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EOS-05 on September 4: ISRO Returns to the Pad with a Geostationary Eye

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EOS-05 on September 4: ISRO Returns to the Pad with a Geostationary Eye

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✓ Every fact web-verified against primary sources

ISRO will launch EOS-05, also designated GISAT-1A, on September 4, 2026 aboard GSLV-F17 from the Second Launch Pad at the Satish Dhawan Space Centre, Sriharikota. The mission ends a launch pause of close to seven months and replaces a satellite lost in a launch failure in 2021.

THE MISSION CARD

PARAMETER	DETAIL
Satellite	EOS-05, also called GISAT-1A
Launch date	September 4, 2026
Launch vehicle	GSLV-F17
Launch site	Second Launch Pad, Satish Dhawan Space Centre, Sriharikota, Andhra Pradesh
Mass	2,367 kg
Injection orbit	Sub-Geosynchronous Transfer Orbit
Operating orbit	Geostationary, about 36,000 km above the equator
Imaging cadence	Near-real-time images of the Indian subcontinent at about 30-minute intervals
Priority-target revisit	About 5 minutes

WHY A GEOSTATIONARY IMAGING SATELLITE IS DIFFERENT

This is the conceptual core of the article, and the distinction is a classic Prelims discriminator.

Most Earth-observation satellites are in low Earth orbit, a few hundred kilometres up, in a **sun-synchronous** orbit. They move fast relative to the ground, so they see any given place only when they pass over it, typically once every several days. What they give you in exchange is **high spatial resolution**: fine detail, infrequently.

A geostationary imaging satellite sits at about **36,000 km** over the equator, orbiting at the same angular rate as the Earth's rotation, so it appears fixed above one longitude. It therefore stares continuously at the same hemisphere. What it gives you is **high temporal resolution**: coarser detail, constantly.

	LOW EARTH ORBIT IMAGING	GEOSTATIONARY IMAGING
Altitude	Hundreds of km	About 36,000 km
Strength	Spatial resolution	Temporal resolution
Revisit	Days	Minutes
Typical use	Mapping, cadastral survey, detailed change detection	Disaster monitoring, weather, border and coastal watch

*A geostationary Earth-observation satellite trades resolution for revisit. That single trade is why EOS-05's headline capability is quoted as a **30-minute imaging interval** and a **5-minute revisit for priority targets** rather than as a number of metres per pixel.*

What that capability is actually for. Continuous imaging of a fixed region supports **rapid monitoring of natural disasters and episodic events**, cloud-and-weather observation, and persistent watch over borders, coastlines and large infrastructure. In a country where a flood, a cyclone landfall or a **cloudburst** can develop inside a single afternoon, a satellite that revisits in minutes is operationally different from one that revisits in days.

THE LAUNCH VEHICLE, AND THE CRYOGENIC STORY

GSLV is India's **Geosynchronous Satellite Launch Vehicle**. Its defining feature, and the reason it matters historically, is the **indigenous Cryogenic Upper Stage**.

Why cryogenics carry so much national weight in this story. A cryogenic engine burns **liquid hydrogen with liquid oxygen**, propellants that must be held at temperatures far below zero. The combination gives a much higher **specific impulse** than storable propellants, which is what makes heavy payloads to geosynchronous transfer orbit practical. India was denied cryogenic technology transfer in the early 1990s and developed the stage domestically over roughly two decades. The GSLV's flight record is, in effect, the report card on that programme.

The Second Launch Pad at Sriharikota is the newer of the two operational pads at the Satish Dhawan Space Centre and services both PSLV and GSLV-class vehicles.

THE SATELLITE IT REPLACES

EOS-05 follows **EOS-03**, also designated **GISAT-1**, which was **lost in a launch failure in 2021**. The intended capability, a geostationary imaging platform for the Indian region, has therefore been unavailable since then. EOS-05 is the second attempt at filling that specific gap, which is why the mission carries more institutional weight than a routine flight.

THE CONTEXT OF THE PAUSE

The launch ends an operational pause of close to **seven months**.

