SMARTSATNEWS

ISSUE 12 - October 2020

SMARTSAT COOPERATIVE RESEARCH CENTRE

Australian Government
Department of Industry, Science, Energy and Resources

Business Cooperative Research Centres Program

Contents

CEO Welcome

Dear Colleagues

The past 8 months have challenged us all in ways that we could not have imagined this time last year. Despite the severe restrictions imposed by COVID-19 the spirit of collaboration among our partners has been unwavering. We have together initiated more than 20 research projects and have another 20 or so under development; Furthermore, we have awarded 15 PhD scholarships and appointed three SmartSat Professorial Chairs in Artificial Intelligence and in Cybersecurity.

Guided by our Board we have been finalising our strategic planning process and expect to have finalised our Strategic Plan by the end of November. I include a graphic of the SmartSat Strategic Objectives that have recently been approved by our Board.

We value your feedback on our strategic planning process.

Our Start-up community is growing and is actively organising itself around the SmartSat Aurora.

Our End-User Advisory boards are finalising their sector plans which will serve to guide our research activities.

We feel that we are making good progress; after you read this Newsletter we hope that you will agree.

Thank you to the fabulous SmartSat Team as well as all of our partners for your commitment and support;

We will succeed through the success of our partners!

All the very Best,

Andy

Andy Koronios
Chief Executive Officer

"Guided by our Board we have been finalising our strategic planning process."

Comms & Outreach

Director, Communication & Outreach - Nicola Sasanelli

Dear Colleagues

It is a pleasure to bring to you our October newsletter. Spring time is a reminder of renewal and growth, and I think this year it gives us an opportunity to appreciate the resilience we have all experienced during 2020 and feel positive about the revitalisation of our exciting sector.

In the past three months, our Distinguished Speaker Series have continued to be very popular and the virtual presentations allows both presenters and attendees to join from all around Australia and across the world. In July, Mr Douglas Weimer (Director, Cyber Security Solutions at RHEA Group) presented an overview of the establishment of a Cybersecurity Centre of Excellence for Space. This was followed by a presentation in August from Dr. Claudia Giardino (Senior Researcher at CNR-IREA (National Research Council of Italy, Institute for Electromagnetic Sensing of the Environment), who discussed Earth Observation technology for water quality in Europe. In addition, we also held a number of workshops and roundtables – please read the events section of this newsletter for more details.

We have issued a number of media releases over the past couple of months, including an announcement of three Professorial Chairs; a partnership with NASA Search and Rescue for the Resilient Emergency and Search and Rescue (SAR) Communications project; the commencement of Phase-0 AquaWatch project with CSIRO; and a partnership with Leonardo Australia/e-Geos Leonardo Australia. The media coverage of these announcements has been excellent and we are pleased that there is such strong interest in our sector. More details on these announcements are outlined further below in this newsletter.

Outreach activities aimed at developing partnerships and opportunities for collaboration have included fortnightly meetings with NASA Goddard to progress research collaborations, as well as ongoing discussions with the Embassy of France in Australia regarding the capabilities of French universities and possible bilateral collaboration. In addition, we now have colleagues from EOS, DST, WASSPO, BOM, CSIRO and Leonardo sharing the SmartSat office at Lot Fourteen with the goal of improving our strategic networks and stimulating new ideas and projects. In September, we welcomed Premier Marshall to the SmartSat offices to hear more about the growing space ecosystem.

We still have a lot to achieve in the final few months of 2020. We are planning a final Distinguished Speaker session and will also be invovled in the 10th Australian Space Forum in November at the Adelaide Convention Centre. I look forward to seeing many familiar faces at that event in person after all the virtual activities this year!

"In September we welcomed SA Premier Marshall to the SmartSat offices to hear more about the growing space ecosystem."

Research

Chief Research Officer – Dr Nick Stacy

The September SmartSat Board meeting approved one new project, Compact Clock for Small Satellite Applications, which aims to develop and provide an early prototype of a compact, high accuracy clock that will be able to fly on small satellites (typically 100-200kg class) and support communications and earth observation applications that require highly accurate satellite position and timing. This Research Program 1 project aligns with accurate quantum clock goals in the SmartSat technology roadmap and provides the opportunity for a first to market world leading small SWaP clock.

Under our Tactical Research Fund, the SmartSat Executive has also approved a number of research projects including Quantum Enhanced Secure Communications for Small Satellites and IoT, Lunar Ground Station Feasibility Study, and the Application of AI for Satellite Enterprise Management.

