8TH SPACE FORUM & 19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

AUSTRALIA'S FIRST JOINT SPACE SCIENCE & SPACE INDUSTRY CONFERENCE

ADELAIDE, SOUTH AUSTRALIA
30 SEPTEMBER - 2 OCTOBER 2019

SOUTH AUSTRALIA

Government of South Australia

SOUTH AUSTRALIAN SPACE INDUSTRY CENTRE

AUSTRALIAN SPACE RESEARCH CONFERENCE

Australian Academy of Science

NATIONAL SPACE SOCIETY OF AUSTRALIA LTD

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8TH SPACE FORUM & 19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

MONDAY 30 SEPTEMBER TO WEDNESDAY 2 OCTOBER 2019
ADELAIDE CONVENTION CENTRE, WEST BUILDING
HALLS L, M & N AND CITY ROOMS 1 TO 4

Follow us:
South Australian Space Industry Centre: **@SASIC_Aus**
Australian Academy of Science: **@Science_Academy**
National Space Society of Australia: **@NSSA_President**
Join the conversation: **#SASpaceForum**

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PREMIER'S WELCOME

IT IS MY PLEASURE TO WELCOME YOU TO THE 8TH SPACE FORUM.

Bringing together a record number of space companies, entrepreneurs, students and international players, this is the nation's largest yet.

We are jointly hosting the forum with one of the nation's largest annual meetings of researchers in space science and technology, the 19th Australian Space Research Conference.

This is yet another vote of confidence in our booming space sector and will open avenues for collaboration between researchers and Australian industry.

We have an opportunity to put our nation on the map globally, and drive growth across the space sector.

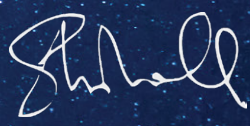
Our efforts in creating a thriving ecosystem for entrepreneurship, innovation and future industries, through the development of Lot Fourteen, is giving current and aspiring innovators the opportunities to grow their ideas right here in South Australia.

In another step to growing our local space industry, a further five start-up companies were recently selected to undertake our Venture Catalyst Space incubator program. Delivered by the University of South Australia's Innovation and Collaboration Centre, the program will enhance the global competitiveness of these start-ups and accelerate their brilliant ideas and projects on the world stage. Now in its second year, the program has successfully launched 10 companies in South Australia.

The South Australian Government is committed to building on this momentum in the space sector and ensuring the next generation take advantage of the opportunities in the growing space industry.

Our Space Industry Work Experience pilot program received huge support with nearly 100 South Australian students expressing their interest in the initiative, demonstrating the passion and enthusiasm young people have for space. I would like to especially thank the 14 business and other organisations that are supporting the program by hosting a placement.

Thank you to our sponsors, speakers and the range of organisations for their support and commitment to this important event, which provides a fantastic platform for networking across this rapidly developing industry.



Hon Steven Marshall MP
Premier of South Australia

WELCOME TO THE 19TH AUSTRALIAN SPACE RESEARCH CONFERENCE AND TO ADELAIDE CONVENTION CENTRE!

This will be the Thirteenth ASRC jointly sponsored and organised by the National Committee for Space and Radio Science (NCSRS) and the National Space Society of Australia (NSSA). The ASRC is intended to be the primary annual meeting for Australian research relating to space science. It welcomes space scientists, engineers, educators, and workers in industry and government. This year sees the conference being held alongside the 8th Space Forum.

The 19th ASRC has 200 accepted abstracts across Australian space research, academia, education, industry, and government.

We would like to thank the Australian Space Agency and the South Australian Space industry Centre for sponsorship of the conference. Our conference dinner sponsor is the Space Industry Association of Australia.

Special thanks also go to the Mars Society Australia for its programming support.

We look forward to an excellent meeting.

Iver Cairns
Co Chair ASRC 2019
University of Sydney

Wayne Short
Co Chair ASRC 2019
President, NSSA

ABOUT SASIC

SOUTH AUSTRALIAN SPACE INDUSTRY CENTRE

Already home to over 80 space-related organisations, South Australia is committed to further growing the local industry and build on the state's history of space activity.

Established in 2017 by the Government of South Australia, the South Australian Space Industry Centre (SASIC) was created to drive space industry innovation, research and entrepreneurial development.

The SASIC supports space entrepreneurs, creates an incubator for space projects and an environment where new space technologies can be rapidly developed, and supports South Australia's emerging space industry by providing grant funding through the Space Innovation Fund of up to $1 million every year to young space entrepreneurs, along with new and existing space start-ups.

The space industry challenges the innovative skills of our best researchers and engineers and it inspires young people to develop the skills to push forward the frontiers of scientific knowledge. The industry also contributes to the development of other priority sectors for South Australia including defence, agriculture, mining and tourism, as well as services for the community such as health and education.

For more information please contact SASIC via:

WWW.SASIC.SA.GOV.AU

T +61 8 8463 7140
E spaceoffice@sa.gov.au

Nicola Sasanelli
Director
South Australian Space Industry Centre

ABOUT THE NSSA

NATIONAL SPACE SOCIETY OF AUSTRALIA LTD

The National Space Society of Australia is the coming together of like-minded space advocates who share a vision for the future in which there is an ambitious and vigorous space program leading to eventual space settlement.

To this end the National Space Society (worldwide) promotes interest in space exploration, research, development and habitation through events such as science and business conferences, speaking to the press, public outreach events, speaking engagements with community groups and schools, and other pro-active events. We do this to stimulate advancement and development of space and related applications and technologies and by bringing together people from government, industry and all walks of life for the free exchange of information.

As a non-profit organisation, the National Space Society of Australia draws its strength from an enthusiastic membership who contributes their time and effort to assist the Society in pursuit of its goals.

For more information, and to become a member:

WWW.NSSA.COM.AU

Ad Astra!
Wayne Short, NSSA President 2019

ABOUT THE NCSRS

Australian Academy of Science

National Committee for Space and Radio Science (NCSRS) aims to foster the space and radio sciences in Australia, to link the Australian Academy of Science to Australian space and radio scientists and relevant scientific societies, and to serve as a link between Australian and overseas space and radio scientists, primarily through the International Union for Radio Sciences, the Scientific Committee on Solar-Terrestrial Physics and the Committee on Space Research.

A vision for space science and technology: Securing and advancing Australia's interests through space research in Australia was published in September 2017 and presents the strategic vision for an Australian space sector and space industry. The plan outlines strategies to lead Australia into a future that embraces a vibrant space sector and space industry, underpinned by space science and technology, and in due course supported by a national space agency. The National Committee for Space and Radio Science consulted extensively with broad a representation of researchers and organisations to create this plan.

The NCSRS web page can be reached at

WWW.SCIENCE.ORG.AU/COMMITTEE/SPACE-AND-RADIO-SCIENCE

COMMITTEES

2019 ASRC Program Committee

Fred Menk (National Committee Space and Radio Science), Program committee chair
Elias Aboutanios (University of NSW)
Duncan Blake (University of Adelaide)
Annalea Beattie (MSA/ NSSA)
Melrose Brown (UNSW, Canberra)
Gordon Cable (University of Adelaide)
Graziella Caprarelli (Hypatia Scientifica)
Brad Carter (University of Southern Queensland)
Brett Carter (RMIT University)
Jonathan Clarke (Mars Society of Australia)
Alina Donea (Monash University)
Kerrie Dougherty (University of NSW)
Yanming Feng (Queensland University of Technology)
Duane Hamacher (University of Melbourne)
Trevor Harris (Defence Science and Technology Group, Department of Defence)
Jason Held (Saber Astro)
Lucyna Kedziora-Chudczer (University of NSW)
Jonathan Horner (University of Southern Queensland)
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ACSER, University of NSW, secretariat

Annalea Beattie
Mars Society Australia
National Space Society of Australia

Iver Cairns
Co Chair ASRC 2018
University of Sydney

Graziella Caprarelli
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Jonathan Clarke
Mars Society Australia

Jonathan Horner
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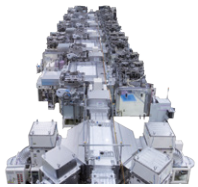

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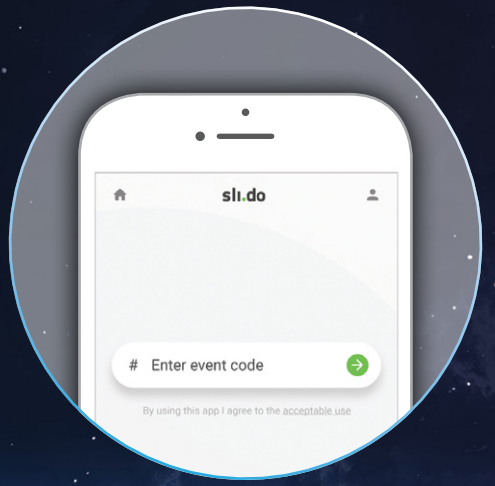

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OPEN YOUR BROWSER, GO TO SLIDO.COM AND ENTER THE EVENT CODE:

DAY 1
#SASPACEFORUM

DAYS 2&3
#ASRC2019

PROGRAM AT A GLANCE

DAY 01

JOINT 8TH SPACE FORUM AND 19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

8.00	Registration Open
8.45	Premier's Welcome
8.50	National and International Space Trends
10.15	MORNING TEA
11.00	Space Science, Industry and Applications Panel
12.30	LUNCH
13.30	Australian Space Research Conference Plenaries
14.50	AFTERNOON TEA
15.30	SmartSat CRC – Building Australia's Space Industry
16.50	Conclusion
17.00	NETWORKING EVENT
19.00	MSA David Cooper Memorial Lecture - The University of Adelaide

DAY 02

19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

8.00	Registration			
8.30	Gender Equity and Diversity Plenaries			
10.00	MORNING TEA			
10.30	**Stream 1**	**Stream 2**	**Stream 3**	**Stream 4**
	Space Engineering 1	Space Business & Industry	Education and Training	Remote Sensing and Earth Observations
12.30	LUNCH			
13.30	**Stream 1**	**Stream 2**	**Stream 3**	**Stream 4**
	Space Engineering 2	Entrepreneur Pitch Sessions	Planets & Exoplanets	Space Missions 1
15.00	AFTERNOON TEA & POSTER SESSION 1			
16.30	**Stream 1**	**Stream 2**	**Stream 3**	**Stream 4**
	Space Engineering 3	Space Law	Mars	Space Missions 1
19.00	Conference Dinner			

DAY 03

19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

8.00	Registration			
8.30	Gender Equity and Diversity Plenaries			
10.00	MORNING TEA			
10.30	**Stream 1**	**Stream 2**	**Stream 3**	**Stream 4**
	Space Missions 2	Space Situational Awareness	Space Policy, GNSS	Space & Atmospheric Physics 2, Space Engineering 4
12.30	LUNCH Women in Space Networking Event			
13.30	**Stream 1**	**Stream 2**	**Stream 3**	**Stream 4**
	Space Engineering 5	Meteorites, Asteroids & Space Resources	Space Medicine & Human Factors	Space & Atmospheric Physics 3
15.00	AFTERNOON TEA & POSTER SESSION 2			
16.30	Town Hall Discussion: Development of Australia's next decadal plan for space science			

MSA DAVID COOPER MEMORIAL LECTURE

MONDAY 30 SEPTEMBER 2019

6.45pm for a 7.00pm start

Venue: University of Adelaide
Room S112, School of Mechanical Engineering
North Terrace Adelaide

Speaker:
Dr Gordon Cable, Australasian Society of Aerospace Medicine

THE GRAVITY OF MARS EXPLORATION

Plans for the exploration of deep space over the coming decades will see humans travel deeper into space and for longer periods than at any time in human history.

The Gateway will provide a permanent presence in cis-lunar orbit, exploration of the lunar surface is planned by 2024 through Project Artemis, and missions to the Mars system are anticipated to follow. This new era of space and planetary exploration will expose humans to hazards not experienced since the Apollo program of the 1960s and 70s, but magnified by greater distance and much longer exposures.

Human missions to Mars will expose the crews to hazards such as isolation and confinement, distance from Earth, hostile and closed environments, radiation, and of course altered gravity fields.

While countermeasures can be identified for many of these challenges, some of the problems of microgravity remain unsolved. This presentation will describe the impacts of microgravity on human physiology during long duration exploration class missions to Mars, and explore possible solutions.

Dr Gordon Cable is a specialist in aerospace medicine and a Senior Aviation Medical Officer for the Australian Defence Force. He has been a consultant to the Royal Australian Air Force since 1996.

He is an honorary member of the Australasian Society of Aerospace Medicine, as well as Chair of the Space Life Sciences Committee, and a past president. He also holds Fellowships with the Australasian College of Aerospace Medicine, the Aerospace Medical Association, the Royal Aeronautical Society and the International Academy of Aviation and Space Medicine.

Additionally, Dr Cable is a Clinical Associate Professor in the School of Medicine at the University of Adelaide, and a Senior Lecturer in Space Medicine at the University of Tasmania.

His professional interests include altitude physiology of hypoxia and hypobaric decompression illness, hypoxia awareness training of military and civilian aircrew, space medicine, and postgraduate education in aerospace medicines.

In 2015 he was appointed a Member of the Order of Australia for contributions to aerospace medicine.

