



# Newsletter

Operations Research Society of South Africa  
Operasionele Navorsingsvereniging van Suid-Afrika



September 2006





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## FROM THE PRESIDENT'S DESK

By Marthi Harmse ([marthi.harmse@sasol.com](mailto:marthi.harmse@sasol.com))  
ORSSA President



Dear ORSSA friends

Now that spring is in the air with the smell of jasmine and wild sage and beautiful new green trees, but still a good nip in the morning when we get up to fulfill our ORSSA commitments, do I write about love?

**Marthi Harmse** The love I experienced when I had the opportunity to participate in EURO 2006 in Reykjavik, Iceland. It was stimulating to experience presentations by young Operations Researches who get excited about their new discoveries. I was inspired by the presentations by seasoned Operations Researchers who have achieved much on a wide field over many years. It was a pleasure to make new friends at meetings to discuss issues that really matter. All these people love what they are doing – also the organizers of this biggest EURO conference ever (about 1 800 people).

And then I fell in love with a country where the sun never sets in summer while bathing in open-air hot springs, touching glaciers, taking portraits of an active volcano, running across lava fields, showering in geysers, deafening by the roar of meters and meters of falling water, befriending a puffin family, balancing on the rim of old craters, sheltering at the foot of mountains still being born, dancing along rugged-edged fjords, walking across continental plates, talking to intimate strangers, and drinking hot chocolate.

I was aware of the same love at ORSSA 2006 in Pietermaritzburg. I was touched by the passion our guests, David Ryan and Jim Cochran, demonstrated for what they do and what they believe in. It was good to meet with old friends and see that the flame of their first love will never be dimmed. I was delighted by the energy many new faces brought to the conference. The presentations did not speak of struggles and failures but of eventual victories. One of the highlights for me was to meet with the chapter committees to re-establish strong ties and be motivated by their enthusiasm for not allowing our members to bowl alone.

### DISCLAIMER

The views expressed in this newsletter are those of the contributors, and not necessarily those of the Operations Research Society of South Africa. The Society is not responsible for the accuracy of details concerning conferences, advertisements, etc., appearing in this newsletter. Members should verify those aspects themselves if they intend to respond to them.

The only way to be committed like the executive committee to develop a natural professional home for all people involved in a systematic way of decision support, maintaining and advancing all areas of Operations Research and creating opportunities for shared learning and networking amongst all members, is if one does what one really loves doing. A special word of welcome to Sarma Yadavalli who was unanimously elected as our next vice-president, Wim Gevers who will take over from Dave Evans as treasurer, Basie Kok who will take over from Cobus Potgieter as newsletter editor, and Hennie Kruger who will join the executive committee as an additional member. This is not the season for saying goodbye, and therefore I will do so to members who are stepping down a next time.

Enjoy spring. ♦

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### ORMS Today

ORMS Today is the official magazine of INFORMS. Visit the ORMS website at <http://ormstoday.pubs.informs.org/>.

## FROM THE EDITOR



Cobus Potgieter

This month's issue is all about the 2006 ORSSA conference. Everybody who attended the 36<sup>th</sup> anniversary of ORSSA's prestige event will tell you that it was a tremendous success and worth the effort. I want to thank Petrovious Horton together with the whole Kwazulu/Natal Chapter on my behalf for the wonderful experience and their professionalism throughout the conference.

The President's report, as read at the Annual General Meeting (held in the Sinodale Centre in Pietermaritzburg on 5 September 2006), is included in this issue to grant members who could not attend the conference a chance to read it.

Our Main Articles in this issue are all from delegates sharing their view of the conference. The first article by Darian Raad is on the two plenary speakers and how they shared their expertise regarding OR and the practice thereof.

Dave Evans and Basie Kok then give us an overview of the proceedings in two separate articles. Dave, as a long-standing member of ORSSA, shares a trained eye perspective of the conference while Basie shares his experience as a newcomer. Both of them, however, comments on the outstanding standard of the conference, the joyous social events and the positive aura that was tangible.

Also included in this issue are citations for the two new fellows of ORSSA, Wim Gevers and John Hearn. They were nominated for the award during the past year and unanimously accepted by the executive committee.

I do feel honoured to be part of such an optimistic and active ORSSA community. It became clear to me once again during the conference why our members chose a career in the Science of Better: It is not always just to improve working systems, but also the lives and world around them.

