

# ANNUAL REPORT

2010



eResearch SA  
connect • communicate • collaborate

**eResearch SA**

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# About eResearch SA



eResearch SA's mission is to enable discovery, innovation and collaboration by providing eResearch facilities, services, training and expertise. eResearch SA provides advanced ICT solutions to all South Australian researchers.

We have the infrastructure to support researchers with data management and sharing, research collaboration, high-performance computing for simulation and data analysis, visualisation, and education and training.

eResearch SA has a strong record of supporting researchers via its high-performance computing capability and also has a broad current focus that encompasses new research opportunities, methods and disciplines.

By providing a suite of advanced ICT tools and services, we enable all researchers

to explore new and innovative research opportunities that would not otherwise be accessible.

eResearch SA was established in 2007 to coordinate the implementation of national and state eResearch strategies in South Australia, and replaces the South Australian Partnership for Advanced Computing (SAPAC).

eResearch SA is a collaborative joint venture between the University of Adelaide, Flinders University and the University of South Australia.

eResearch SA provides eResearch support, training, infrastructure and services for South Australia's vibrant research community, spread across its three universities, Australian Government and State Government agencies.

Leadership and strategic direction is provided by the eResearch SA Board. It is comprised of the Deputy Vice-Chancellors (Research) of the University of Adelaide, Flinders University, and the University of South Australia, an independent Chair, and the eResearch SA Director as a non-voting member.



eResearch is the application  
of advanced information  
and communications  
technologies to the practice  
of research.



eResearch SA provides tools and services to South Australia's leading researchers and research organisations. More than 200 researchers from a diverse range of disciplines use our systems and services



### Research collaboration

Using eResearch SA's video and web collaboration tools, you can meet, communicate, and exchange data with researchers in Australia and overseas, just as easily as you might with colleagues in your own offices.



## High-performance computing

With two state-of-the-art supercomputers and strong involvement in the national supercomputing grid, we make it easier for you to use high-performance computing resources. Access, training and support are generally free for eResearch SA member institutions.



## Data management and sharing

eResearch SA manages more than 250 terabytes of data storage. We provide facilities and support for researchers who need flexible and inexpensive data solutions. Using our services, you can store, access, transfer, backup, and share your data with your colleagues.



## Visualisation

eResearch SA offers advanced visualisation facilities that you can use to explore abstract concepts, complex data sets, and the structure of objects. Our facilities are applicable to disciplines as diverse as molecular chemistry, art history, and geology.

# Director's report



In 2010 I was appointed the first full-time Director of eResearch SA, heralding in an exciting new phase for the organisation.

When I began in August I was enthused by the groundswell of eResearch activity in South Australia and that eResearch SA was well positioned as the state focal point for a number of significant national projects including ANDS and NCRIS, which are funding world-class research projects in South Australia.

I saw that with this groundswell there would be new technical challenges for the researchers involved, and that this presented a wonderful opportunity to prove and display the enormous potential of eResearch to enable new research opportunities.

As a joint venture of the three South Australian Universities, I see eResearch SA as the interface for researchers to access technology solutions; and as South Australia's point of focus for national eResearch funding.

As this annual report highlights, eResearch technologies and the services we provide (research data storage and management, high-performance computing, visualisation, collaboration tools, technical expertise, software development, web hosting) enable new and exciting research opportunities.

Perhaps one of the most exciting things about these eResearch tools and services is that they can be applied to any discipline. They are cost effective and

accessible, easy to use and specialist IT knowledge is not required.

Based on our successes in 2010, in 2011 I wish to see South Australia to continue to attract more than its fair share of national eResearch funding; I'd like another of the South Australian universities to be a lead agent on a national eResearch project, and I will continue to encourage outreach to Flinders University, Mawson Lakes, Waite, Roseworthy, the State Government, and commercial businesses.

I would like to thank James Tizard, CEO of SABRENet Ltd, for his work as the interim Director of eResearch SA from 2009-10.

I also thank the research community of South Australia for their continued support.

Finally, I would like to thank our most

important asset - the staff at eRSA, for their enthusiasm and hard work over the course of 2010.



Mary Hobson  
Director, eResearch SA

# eResearch projects



## **Understanding the universe**

Tera-electron volt (TeV) gamma-rays are extremely high-energy photons that are generated by astrophysical phenomena such as supernova explosions, black hole environments, and pulsars. The fact that we detect gamma-rays from such objects tells us there are very energetic physical processes occurring in these objects.

