

Shine Brighter Première

Shortfile 14 To the Moon and beyond

Document 2, Extrait p.127 – Article de *CNN*, 2023

India is on the moon

Indians around the world have united with pride and excitement after the South Asian nation on Wednesday became the first country to soft land a spacecraft on the moon's unexplored South Pole, and only the fourth country to reach the lunar surface. [...]

"We have achieved soft landing on the moon," said ISRO chairman S. Somanath to thunderous¹ applause in the control room. "India is on the moon."

The history-making event has become an immense source of pride for the country of 1.4 billion as it takes challenging steps to become a space pioneer and cement its status as a global power.

Chandrayaan-3's success has brought together a nation struggling at a time of deep communal strife², with deadly sectarian violence flaring³ in pockets of the country. It presents a moment of hope and unity to millions who are reveling in ISRO's achievement.

¹ loud

² struggle

³ taking place

Worshippers were seen praying at Hindu temples, mosques and Sikh gurdwaras ahead of its landing. Several schools around the country organized live viewings of the mission and children fervently waved the Indian flag when Chandrayaan-3 touched down on the moon's surface.

Locals burst firecrackers, distributed sweets in the streets and danced enthusiastically to celebrate the achievement. Chants of "victory to India!" thundered⁴ outside the Council of Scientific and Industrial Research in capital New Delhi.

"I'm very excited," said Ashish Kumar Verma, who was watching the live stream. "It was a very great moment to witness."

For a nation that only gained independence from the British 76 years ago, and one where large pockets of the population remain impoverished, India's triumph over Russia – a country seen as a space pioneer – is symbolic of the changing world order.

CNN, 2023

⁴ made a loud noise

Not just space: How ISRO is touching many facets of our everyday life

Though space research has some very obvious benefits such as telecommunication, weather forecasting, GPS, and detecting water bodies and minerals, going to Mars or landing on the Moon is seen by many as a vanity project.

Few people know that even the most obscure research by ISRO can finally land in your home, workplace or a factory in the shape of an immensely useful product or process.

For example, a robotic technology developed by ISRO to operate equipment in a spacecraft might ultimately be used to make smart artificial limbs¹. ISRO's project for sustained² human presence in space will yield³ a large number of spinoff technologies which will improve our everyday life.

Advancements in space technology, ISRO said, has created a positive impact in society, especially in sectors like health care, education, communication, broadcasting, disaster management, safety & security and land and water resource management.

Technology spin-offs from the Indian space programme have benefited mankind by way of cost-effective developments in health care like artificial limbs, artificial jaw bones, left ventricular assist device and ventilators.

In the area of safety, spinoffs include flame-proof coatings (fire safety), Aerogel - Thermal wear for soldiers (for protection from extreme cold weather). Distress alert

¹ prosthetic arms or leg

² long-term

³ create

systems and search & rescue beacons have come in handy in the area of disaster management, ISRO said.

The Economic Times, 2023

India: Advancing the Final Frontier with Self-Reliance and Diplomacy

In tandem with building up its self-reliance through its domestic space industry, India has been increasingly engaged in international space cooperation, fostering¹ partnerships with other space agencies and research institutions. [...]

In recent years, India walked a fine line balancing its strategic partnership with the U.S. while also deepening ties with Moscow and maintaining its “strategic autonomy.”

The ongoing geopolitical rifts between the U.S. and the two major space powers – China and Russia – are serving to India’s advantage. In space, China, India, and Russia offer efficient yet low-cost technology. However, given the geopolitical tensions, the U.S. government is likely to work even more closely with India on space military technology. India’s reach in space is argued by some to be partly driven by China’s race to become a space superpower. [...]

The strategic importance of India’s space endeavours² is underscored by its positioning between major spacefaring nations like the U.S., China, and Russia. By fostering a thriving commercial space sector and building strategic alliances, India is cementing its role as a key player in shaping the future of space exploration and governance. As India continues to invest in crewed missions and deep space

¹ developing

² efforts

exploration, its space program stands poised³ to contribute not only to national pride but also to the broader global space economy.

Asia Pacific Foundation of Canada, 2024

Document 3, Extrait p.131 – Article de *Space.com*, 2024

India aims to achieve ‘debris-free’ space missions by 2030

In late March, the Indian Space Research Organisation (ISRO) announced that one of its satellite missions “practically left zero debris in orbit” after a spent rocket stage was lowered to burn up in Earth’s atmosphere during re-entry.

