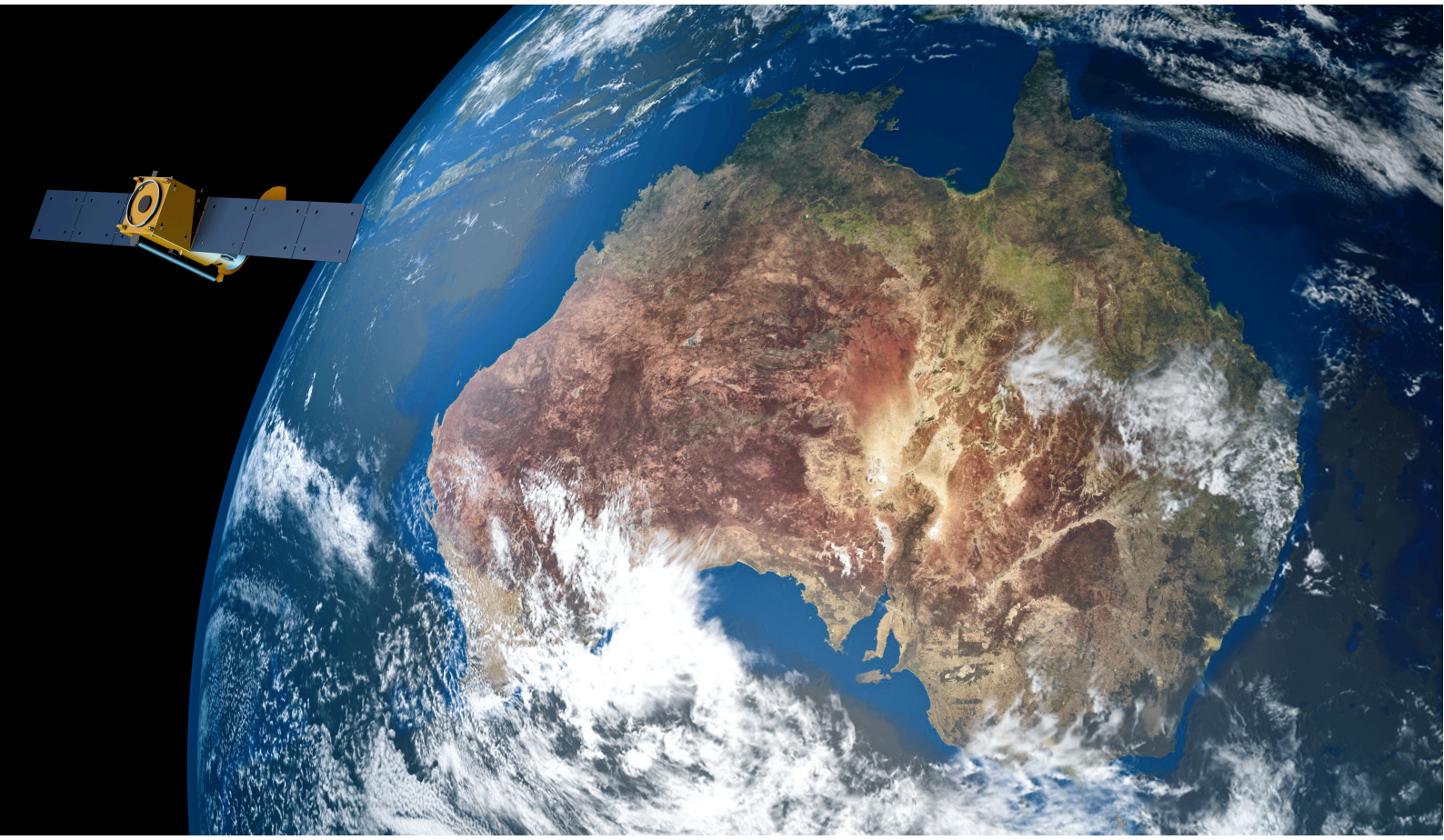
SECURING AUSTRALIA THROUGH SPACE: THE CASE FOR ‘SPACE MAINSTREAMING’ TO ADVANCE NATIONAL PRIORITIES

ART COTTERELL



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About the Author

Art Cotterell is a Research Associate with the School of Regulation and Global Governance (RegNet) at the Australian National University, having previously worked as an executive level advisor with the Australian Government.