TeV telescopes allow us to detect the gamma-ray photons indirectly as they enter and interact with Earth's atmosphere. Data from the telescopes yield information such as the direction of the source and the energy of the photons. These observations are important because they reveal information about the universe that cannot be measured with other types of telescope.

Dr Gavin Rowell, of the High-Energy Astrophysics Group in the University

of Adelaide's School of Chemistry and Physics, has been studying this field of astronomy for 20 years and has worked in Japan, Germany and Australia.

He has been working with the High-Energy Astrophysics Group on the design of an array of up to 50 TeV gamma-ray telescopes, each approximately 6 metres in diameter.

This array is designed to open up a new window in TeV gamma-ray astronomy. Gavin's plan to build a telescope array in outback Australia marks significant progress by Australian researchers in this area of astronomy.

Gavin and his group use Hydra, one of eResearch SA's high-performance computers, to simulate the interaction that occurs when TeV gamma-rays and 'cosmic rays' interact with our atmosphere, and to

model the optimal design of the array of these telescopes so that they can discern gamma-rays from cosmic rays.

Cosmic rays cause complications in the analysis of data from a gamma-ray telescope because they produce signals which are similar to those of gamma-rays.

Using Hydra to model how the telescope and data analysis respond to both gamma-ray and cosmic ray events means that the design of the telescope array is as efficient as possible, giving Gavin's team new information about some of the universe's most remarkable mysteries.



# eResearch projects

## Unlocking the secrets of evolution

Professor David Adelson, Chair of Bioinformatics and Computational Genetics at the University of Adelaide's School of Molecular & Biomedical Science, is part of a significant international project that is mapping cow and horse genomes to understand and describe the entire complement of their genetic material.

These are the first mammalian livestock animals in the world to be sequenced, and Dave is one of more than 300 researchers across 25 countries who have worked for six years to understand their genomes.

eResearch SA staff member Joy Raison collaborates with Dave, and assists him with the analysis of these genomes.

Their work has significant applications for agricultural livestock production, and also

yields insight into mammalian genome evolution.

Dave and Joy are specifically interested in what many scientists think of as 'junk DNA,' those sections of the genome that are not genes, and which have been thought to have no function. They have made some exciting discoveries in these sections of the genome that challenge this common preconception.

Dave and Joy are sent an animal's whole genome. They then analyse the junk DNA looking for patterns that repeat. They analyse sequences varying between 1,000 and 150,000,000 bit pairs in length.

Once patterns have been identified within the sequences, they are classified. These classified patterns can then be searched for and compared across species. These sequencing projects have revealed some

exciting findings about the characteristics of conserved portions of ancient DNA patterns in the genome.

Dave and Joy's analysis has shown that junk DNA is probably a misnomer, and that the conservation of these sequences of ancient DNA across all the animals studied is a key discovery in understanding the evolution of these animals. They have uncovered novel, functionally important aspects of genome structure.

This groundbreaking research has been published in *Science*, the world's leading journal of original scientific research.



# eResearch projects



## **Experimentia: An Inter-Arts project**

3xperimentia is a series of investigations at the interface of 3D stereoscopies and the visual and performing arts that has resulted from a successful arts-business partnership between eResearch SA and the team of interarts collaborators headed by Amanda Phillips and Alexander Waite Mitchell.

3xperimentia is a continuing public art and performance project that will evolve over time. Since 2007, this research has resulted in several outcomes, including rendered versions of film and dance film creation, computer-generated imagery and the development of custom software that facilitates live cinema and interactive installation versions of the work.

The flagship production 3xperimentia: Live Cut, Australia's first 3D-stereo

live edit performance, grew from this significant partnership. It is a performed 3D stereoscopic cinema work fusing contemporary dance, computer-generated imagery and real-time interactive effects.

Collaborating across performance and technology and continuing the artistic repertoire of Amanda Phillips and Alexander Waite Mitchell, the 3xperimentia creative team includes visual programming by Jonathon Mah and pre-filmed dance footage of stellar Australian performers Gala Moody, Lisa Griffiths & Deon Hastie.

