



# ELTs, EPIRBs and PLBs

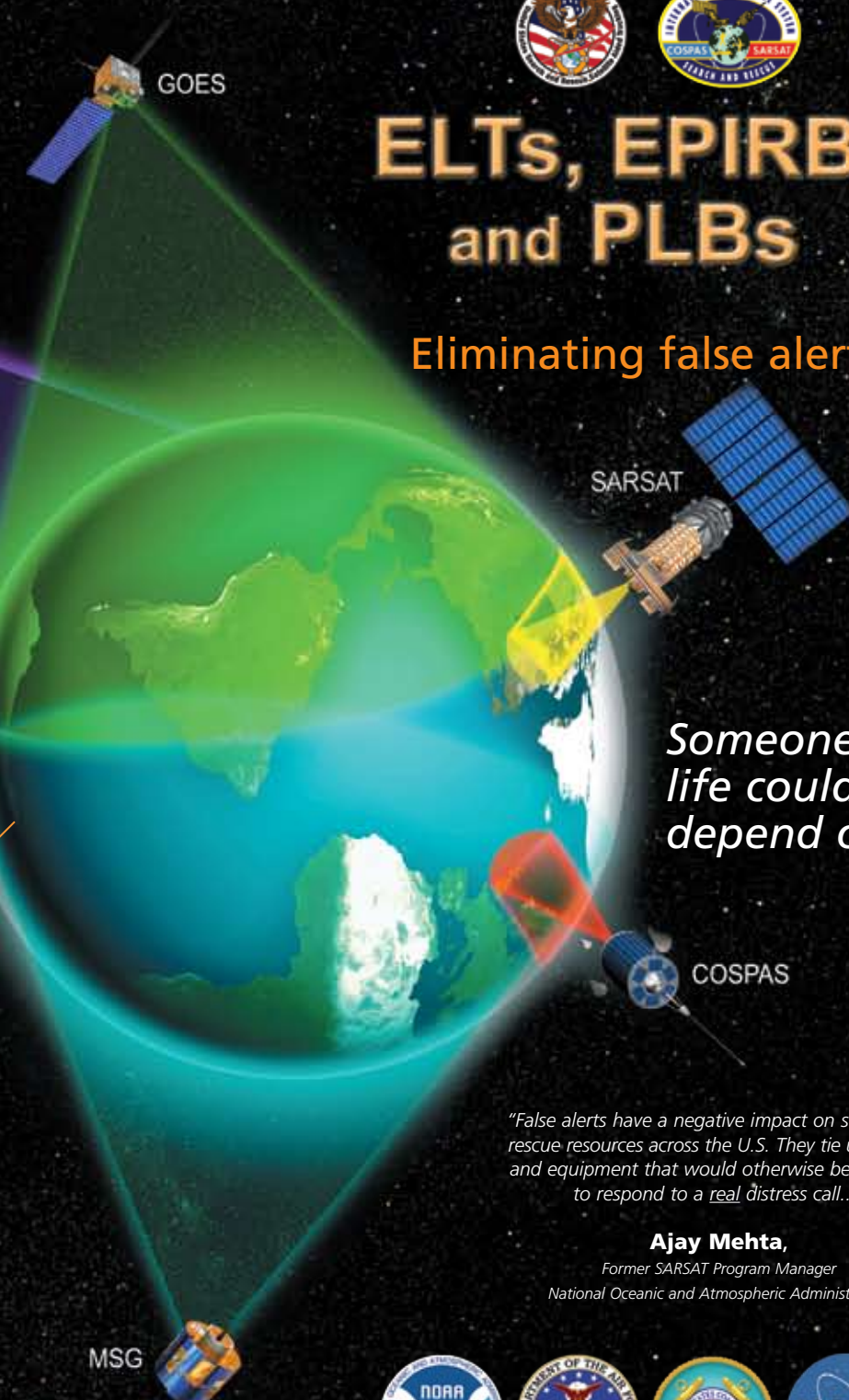
## Eliminating false alerts

*Someone's life could depend on it!*

*"False alerts have a negative impact on search and rescue resources across the U.S. They tie up people and equipment that would otherwise be available to respond to a real distress call..."*

**Ajay Mehta,**

Former SARSAT Program Manager  
National Oceanic and Atmospheric Administration



The COSPAS-SARSAT satellite system is actually a number of different but complementary satellite constellations in orbit around the earth.

