

December 2011 Number 30 Number 30

11th Biennial SGA Meeting, Antofagasta, Chile, 26–29 September 2011, Let's Talk Ore Deposits

Eduardo Campos and Andrew Menzies

Departamento de Ciencias Geológicas, Universidad Católica del Norte, Av. Angamos 0610, Antofagasta, Chile

Antofagasta is located on the tropic of Capricorn; in fact, as participants exited the airport they may have noticed a large monument marking the exact position. And yet not one of the participants would have thought that they were in the "tropics". This is because Antofagasta is located within the Atacama Desert region, which is the driest in the world. With a rainfall average of less than 1 mm per year, the organizing committee was able to guarantee clear skies for all during the conference.

Northern Chile hosts some of the most incredible economic geology in the world and Antofagasta is the capital of this rapidly growing region. The area is steeped in mining history, especially for Cu, of which Chile is the number 1 producer in the world. In addition, Chile is the primary producer of Iodine (I), Lithium (Li), and Rhenium (Re) as well as an important producer of many other metals such as Molybdenum (Mo), Gold (Au) and Silver (Ag) and non-metals Boron (B), Selenium (Se) and Sulfur (S). A complete summary of the various mines and production within northern Chile is given by Kojima and Campos in SGA News No. 29, June 2011. Mines such as Chuquicamata and El Teniente are still operating after nearly 100 years of production, and

will continue to do so for the foreseeable future. Following on from the current resource boom many operating mines are undergoing major expansion projects, in some cases planning to more than double current production levels. Also new discoveries are continuously occurring in the region. This has lead to a huge expenditure from mining companies, and is a key component for the economic growth of northern Chile, and the country in general.

Universidad Católica del Norte in Antofagasta has a proud and distinguished history in supporting the mining industry of Chile. Accordingly, the University was an ideal selection to host the first SGA conference convened in the American continent, held between September 26th and 29th, 2011. The 11th SGA Biennial Meeting provided an international forum for the presentation of new research and scientific advances in the study of mineral deposits, especially relevant to the mining and mineral exploration boom occurring in the region. It was also a great opportunity for the exchange of ideas and experiences, and for students, both local and international, to interact with leading scientists, industry professionals and other students in a relaxed and informal atmosphere.

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The editorial committee received over 350 extended abstracts from professionals located all over the world. After careful review and editing, 316 contributions were accepted, with 184 selected for oral presentations and 132 for posters. The conference was arranged in 16 sessions organized in four major themes, namely: 1) Ore Forming Processes; 2) Styles of Mineralization; 3) Ore Deposits in South America; and 4) Applied Geology. A special thanks to the conveners of each session for their unending editorial work given voluntarily that ensured the high quality of presentations at the conference.

The meeting incorporated two plenary sessions that ran on Monday and Thursday morning, comprising distinguished presenters from both academia and industry from all over the world, but also locally, emphasizing the importance and interest of the economic geology of Chile. The following were the ten keynote speakers invited to present at the conference: Noel White (CODES, ARC Centre of Excellence in Ore Deposits, University of Tasmania, Australia), Christoph A. Heinrich (ETH Zurich, Switzerland), Martin Reich (Department of Geology and Andean Geothermal Center of Excellence (CEGA), Universidad de Chile, Chile), Mark Hannington (University of Ottawa, Canada), Stuart Bull (CODES, University of Tasmania, Australia), Sergei Cherkasov (Russian-French Metallogenic

Laboratory, Russia), Sergio Rivera, (Exploraciones Mineras Andinas S.A., Chile), Constantino Mpodozis (Antofagasta Minerals, Chile), Bernd Lehmann, (Mineral Resources, Technical University of Clausthal, Germany), Lluis Fontboté (University of Geneva, Switzerland), Fernando Tornos (IGME, Spain).

In addition to the main conference, four short courses were conducted prior to the meeting. These were based around the following four specific themes: 1) Understanding controls on mineralization: applied structural geology to exploration and mining; 2) IOCG deposits; 3) Gold-rich porphyry systems: from petrogenesis to fluid and exploration strategies; and 4) Skarn deposits. Thanks to the organizers and presenters for running these successful short courses.

Ten field trips were organized as part of the SGA meeting, and this provided a unique opportunity for participants to visit some of the numerous mines and associated geological exposures in northern Chile and the adjoining countries of Bolivia and Argentina. All of the field trips were extremely well supported, with most of them over-subscribed. This included visits to world renowned porphyry and manto-type copper, magnetite-apatite IOCG, and Au-Ag epithermal deposits from Chile, as well as other important mineral deposits and geological sites from Argentina and Bolivia.

The total number of attendees was 627, the largest number of participants for a SGA meeting, of which 27 % were SGA-mem-

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Welcome words at the opening ceremony from Mr. Mario Pereira, Vice-Rector of Research and Technological Development, Universidad Católica del Norte.



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EDITORS
Massimo Chiaradia¹, Chris Heinrich²
¹Department of Mineralogy
University of Geneva
Geneva
SWITZERLAND
²ETH Zurich
SWITZERLAND

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SGA News - Mailbox
Dr. Massimo Chiaradia
Department of Mineralogy
University of Geneva
Rue des Maraîchers 13
CH-1205 Geneva
Fax: +41 22 379 32 10
e-mail: editor-sga-news@e-sga.org
Massimo.Chiaradia@unige.ch

News of the Society

SGA Ordinary Council Meeting, August 25th, 2011 Antofagasta, Chile

J. Pašava (SGA Executive Secretary), Czech Geological Survey, Prague, jan.pasava@geology.cz

F. Tornos welcomed Council Members (G. Beaudoin, F. Bierlein, E. Campos, P. Eilu, H. Frimmel, Ch. Heinrich, D. Huston, A. Cheilletz, K. Kelley, D. Leach, B. Lehmann, J. Pašava, A. Piestrzynski, J. Relvas, A. Vymazalová, P. Weihed and P. Williams) and guest (Ch. Bendall - Publishing Editor, Springer-Earth Sciences) and thanked E. Campos for the organization of the meeting.

Minutes of Previous Council Meeting (April 8, 2011, Madrid, Spain)

The Minutes were unanimously approved.

Reports of Officers on Council and Matters Arising from These Reports

Reports were submitted by the SGA Executive Secretary, Treasurer's Office, Promotion Manager, Editor of SGA News and Regional VP for South America.

After discussion, Council approved the reports and the following motions:

J. Pašava to provide G. Beaudoin and S. Lange with the documents approved by Council for a public (electronic and/or mailing) vote. H. Frimmel to send new SGA flag to each regional vice-president. All Council members are asked to help M. Chiaradia in identifying potential contributors for the main articles in SGA Newsletter.

E. Ferrari will send relevant information on the XVth Peruvian Geological Congress for promotion to M. Chiaradia and G. Beaudoin. F. Tornos will nominate a SGA distinguished lecturer for this meeting.

E. Ferrari will provide more information on the planned field course SGP-SGA on the Central Andes Deposits.

Editorial matters (B. Lehmann, P. Williams)

The report was presented by B. Lehmann and P. Williams. Journal update on the production and marketing of MD was given by Ch. Bendall. The report on editorial matters was presented by P. Williams. Journal production is on time and runs smoothly. The 2010 Impact Factor was 2.06, the highest ever achieved by the journal. MD's mean impact factor for the period 2005-2010 is clearly the highest of any journal in the field of economic geology and this distinction is even more marked in the mean impact factor excluding self-citations (MD-1.444, OGR-1.305, EG-1.033). Council approved the report with great thanks.

Status of SGA Guidebook series and update on revival of SGA Special Publications (R. Foster et al.)

After discussion Council approved the following motions:

E. Campos to encourage SGA 2011 field trip leaders to liaise with R. Foster regarding possible submission of material for the Excursion Guidebook Series.

David Houston to become SGA Publication Manager from 2012, replacing Robert Foster who will finish his term at the end of 2011. John Slack to become Chief Editor, SGA Special Publications.

Status of SGA 2011 in Antofagasta (E. Campos, F. Tornos)

The report was presented by E. Campos. The meeting broke a new

record with around 700 attendees. A detailed report will be included in the upcoming SGA Newsletter. Council greatly appreciated the hard work of the LOC under leadership of E. Campos and thanked all sponsors, keynote speaker, session chairs and participants for their active involvement that resulted in a very successful international mineral deposit conference.

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Status of planning for the 12th SGA Biennial Meeting to be held in 2013 in Uppsala (P. Weihed)

The oral information was presented by P. Weihed. The meeting "Mineral Deposit Research for a High-Tech World" (August 12-15, 2013, Uppsala, Sweden) will be organized by the Swedish Geological Survey in collaboration with Nordic countries. More info is available at www.akademikonferens.uu.se/sga2013.

Report of Nominating Committee for SGA 2011 ballot (F. Tornos)

The report was given by F. Tornos and J. Pašava informed about Council vote on suggested officers by the Nominating Committee. Council accepted the report with great thanks.

Strategic targets for SGA development in 2012-2013 (F. Tornos, P. Weihed, G. Beaudoin et al.)

F. Tornos presented the report, suggesting the following Society priorities for 2012-2013:

To increase and keep membership – making it more attractive To increase SGA visibility South America, Asia and Africa

To setup and run successfully Conference Field Trips

To set up the cooperation with regional societies

To setup the SGA Educational Foundation

Proposal for creation of SGA Educational Foundation (D. Leach)

The report was presented by D. Leach. Council approved creation of an SGA Educational Foundation and also a Nominating Committee (Leach-chair, Groves, Bierlein, Weihed) to come up with a list of suggested officers by the end of November 2011.

Suggested changes in SGA Constitution (F. Tornos and J. Pašava)

J. Pašava summarized progress on this issue and Council approved that only the changes related to adaptation of SGA Constitution to a Swiss law will be submitted for a membership vote in upcoming ballot. Council approved the report with great thanks.

Progress report on membership drive from the last SGA Council meeting (P. Eilu, J. Pašava, A. Vymazalová)

The report was presented by P. Eilu. In 2010 SGA had 986 paying members and to date our membership grew to as many as 1163. Unfortunately, the loss of members is similar to the gain of new members. Council approved the report with great thanks and recommended the following actions:

S. Lange to prepare a list of people who didn't renew SGA membership and send it to all Council members by April 5, 2012 so that individual Council members and Regional Vice-Presidents could

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contact individual people.

S. Lange to email reminders to all who didn't renew SGA membership at least 3 times a year (every 4 months).

Council also approved to publish on a regular basis a list of "lost members" in SGA News and also SGA website.

Status of development of SGA Student and Young Scientist net- Any other business work – Reports from Prague and Baltic Chapters (A. Vymazalová and J. Relvas)

a successful SGA student conference held in Prague in April 2011(sga.cuni.cz/conference.html). SGA Short Course organized by SGA students from Halle in July 2011 (www.petrology.de/ studenten/pge2011), on the foundation of a new Student Chapter in Novosibirsk which will organize the Biennial Young Scientists Conference in Novosibirsk in June 2012 (sibconf.igm.nsc.ru) and also about plans of the Baltic Student Chapter that will organize a 2011. student meeting followed by a three days field trip in December 2011 (www.sga.agh.edu.pl).

Past activities

- SGA Student Conference (April 15-18, 2011 Prague) K. Schloeglova, A. Vymazalová et al.
- GAC-MAC-SEG-SGA (May 25-27, 2011 Ottawa) C. Andrew, contribution to mineral exploration (D. Groves)
- Colombia) L. Fontboté et al. (SGA presented by R. Goldfarb)
- Short Course on PGE Geochemistry by Prof. M. Tredaux (July 15-18, 2011 Halle, Germany) – organized by SGA Student Chapter in Halle - A. Ehser et al.
- Mineral Deposit sessions within the Theme 11 "Earth Resources: Ores" at the Goldschmidt 2011 Conference (August 14-19, 2011 Prague) - J. Pašava et al.

Council greatly appreciated efforts of all organizing teams who contributed to successful SGA promotion.

Future activities

- Geological Society of Bolivia Anniversary Meeting (October 3-4, 2011 La Paz, Bolivia) – B. Lehmann – one of keynote speakers
- The 6th International Siberian Early Career GeoScientists Conference - (June 9-23, 2012 Novosibirsk, Russia) - organized by a Call for SGA 2015 Meeting newly forming SGA Novosibirsk Chapter
- PDAC (March 4-7, 2012 Toronto, Canada) C. Andrew and E. Ferrari
- SGA workshop on "Ore deposits in ophiolites" (May 16-22 Trabzon, Turkey) – I. Uysal et al.
- 34th IGC (August 5-10, 2012 Brisbane, Australia) 2 SGA sessions, 1 SGA co-sponsored session and SGA Council Meeting

Requests for sponsorship

- Baltic Student Chapter Meeting (December 6-9, 2011 Cracow, Poland) – requested EUR 660 to cover part of expenses for 15 participants + additional 200 EUR to support air fare of the Finnish Chapter Representative – M. Sosnicka et al. – approved
- by J. Gutzmer) SGA sponsorship (student's participation) at days field trip. The precise venue will be announced in due time. the moment no funding requested - approved
- Session "Trace elements in oxides minerals from ore deposits...."

(within Theme 9-Earth's Resources: Origin, Evolution, Sustainable Exploitation and Remediation of the 22nd Goldschmidt Conference, June 24-29, 2012 Montreal, Canada) - Brenan et al. - requested EUR 2000 (1000 for keynotes and 1000 for 4 students) – approved EUR 1000 for 4 SGA students.