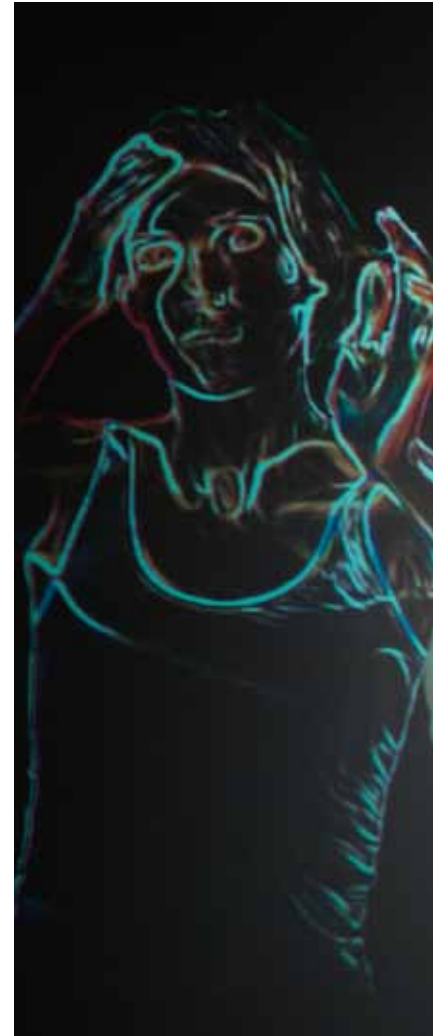
3xperimentia: Live Cut was named 'Best of The Fringe' in *The Advertiser* for the 2009 Adelaide Fringe, and the production received a 2009 Ruby Award for Innovation; the Rubies are South Australia's premier arts and cultural awards. This recognition confirms the value of the in-house research that the

team conducts at eResearch SA through the use of the Visualisation Laboratory, camera systems and visualisation consultancy.

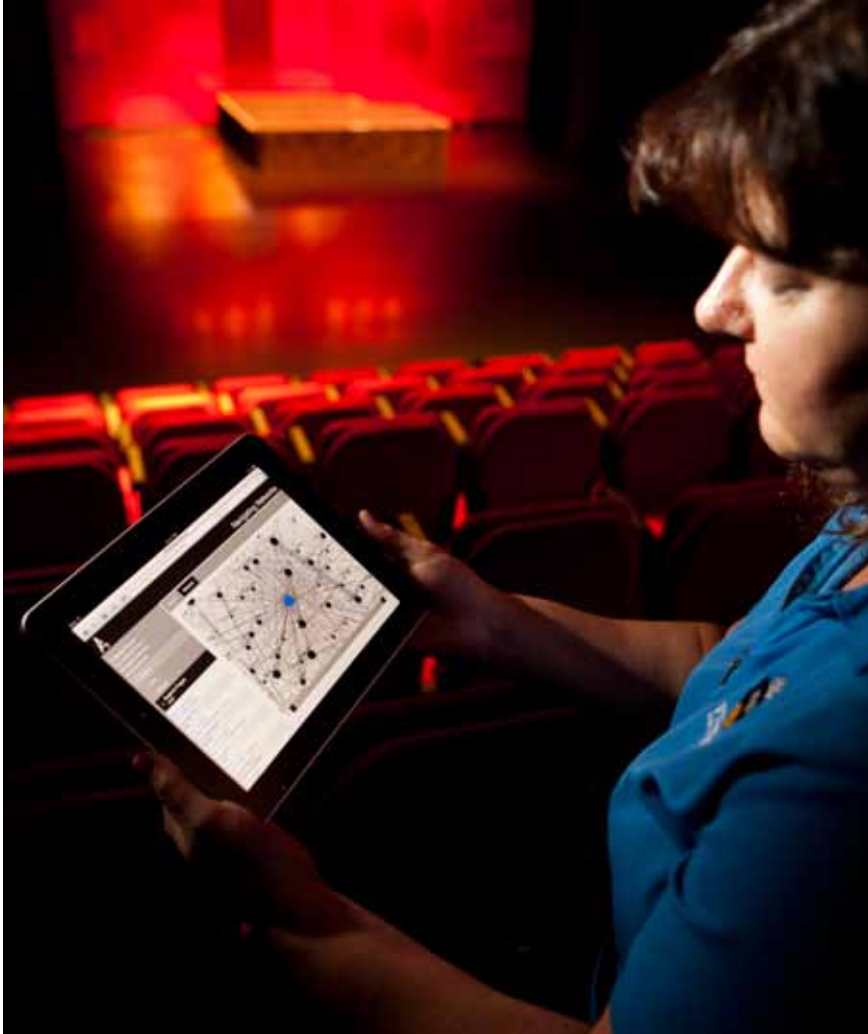
Noted at the 2008 World Dance Alliance Global Summit as a 'work with a high level of social and artistic currency,' 3xperimentia integrates and develops both technology and performance.

