

Getting to Know Groundwater & Surfacewater Courses



Established in 1987, the Centre for Groundwater Studies (CGS) has now merged with the National Centre for Groundwater Research and Training (NCGRT).

Practical training in hydrogeology for non-specialists who work with **groundwater and surfacewater**

When	Where
22nd Getting to Know Groundwater & Surfacewater Course Tuesday 13 - Thursday 15 April 2010	Charleville RSL, 37 Watson St, CHARLEVILLE QLD
23rd Getting to Know Groundwater & Surfacewater Course Wednesday 5 - Friday 7 May 2010	Mercure Inn Continental, Weld St, BROOME WA
5th NZ Getting to Know Groundwater & Surfacewater Course Wednesday 25 - Friday 27 August 2010	All Seasons, 72 Papanui Rd, MERIVALE, CHRISTCHURCH NZ
24th Getting to Know Groundwater & Surfacewater Course Wednesday 15-Friday 17 September 2010	Rockford Hotel, 164 Hindley St, ADELAIDE SA



Who should attend

This course is designed to build on the knowledge gained in our book *ABCs of Groundwater* (to order see: www.groundwater.com.au/industrytraining). This course also provides a practical foundation for the upper level course, the *Australian Groundwater School*.

Getting to Know Groundwater & Surfacewater is designed for:

- Technicians and environmental extension officers who require hands-on, field-oriented skills for investigation and management of groundwater, surfacewater and associated environments.
- Managers, planners and policy staff involved in groundwater and surfacewater assessments, reviewing consultants' reports, and policy or planning work.
- Non-specialists who require a basic understanding of groundwater/surfacewater processes, behaviour and management.
- People from a diversity of natural resource backgrounds including environmental consulting, mining, agriculture, planning, landcare, environmental science, and community environment groups, farming and education.

Course Outline

- **How important is groundwater and surfacewater?** Global and local water balances; types of aquifers and surfacewater flow; how surfacewater and groundwater interacts; runoff and recharge
- **How is groundwater stored and how does it move?** Hydrogeology; aquifer hydraulics; interpreting monitoring data (observation wells and piezometers); aquifer testing
- **Surfacewater hydraulics and management:** Rainfall; runoff; flow routing; yield analysis; Average Recurrence Interval (ARI)
- **Ecosystems and their dependence on water:** Groundwater, surfacewater and environmental flows. Water quality issues and thresholds: salinity; acidity; eutrophication; sedimentation; lake depths; stream flow (weirs, depth gauges, loggers)
- **Catchment data collection, monitoring and interpretation:** Spatial information and remote sensing for hydrology studies; soil/landscape data; geophysics; water quality; decision support tools for water and ecosystem modelling
- **How can we investigate groundwater responsibly and safely?** Guidelines for monitoring including standards; databases; health and safety during field work
- **Contamination/pollution of groundwater, contaminant behaviours:** What it is; where it goes; how it impacts
- **Remediation of contaminated groundwater:** General discussion on groundwater remediation and limitations
- **Introduction to risk assessment:** Assessment of risk on groundwater; methods of risk assessment; evaluation risk; minimisation/mitigation; controlling risks on groundwater
- **Water management and policy:** Drainage issues; protection of drinking water supplies
- **Exercises:** Estimating runoff and recharge; analysing pumping tests; groundwater flow nets; groundwater contamination
- **Case Studies** may include: Integrating groundwater and surfacewater to meet management goals and to develop clear environmental objectives and targets; classifying wetlands, environmental flow requirements and management; changes in riverine flows driven by groundwater discharge
- **Field demonstrations:** Measuring water levels and water quality including EC, pH, using loggers and rain gauges
- **Study Tour** of significant groundwater sites; eg. mining, recharge, landfill sites etc.

NB: Attendees will need to prepare for weather conditions, eg. sunscreen, hat, wet-weather gear, strong shoes and water bottle.

All programs will include essential groundwater and surfacewater topics but other topics will vary according to location and availability of presenters.

