Introduction

Illegal mining of gold, diamonds, copper, cobalt and, in the last decade, “coltan” has fuelled ongoing armed conflicts and civil war in a number of African countries. “Coltan” – an important tantalum source - is a central African trade name of mineral concentrates chiefly composed of members of the columbite-tantalite group [(Fe,Mn)(Nb,Ta)2O6]. Tantalum is a rare metal (Dec 2007: 77 US$/kg tantalite, 30% Ta2O5) whose strength, chemistry and electronic properties make it valuable in many high-technology and medical applications. The use of tantalum has, for instance, been instrumental in reducing the size of mobile phones. Coltan is mined from highly specialized granitic rare metal pegmatites (e.g. Černý, 1992), which commonly show complex zoning, and from related placer deposits.

Although the major producers of tantalum in Australia, Brazil and Canada account for more than 80 percent of the world production (2006: ~1,290 metric tons tantalum metal; USGS Mineral Resources Program), artisanal and small-scale mining of coltan is essential to many local economies in Africa (e.g. Mozambique, Ethiopia, Rwanda, DR Congo (DRC), Nigeria, Namibia). Moreover, Africa is estimated to host about three quarters of the world’s tantalum resources. The term “blood coltan” was coined in the Congolese civil war, as the sale of this mineral fuelled fighting especially in the eastern provinces of the DRC. Various governmental and rebel armed groups moved in to take control of its production and trade. A sharp price increase for tantalum on the market at the beginning of the century from 60 to 480 US$/kg Ta2O5 made this trade highly profitable. Large quantities of coltan were smuggled from the DRC into the neighboring countries to be sold illegally.

The expert group for the DRC of the United Nations Security Council recommended the development of a traceability system that would proof the origin of coltan. Such a system would allow ore produced within regions affected by civil war to be distinguished from other sources. Results of a pilot study funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) are presented here. Combined mineralogical-geochemical-geochronological signatures of columbite-tantalite ores are used to trace the origin of ore concentrates.
From the President of SGA

David I. Groves
dgroves@yale.edu.au

It is a great honour to be elected President of SGA, particularly as an Australian so far from the European heart of the Society. The fact that I am a former President of SEG shows that international collaboration, rather than competition, is seen as the way forward as we seek to maximise service to our Membership.

As President, I have a number of goals that I will be working to achieve in collaboration with the outstanding Executives and Council that has been elected for 2008/2009. I would like to see our Membership increase by at least 25 percent over the next two years, and the Society also achieve a firmer financial foundation, particularly through strategic planning headed by Dave Leach, our Treasurer. I am also determined that our biennial meeting, SGA in Townsville, Queensland, Australia in August 2009, will be a great scientific success for SGA. We have an impressive delegation of members from the other two university-based economic geology societies, IAGOD who have ex-officio members on our Council. Your assistance in responding to our requests for your vote on these matters will be greatly appreciated.

After the next Council Meeting, I hope to be able to write a more detailed article on our strategic plans, a more definitive view of SGA 2009, and an indication of the location of SGA 2011.

Council also need to aid the Editors of Mineralium Deposita in any way they can to maintain the extremely high standards of the journal. Over the past five years, Mineralium Deposita has become the premier journal in economic geology in terms of its academic and industry impacts.

The next Council Meeting will be held in Quebec City, Canada in late May, the Membership will be canvassed to approve some changes to the Statutes of the Society which will help us expedite our business and allow us to better interact with SEG and IAGOD who have ex-officio members on our Council. Your assistance in responding to our requests for your vote on these matters will be greatly appreciated.

After the next Council Meeting, I hope to be able to write a more detailed article on our strategic plans, a more definitive view of SGA 2009, and an indication of the location of SGA 2011.

Other requests will not be considered.