Until next time,  
Cobus

## ORP<sup>3</sup> 2007



Guimaraes, Portugal, 12-15 September 2007  
Minho University (<http://www.uminho.pt>)

### Host City

The city of Guimaraes is located at a distance of 50km from Porto and 35km from Braga. Guimaraes is a nominated city from UNESCO (world heritage), see <http://www.cm-guimaraes.pt>

### Conference Topics

The conference is open to the whole scope of OR, but the following topics are mostly welcome:

Non-linear Optimization; Derivative free Optimization; Multi-Objective Optimization; Simulation; Integer programming and Combinatorial Optimization; Linear Programming; Bundle Methods

Organizing committee chair: A. Ismael, F. Vaz (Chair)  
([aivaz@dps.uminho.pt](mailto:aivaz@dps.uminho.pt))

# President's Report 2006

By Marthi Harmse ([marthi.harmse@sasol.com](mailto:marthi.harmse@sasol.com))

## 1 Introduction

The vision of the Operations Research Society of South Africa (ORSSA) is to be a natural professional home to all persons who are involved in a systematic way of decision support, for the maintenance and advancement of all areas of Operations Research (OR) and the creation of opportunities for shared learning and networking amongst all members.

Various venues are followed to realise the above vision and are discussed in this report with an indication of what has been achieved over the past year.

## 2 Structure

### 2.1 Executive committee

At the annual general meeting in Vanderbijlpark last year the executive committee was elected unopposed. The committee consists of:

|                             |                    |
|-----------------------------|--------------------|
| President                   | Marthi Harmse      |
| Vice President:             | Wim Gevers         |
| Secretary                   | Isabelle Nieuwoudt |
| Treasurer                   | Dave Evans         |
| Newsletter editor           | Cobus Potgieter    |
| Newsletter Business Manager | Leo Tomé           |
| ORiON Editor                | Jan van Vuuren     |
| ORiON Business Manager      | Stephan Visagie    |
| Webmaster                   | Petrus Potgieter   |
| Additional Members          | Hans Ittmann       |
|                             | Theo Stewart       |
|                             | Ozias Ncube        |
| IFORS representative        | Paul Fatti         |
| Archivist                   | Ilze du Plooy      |

The following chapter chairpersons elected at their respective annual general meetings also serve on the executive committee :

|               |                  |
|---------------|------------------|
| Johannesburg  | Neil Manson      |
| Pretoria      | Danie Payne      |
| KwaZulu-Natal | Yvonne Fletcher  |
| Western Cape  | Margarete Bester |
| Vaal-Triangle | Andy Msiza       |

### 2.2 Membership

Membership is the heart and sole of the Society. For the period July 2004 to December 2005 one person resigned from ORSSA and five memberships were cancelled due to expiry. Forty eight new members were accepted (thirty one full, sixteen students and one retiree). At the end of this period the total membership stood at three hundred and ten:

- one hundred and thirty five paid up local full members (eighty seven in arrears)
- twenty paid up students (twenty nine in arrears)
- twenty three overseas members
- sixteen non-paying members

### 2.3 Finances

Due to the ORSSA financial year constitutionally being changed from July to June of the next year to January to December of the same year, the financial period under review is eighteen months (from July 2004 to December 2005). This makes direct comparisons with earlier years difficult. In addition, the profit of R113 000 from the joint SAIIE/ORSSA conference in 2005 was only brought to book in July 2006 and therefore is not reflected in the figures reported here. In summary the income rose by 74% from R68 000 to R118 000 and the costs rose by 83% from R69 000 to R126 000 with the shortfall increasing from R1 000 to R7 500. Membership fees collected were about 10% up on the previous year, but outstanding fees remain an issue which is being addressed. The resulting cost from the improved look of and backlog being caught up on ORiON as well as the improved look and higher frequency of the newsletter was significantly offset by an increase in advertising revenue. Furthermore, the Society has already started to incur costs in organizing IFORS 2008 to be hosted by ORSSA in Sandton. The Society's finances are in a healthy condition with R131 000 cash on hand at end August 2006 of which R80 000 is in an investment account. Theo Stylianides is applauded for sorting out the Society's financial situation five years ago on which the current treasurer could build. We also really want to thank Dave Evans for the excellent way in which he kept a finger on the pulse of ORSSA regarding our memberships and finances.

## 3 Internal networking

### 3.1 Website

In May 2006 a new website was launched to facilitate better content maintenance. Most of the content has been transferred from the old website and some of the content was translated into other South African official languages. Furthermore, a special page for IFORS 2008 was launched and linked from the ORSSA website. Updating of chapter web pages will enjoy special emphasis in the next year and a vector graphic of the ORSSA logo must be established. The webmaster would appreciate members' comments and suggestions on any aspects of the website. We are grateful to the University of Stellenbosch for hosting the website and for the upkeep of the server. A special word of thanks to the editors of the newsletter and of ORiON for transferring the content of the publications. Petrus is praised for the energy invested in our website.

### 3.2 Newsletter

Four issues of the ORSSA newsletter were published since the last Annual General Meeting and two more issues are scheduled for the remainder of 2006. Most contributions are made on request of the editor and his reach will be further extended through the rest of the executive committee. Members are strongly encouraged to share learning and strengthen networks by means of the newsletter and to support advertisers who permit the newsletter free of charge to members. For more than three years the newsletter had three regular advertisers, but currently it is priority for the business manager to get a forth advertiser. The business manager, Leo Tomé, is commended for his excellent marketing skills. A special word of thanks to Cobus Potgieter for the enthusiasm with which he is did the newsletter – Cobus will be resigning as editor at the end of the year.

