



SASA NEWS/SASV NUUS

Newsletter of the South African Statistical Association • Nuusbrief van die Suid-Afrikaanse Statistiese Vereniging
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Prof Danie Krige passed away peacefully on Sunday morning 3rd March, 2013; he was 93 years old. A short tribute is on p8-9.

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International Year of Statistics



The year 2013 has been penned as the International Year of Statistics. This is an event that has garnered the support of more than 1550 organisations. There are activities in support of this event taking place all around the world. The details of these activities can be found at the website www.statistics2013.org/ a site established by the founding organisations, the ASA, IMS, IBS, ISI and the RSS.

A brief summary of the motivation for the International Year of Statistics is to promote the discipline to various stakeholders. In a country such as South Africa, statistical literacy is in its infancy, and initiatives such as these provide support to those campaigning for increased statistical training both at school and tertiary level. Statistics activists, calling for increased statistical training, are often ignored by non-statistically trained scientists who prefer to do their own data analysis. Statisticians worldwide have unified in their efforts to market the importance of statistics in modern society and these efforts have been highlighted on the statistics2013 website.

The website includes information about upcoming conferences, statistics2013 events, career directions and opportunities, and information relevant to

teachers of the discipline. There are videos which can be downloaded, flyers, posters and even cartoons which can be used to explain statistics and other tidbits of information. The flyer available for downloading can be used by academic departments looking to market the discipline to potential students and existing students. In addition, the summary of what is statistics is ideal for general queries from the public and can be distributed as such.

The latest International Year of Statistics newsletter is available at www.statistics2013.org/files/2013/01/January-28-2013.pdf

The newsletter is a summary of past statistics2013 activities and includes upcoming events around the world. As one reads about these events the enormity of the field and the smallness of the world become apparent. In Canada there is a presentation about statistical models of migrating birds, across the Atlantic, in the UK, there are lectures about the impact of statistics, while further East, in Thailand, discussions about statistics doctoral programs are taking place. SASA members are encouraged to visit the statistics2013 website and see for themselves the wealth of information available to statisticians. Encourage your students, both under and post-graduate to visit the site. Activities that promote the International Year of Statistics can be forwarded to the event organisers and will receive due recognition. ■

Gary Sharp

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The Newsletter is an informal collection of news items and short articles of interest.

The Newsletter will appear in March, June, September and December.

Submission deadlines:

Issue	Deadline Date
March	1 February
June	1 May
September	1 August
December	1 November

The views expressed in this Newsletter are those of the contributors and do not necessarily reflect the policies of the SA Statistical Association or the editor of the Newsletter.

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Editorial

Dear SASA members

This is the first electronic issue of the newsletter. I hope you will enjoy it as before. 2013 is the International Year of Statistics and you are informed of all the happenings worldwide. The president of SASA for 2013 is Roelof Coetzer who states his initiatives in the President's Column. The 2013 SASA Conference will be hosted by the University of Limpopo from 4-8 November. The venue will be announced in the next issue.

From the 2012 SASA Conference, a visitor's report from Jeffrey Racine is included. This issue also contains a tribute to Danie Krige. The planned activities from the education committee for 2013 are published. Calls for the Sichel medal and Honorary/Fellows are included.

Welcome to all the new members and thank you to Rhodes University for sponsoring this issue.

Hope all SASA members have a successful 2013. ■

Mardi

New members of SASA

Mr S Mangisa, Lecturer:
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Mr V Maduna, Masters Research
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Welcome!

Make a note:

2013 SASA Conference
University of Limpopo
4-8 November 2013

Call for nominations for Honorary Members and Fellows of the Association



According to the constitution of the South African Statistical Association individuals can be elected to the status of Honorary Member or Fellow of the association. These are described as follows:

Honorary Member:

Life-long honorary membership of the Association can be bestowed on an individual who has made an *exceptional* contribution to the knowledge of statistics or to the advancement of the Association and who has retired from his/her ordinary position.

