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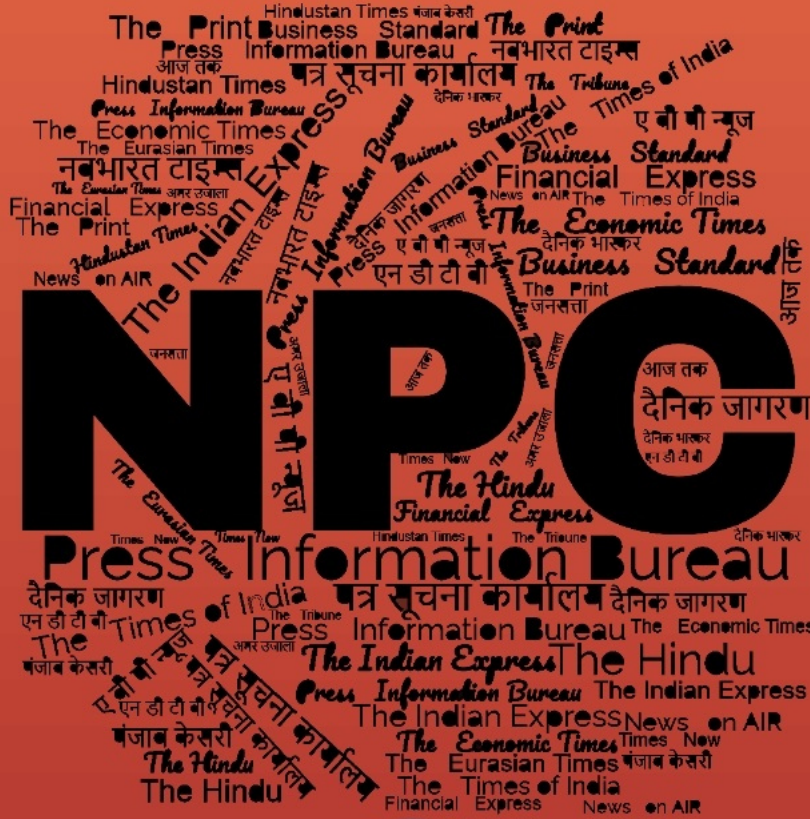
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# समाचार पत्रों से चयनित अंश Newspapers Clippings

डीआरडीओ समुदाय को डीआरडीओ प्रौद्योगिकियों, रक्षा प्रौद्योगिकियों, रक्षा नीतियों, अंतर्राष्ट्रीय संबंधों और विज्ञान एवं प्रौद्योगिकी की नूतन जानकारी से अवगत कराने हेतु दैनिक सेवा

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# DRDO News

## डीआरडीओ ने टैंकरोधी निर्देशित मिसाइल का किया सफल परीक्षण

Source: Jansatta, Dt. 13 Jan 2026

रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) की रक्षा अनुसंधान और विकास प्रयोगशाला, हैदराबाद द्वारा महाराष्ट्र के अहिल्या नगर स्थित केके रेंज में उच्चतम आक्रमण क्षमता वाली तीसरी पीढ़ी की 'फायर एंड फारगेट' मानव-चालित टैंकरोधी गाइडेड मिसाइल (एमपीएटीजीएम) का 11 जनवरी को सफल उड़ान परीक्षण किया गया।

स्वदेशी रूप से विकसित इस एमपीएटीजीएम में इमेजिंग इंफ्रारेड (आइआइआर) होमिंग सीकर, आल इलेक्ट्रिक कंट्रोल एक्जुशन सिस्टम, आयुध नियंत्रण प्रणाली, टैंडम वारहेड, प्रणोदन प्रणाली और उच्च प्रदर्शन लक्ष्यीकरण प्रणाली जैसी अत्याधुनिक स्वदेशी प्रौद्योगिकियां शामिल हैं।

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## Anti-tank guided weapon inches closer to induction into Indian army

Source: Hindustan Times, Dt. 13 Jan 2026

India on Monday successfully tested a man portable anti-tank guided missile (MPATGM) with top attack capability against a moving target, paving the way for the induction of the weapon system into the army and boosting its anti-armour capabilities, the defence ministry said.

The Hyderabad-based Defence Research and Development Laboratory, which comes under the DRDO, tested the third-generation fire-and-forget missile at KK Ranges in Maharashtra's Ahilya Nagar.

The indigenously developed MPATGM consists of state-of-the-art indigenous technologies, including imaging infrared (IIR) homing seeker, all-electric control actuation system, fire control system, tandem warhead, propulsion system and high performance sighting system, the defence ministry said in a statement.

The systems have been developed by the Defence Research and Development Organisation laboratories such as **Research Centre Imarat**, Hyderabad, **Terminal Ballistics Research Laboratory**, Chandigarh, **High Energy Materials Research Laboratory**, Pune, and **Instruments Research and Development Establishment**, Dehradun.

The development comes at a time India has kicked off the process to import the Javelin anti-tank missile system from the United States at a cost of \$45.7 million to boost the army's operational readiness.

“The thermal target system of the indigenous MPATGM was developed by Defence Laboratory, Jodhpur to simulate the target tank. The IIR seeker is well accomplished with day and night combat operation capability. The warhead is capable of defeating modern main battle tanks,” the defence ministry said.



*DRDO's Defence Research & Development Laboratory, Hyderabad, successfully flight-tests Man Portable Anti-Tank Guided Missile with top attack capability against a moving target, in KK Ranges in Ahilyanagar on Monday.*

Bharat Dynamics Limited and Bharat Electronics Limited are the development-cum-production partners (DcPP) for the weapon system. Defence minister Rajnath Singh complimented DRDO, DcPP and the industry for the successful test, adding that it was an important step towards Atmanirbhar Bharat (self-reliant India). In last November, the US State Department approved the possible foreign military sale of the Javelin weapon system to the country following New Delhi's request.

“The Government of India has requested to buy one hundred (100) FGM-148 Javelin rounds; one (1) Javelin FGM-148 missile, fly-to-buy; and twenty-five (25) Javelin Lightweight Command Launch Units (LwCLU) or Javelin Block 1 Command Launch Units (CLU),” the US Defense Security Cooperation Agency (DSCA) said at the time.

This proposed Javelin sale, the DSCA added, will support the foreign policy and national security objectives of the US by helping to strengthen the US-Indian strategic relationship and to improve the security of a major defence partner which continues to be an important force for political stability, peace, and economic progress in the Indo-Pacific and South Asia regions.

