NavCom and Other Novel Applications of NavIC/GAGAN

SATNAV PO, ISRO HQ
NavIC / GAGAN Applications (Introduction)

- NavIC constellation of 7 satellites is complete
- GAGAN has been certified for APV-I (precision approach) operations by DGCA on April 21, 2015
- As part of proliferation of NavIC & GAGAN usage in India, ISRO has initiated multiple pilot projects as part of the Utilization Programme
Messaging Receivers for Fishermen

- Started as pilot project in the states of Kerala, Tamil Nadu, Andhra Pradesh & Karnataka
- Full deployment is expected by Jun’19
- Features:
  - Disaster warning alert messages for Cyclone, Tsunami, High Wave, etc.
  - Alerts on crossing international boundary
  - Potential Fishing Zones Information extracted from Indian Remote Sensing Satellite data
  - Native language support
Warning Systems for Un-Manned Level Crossings

- Around 6500 un-manned railway level crossings exist in India
- Initiative to eliminate risk at the level crossings by using NavIC & GAGAN based tracking receivers in Trains.
- The hooters are installed at Level Crossings and also in Train Engines. Automatic warning at the crossing when train is 1-2 km away
- Pilot project in 4 locations of East Central Railway Network of India
Smart City Applications

- Tracking of all public transportation systems with NavIC + GAGAN based trackers by April’19
  - Pilot projects carried out in Mysore, Delhi, Ahmedabad
- MMTS Railway line mapping in Hyderabad, 3D models of Bridges/Flyovers using NavIC/GAGAN
- NavIC/GAGAN Apps for heritage site management & civilian construction approvals
Resource monitoring

- Pilot project to combine High Resolution Satellite Imagery with NavIC/GAGAN receivers for monitoring mining activities

TEMPORAL CHANGES OF LIMESTONE MINE FROM REMOTE SENSING DATA
Launch Vehicle Tracking

- NavIC + GAGAN/GPS receiver integrated into ISRO’s Launch vehicles
- 3 to 6 NavIC satellites were tracked & used to derive trajectory
- Integrated INS for operation during non-availability of satellites
- Since Dec 2016 the receiver has been flown in ISRO launch missions
Other Applications

- 360° Image Acquisition system developed with GAGAN for developing digital walkthroughs of historical sites/tourist locations
- Differential NavIC positioning solutions are under evaluation
- NavIC based positioning solution for Radio-Sonde applications
- IMO certification of NavIC system for maritime services
Thank You

Akhileshwar Reddy P.
Deputy Programme Manager,
Satellite Navigation Programme Office,
ISRO Headquarters, Bengaluru
Phone: +91-80-22172194 (O); +91-9726343662 (M) E-Mail: akhileshwar@isro.gov.in