Similar deorbiting techniques will be used to make future missions “debris-free” by the end of this decade, ISRO Chairman S. Somanath said last week.

“Over the years, sufficient skill has been developed within ISRO in dealing with topics related to debris management,” Somanath said in a session hosted by the Inter-Agency Space Debris Coordination Committee (IADC), whose 13 members include all major spacefaring nations. “We want to make sure that for all the spacecraft we are likely to launch in the future, we will be taking action to make sure that we de-orbit and bring it to a safe location.” [...]

Low Earth orbit is littered with about 30,000 objects larger than a softball and millions smaller than a centimeter, which circle Earth at speeds reaching 10 times that of a bullet. Spent rocket stages and dead or malfunctioning satellites abandoned in their orbits around Earth have been the primary source of space junk due to collisions and accidental explosions, prompting¹ space agencies and private companies to lower their satellites intentionally for atmospheric reentries.

³ is ready

¹ forcing

Even as a million more satellites are predicted to head to LEO² in the coming years, questions persist about the environmental impacts of burning up satellites in Earth's atmosphere. A bombshell study last October found unexpectedly high amounts of vaporized metals polluting Earth's stratosphere, which is home to the fragile ozone layer, whose chemical makeup can be altered by satellite material.

Space.com, 2024

² Low Earth Orbit

Aditya-L: India's solar mission reaches sun's orbit

India's solar observation mission [Aditya-L] has entered the sun's orbit after a four-month journey, the latest success for the space exploration ambitions of the world's most populous country. [...]

The latest mission by the Indian Space Research Organisation is the first by any country in Asia to be placed in orbit around the sun.

India's prime minister, Narendra Modi, hailed it as another landmark in the country's space programme.

"It is a testament to the relentless dedication of our scientists," he said on social media.

Aditya, named after a Hindu sun deity, has travelled 932,000 miles (1.5m km) from Earth – still only 1% of the distance between Earth and the sun. [...]

The orbiter, which reportedly cost \$48m (£38m), will study coronal mass ejections, a periodic phenomenon in which huge discharges of plasma and magnetic energy are released from the sun's atmosphere. These bursts¹ are so powerful they can reach the Earth and disrupt the operations of satellites.

The mission also aims to shed light on the dynamics of several other solar phenomena by imaging and measuring particles in the sun's upper atmosphere. [...]

India is also planning a joint mission with Japan to send another probe² to the moon by 2025 and an orbital mission to Venus within the next two years.

AFP, January 2024

¹ explosion

² sonde

Évaluation de la compréhension de l'écrit – Guide pédagogique

India to send first astronaut on mission to International Space Station

The first Indian astronaut to visit the International Space Station is due to blast off¹ as part of an effort by the world's most populous nation to catch up with the US, Russia and China in human space flight missions.

Shubhanshu Shukla, a 39-year-old air force fighter pilot, is part of four-person mission launching on Tuesday from the US with the private company Axiom Space, which is using a SpaceX capsule.

He will be the third astronaut of Indian origin to reach orbit [...].

"I truly believe that even though, as an individual, I am travelling to space, this is the journey of 1.4 billion people," Shukla was quoted as saying by *The Hindu* newspaper this year. Shukla said he hoped to "ignite the curiosity of an entire generation in my country".

India's department of space has called the trip a "defining chapter" in its ambitious space exploration programme. The International Space Station mission (ISS), "stands as a symbol of a confident, forward-looking nation ready to reclaim its place in the global space race," the agency said before the launch. "His journey is more than just a flight – it's a signal that India is stepping boldly into a new era of space exploration."

¹ launch

The prime minister, Narendra Modi, has announced plans to send a person to the Moon by 2040. The Indian Space Research Organisation, meanwhile, is planning to launch its own human spaceflight mission, called Gaganyaan, or “sky craft” in Hindi, in 2027. Shukla is a contender to be part of that trip.

Shukla trained at the Yuri Gagarin Cosmonaut Training Center in Russia in 2020, before undertaking further training at the ISRO's centre in Bengaluru.

He has said the journey aboard the Axiom Mission 4, and the expected 14 days on the ISS, will provide “invaluable” lessons to bring back home.

Oliver Holmes, *The Guardian*, 2025