



The 6th Annual Baltic Student Chapter meeting 2015 – A journey to the active and historical mines in Poland

Tobias C. Kampmann (1), Tomasz Cwiertnia (2)

(1) Department of Civil, Environmental and Natural Resources Engineering, Luleå University of Technology, SE-971 87 Luleå, Sweden, Tel.: 0046 (0) 920452891; Fax: 0046 (0) 920492818; E-mail address: tobias.kampmann@ltu.se

(2) AGH University of Science and Technology, Kraków, Poland

The Baltic Student Chapter currently has approximately 70 student members from four universities in the Baltic Sea Region – AGH University of Technology in Kraków, Poland; Luleå University of Technology (LTU), Sweden; as well as the universities of Oulu (OU) and Turku (TU), Finland. Annual meetings for all the chapter members are organized in each of the universities with rotating host responsibilities. One week each year the agenda is filled with short courses and keynote lectures given by invited researchers, together with students' presentations and field trips in the host country. In addition to the scientific programme, the meetings present great opportunities for both professional and social networking in an international group of students and young researchers.

From 24th to 28th of November, 2014, the 6th annual meeting of the SGA Baltic Student Chapter was held at AGH University of Science and Technology (AGH) in Kraków, Poland. The recent significant increase in members in the SGA Baltic Student Chapter, coupled with the great interest of students from LTU and OU in taking part in the meeting, presented a particular challenge to the local organizing committee. 27 students as well as two supervising professors, Adam Piestrzyński (AGH)

and Pasi Eilu (TU), took part in the meeting. The meeting was a success due to great efforts by the organizing committee Joanna Kołodziejczyk, Tomasz Cwiertnia, Władysław Zygo, Adrian Krzemiński, Dominika Czapla, Paulina Dobrowolska and Krzysztof Getinger.

The SGA BSC meeting held in November 2014 included, additionally to a general sessions with students presentations, a hands-on introduction to analytical instruments at AGH, a one-day orogenic-gold short course and two field trips to both an active (Cu-Ag, Lubin) and a historical (salt mine, Wieliczka) mine site in Poland.

On Monday, October 24th, the meeting began with a registration in the venerable entrance hall of the main building of AGH. After a brief welcome reception, a bus took the group to the town of Głogów, which is a couple of hours away from Kraków. In a hotel bar, there was still time for a typical Polish dinner and some socializing.

Tuesday, October 25th, was dedicated to visiting the famous Lubin-Sieroszowice, Cu-Ag stratabound ore district, mined by KGHM Polish Copper S.A. The deposit is located in the south-western part of Poland and is divided into six mining fields.

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Welcome back to Nancy!

Georges Beaudoin, President, SGA

Université Laval, Québec, Qc, Canada G1V 0A6; e-mail: Georges.Beaudoin@ggl.ulaval.ca



The SGA is proud to welcome the economic geology community for its 13th Biennial Meeting in Nancy. Nancy was the site of our 1st Biennial Meeting in 1991, and it is fitting that we return here on the 50th Anniversary of the society. The SGA Biennial Meetings have become a recognized venue for dissemination of research about the formation of mineral deposits, and we owe this reputation to the out-

standing research presented by delegates and SGA members over the last 24 years. So thank you for the more than 530 contributions that will make Nancy a memorable meeting.

The Local Organizing Committee (LOC), led by Anne-Sylvie André-Meyer and Michel Cathelineau, has prepared a superb program to make your participation to the meeting most interesting. A vast array of symposia and special sessions covers most of the field of mineral deposit geology. The technical sessions are supplemented by an array of advanced technology workshops and short courses, and by a diverse suite of fieldtrips from

Morocco and Iberia along the orogenic belts of Europe all the way to Caucasia. Finally, you will enjoy the hospitality of Nancy, where the LOC has prepared a vibrant social program including surprise entertainment during the poster sessions.

This year will also be marked by the departure of long-time assistant-treasurer Sabine Lange (Fig. 1). Sabine has been working for the SGA under the last three SGA treasurers, Peter Herzig, David Leach, and Hartwig Frimmel. She has been involved in all aspects of running the SGA, often being the link between members and the Society. Always helpful and forthcoming, you most likely met with Sabine at the SGA booth during most of our Biennial meetings of the last decade. On behalf of the SGA, I thank Sabine for her dedicated work, and best of luck in her new endeavours!

The new assistant-treasurer is Christine Linge (Fig. 2). Christine is based in Würzburg, where she is employed by the University, and already collaborating with our Treasurer, Hartwig Frimmel. She will be handling the same tasks as Sabine, including relations with members, budget and accounting for the SGA. You can contact Christine using the same email: assistant-treasurer@e-sga.org.

I warmly welcome all SGA members in Nancy for the 13th SGA Biennial Meeting, and to mark the SGA's 50th anniversary.



Sabine Lange



Christine Linge

News of the Society

SGA Ordinary Council Meeting, Nancy, France, May 4, 2015

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

Anne Sylvie André-Mayer welcomed Council Members on behalf of the SGA 2015 LOC. G. Beaudoin (SGA President) thanked on behalf of SGA Council for organization of the meeting. Then Council approved suggested agenda.

Minutes of previous Council Meeting (October 19, 2014 Cracow, Poland)

After checking the actions, the Minutes were unanimously approved.

Reports of officers on Council

- Report from President (presented by G. Beaudoin)
- Report from Executive Secretary (presented by J. Pašava)
- Report from Treasurer (presented by H. Frimmel)
- Report from Promotion Manager (presented by P. Eilu)
- Report from Chief Editor, SGA News (presented by G. Beaudoin)
- Report from Chief Editors, MD (presented by G. Beaudoin)
- Report from Chief Editor SGA Special Publications (presented by G. Beaudoin)
- Report from the Chief Editor SGA website (presented by H. Frimmel)
- SGA Educational Fund (presented by J. Relvas)
- Reports from Regional VPs (Asia, Australia/Oceania, Europe – presented by S. Decree, North Africa and Middle East)

After discussion, Council approved the presented reports with great thanks and the following motions:

G. Beaudoin to prepare a brief proposal for transferring the SGA Young Scientists Award to Agricola Medal for the Award Sub-Committee and subsequent Council discussion.

G. Beaudoin to inform KGHM about a Council decision on a joint SGA-KGHM Krol Medal project (preferred layout “E” and acceptance of a proposed deal).

G. Beaudoin to thank on behalf of the Council to Sabine Lange – a long time SGA Treasurer’s Assistant who decided to resign from her position, for her invaluable work for SGA and write a brief note related to this change (new Assistant Treasurer will become Christine Linge) to the upcoming issue of the SGA News.

Georges Beaudoin/Bernd Lehmann to consider having an invited paper in MD in every of future issue no. 1.

G. Beaudoin to inform W. Maier and his co-authors about Council decision on the best paper in MD.

B. Lehmann to produce certificates for both the best paper in MD and the SGA-Barrick Young Scientist Award.

D. Huston to contact A. Mueller to find out if he would be willing to go finalize description of Meggen and Rammelsberg deposits available at the SGA website for “Springer Briefs” and to report to the next Council meeting.

N. Koglin to organize a test of electronic vote before the next Council Meeting (August 23, 2015).

All Council members are encouraged to provide a name of a suitable candidate for the SGA EF Committee to G. Beaudoin as soon as possible.

All Council members to help M. Chiaradia to identify suitable main article for the upcoming SGA News (deadline for submission of contributions is May 31, 2015).

G. Beaudoin to write an invitation to the SGA 2015 for the upcoming issue of SGA News.

J. Pašava to address Council to find out who will be present at the SEG 2015 Conference (Hobart, Australia) and to inform R. Skirrow so that he could find a suitable replacement for chairing the SGA-sponsored session on Exploration Under Cover.

G. Beaudoin to reply a letter from M. Bouabdellah on possible discount of membership fees.

J. Pašava to repeat a call for “SGA historical materials” to SGA membership.

H. Frimmel to issue and send an invoice for EUR 10.000 to Anglo-Gold Ashanti.

SGA News

No. 37 August 2015

EDITORS

Massimo Chiaradia¹, Chris Heinrich²

¹Department of Mineralogy

University of Geneva

Geneva

SWITZERLAND

²ETH Zurich

SWITZERLAND

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SGA News can be also read in the SGA homepage on Internet:

<http://www.e-sga.org>

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INFORMATION FOR CONTRIBUTORS

Items for publication may be sent to:

SGA News (see address below)

Manuscripts should be sent by e-mail using Microsoft Word for text and Jpeg or Tiff formats for pictures and figures (the latter must be in grey level tones, not colour!).

Please always send a paper copy and indicate the format you are using.

DEADLINE FOR SGA NEWS No. 38

31 October 2015

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

H. Frimmel to supervise a smooth transfer of duties from Sabine Lange to Christine Linge, the new treasurer's assistant with effect from 15 May 2015.

J. Relvas to prepare letters to seek funding for the SGA EF.

SGA 2015 – status of preparation

The report was presented by A.S. André-Mayer and partially by M. Cathelineau. The SGA 2015 Conference website address is <http://sga2015.univ-lorraine.fr>. LOC expects about 520 conference papers approved (out of 546 submitted). After discussion Council approved the presented report with great thanks and the following motions:

A.S. André-Mayer to plan 1 hour for award ceremony during the plenary session.

A.S. André-Mayer to adapt the name of Closing Ceremony to Presentation of student awards and invitation to the SGA 2017.

A.S. André-Mayer to inform plenary speakers about time limit and requested format of presentations (30 min. allocated to each of honored scientists).

