

SSSSA COUNCIL/GVSA RAAD: 2009-11

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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 nuusbrieff nie.

MESSAGE FROM THE PRESIDENT/BOODSKAP VAN DIE PRESIDENT

Die jaar snel vinnig tot 'n einde! Dit voel soos gister toe ek die eerste presidentsboodskap geskryf het. En hier sit ek nou en skryf die laaste een vir die jaar.

The year is quickly coming to an end! It feels like yesterday that I wrote the first President's Message, and now I'm sitting writing the last one.

Ek hoef u nie te vertel dat volgende jaar vol uitdagings gaan wees nie. Die goeie nuus is egter dat registrasies vir ons gesamentlike kongres (hier by UFS) reeds die 200 kerf oorgesteek het. Hiervan is 132 mondelinge- en plakkaatreferate. Die van u wat nog nie geregistreer het nie, gaan dus iets misloop! U is welkom om nog by www.combinedcongress.org.za te registreer.

I don't need to tell you that next year will be full of challenges. The good news is that registrations for our Combined Congress (here at UFS) has already passed the 200 mark, with 132 oral and poster presentations. If you haven't registered, you will miss a special event. You are invited to visit the web page, www.combinedcongress.org.za to register.

Die aantal grondkundiges wat by SACNASP geregistreer het is ook besig om stadig maar seker toe te neem. Dit is net deur aan hierdie skema deel te neem dat ons kan verseker dat Grondkunde as 'n vakwetenskap bly voortbestaan. Verwikkelinge soos onlangs by die Pan African Parliament konstruksie-terrein gaan ook maak dat SACNASP registrasie toenemend vir konsultasies vereis gaan word.

The number of soil scientists registered at SACNASP is also climbing, slowly but surely, and affiliation will ensure that Soil Science keeps progressing as a discipline. Developments such as those recently encountered at the Pan African Parliament construction site will ensure that SACNASP-registered professionals will be in demand for consultations.

Hierdie tyd van die jaar word ons by die universiteite oorval deur werkgewers wat poste vir Grondkundiges aanbied. Dit onderstreep weereens die tekort wat ons huidiglik in die beroep ervaar. Die herinstelling van Grondkunde by die Noordwes Universiteit sal hopelik help om die tekort aan te spreek.

At this time of year, we at Universities are flooded by employers offering posts for soil scientists, which underlines the shortage that we currently experience in the discipline. The re-introduction of Soil Science at North West University will hopefully also help to fill the gaps.

Die ledetal van die GVSA het aansienlik deur hierdie jaar gestyg. Ons staan nou net onder die 300 lede sterk. Meeste van hierdie aanwinste is studente. Ons heet julle welkom en ons spreek die vertroue uit dat julle deel van ons vereniging sal bly.

SSSSA membership has grown strongly this year to just under 300, many of these being students. We welcome all of you and trust you will remain part of our organisation.

Ek wens vir elkeen van u en u familie 'n geseënde Kersfees en 'n veilige vakansie toe.

I wish a blessed Christmas and safe holiday to all of you and your families.

Groetnis/Greetings

Cornie van Huyssteen (051 401 9247; vhuytc.sci@ufs.ac.za)

EDITORIAL/REDAKSIONEEL

A couple of months ago, I was delighted to receive an e-mail from Dr Chris MacVicar, who was in charge of the Land Type Survey at the then SIRI (now ISCW) for most of the 1970's and 1980's. The e-mail contained a whole series of lovely reminiscences and other information from those far off days (actually long before the Land Type Survey), which will appear in the next few issues of the newsletter. I hope all the members enjoy the trip down memory lane, thanks to Dr MacVicar.

You may notice below that our membership total has recently imitated a vertisol in summer and has swollen nicely to 299! Long may this trend continue. Unfortunately, there is a cloud on the horizon with the news that the ARC has decided that only one professional registration can be paid for each employee, so those SSSSA members who have, by law, to be registered with SACNASP in order to do consulting work will from next year have to pay their SSSSA membership themselves (this has also manifested itself in a reduction of ARC employees who will be able to attend the Combined Congress).