The work is potentially live as the dual un-rendered video streams are triggered through touch activation, operator manipulation and audio-reactive environments.

The continuing support of eResearch SA is vital to the research that this team of collaborators is conducting, and is an exciting example of a South Australian cross-industry partnership.



# eResearch projects



## **AusStage Visual Mapping**

eResearch SA offers summer scholarships to academic high performers with an interest in eResearch. In 2008, eResearch SA awarded scholarships to Nathan Lambert and Bradley Williams to visualise networks of artistic collaboration using AusStage, supervised by Jonathan Bollen, Flinders University.

AusStage is a relational database of performing arts events. It records the relationships between events, venues, organisations, people, and resources. Researchers know, anecdotally, that social networks operate in the field of performing arts.

They also know that interactions between artists as they train, rehearse and work together, have implications for the kinds of artists they become and the kinds

of performances they make. AusStage records the history of these networks of contacts and collaborations. Mapping performing arts events lets us see where artists perform and how productions travel. Network visualisation lets us see how performing artists interact.

The scholarship students set out to analyse these networks by visualising data from AusStage in network graphs and geographic maps. Nathan developed new approaches to analysing data in AusStage by using network visualisation to address the question, 'who works with whom?' His project explored software applications, data migration, and techniques for visualising AusStage network data relating to the performing arts in South Australia.

Bradley developed methods for integrating AusStage and venue data with geo-coded data from sources such as the Australian

Bureau of Statistics, so as to display the results on interactive maps using Google Maps. His tasks were to research how AusStage data and Google Earth could be used together to provide a visualised map of the data, and how these data could be used in an informative way.

Nathan was successful in creating network graphs that displayed how contributors linked other contributors together (in most cases the linking contributors were the directors, playwrights, or designers).

His graphs also provided a visual display of the Australian Dance Theatre's toured work, showing the company's wide coverage both within Australia and internationally; links between contributors who had participated in an Adelaide Festival or Fringe event, and a graph of all contributors to a South Australian event between 1970 and 1980.

Bradley found that Google Earth was limited in that it displayed historical events on a contemporary map. He was able to overlay historical maps on Google Earth so that venue data from the late 1800s could be displayed on a contemporary map from that era.

The results of both of these scholarships will feed into future developments in AusStage. Perhaps the most exciting thing about these scholarships is that the approaches to data visualisation the students developed were central in attracting \$500,000 of National eResearch Architecture Taskforce (NeAT) funding to develop production services in 2010 based on these prototypes.

# eResearch projects



## **Remote research collaboration using Access Grid**

Access Grid is an internet-based collaborative communications package. It incorporates video and audio-conference tools, remote interactive control of software, and distributed viewing of content.

It can be used for face-to-face remote meetings, for remote teaching or meetings with one-way or interactive content display, and, with the appropriate applications, interactive research and research discussion with remote control of software and hardware.

The Australian Research Alliance for Children and Youth (ARACY), a national non-profit organisation, makes use of eResearch SA's videoconference room to hold monthly seminars. ARACY uses

Access Grid technology to make the process of information exchange simple, beneficial and cost effective, and believes it is integral in helping to share information across time and distance barriers. These seminars are used to share research project experiences and outcomes, as well as to disseminate data, and inform members and stakeholders regarding a wide range of issues affecting the wellbeing of children and young people.

ARACY's member base spans Australia, and includes more than 1000 individuals and organisations. By creating virtual seminars, ARACY enables members and stakeholders to meet face-to-face without the need to travel.

As one participant commented, 'It really overcomes the tyranny of distance. It's wonderful to be able to 'virtually' attend such seminars in my field of research.'