Course Leaders

22nd Getting to Know Groundwater & Surfacewater Course- QLD: Colin Hazel Qld GW Engineer, David Free DERM Qld

23rd Getting to know Groundwater & Surfacewater Course- WA: Tony Laws, Susie Williams, Louise Stelfox, Duncan Palmer WA Dept of Water

5th NZ Getting to Know Groundwater & Surfacewater Course- NZ: Chris Daughney Paul White, Gil Zemansky GNS NZ, Neil Power DWLBC; Colin Hazel Qld GW Engineer, Tony Laws WA DoW, Tim Davie Environment Canterbury, Graham Fenwick, Mandy Meriano, Mike Scarsbrook NIWA

24th Getting to Know Groundwater & Surfacewater Course- SA: Tony Laws Peter Muirden WA DoW, Colin Hazel Qld GW Engineer, Greg Hausler EHA Pty Ltd, WA DoW

Course Fees

22nd, 23rd & 24th: AU\$970 (incl GST) includes: notes, tuition, morning and afternoon refreshments, lunches and field trip.

4th NZ: AU\$880 (GST exempt) includes: notes, tuition, morning and afternoon teas, lunches and field trip.



Accommodation

Attendees are to **arrange own accommodation**.

If you mention that you are part of this Course, you **may** be eligible for an accommodation discount at the course venue.

22nd Getting to Know Groundwater & Surfacewater Course- QLD

Warrego Motel, 73 Wills St, Charleville QLD. Ph: +61 7 4654 1299

Email: info@warregomotel.com

23rd Getting to Know Groundwater & Surfacewater Course - WA

Mercure Inn Continental, Weld St, Broome WA. Ph: +61 8 9195 5900 Fax : +61 89192 1715

Email: h1817-re@accor.com

5th NZ Getting to Know Groundwater & Surfacewater Course - NZ

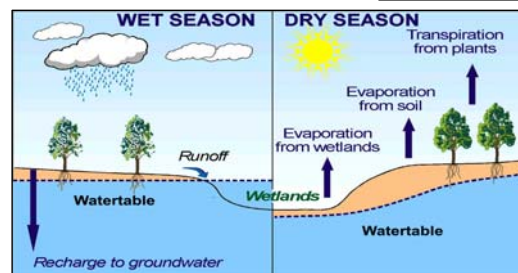
All Seasons, 72 Papanui Rd, Merivale, Christchurch NZ. Ph: +64 3 355 6109 Fax: +64 3 355 3543

Email: reservations@allseasonschristchurch.co.nz

24th Getting to Know Groundwater & Surfacewater Course - SA

Rockford Hotel, 164 Hindley St, ADELAIDE SA. Ph: +61 8 8211 8255 Fax: +61 8231 1179

Email: adelaide@rockfordhotels.com.au



Graphic courtesy of SA Dept Water, Land and Biodiversity Conservation

To register please see over leaf.

For more information contact: **Phone:** +61 8 8201 5632 **Fax:** +61 8 8201 5635

Email: industrytraining@groundwater.com.au

Web: www.groundwater.com.au/industrytraining

REGISTRATION FORM / TAX INVOICE

ABN: 65 542 596 200

Please register early by faxing this form to **FAX: +61 8 8201 5635**

Getting to Know Groundwater & Surfacewater

When	Where
22nd Getting to Know Groundwater & Surfacewater Course Tuesday 13 - Thursday 15 April 2010	Charleville RSL, 37 Watson St, CHARLEVILLE QLD
23rd Getting to Know Groundwater & Surfacewater Course Wednesday 5 - Friday 7 May 2010	Mercure Inn Continental, Weld St, BROOME WA
5th NZ Getting to Know Groundwater & Surfacewater Course Wednesday 25 - Friday 27 August 2010	All Seasons, 72 Papanui Rd, Merivale, CHRISTCHURCH NZ
24th Getting to Know Groundwater & Surfacewater Course Wednesday 15-Friday 17 September 2010	Rockford Hotel, 164 Hindley St, ADELAIDE SA