Status of preparation of SGA-IRD-UNESCO-IUGS-SEG Metallogeny Courses in Africa - update (H. Frimmel, J. Pašava)

The report was presented by A. Vymazalová. She reported on Hartwig Frimmel and Jan Pašava reported on this initiative. The course "Precious and Not-so-precious metals in Old Cratons" is in preparation and if all goes well it should take place in Ouagadougou, Burkina Faso on 12 - 18 March 2012.

Insurance for SGA (update by H. Frimmel)

A contract on corporate third party insurance for SGA has been finalized with Zürich and is in effect since beginning of September

SGA award for recognition of special services to the society - update (H. Frimmel)

H. Frimmel apologized for not being able to make any progress on this issue and promised to prepare a proposal for the next SGA Council meeting.

SGA-"Company" Award for a geologist who has made a major

J. Pašava presented a proposal of D. Groves. Council approved the • UNESCO-SEG-SGA Metallogeny Course (June 2011, Bogotá, concept to present this award at the Biennial Meetings and asked D. Groves to proceed with this initiative.

Specification of items that should be available at SGA booths (H.

The guidelines for running SGA booths were presented by H. Frimmel and should be carefully followed by all RVP's and those who organize SGA promotional activities, including SGA booths.

SGA lecturers (F. Tornos et al.)

Council approved the proposal of F. Tornos for the SGA Keynote Speaker Program, which provides opportunities for SGA student members to invite a SGA Keynote Speaker to present a lecture at their university. The SGA Keynote Speaker should be visiting the region at the time of the proposed keynote talk. Sponsorship requests must be sent to the SGA Executive Secretary, with a justification of the funds requested for the speaker. See SGA website for more info (www.e-sga.org).

Council approved to release a call for proposals for the organization of the SGA 2015 with a deadline for submission of bids on February 29, 2012. G. Beaudoin to publish call at SGA website with attachment of Guidelines for the preparation of proposals. The same information is also to be published in SGA News.

Chinese version of SGA membership application form offering payment in local currency

Council greatly appreciated efforts of both Chinese SGA Council members and approved the Chinese version of SGA membership application form offering payment in local currency.

Date and Place of the Next Council Meeting

The next Council meeting will take place in Uppsala, Sweden on • Freiberg Short Courses in Economic Geology (organized annually April 17-19, 2012 with the meeting on April 17 followed by a two

News of the SGA General Assembly

August 27th, 2011 Antofagasta, Chile

Prepared by J. Pašava (SGA Executive Secretary), Czech Geological Survey, Prague, jan.pasava@geology.cz

The General Assembly was opened by the SGA President, to David Leach (the former Council member, Vice-President, President, Presiden F. Tornos at 17.15 and closed at 18.00.

1. Report of the President (F. Tornos)

After presentation of the agenda by J. Pašava (SGA Executive Secretary), F. Tornos (SGA President) delivered the SGA activity report that covered the period from the previous SGA General Assembly (August 19, 2009, Townsville, Australia) to date. The report was approved by the General Assembly.

2. Report of the Treasurer (D. Leach)

On behalf of David Leach (SGA Treasurer), Jan Pašava presented the Financial Report for the fiscal year of 2010 which evidences that the Society is financially healthy. The report was approved by the General Assembly.

3. Report of the Executive Secretary on past and future SGA activities (J. Pašava)

Jan Pašava summarized major past (September 2009-August 2011) and future SGA activities.

Erik Jonsson from the Swedish Geological Survey informed about the status of the preparation of the 12th SGA Biennial Meeting. which will be held in Uppsala, Sweden in August 12-15, 2013. More information is available at at www.akademikonferens.uu.se/

4. Presentation of the list of officers nominated for SGA 2011 ballot (J. Pašava)

On behalf of F. Tornos - chair of the Nomination Committee, J. Pašava presented a list of officers who were nominated and finally approved by SGA Council for SGA 2011 ballot.

Jan Pašava informed about a planned release of a call for proposals for the 13th SGA Biennial Meeting – 2015.

He also used this opportunity to thank on behalf of SGA Council

dent and present Treasurer) and Fernando Tornos (former Council member, Vice-President and current President) whose term expires at the end of 2012, for their exceptionally hard and dedicated longtime work, all on a volunteer basis for SGA. Their dedication surely helped SGA to become a truly international, financially healthy and attractive professional society. We wish them both only all the best for their professional career and private life.

In Prague, October 21st, 2011

Reviewed and accepted by: F. Tornos (SGA President), D. Leach (SGA Treasurer), P. Weihed (SGA Vice-President) and H. Frimmel (SGA Promotion Manager)

APPLICATIONS to SGA for meeting sponsorship must be submitted to Jan Pašava, SGA Executive Secretary, on appropriate forms available at the SGA home page on Internet: www.e-

Other requests will be not considered.

Your suggestions and ideas for any topic of interest to SGA are welcome!

They can be addressed to any Council member or to

Dr. Jan Pašava

SGA Executive Secretary

Czech Geological Survey Tel.: +420 2 5108 5506 Klárov 131/3 Fax: +420 2 518 18 748 CZ-118 21 Prague 1 e-mail: jan.pasava@geology.cz Czech Republic

REDUCED PRICES FOR SGA PROCEEDINGS

BEIJING (2005) - Mao and Bierlein (eds) - Mineral Deposit Research: Meeting the Global Challenge, 2 Volume, over 1600 pages incl. CD-ROM

NOW available for 30 EUR plus shipping costs

DUBLIN (2007) - Andrew et al. (eds): Digging Deeper, 2 Volumes, over 1600 pages incl. CD-ROM NOW available for 50 EUR plus shipping costs

Please contact Sabine Lange, Rixenweg 2, D-24222 Schwentinental- OT Klausdorf, GERMANY, phone +49-431-7993303, fax +49-431-7993420, email: sabine-klausdorf@t-online.de

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SGA COUNCIL 2011 President Vice-President P. Weihed (Sweden) Executive Secretary J. Pasava (Czech Republic) 0 D. Leach (USA) Promotion Manager H. Frimmel (Germany) **Chief Editors** B. Lehmann (Germany) - MD ⋖ European Office P. Williams (Australia) - MD ш Z Z Australian Office M Chiaradia C Heinrich (Switzerland) - SGA News 0 G. Beaudoin (Canada) - SGA website Student Represent. A. Vymazalová (Czech Rep.) **Regional Vice-Presidents** ✓ Asia Z. Hou (China) Z Australia/Oceania D. Huston (Australia) O Europe A. Cheilletz (France) Middle East H. Harbi (Saudi Arabia) 0 North Africa S. Bouhlel (Tunisia) U North America A. Conly (Canada) South Africa J. Kabete (Tanzania) South America E. Ferrari (Peru) Councillors: term ending on December 31, 2011 F Bierlein (Australia) K. Kelley (USA) 0 P. Williams (Australia) R. Foster (UK/Turkey) R. Presnell† (USA) V. Shatov (Russia) Councillors: term ending on December 31, 2013 S. Roberts (U.K.) S. Diakov (Canada, East Asia) P. Eilu (Finland) A. Piestrzynski (Poland) F. Hongrui (China) J. Relvas (Portugal) R. Smith (Australia, China) E. Campos (Chile) Ex officio Members SEG S. Enders (USA) Executive Director B. G. Hoal (USA)

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S. Cherkasov (Russia)

Secretary General

LIST OF NEW SGA MEMBERS (April 30, 2011-October 27, 2011)

90 Regular and 47 Student Members applied for membership (30/04/2011-27/10/2011)

REGULAR MEMBERS

Mr. Corrie CHAMBERLAIN Mineral IRL Patagonia s.a. Av. Cordoba 1111, Piso 4 1055 Buenos Aires ARGENTINA

Dr. Thomas ANGERER University of Western Australia 23 Princess Road Crawley WA 6009 AUSTRALIA Mr. Abdul ARBI PO Box 529 Cloncurry 4824 AUSTRALIA

Miss Rachel Juliet BACKUS 25 Araluen Street Morley, 6062 WA AUSTRALIA

Mr. Finn BARRETI 72 Lawler Street South Perth, WA 6151 AUSTRALIA

Dr. Adam Brian BATH Earth Sciences and Resource Engineering Australia Resources Research Centre 26 Dick Perry Avenue Kensington WA 6151 AUSTRALIA

Dr. Graham BEGG Minerals Targeting International PL Suite 26, Level 3, 17 Prowse St West Perth Dr. Stuart BULL CODES Private Bag 126, Hobart Tasmania 7001 AUSTRALIA

Mr. Clayton DAVYS 54 Ward Street WA 6430 AUSTRALIA

Mr. Hamish FREEMAN 10Foster St Parkside, SA, 5063 AUSTRALIA

Mr. Charles FUNK 220 Corrigans Lane Darraweit Guim VIC 3756 AUSTRALIA

Mr. Arnold GETZ PO Box 365 Pymble NSW 2073 AUSTRALIA

Mr. Lyndon HOPKINS PO Box 1304 Canning bridge WA 6153 AUSTRALIA

Mr. Vladimir LISIBSIN Department of Primary Industries Level 9, 55 Collins Street, GPO Box 4440 Melbourne, Victoria 3001 AUSTRALIA

6005 AUSTRALIA

Mr. Gary POWELL 2/42 John Street North Fremantle 6159, WA AUSTRALIA

Dr. Roger SKIRROW Geoscience Australia GPO Box 318 ACT 2605 AUSTRALIA

Dr. Sebastian STAUDE Lighting Nickel 3/31 Swan View Terrace 6051 Maylands, WA AUSTRALIA

Dr. Keith WAKINS 38 Branksome Gardens City Beach Western Australia 6015 AUSTRALIA

Mr. Vinicius GOMEZ RODRIGUES Major Santos Silva 40 - Embare Santos /SP 11025 -100 BRAZIL

Mr. Geraldo GUIMARAES VIERA DOS SANTOS R. Cabo Verde, 313/402, Cruzeiro Belo Horizonte-MG, 30.310-260 BRAZIL

Mr. Diego Huete VERDUGO Alameda dos Horizontes 202 Cond. Pasargada Nova Lima, MG 34000-000 BRAZIL

Mr. Quinn COOPER McLeod Williams Capital Corp. 1500-409 Granville St Vancouver, BC V6C 1T2 CANADA

Dr. Louise CORRIVEAU Natural Resources Canada Geological Survey of Canada GSC-Quebec 490 de la Cournne Quebec, QC G1K 9A9 CANADA

Dr. Sarah DARE DSA, Université du Quebec à Chicoutimi 555 Boul. de l'Université Chicoutimi, PQ, G7H 2B1 CANADA

Mr. Alain HOPE 212 Cathedrale Rimouski, Quebec, G5L 552 CANADA

Mr. Trott McLEAN PO Box 431 Strathclair, Manitoba CANADA

Mr. Richard MURPHY President and CEO Ginguro Exploration Inc 101-957 Cambrian Heights Drive Sudbury, Ontario, P3C 5S5 CANADA

Mr. Jaime OSORIO 855 Thurlow St, Apt 1, Buzzer 1, Vancouver, BC, V6E 1W1 CANADA

Ms Ryota SEKINE Sumitomo Metal Mining America Inc. No 901-700 West Pender Street Vancouver, BC, V6C 1G8 CANADA

Mr. Ivo Cristian AHUMADA CORTES Altos del Mar 1147 Casa 39 Antofagasta CHILE

Mr. Giancarlo DAROCH FROLA Minera Lejano Oeste s.a. Vitacura 2771, Oficina 1303 Las Condes, Santiago CHILE

Mr. Jose GALLARDO Jose Luis Daire 3605 La Serena CHILE

Ms. Jacqueline HARRIS PARADA Pasaje Atalaya No 1696 La Serena CHILE

Mr. Jose Luis JARA MONTENEGRO Colo-Colo 252 Departamento P303 Concepcion CHILE

Mr. Alejandro KAKARIEKA Av. PDTE. Errazuriz No 4383 dept. 1409 Las Condes Santiago CHILE

Mr. José Agustin PEREZ Bergen 290 dep 113 7560717 Las Condes, Santiago CHILE

Mr. Alvaro PEREZ FLORES Terrazas de Susucay No 23 Huasco, III region CHILE

Mr. Marcelo Omar RAMIREZ MELLADO Avenida Andres Billo 2687, Piso 4 Las Condes, Santiago

Mr. Sergio RIVERA Apoquindo 4775 Of. 602 Las Londes, Santiago CHILE

Ms. Laura Elena ROJAS ARAYA Los Carrera 950 Copiapo CHILE

Mr. Osvaldo ROJAS VIVANCO Minera Michilla CHILE

Prof. Yongqing CHEN China University of Geosciences School of Earth and Resources 29 Xueyuan Road Beijing 100083 CHINA

Mr. Julian CEBALLOS TABARES Carrera 33 No 10S D 44 La Enca Marizales (Caldas) COLOMBIA

Mr. Cesar Augusto GARCIA BERNAL Carrera 15 No 4-61, Apartimento 705C Edificio Oceania, Pereira, Risaralda COLOMBIA

Ms. Rebeca KAZES GOMEZ Calle 59 No 40 A 14 Apto 302 Los Angeles, Medellin, Antioquia COLOM-

Mr. Julian Andres LOPEZ ISARA Carrera 49 No 73-04 Casa B-14 Bucaramanga COLOMBIA

Mr. Luis Alfonso OSORIO GOMEZ Calle 105 e No 34a-31 La Enea - Manizoles, Caldas COLOMBIA

Mr. Diego Alejandro SABOGAL ROJAS Calle 145 A No 13A-51 Apt 103 Bogota D.C. COLOMBIA

Mr. Jose Alexander SANCHEZ PUERTA Carrera 32A No 10A-40 Barrio Cen- Ms. Bridget BALL P.O.Box 382, Ruth NV 89319 USA tenario Manizales Caldas COLOMBIA

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Ms. Dayanara Mariela HINOJOSA ESPINOZA Leonidas Plaza N24-318 Edificio Plaza Dep 602 Quito ECUADOR

Mr. Oscar RIOS Ginguro Exploration Inc Ciudalela del Seguro Social Manzana 5 Villa 11 Machala, El Oro ECUADOR

Dr. Carl-Diedrich Sattler Leibniz str. 10 D-38678 Clausthal-Zellerfeld GER-MANY

Prof. Dr. Kumkum GUPTA Flat No. CM -2, Dudehar Appartment Plot No. 38, Shalimar Garden Extension 1 Sahibabad - 201005 Uttar Pardesh INDIA

Dr. Kenzo SANEMATSU Central 7, 1-1-1 Higashi, Tsukuba Ibaraki 305-8567 IAPAN

Mr. Santiago OLAVIDE TELLO Dalias 131 Colonia Torreon Jardin Torreon Coahuila 27200 MEXICO

Dr. Abdulrasaq Abubakar GARBA Nigerian Geological Survey Agency 31, Shettima Monguno Crescent, P.M.B 616 Abuja-FCT NIGERIA

Mr. Florinio LAZO 65 Visitation Street, Sacred Heart Village Novaliches, Quezon City 1123 PHILIPPINES

Mr. Evgeny FOMICHEV Moscow region 142 184 MIS Down House 11, flat 72 RUSSIA

Mr. Julio ADCO Calle Colombia 213 IV Etapa Miguel Grau Paucarpata, Arequipa PERU

Mr. Delfor CACERES Calle Victoria 102 Urbanizacion Buenos Aires Uchumayo, Arequipa PERU

Mr. Vistor Hugo CAJACHAGUA ZEVALLOS Jr. Tacaymano 2179-2181 Urb.

