

THE GROUND WATER DIVISION SPECIALIST DIVISION OF THE GEOLOGICAL SOCIETY OF SOUTH AFRICA

INTRODUCTION

The Ground Water Division aims to serve the Ground Water Community in southern Africa, for the advancement of the science and technology of groundwater and to promote the efficient use of groundwater as well as professionalism throughout the groundwater industry.

EXECUTIVE COMMITTEE

The Executive Committee of the Division consists of a Chair, a Vice Chair, a Secretary, a Treasurer and two (2) additional members. Not all positions are currently filled. The 2015 Elections were concluded and the GWD welcomed the new Committee for the 2016-2017 term.

The duties of the Executive Committee are to manage the affairs of the Division in the interest of the Members of the Division and in accordance with its own Constitution and Rules and the Constitution and Bylaws of the Geological Society of South Africa.

Newly Elected Executive Committee Members:

Dr Matthys Dippenaar (University of Pretoria) - National Chairperson

Mr Sechaba Lenong (Council for Geosciences) – National Vice-Chair, Website Portfolio

Mr Fortress Netili (Global Water Management Solutions Pty Ltd) - National Treasurer

Dr Martin Holland (Delta-H Water Systems Modelling Pty Ltd) – National Secretariat, Financial Portfolio

Ms Elanda Schaffner – Appointed National Secretary

Dr Jaco Nel (GCS-SA) – SACNASP and Membership Portfolio

Mr Derek Whitfield (EDRS) – Events Portfolio

Mr Terry Harck (Solution-H+) – Strategic relationships Co-Opted

Ex-officio:

Ms Danita Hohne (Department Water and Sanitation) - Central Branch Chair

Dr Roger Parsons (Parsons and Associates) - Western Cape Branch Chair

Mr Jan Myburgh (AGES) - Eastern Cape Branch Chair

Mr Duncan Munyai (Private Consultant) - GWD Limpopo Branch Chair

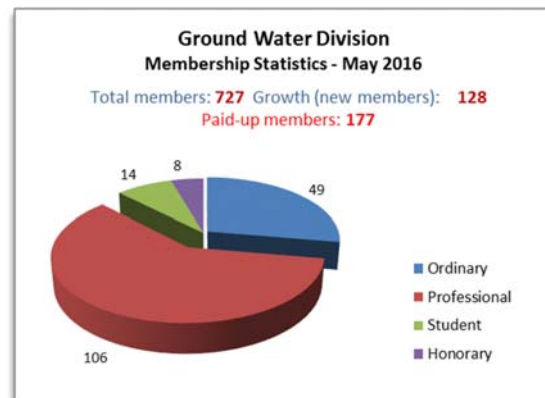
MEMBERSHIP

The Division strategically focused on **student** and **individual** membership. To be able to filter groundwater expertise more proficiently the GWD membership were invited to *upgrade* their current **Ordinary (changed from Associate) membership** to **Professional membership**.

Professional members are professionals active in a groundwater specific field and SACNASP registered. **140** members upgraded from ordinary to professional members. In total, the GWD membership database grew from 661 members in May 2015 to **727** members in May 2016. Of these members, 600 were invoiced of which **177** settled their membership dues to date.

Student membership is in coordination with the IAH ECHN and the newly elected student and early career representative is Ms Kelley Swana.

The GWD introduced a minimal Student membership fee in 2016 (R57.00). Uptake from Student members have been slow but a concerted effort to increase paid-up student membership is an ongoing priority.

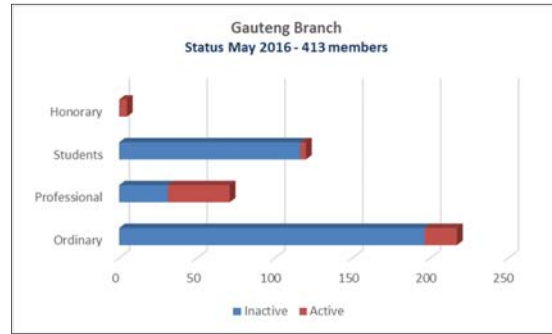
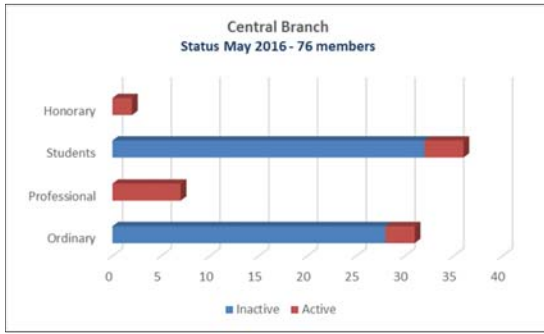