### 3.3 ORION

Volumes 21(2) and 22(1) of ORiON were published on time and volume 22(2) will also be published on time and it continues to enjoy accreditation by the Department of Education. Besides other existing exposures, a new ORiON webpage was developed on the new ORSSA website from which electronic abstracts and full papers may be downloaded free of charge one year after publication. Currently the possibility of online administration is investigated where authors can submit manuscripts and check the refereeing status thereof online while referees can evaluate manuscripts and submit their reviews and recommendations online. Furthermore, a number of journals of sister OR societies are interested in amalgamating under the ORiON banner. Jan van Vuuren is applauded for the excellent job he performs as editor of ORiON together with the business manager, Stephan Visagie, associate editors, anonymous referees and ORSSA members publishing in ORiON.

### 3.4 Annual Conference

This year the annual conference with the appropriate theme *Production Scheduling and Logistics* is the first conference to be hosted in Kwazulu-Natal in almost a decade. The conference is honoured to be inspired by the expert David Ryan from the University of Auckland as guest speaker. Our appreciation also goes to James Cochran from the Louisiana Tech University and Informs-ed for contributing to the conference while visiting UNISA. To join the ORSSA family one year and then taking on the main responsibility for organising the next annual conference is a daunting task – we take our hats off to Petrovious Horton for doing that very successfully. Thank you also to Yvonne Fletcher, Dave Evans, the contracted conference organisers as well as the other hospitable people from Pietermaritzburg.

### 3.5 Chapters

As mentioned at previous occasions, chapters are the lifeblood of the Society. However, over the past twenty five years networking is plummeting due to changes in work, family structure, age, suburban life, television, computers, women's roles and other factors. This has detrimental effects on societies

such as ORSSA. At this conference therefore we will conduct a workshop to review the way we are managing our chapters and to share lessons learnt and networks established. Chapters will report individually during the annual general meeting. Each chapter chairperson with his or her committee members are thanked for the hard work they put into keeping OR alive in South Africa.

## 4 External networking

### 4.1 IFORS

ORSSA remains an active member of IFORS with Theo Stewart Vice-President, Paul Fatti our IFORS representative and Hans Ittmann editor of the IFORS newsletter for Developing Countries. At the last IFORS executive meeting a call has been put out for a new editor for ITOR and funding was dedicated for any initiatives taken. ORPA / ORSSA 2007 is scheduled at the University of Cape Town Engineering Building for 10-14 September 2007. It was agreed that an ICORD meeting should be held in the preceding year of the triennial IFORS meetings, starting next year in Brazil. Preparations for hosting IFORS 2008 in Sandton are under way.

### 4.2 EURO

At EURO XXI I represented ORSSA at the EURO council meeting. The discussions included reference to the NET-EURO-C system through which EURO offers support for local conferences. ORSSA could utilise this service for our local conferences as well as for organising ORPA 2007 and IFORS 2008. The dual membership principle whereby national societies as well as individuals are members of EURO was also discussed. ORSSA is taking a reactive approach in making proposals in this regard. Two new working groups were established, namely for OR for development (in which I am involved) and for OR in computational biology and bioinformatics (in which Montaz Ali from WITS is involved).

A discussion was also held regarding the improvement of networking and professional development opportunities for OR in practice. ORSSA along with all other member societies should give feedback on what we think could be done in this regard. In the discussion about branding OR, a call was made for a concerted effort to contribute to "OR in sight". Support was also asked for the Africa project. The executive is busy identifying channels to be utilised, especially through institutions of education.

Upcoming events include EURO XXII to be hosted in Prague (Czech Republic) in 2007, ORP<sup>3</sup> to be hosted in Minho, Portugal on 12-15 September 2007 and the ESWI XXVI on *Location and logistics* to be hosted in Estoril, Portugal 27 January – 10 February 2007 (the deadline for application at ORSSA is 30 September 2006). ORSSA is proud to have had two laureates at the ESWI XXV on *Optimisation challenges in engineering: methods, software and applications* which was hosted in Wittenberg, Germany last month.

### 4.3 SACNASP

Currently Petrus Potgieter is representing ORSSA on SACNASP where OR is categorized under Mathematical sciences.

## 5 Recognition

### 5.1 Tom Rozwadowski medal

This year at the conference dinner the Tom Rozwadowski Medal will be awarded to an ORSSA member who published the best OR paper during 2005. Wim Gevers convened the nomination process, while a committee consisting of Dave Masterson, Heinz Prekel en Giel Hattingh was responsible for the adjudication and final selection. We thank the committee members for their sterling work.

### 5.2 Student competition

At this year's conference dinner prizes will be presented to the winners of the student competition in the categories of best Honours project and best Masters project. Margarete Bester facilitated the process and Dave Evans, Hans Ittmann, Paul Fatti and refereed the entries. We are thankful to SAS for their continuous sponsorship of the competition. Thanks also go to the committee for ensuring that ORSSA recognizes the contributions made by students.