Fellow:

Any enfranchised member who has made outstanding contributions to the advancement of statistical science may be nominated and elected Fellow of the Association. In the selection of Fellows, the nature and quality of the candidate's contribution to the advancement of statistical sciences shall be taken into consideration.

Nominations for Honorary members and Fellows, appropriately motivated, and put forward by at least two enfranchised members of the association, should be submitted confidentially, before **31 August 2013** to the Chair of the SASA Fellowship Committee, Dr Gary Sharp (Gary.Sharp@nmmu.ac.za). ■



**Roelof Coetzer - SASA
President 2013**

President's column

"I want to invite all SASA members to attend the conference in Polokwane in support of the University of Limpopo."

2013 is the International Year of Statistics! Our flagship event, the SASA conference will be hosted by the University of Limpopo for the first time in history! These

two events alone make 2013 an exciting year for SASA.

More than 1400 organizations from 108 countries participate in celebrating the International Year of Statistics, and the public web site for the campaign can be viewed at www.statistics2013.org. Information available on the web site includes: *What is Statistics? Stats2013AtSchool, Statistics2013 Video, Statistics as a Career and Teacher Resources*. The aim of the campaign is to raise awareness of statistics amongst the general public. I urge every SASA member to actively participate in these celebrations by communicating in every way we can the contributions of statistics and statisticians to society, including government, finance and industry.

The SASA conference will be hosted by the University of Limpopo from 4 to 8 November 2013. This will be a wonderful occasion for SASA, the University of Limpopo and the Northern Province. SASA must use this opportunity to reach out to the members in the Northern Province, to potential members, and to the community in terms of awareness of statistics and education at school level. Specifically, Prof Delia North has already started with the planning process to present a maths4stats workshop the day before the official conference starts.

The Executive Committee kicked off its activities with our first meeting of the year on 17 January 2013. Much of the discussions on the conference concentrated around the selection of a venue and the international guests. I am happy to announce that Prof Peter McCullagh, from the University of Chicago, and Dr Bradley Jones, from the SAS Institute JMP, will be the official visitors for the SASA conference. Furthermore, University of Limpopo indicated that Prof Ray Chambers, from Australia, and Prof James Cochran, from the Louisiana Technical University, will also be attending the conference as their guests. Therefore, we can look forward to an excellent technical program.

The EC also spent some time to discuss a strategic planning process to address burning issues for SASA relating to attracting and retaining academic staff at universities, public and industry awareness of the value of statistics, broadening the work of the Education Committee to the whole of South Africa, supporting previously disadvantaged universities and professionalism. The objective is to compile a longer term strategy aimed at growth and sustainability for SASA. The EC has assigned priority to this task.

Some immediate changes have been affected on the EC task list. The Vice-President, Prof Paul Mostert, have been tasked with the chapters to re-energize and to grow statistics activities. The aim is to put more focus on growth and outreach to previously disadvantaged universities. An EC portfolio was created for the Conference Proceedings, and Prof Leonard Santana will take responsibility for this for the next three years. This will ensure continuity, and with the proceedings having the same format as the Journal articles will improve quality and professionalism. We also welcomed Dr Vince Micali, Chair of ICCSSA, to the EC.

The Education Committee, chaired by Prof Delia North, has once again done an excellent job in running student project competitions. Specifically, they have just announced the 16 winners of the international competition for young African statisticians that will attend the WSC2013 in Hong Kong later this year. This competition was made possible by the sponsorship from Stats SA, and additional funding by the African Development Bank. I would like to thank them for their generous support to SASA, and I congratulate the 16 young people and wish them all the best in their careers as statisticians.

Lastly, I would like to thank Prof Gary Sharp and his organising committee for hosting the SASA 2012 conference at NMMU. The conference was great and well organised. I want to invite all SASA members to attend the conference in Polokwane in support of the University of Limpopo. ■

Roelof Coetzer
roelof.coetzer@sasol.com

Department of Statistics, Rhodes University, Grahamstown



RHODES UNIVERSITY
Where leaders learn



The Department of Mathematical Statistics was established in 1973. The Department was formerly part of Rhodes' Department of Applied Mathematics and Statistics. In 1996 the Department of Mathematical Statistics was renamed the Department of Statistics. Staff membership in the Department has grown from two in 1973 to eight in 2013. The Department offers service courses for students in the Commerce, Pharmacy and Science Faculties. The Department offers undergraduate programmes in Applied Statistics and Mathematical Statistics and Honours, Master's and PhD degrees in Mathematical Statistics.

