

ADM

AUSTRALIAN DEFENCE MAGAZINE

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DEFENCE WEEK PREMIUM EDITION



This is the first high-resolution, colour image to be sent back by the Hazard Cameras (Hazcams) on the underside of NASA's Perseverance Mars rover after its landing on February 18, 2021.

NASA/JPL-CALTECH

PERSEVERANCE CAPTURES THE FIRST SIGHTS AND SOUNDS OF A LANDING ON MARS

Last Friday, NASA's Perseverance rover successfully touched down on Mars, where it has begun its two-year mission to search the planet for signs of ancient life.

ROYA GHODSI | SYDNEY

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On Monday, NASA released high-definition vision of Perseverance's dynamic final descent towards Jezero Crater, captured by a series of video cameras onboard the spacecraft.

The footage begins 11 kilometres above the surface and chronicles the entirety of the spacecraft's "seven minutes of terror": the moment of parachute inflation; the separation of the heat shield; the slow descent of the spacecraft as its terrain navigation kicks in; and finally, the moment it settles safely in a swirl of dust.

A microphone on the rover has also provided the first ever audio recording of sounds from Mars.

The recording reveals mechanical sounds of the rover operating on the planet's surface, with a Martian breeze faintly audible in the background.

The Canberra Deep Space Communication Complex (CSDCC) played an important role in supporting communication between Perseverance and Earth upon the rover's landing, and will continue to do so throughout the rover's time exploring Mars.

“WHAT WAS ONCE SCIENCE FICTION IS NOW A REALITY”

The antennas at the CSDCC, managed by CSIRO on NASA's behalf, ensure that the mission team can relay commands to the spacecraft and receive the valuable data that it collects.

"The entire team of scientists, engineers and programmers who have dedicated the last decade to this mission are the heroes today – along with our brilliant teams at the Deep Space Network who maintained signal lock through Perseverance's 'seven minutes of terror' as it descended toward the surface of Mars," Glen Nagle from CSIRO Astronomy and Space Science said.

In its first few days on Mars, Perseverance has begun its set-up phase, expected to take around 90 Mars days (about 148 Earth days) to complete. This has so far involved unfurling parts of the rover, including the arm and antenna, to connect the rover to four spacecraft orbiting the planet and establish direct communication with Earth.

Currently, the rover is undergoing an extensive checkout of all its systems and instruments.

The next steps are to upload the software needed to perform the next phase, deploy some more instruments and conduct the rover's first test drive. The Ingenuity helicopter will also be prepared for flight sometime in the next few weeks. Then, in a few months, the science program will kick off, beginning the hunt for signs of ancient microbial life on the Red Planet.

A number of Australian scientists will be integral to the success of this science program. Brisbane-born astrobiologist Abigail Allwood is the first woman and the first Australian to act as a principal investigator on a Mars mission, leading an instrument