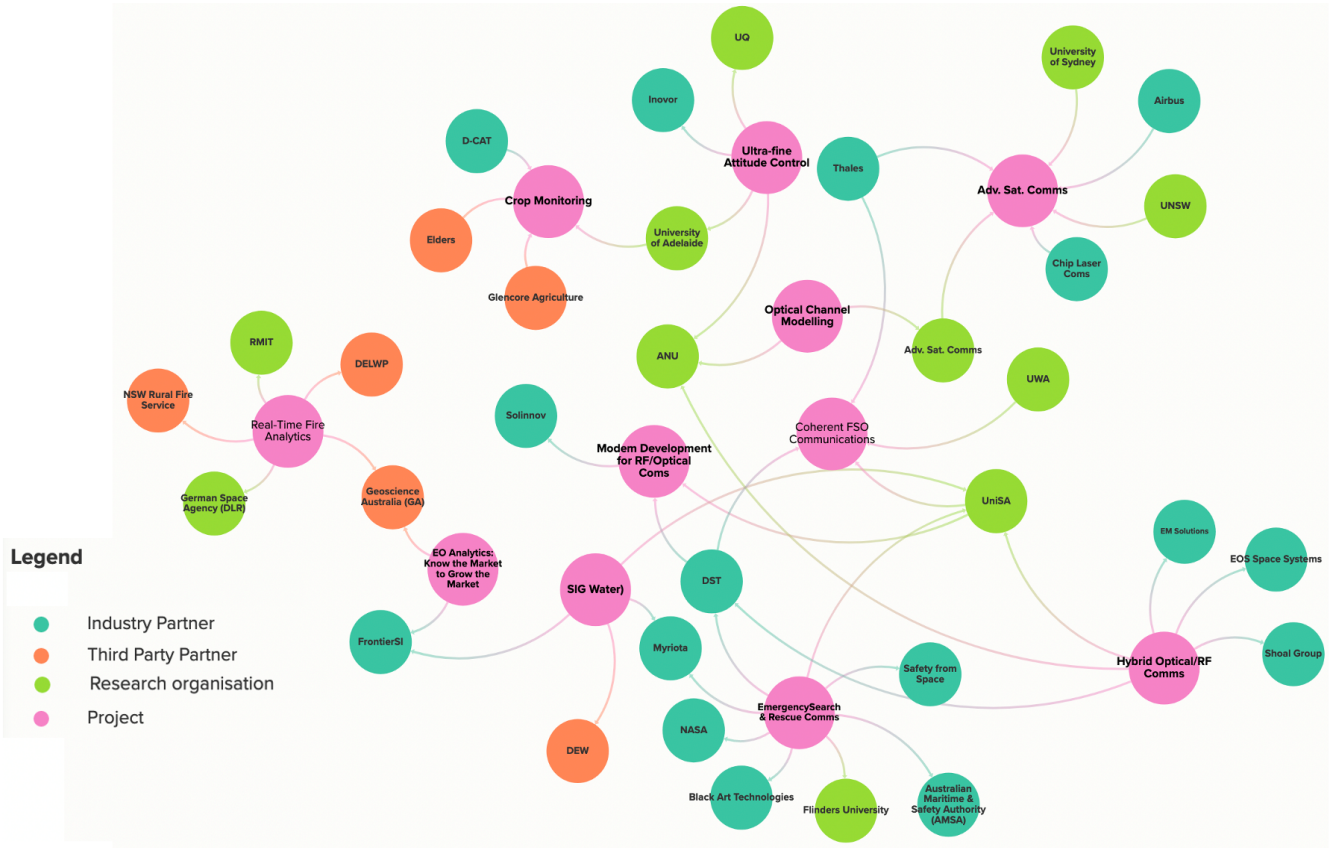
Our projects continue to be informed by the needs of our end-user community through our Sector Plans and they are driven by our industry partners. As can be seen from our collaboration map below, collaboration between industry and our researchers continues to be strengthened.

Project Concepts

As part of our commitment to undertake industry driven research, and provide opportunities to our research partners for participation and introduction to new industry relationships, we have begun a process of releasing industry-driven Project Concepts and seeking responses. To date, we have released Project Concepts on behalf of BAE, Nova Systems and the DST Group in the following areas:

- Space Analytics Engine for On-board Machine Learning and Multimodal Data Fusion
- Trusted AI Frameworks for Change Detection in Observed ISR Patterns
- The Application of AI for Satellite Enterprise Management
- On-board Processing for Advanced Tactical Communications
- Low SWaP Inter-Satellite Links

We will continue to develop some of our research projects in this way, and welcome your participation in this approach.



Research cont.

SmartSat Ideation Challenge 01: Firefly

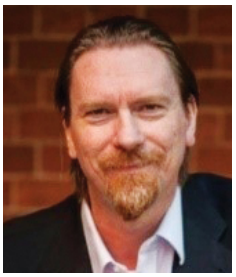
SmartSat CRC have funded a range of risk tolerant, short duration research activities to encourage the innovative application of artificial intelligence (AI) to future capabilities for enhanced emergency management. This includes research aimed at:

- Improved understanding of fuel load over large geographic areas at higher resolution;
- Autonomous image fusion and analysis to provide higher spatial and temporal resolution data for warning at -risk areas due to bushfires;
- Machine learning to predict potential loss of critical communications infrastructure during emergencies;
- Increased situational awareness for emergency responders and at-risk communities including the ability to identify and report potential risk to human life.

Collectively, these proposals represent an exciting opportunity to harness Australian creativity to rapidly test novel technologies in-space and near-space that might contribute to better national preparation, response and recovery to/from natural disasters.