A.S. André-Mayer to adapt timing of Student Challenge (Monday – Wednesday during their free time) and finalize subject of this event.

A.S. André-Mayer to send revised budget to H. Frimmel (cc to G. Beaudoin and J. Pašava) asap.

A.S. André-Mayer to add contact information (email/phone) for all those who would need visa asap.

J. Relvas to coordinate with A.S. André-Mayer requests for sponsorship and to prepare letters – asking for sponsorship to be signed and distributed by the SGA President.

J. Kolb to ask J. Gutzmer to consider KIC sponsorship to the SGA 2015. Council approved production of the SGA 50th Anniversary “glass medal” to be a part of conference materials.

SGA 2017 – update (G. Beaudoin)

The report was presented by G. Beaudoin.

Action: G. Beaudoin to secure preparation, printing and distribution of flyers – invitations to the SGA 2017 (Québec City).

Report of Nomination Committee

The report was presented by G. Beaudoin. Council approved suggested removal of Ch. Heinrich from the nomination list and recommended to include one nominee from Russia on account of one Swiss candidate.

Action: G. Beaudoin to adapt a list of nominated officers and send it to J. Pašava who will distribute it for electronic Council vote.

Progress report on membership drive from the last SGA Council Meeting

The report was presented by J. Pašava. The Society had at the end of 2014 1139 members. He highlighted a record increase in submitted membership application forms (total of 323) during past 6 months and also regular increase in membership in years of Biennial Meetings since 2011. The main task for SGA remains to keep new membership as long as possible. S. Lange provided a list of non-renewals. After discussion Council approved the report with great thanks and the following motions:

G. Beaudoin to address all RVPs with a request for their collaboration regarding non-renewing members.

All RVP's in collaboration with Council members should contact the members who haven't paid their fees for 2014. If anyone of Council members would be approaching some of those members, it's important to inform relevant RVP to avoid repeated reminders. Ch. Linge to email reminders to all who didn't renew SGA membership at least 4 times a year (every 3 months).

Report of Award sub-committee

The report prepared by D. Huston was presented by J. Pašava. Council approved a limit on the recycle time of nominees for awards (3–5 years), approved the report with great thanks and the following motions:

Action: J. Pašava to send a reminder for ongoing electronic vote on SGA-Barrick Young Scientist Award and also SGA-Newmont Gold Medal (deadline: May 15, 2015).

D. Huston and J. Pašava to inform G. Beaudoin on successful candidates.

G. Beaudoin to inform successful candidates on Council decision and to ask for their acceptance to get the awards.

H. Frimmel to organize award certificate for a winner of the SGA-Newmont Gold Medal.

Status of development of SGA Student and Young Scientist network – Reports from Chapters

The report was presented by A. Vymazalová and J. Relvas. Six reports were presented from SGA Chapters (Baltic, Barcelona, Colombia, Nancy, Prague and Siberia). No report was received from the Peruvian SGA Chapter. After discussion Council approved the presented reports with great thanks and the following motions:

A. Vymazalová to inform Representatives of the Student Chapters about approval of their 2015 budgets (Baltic – 4500 EUR, Barcelona – 3600 EUR, Colombia – 2000 EUR, Nancy – 3000 EUR, Prague – 3000 EUR, Siberia – 2000 EUR).

Status of applications for student support at SGA 2015

The report was presented by A. Vymazalová. The Committee received 101 applications for sponsorship and 50 applications for free participation in field trips. Council approved that the sum of EUR 32.000 from the SGA EF will be spent on supporting students and several other scientists from economically disadvantaged countries. The money will be transferred to European based accepted applicants and paid cash on site of the SGA 2015 to overseas successful applicants.

Action: A. Vymazalová with J. Relvas to finalize the list of supported applicants.

Any other business

Should we provide cc of the successful proposal for SGA Meeting to prosperous future organizers?

Council decided that no such a document can be provided to the third parties – this is solely between prosperous organizers and authors of successful proposals.

SGA presence at the 35th IGC, September 2016, Cape Town – invitation from chair of the Scientific Program Committee (SGA session/keynote speakers/workshops) – update (H. Frimmel)

Council welcomed an information that a joint SEG-SGA gold session will be organized within the 35th IGC. SGA SGA will support one keynote speaker and Council members are encouraged to provide name(s) of suitable SGA keynote speaker to H. Frimmel by May 31, 2015.

Date and Place of the Next Council Meeting

Suggested August 23, 2015 in Nancy, France (the same location – timing from 9.00 to 17.00; A.S. André-Mayer).

Informative list of past activities

- 13th Freiberg Short Course in Economic Geology, Freiberg, Germany, December 8–12, 2014 – T. Höfig et al.
- MDSG Meeting, Southampton, UK – 18–19 December 2014 – SGA promotion by S. Roberts
- PACRIM 2015, Hong Kong, China, March 18–21, 2015 – SGA session, booth – Fan Hongrui, Huayong Chen, R. Skirrow, D. Huston
- 4th SGA-SEG-UNESCO-IUGS Short Course on African Metallogeny, Addis Ababa, Ethiopia, March 23–31, 2015 – H. Frimmel et al. – this event had to be cancelled due to insufficient sponsorship from industry.

Informative list of future activities

- Prague SGA Student Chapter field trip to IPB, April 20–29, 2015 – J. Relvas et al. – up to EUR 750 approved in support of lowering trip expenses
- SEG Student Chapter Brno: SEG Field Exploration Geology Vol. IV Mineral deposits and geology of the Oberpfalz, May 4–8, 2015 | Czech Republic / Germany – EUR 400 approved for participation of SGA student members – V. Wertich et al.
- Goldschmidt 2015, Prague, Czech Republic, August 16–21, 2015 – 6 SGA sponsored sessions approved EUR 2000 for student support approved by Council

- SGA 13th Biennial Meeting, August 24–27, 2015 Nancy, France
- SGA Seminar on Northern Fennoscandian Ore Deposits and 3/4D Modelling, Lulea Sweden, September 7–8, 2015 – SGA sponsorship of EUR 800 approved for keynote speaker
- SEG 2015 Conference, Hobart, Australia, September 27–30, 2015 – SGA booth, plenary speaker, SGA session – R. Skirrow



SGA Ordinary Council Meeting held on May 4, 2015 in Nancy, France. From left: A. Vymazalová (SGA Student Representative), J. Relvas (SGA Vice-President), A.S. André Mayer (Chair of the SGA 2015 LOC), G. Beaudoin (SGA President), J. Kolb (Council member), H. Frimmel (SGA Treasurer), S. Decrée (RVP Europe) and J. Pašava (SGA Executive Secretary).

Invitation to the SGA General Assembly (Nancy, August 2015)

The SGA GA will be held on August 25 (Tuesday), 2015 between 11.30 and 12.30 within the 13th SGA Anniversary Meeting in Nancy. The suggested program is as follows:

- 1 Report of the President (G. Beaudoin)
- 2 Report of the Treasurer (H. Frimmel)
- 3 Report of the Executive Secretary on major past and future SGA activities (J. Pašava)
- 4 Report of the SGA Vice-President on SGA EF (J. Relvas)
- 5 Report on activities of SGA Chapters (Representatives of Chapters)
- 6 Presentation of the list of officers nominated for SGA 2015 ballot (G. Beaudoin)
- 7 Various
- 8 Invitation to the 14th SGA Anniversary Meeting 2017 (G. Beaudoin)

Welcome all SGA members at this important Society event!

SGA COUNCIL 2015

President	G. Beaudoin (Canada)
Vice-President	J. Relvas (Portugal)
Executive Secretary	J. Pašava (Czech Republic)
Treasurer	H. Frimmel (Germany)
Promotion Manager	P. Eilu (Finland)
Chief Editors	B. Lehmann (Germany) – MD European Office G. Beaudoin (Canada) – MD North America Office M. Chiaradia, C. Heinrich (Switzerland) - SGA News N. Koglin (Germany) – SGA website
Student Represent.	A. Vymazalová (Czech Rep.)

Regional Vice-Presidents

Asia	H. Chen (China)
Australia/Oceania	R. Skirrow (Australia)
Europe	S. Decree (France)
N. Africa-Mid. East	M. Bouabdellah (Morocco)
North America	S. Piercy (Canada)
South Africa	L. Greyling (S. Africa)
South America	F. Barra (Chile)

Councillors: term ending on December 31, 2015

F. Bierlein (Australia)
N. Bortnikov (Russia)
J. Gutzmer (Germany)
K. Kelley (U.S.A.)
J. Richards (Canada)
J. Wilkinson (U.K.)
P. Williams (Australia)

Councillors: term ending on December 31, 2017

S. Roberts (U.K.)
S. Archibald (Canada, East Asia)
W. Maier (Finland)
A. Piestrzynski (Poland)
F. Hongrui (China)
J. Kolb (Denmark)
D. Huston (Australia)
E. Campos (Chile)

Ex officio Members, SEG

President	J.A. Kinnaird (South Africa)
Executive Director	B. G. Hoal (USA)

Ex officio Members, IAGOD

President	M. Jingwen (China)
Publication Manager	R. Seltmann (U.K.)

