



WESTERN AUSTRALIAN SCHOOL OF MINES

WASM MATTERS

INSIDE THIS ISSUE:

- LATEST RESEARCH 1
- INDIAN DELEGATION VISITS WASM 2
- WASM'S NATIONAL GEOGRAPHIC EXPERIENCE 2
- MINING CLUB RAFFLE 2
- MINING CAREERS 2
- BURSARY SCHEME
- DEPARTMENTAL NEWS 3
- STAFF NEWS 4
- WASM WOMBATS 4



Prof. Paul Dunn

DIRECTOR'S NOTE

As reported in the last newsletter (September 2008), WASM during 2008 was in a position of record strength with regards to student numbers within most education programs and with ever increasing research income (with recognised excellence).

The current world financial crisis has affected everyone and WASM is not immune to this. Despite the fact that mining has really fared no worse than most of the industrial sectors it has influenced high school leavers with our numbers slightly down on 2008 and we also expect reduced industry funding of

research as we all tighten our belts in 2009.

The general consensus is that the demand for minerals and highly skilled people within the resource industries will return as early as 2010. It is therefore essential that we continue WASM operations at current or slightly increased levels, in both the education and research areas, to meet the longer term demand. The simple fact is that it is probably the best time to enter education within mining and other resource areas during downturns in the industry, simply because it takes three or four years to graduate with a WASM degree and by then the industry is back in an upturn. It is also important to note that our graduates still find employment even in times where the economic outlook is not so good. What seems to happen is that the diversity of jobs undertaken increases during such periods?

Our current focus is therefore to ensure the long term sustainability, in financial terms, of WASM irrespective of the cyclical nature of the mining and other resource sectors. A five year business plan is currently being prepared and will be presented to the WASM Strategic Advisory Board in March 2009 for approval. I therefore urge our stakeholders to get behind WASM and ensure that the current success is maintained and a sustainable School in resources is maintained to meet the long term needs of the industry.

Paul Dunn, Director

LATEST RESEARCH



Prof. Will Featherstone

Professor Will Featherstone and Emeritus Professor Petr Vaníček won an ARC (Australian Research Council) Linkage-International grant in the latest round of announcements made by the Minister for Innovation, Industry, Science and Research, the Hon Kim Carr. The grant will be used to bring Professor Vaníček to Perth for visits in 2009 and again in 2010 to collaborate with members of the Western Australian Centre for Geodesy on a project titled Validation of Synthetic Regional Gravity Field Models. Professor Vaníček is an Emeritus Professor at the University of New Brunswick, Canada, and co-authored the textbook Geodesy: The Concepts.

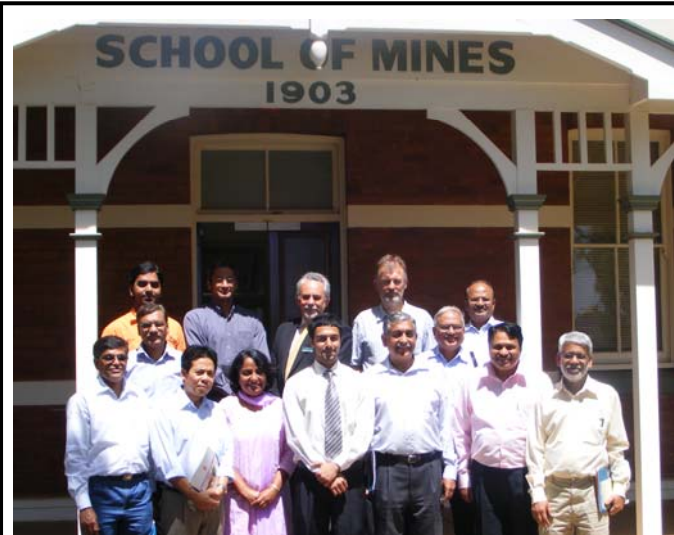
This research project will extend their long-standing collaboration to further develop the theoretical and practical methods required to test any model of the Earth's gravity field. Previously, geodesists have had to rely on analytical error estimates, usually based on observed data. A synthetic Earth gravity model avoids this scenario by giving an exact validation technique of the methods used. The synthetic model will allow users of geoid models (e.g. for GPS heighting) to have much more confidence in their results. When used with a precise geoid model, GPS is faster and cheaper than conventional spirit-levelling, offering around 800% productivity gains.