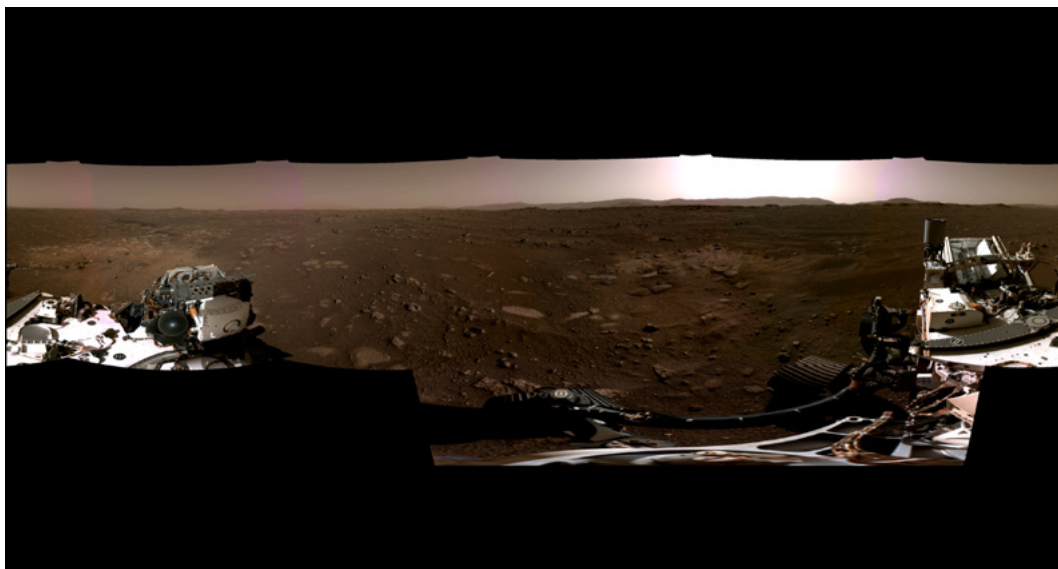


MEET THE MAKERS

START TOUR

Do you know who made your clothes?
Step inside an interactive 360 Degree Virtual Tour
of Australia's largest remaining uniform manufacturing facility.
Meet the local makers and hear their stories.

ADAY



This panorama, taken by the Navigation Cameras (Navcams) aboard Perseverance, was stitched together from six individual images after they were sent back to Earth. NASA/ JPL-CALTECH

called PIXL which aims to reveal the chemical structures that indicate past bacterial life in Jezero's three-billion-old rocks. David Flannery, a planetary scientist at the University of Queensland, is also serving as an instrument co-investigator and long-term planner for the mission.

Enrico Palermo, Head of the Australian Space Agency, has praised NASA on their successful landing of the rover.

"What was once science fiction is now a reality and we applaud NASA for continuing to inspire the global community with this exciting mission that could potentially unlock the wonders of space," Palermo said.

"The Australian Space Agency looks forward to working closely with NASA on future missions to the Moon and beyond in the years ahead."

MOST READ ONLINE AT WWW.AUSTRALIANDEFENCE.COM.AU



1. [NASA rover descends to Mars](#)
2. [Nuclear and conventional submarines are not mutually exclusive](#)
3. [Cyber security guide launched for SMEs](#)
4. [Five proposals secure funding under joint program](#)
5. [Vehicles delivered for Land 400 Phase 3 RMA](#)

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*National Association of Testing Laboratories. Learn more: <https://bit.ly/3QJ0AVn>



ATLAS ELEKTRONIK SECURES ATTACK CLASS BOW ARRAY DESIGN CONTRACT

Atlas Elektronik, a company of Thyssenkrupp Marine Systems, has been contracted by Lockheed Martin Australia (LMA) for the design of a new acoustic bow array for the Attack class submarines.

Atlas will be collaborating with its Sydney based Australian subsidiary Sonartech Atlas as a subcontractor for the design phase.

"We are delighted to be able to contribute to Australia's currently largest defence program," Michael Ozegowski, CEO of Atlas, said. "This capability solution was selected as it best met the commercial and acoustic technology requirements of the Australian

program. For Australia and the RAN, we are now developing one of the world's most modern solutions for a submarine acoustic bow array."

**"WE ARE NOW DEVELOPING
ONE OF THE WORLD'S MOST
MODERN SOLUTIONS"**

"The FSP Program pursues the Commonwealth's Strategic Objectives for a regionally superior submarine capability," Holger Bietz, LMA's Future Submarine Program Combat Systems Integrator (FSP-CSI) Program Subcontracts Lead said. "Regional superiority, at times, may require consideration of acquisition of advanced technologies from international partners. Atlas Elektronik offers a Bow Array solution that will significantly contribute to the Attack Class submarine capability. We are also very pleased that this subcontract involves Sonartech Atlas as a supporting Australian subcontractor."

The design of the Bow Array will be developed in Bremen, Germany. It will be based on an existing Atlas solution.



Atlas will be collaborating with its Sydney based Australian subsidiary Sonartech Atlas as a subcontractor on the Future Submarine. NAVAL



REDARC plans to use the co-funding investment to extend its smart factory and skill capabilities.

SUPPLIED

REDARC INVESTS IN SMART FACTORY APPROACH

REDARC is investing in Industry 4.0 technology and training with support from the Federal Government's Advanced Manufacturing Growth Centre (AMGC).

The Lonsdale-based manufacturer plans to use the co-funding investment of over \$800,000 to extend its smart factory and skill capabilities across its in-house and supplier operations.

**"AFTER DIGITISATION
THERE WILL BE SOMETHING
ELSE TO ADOPT"**

REDARC says it allocates up to 15 per cent of its yearly revenues to R&D.

