

NATIONAL SPACE CONFERENCE 2024

Space Science and Innovation for Sustainability

EVENT PROGRAMME

28 – 30 August 2024



#SpaceSustainability



**NATIONAL
SPACE
CONFERENCE**
2024

28 – 30 August 2024

CSIR International Convention Centre, Tshwane, South Africa

DAY 1	DAY 2	DAY 3
THEME: Space and Social Sustainability	THEME: Space and Economic Sustainability	THEME: Space and the Future
REGISTRATION AND WELCOME TEA		
OPENING SESSION	PLENARY 1	PLENARY 2
30 years of democracy, space science, and sustainable development	Commercial space ventures and sustainable growth	Resilient space-based communication, navigation and security systems
NETWORKING BREAK AND EXHIBITION		
SPECIAL SESSION	TECHNICAL SESSION 1	TECHNICAL SESSION 2
International collaboration for sustainable development goals	Building resilient space infrastructure and operations for a sustainable future	Space science for environmental sustainability
LUNCH BREAK AND EXHIBITION		
SHOWCASING SESSION 1	SHOWCASING SESSION 2	CLOSING SESSION
Driving space innovation and investment through collaborative efforts	Integrated environmental monitoring	Highlights and future pathways for a sustainable South Africa

Space Science and Innovation for Sustainability

The National Space Conference will revolve around the theme “Space Science and Innovation for Sustainability.” Organised by the National Earth Observations and Space Secretariat (NEOSS) and the South African National Space Agency (SANSA), both initiatives of the Department of Science and Innovation (DSI), this event is being held in collaboration with key national partners, including the South African Air Force (SAAF) and the Council for Scientific and Industrial Research (CSIR).

The conference will explore the pivotal role of space science and technology in advancing sustainable development across three core pillars: society, economy, and the environment.

- **Society:** Day one will highlight the societal benefits of space science, focusing on how space-based solutions can enhance social equity.
- **Economy:** Day two will examine the economic impact of space technologies, emphasizing their potential to drive innovation, foster economic growth and sustainability.
- **Environment:** The final day will spotlight the environmental applications of space technology, showcasing how space science can contribute to environmental sustainability..

In addition to thematic discussions, the conference will serve as a platform for South African stakeholders—including researchers, academics, public servants, businesses, data suppliers, consultants, and NGOs—to interact, share ideas, and spark discussions on building a sustainable space ecosystem. The event will facilitate collaboration on programs and initiatives that contribute to national growth and development.

A key highlight of the conference will be the launch of a Precision Agriculture Information System (PAIS) developed by the CSIR’s Advanced Agriculture and Food Division, demonstrating the practical applications of space science in promoting sustainability.

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DAY 1: 28 AUGUST 2024

Space and Social Sustainability

DAY 1 – DIRECTOR OF CEREMONIES: *Adv Lulu Makapela*, NEOSS

08:00 – 09:00	REGISTRATION AND WELCOME TEA
09:00 – 10:30	<p>OPENING SESSION: 30 years of democracy, space science, and sustainable development</p> <p>Celebrate South Africa’s three decades of democracy, reflecting on remarkable achievements in space science and continuous efforts to foster social innovation and sustainability.</p> <p>The session features a series of keynote addresses from distinguished speakers, providing a holistic view of the intersection between democratic progress, technological advancements, and sustainable development.</p>
09:00 – 09:30	<p>Welcoming of the Opening Ceremony Speakers Safety Moment, CSIR ICC Representative Welcoming cultural performance, The National School of Arts (NSA)</p>
	<p>OPENING SESSION MODERATOR: <i>Dr Rakeshnie Ramouter-Prieschl</i>, Deputy Director-General, Department of Science and Innovation (DSI)</p>
09:30 – 09:40	<p>Welcome Address: Welcome to the CSIR and 30 years of innovation and space <i>Dr Motodi Maserumule</i>, Group Executive, Advanced Production and Security, CSIR</p>
09:40 – 09:50	<p>Introductory Remarks: 30 years of democratic progress in space and vision <i>Mr Daan du Toit</i>, Acting Director-General, DSI</p>
09:50 – 10:00	<p>Keynote Address 1: The role of space technologies in enhancing aviation safety and efficiency <i>Lieutenant General Wiseman Mbambo</i>, Chief of the South Africa AirForce (SAAF)</p>
10:00 – 10:10	<p>Keynote Address 2: A decade of innovation: SANSAs journey in space science and innovation <i>Mr Humbulani Mudau</i>, CEO of South African National Space Agency (SANSAs)</p>
10:10 – 10:20	<p>Highlight Presentation: South Africa’s industry journey for space science and innovation <i>Dr Sias Mostert</i>, Space Commercial Services (SCS)</p>
10:20 – 10:30	<p>Launch of the Precision Agriculture Information System (PAIS) <i>Prof Moses Cho</i>, Remote Sensing Scientist, Chief Researcher & Research Group Leader, Precision Agriculture, CSIR</p>
10:30 – 11:30	<p>TAKING OF THE NCS 2024 GROUP PHOTOGRAPH Outside the CSIR ICC building, and networking break and exhibition</p>



