Australia's Response: Midterm review of the "Space2030" Agenda: Space as a driver of sustainable development (A/RES/76/3) in 2025

TEMPLATE A
RESPONSE FOR SOLUTIONS: "Space2030" Agenda Mid-term Review

For Member States and
permanent observer organizations with COPUOS

NOTE BY SECRETARIAT: the following template is designed to allow Member States of the United Nations and permanent observer organizations with COPUOS to provide standardized responses to any of the 4 Overarching Objectives, and showcase their space solutions

RESPONSE FOR SOLUTIONS: "Space2030" Agenda Mid-term Review

Activities relating to Space Economy

1. CSIRO's SpaceCows application: Using AI to tackle feral herds in northern Australia

Overarching objective [1-4]	Overarching objective 1 – Actions: 1.2, 1.3, 1.6, 1.7, 1.8
Country/Observer Organization	Australia
Project partners	Commonwealth Scientific and Industrial Research Organisation (CSIRO) Microsoft
Short Project summary and goals	CSIRO and Microsoft have partnered to develop an artificial intelligence and space technology-powered digital twin — a virtual replica of the landscape — to help Indigenous rangers manage feral herds, such as buffalo, on their land in northern Australia. A key challenge for feral animal management is locating the animals across sometimes inaccessible terrain. SpaceCows uses Microsoft technologies to create a digital twin of the land by gathering data, via satellites, from GPS-tagged animals, as well as terrain and weather data, to enable visualisation of the landscape and forecast the movement of feral herds. Traditional Owners' on-ground knowledge is complemented with the modern technology to enhance feral animal management. This enables Indigenous rangers to determine the best time and place to ethically muster or to decide if an alternative population control measure is needed.
Relevant SDGs	15
Space/Satellite solution:	Artificial intelligence and space technology
Project impact	This project benefits the environment and will lead to positive economic outcomes for Indigenous land managers and improve animal welfare outcomes for livestock in northern Australia.
Reference	https://www.csiro.au/en/news/All/News/2021/September/SpaceCows-Using-AI-to-tackle-feral-herds-in-the-Top-End

2. Developing an Australian sustainability of space activities policy

Overarching objective [1-4]	Overarching objective 1 – Action: 1.3
Country/Observer Organization	Australia
Project partners	Australian Space Agency, in consultation with the Australian Government Space Coordination Committee (SCC) and State and Territory jurisdictions.
Short Project summary and goals	The Australian Government, led by the Australian Space Agency, is developing an Australian sustainability of space activities policy. Development of the policy considers the economic, environmental and social issues and opportunities for the sustainability of space activities in Australia, and the role of the Australian Government and other stakeholders in addressing them. Two of the key issues for Australia's space sector regarding the sustainability of space activities that are considered by the policy are: 1. The global space economy is moving to more sustainable practices and Australia's space sector must adapt or risk becoming uncompetitive, and 2. The unsustainable use of outer space puts the space assets Australia relies on to deliver essential services such as communications, positioning, navigation and timing, and Earth observation at risk. This includes space assets operated by international partners and Australia's own space services.
Relevant SDGs	12
Space/Satellite solution:	
Project impact	The purpose of the Australian sustainability of space activities policy is to ensure the long-term viability of Australia's space sector so Australians can continue to benefit from space services for current and future generations. The policy will promote the mitigation of potential environmental and social impacts of space activities through the adoption of sustainability principles, which extends to using technology to enhance operations. The policy will support international efforts toward a rules-based multilateral system in space and ensure that Australia continues to have access to the space services and capabilities that contribute to economic prosperity, social cohesion and environmental sustainability.
Reference	https://www.space.gov.au/sustainability-of-space-activities

3. CASA's support for space operations

Overarching objective [1-4]	Overarching objective 1 – Action: 1.3
Country/Observer Organization	Australia
Project partners	Australian Civil Aviation and Safety Authority (CASA)
Short Project summary and goals	CASA works with operators and across government to manage the integration of space traffic with conventional air traffic and ensuring safety for both. CASA has a key role in developing guidance for these activities, especially as they ramp up. This ties into responsibilities under the *Airspace Act 2007* and *Civil Aviation Safety Regulations 1998* (CASR) Part 101, as well as other parts of the CASR, particularly those dealing with air traffic management and aerodrome operations.
Relevant SDGs	9
Space/Satellite solution:	
Project impact	Please refer to 'Short Project summary and goals' above.
Reference	

4. CASA's support for space operations

Overarching objective [1-4]	Overarching objective 1 – Action: 1.5
Country/Observer Organization	Australia
Project partners	Australian Civil Aviation and Safety Authority (CASA)
Short Project summary and goals	CASA works within the International Civil Aviation Organization towards an international guidance for space activities to protect airspace users. This links to CASA's role in promoting safety and innovation, as well as CASA's obligations under international agreements and conventions.
Relevant SDGs	9
Space/Satellite solution:	
Project impact	Please refer to 'Short Project summary and goals' above.
Reference	