BRANCH STATISTICS *

(*active status on 17 May 2016)

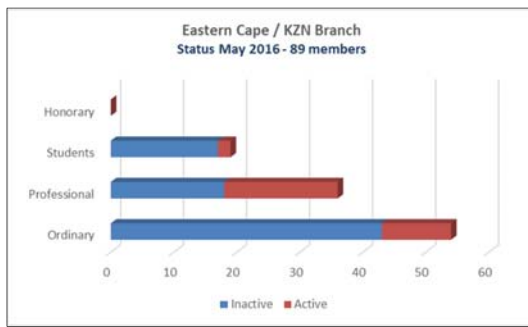
CENTRAL BRANCH

The Central Branch of the Ground Water Division incorporates members from the Free State, Northern Cape and North West Provinces.

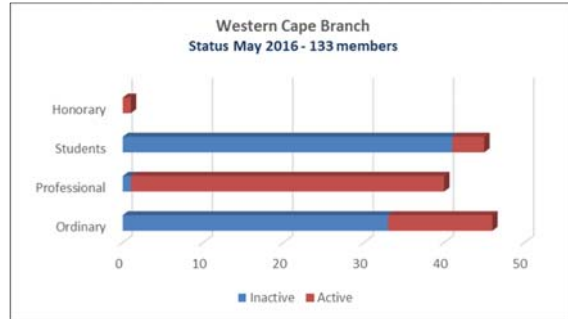


EASTERN CAPE (AND KZN)

The Eastern Cape Branch of the Ground Water Division currently incorporates members from the Eastern Cape as well as KwaZulu-Natal.

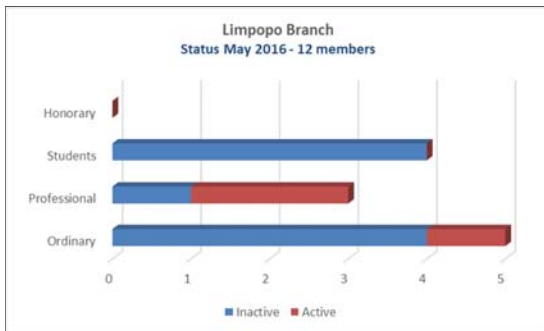


WESTERN CAPE BRANCH



LIMPOPO BRANCH

The Limpopo Branch of the Ground Water Division is a newly established branch (2013) and groundwater professionals and interested parties from the greater Limpopo Region are being invited, through continuous marketing efforts, to join the Polokwane-based branch.



GAUTENG BRANCH

The National Branch of the Ground Water Division currently incorporates members from Gauteng, Northern Province and Mpumalanga. The National Branch serves as the hub for all GWD governance issues.

ACTIVITIES FOR THE YEAR

29 July 2015, Western Cape, GWD

Coordinated by Julian Conrad (Geohydrologist - GEOSS) and Anya Eilers (MSc student - Stellenbosch University)

A presentation by Dr Ricky Murray, Dr Jodie Miller and Ms Kelly Swana on "Hydrochemical fingerprinting of shallow groundwater and natural springs in the Karoo Basin as a precursor to shale gas development and what it tells us about the composition of deeper groundwater"



Hosted at the Stellenbosch University this talk marked the return of undergraduate students from their vacation, and an exciting way to kick off the new semester. And they came out in their numbers to support current MSc student Kelley Swana, who along with Dr Ricky Murray and Dr Jodie Miller presented their joint research marking two hard years of work.

Although a mouthful to digest (and not a scientific study on fracking as the controversial word may suggest), the research provides a ground-breaking

effort to fingerprint the largely undefined deeper groundwaters of the Karoo. Well presented by the three accomplished speakers, the audience was in agreement that the chemical determinants used to define deep groundwater (based on their accuracy, ease of use and cost efficiency) could form an integral part of continued groundwater monitoring in the greater Karoo basin, particularly important in light of the proposed fracking. The full report is now available on the WRC website, and can be downloaded from:

<http://www.wrc.org.za/Pages/DisplayItem.aspx?ItemID=11321>

30 July 2015, National (Gauteng), GWD

Dr. Audrey D. Levine, Fulbright Specialist in collaboration with the Water Research Commission. She is from Washington DC where she serves as a Program Director at the US National Science Foundation.

