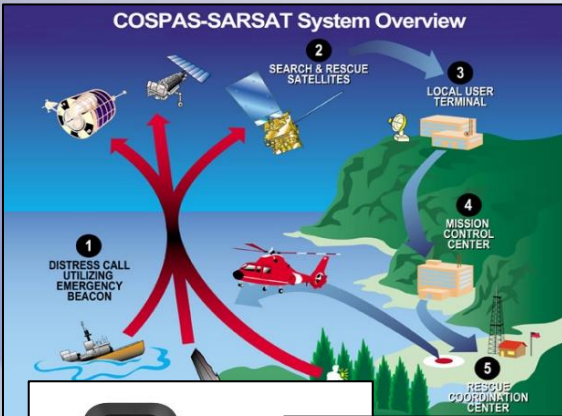
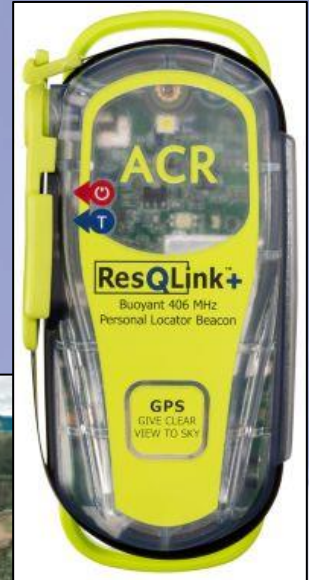


# Emergency GPS Location Devices



Presented at the  
**Soaring Society of America**  
National Convention  
October 26, 2024

Updated: January 14, 2025



# Emergency Location Devices

## Preamble - Why Do We Need Them?

For glider pilots it isn't a matter of if, it is a matter of when, that conditions will require that we land at a place other than our home "gliderport". With gliders this event is simply called a "land out". For airplanes and "engine out" would be a considered an emergency situation. With either gliders or airplanes we both may be attempting to land at an unimproved field which can be a significant distance from assistance. **So, how do we get help?**

Most likely your glider lands-out safely and assistance may well arrive quickly. But there is always the chance that it might not. We might be injured and require emergency care. We might land in an area without cell phone coverage to allow calling for help.

How do we get in touch with help in these situations?

This presentation will be an overview of the multiple types of emergency location devices that can help a pilot to obtain help in an emergency. We will cover the features, costs, and pros/cons of each type of device. Additionally, this presentation will briefly cover bailing out and how to determine what items must attached to you and your parachute.

