# SOIL SCIENCE SOCIETY OF SOUTHARICA



## NEWSLETTER No. 109

May 2020

#### SSSSA COUNCIL / GVSA RAAD: 2019-21

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The SSSSA does not necessarily agree with opinions expressed in this newsletter.

Die GVSA onderskryf nie noodwendig die menings van bydraes tot sy nuusbrief nie.

#### MESSAGE FROM THE PRESIDENT/ BOODSKAP VAN DIE PRESIDENT



#### Combined Congress / Gesamentlike Kongres 2020

The past rainy season in the summer rainfall areas was much wetter than the 2018/19 season. The climate in Bloemfontein this year was also much more comfortable than that of the scorching heat of the previous year's congress in the same city. This year, yet another very successful congress was presented, attended by 254 delegates, of which 57 were members of the SSSSA. In total, 216 papers were presented (98 oral and 118 posters), of which 50 papers were soil science-related (27 oral and 23 posters).

The workshop with "Plant nutrition" as the theme was chaired by Prof Giel Laker and was presented to replace some of the excursions. There was only one excursion, which visited amongst others, a grain mill. Delegates could register for the congress, and/or either the workshop or the excursion. The workshop was very well attended, which is an indication that a specific need was addressed. It was in the form of a number of presentations with specific themes, after which a discussion session covered many important issues.

A highlight of the gala dinner was the gold medal from the SSSA, presented to Prof Giel Laker, and honorary membership to Prof Pieter le Roux (see items elsewhere in this newsletter). Congratulations to these worthy recipients of our prestigious awards.

Finally, sincere thanks to each and every SSSSA member who made the effort to attend the 2020 Combined Congress, with special appreciation for every presentation that was made. Without delegates attending the congress and people presenting, there can be no congress.

Die afgelope reënvalseisoen vir die somerreënvalgebied was heelwat natter as die 2018/19 seisoen. Die klimaat was hierdie jaar ook baie meer gemaklik as dié van die uiters warm 2019 Gesamentlike Kongres, ook in Bloemfontein.

Desnieteenstaande, is nog 'n baie suksesvolle kongres aangebied. Die kongres is deur 254 afgevaardigdes bygewoon, waarvan 57 lede van die GVSA was. In totaal is 216 referate gelewer (98 mondelings en 118 plakkate), waarvan 50 grondkundig van aard was (27 mondelings en 23 plakkate).

Die werkswinkel met "Plantvoeding" as tema, is deur Prof Giel Laker gelei. Dit is in die plek van sommige van die ekskursies aangebied. Afgevaardigdes kon vir die kongres en/of net die werkswinkel of ekskursie registreer. Die werkswinkel was baie goed bygewoon, wat 'n aanduiding daarvan is dat 'n spesifieke behoefte aangespreek is. Dit was in die vorm van 'n aantal voordragte met gespesifiseerde temas, waarna bespreking toegelaat is, waartydens vele brandpunte bespreek is.

'n Hoogtepunt van die gala-dinee was die goue medalje van die GVSA wat aan Prof Giel Laker en erelidmaatskap aan Prof Pieter le Roux toegeken is (sien item elders in hierdie nuusbrief). Baie geluk aan hierdie twee waardige ontvangers van dié gesogde toekennings.

Laasdtens, opregte dank aan elke GVSA-lid wat sy/haar weg oopgesien het om die 2020 Gesamentlike Kongres by te woon, en 'n meer spesiale waardering vir elke referaat wat voorgedra is. Sonder mense wat die kongres bywoon en mense wat referate lewer, is daar nie 'n kongres nie.

#### Combined Congress / Gesamentlike Kongres 2021

The arrangements for the 2021 Combined Congress, which will be held at the Cedara Agricultural College in KZN, are already at an advanced stage. SSSA members are encouraged to prepare presentations in the meantime. The first announcement for the 2021 Congress will be distributed soon. Support our own congress, organised by our own people, for our own people.

Die reëlings vir die 2021 Gesamentlike Kongres, wat by die Cedara Landboukollege in KZN gehou gaan word, is reeds in 'n gevorderde stadium. GVSA lede word aangemoedig om solank referate gereed te kry. Die eerste aankondiging van die 2021 kongres sal binnekort gemaak word. Ondersteun ons eie kongres, deur ons eie mense gereël, vir ons eie mense.