### 5.3 Fellows / recognition awards

This is the second year that members will be honoured as fellows or with recognition awards. Announcements regarding fellowships will be made at the conference dinner. No recognition awards will be presented this year. I chaired the nomination committee consisting of Isabelle Nieuwoudt, Jan van Vuuren, Paul Fatti and me. I was touched by the dedication demonstrated by the committee members to give recognition to fellow OR practitioners – thank you.

## 6 Conclusion

I would like to thank each ORSSA member – especially the executive committee – for creating a natural professional home to all persons who are involved in a systematic way of decision support, for maintaining and advancing all areas of OR, and for creating opportunities for shared learning and networking. ♦



**IFORS**  
sandton  
2008

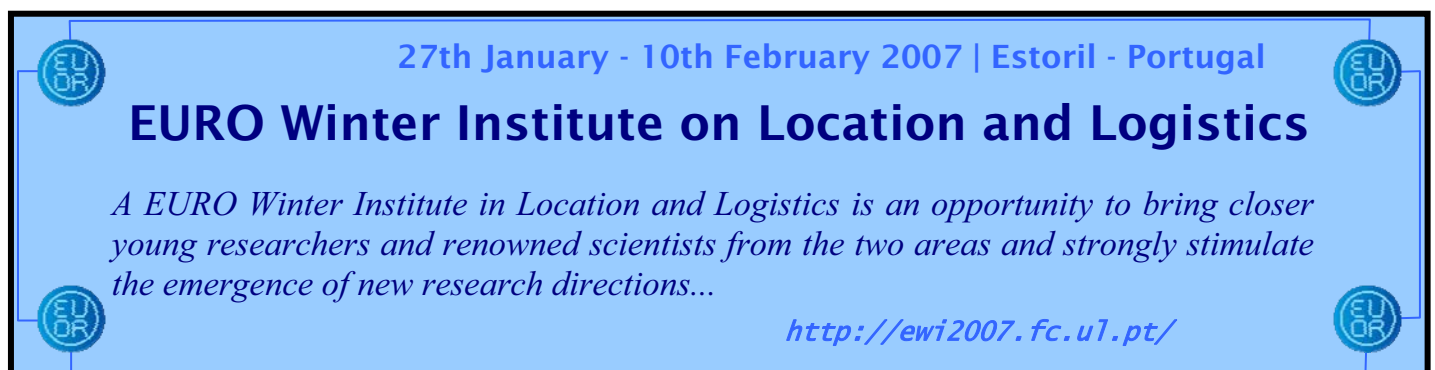
**Preliminary Announcement  
and *Call for Papers***

**18<sup>th</sup> Triennial Conference of  
the International  
Federation of Operations  
Research Society  
Hosted by ORSSA**

**July 14-18, 2008**  
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# The 36<sup>th</sup> Annual ORSSA Conference

## A Personal Perspective of the Plenary Speakers

By Darian Raad ([darian@dip.sun.ac.za](mailto:darian@dip.sun.ac.za))

ORSSA was privileged to have two exceptional plenary speakers at this year's conference, David Ryan from the University of Auckland, and Jim Cochran from Louisiana Tech University. They set a standard of excellence with thoroughly engaging presentation and sagacious mathematical insight.

David Ryan is a Professor of Operations Research at the Dept of Engineering Science, and an old hand in the OR game. His first exposure to the field was when he joined the Atomic Energy Research Establishment at Harwell, UK, in 1971. This was at a time when government funding had been cut, and the group had to earn its keep by selling their OR skills. They achieved this skilfully by solving complex fleet scheduling programmes which resulted in enormous savings for the shipping companies and proved that OR could make a profound contribution to the industry.

The first of David Ryan's two memorable lectures dealt with "*Optimized Production in an Aluminum Smelter*", a challenging set partitioning problem which addresses the premium of aluminium metal. Molten metal of varying purities is tapped from a long line of Heroult-Hall reduction cells, three of which supply a batch. Cells must be chosen in order to maximize the total premium (purity) of batches subject to a number of practical constraints. This problem requires some clever modification to allow for branch and bound solutions in realistic time. The solution included an integer allocation heuristic used at each node in the branch and bound tree, which finds IP bounds more quickly. Additional valid inequalities were used to provide a better LP upper bound and avoid infeasibility. Finally, branching on premium values proved to be the most valuable device for solution discovery.

David emphasised that Real Operations Research always involves a practical real world problem; research and innovation in modelling, algorithms or solution methods; insights into the properties of models or algorithms; and implementation and technology transfer to real-world. Another lesson learnt was the difficulty of implementation, even when you have a brilliant solution. The value of selling ideas directly to a marketing team was mentioned as marketing are often the initiators of demand and the ones most infatuated with the profit motive.