**Bottom line: We must be prepared**



# Emergency Location Devices

## Glider Land-outs Examples



# Emergency Location Devices

## Glider Land-outs Examples





# Emergency Location Devices

## Glider Land-outs Examples

### Harvest Time



# Emergency Location Devices

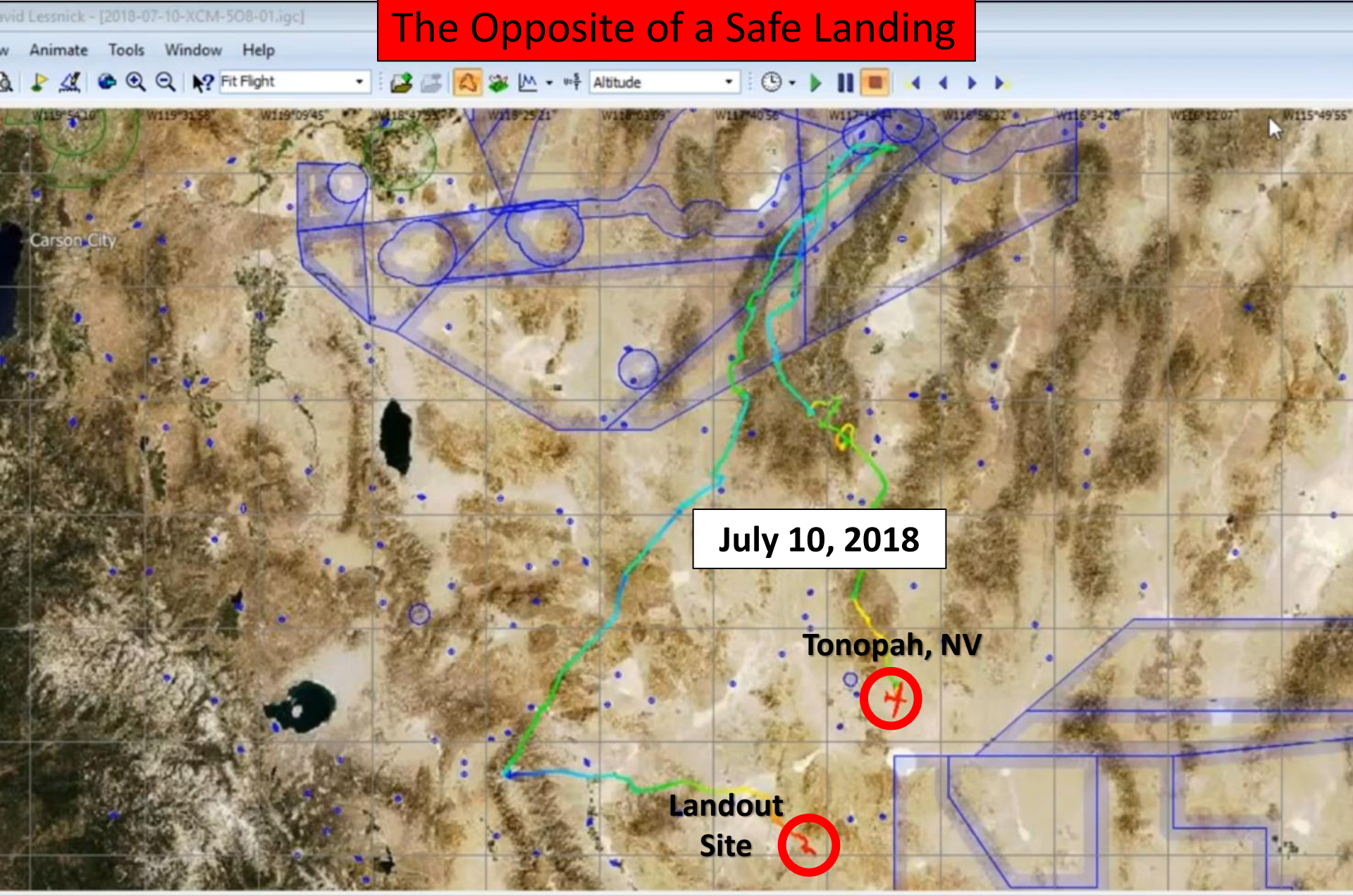
## Glider Land-outs Examples





# Emergency Location Devices

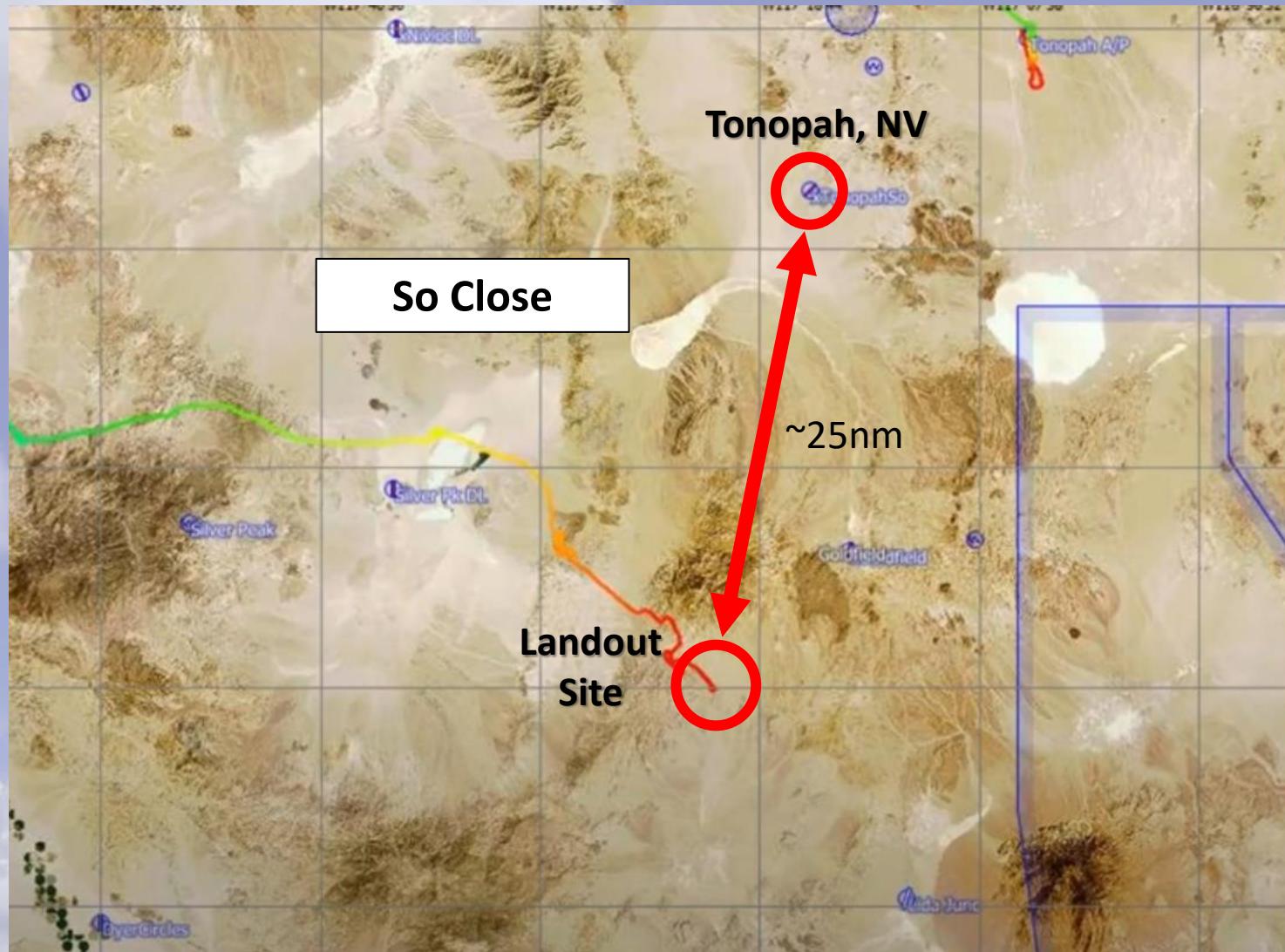
The Opposite of a Safe Landing





# Emergency Location Devices

The Opposite of a Safe Landing





# Emergency Location Devices

The Opposite of a Safe Landing



# Emergency Location Devices

The Opposite of a Safe Landing

**View of the  
Road From  
Ground Level**



# Emergency Location Devices



# Emergency Location Devices

## Glider Landouts – Example

**David Lessnick Information**

**Accident: July 10, 2018**

**Took off from: Tonopah, NV**

**Glider: Shempp Hirth Discus CS**

**Contest ID: 51P**

**N104TH**

***“ONE BAD DECISION that almost KILLED ME & How I Survived It”***

**Video Discussion: <https://tinyurl.com/Lessnick2018-07-10>**

**First responders took 4-1/2 hours to get the crash location  
Then 3 separate ambulance rides to Las Vegas**



# Emergency Location Devices

## Device Types To Be Covered

Emergency Locator Transmitters (ELT) >

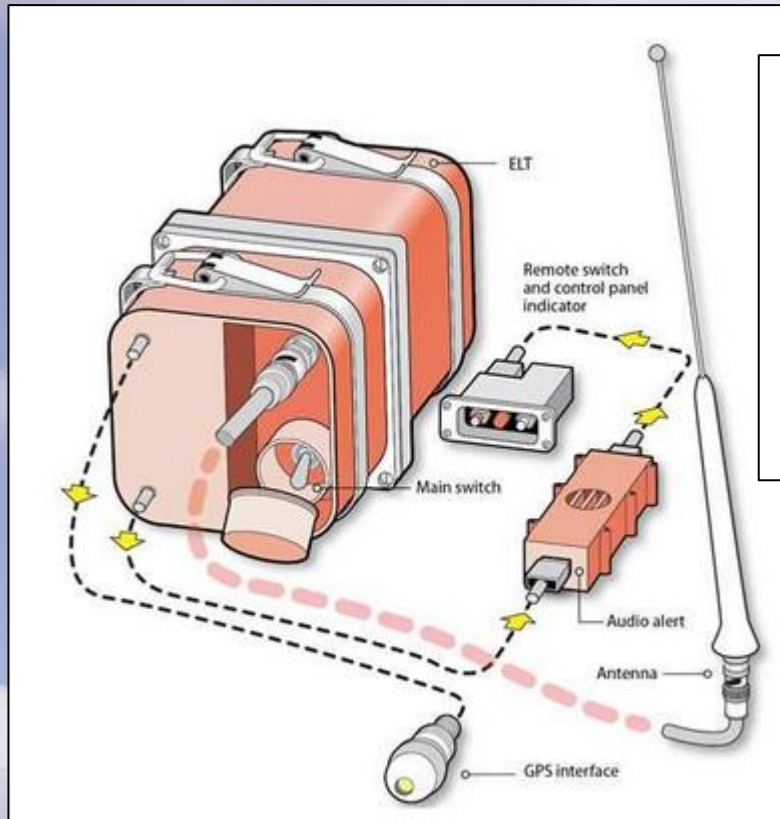


< Personal Locator Beacons (PLB)

*"Personal Satellite Communicators" >*



# Emergency Locator Transmitter (ELT)



Source: <https://www.aopa.org/advocacy/aircraft/aircraft-operations/emergency-locator-transmitters>



# Emergency Location Devices

## Emergency Locator Transmitters (ELT)

- ELTs when triggered – typically by a “crash” – they will broadcast a homing signal on 121.5 Mhz
- Modern ELTs when triggered will also broadcast an alert to orbiting satellites on 406 Mhz with GPS position, on 406 Mhz
- ELTs are required in all US-registered airplanes [91.207] with some exceptions
- As of 1973 ELT 121.5 Mhz (the “guard” channel) are **required** to be monitored by all U.S. civil registered civil aircraft (except as provided in [91.207(e) and (f)])

# Emergency Location Devices

## Emergency Locator Transmitters (ELT)

- **Original ELT Models (1973)**

- In actual crashes an activation accuracy rate of less than 25% and a 97% false-alarm rate
- Transmits homing beacon on 121.5 MHz at **0.2W (200mW)**
- FAA Technical Standard Order TSO-C91
- **High levels of false alarm signals**
- **Sales of these ELTs are prohibited by the FCC beginning in 2019**



- **Updated ELT Models (1985)**

- Improved performance for activation and false-alarm rate
- Transmits homing beacon on 121.5 MHz at **0.2W (200mW)**
- FAA Technical Standard Order TSO-C91a
- **121.5 Mhz COSPAS-SARSAT satellite system monitoring was discontinued in 2009 at least partly due to the high number of false alarm signals.**

- **Advanced ELT Models (1992)**

- Transmits homing beacon on 121.5 MHz at **0.2W (200mW)**  
**and** in current models on 406.0 MHz at **5W with encoded GPS position**
- FAA Technical Standard Order TSO-C126a
- **Monitoring of 406.0 Mhz via **COSPAS-SARSAT** governmental satellite system**

More on the  
SARSAT system  
in a Later Slide

Source: <https://www.aopa.org/advocacy/aircraft/aircraft-operations/emergency-locator-transmitters>



# Emergency Location Devices

## Emergency Locator Transmitters (ELT)

- All **ELTs** must be inspected every **12 calendar months**.
- **Testing;**
  - **Analog 121.5Mhz ELTs** must only be tested within the **first five minutes after the hour**, and you may transmit no more than three audible sweeps.
  - **Digital 406Mhz ELTs** must **only be tested in accordance with the manufacturer's instructions**.
  - Airborne tests are **never** authorized for any ELT.
- **Transmissions;**
  - All models transmit a homing beacon on 121.5 MHz.
  - Current models also transmit on 406 Mhz with encoded GPS location information.
- **Batteries** - Must be replaced after one hour of cumulative use or when 50 percent of their usable life has expired. Expiration date for replacing (or recharging) the battery must be legibly marked on the outside of the transmitter and entered into the aircraft maintenance record.

# Personal Locator Beacons (PLB)





# Emergency Location Devices

## Personal Locator Beacons (PLB)



ACR ResQLink View  
\$485



McMurdo FastFind 220  
\$330



RescueMe PLB 1  
\$370

Prices are MSRP as of October 26, 2024

# Emergency Location Devices

## Personal Locator Beacons (PLB)

- **Description** - A PLB is a portable battery powered radio transmitter used in emergencies to locate airplanes, vessels, and persons in distress and in need of immediate rescue.
- Also referred to as “EPIRB” (Emergency Position-Indicating Radio Beacon)
- Utilizes the governmental **COSPAS-SARSAT** satellite system to alert rescue services
- Global Positioning System (GPS) based accurate to 100 meters or less [← More about SARSAT in a Later Slide](#)
- Transmits on 406 MHz at 5W
  - Transmit only. Receive capable only on latest ACR model
- 121.5Mhz Homing beacon
- Subscription Service: None required
- Must re-register every 2 years with NOAA (National Oceanic and Atmospheric Administration) – A Free Service



ACR ResQLink View





# Emergency Location Devices

## Acratex ACR Personal Locator Beacons

- ACR ResQLink View (as shown at right)
  - <https://www.acrartex.com/t/categories/aviation>
  - Cost: Approximately \$290-\$350
  - Subscription Fees: **None**
  - Homing beacon on 121.5
  - Size: 4.52" x 2.03" x 1.49"
  - Weight: 0.33 lbs
  - Water Resistance: Buoyant and Waterproof to 5m for 1 hour
  - Strobes – Both Visible and Infrared
  - Emergency Response Center: SARSAT [← More on SARSAT in a Later Slide](#)
  - NASA GEO and LEO (Geostationary & Low Earth Orbit)
  - Confirmation digital display
  - Battery: Internal 5 Year Lithium battery life with 28 hour operational life
  - External power input: **None**
  - Text Messaging: Maybe? [← See on later slides about "406Link"](#)
  - Real Time Tracking: **None**



ACR ResQLink View



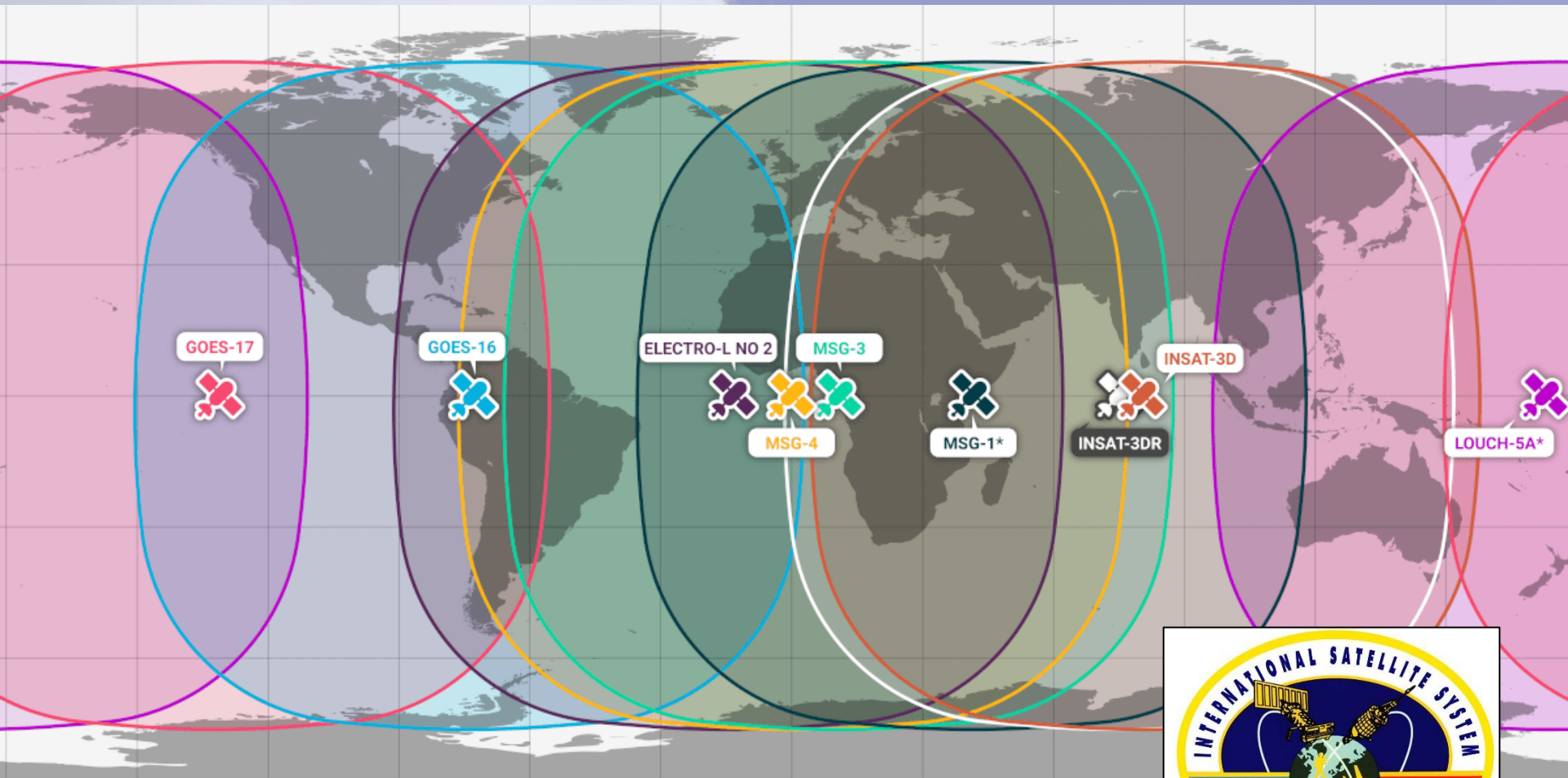
# Emergency Location Devices

## Acratex ACR ResQlink View





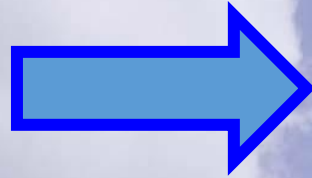
# Personal Locator Beacons (PLB) SARSAT GEOSAR Satellite Coverage



