

# *Resumé - 01.09.2011*

## **István MÁRTON (Ph.D.)**

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### **Personal Details:**

Date & Place of Birth: 29 August 1979, Odorheiu Secuiesc (Székelyudvarhely), Transylvania, Romania

Citizenship: Romanian

Nationality: Hungarian

### **Education:**

**2004-2008: Ph.D.** University of Geneva, Switzerland

**2001-2002: M. Sc.** (Metallogeny and Petrology), University of Bucharest, Romania

**1997-2001: B. Sc.** (Geology and Geography), "Babes-Bolyai" University, Cluj-Napoca, Romania

**1993-1997: high-school graduation** (Mathematics and Physics), "Tamási Áron" High- School, Odorheiu Secuiesc, Romania.

Operating Grants,  
International Education  
Programs

**2000-2001:** "Eötvös Lóránd" University (Dept. of Petrography and Geochemistry), Budapest, Hungary – supported by the Educational Ministry of Hungary;

**2001 (May):** University of Szeged (Dept. of Mineralogy and Petrography), Szeged, Hungary – supported by University of Szeged.

### **Languages (1-10):**

Hungarian (10), Romanian (9), English (8), French (5), Serbian (3)

### **Key Skills:**

Experience in precious and base metals exploration, with extensive fieldwork, detailed geologic mapping and project generation in hydrothermal altered zones, core logging and structural geology mapping in metamorphic and volcanic terranes. Strong background in geochemical sampling and exploration techniques in gold-copper-base metals exploration.

Familiarity with Geographic Information Systems, experience in computer 3D modeling, managing and developing exploration, geological and GIS/relational databases.

Practical experience in geochemistry and ore petrology, with emphasis on Tethyan Neogene volcanism, epithermal and porphyry-Cu mineralization, sedimentary rock-hosted gold deposits and related hydrothermal processes, metamorphic core-complexes and Mesozoic alkali magmatism (with REE mineralization).

Analytical experience: gathering and interpreting data from microscopy, apatite and zircon fission track analysis, U-Pb geochronology, <sup>40</sup>Ar/<sup>39</sup>Ar dating, fluid inclusion microthermometry, stable isotope (O, S, C) analysis, XRD, XRF, radiogenic isotope (Sr, Pb) analysis, SEM, microprobe, raman spectroscopy, LA-ICP-MS.

Good interpersonal skills, highly motivated and keen to organize and manage geological works and projects.

Various experiences as working in international and multi-language groups and remote areas.

**Work Experience:**

Role:  
Periode:  
Company:  
Location:  
Duties:

**Exploration Project Geologist**

1<sup>th</sup> June 2011 -

***Stockwork GeoConsultin Ltd - Avala Resources Ltd (contractor)***  
Bor/Medvedja (Serbia); Cluj-Napoca (Romania)

Currently I am working as project geologist on Dunav Resources Ltd. projects in Serbia: I am leading the resource deliniation drilling/trenching program at Tulare (poprhyry Cu-Au prospect within the Oligocene Serbomacedonian Belt, Lece Magmatic Complex) and Lisa (sedimentary rock-hosted Au-Sb mineralization).

Role:  
Periode:  
Institute:  
Location:  
Duties:

**Visiting Lecturer**

2009 -

***University of Babeş-Bolyai***

Cluj-Napoca, Romania

I am teaching the undergraduate (3rd year) *Introduction to Ore Deposits* course and I am supervising bachelor/master student projects (1. Porphyry Cu-Au mineralization at Valea-Morii, Apuseni Mts.; 2. REE mineralization at Ditrau Alkaline Complex, E. Carpathians).

Role:  
Periode:  
Institute:  
Location:  
Duties:

**Postdoc Researcher**

August 2009 - April 2011

***University of Geneva, Section des sciences de la Terre et de l'environnement***

Geneva (Switzerland); Morococha (Peru)

I participated in a research project initiated by Prof. Lluís Fontboté, Dr. Kalin Kouzmanov and Dr. Richard Spkings (University of Geneva) and financed by the Swiss National Science Foundation and Pan American Silver Corp. My duties include the investigation of the thermal and exhumation histories of magmatic-hydrothermal systems distributed along the Western Cordillera of Peru using apatite geochemistry, the fission-track and the (U-Th)/He methods. The study has implications for the timing of superposition of porphyry and epithermal mineralization events, and will contribute to the development of exploration paradigms.

