

Photo: Life Flight Trust



# Distress beacons save lives



# HOW DOES THE GLOBAL DISTRESS BEACON SYSTEM WORK?

The global distress beacon system is used by search and rescue authorities around the world. It is made up of:

- distress beacons, which transmit signals when activated
- geostationary (GEO) and low-earth-orbiting (LEO) satellites, which detect beacon signals
- ground receiving stations, called local user terminals (LUTs), which process signals and send alerts
- mission control centres, which receive alerts and forward them to rescue coordination centres (RCCs)
- RCCs, which coordinate and manage the rescue of people in distress.

Modern distress beacons operate on the 406MHz frequency to alert satellites, and also have a low-powered homing signal that allows searchers to pinpoint their position when they get close.

When you activate a distress beacon, satellites detect its 406MHz digital signal, including its unique identification number (UIN or Hex ID, rather like a barcode). The GEO satellite, which is in a fixed position high above the equator, will pick up the signal almost instantly, as long as its view of the beacon is not obstructed by terrain.

This satellite can read the beacon's unique number, but cannot provide a position unless the beacon has GPS. A GPS calculates the beacon's position and sends that, along with the alert, to the satellite.

LEO satellites will regularly pass over your position and they, too, can pick up the beacon's alert as they pass over your area. Because they are moving, they can work out the position of the beacon even if it has no GPS, but to do this they need to pass over your position twice. The first alert could take about an hour to receive, and then it takes another hour or longer for the second satellite to pass and work out the beacon's location.

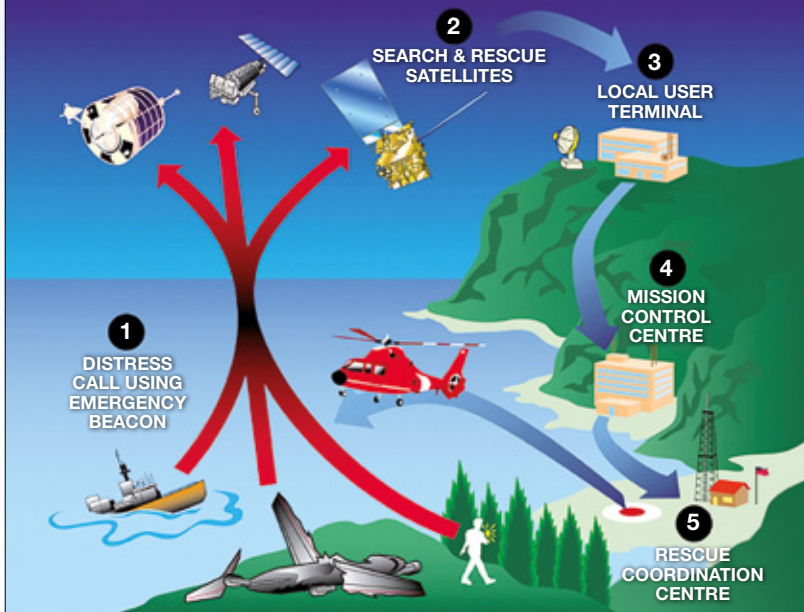
**The quickest and most accurate alerts come from beacons with a GPS unit.**

The alert signal (and position, if you have a GPS beacon) is processed and passed on, with your beacon's unique identification number to the nearest RCC – in New Zealand, this is RCCNZ. A rescue response can then begin.

If you have registered your beacon, RCCNZ looks up its unique number in the registration database and calls your emergency contacts to obtain extra, often vital, information. Your contacts may be able to tell them where you planned to be and help make the rescue much more effective.

**Register your beacon and keep the details up to date – the extra information could help to save your life.**

# HOW DISTRESS BEACONS WORK



- 1** A distress beacon is activated.
- 2** Its signal, with its unique identification number or Hex ID, is transmitted to the nearest satellite.
- 3** An alert is sent to the nearest local user terminal.
- 4** The alert is processed by the nearest mission control centre and forwarded to the rescue coordination centre.
- 5** The rescue coordination centre mobilises rescuers and directs them to the beacon's position.

For more information about the satellite system, go to [www.cospas-sarsat.org](http://www.cospas-sarsat.org).





# REAL INCIDENTS: REAL RESCUES



Photo: Barry Harcourt

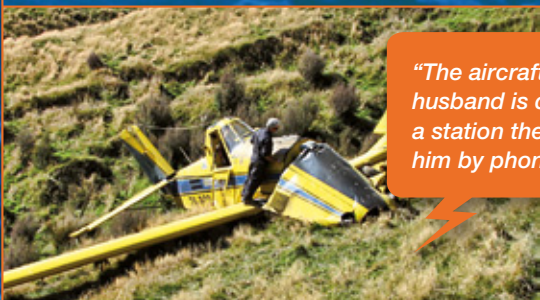
*"My husband is hunting on his own in Fiordland. He's pretty tough and it must be serious if he has set off his beacon."*

A helicopter winched a hunter with three broken ribs and a badly punctured lung from this steep country after he fell.

*"Mum and Dad have gone out in the boat to check their cray pots."*



Both crew were thrown overboard when a swell rolled their 5.2 metre pontoon boat. Their EPIRB was activated and a water rescue team recovered the couple safely.



*"The aircraft is up-country. My husband is doing some work on a station there, but I can't reach him by phone."*

When this light aircraft crashed in hill country, the plane was extensively damaged but the pilot was rescued with only superficial injuries.

## REMEMBER

- Buy the right beacon for your purpose.
- Register your beacon with RCCNZ, at no cost.
- Keep your registration details up to date.
- Know how to use your beacon before you go out.
- Stow or carry the beacon correctly.
- Be prepared to wait until help can reach you.
- Do not turn your beacon off until rescuers tell you to.
- Phone RCCNZ immediately on **0508 472 269** if your beacon is activated accidentally.

## CONTACTS AND FURTHER INFORMATION

### Free 406MHz distress beacon registration

**Freephone: 0800 406 111 or 0508 406 111**

**Web: [www.beacons.org.nz](http://www.beacons.org.nz) Fax: 04 577 8041**

**Email: [406registry@maritimenz.govt.nz](mailto:406registry@maritimenz.govt.nz)**

### RCCNZ 24/7 freephone

**New Zealand: 0508 472 269 (0508 4 RCCNZ)**

**International: +64 4 577 8030**

### Management and administration – normal office hours weekdays

**Phone: 04 577 8034 Fax: 04 577 8041**

### Useful websites

**[www.beacons.org.nz](http://www.beacons.org.nz)**

**[www.cospas-sarsat.org](http://www.cospas-sarsat.org)**

**[www.maritimenz.govt.nz](http://www.maritimenz.govt.nz)**

**[www.nzlsar.org.nz](http://www.nzlsar.org.nz)**

**[www.police.govt.nz](http://www.police.govt.nz)**

**[www.nzsar.org.nz](http://www.nzsar.org.nz)**

**[www.caa.govt.nz](http://www.caa.govt.nz)**

**[www.nzcoastguard.org.nz](http://www.nzcoastguard.org.nz)**

**[www.nzdf.mil.nz](http://www.nzdf.mil.nz)**

**[www.mountainsafety.org.nz](http://www.mountainsafety.org.nz)**



New Zealand Government