WORLDWIDE GEOSAR SATELLITE COVERAGE



# Personal Locator Beacons (PLB) Return Link Service (RLS)

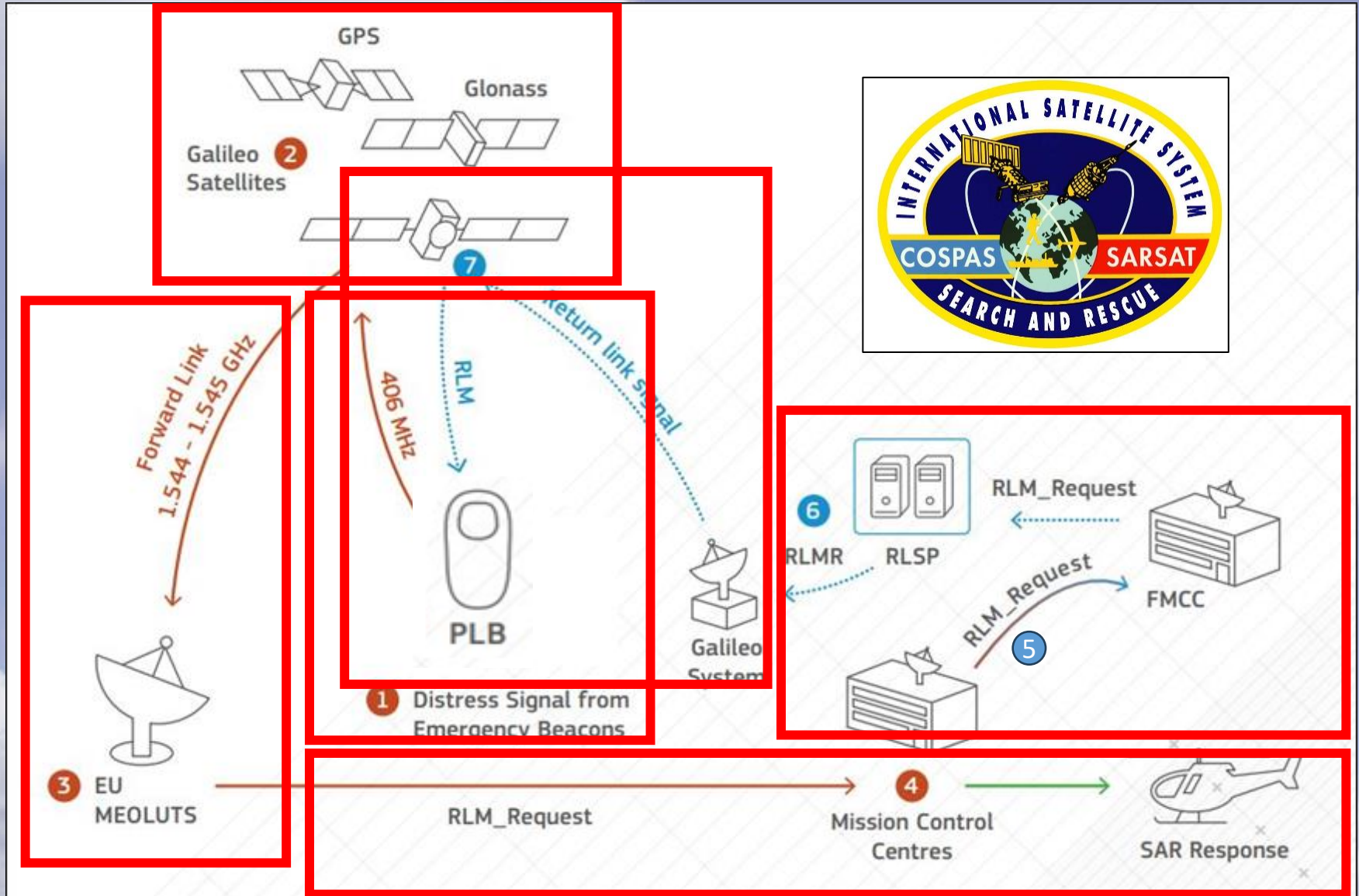


**Return Link Service (RLS)** provides a confirmation message from Search and Rescue back to the beacon to let the survivors know their distress message was received.

The new **MEOSAR satellite system** provides the framework along with the Galileo Global Navigation Satellite System (GNSS) for EPIRBs, PLBs, and EPIRBs to utilize this new system



# Personal Locator Beacons (PLB) Return Link Services (RLS) Steps 1-7



# Personal Satellite Communicators





# Personal Satellite Communicators

Not Covered in this presentation

## Covered in this presentation



**Garmin InReach Mini 2**  
**\$400**



**SPOT Gen 4**  
**\$150**



**SPOT X**  
**\$250**



**Garmin InReach SE+**  
**\$600**

Not Shown to Scale

# Personal Satellite Communicators

## Relative Size Comparison - PLBs and Trackers

Personal Locator Beacons (PLB)

Personal Satellite Communicators



ACR AquaLink

ResQLink View

RescueMe PLB1

SPOT Gen 3

InReach Mini



# Personal Satellite Messengers

**Garmin InReach Messenger Plus**  
**“Satellite Communicators”**  
**\$500**



**SPOT Trace**  
**“Satellite Tracking Devices”**  
**\$130**



**Not Covered in this presentation**

Prices are MSRP as of Oct 26, 2024

# Emergency Location Devices

## Personal Satellite Communicators

- **Description** - A “Personal GPS tracker” is classified as an emergency GPS locator device with **both transmit and receive capabilities**. It is a portable battery powered radio transmitter receiver used in emergencies to locate airplanes, vessels, and persons in distress and in need of immediate rescue and to provide tracking capability.
- **Satellite Systems (non-governmental)**
  - **Iridium System** - Garmin InReach, Somewear, Bivy & others
  - **Globalstar System** – SPOT
- GPS based which is accurate to 100 meters or less
- Utilizes the non-governmental **GEOS** organization to alert and communicates with rescue services
- Cost: See Following Slides
- Specifications: See Following Slides
- Pros/Cons: See Following Slides
- Subscription Service Contract: Required. See the following slides.

← More about these in Later Slides

← More about GEOS in Later Slides







**SPOT Gen 4**  
**\$150**



**SPOT X**  
**\$250**



Shown Approximately to Scale

Prices are MSRP as of Oct 26, 2024

# Personal Satellite Communicators

## SPOT Gen 4 - Specifications



- Cost: \$150 MSRP as of Oct 26, 2024
- Size: 3.48" x 2.56" x 0.93"
- Transmit: <1W
- Subscription Fees: See Following Slide
- Weight: 5.0 oz
- 121.5Mhz Homing beacon: **None**
- Water Resistance: Submersible up to 1m for 30 minutes
- Tracking: 5, 10, 30 or 60 min selectable (2.5 min at additional recurring cost)
- Strobe and/or Infrared Strobe: **None**
- Satellite System: GlobalStar
- Emergency Response Center:
  - GEOS services [← More on the GEOS system in later slides](#)
- Battery Life: 4 AAA lithium cells > Sends 1,250 Check In and Custom Messages
- Text Messaging: **Yes (only pre-configured messages)**
- External Power Charging: **None**
- Bluetooth Pairing: **None**





# Personal Satellite Communicators

## SPOT Gen 4 - Service Plans

<b>BASIC</b>
<b>\$11<sup>.95</sup></b> /MO. <small>12 Month Term Applies</small>
<b>SOS</b> <small>UNLIMITED</small>
<b>HELP</b> <small>UNLIMITED</small>
<b>CHECK IN</b> <small>UNLIMITED</small>
<b>CUSTOM MESSAGES</b> <small>UNLIMITED</small>
<b>BASIC TRACKING</b> <small>5, 10, 30 or 60 minutes</small>
<b>EXTREME TRACKING</b> <small>Additional Charge 2½ mins \$4.95/mo</small>
<b>ACTIVATION FEE: \$29.95</b>

<b>FLEX BASIC</b>
<b>\$14<sup>.95</sup></b> /MO. <small>1 Month Minimum Term Applies</small>
<b>SOS</b> <small>UNLIMITED</small>
<b>HELP</b> <small>UNLIMITED</small>
<b>CHECK IN</b> <small>UNLIMITED</small>
<b>CUSTOM MESSAGES</b> <small>UNLIMITED</small>
<b>BASIC TRACKING</b> <small>5, 10, 30 or 60 minutes</small>
<b>EXTREME TRACKING</b> <small>Additional Charge 2½ mins \$6.25/mo</small>
<b>ACTIVATION FEE: \$29.95</b> <b>FLEX CHARGE: \$34.95*</b>

Comparison  
tables of all  
Emergency  
Location  
Devices is  
shown in a  
later set of  
slides

As of October 26, 2024 - <https://www.findmespot.com/en-us/products-services/spot-gen4#service-plans>

# Personal Satellite Communicators

## SPOT X - Specifications



- Cost: \$250 MSRP as of Oct 26, 2024
- Fee Subscription Services: See Following Slide
- Size: 6.54" x 2.9" x 0.94"
- Weight: 7.0 oz with lithium batteries
- Transmit: >1W
- Water Resistance: Submersible up to 1m for 30 minutes
- 121.5Mhz Homing beacon: **None**
- Real Time Tracking: 10, 30 or 60 min selectable (2.5 min or 5 min at additional recurring cost)
- Satellite System: Global Star
- Emergency Response Center:

GEOS services [← More on the GEOS system in later slides](#)

- Strobe and/or Infrared Strobe: **None**
- Battery: Internal for 240 hours (10 days) of battery life in continuous 10 minute tracking mode
- Text Messaging: **Yes**
- External Power Charging: **Micro USB**
- Pairing: **Bluetooth**





# Personal Satellite Communicators

## SPOT Gen X - Service Plans

### BASIC

**\$11<sup>.95</sup>**  
/MO.

12 Month Term Applies

#### 20 CUSTOM MESSAGES

Overages: 25¢ per msg

#### SOS

UNLIMITED

#### CHECK IN MESSAGES

UNLIMITED

#### PREDEFINED MESSAGES

UNLIMITED

#### TRACKING

10, 30, 60 minutes

Tracking will have to be reset after 24-hours.

#### MOVEMENT ALERT

Not Included

**ACTIVATION FEE: \$29.95**

### ADVANCED

**\$19<sup>.95</sup>**  
/MO.

12 Month Term Applies

#### 100 CUSTOM MESSAGES

Overages: 25¢ per msg

#### SOS

UNLIMITED

#### CHECK IN MESSAGES

UNLIMITED

#### PREDEFINED MESSAGES

UNLIMITED

#### TRACKING

5, 10, 30, 60 minutes

#### MOVEMENT ALERT

30 min, 60 min, 4 hr, 12 hr

**ACTIVATION FEE: \$29.95**

### UNLIMITED

**\$29<sup>.95</sup>**  
/MO.

12 Month Term Applies

#### CUSTOM MESSAGES

UNLIMITED

#### SOS

UNLIMITED

#### CHECK IN MESSAGES

UNLIMITED

#### PREDEFINED MESSAGES

UNLIMITED

#### TRACKING

2.5, 5, 10, 30, 60 minutes

#### MOVEMENT ALERT

30 min, 60 min, 4 hr, 12 hr

**ACTIVATION FEE: \$29.95**

Tables of comparisons with other Emergency Location Devices is shown in a later set of slides

As of October 26, 2024 - <https://www.findmespot.com/en-us/products-services/service-plans#spot-x-plans>

# Garmin InReach





# Personal Satellite Communicators

## Garmin InReach Mini 2 - Specifications



- Cost: \$400 MSRP as of Oct 26, 2024
- Subscription Fees: See Following Slide
- Size: 2.04" x 3.90" x 1.03"
- Weight: 3.5 oz
- Transmit: >1W
- Homing beacon: **None**
- Water Resistance: Submerged in 1 meter of water for 30 minutes
- Real Time Tracking: 2 or 10 min depending on model
- Satellite System: Iridium
- Emergency Response Center:  
GEOS System [← More on the GEOS system in later slides](#)
- Strobe and/or Infrared Strobe: **None**
- Battery Life: Internal Lithium - Up to 14 days at 10-minute tracking send interval with standard activity
- Text Messaging: **Yes**
- External Power Charging: **Yes, USB-C**
- Pairing: **Bluetooth**

# Garmin InReach Mini – SOS Triggering



## TRIGGERING AND CANCELING AN SOS

You can trigger an SOS on your inReach device, Earthmate® app, Garmin Explore app or a paired compatible device.

