

MONDAY | 16 OCTOBER

08|00 Plenary Session: Auditorium

08|30 **OPENING CEREMONY**
Welcoming address by the Premier of the Western Cape Ms Helen Zille

09|00 Depth discrete multilevel monitoring in fractured rock: state of the technology and implications
J.A. Cherry, B.L. Parker, S.W. Chapman, J.R. Meyer, and A.A. Pierce

09|30 Back to the future – spotlight on groundwater as drought takes centre-stage
R.P. Parsons

10|00 Tea | Viewing of posters

Venue: Auditorium

Venue: Simonsig Room

Venue: Stellenberg

Groundwater sustainability

Groundwater monitoring

Environmental forensic geochemistry and isotopes

10|40 The National Groundwater Strategy for South Africa
F. Fourie, S. Adams and E. Braune

Applications of satellite based techniques in monitoring water storage in the Vaal River basin, South Africa
K. Masindi and T. Abiye

Assessment of plume stability in monitored natural attenuation assessments using the centre of mass and total plume mass approach
S.D. Mohr and K. Naude

11|00 Characterisation and protection of deep aquifers in South Africa: characterisation
F.D. Fourie, A.J. Allwright, N. Makiwane and N. Govender

Establishing a monitoring network to inform a hydrogeological management plan within Tankwa Karoo National Park
A. Van Niekerk and B. Dyason

Combined biotic and abiotic treatment of soil and groundwater in reductive and oxidative pathways
L. Sacchetti

11|20 Groundwater resource assessment of the Malmani Subgroup dolomites within the Olifants River water supply scheme
D. Blake, K. Riemann, S.O. Jack, F.S. Botha, R. V. Weidemann, E. A. Wise and S. Mndaweni

Making sense of monitoring data: the West Coast aquifer system as a case study
N. Vermaak, D. Vermeulen, and T. Kanyerere

Spatio-temporal analysis of groundwater quality data using GWSDAT to assess performance and endpoint of remediation of petroleum in fractured bedrock (South Africa)
E. Soumillion

11|40 Characterising groundwater recharge in crystalline aquifer Johannesburg, South Africa
K.C. Leketa and T. Abiye

An integrated monitoring network for the management of potential impacts on the Elandsfontein aquifer unit: Change • Challenge • Opportunity
K. Smith and J. Nel

Spatial variability of physicochemical parameters and suitability of groundwater for drinking in three administrative zones of the Chókwe district, Mozambique
P.S.L. Saveca, E. Lukas and M. Gomo

	Venue: Auditorium	Venue: Simonsig Room	Venue: Stellenberg
12 00	Estimation of groundwater recharge response from rainfall events in a semi-arid fractured aquifer: case study of quaternary catchment A91H, Limpopo Province, South Africa P. Nemaxwi, J.O. Odiyo and R. Makungo	A geostatistical-hydrogeological approach to groundwater monitoring network design in South Western Karoo, South Africa Z. Gaffoor, K. Pietersen, T. Kanyerere and A. Levine	Characterization of the CO ₂ springs associated with the Bongwana Fault, its impact on fresh surface water and groundwater quality and implications on carbon capture and storage (CCS) in South Africa M. Nkwane and M.B. Demlie
12 20	Lunch in the foyer and cellar / Poster venue sponsored by JMA Consulting		
	Groundwater sustainability	Unconventional gas and water	Environmental forensic geochemistry and isotopes
13 40	Effectiveness of groundwater governance in the Southern African Development Community (SADC) countries K. Pietersen and H.E Beekman	Investigating risks to groundwater systems from shale gas development in the main Karoo basin of South Africa T. Maceba, K. Pietersen, T. Kanyerere and A. Levine	Understanding groundwater geochemistry of a plunging syncline south of Robertson, Western Cape, South Africa N. Paxton
14 00	Danish groundwater management approaches in a South African context P.G. Pedersen, M.S. Linneberg, A. Magingi, F. Fourie	Possible wastewater volumes associated with unconventional oil and gas extraction in South Africa and the management thereof R.D. Williamson and S. Esterhuysen	Modelling the distribution of tritium in groundwater across South Africa to assess the vulnerability and sustainability of groundwater resources to climate change J.D. van Rooyen, J.A. Miller, A. Watson and M. Butler
14 20	Can Danish groundwater assessment be used in South Africa? M.S. Linneberg, P.G. Pedersen, A. Magingi and F. Fourie	Investigating the groundwater impact around a leaking plugged gas exploration bore W.J. van Biljon	Multivariate statistical analysis of hydrochemical and environmental isotope data to characterise the hydrogeological and hydrogeochemical system of the Lake Sibayi catchment, north-eastern South Africa J.C. Weitz and M. Demlie
14 40	Groundwater resource protection: state-of-the-art, challenges and research needs K. Riemann, K Gerstner and M Hoosain	Establishing a groundwater baseline for unconventional gas projects in South Africa M. Lourens and F.D. Fourie	In-situ iron removal treatment in a primary aquifer, the Atlantis example L. Nhleko, O. Novhe and G. Tredoux
15 00	Tea Viewing of posters		