Your suggestions and ideas for any topic of interest to SGA are welcome! They can be addressed to any Council member or to

Dr. Jan Pasava
SGA Executive Secretary
Czech Geological Survey
Křížová 1311/30
120 00 Prague 2
Czech Republic
Tel: +420 2 5108 5506
E-mail: pasava@cguru.cz

SGA Executive Secretary
Czech Geological Survey
Křížová 1311/30
120 00 Prague 2
Czech Republic
Tel: +420 2 5108 5506
E-mail: pasava@cguru.cz

EDITORIAL OFFICE
Maximiliano Mazza
Department of Mineralogy
University of Geneva
Geneva 16910, Switzerland
Tel: +41 22 797 32 10
Fax: +41 22 797 29 00
E-mail: editor-sga-news@sga.org

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

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TOTAL RECEIVED VOTES 198
TOTAL VALID VOTES 198

Prague, December 22th, 2007
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Bolíbard Křížek
Anna Vymazalová

Future activities
SGA presence at the 2008 IGC (Oslo, Norway)
Half a day MRD-13 Symposium on “Black shale hosted Ore deposits associated with black shales: from their origin to their Environmental impacts”, convened by J. Palavra and H. Frimmel
Black shale formations occur in different geological environments throughout the geological record. Black shales are of interest in exploration for numerous types of ore deposits such as base metals (copper, lead zinc + base), noble metals (gold and platinum group elements), uranium, molybdenum, nickel, manganese, vanadium, mercury, antimony, tin, phosphorus and others. Previously, some of the deposits were sub-economic, containing large amounts of low-grade mineralized black shale, but with the recent development of ore processing methods like bioleaching, many of these low-grade prospects became economically profitable. Both since they host numerous types of ore deposits such as base metals (copper, lead zinc + base), noble metals (gold and platinum group elements), uranium, molybdenum, nickel, manganese, vanadium, mercury, antimony, tin, phosphorus and others. 

2. SGA SPONSORED SESSIONS:
MRD-10 Symposium on “Large ore provinces of Central Asia”, convened by Ginayat R. Bekzhanov, Bernd Lehmann and Dmitry Pusharovsky
The geologic situation of Central Asia is dominated by a huge collage of Phanerzoic subduction-accretion complexes (Altaid orogenic system) in between the Urals to the west, Siberian plate to the north, Circum-Pacific orogenic belt and North China Craton to the east, and the Cenozoic Alpide mountain ranges to the south. This region hosts a number of major ore provinces with a wide spectrum of worldclass mineral deposits, of which precious metals, base metals, and rare metals stand out. The Symposium wants to contribute to the better understanding of the major controls on the formation of large ore provinces, and invites detailed mineralogical and geochemical studies as well as regional metallogenic studies and review papers on Central Asian ore deposits. Focus should be on modern research and new findings.

MRD-15 Symposium on “Ni-Cu-PGE sulphide deposits”, convened by H. Papanen and A. Nulden
The historic high prices of nickel and platinum-group metals (PGE) have aroused worldwide interest in the exploration and exploitation of magmatic Ni-Cu-PGE deposits, which are related to mafic-ultramafic intrusive rocks and ultramafic extrusives. Tectonic environments and magmatic evolution vary from one deposit type to the other, but a number of common rules control the formation of sulphides in magmatic systems and the distribution of metals between co-existing phases. Papers dealing with general aspects of magmatic Ni-Cu-PGE ore formation and descriptions of new discoveries are welcome. Nickel has long history in Fennoscandia: the metal was first discovered in Sweden 1756 and Norway produced the first Russian nickel in the 19th century. Our focus will be on the occurrence throughout the world of nickel ores, which are found in many countries, and the deposits have been explored by numerous prospectors. 

The last two decades have seen an increasing interest in the exploration of these ores, and the Symposium will provide a platform for sharing recent developments in the field of geology and exploration. The Symposium will focus on the following topics:

• Exploration techniques
• Mineralogy and geochemistry
• Metallogenic setting
• Economic aspects
• Environmental impacts

Chair(s): A. G. A. Dunsdon, M. B. Martin, J. S. Davis, D. E. Hasted
have boomed during these last three years.

MRD-19 Symposium on “Uranium deposi-
tions” was convened by M. Cueny, C. Ciaillet
and O. Aïkais. This symposium is devoted to or-
opresentations on uranium ore deposits.

Exploitation activities for uranium deposits have boomed during these last three years because uranium prices have experienced a spectacular jump. A particular attention will be given here to the deposits from the

properties of deposits with those from academic institutions coupled with the presentation of innovative
tech- niques, resource assessments and exploration potential. We strongly encourage the presentation of innovative genetic models. Comparative papers on the metallurgy of the Fenadoscan deposits with that of other similar clastic blocks from flood deposits of the world are also welcome. A joint participation to the symposium of geosci-
entists from geological surveys, consulting, exploration and mining companies together with those from academic institutions expected.

