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ISRO Launched Navigation Satellite, NVS-1

Why In News?

- The NVS-1 Satellite Was Launched By ISRO From The Satish Dhawan Space Centre In Sriharikota Aboard The GSLV F12.
- The NVS-1 Satellite Is The 1st Of The Next-Generation NavIC Satellites Designed To Improve The Country's Navigation Capabilities.

What Is NavIC?

- Also Known As Navigation With Indian Constellation, NavIC Is An Independent Stand-alone Navigation Satellite Which Is Developed And Deployed By The Indian Space Research Organization.
- Originally Approved In 2006, NavIC Was Expected To Be Completed In The Year
 2011 To Become Operational In 2018.
- It Consists Of 8 Satellites Which Cover The Indian Landmass To Its Extent Of Up To 1500 Km.
- It Is Currently Being Used In Public Vehicle Tracing & Tracking For Providing Emergency Warning Alerts To Fishermen Venturing Into The Deep Sea For Tracking And Providing Information Related To Natural Disasters.



Significance Of NavIC For India?

- It Provides **Real-time Information** For **Normal Positioning Services** Available To Civilians As Well As **Restricted Services** For Permitted Users Like The **Military**.
- It Will Aid India's Scientific And Technical Advancement.
- It Will Make The Indian Armed Forces Self-sufficient And Reliant.
- One Of The Project's Proposed Future Purposes Is To Share The Initiative With The **SAARC Nations**.
- This Would Aid In The Greater Integration Of The Regional Navigation System And Is A Diplomatic Gesture From India To The Countries Of The Region.
- It Is Critical For The Country's **Sovereignty And Strategic Needs.**





About Second-Generation Satellites

Satellite Name	NVS-01, the first of ISRO's NVS series of payloads.
Weight	2,232 kg
Launch Vehicle	Geosynchronous Satellite Launch Vehicle (GSLV) rocket
Onboard Technology	Rubidium atomic clock, developed by Space Application Centre- Ahmedabad.
Frequency Signals	It will send signals in a third frequency, L1, besides the L5 and S frequency signals that the existing satellites provide
Mission Life	More than 12 years for second-generation satellites, the existing satellites have a mission life of 10 years.



What's New In The 2nd Generation NavIC Satellite?

- Atomic Clock: The Satellite Will Be Equipped With A Rubidium Atomic Clock. Space Application Centre-Ahmedabad Developed The Space-Qualified Rubidium Atomic Clock On Its Own. It Is A Critical Technology That Only A Few Countries Have.
- Longer Mission Life: The Mission Life Of The Second-generation Satellites Will Be More Than 12 Years. The Current Satellites Have A 10-year Mission Life
- L1 Signals Optimised For Usage In Wearable Devices: In Addition To The L5 And S Frequencies, The Second-generation Satellites Will Transmit Signals On A Third

Frequency, L1. The L1 Frequency Is One Of The Most Regularly Used In The Global Positioning System (GPS)



Significance Of Domestic Atomic Clock

- Using The Atomic Clocks On Board, A Satellite-based Positioning System Calculates The Location Of Objects By Precisely Measuring The Time It Takes For A Signal To Travel To And From Them.
- After Their Onboard Atomic Clocks Broke, Several Existing Satellites Stopped Delivering Position Data.
- Only Four IRNSS Satellites Can Now Provide Location Services.
- The Remaining Satellites Can Only Provide Messaging Services, Such As Disaster Warnings Or Prospective Fishing Zone Messages For Fishermen





Why Is India Promoting NavIC?

- The Goal Of NavIC Is To Eliminate Reliance On Foreign Satellite Systems For Navigation Service Requirements, Particularly In Strategic Industries.
- Depending On Systems Such As GPS And GLONASS, Which Are Operated By Respective Nations' Defence Organisations, May Not Always Be Trustworthy.





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