Meetings involve up to 70 participants and feature a shared PowerPoint presentation which is viewed simultaneously in each location, in conventional meeting room conditions. The flexibility of Access Grid technology supports ARACY's goal to build and support collaborations of researchers, policy makers and practitioners across disciplines, to share knowledge and foster new ways of thinking and working.

eResearch SA's Access Grid facility allows ARACY to maintain a high level of information exchange and to keep up to date with progress in all the various sectors impacting the wellbeing of children and young people. Access Grid also means members can meet personally without the need for extensive travel. Meetings may be held as often as is felt necessary, and with great freedom in scheduling.



# eResearch SA activities



## **Bright Ideas Over Breakfast**

*Bright Ideas Over Breakfast* is a series of breakfast seminars organised by eResearch SA. The seminars have been created to support the groundswell of South Australian eResearch across a broad range of disciplines, from Architecture to Bioinformatics, from Cinema to Population Health.

Each seminar comprises a presentation from an eResearch practitioner, followed by a facilitated panel discussion or a networking opportunity.

*Bright Ideas Over Breakfast: Digitising Drama* was the first in this series of breakfast seminars. At the core of this event was an engaging presentation by Jenny Fewster, AusStage Project Manager. Jenny gave a compelling presentation that highlighted, in the best

possible way, how broadly eResearch can be applied.

Subsequent presentations were given by Professor Mike Bull and Gerry Ryder. Mike Bull is Professor of Biological Sciences at Flinders University and presented *Bright Ideas Over Breakfast: Lizards Online*.

Mike has been studying sleepy lizards for over 15 years and is the world expert on the subject. He and his team are engaged in an ANDS-funded project to make data on sleepy lizards available to the world.

Gerry Ryder, who presented *Bright Ideas Over Breakfast: Data From Deep Space*, is from the Information Management and Technology division of CSIRO. Gerry works with researchers across several disciplines to make research data visible and accessible through the Australian Research Data Commons.

Gerry provided an overview of CSIRO eResearch activities with a focus on managing astronomy data. She discussed a current project involving data from the Parkes “Dish” which is intended to build capability to support ASKAP, the Australian Square Kilometre Array Pathfinder.

The events provide an excellent networking opportunity for a group of people with a common interest, but who are from a diverse range of disciplines.

They provide a wonderful opportunity for all the attendees to share their successes, learn from each other, and pass on their hints and tips.

### **System upgrades**

To improve and expand the services we provide to researchers we have

implemented a number of improvements and system changes, including:

- *New servers to improve core infrastructure.*

Two new servers were purchased and integrated into the eRSA core infrastructure. They are primarily used to house virtual machines.

- *Migration of virtual machines to new servers.*

A number of virtual machines were migrated to the new server hardware, allowing us to consolidate our existing virtual infrastructure (reducing the virtual sprawl).

- *Decommission old equipment, virtual servers and virtual guests.*

Old server equipment, along with out-of-warranty virtual servers were decommissioned. Old unused virtual

machines were also decommissioned and archived.

- *Additional network equipment deployed to core infrastructure.*

Additional Cisco network switches were deployed to the eRSA core infrastructure to increase the available network ports.

- *New dedicated storage server with 32TB of additional disk storage.*

A new Dell R410 storage server was purchased along with a 32TB SATA disk tray. We plan to use this equipment to replace our aging Apple X-Serve Raids.

- *Memory upgrades to Corvus HPC.*

Significant memory upgrades to Corvus HPC. Ten Corvus nodes upgraded to 32GB of RAM and an

additional ten Corvus nodes upgraded to 16GB of RAM.

- *Additional monitoring.*

Implemented additional system monitoring.

- *Improving backup systems.*

Improved our backup systems with additional storage and reporting tools.

### **Staff hosting**

eResearch SA has hosted the Australian National Data Service's (ANDS) South Australian outreach research data analyst, Dr Andrew Williams, since September 2009.

ANDS is building the Australian Research Data Commons, a cohesive collection of research resources from all Australian

research institutions, to make better use of Australia's research outputs.

ANDS enables the following four transformations of research data:

- \* from unmanaged to managed
- \* from disconnected to connected
- \* from invisible to findable
- \* from single-use to reusable.

Andrew has been working with the South Australian universities, first to set up, then to help deliver projects enabling these research data transformations.