<https://www.hindustantimes.com/india-news/antitank-guided-weapon-inches-closer-to-induction-into-indian-army-101768244006974.html>

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# Defence News

## डिफेंस और सेमी-कंडक्टर पर बन गई बात

Source: Punjab Kesari, Dt. 13 Jan 2026

पंजाब केसरी/गांधी नगर

प्रधानमंत्री नरेंद्र मोदी ने सोमवार को जर्मनी के चांसलर फ्रेडरिक मर्ज से मुलाकात की। फ्रेडरिक मर्ज अपनी पहली भारत यात्रा पर आए हैं। इस दौरान दोनों नेताओं ने भारत-जर्मनी के आपसी रिश्तों, क्षेत्रीय और वैश्विक मुद्दों पर चर्चा की। जर्मन चांसलर की भारत यात्रा के दौरान दोनों देशों ने कुछ ऐसे समझौतों पर हस्ताक्षर किए हैं, जिनका सीधा सरोकार हमारी सुरक्षा, शिक्षा और तकनीकी विकास से है। भारत और जर्मनी के बीच सबसे महत्वपूर्ण समझौता 'क्रिटिकल मिनरल्स और सेमीकंडक्टर' को लेकर हुआ है। इसके साथ



### ● दोनों देशों के बीच मिलट्री ड्रिल होगी तथा भारत को सबमरिन-काउंटर ड्रोन मिलेंगे

ही भारत-जर्मनी के बीच सैन्य अभ्यास पर भी सहमति बनी और समझौतों के तहत सबमरिन एवं काउंटर ड्रोन भी भारत को दिए जाने पर सहमति बनी। यह आतंकवाद खात्मे का एक बड़ा रोडमैप सिद्ध होगा। प्रेस कॉन्फ्रेंस

### भारतीय नागरिकों को वीजा फ्री ट्रांजिट

जर्मनी ने इस अवसर पर भारतीय नागरिकों को वीजा फ्री ट्रांजिट का ऐलान किया है। प्रधानमंत्री नरेंद्र मोदी ने जर्मनी के चांसलर फ्रेडरिक मर्ज का आभार जताते हुए कहा कि भारतीय नागरिकों के लिए वीजा-फ्री ट्रांजिट की घोषणा दोनों देशों के लोगों के बीच रिश्तों को और मजबूत करेगी। पीएम मोदी ने कहा कि उन्हें यह जानकर खुशी है कि जर्मन मैरीटाइम म्यूजियम, गुजरात के लोथल में बन रहे नेशनल मैरीटाइम हेरिटेज कॉम्प्लेक्स के साथ सहयोग कर रहा है। उन्होंने इसे दोनों देशों के समुद्री इतिहास को जोड़ने वाला ऐतिहासिक कदम बताया।

जाता है, जहां महात्मा गांधी ने अपने अहिंसक स्वतंत्रता आंदोलन की शुरुआत की थी। प्रधानमंत्री नरेंद्र मोदी ने भारत और जर्मनी के बीच मजबूत आर्थिक सहयोग की अहमियत पर जोर दिया। उन्होंने कहा कि दोनों देशों का यह सहयोग सिर्फ आपसी फायदे तक सीमित नहीं है, बल्कि मानवता के

में फ्रेडरिक मर्ज ने बताया कि प्रधानमंत्री मोदी ने उन्हें अपने गृह राज्य गुजरात आने का न्योता दिया है। उन्होंने इस निमंत्रण के लिए प्रधानमंत्री का धन्यवाद किया और कहा कि यह दोनों देशों के मजबूत रिश्तों और प्रधानमंत्री की व्यक्तिगत मित्रता को दिखाता है। उन्होंने यह भी कहा कि गुजरात कई मायनों में आधुनिक भारत की शुरुआत का केंद्र माना

लिए भी जरूरी है। भारत और जर्मनी ने रक्षा उद्योग में आपसी सहयोग को और मजबूत करने के इरादे से संयुक्त घोषणा की। दोनों देशों ने आर्थिक और निवेश सहयोग को आगे बढ़ाने के लिए संयुक्त भारत-जर्मनी आर्थिक एवं निवेश समिति के तहत एक सीईओ फोरम बनाने पर सहमति जताई।

(पृष्ठ 2 भी देखें)

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## India, Germany to boost ties in defence, trade and critical tech

Source: The Times of India, Dt. 13 Jan 2026

As PM Modi hosted German Chancellor Friedrich Merz for bilateral talks in Gandhinagar, the two countries agreed to significantly boost their defence, trade and critical and emerging technology ties with the formalisation of 19 agreements. There were eight other announcements meant to ramp up cooperation in areas ranging from people-to-people contact to Indo-Pacific and green development, including visa-free transit for Indian passport-holders through Germany.

Amongst the highlights was a joint declaration of intent on strengthening the bilateral defence industrial cooperation with Modi saying that both sides will also work on a roadmap to enhance cooperation between the defence industries, opening new opportunities for co-development and co-production. "The growing cooperation in defence and security is a symbol of our mutual trust and shared vision. I express my heartfelt gratitude to Chancellor Merz for simplifying the processes related to defence trade," said the PM.

Four agreements were signed to boost cooperation in critical and emerging technologies, including semiconductors and critical minerals. "India and Germany are working together to build secure, trusted, and resilient supply chains. The MoUs being signed today on all these areas will give new momentum and strength to our cooperation," said Modi. The leaders discussed a range of global and regional issues in detail, including Ukraine and Gaza, with Modi reiterating support for a peaceful resolution of all problems and disputes. "The two leaders reiterated their concern over the ongoing war in Ukraine, which continues to cause immense human suffering and negative global consequences. They expressed support for efforts to achieve a comprehensive, just and lasting

peace in Ukraine in accordance with international law and the principles of the UN Charter," said a joint statement.

On Gaza, Modi and Merz backed a two-state solution while underlining the need for unhindered and at scale delivery of humanitarian aid to the enclave as well as unimpeded access for humanitarian organisations. "They reaffirmed their readiness to support efforts towards just and durable peace and reiterated their call for a just, lasting and comprehensive resolution of the conflict in the Middle East in the form of a negotiated two-state solution," said the statement.

Agreeing that terrorism is a serious threat to all humanity, the leaders said India and Germany will continue to fight the menace together. The two unequivocally and strongly condemned terrorism and violent extremism in all its forms and manifestations, including cross-border terrorism. "They called for concerted international efforts to combat terrorism in a comprehensive and sustained manner, in accordance with the UN Charter and international law. They condemned in the strongest terms the terrorist attack in Pahalgam, J&K, on April 22, 2025, and the terror incident in Delhi on Nov 10, 2025," said the joint statement.

