Experts mull over lessons from Brazil plane crash

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(AP) -- The mysterious disappearance of an Air France jet this week while flying over the Atlantic in fierce thunderstorms is stirring a debate about whether new technologies and procedures are needed to prevent similar tragedies in the future.

Experts say it's going to be hard to build a better plane than the Airbus A330 that plunged into the ocean Sunday, killing all 228 aboard. But they see room for improvement in other technological areas that could help boost safety.

One idea is to move from radar to satellite surveillance systems that would allow air traffic controllers to track a plane's progress on flights across the ocean: currently, planes go out of radar range after 200 miles (320 kilometers) from land.

Another focus has been on how to make black boxes more easily recoverable in an ocean crash.

One solution being discussed in aviation circles is wiring the black box to make it stream data to help air traffic officials locate the box and the wreckage.

"The black box could be set up to send an immediate message that could give the parameters of the plane," in a similar way that Flight 447 put out a burst of automated messages detailing mechanical failures, said Michael Boyd, a Colorado-based airline analyst.

The Air France flight from Rio de Janeiro to Paris disappeared nearly four hours after takeoff on Sunday night. It was Air France's deadliest plane crash and the world's worst commercial air accident since 2001.

Brazilian and French rescue teams have been scouring the area for the wreckage, but France's transportation minister said Friday that no traces of the plane have been found.

The plane's disappearance has prompted calls for the U.S. and other countries to hasten the move to GPS-based networks that would pinpoint planes and enable air traffic controllers to monitor them as they cross the ocean outside radar-range.

"It does seem a little disconcerting for the public who have not been familiar with the lack of surveillance in oceans," said Bill Voss, president and CEO of the Flight Safety Foundation in Virginia.

Nearly 70 percent of the world's airspace is not radar-controlled, and the existing radar system is likely to remain for at least another decade.

While some European and Asian countries are moving toward satellite systems, which would reduce travel times and fuel usage by helping the pilot find the most efficient route, a huge obstacle is expense. In the U.S., technology for such a system is being tested, but full implementation - estimated at a cost of $35 billion - has languished amid funding delays and disputes over technical complexities.

Some of the elements of these essentially GPS-controlled systems already exist, but they are not in widespread use.

Major carriers are already capable of using automatic dependent surveillance-broadcast (ADS-B) technology, whereby the plane emits data that shows up in the screen of the controller. But the overall

infrastructure is not yet in place to allow for its general use.

Voss believes that being able to better communicate with aircraft is more important from a safety point of view than surveillance.

Passengers may be able to use cellphones on a flight, but the pilot may be relaying information via VHF - which has been standard in aviation for at least 60 years. When crossing oceans, pilots communicate with air traffic control if necessary via high frequency radio, which is prone to interference from sun spots and lightning, and which can be difficult to hear.

"This crash may put more pressure on international organizations to advance the use of satellite voice communications," - technology that you would use when you hire a satellite phone to "go off to Antartica or deepest darkest Africa," said Voss.

One key factor in figuring out what went wrong on Air France Flight 447 is finding the black box. But the flight recorders could be scattered nearly anywhere across a vast undersea mountain range, throwing retrieval efforts into doubt.

Boyd said the black box might be configured to automatically send messages out every 10 minutes or so, he added. "I think we're going to go in that direction now."

But new black box technology may be held up by cost, the rarity of ocean crashes, and the aviation industry's culture.

A flight crashing over the sea is "very rare," said Boyd, noting that the last such accidents to happen were in the 1980s.

There has been no "imperative need" to change black boxes since there

have been very few situations where they have not been found. "Most airline accidents happen on landing or takeoff. You always find a black box there," said Boyd.

Furthermore, "the aviation industry is extremely conservative in accepting new technology," according to Voss. "Part of that is because the accident rate is so good."

Chris Yates, Janes' aviation security editor, rules out black boxes that would float, saying the shell would have to be so flimsy that "in the event of a crash it would automatically break up and we would lose that data."

In the end, though, some experts believe the Air France crash was simply a case of a plane in an unequal fight against Mother Nature.

The Air France plane disappeared in a region that gives rise to some of the world's strongest storms. Winds from the northern and southern hemispheres clash in what is known to scientists as the Intertropical Convergence Zone, spawning violence thunderstorms that can tower up to 60,000 feet - far higher than any commercial airliner could fly over.

European planemaker Airbus has sent an advisory to all operators of the A330 reminding them of how to handle the plane in conditions similar to those experienced by Flight 447.

Given that the plane was one of the safest around, is the answer to avoid this zone at certain times of the year?

"It's not possible, and nonsensical," said Yates. "In this day and age we live and breathe world commerce and if you shut a part of the world off from the availability of flights elsewhere for a period of time then you cause significant economic damage."

There were other airplanes that flew through the zone at the same time as the Air France flight, said Boyd, adding: "I think this situation will be very like killer waves. There are rogue waves that come out of nowhere and sink ships."