

SIMRAC Research Program for 1999-2000

The research program for 1999-2000 commenced on 1 January 1999 for the gold and platinum rock engineering projects and will commence on 1 April 1999 for all the other projects.

Sub-committees for the Safety in Mines Research Advisory Committee have recently completed final adjudication of submitted research proposals for this year's program, starting in April.

Final program and budget approval were completed by end February and contracts to successful research agencies will be issued by end March 1999. The total funding for the 1999 research program amounts to R 45 million.

PROPOSALS

A total of 125 research proposals were received after publication in the Government Tender Bulletin dated 2 October 1998.

These include 50 proposals on coal research (COL), 37 proposals focused on occupational health research (HEALTH), 25 proposals for gold and platinum engineering research (GAP), 11 other mining research proposals (OTH) and 2 proposals on generic hazards research (GEN). About 20 unsolicited proposals were also received from research agencies.

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Relocation of SIMRAC Project Support Services (SIMPROSS)

SIMRAC Project Support Services relocated on 11 December 1998 to new offices in the Braamfontein Center, Jorissen Street, Braamfontein.

Since its inception in 1992, the Safety in Mines Research Advisory Committee's administrative and secretarial functions were undertaken by Chamber of Mines employees in terms of an agreement between the Government Mining Engineer and the Chamber of Mines.

The search for alternative offices arose during 1996-1997 when the need was expressed to house the SIMRAC Secretariat, as it was then known, on neutral premises to ensure impartiality.

Mr. Paul van der Heever is the research manager for SIMRAC Project Support Services. Mr. Duncan Adams has been appointed rock engineering program manager and Dr. Mary Ross will manage the occupational health program as from 1 April 1999. It is expected that a program manager in the engineering discipline will take up duty by April 1999.

Three committee administrators, Mr. Paul Allen, Ms Elsie Zinsser and Mrs. Susan Griffiths are tasked with coordinating the functions of the SIMRAC sub-committees and are also responsible for the SIMRAC program administration, communications and information systems, respectively.

Mrs. Andrishia van Vuuren is tasked with the financial administration, Mrs. Cheryl Jones provides secretarial administrative support and the receptionist, Mrs. Noleen Woods coordinates meeting facilities and provides postal services.

The SIMPROSS offices are located on the second floor, Braamfontein Centre, 23 Jorissen Street, Braamfontein. Information about SIMRAC and the research outputs can also be found on the Internet at <http://www.simrac.co.za>

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COAL RESEARCH

Proposals for 1999 focused primarily on research in the fields of environmental engineering, emergency response procedures, falls of ground, rock engineering and technology transfer. The program for 1999 includes the following:

- Remote flammable gas detection/measuring device
- Strategies to monitor non-homogenous atmospheres in sealed-off panels
- Road-header environmental control
- Inertisation of sealed coal mine panels using micro organisms
- Manual for best practice emergency response procedures
- Handbook on current rock engineering practices in SA
- Possibility of predicting goafing by micro-seismic monitoring techniques
- Safe mining, face advance and support installation practice in mechanical miner workings
- Assessing and evaluating acoustic techniques to test roof conditions in mines
- In-loco inspection of current roof falls to determine causes and rock engineering aspects of causes of roof falls in coal mines
- The quantification of methane behaviour in CM headings
- A compendium of coal mining research results for the period 1994 -1998.

OCCUPATIONAL HEALTH RESEARCH

Proposals included studies in the fields of TB, HIV and STD's, lung diseases, radiation and UV exposure. Additional funds have been allocated for 3 more projects. The current program for 1999 includes projects on:

- Design of surveys to determine full-shift exposure of personnel in different occupations to respirable dust and radiation in gold, platinum and coal mines
- An identification of hazardous heavy metals in mineral processing plants in SA and a quantification of the risks of exposure
- Proposed rational criteria for routine sampling of respirable dust in SA mines
- The prevalence of chronic obstructive lung disease and pneumoconiosis among active and retired underground coal mine workers
- Clinico-pathological study of pulmonary tuberculosis to reduce both the rate and misdiagnosis and mortality in the mining industry
- Evaluation of the risk of recurrent pulmonary tuberculosis and its impact on the development of chronic obstructive lung disease in SA gold mines
- Radiological diagnosis of tuberculosis in the presence of silicosis.