There are approximately 850 students enrolled for the service courses, 45 students enrolled for the 2nd year courses, 30 students enrolled for the 3rd year courses and 20 students enrolled for postgraduate studies.

The Department offers the following postgraduate modules:

- Applied Data Analysis
- Bayesian Statistics
- Data Mining
- Econometrics
- Linear Models
- Multivariate Analysis
- Neural Networks
- Probability Theory
- Pattern Recognition
- Queueing Theory and Simulation
- Stochastic Calculus in Finance
- Stochastic Processes
- Survey Methods and Sampling Techniques
- Time Series Analysis

For further information please visit www.ru.ac.za/statistics or contact the Head of Department Prof Sarah Radloff at S.Radloff@ru.ac.za.

Upcoming event for 2013:

International Society for Bayesian Analysis South African chapter (**ISBASA**) conference, 26—28 June 2013. www.isbasa2013.co.za

Celebrating 40 years: 1973—2013

Committee for 2013

The committee, chaired by Prof. Delia North (UKZN), convened for their annual meeting on Wednesday 16th January. The 2013 education committee and their respective portfolios are shown in the table below.

Delia North	Chairperson; Education workshops; Outreach to schools; AMESA Correspondence
Hannah Kroon	Student Honours projects & Marketing
Tim Dunne	Paper Competition for Young Statisticians to attend WSC
Raphael Kasonga	Stats SA Educational initiatives & StatBank
Verena Nolan	Secretary; Post Graduate Paper Competition
Warren Brettenny	Second Year Bursaries/Scholarship & SASA Newsletter
Lizelle Fletcher	Website & Third year Bursary Competition
Fransonet Reyneke	Education workshop & Post Graduate Paper Competition
Yoko Chana	Website, MoU's & SASA EduCom Liaison

A summary of the activities planned for 2012/2013 period include the following:

- Arrange an education workshop for the 2013 SASA conference.
- Coordinate the StatsSA post graduate paper competition.
- Coordinate the annual honours project competition.
- Coordinate bursary and scholarship awards for 2013 (second and third year).
- Coordinate the paper competition for young statisticians to attend WSC. ■

SASA Education Committee Scholarship and Bursary winners

The Education Committee is proud to announce the recipients of the SASA Scholarships and Bursary.

This year three Scholarships were awarded to applicants who performed outstandingly well in both their first and second year of study. The recipients of these awards for 2013 are M. Govender from the University of KwaZulu-Natal, L. Du Plessis from the University of the Free State and C. Herbert from Stellenbosch University. The Education Committee wish them everything of the best for the future.

A single bursary award was made to a financially needy, yet academically deserving student. Congratulations to Mr M. Nkala from the University of KwaZulu-Natal who received this award.

We of the Education Committee would like to congratulate all the recipients and we look forward to your active participation in SASA activities in the future. ■

2013 SASA Post Graduate Paper Competition, sponsored by Stats SA



It is with great excitement that the SASA Education Committee hereby announces the 2013 SASA Post Graduate Paper Competition! This competition is open to all students enrolled for Masters or PhD's in Statistics at South African tertiary institutions. Both full and part-time students are eligible.

Stats SA will be funding the competition as part of their drive to provide financial assistance to deserving students who show promise and diligence in their statistical work. A person entering the Post Graduate Paper Competition may submit their paper to a journal but only after the competition.

