



Floating dock at the Australian Marine Complex Common User Facility.

State-of-the-art infrastructure for the AMC

The Western Australian Government is investing in infrastructure at the Australian Marine Complex (AMC) to provide a platform for industry development and contribute to the growth of the State's economy.

As part of the 2009-10 State Budget, Treasurer and Minister for Commerce Troy Buswell announced a \$35 million allocation for a service and supply base to be built at the AMC servicing the oil and gas industry.

This will complement the \$174 million infrastructure upgrade program that is currently being undertaken, comprising the floating dock, transfer wharf and the Self Propelled Modular Transporter (SPMT) system.

The AMC, located in Henderson, is a world-class facility developed to enhance the opportunities created by industry clusters supporting the shipbuilding, defence and subsea oil and gas industries. It provides management,

research, design, manufacturing, fabrication, assembly, repair and maintenance services to these industries.

Since its opening in 2003, the AMC Common User Facility has seen high demand, generating in excess of \$233 million in business and creating more than 3,500 jobs from approximately 200 contracts directly undertaken at the facility.

The AMC \$35 million service and supply base will feature a service wharf to accommodate roll-on/roll-off vessels along a 4.4 hectare staging area located within the AMC Common User Facility.

Chevron Australia will be the first client to use the base to support operations for the State's biggest oil and gas project off the north-west coast, the Gorgon Project.

Commerce Minister Troy Buswell said the service and supply base would increase the infrastructure capabilities at the AMC and further stimulate the economy.

"Both the base and the Gorgon Project will have far reaching benefits for the State with Gorgon expected to inject billions of dollars into our economy and the base expected to create 46 direct jobs and 125 indirect jobs when it opens," he said.

Construction of the AMC service and supply base is expected to start in the second half of this year and is due to be completed by early 2010.

The floating dock, Self Propelled Modular Transporter (SPMT) system and transfer wharf are being pieced together one by one and will soon be available for use by industry.

The floating dock is set to commence trials in July. The infrastructure will have the capacity to lift a 12,000 tonne vessel out of the water for service and maintenance, while the SPMT system will have the capability of moving vessels and heavy duty modules weighing up to 4000 tonnes.

Minister's Foreword



The current economic climate has presented many challenges for Western Australia, however there are many opportunities that we can leverage to benefit the State.

The Federal Government has announced an \$80 million commitment to establish a Square Kilometre Array (SKA) science centre in Perth that will provide super computing capabilities. The investment complements and enhances the State's \$20 million commitment to the International Centre for Radio Astronomy Research.

This investment will significantly boost Australia's chances of securing the \$2.5 billion SKA project, and will place WA at the forefront of technology development and radio astronomy research.

I would like to acknowledge the work of the three Premier's Research Fellows in Radio Astronomy, Curtin University of Technology's Professor Steven Tingay and University of Western Australia's Professor Lister Staveley-Smith and Professor Peter Quinn.

The \$43 billion National Broadband Network will provide opportunities for Western Australia and will enhance the State's bid for the SKA. I have asked Federal Communications Minister Stephen Conroy to make the upgrade of the communications corridor between Perth and Geraldton the first funding priority for Western Australia.

The upgrade would mean that the Perth to Geraldton fibre optic link could handle the demands of both the SKA project as well as general telecommunications users.

The State Government is a strong supporter of developing innovative industries to boost Western Australia's economy. Infrastructure projects such as the service and supply base and the floating dock at the Australian Marine Complex have the potential to generate even more local, national and international industry commitment and participation, therefore stimulating the economy.

**The Hon Troy Buswell MLA
Minister for Commerce**



Nominations open for WA Science Awards

The nominations for the Western Australian Science Awards, previously known as the Premier's Science Awards, are now open.

The awards honour the outstanding and groundbreaking achievements of Western Australia's science and innovation community and recognise the important role of science in Western Australia.

These awards specifically acknowledge science communication, education and research, and provide Western Australians with an opportunity to publicly celebrate, encourage and reward the best scientists, science teachers and science communicators in Western Australia.

The new Western Australian Government has reviewed and updated the science awards' categories, criteria and prize money. The updated changes bring the awards in line with similar award programs throughout Australia.

The 2009 Western Australian Science Awards categories are:

Scientist of the Year \$50,000

This award acknowledges an individual scientist over the age of 35 who has demonstrated excellence in a field of science, science research or technological advancement in Western Australia over the past 10 years.