	Venue: Auditorium	Venue: Simonsig Room	Venue: Stellenberg
	Groundwater sustainability	Groundwater and mining	Environmental forensic geochemistry and isotopes
15 30	Sustainability of shallow groundwater irrigation on emerging farms in the Limpopo Province: case study in the Molototsi catchment N. Jovanovic, R.D.H. Bugan, T. Lebea, K. Ayisi, D. Du Preez, D. Walker and N. Ndara	Temperature and EC stratification in the gasification zone and surrounding aquifers of underground coal gasification at the Majuba pilot plant L.S. Mokhahlane, G. Mathoho and L. Khuzway	Hydrochemical analysis of groundwater in the Danakil Depression, northern Ethiopia D. C. McGibbon, C. J. H. Hartnady, D. Blake, K. Riemann, R. Hay and L. C. Towers
15 50	Quantifying groundwater resources in alluvial aquifers of the Omaruru River; simplifying decision making for aquifer management W. Kambinda, A. Bittner and C. Külls	Dewatering impacts of a South African underground coal mine P.J.H. Lourens and P.D. Vermeulen	Chemical and microbial quality of groundwater in Siloam village: implications for domestic use J.O. Odiyo, R. Makungo and V. Mukhumo
16 10	Estimation of groundwater recharge using water-table fluctuation method: a case study of Makotopong village - Polokwane, South Africa S.J. Tleane, J.M Ndambuki and G.M. Ochieng	The study of the effectiveness of rehabilitation of abandoned Dundee-Newcastle coal mines on groundwater and surface water quality P. Naicker and M.B. Demlie	Chemical processes governing Siloam and Tshipise geothermal springs, Limpopo Province, South Africa O.S. Durowoju, J.O. Odiyo and G. Ekosse
16 30	Alluvial wellfield optimisation and management using numerical flow modelling and seasonal river stages B. Bredenkamp, A. Marais and K. Troskie	Estimation of groundwater inflow and pore pressure distribution for a coal mine using a numerical flow model with accurate grid refinement J.A. van 't Zelfde, B.J. Bredenkamp, E. Levay and A.W.C. Marais	Impact of socio-economic development on the groundwater quality of Mgobezeleni catchment M.Mkhwanazi, J Simonis and GC Bate
17 00	GWD AGM		
18 30 for 19 00	Conference Dinner		