Prof. Petr Vaníček

The CRCSI (Cooperative Research Centre for Spatial Information) has funded a project titled Towards a New Vertical Spatial Framework for Australia that began in August 2008 and is led by Professor Will Featherstone and PhD student Michael Filmer. Other investigators come from Geoscience Australia, Landgate and the University of New South Wales. It is an eight-month scoping study to determine by what means and to what extent the Australian Height Datum (AHD) can be improved, with a view to a proper and scientifically rigorous revision of the AHD in the second round of the CRCSI.

The AHD is plagued with numerous problems, many of which can be rectified with new approaches and datasets now available. It is aimed to determine by what means and to what extent the AHD can be improved, with a view to a proper and scientifically rigorous revision of the AHD. This new vertical datum, if adopted, will provide the fundamental framework for height determination in Australia, including any new Australian digital elevation model (DEM). Ultimately, a revision of the AHD will enhance this essential piece of national spatial infrastructure, providing tangible benefits to many industry sectors and all levels of government.



**INDIAN DELEGATION VISITS WASM**

India's Secretary of Mines, Mr Shantanu Consul, led a delegation of government and Industry representatives in a visit to the Curtin WASM Kalgoorlie campus on Friday 6 February. The Secretary's visit to the state was designed to expand relations between Western Australia and India in the mining sector, and progress initiatives of a Mining Memorandum of Understanding signed in May 2005 between the two governments. The Indian delegation, which toured key Western Australian mining facilities, requested a visit to the Kalgoorlie campus, where they met with Curtin WASM Academics, Dr Andrew Jarosz (Acting Head of Mining Engineering) and Dr Don Ibana (Head of Metallurgical Engineering and Extractive Metallurgy) to explore initiatives encompassing research and education & training under the MoU agreement.

Accompanying Mr. Shantanu Consul were Mr. V.K. Thakral (Joint Secretary Ministry of Mines), Mr. R.P. Verma (Deputy Director General Geo Survey India), Mr. C.S.Gundewar (Controller General Indian Bureau of Mines), Mr. K.S. Sreedhara (General Manager National Aluminum Company Ltd. (NALCO)), Dr. M.C. Patil (General Manager Harti Gold Mines), Mr. Madan Mohanka (CII Representative Mining Equipment (based in Kolkata) / Chairman & MD of Tega Industries (offices in Perth and Kalgoorlie)), Ms Sujatha Singh (High Commissioner of India to Australia).



**MINING CAREERS BURSARY SCHEME**

The Commonwealth Government's Mining Careers Bursary Scheme drew to a close at the end of 2008 after its inception in 2006. The Scheme was established with the aim of encouraging high school students to successfully complete Math's and Science subjects in years 10, 11 and 12, and to consider a future in the mining industry. Participating students attended interactive mining workshops in Kalgoorlie and received the bursary over three years.

The scheme, administered by Curtin WASM in Kalgoorlie, was praised by the students, many of whom commented that the hands-on experience offered on their visits to WASM's Kalgoorlie campus gave them a more accurate understanding of the industry and career choices. Seven students from the Bursary Scheme have enrolled at Curtin University of Technology, in the Faculty of Science and Engineering with 2 of those enrolled at WASM.

**WASM'S NATIONAL GEOGRAPHIC EXPERIENCE**

The WASM Wombats will feature in a three part documentary on Kalgoorlie which will be screened on National Geographic in June this year. The series, produced for the North American market, explores iconic gold mining towns around the world, focusing on these unique locations and communities. The documentary crew filmed the Wombats' first training session for 2009 on location at WASM's Kalgoorlie campus. The Wombats will compete against mining colleges and universities from around the world at the 2009 Mining Games to be held in Montana later this year. In 2010, WASM Kalgoorlie will host this international competition.