11:30 – 13:00

SPECIAL SESSION:
International collaboration for sustainable development goals

Explore how international collaboration in space missions and data sharing can contribute to achieving global development goals, such as the United Nations Sustainable Development Goals (SDGs).

Speakers will highlight the importance of partnerships between space agencies, governments, and organisations to address societal challenges.

SPECIAL SESSION MODERATOR:

Tumisang Modiole, Acting Chief Director, DSI, Space Science and Technology

- Shared economic and social development through strategic multilateral arrangements
Mr Tinyiko Ntshongwana, Deputy Director, Multilateral Cooperation and Africa
- Multilateralism: the focal point of South Africa's foreign policy and African Renaissance
Mr Harvey Short, Department of International Relations and Cooperation (DIRCO)
- Leveraging global and regional partnerships for collaboration in space science and innovation
Dr Mmboneni Muofhe, Deputy Director General, Socio-economic Innovation Partnerships, DSI
- Positioning space science and technology as the main driver of Africa's development
Mr Humbulani Mudau, Chief Executive Officer (CEO), SANSA
- Remarks by African Heads of Space Agencies

13:00 – 14:30

LUNCH BREAK AND EXHIBITION

14:30 – 16:00

SHOWCASING SESSION 1:
Driving space innovation and investment through collaborative efforts

This session will delve into the transformative impact of collaborations between government agencies, private companies, and research institutions in revolutionizing space innovation and enhancing accessibility. Discussions will focus on how these partnerships are fostering sustainable solutions to address societal challenges while maximising investment in the space sector.

Speakers will highlight national and international efforts to build an ecosystem where diverse entities collaborate to push the boundaries of space exploration and technology.

SHOWCASING SESSION MODERATORS:

Dr Nale Mudau, Data Products and Services Manager, SANSA

- Harnessing national space policy to catalyse collaboration and drive space investments
Ms Nomfuneko Majaja, Chief Director, Space Affairs, dtic
- Harnessing space science and technology strategies to drive collaboration and innovation
Mr Itumeleng Makoloi, Director, Space Science, DSI
- Bringing the fields: Enhancing crop production insights through public-private partnerships/collaboration
Dr George Chirima, Agricultural Research Council (ARC)
- Ground observations for a sustainable society
Dr Mary-Jane Bopape, Managing Director, South African Environmental Observation Network (SAEON)
- Intelligence and insight tools to support an ethical and capable state that delivers quality services
Mr Lerato Shikwambana, Senior Remote Sensing Scientist, SANSA
- Space innovation commercialisation pathways to advance industrial ventures
Ms Malese Ndhlovu, Senior Business Development Manager, Space Innovation Initiative, Technology Innovation Agency (TIA)

16:15 – 17:30

WELCOME RECEPTION

Maj Gen Mathebula , SAAF , The future of space Command impact on the space community

Col (Ret) Hilton Klein (AMD Space Committee and Numolux Executive Chairman, Unlocking opportunities through strategic investment and collaboration

DAY 2: 29 AUGUST 2024

Space and Economic Sustainability

DAY 2 – DIRECTOR OF CEREMONIES: *Ms Maud Nale*, Public Relations and Communications

08:00 – 08:45

REGISTRATION AND NETWORKING

09:00 – 10:30

PLENARY 1: Commercial space ventures and sustainable growth

Explore how commercial space ventures contribute to economic sustainability. Discuss the role of private space companies in driving technological advancements, creating new markets, and stimulating economic growth locally and globally.