Participants in this project sprint include Lookinglass, Picosat Systems, RMIT, Spiral Blue, Melbourne Space Program, Lux Aerobot, Nova Systems, Beings Systems, and Safety from Space.

Further Ideation Challenges will be held in the future.



Education & Training College

Dr Ady James, Education & Training Director - Industry Training

Firstly, welcome to Professor Wei Xiang, from La Trobe University, who has been appointed as the Co-Chair of the College, and taken over from Professor Jill Slay as Director of the Higher Degree Research Program. SmartSat has happily retained Prof Slay as the Cyber Security & Resilience Team Leader and SmartSat Professorial Chair at UniSA. We thank Jill for all her hard work in steering us through the early stages of the college. SmartSat has set a target of 72 PhD completions over its 7-year life, with currently nine PhD students on board, of which eight are full scholarships and one a top-up scholarships. A further five have been submitted for assessment.

Over the past few months there has been a renewed open call for PhD scholarship applications in line with a PhD recruitment strategy paper. In addition, the STEM Outreach Strategy was approved and the Workforce Development Strategy was drafted. These two strategies, along with a strategy on HDR training, will form the pillars on which the overarching strategy document sits. The HDR training program will form the basis of a suite of Professional Development activities that we hope to start towards the end of the year. It is envisaged that the newly appointed Professorial Chairs will help to define and deliver some of these training opportunities. The nature of these will be shaped by the results of the Skills Gap Analysis program which should be available by the end of 2020.

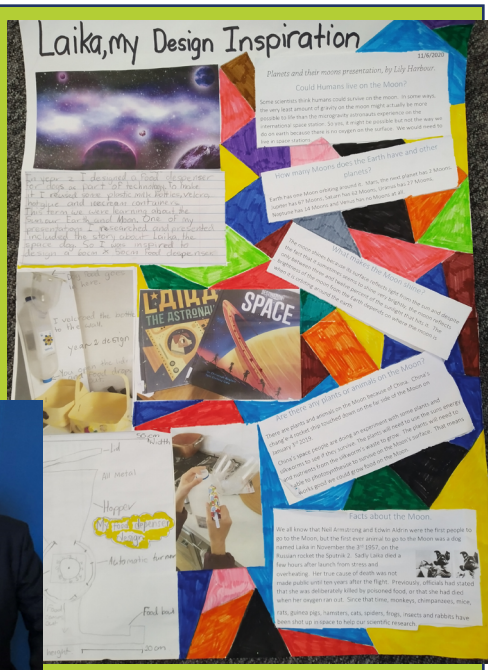
An internship program for Year 10,11 and 12 high school students and industry placements for college/university students is currently been considered to deliver this program nationally in a co-ordinated way with other similar schemes, e.g. The Australian Space Agencies 'Students Pathways to Space' program.

Finally, SmartSat sponsored a space-themed challenge in the South Australian Premiers Research Challenge. This challenge has closed with judges awarding prizes in two categories; reception to year 2, and year 3 to year 5. Next year we hope to introduce this to other states/territories through the nodes, and tailor the challenges to encourage a broader involvement, especially in years 6 to 12. Prize winners are listed below. The photo collage overleaf shows the prize winning entries and prize presentations at the schools.

Category	Student	School
R to 2	Anakin Harbour	School of the Air, Port Augusta
R to 2	Charlotte Julian	Coromandel Valley PS
R to 2	Evan Gourd	Watervale PS
R to 2	Lydia McGough	Coromandel Valley PS
3 to 5	Lily Harbour	School of the Air, Port Augusta
3 to 5	Zac Grice	Prince Alfred College
3 to 5	Grace Stephens	Henley Beach PS

PREMIERS READING CHALLENGE

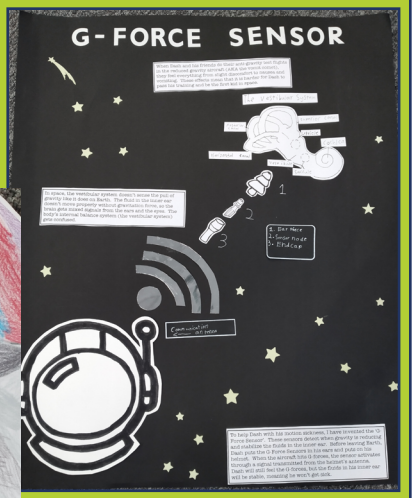
Yr 3-5 1st Place - Lily Harbour - School of the Air



