

AS IT IS - High-Tech Aids Search and Rescue

From VOA Learning English, this is As It Is Saturday!

I'm Anna Matteo.

Improvements in technology can save lives. Stronger buildings do not fall during storms and earthquakes. Warning systems let people know when tornados or tsunamis are coming. Air travel is safer because of changes in airplane technology.

But even with all of these improvements, disasters, both natural and man-made, will happen. And when they do, finding victims quickly helps save lives.

On the show today, we tell about the radar technology that is searching for the lost Malaysian Aircraft 370. But first, a report on a search-and-rescue tool that is helping emergency workers find victims and recover bodies.

Here's June Simms.

High Tech Rescue Tool

When a

building collapses, every minute is important for victims buried under the wreckage. That is why two American government agencies teamed up to develop a high-tech tool to find those who are trapped. The Department of Homeland Security and NASA, the National Aeronautics and Space Administration, took part in the project.

Rescue crews have been testing this state-of-the-art radar tool called FINDER. The name is short for Finding Individuals for Disaster and Emergency Response. This radar device can recognize a person's smallest movements or even a heartbeat, even when the individual is unable to communicate.

Earlier this year, Homeland Security and rescuers used FINDER to carry out more than 65 test searches in the American state of Virginia. They say the tests proved successful in recognizing a human heartbeat under nine meters of mixed concrete and other material. The device was also able to identify a heartbeat hidden behind six meters of solid concrete, and from a distance of up to 30 meters in open space.

Jim Lux is with the Jet Propulsion Laboratory in California.

works by sending a low-power microwave signal, and it illuminates the rubble pile, and some of the microwaves go in and reflect off the victim inside and come back out. So FINDER sees both the reflection from the rubble, which doesn't move, and a very tiny reflection from the victim, which does move, because when you breathe and when your heart beats, your skin moves a little bit and we can see that."

Jim Lux says the device is small, easy to carry and easy to use.

"It goes out and collects 30-seconds' worth of data, because that is how long you need to get the heartbeat and the breathing, and then it analyzes it and displays it for the user."

FINDER could be used with other tools rescuers use, such as listening devices or search dogs. Matthew Tamillow is with Virginia Task Force 1. He says the new technology could help rescuers in deciding which buildings to search.

"This type of technology, including FINDER, could aid in the assistance of triaging a building to say, 'Okay, there is a strong probability that a live victim could be in here, and we need to devote our valuable human resources into searching it.'"

June Simms.

And I'm Anna Matteo. You are listening to As It Is.

Every airplane has a flight information recorder, often called a black box. This black box helps answer the question, "What happened?" when an airplane has technical problems or crashes.

But what happens when you cannot find the plane? What do you do when a plane disappears as is the case with Malaysia flight 370?

New technology is helping to find the wreckage of planes after the search for survivors ends and a search for answers begins.

Malaysia Plane Pinger Locator

Australian and U.S. navy officials say they may have heard more signals that may have come from the black box on the missing Malaysia Airlines plane. But they say they cannot confirm where the airplane is until its wreckage is seen in the Indian Ocean.

The U.S. Navy has received the most helpful information so far in the month-long search. It has a device called a "pinger locator." "Pings" are the sounds that black boxes make so that they can be found.

A "pinger locator" identifies where the pings come from.

An Australian naval ship is pulling the U.S. navy's "pinger locator" in deep waters more than 1,500 kilometers northwest of Perth, Australia.

Paul Nelson is with Phoenix International, the company that makes the pinger locators.

"You might hear that tiny little chirp and say, 'Did you hear something?' And then we will listen more intently and try to fine-tune it."

Fine-tuning it means turning the boat and changing position of the locator. The operation takes eight hours. Search time is limited. The energy source for the black box does not last forever. The battery power is guaranteed to

last 30 days but can go longer. However, the sound will disappear at some point.

Jim Gibson is also with Phoenix International.

"The advertised shelf life for the pinger when it's in the water is 30 days. We have individuals that have been out on operations that have heard the pinger well beyond 45 days."

Once suspected wreckage is identified, a robotic device is deployed to the area. The small device, called Remora, is controlled from the larger ship. It carries a camera that records video of the area. Remora also has a very strong mechanical arm. It picks up wreckage and puts it into a box. The box is then pulled to the surface.

Remora helped in the recovery of Air France Flight 447 which crashed into the Atlantic Ocean in 2009. The aircraft was lost for five days. Remora recovered the plane's engines, computers, and black box.

The process of finding wreckage in the ocean takes time and patience. Conditions are difficult. It is often difficult to see. The weather can cause problems too. And, the pressure is extreme in deep water.

Mr. Nelson says finding a wrecked airplane in the ocean is like trying to find a needle in a haystack, even with modern technology.

I'm Anna Matteo. Join us again tomorrow for another As It Is.