Speakers will highlight case studies where commercial space initiatives have led to significant socio-economic benefits, emphasising the importance of public-private partnerships in advancing space science and sustainable development goals.

SESSION MODERATOR: *Lesetja Mogoba*

- **How the SA space industry became a global success**
Mr James Barrington-Brown, NewSpace Systems
- **Pioneering Earth Observation Payloads: Innovations driving sustainability and growth**
Ms Ana-Mia Louw, Chief Operations Manager, Simera Sense
- **Space Innovation: Harnessing space big data for sustainable growth**
Mr Michael Breetzke, Business Development Manager, Swift GEOSpatial
- **Leveraging earth intelligence for sustainability**
Ms Ndilisa Didiza, Founder and MD, Kgothatso Innovations, NEOSS Co-Chair
- **Leveraging partnerships to make sustainable growth through space applications a reality**
Dr Rob Van Zyl, Managing Director, Clyde Space Africa
- **EOS-SAT 1 Data**
Ms Lorita Christelis, Operations Manager, Dragonfly Aerospace

10:30 – 11:30

NETWORKING BREAK AND EXHIBITION

11:30 – 13:00

TECHNICAL SESSION 1: Building resilient space infrastructure and operations for a sustainable future

Examine the vital role of resilient space infrastructure and operations in promoting sustainability and addressing global challenges. Speakers will present innovations that enhance operational efficiency, resilience, and sustainability, as well as the integration of space infrastructure with terrestrial systems to maximize benefits for environmental and societal needs.

SESSION MODERATOR: *Mr Avin Mansookram, MFTZA*

- **Airborne SAR datasets towards SAR remote sensing application RD&I**
Ms Ciara Blaauw, CSIR
- **An Earth Observation SAR satellite solution for South Africa**
Mr Bryan Dean, Dragonfly
- **The SAR-C Payload for micro-satellite constellation**
Mr Willie Nel, Chief Engineer
- **Enhancing safety and sustainability: InSAR-based monitoring for tailings storage facilities and water dams**
Ms Leago Sebothoma, FieldServe
- **The role of vicarious calibration & validation target sites in enhancing satellite earth observation sensor accuracy**
Ms Zimbini Faniso-Mnyaka, CSIR
- **Geospatial on the cloud from storage to GenAI**
Mr Dean McCormick, Aerospace and Satellite, AWS



13:00 – 14:30 LUNCH BREAK AND EXHIBITION

14:30 – 16:00 SHOWCASING SESSION 2:
Integrated environmental monitoring

Explore comprehensive systems of satellites and remote sensing technologies for continuous monitoring of environmental parameters such as climate change indicators, deforestation rates, air and water quality, and biodiversity.

Speakers will showcase various integrated data platforms in supporting environmental assessments and policymaking for sustainable development.

SESSION MODERATOR:

Dr Heidi van Deventer, Principal Researcher, Council for Scientific and Industrial Research, CSIR

- Ecological niche modelling to map habitat suitability of *Anopheles arabiensis* targeted for sterile insect technique intervention
Ms Theresa Mazarire, Wits Research Institute for Malaria and Agriculture Research Council
- Exploring the integration of satellite data with ground-based assessments for enhanced environmental compliance
Ms Khanyisa Mpisane, Department of Economic Development, Environmental Affairs and Tourism
- Flooding vulnerability in informal settlements: Spatial policy implications
Dr Ms-Tholang Mokhele, Human Sciences Research Council
- Spatio-temporal monitoring of soil moisture as an indicator of drought patterns in the Tyume catchment using remote sensing techniques
Ms Anela Mkhwenkwana, University of KwaZulu Natal
- Space Based Data Centers – Saving Earth’s water and advancing artificial intelligence
Dr Ayodele Periola, Cape Peninsula University of Technology (CPUT)
- Assessing changes in the hydrological regime of lacustrine wetlands in the Maputaland Coastal Plain
Ms Nkosingizwile Ndlovu, University of Pretoria
- Monitoring changes in the extent of lacustrine wetlands of Eswatini, Lesotho and South Africa
Dr Heidi van Deventer, Principal Researcher, CSIR

16:15 – 17:30 NETWORKING SESSION

Space and Environmental Sustainability

DAY 3 – DIRECTOR OF CEREMONIES: *Mr Dan Matsapola*, Science Engagement Manager, SANSA

08:00 – 08:45

REGISTRATION AND NETWORKING

09:00 – 10:30

PLENARY 2:

Resilient space-based communication, navigation and security systems

Examine how crucial reliable and strong satellite communication and navigation systems are for emergency response, infrastructure resilience, and disaster management (e.g., GPS, GNSS).