"In that context, we need to have a nimble, agile and value-driven manufacturing base to be able to sustain that type of business and respond quickly to customer needs," Andrew Rogers, Manufacturing Engineering Manager for REDARC, said.

"Industry 4.0 is more than a buzzword; it represents the next leap in technological prowess and competitiveness. It should however be viewed as a journey without end, because after digitisation there will be something else to adopt to ensure we maintain our competitive edge.



Solving SWaP-C power challenges
for MIL-COTS applications

VICOR

LEARN MORE

"It's important that we bring our suppliers along in the process, as we prefer to control our quality and supply chain by making sure all parts of this chain work together."

The collaborative project is budgeted at a total of \$803,540, with AMGC contributing matched funds of \$397,770, with the remainder matched and in-kind funding from REDARC partners including Advanced Focus, Minitab, Swinburne University, Artis Group and CADWalk.

Local manufacturer Arkidelo, which injection moulds cases for REDARC's Tow Pro product, will play a part in the project's digital supply chain integration.

"There is a misunderstanding when it comes to the term advanced manufacturing, being advanced is not related to what you make, but how you make it," Dr Jens Goennemann, Managing Director, AMGC said. "Being advanced is about continual improvement in your processes, workforce skills and products across the critical steps of design, research and development, logistics, production, sales, service and support."

SMES ARE AN EDUCATION BRIDGE: NEW REPORT

A new study has found that small businesses are playing an increasing role in supporting education in local communities, particularly for underserved students.

The study, released by the Global Business Coalition for Education, examines businesses in 18 countries, highlighting the role small and medium enterprises play in supporting education and the innovative ways in which they are engaging their consumers in the cause.



SMEs are impacting millions of children through mentoring, tutoring, scholarships and more.

BEN MULLINS ON UNSPLASH

SMEs, which represent 90 per cent of existing businesses, up to 70 per cent of jobs and 40 per cent of country's GDPs, are impacting millions of children through mentoring, tutoring, scholarships, support to afterschool programs, financial contributions, and pro bono support.

"Small businesses can have a big impact by being the bridge between education and employment and provide better opportunities for children and youth globally," According to Justin van Fleet, Executive Director of the Global Business Coalition for Education.

"THE COMPLEXITY OF POLITICS AND ACTORS OFTEN MAKES IT DIFFICULT TO KNOW WHERE TO START OR HOW BEST TO INVEST IN EDUCATION"

The newly released report, *An Untapped Force for Global Education: an exploration of small and medium enterprises*, highlights many success stories from a sock retailer in the US and a gas supplier for households in Nigeria to a digital ticket broker in Australia and soap manufacturer in India, who every day are doing their part to improve education globally.

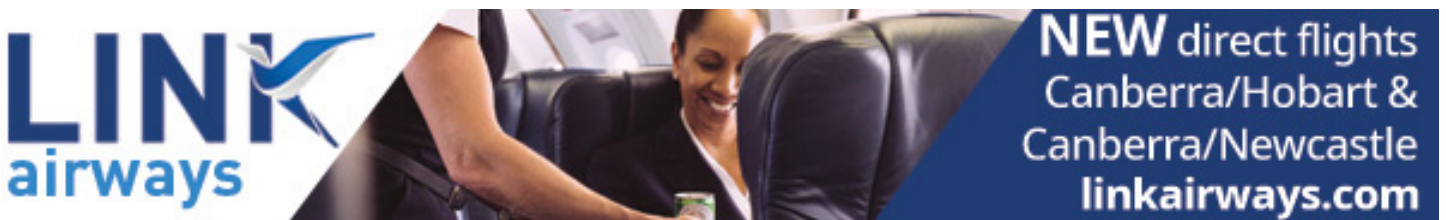
According to the report, while many small business leaders are eager to make a difference in their community, prepare the next generation for the future, attract young people to their line of work, or simply give back to the world, they often face challenges. The complexity of politics and actors often makes it difficult to know where to start or how best to invest in education.

The Covid-19 pandemic has accelerated the digital transformation in education and provides even more opportunities for business to get involved even as they see their own business models shifting to address to the new realities. As countries and communities look towards economic recovery, the report highlights how SMEs should be part of the solution to bridge the gap between education and employment. Through their knowledge, expertise, and connections with communities, SMEs can provide training and employment opportunities in their local communities or provide support to global education efforts.