Role:  
Periode:  
Company:  
Location:  
Duties:

**Exploration Project Geologist**

5<sup>th</sup> October 2008 to 31<sup>st</sup> December 2008

***DenoGold (Dundee Precious INC subsidiary)***

Kapan, Armenia

My work at the Company company involved the leading of regional mapping and project generation works in order to: (1) provide geological information for the Kapan licence area: lithology, alteration, structural measurements, veins, epithermal and porphyry mineralization, geological boundaries/contacts; (2) complete geo-referenced grab sampling for the prospecting zones; (3) collect geophysical and geochemical (e.g., magnetic susceptibility and PIMA) data; (4) provide geology map (scale 1:10000) for the Kapan license area; (5) train local geological staff for regional reconnaissance work and geological mapping, observations and interpretation; and (6) and propose targets that was the basis for 2009 exploration program.

Role:  
Periode:  
Institute:  
Locations:  
Duties:

**Assistant – PhD student**

October 2004 to September 2008 (PhD-defense in June 2008)

***University of Geneva, Section des Sciences de la Terre***

Geneva (Switzerland); Krumovgrad, Ivailovgrad (Bulgaria)

I participated in a PhD research program which was initiated and supervised by Dr. Robert Moritz (University of Geneva, Swiss National Research Found) in collaboration with Dundee Precious Ltd. (Krumovgrad) and Cambridge Minerals Ltd. (Rosino). During this project extensive geochemical and field (structural) investigation was completed (see also “Key skills” and “Publications”). The research topic consisted in: Formation, Preservation and Exhumation of Sedimentary Rock-Hosted Gold Deposits in the Eastern Rhodopes, Bulgaria.

My duties also involved assistant role for the “Ore Deposits” and “Fluid Inclusions” bachelor courses and coordination of ore deposits focused Department field trip.

**Work Experience (cont.)**

Role: **Exploration Project Geologist – GIS/Database Manager**  
Periode: April 2002 to October 2004  
Company: **SC DEVAGOLD SA (European Goldfields LTD subsidiary)**  
Location: Deva (Romania)  
Duties:

My work at the Company involved managing and developing drilling and GIS databases. Implementing and developing the acQuire database package. Other duties were: the analysis of geochemical and geophysical data, map generation, 3D modeling, and preparation of reports in statistical analysis and QA/QC data.

The work also included extensive fieldwork as geological and regolith mapping at pit and prospect scales for European Goldfields Ltd's Golden Quadrilateral (Apuseni Mountains, Transylvania) epithermal vein and gold-copper porphyry properties (Certej and Zlatna Projects); soil and underground channel sampling coordination; RC and diamond drill supervision; logging, data collection and validation. The sampling process at the Company was developed and supervised by RSG Global, Perth.

Role: **Consultant Geologist**  
Periode: July 2001 to October 2001  
Company: **DHV Hungary**  
Location: Budapest (Hungary)  
Duties: Coordinating applications which included determination of the characteristics of subsurface waters, analysis of groundwater conditions and environment, database development and modeling of ground waters in Modflow system

Role: **Engagement Organizer**  
Periode: 1999 to present  
Organization: **Geneva Student Chapter of SEG, EMT, GEKKO Geological Association, Cluj Student Chapter of AAPG**  
Location: Geneva (Switzerland), Cluj-Napoca (Romania)  
Duties: Organizing and coordinating geologist and student activities (president or vice-president roles): fieldworks, symposiums, conferences, geological youth camps, web-page administration (currently <http://www.gekko.ro/>, <http://www.ima2010.org/fieldtrips>).

**Computer skills:**

- \* Dos, Ms Windows and Linux (basics) operating systems;
- \* Ms Office, Adobe and Corel software packages;
- \* acQuire, Mapinfo, Geosoft, Micromine, Idrisi, Modflow, MINPET, PTMAFIC, TWQ, Vulcan GIS- and geo-software packages;
- \*SQL, HTML and Pascal programming languages.

