### Program

**Australian Groundwater School – Brisbane**  
**Monday 5 November 2018**  
**Novotel Brisbane Southbank**

<table>
<thead>
<tr>
<th>TIME</th>
<th>THEME/TOPIC</th>
<th>PRESENTERS</th>
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<tbody>
<tr>
<td>8.30am</td>
<td>Registrations and Coffee</td>
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<tr>
<td>8.45am</td>
<td>Welcome and Introduction</td>
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<tr>
<td>9.00am</td>
<td><strong>1 The Importance of Groundwater In Australia</strong></td>
<td>Dr Lucy Reading, Lecturer Environmental Science &amp; Groundwater Systems, Queensland University of Technology</td>
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<td></td>
<td>• What is groundwater</td>
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<td>• Where is groundwater found?</td>
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<td></td>
<td>• The hydrologic cycle</td>
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<td></td>
<td>• What is hydrogeology and its history?</td>
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<td></td>
<td>• Australian groundwater facts and figures</td>
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<td></td>
<td>• Australian aquifer map. sedimentary basin/fractured province, inset on map</td>
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<tr>
<td>10.00am</td>
<td><strong>2 Introduction to Hydrogeology</strong></td>
<td>Dr Lucy Reading, Lecturer Environmental Science &amp; Groundwater Systems, Queensland University of Technology</td>
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<td></td>
<td>• Factors affecting groundwater</td>
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<td>• Introduction and examples of aquifer types</td>
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<td>• Water table and capillary zone</td>
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<td>• Aquifers &amp; aquitards</td>
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<td>11.30am</td>
<td>Morning Tea</td>
<td>Pre-Function Foyer</td>
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<td>11.45am</td>
<td><strong>3 Introduction to Groundwater Hydraulics</strong></td>
<td>Dr Harald Hofman, Lecturer in Hydrogeology, University of Queensland</td>
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<td></td>
<td>• Groundwater flow systems</td>
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<td>• Storage in aquifers</td>
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<td>• Hydraulic Head</td>
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<td>• Physical &amp; hydraulic parameters</td>
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<tr>
<td>12.45pm</td>
<td>Lunch</td>
<td>Spice Central Restaurant</td>
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<td><strong>4 Surface Water – Groundwater Interactions</strong></td>
<td>Dr Harald Hofman, Lecturer in Hydrogeology, University of Queensland</td>
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<td></td>
<td>• Introduction to surface water hydrology</td>
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<td>• Locations and modes of interaction between surface water and groundwater</td>
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<td>• Water balance</td>
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<td>• Human impacts</td>
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<td>• Recharge/discharge definitions and estimation</td>
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<td>2.45pm</td>
<td>Afternoon Tea</td>
<td>Pre-Function Foyer</td>
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<tr>
<td>3.00pm</td>
<td><strong>5 Groundwater Hydraulics</strong></td>
<td>Dr Michael Teubner, Consultant, MD Teubner Consulting</td>
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<tr>
<td></td>
<td>• Groundwater flow equations</td>
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<td>• Borehole pumping test</td>
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<td>• Single borehole test</td>
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<td>• Lab measurements of hydraulic conductivity</td>
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<td>5:00pm – 6:00pm</td>
<td>Networking Drinks: Spice Central Restaurant</td>
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<td>TIME</td>
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<td>8.30am</td>
<td>Arrival tea and coffee</td>
<td>Pre-Function Foyer</td>
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<td>9.00am</td>
<td>Groundwater Modelling</td>
<td>Dr Michael Teubner</td>
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<td></td>
<td>• What is a model and what is its purpose?</td>
<td>Consultant, MD Teubner Consulting</td>
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<td>• Modelling groundwater flow</td>
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<td>• Groundwater modeling codes</td>
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<td>Groundwater Modelling Application</td>
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<td>• Modelling guidelines</td>
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<td>• Limitations and pitfalls in modelling</td>
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<td>• Modelling case study</td>
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<td>• Management, regulatory issues</td>
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<td>11.00am</td>
<td>Morning Tea</td>
<td>Pre-Function Foyer</td>
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<tr>
<td>11.15am</td>
<td>Tutorial, Part 1</td>
<td>Dr Michael Teubner</td>
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<tr>
<td></td>
<td>• Interpreting hydrographs</td>
<td>Consultant, MD Teubner Consulting</td>
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<td>• Developing groundwater contours</td>
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<td>• Borehole test for hydraulic conductivity</td>
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<td>• Contaminant transport</td>
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<td>1pm</td>
<td>Lunch</td>
<td>Spice Central Restaurant</td>
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<td>2pm</td>
<td>Tutorial, Part 2</td>
<td>Dr Michael Teubner</td>
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<tr>
<td></td>
<td>• Water budgeting</td>
<td>Consultant, MD Teubner Consulting</td>
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<td>• Estimating groundwater flow</td>
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<td>• Hydrostratigraphic conceptualisation</td>
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<td>3.15pm</td>
<td>Afternoon Tea</td>
<td>Pre-Function Foyer</td>
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<td>3:30pm</td>
<td>Geophysics</td>
<td>Dr Michael Teubner</td>
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<td></td>
<td>• Surface, airborne, borehole</td>
<td>Consultant, MD Teubner Consulting</td>
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<td></td>
<td>• Methods and data processing and interpretation</td>
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<td>• Hydrologic properties derived from geophysics</td>
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<td>4.30pm</td>
<td>End Day 2</td>
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<td>8.30am</td>
<td>Arrival tea and coffee</td>
<td>Pre-Function Foyer</td>
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<tr>
<td>9.00am</td>
<td>Coal Seam Gas and Groundwater</td>
<td>Mr Andrew Moser, Groundwater Manager, Origin</td>
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<tr>
<td></td>
<td>Definition of CSG and Unconventional Gas</td>
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<td>Where CSG resources are located in Australia</td>
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<td>How CSG is extracted</td>
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<td>Operational aspects</td>
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<td>Regulation surrounding operation</td>
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<td>Issues, challenges and waste disposal</td>
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<td>10.00am</td>
<td>Managed Aquifer Recharge</td>
<td>Dr Simon Toze, Research Director, CSIRO Land and Water</td>
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<td>What is MAR and what is it for?</td>
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<td>MAR structure types</td>
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<td>Water sources to MAR</td>
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<td>11.00am</td>
<td>Morning Tea</td>
<td>Pre-Function Foyer</td>
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<tr>
<td>11.15am</td>
<td>Environmental Isotopes in Groundwater</td>
<td>Dr Harald Hofman, Lecturer in Hydrogeology, University of Queensland</td>
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<tr>
<td></td>
<td>What are isotopes and their use?</td>
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<td>Types of isotopes, Australian examples</td>
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<tr>
<td>12.15pm</td>
<td>Environmental Isotopes in Groundwater (practical session)</td>
<td>Dr Lucy Reading, Lecturer Environmental Science &amp; Groundwater Systems, Queensland University of Technology</td>
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<tr>
<td>1.00pm</td>
<td>Lunch</td>
<td>Spice Central Restaurant</td>
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<td>1.45pm</td>
<td>Groundwater Chemistry</td>
<td>Dr Lucy Reading, Lecturer Environmental Science &amp; Groundwater Systems, Queensland University of Technology</td>
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<td>Why study groundwater chemistry?</td>
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<td>Physical and chemical composition of groundwater</td>
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<td>Origin of solutes, evolution in groundwater</td>
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<td>Field parameters</td>
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<td>2.45pm</td>
<td>Afternoon Tea</td>
<td>Pre-Function Foyer</td>
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<td>3.00pm</td>
<td>Groundwater Contamination</td>
<td>Dr Lucy Reading, Lecturer Environmental Science &amp; Groundwater Systems, Queensland University of Technology</td>
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<tr>
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<td>Introduction and definitions</td>
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<td>Sources of contamination</td>
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<td>Fate of contaminants in the sub surface</td>
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<td>Groundwater remediation</td>
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<td>4.00pm</td>
<td>Salinity and Water Logging</td>
<td>Dr Lucy Reading, Lecturer Environmental Science &amp; Groundwater Systems, Queensland University of Technology</td>
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<td></td>
<td>What is salinity and why is it a groundwater issue</td>
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<td>Primary and secondary salinity &amp; its sources</td>
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<td>Dryland and Irrigation salinity, water logging</td>
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<td>Impacts and management of salinity</td>
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<td>5.00pm</td>
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## Australian Groundwater School – Brisbane

