

Malaysia Airlines flight recorder beacons send signals for 30 days before batteries die

By [Ashley Halsey III](#)

Search teams hunting for the [Malaysia Airlines jetliner](#) believed to have plunged into the ocean have about 30 days to find the cockpit recorders before the tracking signals they emit go dead.

That is the battery life of the two recorders. One provides the last two hours of audio from the cockpit, and the other contains all of the flight data.

An international fleet of vessels has expanded its search for the [missing Boeing 777](#), which disappeared early Saturday, with 239 people on board, as it flew at 35,000 feet between Malaysia's east coast and the southern tip of Vietnam.

With their underwater pings audible to sonar detectors only within a few miles, and the possibility that the recorders may be thousands of feet below the water's surface, tracking down a black box on an ocean bottom can be a daunting challenge.

"It certainly depends on the location," Sarah McComb, chief of the recorders division at the National Transportation Safety Board, said Tuesday. "I don't think the range is quite five to 10 miles, but there are a lot of different factors involved. It also can be compromised if it's buried in silt or sand."

The recorders are supposed to function at depths of 20,000 feet and to withstand temperatures up to 2,000 degrees and impacts equal to 3,400 times the force of gravity.

"They are required to emit a signal for a minimum of 30 days," McComb said. "That can actually be increased depending on the temperature and depth of the water and how new the battery is."

She said that since the challenging search for flight recorders in an Air France crash in 2009, there has been an international effort to increase beacon battery life to 90 days.

Steve Marks, a Miami aviation lawyer who represented families in two instances in which an airliner plummeted from cruising altitude, said he expected the flight recorders from the Malaysia Airlines jet to be recovered intact.

“The likelihood is extremely high that most of the bodies will be recovered. A large portion of the wreckage will be recovered,” Marks said. “And, most certainly, the flight data and the cockpit voice recorder will be recovered intact. In Air France, it took many, many months — more than a year — to locate it, and the Navy was able to pull it out. And after all that time, the information was pristine.”

The dozens of airplane crashes that Marks has handled include the June 2009 Air France plunge into the Atlantic, which killed 228 people. That plane, en route from Rio de Janeiro to Paris, was at cruising altitude just before it went down.

“You’re not going to get everything in the ocean,” Marks said. “A lot of the flight debris won’t be very meaningful. The most important part — which is the black box, which is orange, in fact — will be recovered. It will answer almost everything. It will identify what was going on with flight controls, with the engine instruments, with the altitude, air pressures, airspeed, everything.”

Within five days of the Air France Airbus 330’s plunge into the Atlantic, search teams found the first major wreckage from the airplane — a seat, a barrel, an orange buoy and what were described as “white pieces.”

Within two weeks, 50 bodies had been recovered in two groups, separated by more than 50 miles. Twenty-five days after the crash, Brazilian officials ended the search after collecting 640 pieces of debris.

But no black box. It took almost two years, until May 2011, for the box to be located on the ocean floor.

The hunt for that box was exhaustive.

It was begun by a French nuclear submarine five days after the plane went down. The sub, the Emeraude, worked with a mini-sub, the Nautile, and sonar was used to listen for the flight recorders’ pings.

Though the ocean depths in that part of the Atlantic could be much deeper and the underwater terrain was quite jagged, the searchers took hope from the 1988 recovery of a black box that was 16,100 feet deep.

The two French submarines were able to cover 13 square miles of the Atlantic each day.

Two French surface vessels towed “pinger locator hydrophones,” borrowed from the U.S. Navy, that could pick

up signals almost four miles below the surface.

By late July, it was calculated that the 30-day battery life powering the pingers had expired.

With the black boxes located in the tail section of the plane, searchers hoped that the recorders might be lodged in a large piece of debris that could be picked up by sonar. A research vessel towing sonar worked an area with a 47-mile radius from the plane's last position without success, until late August 2009.

Oceanographers from several nations were brought in for the third phase of the search in 2010. They covered 2,400 square miles of ocean and came up empty-handed.

The next year, a team from the Woods Hole Oceanographic Institution in Massachusetts, using autonomous underwater search vessels, discovered a large debris field from the flight on a relatively flat section of ocean bottom at depths between 12,500 and 13,100 feet.

On May 2, 2011, a remotely operated vehicle found the flight recorders and carried them to the surface. By June of that year, 154 bodies, of the 228 people on board, had been recovered. The search ended with 74 bodies unrecovered.