About the Securing Australia Through Space Policy Papers Series

The Australian Centre for Space Governance hosted a workshop in March 2024 titled “Securing Australia Through Space”, where the question was posed: what does Australia need to secure, and how do space technologies help us to do so?

The workshop was attended by over 90 people, with the vast majority of attendees coming from a range of federal government departments and agencies. Experts from academia, government and industry were invited to give presentations and take part in roundtable discussions. This policy paper series is a result of the workshop.

The papers are authored by those who presented, and edited by Sarah O’Connor, Tristan Moss and Cassandra Steer on behalf of the Australian Centre for Space Governance. The opinions expressed in each paper are those of the authors in their individual capacity, and do not represent the views of any of their employers.

About the Australian Centre for Space Governance

The Australian Centre for Space Governance advocates for Australia’s interests in space in the 21st century and advances the agenda for responsible space governance.

We bring together the nation’s leading experts in fields such as space law, governance, policy, science and technology studies, security, property, history, ethics, political, and social sciences from across six different universities in Australia (Australian National University, Flinders University, RMIT University, University of Adelaide, UNSW Canberra, and Western Sydney University).

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Summary

- Space technologies and capabilities are critical enablers of a wide range of economic, foreign policy, national security, environmental and social priorities.
- The *Intergenerational Report*, released by the Treasurer, identifies geopolitical risk and fragmentation, technological and digital transformation, and climate change and the net zero transformation as powerful forces shaping our future.
- Australia's ability to respond to these forces depends on harnessing space technologies and capabilities, such as Earth observation (EO). EO technologies and data are important for increasing productivity and economic growth, advancing international cooperation and supporting the net zero transition.
- 'Space mainstreaming' refers to integrating considerations of space technologies and capabilities across a broader range of government departments and agencies, rather than limiting them to a specialised, siloed domain of policy development and decision-making.
- Space must be embedded as a business-as-usual (BAU) consideration to better deliver on national priorities. This requires greater space literacy across government.
- By adopting space mainstreaming, the Australian Government can better leverage space to seize opportunities, mitigate risks and secure the future.

Policy recommendations

- The Australian Government should establish an interagency Space Taskforce focused on harnessing space technologies and capabilities to advance national priorities for the benefit of current and future generations. Establishing it within a central agency, such as the Department of the Prime Minister and Cabinet (PM&C), would drive a whole-of-government reset on space. Alternatively, it could be a joint taskforce between PM&C and the Department of Industry, Science and Resources.
- The Australian Space Agency (ASA) should revisit key documents requiring whole-of-government engagement like the *State of Space* report and the *EO Roadmap*.
- The ASA should uplift space literacy across government, including through the Australian Public Service Academy's APSLearn platform.

When many of us hear the word 'space', images of astronauts and rockets often come to mind. The latest public opinion poll conducted by the Australian Centre for Space Governance shows that national space literacy – our understanding of the technologies aboard those rockets and their importance to our everyday lives – is low.[1]

Amid cost-of-living pressures, declining productivity and recurring natural disasters, our minds are understandably firmly focused on the ground. Government policy making or investment in space may struggle to pass the 'pub test'. To many, space may seem more beneficial to billionaires than to the suburbs.

Politicians, and the electorates to whom they are accountable, may naturally see space as far removed from everyday concerns. Similarly, public servants may regard space as a highly specialised domain, confined to the Australian Space Agency (ASA). Understandably, this can lead to the question across government: 'Why does space matter when there are pressing issues to deal with?'

Yet, space is not a distraction – in fact, space can be part of the solution. Space technologies and capabilities serve as critical enablers of a wide range of economic, foreign policy, national security, environmental and social priorities. A growing number of nations are recognising this, as have the Organisation for Economic Co-operation and Development (OECD) and the World Economic Forum (WEF).[2]

Take, for example, the latest *Intergenerational Report* (IGR) released by the Treasurer. The 'powerful domestic and global forces' shaping the Australian economy over the next 40 years were identified as including: geopolitical risk and fragmentation, technological and digital transformation, and climate change and the net zero transformation.[3] Many of these are shared regional and global issues.