### Triggering an SOS on an inReach device:

1. Press and hold the SOS Button
2. Wait for the SOS countdown
3. Message with GEOS if possible
  - If you are unable to respond, GEOS will still initiate a rescue response
4. Select **Cancel SOS** if help is no longer needed

*Detailed slides of triggering and canceling an SOS on select inReach devices, apps, and paired devices are included at the end of this presentation.*

### INITIATING SOS



### SOS in Progress

**I have an emergency,  
and I need you to  
send help.**

**I have an  
emergency, and I ..**

**Rescue on the way.  
ETA 2 hrs.**

**Reply**



# Personal Satellite Communicators



## Service Plans

Tables of  
comparisons with  
other Emergency  
Location Devices is  
shown in a later  
set of slides

### • **Consumer Plans**

Used by Author

- Essential - \$14.99 per month
- Standard - \$29.99 per month
- Premium - \$49.99 per month

### • **Pro Plans**

- Basic - \$19.99 per month
- Advanced - \$34.99 per month
- Premier - \$54.99 per month

### • **Flex Team Plans**

- Team - \$99.99 per month
- Team Plus - \$174.99 per month
- Team Max - \$249.99 per month

As of Oct 26, 2024 <https://www.garmin.com/en-US/p/837461/pn/010-04015-SU>

# Personal Satellite Communicator

## Garmin InReach Service Plan Details

# Consumer

Used by Author

	ESSENTIAL	STANDARD	PREMIUM
<u>Emergency SOS messaging</u>	Included	Included	Included
<u>Check-in messages/Reactions</u>	Unlimited	Unlimited	Unlimited
<u>Text messages/Weather requests</u>	50 total	150 total	Unlimited
<u>Photo and voice messages<sup>2</sup></u>	10 total	25 total	50 total
<u>Live tracking/Location requests</u>	\$0.10 ea (10 min+ interval)	Unlimited (10 min+ interval)	Unlimited (2 min+ interval)
		<b>ADDITIONAL CHARGES</b>	
Activation fee	\$39.99	\$39.99	\$39.99
		<b>OVERAGE CHARGES</b>	
Text messages/Weather requests	\$0.50 ea	\$0.50 ea	N/A
Photo and voice messages	\$1 ea	\$1 ea	\$1 ea

As of Oct 26, 2024 <https://www.garmin.com/en-US/p/837461/pn/010-04015-SU>

# Personal Satellite Communicator

## Garmin InReach Service Plan Details

**PRO**

	PRO BASIC	PRO ADVANCED	PRO PREMIER
<u>Emergency SOS messaging</u>	Included	Included	included
<u>Check-in messages/Reactions</u>	Unlimited	Unlimited	Unlimited
<u>Text messages/Weather requests</u>	50	150	Unlimited
<u>Photo and voice messages<sup>2</sup></u>	10	25	50
<u>Live tracking/Location requests</u>	\$0.10 ea (10 min+ interval)	Unlimited (10 min+ interval)	Unlimited (2 min+ interval)
		<b>ADDITIONAL CHARGES</b>	
Activation fee	\$39.99	\$39.99	\$39.99
		<b>OVERAGE CHARGES</b>	
Text messages/Weather requests	\$0.50 ea	\$0.50 ea	N/A
Photo and voice messages	\$1 ea	\$1 ea	\$1 ea
Suspend fee	\$4.99	\$4.99	\$4.99

As of Oct 26, 2024 <https://www.garmin.com/en-US/p/837461/pn/010-04015-SU>



# Personal Satellite Communicator

## Garmin InReach Service Plan Details

# TEAM

	FLEX TEAM	FLEX TEAM PLUS	FLEX TEAM MAX
Team Tracking Intervals	2-4 minutes	1-2 minutes	30 seconds to 1 minute
Unlimited Team Tracking	✓	✓	✓
Unlimited SOS	✓	✓	✓
Unlimited Text Messages	✓	✓	✓
Unlimited Check-in Messages	✓	✓	✓
ADDITIONAL PLAN COSTS			
Activation Fee	\$34.95	\$34.95	\$34.95
Suspend Fee	\$5.00	\$5.00	\$5.00

As of Oct 26, 2024 <https://www.garmin.com/en-US/p/837461/pn/010-04015-SU>

# Worldwide Emergency Response Centers

## Personal Locator Beacons



## Satellite Communicators

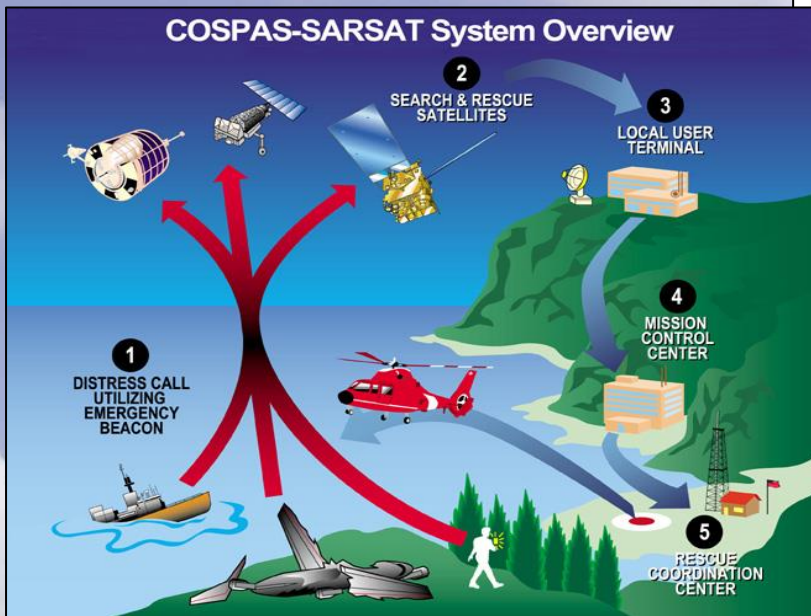
**GEOS**   
worldwide



# COSPAS-SARSAT

## Emergency Response Center

Used by  
Personal Locator Beacons  
and ELTs





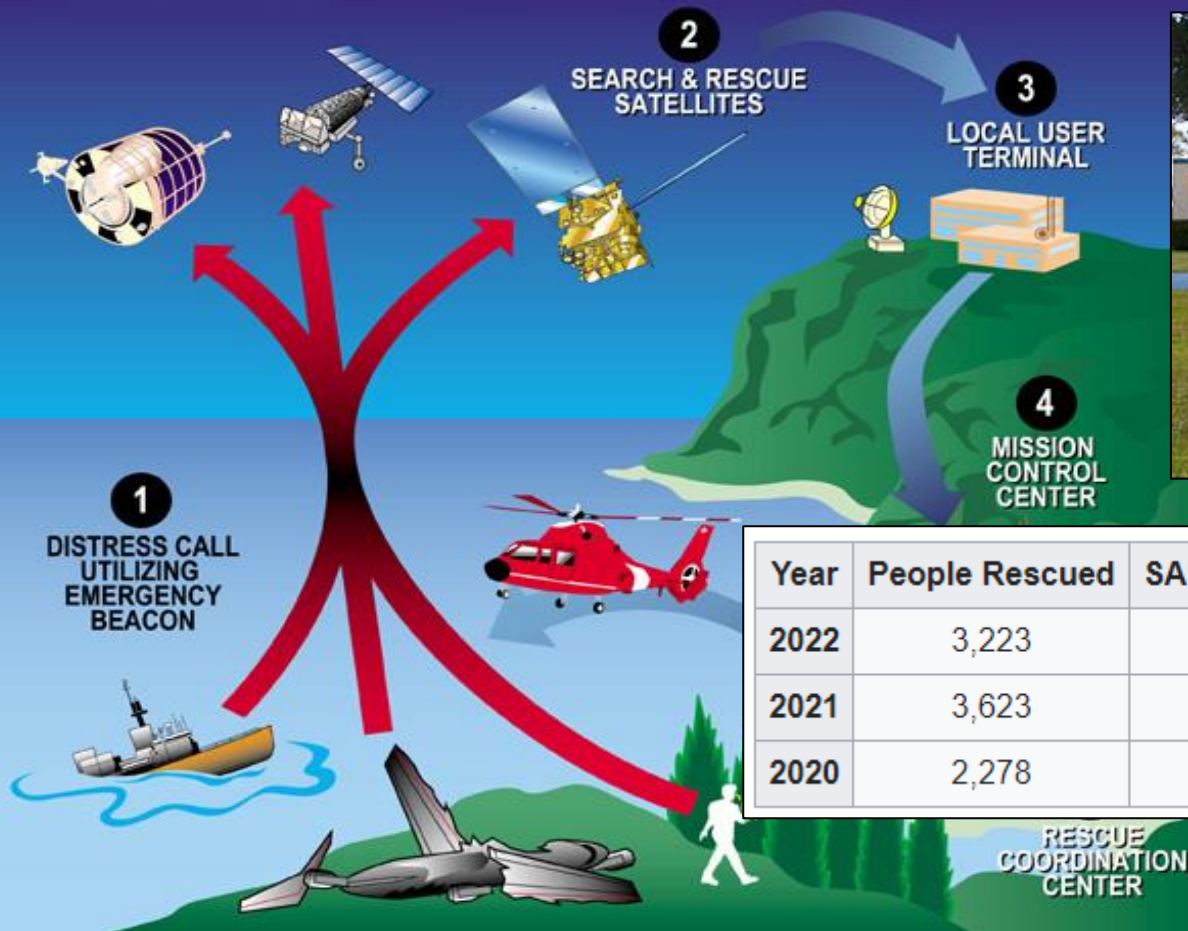
# COSPAS-SARSAT Overview

Used by all PLBs and the latest models of ELTs

- Created in 1982 by US, UK, Canada and USSR
- COSPAS-SARSAT stands for;  
Cosmicheskaya Sistyema Poiska Avarynich Sudov  
Search And Rescue Satellite Aided Tracking
- Network of **54 satellites** that provide coverage everywhere on Earth both Geosynchronous and Low Earth Orbit for enhanced coverage
- Distress alerts are detected, located and forwarded to governmental organizations in **43 countries and territories** at no cost to beacon owners or the receiving government  
Dedicated to detecting and locating radio beacons activated and forwarding this alert information to authorities that take rescue action.
- Device distress beacon is a digital 406-MHz radio transmission encoding the GPS location of the subject.
- Must re-register every 2 years with (NOAA) National Oceanic and Atmospheric Administration at no cost.

