






List of References 1996 to date

Project	Date	Country	Description	Value
Horizonte Minerals	08/22 – to date	Brazil	Feasibility Study Lead (25 MUSD) & supervision of geological field work for FS level Vermelho project and review of RC grade control drilling Araguaia; communication with FS consulting groups and project managers	500,000€
Up Cape Partnership Our Flagship for responsible mining	2021 – to date Supported by  Connecting matters Co-funded by the European Union 	Liberia	Responsible mining and transparent supply chains – Fair Tantalum Liberia. ECTerra has started its own small-scale mining project, showing the mining and production industry that responsible mining and transparent supply chains are possible. Implementing all relevant standards ECTerra aims to create a fair-trade environment for Coltan which is mined 60 % of the world production under artisanal mining. More information is available at www.upcapepartnership.com	> 0.5 MUSD
European Green Metals Ltd.	2021- to-date	Germany	ECTerra has been engaged by EGM with regards to application for exploration licence of polymetallic deposits in Saxony. ECTerra has made all contacts to the German authorities, applied successfully for 2 exploration licences and also started first stakeholder engagement. Additionally, discussions of scientific cooperation with the Helmholtz Institute Freiberg were made by us. It is planned that ECT continues accompanying the field works and will be responsible for all community and governments relations as representor for EGM in Germany.	1.5 MUSD
FluorChemie GmbH	08/22 – 01/23	Germany	Technical exploration report NI43-101 and exploration target 3D modelling of the Gehren & Niederschalge Fluorite mines; supervision of CP expert teams; 3D modelling of historic resources; reporting according to NI43-101 for planned IPO	350,000€







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Raw Materials Group Scientists 4 Future (S4F)	2021- to-date	Germany	<p>Members of ECT founded the Raw Materials Group in 2021. To date 34 high-ranking professionals of science and industry are among the group.</p> <p>The group is actively committed to the development and application of sustainability standards as well as geoethical guidelines: It promotes the application of the highest environmental and social standards in mining worldwide and their further development, especially from the aspects of CO2 minimization and environmental compatibility. It is also committed to the implementation of geoethical guidelines in industry, science and training as well as the implementation of sustainable development goals (SDGs), especially goals 8 (humane work and economic growth), 9 (industry, innovation and infrastructure), 12 (sustainable consumption and production) and 13 (measures for climate protection).</p>	voluntary
SWEAT Kaduna Granite Quarry	2017- 2022	Nigeria	<p>In 2018 ECTerra was invited by a Nigerian client to visit their fields in the Kaduna state. It very soon became clear that a full update of all permits was required and that we will have to get involved in planning of a granite quarry. ECTerra started all activities from scratch, trained the client in applying high standards with regards to social development and environmental impact. We identified Richflood as local partner for the purpose of applying for all required permits while ECTerra carried out all planning and construction of a 1Mtpa quarry. Eventually the project became a show case for the local Government with regards to following all legal requirements and additionally applying extra standards.</p> <p>The project started with production in Jan 2021 and produces currently around 20,000 t of aggregates per month. ECTerra stays on board for training and education of all local staff and introducing further HSE rules during production.</p> <ul style="list-style-type: none"> • Economic Study Large Scale Granite Quarry • Develop Granite Quarry from greenfield • Implementation of international standards • Project Management Quarry • Advising on business development strategy • Supervision of construction • Training of staff • Production management and planning of further expansion 	> 8 MUSD






Project	Date	Country	Description	Value
			   	
GiZ Kosovo Goleshi Mine Project	2019	Kosovo	<ul style="list-style-type: none"> • Due Diligence of historic Magnesite Mine Goleshi • Data collection and review of existing information • Developing Preliminary Economic Assessment according to JORC standard 	> 100 kUSD
GIZ Lobe Iron Ore Project	2018	Cameroon	<ul style="list-style-type: none"> • NI43-101 review of geological data • Advise and recommendations of further development • Sub-consultant CP to Puma Resources 	15,000 USD
Putu Iron Ore Project Review FS	2018	Liberia	<ul style="list-style-type: none"> • Desk study review of the Putu Iron Ore Project Feasibility Study of 2014 • Scope: 5 Mt per annum DSO production → viability and potential for scoping study 	20,000 USD
Project Management Nickel Laterite – Horizonte Minerals Ltd	2017/2018	Brazil	<ul style="list-style-type: none"> • Field work Management DFS • Trial mining & grade control of a 30,000t bulk sampling pit • Supervision of all field works • Managing of consulting companies i.e. Worley Parson, Ausenco, Snowden 	