The PM also announced the launch of a consultation mechanism to boost cooperation in the Indo-Pacific, saying both sides will continue to work together to support development in the Global South. "The strength of our friendship is visible on the global stage. Our trilateral development partnership, through joint projects in countries such as Ghana, Cameroon and Malawi, is a successful model for the world," he said. Reaffirming their strong support to India-Middle East-Europe Economic Corridor, the leaders emphasised its transformational potential in reshaping and promoting global commerce, connectivity and prosperity. "In this context, they look forward to the first IMEC ministerial meeting to take concrete steps for advancing this initiative," said the statement.

<https://timesofindia.indiatimes.com/city/ahmedabad/india-germany-to-boost-ties-in-defence-trade-and-critical-tech/articleshow/126491451.cms>

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## **IIT-Madras tech boosts Army artillery range by nearly 50%**

*Source: The Tribune, Dt. 13 Jan 2026*

The Indian Institute of Technology (IIT) Madras on Monday announced a defence-technology breakthrough that significantly enhances the range of artillery guns used by the Indian Army. IIT Madras said it has developed an artillery ammunition system assisted by a compact ramjet engine, extending the range of existing gun systems by nearly 50 per cent without any loss of lethality. The technology eliminates the need for new artillery platforms or costly missile systems.

"Trials across multiple platforms show substantial range improvements," IIT Madras said in a post on X. According to the institute, the range of the Advanced Towed Artillery Gun System (ATAGS) has been tested at up to 70 km from the existing 40 km. The range of the K9 Vajra gun has been extended from 36 km to 62 km, while the Dhanush artillery gun's range has increased from 30 km to 55 km. The project, launched in 2020 in collaboration with the Army, has undergone extensive gun and field trials at Deolali and Pokhran.

<https://www.tribuneindia.com/news/nation/iit-madras-tech-boosts-army-artillery-range-by-nearly-50/>

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## Self-reliance in defence key to strategic autonomy: Defence Secretary

Source: *The Statesman*, Dt. 13 Jan 2026

UNITED NEWS OF INDIA  
Chandigarh, 12 January

Emphasising that self-reliance in defence is both a national necessity and a strategic imperative, Defence Secretary Rajesh Kumar Singh on January 10 said India stands at a crucial juncture in its defence and industrial evolution. Addressing the Defence Skilling Conclave on Defence, Aerospace and Strategic Sector Skill Development here, he underlined that long-term strategic autonomy can only be achieved through sustained indigenisation of manufacturing, skills and technology.

The Defence Secretary said that over the past decade, India's defence ecosystem has undergone a significant transformation under the vision

of Aatmanirbhar Bharat. The sector, he noted, has shifted away from a heavy reliance on imports to a diversified and dynamic framework that involves Defence Public Sector Undertakings, private industry, MSMEs, and a growing start-up base. Highlighting policy reforms and initiatives aimed at improving the Ease of Doing Business, Singh said these measures have encouraged domestic design and manufacturing across a wide range of platforms. Indigenous production now spans unmanned aerial vehicles, sensors and advanced subsystems, as well as complex platforms such as artillery guns, armoured vehicles and missile systems. He added that the issuance of hundreds of industrial licences has deepened private sector participation,

while defence exports have seen a sharp rise, reflecting India's expanding footprint in global markets.

Citing platforms such as the Light Combat Aircraft Tejas, Astra beyond-visual-range missile, Dhanush artillery guns and aircraft carrier INS Vikrant, the Defence Secretary said these projects demonstrate growing coordination between industry, research institutions and a skilled workforce. He stressed that evolving global supply chains and rapid technological change present both challenges and major opportunities for India's defence sector. Singh also drew attention to the importance of human capital, stating that genuine strategic autonomy requires control not only over hardware but also over skills, technology

and intellectual property. He referred to ongoing efforts under the Skill India Mission, with national agencies assessing current capabilities and future skill requirements for the defence and aerospace sectors.

Referring to the Prime Minister's Skilling and Employment through Technology Upgradation (PM-SETU) programme, he said the initiative aims to bridge gaps between academia, industry and defence research. With substantial financial support planned over five years, the programme focuses on Centres of Excellence, apprenticeships, technology-enabled training and structured pathways for Agniveers and veterans.

The Defence Secretary also highlighted Punjab's untapped potential in defence manufacturing, calling for

stronger ecosystem linkages, enhanced MSME participation and dedicated skill and testing infrastructure. He said disciplined and technically trained youth emerging from the Agnipath scheme could play a key role in strengthening defence production and allied strategic sectors.

The conclave, organised by the Punjab government in collaboration with industry bodies, was attended by senior officials, industry leaders, academics and representatives of the armed forces. Singh said the discussions reaffirmed a shared commitment to building a secure, self-reliant and technologically advanced India, with Punjab and the northern region poised to become important drivers of defence-led growth.

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## Science & Technology News

### PSLV-C62 deviates from flight path after anomaly

Source: *Hindustan Times*, Dt. 13 Jan 2026

Isro's PSLV-C62 rocket carrying 16 satellites, including a foreign Earth Observation payload, failed to place them in the intended orbit after encountering an "anomaly" in the critical third stage of the launch on Monday. "Disturbances in the rocket and later deviation from the flight path were observed when strap-on motors were providing thrust during the flight's third stage to propel the vehicle to the intended altitude", V Narayanan, chairman of the Indian Space Research Organisation, said, adding a detailed analysis has been initiated to identify the cause.

The mission to place the satellites in the intended orbit could not be achieved, and all 16 satellites were lost in space, people familiar with the matter said, adding that this was the second consecutive PSLV mission failure during the third stage. A similar, previous attempt in May 2025 (PSLV-C61-EOS-09) also did not succeed due to a "motor pressure issue," and there was a fall in the chamber pressure of the motor case.

Among the satellites lost were DRDO's Anvesha, a strategic super-eye to unmask military camouflage from nearly 500 km, AayulSAT, India's first in-orbit fuelling satellite, and CGUSAT, a small, student-developed Low Earth Orbit (LEO) satellite designed primarily for emergency communication and disaster management. The Earth Observation satellite was built jointly by Thailand and the UK. The PSLV-C62 also carried KID, or Kestrel Initial Technology Demonstrator from a Spanish startup that was a small-scale prototype of a re-entry vehicle. A former top Isro

scientist said it would take some time for the space agency to collect data, analyse, understand what happened, and make necessary corrections. It is expected that Isro will officially release the findings in the days to come, he told PTI, requesting anonymity.