<https://www.sarsat.noaa.gov/background.html>  
<https://www.icao.int/Meetings/GTM/Documents/COSPAS-SARSAT.pdf>

# COSPAS-SARSAT System Overview



Year	People Rescued	SAR Events →	Aviation	Land	Maritime
2022	3,223	1,144	20%	39%	41%
2021	3,623	1,149	18%	45%	37%
2020	2,278	951	23%	37%	40%





# United States SARSAT Mission Control Center (USMCC) in Suitland, MD





# SARSAT

## Anatomy of a Rescue

<https://www.acrartex.com>



## Anatomy Of A Rescue

### HOW THE BEACON WORKS

#### How your beacon summons help

406 MHz beacons are a type of portable emergency equipment that transmits a distress signal to search and rescue (SAR) organizations. The purpose of these beacons is to aid SAR teams in tracking and locating ships or individuals in jeopardy as rapidly as possible.

The 406 MHz frequency is a worldwide dedicated emergency frequency that is detected by a network of satellites called the Cospas-Sarsat system. This satellite system was established by, and continues to be supported by, its primary benefactors - the USA, Russia, Canada and France. The Cospas-Sarsat system has saved over 30,500 lives - and counting - since its inception. To learn more about the system visit [www.cospas-sarsat.org](http://www.cospas-sarsat.org).

When a 406 MHz beacon is activated, the digital distress message is sent to Cospas-Sarsat satellites and, in turn, the distress message is relayed to SAR forces. The distress message contains the beacon UIN and on some models the GPS location of the beacon. Additional information about the beacon is accessed by SAR forces from the beacon registration database. At the same time the 406 MHz signal is activated, a 121.5 MHz signal is turned on. The 121.5 MHz signal is used by SAR forces to home in on the beacon as they approach it.

The 406 MHz signal is detected by multiple satellites and from that information the location of the beacon can be calculated. This data alone is sufficient for SAR to find persons or ships in distress in a reasonable timeframe. However, as a further enhancement, some beacons have a GPS engine onboard. This feature allows the beacon to acquire current location coordinates from an internal GPS receiver. The purpose of this feature is to send an even more precise location of the beacon to the satellites, i.e., latitude and longitude data. This helps SAR to reach the location even faster.

# SARSAT Satellite Coverage

<https://www.sarsat.noaa.gov/usmcc.html>

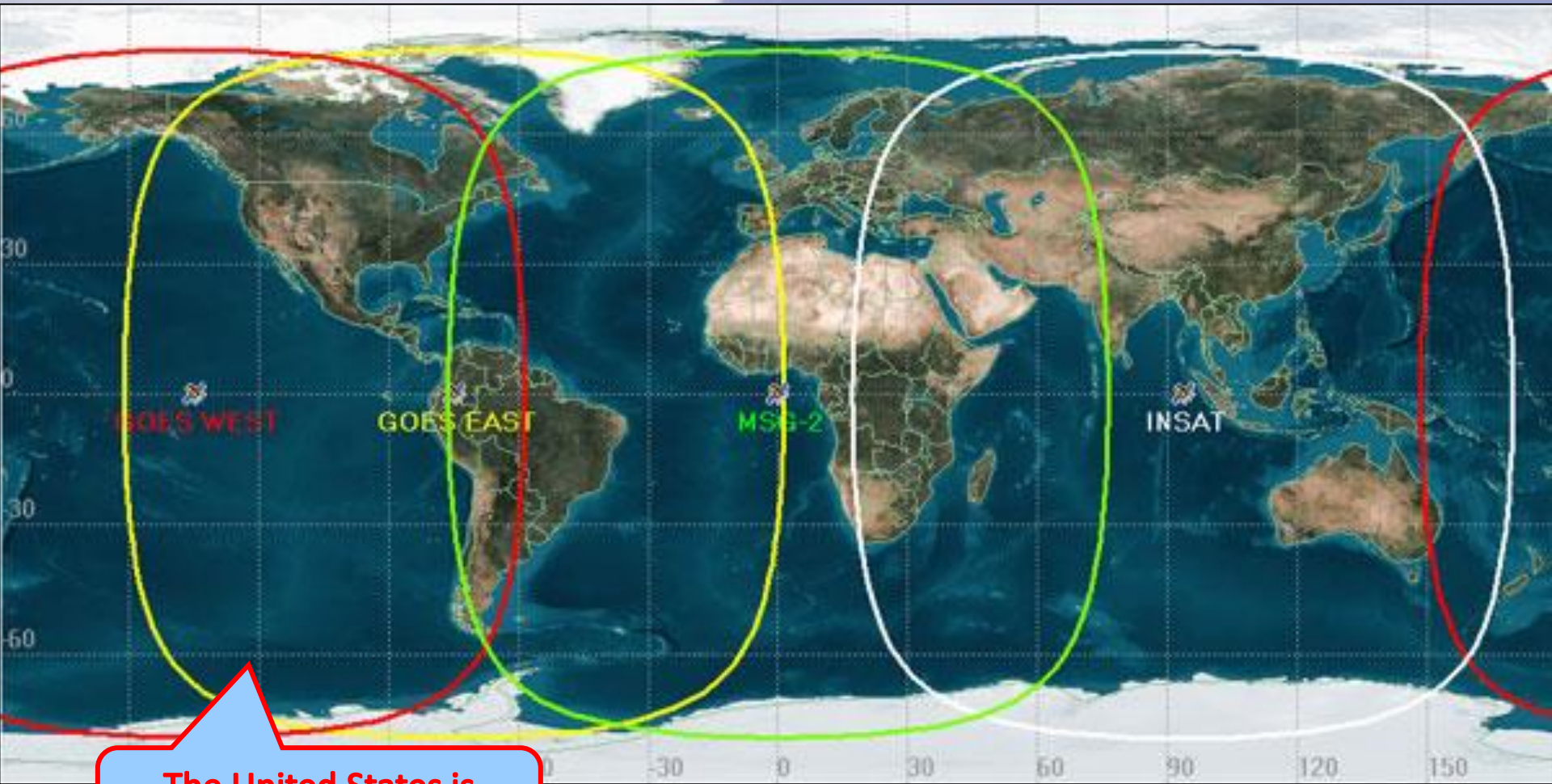
The United States Mission Control Center (USMCC) serves as the focal point of U.S. Cospas-Sarsat alert data. The USMCC matches beacon signals to identify those coming from the same source and merges them to improve position accuracy. Registration information is then appended to the 406 MHz beacon distress alerts that are registered in the U.S. The location of the alert is geographically sorted and the data is distributed to the appropriate recipient (Rescue Coordination Center (RCC), foreign SPOC or other MCC).

The USMCC is operated by the National Oceanic and Atmospheric Administration (NOAA) and co-located with NOAA's Satellite Operations Control Center (SOCC) at NOAA's Satellite Operations Facility (NSOF). The operation is manned 24 hours a day, 365 days a year. However, the vast majority of alert data distribution is handled automatically. The USMCC is administered by the Direct Services Branch of NOAA which also represents U.S. interests in international Cospas-Sarsat meetings.



# SARSAT Satellite Coverage

## For 406Mhz Use



**The United States is  
Covered by GOES WEST**



# SARSAT Satellite Coverage

## For 406Mhz Use



# SARSAT Emergency Response Centers

Overall - <https://www.sarsat.noaa.gov/rcc.html>

Land Based - <https://www.1af.acc.af.mil/units/afrcc>

Maritime - <https://www.uscg.mil>

If you have **accidentally activated your beacon** but do not need assistance, please contact the appropriate RCC right now (24x7 - day or night) to cancel the search efforts.

- **For ELTs and PLBs, contact the Air Force RCC at 1-800-851-3051**
- **For EPIRBs, contact the U.S. Coast Guard at 1-855-406-USCG (8724)**

# GEOS Emergency Response Center

## Personal Satellite Messengers





# Personal Satellite Communicators

## GEOS Worldwide Response Center



<https://www.geosworldwide.com/>

### Wherever you are, GEOS is there for you!

GEOS has been the leading provider of premier and innovative travel safety and security services, and monitored services since 2004. GEOS was originally Travel Safety Group, Ltd. and was the first company to incorporate technology with travel safety and security. GEOS has continued this mission by adding the GEOS International Emergency Response Coordination Center (IERCC) in 2007. GEOS continues to deliver best-in-class services to our clients and members, who choose GEOS for the value and the global reach that only GEOS can offer. Each year, GEOS introduces new emergency alerting technology through our partnerships, bringing to you the solutions that best fit your needs, wherever you are in the world.

The IERCC based just outside of Houston, Texas, has your back 24x7 and is backed by regional crisis management cells around the globe. GEOS has operated and coordinated rescues in over 160 countries, providing people with valuable peace of mind. GEOS continues to be a critical participant in global response protocols, and works very closely with official response agencies to better serve you!

#### **GEOS GLOBAL EMERGENCY OPERATIONS**

**+1.936.582.3190 EMERGENCY OPERATIONS (IERCC)**

**+1.855.444.2937 EMERGENCY OPERATIONS (IERCC)**

# Personal Satellite Communication

## Spot and GEOS



**GEOS**   
worldwide

### GEOS MEMBER BENEFITS

GEOS provides the SOS/911 monitoring included in your Basic Service. You can upgrade to the GEOS Member Benefit for reimbursement of up to \$100K in Search and Rescue (SAR) expenses – even coordinating a private SAR contractor if needed to get you to safety.

*Learn more about [GEOS group pricing](#).*

**GEOS** 

#### Compatible Products:

SPOT X  
SPOT Gen3  
SPOT Satellite GPS Messenger  
SPOT Personal Tracker  
SPOT Hug  
SPOT Connect

*Price varies by product. Select product to see price.*

<https://www.findmespot.com/en-us/products-services/additional-services/all-devices>

# Personal Satellite Communication

## Garmin and GEOS



### GEOS SOS Coverage



If you encounter an at-risk situation in a remote location or offshore, and inReach quickly becomes the most valuable tool in your survival kit. It provides global, interactive SOS capabilities — and that means you're able to trigger a distress signal, receive delivery confirmation that help is on the way, and maintain a 2-way text conversation with the GEOS emergency monitoring center. GEOS is standing by 24/7 to assist with your emergency, track your location and notify the most appropriate emergency response for your unique situation. Whenever, wherever — the GEOS team will stay in communication with you until your situation is resolved.

GEOS is the world leader in emergency response solutions and monitoring. They have supported rescues in more than 140 countries, saving many lives in the process. Check out our [blog](#) to see how some of our customers have relied on their inReach and GEOS to save the day.

**Note:** In the event that you have triggered a SOS for any reason, and you have follow-up questions or concerns, contact [GEOS](#) directly.

