Introduction
The Merlin molybdenum-rhenium zone was discovered in early 2008 while drilling the northern extension of the Mount Dore copper deposit. Subsequent drilling has defined a zone of molybdenum-rhenium mineralisation over 1 km long and up to 40 m thick, to approximately 550 m from surface. Mineralisation consists of molybdenite as infill to breccias, veins and disseminations. Merlin is the world’s highest grade molybdenum-rhenium deposit, the current resource averaging 0.6% Mo and 10 g/t Re, with up to 22% Mo and 297 g/t Re over two metre intervals; the majority of global molybdenum production being from porphyry deposits where molybdenum grades are generally in the order of 0.1% to 0.2% Mo. Molybdenite dominates the paragenetic sequence, chalcopyrite and pyrite occurring locally. Merlin appears to represent a new style of molybdenum deposit, with no known analogous deposits reported within the literature.

Geological Setting
The Merlin deposit is located within the Eastern Fold Belt of the Mount Isa Inlier (Fig. 1, p. 9). The Eastern Fold Belt consists of a sequence of polydeformed metasediments and metavolcanics (Blake 1987). These sedimentary and volcanic packages are broadly broken into the Soldiers Cap and Mary Kathleen Groups.

The Soldiers Cap Group consists of a metamorphosed sequence of siliciclastic sediments and mafic volcanics (Blake 1987). At Merlin the Soldiers Cap Group is represented by the Kuridala Formation, which is interpreted as being equivalent to the base of the Soldiers Cap Group (Foster and Austin 2008). The Mary Kathleen Group consists of a sequence of metamorphosed siliciclastic and calcareous sediments (Blake 1987). Regional to the Merlin deposit, units of the Mary Kathleen Group have been recently informally ascribed to the “Young Australia Group” by Foster and Austin (2009), on the basis of new geochronology. These units consist of a series of pelitic, calcareous and carbonaceous metasediments, aged between 1675 and 1610 Ma, which are interpreted as a lateral equivalent of the Soldiers Cap Group. Within the Merlin area, the Young Australia Group is represented by the calcareous metasediments of the Staveley Formation.

The Eastern Fold Belt has undergone a protracted and complex sequence of deformation which has been the focus of numerous conflicting studies (Blake 1987;...
From the SGA President

Fernando Tomasino, IGME, Salamanca, Spain (ftomasino@igme.es)

As many of you know, since January there is a new SGA Council and I became the new President of the Society for the 2010-2011 period. First of all, and on behalf of the new Council, I would like to express our thanks to the outgoing president, David Groves, and the Council members for their generous contribution during the last years.

They deserve our greatest appreciation for their many times demanding extra work. The last two years have been rather stressful due to the abrupt economic and social changes, something that has had an obvious impact on our economy and plans. Despite that, the outgoing Council leaves a strong Society that has increased significantly its membership and visibility. I am sure that everybody agrees that the last years have been really good for the SGA. However, renovation is the key of any group and I would like to welcome the new members of the Council. This new Council includes really great people and I hope that we will be able to form a fantastic and really active team. Unfortunately, and just when we were able to form a fantastic and really active team, a new Council includes everybody agrees that the last years have been rather stressful and demanding. The last two years have been a real challenge for the SGA Council.

The role of the traditional scientific societies is not as clear as before. Now, many people don’t find major interest in joining societies because the most visible product, the journals, are easily accessible through Internet. Also, our potential membership is no longer in the most developed countries where the number of economic geologists is more or less stable. In Europe, the political and academic interest in ore deposits is slowly diminishing due to the feeling that in the region there are no ore deposits, the pressure for expediting their exploration and the low number of mining companies. There is a continuous merging or closure of University departments and students don’t even think about pursuing ore exploration. However, in many other places the universities are not able to provide enough students to the industry. This is especially remarkable in Latin America, Asia and Africa, where geologists start to work even before graduating. In the near future, these countries will develop high quality teaching and research and we should be there, trying to spot, with exciting sessions, field trips and courses.

The SGA is now 45 years old, a rather venerable age, and perhaps our major challenge is to prepare SGA for the future. The SGA of 2010 is dramatically different from the one founded in Heidelberg in 1965. Times change and we have to be able to understand them and accommodate ourselves. The role of the traditional scientific societies is not as clear as before. Now, many people don’t find major interest in joining societies because the most visible product, the journals, are easily accessible through Internet. Also, our potential membership is no longer in the most developed countries where the number of economic geologists is more or less stable. In Europe, the political and academic interest in ore deposits is slowly diminishing due to the feeling that in the region there are no ore deposits, the pressure for expediting their exploration and the low number of mining companies. There is a continuous merging or closure of University departments and students don’t even think about pursuing ore exploration. However, in many other places the universities are not able to provide enough students to the industry. This is especially remarkable in Latin America, Asia and Africa, where geologists start to work even before graduating. In the near future, these countries will develop high quality teaching and research and we should be there, trying to adapt to a well organized meeting in a great way.

News of the Society

SGA Ordinary Council Meeting, March 25, 2010, Hammamet, Tunisia

J. Palava (SGA Executive Secretary), Czech Geological Survey, Prague, Jan.Palava@geology.cz

Ricardo Presnell†

SGA Council took 2 minutes silence in honor of Dr. Ricardo Presnell (SGA Council member from 2008) who tragically died on Wednesday, January 27, 2010. Council greatly appreciated the preparation of an obituary by K. Kelley which was published at the Society website and will be printed in the upcoming issue of SGA NEWS. Underworld Resources, Inc. and Full Metal Minerals Ltd., together with Ricardo’s wife Caroline have established a scholarship fund in Ricardo’s memory at the University of Utah for Minors who are studying science. Council approved:

• donation of last EUR 2000 to this fund (K. Kelley to inform “Fund people” and provide details on money transfer to D. Leach and S. Lange)
• replacement of Ricardo by someone who is linked to international mining industry (names of candidates to be sent by Council members to J. Palava by May 31, 2010).

Minutes of Previous Council Meeting (August 16, 2009, Townsville, Australia)

It was suggested that SGA members should receive an email notice when SGA NEWS is published (G. Beaudoin and M. Chiaradia to implement this decision). The Minutes were unanimously approved.

