



# Rohini Sounding Rocket

## Why in News?

The [Indian Space Research Organisation \(ISRO\)](#) is planning the **200<sup>th</sup> successful launch** of the **Rohini RH-200** sounding rocket in a row.

- RH-200 of the Rohini sounding rocket family has completed **198 consecutive successful flights**.
- The 199<sup>th</sup> launch will happen in October 2022 during the [World Space Week \(4<sup>th</sup>-10<sup>th</sup> October\) celebrations](#). The 200<sup>th</sup> will take place either towards the end of October or the beginning of November 2022.

## What are the Sounding Rockets?

### ▪ About:

- Sounding rockets are **one or two stage solid propellant rockets** used for probing the upper atmospheric regions and for space research.
  - Sounding rockets take their name from the nautical term "to sound," which means to take measurements.
- They also serve as **easily affordable platforms to test or prove prototypes** of new components or subsystems intended for use in launch vehicles and satellites.

### ▪ History:

- The Thumba Equatorial Rocket Launching Station (TERLS) was established on 21<sup>st</sup> November 1963. Its southern tip is close **to earth's magnetic equator**.
- The launch of the first sounding rocket (American Nike-Apache) from Thumba in 1963, **marked the beginning of the Indian Space Programme** and was the bedrock of all the vehicles built.
- ISRO began with the launch of **indigenously built sounding rockets from 1965**. The ISRO launched its own version - **Rohini RH-75 - in 1967**.
- In 1975, all sounding rocket **activities were cluttered under the Rohini Sounding Rocket (RSR) Programme**.
- The series of sounding rockets are called **Rohini series with RH 200, RH 300 and RH 560 being the most important** among them.

### ▪ RH-200:

- RH-200 is a **two-stage rocket capable of climbing to a height of 70 km** bearing scientific payloads.
- The first and second stages of RH-200 are powered by solid motors.
- For years, the RH-200 rocket had used a **polyvinyl chloride (PVC)-based propellant**.
- The first RH-200 to use a new propellant based on hydroxyl-terminated Polybutadiene (HTPB) was successfully flown from the TERLS in September 2020.
  - As compared to PVC based propellants, HTPB based propellant is more energetic, higher mechanical & interface properties and has less defects due to lower processing temperature.
- The '200' in the name **denotes the diameter of the rocket in mm**. Other operational Rohini variants are **RH-300 Mk-II and RH-560 Mk-III**.

## Some details of Sounding Rockets

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Vehicle	RH-200	RH-300-Mk-II	RH-560-MK-II
Payload (Kg)	10	60	100
Altitude (Kms)	80	160	470
Purpose	Meteorology	Aeronomy	Aeronomy
Launch Pad	Thumba Balasore	SDSC-SHAR	SDSC-SHAR

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