LIST OF NEW SGA MEMBERS (November 1, 2014 – March 31, 2015)

48 Regular, 213 Student, 1 Senior and 2 Corporate Members applied for membership during this period

REGULAR MEMBERS

- Mr. John Siriunas 25 3rd Side Road Milton, ON, L9T 2W5 CANADA
- Mr. Daniel Moncada Departamento de Geología Facultad de Ciencias Físicas y Matemáticas Universidad de Chile
- Plaza Ercilla 803 Santiago CHILE
- Dr. Andy Wilde 18 Mofflin Ave. Claremont Western 6010 AUSTRALIA
- Mr. William Mercer VP-Exploration 2060 Duncan Road Oakville, Ontario, L6T 2S2 CANADA
- Mr. Oscar Enrique Zapata Cordova Ca. General Santa Cruz 168 Interior H. Distrito de Jesus Maria Lima 11 PERU
- Mr. Axel Hofmann Department of Geology University of Johannesburg P.O.Box 524 2006 Auckland Park SOUTH AFRICA
- Mr. Rodrigo Álvarez García Escuela de Ingeniería de Minas, Energía y Materiales Universidad de Oviedo C/ Independencia, 13 33004 Oviedo SPAIN
- Mr. Rodney Allen Boliden Mineral Exploration Department Garpenberg 77698 SWEDEN
- Dr. Vladimir Malkovets Institute for study of the Earth's Interior Okayama University Misasa, Tottori, 682-0193 JAPAN
- Mr. Franberni Sanchez Quispe Av. Juan Velasco D-2, Huasao, Oropesa, Cusco PERÚ
- Mr. Sébastien Hocquet 38 rue Vaneau 75007 Paris FRANCE
- Mr. Dr. Idrus Arifudin Dept. of Geological Engineering Gadjah Mada University Tl. Grafika 2, Bulaksumur (55281) INDONESIA
- Mr. Lyal Harris INRS-ETE, 490 rue de la Couronne Québec G1K 9A9 CANADA
- Mr. Vladimir Lebedev 117A International str. Kyzyl Tuva 667007 South-east Siberia RUSSIA
- Dr. Stanislas Sigaret ISTO 1B rue de la Ferallerie 45071 Orléans Cedex 1 FRANCE
- Dr. Zhang Lejun CODES / School of Physical Sciences University of Tasmania Clarke Road, Sandy Bay Tasmania, 7005 AUSTRALIA
- Prof. Chen Cuihua Chengdu University of Technology College of Earth Sciences No.1, Dongsan Road Erxiangiao, Chengdu District, Sichuan Province P.R. CHINA 610059
- Mr. Ding Feng Associate Professor Chengdu University of Technology College of Earth Sciences No.1, Dongsan Road Erxiangiao, Chengdu District, Sichuan Province P.R. CHINA 610059
- Mr. Zhang Baoling Chengdu University of Technology College of Earth Sciences No.1, Dongsan Road Erxiangiao, Chengdu District, Sichuan Province P.R. CHINA 610059
- Mr. Xia Fei Chengdu University of Technology College of Earth Sciences No.1, Dongsan Road Erxiangiao, Chengdu District, Sichuan Province P.R. CHINA 610059
- Mr. Daniel Luis Ibraimo Rua das Carmélias, S/N Bairro de Jonasse Matola Rio Maputo MOZAMBIQUE
- Mr. Rémi Bosc Managing Director Arethuse Geology S.A.R.L. 1060 Rue René Descartes 13290 Aix en Provence Div. Les Milles FRANCE
- Mr. Alan Galley Exploration Director Canada Mining Innovation Council (CMIC) 4850 Keele Street Toronto, ON M3J 3K1 CANADA
- Mr. Marc Bardoux Principal Geologist 640 Rue Principale Ste-Marcelline de Kildare Québec CANADA
- Mr. Stephane Perrouy University of Western Ontario BGS Earth Sciences 1000E 1151 Richmond Street N. London, Ontario, N5A 5B7 CANADA
- Mr. Samuel Ybarra 3333 N 115th Lane Arondale, AZ 85392 USA
- Mr. Thomas Sant (Eldorado Gold) 23A Vassilissis Sofias Ave. 106 74 Athens GREECE
- Mr. Alexandre Aubin 2121 11th Street West Saskatoon, SK, CANADA S7M 1J3
- Mr. Carlos Altamirano (Fresnillo PLC) Carretera a Francesco I. Madero No.1 Geneguillas, Zacatecas, Zacatecas, MEXICO
- Mr. Santos Barrios Sanchez Salamana University C/ Los Martínez 14, IA 37001 Salamana SPAIN
- Mr. Frank Santaguida Principal Geologist First Quantum Minerals Ltd. 90 Point Hope Place Whitby, Ontario L1N 9P8 CANADA
- Dr. Eric S. Andal, Ph.D. Senior Supervising Geologist Unit 3304-B West Tower PSE Centre, Exchange Road, Ortigas Center, Pasig City, 1605, PHILIPPINES
- Dr. Graciano P. Yumul, Jr. Suite 3304-B, Apex Mining Co., Inc. West Tower, Phil. Stock Exchange Bldg., Exchange Ave., Ortigas Center, Pasig City PHILIPPINES
- Mr. Geoff Ballantyne 1987 Yalecrest Ave. Salt Lake City UT 84108 USA
- Mr. William Dynes Geologist Sierra Geological Corp. 2749 Douglasdale Blvd SE Calgary, Alberta, CANADA T2T7 2A4
- Mr. Enzo Garayp Senior Geologist UWEX Inc. Mineral Exploration Business Development 3041 Bloomsbury Drive Kissimmee FL, USA 34747
- Mr. Mathias Lindhuber 4222 Glenhaven Crescent North Vancouver, BC V7G 1B9 CANADA
- Mr. Jean-Jacques Royer Ingenieur de recherche ENSG – Equipe Model Georessources 2 rue du Doyen Marcel Roubault TSA 70605 54518 Vandoeuvre-lès-Nancy Cedex FRANCE
- Mr. Hassan Ait Benmouh KS Igli – Mellab Goulmima – Errachaidia MOROCCO
- Mr. Hissou. A. Atcha 12r A, Soraya Marrakech Menara Mhamid 9, Marrakech MOROCCO
- Mr. Ait Lahcen Abdelouahed Hay Essalam Elmassira I 287 D Marrakech MOROCCO
- Mr. Tristan Mantoy Auplata Centre minier de Tighza 54450 M'irt MOROCCO

- Mr. Abdoul Aziz Ndiaye Senior Lecturer Mining Geostatistics Institut des Sciences de la Terre (IST) UCAD BP 5396 Dakar – Fann SENEGAL
- Mr. Ahmed Chakir Head of Geology Department OCP Group 10, Rue Gantour Quartier El mohammadi 46300 Youssoufia MOROCCO
- Mr. Ryan Bennett Senior Partner Resource Capital Funds 1400 16th Street, Suite 200 Denver, Co 80202 USA
- Prof Ms Samira Essarraj Laboratoire Georessources Faculté des Sciences et Techniques BP 549, Bd Khattabi, Marrakech MOROCCO
- Mr. Jean-Marc Baele 9, rue de Houdain, B-7000 Mons BELGIUM
- Mr. Flavien Choulet 16, Route de Gray F-25030 Besançon Cedex FRANCE
- Dr. Marion Louvel School of Earth Sciences University of Bristol Wills Memorial Building Queens Road Bristol – BS8 1RJ United Kingdom
- Ms Aleksandra Mansfeld, Warschauer Strasse 28, 10243 Berlin, GERMANY
- Mr. Tremain Woods School of Geosciences University of the Witwatersrand 1 Jan Smuts Avenue, Braamfontein Johannesburg, 2000 South Africa
- Mr. Jan Tomasek, Ginsterweg 11, 37077 Göttingen, GERMANY
- Mr. Tim-Lorenz Schaefer, Zimmermannstrasse 58, 37075 Göttingen, GERMANY
- Mr. Michael D'Angelo 119 S Empress Ave Thunder Bay ON, P7B 4N6 CANADA

STUDENT MEMBERS

- Ms Adria Puig Cervantes Av. Ranán i Cajal, 76, 4t 5a P.O. 43005 Barcelona SPAIN
- Mr. Louis Desanois Université de Lorraine FRANCE
- Miss Marie Lefebvre Université de Lorraine FRANCE
- Miss Hélène Legros Université de Lorraine FRANCE
- Ms Ibrahima Sory Souare Université de Lorraine FRANCE
- Miss Marine Delesalle 3, rue de la Clairière 68400 Riedisheim FRANCE
- Mr. Dawid Madejski ul. Krzywa 8 42-310 Zarki POLAND
- Miss Lauri Virnes Melojantie 1B18 90560 Oulu FINLAND
- Mr. Recep Melih Akmaz Bülent Ecevit University Faculty of Engineering Dept. of Geological Engineering 67100, Incivez / Zonguldak TURKEY
- Mr. Erdi Avcı Karadeniz Technical University Dept. of Geological Engineering 61080 Trabzon TURKEY
- Mr. Samet Saka Karadeniz Technical University Geology Department 61080 Trabzon TURKEY
- Mr. Eben Robinson P.O.Box 435 Buea CAMEROON
- Mr Dmitry Tonkachev Leningradskii prospect Bld 66, app. 58 125 315 Moscow Russian Federation
- Miss Marcelina Strzala ul. Rostafinskigo 9 30-072 Kraków POLAND
- Miss Natalia Jakus ul. Slaska 11/1 30-003 Kraków POLAND
- Mr. Piotr Kopec Polonijna 16/22 30-668 Kraków POLAND
- Mr. Agustín Pastor Mantecon C/ Montjuïc No.9 Corbera de Llobregat, 08757 Barcelona SPAIN
- Mr. Héctor Carmona Granados c/ Roquetes 31 08960 Sant Just Desvern Barcelona SPAIN
- Mr. Carlos Santiago Tassara Vallespir 96 08014 Barcelona SPAIN
- Miss Madeleine Erneholt Assistentvägen 102 SE-97752 Luleå SWEDEN
- Ms. Johannes Mennicke, Willy-Brandt-Strasse, 06110 Halle (Saale), GERMANY
- Mrs. Hannah Grant, Geomar – Helmholtz-Zentrum für Ozeanforschung, Wischhofstrasse 1–3, 24148 Kiel GERMANY
- Barré Guillaume Université de Lorraine FRANCE
- Bethon Anastasia Université de Lorraine FRANCE
- Bonzi Wilédio Université de Lorraine FRANCE
- Harlaux Matthieu Université de Lorraine FRANCE
- Leggins Charlotte Université de Lorraine FRANCE
- Royer Jonathan Université de Lorraine FRANCE
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Dr. Jan Pašava
SGA Executive Secretary