PROGRAM DAY 01

JOINT 8TH SPACE FORUM AND 19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

Facilitated by Nicola Sasanelli, Director, South Australian Space Industry Centre

TIME	SESSION	ROOM
8.00	**REGISTRATION OPEN** Tea and coffee on arrival	Foyer L
8.45	**Welcome from the Premier of South Australia – The Hon Steven Marshall MP**	Hall L
8.50	**NATIONAL AND INTERNATIONAL SPACE TRENDS** This session will feature a number of presentations covering policy and trends within the national and international space domain. The session will also feature the Forum's keynote presentation.	Hall L
8.50	**Hon Karen Andrews MP**, Minister for Industry, Science and Technology	
9.00	**Dr Megan Clark AC**, Head, Australian Space Agency	
9.10	**Richard Price**, Chief Executive, South Australian Space Industry Centre	
9.15	**Luca Del Monte**, Head of Industrial Policy and SME Division, European Space Agency – Paris *(Keynote Speaker)*	
9.45	**Dr Sarah Pearce**, Deputy Director, CSIRO Astronomy and Space Science	
9.55	**Dr James Johnson**, Chief Executive Officer, Geoscience Australia	
10.05	**Dr Graeme Kernich**, Chief Executive Officer, Frontier SI	
10.15	MORNING TEA - SPONSORED BY NOVA SYSTEMS	Exhibition Halls M&N
11.00	**SPACE SCIENCE, INDUSTRY, AND APPLICATIONS** This panel session will explore how to translate space science to applications *Facilitator:* **Anna-Maria Arabia**, Chief Executive, Australian Academy of Science *Panellists:* **Dr Murray Parkinson**, National Manager, Space Weather Service, Bureau of Meteorology **Prof Andrew Dempster**, ACSER / CUAVA, Director, Australian Centre for Space Engineering Research, UNSW **Prof Caroline McMillen**, Chief Scientist for South Australia **Prof Graham Durant**, Director, Questacon **Darin Lovett**, Manager, Systems Analysis Laboratory, Phantom Works International, Boeing Australia **Prof Fred Menk**, Chair National Committee for Space & Radio Science	Hall L
12.30	LUNCH - SPONSORED BY ULVAC, INC.	Exhibition Halls M&N

PROGRAM DAY 01

JOINT 8TH SPACE FORUM AND 19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

Facilitated by Nicola Sasanelli, Director, South Australian Space Industry Centre

TIME	SESSION	ROOM
13.30	**AUSTRALIAN SPACE RESEARCH CONFERENCE PLENARIES** Nearly every aspect of our daily lives is touched and made better by space innovation. The following presentations feature examples where this is happening. *Facilitator:* **Prof Fred Menk**, Chair National Committee for Space & Radio Science	Hall L
13.30	**Dr Jason Held**, Chief Executive Officer, Saber Astronautics	
13.50	**Prof Phil Bland**, Planetary Scientist, School of Earth and Planetary Science, Australian Laureate Fellow, Curtin University	
14.10	**Dr Suelynn Choy**, Geospatial Science, RMIT University	
14.30	**Prof John Le Marshall**, Senior Principal Research Scientist, Bureau of Meteorology	
14.50	AFTERNOON TEA - SPONSORED BY TITOMIC	Exhibition Halls M&N
15.30	**SMARTSAT CRC - BUILDING AUSTRALIA'S SPACE INDUSTRY** SmartSat CRC future technology and pathway. Challenges and opportunities for intelligent systems in space technology *Facilitator:* **Peter Nikoloff**, Director/Senior Weapons Engineer, Nova Systems *Panellists:* **Prof Anna Moore**, Director, InSpace **Andrew Seedhouse**, Chief Intelligence, Surveillance & Space Division, Defence, Science and Technology **Aude Vignelles**, Executive Director, Program and Capability, Australian Space Agency **Brad Yelland**, Chief Technology Officer, BAE Systems Australia **Dr Koukou Suu**, Chief Executive Officer, ULVAC Inc. **Shaun Wilson**, Founder & Head of Business Development, Shoal Group **Dr Doug Griffin**, Chief Engineer, UNSW Canberra Space **Martin Duursma**, Partner, Main Sequence Ventures – The CSIRO Innovation Fund	Hall L
16.50	CONCLUSION	Hall L
17.00	NETWORKING EVENT - SPONSORED BY CSIRO	Exhibition Halls M&N
19.00	MSA DAVID COOPER MEMORIAL LECTURE	University of Adelaide

PROGRAM DAY 02

19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

TIME	SESSION	ROOM
8.00	**REGISTRATION**	City Rooms Foyer
8.30	**GENDER EQUITY AND DIVERSITY SESSION**	City Rooms 1&2
8.30	**PLENARY** **Anna-Maria Arabia**, Australian Academy of Science *Ten years, six opportunities: why gender equality in STEM can't be achieved without you*	
9.00	**Rose O'Dea**, University of New South Wales (Invited) *Why are fewer women than men employed in fields associated with brilliance?*	
9.20	**Eriita Jones**, University of South Australia *Gender balance and inclusion is still a problem: An overview of delegates at the Australian Space Research Conference over the past 4 years.*	
9.40	**Panel Discussion** Anna-Maria Arabia, Rose O'Dea, Eriita Jones, Alice Gorman, Sumen Rai	
10.00	**MORNING TEA - SPONSORED BY INSPACE**	City Rooms Foyer
STREAM 1 - SPACE ENGINEERING 1		City Room 1
10.30	**Jan-Erik Ronningen**, Gilmour Space Technologies *Hybrid rockets - past, present, future*	
10.45	**Mitchell Galletly**, University of Sydney *Project Silvereye: The design architecture of a reusable 10,000 ft high power rocket*	
11.00	**Aiden O'Brien**, Saber Astronautics *Automated conceptual design of cubesats*	
11.15	**Stuart Buchan**, Curtin University *The Binar CubeSat Program: design and development of a CubeSat digital twin*	
11.30	**R K Manchanda** *Role of tethered balloons and aerostats in communication, surveillance and disaster management*	
11.45	**Kawsihen Elankumaran**, University of New South Wales *Autonomous navigation of distributed spacecraft for proximity operations in small celestial bodies*	
12.00	**Job Nijhuis**, University of Adelaide *Microfluidic chip-based synthesis and spray of quantum nanodots as spectral decoy to protect satellites*	
12.15	**Graham Dorrington**, RMIT University *Novel concept for a partly reusable Lunar lander*	

PROGRAM DAY 02

19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

TIME	SESSION	ROOM
12.30	**LUNCH - SPONSORED BY BOEING**	City Rooms Foyer
STREAM 1 - SPACE ENGINEERING 2		City Room 1
13.30	**Monique Hollick**, Defence, Science and Technology *Deployable optics payload for the Buccaneer Main Mission*	
13.45	**Paul Alvino**, Defence, Science and Technology *Australian radiation testing of liquid lenses for the Buccaneer Main Mission SELFIE payload*	
14.00	**Fergus Downey**, Curtin University *The Binar CubeSat Program: Developing a reliable and efficient CubeSat electronics power system*	
14.15	**Nathaniel Brough**, Curtin University *The Binar CubeSat Program: attitude control for small satellites*	
14.30	**Ben Jarvis**, University of Sydney *Development of low-cost testing methodologies for star trackers*	
14.45	**Shanae King**, Australian National University *A small form-factor detector controller for the Emu space telescope mission and beyond*	
15.00	**POSTER SESSION 1 AND AFTERNOON TEA**	City Rooms Foyer
STREAM 1 - SPACE ENGINEERING 3		City Room 1
16.30	**Muhammad Furqan**, Queensland University of Technology *Efficient utilization of radio frequency electromagnetic spectrum for satellites in lower Earth orbits*	
16.45	**Richard Tracey**, Keysight Technologies *Emulating radio links for wideband SATCOM systems*	
17.00	**Jack Rintoul**, Defence, Science and Technology *Augmenting CubeSat communication using Low Earth Orbit (LEO) communication networks*	
17.15	**Edwin Peters**, University of New South Wales Canberra *Real-time demodulation of multiple modulation schemes from satellites using a GPU based matched filtering approach*	
17.30	**Francis Bennet**, Australian National University *Towards an optical communications ground station network for next generation satellite communications*	
17.45	**Gavin Conibeer**, University of New South Wales *Laser power beaming for transmission of power in space*	
19.00	**CONFERENCE DINNER - SPONSORED BY SPACE INDUSTRY ASSOCIATION OF AUSTRALIA**	Cliché Exhibition

PROGRAM DAY 02

19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

TIME	SESSION	ROOM
STREAM 2 - SPACE BUSINESS AND INDUSTRY		City Room 2
10.30	**Daniel Floreani**, CyberOps *The Australian space cybersecurity environment*	
10.45	**Richard Matthews**, University of Adelaide *How security ready is the Australian Space Industry? The challenges of digital security in space*	
11.00	**Taofiq Huq**, SpiralBlue *Spiral Blue: Space Edge Computing*	
11.15	**Christopher Tylor**, NEO Resources Atlas Pty Ltd *The NEO Resource Atlas - A commercial solution to a legal problem*	
11.30	**Sophia Cassanova**, University of New South Wales *Developing exploration strategies and development guidelines for Lunar and Martian volatile resource extraction and utilisation*	
11.45	**Nicholas Bennett**, University of New South Wales *On the virtue of supplying just oxygen from a lunar polar water mine*	
12.00	**Scott Wallis**, Equatorial Launch Australia *NASA launches from the Arnhem Space Centre in 2020*	
12.15	**Vickal Kumar**, Bureau of Meteorology *Impacts of space weather on aviation*	
12.30	LUNCH - SPONSORED BY BOEING	City Rooms Foyer
STREAM 2 - ENTREPRENEUR PITCH SESSIONS		City Room 2
13.30	**Max Arshavsky**, Zenno Astronautics Limited *Novel satellite propulsion technology*	
13.45	**Bohan Deng**, Sperospace Pty Ltd *Sperospace*	
14.00	**Benjamin Koschnick**, Spectral Aerospace *Spectral Aerospace: changing the way we see our world*	
14.15	**Brian Lim**, Wise Networking *On demand telecommunication infrastructure for planetary exploration and colonisation*	
14.30	**Sai Krishna Vallapureddy**, Ground Zero Space *The Australian space cybersecurity environment*	
14.45	**Patrick Wang**, Space Ops Australia *Space Ops business pitch plan*	
15.00	POSTER SESSION 1 AND AFTERNOON TEA	City Rooms Foyer

PROGRAM DAY 02

19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

TIME	SESSION	ROOM
STREAM 2 - SPACE LAW		City Room 2
16.30	**Alex Seneta**, Australian Space Agency *The new rules: Space (Launch and Returns) Act 2018*	
16.45	**Rodrigo Praino**, Flinders University *Measuring space power: A comparative assessment of worldwide space actors*	
17.00	**Mark Meegan** *Earth Observation data - climate change monitoring*	
17.15	**Rebecca Leshinsky**, RMIT University *Valuing real estate interests in space – a frontier exercise*	
17.30	**John Lee**, University of Newcastle *Care of the outer space environment: An emerging aspect of human involvement with outer space.*	
17.45	**Rowena Christiansen**, University of Melbourne *Space tourism - is it a disaster waiting to happen?*	
19.00	CONFERENCE DINNER - SPONSORED BY SPACE INDUSTRY ASSOCIATION OF AUSTRALIA	Cliché Exhibition
STREAM 3 - EDUCATION AND TRAINING		City Room 3
10.30	**Carol Oliver**, University of New South Wales *Can high school students undertake publishable space science research?*	
10.45	**Vira Wallis**, Mawson Lakes School *M.A.R.S.U.P.I.A.L.S project*	
11.00	**Ady James**, University of South Australia *The Southern hemisphere Space Studies Program: international, intercultural and interdisciplinary.*	
11.15	**Fabian Zander**, University of Southern Queensland *STEM education using hybrid rocket motors*	
11.30	**Yiwei Mao**, University of Sydney *TweetS@*	
11.45	**Nataliia Sergiienko**, University of Adelaide *CubeSat as a tool for training engineers of the future*	
12.00	**Panwar Rakesh**, Bureau of Meteorology *Australian Bureau of Meteorology space weather training*	
12.15	**David Holdsworth**, Defence, Science and Technology *JORN Open Innovation Network: Description and Defence Science & Technology group perspective*	
12.30	LUNCH - SPONSORED BY BOEING	City Rooms Foyer

PROGRAM DAY 02

19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

TIME	SESSION	ROOM
STREAM 3 - PLANETS & EXOPLANETS		City Room 3
13.30	**Shin-Chan Han**, University of Newcastle *High-resolution gravitational fields of the Moon from crustal density estimates and topographic data*	
13.45	**Jonti Horner**, University of Southern Queensland *Minerva-Australis - searching for alien worlds*	
14.00	**Graziella Caprarelli**, Hypatia Scientifica P/L *Exploratory analysis of the NASA Exoplanet Archive*	
14.15	**Graeme Melville**, University of New South Wales *Characterising Hot Jupiter exoplanets*	
14.30	**James O'Connor**, University of Southern Queensland *Orbital constraints on terrestrial exoplanet climates*	
14.45	**Jake Clark**, University of Southern Queensland *Can stellar abundances help explain the architecture of planetary systems discovered by TESS?*	
15.00	POSTER SESSION 1 AND AFTERNOON TEA	City Rooms Foyer
STREAM 3 - MARS		City Room 3
16.30	**Nick Carter**, CSIRO *CubeSat to Mars - A feasibility study*	
16.45	**Jon Clarke**, Mars Society Australia *Lonar Crater in India as an analogue for Mars analogue studies*	
17.00	**Eriita Jones**, University of South Australia *A battle between machine learning, traditional clustering and citizen scientists in the detection and segmentation of polar spring-time fans on Mars*	
17.15	**Lucy Forman**, Curtin University *Lava flows on Mars*	
17.30	**Anthony Lagain**, Curtin University *Automatic surface age dating of impact events on Mars*	
17.45	**Ken Orr**, Curtin University *Spectral characterization of Martian meteorites: Searching for the source craters on Mars*	
19.00	CONFERENCE DINNER - SPONSORED BY SPACE INDUSTRY ASSOCIATION OF AUSTRALIA	Cliché Exhibition

PROGRAM DAY 02

19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

TIME	SESSION	ROOM
STREAM 4 - REMOTE SENSING AND EARTH OBSERVATIONS		City Room 4
10.30	**Amy Parker**, CSIRO *Australia's NovaSAR-1 national research facility*	
10.45	**Trent McDougall**, Mars Society Australia *Flown in space: Can low cost electronics perform useful science in the near-space environment?*	
11.00	**Mark Ramsey**, Sitael Australia *An Australian national satellite water monitoring system concept*	
11.15	**Stephen Gensemer**, CSIRO *CSIRO's small-satellite optical instrumentation development*	
11.30	**Victor Fok**, Defence, Science and Technology *SAR constellation designs for barrier surveillance applications*	
11.45	**Joon Wayn Cheong**, University of New South Wales *Target detection applications using GNSS-reflectometry*	
12.00	**Elizaveta Klantsataya**, University of Adelaide *Upconversion fluorescence spectroscopy for active remote detection of acetone and other small size organic compounds in space*	
12.15	**Andrew Robson**, University of New England *Satellite imagery, if not properly trained then it can 'eat your sheep'*	
12.30	LUNCH - SPONSORED BY BOEING	City Rooms Foyer
STREAM 4 - SPACE MISSIONS 1		City Room 4
13.30	**Xueliang Bai**, University of Sydney *The CUAVA-1 CubeSat*	
13.45	**Benjamin Hartig**, Curtin University *The Binar CubeSat program: Past, present and beyond*	
14.00	**Michele Trenti**, University of Melbourne *The SkyHopper space telescope CubeSat*	
14.15	**Duncan Wright**, University of Southern Queensland *Twinkle and Australia*	
14.30	**Joice Mathew**, Australian National University *Emu - A time delay imaging near-infrared survey mission on the international space station*	
14.45	**Shin-Chan Han**, University of Newcastle *An overview of NASA and DLR's Gravity Recovery And Climate Experiment (GRACE) and GRACE Follow-On missions*	
15.00	POSTER SESSION 1 AND AFTERNOON TEA	City Rooms Foyer

PROGRAM DAY 02

19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

TIME	SESSION	ROOM
STREAM 4 - SPACE & ATMOSPHERIC PHYSICS 1		City Room 4
16.30	**Patrick Shober**, Curtin University *Skipping fireballs and what they tell us about the evolution of the solar system*	
16.45	**Eleanor Sansom**, Curtin University *Hayabusa II re-entry observation campaign*	
17.00	**George Bowden**, University of New South Wales *Numerical simulation of ionospheric disturbances resulting from rocket launches*	
17.15	**Ronald Maj**, RMIT University *Comparison of the predictive power of RMIT's and existing atmospheric mass density (AMD) models using satellite measurements*	
17.30	**Andrew Spargo**, University of Adelaide *Multistatic meteor radar observations of gravity wave-tide interactions in the lower E-region*	
17.45	**Baden Gilbert**, University of Adelaide *Simultaneous ionospheric sounder and airglow observations of sporadic-E layers*	
19.00	**CONFERENCE DINNER - SPONSORED BY SPACE INDUSTRY ASSOCIATION OF AUSTRALIA**	Cliché Exhibition

ASRC CONFERENCE DINNER

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Join us for the official Conference Dinner for a delicious French banquet.
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Delegates must be pre-registered to attend and present their name badge at the door.