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Kollektive Rohstoff Intelligenz ECTerra & Associates	2017- to-date	Germany	<ul style="list-style-type: none"> • Economic Study about an Intelligent Super-Cloud for Commodity Hedging • Developing a model for an agency advising German Government and Industry on commodity hedging • Discussions with high-ranking politicians 	
TOTAL Lake Albert Oil Facility & Pipeline project	2017	Uganda	<ul style="list-style-type: none"> • Project Manager of Resettlement Program for Oil Facility & Pipeline • Management of all field activities • Liaising with TOTAL Management 	
“Economic Governance and Institutional Reform Project” GIZ	2017	Guinea	<ul style="list-style-type: none"> • Capacity Building for the Ministry of Land & Mines to control quantity and quality for Bauxite export. • Institutional strengthening of managerial, administrative and inspective functions and competences via workshops 	> 25 kUSD
Project Management Barite Mine	2016	Liberia/W-Africa	<ul style="list-style-type: none"> • Setup exploration program for historic Barite mine • Drill supervision • Core logging • Advising client on business development  	> 100 kUSD



Project	Date	Country	Description	Value																
Tantalum Exploration	2016	Liberia/W-Africa	<ul style="list-style-type: none">• Develop exploration program for pegmatites and Tantalite• Execute exploration program• Identify exploration licences 	> 100 kUSD																
Heavy Mineral Sands & Graphite	2016	Sri Lanka	<ul style="list-style-type: none">• Fact finding mission heavy mineral sand and graphite• Advise Government on business development & value adding processes• Develop new mining and processing strategies <div><table><caption>MINERAL COMPOSITION OF DEPOSIT</caption><tr><th>Mineral</th><th>Percentage</th></tr><tr><td>ILMENITE</td><td>60%</td></tr><tr><td>ZIRCON</td><td>12%</td></tr><tr><td>RUTILE</td><td>08%</td></tr><tr><td>GARNET</td><td>0.2%</td></tr><tr><td>QUARTZ</td><td>18.0%</td></tr><tr><td>MONAZITE</td><td>0.3%</td></tr><tr><td>OTHERS</td><td>1.5%</td></tr></table></div>	Mineral	Percentage	ILMENITE	60%	ZIRCON	12%	RUTILE	08%	GARNET	0.2%	QUARTZ	18.0%	MONAZITE	0.3%	OTHERS	1.5%	> 10 MUSD
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Rare Earth Elements & Uranium Exploration - TAFOLI	2016	Mauretania	<ul style="list-style-type: none">• Audit of a geological exploration.• supervision of resource drilling and sampling.• implementation of standard operation procedures according to int. standards• analytical work and reporting; interpretation of historic & new exploration data.	> 2.5 MUSD																


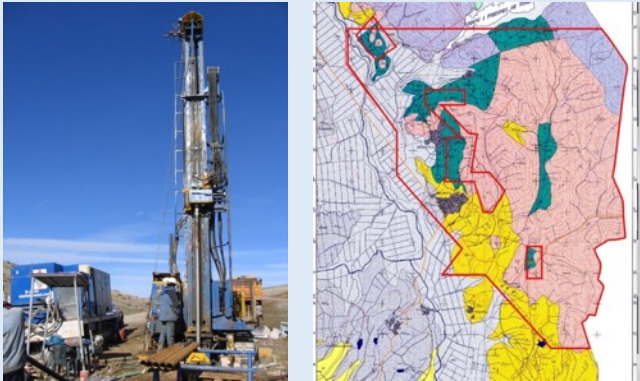



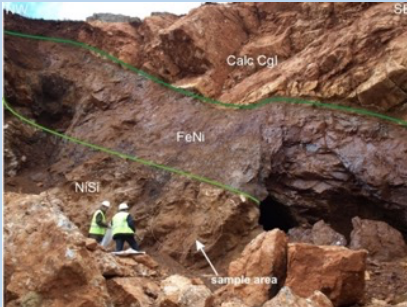
Project	Date	Country	Description	Value
				
Project Management / CEO Iron Ore – Severstal/PIOM	2012-2016	Liberia/W-Africa	<ul style="list-style-type: none"> • Planning and managing Pre-feasibility and Feasibility of a multi-billion USD project • Budgeting (up to > 60 MUSD p annum) • Coordination of national and int. consulting groups • Coordinating tender processes for construction projects, DFS • Supervision of daily activities – Mine camp and HQ Monrovia • Reporting to Board of Directors Severstal Resources • Government Relation / Corporate Affairs Management; Community Relation Management • Negotiations of contracts, SoWs, ToRs; HR Management in cooperation with the HR Manager • Responsible for > 500 staff; training of staff regarding management, project schedules and budgeting; coordination of all department and sub-contractors • Co-Founder 1st LIBERIAN CHAMBER OF MINES – “Acting Chairman 2013-2015” 	> 5 BUSD
“Support to the Mining Authority ICMM for the Development of a Geological Survey Section”	2010-2012	Kosovo	<ul style="list-style-type: none"> • Review and assessment of functions and competences. Identification of needs for institutional reforms • Capacity building activities to ICMM for implementing its regulatory and executive functions • development of transparent procedures for license issuing • Setting up of new inspectorates’ functions and competences. 	> 600 kUSD