-SSEG-GSA 2008 Meeting (July 5-9, 2008, Johannesburg) – SGA will have a free booth there and run a 2-days short course on dia-
monds – SGA activities coordinated by J. Moore and H. Fennell.

UNESCO-SEG-GSA XXVI Latin Ameri-


Johannesburg) – SGA will have a free booth

The list of new SGA members from August 10, 2007 to April 22, 2008

Number 23     June 2008

SOCIETY FOR GEOLOGY APPLIED TO MINERAL DEPOSITS

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lection for Exploration Targeting, NDG006 University of Australia Western 35 Stirling Highway, Cawley WA 6009, Perth AUSTRALIA

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A Mining Deposit Archive typically provides information 1) on the regional geology and geostratigraphic setting, 2) the geochemical and stratigraphic setting of the deposit/district, 3) typical features of ore and hostrocks using photographs of outcrops, samples or photomicrographs, 4) geochemistry of mineralization and hostrocks, 5) a review of current interpretations on the deposit/district metallogeny.

A Mining Deposit Archive consists of a pdf file comprising a set of slides and their presentation notes where each slide is accompanied by a text explaining the features in the slide.

To submit a proposal for a Mining Depo- sit Archive, go to our website, www.e-sga.org, then navigate to >Publications>Mineral Deposit Archives where Instructions to Authors and templates to prepare your contribution can be downloaded.

Fingerprinting – how does it work?

The focus of this study is to develop a methodology approach capable of distinguishing the origin of tantalum ore concentrates with the utmost probability. A number of factors must be taken into consideration. (1) The quality and composition of the coltan ore concentrates available on the market may vary considerably depending on the technical equipment for ore processing used and the experience of the miners. (2) The mineralogical and chemical composition of Ta-Nb ores is extremely complex, based on the wide range of minerals of the columbite-tantalite series (columbite-group minerals, CGM) and the ability of CGM to incorporate a large number of additional elements. Furthermore, coltan ores may also contain other tantalum-bearing mineral phases such as tatkellite (FeTa2O6), wodginite (Mn,Sn,Sn3Ta4O12), lindsayite (Nb,Ta,Sn,Fc,Mn,Ti)O4, brookite (Bi;Nb,Ta)O2, stibiotantalite (Sb;Nb,Ta)O2, minerals of the pyrochlore group such as microline ([Ca,Na],Ta5O12)2(OH)4, and minerals of the complex fergusonite, aeschynite and euxenite mineral groups. Although confusing at first, these large variations in Ta-Nb minerals and ores allow for the development of a scheme for fingerprinting. (3) The analytical time and effort of the fingerprint have to be kept at a minimum.

The methodological approach summarized below is based on an extensive mineralogical-geochemical-geochronological database acquired and compiled for samples from the world’s major coltan producing areas. Special attention is, however, directed to samples and concentrates from Ta-Nb (Sn-Li) provinces in Africa (e.g., the Alto Ligonha Province in Mozambique; the Kivu Province in the DRC, Rwanda and Burundi; southern Ethiopia; southern and northern Namibia; Fig. 1). So far, more than 350 samples have been investigated (individually for Ta and Sn) and more than 60% from central and southern Africa. Most samples are from rare metal pegmatites and their eluvial and alluvial placers, especially from tin grans and rare metal granites of Pan-African age.