Activities relating to Space Society

5. CSIRO's Robust land degradation measurements for the globe

Overarching objective [1-4]	Overarching objective 2 – Actions: 2.2, 2.3, 2.4, 2.8
Country/Observer Organization	Australia
Project partners	CSIRO Group on Earth Observations (GEO)
Short Project summary and goals	The new UNCCD 2018–2030 Strategic Framework is the most comprehensive global commitment to achieve Land Degradation Neutrality (LDN) in order to restore the productivity of vast expanses of degraded land, and improve the livelihoods of more than 1.3 billion people. However, countries that report to the UN on how they are reducing land degradation had limited guidance on the use of satellite Earth observation data to better quantify levels of degradation and report on the improvements they are making to address this challenge. Different countries have different levels of capacity, and access to the latest image data and analytical tools. Through an initiative of GEO (Group on Earth Observations) called GEO LDN Flagship, CSIRO has worked with more than 80 expert contributors and reviewers to produce a Good Practice Guidance outlining Earth observation methods that can be used by all countries at any levels of capacity and technological development.
Relevant SDGs	15
Space/Satellite solution:	Using satellite data to understand and report on national land degradation objectives.
Project impact	Countries can now measure the extent of degraded land in globally-consistent terms using the datasets and tools that are available to them. These methods are now used by every country reporting on SDG Indicator 15.3.1 and the 122 countries setting Land Degradation Neutrality targets.
Reference	https://research.csiro.au/cceo/robust-land-degradation-measurements-for-the-globe/

6. CSIRO's NovaSAR-1 national facility

Overarching objective [1-4]	Overarching objective 2 – Actions: 2.3, 2.5
Country/Observer Organization	Australia
Project partners	CSIRO
Short Project summary and goals	CSIRO operates a 10% capacity share of the NovaSAR-1 satellite (owned and operated by SSTL, UK) as a national facility, providing Australian researchers the opportunity to task the satellite to acquire imagery in support of R&D projects, with time awarded on a merit basis. The key advantage of synthetic aperture radar (SAR) technology is that

	it operates effectively in 'all-weather' conditions. This overcomes the main drawback of traditional optical imaging satellites as it can take images of Earth through clouds, smoke and at night. This capability enables researchers to map and monitor Australian environments and inform disaster management practices during events such as bushfires, monitor oil spills and the impact of flooding and tropical storms.
Relevant SDGs	11, 15
Space/Satellite solution:	Earth observation / Satellite imagery / S-band Synthetic Aperture Radar
Project impact	The project enables Australian researchers to use satellite imagery to map and monitor Australian environments and inform disaster management practices.
Reference	https://www.csiro.au/en/about/facilities-collections/NovaSAR-1 https://research.csiro.au/cceo/mapping-flood-events-across-australia-using-novasar-1-and-sentinel-1/

7. Support to the Pacific Community (SPC) to obtain satellite-derived data to monitor environmental changes

Overarching objective [1-4]	Overarching objective 2 – Action 2.3.
Country/Observer Organization	Australia
Project partners	Australian Government Department of Foreign Affairs and Trade (DFAT) Pacific Community (SPC)
Short Project summary and goals	Through the Resilient Boundaries for the Blue Pacific Program ($3.5 million AUD, 2019-24 – now complete), DFAT funds were used by SPC's Geoscience, Energy and Maritime Division to procure high resolution satellite imagery. This imagery is used to monitor changes in the coastal ecosystems over time – particularly focussed on natural features that can be used to determine maritime boundary baselines that are at high risk of being lost as a result of climate change.
Relevant SDGs	10, 13
Space/Satellite solution:	Satellite imagery
Project impact	The satellite imagery provides detailed visual information to help Pacific Island countries to monitor and make decisions on how to respond to the impacts of climate change and rising sea levels. It will also contribute to the larger dataset under SPC's Digital Earth Pacific
Reference	

8. Pacific Community (SPC) Digital Earth Pacific

Overarching objective [1-4]	Overarching objective 2 – Actions 2.2, 2.3.
Country/Observer Organization	Australia
Project partners	Australian Government Department of Foreign Affairs and Trade Pacific Community (SPC) Geoscience Australia – provided technical support to SPC in the development of SPC Digital Earth Pacific and remains active in the steering committee.
Short Project summary and goals	A flagship program of SPC is Digital Earth Pacific. This program supports the development of an operational earth observation system that brings together decades of data (including satellite data) to understand the impact of environmental changes over time on Pacific communities, which Pacific Island Countries and Territories can use to inform decision-making in response to challenges such as climate change, food security and disasters manifesting as changes to landcover and land use, mapping of changing coastlines caused by climate change or storm events, and understanding how mangrove growth has changed without having to map this manually. The Australian Government provided $100,000 AUD for a needs assessment in 2021. Geoscience Australia provided technical support to SPC in the development of this product and remains active in the Steering Committee. The system is being rolled out in phases from 2022 to 2029. SPC continues to seek interest from donors and partners to accelerate the program through financial resources, accessibility, capacity building and advocacy. Geoscience Australia is represented on the Digital Earth Pacific Steering Committee and provides technical advice. Major funders of Digital Earth Pacific include: New Zealand, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Microsoft, the National Oceanic and Atmospheric Administration (NOAA), D4DInsights, and Patrick J. McGovern Foundation (PJMF).
Relevant SDGs	2, 10, 13, 15
Space/Satellite solution:	Satellite imagery
Project impact	Digital Earth Pacific supports climate change objectives in the Pacific, including by providing better data to Pacific island countries and territories on climate impacts and mitigation.
Reference	https://digitalearthpacific.org/

