



CHANI MEETS KOREA



SUMMER SCHOOL RETURNS



INDUSTRY TRAINING DELIVERS

## FROM THE DIRECTOR



They say that a successful organisation is more than the sum of its parts. And, reflecting on this year's activities, I am humbled by the strength of the parts which make up this great research and training institution. With a passion for training and thirst for research, the Centre's academics and support staff continue to establish the Centre as the knowledge hub for Australia – and the world's - groundwater resources.

We are well on our way to our aim of training 200 new students and researchers, and at the end of 2011 we have 23 honours students, 48 PhD students and 32 post-doctoral fellows working across the Centre's five flagship programs. Three research assistants, one research fellow and five technical Support Officers make up our academic staff and provide support across all areas. And let's not forget our office staff, who keep the Centre running through effective management of our financial, strategic and business planning operations.

In 2011 we continued to grow and strengthen

our relationships with external partners, both nationally and internationally. These have included organisations like the US Geological Survey (USGS), Danish Hydraulic Institute (DHI), Northern Territory Government, the Universities of Texas (Austin) and Neuchatel (Switzerland), Rio Tinto and the NSW Office of Water.

Furthering our reputation as a Centre of Excellence in groundwater research and training, we have delivered professional industry short courses to some 500 people throughout 2011. We have also presented research innovation showcases and key stakeholder forums throughout the year.

A clear highlight in 2011 was our Annual Summer School, which was held on Flinders campus in November. Throughout the week the School attracted over 100 students, researchers and Chief investigators, from all NCGRT nodes across the country. The attendees were treated to presentations and participated in workshops facilitated by leading hydrological experts and a panel of other high profile presenters. You can read the full detail on the success of the event in this edition of ReSource.

2011 also saw the launch of the Research Ambassadors Program in Adelaide, a program which provides career development opportunities to our researchers through mentoring in areas including media training, public speaking and writing skills.

Both the Willunga and Wellington SuperScience sites were officially launched in 2011 by the relevant Ministers, and were showcased in the community as areas of significant infrastructure and research contribution.

The NCGRT also hosted some distinguished visitors in 2011 including Professor Jozsef Toth, one of the founders of modern hydrology, Dr Randy Hunt from the US Geological Survey, and 2011 Darcy Lecturer Dr. Stephen E Silliman, who each participated in various activities including conducting public lectures, participating in research collaborations and providing career development opportunities for our students.

A core group of Centre staff and students represented the Centre at the Geological Society of America Annual Exposition in Minneapolis, USA in October; one of the largest conferences of its kind in the world. The visit was fantastic exposure for the Centre to the international student market and allowed for some exposure of our Centre activities to an international audience.

Numerous Centre students and staff won awards in 2011, many of which have been mentioned in ReSource throughout the year as well as a number of others who appear in this edition.

I will remember 2011 as one that consolidated the National Centre for Groundwater Research and Training as Australia's leading institution – and internationally-recognised knowledge bank - in groundwater management. It is because of the magnificent academics, support staff, collaborators, partners and various advisory committee representatives – the "parts", if you will – that we enjoy this reputation. On behalf of the Centre, I thank you all. Seasons Greetings!

CRAIG SIMMONS

## CHANI MEETS KOREA



PhD Candidate Chani Welch (far right) with the attendees of the Next Generation Leaders Program in Korea.

NCGRT PhD student, Chani Welch was chosen as part of an elite group of young water industry professionals to participate in the 2011 Australia-Korea Next Generation Leaders Program; initiated by the Australia Korea Foundation in partnership with the Korea Foundation, the University of Sydney International Leaders Program, and the National Strategy Institute of Korea.

government, private industry and academia.

As part of the first leg of the 10-day trip, the delegation studied the restoration of Cheonggyecheon, a stream flowing through downtown Seoul. The city government finalised this \$345 million program in 2005.

Korea had been struggling with the provision of safe, sufficient water supplies to quench skyrocketing demand in the face of rapid industrialization and urban sprawl during the 1980-90s. The United Nations classifies Korea as a water-stressed nation, citing an imbalance between use and resources.

Participants also toured sites of Korea's four main rivers, which have been refurbished by the government to ratchet up water security, flood control and beauty in the basins. The also met with officials at state agencies and companies specialising in water treatment and desalination, and participated in think tanks with leading water professionals. The program also included opportunities to develop an understanding of contemporary Korean culture and society.

*“Water security is a matter of common interest to both countries, and the world.”*

*June Kim, Program Coordinator.*

The topic for 2011 was sustainable water resources management and the program was conducted between the 2nd and 14th of December 2011. The ten Australian delegates selected represented a cross-section of the Australian water industry, drawn from

## AWARDS

### BEST PAPER

Congratulations to Ilka Wallis, Program 2, on being awarded one of the Flinders University 'Best Student Paper' awards in 2011 for one of her papers arising from her post doctoral research in Hydrogeology. Congratulations too to her supervisors.