Mangomarca San Juan de Lurigancho Lima PERU Mr. Jose Luis CORZO SOLDEVILLA Av. Bolivar 181 Chosica, Lima PERU

Ms. Shirley Rosa CUSTODIO PAZOF Cl. Enrique Palacios No 264 Dpto 202 Lima 18 PERU

Mr. Gilberto Moises HUAMAN ESPINOZA Rosendo Leder 1148 San Juan de Miraflores Liam 29 PERU

Mr. Jorge HUAMAN ROJAS Indoamerica Mz e lote 8 San Juan de Miraflores Lima 29 PERU

Dr. Marcelo LAVADO Votorantim Metais - Cajamarquilla S.A. Av. Paz Soldán 170 Oficina 501 – A San Isidro Lima 27 PERU

Mr. Gustavo MACASSI Av. La Mar 1414 Dpto. 2001 Pueblo Libre, Lima 21

Ms. Maria del Carmen MUNEZ LIZARVE Av. San Miguel de Piura No 212 Urb. San Juan de Dios - Huntez Arequipa PERU

Mr. Carlos ORÉ SANCHEZ Av. Los Ruisenores 765, Block C-104 Lima 43 PERU

Mr. Celso Lizardo PALACIOS CARRILLO Jr. de los Virreyes 161 Urb. Las Lomas La Molina Lima 12 PERU

Mr. Fernando PANCA Mz. F1, Lote 09, Urb. San Camilo, Villa Maria del Tri-

unfo Lima 35 PERU Mrs. Rita Magali PINTO TEAL Newmont Peru SRL Calle 41 No 894 Lima

27 PERU Mr. Alan PONCE Hochschild Mining PLC. Calle La Colonia 180 Urb. El vivero

de Monterrico - Surco Lima 33 PERU Mr. Jaime SUAREZ LLERENA Antonio de Mendoza 188 Dpto 201 La Vir-

reyna, Lima 33 PERU

Mr. Erick TORRES ARCE Avenida Buenvista 662, Departamento 601 Disteito San Borja, Lima 41 PERU

Mr. Jimmy Alexander TORRES GIRALDO Calle 57 D No 10F-15 Carola

Mr. Jimmy Cesar VALDERRAMA ZAVALA Calle Ramon Castilla No 100 Cayma Arequipa PERU

Mr. Carlos VILLANES Av. Primavera 834 Surco, Lima 33 PERU

Mrs. Antonia CEPEDAL HERNANDEZ Departamento de Geologia Ciarias de Velasco s/n 33005 Oviedo, Asturias SPAIN

Mrs. Maria Mercedes FUERTES FUENTE Departamento de geologia Universidad de Oviedo C/ Jesus Arias de Velasco S/N Oviedo 33005 SPAIN

Dr. Kavin HOGDAHL Dept. Earth Sciences Uppsala University Villavagen 16 SE – 752 36 Uppsala SWEDEN

Dr. Katarina PARSSON NILSSON The Geological Survey of Sweden PO Box 670 SE-75128 Uppsala SWEDEN

Dr. Iain PITCARIRN Dept. Of Geological Sciences Stockholm University SE-10691 Stockholm SWEDEN

Mr. Johan SODERHIELM Timmervagen 60B 92133 Lycksele SWEDEN Mr. John MUNTEAN Nevada Bureau of Mines and Geology, MS 178 Reno,

NV, 89557-0178 USA

Mr. Juan Ruiz PARRAGA 3415 Rauscher Drive Reno, Nevada 89503 USA

Mr. Joseph WILKINS 740 W. Las Lomitas Rd. Tucson, AZ 85704 USA

STUDENT MEMBERS

Ms. Maria Cecilia GALLARD ESQUIREL Los Pinos 609, Porrero de los Funes, San Luis 5701 ARGENTINA

SGA **news**

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Mr. Sebastian GRIGNOLA Munecas 569 9B, San Miguel de Tucuman Tucuman 4000 ARGENTINA

Mr. Facundo MARTINEZ 873 Asuncion, San Miguel de Tucuman Tucuman 4000 ARGENTINA

Mr. Nicholas JANSEN CODES, University of Tasmania ARC Centre of Excellence in Ore Deposits Private Bag 126 Hobart Tasmania 7001 AUSTRALIA

Mr. Matthew KANAKIS 17 Mulloway Court Sorrento, WA, 6020 AUSTRALIA Mr. Luis A. PARRA University of Western Australia M006, 35 Stirling Highway Crawley WA 6009 AUSTRALIA

Miss Daribeth Villagre QUESADA Langgasse 7, Leoben AUSTRIA

Mr. Gustavo Henrique COELHO de MĚLO Geosciences Institute, University of Campinas - UNICAMP Theophilo de Camatgo Street 229, Cidade Universitaria 2 13083-620 Campinas - SP BRAZIL

Mr. Marco Antonio DELINARDO da SILVA Santa Isabel avenue 1125 M1, Barao Geraldo district Campinas SP, 13084-643 BRAZIL

Mr. Fabio Henrique FRAZAO MAGALHAES Padre Nestor de Alencar No 6636 apt. 203 Candeias, Jaboatao dos Guararapes (PE) BRAZIL

Ms Carolina Penteado NATIVIDADE MORETO Rua Dr. Mario Nucci, 49 Cidade Universitaria Campinas, Sao Paulo 13083290 BRAZIL

Ms Flavia Cristina SILVEIRA BRAGA Street Gemini, number 46, Cidade Verde Betim, Minas Gerais State, CEP 32649-108 BRAZIL

Mr. Breno SOUZA MARTINS Camargo Guarniere No 168 Belo Horizonte Minas Gerais 30570-590 BRAZIL

Ms Carmen Juli SUCAPUCA GOYZUETA Av Professor Mello de Morzes 1235 Bloco A Apto 10 Butanta - USP, cidade de Sao Paolo SP CEP 05508 030 BRAZIL

Mr. Christopher CLARKE 1449 Lexington St., Ottawa K2C 1S1 Ontario CANADA

Mr. Dean COURAGE 89 Terra Nova Rd. St. Johns, NL, A1B 1E8 CANADA

Mr. Bastien FRESIZ 270 rue Saint Jean G1R 1P1 Quebec, QC CANADA Mr. Dominique GENNA UQAC-DSA - Unite des Sciences de la Terre 555, Boul. de l'Universite Chicoutimi, QC, G7H 2B1 CANADA

Mr. Oscar Matias BENAVENTE ZOLEZZI Los Cipreses 0694 Puente Alto, Santiago, 8221485 CHILE

Ms Sandra Juliana LASSO ORDONEZ Chacabuco 1140, Dpto 2010 Concepcion CHILE

Mr. Pablo SANCHEZ ALFARO Plaza Ercilla 803 Santiago, 8370450 CHILE

Mr. Rongqing ZHANG School of Earth Science and Engeneering, Nanjing University 22 Hankou Road, Gulou District Nanjing 210093, Jiangsu Prov-

Ms Yenny Paola CASALLAS VELOZA Calle 26 No 38 A 37 Ap 606 Bogota COLOMBIA

Ms Claudia Ximena CORREA ROJAS Carrera 28 No 46-84 apto 102 Bogota COLOMBIA

Mr. Jimmy FERNANDEZ LAMUS Carrera 30 - CII 45 Universidad Nacional de Colombia Bogota D.C. 144 90 COLOMBIA

Mr. Jonathan Alexander FRANCO HEMPENIOPS Carrera 12 No 169-50 int 181 Bogota COLOMBIA

Mr. Leonardo SANTACRUZ REYES Carrera 21 No 2-39 Bogota COLOMBIA

Ms Sonja BRAUER Technical University of Clausthal Adolph-Roemer-Strasse 2a 38678 Clausthal-Zellerfeld GERMANY

Ms Ayse ERTEKIN Technical University of Clausthal Adolph-Roemer-Strasse 2a 38678 Clausthal-Zellerfeld GERMANY

Mr. Bernd FRICKE Technical University of Clausthal Adolph-Roemer-Strasse 2a 38678 Clausthal-Zellerfeld GERMANY Mr. Stefan HALDER Technical University of Clausthal Adolph-Roemer-Strasse

2a38678 Clausthal-Zellerfeld GERMANY

Mr. Elisante MSHIU Kleine Schlossgasse 3 06108 Halle (Saale) GERMANY Mr. Wilhelm NIKONOW Technical University of Clausthal Adolph-Roemer-

Strasse 2a38678 Clausthal-Zellerfeld GERMANY Mr. Felix RÖMER Am Galgensberg 4 38678 Clausthal-Zellerfeld GERMANY

Mr. Benjamin SCHÖN Technical University of Clausthal Adolph-Roemer-Strasse 2a38678 Clausthal-Zellerfeld GERMANY

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Mr. Jan WEI Sorge Strasse 1038618 Clausthal - Zellerfeld GERMANY Mr. Arne WEISSMANN Technical University of Clausthal Adolph-Roemer-Stra sse 2a 38678 Clausthal-Zellerfeld GERMANY

Ms. Laetitia WINDHUIS Technical University of ClausthalAdolph-Roemer-Strass e 2a 38678 Clausthal-Zellerfeld GERMANY

Mr. Dario Emmanuer SOLANO ROJAS Aganguco No 3 col. Lomas de Sortes, C.P. 62210 Estato de Morelos, Municipio Cuernavaca MEXICO

Miss Kristiina KAARIAINEN Avaruuskatu 4 B 22 02210 Espoo FINLAND Mr. Jasper TAINIO Tilanhoitajankaari 6A 6 00790 Helsinki FINLAND

Miss Amaia CASTELLANO CALVO Departamento de Cristalografia y Mineralogia Universitat de Geologia c/ Marti i Frangues CP 08028 Barcelona SPAIN

Mr. Juan Antonio FIGUEROA CISTERNA Departamento de mineralogia y petrologia Faculdad de ciencias, Universidad de Granada Avenida Fuentenueva s/n 18002 Granada SPAIN

Mr. Nicolas SAINTILAN 13, Rue des Maraichers 1205 Geneve SWITZER-

Mr. Oguzhan GEMREK Karadeniz Technical University Jeodezi Mühendisliği Bölümü Oda 118, 61080 Trabzon TURKEY

Mr. Reed MALIN The University of Texas at Austin Center for International and Invironmental Policy 1 University Station, C1100 Austin TX 787 12

>>> page 2 11th Biennial SGA Meeting, Antofagasta, Chile, 26-29 September 2011, Let's Talk Ore Depositss

Dr. Noel White from CODES, ARC Centre of Excellence in Ore Deposits, University of Tasmania.

Hobart, Australia. First keynote speaker on the plenary Session after the opening ceremony, "The

minerals industry, universities and researchers: different needs, mutual dependence"

bers, and 13 % SGA-students, whilst 55 % were non-SGA members and 5 % non-SGA students. Conference attendees came from 34 different countries; approximately 50 % from South America, 21 % from Europe, 16 % from North America, 10 % from Oceania, 3 % from Asia and 1 % from Africa. The organizing committee is extremely proud of these numbers, especially given that this is the first SGA conference held in South America and that many participants had to travel far and at significant expense to attend.

Following on from the successful Townsville meeting in 2009, the organizing committee continued with the idea of presenting each participant with an electronic copy of all the extended abstracts, whilst printed copies had to be purchased separately, thus enabling costs to be reduced. Similarly the Mattew McGloin and Carolina Moreto for

SGA general assembly and awards ceremony was allocated its own session at the conclusion of the conference, thus allowing for all conference delegates to attend and participate in SGA matters.