#### Journal / Joernaal

All paid-up members of the SSSSA have free access to the SA Journal of Plant & Soil. The Journal is hosted by Tailor & Francis, who do an excellent job. All previous issues are available electronically on the Taylor & Francis website www.tandfonline.com.

#### Important:

- Cite articles in our Journal
- Download articles from our Journal

- Publish in our own Journal
- Assist in uplifting the status of our Journal

Alle opbetaalde lede van die GVSA kry gratis toegang tot die SA Joernaal van Plant & Grond. Die Joernaal word deur Taylor & Francis gehuisves, wat hul uitstekend van hul taak kwyt. Alle vorige uitgawes is elektronies op Taylor & Francis se webwerf beskikbaar (www.tandfonline.com).

#### Belangrik:

- Verwys na artikels in ons Joernaal
- Laai artikels in ons Joernaal af
- Publiseer in ons eie Joernaal
- Help om ons Joernaal se status te verhoog

#### SACNASP / SARNAP

The SSSSA encourages its members to register with SACNASP as Natural Scientists in the field of Soil Science. According to law, it is compulsory for practising soil scientists to



register with SACNASP. Points for Continuous Professional Development (CPD) must be earned, namely 25 points per cycle of five years. By attending the congress, you earn three of the annual five points, and if you attend the workshop as well, you earn another point. By being a paid-up member of the SSSSA, you earn yet another point annually, and by performing your job as a scientist, you may earn another two points each year.

Die GVSA moedig sy lede aan om by SARNAP as natuurwetenskaplikes in die veld van Grondkunde te registreer. Volgens wet is praktiserende grondkundiges verplig om by SARNAP te registreer. CPD (Continuous Professional Development) punte moet egter verdien word, naamlik 25 punt gedurende 'n siklus van vyf jaar. Deurdat u die kongres bywoon, verdien u drie punte van die vereiste vyf punte en as u die werkswinkel ook bywoon, verdien u nog 'n punt. Deurdat u 'n opbetaalde lid van die GVSA is, verdien u jaarliks nog 'n punt en deur u werk as wetenskaplike uit te voer, kan u nog twee punte per jaar verdien.

#### **Facebook**

The SSSA has an active Facebook page. Please "Like" our Facebook page and be part of the excitement. It is there for our members. Dr Andrei Rozanov (University of Stellenbosch) is in charge of it.

Die GVSA het 'n aktiewe facebook-blad. "Like" ons facebook-blad en wees deel van die opwinding. Dit is vir ons lede daar. Dr Andrei Rozanov (Universiteit Stellenbosch) sien hierna om.

#### Photo competition / Fotokompetisie

Have a look on our Facebook page at the winning photographs of the previous year (also elsewhere in this newsletter). When circumstances allow, take along your camera every day when going to the veld and take interesting photos with soil as the main theme.

Gaan kyk op ons facebook-blad na die wenfoto's van die vorige jaar (ook elders in hierdie nuusbrief). Wanneer omstandighede dit toelaat, neem jou kamera elke dag saam veld toe en neem daardie interessante foto's met "grond" as tema.

#### New members / Nuwe lede

The Society gains new members annually, and it is encouraging to see so many young members joining. Senior soil scientists must encourage juniors to join.

Die Vereniging kry jaarliks 'n aantal nuwe lede by, en dit is bemoedigend om te sien dat soveel jong lede aansluit. Senior grondkundiges moet hul juniors aanmoedig om aan te sluit.

#### International Union of Soil Sciences (IUSS)

The SSSSA is affiliated to the IUSS. Every paid-up member of the SSSSA hereby receives the privileges of the IUSS. SSSSA delegates regularly attend congresses of the IUSS.

Die GVSA is by die IUSS geaffilieer. Elke opbetaalde lid van die GVSA kry hierdeur die voorregte van die IUSS. GVSA-afgevaardigdes woon gereeld die IUSS se kongres by.



Kind regards, till next time Groetnis, tot volgende keer

#### Martiens du Plessis

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#### **EDITORIAL / REDAKSIONEEL**



This newsletter is being produced at an extraordinary time, where South Africa is slowly edging out of the Covid-19 lockdown period. None of us can be completely sure about what the future holds, whether for our own lives, for the country or for soil science as a whole.

We have had to make major adjustments. In my case, I have been helping out with presenting lectures at the University of Pretoria, only to have the physical lectures for the course halted halfway through and the rest of the activities (including assessments and exams) having to take place online, with all the associated challenges.