To encourage more companies to support young people and make it easier for business leaders to make the most impactful decisions when investing in education, the report recommends easy steps to get involved, such as learning from other businesses' experiences, working with your suppliers or client companies, or supporting out-of-school programs like sports or music classes.

On the back of the report, small business leaders are signing onto a global pledge to support education in their communities.

"We hope that this report inspires other small businesses leaders to find ways to support education for children in their community and strengthen public education," van Fleet said. "It is good for young people and also good for business".



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Canberra/Newcastle
linkairways.com

Allegra Spender, CEO of Australian Business Community Network (ABCN), said its members want long-term partnerships with schools. She noted that SMEs seek to do good in the community but lack bandwidth to approach schools directly or to design effective programs. "It's good to have an intermediary because educators and business managers are different so they can misunderstand or let each other down," Spender said. "If businesses stick to what schools need, their value is huge. Our recent survey on what schools want from business showed that 90 per cent of them want to do more with business to help prepare young people for the future, supporting them to understand career options, raising and broadening aspirations, and providing a bridge of relevance for 'why are we learning that subject.'"

PEOPLE ON THE MOVE

ParaFlare has appointed the former Head of Information Warfare for the ADF as Strategic Advisor. Marcus Thompson was with the ADF for 34 years and joins ParaFlare effective immediately.

OFFICE OF INFORMATION COMMISSIONER ENTERS AGREEMENT WITH ARCHTIS

The Office of the Australian Information Commissioner (OAIC) has entered into a 12-month agreement to use the archTIS Kojensi SaaS platform.

The agreement has an initial total value of \$44,412, including support services.

The OAIC is an independent agency within the Attorney General's portfolio. Its primary functions are privacy, freedom of information and government information policy – with responsibilities that include conducting investigations, reviewing decisions, handling complaints, and providing guidance and advice.

archTIS' Kojensi is a platform designed to share and collaborate on sensitive and classified information for both Government and industry to help mitigate threats when sharing information across enterprise boundaries. Kojensi's attribute-based access control (ABAC) and sharing policies are designed to provide



archTIS CEO Daniel Lai.

SUPPLIED

**“KOJENSI IS A PLATFORM
DESIGNED TO SHARE AND
COLLABORATE ON SENSITIVE
AND CLASSIFIED INFORMATION”**

more complete and effective control over information.

“As part of its remit, the OAIC conducts activities that require the sharing of sensitive and classified information with other agencies and industry,” Daniel Lai, archTIS CEO, said. “Because Kojensi is accredited by the Attorney General’s department for use with

both government and industry, it is an attractive value-for-money solution for the OAIC.

“The contract also confirms archTIS’ strategy of supporting clients with their growing information and cybersecurity needs via the active management of electronic materials being transferred between external and counterpart organisations.”

NEW LAB TO RESEARCH HUMAN-AUTONOMOUS TEAMING

A new International Research Laboratory (IRL) launched in Adelaide will focus on humans-autonomous agents teaming: an area of research at the interface of artificial intelligence, computer science, engineering, technology, human factors and psychology.

The French Australian Laboratory for Humans-Autonomous Agents Teaming, shortened to CROSSING, is a collaboration between the French National Centre for Scientific Research (CNRS), the University of Adelaide, Flinders University, the University of SA, French technological university IMT Atlantique, and Naval Group, the only industrial partner.



The new lab will research the interaction between humans and autonomous systems.

DEFENCE

An IRL is a flagship international collaboration mechanism used by CNRS, France's leading scientific research centre.

"The CROSSING Lab will bring together leading French and Australian scientists from artificial intelligence, machine learning, computer science, engineering, psychology and human factors. They will work together to tackle important challenges in finding new ways for systems and humans to work together," Professor Jean-Philippe Diguët, Director of the lab, said. "The outcomes could provide significant advances in the way operators use control systems on ships, maintenance platforms in industry or

"THE CROSSING LAB WILL BRING TOGETHER LEADING FRENCH AND AUSTRALIAN SCIENTISTS"

services to assist within the home, and the way these systems are developed to assist and improve human performance to make work safer and more efficient."