David's second lecture was entitled "*Some Aspects of Optimisation Methods in Aircrew Scheduling*". This problem demonstrated clearly that the cheapest solution is not always practical or even remotely possible. Optimum solutions tend to be unstable as cost and robustness act as competing objectives.

By introducing elastic constraints, considerable increases to robustness may be obtained at a small cost. David challenged the need to resort to heuristics or stochastic techniques in difficult problems, demonstrating elegant solutions using innovative combinatorial optimization.

Jim Cochran is an Assistant Professor of Quantitative Analysis at the Department of Computer Information Systems and Analysis. He has had extensive involvement in OR, including active membership of INFORMS where he has frequently served as president and chairman. Jim has considerable experience both as a university lecturer and an independent statistical consultant.

Jim gave a superb lecture entitled, "*Statistics and Optimization: Their Illicit Relationship*", in which he presented a convincing case for interdisciplinary courtship. He took us on a journey to the distant land of Interdisciplinaria, where it is recognised that the exact values of parameters or probability distributions of populations are rarely known, often spawning Sample-Based Programming problems. The critical feature of these problems is that the maximand or minimand is always a statistical estimate, subject to bias and standard error of the distribution. Jim discussed means for assessing the nature of sample bias, and ramifications of using sample data to estimate parameter values for constrained optimisation problems. His solution methodologies to mitigate variance and bias included Bayesian and predictive approaches.

Conjoint analysis, a methodology to help select amongst several multi-attribute alternatives (such as proposed product or service designs) was discussed in terms of optimal product design and even optimal platform design for a U.S. presidential candidate. These problems cannot be addressed realistically without a sound statistical foundation.

Both speakers reinforced the message that Operations Research must place the emphasis on creative research and bridge the gap between theory and practice. They illustrated vividly that OR lectures need never be dull, by incorporating exciting practical examples and legendary anecdotes. They truly enhanced the ORSSA 2006 conference experience. ♦



**Jim Cochran and David Ryan, the two plenary speakers, enjoying a cup of tea between sessions.**



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# ORSSA 2006: Pietermaritzburg

## A Personal Overview of the Conference

By Dave Evans ([davee@dbsa.org](mailto:davee@dbsa.org))

As most of you will be aware, this year's conference was organized by the Natal Chapter, and held in the Sinodale Conference Centre, in Pietermaritzburg. The conference properly kicked off with a very pleasant social evening at the Aintree Lodge, which was particularly convenient for those of us, like me, who were staying there. Yvonne Fletcher, the Natal Chapter Chairman, welcomed us all warmly and entertainingly, and then we got down to the serious business of renewing acquaintances, which inevitably, in many cases, had been in abeyance since the previous conference.

Monday started bright and early, with the President, Marthi Harmse, giving the traditional opening address (women's lib rules, hey?) in an equally warm and professional style and then the conference got down to business with a very professional, and heart felt talk from one of our visiting speakers, Professor David Ryan from New Zealand, on 'real' OR. He emphasized strongly that as far as he was concerned, no-one can claim to be practicing real OR unless it has some impact on a real world problem.

The AGM was held towards the end of the second day, with a new executive committee being elected (details of the new office bearers are reported elsewhere in the Newsletter). Marthi thanked all the members standing down, several of whom have been on the executive for longer than we want to remember. One of the very encouraging features of this conference was the large number of new, young, enthusiastic faces present, and several of the more 'mature' members of the executive committee made a point of standing down from their formal posts, to make more room for both younger and more affirmative action nominees.

The second night's social event was at Brookfield, near Hilton, and the entertainment was very much of the sixties and seventies era, by a gentleman of similar vintage; we didn't

quite get to dancing on the tables, but I got a couple of comments the following morning from people who thought that I (amongst others) was about to start.

We were warned for Tuesday, that with the Jacob Zuma trial due to re-engage a couple of blocks up the road from us, we should allow extra time to get to the Sinodale Centre. Technically speaking, that may have been the case – for those of us from places like Cape Town, Jozi and Pretoria, it felt as though the Pietermaritzburg 'rush five minutes' of Monday had degenerated catastrophically, into a 'rush ten minutes.'

Tuesday started with a plenary talk by Jim Cochran, from the University of Louisiana who gave an excellent, entertaining talk on the intersection (and potential abuse) of statistics and OR, followed by a day of parallel sessions. An interesting and very constructive addition in the afternoon sessions was one on 'running chapters' facilitated by the President, Marthi Harmse, with most of the Chapter Chairpersons who were present and several others such as myself with an interest in the topic.

The conference dinner was held that night at the Ascot Inn, with the Society's yearly awards announced. An unusual addition to the normal format of the conference dinner was a champagne toast to Stephan Visagie and David Ryan, who were both celebrating their birthdays! Thereafter, the socializing continued, with the Sasol and Stellenbosch contingents vying for the (hypothetical) award of 'most participative dinner table.'

Wednesday was the final morning of the conference, and with the Zuma trial still in progress (if that's the correct word), the same frustrating ten minute traffic jam took place.