Speakers will discuss how these systems support national security, strengthen disaster preparedness efforts, and early warning systems for sustainable peace and stability in our society.

SESSION MODERATOR: *Major De Villiers*, SAAF

Add Mr Zane Cleophas, Chairman AMD Space Committee, Programme of action to enhance SA space capabilities

- Digital transformation strategy via broadband satellite communications

Mr Elliot Sibeko, DCDT

- ~~Role of satellite communications and navigations in aerospace~~

~~*Major General Mathebula*, SAAF~~

- Development and simulation of GNSS-radio occultation receiver for sounding atmospheric layers in weather forecasting and space weather monitoring

Mr Kgabo Mathapo, Moseni-Hi-TechSpace

- CSIR Role in space systems for modern defence operations

Mr Biko Mananga, Impact Area Manager, CSIR

- Dynamism and Challenges in Space Positioning and the need for Improving Communication Navigation and Surveillance (CNS)

Prof Evans Eshiemogie Ojo, CNS, DUT

- ~~En route to orbit: An update on recent activities of the Aerospace Systems Research Institute~~

Prof Jean Pitot, Aerospace Systems Research Institute (ASRI), UKZN

CVL: Towards a Tactically Responsive Space Capability)

10:30 – 11:30

NETWORKING BREAK AND EXHIBITION

11:30 – 13:00

TECHNICAL SESSION 2:

Space science for environmental sustainability

Examine the critical role of space weather in ensuring the sustainability of both space-based and terrestrial systems.

Speakers will present the intersection of space science and sustainability, emphasising the need for proactive measures to protect our planet and its technological systems from space weather-related challenges.

SESSION MODERATOR: *Dr Mpho Tshisaphung*, Head of Space Weather, SANSA

- Earth Observation in support of Policies for Urban Climate Adaptation

Dr Stewart Bernad, UCT and Co-Chair, Natural Capital Accounting CoP, NEOSS

- The role of space weather monitoring in ensuring the sustainability of space based technological systems

Ms Boitumelo Makobe, South African National Space Agency (SANSA)

- Estimating teal carbon stocks across Gauteng using a multi-sensor remote sensing approach

Mr Laven Naidoo, Gauteng City-Region Observatory

- Leveraging remote sensing datasets and deep learning algorithms for flood probability and risk assessment in the Port St. Johns of South Africa

Mr Phila Sibandze, University of Fort Hare (UFH)

- Analysis of ionospheric storm effects based on GPS and ionosonde data during geomagnetic storms: Preliminary study.

Mr *Ms Nkosinathi Masango*, South African National Space Agency (SANSA),



13:00 – 14:30	LUNCH BREAK AND EXHIBITION
14:30 – 16:00	<p style="text-align: center;">CLOSING SESSION: Highlights and future pathways for a sustainable South Africa</p> <p>Highlight key takeaways and set the stage for continued collaboration and action towards sustainable development.</p> <p style="text-align: center;">MODERATOR: <i>Ms Jessie Ndaba</i>, CEO, Astrofica and Co-Chair, Earth Observations Infrastructure CoP, NEOSS</p> <ul style="list-style-type: none"> • National Space Conference Highlights <i>Adv Lulu Makapela</i>, Manager, National Earth Observations and Space Secretariat (NEOSS), CSIR, • Closing Remarks <i>Ms Tumisang Modiole</i>, Acting Chief Director, Department of Science and Innovation, • Closing Performance- SAAF Band <p style="text-align: center;">CLOSING PERFORMANCE</p>
16:15 – 17:30	NETWORKING SESSION – SPONSORED BY KGO THATSO INNOVATIONS

Exhibition

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LIST OF EXHIBITORS:



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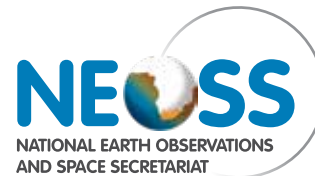


FieldServe



girls
FLY AFRICA

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