Advisory to NavIC Users (ANU)

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SATELLITE NAVIGATION PROGRAMME

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Advisory to NavIC Users (ANU)

- ISRO has developed a system to publish Advisory for NavIC Users (ANU) in line with international GNSS practice (NANU of GPS, NAGU of Galileo and GLONASS).

- The automated system publishes information about any activity or event in the NavIC system that impacts Signal-in-Space (SIS), satellite availability, or to intimate any general information regarding the services, in the form of advisory notices.

- Advisory notices shall be published at least 48 hours in advance for planned activities and within two hours in case of unplanned events.

- The advisory notices are both human readable and machine-readable to support automated parsing of the information for further processing.

- Some of the typical users include:

  - Specific users for mission planning.
  - Assisted GNSS systems.
  - Providers of precise GNSS products.

Types of Advisory Notices

Type	Description
Planned Manoeuvre	Planned manoeuvre affecting the attitude and/or orbit.
Un-planned Manoeuvre	Unplanned manoeuvre affecting the attitude and/or orbit.
Planned Outage	Planned activity, in space or ground segment, that can potentially cause an outage of the broadcast satellite SIS.
Unplanned Outage	Outage of the broadcast satellite SIS due to occurrence of any unscheduled event.
Unavailable until further notice	Unscheduled outage of the broadcast satellite SIS, characterized by an undefined duration.
Usable	The satellite restarts transmitting healthy SIS, concluding an unplanned outage period of undefined duration.
Cancellation	Cancellation of published advisories.
Decommission	Decommissioning phase of a NavIC satellite.
Launch	Notification of a NavIC Satellite Launch.
Satellite First Time Useable	Satellite enters into service for the first time and the signals are useable.
Leap Second	General notifications for leap second adjustment.
General Notice	Any general notice.

NavIC Advisory Portal

Fig: Screenshot of NavIC Advisory web portal

NavIC Advisory Notice – Samples

```
ADVISORY TO NavIC USERS  10929

DATE GENERATED (UTC) :2022-10-05 05:01
TYPE :PLN_MNVR
SUBJECT :PLANNED_MANEUVER
ANU NUMBER :10929
REFERENCED TO :N/A
SATELLITE AFFECTED: [IRNSS-1B]
SIGNAL(S) AFFECTED:[L5, S]

SATELLITE ID        START DATE        START TIME        END DATE        END TIME        STATUS
IRNSS-1B            11102022          144600            11102022        162600          PLANNED

EVENT DESCRIPTION : NavIC Satellite(s) :[IRNSS-1B] Navigation Signals :[L5, S] expected usable  :2022-10-11 beginning from :16:26 UTC
                   NavIC Satellite(s) :[IRNSS-1B] Navigation Signals :[L5, S] unavailable from 2022-10-11 beginning from :14:46 UTC
```

Maneuver: Planned

```
ADVISORY TO NavIC USERS  10878

DATE GENERATED (UTC) :2022-09-07 16:25
TYPE :UNPLN_MNVR
SUBJECT :UNPLANNED_MANEUVER
ANU NUMBER :10878
REFERENCED TO :N/A
SATELLITE AFFECTED: [IRNSS-1F]
SIGNAL(S) AFFECTED:[L5, S]

SATELLITE ID        START DATE        START TIME        END DATE        END TIME        STATUS
IRNSS-1F            07092022          151036            07092022        162524          COMPLETED

EVENT DESCRIPTION : NavIC Satellite(s) :[IRNSS-1F] Navigation Signals :[L5, S] expected usable  :2022-09-07 beginning from :16:25:24 UTC
                   NavIC Satellite(s) :[IRNSS-1F] Navigation Signals :[L5, S] unavailable from 2022-09-07 beginning from :15:10:36 UTC
```

Unplanned Maneuver: Completed

```
ADVISORY TO NavIC USERS  10928

DATE GENERATED (UTC) :2022-10-05 05:01
TYPE :PLN_MNVR
SUBJECT :CANCELLED
ANU NUMBER :10928
REFERENCED TO :[10914]
SATELLITE AFFECTED: [IRNSS-1B]
SIGNAL(S) AFFECTED:[L5, S]

SATELLITE ID        START DATE        START TIME        END DATE        END TIME        STATUS
IRNSS-1B            09102022          144600            09102022        162600          CANCELLED
```

Planned Maneuver: Cancelled

NavIC Advisory Portal - Status

- The system has been developed in phases:

  ✓ Phase-1: Generation of NavIC advisory notices and circulation via email to the stakeholders within ISRO.

  ✓ Phase-2: Publishing of NavIC advisories via Web Portal and made available for users within in ISRO.

  ➢ *Phase-3: NavIC advisory web portal shall be deployed over internet for general public after the completion of security audit, test & evaluation and obtaining user feedback.*

Acknowledgment

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[1]ISRO Telemetry Tracking and Command Network

Thank You