Young Scientist of the Year \$10,000

This award acknowledges an individual scientist under the age of 35 who has demonstrated excellence in a field of science, science research or technological advancement in Western Australia.

Science Educator of the Year Primary: \$10,000

This award acknowledges an individual primary school science teacher across the government or non-government sector, who has demonstrated excellence in improving science teaching and learning outcomes for their students over the past five years in a Western Australian school.

Science Educator of the Year Secondary: \$10,000

This award acknowledges an individual secondary school science teacher across the government or non-government sector, who has demonstrated excellence in improving science teaching and learning outcomes for their students over the past five years in a Western Australian school.

Science Outreach Program of the Year \$10,000

This award recognises an individual, group or organisation for an outstanding and innovative program of science outreach delivered within the past year. The program should increase public engagement and awareness of science and the value of scientific knowledge in the Western Australian community.

Nomination forms, guidelines and eligibility and assessment criteria can be downloaded from www.commerce.wa.gov.au/science_awards

For more information please email wasa@commerce.wa.gov.au

Nominations for the WA Science Awards close on Friday 31 July 2009 at 5 pm.

Boost for desalination research

Murdoch University has secured Federal Government funding to establish the National Centre of Excellence in Desalination at its Rockingham Campus.

The \$20 million investment over five years will assist with research and commercialisation of desalination technologies.

The State Government will contribute up to \$5 million in support for vital research that would ultimately help to protect Western Australia's future water supply.

Western Australia is already home to the nation's first desalination plant in Kwinana and planning for the State's second one in the South West is currently underway.

Celebrate National Science Week

Kids having fun at Shopping Trolley Science, one of the events held throughout National Science Week.

The logo for National Science Week, featuring the words "national science week" in a stylized, blocky font. The word "science" is the largest and most prominent, with "national" above it and "week" below it. The background is a light blue with some faint, abstract shapes.

Join in the fun and celebrate the 2009 National Science Week, to be held from 15-23 August.

Science, technology and innovation play an integral part in ensuring the well-being of our society and the sustainable growth of our economy.

National Science Week is a Federal Government initiative aiming to raise the profile and role of science, technology and innovation in maintaining and

improving our society, economy and the environment, as well as increase public understanding and appreciation of these fields.

The initiative also celebrates the contributions of the State's outstanding scientific minds and seeks to encourage greater participation and interest in science related courses and careers.

The WA National Science Week Coordinating Committee made up

of government, academia, industry and Scitech, has put together a great program of events for National Science Week in Western Australia and encourages everyone to participate.

For more information on National Science Week and the events held in Western Australia please visit www.scienceweek.gov.au or view the enclosed brochure.

First tenant moves into the Central Services Facility

Nova Defence has moved into its new office in the Central Services Facility (CSF) at the Australian Marine Complex (AMC) Technology Precinct.

Nova Defence provides the maritime industry, the Australian Defence Force and other government agencies with independent and professional testing, evaluation and systems engineering services.

Nova Defence Operations Manager Ian Salter said Nova had grown from its beginnings in the aerospace industry to provide specialty engineering to the maritime and land industries.

"It just seemed like the natural choice to expand into the AMC it is not only convenient to Garden Island but is the centre of gravity for the WA maritime industry," Mr Salter said.

Occupying Suite 3 at the CSF, Nova will use the facility to run its Operational and Acceptance Test and Evaluation courses for WA based defence personnel and industry.

Department of Commerce Technology Parks Manager Sandra Draper said Nova Defence would complement the vision of the AMC Technology Precinct.

"Nova Defence is a perfect fit with the direction the precinct is taking," Ms Draper said.

"To be located in a WA technology park requires organisations to meet specific criteria which ensure tenants maintain a research, technology and innovation focus and Nova ticks all these boxes."

The Function Centre is now open for use by AMC tenants and surrounding businesses seven days a week.

The Central Services Facility at the AMC Technology Precinct



The Function Centre features a boardroom with video and teleconference facilities, three meeting rooms and three function rooms in theatre or cocktail style for 40 to 250 people.

For more information or to make a booking, contact **Sam Deck** on **+61 8 9451 0888** or email functioncentre@techparkwa.org.au

WA's researchers tackling 'diabetes'



Associate Professor Vijay Jayasena and Bodhi's Bakehouse Alpar Myers with choc-chip lupin biscuits.