**Affiliations:**

Society of Economic Geologists;  
Romanian Geological Society;  
Hungarian Geological Society;  
Koch Antal Geological Society (Cluj-Napoca);  
Hungarian Technical and Scientific Society of Transylvania (EMT)

## **Research papers, conference publications and manuscripts:**

- Marchev, P., Kibarov, P., Spikings, R., Ovtcharova, M., **Márton, I.**, Moritz, R. (accepted, 2011):  $^{40}\text{Ar}/^{39}\text{Ar}$  and U-Pb geochronology of the Iran Tepe volcanic complex, Eastern Rhodopes. Manuscript submitted to the *Geologica Balcanica*.
- Márton, I.**, Moritz, R., Marchev, P., Chiaradia, M., Bonev, N., Vennemann, T., Kouzmanov, K., Andrew, C., Hasson, S. (submitted, 2011): Regional to local ore controls on the formation of Tertiary sedimentary rock-hosted gold deposits from the Eastern Rhodopes, Bulgaria. Manuscript submitted to the *Economic Geology*.
- Márton, I.**, Moritz, R., Spikings, R. (2010): Application of low-temperature thermochronology to hydrothermal ore deposits: formation, preservation and exhumation of epithermal gold systems from the Eastern Rhodopes, Bulgaria. *Tectonophysics*, v. 483, 240-254 (article).
- Moritz, R., **Márton, I.**, Ortelli, M., Marchev, P., Voudouris, P., Bonev, V., Spikings, R., & Cosca, M. (2010) A review of age constraints of epithermal precious and base metal deposits of the Tertiary Eastern Rhodopes: coincidence with Late Eocene-Early Oligocene plate reorganization along the Tethys. In: Christofides, G., Kantiradis, N., Kostopoulos, D.S., & Chatziperos, A.A. (eds), Proceedings of the XIX Congress of the Carpathian Balkan Geological Association, September 23-26, 2010, Thessaloniki, Grèce, Scientific Annals, School of Geology, Arsitotle University of Thessaloniki, Greece, Special volume 100 p. 351-358. (article)
- Bonev, N., Moritz, R., **Márton, I.**, Chiaradia, M., Marchev, P. (2010): Geochemistry, tectonics, and crustal evolution of basement rocks in the Eastern Rhodope Massif, Bulgaria, *International Geology Review*, 52: 2-3, 269-297 (article).
- Márton, I.**, Tomas, R., Kovács, A. (2009): Székelyföld ásványi nyersanyag tartalékai (Mineral resources of Sekler Land). in Tóth, A., ed., XI. Székelyföldi Geológus Találkozó – Oct. 22-25, 2009, AGORA Füzetek 4, p. 22-23, Székelyudvarhely, Romania (abstract).
- Márton, I.** (2009): Formation, preservation and exhumation of sedimentary rock-hosted gold deposits in the Eastern Rhodopes, Bulgaria. *Terre&Environment*, vol. 84, 134 pp, University of Geneva Press, ISBN 2-940153-83-3 (book).
- Márton, I.** (2009): Invisible gold (A „láthatatlan arany”). The 11th Mining, Metallurgy and Geology Conference, organized by the Hungarian Technical Scientific Society of Transylvania, Sighetu Marmatiei, Romania, Abstract volume (extended abstract).
- Márton, I.**, Moritz, R., and Spikings, R. (2008): Alacsony hőmérsékletű termokronológia alkalmazása a hidrotermás eredetű érctelepek kutatásában: a Keleti-Rodope arany érctelepeinek képződése és kitarakása, The 10th Mining, Metallurgy and Geology Conference, organized by the Hungarian Technical Scientific Society of Transylvania, Sibiu, Romania, Abstract volume (extended abstract).
- Márton, I.** (2007): Quantifying gold accumulation during volcanic edifice evolution: a summary of ore exploration results. European Science Foundation Workshop on “New perspectives on volcano behavior, volcanic hazards and volcanism-related mineral resources”, 14-17 September 2007, Sovata, Romania (abstract).
- Márton, I.**, Moritz, R., Nikolay, B., Marchev, P. (2007): Regional to local ore controls on the formation of sedimentary rock-hosted gold deposits from the Eastern Rhodopes, Bulgaria. in Andrew, C., ed., Digging deeper. Proceedings of the Ninth Biennial SGA Meeting 2007: Dublin, Ireland, p. 116-123 (extended abstract).
- Márton, I.**, and Moritz, R. (2007): Geochemical constraints of the alteration and gold deposition at the Eastern Rhodopian sedimentary-rock hosted gold deposits, 5th Swiss Geoscience Meeting, Geneva, Switzerland (abstract).
- Márton, I.**, Moritz, R. (2007): Adularia in Eastern Rhodopian epithermal gold deposits: morphology, Al/Si ordering and origin (A Keleti-Rodope epitermás arany-érctelepeinek adulár (káliföldpát) előfordulásai: morfológia, Al/Si rendezettség és eredet vizsgálat), The 9th Mining, Metallurgy and Geology Conference, organized by the Hungarian Technical Scientific Society of Transylvania, Buzias, Romania, p. 235-240. (extended abstract).
- Márton, I.**, Moritz, R., Marchev, P., Vennemann, T., Spangenberg, J. (2006): Fluid evolution within Eastern Rhodopian sedimentary rock-hosted low-sulfidation epithermal gold deposits, Bulgaria. Proceedings of the 2006 IGCP-486 Field Workshop, Izmir-Turkey, 116-123 (extended abstract).
- Márton, I.**, Moritz, R., Marchev, P., Spangenberg, J., Vennemann, T. (2006): Sulfur isotope characteristics of gold transport and sulfidation processes: a study from Eastern Rhodopian sedimentary-rock hosted epithermal gold prospects, Bulgaria, 4th Swiss Geoscience Meeting, Bern, Switzerland, Abstract volume (abstract).