Activities relating to Space Economy and Space Society

9. CSIRO's Earth Observation Science and Innovation (EASI) data analytics platform

Overarching objective [1-4]	Overarching objective 1 – Actions 1.2, 1.3, 1.6, 1.7, 1.8 Overarching objective 2 – Actions: 2.2, 2.3, 2.4, 2.8
Country/Observer Organization	Australia
Project partners	CSIRO
Short Project summary and goals	The Earth Observation Science and Innovation (EASI) data analytics platform is based on the Open Data Cube technology originally developed by CSIRO in conjunction with Geoscience Australia, Committee on Earth Observation Satellites (CEOS) partners, and Australia's National Computational Infrastructure. Using cloud infrastructure, EASI eliminates the need for large-scale local data storage and compute infrastructure and significantly simplifies access to freely available satellite data. CSIRO's EASI data analytics platform is used by Government agencies, universities, environmental groups, agricultural and mining sectors, and more to deliver new insights into the world around us. Applications include: • agriculture, food, fuels and fibre • resources for renewables (energy and minerals and related environmental issues) • water resources (precipitation, evapotranspiration, soil moisture, droughts and floods, irrigation and inland water quantity) • inland to coastal to marine water quality and related seagrass and coral reef ecosystems • habitat metrics and monitoring (terrestrial and aquatic) • biodiversity trends and condition • biosecurity • urban environments • climate change and variability, including carbon budgets • disaster prevention, monitoring and mitigation (bushfires, floods, spills) • logistics.
Relevant SDGs	2, 6, 9, 11, 14, 15
Space/Satellite solution:	CSIRO's EASI platform utilises satellite data and analysis ready data
Project impact	CSIRO's EASI platform significantly simplifies access to freely available satellite data, enabling scientists to use Earth observation data more efficiently.
Reference	https://www.csiro.au/en/research/technology-space/astronomy-space/Earth-observation

10. CSIRO's AquaWatch Project: Kuching Mangrove Forest, Malaysia

Overarching objective [1-4]	Overarching objective 1 – Action: 1.7 Overarching objective 2 – Actions: 2.2, 2.3, 2.4, 2.8
Country/Observer Organization	Australia
Project partners	CSIRO Swinburne University of Technology Sarawak Campus
Short Project summary and goals	The health and quality of our inland and coastal waterways are under threat from increasing human activity, including urbanisation, population growth, land use changes, deforestation, competition for the resource with irrigation and farming needs, and contamination. Water quality is also under pressure from the effects of climate change. As variations become more marked, the environmental impact from drought, bushfire sediment, storm events, toxic algal blooms and contamination is growing. Whilst water quality sensors provide good data, they are restricted to the specific area where they are installed. By incorporating satellite sensors and in-situ sensors with data analysis and artificial intelligence, CSIRO's AquaWatch project aims to establish an integrated ground-to-space national water quality monitoring system to support water management with accurate data and predictive forecasting.
Relevant SDGs	6, 11, 14
Space/Satellite solution:	The project utilises satellite sensors and in-situ sensors with data analysis and artificial intelligence.
Project impact	This technology is being used to demonstrate integrated water quality monitoring of dissolved carbon in the mangrove forests of the Sarawak region of Malaysia. Mangrove forests in the area are an important resource for local people who use the ecosystem for hunting, firewood and sanitation. However, disturbing the silt around mangrove roots can impact their natural role in sequestering dissolved carbon. This can have environmental and economic impacts.
Reference	https://research.csiro.au/cceo/measuring-water-quality-in-lake-tempe-to-improve-decision-making/

11. Geoscience Australia's Earth Observation Program

Overarching objective [1-4]	Overarching objective 1 – Action 1.2. Overarching objective 2 – Actions 2.3, 2.4, 2.5, 2.7, 2.8.
Country/Observer Organization	Australia
Project partners	Geoscience Australia – leading the initiative and managing data access, infrastructure, digital tools and EO derived information and analysis products. Bureau of Meteorology (BOM) – collaborating on data sharing and analysis CSIRO – engaging in research and development activities Australian National Ground Segment Technical Team (ANGSTT) Centre for Appropriate Technologies (CFAT) – site maintenance at Alice Springs Ground Station International Partners, including the United States Geological Survey (USGS), National Aeronautics and Space Administration (NASA) and European Commission (EC) – provide data and support for the program.
Short Project summary and goals	Geoscience Australia's Earth Observation (EO) Program provides individuals, governments, industry and researchers with free and open access to data and information analysis products, and the tools to analyse them. These capabilities improve decision-making, increase efficiency and create jobs across multiple sectors. Current elements of the Program are: • Data access – through management of the bilateral partnership with the United States (Landsat Program and the United States Geological Survey); cooperation with the European Space Agency (Copernicus Satellite Program) and its global open data policy; and agreements with domestic partners (including BOM and Landgate WA). • Infrastructure - the Alice Springs Satellite Ground Station (ASGS) that downlinks data from the Landsat constellation; and the Copernicus Data Hub which receives data from the Copernicus Program (not the constellation). • Digital Earth (DE) - digital infrastructure, and science and production capabilities that ingest, produce and disseminate data and information and analysis products of the Australian environment (including coastal) and Antarctica.
Relevant SDGs	8, 9, 11, 13, 15, 17