I hope that this does not lead to a spate of resignations from the Society, and that those members so affected (this will also be the case for our sister Societies) will still maintain their membership, so that the Society can continue to grow and prosper.

Regards,

Garry Paterson

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COUNCIL MATTERS/RAADSAANGELEENTHEDE

With his impending retirement from ARC-ISCW next year, our Secretary Theo Dohse will be carrying out more and more of the secretarial tasks from home. He asks that members sending him e-mails at dohset@arc.agric.za should copy the e-mail to his alternative address, which is theo@soils.org.za. If you do not have e-mail facilities, the SSSSA fax number is on the first page.

All members who have not yet received an SSSSA Golf shirt will be able to collect one at the forthcoming Congress in Bloemfontein. Alternatively, if you are in the vicinity of ARC-ISCW in Pretoria, contact the Secretary to arrange to collect one from him. Unfortunately, it is not possible to post the shirts.

New Members: we welcome the following new SSSSA members:

Mr. S.J. Bekker	Ms .H.G. Clayton
Mr. C.B. Bothma	Ms. G.C. de Neully-Rice
Mr. P.B. Coetzee	Mr. K. Fourie
Mr. J.S. Erasmus	Dr. A.G. Hardie
Mr. C.P.J. Fourie	Mr. J.T. Kutuahudira
Mr. M.H. Heine	Ms. M.L. Ledwaba
Ms. R.M. Lebenya	Mr. S.S. Mahlalela
Mr. P.F. Loke	Mr. B.M.M.P Mndzebele
Mr. M. Marais	Ms. N, Mpanza
Mr. T. Moleleki	Ms. M.M. Nthejane
Mr. O.G. Mtung'e	Mr. C.F. Olivier
Mr. J.B. Nzimande	Ms. R.F. Seturumane
Mr. O. Roto	Mr. R. Snetler
Mr. M.W. Sikunyana	Dr. R. Tandlich
Mr. P.E. Snyman	Mr. P.P. van Staden
Ms. R.J. van der Westhuizen	Mr. R. Wessels

Our membership now stands at 299, up significantly from the last Newsletter.

IN MEMORIAM

Dr Marius du Plessis, one of our SSSSA Honorary Members, has passed away at the age of 85. Dr du Plessis, who started his career at Glen, was Director of the Soil and Irrigation Research Institute from 1972 until his retirement in 1986. He was President of the SSSSA from 1975 to 1978 and the main seminar room at ARC-ISCW is named in his honour.

Our sympathy goes to his family



Dit is met leedwese dat gemeld moet word dat 'n kollega en vriend, **Dr Munro Munnik** skielik oorlede is op byna 83. Hy en sy vrou Marge, met wie hy ongeveer 60 jaar getroud was, het hulle laaste jare in Sedgfield in die Suid-Kaap deurgebring.

Munro was 'n persoon met diverse akademiese kwalifikasies. Hy het 'n B Sc- graad aan Wits verwerf en 'n onderwysdiploma aan die destydse Heidelberg Onderwyskollege waar hy die enigste Engelsprekende was. Hy het ook 'n BA en 'n B Com graad by Unisa verwerf. Sy hele loopbaan is gewy aan onderwys en het hy as hoof van Florida High School afgetree. Hy ontvang dan ook die Paul Harris Toekenning (Rotariërs) vir sy dienste en bydrae tot die opvoeding van kinders.