Continuing with the SGA goal of encouraging students to participate in SGA activities, and to reward excellence in their scientific work, a certificate of recognition plus US\$300 was presented to the Best Oral and Poster Presentations. Based on the quality and scientific merit of student's presentations, the Conference Student Committee (constituted by Drs. Fernando Barra, Alain Cheilletz, Jorge Relvas, and Anna Vymazalová) decided to award four students for oral presentations and two students for poster presentations. The recipients were as follows: Yongjun Lu, Flavia C. Braga,

field trips a success. Our commitment as organizing committee was to make this meeting an enjoyable experience for all attendees, and to contribute to the understanding of mineral deposits. We hope that this was achieved. Finally, we would like to express our gratitude to the SGA council for their support in the organization of the event, in particular Fernando Tornos (SGA President), David Leach (SGA Treasurer), Jan Pasava (SGA Secretary) and Eugenio Ferrari (Vice-President South America).

I, Eduardo Campos, as chairman of the SGA 2011 organizing committee would especially like to thank my colleagues who helped with the local running of this event, namely: María S. Bembow (Budget committee), Andres Veloso (Students committee), Shoji Kojima (Field Trip committee), Fernando Barra (Editorial committee), Martin Reich (Editorial committee), Rodrigo Gonzalez (Advertising committee), Has-

Best Student Oral presentation awards, and Therese Bejgarn and Edward Spencer for best Student Poster Presentations.

Company Sponsors played an important role funding the SGA 2011 organization and enabling financial assistance to be provided to more than 50 students to attend the conference. Minera Escondida and Antofagasta Minerals Group contributed as Diamond sponsors; Platinum sponsors were Compañía Minera Doña Ines de Collahuasi, Barrick Zaldivar, BHP-BILLITON Pampa Norte, Votorantim Metais, and Teck, whereas Yamana Gold, Atacama Pacific, Guiñez Ingeniería Ltda, El Abra, MMG and AngloGold Ashanti provided support as Gold sponsors. Furthermore the local support and organization for the various field trips that incorporated mine visits was greatly appreciated and helped make the

Gerhard Wilke (Logistics), Andrew Menzies (Logistics), Thomas Bissig (Courses committee) and Bernhard Dold (Courses committee).

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Of course, it must not be forgotten that the conference exists for its members and would not be successful without your support. We look forward to seeing you all

again at the 12th Biennial Meeting in Uppsala, Sweden.

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Dr. Jan Pašava (SGA Executive Secretary) presenting the SGA-Newmont Gold Medal 2011 to David I. Groves during the opening ceremony



Welcome words from Dr. Fernando Tornos (SGA President) during the opening ceremony.

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Participants of the FT-8 post conference field trip "Copper and Gold Deposits in the Antofagasta Area" at the bottom of the pit, Guanaco High Sulfidation Gold Epithermal Deposit, 180 km South of Antofagasta (Photo by Eduardo Campos, UCN).



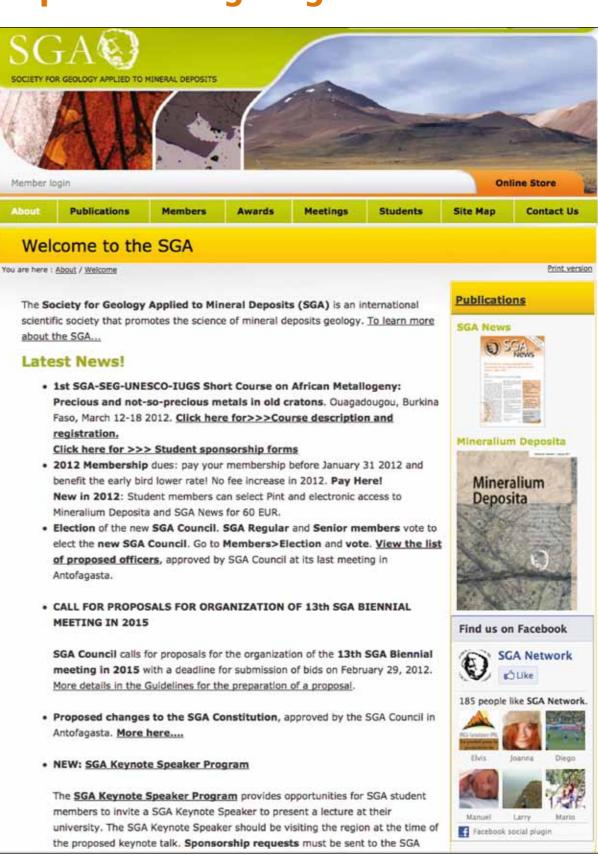
Participants of the FT-2 post conference field trip "Active volcanoes and geothermal fields" on the rim of the Lascar volcano crater (5500 m asl) (Photo by Massimo Chiaradia, University of Geneva.

The SGA website

Georges Beaudoin, Chief Editor SGA website

Université Laval, Québec, Canada, georges.beaudoin@ggl.ulaval.ca

http://www.e-sga.org



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SGA Awards at the 11th Biennial Meeting in Antofagasta

Jan Pašava (SGA Executive Secretay, Czech Geological Survey, Prague, email: jan.pasava@geology.cz)

In order to increase a visibility of SGA Biennial meeting for the presentation. Awards, the Awards Ceremony was a part of Opening Ceremony at the 11th SGA Biennial Meeting in Antofagasta. The following SGA awards were presented during the Opening Ceremony, which was held on September 26, 2011 from 8.30 to 9.15:

The SGA-Newmont Gold Medal

The SGA-NEWMONT Gold Medal was established in 2006 to be awarded biannually primarily in recognition of a full career in performance of "unusually original work in the mineral deposit sector, which shall be broadly interpreted to encompass major contributions to (1) the science through research and (2) the development of mineral resources through mine geology, exploration and discovery. The award consists of a citation, pure gold medal, and travel to the

The first recipient of this most prestigious award was Dr. Zdeněk JOHAN (France) at the 9th SGA Biennial Meeting in Dublin, Ireland (2007).

The second recipient of the SGA-Newmont Gold Medal became Dr. Shunso ISHI-HARA (Japan) at the 10th SGA Biennial Meeting in Townsville, Australia (2009).

The third recipient of thie SGA-Newmont Gold Medal became Dr. David GRO-**VES** who was nominated by J. Pašava and finally selected by SGA Council out of six pre-selected candidates. After introduction and explanation of the history of the medal by J. Pašava, the medal was presented by F. Tornos (SGA President) and G. Simon (Vice-President, Exploration Newmont). Due to apology from D. Groves who couldn't accept the award personally, the medal was presented to F. Bierlein who then presented on behalf of D. Groves the acceptance speech. The following citation was prepared and delivered by J. Pašava (Czech Geological Survey):

Mr. Chairman, Ladies and Gentlemen,

I am honoured to present citation of Dr. David GROVES - the third recipient of the SGA-NEWMONT GOLD MEDAL. I have known him more than 20 years. Dr. Groves graduated from the University of Tasmania in 1963 and received his Ph.D. from the same university in 1968. He served as economic geologist in the Geological Survey of Tasmania until 1970 and in 1971 he became a lecturer at the University of Western Australia (UWA). In 1990 he became Professor and Director of Economic Geology Research Centres, UWA and in 2006 Emeritus Professor UWA and Consultant to Mineral Exploration and Investment Industries.



F. Bierlein receiving the SGA-Newmont gold medal on behalf of D. Groves, recipient of the award for 2011, from Grigore Simon (Newmont) in the presence of SGA Executive Secretary J. Pasava (farmost left) and SGA President F. Tornos.

He has authored and/or co-authored 415 papers including 255 in referred journals: 6 in Nature; 15 in Geology; numerous in Mineralium Deposita and Economic Geology, reaching average 280 Science Citations per year over past 15 years. He has also written or edited sixteen books.

Dr. Groves is a world leader in research

on ore deposits, particularly orogenic gold and IOCG deposits, and global metallogeny. His landmark contributions established fundamental cornerstones to modern economic geology that changed thinking on what controls giant mineral deposits and which tectonic environments are favourable for specific metals. He has also been a pioneer in the area of GIS-based prospectivity analysis. He has made a major contribution in student development, supervising or co-supervising 118 BSc Honours, 53 MSc and 92 PhD students, many of whom have made major contributions to academia or mineral exploration. He has been President of the Geological Society of Australia, SEG, and has represented Australia on numerous international committees and editorial boards. He served as SGA Vice-President (2006-2007) and President (2008-2009). He has been convenor of several international conferences and been invited as a keynote speaker at numerous others. Dr. Groves's contributions to science have been recognized by many countries and organizations. He has won 11 awards or medals from Australia, Canada, South Africa, UK and USA, including the Silver Medal and Penrose Gold Medal of SEG, the Geological Association of Canada Medal, the Haddon-King Medal of the Australian Academy of Sciences, and the Clarke and Kelvin Medals of the Royal Societies of New South Wales and Western Australia, respectively. In 2010 David Groves became Honorary DSc UWA.

More recently, he has been part of an exploration team responsible for the discovery of a significant orogenic gold deposit at Magambazi, Tanzania, and a gold-rich VHMS deposit in the Tigray Province of Ethiopia. He has also developed a workshop on mineral deposit evaluation for brokers and investors in North America.

Many of us have been fortunate to be able to enjoy Dr. Groves's scientific results and his friendly temperament. Although now retired, he is very active and remains extremely influential in world science and industry.

On behalf of SGA I would like to congratulate Dr. Groves to this success and wish him many more achievements in the geosciences, and good luck in his private life.

delivered on behalf of D. Groves by F.

Mr. President, Dear colleagues, Ladies and Gentlemen,

It is sad for me that, due to some medical problems, I cannot accept this prestigious medal personally at SGA 2011, as I have had significant personal associations with both SGA and Newmont. However, it is fortunate for me that Burgermeister Frank Bierlein (with periscope retracted) has agreed to accept the SGA-Newmont Gold Medal on my behalf, as we have had such a successful research collaboration in my last few years as an academic at the University of Western Australia (UWA).

As for most recipients of life-time awards, any success that I have had is due largely to highly successful research and training partnerships forged with great geologists such as Neil Phillips, John Ridley, Mark Barley, Nick Rock, Rob Kerrich, Frank Bierlein, and particularly Rich Goldfarb. I have also been particularly fortunate to mentor postgraduate students from all over the world and to see so many of them achieve successful careers in industry, government and academia. I am very proud that three of the remaining economic geology research centres in the world are directed by Mike Lesher, Craig Hart and Cam McCuaig, all UWA Centre postgraduates. Greetings to all the UWA graduates who are here today. Mentoring you and others has been the most rewarding part of my academic life. Papers come and go, but great students are the future of our profession.

I am also happy to see that the Centre for Exploration Targeting endures as a legacy for all the teamwork that saw successive Centres in Economic Geology flourish at UWA. Since leaving academia to try my luck at applying accumulated knowledge to exploration targeting, my good fortune has continued through involvement with my son, Iain, in recent exploration discoveries in Tanzania and Ethiopia under the direction of Andrew Lee Smith of Canaco Resources.

I would like to thank sincerely SGA and Newmont for this beautiful, individual

design Medal and inscription, originally envisaged by Gregor Borg of SGA, and hope that I can continue to contribute to economic geology, perhaps through a minor association with a future discovery of The following acceptance speech was a giant Precambrian porphyry-epithermal system in Brasil!

> I have been privileged to have been President of both SGA and SEG and am happy to see continued collaboration at meetings such as this. Both societies achieve so much for our discipline internationally, and it never ceases to amaze me how SGA, with Jan Pasava constantly and selflessly at the helm, manages to achieve so much with such a relatively small monetary base and budget. This meeting in Chile is an excellent example of their international outreach, and rightfully emphasises the growing importance of South America on the economic geology scene.

> Thank you again for this Medal. It is wonderful to receive such recognition by SGA.

The SGA-Barrick Young Scientist

The former SGA Young Scientist Award (established in 2003) was approved to be changed to the SGA-Barrick Young Scientist Award from 2007. The award is offered biannually to a young scientist who has contributed significantly to the understanding of mineral deposits. It consists of a citation, certificate, EUR 1500 and travel expenses to the place of the Biennial Meeting for the presentation. The award is given for contributions to economic geology published before the author's 35th birthday. The recipient must be less than 40 years of age on January 1 of the year in which the award is presented.

The first recipient of this award was Dr. Noreen Vielreicher (Australia) – 2003

The second recipient of this award was Dr. Alexandre Raphael Cabral (Brazil) -

The third recipient of this award was Dr. Gilles Levresse (France) - 2007

The fourth recipient of this award was Dr. David Holwell (UK) - 2009

The fifth recipient of the SGA-Barrick Young Scientist Award became Dr. Kalin KOUZMANOV (Bulgaria) who was nominated by G. Beaudoin and finally selected by SGA Council out of seven candidates. After introduction and explanation of the history of the award by J. Pašava, citation was read by G. Beaudoin (SGA EC Member), who jointly with F. Tornos (SGA President) and D. King (Barrick Gold Representative), presented the award. Acceptance speech was delivered by Dr. K. Kouzmanov (Bulgaria).