Results of the recent elections (J. Palava)

The report was presented by J. Palava. Lists of outgoing Council members were thanked by SGA Executive Secretary for their services to SGA and new members welcomed on board. SGA President welcomed the new RVP for Europe (A. Chelietz) who participated in the meeting.

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 Website, Regional VP for Australia/Oceania, Regional VP for North America, Regional VP for South America, and orally presented by the VP for North Africa. Delegates will now discuss the reports and the following motions:

• D. Leach to transfer EUR 18 000 from the revenue of the Townsville meeting to the SGA student’s fund.
• D. Leach to ask all RVPs if they would be willing to assist students and possibly other members with money transfers for membership and dues; any cost associated with this service will be reimbursed by the Treasurer’s office.
• For the regions in which the RVPs agree to provide this service, the members in that region will be notified. Council approved minor changes in Articles III and XV to bring the SGA By-Laws in line with the new Constitution. Council also approved a creation of a new voting position of the Student Representative to be a part of the Executive Committee. The Constitution will be changed accordingly (J. Palava to implement suggested changes and get back to Council).

H. Frimon will order depleted promotional items (water-proof scales and rulers, stickers, pens, pins etc.) with the SGA website address as soon as possible. Pins will be used only for new members and will be a part of welcome envelope sent to new members from Prague. The budget should be discussed with D. Leach. H. Frimon will also get in touch with past and new RVPs to determine the locations for both types of SGA booths. SGA advertisement postcard (large ti files should be sent to relevant people for translation into Spanish, Portuguese, Chinese and attached to SGA website).

Great appreciation is extended to Filipas Marques for launching and managing the SGA Network on Facebook and officially recognized as the SGA Facebook contact. G. Beaudoin will look after adding a password modification option in the Member Profile at the SGA website.

D. Huston will continue to chair Award Committee (other members are K. Kelley, A. Chelietz and S. Bourbou). H. Frimon will also take necessary steps to implement recommendations with the aim to improve nominating procedure and selection process for the SGA-Barrick Young Scientist Award and the SGA-Newmont Gold Scholarships.
The report was presented by F. Tornos. After a broad discussion the aim to improve communication between both the Societies. SEG President suggesting an exchange of approved Minutes with recommended that F. Tornos (SGA President) will write a letter to SEG and SGA wasn’t endorsed by SEG Council. SGA Council learned that J. Thompson (SEG Past-President) and D. Groves (SGA Past-President) will join this summer (M. Lesher) and Dave Leach provided a detailed budget of previous meetings. The project is unclear in many aspects. Both Fernando Tornos and E. Campos with him determine if there will be enough people to staff the SGA booth and other activities (including evaluating students’ posters and/or oral presentations). E. Ferrari will send relevant information on the XVIII Peruvian Geological Congress for promotion to M. Chiaradia and M. Beaudoin. F. Tornos will nominate a SGA distinguished lecturer for this meeting.

E. Ferrari will provide more information on the planned field course with G. Beaudoin. The field trip to Bolivia, starting in La Paz and finishing in Antofagasta. Short courses: Pat Williams and co-workers from the IOCG group offered to present a modified course from one successfully presented in Townsville and at GAC-MAC. Council would appreciate to have exact date for the full-working web page and to also allow Council members the opportunity to test it and eventually improve the web page before it is made public. It was recommended that website should be in full operation when the first circular is released. Council also expressed concern on if it will be possible to realize payments through web page or it will need to be redirected to the SGA website.

Other comments to the draft of the first circular a. Highlight that it is in Antofagasta b. Include deadlines c. Modify the list of sessions d. Change the title to Let’s talk ore deposits e. Change the registration fees and add the currency f. Include (IMPORTANT) the address of web page of the meeting Council recommended that LOC produces a poster that could be displayed at the SGA booth in the XVth Peruvian Geological Congress. It should include very basic information including title, dates, web page address and some other information. The poster will be prepared by Fernando Tornos and probably Eugenio Ferrari could meet with you (and perhaps other members of the LOC) in early May 2010. It is important to set up exact date of this meeting (F. Tornos and E. Campos). D. Leach will participate via videoconferencing. Council approved the report with best thanks.

Discussion and vote on the bids for the 12th SGA Biennial Meeting 2013 (M. F. Tornos et al.)

The SGA Council had a very difficult task to select SGA 2013 location due to the high quality of all proposals (Turkey, Sweden and
South Africa). Council vote was very close but finally selected the Baltic proposal from Sweden. The Council greatly appreciated the efforts of the Turkish and South African groups and expressed a hope that this project would be linked to other ICDP-projects.

The next Council Meeting will be held in association with IMA Meeting (Portland, Oregon, October 17, 2009) that SEG decided to extend its active period by one year. It was also decided that the Council will consider extension of the SEG Special Publication Series, SGA Conference Proceedings- ISI listing (R. Foster, J. Palava, F. Tornos). The reports by Publication Manager were presented by J. Palava with additions of D. Leach and F. Tornos. Council approved both the reports with great thanks and recommended the following actions: Except of the preparation of Guidelines from previous Latin-American Metallurgy Courses (F. Tornos and R. Foster – responsible), the major focus should be put on working with E. Campos and field trip committee (Shoji Kojima, Brian Tolyew, Florencia Marquez and Bernd Lehmann) and short course committee (Bernhard Dold, Thomas Bisigg, Massimo Chiaradia and A. Piestrzynski) on the preparation of SGA Excursion Guidebooks and SGA Short Courses No. 2-X. R. Foster to provide Eduardo Campos and other relevant people with templates and a schedule indicating deadlines securing quality and timely publication process. Council again postponed a decision of renovation of SGA Special Publications.

Council welcomes both the reports with great thanks and also requested a budget question for the Prague chapter.

Requests for sponsorship
• SGA students’ meeting in Halle, Germany – February 19–23, 2010
• “SGA on the Road” to negotiate with the LOC.

• SGA view paper presentation by E. Campos and field trip committee (Shoji Kojima, Brian Tolyew, Florencia Marquez and Bernd Lehmann) and short course committee (Bernhard Dold, Thomas Bisigg, Massimo Chiaradia and A. Piestrzynski) on the preparation of SGA Excursion Guidebooks and SGA Short Courses No. 2-X. R. Foster to provide Eduardo Campos and other relevant people with templates and a schedule indicating deadlines securing quality and timely publication process. Council again postponed a decision of renovation of SGA Special Publications.