Space/Satellite solution:	Satellite imagery and data
Project impact	• EO data is critical to Australia, contributing over $5 billion AUD annually to the Australian economy. • EO data is used across almost every sector of the economy to boost productivity, support communities during difficult times such as natural disasters, help manage and protect the environment, inform policy making, and underpin the delivery of over 170 government programs. • Earth observations-informed interventions are expected to reduce global greenhouse gas emissions by 2 Gt CO_2 per annum. • The strengthened Landsat Next partnership between Geoscience Australia and the United States Geological Survey, setting up an even deeper partnership for the coming decades.
Reference	https://www.ga.gov.au/scientific-topics/earth-observation

12. Positioning Australia Program

Overarching objective [1-4]	Overarching objective 1 – Action 1.2. Overarching objective 2 – Action 2.7.
Country/Observer Organization	Australia
Project partners	Geoscience Australia – Leading the initiative and providing data, analytics, tools, and expertise International partners, including the National Space Administration (NASA) and Toitū Te Whenua Land Information New Zealand - providing support for the program. Australian State and Territory Governments through the Intergovernmental Committee for Surveying and Mapping (ICSM) – collaborate on the Australian Geospatial Reference System.
Short Project summary and goals	Through the Positioning Australia program, Geoscience Australia enables Australia's access to accurate, reliable, resilient and innovative positioning capabilities, underpinning Australia's geospatial services. Positioning Australia's services mean industry and the community can now access the benefits of accurate and reliable positioning services to improve productivity, increase safety and drive innovation. Positioning Australia: • maintains the Australian Geospatial Reference System and associated services, and operates globally significant geodetic infrastructure, including under a formalised partnership agreement with NASA; • provides access to high accuracy positioning across Australia and offshore through operating the National Positioning Infrastructure Capability (NPIC), and through the joint delivery of the Southern Positioning Augmentation Network (SouthPAN) Satellite-Based Augmentation System (SBAS) with the New Zealand Government.
Relevant SDGs	8, 9, 11, 15

Space/Satellite solution:	• Satellite Ground Station supporting collection of satellite imagery and data • Satellite-Based Augmentation System (SBAS) • National Positioning Infrastructure Capability • GPS processing services
Project impact	Independent analysis by ACIL Allen estimated that NPIC will generate $545 million AUD in benefits to the Australian economy over the financial years 2019 to 2038, including generating an average annual increase of 116 full time equivalent (FTE) in employment - a return on investment (ROI) of 2.58. In an independent valuation based on the Test Bed through FrontierSI, EY estimated that SouthPAN would generate $6.2 billion AUD to the Australian economy over 30 years. Both valuations estimate the biggest economic benefits will come in the agriculture and resources sectors, as well as the geospatial/surveying sector.
Reference	https://www.ga.gov.au/scientific-topics/positioning-navigation/positioning-australiahttps://www.ga.gov.au/scientific-topics/positioning-navigation/positioning-australia/about-the-program/southpan

Activities relating to Space Accessibility

13. Provision of radio frequency satellite data to the Pacific Islands Forum Fisheries Agency (FFA)

Overarching objective [1-4]	Overarching objective 3 – Action 3.6.
Country/Observer Organization	Australia
Project partners	Australian Government Department of Foreign Affairs and Trade (DFAT) Pacific Islands Forum Fisheries Agency HawkEye 360
Short Project summary and goals	Australia is implementing an ongoing program under the Quad Indo-Pacific Partnership for Maritime Domain Awareness initiative in the Pacific to enhance visibility of regional maritime activity and help Pacific island countries enforce their maritime zones. As part of the program, DFAT and the Department of Defence provide funding to FFA to purchase satellite radio frequency data from commercial US-based provider HawkEye 360 ($4.3 million AUD per year FY23-24 to FY26-27, non-ODA). This follows a successful pilot in 2023 ($5 million AUD). The data is used to track 'dark vessels', where vessels turn off their Automatic Identification Systems to avoid surveillance (often engaged in illegal, unreported and unregulated fishing), by picking up other transmissions including Very High Frequency (VHF) radio and radar emissions.
Relevant SDGs	10, 14

Space/Satellite solution:	Provision of radio frequency satellite data
Project impact	Enhance visibility of regional maritime activity and help Pacific island countries enforce their maritime zones.
Reference	https://www.ffa.int/2023/10/the-tech-helping-tackle-illegal-unreported-and-unregulated-fishing/