Project	Date	Country	Description	Value
Implementing a certification system for conflict minerals (Coltan, Cassiterit, Wolframit, Gold) – BGR Germany	2010-2012	DRC	<ul style="list-style-type: none"> Implementation of good international practice, update of the geoscientific data base, preparation of promotion material (funded by the European Commission) developing and implementing a geochemical sampling program for the South Kivu Province and North Kivu Province (D.R.Congo) for the “AFP” (Analytical Fingerprint, BGR) Planning and supervision of the reconstruction of a regional mineralogical laboratory in Bukavu (“Centre de recherche minière (BGR, funded by the BMZ, 2010-2012) 	> 500 kUSD
Project Management Nickel Laterite – Horizonte Minerals Ltd	2010-2011	Brazil	<ul style="list-style-type: none"> Planning and managing geological exploration for Ni Laterite in Brazil; Supervision of resource drilling; implementation of standard operation procedures according to int. standards for sampling, analytical work and reporting; Interpretation of historic & new exploration data; validation of data and preparation of those information for compliant resource statements (NI43-101); internal auditing Conducting Pre-Feasibility Studies of a Ni laterite deposit in N-Brazil Supervising calculation of ore reserves according to international standard (JORC, 43-101 Code) Budgeting of regional exploration (> 5 MUSD pa); maintaining of exploration licences Advising client on business development Training of local staff; supervision of 4 local and int. Geologists, 6 Technicians and up to 30 staff. Setting up sample preparation and storage facilities for historic and new drill core; development of SOPs Supervision of re-logging campaigns; general core logging Implementing and supervising bulk sampling program for MET test work 	> 10 MUSD





Project	Date	Country	Description	Value
Chromite Project Albania – Empire Mining Ltd	2010	Albania	<ul style="list-style-type: none"> Producing an in-house polygonal wireframe resource estimate (volume, tonnage and weighted average grade) of the shallow parts of the Thekna, Batra and Bulqiza Cr deposits in Albania. A 3rd part control and verification by an Senior Expert of MircoMine Consultancy Service and sign off on the evaluation process and the in-house resource report on the methodology, QA/QC, resource estimate and recommendations Plan/proposal 1 for twin and in-fill drilling (verification of previous intercepts and model) Plan/proposal 2 for drilling of extensions Proposal for twin and infill drilling to reach inferred and indicated resources according to JORC and NI43-101 Upside potential (resources) that could be expected for 1 and 2 above; drilling meter per tonnage Verification and discussion on flaws of the existing model (previous and new interpretation) Geological model of the Bata Cr deposit based on available historic data including maps and x-sections 	> 75 kUSD
Ashanti Goldfields Kilo, Mongbwalu Project	2009-2010	DRC	<ul style="list-style-type: none"> Coordinates ESHIA and providing technical review of management systems. Oversee overall Artisanal and Small Scale Mining (ASM) Management Plan development of a social strategy for concession 40 developing an overall sustainable development strategy for the project, closure, and social investment and community projects Provide technical advice and coordinate ESHIA Studies providing technical review of management systems 	> 150 kUSD
Boral Ltd, Kalgoorlie, Perth, Melbourne	2008-2011	Australia	<ul style="list-style-type: none"> Implemented best practice into the raw material store function resulting in a saving of \$200K-\$500K lost each month from un-billed revenue by developing an in house Job cost and stock tracking and analysis solution to address recurrent discrepancies in raw material stock valued at \$200K - \$500K each month. Combining research, investigation, best practice, commercial insight and financial assessment to better evaluate CAPEX proposals by challenging and changing the outcome of a Lease or Buy proposal for the fleet of land fill equipment by providing insight on the impact of improved compaction (with own equipment) extending the life of the asset (landfill cell). Contract performance management / review - Successfully completed a review of a long term contract that resulted in a back- claim of \$4.5M as per the terms of a contract governed by ABS price indices Financial analysis of LEAN initiatives at the product loading facility - Analysed the benefit of installing a product top up chute for quarry products. This initiative improved loading time and increased sales volumes. 	> 300MUSD