Three prizes will be awarded, subject to the adjudicators' discretion. Two of the prizes may be from any statistical

sub-discipline and one prize will be reserved for Official Statistics, on special request from the sponsors. The first author of the best three papers, as decided by the judges, will be sponsored to present his/her paper at the 2013 SASA Conference at the University of Limpopo. Sponsorship will include travel (within SA), accommodation and conference fees. In addition, the overall winner will receive R13 000, the runner-up will receive R9 000 and the third prize will be R7 000.

The SASA Education Committee will handle the adjudication process. The judges' decision will be final and there will be no correspondence regarding the decision. ■

SASA Visitor's Report 2012: Prof Racine

I am sitting in my office at McMaster University here in Hamilton, Ontario, Canada reflecting on my recent experience in SA when I was hosted as an invited speaker at SASA 2012. To provide some sense of contrast, it is -13C outside and I wore three jackets while biking to work this morning so you are entitled to a smug, sunny smile.

The invitation to visit SA for the 2012 SASA Conference and, while there, to visit NMMU, Wits, and UP arose from a five-day series of lectures and computer labs held Nov. 3-7 2008 organized by Steve Koch (Professor and Head, Economics, UP). Attendees at this workshop included David Friskin and Gary Sharp (my host for SASA 2012). It was during this workshop that I was first impressed by the caliber of the attendees (attendees included both graduate students and faculty), the seriousness with which they approached their studies, and their genuine excitement when studying non-classical approaches towards estimation and inference.

Fast forward to Nov. 25 2011 when I received an email from Gary Sharp inviting me to give a talk at SASA 2012,

hold a workshop, and visit a number of campuses in SA over a two week period. The clincher for me was his finishing his email with "PS Since your course I have switched to R as the software of choice." I was hooked – the opportunity to evangelize on two of my favourite topics, nonparametric statistics and open source software, was impossible to pass up.

Having arrived in PE the evening of Nov. 2, my 2012 visit to SA started with a short workshop on nonparametric methods for categorical data held in Tsitsikamma at the Storms River Guest House Nov. 3-4 where I experienced the beautiful giant ferns, Yellowwoods, tree-top zip-lining and the warm hospitality of many of the local SASA organizers (Johan Hugo, Chantelle Clohessy and Warren Brettenny) and volunteers (Melnick and Erin).

SASA 2012 for me began by attending the one-day course on Functional Data Analysis, a wonderful way to immerse myself in the week's offerings. Day two allowed me to meet and discuss projects with participants in my workshop on Nonparametric Instrumental Variable

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Jeff Racine, Sarah Sharp, Gary Sharp, Erin Hanly, Amy Brettenny, Warren Brettenny, Chantelle Clohessy and Melnick Smith at Tsitsikamma.

...SASA Visitor's Report 2012: Prof Racine

Methods, while days three-five gave me to opportunity to sit in on a range of talks.

I must say that I was so very impressed by the poise and delivery of the presenters, particularly those given by students. I have never attended a conference where the caliber of presentations was uniformly as high among the student presenters as it was during SASA 2012.

Saturday was spent with Gary and family (daughter Sarah and spouse Cathy) relaxing at Addo and having a picnic at the fabulous park facilities (hat tip to SANParks!), then afterwards enjoying a braai hosted by NMMU faculty Debbie Lee and spouse Mario Du Preez.

Sunday involved a short flight to Johannesburg where I was met by Peter Fridjhon of Wits University and then had a wonderful three day visit where I gave two talks then had the pleasure to discuss work with a number of students and faculty (special thanks to the local committee of Mark Dowdeswell, Paul Fatti, and Jacky Galpin). Tuesday afternoon I was driven to Pretoria by Jacky and along the way was given a wonderful overview of the history and state of academia in SA.

Wednesday was spent giving a workshop in the Department of Statistics at UP hosted by Inger Fabris-Rotelli (Spline Methods with Categorical Covariates), and Thursday my visit came full circle when I gave a talk in the Economics Department at UP hosted once again by Steve Koch.

In summary, the SASA organizers made efficient use of my time, provided multiple opportunities to interact with students and faculty, and left me with a sense of how talented and eager the students and faculty are in SA. This is even more remarkable given the resource constraints they face, mounting pressure on a falling number of Professors, and challenging demographics surrounding the age cohort of many faculties. You are to be congratulated on your dedication, spirit, and achievements of which you have the right to be most proud.