14. CSIRO – Enhancing Space Domain Awareness

Overarching objective [1-4]	Overarching Objective 3 – Actions: 3.8, 3.9
Country/Observer Organization	Australia
Project partners	CSIRO
Short Project summary and goals	CSIRO's radio astronomy facilities are also used for space domain awareness (SDA) observations, including near-Earth object tracking, and for space weather research. In addition to passive radiofrequency observations, the unparalleled sensitivity of the instruments when paired with transmit capabilities in the region have demonstrated bistatic radar capability in Geostationary Orbit (GEO) and beyond. CSIRO collaborates with space weather researchers and modellers internationally via several mechanisms, including active participation and leadership in the Committee on Space Research (COSPAR) International Space Weather Action Teams (ISWAT) initiative. Space weather observations draw on unique wide field-of-view capabilities of the Murchison Widefield Array (MWA) and CSIRO's ASKAP radio telescopes.
Relevant SDGs	9
Space/Satellite solution:	Near-Earth space object tracking and space weather research
Project impact	CSIRO's radio astronomy facilities are used for space domain awareness observations.
Reference	https://www.frontiersin.org/journals/space-technologies/articles/10.3389/frspt.2023.1162915/full https://www.sciencedirect.com/science/article/pii/S0273117722007730X https://www.csiro.au/en/news/All/Articles/2024/January/Solar-maximum

Activities relating to Space Society and Space Accessibility

15. CSIRO's Radio astronomy

Overarching objective [1-4]	Overarching objective 2 – Action 2.1 Overarching objective 3 – Action: 3.5
Country/Observer Organization	Australia
Project partners	CSIRO
Short Project summary and goals	CSIRO operates the Australia Telescope National Facility (ATNF), one of the world's most advanced radio astronomy facilities. The ATNF is composed of specialists who work across operations, research and technology. Our international reputation in radio astronomy has been built on our innovation in instrumentation and data management. The ATNF is used primarily for radio astronomy but also supports spacecraft tracking and space situational awareness. Astronomers from all over the world can access the telescopes to investigate a broad range of subjects – from the evolution of galaxies, magnetic fields and black holes to using pulsars, rapidly spinning neutron stars, to look for gravitational waves. Observing time is allocated on the basis of scientific merit. The ATNF's pivotal role in radio astronomy nationally and internationally makes the facility an important partner in the international SKA project with our long-standing expertise in observatory management, instrumentation and data supporting the global effort. **The international SKA Observatory and Australia** Australia is a member and host country of the SKA Observatory, an intergovernmental organisation of 16 member states established to build and operate cutting-edge radio telescopes. The SKAO is currently constructing two of the world's most advanced radio telescopes – SKA-Low on Wajarri Yamaji Country in Western Australia, and SKA-Mid in the Northern Cape of South Africa – which will observe the sky at different radio frequencies and complement each other scientifically. The Australian Government Department of Industry, Science and Resources is a signatory to the SKAO Convention and CSIRO is the delivery partner for the SKA-Low telescope, as well as hosting the telescope itself at Inyarrimanha Ilgari Bundara, the CSIRO Murchison Radio-astronomy Observatory. The Wajarri Yamaji are the Traditional Owners and Native Title Holders of the observatory site and their Indigenous Land Use Agreement, with the Australian and Western Australian governments and CSIRO, demonstrates their ongoing agreement to the project and enables the construction and operation of the SKA-Low telescope on their Country.
Relevant SDGs	9

Space/Satellite solution:	Radio astronomy
Project impact	Radio astronomy continues to inspire and transform our understanding of the Universe, striving to answer some of the most fundamental scientific questions.
Reference	csiro.au/atnf csiro.au/mro csiro.au/ska

16. CSIRO's Operation of international and national space facilities

Overarching objective [1-4]	Overarching objective 2 – Actions: 2.1 Overarching objective 3 – Actions: 3.2, 3.3, 3.5
Country/Observer Organization	Australia
Project partners	CSIRO NASA European Space Agency (ESA)
Short Project summary and goals	CSIRO supports space science and research through the operation of several deep space tracking facilities and radio astronomy facilities. CSIRO manages the Canberra Deep Space Communication Complex, on behalf of NASA as part of its Deep Space Network, which tracks around 40 international deep space missions. CSIRO also provides operations and maintenance support for ESA's New Norcia deep space tracking station. CSIRO operates the Australia Telescope National Facility (ATNF), one of the world's most advanced radio astronomy facilities. The ATNF is used to investigate a broad range of subjects – from the evolution of galaxies, magnetic fields and black holes to using pulsars, rapidly spinning neutron stars, to look for gravitational waves. CSIRO's radio astronomy facilities can also be used for space tracking activities including space situational awareness and lunar communications, and space weather research.
Relevant SDGs	9

Space/Satellite solution:	Operation of deep space tracking facilities and radio astronomy facilities
Project impact	Critical support of space science and research
Reference	Canberra Deep Space Communication Complex https://www.csiro.au/en/about/facilities-collections/international-facilities/CDSCC https://www.csiro.au/en/news/All/News/2018/December/Were-all-ears-as-Voyager-2-goes-interstellar Operations and maintenance support for the ESA New Norcia Deep Space tracking station https://www.csiro.au/en/about/facilities-collections/international-facilities/New-Norcia Australia Telescope National Facility https://www.csiro.au/en/about/facilities-collections/ATNF/About-ATNF https://www.csiro.au/en/news/All/News/2022/September/CSIRO-supporting-NASAs-return-to-the-Moon https://www.csiro.au/en/news/All/Articles/2024/January/Solar-maximum