One thing is certain, though, and that is that the soil is not going to disappear, and while society might by badly affected by the pandemic, food and fibre production will need to receive as much attention as ever. To all the soil scientists actively working to ensure the sustainable continuation of these activities, whether directly or indirectly, please stay safe and healthy. The country needs your experience and expertise.

Regards,

Garry Paterson

(012 310 2601; 083 556 2458; <u>garry@arc.agric.za</u>)

#### COUNCIL MATTERS / RAADSAANGELEENTHEDE

- SSSSA members are encouraged to nominate members for special awards by the Society. Guidelines for that can be found on the SSSSA website www.soils.org.za. Nominations for awards can be forwarded to Prof Jude Odhiambo at Jude.Odhiambo@univen.ac.za.
- The SSSSA Council has endorsed the revised edition of the Soil Classification System ("Soil Classification; a Natural and Anthropogenic System for South Africa"). The endorsement was made subject to some small adjustments and additions, which should be published soon on the SSSSA website. This edition is therefore now the official soil classification system for South Africa. Given that our knowledge of soil classification is growing over time, new additions will continuously be published on the SSSSA website. Since the book was published in 2018, some more soil forms have already been approved by the Soil Classification Working Group (SCWG) and can be viewed on the SSSSA website.
- SSSSA finances are going well and we enjoy a positive cash flow. We do have sufficient reserves on investment in order to buffer the cash flow, should it be necessary. The Society was approved by SARS as a Non-Profit Organisation (NPO) during December 2019. We are awaiting registration as a Public Benefit Organisation (PBO).
- The Council is concerned that so many members are not paying their membership fees, which creates the very unfortunate situation whereby we are forced to suspend their membership. Members who have not yet paid their subs should please contact Nancy Nortje at <u>admin@soils.co.za</u>.
- Remember that we render the option to advertise your products / services on our website or Facebook page, or even to advertise a vacancy in your organisation. All of this at an affordable fee.
- Members are always welcome to drop the President an e-mail at <u>martiens@nwk.co.za</u> with bright ideas regarding the Society, anything of concern to you, or just to have a conversation.

#### MEMBER MOVEMENTS / LEDE BEWEGINGS

Dr Cobus Botha, Past President of the SSSSA, has resigned from ARC-Soil, Climate and Water (based at Glen in the Free State) to take up a new position at McCain, based in Johannesburg.

Cobus has been the leader of a number of projects involving In-field Rainwater Harvesting and associated technologies at the ARC over the last 25 years, and his knowledge and experience will be greatly missed.



#### AWARDS/TOEKENNINGS

#### **COMBINED CONGRESS 2020**

Congratulations to the award winners from the latest Combined Congress, held in Bloemfontein in January.

#### Best paper presented by a SSSSA member older than 30 years

JJ van Tol, S Julich, D Bouwer & ES Riddell "Hydropedological response in a Savanah hillslope under different precipitation regimes"

#### Best paper presented by a SSSSA member younger than 30 years

**N Madubela, AG Hardie, CE Clarke & EL Lategan** "Susceptibility of urban soils from the Cape Town and Stellenbosch areas to degradation by laundry greywater"

#### Best paper on innovative/new/implementable technology

**GM van Zijl, D Bouwer, JJ van Tol, PAL Le Roux & S Lorentz** "Saving urban infrastructure from water damage: Digital soil mapping combines with hydrological modelling to determine remedial actions"

### Best article on Soil Science in the South African Journal of Plant and Soil for 2019

**T Flynn, W de Clercq, A Rozanov & C Clarke** "High-resolution digital soil mapping of multiple soil properties: an alternative to the traditional field survey?"

## Best poster presentation by a SSSSA member on any soil science subject and author of any age

**CH Wessels, JJ Anderson & JJ Botha** "Evaluation of technology exchange tools to empower rural communities"



Pictured:
Best Paper author Johan van Tol
(UFS, Bloemfontein)



Pictured:
Best Young author Ncumisa Madubela
(University of Stellenbosch)



Best Poster author Carel Wessels (ARC, Glen)



Best Paper on Technology author George van Zijl (North-West University, on left)

As previously mentioned in the President's Message, two very prestigious awards were made at Bloemfontein.

#### **Gold Medal**

This is the highest award that the Society can bestow, and it was awarded to **Prof Giel Laker**, retired professor in Soil Science, firstly at the University of Fort Hare, and finally at the University of Pretoria. Prof Giel taught or supervised a large proportion of current SSSSA members, is a Past President of the Society, and at 80 years young, is still active, having co-authored a review paper on soil compaction (see article further on in the newsletter). The Society congratulates him for well over half a century of contributions to soil science, and to the SSSSA.

