

## ORGANISERS



NATIONAL CENTRE FOR  
**GROUNDWATER**  
RESEARCH AND TRAINING



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Lembaga Ahir Geologi Malaysia

# NATIONAL GEOSCIENCE CONFERENCE (NGC) 2024

*"Geoscience for a  
Sustainable future"*

## Pre-Conference Workshop GROUNDWATER



Guest speaker  
**DR. MARGARET SHANAFIELD**  
(NCGRT) Australia



Guest speaker  
**MR. STEVE BARNETT**  
Department of Water &  
Environment,  
Government of  
South Australia

**DATE**   
30 SEPTEMBER 2024

**TIME**   
08:30 AM - 04:30 PM

**VENUE**   
DEPARTMENT OF GEOLOGY,  
UNIVERSITI MALAYA

CPD APPLICATION IN PROGRESS 

### REGISTER NOW

GSM/ IGM MEMBERS : RM 650  
NON- GSM/IGM MEMBERS: RM 750  
STUDENT: RM 450

GEOLOGICAL SOCIETY OF MALAYSIA  
STANDARD CHARTERED BANK  
ACCOUNT NUMBER: 794 105402263

## Program (1 Day)

TIME		THEME/TOPIC	PRESENTERS
8:30		<b>Welcome and Introduction</b>	
8:45	1	<b>Introduction to Groundwater</b> <ul style="list-style-type: none"> <li>• Groundwater hydraulics</li> <li>• Determination of aquifer parameters by testing</li> <li>• Recharge/discharge determination</li> <li>• Water residence times and aquifer response times</li> <li>• Flow in fractured rocks</li> </ul>	<b>Margaret Shanafield</b> <i>National Centre for Groundwater Research and Training, Flinders University</i>
9:45	2	<b>Hydrogeology of Malaysia &amp; general water issues</b>	<b>Presenter (TBC)- Malaysia</b>
10:15		<b>Morning Tea Break</b>	
10:30	3	<b>GDE's and Surface Water/Groundwater Interactions</b> <ul style="list-style-type: none"> <li>• Effects of groundwater pumping on rivers and GDE's</li> <li>• Groundwater – surface water exchange processes</li> <li>• Terrestrial vegetation</li> <li>• Springs and Wetlands</li> </ul>	<b>Margaret Shanafield</b>
11:30	4	<b>Coastal Hydrogeology and Seawater Intrusion</b> <ul style="list-style-type: none"> <li>• Introduction to coastal groundwater systems</li> <li>• Freshwater-Seawater interface</li> <li>• Submarine Groundwater Discharge</li> </ul>	<b>Steve Barnett</b> <i>Department of Water and Environment, South Australia</i>
12:30		<b>Lunch Break</b>	
1:00	5	<b>Chemistry and Water Quality</b> <ul style="list-style-type: none"> <li>• Geogenic contamination (arsenic, boron, uranium, etc.)</li> <li>• Diffuse (salinity, nitrate) and point source contaminants.</li> <li>• Organic contaminants and pathogens</li> <li>• Drinking water and health standards and guidelines</li> <li>• Wellhead protection</li> <li>• Transport of contaminants in aquifers</li> <li>• Impacts of Mining</li> </ul>	<b>Margaret Shanafield</b>
2:00	6	<b>Water Balances and Groundwater Modelling</b> <ul style="list-style-type: none"> <li>• What is groundwater modelling?</li> <li>• What is it for?</li> <li>• The modelling process</li> <li>• Information needed by groundwater models (I.e. what GIS staff may sometimes assist with)</li> <li>• How the results are used</li> </ul>	<b>Steve Barnett</b>
3:00		<b>Afternoon Tea Break</b>	
3:15	7	<b>Water Resource Management</b> <ul style="list-style-type: none"> <li>• What, why, when and how we manage GW and SW</li> <li>• Basic principles and management tools</li> <li>• Management issues</li> <li>• Climate change and recharge rate</li> <li>• Integrated Water Resources Management</li> <li>• Managed Aquifer Recharge</li> </ul>	<b>Steve Barnett</b>
4:15		<b>Discussion and Close</b>	<b>All</b>
4:30		<b>End of Course</b>	

## Presenter Biography

### 1) Dr. Margaret Shanafield



- ❖ **Current Position:** Senior Researcher at National Centre for Groundwater Research and Training (NCGRT) Australia.
  
- ❖ **Qualification:**
  - 2000 : BA Environmental Science, Northwestern University, USA.
  - 2004 : MSC Hydrology, University of Nevada Reno, USA.
  - 2010 : PHD Hydrogeology, University of Nevada Reno, USA.
  
- ❖ **Expertise mainly in:**
  - GW-SW Interactions
  - Dryland & Draughts (Arid & Semi-Arid Zones)
  - Groundwater Recharge
  - Water-energy-food nexus
  
- ❖ **Publications:**
  - (2021) A comparison of time-frequency signal processing methods for identifying non-perennial streamflow events from streambed surface temperature time series. *Water Resources Research*, 57, e2020WR028670.
  - (2021) When Urban Stormwater Meets High Groundwater–Part 1. *Water e-Journal*, 6(1).
  - (2020) The impact of multiple anthropogenic stressors on a clear, freshwater wetland. *Ecology and Society* 25(2):6.
  - (2020) Catchment-scale characterization of potential infiltration through an intermittent streambed; a simple geophysics approach. *Journal of Geophysical Research: Earth Surface*. 125, e2019JF005330.

## 2) Mr. Steve Barnett



- ❖ **Current Position:** Principal Hydrogeologist at Department of Water & Environment, Government of South Australia.
  
- ❖ **Qualification:**
  - 1974 : BSc in Geology, Adelaide University, South Australia University.
  - 1987 : MSC Hydrogeology, Flinders University, South Australia.
  
- ❖ **Expertise mainly in:**
  - Groundwater Management Plans
  - Hydrogeological Mapping
  - Groundwater Monitoring
  - International Groundwater Training
  
- ❖ **Publications:**
  - (1983) Groundwater Resources of Eyre Peninsula, South Australia, in Collected Case Studies in Engineering Geology, hydrogeology and Environmental Geology. Special Publication of the Geological Society of Australia, No. 11.
  - (1995) The rise and rise of confined aquifer pressures – why? Murray Darling 1995 Workshop, Extended Abstracts. Wagga Wagga, 11-13 September. Australian Geological Survey Organisation.
  - (2000) Aquifer storage and recharge: innovation in water resources management. Australian Journal of Earth Sciences; 47: 13-19.
  - (2010) Management approaches for non-renewable groundwater resources. Groundwater 2010 - National Groundwater Conference.