The most recent ISRO launch failure on record is **PSLV-C61**, carrying **EOS-09**, on **May 18, 2025**. The first and second stages performed normally; an **anomaly in the third stage**, reported as a **fall in chamber pressure**, caused the loss of the mission. A failure analysis committee investigated and reported.

*PSLV-C61 was only the **third failure in the PSLV's history since its first flight in 1993**, the previous one being **PSLV-C39 in 2017**. A vehicle with that record is not an unreliable vehicle. The correct reading of a launch pause after an anomaly is that the organisation stopped to understand the cause, which is what a mature launch programme is supposed to do.*

THE INSTITUTIONAL FRAME

Dr V. Narayanan has been **Chairman of ISRO** and **Secretary, Department of Space** since 2025, having assumed charge on January 13 of that year. He is a propulsion specialist who joined ISRO in **1984** and previously directed the **Liquid Propulsion Systems Centre**.

The chain of authority, which is examinable. The **Department of Space** reports directly to the **Prime Minister**. The **Space Commission** sets policy. **ISRO** is the executing agency. **IN-SPACE**, the Indian National Space Promotion and Authorisation Centre, is the single-window regulator and promoter for private participation, and **NewSpace India Limited** is the commercial arm.

UPSC RELEVANCE

GS Paper 3: Awareness in the field of space; achievements of Indians in science and technology; indigenisation of technology and developing new technology. Orbit types, launch vehicle classes and the cryogenic programme are recurring Prelims subjects.

GS Paper 3: Disaster management. A geostationary imaging asset is a disaster-management capability, and that is the connection an answer should make rather than treating the launch as a standalone achievement.

A Mains question worth structuring. “India’s Earth observation programme has moved from mapping to monitoring. Discuss the technological and administrative implications. (250 words)” The spatial-against-temporal trade-off is the technological half; the DOS, IN-SPACE and NSIL architecture is the administrative half.

FACTS CORNER — KNOWLEDGE PEDIA

THE EOS-05 MISSION:

ISRO will launch EOS-05, also called GISAT-1A, on September 4, 2026.

The launch vehicle is GSLV-F17, flying from the Second Launch Pad at Sriharikota.

EOS-05 has a mass of 2,367 kg and is injected into a Sub-Geosynchronous Transfer Orbit.

It will operate from geostationary orbit, about 36,000 km above the equator.

EOS-05 is designed to image the Indian subcontinent at about 30-minute intervals.

Its revisit time for priority targets is about 5 minutes.

EOS-05 replaces EOS-03, also called GISAT-1, lost in a launch failure in 2021.

The mission ends an ISRO launch pause of close to seven months.

ORBITS AND VEHICLES:

A geostationary satellite orbits at the Earth's rotation rate and appears fixed over one longitude.

Geostationary imaging trades spatial resolution for very high temporal resolution.

Sun-synchronous low Earth orbit imaging gives fine detail but revisits only every few days.

A cryogenic engine burns liquid hydrogen with liquid oxygen for higher specific impulse.

The GSLV's Cryogenic Upper Stage is indigenously developed.

The Satish Dhawan Space Centre is at Sriharikota in Andhra Pradesh.

THE LAUNCH RECORD AND INSTITUTIONS:

PSLV-C61 carrying EOS-09 failed on May 18, 2025 after a third-stage chamber pressure fall.

PSLV-C61 was only the third PSLV failure since the vehicle's first flight in 1993.

The previous PSLV failure before that was PSLV-C39 in 2017.

Dr V. Narayanan is ISRO Chairman and Secretary, Department of Space, from January 13, 2025.

He previously headed the Liquid Propulsion Systems Centre and joined ISRO in 1984.

The Department of Space reports directly to the Prime Minister.

IN-SPACe is the single-window regulator for private space activity; NSIL is the commercial arm.

Sources: ISRO, Business Standard, News Today

Source: EOS-05 on September 4: ISRO Returns to the Pad with a Geostationary Eye — Ujiyari.com | Free UPSC & State PCS Current Affairs

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