Council approves proposal to host Secretariat of Latin-American Metallurgy Courses and requested to highlight benefits for joining the Society when linking to the Secretariat website (F. Tornos and G. Beaudoin to implement). It was also decided that SGA will prepare Guidebooks from past Metallurgy Courses which will be published at a lower price and to non-members at a higher price (F. Tornos and R. Foster responsible).


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--- SGA CORPORATE MEMBERS are offered the special opportunity to advertise for free on SGA News for a space of 1/4 of a page!!!
Figure 2: Simplified geology of the Mount Dore-Merlin area. Outlines show the three main ore styles, leachable copper, polymetallic sulphide and molybdenum-rhenium.

Figure 3: Simplified cross section 760540mN showing lithology and mineralisation domains. Looking north.

Deposit Geology

The oldest unit within the Merlin-Mount Dore area is the carbonaceous metapelite and phyllite of the Kuridala Formation (Figs 2 and 3). The carbonaceous metapelites consist of black, folded and brecciated, massive to laminated metamorphosed shales and slates interbedded with chloritic phyllite units. This package of carbonaceous metasediments is interpreted to have been thrust over the top of the calcareous units of the Staveley Formation during early compression (Betts et al. 2000). At Merlin, the Staveley Formation consists of a package of fine- to medium-grained, cream to pink and red banded to laminated calc-silicate rocks. To the east, the Mount Dore Granite is faulted against the Kuridala Formation (Fig. 3). While the western margin of the Mount Dore Granite is structural, the northern, southern and eastern margins of the granite display igneous contacts indicating the granite body has not been faulted any great distance.

This pod was dubbed “Little Wizard” and a JORC compliant inferred mineral resource of 15,000 tonnes @ 13% Mo and 160 g/t Re was released in late October for Little Wizard (IAL Market Release, 21 October 2009); followed by an independent NI 43-101 mineral resource estimate (IAL Market Release, 5 November 2009).

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The Mount Dore Fault Zone (MDFZ) represents the major structural feature within the deposit area. Interpreted to represent an early thrust, this fault has been folded and reactivated during many of the subsequent deformation events. The MDFZ can be traced within the regional geophysics some 50 km to the north where it appears to be truncated by the Straight Eight Fault and over 20 km south of Mount Dore where it becomes obscured by Mesozoic cover rocks. Reactivation of the MDFZ within the Merlin area has been enhanced by strong rheological variations created by the Mount Dore Granite and the prominent silicified zone within the footwall of the deposit. These competent bodies have helped partition strain within the less competent metasediments of the Kuridala Formation enhancing dilation and brecciation.

The earliest observable alteration event within the Merlin area consists of a stratiform silica alteration associated with brecciation and silica flooding within the early MDFZ. This silicification was historically mapped as a stratigraphic quartzite unit; however, breccia fragments, pyrite casts and relic carbonaceous metapelites indicate a metasomatic and structural control. This silicified unit is located in the footwall to mineralisation at Merlin and drilling data suggests it is folded beneath the deposit. Overprinting the early silica alteration is a pervasive albitionisation of the carbonaceous metapelites and phyllite. A potassic alteration event (K-feldspar) is observed overprinting albitionisation and appears to be associated with the primary copper mineralisation at Mount Dore. Localised tourmaline and silica alteration occurs directly adjacent to the Mount Dore Granite. Additionally, andalusite and anthophyllite have been observed within the carbonaceous metapelites adjacent to the granite contact.

The Merlin zone represents a part of the Mount Dore Deposit which is divided into three domains or zones. The secondary copper zone, primary polymetallic zone and the Merlin molybdenum-rhenium zone. Mineralisation within the secondary copper zone at Mount Dore is made up of a body of copper oxides and carbonates, characterised by chrysocolla, cuprite, chalcocite, pseudomalachite and trace aure...
The Merlin Zone of the Mount Dore deposit represents a previously unknown style of mineralisation within the Mount Isa Inlier, if not globally. The mineralisation consists predominantly of molybdenite, with only minor chalcopyrite and pyrite, and is hosted within a series of altered carbonaceous metapelite and phyllite. This mineralisation is devoid of any common gangue mineral. Molybdenite occurs as massive infill to veins, breccias and stylolites and as disseminations. The bulk of the mineralisation has been confined within a moderately dipping north-northeast trending fault zone that crosscuts earlier polymetallic mineralisation at Mount Dore. Much of the deposit remains concealed under the Mount Dore Granite and is still currently open to the north, south and at depth.

References

Figure 4: The four main styles of Mo-Re mineralisation within Merlin. (A) Massive molybdenite as vein infill. These veins can be up to 80 cm wide. (B) Disseminated molybdenite within feldspar altered metapelite. Field of view is 9 cm. (C) Massive molybdenite as breccia infill. Breccia fragments are altered metapelite. Field of view is 8 cm. (D) Molybdenite as stylolites cutting altered metapelite.
Figure 5: Plot showing the ratio of molybdenum versus rhenium within the Merlin zone. Assays from the top 100 m have been excluded to remove weathering effects.

Call for SGA award nominations

Dave Huston
Chair SGA Award Committee, Geoscience Australia (David.Huston@ga.gov.au)

At Antofagasta 2011, the Society for Geology Applied to Mineral Deposits will promote the achievements of two scientists for geological research applied to mineral deposits. The SGA-Barrick Young Scientist Award, which recognises scientists at the beginning of their career, consists of a citation, prize money of EUR1500 and travel to Antofagasta 2011. Previous award winners include Zdenek Vyleichre (2003), Alexandre Raphael Cabral (2005), Giles Lervose (2007) and David Holwell (2009).

The SGA-Newmont Gold Medal is based upon career accomplishments. It must be stressed that published scientific research is only one measure; other measures include leadership, both in research and in industry; success in exploration or mining; and service to SGA and like organisations. The award covers all aspects of research applied to mineral deposits, from field geology and mineral exploration, through development of analytical techniques, ore system models and metallogeny, and to the management of research and exploration projects and institutions. Eligibility is not restricted by the candidate’s nationality, place of employment, or membership in the Society. Nomination forms can be downloaded from the Society’s web site (e-sga.org/index.php?id=111). No information about the candidate’s education, significant accomplishments and publications, and the name and address of the nominator. In addition, copies of abstracts for most important (maximum five) papers upon which the nomination is based should be attached to the application.