Czech Geological Survey
Klárov 131/3
CZ-118 21 Prague 1
Czech Republic

Tel.: +420 2 5108 5506
Fax: +420 2 518 18 748
e-mail: jan.pasava@geology.cz

>>> **page 1** *The 6th Annual Baltic Student Chapter meeting 2015*

Geological resources of 1480 Mt @ 1.96% Cu of ore have been reported in 2012 (www.kghm.pl). Mine visit leaders were KGHM mine geologist Tomasz Chrul and AGH PhD students Władysław Zygo and Tomasz Ćwiertnia, who explained the genetic model of the deposit and led us underground. The group descended via a shaft to the -1000 m level, then was driven in two Land-Rovers to a characteristic deposit profile, including significant Cu-Ag mineralisation. Mine geologists explained the profile and characteristics of the mineralization. The visit was followed by an inspection of KGHM's new shaft drill site, operated by the company PeBeKa SA. M.Sc. eng. Piotr Ducki, a geologist working on the drill site, and his co-workers led our group through all components of the drilling site. The new shaft (7.5 m thick and ~1300 m deep, www.pebeka.com.pl) will provide an access to new mineralisation in deeper parts of the deposit, a few kilometres away from the active mine. We were lucky to witness an uplift of a drilling bit as it was time to change the shaft sinking method from drilling to blasting. During a short meeting with staff working on the drill site, some technical details of shaft drilling and freezing method were described. We also visited the tailings where we could find rocks from the already completed drill profile.

Wednesday, October 26th, began with the official opening of the meeting and a lecture on method and application of AGH's new electron microprobe (EMP), given by Prof. Adam Piestrzyński. The lecture was followed by a visit to the EMP



No, it's not Star Wars. It's a safety training prior to a mine visit at KGHM Copper Polish!



Explaining a Cu-Ag deposit profile in the KGHM Cu-Ag mine.



SGA BSC meeting participants on the -1000m level in the KGHM Cu-Ag mine.



Soo, there is money, right? Investigating Cu-Ag mineralization in thin shale layer.

laboratory. The instrument at AGH is mainly used for ore characterization studies, including mapping of element distribution in ore minerals on the micro scale, but also chemical radiometric dating is performed. EMP laboratory is an outcome of close collaboration of AGH and KGHM Polish Copper. The laboratory visit was followed by a seminar with student presentations, including the following talks:

Tobias Kampmann (LTU): The Falun deposit, Central Sweden – From 1D core logging and 2D mapping to 3D modelling

Krzysztof Getinger (AGH): Satellite Hyperspectral Remote Sensing for Mineral Prospection (Rodalquilar, Spain case study)

Krzysztof Foltyn (AGH): Historic and actual development of the chrysoprase and Ni-deposit in Szklary Massif

Fangfang Guo (OU): Geochemistry of ~2.45 Ga mafic dykes in Northern Finland: constraints on the origin of PGE mineralization in coeval layered intrusions

Shenghong Yang (OU): Mantle source of the 2.4-2.5 Ga plume magmatism in the Fennoscandian shield: evidence from Os isotope composition of chromite

Katharina Wortberg (LTU): Sr isotopes in the Kalix and Råne River.



Great achievement of medieval mining and engineering – 26m high Michałowice chamber. Wieliczka salt mine.



Admiring the work of a few centuries of salt mining. Wieliczka salt mine.



Sightseeing in the old, Jewish part of Kraków-Kazimierz, during a nice, but a little bit freezing evening.



SGA BSC meeting official part.



Drilling site of the new GG-1 shaft, KGHM Polish Copper.



Au deposits short course, presented by Prof. Pasi Eilu

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After the seminar session, the chapter president Joanna Kołodziejczyk led a discussion on chapter issues, such as adjustments of the bylaws, past years' events and activities that we would like to organise or take part in during the upcoming year. There was no need to break the social 'ice' as there did not exist any at this point; however the Ice Breaker party in the Domovka u Jozina Pub in downtown Kraków could not have been more welcome.

The fourth day of the meeting, Thursday, was dominated by a short course on Au deposits, with emphasis on orogenic Au, given by invited SGA Keynote Speaker Adj. Prof. Pasi Eilu (TU). Having worked for the Geological Survey of Finland (GTK) for many years, Pasi has a life-long experience in research of and exploration for orogenic Au deposits in the Fennoscandian Shield. In the course, he summarized in detail geological characteristics of this deposit type, including examples from all over the globe, and discussed distin-

guishing factors of orogenic Au to other Au-rich deposit types (e.g. epithermal deposits).

The focus of the last meeting day, Friday, October 28th, was on the historical Wieliczka Salt Mine in the town with the same name, a few kilometres away from Kraków city centre. Mining commenced during the middle ages. In recent years, the mine has been modified into a large-scale underground museum. In addition, the Wieliczka Salt Mine is considered a world class cultural monument, featuring among only eleven other objects on UNESCO's World Cultural and Natural Heritage List. More than one million tourists visit it each year, making it the most visited tourist mine in the world. The group was guided through the vast tunnels and chambers on a two-hour tour that put emphasis on numerous life-size figures which have been carved artistically in the massive halite, as well as breath-taking illuminations of the adits and halls of the mine. A professionally guided city tour

and a Farewell party at the Carpe Diem Pub in Kraków set a nice finish to the day and the meeting.

We would like to acknowledge all the organizers, presenters, and participants who made the 2014 meeting a great success. We hope for a fruitful continuation in 2015, when we will welcome everyone to Luleå for the 7th annual meeting of the Baltic Student Chapter.

The organizing committee would like to express profound gratitude to the authorities of Polkowice-Sieroszowice and Wieliczka mines for giving a helping hand in organizing the tours.

Dziękuję / Tack / Kiitos!

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News from the Siberian SGA Student Chapter: a field trip to visit the Kamenushinskoe copper and Salairskoe Pb-Zn deposits (Kemerovo Region, Russia)

Maria Cherdantseva, Ilya Prokopyev, Andrey Vishnevskiy

Novosibirsk State University, Novosibirsk, Russia

V.S. Sobolev's Institute of Geology and Mineralogy, SB RAS, Novosibirsk, Russia

In 2014–2015 the SGA Student Chapter organized three short field trips for students of Novosibirsk State University and SGA members.

We visited the Urals in the late August. The main areas of our interests were the Plast old mining region (so-called «Russian Brazilia») and the alkaline complexes of the Vishneviye and Ilmenskiye mountains. In the Plast area we visited the open pit of the Svetlinskoe gold deposit, the Svetlinskoe pegmatite field with quartz, orthoclase, muscovite, beryl, tourmaline and columbite, explored hydrothermal veins of the same area with epidote, quartz and rutile and also the famous Zhukovskaya kop' where we collected rock crystal and found a small crystal of rose topaz analogous to the Brazilian deposits. The second target of this field trip were the nepheline syenites and alkaline pegmatites. Participants visited old zircon, corundum and phlogopite mines together with schoolchildren who are engaged in the geological club in Chelyabinsk City.

In September we organized the traditional excursion to the Skalinsky quarry in gran-

ites of the Kolyvansky intrusion, in which pegmatite cavities are widespread. This trip was attended by the new members of the chapter and 2nd year students of Novosibirsk State University. During the excursion students had a possibility to observe features of the pegmatite mineralization, including structure of veins and cavities, distribution of minerals and other. In addition to pegmatites, this year we found a large quartz vein, not typical for this area, as previously thought. Moreover, the basic principles of open pit exploration were presented directly on the mine.

On the 27–28 May 2015, the SGA Siberian Student Chapter and the Novosibirsk Student Mineralogical society “Crystal” have organized a field-trip to visit the Kamenushinskoe copper and Salairskoe Pb-Zn deposits which are located 300 km from Novosibirsk in the Salair Ridge (Kemerovo Region). Fifteen students and three advisors participated in this two-day trip, which was led by Lyudmila Naumova and Vyacheslav Strelkov – geologists of Salair Mining Company.

The deposits and ore occurrences of lead, zinc and copper are widespread in the western part of the Kemerovo region. The main polymetallic ores occur where economical effective reserves of lead, zinc, copper are located in the northeastern part of the Salair Ridge. Cambrian volcanic and sedimentary sequences form the primary basement of this region. The volcanics are mainly represented by dacitic lavas interlayered with agglomerates and tuffs. Metamorphism, intensive tectonics and hydrothermal alteration led to foliation of this rocks and formation of quartz and quartz-barite metasomatites, to which are confined the main ore bodies.

The excursion started on the Salairskoe ore field (N 54°15'04.1"/E 85°47'04.7") where Pb, Zn and barite were exploited until 2003. Gold and silver are concomitant components. Polymetallic ore bodies are unevenly distributed and situated in altered sedimentary rocks and dacites. Two types of ore are common – massive carbonate-quartz-barite ore, which form lenses, and disseminated barite-polymetallic ore.