TUESDAY 1 OCTOBER 2019

6.50pm arrival for a 7.00pm start

Location: Cliché Exhibition
26 O'Connell Street, North Adelaide
Dress code: Smart casual

PROGRAM DAY 03

19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

TIME	SESSION	ROOM
8.00	**REGISTRATION**	City Rooms Foyer
8.30	**PLENARY SESSION** **Isabelle Kingsley**, University of New South Wales *Deep impact: how to achieve effective and meaningful space science education and outreach*	City Rooms 1&2
9.00	**Alina Donea**, Monash University *Advances and results in enhancing and developing helioseismic methods for the space weather predictions*	
9.30	**Anatoly Rozenfeld**, University of Wollongong *Innovative radiation sensors for prediction of radiation hazard to astronauts and electronics during space missions*	
10.00	**MORNING TEA - SPONSORED BY INSPACE**	City Rooms Foyer
	STREAM 1 - SPACE MISSIONS 2	City Room 1
10.30	**Stephen Gensemer**, CSIRO *CSIROSat-1 CubeSat mission update*	
10.45	**Ali Buchberger**, University of Southern Queensland *Firing up for the space race: Australia's national rocket static test facility*	
11.00	**Andrew Dempster**, University of New South Wales *The Wilde Project: A Moon Mission for Australia*	
11.15	**Ed Kruzins**, CSIRO *Deep space missions from Australia, the capability of the Canberra Deep Space Communication Complex at Tidbinbilla and the future of new tracking technologies*	
11.30	**Guifré Molera Calvés**, University of Tasmania *Spacecraft tracking capabilities by the UTAS radio telescope network*	
11.45	**Ben Adams**, Inovor Technologies *Apogee satellite bus missions*	
12.00	**Rasit Abay**, University of New South Wales Canberra *Space mission architecture with AI on the edge*	
12.15	**Elias Aboutanios**, University of New South Wales *A high altitude balloon borne synthetic aperture radar*	
12.30	**LUNCH - SPONSORED BY BOEING**	City Rooms Foyer
	WOMEN IN SPACE NETWORKING EVENT	City Room 4

PROGRAM DAY 03

19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

TIME	SESSION	ROOM
STREAM 1 - SPACE ENGINEERING 5		City Room 1
13.30	**Volker Hessel**, University of Adelaide *Asteroid@ChemEng: Orders of magnitude water savings by intensified metal extraction from mimicked asteroid ores?*	
13.45	**Heiki Ebendorff-Heidepriem**, University of Adelaide *Next-generation extreme-low loss optical fibres through automated manufacture in space*	
14.00	**Doug Klotz**, Flawless Photonics *The business case for next generation optical fiber manufactured in space*	
14.15	**Daniel Liang**, CSIRO *Shape memory alloy foils produced by near-net-shape casting*	
14.30	**Yang Yang**, RMIT University *PHiFA – A high-fidelity orbit-attitude propagator*	
14.45	**Benjamin Dix-Matthews**, University of Western Australia *Coherent optical Doppler orbitography*	
15.00	POSTER SESSION 2 AND AFTERNOON TEA	City Rooms Foyer
16.30	TOWN HALL DISCUSSION: DEVELOPMENT OF AUSTRALIA'S NEXT DECADAL PLAN FOR SPACE SCIENCE	City Rooms 1&2
STREAM 2 - SPACE SITUATIONAL AWARENESS		City Room 2
10.30	**Steve Gower**, SERC Limited *Space Environment Research Centre (SERC) research*	
10.45	**Albert Sztolc**, University of Adelaide *Optical space fence development*	
11.00	**Doris Grosse**, Australian National University *Adaptive optics for space situational awareness*	
11.15	**Brendan Hennessy**, Defence, Science and Technology *Surveillance of space with passive radar using the Murchison Widefield Array*	
11.30	**David Holdsworth**, Defence, Science and Technology *Buckland Park VHF radar observations of low-earth orbit objects during SpaceFest 2019: operating configuration and signal processing*	
11.45	**Samantha Le May**, RMIT University *A quantitative analysis of space object registration using a graph database.*	
12.00	**Richard Samuel**, Australian National University *A new method of refining near-earth object characteristics and behaviours using differential correction*	
12.15	**Emma Kerr**, RMIT University *Limitations on the use of drag augmentation for post-mission disposal*	

PROGRAM DAY 03

19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

TIME	SESSION	ROOM
12.30	LUNCH - SPONSORED BY BOEING	City Rooms Foyer
	WOMEN IN SPACE NETWORKING EVENT	City Room 4
STREAM 2 - METEORITES, ASTEROIDS & SPACE RESOURCES		City Room 2
13.30	**Eleanor Sansom**, Curtin University *Near-Earth Objects characterisation with small space assets*	
13.45	**Seamus Anderson**, Curtin University *Drones and deep learning for meteorite recovery*	
14.00	**Ruida Xie**, University of New South Walers *Mission opportunities' search for long stay-time exploration on near Earth asteroids*	
14.15	**Jacob Parnell**, Macquarie University *A smoothed particle hydrodynamics approach to asteroid modelling*	
14.30	**Craig Lindley**, CSIRO *Resource modelling for asteroid mining*	
14.45	**Volker Hessel**, University of Adelaide *In-Situ Resource Utilisation (ISRU) in space: water, phosphate, and metals*	
15.00	POSTER SESSION 2 AND AFTERNOON TEA	City Rooms Foyer
16.30	TOWN HALL DISCUSSION: DEVELOPMENT OF AUSTRALIA'S NEXT DECADAL PLAN FOR SPACE SCIENCE	City Rooms 1&2
STREAM 3 - SPACE POLICY, GNSS		City Room 3
10.30	**Liz Pearce**, Australian Space Agency *Civil Space Technical Roadmap - what's next for Australia*	
10.45	**Kimberley Clayfield**, CSIRO *CSIRO Space Technology Future Science Platform*	
11.00	**Christopher Marshall**, Frontier SI *The Australia and New Zealand SBAS Test-bed: Demonstrating the next-generation of positioning technology*	
11.15	**Yanming Feng**, Queensland University of Technology *Connected GNSS things for industry IoT solutions: case studies*	
11.30	**Stefan Norman**, University of Adelaide *GNSS trust & reliability*	
11.45	**Joon Wayn Cheong**, University of New South Wales *Verification of a GPS reflectometry sensor using software defined radios*	
12.00	**Kerrie Dougherty**, University of New South Wales *HARP: Australia's first sounding rocket program*	
12.15	**Owen Mace** *The first satellite built in Australia*	

PROGRAM DAY 03

19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

TIME	SESSION	ROOM
12.30	LUNCH - SPONSORED BY BOEING	City Rooms Foyer
	WOMEN IN SPACE NETWORKING EVENT	City Room 4
	STREAM 3 - SPACE MEDICINE & HUMAN FACTORS	City Room 3
13.30	**Jason Armstrong**, Boeing *Anti-microbial polymer development for spacecraft cabin disease & system contamination*	
13.45	**Bal Dhital** *A conceptual review of the relationship between the glymphatic system, sleep, cognition, and neurodegenerative disease in the microgravity environment*	
14.00	**Julie Hides**, Griffith University *Parallels between changes in trunk muscles in response to microgravity, prolonged bed rest and low back pain on Earth*	
14.15	**Vienna Tran**, University of Adelaide *The efficacy and stability of semi-finished and finished medicines made in space*	
14.30	**Shane Usher**, University of Melbourne *Australians in space analogues: Expedition Boomerang at MDRS and SIRIUS-20 at IMBP*	
14.45	**Peter Schumacher**, University of Adelaide *Applied anthropometry and human centered design for complex confined environments*	
15.00	POSTER SESSION 2 AND AFTERNOON TEA	City Rooms Foyer
16.30	TOWN HALL DISCUSSION: DEVELOPMENT OF AUSTRALIA'S NEXT DECADAL PLAN FOR SPACE SCIENCE	City Rooms 1&2
	STREAM 4 - SPACE & ATMOSPHERIC PHYSICS 2, SPACE ENGINEERING 4	City Room 4
10.30	**Owen Giersch**, Australian Space Academy *The Australian Space Academy solar radio spectrograph*	
10.45	**Iver Cairns**, University of Sydney *Hit or miss, arrival time, and Bz orientation predictions of BATS-R-US CME-driven shock simulations at 1 AU*	
11.00	**Bolaji Olawale**, University of Tasmania *Response of global ionospheric plasma fountain circulations to St. Patrick's storm of 2015*	
11.15	**Sean Ables**, University of Newcastle *Robust geolocation of EMIC wave sources in the high latitude ionosphere*	

PROGRAM DAY 03

19TH AUSTRALIAN SPACE RESEARCH CONFERENCE

TIME	SESSION	ROOM
11.30	**Richard Marshall**, Bureau of Meteorology *Modelling, monitoring, and mitigation of space weather for Australia's power grids*	
11.45	**Alexander Ryan**, University of Sydney *Experimental analysis of a Helicon plasma rocket developed using rapid Monte Carlo based inverse design*	
12.00	**Robin Georg**, University of Adelaide *Investigations of transient discharge behaviour in an inductive plasma generator for electric propulsion*	
12.15	**Kyll Schomberg**, Shoal Group *Estimating non-axial thrust loss in bell rocket nozzles*	
12.30	LUNCH - SPONSORED BY BOEING	City Rooms Foyer
	WOMEN IN SPACE NETWORKING EVENT	City Room 4
	STREAM 4 - SPACE & ATMOSPHERIC PHYSICS 3	City Room 4
13.30	**Daniel Field**, University of Adelaide *A new empirical climatological model of ionospheric foF2 and hmF2*	
13.45	**Zahra Bouya**, Bureau of Meteorology *A prediction model of global ionospheric maps*	
14.00	**Chris Crouch**, Defence, Science and Technology *Using neural networks to improve ionospheric models with radar backscatter sounder observations*	
14.15	**Andrew Heitmann**, Defence, Science and Technology *Characterising ionospheric gradients from oblique angle-of-arrival ionosondes*	
14.30	**Anne Unewisse**, Defence, Science and Technology *Variation in the maximum range of HF spread Doppler clutter*	
14.45	**Lenard Pederick**, Defence, Science and Technology *TAPDANCE: A polarimetric vector-sensing ionosonde*	
15.00	POSTER SESSION 2 AND AFTERNOON TEA	City Rooms Foyer
16.30	TOWN HALL DISCUSSION: DEVELOPMENT OF AUSTRALIA'S NEXT DECADAL PLAN FOR SPACE SCIENCE	City Rooms 1&2

POSTER SESSIONS

POSTER SESSION 1 – DAY 02

SPACE BUSINESS, EDUCATION & TRAINING, MARS, SPACE ENGINEERING

15.00

Richard Matthews, University of Adelaide
The real Space Cowboys: An assessment of Space Exploration Technologies Corp sustainability using the Benn et al and Perrott Models of corporate sustainability

Jessica Ralph, University of South Australia
HRM in Outer Space

Andoh Afful, RMIT University
Barriers inhibiting successful implementation of a space science program: perceptions of academics and students

Ady James, University of South Australia
Developing skills in the space industry through the SmartSat CRC

James O'Connor, University of Southern Queensland
Effective science communication using Instagram - @educatingspace

Jonti Horner, University of Southern Queensland
Which ExoEarths should we search for life? The impact of planetary architecture on the Milankovitch cycles.

Steven Hobbs, University of New South Wales Canberra
Using point pattern and thermal inertia analyses to test self-organisation in Martian mid-latitude Gullies

Eriita Jones, University of South Australia
Evidence of life on Mars? – A critical review of the recent publication by the same name

Savannah McGuirk, University of Sydney
Opportunities for enhancing Australia's estimates of soil carbon in the age of hyperspectral imaging spectroscopy: from the farmers paddock to cubeSats and UAV's

Christopher Tylor, FUEGO International Pty Ltd
FUEGO - Fire Urgency Estimator on Geostationary Orbit

Eriita Jones, University of South Australia
Is higher spatial resolution always better? A quantitative analysis of the impact of pan-sharpening worldview-2 imagery on a neural networks detection and segmentation of vineyards

Gavin Conibeer, University of New South Wales
Integrated patch antennas and solar cells for Cubesats – Optimising solar cell efficiency and antennae gain

POSTER SESSIONS

POSTER SESSION 1 – DAY 02

SPACE BUSINESS, EDUCATION & TRAINING, MARS, SPACE ENGINEERING (CONTINUED)

15.00

Xiaojing Huang, University of Technology Sydney
Novel architecture and key technologies for achieving high capacity and low cost space and terrestrial integrated networks

Aditya Kedlaya, AstrogateLabs
Precision pointing system for a low-cost optical terminal for high-speed downlink from smallsats in LEO

Dylan Lawrence, Flinders University
Dynamic modelling of systems with pitch control aerofoils

Patrick Neumann, Neumann Space
Initial pulsed cathodic arc thruster impulse measurements using a calibrated torsional thrust stand

Eric Russo, Flinders University
A detailed investigation and solution strategy of thermal impacts on pressure regulator valve in liquid space engine hydro-control system

James Veasey, Flinders University
Dynamic analysis and component modelling of a thrust system in a liquid space engine

Dylan Vinall, Flinders University
The application of surface dielectric barrier discharge plasma actuators, for improved active flow control on highly pitched aerofoil blades.

Ivan Voropaev, Wave Power Engineering
New propulsion system

POSTER SESSIONS

POSTER SESSION 2 – DAY 03

SPACE MISSIONS, SPACE SITUATIONAL AWARENESS, SPACE & ATMOSPHERIC PHYSICS

15.00

Rowena Christiansen
Rethinking the paradigm - how the space environment challenges traditional ways of delivering clinical medicine

Petar Belic, University of New South Wales
Monopedal jumping robots in the context of the Lunar environment

William Crowe, HEO Robotics
Asteroid Century whitepaper: a flagship mission for Australia

Frederick Menk, University of Newcastle
An Australian space weather and climate satellite constellation

Melrose Brown, University of New South Wales Canberra
Change detection SSA experiments for the M2 formation flying CubeSat mission

Brett Carter, RMIT University
Does the movement of RMIT's rooftop Robotic Optical Observatory (ROO) impact its space situational awareness data?