The SGA-Newmont Gold Medal recognises the career of the awardee involving “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, a 999.99 fine gold medal, and travel to Antofagasta 2011. Previous medalists include Zdenek Johan (2007) and Shunno Isihara (2009).

For both awards, letters of support from three SGA members or hard copy must be received by 31 March 2011. All nominations and letters of support (either digital or hard copy) must be sent to the SGA Executive Secretary with a copy to the Chairman of the Awards Committee, whose addresses can be found on the nomination form. All nominations forms and letters should be sent to the SGA Executive Secretary with a copy to the Chairman of the Awards Committee, whose addresses can be found on the nomination form. All nominations and letters of support (either digital or hard copy) must be received by 31 March 2011.
News from the SGA Student Network: SGA Student Meeting Halle (Saale), Germany

Mareike Decker
Martin-Luther-University, Halle-Wittenberg (mareike.decker@googlemail.com)

From February 19th to February 23rd 2010 a group of German SGA student members organized an international Student Meeting at the Martin-Luther-University Halle-Wittenberg. Students of the University of Prague (Czech Republic) and Germany (LMU Munich, TU Freiberg, MLU Halle) took the chance to meet with the students of Halle University, to get to know each other and possibly to start stronger international relations.

The meeting started on February 19th with the Ice-breaker-party where all the first participants came together to get to know each other. While drinks and food were served an active discussion took place concerning problems at the different universities, the SGA, the last Biennial Meeting in Townsville and also other different topics. Accommodation was organized at the Institute of Geosciences in Halle, so that the participants could stay together overnight, which brought to further interesting talks between the different student groups.

On Saturday, February 20th, talks took place concerning the geological origin of Germany, Sachsen-Anhalt and Halle. Great interest was given to topics concerning: the economic geology of Germany; the importance of historical mining in the vicinity of Halle; and ice age in caves of Central Europe. Eight scientists and students from Martin-Luther-University Halle, the Geological Survey of Sachsen-Anhalt, the State Museum of Prehistory Sachsen-Anhalt and the CEZ Archometry Mannheim presented talks (see programme on p. 17).

The geological topics of most of the presented talks had practical counterparts in the field trips that took place on Sunday, 21st and Monday, 22nd (see p. 17). Thus, the attending students could choose between two different field trips on both days.

On Sunday the field trips were to the Barbarossa Cave, and to the Sangerhausen Mining District, where the historical Kupferschiefer mine at Wettewode was visited. The Barbarossa Cave in the Kyffhäuser Mountains was formed due to subrosion processes in mainly anhydrite rocks. Nowadays it is one of Germany’s famous tourist caves and the students were able to see the results of subrosion processes undergound. The cave was discovered in 1865 during exploration for the Kupferschiefer. During their guided tour the students were able to see parts of the cave that normal visitors are usually not allowed to see and even were allowed to visit the underground exposures of the Kupferschiefer.

The second trip on Sunday led to the historical mining district of the Sangerhausen Syncline. Here at the former underground mine of Wettewode the participating students got a guided tour. During their three hours underground historical mining sites were visited, as well as typical characteristics shown of the Kupferschiefer mineralization (shale and carbonate hosted ores as well as Rote Fäule occurrences).

Field trips on Monday, the last official day of the meeting, led the students to one of the active mines in Sachsen-Anhalt - the ESCO salt mine close to Bernburg (a small town in the NWW of Halle). Here the students attended a guided tour through the different mining sites and enjoyed a trip in the “cavern cars” through a big part of the salt mine. The second field trip on Monday led to the Harz Mountains. Here the Büchenberg mine was visited by the attending students where iron ores of the Lahn-Dill type are excavated. The open pit of the Felsenwerk was also part of this field trip. Here Devonian carbonate rocks (reef limestones) are mined and so the participants of this field trip got an impression of pre- and post-mining in Germany. Afterwards some more exposures of Devonian rocks, e.g. Devonian sediments as well as submarine volcanics, provided more information on the regional geology of the Harz Mountains.

In conclusion: the first international SGA student meeting (organized by SGA student members of the Martin-Luther-University Halle-Wittenberg) was a great possibility for all participants to get to know each other and also to see some aspects of the scientific work being undertaken at Martin-Luther-University. We thank the SGA as well as the “Fachschaft” of Geoscience of the Martin-Luther-University for their financial support to enable this meeting.

Programme of the SGA Student Meeting held on 19.2. - 23.2.2010
at the Institute of Geosciences, Martin-Luther-University Halle-Wittenberg, Von-Sackendorff-Platz 3, 06120 Halle, Germany

Talks - 20.02.2010
08:50 – 09:00 Welcoming address
09:00 – 9:45 Ian Lerche – Institute of Geosciences, MLU Halle-Wittenberg - „Tsunamis, Volcanoes, Plate Tectonics, and did the Earth Move for you too?”
11:00 – 11:45 Jochen Mezger - Institute of Geosciences, MLU Halle-Wittenberg - “The Geology of the Harz Mountains and its Ore Deposits – an Overview”
14:00 – 14:45 Kai Fischer – Institute of Geosciences, MLU Halle-Wittenberg - “The ECKERGNISS of the Harz Mts.”
16:00 – 16:45 Anja Elshe – Institute of Geosciences, MLU Halle-Wittenberg & Nicole Lockhoff (CEZ Archometry Manheim)

Regional Geological Field Trips 21.02./22.02.2010

Sunday, 21.02.2010
1. Barbarossa Cave with underground Kupferschiefer outcrop on Kyffhäuser Basement Block
2. Sangerhausen Mining District, historical Kupferschiefer Mine, Wettewode, underground visit (shale-hosted ore and Rote Fäule alteration)

Monday, 22.02.2010
1. Underground visit to active ESCO salt mine (Zeocline, Upper Permian) at Bernburg
2. Tourist mine Büchenberg (Devonian iron ore of Lahn-Dill type), open pit of the Fels-Werke GmbH and further outcrops (Devonian reef limestones and submarine volcanics, Lower Carboniferous olistostromes and turbidites)