*Sampling of quartz-rutile crystals in the Svetlinskoe pegmatite field, Ural Mts.
Photo by Maria Cherdantseva.*



*Reticulated crystals of rutile, Svetlinskoe pegmatite field, Ural Mts.
Photo by Andrey Vishnevsky.*

We started the excursion at the base of the quarry, where some ore samples with primary galena, sphalerite and pyrite were collected. On the upper horizons of the mine, oxidation is widespread. The primary sulphides are not preserved, and the secondary minerals form very fine-grained aggregates in a mixture with iron hydroxides. Here we also visited quartz-barite ore dumps where we found massive barite ore and veins with fine-grained barite crystals.

In the next step we have visited the quarry of the Kamenushinskoe deposit (N 54°17'58.7"/E 85°46'48.4"). The Kamenushinskoe deposit, discovered in 1950s, is the largest copper deposit in the Kemerovo region. The mineralization is hosted by metasomatic altered schists and dacites (quartz porphyries). Ore minerals are represented by unevenly distributed interspersed veinlets of sulphides – mainly pyrite and chalcopyrite. Rarer sphalerite, galena, molybdenite, pyrrhotite and tennantite-tetrahedrite are found both in bedrocks and quartz veins. Late quartz veins contain a small amount of gold. Now the quarry is not exploited due to economic reasons and is partially flooded. We have collected some samples of primary sulphides and oxidized ores.

The highlight of our trip was the visit of the supergene ore zone of altered rocks where the participants were able to find amazing crystals of azurite, malachite and chrysocolla. Moreover, big samples of native copper were found there although they are anomalous for this deposit.

Local geologists hope for resuming exploration of the Kamenushenskoe open-pit because the significant amount of copper ores is still not exploited. A more detailed photo report with pictures of unique crystals of secondary copper minerals can be found at www.sib-sga.com. The most of



The Kamenushinskoe quarry. Photo by Maria Cherdantseva.



Participants collecting samples from a large quartz vein in Skalinsky quarry. Photo by Andrey Vishnevsky.

beautiful ore samples and crystals will be given to the mineralogical museums of the Institute of Geology and Mineralogy SB RAS, Novosibirsk State University and to Student Mineralogical Society "Crystal", as well as they will be used for a collection for students of our University. The

Siberian Student Chapter thanks SGA for the financial support and the leadership of the Institute of Geology and Mineralogy SB RAS, and „UK Kuzbassrazrezugol“ –director Igor Moskalenko, geologists Lyudmila Naumova and Vyacheslav Strelkov for the field trip organization.



Fibrous crystals of malachite collected in the Kamenushinskoe dumps. Photo by Vladislav Dultsev.



Group photo of participants at the Salairskoe ore field. Photo by Vladislav Dultsev.

The Barcelona SGA Student Chapter: supporting the continuous educational training of our students

Sandra Baurier Aymat, Lisard Torró i Abat, María Clara Román Alday, Laia Arqués Farré

Facultat de Geologia, Universitat de Barcelona (UB), Barcelona, Catalonia, Spain. mariaclararoman@hotmail.com

Due to our concern on complementing the academic formation of both undergraduate and master students on the Mineral Deposit field, the SGA Student Chapter from Barcelona organizes conferences, fieldtrips and workshops. Hence, during the last months we carried out different activities consisting of various lectures given by experts on diverse topics.

MSc. Carl E. Nelson, consulting economic geologist (Recursos del Caribe S.A.), gave a lecture entitled “Genetic Models for the Pueblo Viejo Au-Ag-Cu-Zn district, Dominican Republic” on November the 3rd 2014. This enlightening talk focused on the origin of the Pueblo Viejo Deposit, which has long been subject of debate. Nelson, from depicting the epithermal and VMS characteristics of this world class deposits, challenged the undergraduate, master and PhD students and professors attending the lecture to discuss and assess the assignation of the deposit to an “off the shelf” model.

On February the 24th 2015, Dr. Bernhard Dold, professor at the University of

Chile and current president of SUMIRCO, reopened the year with a talk entitled “Acid Waters in Antarctica”. As explained by Dr. Dold, acid waters are mainly due to the interaction between groundwaters of different geological units containing significant amounts of massive metal sulfides by oxidation and dissolution processes in warm climates; however, although known to occur, the formation of acid waters from sulphide oxidation in cold climates (e.g., in Antarctica) is scarcely studied and its impact on local species, poorly constrained. Dr. Dold assessed how his research has contributed to the understanding of the relationship between this phenomenon and the effects of the contribution of limit elements to the ocean food chain and even how research on sulphide oxidation in an extreme climate could help understanding the origin of life and the possibility of finding it in other planets. The ending of the talk gave rise to the beginning of a familiar debate, in which undergraduate student participation was notorious.

Prof. Esteve Cardellach López (Autonomous University of Barcelona), on the 5th of March 2015, conferred the SGA Student Chapter of Barcelona a lecture under the title of “Application of Stable Isotopes in the Study of Ore Deposits”. This talk broadened all knowledge about the most frequently applied isotopic equilibrium systems in the study of mineral deposits, their application on the identification of the origin of mineral fluids and the description of real examples which are found worldwide.

In addition to the development of all these lectures, the Barcelona SGA Student Chapter also organized further activities. For those members interested in improving their English we periodically organize “cineforums”, which consist in watching a film (with a possible geological theme) which would end with a colloquial debate referring to its social and scientific aspects.

If you are interested in the new activities that the Barcelona SGA Student Chapter is organizing for next upcoming months, please check our webpage: <http://bcn-sga.cat/>.



Group photo of some members of the SGA Barcelona Student Chapter taken at the Faculty of Geology of the University of Barcelona.

News from the Colombia SGA Student Chapter: Field Trip in the mineralized belt of Cauca

Gamboa H. Jorge., Pinzón N. Diego., Camacho G. Diana. Y.

School of Geology, Universidad Industrial de Santander (UIS). AA. 678.Bucaramanga. Colombia; E-mail: sgacolombia@gmail.com

From 17th to 21st of November 2014 the second annual field trip of the SGA-Colombia Student Chapter was carried out in order to visit three gold deposits located in the Central Cordillera of the Colombian Andes. The Field Trip started with the visit of two major deposits: the “La Colosa” in the Tolima Department and the “Marmato” in the Caldas Department, both located in the so-called “mineralized belt of Cauca”. At the end, we visited a small but interesting Project, in the municipality of Cisneros, in the Antioquia Department.

As we said before, the first deposit was the “La Colosa” project, which belongs to AngloGold Ashanti and is still under the phase of exploration and prospecting, yet it has an inferred resource of 26,8 million ounces of gold. It represents an excellent gold-rich porphyry deposit with minor amounts of copper and molybdenum. Initially, on November 18 we were in the city of Ibagüe (Tolima Department) in the lodging house of this project. There geologists showed us the main features of the deposit through presentations, maps and study of drilling cores. At end of the day we learned something about the geotechnical processes related to the mining activity.

On the 18th we went directly to visit this deposit, which is located 14 km from the town of Cajamarca (Tolima Department)

and 30 Km from the city of Ibagüe, in the north part of the Cauca mineralized belt. There we had a trip through the mining district in order to recognize some of the porphyries that comprise “La Colosa” porphyry system. The deposit is mainly formed by bodies of diorite dated as late Miocene in age, intruded into the metamorphic basement. The main alteration found in the porphyry is potassic.

On November 19 we visited the second deposit in our schedule, the “Marmato” project which belongs to the Gran Colombia Gold company and is located in the town of Marmato (Caldas Department), in the middle part of the mineralized Cauca belt.

This mining district has been under exploitation since pre-colonial ages. The mineralization consists of gold and silver: in 2012 the deposit contained a measured and indicated resource of 11.8 million ounces of gold and a measured and indicated resource of 80.3 million ounces of silver.

We visited this project by a day where we took advantage to know the main characteristics of the deposit.

The Marmato Deposit consists of dacite and andesite porphyry intrusions of Late Miocene age associated with intermediate argillic and propylitic alteration that intrude the Arquía Complex. Mineralization

is host ed by pyrite veinlets controlled by brittle regional structures and associated with intermediate alteration within the porphyry system. The veinlets are composed of sulphides, dominantly pyrite, silver sulphides and sulphosalts with a low percentage of gangue.

In the last two days of our field trip we visited the “Cisneros Deposit”, belonging to Antioquia Gold Inc. This deposit is located in the central area of the department of Antioquia within the Antioquia Batholith, which is a significant intrusive body within the Central Cordillera belt of Colombia and has a late Cretaceous age (approx. 88.0 Ma).

This visit to our last scheduled deposit began on November 21. That day we learned basic aspects related to the project. we were told that the company has made nine (9) individual and separate gold discoveries, two (2) of which, the „Guayabito“ and „Guaico“ deposits, are in an advanced stage and are currently being developed into an underground mine.

The Cisneros Project occurs in deformed granodioritic-tonalitic rocks. Gold mineralization typically occurs within sulphide-rich (pyrite, chalcopyrite) quartz veins and breccias that are controlled by significant primary and secondary regional faulting occurring within the project area.



Drill core warehouse of Anglo Gold Ashanti, with the exploration geologist Adriana Castro. Ibagüe/Tolima.



La Colosa Project. Cajamarca/Tolima

“Guayabito” is a multi-zone deposit, with an echelon style with individual zones achieving strike lengths of 180 m, depths of 300 m and localized true thickness up to 5.0 m as we were instructed. “Guaico” is a deposit very similar to Guayabito.