Daniel Field, University of Adelaide
Buckland Park VHF radar observations of low-Earth orbit objects during SpaceFest 2019: observations and results

John Kennewell, Australian Space Academy
Unresolved optical observations of material degradation in Geosats

Emma Kerr, RMIT University
General perturbations method for orbit propagation

Emma Kerr, RMIT University
Improving the accuracy of atmospheric density modelling and the effect on orbit propagation

Bin Li, Queensland University of Technology
A machine learning-based approach for improved predictions of LEO objects with two-line element data sets

Kathryn McDonnell, University of Adelaide
Luminescence dating potential of the mineral constituents of meteorites

Brett Carter, RMIT University
On the evaluation of deterministic ionospheric scintillation forecasts

Tam Dao, International University (HCMIU)
On the variations of the total electron content observed over Ho Chi Minh City in 2018

Alina Donea, Monash University
CNN machine learning techniques for identification of magnetic field polarities on the solar surface

POSTER SESSIONS

POSTER SESSION 2 – DAY 03

SPACE MISSIONS, SPACE SITUATIONAL AWARENESS, SPACE & ATMOSPHERIC PHYSICS (CONTINUED)

15.00

Darrell Elton, La Trobe University
Buckland Park HF radar: Enhanced capabilities and results

Owen Giersch, Australian Space Academy
The Australian Space Academy sunspot number

Vasily Lobzin, Bureau of Meteorology
Predictions of relativistic electron fluence at geo-synchronous orbit

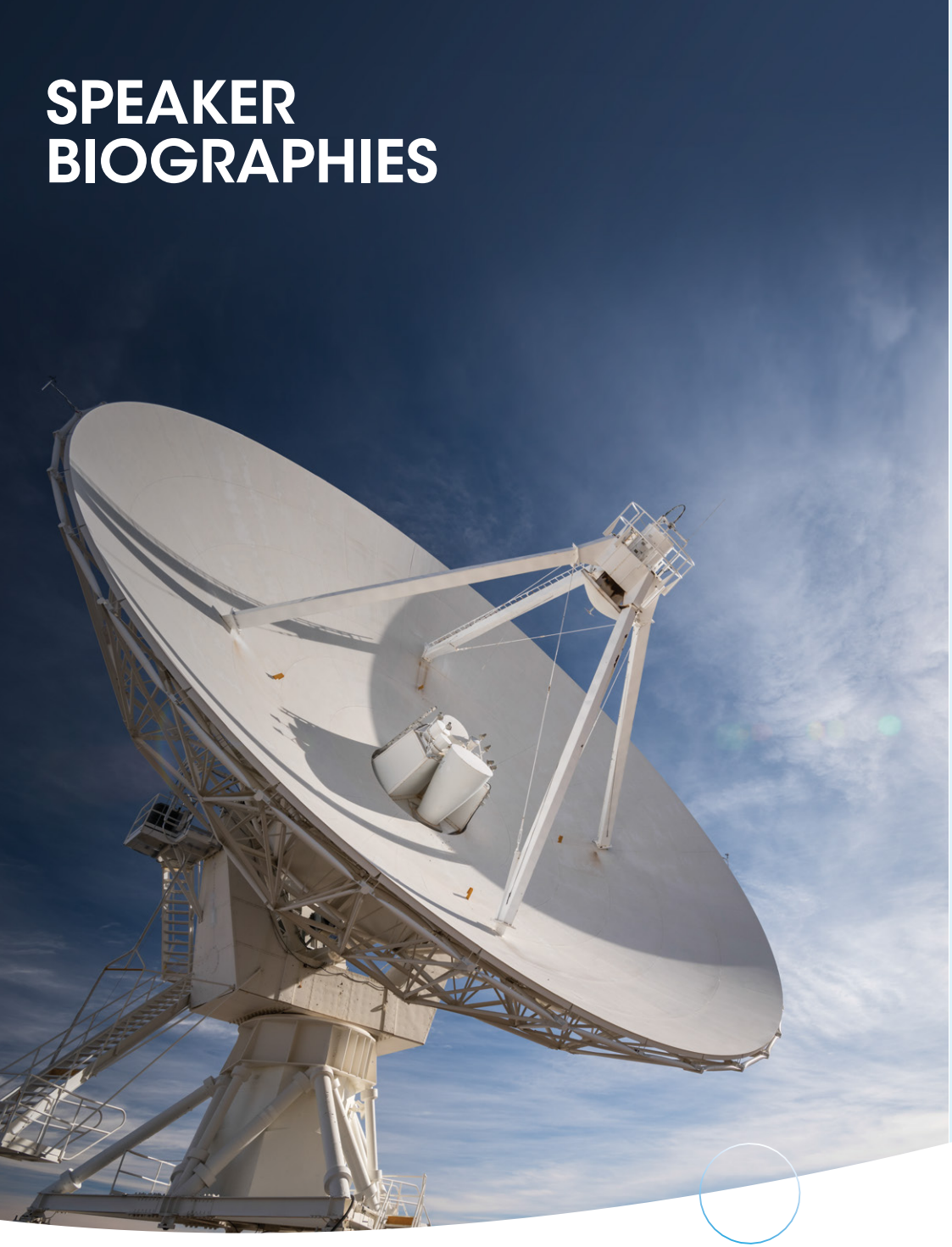
Ronald Maj, RMIT University
Dust detection via voltage power spectroscopy on a CubeSat in Earth's ionosphere

Dave Neudegg, Defence, Science and Technology
Coronal mass ejection and resultant geomagnetic-ionospheric response

Kehe Wang, Bureau of Meteorology
Analysis of Australian historical foF2 data

John Hildebrandt, Amazon Web Services
Introduction to AWS (Amazon Web Services) Ground Station

SPEAKER BIOGRAPHIES



ANNA-MARIA ARABIA

CHIEF EXECUTIVE | AUSTRALIAN ACADEMY OF SCIENCE

Anna-Maria Arabia has over 20 years' experience in the science sector and is an experienced Chief Executive currently leading the Australian Academy of Science, an independent not for profit organisation that provides authoritative and influential scientific advice, represents Australia on key international scientific bodies, builds public awareness and understanding of science, and champions and supports excellence in Australian science.

In this role Anna-Maria has led significant reform in global science engagement, in science policy matters; and in addressing gender equity in science.

Starting her career as a neuroscientist, Anna-Maria undertook medical research in Australia and abroad, before applying her skills to policy development both in the Australian public service and in politics where she has provided policy advice across many social and economic portfolios.

She has held several senior executive positions in the science sector as CEO of Science and Technology Australia and Deputy Director at Questacon. In these roles, Anna-Maria has worked extensively with parliamentarians, the business and community sectors, and the media.

She is a strategic and dispassionate advocate for science, social justice, diversity and inclusion.

PROF PHIL BLAND

PLANETARY SCIENTIST | CURTIN UNIVERSITY

Phil Bland is Professor of Space & Planetary Science at Curtin University. He came to Australia on an ARC Laureate Fellowship in 2012.

Previously he was Director of the Imperial College London space and planetary research centre. His research is focused on the origin and evolution of the solar system; how our planet formed; how it acquired the ingredients for life. He has been on multiple planetary mission science teams. In 2006, Asteroid '1981 EW21' was renamed '(6580) Philbland' in recognition of his contributions to space and planetary science.

He is Director of the Desert Fireball Network (DFN) project (now expanding into a global facility) and founded the multi-award winning Fireballs in the Sky outreach and citizen science program. In 2015 Bland established a formal partnership between NASA and Australia in planetary, space and exploration science that provides Australian planetary scientists with ground-floor access in NASA mission concept development.

In 2018 he founded the Curtin Space Science and Technology Centre. With >35 students and staff, it is the largest planetary research group in the southern hemisphere. His team have been partnering with Lockheed Martin since 2016, translating DFN technology into applications in space situational awareness, and are now focussing on spacecraft engineering.

DR SUELYNN CHOY

ASSOCIATE PROFESSOR
| GEOSPATIAL SCIENCE, RMIT UNIVERSITY

Associate Professor Suelynn Choy completed her PhD in 2009 in the area of Precise Point Positioning (PPP) using Global Navigation Satellite Systems (GNSS) at RMIT University, Australia.

Since then, she works as a full-time academic staff in the School of Science (Geospatial) at RMIT University.

Her current research interests are in the areas of multi-frequency multi-constellation GNSS precise positioning as well as utilisation of GNSS satellites in disaster management and atmospheric remote sensing.

Suelynn is a co-chair of the IAG (International Association of Geodesy) Sub-Commission 4.4 on Multi-frequency Multi-constellation GNSS. She is also a co-chair of the FIG (International Federation of Surveyors) Working Group 5.4 on GNSS under Commission 5: Positioning and Measurement.

She is Director of the Satellite Positioning for Atmosphere, Climate and Environment (SPACE) Research Centre at RMIT.

DR MEGAN CLARK AC

HEAD | AUSTRALIAN SPACE AGENCY

Dr Megan Clark is currently Head of the Australian Space Agency and a director of Rio Tinto, CSL Limited and CARE Australia. She is a member of the Australian advisory board of the Bank of America Merrill Lynch. She recently chaired the Expert Working Group into the Review of Australia's Space Industry Capability. She was Chief Executive of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) from 2009 to 2014. Prior to CSIRO, she was a Director at NM Rothschild and Sons (Australia) and was Vice President Technology and subsequently Vice President Health, Safety and Environment at BHP Billiton from 2003 to 2008.

She holds a BSc from the University of Western Australia and a PhD from Queen's University, Canada and is a Fellow of the Australian Academy of Technology and Engineering, a Fellow of the AusIMM and a Fellow of the Australian Institute of Company Directors. In 2014, she was appointed a Companion of the Order of Australia.

LUCA DEL MONTE

HEAD OF INDUSTRIAL POLICY AND SME DIVISION AT ESA | EUROPEAN SPACE AGENCY

Luca del Monte is a senior executive at the European Space Agency with strong background in international cooperation, governmental relations and advanced technologies. He is the Head of the Industrial Policy and SME Division focusing inter alia on the development of frameworks and mechanisms to foster the European space economy and the growth of a new generation of European space Entrepreneurs. He is also in charge of cybersecurity projects to protect ESA space missions.

Prior to joining ESA, he held several technical and managerial responsibilities with the Italian Space Agency, the European Patent Office (NL) and with Telespazio S.p.A.

Luca holds a master degree in Aerospace Engineering from University La Sapienza in Rome, he is a graduate of the French National Defence Procurement College, and of the HEC Montreal School of Management of Innovation. He is author of more than 30 peer-reviewed publications and Member of the International Astronautical Federation Committee on Space Security.

PROF ANDREW DEMPSTER

DIRECTOR, AUSTRALIAN CENTRE FOR SPACE ENGINEERING RESEARCH (ACSER) | UNSW

Professor Andrew Dempster is Director of the Australian Centre for Space Engineering Research (ACSER) in the School of Electrical Engineering and Telecommunications at the University of New South Wales (UNSW). He has a BE and MEngSc from UNSW and a PhD from the University of Cambridge in efficient circuits for signal processing arithmetic. He was system engineer and project manager for the first GPS receiver developed in Australia in the late 80s and has been involved in satellite navigation ever since. His current research interests are in satellite navigation receiver design and signal processing, areas where he has six patents, and new location technologies. He is leading the development of space engineering research at ACSER.

DR ALINA DONEA

SENIOR LECTURER IN ASTROPHYSICS AND APPLIED MATHEMATICS
| MONASH UNIVERSITY

Alina Donea is a Senior Lecturer in Astrophysics and Applied Mathematics at Monash University and PhD supervisor in Solar Physics and coordinator of a Machine Learning Data Application Group in Solar Physics (BSc and Diploma Physics Bucharest University, PhD Mathematics and Astronomy Romanian Academy and Max Planck, Graduate Certificate High Education Monash). She teaches Mathematical Modelling and Advanced Engineering Mathematics, as well as Astrophysics in the School of Mathematics.

Her research field is focused on helioseismology, acoustics of solar spots, magnetic fields, solar quakes and solar flares. Expert in Helioseismic Holography (a mathematical method which can tell you how loud is the Sun), Alina can detect solar quakes in satellite images from state-of-art instruments. Her recent interest is in modelling magnetic polarity distributions of solar activity from its helioseismic signatures and applying deep learning algorithms in the field of machine learning for solar imaging and space weather forecasting. She is the author of over 60 refereed publications.

She was Co-Investigator in a major NASA research proposal "Exploring the Physical Relationship Among Photospheric Magnetic Field Changes, Sunspot Motions, and Sunquakes During Solar Eruptions" and a member of NASA panels to review research proposals for the Solar and Heliospheric Physics Supporting Research and Technology Programs. She is a also a Member of International Astronomical Union, AstronomicalSociety of Australia, Australian Institute of Physics-Solar Terrestrial and Space Physics, Solar Physics Advisory Board, Associate Editor at the Frontiers Astronomy and Space Sciences and regularly engaged for joint research with institutes in Europe, the USA (Stanford University, High Altitude Observatory, North Western Research Associates in Colorado, New Jersey Institute of Technology).

PROF GRAHAM DURANT AM

DIRECTOR | QUESTACON, NATIONAL SCIENCE AND TECHNOLOGY CENTRE

Graham Durant is the Director of Questacon, Australia's National Science and Technology Centre. He is an experienced museum and science centre leader with a distinguished academic background. Originally trained as a geologist at the University of Wales, Graham spent 25 years at the University of Glasgow in a post at the University's Hunterian Museum and Art Gallery prior to arriving in Australia in 2003.

Graham is a member of the Australian Government's Senior Executive Service and as Director of Questacon, he serves as a Divisional Head in the Australian Government Department of Industry, Innovation and Science. From 2010 he has been leading the Inspiring Australia national science communication strategy.

In addition to his role as Director of Questacon, Graham is an Honorary Professor at the Centre for the Public Awareness of Science at the Australian National University. He has a demonstrable commitment to informal learning in science over many years and has presented many lectures, talks and science shows. He is frequently invited to speak at national and international science centre conferences.

He has served on several boards including the Board of Directors of the US-based Association of Science and Technology Centres (ASTC) 2005-2011 and the Australian Science Media Centre (2012-). He is currently Vice President of ASPAC, the Asia-Pacific network of science centres.

He is one of the principal advocates for the global cooperative work of the science centre sector examining ways that science educational activities can contribute to the fostering of understanding across geographical, economic, religious and political boundaries.

MARTIN DUURSMA

PARTNER | MAIN SEQUENCE VENTURES

Martin Duursma is a Partner at Main Sequence Ventures. Martin has over 25 years' experience as a Senior Executive, Technologist, Business Founder, Angel Investor and Mentor both in Australia and the US. Prior to joining Main Sequence Martin was a senior executive with a range of global responsibilities at Citrix.
Martin joined Citrix in 1997 when it acquired Datapac Australasia, a company which he co-founded. While at Citrix Martin started and built the company's research arm, Citrix Labs, started and led the CTO Council and CTO function and also started the Citrix Accelerator and led the investment in over 30 new companies. As VP and head of the Global Technology Office, Martin led due diligence in over 60 transactions totalling $2.5B in value.

Martin continues to be active as an angel investor as well as in various advisor and mentor roles at Macquarie University, Sydney University and ON, Australia's national science technology accelerator. Martin holds a Bachelor of Computer Science and a Bachelor of Electrical Engineering from Sydney University.

