



Science, Technology and Education News from Australia, January 2012

Upcoming Science and Technology Related Events in Australia

> **21st February 2012 6.30pm – 8.30pm**
1st Annual Swiss Alumni Meeting – University of Sydney

➔ If you are Alumnus/Alumnae of a Swiss university and reside in Australia, you are welcome to join. Please contact:
christian.schneider@eda.admin.ch

> **22nd-24th February 2012**
15th Australasian Wind Engineering Society Workshop – Keynote Speaker: Prof Jan Carmeliet, ETH Zürich

➔ If you wish more information, or wish to participate, please contact: christian.schneider@eda.admin.ch

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1. Science and Technology Policy in Australia

Nominations for 2012 PM's Prizes for Science now open

(Jan 31, 2012)

The Prime Minister's Prizes for Science are a national tribute to excellence in science and science teaching, relying on nominations from across Australia. Nominations close on Friday 27 April 2012 at 5.00 pm. The Prime Minister's Prizes for Science are the nation's most prestigious and highly regarded awards for excellence in science and science teaching. Five prizes are awarded annually to Australian citizens or permanent residents each year. The prizes are a tribute to the contributions that Australian scientists have made to Australia and international economic and social wellbeing as well as the contributions science educators have made by inspiring and encouraging an interest in science in their students.

Link to the nominations:

<http://www.innovation.gov.au/Science/InspiringAustralia/PrimeMinistersPrizesforScience/Nominations/Pages/default.aspx>

(Australian Academy of Science)



2. Education Policy

We risk losing education race, Julia Gillard warns

(Jan 24, 2012)

Julia Gillard says Australia is at risk of losing "the education race" with its Asian competitors, warning it could become "the runt of the litter" unless there was sustained reform. After more than four years of education reforms and increased spending under Labor, the Prime Minister yesterday produced OECD figures indicating that Australian education standards were falling relative to those of Asian nations like Korea, Singapore, Japan and the Chinese city of Shanghai.

(The Australian)

Universities make more offers as caps scrapped

(Jan 18, 2012)

Universities in four states have substantially increased the number of offers they make to students to try to boost enrolments to meet federal government targets for higher education and to recoup recent investment in expanding their capacity. To attract enough students, universities are not only reducing the required entry scores for school leavers but are also offering more places to mature students and those from the technical education. The federal government announced it would phase out enrolment caps in 2009 as part of a policy to allow universities to meet national targets for participation in higher education. Universities invested heavily to gear up for the changes, with the cap removed in full this year. But universities have been allowed to increase their numbers since 2010, meaning much of the pent up demand for a university education has been met.

School's in



SOURCE: VTAC
(Australian Financial Review)

Figures of International Students in Australia

(Jan 24, 2012)

The Australian, under their Higher Education column, produced a special report with an interactive map, which tracks student movements into and out of over 140 countries across the globe. A complete report follows this interactive map. According to the report, the top 5 international student sources for Australian universities are China with around 70,000 students, followed by India (26,570), Malaysia (19,970) and Singapore (10,394). Looking at the figures in regards to preferred destination for Australian students, the top 5 of their destination are the US (3,150), New Zealand (2,934), the UK (1,647), Germany (347) and Japan (326). For more details and more data, please click on the following links.

Link to the interactive map: <http://www.theaustralian.com.au/higher-education/student-migration-map>

Link to the full report: <http://www.theaustralian.com.au/higher-education/international-students>

(The Australian)

3. Life Science / Health Care / Biology

Blue whales keep getting bigger

(Jan 31, 2012)

Blue whales are the largest animal to have ever lived on Earth and - for now - are continuing to get bigger, say researchers. The findings come out of a study by evolutionary biologist Dr Alistair Evans, of [Monash University](http://www.monash.edu.au) in Melbourne, and colleagues. When the dinosaurs and their marine cousins went extinct 65 million years ago, mammals took the opportunity to take advantage of the space these creatures had previously occupied, says Evans. The study estimated the body size of hundreds of species in 28 different orders of animals in 20 time periods over the past 70 million years. Co-author zoologist Dr Erich Fitzgerald of Museum Victoria says whales in general have continued to get larger and could theoretically continue to grow assuming they could get the food they require.