News

SGA NEWS

Number 27   June 2010

Reduced Prices for SGA Proceedings

3B(J)ING (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

UULINK (2007) - Andrew et al. (eds): Uulking Deeper, 2 Volumes, over 1600 pages incl. CD-ROM

NOW available for 50 EUR plus shipping costs

Please contact Sabine Lange, Rixenweg 2, D-24147 Klauendorf, GERMANY; phone +49-431-7992303, fax +49-431-7993420, email: sabine-klauendorf@t-online.de

Contact

Mareike Decker
Martin-Luther-University, Halle-Wittenberg (mareike.decker@googlemail.com)

Contact

Mareike Decker
Martin-Luther-University, Halle-Wittenberg (mareike.decker@googlemail.com)
News from the SGA Student Chapter in Prague
SGA-Students Meeting in Halle, Germany

Nikola Denisová and Radim Jedlička
Charles University in Prague, Faculty of Science, Institute of Petrology & Structural Geology

At the end of February, four of our members visited a student meeting organized by Mareike Decker from the SGA Chapter in Halle (see p. 16, this issue). Besides students from SGA Student Chapter Prague, only students from the SEG Chapter in Freiberg were able to arrive. The low number of participants helped to create a very friendly atmosphere. After a train journey from Prague via Dresden and Leipzig, we arrived to Halle on Friday the 19th, where we were welcomed at the Institute of Geosciences, Halle.

On Sunday, we departed on our first field trip to the historical Kupferschiefer Mine Wettelsrode in the Sangerhausen Mining District. Copper mining has a long tradition in the region, ever since the Middle Ages, when copper-rich ore was mined from outcrops on the surface. Kupferschiefer is a thin shale layer right above the Zechstein unit (upper Permian), rich in copper. Because of the uplift of the Harz Mountains during the Variscan orogeny, the Kupferschiefer was moved closer to – sometimes right to – the surface. The field trip was described to us as adventurous: for the first hour we crawled through tunnels high 1.5 m at maximum, to see how copper was mined some 300 years ago, then we went down a drainage tunnel where water was pouring out from everywhere to the first level, 300 meters below the surface. On both levels we were able to see the shale-hosted ore and the Rote Flüde alteration. In the second part of the excursion, we were shown various mining techniques as they changed throughout the centuries, we enjoyed a typical miners’ meal and a ride on the underground train.

On the third and last day of the conference, we chose a field trip to the active esco salt mine Bernburg. The salt deposits are evaporates of Permian age, prevailing zones of almost pure rock salt alternate with anhydrite and potash zones. Fully equipped for the excursion, we descended 530 meters below the surface and after a short lecture about the history of the mine and mining techniques, we started our jeep ride through the labyrinth of connecting tunnels that are 20 meters wide and 5 meters high. We visited the working face, where holes for explosives were just being drilled by a drilling jumbo that can drill to the depth of 30 meters in minutes. Then we drove down to the salt chambers to collect some rock salt samples and the view of 35 meter high chamber was amazing. On the way, we observed closely the machines used for loading and transporting of the rock salt, as well as the crushers and conveyor belts. We also passed to the anhydrite zone, where we looked for boracites crystals in the evaporate rocks. We ended the excursion and the conference in the university café, where we thanked our guides for an amazing geological experience.

Our SGA Student Chapter would like to invite all interested students to attend our meetings. For more information about us, please visit our web page: http://sga.cuni.cz. We look forward to meeting and greeting you.

Invitation to students to participate in the 11th SGA Biennial Meeting
“Let’s talk Ore Deposits”
27th - 30th September, 2011
Antofagasta, Chile

The SGA Student Committee
Anna Vymazalová (anna.vymazalova@geology.cz), Jorge Relvas (jrelvas@fcul.pt) and Andres Veloso (eveloso@ucn.cl)

SGA warmly invite students from all over the world to submit abstracts and participate in the 11th SGA Biennial Meeting that will be held in September 2011 in Antofagasta, Chile. SGA is committed to encouraging student participation in our Biennial Meetings and other programs.

SGA commitment to student involvement in our activities was clearly visible in the recent SGA Biennial Meeting in Beijing, Dublin and Townsville.

It is clear that the future of economic geology demands a growing involvement of graduate students and young researchers. Your active involvement in our Biennial Meetings is essential to a healthy future for mineral deposit research and exploration.

The information concerning the meeting will be updated at www.sga2011.ucn.cl.

Please continue to visit the Website to have the updated information on the 11th SGA Meeting in Antofagasta.

SGA Student grants
A limited number of student grants may be available to support student participation in the conference. A specific application form for student financial support will be provided in the Second Circular and on the Website. The award of student grants requires the acceptance of an abstract for oral or poster presentation, and will be based on financial need and scientific quality of the submitted presentation.

Awards
We strongly encourage you to submit an abstract and participate in this important and highly visible international conference. Awards will be given to the best oral and poster presentations authored by students.

Free field trip
Several pre- and post-meeting Field Trips to some of the world’s largest ore deposits will be offered. Students are invited to get involved in these activities. A limited number of free participations in selected field trips will be offered.

Social evening Student & Industry
We will also provide opportunities for you to meet with corporate sponsors and representatives from mining companies from around the world. You will have many valuable opportunities to discuss your future plans with leading economic geologists in industry, government and academia.

Do not hesitate to contact the members of the Student Committee of the 11th SGA Biennial Meeting. Your questions, comments and suggestions are welcome. We look forward to meeting you in Antofagasta in 2011.
News from the Baltic Student Chapter

Bartłomiej Bil, Gabriela Lato, Marta Sońcika
SGA Baltic Student Chapter, AGH University of Science and Technology, Cracow
Janne Hokka
SGA Baltic Student Chapter, University of Helsinki

In April 2009, Professor Adam Piestrzyński and Dr. Eilu Pasi came up with an idea to create a SGA Student Chapter in the Baltic Sea region. The Baltic Student Chapter was officially set up in autumn 2009 and it gathers both PhD and undergraduates from Poland, Finland and Sweden. We immediately decided to organize an SGA students meeting at the University of Science and Technology (AGH) in Cracow, Poland. The main part of the meeting was the Student Scientific Session and the Miners Day celebration.

