IRNSS & GAGAN Timing Infrastructure

A. IRNSS (Indian Regional Navigation Satellite System)

1. IRNSS Network Time(IRNWT) infrastructure is being established at Bangalore with the following clocks:
   - 3 nos Active Hydrogen Masers & 4 nos of Cesium 5071-A High performance frequency standards in clock ensemble.
   - 4 nos of CDMA ranging stations to have 8 nos of Cesium 5071-A High performance frequency standards also in the clock ensemble.
   - 4 nos of Reference Stations (type-A) will have 8 nos of Cesium 5071-A standard performance frequency standards and 9 nos of reference(type-B) stations are expected to have 18 nos of Rubidium frequency standard.
2. IRNSS Network Time (IRNWT) shall be a flat time and is aimed to be within 20 nanoseconds with respect to the International Atomic Time(TAI) .
3. IRNSS shall use WGS-84 as the Geodetic Reference Frame.

IRNSS & GAGAN Timing Infrastructure (Contd.,)

B. GAGAN (GPS Aided Geo Augmented Navigation) System

- GAGAN is being implemented in 2 phases – a Technology Demonstration System (TDS) phase and Final Operational Phase (FOP). The TDS phase was completed in September 2007. During this phase, 8 GAGAN reference stations were commissioned with 2 Cesium clocks in each station.
- During the Final Operational Phase, number of reference stations is proposed to be increased to 15 with 3 cesium clocks at each station. FOP is expected to be completed by 2011.

C. IRNSS Timing infrastructure, therefore, consists of a Network Timing Facility(IRNWT) with 3 nos of Active Hydrogen Maser + 12 nos of Cesium 5071-A High performance frequency standards and a large numbers of Standard performance Cesium and Rubidium standards.

D. This provides an excellent opportunity for creating an UTC(ISRO).