Gedurende sy onderwysloopbaan het hy vir Geografie 3 by Unisa ingeskryf om sy vrou te motiveer om ook haar graad te voltooi. Hy het egter 'n groot belangstelling in Fisiese Geografie getoon, veral in Geomorfologie en Grondgeografie. As voltydse onderwyser en later as hoof het hy uiteindelik ook sy Honneurs-, MSc- en Doktorale grade verwerf. Sy proefskrif getiteld "A Pedogeomorphic Study of some Transvaal Hillslope Profiles on Granitic Materials" het groter lig gewerp op grondvormig oa in die Laeveld, veral tov grond-hellingverwantskappe. Sy veldwerk het oor lang naweke, vakansies en gedurende spesiale langverlof tydperke plaasgevind en het groot opoffering vereis.

Na sy aftrede uit die onderwys, was hy deeltydse verbonde aan die Departement Geografie by Unisa. Hier het hy 'n inspirerende invloed op jong personeellede en studente gehad.

Munro was 'n gebalanseerde mens soos blyk uit sy liefde en deelname aan sport. Hy was vir meer as 50 jaar lid en later erelid van die bekende Benoni Harriers Atletiekkklub en het in talle padlope deelgeneem. Tydens sy termyn as kaptein van die klub het hy die bekende Springs na Nigel padaflos begin waaraan hy self vir 50 opeenvolgende jare deelgeneem het.

Munro sal onthou word as ware heer, vir sy mentorskap, asook sy sin vir humor en vriendskap. Ons innige meegevoel vergesel Marge, kinders en familie.

AWARDS/TOEKENNINGS

Eskom Expo for Young Scientists

The SSSSA once again offered a R1000 prize for the best project concerning soil at the recent Expo. Unfortunately, however, (and unlike in previous years) there were very few soil-related projects, and after a thorough search, the judges decided that the prize could not be awarded. Hopefully, next year will be a different story.

MEMBER MOVEMENTS/ *LEDE BEWEGINGS*

Dr Koos Eloff, previously Business Manager at ARC-ISCW, is retiring at the end of November. Koos, who started at SIRI in 1968, was in the Pedology section for many years, completing several land type maps and memoirs, before transferring to the newly-formed Remote Sensing section. For the past few years, Koos was involved with balancing the finances and budgets of the Institute.



He received his MSc in 1971 from the University of the Orange Free State and PhD in 1986 from the University of Stellenbosch, and was SSSSA President from 2003-2005.

The future for Koos will involve farming at his farm near Memel. We wish him lots of success in this, as well as lots of free time to enjoy his favourite red wine!! (See photo).

MEMBERS OVERSEAS/*LEDE OORSEE*

LOW pH SYMPOSIUM IN CHINA

Dr Danie Beukes of ARC-ISCW attended the 7th International Symposium on Plant-Soil Interactions at Low pH (PSILPH) held in Guangzhou, China, from 17-21 May.. China is the world's largest agricultural country with more than 2 million km² of acid soils located mostly in tropical and subtropical South China. Although major research and technological programmes have been launched to improve agricultural productivity on acid soils, the latter remain a primary limiting factor to agricultural development in the country.

Danie reports that with typical Chinese efficiency and attention to detail, the Symposium was excellently organized by the local Organizing Committee. In total 164 delegates from 29 countries attended this prestigious event where 18 keynote and 22 other oral presentations were made – all of a high scientific standard – as well as 54 poster presentations displayed under five themes. The latter ranged from physiological and molecular mechanisms of plant adaptation to acid soils, to sustainable utilization and management of agricultural and natural ecosystems on acid soils. Under the latter theme Danie presented an oral paper on some of the results of a 5-year liming and fertilizer trial conducted at Bizana in the Eastern Cape. The paper was well received and stimulated discussion afterwards.

VISIT TO JAPAN

During the week of 19-25 July a team comprising Prof Sue Walker and Stephan Steyn from the University of the Free State (UFS) as well as Terry Newby and Christien Engelbrecht of ARC-ISCW visited Tottori and Kyoto in Japan. The visit followed the awarding of a National Research Foundation / Japan Society for the Promotion of Science (NRF/JSPS) mobility grant with the specific aim to explore and establish potential collaborative research between Japanese and South African scientists concerning the development of a drought early warning system. Prof Mitzuru Tsubo from the Arid Land Research Center of the University of Tottori, who was also part of the initial project proposal team, arranged meetings with potential collaborators at the Universities of Tottori and Kyoto as well as the Research Institute for Humanity and Nature. During these meetings the various institutions provided comprehensive overviews of their various research activities.

