Program

NATIONAL CENTRE FOR GROUNDWATER RESEARCH AND TRAINING

Australian Groundwater School – Perth
Adina Apartments
Monday 4 December 2017

TIME		THEME/TOPIC	PRESENTERS
8.30am		**Registrations and Coffee**	
8.45am		**Welcome and Introduction**	
9.00am	**1**	**The Importance of Groundwater In Australia** • 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** • Water table and capillary zone • Aquifers & aquitards	
11.30am		**Morning Tea**	
11.45am	**3**	**Introduction to Groundwater Hydraulics** • Groundwater flow systems • Storage in aquifers • Hydraulic Head • Physical & hydraulic parameters	
12.45pm		**Lunch**	
1.45pm	**4**	**Groundwater Hydraulics** • Groundwater flow equations • Borehole pumping test • Single borehole test • Lab measurements of hydraulic conductivity	
3.00pm		**Afternoon Tea**	
3.15pm	**5**	**Drilling Methods and Bore Design** • Types and purposes of various bores • Drilling methods • Databases in Australia Methods, variability & limitations of data collection	
5.15pm		**End Day 1**	
4.40pm		**Networking Drinks**	

Australian Groundwater School – Melbourne
Tuesday 5 December 2017

TIME		THEME/TOPIC	PRESENTERS
9.00am	6	**Groundwater Modelling** • What is a model and what is its purpose? • Modelling groundwater flow • Modelling process • Groundwater modeling codes **Groundwater Modelling Application** • Modelling guidelines • Limitations and pitfalls in modelling • Modelling case study • Management, regulatory issues	
11.00am		**Morning Tea**	
11.15am	7.1	**Tutorial, Part 1** • Interpreting hydrographs • Developing groundwater contours • Borehole test for hydraulic conductivity • Contaminant transport	
1pm		**Lunch**	
1.45pm	7.2	**Tutorial, Part 2** • Water budgeting • Estimating groundwater flow • Hydrostratigraphic conceptualisation	
3.15pm		**Afternoon Tea**	
3:30pm	8	**Geophysics** • Surface, airborne, borehole • Methods and data processing and interpretation • Hydrologic properties derived from geophysics	
4.30pm		**End Day 2**	

Australian Groundwater School – Melbourne
Wednesday 6 December 2017

TIME		THEME/TOPIC	PRESENTERS
9.00am	**9**	**Surface Water – Groundwater Interactions** • 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**	**Groundwater Replenishment for Public Water Supply** • Groundwater replenishment trial • Perth Groundwater replenishment stage 1 • Future groundwater replenishment options	
11.00am		**Morning Tea**	
11.15am	**11**	**Groundwater Chemistry** • 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** • What are isotopes and their use? • Types of isotopes, Australian examples	
1.15pm		**Lunch**	
2.00pm	**13**	**Groundwater Microbiology** • Introduction to microbiology • Pathogens in groundwater • Microbial metabolism in groundwater • Bioremediation	
3.00pm		**Afternoon Tea**	
3.15pm	**14**	**Groundwater Contamination** • Introduction and definitions • Sources of contamination • Fate of contaminants in the sub surface • Groundwater remediation	
4.15pm	**15**	**Salinity and Water Logging** • 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 – Melbourne
Thursday 7 December 2017

TIME		THEME/TOPIC	PRESENTERS
9.00am	**16**	**Fractured Rock Aquifers** • Fractured rock provinces in Australia • Classification • Basic Characteristics • Groundwater flow • Locating and mapping fractures	
10.00am	**17**	**Mining Hydrogeology** • Mine Dewatering • Dewatering Methods • Impacts of dewatering • Design of dewatering system	
11.00am		**Morning Tea**	
11.15am	**18**	**Groundwater Dependent Ecosystems** • 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** • 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** • 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**	