Analytical Methods

Coltan is studied and analyzed in a step-by-step mode (Fig. 2). One goal is to characterize their comple- te mineralogical and chemical variability. Major and trace element concentrations are obtained by WD-X-ray fluorescence analysis on bulk samples. The mineralogical composition of bulk samples is determined by X-ray diffraction analysis; application of Rietveld refinement procedures allows estimates of modal proportions. Polished sections are prepared and investigated by reflected light microscopy, followed by qualitative mineralogical analysis using the Mineral Liberation Analysis software (MLA: JK Tech Pty Ltd, Australia) on a Quanta 600 FEG scanning electron micro- scope equipped with an EDAX module. For major and trace element analysis by magnetic sector ICP-MS and ICP-OES, one or several handpicked grains (5 to 100 mg of sample material) are ground and dissolved in a mixture of hydrochloric acid 48% (20–200 μl) and nitric acid 65% (200 μl). CGM and other Ta-Nb-bearing mineral phases are analyzed for major and trace elements using an ICP-MS (CAMECA SX100) with detection limits of 200 ppb for trace elements. For determination of low levels of trace elements the Laser Ablation Inductively Coupled Plasma Mass Spectrometry technique is applied (LALC-MS; Ne/LIAG Yager laser; 266 nm New Wave Merckantek; LUV; Agilent 7500 quadrupole ICP-MS; University of Würzburg). The spot size varies from 30 to 50 μm. The glass reference material NIST SRM 612 is used for external calibration and calculation of trace elements by GLITTER Version 3.0 (Macquarie Research Ltd., 2000). Microprobe analysis is done on both crystal fragments using conventional ther- mal ionization mass spectrometry (TIMS)
insitu analysis by LA ICP-MS at the University of Frankfurt using a Thermo-Finnigan Element II sector field ICP-MS coupled to a New Wave UP213 ultraviolet laser system. Spot size ranges from 30 to 60 μm. Raw data are corrected for background signal, common Pb, laser induced elemental fractionation, instrumental mass discrimination, and time-dependent elemental fractionation. Analytical reproducibility (G1 reference standard) of \(^{206}\text{Pb}/^{238}\text{U}\) and \(^{207}\text{Pb}/^{206}\text{Pb}\) ratios is usually better than 0.7%. No matrix dependent U/Pb fraction has been observed. The chemical procedures to separate U and Pb for TIMS analysis were adapted from Romer & Wright (1992) and Romer & Smeds (1994). U and Pb were measured in multi-collector mode on a MM354 (University of Toronto) and a Thermo-Finnigan Triton (BGR). Isoplot (Ludwig 2003) was used for graphical presentation of U-Pb isotope data and age calculation.

Results
Mineralogical composition of the coltan concentrates
Coltan concentrates are usually dominated by CGM, but may also carry abundant additional accessory phases. These include pyrochlore-group minerals, tapiolite, wodginite, stibiotantalite, bismutotantalite, cassiterite, as well as silicate, phosphate and further oxide phases. Some of these minerals are characteristic of certain deposits (i.e., the Manono deposit in the Kibaran pegmatite province of DRC), mining districts (i.e., the Gatumba district in the Kibaran pegmatite province of Rwanda), or pegmatite provinces (i.e., the Alto Ligonha Province, Mozambique). A fully quantitative set of data for each concentrate is part of a fingerprint to the location sampled. This includes mineral associations and their relative concentrations, grain sizes, and their intergrowth relationships (Fig. 3). Mean concentrations of ore minerals and accessory phases in coltan concentrates as well as their frequencies within African pegmatite provinces are summarized in Table 1 and illustrated in Fig. 4. The frequency of a mineral in a tantalum pegmatite province was evaluated by comparing the concentrates with a defined critical concentration, which was set to \(~30\%\) of the mean concentration of this mineral in all concentrates.

The detection of significant amounts of minerals typical of a deposit, district or province provides valuable hints to the origin of a concentrate. Bismutotantalite was so far only found in samples from Mozambique, wodginite frequently occurs only at locations in Rwanda and tapiolite seems to be indicative of concentrates from the DRC (especially from deposits with Eburnean ages - see below) and from Rwanda (Fig. 4b). The relative frequency of ferro- or manganocolumbites and/or -tantalites also

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Nyarigamba, Rwanda</th>
<th>Gasasa, Rwanda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fe-Columbite</td>
<td></td>
<td></td>
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<tr>
<td>Mn-Tantalite</td>
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<tr>
<td>Fe-Tantalite</td>
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<tr>
<td>Mn-Columbite</td>
<td></td>
<td></td>
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<tr>
<td>Tapiolite</td>
<td></td>
<td></td>
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<tr>
<td>Cassiterite</td>
<td></td>
<td></td>
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<tr>
<td>Zircon</td>
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<tr>
<td>Moneprite</td>
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<tr>
<td>Microlite</td>
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<tr>
<td>Uranoceneprite</td>
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</table>

Figure 2: Methods used in the pilot study for characterization of the mineralogical parameters and geochemical compositions of Ta-Nb concentrates.

Figure 3: Back-scatter electron image of a columbite-tantalite concentrate from Rwanda displaying heterogeneous chemical composition shown by different grey values. Numbers refer to EPMA spots.

Figure 4: Modal concentration of minerals in coltan concentrates from Nyarigamba and Gasasa (Rwanda) as determined by MLA.

