Satellite tracking to keep tabs on airliners over oceans

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In this March 31, 2014 file photo, HMAS Success scans the southern Indian Ocean, near the coast of Western Australia, as a Royal New Zealand Air Force P3 Orion flies over, while searching for missing Malaysia Airlines Flight MH370. Nearly three years after a Malaysian airliner vanished, it's still possible, if unlikely, for a plane to disappear. But that's changing with new satellites that will soon allow flights to be tracked in real time over oceans. (AP Photo/Rob Griffith, File)

Nearly three years after a Malaysian airliner vanished, it's still possible,

if unlikely, for a plane to disappear. But that's changing with new satellites that will soon allow flights to be tracked in real time over oceans.

New international safety standards also begin to kick-in beginning next year, although the deadline for airlines to meet most of the standards is still four years away. Even then, it could be decades before the changes permeate the entire global airline fleet because some of the requirements apply only to newly manufactured planes.

Malaysia Airlines Flight 370 vanished from radar on March 8, 2014, while flying from Kuala Lumpur to Beijing with 239 passengers and crew on board. An exhaustive search of a remote corner of the southern Indian Ocean has failed to turn up the aircraft's remains, and search efforts were called off this week.

"If the exact same thing happened today, I think we'd have the same result," said William Waldock, a professor at Embry-Riddle Aeronautical University in Prescott, Arizona, and former accident investigator.

"There has been change, but we haven't put anything physical into practice yet," he said.

But Atholl Buchan, director of flight operations at the International Air Transport Association, which represents most international carriers, said a repeat of MH370 is "highly unlikely" since many airlines have already increased their efforts to keep tabs on planes over open ocean where they are beyond the reach of land-based radar.

"In a few years, new systems and technology, if adopted universally by (air traffic control providers), will allow for global surveillance coverage," he said.

Among the changes in the works:

—The International Civil Aviation Organization, a U.N. agency, approved a series of new global safety standards last year in response to MH370, including a requirement that airline pilots flying over ocean out of the range of radar report their position by radio every 15 minutes. Previously, they were required to report every 30 minutes. The new requirement kicks in next year, but many airlines have already switched.

—Another new standard requires new planes beginning in 2021 to be able to transmit automatic, minute-by-minute reports on their location if they're in distress. At normal flight speeds, minute-by-minute reports would provide authorities with a search area of a little over 100 square miles. If reports are less frequent, the search area grows much larger.

However, the requirement doesn't apply to existing planes. Since airliners often have a lifespan of 20 years or more, it could take decades before all airliners meet the new requirement.

—Satellite flight tracking services may solve much of the problem sooner. This week, Aireon, a satellite joint venture, launched the first 10 satellites in what is planned to be a 66-satellite constellation that can track airliners equipped with the latest satellite surveillance technology, known as ADS-B.

Aireon expects to have all its satellites launched by the first quarter of next year, providing 100 percent coverage of the globe. It will receive signals every one to eight seconds from all equipped planes, regardless of whether the airline subscribes to the service. Not all planes have ADS-B, but Aireon vice president of aviation services, Cyriel Kronenburg, estimated that 90 percent of planes on long-haul routes over the ocean are already equipped.

However, the technology works only if ADS-B is turned on. In the case of MH370, the plane's surveillance technology was inexplicably shut off.

—Aircraft "black box" flight data recorders must be equipped with locator beacons that last at least 90 days beginning next year under another standard. The beacon on MH370's black box was required to last only 30 days.

But the beacons are only helpful if searchers already know where to look. Because currents and water temperatures can weaken the signals, searchers usually have to be pretty close to pick them up.

—ICAO approved a requirement that new aircraft designs certified after Jan. 1, 2021, have some means for retrieving a plane's flight data recorder, or the information contained in it, before the recorder sinks to the ocean floor. One possibility is a deployable recorder that automatically ejects from a plane upon impact and floats to the surface. But the cost of retrofitting new planes could be prohibitive, and there is a risk that recorder could deploy accidentally.

An alternative is to have planes automatically relay the data via satellite to ground stations, eliminating the need to search for the box. But there are many unanswered questions about security and custody of the information.