerting and locating information to search and rescue authorities for more than twenty years. Since its inception in 1982, many thousands of people in the United States and worldwide have been saved with the help of COSPAS-SARSAT.* This satellite system tracks and locates activated emergency beacons carried by ships, aircraft or individuals in distress. It is a means of signaling for help when all other means of communication have failed. In many instances this system has proven to be the last resort for people in trouble at sea or in the wilderness.

SARSAT (the U.S. component of the international satellite system) is managed and operated by the National Oceanic and Atmospheric Administration (NOAA), the U.S. Air Force, the U.S. Coast Guard, and the National Aeronautics and Space Administration (NASA).

What happens when a COSPAS-SARSAT beacon transmits a signal?

COSPAS-SARSAT satellites are able to detect digital 406 MHz distress signals 24 hrs a day, 7 days a week, in most cases almost instantaneously. They can pick up these signals from almost anywhere in the world

However satellites can only pick up a distress signal if the beacon has been activated, either manually or through an automated capability, triggered by a vessel sinking or an aircraft crashing.

*A rescue is recorded as a COSPAS-SARSAT "save" any time the satellite system is used as the primary means of alerting or locating during a rescue

Why satellites are important to search and rescue

Satellites provide a vital link between people in distress and search and rescue authorities. They are like "eyes in the sky" always monitoring distress frequencies for potential emergencies. When a satellite picks up a distress signal in the United States, it is relayed back to a network of ground stations on Earth and ultimately to the U.S. Mission Control Center (USMCC) operated by NOAA. The USMCC processes the signal and notifies either a U.S. Coast Guard or U.S. Air Force Rescue Coordination Center (RCC) nearest the alert with information to determine who is possibly in distress and, more importantly, where they are located. The RCC uses this information – including beacon registration data – to quickly confirm whether the alert is a real distress and where to send the rescue teams. Truly, SARSAT takes the "search" out of search and rescue!

How COSPAS-SARSAT beacons work

Each 406 MHz beacon has a unique fifteen digit identification (ID) code embedded within its signal. This ID is used by the owner to register the beacon with NOAA, as required by law. Having a registered beacon means that if the beacon is activated, search and rescue authorities will be able to determine the location of the beacon, and precisely who they should be looking for.

In every distress situation, time is of the essence. Having that information means a rescue can be much quicker. Up to date beacon registration is a vital part of providing a rapid response to distress incidents.

Types of beacons

There are three types of specialized COSPAS-SARSAT distress beacons available for use:

- **ELTs** (Emergency Locator Transmitter) Beacons – for aircraft;
- **EPIRBs** (Emergency Position-Indicating Radio Beacons) – for boats and vessels;
- **PLBs** (Personal Locator Beacons) – for general outdoor use (hiking, mountain climbing, etc.)

Some 406 MHz beacons also have built-in **GPS** (Global Positioning Systems) that are able to calculate precise location coordinates. These coordinates are sent to the satellite along with the other ID data. This provides search teams with even greater distress location accuracy and reduces search time even further.

Where to find COSPAS-SARSAT beacons

COSPAS-SARSAT beacons are available throughout the country at marine retailers, wilderness outfitters, or avionics shops. There are also a number of organizations that will rent 406 MHz EPIRBs or PLBs.

Beacon registration is free, intentional false alerts are NOT

It is the responsibility of every 406 MHz beacon owner to register their beacon with NOAA at the time of purchase and to keep this information up to date. Beacons can be registered or updated online at: www.beaconregistration.noaa.gov or by mail or fax.

There is no charge for this service.

Intentional false alerts, however, are not free. In the United States and elsewhere in the world, if a distress beacon is activated as a hoax, with no distress occurring, fines and/or jail time can be imposed.

Prevent false alerts by carefully referring to the beacon's user manual for instructions on properly installing, operating, testing, maintaining and/or stowing the beacon. Take a moment to check the beacon after a day of boating, hiking, or flying to make sure it hasn't been accidentally activated. Beacons should be turned off when not in use. Always use the utmost care! These are important factors in reducing the number of false activations.

Want more information? Then visit the following:

NOAA - SARST Program
www.sarsat.noaa.gov

United States Air Force Rescue Coordination Center
www2.acc.af.mil/afrc/

United States Coast Guard Office of Search and Rescue
www.uscg.mil/hq/g-o/g-opr/sar.htm

NASA Search And Rescue Mission Office
<http://searchandrescue.gsfc.nasa.gov/sar.htm>

International COSPAS-SARSAT Program
www.cospas-sarsat.org

Many beacon manufacturers and retailers also provide a wealth of information on their websites about COSPAS-SARSAT beacons and their safe handling and operation.

SARSAT – Taking the Search out of Search and Rescue!