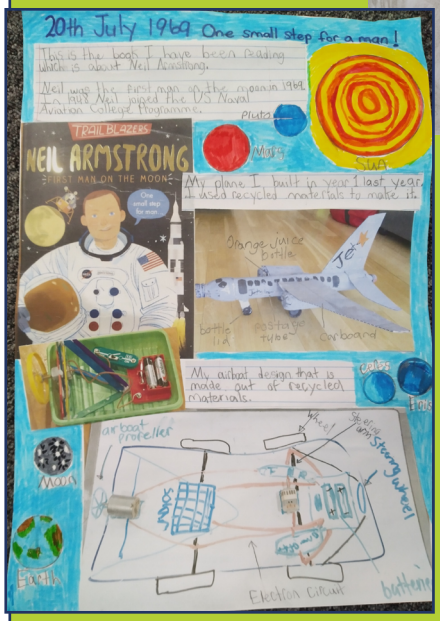
Reception to Year-2 3rd Place- Evan Gourd - Watervale PS

Reception - Yr 2 -4th Place- Lydia McGough - Coromandel Valley PS

Reception to Year 2 - 2nd Place Charlotte Julian - Coromandel Valley PS



Yr 3-5 1st Prize- Zac Grice - Prince Alfred College



Reception to Year 2 - 1st Place- Anakin Harbour, School of the Air

Year 3-5 2nd Place - Grace Stephens - Henley Beach PS

Diversity and Inclusion (D&I) Committee Update

Eva Rodriguez Rodriguez, Research Program Manager

Emily White, Executive Officer

SmartSat CRC and the Inclusive Organisation Group collaboration

The D&I Committee is pleased to announce the commencement of a joint collaboration between SmartSat CRC and the Inclusive Organisation Group. This collaboration will help us establish strong foundations and an effective action plan on D&I within SmartSatCRC, but also help and support our partners, and the broader space community, in their efforts to advance D&I. The collaboration includes the undertaking of research to assess and baseline the current state of inclusion across SmartSat CRC and its partner ecosystem, using a new, system-wide framework to develop inclusion strategies that address the specific needs of all people: "Business-As-Usual Inclusion". The collaboration will start in the coming weeks, with SmartSatCRC undertaking its internal assessment. It will be followed by a number of engagement activities with our partners, including the issue of a D&I survey to our community and the opportunity for 8 SmartSat CRC partners to be part of the "Inclusive Leader Program", which provides participants with real and practical outcome-focused skills, knowledge, tools and behaviours to create inclusive organisations. We look forward to keeping you informed of our progress, to further engage with you all, and to jointly advance efforts in this importance matter.

The Spatial and Surveying Diversity Leadership Network expands to cover Space (SSS-DLN)

The Spatial and Surveying Diversity Leadership Network formed in 2018 as a group of individuals and organisations willing to advance D&I in the Spatial and Surveying sectors. The network has recognised the synergies with the Space sector, and the opportunity to broaden its horizons to individuals working in the Space sector. Amongst others, the network issued an Action Plan in 2019 with ideas and suggestions to improve diversity and inclusion at individual, organisation and sectoral level; and is active in sharing examples of D&I initiatives in the community and driving the implementation of the actions recommended in the plan. The network is run by volunteers, and individuals wanting to join the SSS-DLN network can do so by getting in touch at diversity@2026agenda.com or by subscribing here.

Acknowledging D&I leadership in SmartSatCRC

The Chair of the D&I Committee would like to recognise the excellent work and commitment of both Emily White and Eva Rodriguez Rodriguez to the development of the SmartSat's D&I activities, strategy and operational plans so far. In the coming months, Emily White will take an increasing leadership role in this area as Eva embarks on a new and exciting mission: commencing her maternity leave.

INCLUSIVE ORGANISATION

Industry

Peter Nikoloff, Director, Industry Advisory Board

Sarah Cannard (SmartSat Deputy Industry Director) and Peter Kerr (SmartSat Defence and National Security Program Co-ordinator) have been working hard with sub-groups of the End User Advisory Boards to develop Sector Plans that SmartSat will use to guide our research programs. These plans with the guidance from the End User Advisory Boards are a critical element of our process to ensure we solve the problems that make a real difference.

Advanced Drafts have been developed for Agriculture and Natural Resources, Mining and Energy, and Defence and National Security with support from contractors and were presented to the recent SmartSat Strategic Planning Day with the Board. It was evident that common themes lay across the sectors, in particular, resilient communications, smart data and automation technologies were present across all sectors. The Sector Plans will now undergo final review with the aim of releasing to SmartSat partners in the near future.

Aurora Start-Up Cluster

Dr Tim Parsons

The Aurora Space Startup Cluster continues to grow with over 60 space SMEs - both upstream and downstream, early- and mid-stage - having signed our membership agreement. The Steering Committee (consisting of Anastasia Volkova of FluroSat, Andrew Barton of Southern Launch, Ben Starkey of Ozius Spatial, Carley Scott of Equatorial Launch Australia, Conrad Pires of Picosat, George Coulloupas now of e-GEOS, James Prior of SkyKraft, Mia Lee of Space-BD,Troy McCann of Moonshot and myself) have spent the last month working on the rules and form of a new constitution for the organisation, as well as a new brand to be revealed soon.

Our Special Interest Groups (SIG) for Earth Applications and Small Satellites have continued their discussions towards projects that can have a meaningful collaborative impact with CRC research and industry partners, and we've all been learning a lot, and welcome new participants any time too. (EA-SIG, speak to Anastasia/FluroSat or Ben/Ozius, SmallSats-SIG speak to Andrew Barton/Southern Launch).