Dr Levine presented on 'Future Directions towards Environmental Stewardship over the Unconventional Energy Lifecycle'

Hosted at the University of Pretoria, this presentation considered relationships between unconventional energy development and environmental stewardship from a lifecycle perspective. She focused mainly on water management and groundwater protection. The importance of developing robust baseline data prior to unconventional energy development were illustrated using a US example where intensive drilling activities and the co-location of private wells has confounded the ability to discern potential impacts due to drilling, well completion, hydraulic fracturing, water management, or well operation. Some of the challenges associated with deriving forensic baseline biogeochemical data from different types of wells were discussed and preliminary data on chemical fingerprinting to differentiate sources of waterborne contaminants were presented. She also discussed opportunities to leverage ongoing international unconventional energy activities towards developing best practices and offered an overview of current research needs related to environmental stewardship.

26 August 2015, Western Cape, GWD

Coordinated by Julian Conrad (Geohydrologist - GEOSS) and Anya Eilers (MSc student - Stellenbosch University).

Roger Parsons presented a talk 'A journey of discovery – the hidden hydrology of Groenvlei' at the Stellenbosch University.

With this interesting title and his outstanding presentation style, his work was accessible to all attending and gave us a few moments to have a good laugh!



The work was based on his PhD research on the role of groundwater in sustaining the Groenvlei Lake, located along the N2 near the town of Knysna. Not only a pure hydrological discovery, Parsons also discussed his personal rediscovery of what it means to be a scientist, the poor science which he had to deal with along the way, and why he chose to tackle his PhD later in his career. The simple and engaging way in which he presented his work not only left students (and consultants) with a greater understanding of this vlei, but also with a new outlook on the scientific process, and how they could apply some of the tricks he learnt to their own research. He concluded that there is still much research to be completed in the field area (with good monitoring sites available), and the possibility for an MSc or PhD project! Roger's PhD can be downloaded:

<http://etd.uovs.ac.za/ETD-db/theses/available/etd-11192014-131215/unrestricted/ParsonsRP.pdf>

20 September 2015, Workshop on Operations & Maintenance: Pump Operating Rules

This workshop was offered as a pre-Conference course hosted at Ekudeni, Muldersdrift and presented by Jim Gibson from Maluti GSM Consulting Engineers.

The workshop, attended by 24 delegates, explored the Selection, Operation and Maintenance of Borehole Pumps as the important but commonly overlooked issues associated with borehole pump selection and operation that are necessary to ensure long life. It was stressed that it is often not enough to understand the groundwater conditions - technology choices and essential Operation and Maintenance are considered vital to a sustainable groundwater supply.

20 September 2015, Workshop on Aquifer Sustainability

This workshop was offered as a pre-Conference course hosted at Ekudeni, Muldersdrift and presented by Helen Seyler and Kai Witthüser both from Delta H Water Systems Modelling.

Aquifer sustainability is a commonly misunderstood facet of groundwater science, and one which is more complex than it might first appear. In this workshop, attended by 26 delegates, Helen Seyler and Kai Witthueser clarified what is meant by aquifer sustainability, described some of the research around the topic in recent years, and explained how this affects groundwater in South Africa.

21-23 September 2015, Groundwater Conference: “From Theory to Action”



The 14th Groundwater Division of the Geological Society of South Africa Conference took place in Muldersdrift, Ekudeni, South Africa, from 21 – 23 September 2015.

The Biennial Ground Water Division Conference is the premier groundwater conference in South Africa, covering a broad spectrum of research & development, policy & regulation and implementation areas. The conference has grown from strength-to-strength over the years and the Organising Committee have put together an exciting technical and social programme that enabled the renewal of old friendships and making of new connections and friendships.

Groundwater is no longer this mysterious resource that is hidden; we can describe it using well established laws as well as direct and indirect observations. It is a major and strategic resource in South Africa and will become even more so into the future as we look at alternative water supply options. We have world-class groundwater hydrologists that can solve ANY groundwater and related problem. The policy and decision-makers perception of the resource still leaves a lot to be desired for ... but we are confident that this will be rectified. At this conference we aimed to offer some solutions for the sustainable utilisation and management of our groundwater resources. We were also delighted at the large number of early career groundwater professionals that attended. Thanks largely to the student sponsors, (SLR Consulting and Groundwater Consulting Services) and the various branches of the Ground Water Division, which made the attendance of several students possible.

The main sponsors, Water Research Commission, Department of Water & Sanitation, EDRS (Environmental Drilling & Remediation Services) and SRK Consulting, as well as the **media partners**: Farmer’s Weekly and Water Wheel, the WRC Publication, were acknowledge and thanked for their contributions.



The country venue Ekudeni in Muldersdrift Gauteng offering delegates a relaxed open atmosphere that enhanced networking.