**Márton, I.**, Moritz, R., Marchev, P., Bonev, N., Hasson, S., Vennemann, T. (2006): Tertiary sedimentary rock-hosted, low-sulfidation epithermal deposits and prospects in the Eastern Rhodopes, Bulgaria: New geological, stable isotope and fluid inclusion constraints, 19th International Mineralogical Association Congress, Abstract volume: Kobe, Japan, p. 307 (abstract)

**Márton, I.**, Kovács, A., Tomas, R. (2006): Fémérc kutatási és bányászati körkép Dél-kelet Európában (Overview on the metal exploration and mining in South-Eastern Europe). The 8th Mining, Metallurgy and Geology Conference, organized by the Hungarian Technical Scientific Society of Transylvania, Sfântu Gheorghe, Romania, Abstract volume.

**Márton, I.**, Moritz, R., Bonev, N., Marchev, P. (2005): Preliminary structural and geochemical data about Ada Tepe and surrounding gold deposits (Eastern Rhodopes, Bulgaria). The 7th Mining, Metallurgy and Geology Conference, organized by the Hungarian Technical Scientific Society of Transylvania, Oradea, Romania, p. 53 (abstract).

Pricopie, M., Petresc, P., Tuşa, L., **Márton, I.** (2004) : Geology of the Certej Project area and a new model for high-grade gold mineralisation hosted within the Dealul Grozii-Hondol perimeter (Certej Deposit). in Cook, N., and Ciobanu, C., eds., International field workshop of IGCP Project 486. Alba Iulia, Romania, Aug. 31-Sept. 7, 2004, IAGOD Guide-book Series., 105-110 (extended abstract).

**Márton, I.** (2004): "Az arany árnyékában" – geológus szemmel („In the shadow of gold” – from the viewpoint of the geologist. Exploration and exploitation potentials in the Golden Quadrilateral, Transylvania). The 8th Mining, Metallurgy and Geology Conference, organized by the Hungarian Technical Scientific Society of Transylvania, Petrosani, Romania Abstract volume (abstract).

**Márton, I.** (2004): Relációs adatbázisok és FIR (GIS) alkalmazások az érc kutatásban illetve a készlet meghatározásban (Relational Databases and GIS technics in exploration and resource estimation. The 8th Mining, Metallurgy and Geology Conference, organized by the Hungarian Technical Scientific Society of Transylvania, Petrosani, Romania, Abstract volume (abstract).