Our success in meeting these intergenerational challenges depends on space technologies and capabilities – such as Earth observation (EO) – and the decisions government makes about them. EO satellites are important to managing natural disasters, increasing productivity and advancing diplomacy with international partners. Rather than 'Why does space matter?', the better question is: 'How can space help, and what are the opportunities and challenges?' This policy paper proposes the concept of 'space mainstreaming' to drive a strategic shift across government and beyond.

What is 'space mainstreaming', and why does it matter to government?

Space mainstreaming means reframing space technologies and capabilities from being solely the focus of 'space policy' to recognising them as critical enablers of national priorities, like those in the IGR. Space must become a business-as-usual (BAU) consideration across government.

Moving beyond space silos is essential. To mainstream space means increasing space literacy and integrating considerations of space – from technologies to capabilities – into a broader remit of policy making and decisions across government, not just those traditionally associated with space like ASA.

To fully harness the potential of space-based technologies, space must be integrated across more departments and agencies, including central agencies like the

Department of the Prime Minister and Cabinet (PM&C) and Treasury, which drive whole-of-government coordination and policy coherence, as well as the Department of Foreign Affairs and Trade (DFAT) and other line agencies.

Space mainstreaming draws upon existing approaches recognised nationally and globally, such as gender and climate mainstreaming. Recently, the Australian Government emphasised the need to make climate adaptation mainstream by embedding climate risk as a BAU consideration across government.[4]

Similarly, space mainstreaming seeks to ensure that space technologies and capabilities become integrated into BAU thinking to advance the delivery of a broader remit of priorities, where space serves as a critical enabler rather than the primary focus.

Space mainstreaming does not replace the need for dedicated space policy by the ASA, which remains essential to responsibly developing, governing, regulating and stewarding the domestic space ecosystem. However, by integrating an understanding of space across government departments and agencies, space mainstreaming can foster policies and decisions that are informed by a more comprehensive understanding of the benefits and risks of space technologies and capabilities for public and private interests.

In mainstreaming space, government must listen to and elevate the perspectives, priorities, power and prosperity of First Nations peoples.[5] First Nations peoples and businesses have highlighted that space technologies can both benefit and adversely affect communities, and that expertise exists in using EO to care for Country.[6]

A good illustration of why space mainstreaming is necessary lies in the ways EO can demonstrate the reach of space technologies and capabilities across government, even in policy domains where space may not be explicitly mentioned:

- increasing productivity and economic growth;
- advancing international cooperation; and
- supporting the net zero transition.

EO: advancing national priorities

EO technologies monitor what NASA calls the ‘vital signs of our planet’, capturing changes to the Earth’s land, waterways and atmosphere.[7] Space-based EO satellites orbiting above us collect this data through remote sensing. The data is then transmitted to terrestrial ground stations. Calibration, validation and analysis then help transform this data into meaningful, actionable insights.

As the OECD notes, there is a ‘growing appreciation of space-based solutions by decision-makers worldwide’.[8] For example, EO data guides evidence-based decision-making for natural disaster response and recovery, the net zero transition, biodiversity conservation and climate change.[9]

In Australia, EO data is used across non-space industries for agriculture, weather management, natural resources, environmental management and disaster response, among others. The national security implications mean that the satellites providing EO data are critical infrastructure.

While ASA, Geoscience Australia, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Bureau of Meteorology (BOM) are obvious

examples of government use of EO technologies, EO can also help deliver on broader cross-cutting priorities, like the economy, foreign policy and environment. The range of portfolios and national priorities dependent on EO has been detailed in a recent national risk report.[10]

Increasing productivity and economic growth through EO

Space mainstreaming can help government to think about how to leverage space technologies and capabilities to proactively respond to intergenerational challenges like slowing productivity and economic growth. EO data can boost productivity by providing 'targeted insights', leading to 'better management of Australia's resources including agriculture, water, minerals and land, through improved decision times and better utilisation of time and resources'.[11]

Moreover, the integration of artificial intelligence (AI) capabilities with EO data can accelerate this, offering 'catalytic potential', according to the WEF.[12] AI can quickly process and analyse vast amounts of raw EO data into meaningful, actionable insights for non-technical decision-makers across government, industry and communities. As Australia's AI start-up ecosystem is 'young and nimble',[13] it is well-positioned to capitalise on this, unlock new markets and ensure the safe and responsible use of AI.

Mainstreaming space offers an opportunity to identify not only how space technologies can drive innovation, but the government policies necessary to make this happen.