Finally, a highlight of this last month was our Fourth Town Hall meeting, featuring Dr Jason Held CEO of Saber Astronautics presenting their work setting up the new Mission Control Centre for the Australian Space Agency - dubbed the Responsive Space Operations Centre (RSOC), not only its physical implementation, but more importantly their radical and impressive idea for setting up an open platform to enable Australian space comms SMEs to offer services to their customers via the MCC's infrastructure and APIs. He also explained how for the next few years, the RSOC will be offering free services to Aussie companies needing mission control services to help grow the industry.

Watch his full presentation here.

Awards

Professor Roberto Sabatini - RMIT

During a memorable event held in Canberra at the end of 2019, the Australian Defence Industry Awards. Professor Roberto Sabatini was conferred the "Scientist of the Year" at the Australian Defence Industry Awards. This award is the result of many years of hard work, passion and commitment to establish and grow the RMIT Cyber-Physical and Autonomous Systems Group. Cyber-Physical Systems (CPS) are at the core of the digital transformation and are redefining the way we interact with intelligent machines in a growing number of industrial sectors and social contexts.

Professor Sabatini is a Professor of Aerospace Engineering and Aviation at RMIT University. He has 30 years of experience in aerospace and defence systems research and tertiary education, acquired in progressively more responsible industrial and academic positions in Europe, US and Australia. Rob is a Fellow and Executive of the Institution of Engineers Australia, Fellow of RAeS and RIN, Senior Member IEEE and AIAA, and Life Member AFCEA. He holds various academic qualifications, including a PhD in Avionics Systems, a PhD in Satellite Navigation and an Advanced MEng in Astronautics. Additionally, he is a Private Pilot (fixed wing aircraft), Flight Test Engineer (fast jets) and Remote Pilot (multi-rotor UAS). Currently, he serves as Chair of the RMIT Cyber-Physical and Autonomous Systems (CPAS) Group, Deputy Director (Aerospace) of the Sir Lawrence Wackett Centre, and Director of the Autonomous and Intelligent Systems Laboratory. His research interests focus on: Trusted Autonomy and AI; Distributed and Intelligent Satellite Systems; GNC and Optimal Control; GNSS Augmentation; Defence C5ISR Systems; Airspace Mobility and Multi-Domain Traffic Management (air and space platforms); and Cognitive Human-Machine Systems.

Rob has been recently nominated member of the SmartSat AI4Space Steering Committee. In this new role, he will help the team developing a robust research agenda and strengthening the network of national and international collaborations in intelligent satellite systems.

Update from the Australian Space Agency

Green light on next phase of Space Discovery Centre

The Australian Space Discovery Centre is one step closer to launch as construction of the facility and Mission Control Centre officially starts. The Australian Space Discovery Centre is underpinned by a strong STEM education focus. It will inspire the next generation of the space workforce through stories of opportunity, curiosity and technology.

Located in the innovation precinct of Lot Fourteen in Adelaide, the Australian Space Discovery Centre will showcase a Space Exhibition area, which includes an interactive exhibition ; an Industry Showcase to connect space industry businesses, start-ups and researchers; a Careers and Information Hub to discover career paths and jobs in the national space industry; and the Mission Control Centre. Read more here.

Moon to Mars Supply Chain Capability Improvement grants

The Australian Space Agency opened their Moon to Mars Supply Chain Capability Improvement grants, which will provide Australian businesses with grant funds to build capacity to deliver products and services into domestic and/or international space industry supply chains, and support NASA's Moon to Mars space exploration program. The Australian Moon to Mars initiative is focused on bringing together Australia's unique capabilities from all industry sectors to accelerate the growth of the national civil space industry. The objectives of the Moon to Mars Supply Chain Capability Improvement grants are to:

- grow Australian industry's capability and capacity to support NASA's endeavour to go forward to the Moon and then on to Mars
- grow the participation of Australian companies in domestic and/or international space supply chains that could support Moon to Mars activities
- grow the skills, capabilities and capacity of the Australian space industry

The second program in the Moon to Mars initiative, the Demonstrator program is expected to open in the coming months.

Read more here.

"The Australian Space Agency opened their Moon to Mars Supply Chain Capability Improvement grants, which will provide Australian businesses with grant funds to build capacity to deliver products and services into domestic and/or international space industry supply chains, and support NASA's Moon to Mars space exploration program."

Projects

AquaWatch Phase 0

AquaWatch Phase 0, a 12-month scoping study exploring the use of satellite technology and a network of ground-based sensors to monitor the quality of Australia's inland waterways, reservoirs and coastal environments, commenced in September.

Natural events such as toxic algal blooms, the contamination of drinking water, and excess runoff from irrigation all present a significant influence to the health of our inland and coastal waters. Having real-time data about these events and our waterways supports water managers in monitoring and managing water quality.