Activities relating to Space Economy, Space Society and Space Accessibility

17. CSIRO's Measuring Water Quality in Lake Tempe, Indonesia, to Improve Decision Making Project

Overarching objective [1-4]	Overarching objective 1 – Action: 1.7 Overarching objective 2 – Actions: 2.2, 2.3, 2.4, 2.8 Overarching objective 3 – Action: 3.4
Country/Observer Organization	Australia
Project partners	CSIRO Geoscience Australia Indonesian Ministry of Education and Culture Indonesia's Hasanuddin University
Short Project summary and goals	Danau (Lake) Tempe is the second largest lake in Sulawesi, covering 350km^2 during the wet season and often flooding the surrounding landscape. Over 60,000 people in the town of Sengkang and regencies of Sidrap and Soppeng are dependent on the lake. The community relies on aquaculture and a cycle of agriculture during the dry season, which is affected by the ebb and flow of the lake. The lake's ecoregion also supports important wetland habitat and a number of unique species including 13 recorded endemic fish species. The effects of climate change are compounding issues stemming from years of unsustainable farming practices and limited regulation of waste. Water quality in the lake has decreased due to increased pollution and erosion runoff from upstream land clearance. The water quality becomes worse during periods of heavy rainfall. Biodiversity has also been lost due to habitat destruction and pollution. For Lake Tempe, the EASI data analytics platform can show change in water quality, water volume, vegetation cover and biomass: all essential factors for the people who use this water

	source. Indonesia's Hasanuddin University has been supported by the Indonesian Ministry of Education and Culture to partner with CSIRO and Geoscience Australia to train their students and staff to use the EASI platform, providing a solid grounding for understanding the influence climate change is having on the region, as well as sparking new ideas for research and future applications
Relevant SDGs	6, 14, 15
Space/Satellite solution:	CSIRO's EASI platform utilises satellite data and analysis ready data
Project impact	CSIRO's EASI data analytics platform can show change in water quality, water volume, vegetation cover and biomass: all essential factors for the people who use the Lake Tempe water source. The data can be used to improve decision making.
Reference	https://research.csiro.au/cceo/measuring-water-quality-in-lake-tempe-to-improve-decision-making/

Activities relating to Space Diplomacy

18. Implementation of the Guidelines for the Long-term Sustainability of Outer Space Activities (LTS Guidelines)

Overarching objective [1-4]	Overarching objective 4 – Action 4.5
Country/Observer Organization	Australia
Project partners	Australian Space Agency
Short Project summary and goals	Australia is committed to the development and implementation of rules and norms that seek to support the safety, stability and sustainability of outer space, including the UN Guidelines for the Long-term Sustainability of Outer Space Activities (LTS Guidelines). Australia continues to undertake practical steps to implement the LTS Guidelines, including through legislation and policy, international engagement, and research and development activities. As an example, Australia implements elements of the LTS Guidelines through its domestic regulatory framework for civil space activities, including under the *Space (Launches and Returns) Act 2018* and associated rules. The Australian Space Agency is committed to the continuous improvement of the regulatory framework, in consultation with Australia's space sector and consistent with its international obligations.
Relevant SDGs	17

Space/Satellite solution:	
Project impact	Contribute to supporting the long-term sustainability of outer space activities through the implementation of the LTS Guidelines and the sharing of experiences in implementing those guidelines.
Reference	**A/AC.105/C.1/2023/CRP.6** – Australia – Input to the Working Group on the Long-term Sustainability of Outer Space Activities, https://www.unoosa.org/res/oosadoc/data/documents/2023/aac_105c_12023crp/aac_105c_12023crp_6_0_html/AC105_C1_2023_CRP06E.pdf **A/AC.105/C.1/2023/CRP.3** – Australia – Input to the Working Group on the Long-Term Sustainability of Outer Space Activities, https://www.unoosa.org/oosa/en/oosadoc/data/documents/2023/aac.105c.12023crp/aac.105c.12023crp.3_0.html

19. Participation in the National Space Legislation Initiative (NSLI)

Overarching objective [1-4]	Overarching objective 4 – Actions 4.3, 4.5.
Country/Observer Organization	Australia
Project partners	Australia (Australian Space Agency) India Indonesia Japan Malaysia Philippines Republic of Korea (ROK) Singapore Thailand Türkiye Viet Nam
Short Project summary and goals	As part of efforts to promote and support mutual learning in space legislation and policy, Australia – through the Australian Space Agency – collaborates with countries across the Asia-Pacific through the National Space Legislation Initiative (NSLI). The NSLI was established under the Asia-Pacific Regional Space Agency Forum (APRSAF) in 2019 and aims to realize the following objectives through the establishment of a Study Group among the space law/policy practitioners in Asia-Pacific countries: • To promote information sharing and mutual learning on the practices and examples of national space legislation and/or policies in the Asia-Pacific Region • To enhance the Asia-Pacific countries' capacity to draft and implement their national space legislation and/or policies in accordance with international norms.
Relevant SDGs	17

Space/Satellite solution:	
Project impact	This initiative strengthens capacity-building and provides technical assistance through mutual learning in the field of international space law and policy. The NSLI also contributes to supporting the long-term sustainability of outer space activities and the preservation of the outer space environment for peaceful uses. This includes through the implementation of certain Guidelines for the Long-term Sustainability of Outer Space Activities (LTS Guidelines), including C.1 (Promote and facilitate international cooperation in support of the long-term sustainability of outer space activities) and C.3 (Promote and support capacity building).
Reference	https://www.aprsaf.org/initiatives/national_space_legislation/