*(Continued on page 10)*



Delegates enjoying the wonderful meal and each other's company at the social evening in Brookfield.



David Ryan giving a birthday speech after the champagne toast at the conference dinner.

# The 36<sup>th</sup> Annual ORSSA Conference

## A Personal Perspective of the Overall Proceedings

By Basie Kok (*basie@dip.sun.ac.za*)

The Sinodale Centre in Pietermaritzberg was the venue of the 36<sup>th</sup> annual Operations Research Society of South Africa (ORSSA) conference this year. For those students from Stellenbosch who were convinced to present papers by certain more persuasive members of the lecturing staff, the experience was certainly one not easily forgotten.

The opening function at Aintree Lodge on Sunday the 3<sup>rd</sup> of September got off to a good start with an excellent meal (the food in general was outstanding throughout the week), and predictably the student delegates, most probably used to residence suppers, subtly abused the self help facility of the impressive buffet. After acquaintances had been made and the “what do you do for a living” question exhausted, most of the delegates retired to their recently moved into accommodations all exquisitely comfortable.

The conference got underway on Monday the 4<sup>th</sup> with the presidential address by Marthi Harmse, beginning with a witty monologue conversation erroneous of the introductions made the previous night, explaining essentially the distain encountered by most mathematicians when they let on what they actually do for a living!

The ensuing plenary session by guest speaker David Ryan was an excellent talk outlining aluminium smelting discrete optimization problem in the south of New Zealand (where he is from). An interesting point mentioned by Mr. Ryan, that I am sure many Operations researchers can relate to, is the difficulty that is often encountered in getting solutions implemented in the real world due to issues quite external to the problem itself (management structure politics in this case). His recommendation – Operations researchers should perhaps be more focused on getting their solutions implemented and not be content with just publishing articles (admittedly also very important).

The rest of the morning saw presentations varying from research priorities in south Africa as a whole to supply chain

management (in both directions) with an interesting status report and solution proposal for the south African wine industry supply chain. The afternoon session kicked off with an amusing presentation about the marriage of Industrial Engineering and Operations research (along with metaphors ranging from children to aphrodisiacs), with an outline of lessons learned in this regard by Sasol in creating effective supply chains. Two more fascinating presentations about matters on a more national scale, one about public transport infrastructure (with the 2010 world cup in mind) and another about the nation wide blood transfusion service took place before the Annual general meeting commenced later in the afternoon.

The AGM was an overwhelming success with an optimistic financial report from the treasurer Dave Evans and several new exec members being added to the team. The first was a new vice-president Sarma Yadavali, whilst a new newsletter editor for 2007 (myself) and Paul Kruger as a new additional member were also added to the team. Unfortunately the highly respected additional members Hans Ittmann and Theo Stuart resigned their positions as additional members. Wim Gewers also replaced Dave Evans as the new ORSSA treasurer. Several votes of thanks and standing ovations were bestowed on the current exec for their outstanding work throughout the year with regards to both the ORION journal and the newsletter.

Another guest speaker Mr. Jim Cochran from Louisiana Tech University began the second day of the conference with a fascinating talk about the close ties between statistics and optimization theory with a specific look at Sample Based Programming Problems (SBP's), used in cases where either a traditional probability distribution is not appropriate or only sample data is available. The remainder of the morning session was filled with some very novel simulation and heuristic implementations including swarm intelligence for a production scheduling problem. The sasol contingent made their presence



**Wim Gevers receiving his fellow of ORSSA certificate. He and John Hearne were named fellows this year.**



**Theo Stewart accepting prizes on behalf of the UCT students who won the annual ORSSA student competitions.**



known after tea with an outstanding array of talks about various OR applications in their company. It was both refreshing and encouraging to see a company that appreciates OR for what it is and has achieved tremendous success as a result of it. On the more theoretical side, Stephan Visagie and Hennie de Kock presented some improvements to the traditional branch and bound techniques used to solve integer programming problems which could have far reaching implications in terms of algorithm complexity and hence computational efficiency.

The afternoon session was equally enthralling with topics varying from inventory modelling to 2D packing algorithms to heuristic scheduling, and the day was concluded with a little Formula 1, some graph colouring scheduling and a dash of surface hydrology.

Everyone arrived dressed to the nine's for the conference dinner in the evening and with another impressive buffet on offer, polite conversations were intermittently interrupted by devious gazes towards the food. Several prizes were awarded to long standing members of ORRSA such as Wim Gewers and John Hearne who received fellowships for their dedication to the discipline of OR and the society in particular. Catherine Black received the Tom Rozwadowski award which was awarded to her last year for work on her masters thesis completed at the university of Stellenbosch involving cutting problems and inventory control in cardboard box producing factories. Rickus Jooste (also from the University of Stellenbosch) won the national student competition for projects completed by students at an honours level.