The projects have involved collections of research data across a wide range of disciplines:

- plant phonemics data from The Plant Accelerator
- performing arts data - the AusStage dataset
- minerals and materials data from the Ian Wark Research Institute

- genomics data from the University of Adelaide's School of Molecular and Biomedical Science
- cinema data held by Flinders University - the Motion Picture Producers and Distributors of America dataset
- South Australian architectural data held by the University of South Australia's Architecture Museum
- archival and other data across numerous disciplines at the University of Adelaide
- sleepy lizard behavioural ecology data from Flinders University.

### Summer scholarship program

eResearch SA's Summer Scholarship Program is open to undergraduate students in South Australia. Students undertake eResearch projects that utilise advanced information and communication

technologies (ICTs) to support research. eResearch SA accepted 10 students into the 2010/11 program, supporting a good mix of projects and students from the three Universities, and enabling cross-institutional collaboration in four instances.

The summary below shows the students, their supervisors and the project they participated in:

- *Australasian Heritage Software Database*  
Supervisor: Dr Melanie Swalwell, Flinders University  
Student: Niralan Bobalan, Flinders University
- *Haptics sinus surgery simulator*  
Supervisor: Greg Ruthenbeck, Flinders University  
Student: Stephen Sloan, Flinders University
- *Haptics VR for science and engineering education*

Supervisor: Dr Brett Wilkinson, Flinders University

Student: Yongyao Yan, Flinders University

- *Modelling structures and dynamics across multiple space and time scales*  
Supervisor: Professor Anthony Roberts, University of Adelaide  
Student: Thuc Duy Le, University of South Australia
- *Molecular Dynamics Simulations of Self-Assembly of Cyclic Peptide-Polymer Conjugates*  
Supervisor: Dr David Huang, University of Adelaide  
Student: Caitlin Couzner, Flinders University
- *Nonlinear Schrodinger equation in subwavelength optical waveguides*  
Supervisor: Dr Shahraam Afshar, University of Adelaide  
Student: Leng Yang Tan, University of Adelaide

- *OpenStreetMap*  
Supervisor: Dr Wen Yue, University of South Australia  
Student: Alex Sims, University of South Australia
- *Protein folding predictions*  
Supervisor: Dr Keith Sherwin, University of Adelaide  
Student: Xuan Liu, University of Adelaide
- *Architecture museum visualisation project*  
Supervisor: Dr Christine Garnaut, University of South Australia  
Student: Lyndon Warren, Flinders University
- *Optimising synchrotron x-ray image data transfer, storage, analysis and visualisation*  
Supervisor: Dr Martin Donnelley, Women's and Children's Hospital  
Student: Ryan Green, University of South Australia.

**National Collaborative Research Infrastructure Strategy (NCRIS) engagements**

NCRIS is providing \$542 million from 2005-2011 to develop and fund national research infrastructure projects.

Through NCRIS, the Australian Government is implementing a strategic and collaborative approach to investment in world-class research facilities, networks and infrastructure that are accessible to researchers and which meet their long-term needs. eResearch SA has engaged with a number of NCRIS priority areas including:

*Atlas of Living Australia (ALA)*  
Australia's Virtual Herbarium (AVH) provides web-based access to a federation of Australia's six million plant specimen records, held in major herbaria across the

country. We have recently worked with the Atlas of Living Australia (ALA) to enable the integration of the AVH data into the ALA.

*Australian Microscopy & Microanalysis Research Facility (AMMRF)*

The South Australian Regional Facility (SARF), the SA node of the AMMRF, has microscopy facilities at each of the three South Australian universities. These sites are currently not linked, however, and researchers have difficulty sharing their data and accessing their data from remote sites. eResearch SA is working with the SARF and AMMRF to identify approaches for online data storage, possibly using the Australian Research Collaboration Service (ARCS) Data Fabric, to allow access to their data from any of the universities.

*BioPlatforms Australia (BPA)*

eResearch SA is discussing support for

data management, storage and analysis with the South Australian participants in BioPlatforms Australia.

eResearch SA is already assisting some of the participants with their data storage and bioinformatics needs by hosting their data on our storage facilities and providing use of our supercomputing facilities for data processing and analysis.

These requirements are expected to increase significantly with the deployment of some next-generation gene sequencers in South Australia in 2011. BPA funds some of the new sequencers, and is also funding bioinformaticians to assist researchers with data analysis.