Figure 5: Variation in Mn-Fe and Ta-Nb ratios in single CGM and tapiolite grains from coltan concentrates of Kibaran-age pegmatites in Rwanda and the DRC. EPMA.

Table 1: Mean concentrations and estimated frequencies of minerals in coltan ore concentrates from pegmatite provinces in Africa as determined by MLA.

<table>
<thead>
<tr>
<th>Mineral</th>
<th>DR Congo / Kibaran mean</th>
<th>DR Congo / Éloundou mean</th>
<th>Rwanda</th>
<th>Mozambique</th>
<th>Ethiopia</th>
<th>Nigeria</th>
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<tr>
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<td>Fe-Taftellite</td>
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<tr>
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<td>20</td>
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</tbody>
</table>

Legend: Fraction of samples with higher concentrations of a mineral than the defined critical concentration for the respective mineral phase: x: ~5-10%, xx: ~25-50%, xxx: ~75-100%, x: ~25-50%, (x): individual samples with high concentrations of the mineral occur.
varies considerably (Table 1). Finally, the presence or absence of cassiterite, ilmenite and other minerals may give additional hints for identification of the origin (e.g. zircon, Fig. 4a).

**Major and trace elements**

The columbite group minerals (CGM) have the general formula $\text{AB}_2\text{O}_6$, in which the A position is dominated by $\text{Fe}^{2+}$ and $\text{Mn}^{2+}$ and, to a lesser extent, is occupied by $\text{Mg}^{2+}$ and trivalent cations. The B position is dominated by $\text{Nb}^{5+}$ and $\text{Ta}^{5+}$, but may also be occupied by $\text{Ti}^{4+}$ and $\text{Sn}^{4+}$. The mechanisms of incorporation of trace elements (e.g. Ti, Sc, U, W, REE) into the CGM structure and the percentage of the substitutions relative to the total cations are described in a number of papers (e.g. Černý & Ercit, 1989; Ercit, 1994; Romer et al., 1996; Majka et al., 1996; Wise et al., 1998). Coupled substitutions of $3\text{M}^{4+}$ for $\text{M}^{2+} + 2\text{M}^{5+}$, other mechanisms involving trivalent cations as well as the influence of the local redox conditions during CGM crystallization are discussed to explain cation incorporation (e.g. $\text{U}^{4+}$ vs $\text{U}^{6+}$; Romer et al., 1996). For the crystal chemistry of other Nb and Ta minerals the reader is referred to Černý & Ercit (1989), Ercit et al. (1992) and Černý et al. (2004).

In addition, mineral chemistry reflects intrinsic parameters of ore-forming processes, source, and host rock relationships. Fractionation and contamination in the pegmatite melt are recorded in chemical zoning (Fig. 3) and trace element patterns of the grains. The classical approach using microprobe analyses (EPMA) of the major elements permits a rough classification of the pegmatite type (Černý, 1989, 1992) but may also be used for further discrimination of deposits and districts. As an example, variations in Mn-Fe (X$_{\text{Mn}}$ = 100*Mn/(Mn+Fe)) and Ta-Nb (X$_{\text{Ta}}$ = 100*Ta/(Ta+Nb)) ratios in four coltan concentrates are shown in Figure 5. The overall compositional range within the concentrates is large, and follows distinct trends.

About 35 trace elements (including the rare earth elements) are determined by LA ICP-MS and/or ICP-MS. The concentrations of several trace elements (e.g. Mg, Sc, Ti, W, Hf) correlate well with those of the major elements within the studied minerals (Fe, Mn, Nb, Ta). Good correlations between trace elements are often present on a deposit or district scale. A number of trace elements and element ratios appear to be useful for differentiation of ore districts within larger pegmatite provinces (e.g. Bi, Ti, Zr/Hf, Ti/Sn; Fig. 6).

The chondrite-normalized REE distribution patterns vary significantly depending on the type of Ta-bearing mineral phases (columbite, tantalite, microtite) and in part also their major element compositions (e.g. the Fe and Mn concentrations in tantalites; Fig. 7). Furthermore, ore concentrates from different pegmatite provinces can be separated using a number of criteria. Whereas some locations are characterized by low REE concentrations (e.g. Kenticha, Ethiopia), others are highly enriched, especially

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**Figure 6:** Ti/Sn versus Zr+W plot for samples from the Kivu and adjacent areas in the DR Congo and Rwanda. Laser ablation ICP-MS and magnetic sector ICP-MS data both plot into the same fields for the respective provinces.