On the first day we visited the Bochnia Salt Mine (40 km away from Cracow), which was opened in 1248. There are signs that salt mining there dates back to the Neolithic Period. The discovery of salt is related to the legend about St. Kinga’s ring. She threw her ring into a salt mine in Hungary and later on found it in a block of salt in Bochnia. Salt deposits are a part of two Miocene anticlines that form an approximately 7 km long, 200 m wide and 460 m deep structure. The tour began from the Camp shaft. In the tunnel walls enormous accumulations of salt folds were seen which were formed under high pressure from the movements of the Carpathian Mountains to the north. The salt level is divided into 3 complexes: north salts, south salts and middle salts with andydrite, anhydritic claystones, marly claystones and zuber. Nowadays the Bochnia Salt Mine provides accommodation and was discovered in March, 23 1957 by Dr. Jan Wzyżykowski. It is a sediment-hosted stratiform copper-silver deposit in the Permian strata. Mineralization crossed the sedimentary sequence and is developed as numerous mineralogical variations, which seem to undergo later alterations. The samples that we collected 1000 metres underground are sandstones with chalcopyrite – covellite mineralization. The cut-off grade for the ore level is estimated at 0.7% Cu. Exploited rocks are sandstones, shales and dolomites. The average copper content in 32 million tons of the annual production is close to 2%. The ore contains also significant amounts of silver. After the underground visit we got permission to visit the flotation plant. The whole process consists of six stages: crushing – milling and classification – flotation+purification of both waste and concentrate before loading of concentrate disposed in the Zelazny Most Tailings Pond. The recovery of copper, silver and other metals from the extracted rock is about 93% with 30% of copper content in concentrate. There are more than 820 million tons waist deposited in the Tailings Pond that occupies an area of 1394 hectares with the total length of the surrounding dam close to 14 kilometres. The beaches inside the pond are protected by bitumen emulsion sprayed from helicopters to prevent dust pollution. The chemistry and stability of the water level are being monitored. These activities ensure high quality safety standards for people and animals living around the Zelazny Most.

On the third day the members of the Baltic Chapter and the guests from the Prague Chapter took part in the Student Scientific Session hosted by the University of Science and Technology (AGH) in Cracow. Our presentations were focused on the orogenic gold deposit model in Finland, mineral prospecting in Mongolia and uranium deposits in Rožná in the Czech Republic. This part was prepared by the students from Prague. The wide knowledge of the participants and high level of presentations is a good start for future scientific meetings.

On the second day we visited the Rudna Copper Mine in the Polish Kupferschiefer, near Lubin in the south-west of Poland. From 1971 to 1972 a first drift was cut and in 1974 the exploitation achieved 1.9 million tons and have reached 13 million tons recently. The main purpose of our trip was to confirm the genetic model of Kupferschiefer. This area covers 467.6 square kilometres and was discovered in March, 23 1957 by Dr. Jan Wzyżykowski. It is a sediment-hosted stratiform copper-silver deposit in the Weißwieselden sandstone. The wide knowledge of the participants and high level of presentations is a good start for future scientific meetings.

Overall the meeting was a good opportunity to learn new geology and to meet students from Bochnia, Cracow, and Prague. There is definitely a place for interaction amongst the student member in SGA and creating network to share the scientific knowledge and connect the future scientists together.

The next day we took part in the “Miners Day” celebration, which is part of a very old tradition in Poland. Program included also sightseeing in Cracow, including the market square with the Cloth Hall and the Mariacki Church, the Royal Castle at the Wawel Hill and the Memorial Museum Auschwitz Birkenau in Oświęcim.

We wish to thank Mr. Jarosław Suchan from KGHM Polish Copper Company and professor Adam Piestrzyński for the guided tour. Mr. Andrzej Bezkorowajny and authorities of Bochnia Salt Mine and SGA for financial support.

The wide knowledge of the participants and high level of presentations is a good start for future scientific meetings.

Field participants inside the Rudna copper Mine, Poland (photo by T.Świerzenia)
Rudna Copper Mine, about 1000 meters depth, Poland (photo by T.Ćwiertnia)

Salt folds inside the Bochnia Salt Mine, Poland (photo by N. Denisova)

Celebration of the Miner’s Day at the AGH University of Science and Technology, Cracow, Poland (photo by M. Sośnicka)

CHANGE OF ADDRESS FORM

If you have changed (or will change in the near future) your address please fill in this form and send it to:

SGA Treasurer’s Office - c/o Sabine Lange
Rixenweg 2, D-24147 Klausdorf
GERMANY
e-mail: sabine-klausdorf@t-online.de and treasersga@aol.com

Name

Old address

Complete new address (including phone, fax and e-mail)
University of Ottawa
May 25-27, 2011

Ottawa 2011
GAC - MAC - SEG - SGA

Navigating Past & Future Change

Ottawa will host the 2011 joint annual meeting of the Geological Association of Canada, the Mineralogical Association of Canada, the Society of Economic Geologists, and the Society for Geology Applied to Mineral Deposits. Canada’s Capital offers a unique blend of culture, history, and natural beauty, all in the heart of the city. It lies at the junction between the rocky edge of the Canadian Shield and the Cambrian and Ordovician deposits of an ancient sea, and is ideally situated for its two universities and the Geological Survey of Canada. The painting by artist Judi Periman shows the majestic limestone banks of the Ottawa River at Parliament Hill and highlights this meeting’s opportunity to showcase the societal relevance of the Earth Sciences to federal decision makers.

Committed to exploring both the scientific and societal aspects of Earth Sciences, Ottawa 2011 will feature symposia and sessions that revolve around Navigating Past & Future Change.

Join us May 25-27th, on the downtown University of Ottawa Campus, to make this meeting a success!