Terry reports that the striking feature of the visit was the extent to which the Japanese research laboratories are equipped and their willingness to share these facilities with collaborating scientists. The team feels strongly that collaboration between the ARC, UFS and the Japanese institutions visited should be further developed.

CONGRESSES/*KONGRESSE*

COMBINED CONGRESS

The next Combined Congress will take place in Bloemfontein at UFS from 18th to 21st January 2010. For those that have not yet registered, please go to www.combinedcongress.org.za or contact Charmaine Sullivan at sullivanc@mweb.co.za.

SYMPOSIUM ON GULLY EROSION, POLAND

The 5th International Symposium on Gully Erosion will be held at Lublin, Poland from 20th to 25th April, 2010. The Organising Committee kindly reminds all prospective delegates that deadline for final registration, payment and submission of abstracts is 30/11/2009. All necessary information one may find at symposium website: <http://gullyerosion.org>

AGROENVIRON CONFERENCE, MEXICO

We hereby would like to draw your attention to the AGROENVIRON 2010 Conference that will be held in Cancun, Mexico from 19th to 22nd May, 2010.

Themes;

- Desertification and Management of Stony Soils
- Conservation Farming and Forestry Systems on Steep Slopes

- Air Quality and its Management in Agricultural Systems
- Soil Quality and Health
- Semi-arid and Rangeland Soil and Water Conservation Systems
- Soil Erosion Control and Environmental Quality
- Water Quantity and Quality in Conservation Systems
- Soil Amendments and Byproduct Utilization
- Watershed Management
- Challenges of Changing Climate Environmental Conservation
- Wind and Water Erosion Processes
- Conservation Systems for Bio-energy Production
- Prediction Systems for Air/Soil/Water Management
- Assessment of Effectiveness of Conservation Systems
- Soil and Water Conservation in Tropical Environments
- Conservation in Extreme Weather Events
- Onsite and Offsite Effects of Erosion
- Social/Economic Challenges to Environmental Conservation and Food/Fiber/Fuel Production

All the information about the event is available at the conference web page (<http://topsoil.nserl.purdue.edu/AgroEnviron2010/>) where you will also find instructions on how to submit your contributions and register in the conference.

GeoENV 2010

The 8th International Conference on Geostatistics for Environmental Applications 13-15 September 2010, Ghent, Belgium. On this biennially held conference, scientists across a broad range of disciplines share their experiences on the application of geostatistics to environmental problems. The focus of the conference is on a wide range of topics involving new evolutions on geostatistical methodology, spatial statistics, multiple point geostatistics, spatio-temporal statistics, ecology, natural resources, hydrology, ground water modelling, soil inventory and mapping, health, epidemiology, ecotoxicology, environmental pollution and risk assessment, forestry and agriculture, remote & proximal sensing www.geoenv.ugent.be

AFRICAN CROP SCIENCE CONFERENCE

The 9th African Crop Science Society Conference was held at the Southern Sun Cape Sun Hotel in Cape Town from 28 September to 1 October, with the theme of “Science and Technology Supporting Food Security in Africa”. Over 300 delegates attended from throughout Africa as well as further afield. Included amongst them were ARC-ISCW employees Gugu Zuma-Netshiukhwi, who presented a paper on crop-climate matching, and Mmakgabo Matlou and William Mashabane, who presented a paper and poster, respectively, on the implementation of eco-technologies to improve food security in Mpumalanga.

