



## → Iris

the satellite-based communication solution for the  
Single European Sky Air Traffic Management Research programme



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## Iris programme of satellite communication for air traffic management

Over the last decade the aviation sector has seen tremendous growth, making Europe the densest air traffic space in the world. As a result, we often experience delays and cancellations due to the saturated air traffic around main hubs such as Frankfurt, Paris and London.

To address this issue, the European Commission launched the Single European Sky Air Traffic Management Research Programme also known as SESAR. It supports the implementation of the Single European Sky by looking at all aspects of Air Traffic Management. It also intends to modernize communication infrastructure and increase safety for air traffic participants.

Today, the majority of information still passes through a voice communication channel between the pilot and a controller.

This procedure makes it increasingly difficult to introduce automation and to accommodate growth in air traffic.

In the future, voice communication between pilots and controllers will become a back-up, while data links become standard practice. This will enable the aircraft and the ground to communicate more effectively, increasing the efficiency of common aviation procedures.

This datalink will become critical to maintaining efficient operations. The service therefore needs to be constantly available and the technology needs to be resilient. It's a safety system that is fundamental for the future of Air Traffic Management.

SESAR is currently defining and evaluating two different communication technologies that will be used in parallel for this system. A new terrestrial data link, with antennas on-ground, and a satellite-based solution. This dual-link will offer the safety and capacity requirements for tomorrow's Air Traffic Management systems.



The European Space Agency (ESA) launched the Iris Programme in 2007 to develop and validate this new satellite solution. The Iris Programme is carried out in collaboration with the SESAR Joint Undertaking under the umbrella of ESA's cooperation with the European Union. The system is being developed by European industry under ESA contract.

The implementation of this communication system implies two parallel developments:

- 1 The development of technical specifications for a new satellite communication standard. This standard will have to be adopted at worldwide level, because airlines are truly global in operation.
- 2 A European satellite infrastructure, which will enable the provision of this service in Europe.



The global standard will ensure that aircraft equipped with a standard terminal will be able to communicate anywhere via compatible satellite systems. In practice, the flight crew will send and receive information to and from flight management facilities across Europe. Using this system will be transparent to the pilot and the controller. This information will be relayed via satellites placed in GEO stationary orbit. The system will be designed to ensure low costs both for equipping the aircraft and for the ongoing service of handling communications.

The Iris Programme is a new type of initiative for ESA: one where the space component is a tool in a much bigger system. The Iris programme is tuned to the needs of external partners and end users not always familiar with satellite technology. The total Development Phase for Iris will run until 2015, followed by the deployment of a fully operational system in 2020.

This investment into the future will contribute in making air travel in Europe safer, more efficient, environmentally sound and cost effective.



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