Data gathered from space provides critical insights about water quality, however, currently available Earth observation satellites only provide 60-70% coverage for major Australian water bodies. And while the quality of some inland waterways is monitored directly by testing, this data isn't routinely combined with satellite data. To fill this gap, AquaWatch aims to complement existing systems and build a comprehensive national monitoring system using an extensive network of ground-based sensors placed throughout Australia's rivers and waterways. These sensors would work together with purpose-designed Earth observation satellites to deliver real-time updates, predictive analytics and forecast warnings to water managers.

During the initial scoping phase, CSIRO and SmartSat are collaborating with partners from the research sector, government agencies and industry including the University of Queensland, UNSW Canberra, Curtin University, Frontier SI, Water Research Australia and SatDek.

"These sensors would work together with purpose-designed Earth observation satellites to deliver real-time updates, predictive analytics and forecast warnings to water managers."

Resilient Emergency and Search and Rescue (SAR) Communications

A collaboration between NASA Goddard Space Flight Centre (GSFC) and SmartSat will advance distress-related communications and navigation technology benefitting the U.S. and Australia.

SmartSat partners involved in the project include University of South Australia, Safety from Space, Myriota, Black Art Technologies, Flinders University, and the Australian Maritime Safety Authority.

Specifically, the SmartSat research team, led by Safety from Space's Co-Founder Dr Mark Rice, will propose new designs for the waveform of the 406 MHz signal sent by beacons through the Cospas-Sarsat network. These new designs will further modernize second-generation beacons, taking advantage of encoding techniques not available when the Cospas-Sarsat network was developed in the 1970s. This will enable possibilities for new initiatives for users, emergency management professionals and first responders

The NASA's Search and Rescue office is led by mission manager Lisa Mazzuca. Future phases of the SmartSat collaboration could support exploration initiatives like the Artemis missions, which will return humans to the Moon for the first time since Apollo. NASA will equip Artemis astronauts with second-generation beacons for use in the event of egress from capsule after splashdown or a launch abort scenario. The Search and Rescue team is working to extend beacon services to the lunar surface with the LunaNet communications and navigation architecture.

Events

SmartSat Distinguished Speakers: Dr Claudia Giardino

Senior Researcher at CNR-IREA (National Research Council of Italy, Institute for Electromagnetic Sensing of the Environment

Dr. Claudia Giardino, PhD in Remote Sensing (Polytechnic of Milano, Italy) has more than 20 years of experience in remote sensing with experience on biophysical parameters retrieval, imaging spectrometry, multi-source data processing, calibration/validation activities. She is group leader at CNR-IREA for Earth Observation (EO) for 'water quality' with interest on optically complex waters, aquatic optics, bio-optical modelling, phyoplankton blooms, shallow water mapping, multi-temporal analysis for lakes ecology.

Dr Giardino's presentation gave an overview of EO technology in support to water quality monitoring on lakes and freshwater reservoirs in Europe and demonstrated the state-of-the-art methods which have been commonly applied in the last years to tune satellite data into user ready products. Data and products from variety of EO sensors were presented, including imagery data collected by the operational Copernicus ESA missions (e.g. Sentinel-2 and Sentinel-3). In addition, Dr Giardino provided an overview of PRISMA (PRecursore IperSpettrale della Missione Applicativa), the new hyperspectral satellite sensor of the Italian Space Agency (ASI) in orbit since March 2019, and how it may offer valuable data for water quality mapping.

Australian National Concurrent Design Facility Workshop (27 July)

Presented by Prof. Russell Boyce, Director, UNSW Canberra Space and Jan-Christian Meyer, ANCDF Manager

The Australian National Concurrent Design Facility (ANCDF), the only such facility in Australia, is an example of world-best-practice in applying concurrent engineering approaches to rapidly develop feasible space mission concepts that meet user requirements.

This webinar presented the capabilities of the ANCDF and demonstrate different ways in which anyone can use it ranging from "teaser studies", to comprehensively planned and facilitated workshops with optional expert support provided by UNSW Canberra Space, to STEM-focussed educational opportunities. A range of example studies that have been performed over the past two years were presented to highlight the different possibilities.

The webinar also addressed current state-of-the-art research questions related to concurrent engineering, which in turn forms part of the digital twin paradigm currently gathering momentum in Australia and across the globe.

Cyber Security Workshop (31 July)

The Cyber Security Workshop was held on Monday, 31 July with over 70 attendees. The key topics that emerged included:

- Definitions and fundamental concepts for Space Resilience and Cyber Security
- Automation of IoT Security in satellite ops and zero trust environment
- Potential role of Blockchain in Satellite Cyber Security
- Transfer of knowledge and IP from terrestrial cyber security to Satellite Cyber Security – focus on CRC SME community at outset
- Use of Digital Twins and Cyber ranges to focus on the cyber threat environment

Digital Twin Workshop (17 Aug)

The Digital Twin Workshop was held on Monday, 17 August with over 80 attendees. Key topics that emerged included:

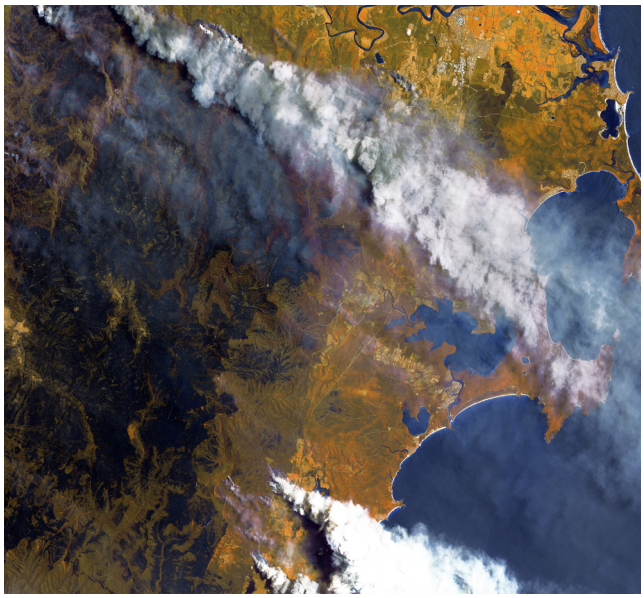
- Value proposition for digital twins in SMEs – exemplars/proof of concepts
- Fidelity, resilience, and security in digital twins
- Enterprise level digital twin that support reuse, retasking and scalability
- Data requirements and modelling for complex operations.

Moving forward, we will be contacting both industry and academic participants with interests in these areas to start shaping projects that reflect industry and end-user priority areas for the CRC. If you did not get an opportunity at these workshops to express your views and are interested in getting involved in some of these discussions, please feel free to contact:

CyberSecurity - Prof Jill Slay, Cyber Security & Resilience Theme Leader jill.slay@smartsatcrc.com

Digital Twins - Prof Allison Kealy, Research Director Program 2 – Advanced Satellite Systems, Sensors & Intelligence allison.kealy@smartsatcrc.com

Earth Observation for Bushfire Management Workshop (12 October)



This workshop was organized with support of the Bushfire Natural Hazards CRC to uncover current state of the art in bushfire management utilising satellite Earth Observation, collaboratively defining the pressing problems and gaps still in existence and proposing strategic areas of collaborative R&D to address them. It included:

- Presentation of state-of-the-art in Bushfire Management utilising Earth Observation, including presentations from end user organisations, SmartSatCRC partners and upcoming projects leading the way in this area in Australia.
- An interactive collaborative session to define strategic areas of R&D, uncovering interest and capability from participant organisations and leading to the formulation of collaborative projects and activity on bushfire management utilising Earth Observation.

Thanks to the following presenters who were involved in workshop -

John Bates, Bushfire and Natural Hazards CRC; Mike Wouters, AFAC Predictive Services; Simon Jones, RMIT & Bushfire and Natural Hazards CRC; Marta Yebra, ANU & Bushfire and Natural Hazards CRC; WildFireSat Team, MDA; Tim Ball and Christopher Tylor, Fireball.

Future Events

10TH AUSTRALIAN SPACE FORUM

Date: 25 November 2020

Supported by the Australian Space Agency and SmartSat CRC, the biannual forum has fast become one of the foremost events on the national space industry calendar and continues to grow with each edition.

This event will be no exception, with a program designed to showcase the best of the Australian space sector and encourage collaboration and investment. Forum sessions will include international panels respectively dedicated to the Australia-Japan bilateral collaboration, The GRAVITY Challenge innovation program - new uses for space data and space capability, an exploration into the evolving venture capital investment model, and the R&D activity developed through the SmartSat CRC and the Department of Defence partnership on the STaR Shots Strategy.

View the preliminary program

Register for the Forum now

Register for virtual participation

News from Our Partners

SmartSat partners with Leonardo Australia

On September 21, South Australian Premier Steven Marshall MP welcomed Leonardo Australia to its new dedicated space industry office at Lot Fourteen in partnership with SmartSat.

Leonardo Australia, the regional subsidiary of Leonardo, is a global top ten high technology Defence and Space company with annual revenues of 23 bn AU$. The company has committed to a partnership with SmartSat through its subsidiary e-GEOS, a joint venture between Telespazio and the Italian Space Agency. George Coulloupas has been appointed Business Development Manager - Space for the Adelaide office.

Leonardo plays a crucial role in several important space missions such as the Galileo global navigation system, Copernicus, COSMO-SkyMed, Prisma (Hyperspectral Precursor), ExoMars and Rosetta missions as well as the International Space Station. As a dominant worldwide supplier in the space sector, Leonardo aims to collaborate with the Australian space industry to stimulate local growth and competitiveness in global markets. Leonardo Australia's partnership with SmartSat is a key driver in the company's strategy to grow its presence in the space industry within the Oceania region and to develop joint research and commercialisation opportunities.

Moon to Earth: WA to host space communications station

Goonhilly Earth Station have announced the installation of an advanced communications ground station at The University of Western Australia (UWA). The optical communications station will e capable of receiving high-speed data transmissions from spacecraft anywhere between low-Earth orbit and the surface of the Moon.