6th International Phosphorus Workshop

27 Sept-1 Oct, 2010. Spain. The International Phosphorus Workshop constitutes an important forum for discussion of the main issues related to the loss of phosphorus from soil and its impact on the environment, especially the surface waters. The workshop is held every three years, the present one following those held in 1995 (Wexford, Ireland), 1998 (Antrim, Northern Ireland), 2001 Plymouth (UK), 2004 (Wageningen, The Netherlands) and 2007 (Silkeborg, Denmark). Most of attendees in this last workshop were in favour of holding the next one in Seville, the *ad hoc* organizing committee being presently formed by Antonio Delgado (University of Seville), José Torrent (University of Córdoba) and Fernando Gil (University of Santiago de Compostela). Further details are here: <http://www.ipw6.us.es/>

MISCELLANEOUS/ALGEMEEN

CHRIS MACVICAR'S REMINISCENCES (PART 1)

This is the first installment of Dr MacVicar's look back at Pedology and soil science over the last 50-odd years.

Judging by the photo (note the GG registration car), he has had some strange experiences, so the stories should be very entertaining.



(1): UNIVERSITY

The road through the Transkei from Alice to Pietermaritzburg was dirt in 1953. Prof. Edward Retief (Jimmy) Orchard persuaded me to major in Agricultural Chemistry (*Landbou-skeikunde, Landbouchemie*) which, apart from the usual ancillary courses, dealt mainly with soil and chemistry, but with some biochemistry.

The soils part dealt primarily with the physical, chemical and organic matter composition of the soil and its chemistry, chiefly in relation to soil fertility. Fertilizer trials were the order of the day. We had only one field trip to be shown a deep, red, porous soil near New Hanover by Dr G.D. Darby who worked for a wattle company. As graduates we were rather like doctors who had but a passing acquaintance with anatomy.

At that time there was disagreement as to what determined the character of upland soils most: was geology or climate the answer? For Dr B.E. Beater at the Sugar Experiment Station it was geology, while for Dr C.R. van der Merwe (a disciple of Schantz and Marbut), followed by Prof. Orchard, it was climate. Closer attention to Jenny would have paid dividends.

Each student researched three seminars and gave lectures on them to the class in the final year. Their aim was to provide, in a properly written scientific document, the most up-to-date information on a subject. After orally presenting a seminar, each fellow student and Prof. Orchard, in turn, criticized all aspects of it as strongly as they could and the author replied to each. They were an invaluable lesson in gathering information, writing it up and presenting it orally. Prof. Orchard had the knack of engendering in students the belief that they could go on and contribute to soil science, and encouraged their attempts to do so.

(2): DIVISION OF CHEMICAL SERVICES

The trip from Pietermaritzburg to Pretoria in March 1957 in a 1946 Ford Prefect (bought for £115 second hand and sold to a café owner in Pretoria who paid cash out of his till) took 11 hours to become an Assistant Professional Officer (£47-10s per month) at the Division of Chemical Services (*Afdeling Skeikundige Dienste*). Later it became Soil Research Institute, Soil and Irrigation Research Institute and finally Institute for Soil, Climate and Water. Dr Japie van Garderen, who never walked, always ran, was Director. There was one Deputy Director, four or five Chief Professional Officers (= today's Assistant Directors) then Senior Professional Officers, Professional Officers and Assistant Professional Officers, and similarly technician post levels. That was the time of the Govt Garage when civil servants generally couldn't afford a new car unless they married well!

The Division provided a general analytical service to government (eg analyzing inks for the Government Printer). From at least the early 1920's it also carried out soil surveys on the basis of which, land was bought by government, developed for irrigation and sold to promising farmers as a means of adding stability to food production (eg Vaalharts) in a country estimated to have roughly 3% of its land prime dryland arable. Surveys of some hundreds of thousands of hectares were detailed (1:5 000) and a far larger area was covered by different types of reconnaissance survey. A sizeable portion of surveyed land proved to be unsuitable for irrigation development. Virtually all of these maps are stored at the ISCW.