<https://support.garmin.com>



# Personal Satellite Communicators

## GEOS Response Center

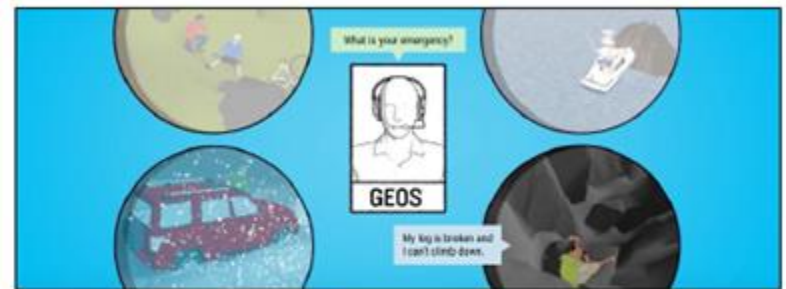
### SOS PROCESS AND RESPONSE



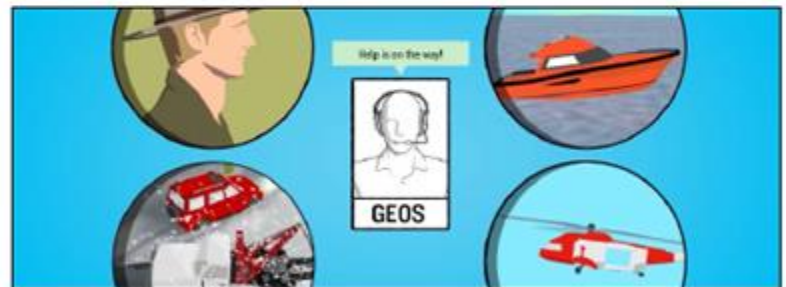
When a user triggers an SOS, a message and device location are sent to GEOS, GEOS can also view emergency contacts and notes



As GEOS is confirming the SOS, they are also reaching out to emergency responders in the area



Within minutes, GEOS responds and, if possible, the user responds with additional information



GEOS will update the user on the response and may ask the user to reach out to a point-of-contact at the responding emergency organization

Continued on the Next Slide

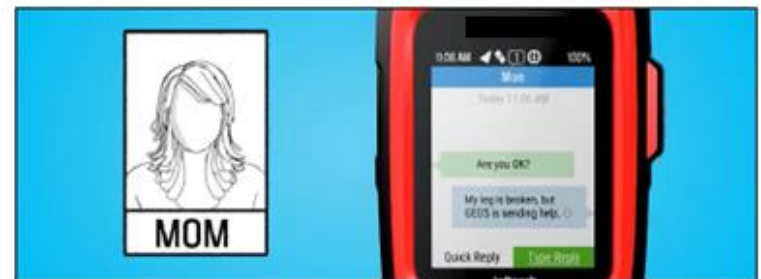
# Personal Satellite Communicators

## GEOS Worldwide Response Center

### SOS PROCESS AND RESPONSE



While notifying emergency responders, GEOS will also begin contacting a user's emergency contacts



The inReach user can communicate directly with friends, family and others about their situation



GEOS stays in contact with the user, rescue organization and emergency contacts until the SOS is resolved or cancelled



Once the situation is resolved or the user cancels the SOS, GEOS will close the incident and complete a brief report



# Emergency Location Devices

## The Bottom Line - Who Responds to Your Emergency?

- Personal Location Beacons (PLB) & ELTs – SARSAT (Governmental)
  - *“The SARSAT system uses NOAA satellites in low-earth and geostationary orbits ... to detect and locate aviators, mariners, and land-based users in distress. The satellites relay distress signals from emergency beacons to a network of ground stations and ultimately to the U.S. Mission Control Center (USMCC) in Suitland, Maryland. The USMCC processes the distress signal and alerts the appropriate search and rescue authorities to who is in distress and where they are located.”*
- Personal Satellite Communicators – GEOS (Commercial)
  - *“The GEOS International Emergency Response Coordination Center provides the S.O.S./911 monitoring included in your Basic Service.”*
    - *“**SPOT** Gen4 lets family and friends know you're okay, or if the worst should happen, sends emergency responders to your GPS location.”*
    - *“**Garmin** InReach devices feature a dedicated SOS button that notifies GEOS, a professional 24/7 global emergency monitoring and response coordination center, upon activation. Their trained staff is available to respond to your messages, track your device and notify emergency responders in your area”*



# Comparisons & Conclusions

	is/are	do/does/did	can	would	will	might/could
What						
Who						
Where						
When						

Specification	ACR PLB	SPOT Gen 4	SPOT X	InReach Mini 2
Size	4.52" x 2.03" x 1.49"	3.43" x 2.56" x 1"	6.54" x 2.9" x 0.94"	3.90" x 2.04" x 1.03"
Weight	5.28 oz (with Internal Battery)	4.0 oz (with AAA Lithium Batteries)	7.0 oz (with Internal Battery)	3.5 oz (with Internal Battery)
Water Resistance	Waterproof to 5 meters for 1 hour + Buoyant	Submersible up to 1m for 30 minutes	Submersible up to 1m for 30 minutes	Submersible up to 1m for 30 minutes
Strobe	Yes (Visible and IR)	No	No	No
Battery Type	5 year Life Internal Lithium Non-rechargeable	4x AAA Lithium or NIMH	Internal Rechargeable Lithium Polymer	Internal Rechargeable Lithium
External Data and Power Input	None	Micro-USB (Data only)	Micro-USB (Charging and Data)	USB-C (Charging and Data)
Homing Beacon	Yes	None	None	None
Pairing	None	None	Bluetooth	Bluetooth
Messaging	RLS (Receive Conf)	Yes (Custom Msg only)	Yes	Yes
Tracking	None	Yes	Yes	Yes
Transmit Power	5 Watts	>1 Watt	>1 Watt	>1 Watt
Subscription Required?	None Required	Required (See Costs on Next Slide)	Required (See Costs on Next Slide)	Required (See Costs on Next Slide)
Battery Life	Internal 5 Year Lithium battery life with 28 hour operational life	120 hours during continuous 5 minute tracking mode	240 hours during continuous 10 minute tracking mode	Up to 35 hr during 10-minute tracking send interval and 1-second log interval
Satellite System	COSPAS - SARSAT (GEO and LEO)	GlobalStar (LEO)	GlobalStar (LEO)	Iridium (LEO)

# Emergency Location Devices

## Messaging & Tracking Capabilities

Specification	ACR PLB	SPOT Gen 4	SPOT X	InReach Mini 2
Text Messaging (Send)	None	Three preset messages (OK, Help, and SOS) and one Custom message	20 to unlimited custom messages depending on service plan	20 to unlimited custom messages depending on service plan
Text Messaging (Receive)	None	None	Yes	Yes
Confirmation Message	Yes, but only if the model has RLS	Yes	Yes	Yes
Real Time Tracking	None	5, 10, 30 or 60 min selectable (2.5 min at additional recurring cost)	10, 30 or 60 min selectable (2.5 min or 5 min at additional recurring cost)	2 or 10 min depending on model



# Emergency Location Devices

## Pricing Comparisons – As of October 26, 2024

Pricing Item	ACR PLB	SPOT Gen 4	Spot X	InReach Mini 2
Unit Price (MSRP)	\$485	\$150	\$250	\$400
Subscription Plan (Other plans are available)	N/A	Basic	Basic	Consumer: Essential
Recurring Fee (Monthly)	N/A	\$12	\$12	\$15
Activation Fee	N/A	\$30	\$30	\$40
Message Fee	N/A	\$0 (predefined msg only)	\$0 (first 20 msg per month)	\$0 (first 50 msg per month)
First Year Cost	\$485	\$324	\$424	\$620
5 Year Cost*	\$635	\$900	\$1,000	\$1,340
Monthly "Flex" Plan?	N/A	\$35/year (no re-activation fee)	\$35/year (no re-activation fee)	Not Available (under the Consumer plans)

\* Includes a \$150 battery replacement fee

# Emergency Location Devices

## Pros and Cons of the Devices

### Personal Location Beacons

#### • Pros

- High Power (5W)
- Homing beacon on 121.5
- Strobe (visible and IR)
- Long battery shelf life (5 years)
- Lower overall costs
- No subscription Fees

- **Neutral** - Emergency response center is governmental (SARSAT)

#### • Cons

- No ability to broadcast custom messages
- No tracking capability
- Larger footprint
- Expensive battery replacement



### Personal Satellite Comms

#### • Pros

- Alert confirmation ACK
- Lower purchase price (SPOT only)
- Smaller footprint
- Can receive status information
- Can broadcast messages
- Tracking capability
- Inexpensive battery system

- **Neutral** - Emergency response center is non-governmental (GEOS)

#### • Cons

- Low Power (>1W)
- No homing beacon on 121.5
- No strobe
- Shorter battery shelf life
- Subscription fees



# Other Discussion Points

- iPhone SOS
- ADS-B
- Survival Kits
- Tracking Examples
- Bailout
- Parachute Gear
- Safety Info Sources



# iPhone SOS via Satellite



*“With iPhone 14 or later (all models), you can use Emergency SOS via satellite to text emergency services when you're off the grid with no cellular and Wi-Fi coverage.”*

## **How Emergency SOS via satellite works**

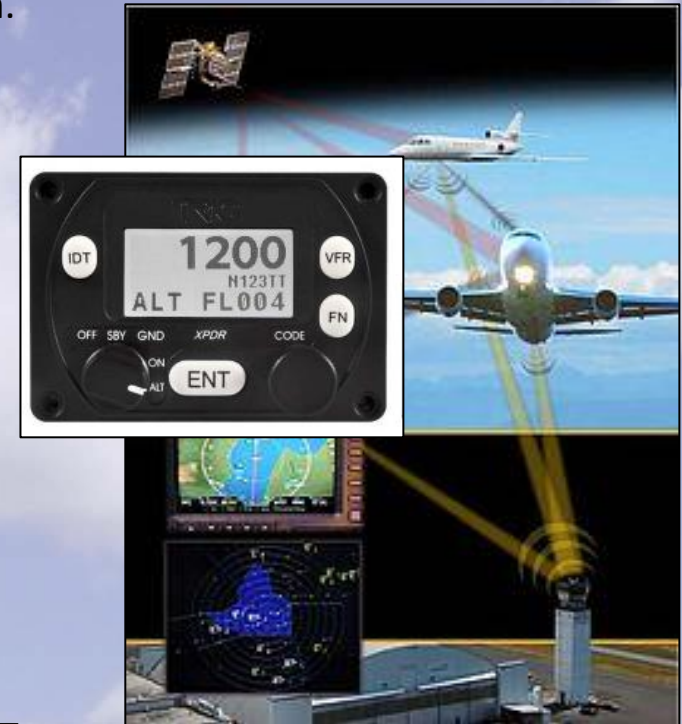
Emergency SOS via satellite can help you connect with emergency services under exceptional circumstances when no other means of reaching emergency services are available. If you call or text emergency services and can't connect because you're somewhere with no cellular and Wi-Fi coverage, your iPhone tries to connect you via satellite.

<https://support.apple.com/en-us/101573>

# Emergency Location Devices

## What About ADS-B as an Emergency Device?

- **A**utomatic **D**ependent **S**urveillance-**B**roadcast (ADS-B) is a surveillance technology (coupled with transponders) in which an aircraft determines its position via satellite navigation and periodically broadcasts it, enabling it to be tracked. The information can be received by air traffic control ground stations as a replacement for secondary surveillance radar, as no interrogation signal is needed from the ground. It can also be received by other aircraft to provide situational awareness and allow self-separation. ADS-B is "automatic" in that it requires no pilot or external input. It is "dependent" in that it depends on data from the aircraft's navigation system.
- **Pros**
  - Continuous satellite based GPS location transmitter
  - Real time tracking of known tail numbers via web sites and smartphone applications
- **Cons**
  - Not a portable carry-with, or bail out, solution
  - No ability to send an "SOS" message
  - No ability to send textual messages
  - Not received by FAA ground stations in some locations (low and/or remote locations)
  - Satellites unlikely to receive data from bottom-mounted transponder antennas\*



\* For details see <https://aireon.com/resources/overview-materials/its-just-ads-b>

# Survival Kits

## Bailout and Landout





# Survival Kits – SMAK-PAKs

**Small SMAK-PAK**



**Medium SMAK-PAK**



**Large SMAK-PAK**



Available from:

<http://silverparachutes.com/smak-pak-survival-kits>

<https://wingsandwheels.com/smak-pak.html>



# Survival Kits - SMAK-PAKs



## LARGE SMAK-PAK

### **Standard Contents:**

- Strobe on lanyard
- Hook Knife on 4ft lanyard
- Space Blanket
- Survival Kit\*

### **My Additional Contents:**

- Money
- Folding Knife (Swiss)
- Miniature Eyeglasses!