DR DOUG GRIFFIN

CHIEF ENGINEER
| UNSW CANBERRA SPACE

As Chief Engineer for the UNSW Canberra Space Group, my current professional responsibilities lie in the management of multi-disciplinary teams for the development of space missions and spacecraft systems. This role covers the entire scope of the development life-cycle; from the initial proposal, feasibility assessment and contract negotiation through to implementation and flight operations.

DR JASON HELD

CEO | SABER ASTRONAUTICS

Prior to founding Saber Astronautics, Jason was a US Army Major for US Space Command and deployed internationally in support of military missions. He was a lead instructor at the Interservice Space Fundamentals Course and an engineer at Army Space and Missile Command Battle Lab. He conducted flight software for the Wide Field Camera 3 of the Hubble Space Telescope and testing for the International Space Station. Dr Held lectured for the IRS Space Station Design Workshop, University of New South Wales, and International Space University. He led a research expedition in the high Canadian Arctic and co founded the Delta V SpaceHub, the University of Sydney space engineering laboratory, and a mentor for many space startups in the US and Australia.
The Australian government selected Dr Held for the "Expert Reference Group" to design the Space Agency. He also advises international think tanks Global Access Partners, NSI, and the Economist.

DR JAMES JOHNSON

CEO | GEOSCIENCE AUSTRALIA

Dr James Johnson has been the Chief Executive Officer of Geoscience Australia since April 2017. James is a geologist with over 30 years' experience, including private sector mining and mineral exploration. He has led teams of geoscientists for over 20 years with a range of diverse achievements. These range from discovery of over 2 million ounces of gold reserves in industry, to national scale pre-competitive geoscience programs that have attracted exploration investment to Australia.

He first joined Geoscience Australia in 2006 and in that time has been head of various divisions with diverse duties including carriage of energy and mineral programs. He has also been a member of the Board of the CO2CRC (CRC for Greenhouse Gas Technologies) since 2014 and the National Computational Infrastructure (NCI) at the Australian National University since 2017.

He has a Bachelor of Science majoring in Geology from the University of Sydney and a PhD from the Australian National University.

His vision for Geoscience Australia is one of unity in deploying geoscience for the economic, social and environmental benefit of Australians. He is driving a strong agenda of inclusiveness, particularly new programs to engage with aboriginal Australia.

DR GRAEME KERNICH

CEO | FRONTIER SI

Dr Graeme Kernich is CEO for FrontierSI, a not-for-profit company that delivers major benefits to governments, industry, academia and the community in Australia and New Zealand. It aims to be the spatial organisation of choice to lead, formulate, broker and deliver collaborative solutions with government, industry and universities. It has strong expertise in positioning, earth observation, data infrastructures, analytics, geodesy and standards. FrontierSI brings an unparalleled capability to form and manage collaborative teams comprising the very best researchers, institutions, government agencies and companies to deliver major outcomes quickly and effectively. It recently signed a strategic Statement of Strategic Intent and Cooperation with the Australian Space Agency and is a core partner in the SmartSat Cooperative Research Centre.

Graeme previously served as CEO and Deputy CEO for the Cooperative Research Centre for Spatial Information, where he was responsible for operations, including finance, compliance, legals, corporate governance, business development and commercialization. His prior experience includes technology transfer, including negotiation of commercial agreements, commercial and route-to-market strategies, intellectual property management, licencing and project planning. In his current and previous roles he facilitated the creation and development of companies in a range of sectors including IT, biotechnology, mining, agriculture and energy. Graeme has formal qualifications in Business Administration, Governance and Leadership, and a PhD in Agricultural Science.

ISABELLE KINGSLEY

PHD CANDIDATE, AUSTRALIAN CENTRE FOR ASTROBIOLOGY | UNIVERSITY OF NSW

Isabelle Kingsley is a professional science communicator, educator and researcher. She started her career as a high school science teacher but later switched gears to work as a science communicator and educator on multiple large-scale outreach projects at various museums in Canada and Australia, including the Powerhouse Museum in Sydney.

Most recently, she was co-founder and director of the Sydney Science Festival. Isabelle is currently completing a PhD at the University of New South Wales, researching the impacts of science communication and outreach on public understanding and perceptions of science.

PROF JOHN LE MARSHALL

PRINCIPAL RESEARCH SCIENTIST | BUREAU OF METEOROLOGY

In 2003 Professor John Le Marshall became the first Director of the NASA, NOAA and DoD Joint Center for Satellite Data Assimilation (JCSDA) at the World Weather Building in Camp Springs, Maryland. The Center is responsible for accelerating the operational implementation of satellite data assimilation systems into NOAA, the National Weather Service, NASA and the DoD, to allow exploitation of current and next generation satellites.

For his work on the assimilation of ultraspectral satellite data at the JCSDA, he was awarded in 2006 NASA's "Exceptional Scientific Achievement Medal", NASA's highest scientific award.

He returned to the Australian Bureau of Meteorology in 2007 where he works as a Senior Principal Research Scientist on planning for and implementation of advanced satellite systems and in the remote sensing research area.

He is a Fellow of the American Meteorological Society and a Fellow of the Australian Meteorological and Oceanographic Society.

DARIN LOVETT

MANAGER, SYSTEMS ANALYSIS LABORATORY, PHANTOM WORKS - INTERNATIONAL | BOEING AUSTRALIA, NEW ZEALAND AND SOUTH PACIFIC

Darin Lovett is the Manager of the Systems Analysis Laboratory (SAL) within Phantom Works International / Boeing Defence Australia – home to the region's most sophisticated experimentation and analysis facility for modelling and simulation. As one of Boeing's space thought leaders, he relishes the chance to educate on the future of this important domain whenever possible.

He has more than 25-years-experience in strategy and capability development for the Air and Space domains. His diverse background includes university lecturer, space operations and policy, flight test and evaluation, flying anti-submarine and surveillance operations, coalition partnering, and large-scale transformation projects.

His 'space credentials' include: graduate of the International Space University, staff officer in Australia's joint Defence Space Coordinating Office, four years on staff to the US Executive Agent for Space within the Pentagon (coordinating a whole of government approach to the US space industrial base), and most recently, Chief Australian Space Operations Centre within HQ Joint Operations Command.

Darin has Master's degrees in Philosophy, Science, and Arts; and a Bachelor of Engineering.

Some of his published work is available at: https://www.aspistrategist.org.au/adf-space-operations-re-focusing-military-lens/

http://airpower.airforce.gov.au/Publications/SAASS-Paper-No-4-Space-Power-for-Australia-s-Secur

PROF CAROLINE MCMILLEN

CHIEF SCIENTIST FOR SOUTH AUSTRALIA

Professor Caroline McMillen commenced in the role as Chief Scientist for South Australia in October 2018 after serving as Vice-Chancellor of the University of Newcastle from 2011.

She is a Fellow of the Australian Academy of Health and Medical Sciences, a Fellow of the Royal Society of New South Wales and a Bragg Member of the Royal Institution, Australia. She holds a BA(Honours) and Doctor of Philosophy from the University of Oxford, and completed her medical training graduating from the University of Cambridge. Professor McMillen's research on how the environment in early development determines adult health has attracted national and international recognition. She has served on a range of industry boards including the National Automotive Industry Innovation Council, CRC for Advanced Automotive Technology, CRC for Rail Innovation as well as a range of national and state research, industry and government leadership groups. She is committed to building collaborations between research, government and industry to deliver economic, environmental and social impact. Professor McMillen was honoured at the end of her term as Vice-Chancellor to be presented with the Keys to the City of Newcastle in recognition of her leadership contribution to Newcastle and the region.

EMERITUS PROF FRED MENK

CHAIR | NATIONAL COMMITTEE FOR SPACE & RADIO SCIENCE

Fred Menk is Emeritus Professor of space physics at the University of Newcastle and chair of the Academy of Science National Committee for Space and Radio Science. His research interests focus on the physics of near-Earth space, related instrumentation, and improving radiation treatment of cancers. He has served in a range of academic and international re-search leadership roles, authored over 150 peer-reviewed publications in space science and medical physics and mentored over 30 PhD students. He is joint recipient of two Engineers Australia excellence awards and project managed development of the NewMag payload on the FedSat spacecraft. He served as Education Program manager in the Cooperative Research Centre for Satellite Systems and has convened numerous international symposia and national outreach events.

PROF ANNA MOORE

DIRECTOR | INSPACE

Professor Anna Moore is a major force driving Australia's strategic direction and R&D agenda to grow our space capabilities and industry. As Director of InSpace, she sets the vision and strategy for space-related activities at the Australian National University, including satellite and space mission design, manufacture and testing, space-ground communications, Earth observations, space situational awareness, and space medicine, law and commerce. She also directs the Advanced Instrumentation and Technology Centre at Mount Stromlo Observatory.

Following a distinguished research career at Caltech and other astronomy institutes around the world Professor Moore joined ANU in 2017. She served on the Australian Government's space expert reference group to form the Australian Space Agency. As a consultant, her expertise has also been valued by NASA, the US National Science Foundation and the Scientific Committee on Antarctic Research. Professor Moore's special interests are in astronomical instrumentation, Antarctic astronomy and transient infrared astronomy.

MR PETER NIKOLOFF

DIRECTOR/SENIOR WEAPONS SYSTEM ENGINEER | NOVA SYSTEMS

Pete Nikoloff is an Executive Director and Co-founder of Nova Systems and Senior Weapons System Engineer. He obtained an Aeronautical Engineer degree from RMIT in 1986 and has 30 years' experience supporting and conducting test and evaluation of defence and space systems.

Prior to starting Nova, Pete worked as a Flight Test Engineer at the RAAF's Aircraft Research and Development Unit (ARDU) in the role of Senior F/A-18 Hornet Test Engineer. Pete served at ARDU for over ten years and has vast experience over a range of aircraft and associated systems including extensive experience with the Woomera Test Range. Pete's F/A-18 experience includes calibration and flight loads collection for the F/A-18 IFOSTP Fatigue Test Program, Operational Flight Program Testing, ASRAAM Integration and Stores Clearance Testing (including Flutter and HERO testing), Flight Test Instrumentation Upgrades (Aircraft and ground systems).

Pete's T&E experience has been diverse, including F/A-18, C-130J, Seahawk, Air Warfare Destroyer, JAXA Experimental Supersonic Transport, Woomera Range Control System Upgrade, ASRAAM and C-Band Space Surveillance Radar.

(continued over page)

MR PETER NIKOLOFF (CONTINUED)

Pete actively supports the aerospace sector:

- Director, Space Industry Association of Australia (SIAA)
- South Australian Government Space Advisory Council Member
- Industry member of the SmartSat CRC Bid executive
- President – Southern Cross Chapter International Test and Evaluation Association (ITEA)
- Board of Directors - International Test and Evaluation Association (ITEA)
- Member – Royal Aeronautical Society
- Member – Flight Test Society of Australia
- Member – Mars Society of Australia (MSA)
- Fellow/EngExec Engineers Australia

DR MURRAY PARKINSON

NATIONAL MANAGER, SPACE WEATHER SERVICES | BUREAU OF METEOROLOGY

Murray Parkinson is the National Manager of the Space Weather Services section of the Australian Bureau of Meteorology. His role is an administration-management-people role requiring a strong background in the hard sciences. He oversees a team of space weather scientists whose duties include staffing the Australian Space Forecast Centre, preparing consultancy reports for high-end customers, and completing applied research projects aiming to be better predict the impacts of space weather on technology. Prior to joining Space Weather Services, Murray worked as an ARC-funded Research Associate in Space Physics at La Trobe University. His research interests included the use of digital ionosondes and SuperDARN radars to study magnetosphere-ionosphere coupling. He has published over 50 papers in scientific journals and presented at numerous conferences. He has an MSc degree in applied astrophysics and a PhD in radar oceanography from the University of Queensland.

DR SARAH PEARCE

DEPUTY DIRECTOR, CSIRO ASTRONOMY AND SPACE SCIENCE | CSIRO

Dr Sarah Pearce is Deputy Director of CSIRO Astronomy and Space Science and leads CSIRO's Space Research Program. This includes overseeing a recent investment of $16m in space technologies research. Sarah also has responsibility for CSIRO's role in the international Square Kilometre Array (SKA) project, which will build the next generation of radio telescopes. In this role, she was science advisor on Australia's negotiating team for the recently signed SKA Treaty.

Prior to joining CSIRO, Sarah was project manager of the UK's computing for particle physics program and a science advisor in the UK Parliament. She holds a PhD from the University of Leicester and an undergraduate degree in Physics from the University of Oxford.

RICHARD PRICE

CHIEF EXECUTIVE | SOUTH AUSTRALIAN SPACE INDUSTRY CENTRE

Richard Price was appointed Defence SA Chief Executive in October 2017, after joining as Executive Director Defence and industry in July 2016. Upon his appointment as Chief Executive, he was simultaneously appointed to the position of Chief Executive of the South Australian Space Industry Centre (SASIC).

Richard is committed to the development of a sustainable and globally competitive defence and space industry.

Richard has worked within the defence and public safety sectors for over 25 years and has international industry experience in leadership, business development and engineering.

Prior to joining Defence SA and the South Australian Space Industry Centre, Richard led a Stockholm based business unit for Saab AB with operations in Sweden, Denmark, Australia, South Africa and the UK. The focus was the global market for communication and control room solutions.

Before moving to Sweden in 2013, Richard was Managing Director of Saab's Australian operations.

Richard is an engineering graduate of the University of Wales (BSc Hons, 1985) and a graduate of the Melbourne Business School Advanced Management Program (2006) and the Australian Institute of Company Directors (2010).

PROF ANATOLY ROZENFELD

FOUNDER AND DIRECTOR OF CENTRE FOR MEDICAL RADIATION PHYSICS (CMRP) | UNIVERSITY OF WOLLONGONG

Distinguished Professor Anatoly Rozenfeld is a Founder and Director of Centre for Medical Radiation Physics (CMRP) at University of Wollongong which is largest education and research multidisciplinary medical radiation physics centre in Asia-Pacific with 18 academics and research only staff and more than 70 postgraduate students.

His scientific interest and expertise is in a field of radiation semiconductor detectors development and their applications for advanced medical radiation dosimetry and space radiation. Many radiation detectors developed at CMRP under his leadership were successfully implemented in practice of radiation oncology in Australia and overseas to improve confidence in cancer treatment with radiation.

Anatoly is a Chair of International Solid State Dosimetry Organization (ISSDO) and Member of IEEE Radiation Instrumentation Steering Committee and served as a General Chair of IEEE NSS MIC 2018. He has initiated particle therapy research in Australia and is a Member of National Particle Therapy Treatment and Research Centre Steering Committee. He has published more than 350 peer review papers and hold 18 patents in a field of radiation detectors including for space application.

He graduated with MSc(Dist) and PhD from Leningrad Polytechnic Institute (Russia) and Institute for Nuclear Research (Ukraine) respectively.