#### **Honorary Membership**

This was awarded to <u>Prof Pieter le Roux</u>, retired from the University of the Free State. Pieter has also played a large role in training many current SSSSA members, as well as in various scientific fields such as soil classification and hydropedology.

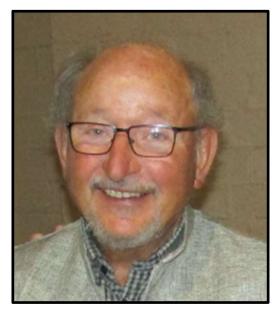


Pictured (left to right): Past President Cobus Botha, Prof Pieter le Roux, Prof Giel Laker and current President Martiens du Plessis

#### NOMINEES FOR 2019/2020 NSTF-SOUTH32 AWARDS

The National Science and Technology Forum (NSTF) Awards, supported by the South32 mining company, were established in 1998. The awards are a collaborative effort to recognize outstanding contributions to science, engineering and technology (SET) and innovation by SET-related professionals and organizations in South Africa.

This includes experienced scientists, engineers, innovators, science communicators, engineering capacity builders, and organizational managers/leaders, as well as data and research managers.



Congratulations to SSSSA Honorary Member

**Prof Pieter le Roux**, for his nomination in the "Lifetime Award" category, as well as in the "NTSF-WRC" category.

#### CONGRESSES / KONGRESSE

As previously mentioned in the President's Message, the next **Combined Congress** will be held in Cedara (KZN) in January 2021 (Covid-19 permitting!!)

Look out for the official first Announcement in the coming weeks.

#### MISCELLANEOUS / ALGEMEEN

#### News from SASRI, Mount Edgecombe

Rian van Antwerpen reports that SASRI was a member of a national project on salts in soils funded by WRC and administered by UFS. The overall objective was to compile guidelines for technology exchange to manage the salt load associated with irrigation at farm and field level.



In the sugarcane industry, work on this project started in 2015 with a questionnaire conducted using growers in Pongola, Umfolozi and Empangeni. Fieldwork started with two field trials in 2016 and was completed in 2017. Analysis of samples continued until December 2019.

From 3 to 6 February 2020 a roadshow was held in partnership between WRC, SASRI, UFS, Van's Lab and Precision Drainage covering all sugarcane irrigation regions to make farmers aware of yield losses due to sodicity. A total of 87 farmers attended the roadshow.

Yield losses in the sugarcane industry due to sodicity range from 2 tons cane per hectare to 10 tons cane per hectare for every 1% increase in exchangeable sodium percentage (ESP) above the threshold value of 7%.

It is hoped that the awareness message conveyed will make farmers aware of potential losses and the importance of preventing soils from becoming saline or sodic. An important response required from farmers is to ensure that their soils are drained, and that soil and water qualities are frequently monitored.

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#### Stellenbosch University news

Can soil science be taught online? It can (if it must)! On-line classes across Stellenbosch University started on the 20th April and our students had to enter the virtual soil pit. While it is a challenge to teach such a practical subject online, the Department of Soil Science took off their gum boots, put on their slippers and got to work making online course materials. While we would all rather be out of the virtual soil pit, we are confident our academic offering will not be unduly compromised by the COVID-19 lockdown.

Cathy Clarke (<a href="mailto:cdowding@sun.ac.za">cdowding@sun.ac.za</a>)

#### Soil Review Articles

#### 1. Soil Compaction Review Article

**Gerhard Nortjé**, of UNISA, reports on an interesting new review article in *Advances in Agronomy*.

Title: Review of existing knowledge on subsurface soil compaction in South Africa, by M.C. Laker & G.P. Nortje

Link: Advances in Agronomy # 2020 Elsevier Inc. https://doi.org/10.1016/bs.agron.2020.02.003

#### **Abstract**

This paper reviews the existing knowledge on subsurface compaction in South Africa. Subsurface soil compaction is an extremely widespread and serious problem throughout all nine provinces of South Africa and neighboring countries like Botswana, Namibia, Swaziland and Zimbabwe. It is indeed a widespread serious problem throughout the whole of Africa. Subsurface compaction has very serious implications regarding crop yields and quality, disease incidence and water use efficiency. Various research methodologies are used to study subsurface soil compaction. Soil factors determining the susceptibility of a soil to subsurface soil compaction include particle size distribution, soil organic matter content and clay mineralogy. Negative impacts of subsurface soil compaction include, increased soil strength and resultant negative impacts on root

development and top growth, impacts on plant nutrient uptake, water use efficiency, reduction of hydraulic conductivity and inhibition of soil aeration. Management factors that cause or aggravate soil compaction are uncontrolled vehicular traffic, large numbers of shallow secondary tillage operations, cultivating or traversing wet soil, and high tire pressures. Subsurface soil compaction can be alleviated by ripping, the application of controlled traffic, refraining from conducting operations on wet soil, and the use of the lowest possible tire pressures.