**\* Survival Kit Contents:** Signal mirror, whistle, fire starters, compass, fishing kit, scalpel blade, duct tape, aluminum foil, wire, safety pins, pencil, and notepad



# Survival Kits - SMAK-PAKs



## MEDIUM SMAK-PAK

### My Contents:

- PLB on lanyard (with instructions)
- Permanent Marker
- Firestarter and kindling
- Folding knife (Utility)
- Paracord
- Handwarmers
- First aid kit




# Tracking Information



# Emergency Location Devices

## Sailplane Locator at SSA.org



SOARING SOCIETY OF AMERICA

About Soaring ▾ The SSA ▾ Member Resources ▾ Soaring ▾

News & Information ▸

Member Locator

**Sailplane Locator**

Sailplane Directory

Calendar

Webinars

Weather


Group Info

**SSA Headline News**

2023 WGC in Open, 18m, and 20m Multiseat Classes

Sarah Arnold wins the 2020 Womens World Gliding

Now Accepting Intents to Bid for 2021 National



### Sailplane Locator Information

Search for:

Member Last Name:

Contest ID:

Then select "Go":

Note: Wildcard is '%', e.g. Searching for member last name 'A%' returns all members with last name beginning with 'A'

For the tracker map click here



See  
Next  
Slide



Name ▾	Glider	ID ▾	Reg ▾	Locator URL	ELT
<a href="#">John Cochrane</a>	ASH-31Mi	BB	N830BB	<a href="#">Click Here</a>	
<a href="#">John Cochrane</a>	ASG-29-18	BB	N6440	<a href="#">Click Here</a>	

# Emergency Location Devices

## Live Contest Tracking on SSA.org

The screenshot shows the SSA.org website interface. At the top, there is a header with the SSA logo (Soaring Society of America), a 'GIVE' button, and a login section with fields for 'Membership Number' and 'Password', a 'Remember Me' checkbox, and a 'Sign In' button. Below the header is a navigation bar with links: 'About Soaring', 'The SSA', 'Member Resources', 'Soaring Safety', 'Sailplane Racing', 'Soaring Achievement', 'Store', and 'Contact Us'. The 'Sailplane Racing' link is expanded, showing a dropdown menu with options: 'About Contests', 'Racing Calendar', 'Results & Reports', 'Online Registration', 'Contest Rules & Process', 'Other Resources', 'Online Contest 'OLC'', and 'US Teams'. To the right of the dropdown is a 'Soaring Essentials' section with links: 'Information', 'Contestants', 'Results & Reports', 'Gallery', and 'Live Tracking'. A large red arrow points to the 'Live Tracking' link. The main content area features 'SSA Headline News' with a story about the '2023 WGC in Open, 18m, and 20m USA' and a 'Soaring In The News' section.

SSA SOARING SOCIETY OF AMERICA

Membership Number:  Password:  Remember Me: ☐ Sign In | Login Help

GIVE

f t g e + 1K

About Soaring The SSA Member Resources Soaring Safety Sailplane Racing Soaring Achievement Store Contact Us

SSA Headline News | More News

2023 WGC in Open, 18m, and 20m Multiseat Classes

Sarah Arnold wins the 2020 Womens World Gliding

Now Accepting Intents to Bid for 2021 National

Hobbs Maintenance Initiative

**2023 WGC in Open, 18m, and 20m USA**

The 2023 World Gliding Championships in the Open, 18m, and 20m Multiseat Classes is awarded to USA. Uvalde, TX, is the venue. @SoaringSociety #igcplenary

Read more

Soaring Essentials

Information

Contestants

Results & Reports

Gallery

Live Tracking

Where to Fly

Fly A Sailplane!

Live Sailplane Tracker





# Emergency Location Devices

## Sailplane Locator at SSA.org

The screenshot displays the SSA (Soaring Society of America) Sailplane Locator interface. The top left features the SSA logo and the text "SOARING SOCIETY OF AMERICA". The main map area shows a flight track in central Florida, with a sailplane icon at the starting point near Orlando. The track is marked with a red line and a red dot. The map includes labels for various cities and towns, as well as major highways. A sidebar on the left provides detailed information for the selected location, 6FLO, FL, US. The sidebar includes a "GlidePort" section, a "Clubs" section, and a "Contests" section. The "Contests" section lists several events, including the 2020 Senior Soaring Championship, the 2019 Senior Soaring Championship, the 18-Meter National Championships, the FAI Sailplane Grand Prix - USA 2018, the Senior Soaring Championship, the FAI Sailplane Grand Prix, USA 2017, the Senior Soaring Championship, the Seminole Lake OLC Camp, and the Senior Soaring Championship. The map also shows a "Terrain" and "Satellite" view toggle, a "Google" logo, and a "Map data ©2020 Google, INEGI" notice. A "Terms of Use" link is visible in the bottom right corner.

**SSA**  
SOARING SOCIETY OF AMERICA

**GlidePort**  

USA

**Seminole Lake Gliderport**

[6FLO](#), FL, US  
(28.40250, -81.83800, 111ft)

Clubs:

Seminole-Lake Gliderport

Contests:

- 2020 Senior Soaring Championship  
2020-03-14 - 2020-03-20
- 2019 Senior Soaring Championship  
2019-03-09 - 2019-03-15
- 18-Meter National Championships  
2018-05-01 - 2018-05-10
- FAI Sailplane Grand Prix - USA 2018  
2018-03-26 - 2018-04-01
- Senior Soaring Championship  
2018-03-10 - 2018-03-16
- FAI Sailplane Grand Prix, USA 2017  
2017-03-26 - 2017-04-01
- Senior Soaring Championship  
2017-03-11 - 2017-03-17
- Seminole Lake OLC Camp  
2016-03-20 - 2016-03-26
- Senior Soaring Championship

Info Tracks

© 2012-17 TripTop Software, Inc. • Terms • Help

Google

Map data ©2020 Google, INEGI 20 km Terms of Use

# Survival Kits

## Bailout and Landout





# Survival Kits – SMAK-PAKs

**Small SMAK-PAK**

**Medium SMAK-PAK**

**Large SMAK-PAK**



## Small SMAK-PACK

### Contents:

- Hook Knife on 4ft lanyard
- Signal Mirror
- Whistle
- Fire Starter



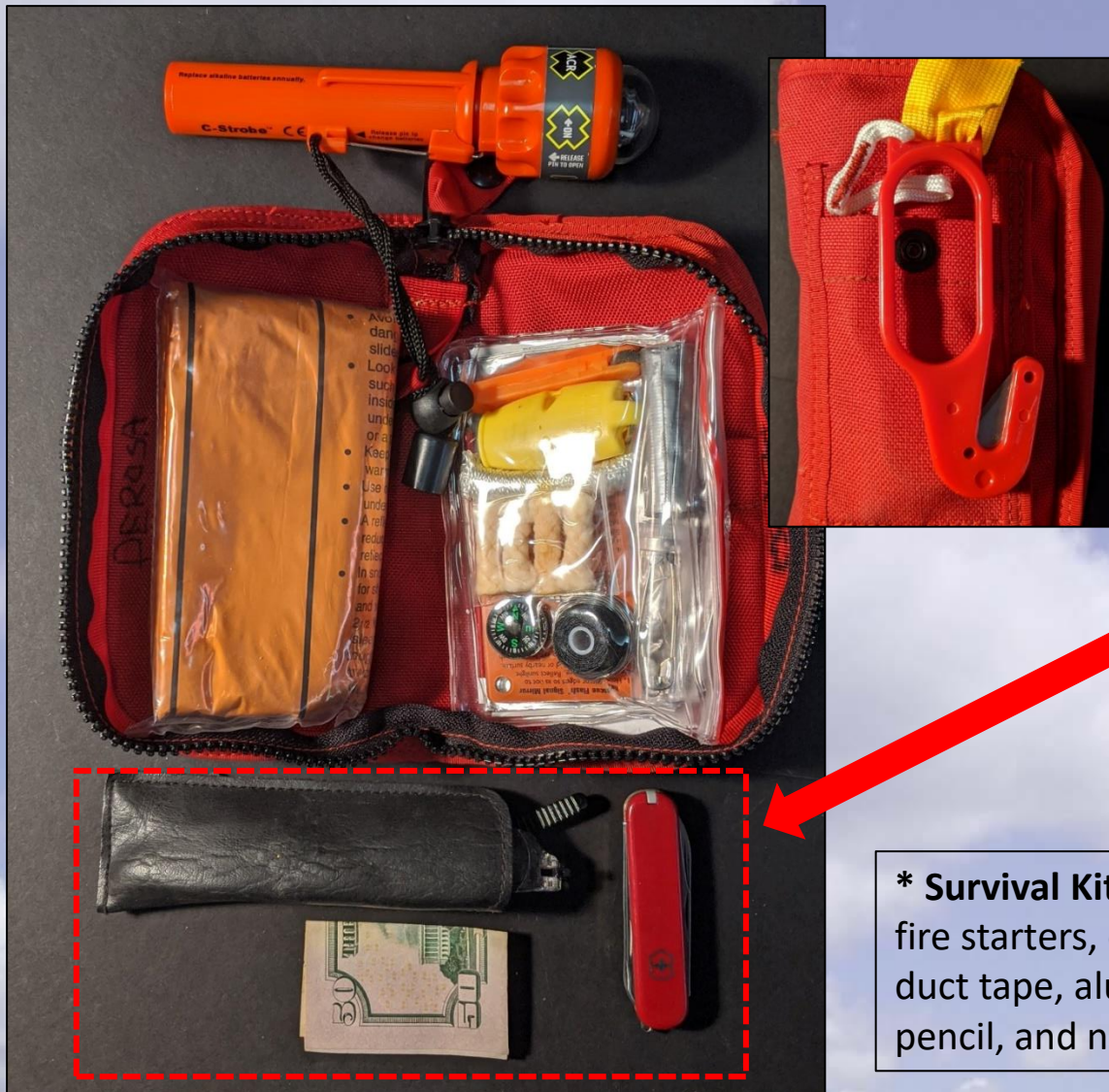
Available from:

<http://silverparachutes.com/smak-pak-survival-kits>

<https://wingsandwheels.com/smak-pak.html>



# Survival Kits - SMAK-PAKs



## LARGE SMAK-PAK

### **Standard Contents:**

- Strobe on lanyard
- Hook Knife on 4ft lanyard
- Space Blanket
- Survival Kit\*

### **My Additional Contents:**

- Money
- Folding Knife (Swiss)
- Miniature Eyeglasses!