The following citation was prepared and presented by G. Beaudoin:

Kalin I. Kouzmanov is an expert mineralogist and economic geologist with outstanding geological skills. He is a leading scientist in the use of infrared light to study fluid inclusions in opaque minerals. In addition to determination of the PVTX properties of inclusion fluids by microthermometry, K.I. Kouzmanov is investigating the chemical composition of inclusion fluids by LA-ICP-MS to understand the composition and chemical evolution of hydrothermal fluids trapped in the ore sulfides. These mineralogy and microthermometry studies are supported by

detailed stable and radiogenic isotope geochemistry to constrain the sources and evolution of hydrothermal fluids forming mineral deposits. His work shows that cogenetic quartz and sulphides contain inclusion fluids with different compositions in high sulfidation epithermal veins overprinting porphyry copper mineralization at Rosia Poieni (Kouzmanov et al. 2010). This work has far reaching implications about the current assumption that transparent gangue minerals contain inclusion fluids that deposited the cogentic sulphides. It is currently the best study demonstrating formation of low-salinity aqueous fluids in high-sulfidation Au-Cu veins by cooling and contraction of magmatic vapour. Kouzmanov's studies on high-sulfidation epithermal deposits have shifted the paradigm of the source of low-salinity aqueous fluids transporting metals, a lasting and most significant contribution to science.

In addition to this outstanding and cutting-edge research, K.I. Kouzmanov is an excellent teacher, who shares with his students his enthusiasm and his systematic and detailed methodological approach to scientific research. The quality of the student training is shown by their published work (ex Wallier et al., 2006). His initiative and leadership, and his capacity to undertake highly innovative research are essential qualities for a young researcher.

Let me quote Lluis Fonboté's support letter: "Dr. Kalin Kouzmanov is probably one of the most promising European young economic geologists. In fact, the expression "promising" is no adequate, as in spite of his young age, his achievements in terms of published results, ability to develop original new research lines, and teaching are already remarkable." Likewise K. I. Kouzmanov is an outstanding and most worthy candidate for the SGA-Barrick Young Scientist Award.

The following acceptance speech was delivered by K. Kouzmanov:

Mr. President, dear colleagues, ladies and gentlemen:

It is a great pleasure for me to receive the SGA-Barrick award today, and I would like to thank the SGA Council and Barrick for this unexpected and prestigious honor. Special thanks also to Georges Beaudoin for his very kind words of introduction.

This award is an immense encouragement - I take it as a good sign that I am on the right path in my research; and it is



The SGA-Barrick Young Scientist 2011 recipient (Kalin Kouzmanov, middle) together with SGA President F. Tornos (farmost left), SGA Executive Secretary J. Pašava (left of K. Kouzmanov), Darren King (Barrick, right of K. Kouzmanov) and G. Beaudoin (right) who nominated K. Kouzmanov for the award



Hirosayu Murukami, winner of the SGA Awards for the Best paper in Mineralium Deposita 2010.

certainly a huge additional motivation for my present and future research activities in the field of hydrothermal geochemistry and architecture of magmatic-hydrothermal systems.

Today, I will take the opportunity to thank the key people who have guided and influenced me during my development as a geologist. After finishing a Master's degree at the University of Sofia, I took my first steps as geologist at the Geological Institute in Sofia, where my mentor was the lateIvan Bonev. He was a particularly inspirational scientist, and I am deeply grateful to Ivan for the general vision that he was able to pass on to me about mineralogy and geologic processes.

Two years later when I started a PhD, my advisors were Claire Ramboz and Kamen Bogdanov, who introduced me to porphyryrelated systems, and were constantly supportive, by providing constructive feedback and insights whenever they were needed. Beginning in 2000 I benefited greatly from the GEODE program of the European Science Foundation, part of which was the ABCD-project as an international collaboration between Western and East-European

research institutions to study ore deposits and their geotectonic context and evolution in Eastern Europe. The program gave the opportunity to many young people from Bulgaria and Romania to conduct research in some top laboratories in western countries such as Austria, France, the UK, and Switzerland. For me, it was the first opportunity to work with Swiss geologists – I spent three months in Geneva at the invitation of Robert Moritz to do whole-rock analyses and radiogenic isotope geochemistry on some epithermal and porphyry systems in Bulgaria.

In the frame of the GEODE program I also met Chris Heinrich for the first time, and a year later I started a post-doc in his "Fluids and Ore Deposits" Group at ETH Zurich. Chris is an extremely enthusiastic and motivating post-doc advisor, and together with Thomas Pettke, Werner Halter, Thomas Driesner, Albrecht von Quadt, Irena Peytcheva, and a number of PhD and MSc students he created a highly stimulating environment at ETH during those years.

I next had the opportunity to move to the French-speaking part of Switzerland and joined another very active Ore Deposits group led by Lluís Fontboté at the University of Geneva as a post-doctoral researcher. In my present position I have had the chance to work closely with Lluís, Robert Moritz, Massimo Chiaradia, and the group of Urs Schaltegger on different projects in the Andes and Eastern Europe and to benefit from their large expertise in ore deposits geology and geochemistry. I was also lucky to interact with a number of excellent MSc and PhD students, most of whom are currently employed in the mining industry around the world.

Finally, I would like to thank my wife, Martina, for her support, patience, and most importantly – for the best achievement I have ever had in my life – our family.

Again, I sincerely thank the SGA for this award. I am indebted to Georges Beaudoin and Robert Moritz for nominating me. Many thanks to all the other people who have supported me during the years and who have provided me with knowledge, motivation, and guidance.

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The SGA Award for the Best Paper in Mineralium Deposita

The award (established in 1999) is presented every two years at the Society Biennial Meetings and consists of a citation, certificate, EUR 1500 and travel expenses for the first author associated with the receipt of the award.

Based on the recommendation of Chief Editors, MD, and after some discussion Council approved that the paper by Hiroyasu Murukami, Seo JH, Heinrich CA (2010): The relation between Cu/Au ratio and formation depth of porphyry-style Cu-Au±Mo deposits, published in Mineralium Deposita vol. 45, pp. 11-21, will receive the award.

After introduction by J. Pašava, history and citation by B. Lehmann and P. Williams, the award was presented by B. Lehmann and P. Williams (Chief Editors, Mineralium Deposita) and F. Tornos (SGA President) and J. Pašava (SGA Executive Secretary). The acceptance speech was presented by H. Murukami.

The SGA Awards for the Best Student Oral and Poster Presentation

In order to encourage students to participate in the SGA activities and to reward excellence in their scientific work, the Best Oral and Poster Presentations given by students were awarded.

A Conference Student Committee constituted by Fernando Barra, Alain Cheilletz, Jorge Relvas, and Anna Vymazalová based on high quality and scientific merit of the student's presentations decided to attribute the awards to four students for oral presentations and two students for poster presentatons (each of them received a certificate and 300 USD).

The following students were awarded

The best student oral presentations:

Yongjun Lu: New types of porphyry Cu (Au-Mo) mineral systems of Eastern Tibetan Plareau in western Yunna: compositional characteristics, sources, and exploration implications for continental collision metallogeny implications for continental.

Flavia C. Braga: The BIF-bearing sequence from Morro Escuro Ridge, Santa Maria de Itabira, Minas Gerais, Brazil: main petrographic and geochemical characteristics.

Mattew McGloin: Mid-crustal anorogenic granite magmatism at Mt Isa: a spatial and geochemical study, and potential links to Mesoproterozoic U-REE deposits.

Carolina Moreto: In situ LA-ICPMS U-Pb zircon dating of the host rocks of the Sossego and Bacaba iron oxide-copper-gold deposits, Carajas Mineral Province, Brazil.

The best student poster presentations:

Therese Bejgarn: The Algtrask Au+-Cu deposit, northern Sweden: a Palaeoprote-rozoic porphyry-related hydrothermal system?

Edward Spencer: Molybdenum transposr and mineralization at the El Teniente Cu-Mo porphyry deposit, Chile.

On behalf of SGA, we wish to congratulate once more all awardees!



Winners of the best student oral and poster presentations at the SGA Meeting in Antofagasta together with the Conference Student Committee members, Fernando Barra, Alain Cheilletz, Jorge Relvas, and Anna Vymazalová. From left to right: A. Cheilletz, Carolina Moreto, Mattew McGloin, A. Vymazolova, J. Relvas, Edward Spencer, P. Weihed on behalf of Therese Bejgarn, F. Barra.

News from the Siberian SGA Student Chapter and Young Scientist Network Group

Pavel Gavryushkin and Irina Tretiakova

Sobolev Institute of Geology and Mineralogy SB RAS, Novosibirsk, Russia

In March 2011, Dr. Pavel N. Gavryushkin and PhD Student Irina G. Tretiakova came up with an idea to create a SGA student chapter in Siberian region. The Siberian SGA Student and Young Scientist Network Group was officially set up in spring 2011 and in autumn it had done the first step. This step was the organization of the geological excursion for students of geologygeophysics department Novosibirsk State University. There were as many as about thirty people wishing to go on the excursion to the Kamnerechensk open pit.

The open pit is located in the outskirts of Novosibirsk, and can be reached by suburb trains with several changes. The open pit was put into operation in 1953 when stones were in demand for the construction of the Novosibirsk Hydro. At present the open pit belongs to the Russian Railway company, and the gravel production is used for building and repairing railroads.

The open pit strips a dolerite body which has a nearly isometric geometry and is prominent in the local relief as a low hill (one of the Bugotak Hills, a natural reserve locality in the Novosibirsk region).

Our interest was especially in hydrothermal vein mineralization associated with basalt. Veins rich in large crystals and druses (up to 30 cm) of quartz, transparent albite, calcite, and zeolite, or fibrous segregations of palygorskite and sepiolite have been often found in the quarry while mining. Opaque minerals in the veins are occasionally small (~2x2 cm) irregular crystals of pyrite and chalcopyrite.

We got down to work after a 7-km walk from the railway station and a quick snack. The Bugotak open pit we examined occupies an area about one square kilometer, and inspecting all fresh cuts normally takes almost a full day. Before the field study began, the students had listened to a brief introductory lecture. It was useful because

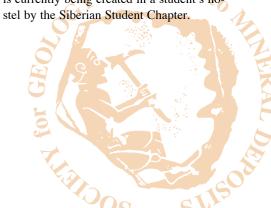


Figure 1: A brief introductory lecture for students.

they were visiting such an open pit for the first time, though having been to a practical training trip to the Altai.

Quite a large albite druse covered with palygorskite-sepiolite fibers and a few albite-twinned crystals were a principal gain of the first half of the day. After a lunch in the surrounding birch wood, we came across a quartz vein wherefrom several very nice crystals were recovered. Those were special crystals as they had a fine coating of second-generation quartz on the faces.

Having worked till night on the vein, we took a small rest and then went off home with, in our backpacks, numerous samples to be placed in the Crystal Museum which is currently being created in a student's hostel by the Siberian Student Chapter.



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Figure 2. Siberian Student Chapter members with students.



Figure 3. Quartz crystals recovered from the vein.

>>> FORTHCOMING EVENTS <<<

* marks a new entry

2012

January 7-9

International conference of the Geology of the Arabian Plate and the Oman Mountains, Muscat, Oman - Contact: http://www.geoman2012.com

*January 13-17

DMG Short course 'High-pressure experimental techniques and applications to the Earth's interior', Bayreuth, Germany - Contact: http://www.bgi.uni-bayreuth.de/ShortCourse2012/

*February 20-24

IAVCEI - IAS — 4th International Maar Conference: a multidisciplinary congress on monogenetic volcanism, Auckland, New Zealand - Contact: http://www.iavcei.org/IAVCEI.htm

*February 26-29

ASEG2102 — Australian Scociety of Exploration Geophysicists 22nd International Confernce and Exhibition, Brisbane, Australia. Sesqui-annual meeting of the ASEG. Conference is evenly split between minerals and petroleum geophysics with 5 concurrent sessions presenting Australian and international papers. This year we will have 18 keynote presenters and one stream dedicated to seismic interpreters. There will be workshops before and after the conference suited to geophysicists of all experience - Contact: http://www.aseg2012.com.au; e-mail: aseg2012@arinex.com.au

*March 4-7

EMPG XI — 14th Experimental Mineralogy, Petrology and Geochemistry Conference, Kiel, Germany - Contact: http://www.empg2012.unikiel.de/

*March 12-18

SGA-SEG-UNESCO-IUGS Short Course on African Metallogeny - Contact: Hartwig Frimmel: hartwig.frimmel@uni-wuerzburg.de

*March 19-23

LPSC 2012 — 43rd Lunar and Planetary Science Conference, The Woodlands, United States - Contact: http://www.lpi.usra.edu/meetings/lpsc2011/?view=general

*April 22-27

European Geosciences Union General Assembly, Vienna, Austria. The EGU General Assembly 2012 will bring together geoscientists from all over the world into one meeting covering all disciplines of the Earth, Planetary and Space Sciences - Contact: http://meetings.copernicus.org/egu2012/home.html

*May 16-22

Field Workshop: Ophiolite and related ore and industrial minerals, Karadeniz Technical University, Trabzon, Turkey - Contact: http://workshop.sukrubulut.com/

*May 26-June 2

ALTA 2012 — NICKEL-COBALT-COPPER, URANIUM & GOLD, Perth, Western Australia - Contact: http://www.altamet.com.au/next_conference.htm; phone: +61 3 5472 4688

*May 27-29

Geological Association of Canada (GAC) / Mineralogical Association of Canada (MAC) Joint Annual Meeting, St. John's, Newfoundland and Labrador, Canada - Contact: http://stjohns2012.ca/

*June 9-23

The 6th International Siberian Early Career GeoScientists Conference, Novosibirsk, Russia. The conference will be hosted by the V.S. Sobolev Institute of Geology and Mineralogy (IGM) and the A.A. Trofimuk Institute of Petroleum Geology and Geophysics (IPGG), Siberian Branch of Russian Academy of Sciences (SB RAS). Undergraduates, Ph.D. students and early career scientists are welcome to participate in the conference. The scientific programme of the Conference includes a number of short courses and workshops, and a plenary session as well as oral and poster sessions. The plenary session will consist of lecture presented by eminent scientists from Russia and other countries - Contact: http:// sibconf.igm.nsc.ru/index.php?lang=english