In Pretoria West there was a large store of camp equipment needed by the scientists, technicians and labourers who formed each field team: tents, beds, tables, chairs, lamps, bath tubs, kitchens, picks, shovels, water carts, resistance meters, pH-meters etc. Teams were away on the job from March to October each year.

Dr C.R. (Mac) van der Merwe was on the staff, Frank (Rosie) Rosentrauch was head of soil surveys with P.A. (Dad) Louw his 2IC, John de Villiers had joined in 1956 and Dr van der Walt was head of labs. Johnny Martin, who gave everyone their nicknames, was head of the excellent drawing office and chief of the land surveyors, among whom were Keith (Jacko) Gardiner, Piet (Piering) van Biljon, Roelof (Thunder) van der Berg and Ras Coetzee.

Every month on a Friday a member of staff gave a seminar on a subject he/she was working on. Clearly remembered from 1957 or early 1958 was a seminar on his American doctoral research by a young and bright Attie Theron of Stellenbosch renown. It was during this period that I attended a meeting of soil scientists in the Union Hotel, Church Street, Pretoria convened I think by Prof. Theron of Pretoria University at which Dr C.R. van der Merwe and, I think, Prof. Fölscher amongst others, were present. It may have been a meeting, even the first, of our Society, but I suspect it was probably aimed at establishing a Society.

*(There will be more of Dr MacVicar's reminiscences in the
next issue - Ed.)*

NEWS FROM STELLENBOSCH

1. International Symposium of Molecular Environmental Soil Science (ISMESS) 2009, Hangzhou, China, October 9-14, 2009

The International Symposium of Molecular Environmental Soil Science at the Interfaces in the Earth's Critical Zone (ISMESS 2009) was held at the International Conference Center, Zhejiang University, Hangzhou, China on October 9-14, 2009. The objective of the symposium was to provide a forum for soil scientists to address the current state-of-the-art on "Molecular Environmental Soil Science". The conference aimed to advance the frontiers of knowledge on biophysico-chemical processes in soils, and their biogeochemical and ecological impacts on the terrestrial ecosystem in the Earth's Critical Zone. The key-note speakers were IUPAC scientists, Dr. Donald Sparks (University of Delaware) and Dr. Geoffrey Gadd (University of Dundee). The conference also paid tribute to the world-renowned Soil Chemist, Dr. P.M. Huang, who co-organized ISMESS 2009 but unfortunately passed away shortly before it was held.

Dr. Ailsa Hardie, of Stellenbosch University, was invited to present a paper at ISMESS 2009 which was entitled: "Abiotic catalysis of the Maillard and polyphenol-Maillard humification pathways by soil clays from temperate and tropical environments".

Abstract: The Maillard reaction and integrated polyphenol-Maillard reaction are regarded as important pathways in natural humification. Little is known about the abiotic catalysis of these humification pathways by naturally occurring soils and sediments. Therefore, the objective of this study was to investigate the abiotic

catalysis of the Maillard reaction and integrated polyphenol-Maillard reaction by two contrasting soil clays from a temperate (Canadian Prairies) and tropical (Northeastern South Africa) region. Treatments containing an equimolar amount of glucose and glycine (Maillard reaction) or catechol, glucose and glycine (polyphenol-Maillard reaction) in the presence of temperate Mollisol and tropical Oxisol clays, were conducted under environmentally relevant conditions, i.e., pH 7.0 and 45° C, for a period of 15 days under sterile conditions. The nature of the humification products were examined using C and Al K-edge, and Fe and Mn L-edge NEXAFS spectroscopy. The Oxisol clay enhanced humification in the Maillard and integrated catechol-Maillard systems to a greater extent than the Mollisol clay, which is attributable to its high content of sesquioxides, particularly poorly-crystalline Mn oxides. Changes were observed in the Al coordination and Fe and Mn oxidation states in the soil clays after humification. The Oxisol clay showed a much greater accumulation of organic C compared to the Mollisol clay in the Maillard and catechol-Maillard systems. These results reveal the important role of Fe(III) and Mn(III, IV) oxides present in soils in catalyzing the Maillard reaction and polyphenol-Maillard humification pathways. The findings of this study are of fundamental importance in understanding the role of soil clays from temperate and tropical regions in abiotic humification pathways and C stabilization in natural environments.