\* **Survival Kit Contents:** Signal mirror, whistle, fire starters, compass, fishing kit, scalpel blade, duct tape, aluminum foil, wire, safety pins, pencil, and notepad



# Survival Kits - SMAK-PAKs



## MEDIUM SMAK-PAK

### **My Contents:**

- PLB on lanyard (with instructions)
- Permanent Marker
- Firestarter and kindling
- Folding knife (Utility)
- Paracord
- Handwarmers
- First aid kit



# Survival - Land Out Kits

## GLIDER LANDOUT SURVIVAL KITS

By John DeRosa



Soaring Magazine

May 2010 Issue

Pages 27-29

<http://aviation.derosaweb.net/survival/>





# Survival – Bailing Out



<https://www.dailymail.co.uk/news/article-2713010/The-amazing-moment-glider-pilot-bail-aircraft-parachute-safety-wing-fell-dramatic-mid-air-collision.html>

# Survival – Bailing Out



<https://www.dailymail.co.uk/news/article-2713010/The-amazing-moment-glider-pilot-bail-aircraft-parachute-safety-wing-fell-dramatic-mid-air-collision.html>

# Survival – Bailing Out



<https://www.dailymail.co.uk/news/article-2713010/The-amazing-moment-glider-pilot-bail-aircraft-parachute-safety-wing-fell-dramatic-mid-air-collision.html>



# Survival – Bailing Out



<https://www.dailymail.co.uk/news/article-2713010/The-amazing-moment-glider-pilot-bail-aircraft-parachute-safety-wing-fell-dramatic-mid-air-collision.html>

# Survival – Bailing Out



# Survival - Bail Out Kits

***“Anything not attached to your body or parachute is JUST CAMPING GEAR!”***

**Allen Silver - Master Rigger** *“Your troubles aren't over once your parachute gets you safely back on earth. While it is possible that you will land in the parking lot of a local pub and can recount your heroic bailout to the stunned bar patrons over a cold one, you will more than likely end up in a field facing several possible problems.”*



# Bailing Out - Allen Silver



I've been an FAA Master Rigger since 1974 and in 1991 was designated as a Parachute Rigger Examiner for the FAA a position I held until moving to Sonora. I also served three terms as the chairman of the Parachute Industry Association (PIA) Rigging Committee, a worldwide organization that represents the parachute industry.

Having spent 25 years with the California Air National Guard, I retired in 1991. Eighteen of those years were spent as a Survival Equipment Technician working with parachutes, life rafts, and other life support equipment. This background has been beneficial in obtaining contracts with NASA and other aerospace companies requiring services for sophisticated and specialized parachutes.

<http://silverparachutes.com/smak-pak-survival-kits>



# Silver Parachute Sales & Service

## Serving Aerobatic, Airshow & Glider Pilots since 1972

Home

About Silver Parachute Sales

Testimonials - What People  
Are Saying

For Sale - New & Used  
Parachutes

SOFTIE Parachutes

**SMAK PAK Survival Kits**

AcroBelt 5pt. Restraint

Ask Allen Column

Seminar Information for  
Bailout Seminars &  
Wingwalker/Skydiver Airshow  
Career

Photo Gallery

Articles

EZ Close Ratchet (for  
parachute riggers)

Airport Vehicle Flags (3'x3')  
orange & white

Rigging Tools & Equipment  
For Sale

Rigging Services

Contact / Shipping Info

### Contact Silver Parachute Sales

Office Hours: Semi-  
Retirement is great. Call  
between 10:00am -

### SMAK PAK Survival Kits

**Attention SMAK PAK Owners:** Supplemental instructions are available.



[SMAK\\_PAK\\_supplemental\\_instructions.pdf](#)

Adobe Acrobat document [281.1 KB]

#### **IMPORTANT NOTICE: On attaching anything to your parachute harness.**

Incorrectly attaching Survival Kits (like my SMAK Paks) PLBs, SPOT or InReach units, knives, kitchen sinks or any other item to your parachute harness can cause serious problems. Learn more details by clicking important notice below:



[SMAK PAK Attachment instruction article.](#)

[Aug\\_2009.pdf](#)

Adobe Acrobat document [121.8 KB]

#### **Think Survival**

**Remember:** You owe it to yourself and to your family/friends to be found as quickly as possible after a bailout or off field landing! Don't make an already bad day worse by not have a means to be found on you.

Your troubles aren't over once your parachute gets you safely back on earth. While it is possible that you will land in the parking lot of a local pub and can recount your heroic bailout to the stunned bar patrons over a cold one, you will more than likely end up in a field facing several possible problems.

If you land in winds even as light as 6-8 knots, you might be dragged along the



Made of stitched  
parachute case  
rugged nylon  
material with  
Velcro+snap  
attach points  
and  
zipper+snap  
closures



# Survival – Silver's SMAK-PAKs Kits

**My  
Parachute's  
SMAK-PAKs**

Large  
SMAK-PAK

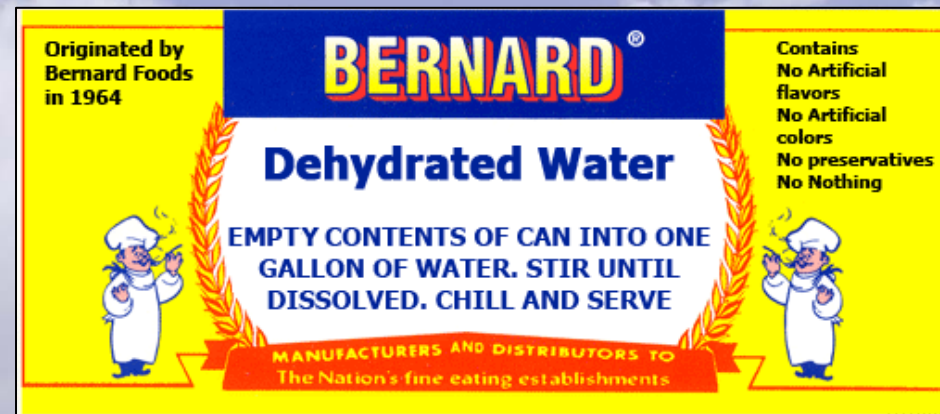
Medium  
SMAK-PAK





# Other Bailout Kit Suggestions

- Clothing
  - Zippered pants, Pocket vest, Warm jacket
- Cell phone for 9-1-1 & the ability to recharge it (old flip model?)
- Miniature held aviation transceiver (Yaesu FTA-250L)
- Wallet
- Multi-tool knife (Leatherman or SOG)
- Water → → → → → → →
  - Sealed emergency pouches
  - Water purifying straw
- Food
  - Energy Bars
  - Tootsie Rolls
- Flashlight
- Medicine (OTC and/or prescribed)
- Static line on parachute
- Parachute components (canopy, shrouds)



# Safety Information Resources

**SSF** *Soaring Safety Foundation*






# SSF Soaring Safety Foundation


<https://www.soaringsafety.org/>  
<https://www.youtube.com/user/soaringsafety>

[Home](#) [Flight Training Programs](#) [Operational Resources](#) [Flight Safety Programs](#) [About SSF](#)

ENHANCED BY 


The Soaring Safety Foundation (SSF) is the Training and Safety arm of the Soaring Society of America (SSA). Our mission is to provide instructors and pilots with the tools needed to teach/learn both the stick & rudder skills and the Aeronautical Decision Making skills needed to safely fly a glider. We also provide information and analysis of incident and accident trends in order to develop better training tools.

### Flight Training Videos and Scenario Database




These videos are introductory in nature and are geared to learning to soar, or a new soaring skill.

### Flight Safety Videos and Incident Database



These videos are safety oriented and appropriate for glider pilots of any skill level.

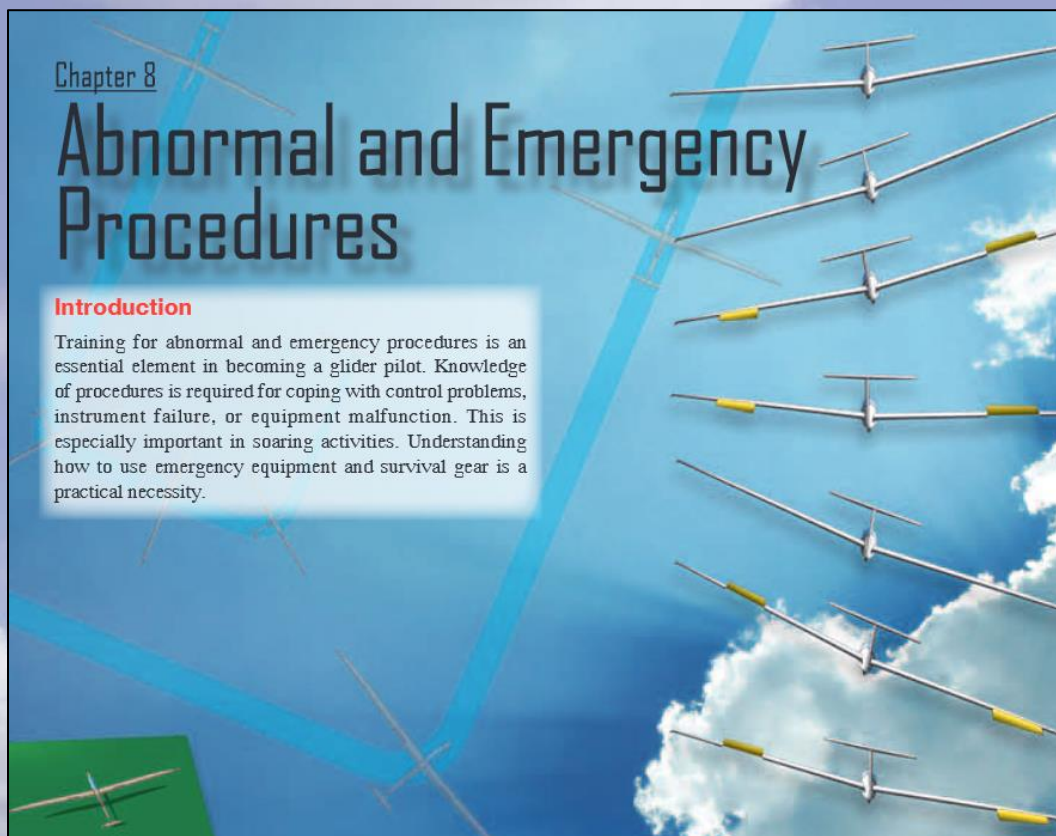
[Visit the Soaring Safety Foundation's Youtube Channel](#)  [The SSA's YouTube Video Playlist](#)



# FAA Glider Handbook

## FAA Glider Handbook – Abnormal and Emergency Procedures

[https://www.faa.gov/regulations\\_policies/handbooks\\_manuals/aircraft/glider\\_handbook/media/gfh\\_ch08.pdf](https://www.faa.gov/regulations_policies/handbooks_manuals/aircraft/glider_handbook/media/gfh_ch08.pdf)



*“Understanding how to use emergency equipment and survival gear is a practical necessity”*

# What We Do is Dangerous

<https://www.youtube.com/watch?v=v8I3A3dqsu0>



Pilots - Dave Nadler and Spence Chanthavane (USAF Academy Cadet)

# ONE BAD DECISION THAT ALMOST KILLED ME

Analyzing a Sailplane Crash and How I Survived it

<https://www.ssa.org/Webinars>





# See My Other Presentations

- Glider Electrical Wiring
- Transceiver Troubleshooting
- Oxygen Systems
- Working with Glider Air Lines
- Sailplane Wiring
- Trailer Wiring & LED Lighting
- Soaring Pilot Relief Systems
- Battery Testing
- Emergency Location Devices & Survival Kits
- Spar Alignment Tool
- L'Hotellier Fittings
- Carbon Fiber Panels
- IGC Filename Decoding
- Blanik L-23 Strut Work
- Survival Kits
- Removing Painted Lettering
- Open Glider Network

<http://aviation.derosaweb.net/presentations>

Let me know of any comments!