*June 17-23

SGEM2012 — 12th International Geoconference, Albena, Bulgaria - Contact: http://www.sgem.org/

June 24-29

GOLDSCHMIDT 2012, Montréal, Canada. Building on the foundations of 21 previous Goldschmidt conferences (the largest geochemistry conference in the world), the 22nd Goldschmidt in Montréal is sure to contain great science, fantastic socials and the chance to network and socialise with many groups and individuals working in the field - Contact: http://www.goldschmidt2012.org/

*July 15-20

GORDON RESEARCH CONFERENCE ON GEOCHEMISTRY OF MINERAL DEPOSITS, Proctor Academy, Andover, New Hampshire, USA. For the last 50 years, Gordon conferences have presented cutting-edge research and provoked spirited discussion on the origins of

and exploration for mineral deposits. Held every three to four years, it has served as one of the premier think-tank meetings in economic geology. More so than other meetings, Gordon conferences provide a unique opportunity for scientists from academia, industry, and government, as well as students, from all over the world to meet and interact with recognized experts in an informal environment to examine new data and ideas and discuss future directions of research concerning ore deposits. Attendance is generally limited to 125-150 participants, providing an intimate setting. The 2012 Gordon Research Conference on the Geochemistry of Mineral Deposits continues this tradition. Sessions, which will be held in the morning and evening, include: 1.Frontiers in Economic Geology Research

- 2.Metallogenic Provinces and Epochs: The Role of Upper Mantle/Lower Crust Inheritance
- 3.Sediment Hosted Copper Systems: Focus on the African Copper Belt
- 4.Magmas, Fluids and Metals
- 5.Iron Oxide-Copper-Gold-Systems
- 6.Active Submarine and Subaerial Hydrothermal
- 7.Distal Expressions of Large Gold and Copper Systems
- 8.Dynamics of Ore Systems
- 9.Rare Earth Element Systems

In addition to attracting leaders and rising stars to present talks and lead discussions in the sessions listed above, we will be encouraging all attendees, especially students and junior scientists, to participate by presenting their work in poster format. Also, as a vehicle to encourage student engagement, the session leaders will convene informal afternoon meetings of mainly students, who will be tasked to summarize the sessions and identify new avenues of research. They will then informally report to entire group prior to the talks of that evening's session. Much of the expected funding being raised will be earmarked specifically to assist students and junior scientists with their travel and registration expenses. The planned program, including discussion leaders, speakers, and titles of talks is being continually updated online at http://www.grc.org/ programs.aspx?year=2012&program=geochem. The 2012 Gordon Conference organizers are John Muntean (munteanj@unr.edu), the chair, Jon Hronsky (jon.hronsky@wesminllc.com), industry co-chair, and Robert Moritz (Robert. Moritz@unige.ch), the vice-chair. For those who wish to attend, please fill out the application form on the aforementioned website. Please do not hesitate to contact us with any questions.

August 5-10

34th International Geological Congress, Brisbane, Queensland, Australia. Contact: phone: (+61 62499556); weblink: http://www.ga.gov.au/igc2012

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*August 11-12

ACROFI IV - Asian Current Research On Fluid Inclusions, Brisbane, Australia. The conference provides an international forum for exchange of the latest research results and ideas between geoscientists from academia, government and industry from Asian countries and other nations. It focuses on studies of fluid- and silicate-melt inclusions and their significance in understanding mineralising processes - Contact: http://acrofiiv.heroku.com/

September 9-13

1st European Mineralogical Conference, Frankfurt/Main, Germany - Contact: weblink: http:// emc2012.uni-frankfurt.de/

*November 4-7

2012 Geological Society of America (GSA) Annual Meeting, Charlotte, North Carolina, United

States - Contact: http://www.geosociety.org/ meetings/2012/

*November 12-13

Precious Metals '12, Cape Town, South Afriuca -Contact: http://www.min-eng.com/preciousmet-

December 10-14

AGU 2012 Fall Meeting, San Francisco, California, United States. The Fall Meeting provides an opportunity for researchers, teachers, students, and consultants to present and review the latest issues affecting the Earth, the planets, and their environments in space - Contact: AGU Meetings Department 2000 Florida Avenue, NW Washington DC USA 20009; phone: (202-777-7333); email: meetinginfo@agu.org; weblink: http:// www.agu.org/meetings/

*July 20-24

IAVCEI 2013 General Assembly: Forecasting Volcanic Activity, Kagoshima, Japan - Contact: http://www.iavcei2013.com/

December 15-19

AGU 2013 Fall Meeting, San Francisco, California, United States. Contact: AGU Meetings Department 2000 Florida Avenue, NW Washington DC USA 20009; weblink: http://www.agu. org/meetings/; AGU Meetings Department 2000 Florida Avenue, NW Washington D.C. U.S.A. 20009: Phone: (+1-202-777-7333)

News from the SGA Student Network: Short Course on Platinum-Group Elements (PGE) Geochemistry

Anja Ehser, Manuela Frotzscher & Sabine Walther

Martin-Luther-University Halle-Wittenberg

From July 15th to 17th 2011, the Institute of Geosciences of the Martin-Luther-University (MLU) Halle-Wittenberg hosted a short course on the geochemistry of Platinum-Group Elements (PGE), which was held by one of the world's leading experts in Platinum-Group Elements, Prof. Marian Tredoux. The short course was organized by the SGA students of the MLU and was intended to also intensify the relation and cooperation between the local, national and international SGA students, members and associates. Altogether, 26 participants from Germany (University of Halle, Jacobs University Bremen, Technical University of Clausthal, University of Würzburg) and Switzerland (University of Geneva) attended the short course.

After the arrival and registration of all participants in the morning of the first day, the lectures started with a brief overview on the history, physical properties and chemical characteristics of the PGE, followed by the main element associations and analytical methods. An exercise on how to normalize a PGE plot by hand gave the opportunity to apply theory to practice. The

day came to an end with the ice breaker party where everyone enjoyed the evening with homemade food, prepared by the SGA students of the MLU, and discussed the first impressions of the short course at a glass

The second day continued with lectures on the main Platinum-Group Minerals (PGM), as well as the partitioning of PGE. Two exercises on the use of PGE isotopes as a geochronometer again added to the theory. The occurrence of PGE in different geological settings and at the Bushveld complex in particular was the topic of the second half of the day. In this context, it was also possible to take a look at hand specimen and thin sections from the Upper Critical Zone at the Eastern Limb of the Bushveld complex that are currently studied by one of the SGA students of the MLU. On the second evening of the short course, participants had the opportunity to take part in a guided tour to the "Hausmannstürme" of Halle, two historical towers that give a unique view over the city centre, before everyone got together in the pleasant atmosphere of a local brewery.

The third and final day continued with case studies on PGE mineralization such as the Great Dyke deposit in Zimbabwe and the Waterberg deposit in South Africa, as well as with discussions on the conditions of formation of the different deposits. The short course ended with the use of the PGE as unique indicator for extra-terrestrial input at the K/T boundary. The type locality for this boundary at Stevns Klint, Denmark, was visited by some of the SGA students of the MLU three weeks after the short course.

All in all, the positive reactions of the participants and the smooth run of the different events made the short course a big success. At this place, we want to thank Prof. Marian Tredoux, who despite her poor health the days before held great lectures and practical exercises that gave all participants an understanding of the Platinum-Group Elements Geochemistry. We also thank Prof. Gregor Borg, head of the petrology and economic geology research group, for the initiation of the short course and the invitation of Prof. Marian Tredoux to our University. Special thanks also go to Dr. Thomas Degen who supported us a

lot with his logistical help, as well as the that enabled the successful realization of MLU and SGA for their financial support the short course.

We hope to welcome everyone again in



Participants to the course

Mineral deposits of the Fennoscandian shield: a 22 day-long journey through **Sweden and Finland**

Katerina Schloglova and David Dolejs

Institute of Petrology and Structural Geology, Charles University, Albertov 6, 128 43 Praha 2, Czech Republic

Current mineral exploration and mining activities in Scandinavia make northern Europe an ideal target for geological trip with main focus on economic geology and ore deposits. This provides a wonderful opportunity to become familiar with various geodynamic settings and mineralization styles in Archean and Proterozoic which are generally lacking in Western, Central, and Eastern Europe. We have organized a three week-long field trip for six undergraduate and graduate students from the Charles University in Prague that was led by Dr. David Dolejs.

The Baltic Shield represents portion of the Fennosarmatian craton in Northern and Eastern Europe. The Shield has formed during four orogenies: Kola-Karelian, Sveco-Fennian, and Gothian, and it was partly reworked by the Sveco-Norwegian convergence. The oldest Kola-Karelian orogen dated at 2.0-1.9 Ga represents an assembly of five Archaean terranes. In contrast, in the south, the Sveco-Fennian orogen contains no Archaean relics, and it consists of a new crust (<2.0 Ga) that underwent accretion and collision during 2.0-1.8 Ga, and it was reworked by crustal melting at 1.8-1.5 Ga.

The ensuing magmatic activity, deformation and fluid flow caused formation of major ore deposits and were a direct consequence of geodynamic processes during Paleoproterozoic continental amalgamation and crustal growth. The cratons host several gold mineralization styles and diamonds, in settings comparable to those in the Cannadian Shield, South Africa, and Western Australia. In addition, numerous orogenic gold deposits followed main metamorphic events and reflecting younging directions of the orogens. Various types of ore deposits are formed by contribution of mafic

The trip included more than 4500 km long loop encircling the Baltic Sea and Bottnian Bay, from southern Sweden (Trelleborg) through polar circle of central Lapland to southern Finland (Helsinki). Our itinerary started in the Smaland province (Southren Sweden) where we visited Norra Kärr, a

peralkaline intrusive complex composed of nepheline syenites. This Proterozoic agpaitic complex is currently explored for REE mineralization. After satisfaction of our demand for specific rock types by additional stop in Halsjöberg quarry formerly exploited for nice white and blue kyaniterutile quartzites - intercalations in biotite gneisses representing a hallmark of the Värmland province known under the industrial name "Caribbean blue", we proceeded our trip to the Bergslagen district in Central Sweden. The Berglagen district, well known for historical and current mining of zinc, lead, silver, copper and iron resources, is situated in a Paleoproterozoic felsic magmatic province in the Baltic Shield. We participated in an underground tour at Falu copper mine (Great Copper Mountain) which produced two thirds of Europe's consumption for over a millenium, and at the Sala mine, exploiting silver-bearing Zn-Pb veins and stratabound polymetallic sulfide skarns within dolomitic marbles. We extended our stay by examining outcrops of host volcanosedimnetary sequences: stromatolitic carbonates at the Finntorp quarry as well as rhyolitic pyroclastics, both representing

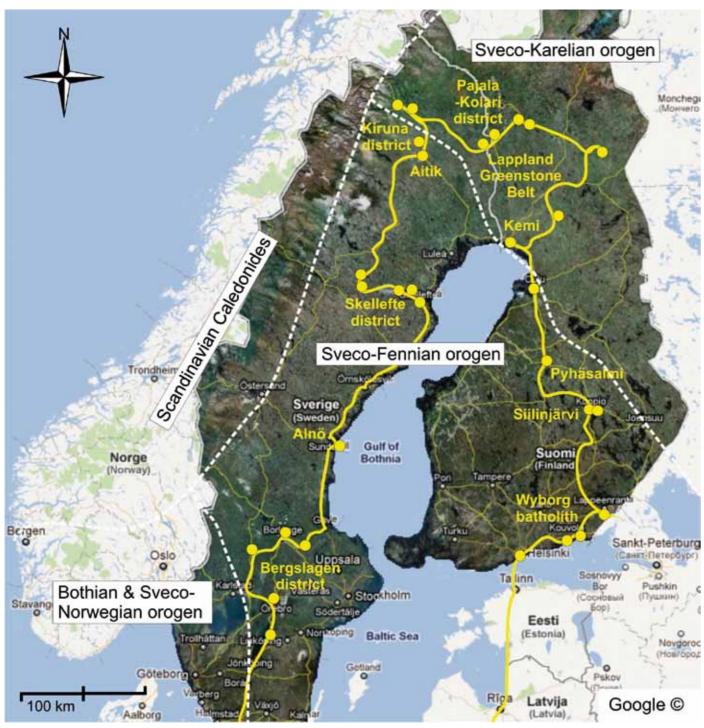


Fig. 1. Scandinavian field trip route illustrating main mining districts and geological units.

the Bergslagen continental margin. Typical sulfide minerals include chalcopyrite, galena and sphalerite, in addition to pyrite and pyrrhotite. The story of calc-silicate

rock named skarn in cental Sweden might be the best to explain in this region where does the rock name originally comes from. We investigated various skarn-like depo-

sits including Langban (stratiform Fe-Mn oxide deposit), Stollberg mines (magnetite skarn with galena and sphalerite), Garpenberg (stratabound volcanic-associated,





Fig. 2. The SGA Student Chapter Prague visiting (i) underground workshop of the Kirunavaara iron mine, (ii) discussing gold mineralization styles with geologists Guilermo Puig and Stefan Wik at the Pahtavaara exploration pit, and (iii) learn about drilling campaign at the Aitik open pit with chief mine geologist Greg Joslin.