In terms of numbers, latest figures show that Australia's EO sector directly contributes AU$238 million annually to the economy.[14] Conservative estimates of broader indirect contributions are AU$2.5 billion annually, benefiting industries like agriculture, construction, resources and weather management. EO creates jobs, employing 1,570 full-time equivalents (FTEs).

Such economic benefits cannot be isolated. The 'first and only Aboriginal-owned-and-operated' satellite ground stations to receive EO data, the Centre for Appropriate Technology Satellite Enterprises, has a mission 'to ensure Indigenous Australians are active participants in the space economy and realise the benefits of space-enabled services'.[15] Growing the EO sector may advance economic self-determination and prosperity for First Nations peoples.

Expanding the domestic EO sector will also help the ASA achieve its founding target of tripling the size of the domestic space industry to AU$12 billion by 2030 and creating an additional 20,000 jobs.[16] However, this will require space mainstreaming to be realised.

Advancing international cooperation through EO

Space diplomacy is an important form of soft power, helping to counter a key challenge in the IGR: geopolitical risk and fragmentation. Harnessing space technologies to tackle shared global and regional challenges can build mutual trust and foster a virtuous cycle of international cooperation.

While ASA oversees international engagement on space, partnerships are expanding beyond memoranda of understanding with counterpart space agencies. At the Quad Leaders' Summit in 2021, Australia, India, Japan and the US announced a new Space Working Group. A priority is to share EO data with Indo-Pacific

nations to adapt to climate change and strengthen early warning systems.[17]

Such partnerships illustrate how cooperative space technology endeavours can align with broader foreign policy ambitions. For example, DFAT's *Invested: Australia's Southeast Asia Economic Strategy to 2040* identifies priority sectors for increasing two-way trade and investment, including agriculture and food and the clean energy transition.[18] Both of which depend heavily on EO and advanced satellite communications.

If space technologies like EO can be leveraged to support spillover cooperation in other areas, Australia must engage with Indo-Pacific partners as equals, and listen to and learn from the priorities, expertise, interests and concerns of other nations.

Considering these commitments and opportunities, a key question arises for government: what contribution can Australia make internationally, now and in the future?

This question requires reflection, especially after the decision to cancel the National Space Mission for Earth Observation (NSMEO) program in 2023 for Budget repair reasons.[19] NSMEO would have seen Australia design, build, launch and operate EO satellites, increasing 'sovereign' capabilities. Revisiting the NSMEO decision may be timely, as it aligns with the new *Future Made in Australia* agenda.

In the meantime, Australia continues to rely on overseas commercial entities and other nations to meet its EO data supply needs. This critical dependency is often framed as posing national security risks, but it also has diplomatic implications. Such decisions may raise questions about government commitment to space. Australia is the only Quad member without 'sovereign' EO satellite infrastructure. It also introduces a need to define our unique value proposition in EO within international partnerships.

Transitioning to net zero: EO to reduce emissions

The Australian Government's pathway to net zero, a driving force within the latest IGR, will face roadblocks without space mainstreaming. For example, EO can monitor and track greenhouse gas emissions up and down supply chains. The WEF estimates harnessing EO data can 'eliminate up to 2 gigatonnes of emissions per year' – that is equal to the emissions of 476 million petrol-powered cars annually.[20]

EO data will be essential for implementing mandatory climate-related financial disclosures (CRFD), a legislated initiative to help achieve net zero. A reform led by Treasury, this highlights the value of space to delivering on a central agency's priorities. In particular, EO data can support larger businesses and financial institutions to fulfil these new sustainability reporting obligations to the Australian Securities and Investment Commission (ASIC) on 'exposure to climate-related financial risks and opportunities and climate-related plans and strategies'.[21]

EO already plays a key role in voluntary corporate social responsibility (CSR) and environmental, social and governance (ESG) reporting. With the introduction of mandatory CRFD, reliance on EO – spanning data to analytics – will grow, creating opportunities for new commercial markets. As one EO satellite operator once observed: 'Nature will be on the balance sheet, which means space will be on the balance sheet because you can't see ESG without us'.[22] The same logic

applies here: you cannot see mandatory CRFD without EO.