20. DASA – Defence Space Safety Program

Overarching objective [1-4]	Overarching Objective 4 – Action: 4.6
Country/Observer Organization	Australia
Project partners	Australian Defence Aviation and Safety Authority (DASA) Directorate of Space
Short Project summary and goals	By establishing the Defence Space Safety Program (DSSP) DASA is setting the safety requirements with which Defence space object capability owners must comply. Regulations addressing space safety risks associated with Defence launch facilities, launches, returns and operations in orbit are being drafted and released. The DSSP is mapped to work within the objectives of Australia's international Treaties such as the Registration Convention and guidelines such as those surrounding debris mitigation and management, to establish a need for space capability providers to align with these frameworks. The DASA Space Directorate is working with local focals tied into COPUOS and also seeking direct contact with other spacefaring nations to align space safety requirements. The program is fully staffed and in mid-term; it is expected to be completed in late 2027.
Relevant SDGs	
Space/Satellite solution:	
Project impact	Improved understanding of space safety and international requirements. The Program will deliver a pathway for DASA to provide space safety assurance to Defence.
Reference	https://www.defence.gov.au/news-events/news/2024-11-20/defence-sets-sights-space-safety

Activities relating to Space Society and Space Diplomacy

21. Australia's participation in International Earth Observation Forums

Overarching objective [1-4]	Overarching objective 2 – Actions: 2.2, 2.3, 2.4, 2.8 Overarching objective 4 – Action 4.10
Country/Observer Organization	Australia
Project partners	CSIRO Geoscience Australia Committee on Earth Observation Satellites (CEOS) The Group on Earth Observations (GEO)
Short Project summary and goals	Australia participates in international initiatives of the Committee on Earth Observation Satellites (CEOS) and the Group on Earth Observations (GEO), many of which directly support the use of Earth observation to monitor and achieve the SDGs. In particular, CSIRO co-leads the CEOS Biodiversity Study Team, the SDG Coordination Group, and the GEO Land Degradation Neutrality Flagship.
Relevant SDGs	6, 11, 14, 15
Space/Satellite solution:	Earth Observation
Project impact	These Earth observation-related research and development activities lead to innovative space-based solutions for social, environmental and economic benefit that support society.
Reference	https://research.csiro.au/cceo/coordination-and-partnerships/international-engagement/ https://ceos.org/ourwork/other-ceos-activities/sustainable-development-goals/

Activities relating to Space Economy, Space Accessibility and Space Diplomacy

22. Participation in the Asia-Pacific Regional Space Agency Forum

Overarching objective [1-4]	Overarching objective 1 – Actions 1.1, 1.2, 1.5, 1.7, 1.8. Overarching objective 3 – Actions 3.3, 3.5, 3.10. Overarching objective 4 – Actions 4.5, 4.6, 4.7.
Country/Observer Organization	Australia Japan
Project partners	Japan Aerospace Exploration Agency (JAXA) Australian Space Agency
Short Project summary and goals	The Australian Space Agency participates in the Asia-Pacific Regional Space Agency Forum (APRSAF). APRSAF is the largest regional space forum. It was established in 1993 to enhance space activities in the Asia-Pacific region and aims to promote and expand peaceful uses of space activities as well as their applications for socio-economic development in the region. The primary objectives of APRSAF are to: i. Provide a forum where agencies involved in space science, technology and its applications and international organisations in the Asia-Pacific region gather to exchange views, opinions and information

	on space programs, space resources and applications of space science and technology; ii. Identify and undertake measures to contribute to the sustainable socio-economic development in the Asia-Pacific region and the preservation of the environment through space technology and its applications; iii. Promote and expand mutually beneficial cooperation among space research and development agencies, providers of space-based services and products as well as users in the Asia-Pacific region in the priority areas of common interest, bearing also in mind the possibilities of cooperation with space-related entities outside the region. In November 2024, the Australian Space Agency co-hosted the 30th APRSAF with JAXA in Perth, Western Australia. The theme of APRSAF-30 was "Collaborating to Build a Sustainable and Responsible Regional Space Sector". Australia proposed this theme to align with recent domestic and international efforts to support the long-term sustainability of space activities. It also reinforced Australia and Japan's long-term positioning for a responsible and stable regional space sector underpinned by strong international partnerships. The Australian Space Agency co-organised, co-moderated and co- chaired several working groups, including the Enhancement of Space Capability Working Group, Space Education for All Working Group (SE4AWG), Space Frontier Working Group and the Space Policy and Law Working Group. CSIRO co-chaired the Space Applications for Societal Benefit Working Group.
Relevant SDGs	17