The CROSSING Lab will join a network of more than 70 IRLs, but will become one of only five international research laboratories with industry partners in the world.

It will join the ranks of other labs in global innovation hubs, including Singapore, China, Japan and the US.

"At the CROSSING lab we will develop new ways for humans to work with robots and autonomous systems," Professor Anna Ma-Wyatt, from the University of Adelaide's School of Psychology, who is Co-Director of the new lab, said. "Human operators will cooperate with high-level automata, robots or adaptive information systems able to produce knowledge and to explore the physical or informational environment on their own."

WWII SQUADRON GIVES MODERN UNIT AN IDENTITY

In a historic occasion, Air Force's No. 83 squadron reformed on January 1, 76 years after it was disbanded and has taken in the former Distributed Ground Station – Australia (DGS-AUS) unit.

FLYING OFFICER KYLIE SPITERI | DEFENCE

No. 83 Squadron personnel will participate in a formation parade this coming Friday, February 26th, the 78th anniversary of the squadron's original formation. No. 83 squadron was originally formed on February 26, 1943, in Strathpine, Queensland.

CHANGING OUR WORLD





Soldiers from Distributed Ground Station – Australia, prepare for last year's Exercise Coalition Virtual Flag. DGS-AUS is now No. 83 Squadron.
DEFENCE/LEADING AIRCRAFTWOMAN JACQUELINE FORRESTER

The squadron was responsible for conducting home defence operations during World War II, flying P-39 Airacobra, Wirraways and Boomerang aircraft and was disbanded on September 18, 1945.

“THE UNIT REQUIRED A DESIGNATION IN ORDER TO BUILD ITS OWN HISTORY, CUSTOMS AND TRADITIONS”

DGS-AUS was originally formed as a flight under No. 87 Squadron to process, exploit and disseminate intelligence, surveillance and reconnaissance.

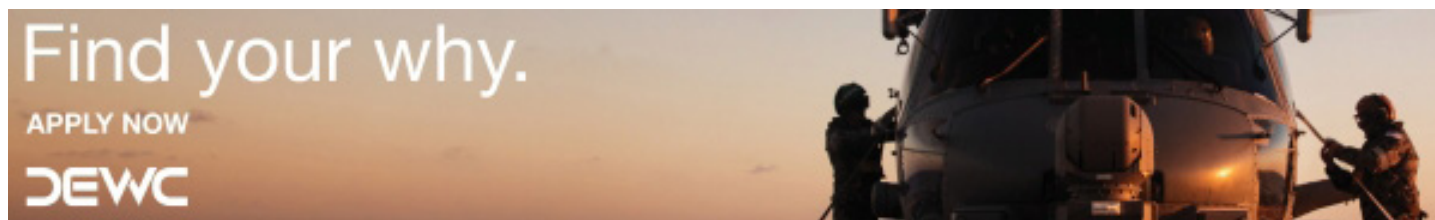
DGS-AUS became an independent unit under Headquarters' Information Warfare Directorate in January last year, and now is No. 83 Squadron.

Commanding Officer of No. 83 Squadron Wing Commander Andrew Miller said the squadron now start the rebuilding process.

“The term Distributed Ground System – Australia is a mission system descriptor. The unit required a designation in order to build its own history, customs and traditions,” he said.

“It was for this reason that No. 83 Squadron was reformed.

“No. 83 Squadron will employ the DGS-AUS weapon system, which is interoperable with coalition partners and has been developing since 2009.



"Similarly to being tasked with home defence in 1943, the reformed No. 83 Squadron will operate exclusively from RAAF Base Edinburgh in defence of Australia's national interests."

No. 83 Squadron's original role was to provide protection and surveillance of sea lanes, protect military installations and to provide close tactical support to ground forces.

The reformed No. 83 Squadron will process, exploit and disseminate intelligence, surveillance and reconnaissance for these same roles, and provide tailored analytical output for ADF operations.

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FORTHCOMING EVENTS

ADM EVENTS

More detail on ADM Events can be found on our [dedicated website](#).