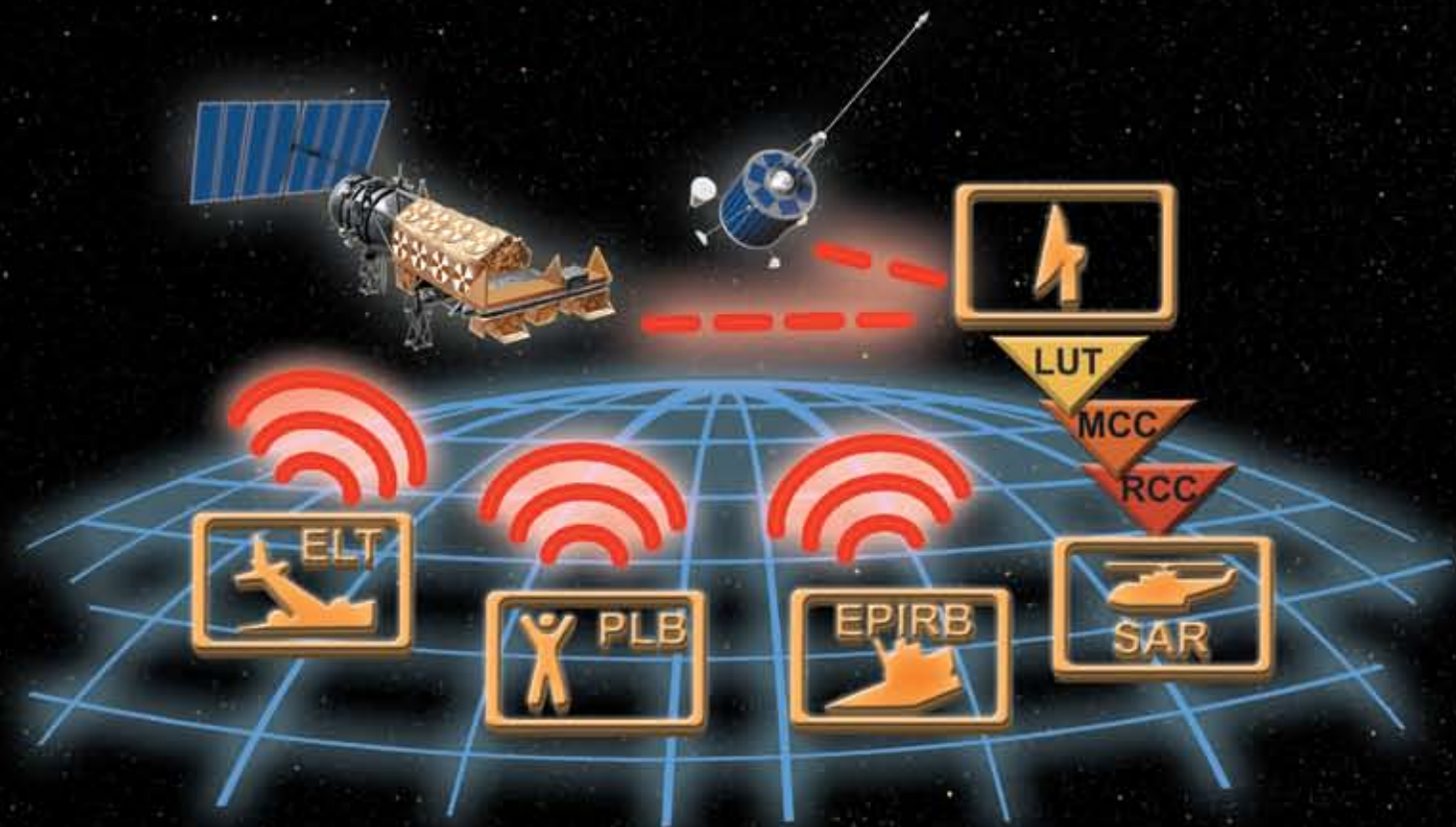
These include both low earth-orbiting and geostationary satellites.