**MINING CLUB RAFFLE**

The Mining Club has donated funds to WASM's Kalgoorlie campus, to assist with the purchase and upgrade of equipment for the undergraduate Rock Mechanics labs. The Mining Club ran a raffle last year which raised funds to assist the Western Australian School of Mines along with the Royal Flying Doctor Service. Our thanks to Mike Hebden and all at the Mining Club for their generosity.

## DEPARTMENTAL NEWS

### METALLURGICAL ENGINEERING & EXTRACTIVE METALLURGY

- Two graduates from the Bachelor of Engineering (Minerals Engineering), both graduating with First Class Honours, have won competitive scholarships to assist with their PhD studies. Simon Assmann and David Grimsey were both awarded an Australian Postgraduate Award (APA) with a \$10,000 top up, which makes their scholarships worth \$30,000 each. This is an excellent result for the department's research culture with 2 out of the 9 Minerals Engineering graduates pursuing PhD studies within the department.
- On the 12th December 2008, an informal graduation was held for three International students from Debswana (a company in Botswana). It is expected that two of the three students will be awarded honours degrees.

[www.wasm.curtin.edu.au/courses](http://www.wasm.curtin.edu.au/courses)

### APPLIED GEOLOGY

- Applied Geology researchers led by Alexander Nemchin have dated the formation of the moon's solid surface at 100 million years after the moon was first created by a meteorite strike on Earth. This work has received extensive press coverage worldwide and sheds light on the poorly understood early history of the earth-moon system.
- Welcome to two new research staff: Courtney Gregory, joins us from the Australian National University to work on the application of mineral dating techniques to iron-ore mineralisation in the north Pilbara region, and Martin Danisik, who joins us from the University of Tübingen, Germany, to work on the relationship between tectonics and landscape evolution.
- Welcome to visitors: Dr Kamal Ali (University of Texas at Dallas), and Professor Qian Wang and Dr Wuxian Li (Guangzhou Institute of Geochemistry of the Chinese Academy of Sciences).

[www.geology.curtin.edu.au](http://www.geology.curtin.edu.au)

### EXPLORATION GEOPHYSICS

- Pier Bruno commenced a contract on 27th October 2008. Pier is from Italy and will primarily be associated with the Centre of Excellence in High Definition Geophysics and will be involved with the key research leaders, as well as understanding and assisting with some teaching duties. Pier's research work will be in the area of seismic research and involved in the development and application of algorithms.

[www.geophysics.curtin.edu.au](http://www.geophysics.curtin.edu.au)

### SPATIAL SCIENCES

- Patrick Fitzgerald, a 2007 Curtin honours graduate, was awarded the Spatial Student Award for the undergraduate category at the national Asian-Pacific Spatial Excellence Awards presented recently at the Gala Dinner on 18<sup>th</sup> November in Canberra.
- Department Surveying Coordinator, Tony Snow, has been awarded the Spatial Professional of the Year at the annual Western Australian Spatial Excellence Awards for 2008.

[www.spatial.curtin.edu.au](http://www.spatial.curtin.edu.au)

### MINING ENGINEERING

- Dr Andrew Sowter from the University of Nottingham, Institute of Engineering surveying and Spatial Geodesy (IESSG) visited WASM last July 2008.
- Mr Hani Zahiri, postgraduate (HDR) student, will visit the University of Nottingham, Institute of Engineering surveying and Spatial Geodesy (IESSG), for 3 - 4 months with the intention of further collaboration and developments in the area in InSAR applications in mining (remote monitoring of subsidence). Collaboration with Mechatronics Laboratory on further developments of Vertical Opening Inspection System (VOIS). Researchers involved: Dr Andrew Jarosz, Dr Jonathan Paxman and Mr Jared Le Cras (postgraduate student).
- A draft report on the research project on Evaluation of monorail haulage systems in metalliferous underground mining has been submitted to MERIWA. The project was sponsored by Newmont and the Minerals and Energy Research Institute of Western Australia. A/Prof Emmanuel Chanda was the Chief Investigator.