- [Defence Estate and Base Services Summit](#) – 07 July 2021, Hotel Realm | Canberra
- [STEM in Defence Summit](#) – 16 August 2021, Emporium Hotel | Brisbane
- [Northern Australia Defence Summit](#) – 28 October 2021 | Darwin

AAUS RPAS IN AUSTRALIAN SKIES 2021

DATE 09-11 March 2021
LOCATION Hotel Realm Canberra
WEBSITE aaus.org.au/rpas-in-australian-skies-2021

The Australian Association for Unmanned Systems' "RPAS in Australian Skies 2021" conference is an important strategic event aimed at the continuing discussion on the safe integration of RPAS into Australian Airspace. It is supported by key government and industry participants and has established itself as a landmark event in the Australian RPAS calendar.

MARCH 2021 AVIATION AUCTION

DATE 12 March 2021
LOCATION 80 Beach Road, Lara, Victoria
WEBSITE australianfrontlinemachinery.com.au/march-2021-aviation-auction

With Australian Frontline Machinery – This huge ex-Military Aviation Auction includes 8 Pilatus PC-9/A Aircraft, 4 Schleicher ASK 21 Mi Gliders, an Aermacchi MB-326 'Macchi' grounded Jet Training Aid and over 200,000 Spare Parts direct from ADF up for auction on the 12th March 2021. Please check individual listings for each aircraft. Inspection held on 15th – 19th March 2021*. Inspection advised, video inspections available. *Subject to change



CELEBRATING SUCCESSFUL
WOMEN IN THE DEFENCE COMMUNITY

#WIDA2021

LOCATE21

DATE 30 March – 1 April 2021 (rescheduled dates)
LOCATION Brisbane Convention and Exhibition Centre
WEBSITE locateconference.com/2021

Due to COVID-19, Locate20 has been rescheduled for Locate21 happening in Brisbane March 30 – 1 April 2021. The event will focus on how geospatial technologies are intersecting with business, Government and defence to address national challenges. It's Australia's premier spatial conference with the inclusion of over 50 inspiring thought-leaders including speakers from government, academia, the defence force, technology, mining, natural resources and more. We believe this conference is of interest to defence personnel.

CHIEF OF ARMY SYMPOSIUM

DATE 19-20 April 2021
LOCATION Brisbane Convention and Entertainment Centre

In previous years, the Chief of Army's Land Forces Seminar (CALFS) was an event focused on counterpart engagement and featured as part of the broader Land Forces Exposition. In 2021, the Chief of Army's Symposium (CAS) will replace CALFS and will include a number of activities focused on partnerships, technology, innovation and people. It is scheduled to be held at the Brisbane Convention and Entertainment Centre over the period 19-20 April.

ARMY ROBOTICS EXPOSITION 2021

DATE 20 April 2021
LOCATION Brisbane Convention and Entertainment Centre

Army is hosting the Army Robotics Exposition 2021 (ARX 2021) to facilitate observation and demonstration of RAS concepts and technologies. ARX 2021 will provide an opportunity for Defence personnel including Capability Manager Delegates to view available technologies and innovations which may be applied to the future operating environment.

M M X X I
The Essington Lewis Awards
 RECOGNISING EXCELLENCE IN DEFENCE PROJECTS
 Presented by **ADM** + Department of Defence

ENTRIES NOW OPEN

**ENTRIES CLOSE 4PM,
FRIDAY 31 MARCH 2021**

TRUSTED AUTONOMOUS SYSTEMS SYMPOSIUM 2021

DATE 20-22 April 2021
LOCATION Townsville
WEBSITE tasdcrc.com.au/symposium2021

Trusted Autonomous Systems is pleased to launch information and registrations for the Accelerating Trusted Autonomous Systems Symposium, 20-22 April 2021 at 'The Ville' Townsville. There will be a breadth of perspectives on offer and interactions for those in academia and industry to senior Australian Defence Force (ADF) in leadership roles in Robotics, Autonomous Systems and Artificial Intelligence (RASAI). The Symposium is focussed toward a physical audience with a comprehensive technical capability to support virtual attendance and participation.

HUNTER DEFENCE CONFERENCE

DATE 22-23 April 2021
LOCATION Crown Plaza, Hunter Valley
WEBSITE www.hunterdefence.org.au

The Hunter Defence Conference will be held in April next year at the Crown Plaza in the Hunter valley. More details will be available soon.

