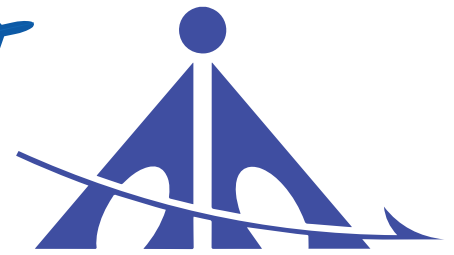# AIRPORTS AUTHORITY OF INDIA LEADING FROM THE FRONT

Space-Based ADS-B In One of the World's Densest Oceanic Airspaces

The Airports Authority of India (AAI), a Miniratna, central public sector undertaking, under the Ministry of Civil Aviation, Government of India, is committed to creating, upgrading, maintaining and managing the civil aviation infrastructure, both on the ground and air. AAI provides Air Traffic Management (ATM) services over the entire terrestrial portion of India and the adjoining oceanic areas covering nine million square kilometers of airspace, as delegated by the International Civil Aviation Organization (ICAO).

Introduction of Automatic Dependent Surveillance-Broadcast (ADS-B) through ground sensors in the domestic airspace, deploying satellite communication technologies, implementing surface technology like Advanced-Surface Movement Guidance and Control System (A-SMGCS), Ground-Based Augmentation System (GBAS) and airspace optimization through GPS-Aided GEO Augmented Navigation (GAGAN) and Central Air Traffic Flow Management are just a few recent notable program implementations.

As a leader of air traffic surveillance services in the region and the third largest airspace in the world, AAI's innovative thinking and determination to enhance safety and efficiency across their ever-growing, highly trafficked area is propelling the aviation industry forward.

PREVIOUS AIR TRAFFIC SERVICES SURVEILLANCE LIMITATIONS IN OCEANIC AIRSPACE

Previous air traffic surveillance in AAI's Mumbai, Chennai and Kolkata's oceanic regions were largely based on voice or datalink position reporting using procedural Air Traffic Control (ATC) separation services. Forecasts suggest that Indian airspace will continue to experience double-digit growth and will face additional congestion as a result. This air traffic increase requires extra capacity both in airspace and airports to meet the demand, including continued growth on overflights between South Asia, the Middle East and Europe.

SPACE-BASED ADS-B OPERATIONS TODAY

In order to maintain safe and efficient operations, while accommodating the growing capacity, AAI has introduced Aireon's space-based ADS-B system for real-time air traffic surveillance over its entire oceanic region. Space-based ADS-B is cost-effectively providing coverage for the Mumbai, Chennai and Kolkata oceanic regions, which previously did not have complete, real-time visibility. The real-time visibility of aircraft approaching and travelling through India's dense airspace, enables ATC to utilize enhanced safety tools and reduce the separation of aircraft, making way for efficient growth of capacity and sustainability, reducing risk through the availability of Aireon's data. The use of space-based ADS-B allows operators the flexibility to fly user preferred, better routes and

offer optimal altitudes and speeds to maximize flight efficiency. This allows for enhanced coordination and collaboration with neighboring countries and an improved handoff between the domestic and oceanic sectors and quicker response time to emergency and distress situations with search and rescue. Improved communications and data sharing between Asia, the Middle East and Europe is a main objective aimed at reducing delays and improving the flying experience from ATC to the passenger and all involved.

Using real-time air traffic surveillance over the oceans, paired with AAI's advanced communications capabilities will allow AAI to safely reduce aircraft separation to 15 Nautical Miles (NM) longitudinal and lateral separation for Controller-Pilot Data Link Communications (CPDLC) equipped aircraft. In situations where aircraft operate with Direct Controller-Pilot Communications (DCPC) over VHF, the standard separation minimum of five NM will remain applicable. AAI will continue to offer its customers the best services and support ICAO's global harmonization initiatives. AAI is proud to lead from the front with its motto "Service with Safety."