#### *Integrated Marine Observing System (IMOS)*

eResearch SA is engaged with the South Australian node of IMOS, the Southern

Australia Integrated Marine Observing System (SAIMOS). IMOS has an agreement with ARCS that all IMOS data will be hosted through ARCS.

As eResearch SA is the South Australian member of ARCS, eRSA is hosting SAIMOS data. ARCS is also hosting IMOS servers at eResearch SA that support national services for IMOS. eRSA has configured and set up servers and specialised data services.

#### *National Imaging Facility (NIF)*

The NIF-funded Large Animal Research and Imaging Facility (LARIF) is hosted by the Institute of Medical and Veterinary Sciences (IMVS). We have been discussing options for eRSA to store the image data generated from this facility so they are easily accessible online by the facility users and their collaborators.

#### *Terrestrial Ecosystem Research Network (TERN)*

eResearch SA is one of the partners in the South Australian consortium that is hosting the Ecoinformatics component of TERN. Work commenced in 2010, with eRSA staff involved in the planning, design and implementation of the Ecoinformatics data repository and portal as well as the development of proposals for additional funding from the Education Infrastructure Fund (EIF). eRSA also has an ANDS project to capture metadata about ecosystem data sets, particularly from state government agencies, into both the TERN Ecoinformatics repository and ANDS Research Data Australia.

# eResearch SA Board



eResearch SA is governed by the eResearch SA Board. It is comprised of the Deputy Vice-Chancellors (Research) of the University of Adelaide, Flinders University, and the University of South Australia, an independent Chair, and the eResearch SA Director as a non-voting member.

## **Emeritus Professor Max Brennan AO, Chair**

Max Brennan graduated from the University of Sydney in 1954 with a BSc(Hons), and in 1958 with a PhD. He was awarded honorary degrees from Flinders University, Queensland University of Technology and Sydney University. Professor Brennan was made an Officer in the Order of Australia in 1985, and was elected a Fellow of the Australian Academy of Science in 1988. He has had a distinguished academic career

as Research Associate at Princeton University; Foundation Professor of Physics at Flinders University; and Professor of Physics at the University of Sydney.

He also spent several years at Flinders University and Sydney University as Deputy Vice-Chancellor. Professor Brennan has also served on many committees, including the International Fusion Research Council, Australian Atomic Commission and the Australian Research Council. He retired in 1997 and is currently Emeritus Professor and consultant on higher education and research. In this capacity, he has been chairman of the Science and Engineering Panel of the CRC Program and World Bank consultant in Indonesia and Chile.

He was Chief Scientist for South Australia from 2005 to 2007.

**Professor Mike Brooks**  
**Deputy Vice-Chancellor and Vice-President (Research)**  
**University of Adelaide**

Professor Mike Brooks was appointed to the position of Deputy Vice-Chancellor and Vice-President (Research) in July 2008, following almost a year as Pro Vice-Chancellor (Research Strategy).

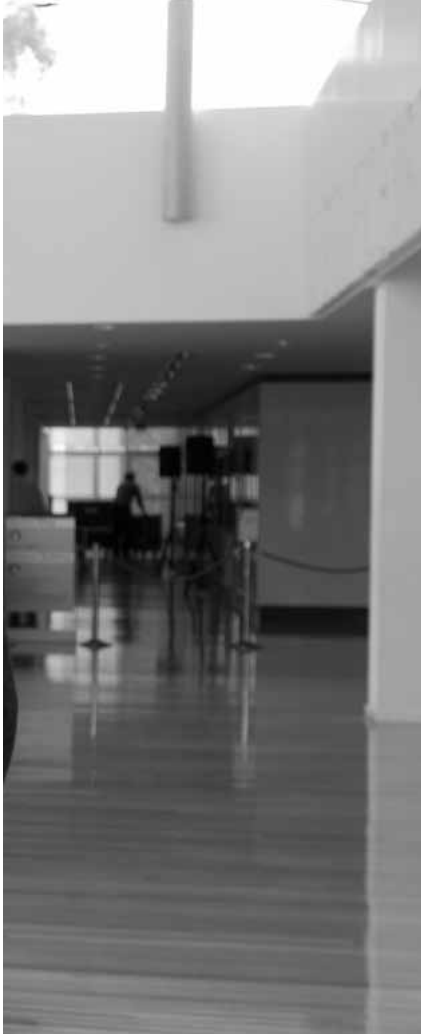
A former Head of the School of Computer Science, Mike is a leading international researcher in computer vision and image analysis, and his work has seen wide commercial use in the security and defence industries.