Details on registration, programs, and events are available on our website:
www.gacmacottawa2011.ca

Student Chapter Prague has the honour of inviting you to SGA Student Conference with field trips

“Mineral resources for the society”
PRAGUE, CZECH REPUBLIC, 15 - 18 APRIL 2011

Division of Geology, Faculty of Science
Charles University in Prague
http://sga.cuni.cz/
Contact: Kateřina Schlögllová (schloglo@gmail.com)
* marks a new entry

October 7-11
EMU School: High-resolution electron microscopy of minerals, Nancy, France. weblink: http://www.km3b.ahp-nancy.fr/emi10/

July 10-18

*July 21-22
AUSTRALIAN URANIUM CONFERENCE, Fremantle, Australia - Contact: weblink: http://www.verticalevents.com.au. Contact: Vertical Events, Suite 15/18 Hay Street, Subiaco, 6008 Western Australia; phone: +61 9 9388 2222

August 8-13
2010 AGU Joint Assembly, Iguaçu Falls, Brazil. Contact: Meeting Department 2000 Florida Avenue, NW Washington D.C. U.S.A. 20009; phone: (+1-202-777-7329); email: ja-help@agu.org

August 14-18
 Uranium 2010 Conference, Saskatchewan, Canada. weblink: http://Ed_Lam.com

*August 15-18
U2010 Uranium 2010, Saskatoon, Canada - Contact: weblink: http://metcowsu.uottawa.ca.

August 21-27

*September 6-7

September 6-10

*September 19-22

*September 27 - October 1
XV Peruvian Geological Congress, Cusco, Peru - Contact: tel. +51 44441180; e-mail: congresso@sp.org.pe; weblink: http://www.congressog.pe/

October 2-8

October 31-November 3
GEOLOGICAL SOCIETY OF AMERICA: 122nd ANNUAL MEETING, Denver, Colorado, USA - Contact address: GSA Meetings Department, P.O. Box 92140, Boulder, CO 80301-9140, USA; phone: +1 303 447 2020; fax: +1 303 447 0648; e-mail: meetings@geosociety.org; website: http://www.geosociety.org/meetings/index.htm

November 9-9

November 10-12

November 13-14

*December 9-18
MODULAR COURSE IN EXPLORATION GEOCHEMISTRY, Laurentian University, Sudbury, Ontario, Canada – Contact: Dr. Michael Lesher, Willet Green Miller Centre, 935 Ramsey Lake Road, Sudbury, ON, Canada, P3E 2C6; Tel. +1 (705) 675-1151 x2276; Fax +1 (705) 675-4898; E-mail: mlesher@laurentian.ca; website: http://www.gacmacottawa2011.ca

*December 20-27
InQUA — XVII Congress of the International Union for Quaternary Research, Bern, Switzerland. weblink: http://www.inqua.ch/

*September 6-9

December 12-16
American Geophysical Union — 2011 Fall Meeting, San Francisco, California, United States. contact: AGU Meetings Department 2000 Florida Avenue, NW Washington DC U.S.A. 20009; phone: (202-777-7333); email: meetinginfo@agu.org; weblink: http://www.agu.org/

Obituary
Dr. Ricardo Davis Presnell (1958-2010)

Karen Buttweiley Kelley (SGA Council member) USGS Denver, kdkelley@usgs.gov

Ricardo Presnell, 51, Chief Geologist for Underworld Resources Inc and Full Metal Minerals Ltd., died in an avalanche on Wednesday, January 27, 2010 while backcountry skiing near Salt Lake City, Utah.

Dr. Ricardo Presnell was a world-renowned Economic Geologist with over twenty-five years of experience in exploration. In 1981 he received his B.A. in Geology from Middlebury College in Vermont with a Senior Thesis on the metamorphic petrology of marble, amphibolite and amphibolite near Gore Mtn., New York. From there he spent six months with Sohio Petroleum in Denver before attending the University of Michigan. In 1983 he received a M.S. in structural geology from the University of Michigan with a thesis on "A Structural Model for the Sevier Desert and Environs, Utah." He then worked for Sohio Petroleum from 1983-1986 as a structural geologist in the Overthrust Belt of the western United States.

In 1986 he joined Kennecott Exploration as an exploration geologist responsible for drilling out the Barneys Canyon Gold deposit near the world-class Bingham porphyry Cu-Mo-Au deposit. Kennecott subsequently funded his PhD at the University of Utah which he completed in 1992. From 1992 to 1994 he searched for Cu-Mo porphyries in the Southwest US and Northern Mexico before working on porphyry and Au exploration in Central America. In 1996 he became responsible for Au and Cu deposit area selection in Alaska and the Yukon while based in Anchorage, Alaska. From 1999 to 2006 he was a Principal geologist in Kennecott’s New Opportunities Group responsible for select a focus on area selection for Cu and U. From 2006 to 2008 he was a Principal Geologist with Rio Tinto’s Project Generation Group responsible for worldwide area selection for copper. In 2009, Ricardo joined Full Metal Minerals and Underworld Resources as Chief Geologist. With Underworld, he was part of the team that discovered the million ounce Golden Saddle deposit at the White Gold Project. During his career, Ricardo worked throughout the globe in the search for world-class base and precious metal deposits.

He was a very active Council member for the Society for Geology Applied to Mineral Deposits (SGA) where he was elected in 2008. He was also a Council member of the Society of Economic Geologists (SEG), and an Associate Editor for Geosphere. He published a variety of papers and abstracts on Carlin-type gold deposits, the structural control of porphyries, and on the tectonics and metallurgy of North America.

Ricardo’s passing is a loss not only to his family and many friends but also to the mineral exploration community. He will not be forgotten.

Underworld Resources, Inc. and Full Metal Minerals Ltd., together with Ricardo’s wife Caroline have established a scholarship fund in Ricardo’s memory at the University of Utah for Minors who are studying sciences. Friends of Ricardo can send donations to: ‘The Dr. Ricardo Davis Presnell Memorial Scholarship Fund’ at Suite 1500 – 409 Granville Street, Vancouver B.C. Canada, V6C 1T2.