2. New Biochar Research Project: “Effect of biochar amendment on the quality of infertile, sandy soils from the Cape Flats, South Africa”

Biochar (charred biomass) amendment of soils is considered a revolutionary new area of agricultural research, as it has the potential to not only improve the quality of typically low-fertility soils in the tropics and humid subtropics, but also to contribute to long-term C sequestration. We have begun a collaborative project with Prof. Alf Botha (Dept. Microbiology) funded by the Food Security Initiative of Stellenbosch University. The main objective of our project is to investigate the effect of biochar amendment on typically infertile, sandy Cape Flats’ soils on the chemical, physical and microbiological properties which contribute to soil fertility and sustainability. Three MSc students will work on the Dept. Soil Science projects, while one MSc and one BSc. Hons. student will work on the Dept. Microbiology projects. The project will be supervised by Drs. Ailsa Hardie, Eduard Hoffman, Andrei Rozanov, Freddie Ellis, Prof. Alf Botha and Ms. Julia Harper.

3. Brazilian Congress

In September Julia Harper from the Department of Soil Science was given the opportunity to attend the 1st Brazilian International Use of Stonemeal in Agriculture Congress. Together with a Cameroonian, Ugandan and Brazilian researcher they had secured funding from the Brazilian NRF equivalent (CNPq) to cover all costs and develop South-South links for future collaborative research. The congress lasted a week and there were several international academics from agricultural, soil science and geological backgrounds. There were some heated discussions regarding the use of different rocks in agriculture with field trips to show some research trials in action. Julia presented a paper that she co-authored with M.V. Fey, I. Mbakwe & M. Awkes on the use of fly ash as an acid soil ameliorant from work that she and her co-authors



have been doing in Mpumalanga since 2007, funded by Eskom, and she was commended on the presentation. If you are interested in viewing the extended abstracts they are available at www.congressorochagem.com.br.

L-R: P.Van Straaten (U of Guelph, Canada), Julia Harper (SU), Huig Bergsma (ARCADIS, Holland)

News from the University of Pretoria

As a result of the increasing anthropogenic impact on our environment through agriculture, mining, and industrial activities, there have never before been so many challenges facing the discipline of Soil Science. Furthermore, the University of Pretoria is geographically well positioned to meet these challenges and is the only university in Gauteng with an agricultural, environmental and strong mining focus, located within 100 km of the major industrial, agricultural and mining areas of South Africa.

The increasing need for Soil Scientists better equipped to deal with above mentioned environmental challenges, as well as the low student numbers in the current program, has forced us to re-evaluate the existing curriculum. Geology, on the other hand, has experienced an increase in enrolments the past few years. After lengthy negotiations with the department of Geology in 2008 an opportunity was identified to restructure the existing degree in order to offer an additional honours option for Geology students to pursue. Various Soil Science modules are also now compulsory for Geology students on a graduate level to ensure a sufficient under graduate training in Soil

Science. Introductory Soil Science became a compulsory module the first semester of 2009. This will be followed by Pedology and Soil Chemistry in 2010.

Commissioning of a laboratory at the University of Pretoria dedicated to column studies

On a macroscopic level, soil column studies are indispensable in especially Environmental Soil Science to assess the mobility, attenuation and speciation of elements in the soil. Furthermore, in order to gain predictive capability, data generated is also vital for parameterisation and validation of nutrient and geochemical transport models.