NICOLA SASANELLI AM

DIRECTOR | SASIC
DIRECTOR | COMMUNICATIONS & OUTREACH SMARTSAT CRC

Nicola Sasanelli joined SmartSat CRC in July 2019 as Director: Communications & Outreach. In 2016 Nicola joined Defence SA as Director of the Space Industry and R&D Collaborations project.

In September 2017 the South Australian Space Industry Centre was created, with Nicola as Director. His focus was to support space industry growth and increase international R&D collaborations in South Australia's space sector.

In 2018 Nicola was appointed Adjunct Professor at the University of South Australia - Division of Information Technology, Engineering and the Environment and he was appointed on the board of the Space Industry Association of Australia (SIAA).

Nicola graduated from the University of Bari, Italy in 1987 with a degree in Electronic Engineering. He went on to work as a researcher in microelectronics high-reliability components at Tecnopolis S&T Park, Bari before being appointed as Scientific Attaché at the Embassy of Italy in Canberra from 2001 to 2008.

In 2009, Nicola joined the South Australian Government as a Special Envoy for higher education research and technology transfer to Europe with the Department of Premier and Cabinet and later joined the Department of State Development as Director for International R&D Collaborations.

From 2003 to 2013 he was appointed as Adjunct Professor of Science and Technology at the University of Canberra, Australia, and in 2007 he became an Honorary Member of the Order of Australia.

Nicola's main passion, outside of his interest in space, is painting.

ANDREW SEEDHOUSE

CHIEF OF INTELLIGENCE, SURVEILLANCE AND SPACE DIVISION (CISSD) | DEFENCE SCIENCE AND TECHNOLOGY (DST)

Mr Andrew Seedhouse is Chief of the Intelligence, Surveillance and Space Division (ISSD) which is part of the Defence Science Technology Group (DST). ISSD undertakes internationally-recognised research and development into technologies aimed at enhancing the national capability to produce accurate, relevant and timely intelligence for both Defence and national security agency decision makers.

Andrew joined DST in 2017 after a long and distinguished career at the Defence Science and Technology Laboratory (DSTL) in the United Kingdom.

At DSTL Mr Seedhouse held a number of positions, including Innovation Lead and Head of the Centre for Defence Enterprise. As Innovation Lead, Andrew was responsible for planning DSTL'S defence and security innovation activities and championing innovation development. He worked with Ministry of Defence Headquarter to develop a new innovation environment, helping to deliver the objectives of the government's strategic Defence and Security Review.

From 2015 to 2016, Andrew was DSTL'S Chief Technology Officer. In this role, he championed S&T in Defence and supported the development of S&T capability to meet the future demands.

Prior to this, he spent 18 years providing leadership to three DSTL departments setting S&T strategy, developing investment plans, engaging with industrial, academia and international agencies.

He has 28 years' experience in Intelligence Surveillance Targeting and Reconnaissance (ISTAR) and is the Executive Chair of The Technology Cooperation Programme (TTCP) ISTAR Group, leading the ISTAR programmes on behalf of the United States, Canada, New Zealand, UK and Australia.

DR KOUKOU SUU

EXECUTIVE OFFICER AND SENIOR FELLOW | ULVAC INC.

Joined ULVAC in 1993 and has since been leading and engaging with development of numerous semiconductor and electronics technologies including emerging non-volatile memories, high-K capacitors, LED, power devices, thinfilm Li-battery as well as 3D packaging manufacturing technologies. He was General Manager of Institute of Semiconductor and Electronics Technologies of the company from 2008 to 2014, and Senior Fellow and General Manager of Global Market & Technology Strategy Division of the company from 2014 to 2019. Now he is President/CEO of ULVAC Technologies Inc and Executive Officer and Senior Fellow of ULVAC Inc.

AUDE VIGNELLES

EXECUTIVE DIRECTOR, PROGRAM AND CAPABILITY | AUSTRALIAN SPACE AGENCY

Aude Vignelles is the Executive Director, Program and Capability, of the Australian Space Agency. As part of the senior executive team, Aude leads and is responsible for maintaining awareness of the state of the art for the Australian space industry, supporting strategic priority setting and delivering on domestic and international activities. Prior to this role, Aude was the Executive National Manager, Satellite & Fixed Wireless Operations at nbn. Previously, Aude held senior and executive roles within Foxtel, Austar, Telstra, and Technicolor.

Aude is a space and aeronautics engineer (graduating from ENSICA, Toulouse) who started her career at the European Space Agency in the Netherlands. Her 25 years of experience in delivering large and complex programs embrace the introduction of new technology in the telecommunication, space and media industries. Aude has been living in Australia for the past 18 years and has contributed to the Australian space capability through White Papers, events at conferences with the growing start up community in Australia, and promotion for Women in Space and Engineering at universities.

SHAUN WILSON CSEP

FOUNDER AND HEAD OF BUSINESS DEVELOPMENT | SHOAL GROUP

Shaun Wilson is the founder of systems engineering house, Shoal, a firm which focuses on conceptual design of large, complex defence and transportation systems. During his career, Shaun has led a range of technology initiatives including development of the first in-service Unmanned Aerial System (UAS) for the Australian Army, early development of broadband communications capability for Antarctica using small satellites, and practical implementation of model-based design approaches for large, complex military systems (since used for major defence programs). Shaun led the 'spin out' from Shoal of QxBranch (www.qxbranch.com), an international quantum computing and data analytics firm that services finance, insurance, aerospace, and security customers worldwide, and the cyber-risk insurance firm Envelop (www.enveloprisk.com) in London. Shaun is an INCOSE Certified Systems Engineering Professional, an expert complex systems design and in aerospace modelling and simulation and is also the company Head of Business Development.

BRAD YELLAND

CHIEF TECHNOLOGY OFFICER | BAE SYSTEMS AUSTRALIA

Brad Yelland has over 35 years of experience as an engineer, strategist and manager in the Defence Industry.

After graduating from RMIT with an Aeronautical Engineering degree, he began his career at BAE Systems Australia as a member of the original Nulka design team.

Brad spent 12 years in various roles on the Nulka program (which became one of Australia's most successful defence exports), and then was an Engineering Manager for the Australian element of the original ESSM Development.

Brad also has extensive experience in Autonomous Systems and spent over 4 years as Head of Strategy. Brad spent over 3 years in the UK as BAE Systems Head of UAV Capability, Global Head of Systems Engineering, and was the Global and UK Head of Engineering.

EXHIBITOR PROFILES

ADVANCED TECHNOLOGY PROGRAM

DLB.SA.EDU.AU/ATMOODLE

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Australian Government
Department of Defence

Government of South Australia

ATP ADVANCED TECHNOLOGY PROGRAM

The Advanced Technology Program (ATP) is part of the Defence Industry skilling and STEM Strategy School Pathways Program. Our aim is to help reduce skills shortages in defence industry by increasing the pool of STEM educated students and informing Australia's youth about employment opportunities and pathways into defence industry and increase student awareness of defence industry as an employer of choice. We provide secondary students with positive career experiences in defence (and allied) industries to support their awareness of and access to pathways into the defence industry sector. ATP also provides student activities and teacher professional development opportunities to enhance STEM capability, education and enterprise skills as well as enhancing student engagement, participation and enrolment in STEM subjects. We aim to increase focus on indigenous and female participation within all our activities, opportunities and events and are thrilled at the current and future opportunities for Space Industry careers in South Australia for our students.

AIRBUS

AIRBUS.COM

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AIRBUS

Airbus is a global leader in aeronautics, space and related services. In 2018 it generated revenues of € 64 billion and employed a workforce of around 134,000. Airbus offers the most comprehensive range of passenger airliners. Airbus is also a European leader providing tanker, combat, transport and mission aircraft, as well as one of the world's leading space companies. In helicopters, Airbus provides the most efficient civil and military rotorcraft solutions worldwide.

ARC TRAINING CENTRE CUAVA

CUAVA.COM.AU

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Our economy, security, and society increasingly rely on access to space for vital data and services. However, Australia needs a skilled workforce to grow the local Space Industry and capitalise on global opportunities.

CubeSats are a new class of small satellites, which with Uncrewed Aerial Vehicles (UAVs) are disrupting the international satellite market. These have great commercial value, and have very low costs, making space more accessible than ever before.

The Centre aims to train and create an Australian workforce in sustainable, advanced manufacturing, space and UAV industries of national importance.

We aim to fundamentally change the capabilities and applications of CubeSats, UAVs, and their instruments (plus those for larger satellites) for Earth observations, GPS, satellite communications, and space weather purposes; and progress these devices to create a major commercial value with wide applications across these and other areas.

AUSTRALIAN SPACE AGENCY

SPACE.GOV.AU

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T 02 6276 1166

Australian Government | Australian Space Agency

EVENT SUPPORTER

The Australian Space Agency is responsible for whole-of-government coordination of civil space matters. The Agency will transform and grow a globally respected space industry, and to reach and inspire all Australians through seven National Civil Space Priorities - Position, navigation and timing; Earth observation; Communication technologies services, Leapfrog R&D, Space situational awareness, Robotics and automation, and Access to space.

Through the Agency, Australia aims to significantly grow its market segment from 10,000 jobs and a market size of $3.9 billion to 30,000 jobs and $12 billion by 2030.

AVALON 2021

AIRSHOW.COM.AU

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AEROSPACE AUSTRALIA LIMITED

PLATINUM SPONSOR

Avalon 2021, the Australian International Airshow and Aerospace & Defence Exposition, will celebrate the centenary of the RAAF along with man's achievements and ambitions in Space.

The organiser, Australian Aerospace Limited, will also host with the Space Industry Association of Australia Limited (SIAA) the 2nd Australian Space Industry Conference.

Avalon 2021 will be held at Avalon Airport, Melbourne, on 23-28 February 2021. Avalon has become one of the most important aviation, space, aerospace and defence industry expositions in the Indo-Asia-Pacific region. It is an international showcase and networking platform for Australian industry to present its capabilities and seek out partners, peers and potential customers from among the world's leading aerospace and defence companies.

The conference program supporting Avalon 2021 is one of the most comprehensive of any airshow in the world. It provides an unrivalled environment for networking and knowledge sharing by industry and technical experts from across the globe.

AXIOM PRECISION MANUFACTURING

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AXIOM PRECISION MANUFACTURING

Axiom Precision Manufacturing is a family owned 40 year old Australian Precision Manufacturing company that services in Defence, Aerospace, Space and the Medical Devices industries.
Axiom specialises in design and precision manufacture of components, assemblies and sub-assemblies for mechanical and electronic programs.

BENTLEYS R&D (SA) PTY LTD

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The R&D Tax Incentive is a Government program that rewards Australian businesses that invest in innovation. It is the largest source of government funding currently available.

If you are looking to grow your business and actively invest in its future through developing new or improved products, systems, processes, devices or services, then you may be eligible for the R&D Tax Incentive.

From our offices in Adelaide, South Australia, the Bentleys Research & Development Advisory practice supports a national network of independent professional firms to advise on the R&D Tax Incentive for both Australian and overseas based organisations. Our advice for international companies considering entering the Australian market not only includes the R&D Tax Incentive, but also Federal and State tax legislation, Compliance Requirements, Eligible R&D expenditure, Debt/Equity Structuring, Thin Capitalisation, Transfer Pricing, Tax effective repatriation of profits, Withholding Tax, Foreign Exchange Rules and Company Incorporation.

BOEING

BOEING.COM.AU

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GOLD SPONSOR

Boeing has a long history of space-related projects in Australia. The company's defence programs include the Boeing-built Wideband Global SATCOM (WGS) and IS-22 satellites used by the Australian Defence Force and the Currawong Battlespace Communications System, which includes Australian-developed satellite terminals for accessing the WGS network. Boeing Australia is also developing innovative approaches to astronaut training, spacecraft design and crew health that will be transitioned to the United States. Our research partnerships span CSIRO, the Air Force Research Laboratory, Defence Science and Technology Group, University of Queensland and Adelaide-based Myriota to help develop technology that will build new jobs for Australia's future.

Boeing's goal is to be a leader in Australia's space industry just as it is globally. To achieve this, Boeing Australia will continue to make strategic R&D investments to support the Australian Space Agency to grow Australia's space industry and the ADF to expand its space-based and space-enabled capabilities.

CAPGEMINI

CAPGEMINI.COM.AU

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A global leader in consulting, technology services and digital transformation, the Capgemini Group is at the forefront of innovation to address the entire breadth of clients' opportunities in the evolving world of cloud, digital and platforms. Building on its strong 50-year heritage and deep industry-specific expertise, Capgemini enables organisations to realise their business ambitions through an array of services from strategy to operations. Capgemini is driven by the conviction that the business value of technology comes from and through people. It is a multicultural company of over 200,000 team members in more than 40 countries. The Group reported 2018 global revenues of EUR 13.2 billion.

COMMITTEE ON SPACE RESEARCH COSPAR 2020

COSPAR2020.ORG

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43rd COSPAR Scientific Assembly
15-22 August 2020
International Convention Centre
Sydney Australia
Connecting space research for global impact
www.cospar2020.org

The Australian space research community enthusiastically extends the invitation to you, to meet with us for COSPAR 2020.

August 2020 is the opportunity for space researchers, engineers and thinkers from across the world to gather alongside Sydney Harbour for COSPAR 2020.

The 2020 Assembly will combine the latest in space research findings with activities designed to enrich the global space research community - including helping equip our future leaders and workshopping with space industry - and inspire the next generation of scientists and engineers. You will have the opportunity of a lifetime to interact directly with everything that Australia has to offer – our science and innovation, our people, our heritage and our beautiful environment.

If it's about Space, it will be at COSPAR 2020. Join us from 15th – 22nd August 2020, in Sydney, Australia – we promise you it will be worth it.

CSIRO

CSIRO.AU

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T 1300 363 400

NETWORKING HOUR SPONSOR

A national organisation with a global outlook, we have a long and accomplished history in the space sector.

Let's work together to help you achieve your goals. We are recognised globally as an expert in Earth observation from space, particularly in data modelling, analytics and applications. Our goal is to provide technical support to the Australian space sector and help streamline research and the operation of projects through advances in remote sensing technologies.

Our investment in high-performance computing infrastructure and expertise in handling big data allows us to develop insights and solutions to tackle Australia's biggest challenges and opportunities.

We work with NASA and other international space agencies at the forefront of exploring our Solar System and space object tracking. We're also a world leader in radio astronomy, advanced manufacturing technologies, and managing complex facilities.

Whatever your challenge, we're here to help secure your innovation footprint in the space economy.

CYBEROPS

CYBEROPS.COM.AU

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T 0408 169 441

CyberOps is a boutique cyber security company that develops products and provides consultancy services in a variety of areas: Defence, Space, Government and Manufacturing.

We understand and cater for the differing needs of operational and IT groups within organisations, as well as tailoring deliverables to meet the needs and budgets of small but growing businesses.

We ourselves are a growing company, building our own space products, and understand the need to provide security solutions that limit the impact on growth and flexibility.

CyberOps offers a wide range of services including, "Defence Readiness" assistance, security and governance, assessment and implementation oversight, systems and security architecture development., technical communications and RF security assessments and specialised training services.