The 3-day parallel programme, consisting of 24 sessions with 99 paper presenters and 24 poster presenters in total, and were structured around the following themes:

Theme	Papers
Case Studies	6
Groundwater and Mining	17
Groundwater and Service Delivery	6
Groundwater and the Environment	22
Groundwater and Water-Energy-Food security	6
Groundwater Governance	5
Groundwater in a Green Economy	3
Monitoring, Data and Information Management	16
Municipal Support	2
National Groundwater Strategy	1
National Monitoring Programme	5
Young Scientists	5
Plenary Presentations	5

The Conference hosted a total of 244 delegates from across Southern Africa, Germany and Australia and 17 exhibitors that included the companies:

Aqua Earth, Goodspeed Environmental Services, Aquatico Laboratories (Pty) Ltd, International Water Management Institute (IWMI, South Africa), E.D.R.S, Talbot & Talbot, Georem Pty Ltd, SRK, WISA/eWISA, SA Hose Manufacturers, Scientific Systems Pty Ltd, DWS, Geological Society of South Africa (GSSA/GWD),

GCS Pty Ltd, GeoWater Systems, LOG Industrial Automation and Control and the Water Research Commission.

One of the Conference highlights include the awards ceremony where the following individuals/ companies received recognition for:

Groundwater Lifetime Achievement: Mr Siep Talma (Private Consultant); Mr Phil Hobbs (CSIR)

Best Paper Presenter: Mr Robel Gebrekristos (Digby Wells Environmental)

Best Student Paper Presenters: Mr Jannie Weitz, (UKZN) / Mr Tebogo Madlala (UWC)

Best Poster: Mr Ashton Maherry (CSIR)

Best Exhibitor: EDRS

The Conference Programme also included a number of well-attended, fun social events as well as a post-conference tour to the Cradle of Humankind that was led by Mr Phill Hobbs.

As part of the Programme the GWD hosted its **Annual General Meeting** with record attendance of 102 delegates as sure sign that the GWD is growing in strength and will remain a strong role-player in the years to come.



Best Poster: Mr Ashton Maherry (CSIR)

SPONSORSHIPS AND ENDORSEMENTS

The GWD released funding towards the sponsorship of 19 students to attend the GWD Conference in September 2015.

Application to benefit from the sponsorship was opened online and students from the following Universities applied and was accepted:

- University of the Free State, Institute for Groundwater Studies
- University of KwaZulu-Natal, and
- The University of the Western Cape

PLANNED ACTIVITIES

13 May 2016, Eastern Cape Groundwater Division Meeting and Talk (GWD EC KZN)

May 2016 – June 2016, National Groundwater Strategy Workshops

GWD members will participate, together with other important groundwater role-players in a number of Provincial Stakeholder and Public Consultation Workshops:

Register as a stakeholder to attend any of the workshops in the link below and note that the current NGS Draft is available for comments in the same link:

<https://www.dwa.gov.za/Groundwater/NGS2016.aspx>

For more detailed information, send an email to ngs@dws.gov.za

- 4 May 2016 – Gauteng (past)
- 24 May 2016 - Eastern Cape
- 25 May 2016 - Western Cape
- 31 May 2016 - Limpopo
- 02 June 2016 - KwaZulu-Natal
- 07 June 2016 - North West
- 09 June 2016 - Free State
- 14 June 2016 - Mpumalanga
- 22 June 2016 - Northern Cape



Best Student Paper Presenter Award: Mr Jannie Weitz (UKZN)



Best Student Paper Presenter Award: Mr Tebogo Madlala (UWC)

21 June 2016 - GWD Regional Seminar (GWD WCAPE)

This event will be hosted at the University of Stellenbosch with a Regional Programme to be confirmed at a later stage.

July 2016 - Darcy Lecture Series

07 July 2016, UP, Gauteng

08 July 2016, UFS, Free State

12 July 2016, UWC, Cape Town

The 2016 Darcy Lecturer, Dr Ty Ferré will present the 'Seeing Things Differently: Rethinking the Relationship between Data, Models, and Decision-Making'

Ty Ferré, Ph.D., is a professor in the Department of Hydrology and Water Resources at the University of Arizona. He received his bachelor's degree in geophysical engineering from the Colorado School of Mines and his Ph.D. in Earth sciences from the University of Waterloo.

Practicing hydrogeologists construct detailed numerical models to predict the responses of hydrologic systems to natural and applied stresses. These predictions form the basis for decisions that must balance optimal use of resources and ecosystem support. These decisions typically involve multiple interested parties with strongly differing priorities for water allocation. Despite the importance that stakeholders place on water resources, budgets for hydrogeologic studies are often limited. As a result, the hydrologic models used for decision support are severely data limited. This requires improved methods to identify the optimal set of observations to collect and to use model-predictions to support robust decision-making under considerable uncertainty.

