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Published by the Future Issues and Technology (FIT) Research Cluster, RSIS. This Bulletin comes as a series of articles on science and technology from the angle of national security.

In this Bulletin

For the second issue of Science, Technology and Security (STS) Bulletin, we focus on space technologies from three perspectives: (1) the growing space economy, (2) recent developments in Earth observation, and (3) satellites in near-equatorial orbit for environmental purposes. An introduction to future issues and space is also featured. Images below were generated by AI (imagine.art).



Future Issues and Space
Benjamin Ang and Karryl Sagun-Trajano



Building Inroads into the Future of Space: Experimentation, Learning and Leadership for a Better World
Lynette Tan



Recent Developments in Earth Observation
Shankar Sivaprakasam



Near-Equatorial Orbits with Small and Very Small Satellites: "Equatorial Sentinels" for the Environment
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Future Issues and Space | Benjamin Ang and Karryl Sagun-Trajano

STS is edited by the FIT cluster and features thought pieces on key emerging technologies, such as artificial intelligence (AI), space, quantum technologies, technology geopolitics, and smart cities. We aim to explicate novel technologies in relation to policy to facilitate discussion, information sharing, and collaboration. In the coming months, we will also be publishing a commentary on space and its relation and contribution to better public health. [Click to read more.](#)

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Building Inroads into the Future of Space: Experimentation, Learning and Leadership for a Better World | Lynette Tan

Notwithstanding global uncertainty, the space economy grew to US\$546 billion and is forecast to reach a trillion by 2040. Fuelled by a global space movement, it stands as a vital economic pillar, offering a unique arena for innovation, experimentation and big data implications. As satellites create a mega data set, bridging the talent gap through a STEM 2.0 revolution and strategic partnerships will be critical for governments and companies racing to unlock the vast potential of the ever-expanding space industry. [Click to read more.](#)

Lynette Tan is CEO of Space Faculty, leading a global platform that works with government, corporations, and education institutions to expand the space economy and leverage space technologies. She has more than 18 years of experience in growing business in Asia, holds a Master's in Chemical Engineering from Stanford University, and a Karman Fellowship from The Karman Project.

Recent Developments in Earth Observation | Shankar Sivaprakasam

A new form of gathering big data, known as earth observation (EO), has been gaining ground in recent years. It involves the use of hundreds of satellites with varied sensors in lower earth orbit, above 400 km from earth's surface. EO has the potential to proliferate and catalyse digital disruptions, further transforming industries, government business and the way people live, work, and learn. [Click to read more.](#)

Shankar Sivaprakasam is a technology professional with a degree in Computer Science and Engineering from IIT, Kanpur, India, an Executive MBA focused in Strategy, Operations and Finance from the University of Technology Sydney (UTS), and a PhD in Innovation Economics from UTS. He is the founder of Eartheye Space.

Near-Equatorial Orbits with Small and Very Small Satellites: "Equatorial Sentinels" for the Environment | Erick Lansard

There is an urgent need to better understand the environmental phenomena that are threatening populations in equatorial regions: Typhoons, floods, earthquakes, tsunamis, volcanoes, wildfires, pollution, etc., due to climate change and geo-hazards are causing huge damage to societies and huge financial losses to economies. Forecast models exist but with limited accuracy, and the available data have poor sampling above equatorial regions, especially for fast-varying phenomena. To improve this situation, new data are necessary. [Click to read more.](#)

Erick Lansard holds a Master of Engineering in Aeronautics & Space (1983), a Master of Science in Fluid Dynamics (1983) and a PhD in Space Geodesy (1987). He has over 3 decades on industry experience holding director-level positions in various projects and organisations, including Alcatel Space, Alcatel Alenia Space, Thales Alenia Space, Thales Research & Technology-France, Thales Solutions Asia, Thales Defense Mission Systems. Erick is also (Full) Professor of Nanyang Technological University (EEE School).

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