OTHER MINING RESEARCH

The program for 1999 includes:

- Methods to combat mud rushes in diamond and base metal mines
- Best practice rock engineering handbook for other mines, open pit, quarries and underground
- Stability and support requirements for stope backs in the shallow depth mining of steeply dipping vein/tabular deposits
- A baseline survey to assess health and safety risk-based research needs of smaller, previously uncontrolled mines other than gold, platinum and coal

GENERIC HAZARDS RESEARCH

The program includes:

- A strategy for the transfer of health and safety technologies to the SA mining industry
- A comprehensive ergonomics strategy for the South African Mining Industry (on behalf of MRAC)
- A randomised control study on the effectiveness of annual and 6-monthly screening mass miniature radiography (MMR) for the active case-finding of cardio-pulmonary tuberculosis patients

GOLD AND PLATINUM ENGINEERING RESEARCH

The program for 1999 includes the following:

- Performance requirements for locomotive braking systems
- Risk analysis and assessment of vertical and incline small winder systems and peripheral activities
- Technology transfer of winder rope research
- The identification, investigation and analysis of end-of-wind protection devices for vertical and incline shafts

GOLD AND PLATINUM ROCK ENGINEERING PROGRAM

This program for 1999 commenced in January 1999 at a total budget of R23.3 million.

The contracted research agencies include CSIR Mining Technology; Itasca Africa; ISS International; Anvitech; Steffen, Robertson & Kirsten Consulting; and the Council for Geoscience.

The following projects are currently being undertaken:

- Experimental and theoretical investigations of fundamental processes in mining induced fracturing (two projects)
- Stope gully support and sidings geometry at all depths and at varying dip
- Fundamental aspects of the integration of seismic monitoring with numerical modelling.

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CALENDAR OF EVENTS

MEETINGS*:

SIMRAC: 27 May 1999.

SIMHEALTH: 9 March 1999; 13 April 1999; 11 May 1999; 8 June 1999.

SIMGAP: 18 March 1999; 20 May 1999.

SIMCOM: 30 March 1999; 10 May 1999

SIMPROSS: 5 March 1999; 9 April 1999; 7 May 1999; 4 June 1999

*Subject to change

An informal function was held on 3 March 1999, at the SIMPROSS offices in Braamfontein to welcome new SIMRAC members.

Harold Motaung, the SIMRAC Chairperson thanked Biele van Zyl, Harry Rose, Dirk van Niekerk and Roger Dixon for their support to the SIMRAC system over the past years. He presented gifts of appreciation to Harry Rose, Roger Dixon and Dirk van Niekerk at the function.

(Clockwise from left to right)



SIMRAC **LOGO** COMPETITION

Design a logo for SIMRAC and you stand in line to win a 366 MHz Pentium!

The closing date is 15 May 1999 and the winner will be notified on 28 May 1999.

Mail your designed logo to SIMPROSS at Private Bag X63, Braamfontein, 2017. Include your name, contact address and phone number on the design entry.

Rules:

1. The judges' decision will be final.
2. No correspondence will be entered into.

- The application of routine moment tensor inversion for pillar design
- Analysis of the processes which lead to potentially damaging seismic events
- Support technologies to cater for rockbursts and falls of ground in the immediate face area
- Survey and assessment of support for non-standard stope areas in the mining industry
- Survey and assessment of techniques used to quantify the potential for rock mass instability
- Identification of effective training methods in strata control for underground workers
- Technology transfer and human interface in the gold and platinum sector
- Evaluation of the risk to underground mine personnel due to the rockmass response to continuous mining operations (including Fulco)
- Realistic dynamic testing of stope face area support systems using a specially designed testing facility
- Determine the effect of repeated dynamic loading on tunnel support performance and produce recommendations for improved design criteria
- Relationship between ERR and seismic energy release for different geotechnical areas
- The impact of soft loading conditions on the performance of elongate support elements
- Influence of regional support systems on local area and internal support
- Design parameters for mine pillars
- Identifying of rock mass discontinuities in a cloud of seismic event hypocentres
- A textbook on rock mechanics for tabular hard rock mines
- Numerical modelling of mine workings - additional programs, examples and design criteria
- Preliminary investigation into the zone of support influence and stable span between support units

Updates and Maintenance

- Numerical modelling of mine workings - annual update 1999/2000
- Stope support database
- Software of stope support design *

INVITATION FOR RESEARCH PROPOSALS

The Safety in Mines Research Advisory Committee (SIMRAC) on behalf of the Department Minerals and Energy, invites suitably qualified agencies and/or persons to submit tenders to undertake the following research projects:

Project 1: Silicosis prevalence and risk factors in Black South African Gold Miners.