The final day began appropriately with a talk by Neil Manson asking the question "Is operations research really research?" The delegates were delighted to discover the answer to this question was yes! Complexity theory and home loans added to the already impressive repertoire covered by the interdisciplinary umbrella of OR at the conference, and a parallel session presented by most of the Stellenbosch contingent presented several consecutive talks about a single threat evaluation and weapon assignment system for fixed wing aircraft, part of a larger project being conducted by the university of Stellenbosch in conjunction with an industry partner specializing in radar installations.

The final plenary session was again by David Ryan and his work with Air New Zealand involving scheduling of aircrew. Some interesting aspects of this problem including aircrew hour restrictions and destination constraints presented some unique challenges which Mr. Ryan and his team expertly overcame. His talk was concluded with a global OR status review in terms of OR's position in the internal management structure of major companies and some interesting commentary on the situation and how it should be rectified was presented. He also commended the presenters of the conference for their focus on real world application throughout the conference with a special mention to Sasol for their outstanding regard and implementation of the discipline.

In conclusion the 36<sup>th</sup> ORRSA conference was a resounding success and as the guest speakers rightly picked up on, a testament to the outstanding dedication, class and subsequent effectiveness of Operations Researchers in South Africa. ♦

(Continued from page 8)

David Ryan gave another superb plenary talk, where he apologized for 'preaching to the converted' on the topic of 'real OR' two days earlier, and complemented the Society for demonstrating a degree of integration between academia and the real world which he tells us is extremely rare. No-one took him to task, but those of us who have been around the South African scene for a decade or a few, could have quite honestly assured him that 'twas ever thus', to quote the poet.

Marthi then wrapped up the conference, awarding the prizes for best presentations, and wished us all well until next year, which will be in Cape Town, held jointly with the OR Practice in Africa conference.

Other noteworthy aspects of the conference;

- Marthi's amazing ability to seemingly be everywhere and cover everything, down to bringing wine for one of the evening functions, organizing the champagne for the birthday toasts on another, and providing the music as well, to say nothing of presenting a paper, and being a significant member of the organizing committee, albeit via email;
- The outstanding participation from Jan van Vuuren and the entire Stellenbosch team, who made a very substantial contribution to the conference from start to finish;
- An equivalent contribution from a large and vocal team from Sasol, who also added significantly to the proceedings;
- An invaluable contribution from Petrovicious Horton, who was the man on the ground in Pietermaritzburg in terms of organizing the conference, ably supported by Lesley Perchman and Jenny Weber and who was also unobtrusively there whenever it mattered throughout the conference, making sure that laptops and data projectors were up and running for presentations, buses and caterers were ready for evening functions, and chivvying the Sinodale Centre support staff along when tea was late, again, in addition to finding time to write and present a paper. We owe Petrovicious and his team a much bigger 'thank you' than most people would have realized – always a sign of a job well done.
- And finally a huge 'thank you' to all the participants – those who didn't present papers, as well as those who did. From the 'professional' side, this conference was up there with the best, with excellent papers, including a smattering of wider ranging ones, (*mea culpa*, amongst others) in addition to a solid core on the theme of Production Scheduling and Logistics. I've been involved in ORSSA conferences now for about 25 years, and have always held the view that the social side of our conferences has a camaraderie about them which I rarely ever experience in other conferences. We have a track record of being able to reproduce this 'vibe': year in and year out, and the Pietermaritzburg conference maintained the standard. I have no idea how we do it – it is certainly nothing that features on the organizers check list. It's obviously a dynamic which arises communally out of what we all bring to such a conference, and thanks to you all, we did it again! ♦

# NEW FELLOW OF ORSSA: WIM R GEVERS

By Jan van Vuuren (vuuren@sun.ac.za)



***“The discipline of Operations Research is one of the most exiting what you can conceive. It gives you the opportunity to become involved in a wide variety of real life problems and provide solutions ...Training in logical decision making***

***stands one in good stead since common sense solutions are logical, but common sense is a trait that is not too common!”***

**Wim Gevers**

Willem Rudolf Gevers was born in Voorburg (the Netherlands) on May 20th, 1949. He obtained a Bachelor of Science in Engineering degree (first class honours) from the University of Cape Town in 1971. During his undergraduate studies at Cape Town he won the Cape Town Corporation bronze, silver and gold medals for the best student in engineering in his second, third and final years respectively. He followed up this impressive performance by obtaining a Master of Science in Engineering degree from the University of Cape Town cum laude in 1974. From 1974 to 1980 he practiced as a civil engineer at the consulting engineering firm Liebenberg & Stander, where he was notably involved in fascinating, high altitude bridge building projects over the Gouritz and Blaauwkrantz rivers in the Southern Cape. He obtained virtually simultaneously an Honours degree and a Masters degree in Business Administration from the University of Stellenbosch in 1979, both cum laude. In the same year he was awarded both the Old Mutual gold medal for exceptional performance in the MBA Programme and the MS Louw-award for the best MBA student at the University of Stellenbosch Business School. In 1981 he was employed by the University of Stellenbosch as senior lecturer at their Business School, where he obtained a PhD in 1992 with a dissertation titled The association between inflation-adjusted accounting income and the behaviour of share prices. After receiving the USB-Sanlam-research award in 1991, 1993 and 1994, he was promoted to

associate professor, and then to full professor of operations research at the same institution in 1996, where he received the Rector’s award for excellence in teaching in 1998. Since 1997 he has been Associate Director (Academic) of the Business School, with the responsibility of managing the Masters degree in Business Administration programme.