**Thursday 8 November 2018**

**Novotel Brisbane Southbank**

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<td>8.30am</td>
<td>Arrival tea and coffee</td>
<td>Pre-Function Foyer</td>
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<tr>
<td>9.00am</td>
<td>16 Drilling Methods and Bore Design</td>
<td>Mr Ryan Morris, Senior Hydrogeologist, RDM Hydro</td>
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<td></td>
<td>• Types and purposes of various bores</td>
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<td>• Drilling methods</td>
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<td>• Databases in Australia</td>
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<td>• Methods, variability &amp; limitations of data</td>
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<td>10.00am</td>
<td>17 Mining Hydrogeology</td>
<td>Mr Ryan Morris, Senior Hydrogeologist, RDM Hydro</td>
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<td>• Mine Dewatering</td>
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<td>• Dewatering Methods</td>
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<td>• Impacts of dewatering</td>
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<td>• Design of dewatering system</td>
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<td>11.00am</td>
<td>Morning Tea</td>
<td>Pre-Function Foyer</td>
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<tr>
<td>11.15am</td>
<td>19 Groundwater Management</td>
<td>Mr Michael Jamieson, Principal Policy Officer</td>
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<td></td>
<td>• What, why, when and how we manage GW?</td>
<td>Queensland Government Department of Natural Resources, Mines and Energy</td>
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<td>• Principles</td>
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<td>• Tools for groundwater management</td>
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<td>• Management issues</td>
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<td>• Climate change</td>
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<td>1.00pm</td>
<td>Lunch</td>
<td>Spice Central Restaurant</td>
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<td>1.45pm</td>
<td>2 Groundwater Governance – Water Law</td>
<td>Ms Jacqui Robertson, PhD Candidate, Griffith Law School, Griffith University</td>
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<td>• Development of water resources law in Australia</td>
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<td>• Essential aspects of the current legal</td>
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<td>• Groundwater and water trading</td>
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<td>3.00pm</td>
<td>Afternoon Tea</td>
<td>Pre-Function Foyer</td>
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<td>3.15pm</td>
<td>21 Groundwater Governance – Water Law (continued)</td>
<td>Ms Jacqui Robertson, PhD Candidate, Griffith Law School, Griffith University</td>
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<td>3.45pm</td>
<td>End of course wrap up and evaluation</td>
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<td>End Day 4</td>
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