

Program



NATIONAL CENTRE FOR
GROUNDWATER
RESEARCH AND TRAINING

Australian Groundwater School – Canberra
Monday 6 November 2017

| TIME | | THEME/TOPIC | PRESENTERS |
|---------|---|---|--------------------------------------|
| 8.30am | | Registrations and Coffee | |
| 8.45am | | Welcome and Introduction | |
| 9.00am | 1 | The Importance of Groundwater In Australia <ul style="list-style-type: none"> • What is groundwater • Where is groundwater found? • The hydrologic cycle • What is hydrogeology and its history? • Australian groundwater facts and figures • Australian aquifer map. sedimentary basin/fractured province, inset on map | |
| 10.00am | 2 | Introduction to Hydrogeology <ul style="list-style-type: none"> • Water table and capillary zone • Aquifers & aquitards | |
| 11.30am | | Morning Tea | |
| 11.45am | 3 | Introduction to Groundwater Hydraulics <ul style="list-style-type: none"> • Groundwater flow systems • Storage in aquifers • Hydraulic Head • Physical & hydraulic parameters | Okke Batelaan Flinders University |
| 12.45pm | | Lunch | |
| 1.45pm | 4 | Groundwater Hydraulics <ul style="list-style-type: none"> • Groundwater flow equations • Borehole pumping test • Single borehole test • Lab measurements of hydraulic conductivity | Okke Batelaan Flinders University |
| 3.00pm | | Afternoon Tea | |
| 3.15pm | 5 | Drilling Methods and Bore Design <ul style="list-style-type: none"> • Types and purposes of various bores • Drilling methods • Databases in Australia • Methods, variability & limitations of data collection | Okke Batelaan Flinders University |
| 5.15pm | | End Day 1 | |
| 4.40pm | | Networking Drinks | |

Australian Groundwater School – Canberra
 Tuesday 7 November 2017

| TIME | | THEME/TOPIC | PRESENTERS |
|---------|-----|--|------------|
| 9.00am | 6 | Groundwater Modelling <ul style="list-style-type: none"> • What is a model and what is its purpose? • Modelling groundwater flow • Modelling process • Groundwater modeling codes Groundwater Modelling Application <ul style="list-style-type: none"> • Modelling guidelines • Limitations and pitfalls in modelling • Modelling case study • Management, regulatory issues | |
| 11.00am | | Morning Tea | |
| 11.15am | 7.1 | Tutorial, Part 1 <ul style="list-style-type: none"> • Interpreting hydrographs • Developing groundwater contours • Borehole test for hydraulic conductivity • Contaminant transport | |
| 1pm | | Lunch | |
| 1.45pm | 7.2 | Tutorial, Part 2 <ul style="list-style-type: none"> • Water budgeting • Estimating groundwater flow • Hydrostratigraphic conceptualisation | |
| 3.15pm | | Afternoon Tea | |
| 3:30pm | 8 | Geophysics <ul style="list-style-type: none"> • Surface, airborne, borehole • Methods and data processing and interpretation • Hydrologic properties derived from geophysics | |
| 4.30pm | | End Day 2 | |

Australian Groundwater School – Canberra
 Wednesday 8 November 2017

| TIME | | THEME/TOPIC | PRESENTERS |
|---------|----|--|------------|
| 9.00am | 9 | Surface Water – Groundwater Interactions <ul style="list-style-type: none"> • Introduction to surface water hydrology • Locations and modes of interaction between surface water and groundwater • Water balance • Human impacts • Recharge/discharge definitions and estimation | |
| 10.00am | 10 | Seawater Intrusion or Coastal Groundwater <ul style="list-style-type: none"> • Groundwater replenishment trial • Perth Groundwater replenishment stage 1 • Future groundwater replenishment options | |
| 11.00am | | Morning Tea | |
| 11.15am | 11 | Groundwater Chemistry <ul style="list-style-type: none"> • Why study groundwater chemistry? • Physical and chemical composition of groundwater • Origin of solutes, evolution in groundwater • Field parameters | |
| 12.15pm | 12 | Environmental Isotopes in Groundwater <ul style="list-style-type: none"> • What are isotopes and their use? • Types of isotopes, Australian examples | |
| 1.15pm | | Lunch | |
| 2.00pm | 13 | Groundwater Microbiology <ul style="list-style-type: none"> • Introduction to microbiology • Pathogens in groundwater • Microbial metabolism in groundwater • Bioremediation | |
| 3.00pm | | Afternoon Tea | |
| 3.15pm | 14 | Groundwater Contamination <ul style="list-style-type: none"> • Introduction and definitions • Sources of contamination • Fate of contaminants in the sub surface • Groundwater remediation | |
| 4.15pm | 15 | Salinity and Water Logging <ul style="list-style-type: none"> • What is salinity and why is it a groundwater issue • Primary and secondary salinity & its sources • Dryland and Irrigation salinity, water logging • Impacts and management of salinity | |
| 5.00pm | | End Day 3 | |

Australian Groundwater School – Canberra
 Thursday 9 November 2017

| TIME | | THEME/TOPIC | PRESENTERS |
|---------|------|--|------------|
| 9.00am | 16 | Fractured Rock Aquifers <ul style="list-style-type: none"> • Fractured rock provinces in Australia • Classification • Basic Characteristics • Groundwater flow • Locating and mapping fractures | |
| 10.00am | 17 | Mining Hydrogeology <ul style="list-style-type: none"> • Mine Dewatering • Dewatering Methods • Impacts of dewatering • Design of dewatering system | |
| 11.00am | | Morning Tea | |
| 11.15am | 18 | Groundwater Dependent Ecosystems <ul style="list-style-type: none"> • Introduction and definition • Types of GDEs • Hydrogeological framework • Methods and indicators used in the determination of GDEs • Level of dependency | |
| 12.15pm | 19 | Groundwater Management <ul style="list-style-type: none"> • What, why, when and how we manage GW? • Principles • Tools for groundwater management • Management issues • Climate change | |
| 1.15pm | | Lunch | |
| 2.00pm | 20.1 | Groundwater Governance – Water Law <ul style="list-style-type: none"> • Development of water resources law in Australia • Essential aspects of the current legal framework • Groundwater and water trading | |
| 3.00pm | | Afternoon Tea | |
| 3.15pm | 20.2 | Groundwater Governance – Case Studies | |
| 4.30pm | | End of course wrap up and evaluation | |
| 5.00pm | | End Day 4 | |