Plenary Session: Auditorium			
0830	Chlorine-36 in hydrology - principles and practice K. Fifield		
0900	Modelling of cumulative mine dewatering and flooding impacts K. T. Witthüser, M. Holland and H. Seyler		
0930	Ground water medal Sustainability-Oriented Groundwater Research, Development & Innovation: Building on the Past, Travelling to the Future S. Adams		
1000	Tea Viewing of posters		
	Venue: Auditorium	Venue: Simonsig Room	Venue: Stellenberg
	Environmental forensic geochemistry and isotopes	Groundwater modelling	Groundwater and development
1040	Testing potential reservoir connectivity using isotopes S. Dlakuvo and M. Butler	Groundwater modelling as a water management tool M.E. Masemola and K. T. Witthüser	Bulk groundwater use from mine de-watering and dolomite aquifers in the Northern Cape, benefits, impacts, regulation and sustainability G.S.D. van Dyk, L. Baloyi, F. Wiegmans and E. van Wyk
1100	Geochemical behaviour of arsenic in contact with dolomite J. Fourie, J. Nel and A. Fourie	Numerical modelling of a coal mine to improve the understanding of mine water decant: a 1000-piece puzzle A.J. Allwright	Coal mine pitlakes in South Africa A. Johnstone and L. Kennedy
1120	The impact of domestic wastewater effluent on private wells: an evaluation of contamination fingerprinting techniques C. Fennell, B. Misstear, L. Gill, L. Brophy, D. Dubber, D. O'Connell, K. Kilroy and V. O'Flaherty	Modelling of the Steenkoppies dolomite compartment – sustainable to 'unsustainable' groundwater use M. Holland, H. Seyler, J.T. Vahrmeijer and F.E. Wiegmans	Groundwater resource quantification and impact assessment: we need a South African groundwater code J.J.P. Vivier
1140	Geochemical simulation of drain water quality in gold tailings T.R. Harck	Application of environmental isotope tools to improve conceptual and numerical modeling of groundwater flow in Kosh Goldfields, Witwatersrand basin, South Africa H. Mengistu, T. Abiye and M. B. Demlie	GIS and groundwater monitoring F. Jonck
1200	Stable isotopes reveal pathways and potential for nitrate mitigation in an aquifer used for drinking water production C. Kludt, A. Giber, C. Kühbeck, F-A. Weber, C. Schüth and K. Knöller	Determination of uranium mobility through geochemical modelling in the Karoo uranium province J.T. Leshomo and T. Abiye	Investigation of sustainable groundwater resource supply in the crystalline basement aquifer at Matoks (Mokomene), in Molemole municipality, Limpopo province, South Africa R. Ramathiedza, M.O. Kataka and F.D. Munyai

Venue: Auditorium

Venue: Simonsig Room

Venue: Stellenberg

- 12|30 **Midweek Tour 1**
Atlantis Artificial recharge scheme tour
Midweek Tour 2
Newlands Brewery Tour
Midweek Tour 3
Franschhoek bottled water plant and the Berg River and
Wemmershoek Dams Tour

18|00 **Burger and blending function**
sponsored by **Water Technology Plastic Industries**

Wednesday's Programme sponsored by **SADC-GMI**

WEDNESDAY | 18 OCTOBER

Plenary Session: Auditorium

08|00 Cape Town: Where sweet waters meet the sea (video)
M.A. Dippenaar

08|30 Groundwater Depletion: Assessing Water availability in the Ogallala-High Plains Aquifer, USA
Prof. R. Stotler

09|00 The City of Cape Town and the drought – our plan going forward
B. Wood and P. Flower

09|30 Ground Water Medal
The importance of groundwater from a water resources planning perspective
I. Thompson

10|00 **Tea** | Posters will be up for the duration of the conference.

Venue: Auditorium

Venue: Simonsig Room

Venue: Stellenberg

Environmental forensic geochemistry and isotopes

Groundwater sustainability

Hydraulic characterization

10|40 Are farmers drying out the Cederberg? Deep groundwater flow and isotopes in the Table Mountain Group
R E. Diamond

Statistical analysis of groundwater level variability across Kwazulu-Natal Province, South Africa
M. S. Ndlovu and M.B. Demlie

Post mining aquifer testing at a South African coal mine
M. du Toit and P.J.H. Lourens

11|00 Western Cape coastal groundwater resources: potential for artificial recharge and conjunctive use
S. Israel, R. Bugan, N. Jovanovic, H. Pienaar, N. Vermaak, G. Tredoux and T. Kanyerere

Estimating groundwater recharge in commercial plantation forests: a case study from George (Western Cape)
R.D.H. Bugan, N. Tuswa, N. Jovanovic, T. Mapeto, M. Gush, E. Kapangaziwiri and S. Dzikiti