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limestone-skarn-hosted sulfide deposit), Bastnäs (magnetite skarn with REE mineralization) as well as exhalative banded iron formation at Högfalsasen.

The Fennoscandian Shield is known for several alkaline-carbonatite complexes and so it's why the island of Alnö near Sundsval

was our next destination. Alnö, the locus typicus of alnöite, is a highly variable, layered sequence of pyroxenites, ijolites, nepheline syenites, alnöites and carbonatites, surrounded by fenite metasomatic rocks. This peculiar suite originated by fractionation processes or by a contribution of crustal vs. mantle components at late Proterozoic - early Cambrian times when those alkaline rocks were emplaced into the Precambrian basement. After a long drive, we focused our interest to the Skellefte district, about 200 km long northwest-trending zone composed of early Proterozoic volcanosedimen-



Fig. 3. Field photos illustrating (i) Aitik mine (northern Sweden), porphyry Cu-Au, the largest open pit in Europe, (ii) the Pyhäsalmi mine, (central Finland), VMS, (iii) the Sala Silvermine (Bergslagen), carbonate-hosted Pb-Zn mineralization, (iv) silicate-oxide banded iron formation at Käymäjärvi (Lappland Greenstone belt), (v) biotite-garnet metaalteration zone surround skarn body at Stollberg (Bergslagen), and (vi) kyanite- and rutile-bearing quartzites at Halsjöberg (southern Sweden).

tary fill of the Svecofennian Bothian Basin. The ore deposits of the Skellefte district are proximal or distal volcanogenic massive and elongated stratiform sulfide bodies with pyrite, chalcopyrite and sphalerite as main ore-bearing minerals, rarely accompanied by Cu-Mo porphyries. We chose several localities covering a variety of Skellefte host lithologies and mineralization styles, e.g. Maurliden open pit, siliciclastics at the Skellefte river or rhyolite-hosted Burliden mine.

Moving further north, our interests shifted to granitic pegmatites right at the polar circle, the Routevare quarry near Jokkmokk. This pegmatite body crystallized under unusually oxidizing conditions responsible for absence of micas but presence of large quantities of magnetite hosted in extensive graphic zone. The parental granitic rocks formed during Paleoproterozoic and are referred to as Svecofennian, whereas the entire area was affected by several Svecocarellian metamorphic events associated with the microcontinent collisions. This convergence led to the formation of Cu-Au porphyry deposits such as Vaikijaur or Nautanen. Similar scenario applies to the Aitik mine operated by New Boliden which is a one of the largest open pits in Europe. This unusual porphyry deposit is hosted by strongly altered biotite schists and amphibole gneisses of Paleoproterozoic age and important for its chalcopyrite, pyrite, pyrrhotite or molybdenite disseminated or vein-like accumulations.

The famous Swedish iron ores could not escape our attention and we spent several days comparing various magnetite and hematite mineralization types in northern Norrbotten country. The Malmberget and Kirunavaara mines, both operated by LKAB, exploit apatite-magnetite ores of the Kiruna type, and they comprise the most important economic accumulation of iron ore in northern Sweden. The deposits are spatially related to the subvolcanic rocks (felsic porphyries) and their alteration style reveals

some links to iron oxide-copper-gold style. The Kirunavaara magnetite deposit is represented by tabular body extending laterally over 5 km with a thickness of 100 m and it hosts about 2000 Mt of iron ore with 60-68 % of Fe. The magnetite body is a sheet filling the contact between trachyandesitic lavas and rhyodacitic pyroclastics.

Our interest led us to continue the trip across the Finnish border to visit another issue of economic geology - the gold mineralization of Lappland. For this purpose we visited the Pahtavaara gold mine operated by Lappland Goldminers to learn about gold hosted in komatiitic lavas and pyroclastics of the central Lappland Greenstonebelt. Gold is usually present in the free native form of over the 99.5 % fineness. Except the visit of Pahtavaara open pit we stopped in the old works of the Kutuvuoma pit. Important experience for us was the visit of Kemi chrom mine recently worked by Outokumpu, situated in Portimo layered intrusion complex of Paleoproterozoic age (2.4 Ga) placed near the northernmost part of the Gulf of Bothnia in Finland. The Kemi intrusion is located in the discontinuous belt of mafic to ultramafic complexes across Lappland close to the contact between the Archean basement complex in the SE and Svecocarelian Peräpohja schist belt in the NW. The story of mafic intrusives was explored by visit of the test pit in Kontijärvi, Keivitsa, and Ahmavaara PGE-bearing pyroxenites. Aditional stop was made to admire gneisses of Archean age in the road cut near the city of Oulu.

Pyhäsalmi mine was our last underground guided tour in central Finland provided by geologists from Inmet Mining, where we enjoyed Cu-Zn VMS deposit with nice exposures of banded felsic and mafic metavolcanic rocks that host pyrite, pyrrhotite or sphalerite as main ore-bearing minerals. Diamond fever caught us near Kuopio and Kaavi, where we enjoyed alkaline hypabyssal diamondiferous kimberlites to tuffitic kimberlite breccias brought to the

surface by funnel shape pipes. Then we met next true carbonaties during our journey - Siilinjärvi deposit with the oldest carbonatite body in the world. The Archean carbonatites occur in the tabular shape body of calcite and dolomite-bearing phlogopite rocks, marginally affected by fenitization. Intrusion of carbonatite is associated with formation of Karelian-Kola craton, and those accumulations are nowadays mined out mainly for phosphates as apatite concentrates. We said goodbye to Scandinavia by visit of several famous granite localities in prolongation of huge Wiborg batholite with its mostly subaluminous A-type granitoids in southern Finland, e.g. Ylijärvi quarry with nice dark bluish anorthosites, Virolahti with its red rapakiwi granites, and Kotka quarry and its topaz-bearing granites.

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After our long stay with geology and nature in its purity, and with a great collection of specific rock types as well as ore samples up to 0.5 tons in our cars and mail boxes, we reached our Central European home with a rich experience and minds full of new ideas gained from the most attractive European geological district. This field trip would not have been possible without advice and help of numerous geologists, and we would like to express our gratitude to them: Pär Weihed (Lulea University of Technology, Lulea), Fanny Hartvig (Geological Survey of Sweden, Uppsala), Kari Niiranen (LKAB, Kiruna), Gregory D. Joslin (New Boliden, Aitik), Timo Huhtelin (Outokumpu, Kemi), Hugh O'Brien (Geological Survey of Finland, Espoo), Marcello Imana Osorio and Mikko Numminen (Inmet Mining, Pyhäsalmi), Heather Platt (New Boliden, Maurliden), Stefan Wik and Guilermo Puig (Lappland Goldminers, Pahtavaara) and Hans Arebäck (New Boliden).

CALL FOR PROPOSALS FOR ORGANIZATION OF 13th SGA BIENNIAL MEETING IN 2015

SGA Council calls for proposals for the organization of the 13th SGA Biennial meeting in 2015 with a deadline for submission of bids on February 29, 2012. More details in the Guidelines for the preparation of a proposal at www.e-sga.org

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Mineral deposits of the Czech-Polish border Field trip report from the SGA Student Chapter Prague

Katerina Schloglova and David Dolejs

Institute of Petrology and Structural Geology, Charles University, Albertov 6, 128 43 Praha 2, Czech Republic

During the SGA student conference "Mineral Resources for the Society", which was held in Prague in April 2011, European students of economic geology and ore deposits formed new connections and made plans for future cooperations in their educational activities. A joint field trip was organized by students from the Charles University in Prague, the Masarvk University in Brno (Czech Republic) and the AGH Crakow (Poland) in order to study mineralization styles in the northeastern termination of the Variscan orogen at both sides of the Czech-Polish border. A three-day field trip was organized on October 7-9 and attended by 26 students and one university supervisor.

The geological excursion started in the Geological Museum of Professor Frantisek Posepny, famous Czech geologist and founder of several theories on the origin of ore deposits. Our visit at the museum, located at the Technical University of Ostrava, was introduced by curator Dr. Milos Duraj, who made our guided tour interesting and enjoyable. The museum hosts several great collections of minerals, rocks, ore deposit styles as well as examples from specific regional geological units from the Bohemian Massif and other countries. A special exhibit is dedicated to uranium deposits and industrial products. After meeting with our Polish colleagues, we continued the trip to Ostrava-Karvina region, a very well known mining district with vast coal resources of the Upper Silesian basin. We visited exhibit of mining rescue service in the Landek Park near Ostrava, one of the largest museums of mining, and enjoyed a guided tour into the Anseln coal mine, the oldest coal mine in the Ostrava-Karvina district. The Anseln mine is situated in the Upper Carboniferous sediments of the Ostrava formation that contains intercalations of marine sediments and volcaniclastic rocks, and was famous for a high quality cokeable black coal. Despite the rainy weather, a small group of adventurous students visited additional locality, a gypsum deposit near Opava, with

up to 10 cm long gypsum crystals in a sulfate evaporite horizon. The gypsum deposit forms layer within the Badenian clay-rich clay sediments of the Opava basin in the Carpation foredeep, and it was under operation since 1849. Economic accumulations of white to grey gypsum originated during the rapid evaporation of saline water from a small sedimentary basin. It has thickness of 3 meters and it laterally extends over 30-40 meters.

Second day of the field trip commenced with a visit of the Zloty Stok gold deposit and mining museum. We took part in a guided tour down to the Gertruda adit to learn about historical exploration and mining of gold and arsenic in the Czech-Polish borderland. The Zloty Stok area hosts gold in veins, veinlets and as leaps, lumps or concentrated cemented ore, in addition to arsenic ore. The district produced about 7 tonnes gold before the end of the 16th century, when the most economic time period took place. In order to extract 0.5 t gold, approximately 60 tonnes of ore was processed using 60 cubic metres of charcoal. In the 16th century, 1.5 million cubic metres of wood were burnt during ore processing and smelting. The district experienced revival at the beginning of the 17th century, when white arsenic became the main product while gold was by-product. In 1910's, the Zloty Stok deposit produced about 20% of world arsenic consumption, some 120 000 tonnes mined in total. Next we continued to the Vidnava kaolin deposit and were introduced to its geological setting by Mr. Martin Hanacek, curator at the Opava museum of nature and history. We had opportunity to visit and explore an old kaolin pit based in the weathering profile of the Zulova granite pluton. The kaoline was exploited for fireclay, ceramic tiles and paper industry in Silesia since 1786. The quarry is currently flooded and part of the kaoline residue covered by sediments of North European continental glaciation. The glacifluvial gravels host small amber fragments as well

kiwi and other rock types. The boulders of North-European rock types were assembled and arranged into outdoor exhibit in the village of Kras. We used this opportunity for a brief presentation on the geology of the eastern border of the Bohemian Massif by Dr. David Dolejs (Charles University, Czech Republic), who acts as academic advisor to the chapter. Following the talk, we continued to the Zulova granite pluton and explored mineralization styles associated with this igneous activity. The Cerna Voda quarry exposes ilmenite- and allanitebearing I-type granite with fracture-related hydrothermal molybdenum mineralization. Not far away, the Koralove Jamy locality offers perfect-shape crystals of quartz in a set of hydrothermal veins. These crystals were mined from the beginning of 19th century and used as souvenirs for guests of spa in Jesenik. Exposures at the Vycpalek quarry, Bozi Hora and in the Stare Podhradi karst system demonstrated another phenomenon of the Zulova area - minerals of contact metamorphic and metasomatic origin at the boundary between granites and adjacent calcareous rocks. Garnets of grossular composition are disseminated as free "floating" objects in white marbles. The grossular-rich garnets are accompanied by vesuvianite, diopsidic clinopyroxene or wollastonite forming a zoned sequence of a bimetasomatic zone.

as erratic boulders of Scandinavian rapa-

On the third day, we visited the Zebracka mine (collapse) in the southern part of Zlate Hory, another gold mining district situated at the northeastern border of the Bohemian Massif. Geological setting of the Zlate Hory district is very complicated because of polyphase deformation of the Velke Vrbno nappe. Sulphide ore bodies are dislodged segments of a volcanosedimentary complex that underwent greenschist facies metamorphisn and polyphase folding in Devonian, preceding the Variscan orogeny. The most important ore-bearing lithology is quartzite at the contact with chlorite-mus-

covite schists with intercalations of felsic volcaniclastics. Gold was deposited hydrothemally but subsequently remobilized under the greenschist facies conditions. The deformation resulted in banded texture, and veins promoted by supergene enrichment. Gold occurred in massive sulphides, commonly pyrite, chalcopyrite, sphalerite, and galena. Mineralization in the Zlate Hory region belongs to the early Variscan copperpolymetallic association. Our next stop, the Zlaty Chlum hill, is also known for its gold occurrences as well as bright dark red euhedral garnets up to 1 cm large of almandine composition. The golden mineralization is hosted by quartz veins resulting from early Variscan hydrothermal activity. This deposit produced gold that ranks among the purest one in the world (93-96 % Au). In Dlouhe Strane, we enjoyed a guided tour through water power plant, often described as one of the seven wonders of the Czech

Republic. This is a unique facility in central Europe designated for optimization of energy supply during day-night fluctuations. Our next stop was the Hrabesice-Krasne quarry with a low-temperature Alpine-type mineralization hosted by amphibolites and amphibole gneisses of the Sobotin Massif. In addition to occurrences of Alpine mineral veins such as quartz, calcite, prehnite or epidote, we wondered about interesting metamorphic textures at the lowermost quarry levels composed of dark greenish amphibolite. A specific type of calc-silicate gneiss was observed at our last locality, Bludov near Sumperk, situated in the southern part of the Keprnik Nappe in the Branna Group. Peculiar texture and characteristic mineral assemblage of plagioclase, garnet, and wollastonites were reasons for coining a local rock name "bludovite". The bludovite forms one the metasomatic zones at the contact between magmatic rocks of the

Sumperk pluton and surrounding calcareous rocks: garnet-wollastonite gneiss (bludovite), garnet-rich gneiss, calcite marble and stromatites composed of diopside and plagioclase. The latter give an impression that those rocks developed from impure sediments with different amounts of carbonate and silicate constituents.