To a query, he said, "it is a setback as the satellites did not reach the intended orbit and all satellites lost in space maybe drifting as space debris." As the 22.5-hour countdown concluded on Monday morning, the 44.4 metre tall four-stage rocket lifted off as scheduled at 10.18 am from the spaceport here. The mission was to deploy a primary Earth Observation satellite and multiple co-passenger satellites into a 512 km Sun-Synchronous Orbit, after a flight journey of about 17 minutes. The initial phases of the flight proceeded according to plan.

However, after the announcement that the "third stage ignited", an uneasy calm took over the Mission Control Centre. In his address at the centre, Narayanan said: "The PSLV is a four-stage vehicle with two solid stages and two liquid stages. The performance of the vehicle up to the end of the third stage was expected. Close to the end of the third stage, we are seeing more disturbance in the vehicle, and subsequently, there was a deviation observed in the flight path." Confirming the mission's failure on its 'X' handle, Isro said, "The PSLV-C62 mission encountered an anomaly during the end of PS3 (third stage) of the vehicle. A detailed analysis has been initiated."

<https://www.hindustantimes.com/india-news/pslvc62-deviates-from-flight-path-after-anomaly-101768273658467.html>

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## पीएसएलवी-सी62 मिशन नाकाम

Source: Punjab Kesari, Dt. 13 Jan 2026

पंजाब केसरी/श्रीहरिकोटा

भारतीय अंतरिक्ष अनुसंधान संगठन (इसरो) ने मंगलवार को कहा कि एक विदेशी पृथ्वी अवलोकन उपग्रह समेत 16 उपग्रहों को ले जा रहे रॉकेट पीएसएलवी-सी62 को "एक विसंगति का सामना" करना पड़ा, जो इस मिशन के नाकाम होने का संकेत है। अंतरिक्ष एजेंसी के अध्यक्ष वी. नारायणन ने बताया कि उड़ान के तीसरे चरण के दौरान जब 'स्ट्रैप-ऑन मोटर' रॉकेट को निर्धारित ऊंचाई तक ले जाने के लिए थ्रस्ट प्रदान कर रहे थे, उस समय रॉकेट में गड़बड़ियां देखी गईं और बाद में वह उड़ान पथ से विचलित पाया गया। उन्होंने कहा कि कारणों की पहचान के लिए विस्तृत विश्लेषण शुरू कर दिया गया है। निर्धारित कक्षा में उपग्रहों को स्थापित करने का मिशन पूरा नहीं हो सका और सभी 16 उपग्रह नष्ट हो गए। यह पीएसएलवी की लगातार दूसरी मिशन विफलता है



क्योंकि इससे पहले मई 2025 में किया गया पीएसएलवी-सी61-ईओएस-09 मिशन भी सफल नहीं हो पाया था। मिशन के लिए 22.5 घंटे की उलटी गिनती पूरी होने के बाद 44.4 मीटर ऊंचा चार-चरणीय रॉकेट तय कार्यक्रम के अनुसार सुबह 10.18 बजे यहां स्थित अंतरिक्ष केंद्र से प्रक्षेपित हुआ। मिशन का उद्देश्य लगभग 17 मिनट की उड़ान के बाद एक प्राथमिक पृथ्वी अवलोकन उपग्रह और कई सह-यात्री उपग्रहों को 512 किलोमीटर ऊंची सूर्य-समकालिक कक्षा में स्थापित करना था।

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## Behind ISRO rocket's second straight failure is a third-stage problem

*Source: The Indian Express, Dt. 13 Jan 2026*

The Indian Space Research Organisation's (ISRO) first launch of the year ended in failure on Monday, January 12. The PSLV-C62 mission — carrying 16 satellites, including seven from foreign countries — did not reach its intended orbit. This is the second straight failure for a rocket that has served as ISRO's main launch vehicle for more than three decades.

The previous failure happened in May last year. On both occasions, the rocket took off successfully and completed the first two stages before developing trouble in the third stage. The failure of last year's mission was attributed to an unexpected drop in the combustion chamber of the engine, according to remarks by ISRO chairman V Narayanan. The report of a Failure Analysis Committee has not been made public.

The cause of Monday's failure is not yet known, but could be similar. During the third stage, the rocket needs to rapidly accelerate to maintain its orbit around the Earth (note that this is not the final orbit). If pressure drops in the combustion chamber, the force required to attain the necessary acceleration drops as well. Here's how the workhorse PSLV rocket functions, why the third stage is so tricky.

### **PSLV: a four-stage rocket**

The PSLV, or Polar Satellite Launch Vehicle, is what is known as a four-stage rocket. The stages refer to different parts of the rocket, each of which have their own engines and fuel. Each of these stages sequentially take charge of propelling the mission. They get detached and discarded after doing their job. The stages are sometimes also used to refer to the different phases of the mission flight.

\*The first stage involves the lift-off. This is a near vertical journey till an altitude of about 50-60 km. This is the stage that requires the most work because the rocket has to fight gravity as well as atmospheric drag. For this reason, this stage needs a very heavy engine and lots of fuel.

In the case of the PSLV, the first stage uses a solid propellant as fuel. The first stage forms a large part of the rocket, and constitutes the bulk of its weight. This stage lasts barely two minutes, during which a huge amount of fuel is consumed. After the fuel is spent, this part of the rocket becomes deadweight. So, it is jettisoned. It detaches from the main body of the rocket, and falls off, passing the baton to the second stage.

ISRO scientists and engineers monitor the successful lift-off of the PSLV-C62/EOS-N1 mission from the mission control room at Satish Dhawan Space Centre (SDSC-SHAR), in Sriharikota on Monday. ISRO scientists and engineers monitor the successful lift-off of the PSLV-C62/EOS-N1 mission from the mission control room at Satish Dhawan Space Centre (SDSC-SHAR), in Sriharikota on Monday. (ISRO Official Social media/ANI Video Grab)

\*During the second stage, the rocket continues to move vertically — and horizontally at the same time as it prepares to get into orbit. The second stage in the PSLV involves the famous, indigenously developed Vikas engine and a liquid fuel. This stage takes the vehicle to about 220-250 km from Earth's surface before burning out.

By the time the second stage gets separated, the weight of the mission falls to about 10-20 per cent of the launch weight. During this stage, the vehicle attains a very high speed — around 14,000 km an hour. But it needs to attain an even greater speed. This happens in the third stage.

