

### **What is ADS-B?**

ADS-B is the acronym for Automatic Dependent Surveillance - Broadcast. This is a new technology currently being implemented by the FAA across the US that allows pilots in the cockpit and air traffic controllers on the ground to "see" aircraft traffic with much more precision than has been possible before. ADS-B also broadcasts real-time weather information to pilots. This information significantly enhances pilots' situational awareness and increases flight safety. Best of all, access to data ADS-B is provided free of charge. ADS-B transceiver equipped aircraft broadcast their precise position in space along with other data, including airspeed, altitude, and whether the aircraft is climbing, or descending. ADS-B receivers that are integrated into the air traffic control system or installed aboard other aircraft provide users with an accurate depiction of real-time aviation traffic, both in the air and on the ground.

### **What is TIS-B?**

Traffic Information Services-Broadcast, or TIS-B, is a component of the ADS-B technology that provides free traffic reporting services to aircraft equipped with ADS-B Receivers. TIS-B allows non-ADS-B transponder equipped aircraft that are tracked by radar to have their location and track information broadcast to ADS-B equipped aircraft.

### **What is FIS-B?**

Flight Information Services-Broadcast, or FIS-B, is a component of ADS-B technology that provides free graphical National Weather Service products, temporary flight restrictions (TFRs), and special use airspace information enabling pilots to increase levels of safety in the cockpit and on the ground.

### **How does it work?**

ADS-B relies on the satellite-based global positioning system (GPS) to determine an aircraft's precise location in space. This location information is combined with other information such as the type of aircraft, its speed, its flight number, and whether it's turning, climbing, or descending and then broadcast several times a second. Other ADS-B equipped aircraft and ground stations within about 150 miles receive these broadcasts. The ground stations combine the ADS-B broadcasts received from different local area aircraft with additional location information received from ground radar for non-ADS-B equipped aircraft and rebroadcast the data out to aircraft in the area. The air traffic and weather information can then be displayed in the cockpits of ADS-B equipped aircraft.

### **Types of ADS-B hardware:**

- ADS-B Receiver (ADS-B IN)- This class of device can receive ADS-B data, but is not able to transmit ADS-B data to other aircraft or ground stations. An ADS-B receiver will receive both traffic information and weather information. A current limitation of the FAA's ADS-B implementation is that their ground stations will only transmit traffic data (including radar traffic data) when they receive data from a minimum of one ADS-B transmitting aircraft within range. Therefore, an ADS-B Receiver equipped aircraft may not see traffic data even if there are other aircraft in the area if none of the aircraft are equipped with ADS-B transmitters. Weather information is always transmitted by the ground stations and thus is always available to ADS-B Receiver equipped aircraft within range. The SkyRadar ADS-B Receiver falls into this category of device.

- ADS-B Transmitter (ADS-B OUT) - This class of device is capable of transmitting ADS-B data. ADS-B Transceivers are able to "wake up" the FAA's ADS-B ground stations and trigger them to start transmitting traffic data to aircraft in the local area. ADS-B devices capable of transmitting location and flight path data must be certified by the FAA.

- ADS-B Transceiver - This class of device is capable of both transmitting and receiving ADS-B data. ADS-B Transceivers are able to "wake up" the FAA's ADS-B ground stations and trigger them to start transmitting traffic data to aircraft in the local area. ADS-B devices capable of transmitting location and flight path data must be certified by the FAA.

### **Benefits of ADS-B**

- With ADS-B, pilots have access to the same kind of real-time traffic displays that are viewed by controllers. This will dramatically improve pilots' situational awareness, since they will know where they are in relation to other aircraft, bad weather and terrain.

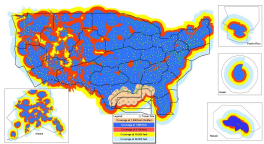
- ADS-B provides a much greater margin in which to implement conflict detection and resolution due to its effective range of more than 100miles.

- Pilots of ADS-B equipped aircraft will be able to see other aircraft position, direction, speed, and relative altitude.
- ADS-B gives pilots access to services such as graphical weather depiction and textual flight advisories at a price point much lower than what was previously available and without having to pay ongoing subscription fees.

### Where is ADS-B service available?

Complete national ADS-B coverage is expected by 2013, but ADS-B coverage is already available in many parts of the US allowing pilots to immediately benefit from the improved safety that it provides. Service is currently available in Alaska, Oregon, and Washington state, along the Eastern states, as well as other select areas. Key sites undergoing present deployment include the Gulf of Mexico, Juneau, Philadelphia, Miami, and Louisville. The FAA expects to issue a final rule by spring 2010 that would mandate ADS-B avionics in certain airspace by 2020.

### US ADS-B Coverage by 2013



[Check the CURRENT ADS-B COVERAGE](#) (Select "ADS-B" then "Radio Stations")

### More ADS-B Information

- [FAA Surveillance and Broadcast Services website](#)
- [FAA ADS-B FAQ](#)
- [YouTube video by FAA describing ADS-B Technology](#)

- [Flying Magazine: Mysteries of ADS-B](#)