## 2. <u>Hydropedology in South Africa: Advances, applications and research opportunities</u> (SA Journal of Plant and Soil)

**Johan van Tol (**Department of Soil, Crop and Climate Sciences, University of the Free State, Bloemfontein, South Africa)

Email: vanTolJJ@ufs.ac.za

**Abstract:** The need to characterise and quantify hydrological processes in order to manage scarce water resources led to significant progress in the field of hydropedology in South Africa during the past decade. The adoption of hydropedological research by industry and government as part of water resource management strategies further facilitated the progress in the field. It is therefore timely to provide a comprehensive review of the developments in terms of the science and applications in the recent past. This paper start with an overview of the intimate link between soil classification and hydropedology, then focus on recent advances in hydrological interpretation of soil morphology and chemistry. The status of hydropedological classification of soils and hillslopes are then presented.

This is followed by a discussion on how hydropedological assessments could be applied in groundwater/surface water interaction studies, pollution control and management, wetland protection and rehabilitation and hydrological modelling. The paper concludes by identifying three areas where hydropedology could be advanced in the future: 1) quantification of hydropedological interpretations 2) characterisation of the intermediate vadose zone and 3) hydropedological mapping of South Africa.

**Keywords:** hydrological modelling, soil genesis, soil morphology, water resource management

#### **AGT Foods-SSSSA Photo Competition 2019 - WINNERS**

Category	Photo Title	Photographer	Position
Soils up Close	Orthic Icing	Cathy Clarke	1st
	Reducing Roots	Cathy Clarke	2nd
	Salinization of Clay Soils	Kobus Anderson	3rd
	Coarse Topsoil in Kouebokkeveld	Sikho Gobozi	Highly Commended
	Over-irrigated colluvial soil in Clan William	Sikho Gobozi	Highly Commended
	Wetland <i>Juncus Effusus</i> on a wet sand in Citrusdal	Sikho Gobozi	Highly Commended
	As Long as There is Soil	Rian van Antwerpen	Highly Commended
	This is Sufficient	Rian van Antwerpen	Highly Commended
	High Clay Proposal	Kurt Barichievy	Highly Commended
	Rooted	Bruno Herrmann	Highly Commended
	Cracks Everywhere!	Cobus Botha	Highly Commended
Soil and People/ Animals	Soils and Snowy Peaks	Kurt Barichievy	1st
	Lucky Observer	Bruno Herrmann	1st
	King of the Gabions	Garry Paterson	3rd
	Hydro-Cemetery	Freddie Ellis	3rd
	Research Competing with External Factors	Kobus Anderson	3rd
Soils in Landscape/ Agriculture	The Young and Old	Cathy Clarke	1st
	On the Horizon	Bruno Herrmann	2nd
	Broken Earth	Kobus Anderson	2nd
	Red, Green and Gley	Cathy Clarke	Highly Commended
	Dependency on Soil	Cobus Botha	Highly Commended
OVERALL	Orthic Icing	Cathy Clarke	

Organiser **Ruth Rhodes** (<u>ruth@avorcane.co.za</u>) says a very big **THANK YOU** to everyone who entered their photos into the 2019 AGT Foods - SSSSA 'Beauty of African Soils' photo competition last year, and hearty **CONGRATULATIONS** to our winners!

What a treat to see the year's beautiful photo offerings.