Thank you all for your generous and warm hospitality and for the wonderful opportunity. It was truly a pleasure to witness the superb range of talent and interests showcased during my visit, and I look forward to crossing paths with many of you in the not too distant future. ■

Stellenbosch University Department of Statistics and Actuarial Science	
SEMINAR PROGRAM: FIRST SEMESTER 2013	
15 February	Delson Chikobvu (Department of Statistics, University of the Free State) <i>Application of Bayesian statistics in process capability indices</i>
1 March	Lucette van Niekerk (Paul Roos Gimnasium, Stellenbosch) <i>'n Oorsig van Wiskunde en Statistiek onderrig op skoolvlak</i>
15 March	Manie Geyer (Centre for Regional and Urban Innovation and Statistical Exploration, Department of Geography and Environmental Studies, SU) <i>Trends in South African metropolitan morphology</i>
12 April	Zurab Janelidze (Department of Mathematics, SU) <i>Mathematics today: form and function</i>
26 April	Francois van Graan (School of Computer Science, Statistics and Mathematics, North-West University) <i>Application of copulas in time series analysis</i>
10 May	Janette Larney (Centre for Business Mathematics and Informatics, North-West University) <i>Market consistent models for valuing investment guarantees: the case of implied volatility</i>

Lectures start at 13:00 and are held in room 2021 of the Statistics and Accounting Building, cnr Victoria and Bosman Streets, Stellenbosch.

Enquires: Danie Uys (Statistics and Accounting Building, room 2015d)

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A tribute to Danie Krige

From Wikipedia, the free encyclopedia; Photo's: gasa.org.za

“Danie G. Krige (Danie Gerhardus Krige) is a South African Mining Engineer who pioneered the field of geostatistics and, until recently, was professor at the University of the Witwatersrand (Wits), Republic of South Africa. The technique of kriging is named after him. Krige's empirical work to evaluate mineral resources was formalized in the 1960s by French engineer Georges Matheron.

Born in Bothaville (Free State Province) on the 26th August 1919, Danie grew up in Krugersdorp on the West Rand. He matriculated from Monument High School in Krugersdorp in 1934 at the age of 15 and graduated with a B.Sc.(Eng.) degree in mining engineering from Wits at the end of 1938. In 1938 he joined Anglo Transvaal where he worked on a number of gold mines until 1943, gaining a wide range of valuable practical experience in surveying, sampling and ore valuation. He then joined the Government Mining Engineer's Department where he worked for eight years during which time he participated in the uranium negotiations with the British and American authorities and designed the uranium pricing formula for the contracts which led to the establishment of South

Africa's profitable uranium industry in the early 1950s. During the same period he began his pioneering work in the application of mathematical statistics to the valuation of new gold mines using a limited number of boreholes and of ore reserves for existing mines.

His early papers in the application of mathematical statistics, some republished in French, created world-

wide interest that led to the development of the science and concepts that surround the spatial evaluation of mineral resources and reserves known as geostatistics. This has contributed to improved ore evaluation techniques as well as the reduction of the financial risks associated with investment in mining enterprises. Furthermore, it led to the recognition of his contributions to the evaluations of mineral deposits through the coining of the term 'kriging' that is used to describe a spatial mineral evaluation process known and practiced in international mining circles.



1939 – a young Danie Krige



On Friday 27 April 2012, Danie Krige, now aged 92, was honoured by the South African President, with the award of the Order of the Baobab (Silver).