During the consultation process for CRFD, one Indigenous-led organisation emphasised the importance of engaging First Nations peoples in designing and implementing mandatory CRFD, recognising the disproportionate effects of climate change on communities.[23] This also applies to using EO for CRFD as Indigenous-led businesses are already at the forefront of using EO for land and water management, while ensuring Indigenous data sovereignty.[24]

Internationally, the use of EO data for climate disclosure is not without precedent. In the United Kingdom (UK), a frontrunner in introducing mandatory CRFD, the Space4Climate network established a dedicated taskforce to support the financial sector in using EO data for climate disclosures and decision-making.[25]

Space4Climate exemplifies the concept of space mainstreaming and may offer a useful model for Australia. Chaired by the UK Space Agency, the network's membership spans government, industry, civil society and academia.[26] The network aims 'to deliver, sustain and make use of climate information from space, enabling it to be integrated "as standard" in a variety of climate services for global economic and societal benefit'.

Australia has an opportunity to both lead and learn in this emerging regulatory sphere by drawing on international better practices while adapting them to the local context. By helping to harness EO, the government can support implementation of CRFD by industry and improve transparency in reporting.

Recommendations for 'space mainstreaming' in government

Mainstreaming space requires a strategic shift to achieve greater understanding, integration and communication of the benefits and risks of space technologies and capabilities across a broader remit of government departments and agencies. Space is no longer solely a priority for 'space policy'. Instead, it is a critical enabler of national priorities. Space must form part of BAU thinking in policy and decision-making.

To shift from space silos to space mainstreaming, change is necessary. Establishing a dedicated, time-limited interagency Space Taskforce can drive this whole-of-government reset, by focusing on how harnessing space can advance Australia's economic, foreign policy, national security, environmental and social priorities. After all, a taskforce is set up to address a specific, pressing issue facing the nation.

Terms of reference would define its scope, governance, resourcing, deliverables and timeframes. For example, the taskforce could undertake deep dives on space for specific priorities, even resulting in a much-needed national space policy and recommendations for implementation.

While the Department of Industry, Science and Resources (DISR) may seem a natural fit, locating it within a central agency like PM&C would enable greater whole-of-government authority, coordination, influence and action. Alternatively, it could be a joint taskforce between PM&C and DISR.

Irrespective of its placement, establishing a Space Taskforce would signal a renewed commitment to space, both domestically and

internationally. It could boost private sector confidence and investment, while reinvigorating engagement across government and among stakeholders from industry, civil society, academia and communities on-the-ground. It could engage with states and territories, which are developing strategies to attract industry and, if necessary, bring this to National Cabinet.

While the ASA's existing Space Coordination Committee (SCC), which functions as an interdepartmental committee (IDC), coordinates whole-of-government policy on civil space activities among senior public servants,[27] its scope and influence is limited. It also lacks the policy authority and urgency needed to drive the strategic shift required to mainstream space, although it could play a key advisory role to the taskforce.

In contrast, a Space Taskforce – particularly if backed by a Cabinet decision, invested minister or secretary – would have the authorising environment needed to drive meaningful engagement, buy-in and action. Indeed, support from ministers and senior executives across government will be essential, as will the composition of the interagency team seconded to the taskforce.

This means it must generate support and leverage space subject matter experts from DISR, ASA, Geoscience Australia, CSIRO and the BOM. Equally critical is involvement from Treasury, the Productivity Commission and DFAT, given the economic, productivity and foreign policy implications.

The elevation of First Nations peoples, priorities and perspectives, including from such departments and agencies, must be central to any Space Taskforce, as space presents both benefits and risks to First Nations communities.

Portfolios covering agriculture, climate change, defence and national security, infrastructure and resources are relevant, as are agencies like IP Australia, considering the role of intellectual property in fostering innovation.

A more pragmatic, immediate action could involve ASA revisiting key documents requiring whole-of-government engagement. The *State of Space* report, last published by the ASA SCC for 2020/21, could be revived to report on 'investment and economic impacts, international and national cooperation and collaborations'.[28] Similarly, ASA's decadal roadmaps on EO, communication technologies and services, and robotics and automation could be refreshed to mainstream space, and in light of the forthcoming space sustainability policy and the ASA's First Nations Engagement Framework to guide 'meaningful and ethical engagement', including to 'enable First Nations people to benefit from space'.[29]

ASA could also explore working with the Australian Public Service Academy to deliver learning and development offerings to improve space literacy across government, including via the APSLearn online platform.