Due to the completeness of the coverage, distress signals can be picked up by the system from just about anywhere on the planet.

### In case of an accidental false alert please call;

For an ELT or PLB: The Air Force Rescue Coordination Center at 1-800-851-3051.

For an EPIRB: Contact the U.S. Coast Guard.



## The circle of life-saving satellites

### The beacons

**COSPAS-SARSAT** beacons are a powerful means of signalling to search and rescue forces that someone is in distress and needs assistance immediately. These emergency beacons are to be used as a last resort when all other means of emergency communications are unsuccessful.

**ELT** (Emergency Locator Transmitters) –for aviation use

**EPIRB** (Emergency Position-Indicating Radio Beacon) –for marine use

**PLB** (Personal Locator Beacon) –for general outdoor use

### The ground system

Once a satellite picks up a distress signal it sends it back to Earth where it is tracked, identified, located and decoded for registration information. RCC personnel use the information to verify that the distress is real and then send out SAR units to conduct the rescue. False alerts tie up SAR resources as they are costly to pursue and put search and rescue crews at possible risk in adverse environments.

**LUT** – (Local User Terminal)

**MCC** – (Mission Control Center)

**RCC** – (Rescue Coordination Center)

**SAR** – (Search and Rescue) units



### The COSPAS-SARSAT satellite system

COSPAS-SARSAT, the international Search and Rescue Satellite-Aided Tracking System, has been providing emergency distress locating information to search and rescue authorities for more than twenty years. Since the system became operational in 1982, over 24,000 people worldwide, including over 6,000 in the United States, have been rescued by this satellite system. SARSAT (the U.S. component to the international system) is operated by NOAA, the National Oceanic and Atmospheric Administration.

COSPAS-SARSAT satellites have the capability to pick up 406 MHz distress signals from anywhere in the world, 24 hrs a day, 7 days a week, in many cases almost instantaneously. A significant delay in SAR response time is the requirement to confirm that the emergency signal is real and not a false alert.

### What are false alerts?

A false alert is defined as the transmission of an emergency distress signal by an activated COSPAS-SARSAT beacon though a distress situation does not actually exist. Statistics show that for every real distress call that comes through the system, seven (7) are false alerts. False alerts can occur through either accidental activation or user error.

### Automatic beacons and accidental activation

Aviation ELTs (Emergency Locator Transmitters) and vessel EPIRBs (Emergency Position-Indicating Radio Beacons) are highly sensitive electronic devices designed to automatically activate and transmit a signal under pre-determined conditions. For ELTs, this occurs when sensors in the beacon detect the shock of a plane crash. EPIRBs, on the other hand, are activated when the beacon is immersed in water as a result of a ship sinking, or tossed overboard by the user during a distress situation.

They can also go off accidentally in non-distress situations. In the case of ELTs, inadvertent activations can be caused by extreme turbulence or hard landings. With EPIRBs, beacons can sometimes be accidentally activated through bracket failure or if washed overboard during heavy seas.

However most accidental activations are the result of user error.

### Common user errors

There are many common user errors that lead to false alerts. These include:

- Shipping a beacon with the battery connected and the beacon armed
- Removing a beacon from its bracket without properly disarming it
- Not following proper test or inspection procedures
- Providing curious passengers with unsupervised access to beacon locations
- Leaving a beacon where children can get at it
- Not reading the beacon's user manual.

Even low or expired batteries, or close contact to magnets can sometimes cause a beacon to accidentally activate.