He has published numerous influential papers and won many ARC Discovery Grants for his research. Professor Brooks is a Fellow of the Australian Computer Society and serves on the Board of

National ICT Australia. The role of the DVC(R) is to provide leadership and vision in achieving the University's research and research training strategic goals. One of the key responsibilities is the development of strategies to facilitate growth in University revenue to support research-related activity.

**Professor Caroline McMillen**  
**Deputy Vice Chancellor and Vice President: Research and Innovation**  
**University of South Australia**

Professor Caroline McMillen graduated with a BA (Hons) and Doctorate of Philosophy from Oxford University before completing her medical degree at the University of Cambridge. Professor McMillen is currently a member of the Automotive Industry Innovation Council and a Board member of the CRC for Advanced Automotive Technology,



Innovate SA and the Resources Industry Development Board of South Australia. She has served for extended periods as Chair of the Australian Research Council (ARC) and the National Health and Medical Research Council (NHMRC) Grant Review Panels and as a member of the NHMRC Enabling Grants Committee.

Professor McMillen has occupied senior leadership roles in higher education, research and innovation and in her current role is committed to building collaborations which deliver significant outcomes to industry, government and community partners.

**Professor David Day, Deputy Vice-Chancellor (Research), Flinders University**

Prior to his appointment at Flinders University, Professor David Day was

the Dean of the Faculty of Science and Executive Dean of the Faculties of Science, Agriculture and Veterinary Science at the University of Sydney.

Previously, he was a Professor at the Australian National University where he became Head of the School of Biochemistry and Molecular Biology. He subsequently held the Chair of Biochemistry at the University of Western Australia.

He has served on the Australian Research Council and on the Executive of the Plant Science CRC at ANU. He was a founder of the Australian Research Council Centre of Excellence in Plant Energy Biology, where he is still a Chief Investigator.



# Financial report

## Profit & Loss Summary (January – December 2010)

	Actual	Budget	Variance
<b>OPERATING INCOME</b>			
Participant Contributions	\$350,000	\$300,000	\$50,000
State Government Grants	\$168,333	\$168,333	-\$0
Salary Reimbursements	\$811,267	\$812,457	-\$1,190
Consulting Income	\$15,200	\$38,600	-\$23,400
Non Salary Reimbursements	\$246,237	\$182,259	\$63,978
Misc. Income	\$43,011	\$12,000	\$31,011
<b>TOTAL OPERATING INCOME</b>	<b>\$1,634,048</b>	<b>\$1,513,649</b>	<b>\$120,399</b>
<b>OPERATING EXPENSE</b>			
Admin	\$57,394	\$56,322	-\$1,072
Infrastructure	\$195,242	\$121,000	-\$74,242
Software	\$3,007	\$10,000	\$6,993
Professional Services	\$99,595	\$83,733	-\$15,862
Communications	\$15,366	\$20,000	\$4,634
Salaries and Staff Costs	\$1,327,866	\$1,328,587	\$721
Other HR	\$8,399	\$25,476	\$17,077
Misc	\$20,008	\$35,000	\$14,992
<b>TOTAL OPERATING EXPENSES</b>	<b>\$1,726,877</b>	<b>\$1,680,118</b>	<b>-\$46,759</b>
<b>NET PROFIT/ (LOSS) FROM OPERATIONS</b>	<b>-\$92,829</b>	<b>-\$166,469</b>	<b>\$73,640</b>
<b>NON OPERATING INCOME</b>			
Expenditure Reimbursements	\$2,881		\$2,881
	\$2,881	\$0	\$2,881
<b>NON OPERATING EXPENSE</b>			
Other Expenses	\$495		-\$495
Non Operating – for Reimb	-		
	\$495	\$0	-\$495
<b>TOTAL NET PROFIT/ (LOSS)</b>	<b>-\$90,443</b>	<b>-\$166,469</b>	<b>\$76,026</b>



eResearch is a growth area that will soon support every researcher who analyses data or collaborates with distant colleagues.