DEWC SYSTEMS PTY LTD

DEWC.COM

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DEWC Systems is a wholly South Australian owned and operated technology company focused on developing innovative, state of the art systems and subsystems for Defence and Space applications. DEWC systems partners with academia and Defence Science Technology Group (DSTG) to conduct research and development of technologies related to Electronic Warfare, Space Situational Awareness, Micro satellite subsystems, Space antennas, Miniaturised sensors and communication protocols.

DEWC Systems is part of the DEWC family of companies dedicated to providing Australia with the technological superiority to ensure dominance of the electromagnetic battlespace.

DEWC engineers, technicians and researches are all highly experienced professionals with backgrounds in all areas of Defence and across the engineering disciplines. DEWC Systems operates out of the DEWC HQ at Innovation House in Mawson Lakes and at our production and lab facility in Salisbury South.

FIXE FUTURE INDUSTRIES EXCHANGE FOR ENTREPRENEURSHIP

FIXE.ORG.AU

E osace@sa.gov.au
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EXHIBITION LOUNGE SPONSOR

FIXE is the state's brand and strategy for entrepreneurship in South Australia.

The vision is to create the right culture, improve the capability and mobilise the capital required to make South Australia a global leader in entrepreneurship.

It supports and facilitates high-quality education, skills and training programs to enhance entrepreneurial capability and equips people with the tools, mechanisms and resources to start and grow successful businesses.

The strategic objectives are to inspire, equip, enable and celebrate entrepreneurship.

FIXE is a showcase of people, businesses and ideas.

FRAZER-NASH CONSULTANCY LTD

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Frazer-Nash is a leading systems and engineering technology company renowned for our work in the defence, transport, energy, resources, government and industry sectors.

Whether you're a start-up or an established entity we can help you navigate the dynamic emerging space sector.

The breadth of our expertise and applied insight comes from detailed knowledge of a broad range of disciplines and their application across different markets to deliver successful outcomes.

Our experienced and knowledgeable space practitioners provide independent technical, safety and organisational advice that value adds to your enterprise.

Our Systems Approach helps us respond to your challenges. We work with you to understand the issues that surround your technical needs. We use this understanding to deliver demonstrable business and technical value. The depth of our knowledge -base means we can transfer skills, experience and best practice from one area to benefit our clients in other fields.

Achieve Mission Success.

GRAVITY CHALLENGE

GRAVITYCHALLENGE.SPACE

E innovation@deloitte.com.au

The Australian space industry is building momentum both nationally and globally. Deloitte and Amazon Web Services (AWS) are collaborating on the GRAVITY Challenge - that will see entrepreneurs, universities, government and businesses across a variety of important industries, join forces to solve real-world problems using space data.

Industries like defence, mining, insurance, telecommunications, transportation and agriculture are facing increasingly difficult problems but a lot of companies don't know that space data and solutions can be applied to almost any sector.

We're looking for Australian private and public organisations in key sectors of our economy, who have compelling business problems where space data could assist in providing a solution, to get involved and submit a challenge.

Additionally, we need teams to design and build solutions to real industrial, social and environmental problems where space data and data from our challenge providers could assist in providing an answer.

HAMILTON SECONDARY COLLEGE

HAMCOLL.SA.EDU.AU

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Hamilton Secondary College is a STEM school with a focus on space education. With a hands-on practice in the space domain, students experience a virtual launch from Earth in the Mars Explorer space ship, travel to Mars, soft land, then simulate a surface walk in space suits on the red planet.

Students work in teams to resolve replicated challenges encountered when acting as mission control scientists on Earth and Mars astronauts exploring the various scenarios involved. Surface samples collected by astronauts are examined in the space lab by teams of physicists, engineers, geologists and chemists.

The Hamilton Space Program is reinventing the classroom experience via curriculum written for every area with a specialist space emphasis such to create engaging, hands-on classroom environments which empower students to develop in-demand knowledge and skills they need to thrive into their futures.

The Hamilton Space Program is supported by industry and university partners who share the vision to be global leaders in school space education. The University of SA SmartSat Cooperative Research Centre is partnering with Hamilton students to assist space scientists in tackling the United Nation's Sustainable Development Goals.

INSPACE

INSPACE.ANU.ADU.AU

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SILVER SPONSOR

The ANU Institute for Space - InSpace, focuses all of the University's space expertise, capabilities and relationships to be a game changer and leader in the national space industry.

It is a 'front-door' for external players such as industry and Government to the University's space related capabilities and initiatives.

InSpace brings together experts from various disciplines to establish the flagship programs for the future: e.g. Laser Communications, Earth Observation, Space Law, Space Medicine.

The Institute will enable growth in space research and innovation by financially seeding and developing high impact, high return programs through an environment that is collaborative, creative and entrepreneurial.

InSpace will contribute significantly to the growth of the Australian space industry, and enhance its impact globally. The Institute will enable national and international collaboration by forming and growing relationships with industry and other research organisations.

JOHN MORRIS GROUP

JONHMORRISGROUP.COM

Contact: Gino Puccini
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T 08 8132 5105

John Morris Group is the largest and only third generation privately owned scientific and testing instrumentation supplier in Australia. Established in 1956, we specialise in the supply, installation and servicing of precision instruments covering diverse industry sectors through the South West Pacific Region.

Our core customers are engaged in Science and Engineering, and we offer a variety of technical solutions for the Space Industry.

Our Test & Measurement Division covers solutions to test materials, structures and assets, also sensors for force, load, shock, strain, pressure, torque, acceleration and vibration. Supplied from global brands including: MTS Systems, PCB Piezotronics, The Modal Shop, Crystal Instruments and more…

Our Vacuum Division covers solution including vacuum pumps, vacuum systems and chambers, (climate chambers), components, vacuum measurement, flow control, gas analysis, leak detection, thin film systems, gloveboxes, plasma technology. Supplied from global leading brands including: Leybold, Vacuubrand, MKS Instruments, Ebara, Vigor and more…

LOT FOURTEEN

LOTFOURTEEN.COM.AU

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Lot Fourteen is Adelaide's ideas neighbourhood, designed to inspire ideas and change the game for South Australian's across entrepreneurship, innovation and culture.

It will be the home of the Australian Space Agency, Mission Control Centre and the Questacon partnered Space Discovery Centre, who will join industry residents Myriota, Inovor Technologies and Neumann Space.

It is a neighbourhood all about nurturing talent and driving jobs in some of the world's fastest growing industries like defence and space, artificial intelligence, cybersecurity and creative industries and when fully established will provide 650 spaces for startup entrepreneurs, facilitate space for 1,000 students and researchers to solve tomorrow's problems, accommodate 6,000 people working across industries of the future, and host more than 350,000 visitors each year.

EXHIBITION LOUNGE SPONSOR

MYRIOTA

MYRIOTA.COM

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Myriota is the global leader in low-cost, low-power, secure direct-to-orbit satellite connectivity for the Internet of Things. Leveraging years of customer focused R&D and an extensive suite of patented innovations, Myriota has pioneered a new way to retrieve data from anywhere on earth, either on land or at sea. Myriota, Everywhere.

NANO VACUUM

NANOVACTECH.COM

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T 0468 333 815

Nano Vacuum offer turnkey solutions for the Australian & New Zealand Space, Aerospace & Defence industry including:

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- Maskless lithography systems. With over 20 years experience we have the knowledge and references to help you succeed with your next project.

Please feel free to contact Nano Vacuum at **info@nanovactech.com** or visit our website: **www.nanovactech.com**

NEUMANN SPACE

NEUMANNSPACE.COM

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T 0406 801 550

Neumann Space is a South Australian company developing an efficient and scalable in-space electric propulsion system for satellites. The Neumann Space thruster marks a revolution in the field of satellite propulsion.

Our lightweight products use our patented Centre-Triggered Pulsed Cathodic Arc Thruster (CT-PCAT) technology to convert solid conductive propellants into plasma and produce thrust.

Our product range creates value for our customers in all space operations and travel. For example, our thruster can fulfil all requirements for Low Earth Orbit (LEO) mission profiles such as extending mission lifetimes, station keeping, orbit raising, constellation phasing, inclination changes, de-orbiting and more.

Neumann Space is the only Australian company able to provide a sovereign in-space electric propulsion system capability.

With Neumann Space, Australia will be poised to take advantage of the rapidly growing global CubeSat market.

NOVA SYSTEMS

NOVASYSTEMS.COM

Contact: Rick Bailey
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T 08 8252 7100

Nova Systems

SILVER SPONSOR

Nova Systems is an Australian owned and operated Global Professional Service Provider, specialising in the provision of technology enabling solutions and world class expertise to deliver complex capabilities and systems and solve technologically challenging problems.

Nova Systems has a strategic interest in solving problems of national interest through enabling satellite communications, next generation ground stations, space situational technologies and space launch.

Committed to enhancing the capability and competitiveness of the Australian space sector, Nova Systems signed a Statement of Strategic Intent with the Australian Space Agency in 2018.

In-depth specialist space segment knowledge and experience in the acquisition, introduction into service, and certification of large, space-based capabilities, uniquely equips Nova Systems to provide training, certification, systems safety and engineering support to the nation's space sector in the strategic areas of communications, operations and ground segment, and space situational awareness.

We solve the problems that really matter.

SABER ASTRONAUTICS

SABERASTRO.COM

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SABER ASTRONAUTICS

Saber Astronautics produces modern space mission control software, using machine learning and gaming graphics to greatly reduce the challenge of operating spacecraft, as well as creating dedicated machine learning models and space analytics tools. Saber's flight software, analytics services and operations centres service companies and defence in both the USA and Australia. Our customers include Fortune 500 companies, NewSpace, military, and government satellite owners. We specialise in large constellations and fleet control (100+ satellite) and machine learning applications for space, space weather and situational awareness.

Saber's founders have world class flight heritage which includes large commercial spaceflight as well as microsatellites and CubeSats. Our operations experts include senior instructors from the US military space school and seasoned operators from USSTRATCOM. Saber currently has offices in Sydney, Australia and both Boulder and Colorado Springs, Colorado.

SCITEK AUSTRALIA PTY LTD

SCITEK.COM.AU

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E kelvin@scitek.com.au
T 02 9420 0477 / 0437 676 491

scitek technologies for science

As a vacuum technology and temperature control specialist business with 30 years' experience we design, fabricate and supply space simulation chambers and related technologies for space research. Our capability includes vacuum systems down to 10-12mbar pressure and a temperature range from near absolute zero (near 0° Kelvin or -273° Celsius) to 400° Celsius.

We supply relevant component level technologies used in space research including vacuum pumps, vacuum gauges, gas analysers and much more.

SITAEL AUSTRALIA

SITAELAUSTRALIA.COM

Contact: Mark Ramsey
E info@sitaelaustralia.com

Sitael is the largest privately-owned space company in Italy, and is a worldwide leader in the small satellites sector. With highly qualified employees and state-of-the-art facilities, Sitael covers a wide range of activities in development of small satellite platforms, advanced propulsion systems and on board avionics, providing turn-key solutions for Observation, Telecom and Science applications.

Sitael offers a complete new-generation small satellite product line, based on smart, modular, scalable, all-electric platform solutions in the class range from 50kg to 300kg.

Sitael Australia was established in 2018, to facilitate the building of Australian small-satellites in the 50- 300kg class. Sitael Australia is currently growing its team in Adelaide, to allow sovereign design, and ultimately assembly, integration and test of 50-300kg class spacecraft in Australia.

SMARTSAT CRC

SMARTSATCRC.COM

Contact: Prof. Andy Koronios
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T 08 8302 7724

The SmartSat CRC is a consortium of industry and research organisations that will develop a nationally coordinated ecosystem in space technologies. The SmartSat CRC will focus on three research programs - Advanced Communications & IoT connectivity, Intelligent Satellite Systems and Next Generation Earth Observation Sensors & Data Analytics.

The SmartSat CRC brings together more than 85 partners who, together with the Australian Federal Government have committed more than $245 million in cash and in-kind contributions making it the biggest space industry R&D collaboration in Australia's history. The SmartSat CRC will develop technologies to build a sovereign, fully integrated, real-time monitoring space infrastructure, transforming our industries and the broader economy.

EVENT SUPPORTER

SPACE INDUSTRY ASSOCIATION OF AUSTRALIA

SPACEINDUSTRY.COM.AU

Contact: Sherri Dawson
E operations@spaceindustry.com.au
T 0488 105 775

The Space Industry Association of Australia (SIAA) is a national organisation formed to promote the growth of the Australian space industry. We speak with authority and credibility on behalf of our members on policy and commercial issues connected with the Australian space industry.

The SIAA has a lead role in advising government on behalf of the space industry.

With the establishment of the Australian Space Agency in Australia, there has never been a more crucial need to have a strong national voice for the space industry.

CONFERENCE DINNER SPONSOR

STONE & CHALK

STONEANDCHALK.COM.AU

Contact: Dan Ryan
E adelaide@stoneandchalk.com.au
T 0404 071 054

Stone & Chalk is Australia's home of entrepreneurship. We bring the best start-ups, scaleups and corporates together to scale ideas and make success happen. This year Stone & Chalk has partnered with the South Australian Government to launch a world class innovation hub at Lot Fourteen in Adelaide. Open from late October, we encourage startups to learn more and apply at **stoneandchalk.com.au/adelaide**

EXHIBITION LOUNGE SPONSOR

TE PŪNAHA ĀTEA – AUCKLAND SPACE INSTITUTE

SPACE.AC.NZ

Contact: Catherine Qualtrough
E Catherine.Qualtrough@auckland.ac.nz
T +64 22 534 9414

Te Pūnaha Ātea – Auckland Space Institute is a multi-faculty space science and engineering initiative at the University of Auckland. As New Zealand starts to define its place in the fast-growing international space sector, we are ensuring that researchers and students are equipped with the knowledge to participate in an industry that will have a strong impact on our technological, economic and social future. The Institute is committed to expanding New Zealand's innovative capacities to the frontiers of space.

Our current research includes work on developing satellite hardware for the CubeSat platform, innovative synthetic aperture radar technology, novel plasma micro-propulsion systems, lightweight deployable structures, thermal shielding for sample return missions and support for the development of an Australasian optical communication ground station network.

THE UNIVERSITY OF AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

TE PŪNAHA ĀTEA
AUCKLAND SPACE INSTITUTE

TITOMIC LIMITED

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Contact: Ben Andrews
E ben.a@titomic.com
T 0438 759 620

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Titomic (ASX:TTT) is an Australian public company specialising in digital manufacturing solutions for industrial scale metal additive manufacturing using its patented Titomic Kinetic Fusion® (TKF) technology.

TKF technology provides unique capabilities for producing commercially viable additively manufactured metal products, competing directly with traditional manufacturing methods. Titomic provides OEM production and R&D services from its TKF Smart Production Bureaus to the global Aerospace, Defence, Shipbuilding, Oil & Gas, Mining and Automotive industries.

Titomic also provides an extensive range of metal powders for 3D Printing, especially titanium and super alloys, and provides sales and support services for their TKF production systems.