Space mainstreaming is a concept with relevance across all levels of government, internationally, and for use by industry, academia, civil society and the public. While this policy paper has used EO to explain why space mainstreaming matters, space technologies like satellite communications are likewise key enablers. Ultimately, widespread adoption of space mainstreaming can embed a greater understanding of space technologies and capabilities in addressing the shared intergenerational challenges ahead.

Notes

[1] Tristan Moss, Kathryn Robison Hasani and Aleks Deejay, *Looking up from Down Under: Australian Attitudes to National Space Activities*, Australian Centre for Space Governance, December 2023, accessed 14 December 2024, https://www.spacegovcentre.org/_files/ugd/ff2a5a_76d6c587c5444703acc72faffa81c492.pdf

[2] World Economic Forum, *Space: The $1.8 Trillion Opportunity for Global Economic Growth*, April 2024, accessed 14 December 2024, https://www3.weforum.org/docs/WEF_Space_2024.pdf; Organisation for Economic Co-operation and Development, *The Global Space Economy in Figures: Responding to Global Challenges*, 2023, revised September 2024, accessed 14 December 2024, https://www.oecd.org/content/dam/oecd/en/publications/reports/2023/12/the-space-economy-in-figures_4c52ae39/fa5494aa-en.pdf

[3] Treasury, *Intergenerational Report 2023: Australia's Future to 2063,* Commonwealth of Australia, August 2023, accessed 14 December 2024, https://treasury.gov.au/sites/default/files/2023-08/p2023-435150.pdf, viii.

[4] Department of Climate Change, Energy, the Environment and Water, *National Adaptation Plan: Issues Paper*, Commonwealth of Australia, March 2024, accessed 14 December 2024, https://storage.googleapis.com/files-au-climate/climate-au/p/prj2bf366cf9d0b4cc962561/page/National%20Adaptation%20Plan%20Issues%20Paper%20March%202024.pdf, 1; for broader discussion, see: Anita Foerster and Alice Bleby, *Climate Mainstreaming in Practice: Using Law to Embed Climate Change in Government Policy and Decision-Making*, Monash Business School, Monash University, August 2023, accessed 14 December 2024, https://www.monash.edu/__data/assets/pdf_file/0007/3291694/Climate-mainstreaming-in-practice.pdf

[5] Framing on the need to elevate drawn from: Romlie Mokak, *Inaugural Mokak Oration: Beyond discomfort and dismay: Aboriginal and Torres Strait Islander people, power and prosperity,* Productivity Commission, Commonwealth of Australia, 20 November 2024, accessed 14 December 2024, https://www.pc.gov.au/media-speeches/mokak-oration/discomfort-dismay, 3.

[6] Pete Swanton, *Dark Skies*, Securing Australia Through Space Workshop, Australian Centre for Space Governance and UNSW Canberra, 26 March 2024; Winyama, Winyama, 'What is First Nations Earth Observation?', 13 September 2024, https://winyama.com.au/news-room/what-is-first-nations-earth-observation; NGIS Australia, *What is First Nations Earth Observation?*, Location Matters, Podcast, 9 February 2024, accessed 14 December 2024, https://podcasts.apple.com/gb/podcast/what-is-first-nations-earth-observation/id1405354920?i=1000550499590

[7] National Aeronautics and Space Administration, *Global Climate Change: Vital Signs of the Planet*, accessed 14 December 2024, https://climate.nasa.gov/%C2%A0%C2%A0/

[8] Above n 1, 17; Organisation for Economic Co-operation and Development, *Earth Observation for Decision-Making*, March 2017, accessed 14 December 2024, https://www.scribd.com/document/460291047/Earth-Observation-for-Decision-Making

[9] Art Cotterell, 'Space Industry Can Help in the Fight Against Climate Change', *Space Australia*, 4 August 2023, https://spaceaustralia.com/opinions/space-industry-can-help-fight-against-climate-change

[10] Symbios, The University of Queensland and Earth Observation Australia Inc, *Continuity of Earth Observation Data for Australia: Risks*, April 2024, accessed 11 December 2024, https://www.eoa.org.au/news/2024/4/9/continuity-of-earth-observation-data-for-australia-risks-report-released

[11] Australian Space Agency, *Advancing Space: Australian Civil Space Strategy 2019-2028*, Commonwealth of Australia, May 2022, accessed 14 December 2024, https://www.industry.gov.au/publications/australian-civil-space-strategy-2019-2028