The last day we visited the logging rooms to examine the drilling cores of this small but promising project. We also had the opportunity to attend a geotechnical sampling, learning part of the protocols involved in the process. Later

that day, we were instructed about the fundamentals of geotechnical logging, and finally, we assisted to a core drilling where the operators resolved doubts concerning the drilling process.



Drill core warehouse of Marmato Project, With the VP Exploration of Gran Colombia Gold Corp. Alessandro Cecchi. Marmato / Caldas.



Drill core warehouse of Cisneros Project. With the exploration geologist Mauricio Marin. Cisneros / Antioquia.

News from the Prague SGA Student Chapter: Mineralization styles of the Krusne hory/ Erzgebirge Mts.

Ondrej Kratky, Jan Kulhanek, David Dolejs

Faculty of Science, Charles University, 128 43 Praha 2, Czech Republic

The Prague SGA Student Chapter organized its last field trip in 2014 to investigate various mineralization styles and mining activities in the Krusne hory/Erzgebirge Mts, the mountain region spanning the border between the Czech Republic and Germany. The Erzgebirge district has a long history of silver, base-metal, tin, tungsten, iron, fluorite, and uranium mining. The main attractions of the field trip were underground visits to the historical mines of Krupka (hydrothermal Mo-W vein mineralization), Markus-Röhlings-Stolln in Wiesa-Schönfeld (Ag-Co mineralization), Dorothea-Stolln in Annaberg-Buchholz (Ag-Co-Ni-Cu mineralization), Markus-Semmler Stollen in Schneeberg (U stockwork) with several stops including Zlatý kopec (polymetallic magnetite skarn). Fourteen students

participated in this 3-days field-trip, which was led by David Dolejs.

The Erzgebirge Mts. (Ore Mountains) form a natural border between Saxony (Germany) and the Czech Republic, and belong to the Saxothuringian zone of the Variscan orogeny. Ore deposits are hosted in the Neoproterozoic and Lower Paleozoic volcanosedimentary and intrusive sequences, which were metamorphosed to produce phyllites, gneisses, migmatites and red orthogneisses. This nappe complex is shaped into an anticlinorium, with its axis oriented in a NE-SW direction. The Variscan post-collisional igneous activity (327-290 Ma) was characterized by emplacement of large granitic plutons, silicic dykes, and rhyolites, accompanied by redwitzite intrusions and several stages of lamprophyre dykes.

The silicic magmatic activity produced highly fractionated, Li-Sn-F-rich magmas and their associated hydrothermal systems. Additional hydrothermal and ore-forming events were related to brittle deformation in the foreland of the Alpine orogen. The Erzgebirge domain has been richly endowed in iron, base-metal, tin-tungsten, molybdenum, silver-bismuth-cobalt-nickel-uranium, hematite-quartz, and fluorite-barite deposits. Starting in the Paleogene, the Erzgebirge area was uplifted along two major fault structures – the Erzgebirge (NE-SW trending) and the Marienbad faults (NNW-SSE trending). Extensive volcanic activity was associated with the rifting, which produced the Eger graben, where volcanic products, hydrothermal activity, and CO₂ emissions are still observable today.



Barite-fluorite vein, Dorothea Stolln, Annaberg-Buchholz.



Quartz vein with feldspatization hosting the cassiterite mineralization, Starý Martin adit, Horní Krupka.

During the first day we visited the historical mining district of Horní Krupka (Graupen). For more than a millenium, widespread cassiterite greisen-related mineralization was the main mining target. The first historical mention dates back to 956. The Sn-W-Mo deposits are located in the paleorroof of the Eastern Krusne hory/Erzgebirge pluton in the altered sequences of phyllites, micaschists, paragneisses, with some amphibolites. We had the opportunity to visit the Starý Martin adit (visitor mine accessible to public), surficial outcrops of the Lukáš vein (hydrothermal Cu-Zn mineralization), outcrops at the Prokop adit (molybdenite quartz-greisen stockwork) and the Zwickpenpinge dump (chalcocite-bearing greisens). In the western part of the Krupka-Preisselberg district, the late Variscan rhyolites are altered and intersected by low-temperature fluorite veins, associated with strong hematite alteration.

These veins were exploited by shallow pits and we had the opportunity to visit representative exposures at Vrchoslav.

During the second day we visited several hydrothermal mineralization styles in the Saxonian part of the Krusne hory/Erzgebirge Mts. The Markus-Röhling-Stolln visitor mine at Wiesa-Schönfeld exploited silver-cobalt vein mineralization. This mine produced more than 15.4 tons Ag and 5.1 tons Co before the mining activities ceased in 1857. The mineralization is hosted in grey orthogneisses with variable biotite content. Today, the mine is a great attraction for public visitors due to operating large water mills, rebuilt to mimic those used in medieval times for water pumping. In the Annaberg-Buchholz area, a total of 310 hydrothermal veins were exploited, and 160 belong to the Bi-Co-Ni-Ag-U association. Our next stop, the Dorothea Stolln south of Annaberg-Buchholz, explored the Ag-Co-

Ni-Cu and fluorite-barite mineralization. The former silver mine was active from 1530's, and in 1536-7 only, 9 tons Ag were recovered from the main vein. The cobalt and nickel ores were exploited later together with copper mineralization. Exploration and minor exploitation of uranium ores was developed by the Wismut company after 1945 under the Soviet influence. These two mine visits were complemented by a tour through the abandoned open pit at Geyer. The pit is a collapse structure after extensive underground mining of cassiterite-bearing greisens, hosted in a small cupola of highly evolved, Li, F, P-rich granites. The greisens occur as minute veins or granite replacements, and are subdivided into mica-quartz and topaz-quartz varieties. Some of the topaz-bearing greisens host arseopyrite-loellingite mineralization. The granite cupola and its marginal pegmatite (K-feldspar megacryst zone – stockscheider)



Phyllites with foliation-parallel quartz secretions, which host uranium mineralization, Glöckel mine, Johanngeorgenstadt.



Group photograph at the open pit exposing highly evolved granites with Sn-As greisen mineralization, Geyer.

are, in addition, cross-cut by late, low-temperature quartz-hematite hydrothermal veins.

On the third day, we mainly paid attention to one of the largest uranium vein-type deposit in the world – Schlema-Alberoda. This deposit was explored and exploited by the Soviet geologists after 1946. Up to 1991 this deposit produced about 80 500 tons U. Mineralization at Schlema-Alberoda is a complex multiphase sequence with different ages of deposition. The uranium-bearing carbonate veins of post-Variscan age were the most important mining target.

The deposit is intersected by a large number of faults, fissures, and veins. They were formed by repetitive contraction and extension events. Similar mineralization is exposed in the Glöckel mine (Johanngeorgenstadt), which was our subsequent stop.

The last stop of our excursion was tin- and base-metal magnetite skarn at Zlatý kopec, near Boží Dar. The Johan adit was recently renovated and will serve for public access. The mineralized skarns and tourmalinized phyllites contain up to 1 wt. % SnO₂ in the form of cassiterite, in addition to elevated abundances of In and Cd. The

skarn precursors are dolomite horizons of Lower Paleozoic age, which were altered and metasomatized during the emplacement of late Variscan granites. The district is intersected by younger, low-temperature Ni-Co-Bi-Ag-U and fluorite-barite mineralization.

This field trip gave us valuable insight into diverse mineralization styles and ore-forming processes in the Krušné hory/Erzgebirge Mts. We would like to thank all our guides for their time and efforts to make the mine visits possible, enjoyable and inspiring.

SGA launches a new award for recognizing service to the Society: the SGA-KGHM Krol Medal

Jan Pašava, SGA Executive Secretary
Georges Beaudoin, SGA President

Czech Geological Survey, Geologická 6, 15200 Praha 5, Czech Republic, jan.pasava@geology.cz
Université Laval, 1065, avenue de la Médecine, Québec, Canada, Georges.Beaudoin@ggl.ulaval.ca

The objective of this new award is to recognize outstanding service to the Society. The medal is to be awarded to worthy candidates at SGA Biennial Meetings and also on ad hoc basis.

The medal is named after Gerardus L. Krol (1912–1984) who played a key role in the foundation and development of the Society. Particularly during the years of 1965 to 1969 G.L. Krol consistently displayed all his talents and communicated his strong enthusiasm and his clear vision of the future to the small group that was to be the Provisional Executive Committee of SGA. This group gathered for the first time on April 23, 1965, in Heidelberg to launch *Mineralium Deposita* and to found the Society. He was unanimously asked to preside over the Provisional Executive Committee. Those who participated in this venture will not forget the meetings of this Committee where a heavy agenda was rapidly and efficiently dealt with under his humorous, energetic, and clear guidance (Schneider 1984). Thanks to his sense of diplomacy, good relations were soon established with other organizations like the IUGS. Once the Society was officially formed, Dr. Gerardus L. Krol was elected its first President, a well-deserved honor,

given the efforts and the time which he had devoted to it. So it is most appropriate to establish this new award to recognize service to the SGA in the name of one of its founder, and first president.

The SGA-KGHM Krol Medal is minted from three troy ounces of pure silver. The medal is slightly oval in shape. The face of the medal shows a portrait of G.L. Krol, whereas the reverse shows the logos of the SGA and KGHM (Figure 1). We sincerely thank the Krol family for permission to name this prestigious award after G.L. Krol.