\*In the third stage, the vehicle is moving almost entirely horizontally, going around the Earth in an orbit, or rather a sub-orbital trajectory. To maintain this trajectory, and avoid falling towards the Earth, it needs to travel at very high velocities, usually 26,000 to 28,000 km per hour. The third stage is, therefore, about rapid acceleration. The PSLV rocket burns solid fuel to achieve this. The vehicle begins to go around the Earth at very high speeds, but does not yet reach its designated orbit. That happens in the fourth stage, which involves precisely placing the satellite in the intended orbit.

A suitable low-earth orbit for the satellite can be at any altitude between 250-2,000 km from the Earth. The satellite has to be manoeuvred into that slot through guidance from the fourth-stage engine, which, in the case of PSLV, again uses liquid propulsion. The different payloads are eventually placed in their intended orbits. By this time, all four stages of the rocket have separated, having accomplished their jobs.

### **How the third stage works**

The third stage is tricky. If a rocket is unable to attain the required velocity, it will be unable to maintain orbit around the Earth and get pulled down due to gravity. That is what seems to have happened with the PSLV-C61 mission last year. This is how this stage works. The solid fuel in the third stage is burned and converted into gas. This gas causes an increase in pressure in the combustion chamber. The gas is then released through a small nozzle to provide the thrust required to propel the rocket to higher speeds.

In general, the higher the pressure, the greater is the thrust provided, and higher is the acceleration that can be attained. But if there is a leak, or the pressure drops in the combustion chamber owing to any other reason, the vehicle will not be able to attain the kind of acceleration and speed that is necessary to maintain the orbit. The reason for the pressure drop in last year's failure has been reported to be a manufacturing defect, which allowed some amount of leakage. If Monday's failure was also the result of a similar or related problem, this could be a moment of embarrassment for ISRO.

### **The fallout**

Space missions have a razor thin margin of error. Every other space agency has faced multiple failures. But back-to-back failures, and that too with a trusted rocket, is cause of concern for ISRO. In fact, three of the last six missions by ISRO have been unsuccessful, an unacceptably high failure rate for an agency such as this.

The PSLV is also a major revenue earner for ISRO, having been used for most commercial launches, including those from foreign countries. Doubts over its reliability could be a major setback. But ISRO also has a proven track record of bouncing back from crises and re-establishing its capabilities as one of the leading space agencies of the world. It remains to be seen if it can do just that after Monday's mission.

<https://indianexpress.com/article/explained/explained-sci-tech/isro-second-failure-third-stage-pslv-c62-10469438/>

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## Indian-origin astronomer wins UK's Royal Astronomical Society Gold Medal

*Source: The Tribune, Dt. 13 Jan 2026*

US-based astronomer Professor Shrinivas Kulkarni has been awarded the prestigious Gold Medal by the Royal Astronomical Society (RAS) in London for his “field-defining” discoveries in time-domain astronomy. Maharashtra-born Kulkarni is the George Ellery Hale Professor of Astronomy and Planetary Science at the California Institute of Technology (Caltech), where he has discovered a wide range of astronomical objects, including brown dwarfs and remote bursts of gamma rays.



*Dr Shrinivas Kulkarni*

His RAS Gold Medal citation from last week recognises his “sustained, innovative and ground-breaking contributions to multi-wavelength transient astrophysics”. In receiving the highest honour from the historic organisation, awarded annually since 1824, he joins great scientific minds such as Stephen Hawking, Jocelyn Bell Burnell, Albert Einstein and Edwin Hubble. “I was very surprised to hear the news, especially given the stellar list of past winners,” said Kulkarni.

“I would like to thank my long-term collaborators and the engineering crew and members of the Palomar Transient Factory and the Zwicky Transient Facility for their immense contribution to the projects,” he said. The scientist described this discovery of the first millisecond pulsar as “the most fun achievement in my life”, adding: “I was a graduate student when I made the discovery. I could not sleep for several days!”

Kulkarni, who also won the 2024 Shaw Prize in Astronomy recently, joined Caltech in 1985 and has since made many landmark findings including demonstrating in 1997 that powerful gamma-ray bursts originate outside our galaxy.

He went on to lead the development of the Palomar Transient Factory (PTF) and its successor, the Zwicky Transient Facility (ZTF), which have caught thousands of real-time cosmic events as they blink, explode, and otherwise light up the skies. ZTF, based at Caltech’s Palomar Observatory near San Diego, is still going strong and surveying the entire Northern sky every two nights. His RAS award citation notes that these “have revolutionised time domain astrophysics at optical wavelengths”.

In his 2024 Watson Lecture at Caltech titled 'Illuminating the Dynamic Night Sky: Discoveries from the Zwicky Transient Facility', Kulkarni discussed his passion for building instruments to explore uncharted areas in astronomy. He has built a total of 10 instruments in his career. "My motto has been to build a big enough gizmo and things will happen," he said at the time.

Currently, Kulkarni is involved with developing NASA's Ultraviolet Explorer (UVEX) mission, led by Fiona Harrison, the Harold A. Rosen Professor of Physics at Caltech. The mission, targeted to launch in 2030, will perform the most sensitive sky survey in ultraviolet light to date.

He is the principal investigator of Z-Shooter, a very powerful and versatile spectrometer for the W.M. Keck Observatory in Hawai'i that is under development with a first light expected in 2029. Kulkarni received his Master's from the Indian Institute of Technology Delhi in 1978, his PhD from UC Berkeley in 1983 and has been based at Caltech for over 40 years.

Each year the RAS recognises significant achievement in the fields of astronomy and geophysics through a number of awards, medals and prizes, encompassing different types of talent from research to education and outreach. This year's Gold Medal in Geophysics has been won by Professor Andrew Jackson of ETH Zurich for his instrumental work in the field of geomagnetism.

<https://www.tribuneindia.com/news/diaspora/indian-origin-astronomer-wins-uks-royal-astronomical-society-gold-medal/>

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## **Irrelevance of AI-detection plagiarism tools in a world dominated by AI**

*Source: The Statesman, Dt. 13 Jan 2026*

In a world dominated by Chatbots, every student of the present generation is trained in AI tools, and most have even forgotten how to write in their own words. Even an English literature student finds it difficult to understand grammar without the help of tools like Grammarly or Quillbot. But when it comes to higher education, especially for doctoral students, universities are particularly strict about plagiarism and the use of AI. Many companies are exploring their business in the field, which runs into lakhs annually per purchase. It's like you develop a tool that corrupts the system, then, as a solution, develop another tool to mitigate the impact.

