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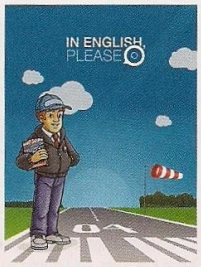

Now available on the **Appstore**, the collection of "In English, please" articles from June 2007 to December 2016, with audio recordings when available.

ADS-B
THE FUTURE OF AIR TRAFFIC SURVEILLANCE?

Automatic **D**ependent **S**urveillance is an air or ground traffic monitoring system based on information transmitted by aircraft or airport vehicles to a ground station, allowing an accurate **tracking** of flights without the need for conventional radar.

It is «automatic» because it requires no intervention from the pilot and no external interrogation from the ground, as opposed to the Secondary Surveillance Radar (SSR), which interrogates the aircraft's transponder at regular intervals.

It is «dependent» because it relies on data from the aircraft's navigation system, **namely** the GPS, sent on a digital datalink. On the contrary the Primary Surveillance Radar (PSR), which gets tracking information without collaboration from the aircraft, is an independent system.

The main application of ADS currently in use is ADS-B, B for «broadcast»: the data is continually broadcast, or **disseminated**, widely. Anybody properly equipped can receive it.

In and Out

There are two sides to ADS-B. With ADS-B Out, the aircraft periodically broadcasts data such as identification, position, altitude, and velocity. This signal is captured by **dedicated** ground stations and rerouted to air traffic control facilities.

The signal can also be received in the cockpit of surrounding aircraft fitted with ADS-B In. ADS-B In requires an ADS-B receiver and a suitable traffic information display.

Pros and cons

In parts of the world with little radar coverage, ADS-B is a cost-effective alternative to radar deployment. In other areas, a mix of the different technologies available (radar, multilateration, and ADS-B) enhance ATM safety and capacity. Crews of aircraft fitted with ADS-B In benefit from improved situational awareness.

On the down side, there are some concerns over the dependence on the GPS - a military system controlled by the US - and its use for both navigation and surveillance. ADS-B is also less efficient, in terms of integrity and security, than the radar or multilateration systems: it can be more easily hacked into. Last, there is a risk of saturation of the downlink channel, used to both broadcast ADS-B and reply to Mode S interrogations.

Implementation

In Australia, where only about five per cent of airspace is covered by radar, regulations requiring the **fitment** and use of ADS–B transmitting equipment have been progressively enforced since 2013. It is now **mandatory** for all aircraft flying IFR. ADS-B has also been successfully deployed in Canada's Hudson Bay area. It is gradually being implemented in the United States and in Europe. From 7 June 2020, all aircraft that weigh more than 5 700 kg, or have a maximum cruise speed greater than 250 knots, will need to be equipped with ADS-B Out capabilities to be operated in European airspace. For the time being, ADS-B In is still optional.

LISTENING COMPREHENSION

The Australian civil aviation website at www.airservicesaustralia.com offers a video entitled «ADS-B in Australia» (1). Below is a transcript of a 2-minute **or so** extract from this video. Go to www.anglais-pour-voler.com to listen to the audio version and find the missing words. One dash is a word. Caution, Aussie accent!

The future of air traffic surveillance in Australia and around the world is Automatic Dependent Surveillance Broadcast, ADS-B. Delivering **(- 1)** air traffic surveillance, ADS-B provides instrument flight rules, or IFR, aircraft **(- 2)** with ADS-B avionics with **(- 3)** safety and efficiency benefits at various altitudes right across the country.

Air Services has installed more than 70 ADS-B and **(- 4)** ground stations, across the continent creating a **(- 5)** of real time surveillance for our air traffic controllers.

ADS-B technology uses GPS satellites to **(- 6)** an aircraft's location. Information including the aircraft's exact position is then transmitted down to the nearest ADS-B ground station **(- 7)** every second. The ground station receives the aircraft's signal and retransmits the data via a ground-based **(- 8)**, or by satellite connection directly to Air Services air traffic control centers.

Alliance Airlines, an early **(- 9)** of the technology, has been **(- 10)** the benefits of fitting ADS-B to its **(- 11)** of aircraft since 2011.

«We cover a lot of central Australia, and in central Australia in the past there has been no radar coverage. ADS-B provides us a **(- 1)** coverage pretty much down to the ground in a lot of cases, depending on how close you are to the ADS-B station.»

There are number of **(- 12)** benefits that ADS-B technology offers the aviation industry. All IFR aircraft **(- 2)** with ADS-B can take advantage right now.

« Above and **(- 13)** everything else what ADS-B gives general aviation aircraft is to make it **(- 14)** so that both ATC and in future ADS-B In-**(- 15)** aircraft will be able to see a general aviation aircraft.»

For Air Services air traffic controllers, ADS-B-**(- 15)** aircraft appear on their screen as a **(- 16)** propeller **(- 17)**, with the same flight information as an aircraft being detected by radar.

With the benefits of **(- 3)** safety, increased **(- - 18)** and improved operational efficiencies, CASA has **(- 19)** the **(- 20)** of ADS-B in all IFR aircraft by the 2nd of February 2017. ●

VOCABULARY

DEDICATED	dédié
TO DISSEMINATE	diffuser
FITMENT	installation
TO MANDATE	rendre obligatoire
NAMELY	à savoir
OR SO	environ
TO PINPOINT	déterminer avec précision
PROS AND CONS	le pour et le contre
TO REAP	récolter
TO TRACK	suivre

Answers 1 - radar-like; 2 - fitted; 3 - enhanced; 4 - multilateration; 5 - network; 6 - **pinpoint**; 7 - twice; 8 - link; 9 - adopter; 10 - **reaping**; 11 - fleet; 12 - valuable; 13 - beyond; 14 - visible; 15 - equipped; 16 - four-bladed; 17 - icon; 18 - situational awareness; 19 - mandated; 20 - fitment.