The SGA-KGHM Krol Medal will be awarded for the first time, in presence of the Krol family, during the Opening Ceremony of the 50th SGA Anniversary Meeting on August 24, 2015 in Nancy, France.

References

Schneider, H. (1984): In Memoriam: Gerardus L. Krol, 12 October 1912–8 May 1984. *Mineralium Deposita*, 19, 4, 322.



Sketch of the SGA-KGHM Krol Medal.

>>> FORTHCOMING EVENTS <<<

* marks a new entry

2015

*August 3–7

14th International Congress of the Brazilian Geophysical Society, Rio de Janeiro, Brazil – Contact: <http://www.sbgf.org.br/>

*August 7–14

XXXII International Conference on ‘Alkaline Magmatism of the Earth and related strategic metal deposits’, Apatity, Murmansk Oblast, Russia – Contact: <http://alkaline.web.ru/2015/index.htm>

*August 8–12

ICAM 2015 – International Congress on Applied Mineralogy, Istanbul, Turkey – Contact: Emin CIFTCI; Phone: [+905324870896]; Email: eciftci@itu.edu.tr; <http://www.icam2015.org>

*August 8–14

Geoanalysis 2015 – 9th International Conference on the Analysis of Geological and Environmental Materials, Leoben, Austria – Contact: <http://www.geoanalysis.info>

August 16–21

2015 Goldschmidt Conference, Prague, Czech Republic. Contact: <http://www.geochemsoc.org/programs/goldschmidtconference/>

August 24–27

13th SGA Biennial Meeting “Mineral Resources in a Sustainable World”, Nancy, France – Contact: sga-2015@univ-lorraine.fr, <http://www.e-sga.org/index.php?id=5>

September 13–16

International Symposium on Knappable Materials 2015, Barcelona, Spain. Contact: <http://www.ub.edu/cherts-symp2015/>

*September 17

WMES 2015 – The World Multidisciplinary Earth Sciences Symposium, Prague, Czech Republic – Contact: <http://www.mess-earth.org/info.html>

September 20–25

8th Hutton Symposium on Granites and Related Rocks, Florianópolis, Brazil. Contact: <http://www.hutton8.com.br>

September 21–25

AIG-11 – Applied Isotope Geochemistry Conference, Orléans, France. Contact: <http://aig11.brgm.fr>

October 31–November 3

2015 Geological Society of America (GSA) Annual Meeting, Baltimore, Maryland, United States. Contact: <http://www.geosociety.org/meetings/2015/>

November 1–5

Geological Society of America Annual Meeting, Baltimore, MD, United States. Contact: <http://www.geosociety.org/meetings/>

November 3–5

FEM – 10th Fennoscandian Exploration and Mining, Levi, Finland. Contact: <http://fem.lappi.fi/en>

*November 9–14

10th annual Ore Deposits Models and Exploration workshop, Chang'an University, College of Geology and Mineral Resources, 126 Yianta Road, Xi'an, China – Contact: Professor Jian-gang Jiao, e-mail jiangang@chd.edu.cn, tel.: 1309694973. Co-sponsored by SGA.

December 7–12

International School on Geothermal Exploration, ICTP Trieste, Italy. Contact: http://www.ictp.it/scientific-calendar.aspx?start_date=01/01/2015&end_date=31/12/2015

*December 14–18

2015 AGU Fall Meeting, San Francisco, United States. Contact: <http://meetings.agu.org/>

2016

February 15–June 17

Melt in the Mantle, Isaac Newton Institute for Mathematical sciences, Cambridge, United Kingdom. Contact: <http://www.newton.ac.uk/programmes/MIM/>

*June 26–30

AESC 2016 – Australian Earth Sciences Convention, Adelaide, Australia – Contact: <http://aesc2016.gsa.org.au/>

June 26–July 1

2016 Goldschmidt Conference, Yokohama, Japan. Contact: <http://www.geochemsoc.org/programs/goldschmidtconference/>

August 27–September 4

35th International Geological Congress, Cape Town, South Africa. Contact: <http://www.35igc.org/>

September 25–28

The Geological Society of America (GSA) 2016 Annual Meeting, Denver, United States. Contact: <http://www.geosociety.org/meetings/>

2017

October 22–25

The Geological Society of America (GSA) 2017 Annual Meeting, Seattle, United States. Contact: <http://www.geosociety.org/meetings/>

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email: nikola.koglin@uni-wuerzburg.de*

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The screenshot shows the homepage of the Society for Geology Applied to Mineral Deposits (SGA). The header features the SGA logo and the text "SOCIETY FOR GEOLOGY APPLIED TO MINERAL DEPOSITS". Navigation links include "About Us", "Contact", and "Apply Now". A search bar is present with the text "Search the site...". Below the header is a menu with links: "About", "News", "Publications", "Members", "Educational Fund", "Awards", "Meetings", "Students", and "Contact us". The main content area includes a large image of a mineral specimen, a "LOGIN" button, a "SHOP" button, and sections for "Publications" (featuring "Mineralium Deposita" and "SGA News"), "Membership", "Educational Fund", and "Events" (listing "PACRIM 2015. Hong Kong, China" and "4th SGA - SEG - UNESCO - IUGS short course on African Metallogeny 'Mining in Africa'").

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Educational Fund

It is widely acknowledged that there is a worldwide shortage of well-trained young professionals in the field of mineral deposit research and economic geology. By establishing the SGA Educational Fund (SGA EF), the SGA wishes to contribute to training the next generation of economic geologists by providing support for educational activities in mineral deposit geology for students and professionals from economically disadvantaged backgrounds.

Events

Mar 18 PACRIM 2015. Hong Kong, China

Mar 23 4th SGA - SEG - UNESCO - IUGS short course on African Metallogeny "Mining in Africa". Addis Ababa, Ethiopia.


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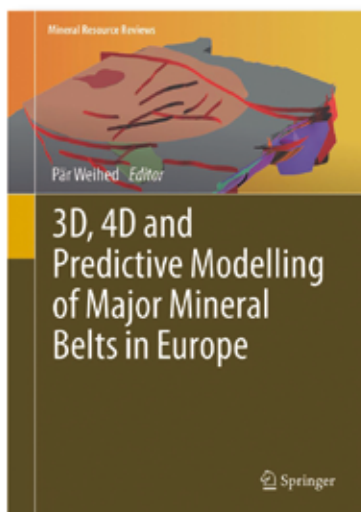
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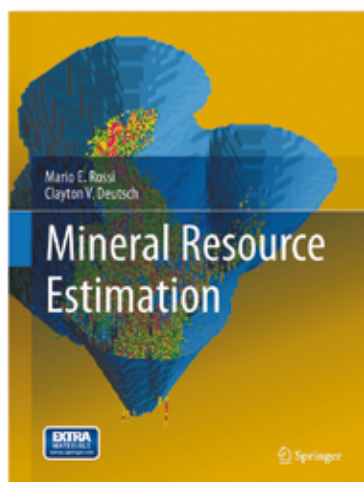
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Mineral resource estimation has changed considerably in the past 25 years: geostatistical techniques have become commonplace and continue to evolve; computational horsepower has revolutionized all facets of numerical modeling; mining and processing operations are often larger; and uncertainty quantification is becoming standard practice. Recent books focus on historical methods or details of geostatistical theory. So there is a growing need to collect and synthesize the practice of modern mineral resource estimation into a book for undergraduate students, beginning graduate students, and young geologists and engineers. It is especially fruitful that this book is written by authors with years of relevant experience performing mineral resource estimation and with years of relevant teaching experience. This comprehensive textbook and reference fills this need.



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Society for Geology Applied to Mineral Deposits (www.e-sga.org)

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Dr. Jan Pasava, SGA Executive Secretary, Czech Geological Survey, Klárov 131/3, CZ-118 21 Praha 1, CZECH REPUBLIC
 Phone: ++(420)-2-51085506, Fax: ++(420)-2-51818748, e-mail: secretary@e-sga.org.

SGA 50th

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for the 13th SGA biennial Meeting



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FRANCE | **AUGUST**
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**“MINERAL RESOURCES
IN A SUSTAINABLE WORLD”**



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SCIENTIFIC SESSIONS

1. [Geodynamics, orogenic cycles and mineral systems](#)
2. [Porphyry and epithermal deposits](#)
3. [Fluids and ore genesis](#)
4. [Developments in element and isotope geochemistry, source tracing and geochronology](#)
5. [Strategic metals: sources and ore-forming process](#)
6. [Magmatic \(Ni-Cu-Cr-PGE\) mineral systems: ore forming processes and geodynamic setting](#)
7. [REE and other mineralization associated with carbonatites and alkaline rocks](#)
8. [Iron ores including IOCG](#)
9. [Organic matter and ore deposits: where the molecular word meets the mineral](#)
10. [Concentration processes in sub-surface environments](#)
11. [Marine mineral resources](#)
12. [Processing of low-grade ore deposits](#)
13. [Gems and industrial minerals](#)
14. [Geometallurgy](#)
15. [Phytomining strategic metals and other elements from naturally mineralised soils and mineral wastes](#)
16. [Social and environmental issues in sustainable mining practices](#)

SYMPOSIA

- A. [Metallogeny of North and West Africa](#)
- B. [3D modeling - in honor of J.L. Mallet](#)
- C. [Uranium deposits - in honor of M. Cuney](#)
- D. [Sediment-hosted deposits - in honor of Jan Pašava](#)
- E. [Volcanogenic Massive Sulfide ore deposits - in honor of James Franklin](#)

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WORKSHOPS

WORKSHOP 1. APPLIED STRUCTURAL GEOLOGY IN MINERAL EXPLORATION AND MINING: A PRATICAL WORKSHOP

- 2 days – Pre-meeting workshop – 22th and 23th of August 2015

SRK is pleased to offer a professional development workshop consisting of practical technical training in structural geology developed for the exploration and mining industry.