**Figure 7:** Concentrations of Y and REE in columbite-tantalite from ore concentrates. (A) Marropino (Mozambique), (B) Buranga (Rwanda), (C) Kokobin (Ghana) and (D) Bikita (Zimbabwe). LA ICP-MS data.
in the MREE and/or HREE (Fig. 7a,b). Samples with Kibaran ages (Kivu province in the DRC and Rwanda) either show flat patterns for most tantalites (especially the manganotantalites; Fig. 7b), rising values in the DRC and Rwanda). The use of major and trace element data is evident: Archaean (>2.5 Ga), Palaeoproterozoic (ca. 0.8-0.6 Ga), Early Neoproterozoic (1.0-0.9 Ga); late Neoproterozoic to early Palaeozoic (Pan-African; ca. 0.6-0.4 Ga). Multiple LA-ICP-MS measurements and TIMS analysis of different fragments of submilligram size, both applied to single crystals, reveal isotopic homogeneity on the microscale. Age inheritance is not evident. Therefore, different age groups in mixed concentrates can be distinguished. The ages obtained for columbite-tantalite from Rwanda, Burundi and the DRC closely match a U-Pb emplacement age at 0.96 Ga obtained for slightly discordant columbite from the Kivuvi and Ruhembe pegmatites in Burundi (Romer & Lehmann, 1995), and are in general accordance with alternative ages of late Kibaran so-called “G4” tin granites.

Discussion

Without doubt, there are regional and local variations in the composition of coltan. These are due to differences in geological age and mineralogical and chemical composition of host pegmatites and their derivative heavy mineral concentrates. Zoned CGM crystals perfectly mimic the chemical evolution of pegmatitic melts (Lahti, 1987) and thus can be used as monitors of the fractionation stage of the source rocks. This allows distinction of locations even in districts and provinces of similar geological ages, similar host rocks or similar parent melt compositions. Each tantalum deposit has its unique characteristics. The reference, a fingerprint of samples of suspected or unknown origin should be possible when a large and high-quality analytical data base is available.

Distinction of multiple sources would also be possible, if a complete fingerprint of the end members exists in the data base. U-Pb dating of several grains from a concentrate reveals if the CGM are cogenetic or are derived from different ore provinces. The investigation of special zoning patterns, as well as of trace elements within single CGM will also enable a decision on the presence of one or several populations. In summary, the methods discussed in this paper are useful to fingerprint the origin of coltan. However, it takes appreciable analytical efforts and time to completely characterize a concentrate. In the future, methods will be developed that allow fast screening based on modal mineralogy and trace element and/or isotope geochemistry. We shall briefly discuss two possible applications of the method:

(1) Derivation of an unknown sample from an African tantalum province. U-Pb ages of several grains in a concentrate may point to one of four age groups that have been previously discussed. Furthermore, discrimination, i.e. between pegmatites of Pan-African age in the Alto Ligonha Province of Mozambique, the central Damara orogen (Namibia) and southern Ethiopia is possible using modal mineralogy (Fig. 9) or mineral composition.

(2) Regional discrimination within an identified age group. Discriminating single deposits (pegmatites) within an age group is possible using combined information, but may be time-consuming, depending on the degree of required certainty. Based on modal mineralogy, and major and trace element data of CGM, a distinction of tantalum concentrates from Kibaran pegmatites within the DRC and Rwanda, and those of the Namaqualand Province in Namibia and South Africa, is demonstrated in Figure 10. Both yield identical geological ages (0.9-1.0 Ga). CGM in Kibaran pegmatites lack Eu anomalies, whereas those in Namaqualand pegmatites have minor negative Eu anomalies, concomitant with a lack of cassiterite. Within the Kibaran, tantalum concentrates derived from areas west of the western branch of the East-African rift zone (Kivu, Maniema and Katanga provinces of the DRC) are distinguished by generally higher trace element concentrations (i.e., Zr, Hf, W, Sn) from those east of the rift in Rwanda and Burundi. The use of major and trace element information would enable discrimination of all deposits and occurrences studied so far.