[www.wasm.curtin.edu.au/courses](http://www.wasm.curtin.edu.au/courses)

### MINERAL ECONOMICS

- Dr. Daniel J. Packey has accepted an offer to join Mineral Economics as associate professor. He is working through the visa process and it is hoped he will be joining the team by early April.
- Applications for four postgraduate award programs for 2009 continue to flow in, however, since the last newsletter there have been 23 acceptances, and there are 15 outstanding offers not yet accepted. Most of these new students are joining the program during the first intensive session in Study Period 2.

[www.wasm.curtin.edu.au/postgraduate/mineral\\_economics.cfm](http://www.wasm.curtin.edu.au/postgraduate/mineral_economics.cfm)



**WESTERN AUSTRALIAN  
SCHOOL OF MINES**

Locked Bag 22

Kalgoorlie WA 6433

Phone: 1800 688 377

Fax: 08 9088 6100

E-mail: [wasm@wasm.curtin.edu.au](mailto:wasm@wasm.curtin.edu.au)

[www.wasm.curtin.edu.au](http://www.wasm.curtin.edu.au)

*If you are interested in any of our stories and would like more information, or if you would like to contribute to a future edition of WASM MATTERS, please email [k.lovatsis@curtin.edu.au](mailto:k.lovatsis@curtin.edu.au)*

**Thanks For Digging Deep**

The Western Australian School of Mines would like to thank the sponsors of the 2008 undergraduate scholarships and bursaries for contributing to the education of our future mining professionals.



**WASM WOMBATS**

The science of mining came alive on 20 August 2008 with the inaugural Rock Festival held at the picturesque and historically significant Mining Hall of Fame. This local event showcased mining related science opportunities to upper primary and secondary schools students as part of Science Week WA. Among the many mining industry volunteers were WASM's own Wombats who helped the keen youngsters access a 'hands on' experience of metallurgy, geology, environmental science, mines rescue and engineering to name a few activities. The exciting prospector's wheel barrow construction challenge and supervision of student groups kept the Wombats busy but it was the demonstration of two of the mining game techniques that really allowed the Wombats to capture the young visitor's attention.

The Rock Festival concluded with a Rock concert by the high schools bands and it is hoped that the annual Rock Festival will contribute in the long term to building the regional work force of the future. The Wombats will be back!

**STAFF NEWS**

*Introducing...*

WASM Marketing Team, **Karyn Lovatsis** (Marketing Coordinator, Bentley) and **Peta Jurgens** (Marketing Officer, Kalgoorlie) joined the WASM team late last year.

**Dr Nimal Subasinghe**, Senior Lecturer and Program Chair of Metallurgy at Murdoch has joined WASM as Associate Professor of Mineral Processing in the Department of Metallurgical Engineering and Extractive Metallurgy.

**Dr Jose Saavedra**, lecturer in Resource Estimation, Mine Planning and Mining Operations Research.

**Dr Dimitre Antonov**, Senior Lecturer in Mine Geotechnical Engineering, Underground Mining Systems and Feasibility (Coal).

**Professor Peter Teunissen**, internationally renowned researcher, who was recently awarded a prestigious Australian Research Council (ARC) Federation Fellowship will lead a team of researchers at Curtin working to improve Australia's capability in utilising a modernised Global Positioning System (GPS) and Global Navigation Satellite Systems (GNSS) by addressing critical theoretical and modelling issues.



**Professor Roger Thompson**, (professor of mining engineering) has undertaken numerous contact research and consulting assignments, centred on surface mining transportation productivity issues and the provision, rehabilitation or improved design and management of mine haul roads for many of the worlds leading surface mining operations.

*Congratulations...*

**Richard Browner**, on his promotion to Associate Professor.

**Bert Veenendaal**, on his promotion to Professor.

**Dr Andrew Jarosz**, Acting Head of Department of Mining Engineering and Mine Surveying.

**Alexander Nemchin**, on his promotion to Associate Professor.