TITLE:FIRST NAME: SURNAME:

EMAIL:NB:Most communication will be via email

JOB TITLE:

COMPANY:

DEPARTMENT:

ADDRESS (Postal):



CITY:COUNTRY/STATE: POSTCODE:

PH: MOB:FAX:

WEB:

DIETARY REQUIREMENTS:

Fees – AU\$

Course Title	Course Fee Includes GST	
22nd Getting to Know Groundwater & Surfacewater, Tue 13 - Thur 15 April 2010 QLD <i>Early bird before Friday 26 Feb</i> <i>After Friday 26 Feb</i>	<input type="checkbox"/> \$ 970.00 <input type="checkbox"/> \$1080.00	 
23rd Getting to Know Groundwater & Surfacewater, Wed 5 - Fri 7 May 2010 WA <i>Early bird before Friday 19 Mar</i> <i>After Friday 19 Mar</i>	<input type="checkbox"/> \$ 970.00 <input type="checkbox"/> \$1080.00	
5th NZ Getting to Know Groundwater & Surfacewater, Wed 25 - Fri 27 August 2010 NZ <i>Early bird before Friday 9 Jul</i> <i>After Friday 9 Jul</i> <i>Note: Australian GST is exempt for courses held in New Zealand</i>	<input type="checkbox"/> \$ 880.00 <input type="checkbox"/> \$ 980.00	
24th Getting to Know Groundwater & Surfacewater, Wed 15-Fri 17 September 2010 SA <i>Early bird before Friday 30 Jul</i> <i>After Friday 30 Jul</i>	<input type="checkbox"/> \$ 970.00 <input type="checkbox"/> \$1080.00	
Less (choose 1 option only): <input type="checkbox"/> 5% discount on <u>*Course Fee only</u> for IDA, IAH, AWA, NZHS, SIA, ACLCA Members (Member No.....) <input type="checkbox"/> 10% discount on <u>*Course Fee only</u> for NCGRT, NCED Partner Staff (Partner name.....) <input type="checkbox"/> 15% discount on <u>*Course Fee only</u> for Full-time Students (Institution name.....)	-\$	
TOTAL AU\$	\$	

PAYMENT – Please select payment method below:

ABN: 65 542 596 200

1. **Credit Card** Please debit my: Visa Mastercard

Card Number: _____

Cardholder's Name..... Signature.....

Expiry Date: __ / __ / __

2. **Cheque** Payable to: **"NCGRT Groundwater Industry Training"**
 Addressed to: NCGRT Groundwater Industry Training, Attn: Glenys Flight
 GPO Box 2100,
 ADELAIDE, SA 5001, Australia

3. Please send me a Tax Invoice Purchase order number:



Terms, Conditions, Transfers and Cancellations for all NCGRT Groundwater Industry Training:		
<p>1 CONFIRMATION letter will be sent to all participants prior to a course. Participants must have received their confirmation letter before attending a course.</p> <p>2 TRANSFER of your registration to a different course must be made in writing. This will incur an additional administration fee of \$220.</p>	<p>3 CANCELLATIONS must be made in writing. Then the following terms will apply:</p> <p>a. <i>Less than 3 business days</i> before a course: <i>No refund</i></p> <p>b. <i>Between 3 business days and 3 weeks</i> before a course: <i>50% refund</i></p> <p>c. <i>More than 3 weeks</i> before a course: Refund of the course fee minus an administration fee of \$220</p> <p>d. However, to avoid loss of the course and administration fees, a substitute attendee is welcome, by submitting a new Registration Form</p>	<p>4 If attendees CANCEL Field Trips, generally no refund will be paid.</p> <p>5 While every attempt will be made to deliver courses as advertised, we reserve the right to cancel a course at short notice for conditions beyond our control. Notification of any such cancellation will attract a refund.</p>

For more information contact: **Phone: +61 8 8201 5632 Fax: +61 8 8201 5635**

Email: industrytraining@groundwater.com.au Web: www.groundwater.com.au/industrytraining

Web