Pump test analysis of primary alluvial aquifers and the influence of rift related faults in the Danakil Depression, Northern Ethiopia
L.C. Towers, D.C. McGibbon, C.J.H. Hartnady and D. Blake

	Venue: Auditorium	Venue: Simonsig Room	Venue: Stellenberg
11120	Nutrient retention in stream sized rivers, related to riparian land development and climatic change L.R. Lazarus and S. Fietz	Conceptual model based numerical groundwater flow modelling of the Simbithi eco-estate, Kwazulu- Natal, South Africa J.M. Roux, M. Demlie and M. Schapers	Water supply boreholes must be test pumped J.M.C. Weaver
11140	Isotope constraints on the source and residence time of spring water from the Table Mountain Group aquifer, Paarl, South Africa J.A. Miller, A.J. Dunford, K.A. Swana, L. Palcsu, M. Butler and C.E. Clarke	Groundwater augmentation for housing estate water supply, implementation and legal use G.A. Molzen, R. Hay, K. Riemann, D.C. McGibbon and D. Blake	A case study that demonstrates the importance of scientific borehole yield testing C. Brand and D. Barrow
12100	Application of environmental tracers for differentiation of fresh and re-circulated submarine groundwater discharge (SGD) into Knysna Estuary, South Africa E. Petermann, K. Knöller, C. Rocha, J. Scholten, R. Stollberg, H. Weiß and M. Schubert	Application of spring discharge flux and water-table fluctuation methods to estimate groundwater recharge in Grahamstown, South Africa K.N. Smetherham, D.A. Hughes and J.L. Tanner	Rigorous methodology for sustainable yield estimation using groundwater numerical modelling validation S. Dustay, S. Imrie and E. Goosens
12120	Lunch in the foyer and cellar / Poster venue sponsored by JMA Consulting		
	Geophysics	Groundwater and development	Mining and water
13140	Advances in the realm of hydrogeophysics: the emerging role of quantum geoelectrophysics (QGEP) in deeper aquifer exploration R. Hatala, G. Gruba, A. Macgregor and J. Fenn	Water sensitive design scenario planning for Cape Town using an urban (geo)hydrology model H. Seyler, K. T. Withtüsener and M. Bollaert	Development of an artificial neural network for the prediction of mine dewatering S. Ngoie and F.D. Fourie
14100	Groundwater exploration in the Tsineng area using airborne and ground geophysical methods T. Mokgatle and F.D. Fourie	Determining the hydrological functioning of the palmiet wetlands in the Eastern and Western Cape of South Africa C. Smith and J.L. Tanner	A case study: the impact of alluvial diamond mining operations on surface- and groundwater resources in the North West Province A.M. Kruger and K. Troskie

	Venue: Auditorium	Venue: Simonsig Room	Venue: Stellenberg
14 20	Assessment of groundwater pollution risk using geophysical methods: a case study Lagos coastal area, Southwestern Nigeria M.A. Yusuf and T.A. Abiye	The effects of land use change on the surface water/groundwater interactions in the coastal lakes and wetlands of the Isimangaliso Wetland Park, South Africa. J.L. Tanner , D.A. Hughes and A. Johnstone	Influence of fault systems on mine flooding processes using coupled fluid flow and geomechanical deformation modeling M. Saberi , K. T. Witthüser and C. M. König
14 40	Applied geophysics to investigate groundwater pollution flow paths along a fault system in an industrial environment J.S.D.R. Zielke-Olivier and P.D. Vermeulen	Evaluating the recharge potential of an aquifer through the characterisation of the unsaturated zone by means of infiltration studies S. Vermaas and F.D. Fourie	The geohydrological setting of the Elandsfontein phosphate mine, West Coast J. E. Conrad
15 00	Tea Viewing of posters		
15 30	To be, or not to be – a career in hydrogeology: some anecdotes and advice from adventure and exploration over the past 30 years R. Morris		
15 50	Change, challenge and opportunity – some reflections on hydrogeology education, the sustainable development goals and global change B. Mistear		
16 10	Closing ceremony Awards, Thank you's Prizes and Lucky Draw		