Project 2: Development of South African lung function reference tables.

(Both are scoped for 12 – 18 man-months)

For details on the submission of proposals please contact: Susan Griffiths (tel) 011 358 9187

(fax) 011 403 1821 sgriffiths@simpross.co.za

For further information please visit our Website at <http://www.simrac.co.za>

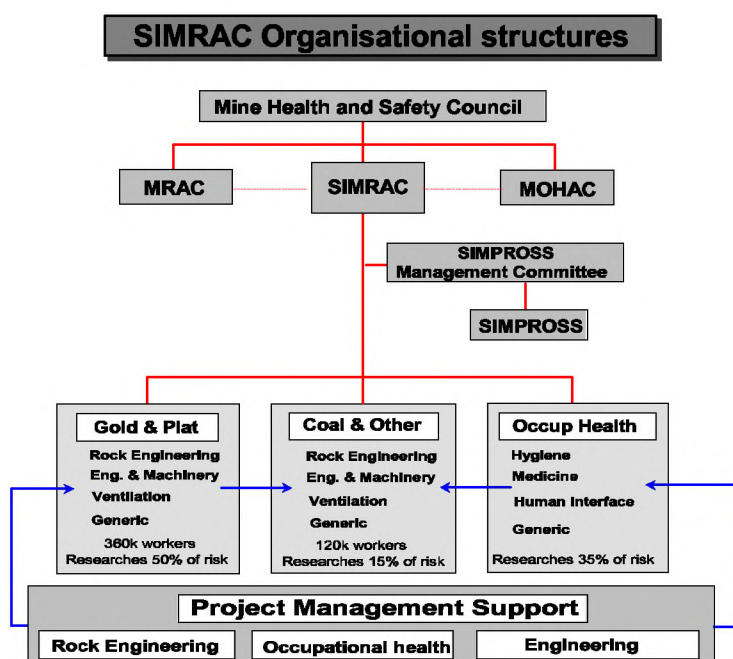
THE SIMRAC ORGANISATION

During 1996, the need for a change to the SIMRAC organisation was identified. Project management and contract awarding processes and functions, as well as procedures to establish technology transfer, communications and information strategies were especially considered in urgent need of improvement.

The new SIMRAC organisation (see Figure) is established on a sectoral basis. Project management support in the occupational health, rock engineering and engineering disciplines will now be provided by SIMPROSS. Programme managers will also be involved with risk analyses, technical input and technological transfer.

Contact Paul van der Heever at pvdheever@simpross.co.za, Duncan Adams at dadams@simpross.co.za or Mary Ross mross@simpross.co.za for more information.

Financial support functions, such as levy invoicing and project payment procedures are now also undertaken by SIMPROSS on behalf of SIMRAC. For further information contact Andrishia van Vuuren at avvuuren@simpross.co.za



FINAL SIMRAC REPORTS

One copy of Final SIMRAC Reports is readily available and free of charge to all contributing mines.

Reports are numbered according to the year in which the research was conducted. Most of the 0-3 series (1993-1996) reports are currently available on the SIMRAC Website for download <http://www.simrac.co.za> or through LOGTEK at <http://logtek.co.za> for distribution.

The 4 series reports should be available by end April 1999 and the 5 series reports should be available by July 1999.

SIMRAC reports are also available to bona fide researchers, students and training facilities. Please contact Cheryl Jones at cjones@simpross.co.za for more information.

PROMOTIONAL LAUNCH

14 April 1999

SIMPROSS, in cooperation with CSIR Mining Technology, will launch the rock engineering numerical modeling handbook developed during the Project **GAP 415**. This will take place at the Miningtek Conference Center, Carlow Road, Auckland Park.

Contact Duncan Adams (011 358 9184), Nick Lightfoot or Carmen Bergman (011 358 0000) for more information.

The SIMRAC Newsletter is produced by SIMPROSS during March, July and November. For further information contact Ms E Zinsser, Private Bag X 63, Braamfontein 2017. Contributions are welcome.

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