Researchers from the Centre for Food and Genomic Medicine (CFGM) are making great strides in the fight against 'diabetes' with the development of healthier alternatives to wheat-based foods.

The twin epidemics of diabetes and obesity, known as 'diabetes', are of growing concern in Western Australia and the world. Currently, more than 140,000 Western Australians are affected by diabetes and over 15 per cent of adults are classified as obese.

Research at CFGM has shown that flour produced from lupin kernels, as opposed to wheat, is higher in protein and fibre, with very few carbohydrates. Its low fat content and glycaemic index (GI) helps to reduce overall energy intake and appetite.

Slimmer's choice, a lupin-based bread developed by CFGM, has proven to be successful in helping people reduce meal sizes as a means for weight control, therefore driving the researchers at the centre to expand their product range.

In April, Fremantle's Bodhi's Bakehouse released a new low fat and sugar, high protein and fibre choc-chip lupin biscuit, based on the one developed by CFGM.

CFGM researcher, Associate Professor Vijay Jayasena of Food Science and Technology at Curtin University of Technology, said the lupin enriched biscuits had twice the protein and four times the fibre of similar products.

"We already know lupin flour foods can help people feel fuller for longer and curb calorie intake thanks to the legume's high protein and fibre content, so with the help of manufacturers such as Bodhi's Bakehouse we're creating a line of foods that offer lupin benefits, and choc-chip biscuits are the latest addition," he said.

CFGM Director Professor Peter Leedman said lupin-based foods were an exciting WA-made prospect that could help alleviate a global problem.

"It seems lupin foods have global potential which would not only lend possible health benefits to the State, but fantastic economic results as well, with WA at the head of the pack."

The Centre for Food and Genomic Medicine, based at the Western Australian Institute for Medical Research, was established through a three year State Government investment of \$4.5 million, managed by the Department of Commerce.

Nominations open for WA Industry and Export Awards

Nominations for the State's most prestigious business awards are now open.

The Western Australian Industry and Export Awards acknowledge the innovation, hard work and success of businesses, large and small, in reaching new markets.

Premier Colin Barnett said WA has a long history of producing successful businesses that achieve exceptional outcomes at home and overseas.

"The world is experiencing an economic slowdown that is having major repercussions for businesses globally. These awards provide us with the opportunity to focus on the positive achievements, determination and hard work undertaken by WA businesses during these difficult times," Premier Barnett said.

"I encourage all businesses to look back on your achievements and nominate yourselves in this year's awards."

The WA Industry and Export Awards, now in their 21st year, feature 14 industry and export categories as well as the Premier's Award for Excellence.

All State export category winners automatically progress as finalists in the Australian Export Awards to be held in November.

The 2009 awards, administered by the Department of Commerce, are sponsored by Austrade, Australia and New Zealand Banking Group, Craig Mostyn Group, Export Finance and Insurance Corporation, Fremantle Ports, Rio Tinto and The West Australian newspaper.

Nominations close on Wednesday 15 July. For more information contact **June Phillips** on **9263 8278**, email **industryexportawards@commerce.wa.gov.au** or to download an entry form, visit **www.commerce.wa.gov.au/industryexportawards**

Boost for Australia's clean energy industry

A national Clean Energy Innovation Centre (CEIC) has been established to help commercialise clean energy technology for small-to-medium sized enterprises.

The Australian Government has committed \$20 million to the centre, which will be hosted by Newcastle Innovation (the commercial arm of the University of Newcastle) and delivered in partnership with the Australian Institute for Commercialisation and the Western Australian Sustainable Energy Association (WASEA).

These organisations will assist small and medium enterprises operating in the clean energy sector. Free on-site business reviews, conducted by expert business advisers, will also be offered for eligible businesses in the clean energy sector. Businesses can then apply for matching grants of up to \$20,000 to make improvements identified in the review.

WASEA, Western Australia's largest peak body for enterprises across the sustainable energy sector, will be expanding its operations to deliver the CEIC services for Western Australia.

WASEA is a chamber of businesses providing commercial solutions through their products and services to combat climate change. It also includes businesses that simply aspire to be more sustainable in their own energy use.

The organisation's Chief Executive Officer Dr Ray Wills said the centre will offer a range of business improvement services.