### Why false alerts affect emergency response time

Many people can become involved when a distress signal is picked up. Rescue Coordination Center personnel track down the signal and the owner of the beacon, trying to determine its validity. Search and rescue teams and assets are dispatched. That could include search aircraft and spotter crews, ground search teams, Coast Guard units and private vessels. In search and rescue the difference between life and death can sometimes be measured in minutes. Tying up these search and rescue resources means that valuable time could be lost if a real distress occurs at the same time in that sector.

Time is not the only thing wasted with a false alert. It is expensive to launch search assets and equipment. In addition, paid personnel are taken off other duties and volunteers leave their jobs and families to participate.

SAR response is also risky. In many instances, crews operate sophisticated equipment at the edge of the envelope in rough environments and unstable weather conditions. Sometimes they go into harm's way to carry out the search, putting their own lives in danger to save someone else. A false alert means the risk was unnecessary.

### Preventing false alerts

Most false alerts can be avoided by using common sense and following manufacturer's installation, use and maintenance guidelines. Be especially careful not to activate the beacon when checking battery strength or doing beacon self-testing.

In addition try to make the following part of your routine. In the case of ELTs, tune your aircraft radio to 121.5 MHz before engine shutdown at the end of each flight and after maintenance had been performed near the beacon in order to listen if the beacon has been accidentally activated.

For EPIRBs, check periodically to make sure the beacon is secure in its mounting and the switch is properly set.

A third type of beacon, the Personal Locator Beacon, or PLB, used primarily for hiking, mountain climbing and other wilderness activities, can only be turned on manually. With PLBs, place the beacon in a part of the backpack with the switch protected so it will not be knocked or jarred accidentally. Ensure that it is turned off before putting it away in a safe, secure place.

### What to do if your beacon is accidentally activated

A 406 MHz beacon will send a complete digital code even if it is only on for less than a minute. It is important that you turn your beacon off then contact authorities immediately if any accidental activation occurs. These authorities include the appropriate Rescue Coordination Center, Coast Guard Station, Air Traffic Control, Flight Service Station, park rangers or police force in that jurisdiction. Inform them that the false alert was transmitted and should be cancelled. Have your beacon's fifteen digit identification (ID) code available (if possible) when you contact them.

### Intentional false alerts

In the U.S. it is a violation to intentionally transmit a false alert. Doing so could result in fines or jail time. Repeated false alerts, although not intentional, could also result in penalties.

### How does registration help?

Each 406 MHz beacon is programmed with a unique fifteen character identification (ID) code. This ID is transmitted as part of the distress signal when a beacon is activated. As long as the beacon has been registered with NOAA, the contact information helps Rescue Coordination Centers quickly confirm that the distress is real, who they are looking for and where they should look. Up to date beacon registration is a vital part of providing a rapid response to distress incidents as well as mandatory by law here in the U.S. Beacons can be registered or information updated by mail, fax or online. There is no charge for registration. See the NOAA website ([www.sarsat.noaa.gov](http://www.sarsat.noaa.gov)) for information on registering your beacon.

### For further information check out the following web sites:

NOAA - SARSAT Program  
[www.sarsat.noaa.gov](http://www.sarsat.noaa.gov)

United States Air Force Rescue Coordination Center  
[www.1af.acc.af.mil/units/afrc](http://www.1af.acc.af.mil/units/afrc)

United States Coast Guard Office of Search and Rescue  
[www.uscg.mil/hq/g-o/g-opr/g-opr.htm](http://www.uscg.mil/hq/g-o/g-opr/g-opr.htm)

NASA Search and Rescue Mission Office  
[www.searchandrescue.gsfc.nasa.gov](http://www.searchandrescue.gsfc.nasa.gov)

International COSPAS-SARSAT Program  
[www.cospas-sarsat.org](http://www.cospas-sarsat.org)

All these sites contain detailed information, links to related sites as well as answers to frequently asked questions (FAQs) on the COSPAS-SARSAT satellite system, emergency distress beacons, and what to do in the event of an emergency. Many beacon manufacturers also provide a wealth of information on their web sites about safe beacon handling and operation.

**Being informed can save lives!**