Ricardo’s passing is a loss not only to his family and many friends but also to the mineral exploration community. He will not be forgotten.
Atlas of Mylonites - and related microstructures

Mylonites form in response to high rates of strain within deep ductile shear zones, which are the extensions at depth of surface faults, thrusts and fault boudins. They can have many different mineralogical compositions and are therefore defined on their textural appearance. This atlas provides high definition images of a large number of different mylonites allowing students and geologists to correctly classify them with greater ease. It also provides insights into the interpretation of mylonitic fabrics to answer questions such as: from what type of rock did this mylonite derive? What were the metamorphic circumstances during mylonitisation? What was the intensity of deformation? and What was the sense of shear? This book will complement the very successful textbook "Microtectonics" by Passchier and Trouw... more on http://springer.com/978-3-642-03607-1

- High definition images of the large variety of mylonites provide an excellent reference for the classification and interpretation of mylonites and the contexts within which they formed.
MEMBERSHIP APPLICATION FORM

I would like to become a member of the Society for Geology Applied to Mineral Deposits and to receive my personal copy of Mineralium Deposita. Membership fees will be due after acceptance of the membership application by the SGA Council.

- Type or Print -

Name / Corporation
First name
Title
Mailing address
Phone
Fax
e-mail

Academic degrees

Check only one of the two boxes below
☐ I want to receive Mineralium Deposita and membership privileges for the current calendar year including back issues
☐ I want to receive Mineralium Deposita and membership privileges for the next calendar year

Select your Membership Dues
☐ 75.00 EUR Regular Member (Print+Internet Mineralium Deposita and SGA News)
☐ 60.00 EUR Regular Member (Internet only Mineralium Deposita and SGA News)
☐ 50.00 EUR Student Member (Internet only Mineralium Deposita and SGA News, max. 4 years, up to Ph.D. - certificate required)
☐ 60.00 EUR Senior Member (Print+Internet Mineralium Deposita and SGA News, after retirement - certificate required)
☐ 300.00 EUR Corporate Member (Includes 3 copies of Mineralium Deposita) (for industry only, no academic)

If my application is approved by the SGA Council, I authorize the Society for Geology Applied to Mineral Deposits to charge the above amount (please tick) to my credit card:
☐ VISA ☐ MASTERCARD/EUROCARD ☐ AMERICAN EXPRESS

Card No: _______________________________ Expiry date (MM/YY): ____________________________

Signature: ___________________________ Place and date: ____________________________ (if you do not intend to pay by credit card, an invoice will be issued after acceptance of your application)

Sponsor (SGA member):
Name _______________________________ Place _______________________________ Date _______________________________ Signature _______________________________

1.

Send the Membership Application Form to:
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)-2-51618746
E-mail: secretaty@e-sga.org

SGA SOCIETY FOR GEOLOGY APPLIED TO MINERAL DEPOSITS
www.e-sga.org

11th Biennial Meeting

Let's Talk Ore Deposits
26-29th September 2011
Antofagasta, Chile

Convener: Eduardo Campos and M. Soledad Bembow

ANTOFAGASTA located in the Atacama desert with a population of over 300,000 inhabitants, is the largest Chilean city north of Santiago de Chile. Historically, it has been the main gate to the richest mining region of South America.

PROGRAM
The main technical program will be held over four days from Monday, September 26th to Thursday, 29th September, 2011, with the following daily structure:
• Monday, 26th and Tuesday, 27th September: Morning plenary sessions, afternoon concurrent technical sessions.
• Wednesday, 28th and Thursday, 29th September: Concurrent technical sessions.

SHORT COURSES AND WORKSHOPS
The meeting will offer a wide variety of short courses and workshops before and after the main conference. Those interested in offering short courses or workshops, please feel free to contact the organizing committee.

CONFERENCE VENUE
The conference will be held at the Enjoy Casino and Resort, about 30 km south of the Universidad Catolica del Norte.
Let’s Talk Ore Deposits
26 -29th September 2011
Antofagasta, Chile

The Atacama Desert in northern Chile hosts one of the world’s largest concentrations of ore deposits. Porphyry copper, magnetite-apatite and IOCG systems, manto-type copper deposit, Au-Ag epithermal systems and large supergene copper deposits coexist in the same area with large salars, geyser fields and one of the world’s most active volcanic belts, all less than 300 km from Antofagasta.

IMPORTANT DATES
- Second circular and call for papers: November 30th, 2010
- Registration:
  - Registration opens: January 15th, 2011
  - Early registration closes: May 27th, 2011
  - Payment due from accepted authors: May 27th, 2011
  - Field trip registration: May 27th, 2011
- Conference paper:
  - Open submission of papers: January 28th, 2011
  - Paper submissions deadline: March 7th, 2011
  - Acceptance of papers: May 1st, 2011
  - Submission of final papers: May 27th, 2011
- Students:
  - Student application for support: March 7th, 2011
  - Notice of student grant: May 15th, 2011

PROVISIONAL LIST OF FIELD TRIPS
- Porphyry Copper Deposits, Central Chile
- Copper Deposits, Calama Area
- Epithermal Deposits, La Serena Area
- Porphyry Copper and Manto-type Copper Deposits, Antofagasta Area
- Supergene Copper Deposits, Antofagasta Area
- Epithermal Deposits, Antofagasta Area
- Active Volcanoes and Geothermal Fields
- Salar Deposits
- IOCG and Magnetite-Apatite Deposits, Copiapo Area
- Porphyry Copper Deposits in Northern Argentina
- Ore Deposits in Southern Peru
- Bolivia to Northern Chile: a Metallogenic Transect

Other field trips to ore deposits in Brazil and southern Peru are also being considered.

For further information please contact the Organizing Committee at:
WWW.SGA2011.ucn.cl, SGA2011@ucn.cl
Av. Angamos 6610, Antofagasta, Chile.
Tel. 56 (55) 355967, Fax 56 (55) 355977

TRAVELLING TO ANTOFAGASTA
Antofagasta is easily reached via Santiago de Chile and connecting flights with Europe, America and Australasia. Alternative means include bus from nearby major cities.

ACCOMMODATION AND RESTAURANTS
Antofagasta offers a wide variety of lodging from luxury first class hotels to student accommodation. It also hosts a wide range of catering possibilities including local and international restaurants, and a vivid nightlife.

TOURISM
Antofagasta is the gateway to the Atacama desert and its fascinating attractions, including San Pedro de Atacama, El Tatio geysers, the salars, and several astonishing national parks, a large coastline and high peaks. Bolivia, Argentina and Southern Peru are within easy reach.

For visitors information see: http://www.welcomechile.com/antofagasta

Discover the beauty of the desert