ISRO's NVS-03 Launch Successful: Satellite Placed in Designated Orbit; NavIC's Satellite Shortage and the Importance of the Indigenous Clock

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Why in the News

According to ISRO's official confirmation, on 30 October 2026 the GSLV-F18 (GSLV Mk II) rocket launched successfully from the second launch pad of the Satish Dhawan Space Centre, Sriharikota, and placed the navigation satellite NVS-03 in its designated orbit (geosynchronous transfer orbit). Earlier, ISRO chairman Dr V. Narayanan had on 22 October 2026 announced approval of the 30 October launch; originally this launch was tentatively scheduled between 15-20 October. The satellite had reached Sriharikota nearly three months earlier. This was ISRO's second major launch attempt of the year; on 4 September 2026 the EOS-05 satellite was successfully launched by the same GSLV Mk II.

This article originally describes the pre-launch position (26 October 2026). Update of 31 October 2026: as per ISRO's official confirmation, NVS-03 was successfully launched on 30 October 2026 and the satellite was placed in its designated orbit.

Current State of the NavIC Constellation

According to a written answer given in the Lok Sabha in July 2026 (29 July 2026, PIB), after IRNSS-1F completed its ten-year mission life, three satellites in the NavIC constellation are providing PNT (position, navigation and timing) service: IRNSS-1B, IRNSS-1I and NVS-01. A minimum of four working satellites are required for basic positioning service; so NavIC is currently unable to provide an independent positioning service, although the timing service is running. According to the government, in most use cases NavIC works in a multi-constellation GNSS environment, so there is no vulnerability for users.

On 13 March 2026, the imported atomic clock of IRNSS-1F stopped working (ISRO's official statement of 14 March). From July 2013 until the launch of NVS-03, 11 navigation satellites had been launched for NavIC - of this system costing about Rs 2,250 crore, six satellites failed mainly due to faults in the imported atomic clocks and, in some cases, orbital problems. This background explains the importance of the indigenous clock in the NVS series.

Why NVS-03 Matters

NVS-03 is the third satellite of the second-generation navigation satellites (NVS series). According to PIB's July 2026 information it was then ready for launch, and NVS-04 and NVS-05 are in advanced stages of construction. The then Minister of Science and Technology Dr Jitendra Singh had told Parliament in mid-2025 that NVS-04 and NVS-05 are planned to be launched at intervals of about six months - their purpose is to strengthen NavIC's base-level constellation with better facilities for service continuity.

At the centre of a navigation system lies precise time measurement: position is fixed only by calculating the delay of the signal from the satellite to the Earth. According to an ISRO official, one satellite is enough for the timing service, but four are needed for position-navigation; a constellation of seven satellites is considered ideal. A full NavIC system can help the government target of real-time tracking of about 12,000 trains - about 8,700 trains are already equipped.

Background: NavIC

NavIC is India's indigenous regional navigation satellite system, provided jointly by ISRO's IRNSS and NVS satellites. ISRO began work on it after the Kargil war of 1999, when the Indian Army could not use the positioning assistance of the American GPS in the conflict zones. The first-generation satellites had imported atomic clocks; after they failed, an indigenous alternative was developed.

Date	Event
13 March 2026	IRNSS-1F's imported atomic clock stopped; the satellite continues in limited broadcast service (ISRO statement, 14 March)
29 July 2026	Lok Sabha written answer: only 3 satellites in PNT service (IRNSS-1B, IRNSS-1I, NVS-01); minimum 4 required; NVS-03 ready for launch
4 September 2026	Successful launch of EOS-05 by GSLV Mk II - the year's only successful mission; GSLV Mk II's sixth consecutive success since 2021
22 October 2026	ISRO chairman Dr V. Narayanan: approval for the 30 October launch attempt of NVS-03
30 October 2026	Successful launch of NVS-03 (GSLV-F18 / GSLV Mk II, Sriharikota) - satellite placed in designated orbit (ISRO's official confirmation)

Keep in Mind for the Exam

Scheduled versus launched: NVS-03 has been launched on 30 October 2026 - the satellite is in its designated orbit (ISRO). The chairman's approval (22 October) and the actual launch (30 October) are different dates; do not confuse the two while writing an answer.

3 versus 4: The number of satellites giving PNT service (3) and the minimum required number (4) are different things - the gap for an independent positioning service lies exactly here.

Generational difference: IRNSS (first generation, imported clocks) and NVS (second generation, including the indigenous clock) - NVS-01, the first satellite of the NVS series, is in PNT service according to the parliamentary answer of July 2026.

Sources

- ISRO, GSLV-F18/NVS-03 mission page (verified 31 October 2026): GSLV-F18 successfully placed NVS-03 in its designated orbit; launch from the second launch pad of the Satish Dhawan Space Centre
- PIB, 29 July 2026: parliamentary question - operational status of the NavIC constellation (Lok Sabha written answer)
- Indian Express, 22 October 2026: approval for the 30 October launch of NVS-03 - ISRO chairman's indication
- India Today, 24 October 2026: preparation for the NVS-03 launch and the context of NavIC's satellite shortage

This article originally describes the position as of 26 October 2026; the information on the launch's success, with ISRO's official confirmation, was added on 31 October 2026. The constellation's numerical status is dated information from the July 2026 parliamentary answer; it will be updated again upon ISRO's announcement of the satellite's operational status.