LAND FORCES 2021

DATE June 1-3 2021
LOCATION Brisbane Convention Centre
WEBSITE landforces.com.au

The biennial LAND FORCES exposition is an international industry event to showcase equipment, technology and services for the armies of Australia and the Indo-Asia-Pacific. The Land Forces 2021 team is now setting about ensuring the event will achieve its goals of providing an effective platform for the exchange of ideas on key land forces issues and of taking Australian industry to the world.

ROTORTECH 2021

DATE 15-17 June 2021
LOCATION Royal International Convention Centre, Brisbane
WEBSITE rotortech.com.au

The new dates for Rotortech will be Tuesday 15 June to Thursday 17 June 2021. The venue, the Royal International Convention Centre in Brisbane, is unchanged. Rotortech is the region's premier helicopter and unmanned flight systems showcase and forum, featuring more than 100 participating companies and key speakers from industry and government. We believe that deferring Rotortech to its new June 2021 dates will achieve this goal by moving the event to a time where the COVID situation will have improved and the current uncertainties will have passed.

PROJECT AND PROGRAM MANAGEMENT SYMPOSIUM

DATE 10-12 August 2021 (rescheduled dates)
LOCATION Canberra Rex Hotel
WEBSITE pgcsymposium.org.au

Foresight is more valuable than hindsight! PGCS 2021 is designed to help project and program managers, and their sponsors and senior managers, develop the skills and understanding needed to deliver projects success in the next decade. Creating the organisational capability needed to underpin the consistent delivery of successful projects in the 2020s starts at the top. Now in its 8th year, PGCS 2021 will focus on ways to build the foundations needed to create project and program success

2022 MARITIME ROBOTX CHALLENGE

DATE 11-17 November 2022
LOCATION Sydney International Regatta Centre
WEBSITE dst.defence.gov.au/event/2022-maritime-robotx-challenge

Robonation and Defence Science and Technology Group are hosting the 2022 Maritime RobotX Challenge, an international autonomous maritime robotic vehicles competition. This competition will give teams of university students a unique opportunity to develop their autonomy skills. Using the WAM-V surface craft, participants will develop an autonomous maritime system that will be put through its paces in a series of tasks in the maritime domain.

AVALON 2021

DATE 23-28 November 2021
LOCATION Avalon Airport
WEBSITE www.airshow.com.au/airshow2021

The Australian International Airshow and Aerospace & Defence Exposition is one of Asia-Pacific's most prestigious aviation and aerospace events and the most comprehensive aviation, aerospace and defence exposition in the southern hemisphere. Avalon hosts multiple concurrent conferences and expo streams, across the spectrum of Defence, Airlines, Business and General Aviation, Sport and Recreational Aviation, Airports, MRO, Space, Unmanned Systems, Air Safety and Ground Equipment.

2022**INDO PACIFIC 2022**

DATE 12 May 2022
LOCATION ICC Sydney
WEBSITE pacificexpo.com.au

INDO PACIFIC, the biennial International Maritime Exposition, will combine an extensive exhibition presence, a comprehensive conference program and a schedule of networking and promotional opportunities. It will be the 12th iteration of this internationally renowned event, and will be a critical link event for Defence, government and industry as Australia defines how it will invest \$90 billion on new ships, submarines and their systems and support.

VARIOUS DATES**ASDEFCON TD /IP ONLINE COURSES**

DATE Various
LOCATION Online
WEBSITE defence@majortraining.com.au

Defence have begun online delivery of its short course on the Technical Data / Intellectual Property (TD/IP) clauses in its ASDEFCON suite of templates. These clauses provide far more flexibility and scope to deal with TD/IP issues than the previous ones. Defence will offer a number of spaces to Defence Industry on each online course to ensure the new TD/IP regime is successfully adopted by industry. These positions are centrally funded by Defence.

ICCPM ONLINE WORKSHOPS

DATE Various
LOCATION Online
WEBSITE iccpm.com/online-workshop-webinars

Designed to support project teams who are experiencing new challenges due to COVID-19 concerns – Learn how to mitigate new risk levels, effectively deploy virtual teams, manage messy problems and more. ICCPM Online Workshops and Webinars provide you with an easily accessible and engaging option to continue your training from anywhere in the world. These options provide you and your team with a conducive learning environment to support your complex project success.