The real question is, do we really need AI-detection plagiarism tools in a world where AI is already a common way to express yourself? These products are increasingly like the old antivirus software from the early 2000s: they are heavily advertised, don't always work as promised, and can't keep up with the systems they claim to protect. Their prolonged existence seems to be less about academic integrity and more about protecting an industry that depends on institutional unease.

AI-detection systems promise to be sure in a field where being sure is impossible. Today, the distance between a bot and a human is so narrow that it's challenging to find the difference. There are instances of journals rejecting genuine research papers for perceived similarity to AI-generated content. A paragraph that was produced after a lot of thought is called '95 per cent AI,' whereas a piece that was made by a machine might be called 'mostly human.' The findings are all over the place—when the exact text is examined across multiple systems, they can range from 0 per cent to 100 per cent AI. When diagnostic discrepancies become the norm, it raises an uncomfortable but essential question about legitimacy.

The issue lies in how AI detectors are built. Statistical signatures, such as patterns, phrase uniformity, predictability indices, and probability distributions, are used by these tools. But people have quite different ways of writing. The generation that grew up with tools like Grammarly has unknowingly imbibed the writing style these tools promote. Some people write with clear, predictable patterns, while some robots write in ways that are hard to predict. As huge language models get better, their outputs now seem so much like human writing that it's hard to tell them apart. It's like asking a speed radar to distinguish between two similar cars travelling at the same speed.

Also, the widespread usage of generative AI has transformed what it means to be an author. AI tools are becoming part of our daily writing habits, whether we're writing an email, organising a report, fixing grammar, or brainstorming ideas. If it's usual to use AI, where does 'AI writing' start and 'human writing' end? Detection tools work on a binary model that is no longer true. They are trying to enforce a boundary that no longer exists.

This is when their business plan becomes clear. AI-detection services, like antivirus firms that sell perpetual fear of invisible threats, make money by making teachers, publishers, and institutions worried about a technological change they don't completely grasp. Many schools and colleges don't want to reconsider how they test students, so they hire detection software to do it for them. The illusion of control is good for business. But it doesn't signify anything.

The unintended results are awful. Students who make their own work are falsely accused. Writers have to change their natural style to 'sound less like AI,' as if creativity has to fit with what algorithms demand. Researchers are afraid to employ fundamental digital tools because they might get in trouble. Detection technologies don't help develop a culture of trust and literacy; instead, they make people suspicious. They punish real people while not catching those who misuse things.

Instead of spending money on detection systems that don't work, academic and professional ecosystems need to focus on objective assessment, process-based evaluation, and critical thinking abilities. Tell pupils to turn in drafts, notes, reflections, or spoken explanations. Instead of making an impossible prohibition, push for openness about how AI tools are utilised. Instead of keeping an eye on AI's tracks, teach people about AI ethics.

Adding AI to writing is not just a passing trend; it is a change in the way things are done. AI will revolutionise the way we write, think, and learn, much like calculators changed how we study maths and search engines changed how we find information. We should adapt to the situation, not police it. AI-detection plagiarism techniques may still be sold as commercial solutions, although they are becoming less and less useful. Their existence is based on an old idea of authorship, and they are not reliable enough to be used as tools for judgment.

In a world dominated by AI, the goal is not to detect it. The goal is to understand it, integrate it, and use it to elevate human learning. The future of academic integrity does not depend on software that scares people, but on innovative teaching, smart policies, and a fresh respect for human creativity that is helped, not threatened, by innovative technology.

<https://www.thestatesman.com/features/irrelevance-of-ai-detection-plagiarism-tools-in-a-world-dominated-by-ai-1503539558.html>

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# अंतरिक्ष में बढ़ते कचरे से उपजे खतरे

Source: Jansatta, Dt. 13 Jan 2026

संचार उपग्रहों से लेकर मौसम पूर्वानुमान, आपदा प्रबंधन और सैन्य निगरानी तक, आज की आधुनिक दुनिया की धड़कन अंतरिक्ष से जुड़ी है। मगर इस प्रगति के साथ अंतरिक्ष में बढ़ रहे मलबे से सुरक्षा का संकट भी पैदा हो गया है।

## विजय कुमार पांडेय

**अ**ंतरिक्ष अब मानव सभ्यता की दूरस्थ सीमा नहीं रहा। आज यह हमारे रोजमर्रा के जीवन, राष्ट्रीय सुरक्षा, अर्थव्यवस्था और भू-राजनीति का अभिन्न हिस्सा बन चुका है। संचार उपग्रहों से लेकर मौसम पूर्वानुमान, आपदा प्रबंधन और सैन्य निगरानी तक, आधुनिक दुनिया की धड़कन अंतरिक्ष से जुड़ी है। मगर इसी प्रगति के साथ एक ऐसा संकट भी जन्म ले चुका है, जिस पर गंभीरता से चर्चा नहीं होती। वह है—अंतरिक्ष में बढ़ रहा कचरा और उससे अंतरिक्ष यात्रियों की सुरक्षा को खतरे का मसला। यह केवल तकनीकी चुनौती नहीं, बल्कि मानव जीवन, वैश्विक सहयोग और भविष्य की अंतरिक्ष नीति से जुड़ा प्रश्न है। आज जब दुनिया चंद्रमा, मंगल और उससे आगे मानव की उपस्थिति को लेकर योजना बना रही है, तब यह पूछना अनिवार्य हो जाता है कि क्या हमने पृथ्वी के आसपास के अंतरिक्ष को सुरक्षित रखा है?

पिछले छह दशकों में अंतरिक्ष गतिविधियों में अभूतपूर्व वृद्धि हुई है। हजारों उपग्रह, सैकड़ों प्रक्षेपण और अनगिनत प्रयोग। इन सबका एक अनचाहा परिणाम है—अंतरिक्ष में फैल रहा मलबा। निष्क्रिय उपग्रह, टकराव से बने टुकड़े और सूक्ष्म कण आज पृथ्वी की कक्षा में एक अनियंत्रित जाल की तरह फैल चुके हैं। समस्या केवल संख्या की नहीं, बल्कि श्रृंखलाबद्ध खतरों की है। वो वस्तुओं की टक्कर से मलबा और बढ़ता है, जो आगे और टकराव को जन्म देता है। वैज्ञानिक इसे 'केसलर सिंड्रोम' कहते हैं। यानी एक ऐसी स्थिति, जहां कक्षा में मलबा इतना बढ़ जाए कि अंतरिक्ष गतिविधियां ही असंभव हो जाएं। इस परिदृश्य में सबसे पहले और सबसे ज्यादा खतरे में होंगे मानवयुक्त मिशन और अंतरिक्ष यात्री।