Dr. Ferré will build from the basic concepts of decision science to present concepts and recent developments in optimal design of hydrogeologic monitoring networks. He will also discuss how hydrogeologic models can be used for decision support under uncertainty. Finally, he will show that focusing hydrologic analysis on the specific, practical problems of interest can guide optimal measurement selection, advance hydrologic science, and improve the integration of science into economic and policy decisions.

Approaches developed by leading researchers in the field will be presented, including work within Dr. Ferré's research group on the Discrimination-

Inference for Reduced Expected Cost Technique—a framework for integrating multi-model analysis and decision science to improve the efficiency and effectiveness of hydrogeologic investigations. Examples will demonstrate the application of decision-guided hydrologic investigations to the design of a pump and treat system, prediction of off-site exposure risk, estimation of future water availability, and mediation of stakeholder conflicts over water use.

20 - 21 July 2016 - Groundwater in Action-Course (GWD Limpopo)

The Ground Water Division of the Geological Society of South Africa will host this annual two day course at the University of Limpopo, where the main objective is to teach participants the basic theory of groundwater in an easy and understandable way with emphasis on practical hands-on-experience.

Groundwater Conference, 2017

The 15th Groundwater Division of the Geological Society of South Africa Conference will take place in Cape Town, South Africa, in September 2017.

The following Committee has been suggested:

National Committee

Dr Matthys Dippenaar	National Chair
Mr Fortress Netili	National Treasurer
Mr Derek Whitfield	Exhibition Support

Western Cape LOC:

Dr Roger Parsons - LOC Chair

Mrs Helen Seyler	LOC Finances
<u>Conference Programme:</u>	Dr Kevin Pieterse (chair)
Dr Jodie Miller	Dr Thokozani Kaneyere
Dr Meris Mills	Mr Julian Conrad
Mr Ashton Maherry	(Dr Kornelius Riemann)

Technical tours:

Mr Shuaib Dustay	Dr Richard Bugan (chair)
(Neville Paxton)	Mr Brian Dyson

Social functions :

Dr Roger Diamond

Sponsors and exhibitors:

Dr Kornelius Riemann
(chair)

Session chair and marshals:

Mrs Nicolette Vermaak

Keynote speaker liaison:

Mr Neville Paxton

FINANCIAL SUMMARY

In 2014, the GWD centralised all its accounts into one National Account where branches will gain access to ring-fenced funds through an inter-branch transfer request.

This aid in the overall reporting function as well as ensure better application of available funds.

Current reported balances (01 May 2016)

NATIONAL	R 371,280.26 (Current) R 832, 860.72 (Invest)
CENTRAL	R 73,550.00 (Ring-fenced within main National Account)
WESTERN CAPE	R 154,255.29 (Ring-fenced within main National Account)
EASTERN CAPE	R 5,000.00 (cashbox)
LIMPOPO	R 5,000.00 (cashbox)

Income and Expenditure for the year January - May 2016

	Expense Account	Income Account
Operational expenses (Website/ Email/Secretariat/ EXCO Meetings)	50,281.64	
Vat, Refunds and Bank charges	2,755.86	1,210.00
Events 2015/16		67,063.44
For Conference 2015		
Other expenses (sponsorships/ endorsements)		
Other income (profit sharing and interest)		15, 028.41
Transfer to/from branches		
Membership		38,282.00
TOTAL	R 53,038.50	R 121,583.85

END

MR JOHANNES ROELF VEGTER

(1925 –2016)

Mr Vegter passed away on the 6th of January 2016 in Pretoria at the age of 91.

As one of the Ground Water Division founding members (he was instrumental in forming this learned society), he served as the National Chairperson on the Ground Water Division Executive Committee from 1978 to 1984; was awarded Honorary Membership shortly thereafter and became the recipient of the Groundwater Medal in the 1980's. He was widely acknowledged by his peers for his meritorious and outstanding service and dedication to furthering the science and technology of groundwater.

His unwavering passion and love for geohydrology was echoed in his continuous involvement in research projects long after his retirement. He will also be fondly remembered for his mentorship of generations of groundwater students and professionals alike and always had time to discuss the subject of groundwater at length.

The Division extends its condolences to his family, friends and colleagues with the passing of this true South African groundwater legend.

He bequeaths the groundwater community with a wealth of knowledge gained and shared throughout his illustrious career.