Krige continued his work in geostatistics throughout his career as Group Financial Engineer of the Anglovaal Group until his retirement in 1981 and afterwards for ten years as Professor of Mineral Economics at Wits. He is still active as a consultant and is a registered Professional Engineer. He has published some 90 technical papers and has lectured and participated in international congresses in many countries. His contributions were recognized by Wits University through the award of the D.Sc.(Eng.) degree in 1963, by three honorary degrees (from the universities of Pretoria, UNISA and Moscow State Mining University), by many awards from the South African Institute of Mining and Metallurgy, the International Association for Mathematical Geology, Die Suid Afrikaanse Akademie vir Wetenskap en Kuns, the SME of the American Institute of Mining Engineers, the International APCOM Council in 1999, the University of Antofagasta in Chile, and by the South African President (Order for Meritorious Service, Class 1, Gold).

Krige has served on various Government committees, notably that for State Aid for gold mines (1967/8) and designed the State Aid formula which enabled many mines to survive a period of low gold prices; also various taxation committees, and the mining mission to Iran in 1974. He is a fellow and/or honorary life member of various technical societies locally and overseas. During the period in the Government service he also handled several of the post-war lease applications in the Free State and Klerksdorp goldfields. The fact that decisions on new gold mines of critical importance to the State and the economy as a whole, were being taken on a

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limited number of drillholes without any scientific analysis of the risks of failure, stimulated him to start basic research into ore evaluation. His approach was based on the application of Mathematical Statistics to these problems, an approach of which very little was known world-wide at that stage but which had already been initiated in South Africa by Sichel via the lognormal frequency distribution model.

In Krige's 1951 paper published in the Journal of the Chemical, Metallurgical and Mining Society of South Africa he covered the statistical explanation of the conditional biases in ore block valuations and stimulated the use by several gold mines of regression corrections for routine ore reserve valuations, a technique which, in effect, was the first use on an elementary basis of what is now known as kriging. His 1952 paper introduced, inter alia the basic geostatistical concepts of 'support', 'spatial structure', 'selective mining units' and 'grade-tonnage curves'. His 1951 paper was based on his M.Sc. (Eng.) thesis submitted in the Department of Mining Engineering to the Wits, and expounded his pioneering work in geostatistics in more detail. His early research papers that had stimulated interest in

several mining circles overseas, were republished in French in 1955, resulting in a major research effort by French mining engineers in this field. This, in turn, led to the establishment of the now world-renowned French school of ore evaluation in Fontainebleau, Le Centre de Geostatistique de l'École des Mines de Paris."

Danie was a founder member (1953) and Fellow of SASA. He sadly passed away 3 March 2013 and will be missed by us all. ■



Danie Krige with Herbert Sichel

The Herbert Sichel Medal

Call for Nominations and Submissions

The Herbert Sichel Medal is awarded annually to the member (or members) of the Association who has (have) published the best statistical paper during the previous year. Accordingly, members are invited to nominate or submit papers for consideration for the 2013 Herbert Sichel Medal. The following rules will govern the award:

1. Papers on theoretical or applied statistics are eligible.
2. Single- and co-authored papers in which the principal author is a member of SASA will be considered.
3. The papers must have been published (either online or in hard copy) in 2012.
4. Papers appearing in refereed journals, in fully refereed conference proceedings or as refereed chapters in books are eligible (books, theses or dissertations are not).
5. Nominations for the award may be made by a member of SASA (who is not an author) or submissions may be made by the author(s). An individual may only submit one paper for the award.
6. Nominations and submissions must (preferably) be e-mailed, in PDF format, to:
Paul Fatti (Chairman of the Judges Panel)
at paulfatti@gmail.com

Otherwise they can be sent by post to him at:

The School of Statistics
& Actuarial Science

University of the Witwatersrand

P.O. WITS

2050

to reach him by 31 August, 2013.

7. In evaluating the papers for the medal, the panel will use the following set of criteria:
 - The impact of the paper in its specific field
 - How innovative are the ideas or techniques used in the paper
 - The relevance of the problem being addressed
 - How well-written is the paper

The decision by SASA on the award of the medal will be final. The membership of the panel is still to be finalised. Any member of the panel who is himself a nominee will be replaced by someone not nominated for the medal.

The winner(s) of the Herbert Sichel Medal will be announced at the 2013 Annual Conference of the Association, which will be hosted by the University of Limpopo during November. ■





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