The field trip was organized by Katerina Schloglova, Dr. David Dolejs (both Charles University, Prague), and Jan Loun (Masaryk University, Brno). This excursion was financially supported by the SGA and Czech National Committee of IGCP (CNK-IGCP/UNESCO), the Project No. 540 dedicated to the gold mineralization styles. We would like thank to all helpers and participants for their interest that made this international field meeting successful.



SGA Student Chapter Prague and Baltic Student Chapter Crakow in front of the Anseln coal mine (Ostrava-Karvina mining district). Upper row from left: Jan Soumar, Michal Raisingl, Hanna Ditterova, Matylda Hermanska, Petra Slunska, Katerina Sykorova, Zuzana Snellerova, Martin Krupicka, Zita Bukovska, Radim Jedlicka, Jaroslav Rihosek, Nikol Novotna, Vit Peresty, Jan Franek, Jan Bubal, Lubos Vrtiska; lower row from left: Jan Loun, Ivo Macek, Pavel Kohn, Sarka Hlavackova, Katerina Schloglova, David Dolejs, Karolina Kyelczik, Agniezka Bagnicka, Ireneusz Krolewicz.

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Obituary: Prof. John M. Moore, former Regional Vice-President for Southern Africa

John was born in Cape Town on 29 September 1946 to parents who were deeply interested in the natural world and the outdoors. From a very early age he was exposed to the floral, animal, archaeological and geological diversity of the Western Cape, influences which were to shape much of his professional and personal life. After completing his schooling at 'Bishops', John enrolled for a BSc at the University of Cape Town (UCT). He initially considered studying towards a major in archaeology, but ultimately geology and chemistry won the day. A BSc(Honours) degree in Geology in 1969 was followed by a gap-year travelling Europe in an old VW Combi, before taking up his first full-time employment as Assistant Geologist at Cape Portland Cement's operation at Piquetberg and elsewhere in the Swartland. In 1972, John started working as an exploration geologist with Phelps Dodge of Africa, initially as project geologist at Broken Hill, Aggeneys, and later at the Zandrivierspoort iron ore deposit in the then northern Transvaal. During his time at Aggeneys, John married Madeleine Rosser whom he had met in 1971. Phelps Dodge also supported John's research work in the Namiesberg south west of Pofadder for which he was awarded an MSc degree by UCT in 1977.

Upon receiving his MSc, John moved to Phelps Dodge Corporation (USA) to carry out grass-roots exploration in copper and molybdenum porphyry systems, hydrothermal gold-silver deposits, tungsten skarns and volcanogenic massive sulphide deposits in Arizona and Nevada. It was during this time that John and Madeleine's daughter Caron was born. In 1979, John returned to UCT where he took up an appointment as a Research Associate in the Precambrian Research Unit. Over the next 4 years, John undertook regional geochemical and stratigraphic studies of metamorphosed supracrustal rocks in Namaqualand. The size of the Moore family was also increased by the birth of Jesse in 1981. The Namaqualand research formed the basis of a thesis for which he was awarded a PhD by UCT in 1986. Prior to this award, John had already moved to the position of Research Officer in Economic Geology at UCT, a post that also involved teaching at undergraduate and Honours level as well as the supervision of masters and doctoral students. Ad hominen promotion to Senior Research Officer followed in 1990.

In 1990, John successfully applied for and was appointed to the post of Professor of Exploration Geology and Director of the MSc Programme in Exploration Geology at Rhodes University. John's unusual and strong backgrounds in both academia and the exploration industry made him an ideal appointment to this post, which he filled with distinction for 20 years from 1991 to 2010. During this time, the programme produced more than 100 graduates, in addition to over 20 research M.Sc. and Ph.D students. In spite of John's very busy schedule of teaching and field-trip instruction during his tenure at Rhodes, he also published over 30 papers in the peer-review geological literature with emphasis on economic geology, accompanied by a similar number of conference presentations. His research has included topics as diverse as the genesis and alteration characteristics of precious and base metal deposits in Proterozoic metamorphic belts; stratigraphy, geochemistry and ore genesis in the Transvaal Supergroup

of southern Africa; and geomorphological studies with emphasis on African landscape evolution and diamond placer provenance. Although John has taught and supervised postgraduate students from as far afield as Australia, the Americas, Europe and Asia, in recent years his MSc course has been truly instrumental towards the training of a significant number of African geologists that are currently active in mineral exploration programmes across the entire African continent. Fittingly, John's immense contribution to the African Geoscientific community was recently recognised by the awarding of the Pretorius Medal of the Geological Society of South Africa in 2009.

Like his parents, John loved the outdoors. He was a lifelong member of the Mountain Club of South Africa and beside membership of a number of geology related societies he was also a member of the Botanical and Ornithological Societies of South Africa. In his youth he was a keen rock climber and pioneered a number of rock climbing routes in the western Cape with fellow geologists Andy Killick, Andy Moore, Chris Hartnady and Goonie Marsh, amongst others. He also played soccer and cricket pursuing these sports to an age long after it



Prof. John M Moo

was perhaps wiser to have reverted to being a spectator. When he moved to the Eastern Cape he played cricket for one of the rural Pineapple League cricket teams where he was affectionately known as 'Moses' on account of his beard and long, flowing hair. John had a well-developed sense of humour and was an astute observer of life, and many will remember him as a great storyteller and raconteur. Others with whom he corresponded in those letter-writing days of long ago, will also know him as a creative writer. He also had a great love of rock music with a formidable collection of vinyl from the 60's and 70's. He did everything with con-

fidence and an infectious, sunny optimism. One of his great attributes is that, despite his 'posh' and privileged background, he was oblivious to class or race. He easily fitted into whatever company he found himself in. It was this that contributed much to his effectiveness as a great teacher and to the esteem with which he was held by all who crossed his path.

John was diagnosed with a rare form of cancer in late 2008, a disease which he fought bravely and courageously right through to the end. During that uneven battle, he maintained his unwavering enthusiasm to complete ongoing research pro-

jects on a variety of fields. Much of that research was published or got to press while he was still with us; the rest will most certainly be carried out to completion by his close collaborators. He will be remembered fondly by all who had the privilege to be associated with him, professionally and otherwise, as a truly inspiring teacher, colleague, supervisor, collaborator and mentor, both in the classroom and in the field, and as the genuine lifelong friend that he was to so many of us.

H. Tsikos and J. S. Marsh

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The 6th International Siberian **Early Career GeoScientists Conference**

9-23 June, 2012 Novosibirsk, Russia

The 6th International Siberian Early Career GeoScientists Conference will be held in an extraordinary district of Novosibirsk, situated 35 km south of the city-center on the shore of the Ob' lake. Officially known as the Novosibirsk Scientific Center, it is often simply called Academy Town (Academgorodok). Academgorodok was founded in the 1950s and is now a world-renowned scientific centre, hosting a large number of scientific institutes as well as Novosibirsk State University.

OVERALL PROGRAM

| 9-10 June | 11 June | 12 June | 13 June | 14 June | 15-23 June |
|---|---|--|--|--|---|
| PreConference Training sessions and | The 6 th International Siberian Early Career GeoScientists Conference | | | | PostConferences Fieldtrip excursions |
| Short courses | | | | | |
| Diamonds Geodynamics and tectonics Magmatism and metallogeny Paleomagnetism - a method of geodynamic reconstructions Crystal growth | Opening Ceremony Oral presentations | Oral presentations Poster presentations | Oral presentations Poster presentations | Oral presentations Poster presentations | Geodynamic, magmatism and stratigraphy of Gorny Altai Mineralogy and Metallogeny of the Northwestern Altai |
| • GIS | Poster presentations | | | Closing Ceremony | |

REGISTRATION IS FREE FOR ALL PARTICIPANTS

IMPORTANT DATES

- 1 February 2012 registration and abstract submission deadline
- 1 March 2012 information about accepted abstracts
- 1 April 2012 3rd circular
- 9-23 June 2012 the 6th International Siberian Early Career GeoScientists Conference

CULTURAL PROGRAM

During the conference, excursions to the Central Siberian Geological Museum, the Exhibition Centre of Siberian Branch of the Russian Academy of Sciences, and the Archaeology and Ethnography Museum will be organized

CONFERENCE LANGUAGE

The official language of the Conference will be English. All abstracts must be submitted in English.

There is a possibility of making some funds available for students to participate in the conference. However this is dependent on corporate contributions, which are being sought. A limited number of student grants should be available. A specific application form will be provided on the Website.

Student grants will be awarded depending on the acceptance of an abstracts for oral presentation at the conference, and will be based on financial need and scientific relevance of the submitted presentation.

FOR FURTHER INFORMATION PLEASE VISIT: http://sibconf.igm.nsc.ru

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Organization Committee

Ibrahim UYSAL, Federica ZACCARINI, Anna VYMAZALOVA, Oskar THALHAMMER

Place

Osman Turan Congress Center, Karadeniz Technical University, Trabzon, Turkey

Preliminary program

16 May: Icebreaker party 17-18 May: Two days of scientific sessions

Invited keynote speakers

Jorge Relvas (University of Lisbon, Portugal) - VMS deposits Harald Dill (Mainz University and BRG, Germany) - Introduction to industrial minerals with special regard to ophiolites Giorgio Garuti (University of Leoben, Austria) - Chromite and PGE mineralization in ophiolites Osman Parlak (Cukurova University, Turkey) - Isotopic dating of ophiolites Ercan Aldanmaz (Kocaeli University, Turkey) - Effects of the melting regime on the composition of mantle residues

Field trips

19 May: Field trip to chromite and magnesite deposits around the Kop mountain (NE-Turkey) 20 May: Travel to Küre (Kastamonu, N-Turkey) 21 May: Visit to VMS deposit in Kure, and the afterwards travel back to Trabzon

Accommodation (16-19 May 2012)

Koru Congress Hotel in Karadeniz Technical University Campus Single: 30 Euros per night; double/twin: 40 Euros per night

Registration fee

Regular: Workshop+Field trips 150 Euros; Only workshop 100 Euros Student: Workshop+Field trips 50 Euros; Only workshop 25 Euros Retired person: Workshop+Field trips 100 Euros; Only workshop 50 Euros Registration fee includes icebreaker party, lunches, refreshments and field trip guide book

Deadline for the registration and abstract submission 15th March 2012















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R. Taylor, James Cook University, Townsville, QLD, Australia **Gossans and Leached Cappings**

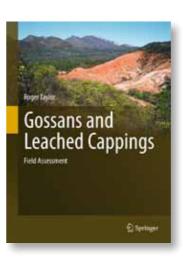
Field Assessment

- ► The only modern text on the subject
- ► A how to do with numerous field illustrations for exploration geologists - prospectors

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- ► A senior undergraduate text
- ► Also a guide for lecture teaching

This text concentrates upon field observations concerning leached cappings and gossans, occurring as oxidised surface expressions of underlying ore zones. Although the advent of modern multielement geochemical sampling and easier mechanical excavation assist considerably in subsurface interpretation, there are still many occasions where the first observation and recognition are made by the lone field geologist. New exposures continue to be found in remote and often difficult terrains, where "on the spot" skills are of prime importance. In general terms the text has been arranged from the broad scale to the specific, and it should be realised that all scales provide valuable input for final interpretation. The topics covered include: Theoretical perspectives Initial recognition General field observations Detailed field observations (secondary minerals, boxworks) Porphyry copper leached cappings



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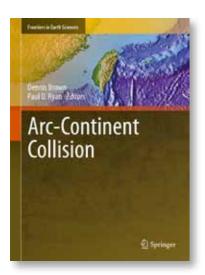
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D. Brown, Instituto de Ciencias de la Tierra "Jaume Almera", Barcelona, Spain; P.D. Ryan, National University of Ireland, Galway, Ireland

Arc-Continent Collision

Arc-continent collision has been one of the important tectonic processes in the formation of mountain belts throughout geological time, and it continues to be so today along tectonically active plate boundaries such as those in the SW Pacific or the Caribbean. Arccontinent collision is thought to have been one of the most important process involved in the growth of the continental crust over geological time, and may also play an important role in its recycling back into the mantle via subduction. Understanding the geological processes that take place during arc-continent collision is therefore of importance for our understanding of how collisional orogens evolve and how the continental crust grows or is destroyed. Furthermore, zones of arc-continent collision are producers of much of the worlds primary economic wealth in the form of minerals, so understanding the processes that take place during these tectonic events is of importance in modeling how this mineral wealth is formed and preserved. This book brings together seventeen papers that are dedicated to the investigation of the tectonic processes that take place during arc-continent collision. It is divided into four sections that deal firstly with the main players involved in any arc-continent collision; the continental margin, the subduction zone, and finally the volcanic arc and its mineral deposits. The second section presents eight examples of arc-continent collisions that range from being currently active through to Palaeoproterozoic in age. The third section contains two papers, one that deals with the obduction of large-slab ophiolites and a second that presents a wide range of physical models of arc-continent collision. The fourth section brings everything that comes before together into a discussion of the processes of arc-continent collision.

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Tracking changes over time

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