(ABC Science)



Thylacine passes extinction test

(Jan 16, 2012)

Two researchers from the [University of Queensland](#)'s school of biological sciences report their findings in a recent issue of [Conservation Biology](#). Since the last wild thylacine was captured in 1933, there have been ongoing searches and numerous unconfirmed sightings of the carnivorous marsupial. In the past, says Fisher, up to a third of mammals classified as extinct or probably extinct have later been rediscovered. For example, the Brazilian Tree Rat was recently found, 180 years later after it was declared extinct. But, says Fisher, such efforts are misguided. "There's been more search efforts for the thylacine than any other mammal globally," she says. "I think that's just a waste of money."



(ABC Science)

Devastating blood fluke's code cracked

(Jan 20, 2012)

An international team, led by Dr Neil Young from the [University of Melbourne](#), sequenced the genome of *Schistosoma haematobium*. The scientists have unravelled the genetic code of the blood parasite that causes an insidious tropical disease linked to bladder cancer and HIV/AIDS in Africa. Their work also identifies possible targets for the development of drugs and vaccines for schistosomiasis, also known as bilharzia or swimmer's itch. Affecting around 112 million people in Africa, *Schistosoma haematobium* causes chronic urogenital tract disease and is linked to bladder cancer and susceptibility to HIV/AIDS. "That's a tremendous breakthrough because it means we don't have to grow the animals in the lab," says Young. Proving the technique works makes genetic sequencing more effective and opens the way for studying other types of neglected parasitic diseases, says Young.

(ABC Science)

Gene for lifetime intelligence probed

(Jan 20, 2012)

Genes are responsible for 40 per cent of our lifetime intelligence, say researchers, with the other 60 per cent being determined by our environment. Geneticist Professor Peter Visscher, of the [University of Queensland](#), and colleagues, report their findings online in the journal *Nature*. According to Visscher, the more intelligent you are the longer you live, the healthier you are, and the higher your income is later in life. So it's no wonder there is so much interest in understanding what determines intelligence. Until now, there has been little understanding of the genetic contribution to cognitive ageing, or how smart we stay as we get older. While the results show that overall, environment contributes more than genes to determining intelligence, says Visscher, both play an important role. He says while it is important to study the environmental determinants of intelligence, it is a lot easier to study genes. "Measuring detailed environmental factors over a person's entire life course is very very difficult," says Visscher. And he says genetic studies of larger samples in the future could help identify specific genes involved in mental ageing, which could also help in understanding the biology of Alzheimer's.

(ABC Science)

4. Energy

Solar guru receives Australia Day honour

(Jan 19, 2012)

Professor Martin Green of the [University of New South Wales](#) has been made a [Member of the Order of Australia](#) (AM) for his work on photovoltaics. Professor Green advises that Australia needs to look to Germany if it is to realise the potential of solar cell technology, says an expert who is being honoured today. "Germany has been the only country that's had a sensible long-term program in place to promote the use of renewables," says Green. He added that the advantage of solar cells is they produce most of their energy in the day when energy use is at its highest. Green points to data from Germany where nearly one million (mainly rooftop) solar panels supply the equivalent of a dozen nuclear power plants, or about 40 per cent of the maximum demand in Australia.

(ABC Science)



5. ICT

Robotics scientist recognised for research

(Jan 26, 2012)

Swarms of tiny robotic aircraft using insect-style vision could be feasible in a decade, says an expert recognised for his work this Australia Day. Professor Mandyam Srinivasan of the [Queensland Brain Institute](#) has been made a [Member of the Order of Australia](#). "I don't think we'll ever understand everything but I think we understand about 80 per cent of how the insect navigation system works," says Srinivasan. Srinivasan, whose original background was in engineering, has been using insect vision as a model for vision systems in small unmanned aerial vehicles (UAVs) that can navigate autonomously and recognise targets. Central to the development of Srinivasan's UAVs is a panoramic imaging and surveillance system which, like an insect eye, can capture almost the entire environment around it.