अंतरराष्ट्रीय अंतरिक्ष स्टेशन (आइएसएस) मानव सभ्यता की सबसे टिकल संरचना है। मगर यह उपलब्धि भी एक असुरक्षित वातावरण में टिकी है। लगभग चार सौ किलोमीटर की ऊंचाई पर यह स्टेशन उसी कक्षा में है, जहां सबसे अधिक मलबा मौजूद है। यह विडंबना ही है कि अत्याधुनिक तकनीक से लैस अंतरिक्ष यात्री एक ऐसे वातावरण में काम करते हैं, जहां पेंट का एक कण भी प्राणघातक बन सकता है। सात से आठ किलोमीटर प्रति सेकंड की रफ्तार से घूमता मलबा किसी भी मानवीय प्रतिक्रिया से कहीं तेज है। यानी खतरों की स्थिति में निर्णय का समय सेकंड से भी कम होता है। यहां यह सवाल उठता है कि क्या हम अंतरिक्ष यात्रियों की सुरक्षा को केवल तकनीकी प्रबंधन का विषय मान कर संतुष्ट हो सकते हैं या यह एक गहरे नीति-स्तरीय हस्तक्षेप की मांग करता है?

आज अंतरिक्ष मलबे से बचाव का सबसे अहम आधार है—निगरानी और पूर्व चेतावनी। शक्तिशाली रडार और दूरबीन हजारों वस्तुओं की निगरानी करते हैं। मगर इस व्यवस्था की एक मौलिक सीमा है। केवल बड़े टुकड़ों का ही सटीक रूप से पता किया जा सकता है। लाखों छोटे कण ऐसे हैं, जो निगरानी तंत्र से बाहर हैं। मगर उनके टकराने की संभावना बनी रहती है। इसका अर्थ यह हुआ कि अंतरिक्ष यात्रियों की सुरक्षा एक आंशिक जानकारी पर आधारित है, पूर्ण नियंत्रण पर नहीं। जब पृथ्वी की कक्षा में घूमता कोई अंतरिक्ष मलबा अंतरराष्ट्रीय अंतरिक्ष स्टेशन के बहुत



पास से गुजरने वाला होता है, तब स्टेशन की कक्षा को थोड़ी देर के लिए बदला जाता है। यह उपाय अब अंतरिक्ष यात्रियों की सुरक्षा का एक नियमित हिस्सा बन चुका है। मगर यही तथ्य अपने-आप में यह बताने के लिए काफी है कि अंतरिक्ष कचरे की समस्या कितनी गंभीर हो चुकी है।

**दु**निया को यह बात समझनी होगी कि अंतरिक्ष में बढ़ते मलबे से निपटने का स्थायी समाधान बचाव नहीं, बल्कि सफाई है। मगर यही वह बिंदु है, जहां वैश्विक राजनीति और राष्ट्रीय हित आड़े आ जाते हैं। किसका मलबा हटाया जाए? कौन खर्च उठाए? ये सवाल तकनीक से ज्यादा राजनीतिक हैं। जब तक अंतरिक्ष को साझा विरासत मान कर जिम्मेदारी तय नहीं की जाती, तब तक यह पहल सीमित प्रयोगों तक ही सीमित रहेगी। भारत जल्द ही गगनयान मिशन की ओर बढ़ रहा है। इसका अर्थ है कि अंतरिक्ष मलबा अब भारत के लिए भी सैद्धांतिक नहीं, बल्कि प्रत्यक्ष मानवीय जोखिम बन चुका है।

कक्षा बदलना देखने में भले ही एक छोटा सा तकनीकी कदम लगे, लेकिन इसके पीछे बड़ी कीमत छिपी होती है। अंतरिक्ष स्टेशन अपने आप नहीं

घूमता, बल्कि उसे सही कक्षा में बनाए रखने के लिए लगातार ईंधन की जरूरत पड़ती है। जब भी स्टेशन को ऊपर या नीचे किया जाता है, तो इंजन चलाए जाते हैं। इससे कीमती ईंधन खर्च होता है। यह ईंधन सीमित होता है और भविष्य की आपात स्थितियों के लिए भी बचा कर रखना पड़ता है। यानी हर बार कक्षा बदलने से स्टेशन की जीवन अवधि थोड़ी कम हो जाती है। इसका दूसरा असर स्टेशन के संसाधनों पर पड़ता है। कक्षा बदलने की प्रक्रिया के दौरान वैज्ञानिक प्रयोगों को रोकना पड़ता है। दीर्घकालिक अभियानों के लिए यह समस्या और भी गंभीर हो जाती है। अंतरराष्ट्रीय अंतरिक्ष स्टेशन को दशकों तक काम करने के लिए तैयार किया गया है। मगर बार-बार होने वाले कक्षा परिवर्तन उसकी संरचना, उपकरणों और योजनाओं पर दबाव डालते हैं। जितनी बार ऐसे बदलाव होंगे, उतना ही अधिक जोखिम भविष्य के अभियानों के लिए पैदा होगा। दूसरे शब्दों में कहें तो मलबे से बचने की कोशिश करते-करते हम खुद अपनी अंतरिक्ष क्षमता को सीमित कर रहे हैं। सबसे अहम बात यह है कि कक्षा बदलना समस्या का समाधान नहीं, बल्कि उसका अस्थायी इलाज है। अंतरिक्ष स्टेशन की कक्षा बदलने की बढ़ती घटनाएं एक बड़ी चेतावनी हैं। वे बताती हैं कि अंतरिक्ष में कचरे का बढ़ता दायरा अब भविष्य का खतरा नहीं, बल्कि वर्तमान की समस्या बन चुका है।

इसलिए कक्षा बदलने को तकनीकी सफलता मानने के साथ-साथ इसे एक चेतावनी संकेत के रूप में भी देखना जरूरी है कि अंतरिक्ष को हमने जितनी तेजी से इस्तेमाल किया है, उतनी ही तेजी से उसे साफ और सुरक्षित बनाने की जिम्मेदारी भी निभानी होगी। हालांकि अंतरिक्ष स्टेशन को विशेष ढालों से सुरक्षित किया गया है, जो छोटे मलबे को झेल सकती हैं, लेकिन बड़ा मलबा अब भी गंभीर खतरा बना हुआ है। आपात स्थितियों के लिए अंतरिक्ष यात्रियों को कठोर प्रशिक्षण दिया जाता है। मगर यह प्रशिक्षण भी उस स्थिति में सीमित हो जाता है, जब टकराव अचानक और विनाशकारी हो। अंतरिक्ष में बढ़ते कचरे से निपटने का स्थायी समाधान बचाव नहीं, बल्कि सफाई है। मगर यही वह बिंदु है, जहां वैश्विक राजनीति और राष्ट्रीय हित आड़े आ जाते हैं। किसका मलबा हटाया जाए? कौन खर्च उठाए? क्या किसी देश का निष्क्रिय उपग्रह दूसरे देश द्वारा हटाया जा सकता है? ये सवाल तकनीक से ज्यादा राजनीतिक हैं। जब तक अंतरिक्ष को साझा विरासत मान कर संयुक्त जिम्मेदारी तय नहीं की जाती, तब तक मलबा हटाने की पहल सीमित प्रयोगों तक ही सिमटी रहेगी।