In light of this, the Soil Science Laboratory of the Department of Plant Production and Soil Science, University of Pretoria is in a process of commissioning a dedicated column laboratory consisting of a battery of 120 medium sized columns (internal diameter = 106 mm) to facilitate factorial experiments. The specially designed column system can be used to assess elemental dynamics under various flow conditions. The columns are mainly used as part of a WRC- SASOL project to assess nutrient dynamics and a THRIP sponsored project with the South African Iron and Steel Institute (SAISI) to investigate the dynamics of various heavy metals.

PREDICTIVE SOIL MAPPING WORKSHOP HELD AT THE UNIVERSITY OF THE FREE STATE

About 25 people attended a Predictive Soil Mapping (PSM) workshop at the University of the Free State presented by Pieter le Roux, Malcolm Hensley and Johan van Tol and sponsored by the Water Research Commission. Every soil surveyor can confirm that at some stage of the survey it is possible to predict what the next observation will be. In other words it is possible to predict the outcome. The software used to do the prediction is called tacit knowledge. Tacit knowledge is built up by experience combined with a thorough understanding of Pedology and landscapes. It is soft knowledge, difficult if not impossible to share, and often not recorded in the final report. What is certain is that surveyors proved that a thorough knowledge of terrain analysis is not necessary to understand the distribution of soils in the landscape.

PSM is the scientific leg of what is called Digital Soil Mapping (DSM). DSM includes GIS, data storage and retrieval etc. and PSM. PSM is the science of using terrain analysis to apply tacit knowledge with the effect of increasing the level of accuracy by interpolation and extrapolation in soil mapping. PSM is used to apply the soft knowledge acquired by using existing data (for example land type data) and own observations. Local knowledge is extremely valuable.

Credit for the vision that predictive mapping is possible goes to Malcolm Hensley. "We only need grid surveys if soils are distributed randomly." The scientific roots of PSM are also present in the land type survey which uses soil distribution patterns as base. Land type inventories are therefore valuable information to start PSM.

With the support of the Water Research Commission the workshop will be repeated next year.

1 km soil moisture for Southern African and Australia

The regularly updated soil moisture dataset with 1 km spatial resolution is available for free for Southern African Development Community (SADC) SADC and Australia. The dataset has been generated within the framework of the European Space Agency's (ESA) DUE Tiger project SHARE and is a result of the cooperation between Vienna Technical University and University of Kwazulu Natal. The soil moisture products are based on the newest radar satellite technology (ENVISAT's Advanced Synthetic Aperture Radar (ASAR) and Metop's Advanced Scatterometer (ASCAT) sensors). The synergistic use of both systems allows frequent, medium resolution monitoring of regional soil moisture dynamics. The regular bulletin on soil moisture datasets can be downloaded at www.ipf.tuwien.ac.at/radar/share/index.php?go=bulletin



HUMOUR

Since the Newsletter Editor is Scottish, and since our contributor, Dr MacVicar is of Scottish descent, it was thought fitting to include a Scottish joke in this Issue. Enjoy!

“Wha’s like us?”

Back in 1314, King Edward II was on his way to invade Scotland, when suddenly, from behind a ridge, a small kilted Scottish warrior appeared, shouting terrible insults, before disappearing back over the hill. Edward was most upset and ordered his champion knight to go make haste and deal with the scallywag.

The knight rode off, but ten minutes later, the (by now, slightly bloodied) Scottish warrior re-appeared, kilt torn, with insults even worse than before. Highly miffed, Edward ordered his personal bodyguard of ten brave swordsmen to go and see of the cheeky rascal.

Fifteen minutes later, the (bloodied but unbowed) Scottish warrior again re-appeared, kilt now in tatters and the insults began to get personal. Edward was by this time melting his crown with rage, so he ordered one of his generals to take a whole platoon of 500 men and wipe the arrogant Scot from the face of the earth.

Finally, after around 30 minutes, one of the soldiers from the platoon staggered back over the hill, with an arm missing and bleeding from numerous wounds. “Sire – it’s a trap! There’s two of them!”

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.

Aims

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.