(ABC Science)

6. Physics / Astronomy

Australia Day honour for plasma physicist

(Jan 26, 2012)

One of this country's leading plasma physicists has been recognised for his work in today's Australia Day honours list. Professor Rod Boswell from the [Australian National University](#) has made a [Member of the Order of Australia](#) (AM). His team, which includes fellow ANU physicist Christine Charless are engaged in broad ranging research, including contracts with European aerospace giant Astrium EADS to develop plasma propulsion systems for next generation spacecraft. "We're aiming to improve our plasma thruster and have just been given a large grant to build a testing facility," says Boswell. "We're working with colleagues in France and the UK towards using it on satellites, to move them into graveyard orbits so they eventually fall and burn up in the Earth's atmosphere and so start removing the problem of space junk," says Boswell. "We're working with the astronomers from [Mount Stromlo](#) to help with their technology push which is interesting because Brian Schmidt has just been awarded the Nobel prize for physics, so we're all very proud to be working with such a guy, and he also makes a very good Pinot Noir."

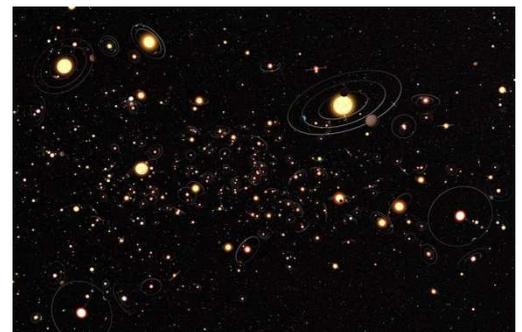
(ABC Science)

Survey suggests billions of planets in galaxy

(Jan 12, 2012)

A new study suggests each star in the Milky Way galaxy is most likely orbited by a planet - and there's a good chance that planet is closer in size to Earth, than to Jupiter. The findings, which appear in the journal [Nature](#), mean extrasolar planets (exoplanets) are far more numerous than previously thought, increasing the possibility of life existing beyond Earth. Planetary scientist Dr Simon O'Toole from the [Australian Astronomical Observatory](#) says, "The findings mean the chances of life appearing elsewhere in the galaxy go up astronomically".

(ABC Science)



7. Environment and Climate Change

Carbon dioxide affecting fish brains: study

(Jan 16, 2012)

Australian researchers found that carbon dioxide concentrations predicted to occur in the ocean by the end of this century will interfere with fishes' ability to hear, smell, turn and evade predators. The Australian Research Council's [Centre of Excellence for Coral Reef Studies](#) says it had been testing the performance of baby coral fishes in sea water containing higher levels of dissolved CO₂ for several years. "And it is now pretty clear that they sustain significant disruption to their central nervous system, which is likely to impair their chances of survival," says study co-author Professor Phillip Munday. "Elevated CO₂ in the oceans can directly interfere with fish neurotransmitter functions, which poses a direct and previously unknown threat to sea life," says Munday. Around 2.3 billion tonnes of human CO₂ emissions dissolve into the world's oceans every year, causing changes in the chemical environment of the water in which fish and other species live.



(ABC Science)

Geology secrets shown up in scans

(Jan 12, 2012)

Scientists from the Australian National University believe they have uncovered the geological secrets showing the opening of the Tasman Sea, the break-up of Australia and Antarctica and more recent volcanic activity in Victoria. "Just like a human CAT scan fires X-rays at all angles and uses their cross points to build an image, that's what we did with the Earth." Dr Rawlinson said the resulting picture had revealed a history of the Australian continent spanning almost half a billion years. Dr Rawlinson's team, which includes researchers from overseas, has finished its studies in Victoria, Tasmania, most of NSW and some of South Australia, and will soon extend to Queensland. If successful, the team could uncover data that would help miners understand, and predict, why and where certain mineral deposits are formed.

(The Canberra Times)

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