Space/Satellite solution:	N/A
Project impact	APRSAF-30 helped raise the profile of Australia's space capabilities on a regional level. It also provided an opportunity for our space industry, researchers, and educators to engage with counterparts from across the region and seek out new networks and collaborative projects. Additional outcomes of APRSAF-30 included bilateral multilateral meetings between established and emerging space agencies in the region serving to foster regional collaboration such as on space flight opportunities, and a focus on science outreach with a dedicated Stargazing event open to the public. Having representation from the Pacific Community (SPC) and a Pacific-focused session in the Space Applications Working Group was one of the highlights from APRSAF-30. The Australian Space Agency hosted an inaugural Pacific roundtable with JAXA, the Philippine Space Agency (PhilSA; APRSAF-31's co-host), representatives from Australian Government and SPC to discuss Pacific interests in space-related engagement, and advocated for Pacific representation at future APRSAFs. In addition, SPC provided a Pacific-focused Space Activities Report to the full APRSAF plenary. This is the first time a Pacific report has been included in the APRSAF agenda.
Reference	https://www.aprsaf.org/annual_meetings/aprsaf30/meeting_details.php

Activities relating to Space Society, Space Accessibility and Space Diplomacy

23. Participation in international working groups on space exploration

Overarching objective [1-4]	Overarching objective 2 – Action 2.1 Overarching objective 3 – Actions 3.2, 3.3, 3.5, 3.10. Overarching objective 4 – Action 4.6, 4.10.
Country/Observer Organization	Australia
Project partners	Australian Space Agency CSIRO International Space Exploration Coordination Group (ISECG) International Mars Exploration Working Group (IMEWG)
Short Project summary and goals	The Australian Space Agency and CSIRO participate in international working groups, including the International Space Exploration Coordination Group (ISECG) and the International Mars Exploration Working Group (IMEWG). Participation in these groups supports and promotes a collaborative approach to space exploration for the benefit of all. ISECG is a voluntary, non-binding coordination forum of space agencies which: • exchange information regarding interests, plans and activities in space exploration • work together to strengthen both individual exploration programmes and the collective effort.

	The Australian Space Agency and CSIRO jointly represent Australia in ISECG, actively participate in its Working Groups, and contribute to the development of the ISECG Global Exploration Roadmap. The Australian Space Agency co-chairs the Emerging Space Agencies Working Group and CSIRO co-chairs the Commercialisation Working Group. IMEWG is a coalition of space agencies and institutions that seeks to advance our collective human and robotic future on Mars. CSIRO actively participates in IMEWG.
Relevant SDGs	9, 17
Space/Satellite solution:	
Project impact	Strengthening international collaboration and building partnerships to support a growing and sustainable space ecosystem for all.
Reference	https://www.globalspaceexploration.org/ https://www.globalspaceexploration.org/?page_id=1371

Activities relating to Space Economy, Space Society, Space Accessibility and Space Diplomacy

24. Moon to Mars Initiative

Overarching objective [1-4]	Overarching Objective 1 – Actions: 1.2, 1.4, 1.6, 1.7, 1.8 Overarching Objective 2 – Actions: 2.2, 2.3, 2.5 Overarching Objective 3 Overarching Objective 4
Country/Observer Organization	Australia
Project partners	Australian Space Agency
Short Project summary and goals	Moon to Mars (M2M) is a $120 million AUD commitment from the Australian Government to the Australian Space industry to improve technology readiness, promote business opportunities, develop resilient supply chains and open the door for international opportunities. The program is implemented through industry grants. Funding has been allocated to projects and these projects are currently underway.
Relevant SDGs	3, 7, 8, 9, 11, 12, 13, 14, 15, 17

Space/Satellite solution:	The industry grants are supporting a range of space solutions which aim to advance Australia's contribution to the global space economy while supporting NASA's Moon to Mars endeavours and future space missions, with a focus on robotics, AI, advanced manufacturing and other critical technologies.
Project impact	Industry capability uplift and opportunity creation. M2M leverages Australia's strengths in robotics, remote operations and critical technology sectors. A total of over 70 projects have been supported with the $120 million AUD – including an Australian rover to the Moon, low-cost solar cells, zero drilling mineral exploration solutions, efficient manufacturing technologies, non-toxic green space propellants, resource-constrained agriculture, etc..
Reference	https://www.space.gov.au/moon-to-mars-initiative

25. International Space Investment India Initiative

Overarching objective [1-4]	Overarching Objective 1 – Actions: 1.2, 1.4, 1.6, 1.7, 1.8 Overarching Objective 2 – Actions: 2.2, 2.3, 2.5 Overarching Objective 3 Overarching Objective 4
Country/Observer Organization	Australia
Project partners	Australian Space Agency
Short Project summary and goals	These projects support Australian organisations to conduct joint space projects and build valuable commercial links with the Indian Space Research Organisation and the broader Indian space sector.
Relevant SDGs	9, 11, 12, 13, 15, 17
Space/Satellite solution:	Project 1: SWIRSAT – LEO Project 2: LEO Collaborative PNT
Project impact	Through the SWIRSAT-LEO Space mission, Australian company LatConnect60 with its Indian industry partners, aims to significantly lower the cost of data acquisition and insight generation from key carbon emissions indicators like methane and CO_2. Through the LEO Collaborative PNT project, Australian company Skykraft, with its Indian project partners, will fly a satellite with dedicated PNT payloads to showcase how constellations can provide PNT resilience, especially in denied environments to provide data for applications such as critical Earth observation and weather forecasting.
Reference	https://www.space.gov.au/news-and-media/boosting-australian-indian-commercial-space-partnerships