### MODISM

Rachel Blakers, Program 5, was one of only seven students awarded for her paper and presentation at the recent MODSIM conference in Perth which was attended by 550 delegates. Congratulations Rachel!

### HODGSON MEDAL

Special congratulations to Megan Sebben, Program 2 Honours student, for her special mention for the Hodgson Medal at the AWA Awards dinner in November. Keep up the good work Megan!

### XIV WORLD WATER CONGRESS

Congratulations to Chief Investigator Jennifer McKay, Program 5, who was invited to deliver a plenary session at the XIV World Water Congress in Brazil in September. Jennifer spoke on issues surrounding the provision of the water needed to feed a growing population and balancing this with all the other demands on water.

### JOURNAL SUBMISSION

Congratulation to James Skurray, Program 5, on his submission to Journal of Hydrology entitled, 'Hydrological challenges to groundwater trading: lessons from south-west Western Australia'. <http://dx.doi.org/10.1016/j.jhydrol.2011.05.034>

### KOHOUT EARLY CAREER RESEARCHER AWARD

The Geological Society of America has formed a new early career researcher award for researchers who are 35 years of age or younger throughout the year in which the award is to be presented, or within 5 years of receiving their highest degree or diploma. The award will recognise outstanding achievement in contributing to the hydrogeologic profession through original research and service, and for the demonstrated potential for continued excellence throughout their career. If you would like more information please see <http://gsahydro.fiu.edu/Kohout.htm>

## INDUSTRY TRAINING



*‘The knowledge and expertise demonstrated throughout the two-day courses was impressive.’*

The NCGRT Industry Training Team had a busy last quarter for 2011 holding several training courses across Australia. In addition to the Centre's 'flagship' course, The Australian Groundwater School, several other specialist courses were run as part of the Calendar.

### MANAGED AQUIFER RECHARGE

A course on Managed Aquifer Recharge (MAR) was held in Melbourne in mid-October. The course addressed the practical steps in siting, designing and implementing managed aquifer projects, from commissioning to operation, maintenance and monitoring.

The team of course presenters was led by Peter Dillon, from CSIRO Land and Water, and possessed extensive practical and research experience in this field.

In addition to classroom-based presentations, course attendees gained an insight into current MAR projects by visiting the Rosedale (shown above) and Kingswood Golf Clubs, both initiatives of the Victorian Government Smart Water Fund.

### WELL DESIGN

In October, the NCGRT Industry Training Team was pleased to host Mr Marvin F. Glotfelty and Mr David L. Kill from the National Ground Water Association (NGWA) as presenters for two Well Design Courses.

The NGWA is a non-profit organisation based in the US and is comprised of more than 12,000 US and international groundwater professionals. It is considered by many as the hallmark organisation for anyone affiliated with the groundwater industry. Attendees to the course gained an understanding of the importance of well efficiency, proper design and the materials needed to maximise the useful life of a well.

Marvin was recently awarded the position of 2012 McEllhiney Lecturer and will hopefully be returning to Australia in the future.



### SURFACE WATER – GROUNDWATER INTERACTIONS COURSE

Held in Sydney in November, the two-day Surface Water – Groundwater Interactions course aimed to summarise the current state of knowledge on measurement and modelling of surface water – groundwater interactions. In particular, the issue of double accounting of surface water and groundwater was addressed.



### MODELLING GROUNDWATER FLOW

In December, a specialist course on stepwise groundwater flow modelling was held at Flinders University of South Australia. The course was led by Professor Henk Haitjema, Professor of Environmental Sciences, Hydrogeology and Groundwater Modelling in the Department of Geological Sciences at Indiana University USA. The course was designed to provide hands-on experience in analytical groundwater modelling.



### GETTING TO KNOW GROUNDWATER AND SURFACE WATER

NCGRT's long running introductory-level groundwater course, Getting to Know Groundwater and Surface Water, was held in Adelaide in early November. Led by Dr Vincent Post from the NCGRT and Flinders University, the course was aimed at non-specialists and focussed on the basics of groundwater science.

## 2011 SUMMER SCHOOL

*“The Summer School was a great opportunity to expose our PhD and Postdoctoral students to a broader range of issues than they would usually experience being based at a single institution. As well as technical presentations from some of Australia’s leading groundwater scientists, we were able to include sessions on research ethics, publication strategies, and career opportunities in groundwater”.*

*Peter Cook, Deputy Director, NCGRT.*

The Centre has an interest in providing more than a place to work or a place to conduct research; but in providing an environment that fosters a culture of teamwork and shared interactions, in provoking interest in each others’ work and the opportunity to learn from our peers and engage.