It has the potential to support ground-breaking space projects, including NASA's Artemis mission to land the first woman and next man on the Moon by 2024.

The Station is a joint initiative of UWA's Astrophotonics Group, which is part of the International Centre for Radio Astronomy Research (ICRAR), as well as the ARC Centre of Excellence for Engineered Quantum Systems (EQUS) and UK industry partner Goonhilly Earth Station.

The ground station will be part of a larger Australasian optical ground station network, led by the Australian National University, and with partners in South Australia, and New Zealand.

Besides space communications, the ground station could also be used for applications ranging from cutting-edge fundamental physics to precision earth science and resource geophysics.

The station will use make use of a 0.7m observatory-grade optical telescope donated to ICRAR by Perth local Colin Eldridge. It will be fitted with advanced atmospheric-noise suppression technology developed at UWA.

The station will be connected to Goonhilly's supercomputer data centre in Cornwall via high-speed fibre. Goonhilly handles data traffic and supports secure communications links for the world's major satellite operators, including Intelsat, Eutelsat and SES Satellites.

The company is also a partner in the European Space Agency's Lunar Pathfinder Mission, which is scheduled to launch in 2022.

Read more here.

Fireball.International receives $500k Accelerating Commercialisation Grant

The Federal government has awarded Fireball.International with a highly competitive Accelerating Commercialisation Grant of $500,000 . Fireball.International, a member of SmartSat's startup hub Aurora, will use the $500,000 to roll-out its early bushfire detection and assessment system across Australia as well as other countries overseas.

Fireball.International has developed an advanced AI system (FUEGO-Intelligence) that analyses satellite (FUEGO-Space) and ground-based (FUEGO-Ground) sensor data in real-time. FUEGO-Intelligence allows for fires to be reported to emergency services within minutes. It has already been successfully identifying blazes and sending out alerts in the United States. Fireball.International is an Australian company based in Peregian Beach, QLD, with subsidiaries in Reno, Nevada, USA and Vancouver Canada.

2018-19 Defence Industry & Innovation programs Annual Report

The Minister for Defence Industry, the Hon Melissa Price MP has released the 2018-19 Defence Industry & Innovation programs Annual Report. The report provides details of the progress and achievements of the Government's key Defence industry and innovation programs – the Next Generation Technologies Fund, the Defence Innovation Hub, and the Centre for Defence Industry Capability (CDIC). During 2018-19, over $120 million in research and innovation contracts were awarded to industry, universities, and publicly funded research agencies. Australian businesses received over $15 million in Sovereign Industrial Capability Priority Grants and $2.3 million in Capability Improvement Grants. The report showcases the Grant recipients, including SmartSat CRC and SmartSat partners Inovor Technologies and University of Western Sydney.

The report can be viewed here.

Gilmour Space signs first Australian launch customer

Gilmour Space Technologies has secured the first Australian customer for its maiden Eris rocket launch in 2022. Space Machines Company has contracted to launch a 35-kilogram (kg) spacecraft to orbit, the largest payload announced to date by an Australian space company

Gilmour Space Technologies and Space Machines Company are both SmartSat supporting partners. Gilmour Space is a Queensland-based company that is pioneering new and innovative hybrid propulsion technologies with the goal of offering lower cost access to space. Space Machines Company is an Australian startup that is developing in-space transportation capabilities to cost-effectively insert small satellites into desired low earth orbits (LEO), geostationary earth orbits (GEO) and Cis-Lunar (Moon) orbits.

Gilmour's first Eris rockets will be launching payloads up to 305 kg into low earth orbits, 215 kg into 500 kilometres sun synchronous orbits, or 305 kg into 500 km equatorial orbits.

Read more here.

Southern Launch achieves lift-off for Australia's first commercial space capable rocket

As part of a joint effort between the Royal Australian Air Force, DEWC Systems, Southern Launch and T-minus engineering, a DART rocket carrying a Defence payload has launched from Koonibba Test Range in South Australia, marking the first commercial rocket launch to the edge of space from Australia.

At 10:09am on 19 September 2020, Southern Launch ignited Australia's first commercial space-capable rocket at the Koonibba Test Range north-west of Ceduna in South Australia. And in a second first for Australia, only an hour and and 40 minutes later at 11:49am a second space capable launch was safely completed.

The DEWC-SP1 payload and DART rocket was 3.4 metres long and weighed 34 kilograms. This successful launch makes a great start for the DART vehicle with rocket manufacturer T-Minus Engineering keen on getting more rockets off the ground in Australia and around the World.

The payload provides a stepping-stone for the RAAF to explore how advanced rapidly deployable networked sensors can be employed to provide information across Defence networks. The rocket launch forms part of Air Force's Plan Jericho advanced sensing program to detect and track challenging targets. The program also includes high altitude balloon launches.

Read more here.

"This successful launch makes a great start for the DART vehicle with rocket manufacturer T-Minus Engineering keen on getting more rockets off the ground in Australia and around the World."

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