"We want to help small and medium sized clean energy companies find and adapt the latest research and technology to improve products and manufacturing processes," he said.

"This will potentially lead to these companies growing their commercial activities."

The Department of Commerce assisted WASEA with a coordinated Western Australian application and travel assistance to participate in briefings as the WA representative.

For more information on the Clean Energy Innovation Centre please visit: www.enterpriseconnect.gov.au/Innovation/Pages/CleanEnergy.aspx



Dr Peter Rogers and Dr Jane Fromont checking the marine specimens at the new marine library.

Archiving marine life for future generations

A WA Marine Bioresources Library has been established in Western Australia to house specimens, some of which may have useful anti-cancer compounds.

The initiative is a joint venture between the Western Australian Museum and the Western Australian Marine Science Institution (WAMSI). It is one of WAMSI's 87 research projects.

Chairman of the WA Marine Science Institution Dr Peter Rogers said the library would be of enormous benefit to medical researchers, the aquaculture industry and others by having access to a large number of marine specimens.

"WA is a hotspot in terms of endemism, or unique species found nowhere else in the world," he said.

"Three types of marine samples – a sponge, a sea squirt and a soft coral – all having different anti-cancer compounds, have already been collected. There exists a real opportunity for ongoing development for commercial applications should WA introduce biotechnology legislation."

The marine samples, many frozen, are now being identified to species by WA

Museum staff and catalogued so that if a sample is found to have high bioactivity and likely commercial value, its location and time of collection are known, and the potential for it to become part of a new industry, which will help the community, is increased.

Curator of the Museum's Marine Invertebrate Section Dr Jane Fromont said the WA Marine Bioresources Library was creating a georeferenced biodiversity database and establishing a central reference point for WA marine specimens.

"It is exciting to have a new repository for WA marine species containing frozen and chemically extracted materials," she said.

"One of the areas producing some of the most interesting specimens is the deep water off Ningaloo Reef, a biodiversity hotspot with an untapped wealth of species.

"The library is a value-adding project because we can build on our knowledge of pharmaceutical and aquaculture benefits while at the same time understand the biodiversity and richness of our extraordinary marine environment."

Premier's Research Fellow advancing radio astronomy research

Premier's Research Fellow in Radio Astronomy Professor Steven Tingay is advancing radio astronomy research in Western Australia to assist Australia's bid to host the Square Kilometre Array (SKA) project.

With his expertise in designing radio telescopes and complex software systems for processing radio astronomy data, Professor Tingay is passionate about contributing to the national and international efforts to design and characterise the SKA.

"I am currently Project Manager of the Murchison Widefield Array (MWA), a pathfinder telescope that is being built at the Murchison Radioastronomy Observatory alongside the CSIRO Australian SKA Pathfinder (ASKAP)," he said.

"I am also running a facility at Curtin University of Technology that combines data from all major radio telescopes in Australia using high speed optical fibre networks into a single continent-sized telescope, for the study of galaxies and stars in fine detail. This work brought together a national collaboration of resources from Curtin, CSIRO, AARNet and iVEC.

"This is partly a technical demonstration for the SKA, since the SKA will need to achieve this task over thousands of telescopes and distances of 3000 km."

As Deputy Director of the International Centre for Radio Astronomy Research, Professor Tingay hopes to contribute to building a critical mass of astronomy researchers in WA.

"This new community of researchers will play a lead role in the utilisation of the SKA pathfinder telescopes such as the MWA and ASKAP and will mesh with future large SKA developments in Western Australia, as recently announced in the Federal budget," he said.

Professor Tingay is also devising science programs to be undertaken on the ASKAP, developing Curtin's undergraduate program in astronomy and astrophysics as well as coordinating outreach programs as part of the 2009 International Year of Astronomy.

"All of these programs are important as they expose students and young people to the wonders of astronomy and astrophysics, potentially leading to an uptake of careers in science,



Premier's Research Fellow Professor Steven Tingay.

engineering and IT, as well as engage WA industries to take advantage of possible opportunities arising through the SKA project."

The Premier's Research Fellowship Program, administered by the Department of Commerce, seeks to attract outstanding national and international researchers to WA to conduct scientific research that is internationally competitive and of specific benefit to the State.

WA student's research assists oil and gas industry

University student Cassandra Currie has made the most of her opportunity to undertake paid work experience working alongside skilled professionals as part of the Science and Innovation Studentship Awards.