School, all 100 attendees familiarised themselves with each other, learnt more about our research and training activities being undertaken Centre-wide, and were updated on other important information relating to progress on many important fronts in the Centre.

A wide range of activities and lectures ran during the week – including strategic planning activities which assisted in defining and refining our Centre research priorities. Through to lectures on topics related to technical, policy, legal and management aspects of groundwater.

The NCGRT Summer School permitted the whole Centre, its students, researchers, and staff an opportunity to collaborate across programs, individually and through its various institutions across the country that make up the NCGRT. It allowed our researchers to find out what is happening in each program and node and to create a collegial feel where although divided across the continent, we can still be in touch with one another and work together for mutual outcomes.

*“There were a lot of great presentations at the Summer School, including presentations by Derek Eamus, Anna Greve, John Doherty and Vincent Post. For me though, the absolute highlight was Andrew Boulton’s presentation on writing successful papers”.*

*Dylan Irvine, PhD Candidate, Flinders University.*

Another goal of the Summer School was to expose our researchers to the needs of policy makers and staff to new career development opportunities and the influences and expertise of professionals in fields other than hydrology including law, journalism, hydrology and media.

The Centre’s 2011 Summer School was held from the 28th of November to the 2nd of December in Adelaide at Flinders University. Throughout the

Some of the specialist speakers included a keynote address from Peter Baker, Department of Sustainability, Environment, Water, Population & Communities on ‘A Day in the Life of a Science Policy Advisor’, which got the students really thinking about the practical implementation of their research. Former Flinders University lecturer, Professor Mark Israel delivered a thought provoking session on ‘Ethics and Integrity in Research’, which as always remains of critical importance in science.



Andrew Boulton, Chief Editor, CSIRO Journal ‘Marine and Freshwater Research’ (shown below), delivered a crucial session on ‘Getting Published’ which succeeded in answering many questions and highlighting the do’s and do not’s of preparing materials for publication; information which our students can use throughout their careers.

Centre Chief Investigators were treated to a keynote address from

James Cameron, CEO, National Water Commission (shown opposite) on the direction of groundwater policy in Australia, which set the scene for the Centre’s research priority planning.

Updates were given by Centre leaders on our work at the various Super Science sites around Australia, as we build critical groundwater infrastructure for the monitoring and measurement of groundwater systems. Discussions were held on

the more general aspects of science and its interaction with both the wider scientific fraternity and the general public, as well as a range of talks relating to careers in the water industry.

The program exceeded all expectations and proved to be a great line up of interesting, inspiring and provocative sessions that challenged us all to think more deeply about some of these important issues.



*“Many thanks for your hospitality and for such a well-organised and enjoyable series of opportunities for interactions with the members of your Centre; what a stimulating research environment you have created and I am sure it will provide many further new insights into our understanding of groundwater issues here and overseas”*

*Andrew Boulton, Chief Editor ‘Marine and Freshwater Research’, CSIRO.*

# ANNOUNCEMENTS

## EVENTS

### Water Resources Law Conference

28 February 2012

#### The University of WA

This one-day conference will be opened by the Minister for Water (WA), the Hon Bill Marmion MLA, and will feature a keynote address from Professor Robert Glennon, University of Arizona and author of *Unquenchable: America's Water Crisis and What To Do About It*, 2009. Who has also been appointed the NCGRT 2012 Distinguished Lecturer. There will also be an address by Mr James Cameron, CEO of the National Water Commission.

For full details of the program and on-line

registration, see <http://www.law.uwa.edu.au/cpd/water-resources-law-conference>.

### International Geological Congress

The 34th Session of the International Geological Congress (IGC) will be held at the Brisbane Convention Centre from 5-10 August 2012. NCGRT are a strong supporter of this event and are encouraging all students and researchers to submit relevant abstracts that are currently open and close on February 17, 2012. Further information can be found at [www.34igc.org](http://www.34igc.org).

### NCGRT International Scientific Advisory Committee

The Centre's International

Scientific Advisory Committee (ISAC) will be convening in Sydney the week of January 23, 2012. The ISAC committee is made up of internationally renowned scientists from around the globe whose role is to ensure that the Centre's science is robust and continues to be world leading.

### VISITORS

The Centre has been busy over the past few months with a steady stream of national and international visitors including József Tóth, Michael Butts, Henk Haitjema and Andrew Boulton; they delivered a variety of presentations, workshops and addresses and it was a pleasure to welcome them to the

Centre.

### NEW STAFF

A Communications and Media Officer has been appointed, Emily Heylen who begins her role with the Centre in the new year. We look forward to welcoming her to the Centre.

### PRESENTATIONS

Professor Peter Cook, NCGRT Deputy Director, gave a presentation to the PICSE Teachers Professional Development conference (shown below). Science teachers who attended commented that his presentation was engaging and extremely educational.