**Soils and Snowy Peaks** (*Kurt Barichievy*)



**Eroding Graveyard** (Johan van Tol)



**Lucky Observer** (Bruno Herrmann)



**Hydro-Cemetery (**Freddie Ellis)



The Healthy Way (Rian van Antwerpen)



Red, Green and Gley (Cathy Clarke)



**Broken Earth (**Kobus Anderson)



**Pipeline to Pofadder** (Kurt Barichievy)



Orthic Icing (Cathy Clarke)



Wetland Juncus Effusus on a wet sand in Citrusdal (Sikho Gobozi)



Cracks Everywhere! (Cobus Botha)



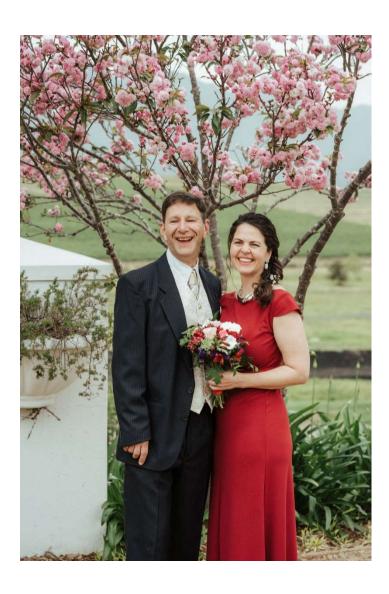
Dolerite bedrock, Gautrain route (Garry Paterson)

#### A DIFFERENT TYPE OF SOIL ASSOCIATION

In mapping, when two soils are closely intermingled, it is called a soil association, but what about two soil scientists?

Congratulations to SSSSA members Dr Andrei Rozanov and Dr Liesl Wiese, who tied the knot at the end of last year in Stellenbosch (just too late for the previous newsletter).

We wish them a long and happy partnership. За здоровье! Za zdaróvye



#### **HUMOUR**

In these COVID-19 times, it's good to be able to laugh when one can. Here are some puns seen on a café notice board -

- Never tell a pun to a kleptomaniac they always take things literally.
- I pleaded for money dressed as Henry VIII, but beggars can't be Tudors.
- I am such a bad speller I could never learn the alphabet always got lost at "C".
- My friend was put on a spaghetti diet. It didn't macaroni better, sadly she pasta way.
- I changed the name of my cellphone to Titanic it's synching now.
- I used to think that maths was irrelevant but then I realised decimals have a point.
- Best time on a clock? 6:30, hands down.
- People who do not use punctuation deserve a long sentence.
- I used to get annoyed by bird puns but toucan play at that game.
- Yes, we do have free Wi-Fi, but why not pretend it's 1986 and talk to each other.
- How did cows evolve? They moo-tated.
- I bought a litre of Tip-Ex big mistake.
- If calories are a unit of heat, why is ice cream full of them?

And finally, did you know that a pair of Chinese brothers were also trying to develop the first aeroplane more than a century ago? It didn't work out because, as everyone knows, two Wongs don't make a Wright!

#### SOIL SCIENCE SOCIETY OF SOUTH AFRICA: MISSION

The SSSSA is a scientific society, which, in the interest of its members, promotes the advancement of soil science and soil technology as well as the responsible practicing thereof by its members with the view to the long-term sustainable utilization of the environment in the interest of the community.

#### <u>Aims</u>

- 1. Promotion and protection of the professional status and prestige of soil science as a science and career
- 2. Promotion and extension of the society.
- 3. Promotion of the standard of training of soil scientists and technologists.
- 4. Creation of opportunities for the free exchange of ideas on soil science and technology.
- 5. The obtaining and dissemination of knowledge, information and ideas having relevance to soil science by means of discussion and publication.
- 6. Promotion of contact between the society and other bodies with common or similar interests, both within South Africa and overseas.

#### GRONDKUNDEVERENIGING VAN SUID-AFRIKA: MISSIE

Die GVSA is 'n wetenskaplike vereniging wat in belang van sy lede verbind is tot die bevordering van grondkundige wetenskap en tegnologie, en die verantwoordelike beoefening daarvan deur sy lede met die oog op die lang termyn volhoubare benutting van die omgewing in belang van die gemeenskap.

#### **Doelstellings**

- 1. Bevordering en beskerming van die professionele status en aansien van grondkunde as 'n wetenskaplike beroep.
- 2. Bevordering en uitbouing van die vereniging.
- 3. Bevordering van die standaard van opleiding van grondkundige wetenskaplikes en -tegnoloë.
- 4. Skepping van geleenthede vir vrye gedagtewisseling oor grondkundige wetenskap en tegnologie.
- 5. Die verkryging en verspreiding van kennis, inligting en idees wat op grondkunde betrekking het by wyse van samesprekings en publikasies.
- 6. Bevordering van skakeling tussen die vereniging en ander liggame met gemeenskaplike of soortgelyke belange, beide in Suid-Afrika en in die buiteland.