भारत गगनयान मिशन की ओर बढ़ रहा है। इसका अर्थ है कि अंतरिक्ष मलबा अब भारत के लिए भी सैद्धांतिक नहीं, बल्कि प्रत्यक्ष मानवीय जोखिम बन चुका है। यह चेतावनी भी है और अवसर भी। चेतावनी इसलिए कि लापरवाही भविष्य में भारी पड़ सकती है। अवसर इसलिए कि भारत जिम्मेदार और नैतिक अंतरिक्ष शक्ति के रूप में वैश्विक नेतृत्व दिखा सकता है। अंतरिक्ष मानवता की साझा संपदा है, न किसी एक देश की और न किसी एक पीढ़ी की। इसने हमें संचार, विज्ञान और भविष्य के सपने दिए हैं, लेकिन आज वही अंतरिक्ष मलबे से भरता जा रहा है। अंतरिक्ष को गंवा करना आसान है, पर सुरक्षित रखना कठिन। इसके लिए दूरदर्शिता चाहिए, ताकि तात्कालिक लाभ से ऊपर उठकर भविष्य को बचाया जा सके। संयम चाहिए, ताकि हर देश जिम्मेदारी से व्यवहार करे और वैश्विक सहयोग चाहिए, क्योंकि अंतरिक्ष किसी सीमा में नहीं बंधा है।

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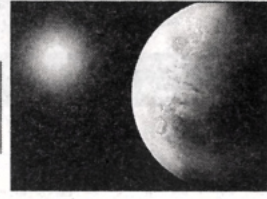
## दूरस्त ग्रहों के वायुमंडल में जीवन के संकेत ढूँढने में जुटे खगोलविद

Source: Jansatta, Dt. 13 Jan 2026

लंदन, 12 जनवरी (एजेंसी)।

खगोल विज्ञान के क्षेत्र में वैज्ञानिक उस सवाल के जवाब के करीब पहुंच रहे हैं जो सदियों से पूछा जा रहा है कि क्या पृथ्वी ही एकमात्र ऐसा ग्रह है, जहां जीवन मौजूद है? पिछले तीन दशकों में यह स्पष्ट हो चुका है कि सूर्य अकेला तारा नहीं है, जिसके चारों ओर ग्रह घूमते हैं। अब तक छह हजार से अधिक एक्सोप्लैनेट यानि सौरमंडल के बाहर स्थित ग्रह खोजे जा चुके हैं।

वैज्ञानिकों का मानना है कि दूरबीनों की मदद से इन ग्रहों के वायुमंडल में मौजूद गैसों का अध्ययन कर यह पता लगाया जा सकता है कि कहीं वहां जीवन के संकेत तो नहीं हैं। ग्रह की अपने तारे से दूरी के आधार पर उसके तापमान का अनुमान लगाया जाता है। पृथ्वी की तरह



नासा की प्रस्तावित 'हैबिटेबल वर्ल्स आर्बावेटरी' पृथ्वी जैसे लगभग 25 ग्रहों का अध्ययन करेगी और उनके वायुमंडल में आक्सीजन जैसे जीवन-संबंधी संकेतों की तलाश करेगी। वैज्ञानिकों का कहना है कि आने वाले वर्षों में यह पता लगाने की दिशा में बड़ी प्रगति हो सकती है कि क्या ब्रह्मांड में पृथ्वी के अलावा भी कहीं जीवन मौजूद है।

तरल पानी के लिए अनुकूल तापमान को जीवन के लिए एक अहम शर्त माना जाता है और इसमें ग्रह का वायुमंडल महत्वपूर्ण भूमिका निभाता है। खगोलविद अब सौरमंडल के बाहर स्थित ग्रहों के वायुमंडल में मौजूद अणुओं की पहचान करने में सक्षम हो गए हैं। प्रत्येक रासायनिक तत्व प्रकाश पर एक विशिष्ट 'बारकोड' जैसी छाप छोड़ता है। जब कोई ग्रह अपने तारे के

सामने से गुजरता है, तो उसके वायुमंडल से छनकर आने वाले प्रकाश में इन अणुओं के संकेत देखे जा सकते हैं। हालांकि यह तकनीक केवल उन्हीं ग्रहों पर लागू होती है, जो हमारी दृष्टि से तारे के सामने से गुजरते हैं।

वैज्ञानिकों के अनुसार, किसी अणु की पहचान उसकी मात्रा और उसके बारकोड की मजबूती पर निर्भर करती है। पृथ्वी के वायुमंडल

में नाइट्रोजन सबसे अधिक है, लेकिन इसका संकेत कमजोर होता है, जबकि आक्सीजन, ओजोन, कार्बन डाइऑक्साइड और जलवाष्प जैसे अणुओं के संकेत अपेक्षाकृत मजबूत होते हैं। जेम्स वेब स्पेस टेलीस्कोप ने इन्फ्रारेड तरंगदैर्घ्य में कई एक्सोप्लैनेट के वायुमंडल का अध्ययन किया है और मीथेन, कार्बन डाइऑक्साइड तथा पानी जैसे सरल अणुओं की पहचान की है। हालांकि, आंकड़ों की व्याख्या में अंतर के कारण अलग-अलग शोध दल कभी-कभी अलग निष्कर्ष निकालते हैं।

वर्ष 2025 में पृथ्वी से बड़े लेकिन नेपच्यून से छोटे एक ग्रह 'के2-18बी' के वायुमंडल में डाइमिथाइल सल्फाइड पाए जाने का दावा किया गया था, जिसे संभावित जैविक संकेत माना गया। पृथ्वी पर यह गैस समुद्री सूक्ष्मजीवों द्वारा उत्पन्न होती है।

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The Statesman  
ਪੰਜਾਬ ਕੇਸਰੀ ਜਨਸਤਾ  
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