The workshop material is designed to provide the attendee with a broad knowledge of salient concepts in structural geology applicable to mineral deposits and to equip the attendee with key practical skills that will enable them to interpret a wide range of structural data and therefore make informed decisions in areas of structural uncertainty.

Designed to be of real-world practical use, the workshop is planned to consist of 2 days of lectures (50%) and practical exercises (50%) that draw on the global experience of SRK's structural geologists and include case studies which demonstrate the application of structural geology to a range of industry-related issues (e.g., exploration, mining, rock mechanics and Mineral Resource projects).

- **Contact:** Chris BONSON - cbonson@srk.co.uk and Paul STENHOUSE pstenhouse@srk.co.uk

WORKSHOP 2. INTENSIVE COURSE IN GEOPHYSICS: GRAVIMETRY AND MAGNETOMETRY APPLIED TO EXPLORATION

- 2 days - Pre-Meeting workshop – 22th and 23th of August 2015

This intensive course, intended for geologists with limited knowledge of geophysics, introduces gravimetry and magnetometry. In addition to reviewing the theory of potential field methods, the course covers data processing and correction, spectral analysis techniques, and source separation and enhancement techniques, to show how geological and structural information can be best extracted from data for use in exploration programs. Results interpretation methods and case studies are also presented to illustrate the theoretical concepts.

- **Day 1 – Theory**

- Review of gravimetry theory
- Review of magnetometry theory
- Data processing
- Spectral analysis, source separation, enhancement

- **Day 2 – Applications and Case Studies**

- Processing to help visualize geological units and sophisticated structures
- Mapping of deep structures
- Applications for Archean terranes and high-grade metamorphic belts

Contact: Lyal HARRIS and Bernard GIROUX, INRS-ETE - lyal_harris@ete.inrs.ca

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WORKSHOP 3. AGROMINING: FROM SOILS TO REFINED METAL PRODUCTS

- 2 days - Pre-Meeting workshop - 28th and 29th of August 2015

Agromining (a wider concept than Phytomining) is an emerging technology aimed at recovering metals from plants grown on low-grade ores, mining and industrial waste, or mineralized soils. It is based on domestication and culture of plants that possess the exceptional ability to take up metals with their roots (hyperaccumulators). The technology has expected outcomes in degraded land restoration and metal-rich waste treatment, thus providing an additional source of income to restoration projects.

The workshop is aimed at addressing key questions including: How can hyperaccumulators be used, from discovery to application, to improve the outcomes of mine site restoration? Where does the greatest potential for agromining lie? What are the new metallurgical pathways for treating the bio-ores and expected products? What is needed to develop large-scale trials and pilot-scale biomass treatment units towards full commercialization?

The leading scientists responsible for initiating and developing phytomining and agromining worldwide will provide participants with the most recent scientific advances and feedback from field experience.

• **Day 1 – Metal hyperaccumulation and sources of metals**

- The scientific basis of metal hyperaccumulation by plants (mechanisms, biology and ecophysiology)
- The global diversity of metal hyperaccumulators and their potential use in agromining projects
- The biogeochemistry of metals of interest in soils, mine and industrial waste
- Rhizosphere and microbial processes to enhance metal uptake by hyperaccumulators
- Rehabilitation of nickel laterite mining waste (New Caledonia, Brazil, Indonesia)

• **Day 2 – Agromining and metal recovery**

- The agronomics of agromining operations
- Cropping systems for Ni agromining (experiences in Albania, USA, Indonesia)
- Production of refined products from bio-ores

A visit to agromining field trials set up at the GISFI experimental station will be organized.

- **Contact:** Guillaume ECHEVARRIA, Université de Lorraine-INRA, LSE and Jean-Louis MOREL, Université de Lorraine-INRA, LSE - guillaume.echevarria@univ-lorraine.fr

WORKSHOP 4. SPECTROSCOPIES FOR FIELD WORK

- 3 days - Pre-Meeting workshop - 21th to 23th of August 2015

Spectroscopic setups designed for field work applications are useful tools for gathering the best possible data during field investigations. This short course intends to review the physical basis on which spectroscopic tools rely and the technical breakthroughs that have enabled some of these techniques to be employed in the field. Practical sessions will be dedicated to testing the possibilities and limitations of a selection of techniques. The field tools under consideration are: X-Ray Fluorescence, Gamma-ray Spectroscopy, Raman, Infrared, Laser-Induced Breakdown Spectroscopy and X-Ray Diffraction. Contacts are currently being taken and the actual techniques available will be advertised at later date.

- **Contact:** Jean CAUZID, Université de Lorraine-GeoRessources - jean.cauzid@univ-lorraine.fr

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WORKSHOP 5. FLUIDS AND METALS

- 2 days - Pre-Meeting workshop – 22th and 23th of August 2015

Fluids play a key role in the formation of ore deposits via the transport and the deposition of metals. What are the main geological fluids and their metal contents? What are the key parameters that must be known for deciphering the source-transport-deposition processes? What information can be derived from fluid inclusions in terms of P-T conditions, fluid-rock interactions, and fluid mixing and un-mixing, using microthermometry associated with phase diagrams and analytical techniques (Raman, LA-ICP-MS)? Complete understanding of an ore-forming process also requires knowledge of the parameters which control the solubility of metal-bearing phases. Experimental studies of mineral solubility, including metal speciation, and stability constants of dissolved metal-bearing species may allow ore-formation processes to be modeled. This short course will focus on the following items:

- Metals and main types of geological fluids. Questions addressed to establish conceptual models.
- Petrography of fluid inclusions and relating them to the geological context
- Reference chemical systems, thermodynamic models and their use in estimating density-composition data; fluid mixing and unmixing processes
- Experimental and thermodynamic analysis of solubility of metal-bearing minerals in fluids
- Case studies of ore-deposits (4): halogens, metal analysis, stable isotopes, and modeling.
- Practice: observation of certain phase changes with temperature; Raman and LA-ICP-MS analysis.

- **Contact:** Jean DUBESSY, CNRS-GeoRessources - jean.dubessy@univ-lorraine.fr

WORKSHOP 6. MODELING MINERAL DEPOSITS IN 3&4D

- 3 days - Pre-Meeting workshop - 21st to 23rd of August 2015

This workshop is designed for geoscientists involved in characterizing and evaluating mineral resources using integrated 3D computer earth models. The program will introduce participants to geological modeling, target assessment, and deposit model building by combining and interpreting data from different geo-scientific disciplines (e.g. geology, geophysics and geochemistry). Notions of geological interpretation (rock classification, surface to sub-surface reconciliation, scale issues), structural modeling including faults, fractures and deformation modes, 3D geological model building (implicit and explicit methods), geophysical inversions (potential fields, electrical and EM methods, constrained and lithology-based scenarios), reserve estimation and structural history (3D/4D models based on restoration techniques) will be reviewed. A number of cases studies will be selected from different areas to illustrate the concepts addressed in the course. The participants will practice on the computer using gOcad and various plug-ins developed by Mira geo-science and the gOcad consortium.

- **Contact:** Jean-Jacques ROYER, CNRS-GeoRessources-ENSG and Gervais PERRON, Mira Geoscience - royer@gocad.org

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SGA**13TH SGA BIENNIAL MEETING
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- 1 day - Pre-Meeting workshop - 23rd of August 2015
- **Contact:** Marco Fiorentini, CET and Steve Barnes, CSIRO - marco.fiorentini@uwa.edu.au and Steve.Barnes@csiro.au

WORKSHOP 8. SOCIETY OF ECONOMIC GEOLOGY WORKSHOPS ON THE GEOLOGY AND GEOCHEMISTRY OF GOLD DEPOSITS

- 2 days - Pre-Meeting workshop – 22th and 23th of August 2015

This workshop will cover all aspects of gold deposit characteristics, their genesis, and their exploration, with overviews on gold in geothermal systems, low and high sulfidation epithermal deposits, gold-bearing porphyry deposits, reduced intrusion-related gold systems, Carlin ores, and orogenic gold deposits.

- **Contact:** Richard Goldfarb - rggoldfarb@mac.com



OVERVIEW PROGRAM

	Aug 19-23	Monday Aug 24	Tuesday Aug 25	Wednesday Aug 26	Thursday Aug 27	Aug 28 – Sept 02
Morning		8.30 10.10	8.30 10.10	8.30 10.10	8.30 10.10	
		Opening session	Plenary sessions	DEF – STUDENT CHAPTER SGA	Plenary sessions	
		Coffee break	Coffee break	Coffee break	Coffee break	
		1 2 3 4	SGA General Assembly	13 14 15 16 17 18 19 20	29 30 31 32	
Lunch		Lunch	Lunch	Lunch	Lunch	
		5 6 7 8	9 10 11 12	21 22 23 24	33 34 35 36	
Afternoon		13.30 15.30	13.30 15.30	13.30 15.30	13.30 15.30	
		Coffee break	Coffee break	Coffee break	Coffee break	
		Poster session (Hall)	Poster session (Hall)	25 26 27 28	Closing ceremony	
		16.00 18.00	16.00 18.00	16.00 18.00	16.00 18.00	
Evening		Ice breaker Nancy City hall (23)	18.00 20.00			
			20.00 22.00	Gala dinner – Centre Prouvé		
						Post conference field trips

= sessions slots