**Márton, I.**, Pál-Molnár, E., and Luffi, P. (2003): The origin of amphiboles occurring in mafic and ultramafic rocks of the Ditrau alkaline massif (Eastern Carpathians, Romania). 2nd International Conference on Mineral Sciences in the Carpathians, Acta Mineralogica Petrographica Abstract Series. 1: Miskolc, University of Szeged, Department of Mineralogy, Geochemistry and Petrology Szeged, Hungary, p. 69. (abstract)

Fall, A., **Márton, I.**, Pál Molnár, E. (2002): Koch Antal szerepe a „ditrói syenitörmz” tudományos megismerésében (In memoriam Koch Antal). Koch-Szentpétery Conference, Cluj-Napoca, Romania (abstract in Hungarian),

**Márton, I.** (2002): Originea si semnificatia amfibolilor din rocile mafice si ultramafice din Masivul Alcalin de la Ditrau (The origin of the amphiboles occurring in mafic and ultramafic rocks of the Ditrau Alkaline Massif, Eastern Carpathians), University of Bucharest, Romania, 35 p. (M. Sc. thesis)

**Márton, I.**, Gál, J., Benő, É., Fall, A., Szabó, Cs., Török, K., Gál, Á. (2001): Fluid inclusion in apatite, quartz and nephelin from the Ditrău Alkaline Massif, Transylvania (Romania), in Noronha, F., Doria, A., and Guedes, A., eds., XVI ECROFI European Current Research On Fluid Inclusions, 2001: Porto, Faculdade de Ciências do Porto, Departamento de Geologia, Memória n° 7, pp. 291-293 (abstract).

**Márton, I.** (2001): A Ditrói Alkáli Masszívum bázikus és ultrabázikus kőzeteinek vizsgálata (The origin of mafic and ultramafic rocks from Ditrau Alkaline Massiv). Univ. Babeş-Bolyai, Dept. Mineralogie-Metalogenie, Cluj-Napoca, Romania pp. 50. (B. Sc. thesis).

Gál, J., **Márton, I.**, Fall, A., and Benő, É., 2001, Studiu asupra unor incluziuni fluidale din Masivul Alcalin de la Ditrău, Al II-lea Simpozion National al Studentilor Geologi, Manuscript: Cluj-Napoca, Romania, pp. 37.

#### **Major workshops, fieldtrips, short courses, and conferences**

\* 20th General Meeting of International Mineralogical Association, Budapest, Hungary, 2010 (co-organizer)

\* Gordon Research Conference, Geochemistry of Mineral Deposits, IICiocco, June 2008.

\* "Practical Course in Mineral Exploration", Short Course held by Georges BEAUDOIN (Univ. Laval, Québec), at Geneva, Switzerland, January 2008.

\* 9th Biennial Meeting of the Society of Geology Applied, Dublin, August 2007

\* 19th General Meeting of International Mineralogical Association, Kobe and ore deposit field trip at Kyushu (e.g., Hishikari), Japan, July 2006.

- \* IGCP 486 Workshop and Field Trip, Izmir, Western Turkey, October 2007.
- \* SEG General Meeting in Keystone, Colorado and ore deposit field trip to Carlin-trend and Bingham-Canyon Mine, Nevada, June 2006.
- \* Major organizer of the SEG field trip to Banat, Apuseni, Eastern Carpathians (Romania) ore fields, September 2006.
- \* SEG field trip to visit Peru mining areas (e.g., Yanacocha, Pierina, Cerro de Pasco, Huachon), October 2005.
- \* “Fluids in Earth”, Short Course held by Robert Bodnar (Virginia Tech) at Budapest, Hungary, October 2006.
- \* “Structural and Deformational Controls on Fluid Flow in Hydrothermal Ore Systems”, Short Course held by Stephen COX at Geneva, Switzerland, September 2006.
- \* “From global economics to ore body discovery”, Short Course held by Greg HALL (Placer Dome), September 2005.
- \* Hydrothermal Ore Deposits, Short Course held by Jeffrey HEDENQUIST at Cluj-Napoca, Romania, June 2003.
- \* 2<sup>nd</sup> EMU School and Symposium on Environmental Mineralogy, Budapest, organized by European Mineralogical Union, May 2000.
- \* yearly (1998-2011) presence at the Annual Conferences organized by the Hungarian Technical and Scientific Society of Transylvania, Romanian Geological Society, and Swiss Geoscience Society.