Minerals are traded on an open global market. However, the public is increasingly aware of “clean” products, which are mined in an environmentally sound and socially tolerable way in countries which accept the rules of good governance. This is true especially for minerals imported from conflict areas. The worldwide implementation and acceptance of the “Kimberley Process” for diamonds prove that the international community is no longer willing to accept minerals from conflict areas or materials produced under criminal circumstances. The analytical fingerprint of “coltan” may assist in the establishment of a control instrument in an envisaged certification of the production and trade chain of coltan. Modified techniques may be applied to other ores as well. Our working group will provide analytical fingerprinting methods for coltan ores, also in the framework of the project “Certified Trade Chains in the Minerals Sector” (CTC) recently in development at the BGR. It is of vital interest to the mining industry and promoted by political initiatives (“market transparency”) to introduce and use the certification instruments now becoming available.
10th Biennial SGA Conference 2009, Townsville, Australia 17–20 August 2009

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In conjunction with the Society for Geology Applied to Mineral Deposits, EGRU is delighted to invite all their members and others interested in economic geology to participate in the 2009 conference to be held in Townsville. This will be the next in the series of biennial international SGA meetings, the most recent of which in Athens, Beijing and Dublin have each attracted more than 500 participants.

Location of Townsville, home of the 10th Biennial SGA meeting in northern Queensland, Australia. Some of the more important mineral deposits in the region are shown along with proposed fieldtrip locations in Australia and New Zealand. 1-Base metal deposits of the Mount Isa region; 2. IOCG and Broken Hill-type deposits of the Cloncurry district; 3. North Queensland gold and base metal deposits; 4. Environmental management of tropical North Queensland mine sites; 5. Iron ore deposits of the Hamersley district; 6. Archaean nickel deposits of Western Australia; 7. Archaean gold deposits of Western Australia; 8. Epithermal gold deposits and active hot springs in North Island, New Zealand; 9. Volcanology, alteration and VHMS deposits. A Tasmanian Perspective; 10. Porphyry and epithermal systems of New South Wales.


SMEDG and AIG

TERRY LEACH SYMPOSIUM 2008

SMEDG and AIG are organising a one day symposium, to be held at the Kimbali Club, Miltona Point, Sydney, Australia, on Friday, 17th October 2008, to honour Terry Leach’s contributions to mineral exploration.

The Application of Petrology to Geological Models in Mineral Exploration

Terry’s clients and colleagues will present exploration case histories reflecting on the contributions he made to specific exploration and mining projects.

For more information and proposed speakers see www.smedg.org.au

There will be opportunities to meet Trade Displays and to sponsor the Symposium at various levels.

Contact details on the SMEDG website.

XXVII Latin American Metallogeny Course

August 18-29, 2008 - La Paz, Bolivia

Metallogenesis and Mineral Deposits of the Central Andes and the Precambrian of Bolivia

The 2008 edition of UNESCO-SEG-SGA Latin American Course on Metallogeny will be held at the Universidad Peadra Bolivia (La Paz, Bolivia) from 18th to 29th August, 2008. The course is sponsored by the UNESCO, SEG, SGA and several mining companies and local institutions. The course is aimed at academic, mineral exploration, government and graduate student geologists, and provides an opportunity to update their skills and knowledge on mineral deposits with leading researchers in the field. The course comprises two parts. Part 1, a series of lectures which provide participants with a review on the geochemistry of hydrothermal processes (Mark Reed, University of Oregon), an update on the use of fluid inclusions (Larry Diamond, University of Bern) and new applications of radiogenic isotopes and geochronology in the study of mineral deposits (Fernando Barra, University of Arizona). Following lectures will focus on the geology and genesis of Sn/W and diamond deposits (Bernd Lehmann, Technical University of Clausthal), Skarns and IOCG (Fernando Tornos, Instituto Geologico Minero de Espana), epithermal (Antonio Arrubas, Newmont Mining Corp.) and orogenic gold deposits (Larryn Diamond). A full day of lectures is devoted to mineral deposits in Bolivia and entirely presented by local (national) instructors. Part 2 consists of mine visits to several deposit-types of Bolivia and will give an opportunity for students to apply and further discuss the concepts learned during the lectures.

More information about the course, the detailed program and application form are posted in the website http://www.unige.ch/sciences/terre/mineral/seminars/la_paz08/la_paz08.html
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O. Waelder, Technical University Dresden, Germany

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