TSA DEFENCE

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T 0419 710 191

TSA DEFENCE

TSA Defence is Australia's largest distributor of optical telescope systems. Our optical systems are specialized for educational, scientific research, earth observations, space situational awareness and defence applications. Supplying civilian and government bodies with the worlds leading brands Celestron, Skywatcher and Meade. TSA Defence operates under the umbrella of founding company Tasco Sales Aust Pty Ltd, established in 1965.

TSA Defence is currently involved in the support, supply and sustainment of numerous land program's including but not limited to Land159 4108 / Land 125 Phase 4. TSA defence is an approved Defence supplier – CAGE CODE - DNN9ZM. TSA Defence is committed to delivering innovative, cost effective solutions.

TYVAK

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Tyvak
A Terran Orbital Corporation

Founded in 2013 and headquartered in Irvine, California, Tyvak Nano-Satellite Systems, Inc. is an industry leader, delivering optimized, end-to-end small satellite solutions. Trusted by civil, defense and commercial organizations to achieve timely and economical mission success, Tyvak leverages expertise, low-cost operating infrastructure, and the limitless opportunities of satellite miniaturization. Under the Terran Orbital brand, more than 213 small satellites have launched worldwide, with more than 74 missions enabled. For more information, please visit www.Tyvak.com or follow the Company @TyvakNanoSat

ULVAC, INC.

ULVAC.CO.JP/EN

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T (+81) 467 684 201

ULVAC

GOLD SPONSOR

Back in 1952, ULVAC was still a fledgling venture that had just been founded by young engineers aspiring to contribute to industrial and scientific advancement through the use of vacuum technologies with the financial support of six angel investors.

While continuing to cherish the entrepreneurial spirit that it has embraced since its establishment, ULVAC remains committed to creating new value by pursuing cutting-edge innovation for our vacuum technologies.

To this end, our company works hand-in-hand with manufacturers in a wide range of industries to deliver products that are employed in not only liquid-crystal flat-panel displays, semiconductors, and electronic components, but also the types of machinery used in the automotive, food, pharmaceutical, and other general industries.

Furthermore, the ULVAC Group employs a unique business approach to offer comprehensive solutions for a wide range of industries by mobilizing its rich variety of vacuum technologies. Examples of products that employ these technologies include vacuum equipment, components, materials, and analytical instruments, as well as a broad range of customer solutions.

ULVAC responds to ongoing changes dynamically and harnesses the new business opportunities that they present by leveraging the group's collective strength and capacity for innovation to swiftly cater to customer needs in a variety of fields. In doing this, we aspire to act as the driving force behind industrial and scientific advancement with the aim of ushering in a flourishing future.

UNIVERSITY OF ADELAIDE

ADELAIDE.EDU.AU/IPAS/

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T (08) 8313 1189

THE UNIVERSITY of ADELAIDE

IPAS Institute for Photonics and Advanced Sensing

The University of Adelaide encompasses the Institute for Photonics and Advanced Sensing (IPAS) and the Centre for Radiation, Research, Education and Innovation (CRREI) who bring together a wealth of research and industry experience.
IPAS is a global hub of photonics research, creating transformational new approaches to sensing and transdisciplinary problem solving. IPAS fosters excellence in research in materials science, chemistry, biology and physics and develops disruptive new tools for measurement. CRREI focuses on research surrounding radiation physics, chemistry and biology, mining and mineral processing, radioactive waste disposal and food and water safety. CRREI provides services such as radionuclide analysis, environmental monitoring and geochronology and are offering educational courses in fields including radiation and nuclear management and engineering.

UNSEENLABS

UNSEENLABS.SPACE

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T (+33) 7 86 50 32 65

unseenlabs — THE BRIGHT SIGHT

UNSEENLABS is a French company from whose core business is the development, production and operation of innovative Earth observation instruments, specialized in the detection of electromagnetic emissions.

The service proposed by UNSEENLABS is a maritime surveillance service, allowing the location and characterization of ships at sea from space.

UNSEENLABS stands out from the other players in the field of maritime surveillance with an innovative and unique electromagnetic intelligence service capable of observing maritime traffic, even without any cooperative beacon.

UNIVERSITY OF SOUTH AUSTRALIA - VENTURE CATALYST SPACE

ICC.UNISA.EDU.AU

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T 0413 314 726

VENTURE CATALYST SPACE

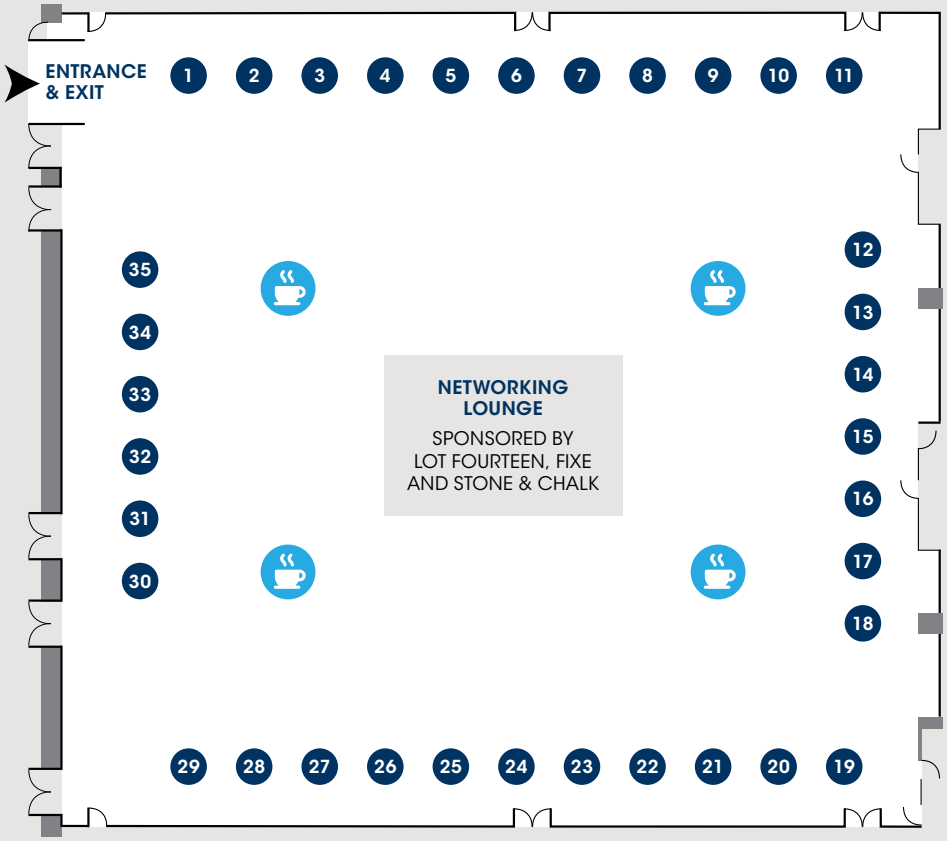
University of South Australia

Venture Catalyst Space is the State's first space incubator program to develop and grow innovative or disruptive ideas from entrepreneurs and startups in the space sector. Delivered by the University of South Australia's Innovation & Collaboration Centre and supported by the State's Space Innovation Fund and the International Space University, the program gives founders the support and tools they need to plan and successfully execute the building of a scalable and investment ready business.

The one-of-a-kind program delivered tailored support and guidance working with a global pool of expert advisers, a series of capability workshops designed for founders, one-on-one mentoring, workspace, a stipend and the chance to pitch for a sponsored overseas tour to network with relevant space industry primes, investors and other space startups.

EXHIBITION FLOORPLAN

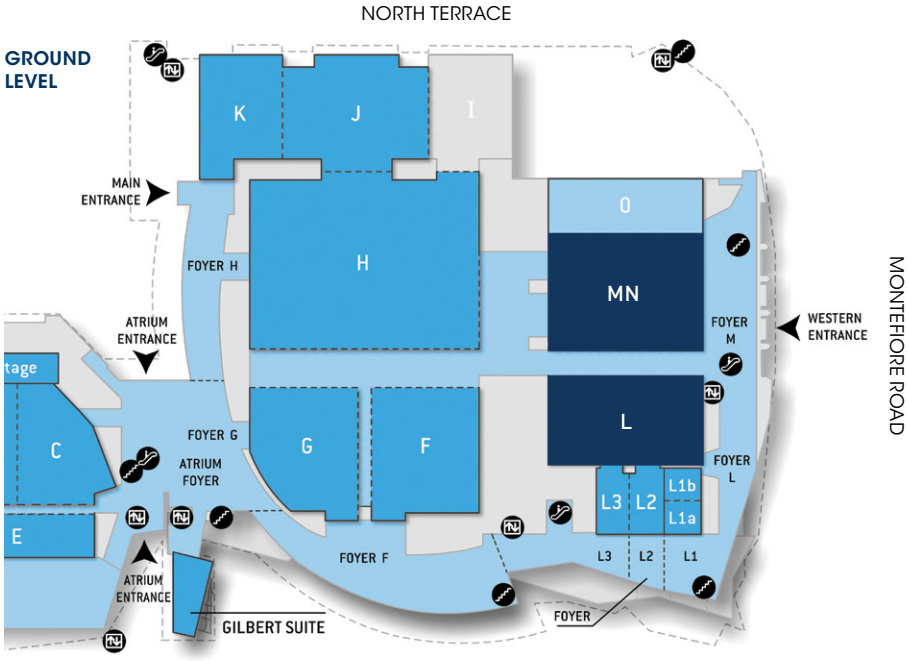
ADELAIDE CONVENTION CENTRE
HALLS M & N, GROUND FLOOR, WEST BUILDING



EXHIBITOR STANDS

1. AUSTRALIAN SPACE AGENCY
2. AVALON 2021
3. BOEING
4. ULVAC INC.
5. SMARTSAT CRC
6. SPACE INDUSTRY ASSOCIATION OF AUSTRALIA
7. INSPACE
8. TITOMIC LIMITED
9. NOVA SYSTEMS
10. CSIRO
11. SABER ASTRONAUTICS
12. NEUMANN SPACE
13. AIRBUS
14. ARC TRAINING CENTRE CUAVA
15. SITAEL AUSTRALIA
16. CAPGEMINI
17. TYVAK NANO-SATELLITE SYSTEMS
18. MYRIOTA
19. COSPAR 2020
20. BENTLEYS R&D
21. CYBEROPS
22. UNIVERSITY OF SOUTH AUSTRALIA - VENTURE CATALYST SPACE
23. AUCKLAND SPACE INSTITUTE
24. FRAZER-NASH CONSULTANCY
25. GRAVITY CHALLENGE
26. UNSEENLABS
27. TSA DEFENCE
28. AXIOM PRECISION MANUFACTURING
29. JOHN MORRIS GROUP
30. NANO VACUUM
31. DEWC SYSTEMS
32. SCITEK AUSTRALIA
33. UNIVERSITY OF ADELAIDE
34. HAMILTON SECONDARY COLLEGE
35. ADVANCED TECHNOLOGY PROGRAM

CONFERENCE MAP

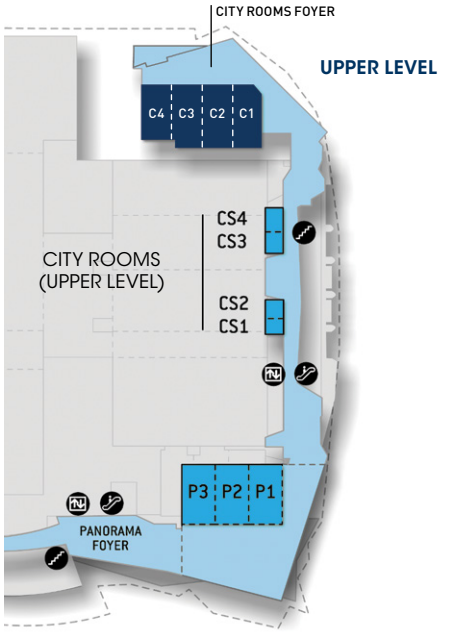


ADELAIDE CONVENTION CENTRE
WEST BUILDING
GROUND AND UPPER LEVELS
HALLS L, M & N AND
CITY ROOMS 1 TO 4

Best access via Western entrance, off Montefiore Road.

Halls M & N	Day 1 Exhibition
Hall L	Day 1 Plenaries
City Rooms 1-4	Day 2 & 3 ASRC Session rooms
City Rooms Foyer	Day 2&3 Poster Sessions

ADELAIDE CONVENTION CENTRE



NOTES

ASRC CONFERENCE CODE OF CONDUCT

It is the policy of the Organising Committee that all delegates at the conference are able to participate in its activities and are able to enjoy an environment that is free from discrimination and harassment. The Organising Committee is committed to making this meeting and all associated events productive and enjoyable for everyone, regardless of race, gender, sexual orientation, disability, physical appearance, body size, nationality or religion. Harassment of any form will not be tolerated and might result in the perpetrators being permanently removed from the conference or reported to relevant authorities.

The code of conduct outlined in this document applies to all Australian Space Research Conference delegates, guests (e.g., media, service staff), and accompanying people, without exception. Anybody who enters the premises in which the meeting and associated activities are held and engages with the conference delegates at any level, is bound by this code of conduct. Participation in any of the activities related to the conference constitutes implicit acceptance and understanding of the code of conducts by the participants. Ignorance of the code will not be considered an attenuating circumstance in dealing with any type of infringement of the code as outlined.

Everybody associated with the Australian Space Research Conference is expected to:

- Behave professionally.
- Be considerate and respectful to others. To not insult or put down other attendees. To Critique ideas, not individuals.
- Open discussion is promoted and encouraged, but the copying, recording or broadcasting of any presentation, material, or idea presented or emerging from scientific discussions, is not permitted. This includes (but is not limited to) posting images of data presented in talks and posters on social media.
- All communication must be appropriate for a professional audience that includes people of many different backgrounds. Inappropriate use of sexist, racist or ageist language and imagery, and / or any other commentary that is or can be perceived to be discriminatory in any way, is not permitted. Inappropriate language or behaviour include (but is not limited to) jokes, sustained disruption of talks or other events, inappropriate physical contact, sexual attention or innuendo, deliberate intimidation, stalking, and photography or recording of an individual without consent. Offensive comments about race, gender, sexual orientation, disability, physical appearance, body size or religion, will not be tolerated.

Individuals engaging in behaviour prohibited by this policy as well as those making allegations of harassment in bad faith, will be subject to disciplinary action by the conference organisers. Such actions may range from a verbal warning, to permanent ejection from the activity disrupted by the behaviour or the entire meeting, without refund of the registration fees. Repeat offenders may be banned from participating in future conferences. Serious offences will be reported to the relevant authorities.

Anyone who wishes to report a violation of this policy is asked to speak confidentially to the conference co-chairs.

Space Forum

If you would like to contact the South Australian Space Industry Centre for information about this Forum or for any other enquiries please contact us via:

South Australian Space Industry Centre
Level 4, 151 Pirie Street
Adelaide South Australia 5000
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E spaceoffice@sa.gov.au

Australian Space Research Conference

For any further information regarding the Australian Space Research Conference, please contact the conference Secretariat via:

E asrcconference@nssa.com.au

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