As one of the recipients of last year's awards administered by the Department of Commerce, Cassandra was awarded a \$7000 scholarship to conduct a scientific project with a Western Australian company for ten weeks.

Cassandra, a physics student from Curtin University of Technology, worked with RPS MetOcean to analyse the North West Cape shelf slope currents by investigating the response of the water column to tropical cyclone conditions.

"This project involved looking at what current strengths were generated, how they differed in speed and direction through the water column, how water depth and coastal constraints or bathymetry influenced these currents,

and the length of time the currents persisted," she said.

"This research is useful in the exploration of oil and gas in the North West Shelf and near the North West Cape, as any understanding of the currents at depth can contribute to safe exploration of these resources.

"The results of the research I undertook will supplement the existing knowledge base and can be used to validate numerical models that predict ocean conditions. This will provide more accurate information to the oil and gas industry."

Cassandra said the work experience provided her with an opportunity to further enhance the skills she developed at university.

"I was also able to learn more about ocean currents, the development and movement of tropical cyclones, how to use industry specific systems and



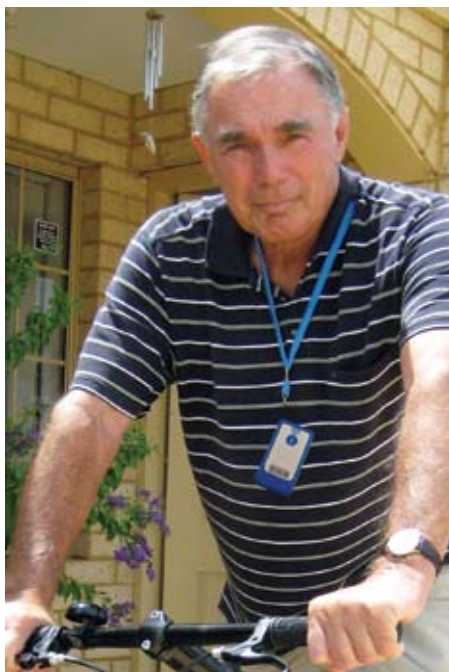
Cassandra Currie with an acoustic current meter designed and built by RPS MetOcean.

programs as well as using different analysis methods and interpreting results.

Cassandra hopes to pursue a career in research, in particular physical oceanography. She has enrolled at Curtin University of Technology to complete an Honours degree in Physics, with future plans to undertake a PhD.

RPS MetOcean is a leading consultancy providing oceanographic and meteorological services in support of coastal and ocean engineering and environmental protection.

WA innovation to help people living with dementia



The Safe2Walk GPS location system can be worn around the neck and provides freedom for people with dementia.

Western Australians living with dementia who are at risk of becoming lost can now be located using GPS location technology developed by WA company, iTrack Pty Ltd, in collaboration with Alzheimer's Australia WA.

The Safe2Walk GPS personal alert and locator service will provide people living with dementia independence and improved quality of life while keeping them safe. It is also expected to reduce the time and resources spent by the community and police to find missing people.

According to Alzheimer's Australia WA, about 60 per cent of people with some form of dementia will become lost at some time and a person with dementia who is missing for more than 12 hours doubled their risk of dying or being seriously injured.

Managing Director of iTrack Pty Ltd Victor Chang said the company is proud to have been able to provide peace of mind to carers of people with dementia and reduce the workload of the police department.

"We hope that this solution will assist aged care groups as well as open up avenues to improve the quality of life for our ageing population."

The Safe2Walk GPS location system, developed after a two year study by Alzheimer's Australia WA in collaboration with iTrack Pty Ltd, includes a simple-to-use, one-touch mobile phone and panic alert for the person with dementia to use. The device also provides an accurate location of the person on a website.

Based at the Bentley Technology Park, iTrack Pty Ltd designs custom GPS tracking devices, leveraging various communication networks to locate and manage assets and resources in the global community.

Information on the Safe2Walk GPS device can be found at www.safe2walk.com.au

For more details about iTrack Pty Ltd please visit www.itrack123.com.au

Best friends represent WA in international science challenge

Two of the State's talented science students have represented Western Australia in one of the world's biggest biotechnology competitions, the sanofi-aventis International BioGENEius Challenge held in Atlanta, USA.

Best friends and Year 11 St Mary's Anglican Girls' School students, Yasmin Soliman and Kayla Mizzi were the only students outside of North America to participate in the competition.