His research interests include models for decision support in general, the use of neural networks in the analysis of financial markets, technical analyses of share prices, studying the relationships between accounting data on the behaviour of share prices, and evaluating the effects of public announcements and other information on the movements of share prices. He has published 27 peer-reviewed articles in scientific journals and has delivered 36 national and international conference papers on these research topics. In addition he has supervised 92 MBA students and 2 PhD students to completion. He has examined numerous theses and dissertations for the University of Cape Town, the University of the Western Cape and the University of Stellenbosch, and he is a regular reviewer for journals such as ORiON, the Investment Analyst’s Journal, and Journal for the Studies in Economics and Econometrics. He has also organised seven local and international operations research related conferences.

He has been a member of the Operations Research Society of South Africa (ORSSA) since 1982, first as a regular member, and since 1993 as an executive committee member. He served as business manager of the society’s journal ORiON during the period 1993–2003, as associate editor of said journal since 2004, and was elected president of ORSSA for the term 2004–2005. He has also been a member of a number of learned and professional societies, including the South African Society of Professional Engineers, the Computer Society of South Africa, the Southern African Institute for Management Scientists and the Southern African Finance Association.

For his numerous contributions to the profession of operations research in general, his services over many years to ORSSA in particular and his continued nurturing of operations research in the MBA programme at the University of Stellenbosch he was duly and unanimously elected Fellow of the Operations Research Society of South Africa at a meeting of the Executive Committee on 3 September 2006.

## ***How interesting can a mathematical conference be?***

Well, the ORSSA conference turned out to be an excellent bridge between the mathematically minded and practically oriented OR community. And the combination proved to be an interesting learning experience that showcased the amazing power of Operations Research in a world aching for more. The networking opportunities however, were certainly the highlight of the conference. And I will never forget the sight of 10 scientists, trying to open a bottle of whiskey – just to realise that it was open all along. Great work, OR and great people ensured that I will definitely be back next year!

**Ian Croucamp**  
(jmc@vodamail.co.za)

# NEW FELLOW OF ORSSA: JOHN W HEARNE

By Paul Fatti ([fatti@stats.wits.ac.za](mailto:fatti@stats.wits.ac.za))



***“I think OR could be much more valuable to society than it is. The problem is that most people are just not aware of the power of OR and what it can do for the systems they manage.”***

**John Hearne**

John Woodville Hearne was born and bred in Cape Town. He received a Bachelors degree in Applied Mathematics and Physics from the University of Cape Town in 1974 and an Honours degree in Applied Mathematics the following year. Believing that Nuclear Physics would solve the problems of the world, he took up a post with the Atomic Energy Board. Failing to contribute significantly towards that goal, he decided to move to the University of Zululand in 1977, to teach Applied Mathematics. In the meantime, he had been continuing his studies and received his Masters degree from the University of Pretoria in the same year. At Zululand, he found himself gradually shifting from classical Applied Mathematics towards Operations Research, as he realised that it was through OR, rather than Nuclear Physics, that he was more likely to solve the world's problems. So he tackled a problem relating to the development at Richards Bay, for which he received his PhD from the University of Pretoria in 1983. In the meantime, he also became a member of ORSSA.

After six years at Zululand, John moved to the University of Natal in Pietermaritzburg, where he spent the next 20 years, rising to the post of Professor of Applied Mathematics. Here he continued his research in OR, focusing on the use of Systems Dynamics Modelling (and other OR techniques) to solve management problems, relating particularly to the conservation and sustainable utilisation of natural resources. It was for publications in this broad area that John twice received the Tom Rozwadowski Award from ORSSA, in 1992 and in 2000. From 1999 to 2000 he served as President of ORSSA (at the same time as he was serving as President of the Resource Modelling Association).

In 2003, John moved to Australia for domestic reasons, where he took up the position as Head of the Department of Mathematics and Statistics at the Royal Melbourne Institute of Technology (RMIT) University (now the School of Mathematical and Geospatial Sciences).

John has published widely in OR and related fields, focusing on modelling for problems relating to African wildlife, environmental management, estuarine management and biological control. He has served many years as Associate Editor of ORION, is a contributing Editor for the International Abstracts in Operations Research and also serves on the Editorial Board of Ecological Modelling.

For his contribution to the Operations Research profession in general, in particular at the Universities of Zululand and Natal, and for his services to ORSSA over many years, John Hearne was duly and unanimously elected Fellow of the Operations Research Society of South Africa at a meeting of the Executive Committee on 3 September, 2006.

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