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GAGAN ushers flying leap for aviation

WORK ON THE GPS-AIDED GEO AUGMENTED NAVIGATION (GAGAN) PROJECT IS ON AND BY THE MIDDLE OF 2013 WHEN THE GEO SATELLITE IS LAUNCHED BY ISRO, IT WOULD PROVIDE THE AVAILABILITY OF GAGAN SIGNALS IN SPACE. SIMPLY PUT, THESE SIGNALS WOULD PROVIDE A CERTIFIED NEAR-PRECISION APPROACH SERVICE AT ALL AIRPORTS.

By Group Captain Devender C Mehta. Advisor (MR), AAI.

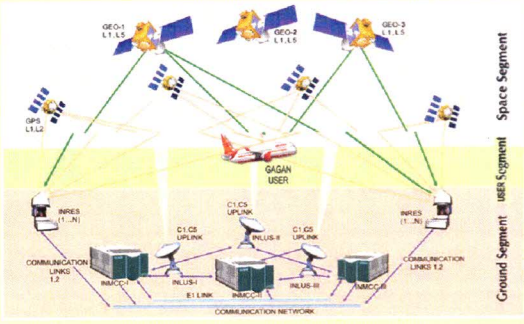
The implementation of the GPS-Aided Geo Augmented Navigation (GAGAN) project by the Airports Authority of India (AAI) and Indian Space Research Organisation (ISRO) for seamless navigation over Indian airspace is on. Once completed, India will be the fourth country in the world to have a satellite-based navigation system.

GAGAN's ground elements are being deployed and integrated to have it certified by the Directorate General of Civil Aviation, for its operation over Indian Flight Information Region (FIR). The system has in-built expansion capabilities to operate over neighbouring FIRs. The GAGAN system will provide corrections to the GPS signal to meet the accuracy, integrity, availability and continuity requirements prescribed for aviation. GAGAN will provide a civil aeronautical navigation signal consistent with International Civil Aviation Organisation (ICAO) Standards and Recommended Practices (SARPs) as established by the Global Navigation Satellite System Panel (GNSSP). In addition, GAGAN has established the capability of meeting ICAO-SARPS requirements through its Technology Demonstration System (TDS) Phase. India has embarked on a four-year programme called Final Operational Phase (FOP) ending June 2013 to provide GAGAN SBAS services over Indian airspace.

AAI is on the threshold of redefining navigation from the present "land-based" to the "satellite-based" system

BENEFITS OF GAGAN

- AAI is on the threshold of redefining navigation from the present "land-based" to the "satellitebased" system. The facility will provide tangible benefits to the civil aviation and the non-civil aviation sectors. For the aviation sector, it will usher in:
- Improved efficiency/Economy
- Direct routes
- Increased fuel saving
- Approach with vertical guidance to all runways not equipped earlier
- Reduced workload of flight crew and Air Traffic Controllers
- Improved capacity through reduced aircraft separation
- Higher accuracy, global coverage
- Improved safety
- Reduce the risk of controlled flight into terrain [CFIT]
- Enhanced air-to-air surveillance: ADS-B future generation surveillance
- Availability of MSAW facility (Minimum Safe Altitude Warning)
- Reduced noise pollution footprint
- Ease of search and rescue operations Even the non-civil aviation sectors will be benefited



PERFECT NAVIGATION: Graph portraying the architectural set-up of GAGAN.