The sanofi-aventis BioGENEius Challenge is a competition in which school students are paired with a mentor from WA's science and innovation community to complete a high-level biotechnology project.

WA's Chief Scientist and WA BioGENEius Challenge judge Professor Lyn Beazley said the competition attempted to simulate the real-life science and research environment for participating students.

"The challenge allows students to work alongside some of the most experienced scientists and researchers in WA giving them a clear advantage over other students before they start university.

In some instances, it might just be the extra encouragement they need to view science as a viable career option," she said.

Yasmin Soliman's project involved collecting data that could potentially be used to help control weeds in crops without the negative impacts associated with blanket-spraying and spot-spraying.

Mentored by Arie Paap and Professor Kamal Alameh from the Electron Science Research Institute at Edith Cowan University, Yasmin used a spectrometer to measure the optical properties of weeds and plants to create a catalogue that will be used in the development of a wider project that could have positive outcomes for the farming industry globally.

Kayla Mizzi's project could potentially improve the efficiency of a treatment for Duchenne Muscular Dystrophy, a muscle-wasting disease that affects one in 3500 young boys around the world.

Duchenne Muscular Dystrophy is caused by mutations of the dystrophin gene and Kayla's research explored potential new genetic band-aid targets



WA BioGENEius winners and best friends Kayla Mizzi (left) and Yasmin Soliman.

to try and skip mutations that cause the disease.

Kayla was mentored by Professors Steve Wilton and Sue Fletcher from the Centre for Neuromuscular and Neurological Disorders at the University of Western Australia.



Professor Steven Tingay (left) and Wajarri Yamatji elder Tedo Ryan, looking at the Wajarri Yamatji country (photo courtesy of Dr Megan Argo).

Sky's the limit for Indigenous art

Indigenous artists and astronomers recently gathered in the Mid West to celebrate and explore the connection between radio astronomy and Indigenous culture through art.

The group spent two days camping on Wajarri Yamatji land to examine the night sky as part of the 2009 International Year of Astronomy. Telescopes and binoculars were used to gaze at Saturn, the stars and galaxies.

The trip will be the inspiration for an art exhibition titled Ilgarijiri – things belonging to the sky, and will be on display at the Geraldton Regional Art Gallery in June and July.

International Centre for Radio Astronomy Research (ICRAR) Deputy Director Professor Steven Tingay said the group made a special visit to Australia's selected site for the world's biggest radio astronomy project, the Square Kilometre Array (SKA).

"Australia's core site for the SKA project in the State's Mid West, the Murchison Radioastronomy Observatory, is located on Wajarri Yamatji land," Professor Tingay said.

"The Wajarri Yamatji country is an area rich in Indigenous culture but it is also one of the most interference-free places on Earth, making it an ideal location to operate the sensitive radio telescopes needed for the SKA project."

The group was made up of three astronomers from ICRAR, twelve Indigenous artists from Geraldton and Mullewa and a number of Yamatji Arts Indigenous Art Cooperative staff members.

Professor Tingay said the visit was organised to share cultural insights between Indigenous artists and astronomers.

"During our two days in Wajarri Yamatji country we exchanged cultural ideas and

thoughts about the sky from our different backgrounds," he said.

"The visit allowed the artists to draw inspiration from the country, the telescopes, and the sharing of stories about the night sky to produce a collection of artwork connecting the land, culture and astronomy."

The exhibition will be launched in Geraldton on Friday 12 June and will run for six weeks. Curtin University of Technology in Bentley will welcome the display in September.

For more information and updates, visit www.ilgarijiri.wordpress.com

Australia and Southern Africa have been short-listed as potential sites to host the SKA project. A final decision is expected to be made in 2011-12.

Contact details

State of the Future is received by more than 4000 key industry representatives, local councils, media and other organisations. The newsletter is a great way to promote your business. In each issue we profile different companies within the science, technology, innovation, industry and enterprise fields.

If you have some news or a story to tell about what your company is up to for *State of the Future* please contact:

**Department of Commerce
Science, Innovation and Business Division**

Email: sotf@commerce.wa.gov.au
Phone: 08 9263 8279

Various stories have been written in conjunction with ScienceNetwork WA. For more information on Western Australian initiatives please visit www.sciencewa.net.au

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Government of Western Australia
Department of Commerce