[12] World Economic Forum, *The Catalytic Potential of Artificial Intelligence for Earth Observation: Briefing Paper*, January 2024, accessed 14 December 2024, https://www3.weforum.org/docs/WEF_The_Catalytic_Potential_of_Artificial_Intelligence_for_Earth_Observation_2024.pdf, 4.
[13] Stefan Hajkowicz and Alexandra Bratanova, *Lifting the Curtain on Australia's AI Ecosystem*, CSIRO, 12 December 2023, accessed 14 December 2024, https://www.csiro.au/en/news/all/articles/2023/december/australia-ai-ecosystem
[14] Deloitte, *Economic Study into an Australian Continuous Launch Small Satellite Program for Earth Observation*, 25 May 2021, accessed 14 December 2024, https://www.deloitte.com/au/en/services/economics/perspectives/economics-earth-observation.html, 2.
[15] Centre for Appropriate Technology Satellite Enterprises, *About*, https://www.cfat.org.au/cfat-se-1#:~:text=CfAT%20Satellite%20Enterprises'%20mission%20is,benefits%20of%20space%2Denabled%20services
[16] Above n 11, 3.
[17] The White House, 'Quad Leaders' Summit Fact Sheet', Media Release, 20 May 2023, accessed 14 December 2024, https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/20/quad-leaders-summit-fact-sheet/
[18] Nicholas Moore AO, *Invested: Australia's Southeast Asia Economic Strategy to 2040,* Department of Foreign Affairs and Trade, Commonwealth of Australia, September 2023, accessed 14 December 2024, https://www.dfat.gov.au/sites/default/files/invested-southeast-asia-economic-strategy-2040.pdf, 20.
[19] Tory Shepherd, 'Australia's first national space mission up in the air after federal budget cuts', *The Guardian*, 11 May 2023, accessed 14 December 2024, https://www.theguardian.com/australia-news/2023/may/11/australias-first-national-space-mission-up-in-the-air-after-federal-budget-cuts
[20] World Economic Forum, 'Earth Observation Could Drive $3.8 Trillion in Economic Growth By 2030, Bolstering Climate and Nature Conservation Efforts', Media Release, 7 May 2024, accessed 14 December 2024, https://weforum.org/press/2024/05/earth-observation-to-drive-3-8-trillion-in-economic-growth-by-2030-bolstering-climate-and-nature-conservation-efforts/
[21] Treasury, *Climate-Related Financial Disclosure: Policy Position Statement*, Commonwealth of Australia, 12 January 2024, accessed 14 December 2024, https://treasury.gov.au/sites/default/files/2024-01/c2024-466491-policy-state.docx
[22] Jason Rainbow, 'Space and the new ESG business climate', *SpaceNews*, 28 April 2021, accessed 14 December 2024, https://spacenews.com/space-and-the-new-esg-business-climate
[23] Currie Country Social Change Aboriginal Corporation, *Consultation Response to the Proposed Australian Climate-Related Financial Disclosure Framework*, April 2024, accessed 14 December 2024, https://treasury.gov.au/sites/default/files/2023-04/c2022-314397-currie-country-social-change.pdf, 2-4.
[24] Above n 6 (Winyama); above n 6 (NGIS Australia).
[25] Space4Climate, *Space-Enabled Climate Risk Disclosure For The Financial Services Sector*, 30 July 2020, accessed 14 December 2024, https://space4climate.com/space-enabled-climate-risk-disclosure-for-the-financial-services-sector/
[26] Space4Climate, *Our Work*, 4 January 2020, accessed 14 December 2024, https://space4climate.com/our-work/
[27] Email from the Australian Space Agency to the author, dated 1 May 2024.
[28] Australian Space Agency, *State of Space: 2021 – A report by the Australian Government Space Coordination Committee*, 1 July 2022, accessed 14 December 2024, https://www.space.gov.au/about-agency/publications/state-space-2021
[29] National Indigenous Australians Agency, *First Nations Engagement Framework (Australian Space Agency),* accessed 14 December 2024, https://www.niaa.gov.au/our-work/closing-gap/first-nations-engagement-framework-australian-space-agency

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E contact@spacegovcentre.org
W www.spacegovcentre.org
linkedin.com/company/spacegovcentre

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