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Project management - EPC Germany	2008	Germany, France, Belgium	<ul style="list-style-type: none"> • Management of all logistics for a tier one explosive producer/supplier in Germany • Implementing new methods in drill and blast (Matrix, Vibration measuring /minimization) • Managing QA/QC 	
Ni Exploration Albania – Barrington Global Resources	2008	Albania	<ul style="list-style-type: none"> • verify concession coordinates • collect all governmental geological info on the respective concessions that we own and are bidding on • preparation of detailed maps • profile cross sections • estimate concession value • recommend potential processing site facility • environmental impact requirements • recommendations/actions on potential new concessions 	> 75 kUSD
Untertürkheim - Geobohrtechnik	2007	Germany	<ul style="list-style-type: none"> • Special heavy construction for a watergate on the Neckar river in Untertürkheim, Germany • Project management and execution 	> 1MUSD
Projectmanagement Spezialtiefbau	2006	Germany	<ul style="list-style-type: none"> • Reinforcement of existing foundations with bore piles • Work was done in existing basement 	> 1MUSD


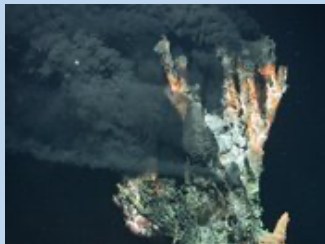
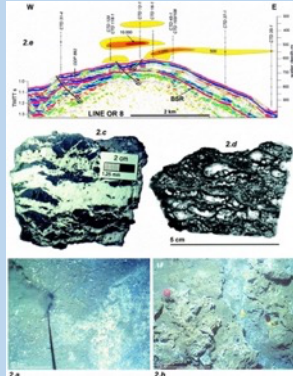
Project	Date	Country	Description	Value
statistisches Landesamt Wiesbaden-Geobohtrechnik				
Regional Exploration Manager	2004-2010	Serbia, BiH, Albania, Kosovo, Turkey, Philippines, China	<ul style="list-style-type: none"> • Planning and managing geological exploration for Ni Laterite and Ni Sulphide Deposits in SE Europe and worldwide • Project Manager for the Regional Office in Belgrade/SRB and Tirana/Albania • Interpretation of historic & new exploration data • Planning and carrying out of Fact Finding Missions in SE Europe, Middle East and Asia • Auditing of existing data of both, laterite and sulphide deposits • Conducting Economic Studies of existing deposits • Desk Studies of Ni Laterites/Sulphides in Europe, Asia, Middle East • Supervising calculation of Ore Reserves according to international standard (JORC, NI43-101) • Budgeting of regional exploration (> 5 MUSD pa) • Planning and setting up of sample preparation facility in Serbia according to international standards ISO, JORC, 43-101 • Communication with Ministries and National Institutions • Applying for exploration licences under national and international standards • Training of local staff; set up laboratories and sample preparation facilities • PR Management (Government and Local Communities, NGOs) <div>   </div>	> 5MUSD
SGS Inspection Services Nigeria Ltd, Lagos, Nigeria	2002-2003	Lagos, Nigeria	<ul style="list-style-type: none"> • Savings through Tax planning -Assisted in tax planning matters in consultation with the external auditors of the company. This resulted in the company saving or avoiding losses 	> 500MUSD

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			<p>which were being incurred due to inadequate controls particularly in the accounting and recovery of with-holding taxes.</p>  <ul style="list-style-type: none"> Working capital optimization -The “Bonnie island” Liquefied Natural Gas project made up a major portion of the overall country revenues and reported through to the Lagos head office through the Port Harcourt branch office which was remotely located. Invoices in particular were processed at the branch with hard and soft copies being couriered to the Lagos based head office at the end of the month. This process delayed the entry of invoices from this branch by at least 30 days on average. I was instrumental in obtaining budget approval for a major capital expenditure project in software and hardware that would enable the branch to be linked via a WAN, which in turn enabled the company significantly reduce its debtor days. Nigeria was experiencing high inflation with bank interest rates of 29% per annum. The proposal had a payback period of less than one year.  	
Mine Closure Belgium St. Maguerite, St Albert	2002-2003	Belgium	<ul style="list-style-type: none"> Planning, supervision for mine shaft backfilling of former mine shafts Shafts were from former coal mines and later used as gas storage 	> 1MUSD
Project Management / Technical Director	2002-2003	Mozambique	<ul style="list-style-type: none"> Technical Director of Tantalite Mine, Project Manager Phase II (Extension), Project Manager Exploration, Infrastructure Reporting directly to Board of Directors, planning of strategic investments 	> 10 MUSD



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Tantalum Mine – KHA TEC GmbH, Germany			<ul style="list-style-type: none"> • Communication with official institutes (EU, World Bank, Government) • Supervision of mine planning • Geological exploration for Tantalite, REEs and associated minerals • Evaluation of Ta deposits (pegmatites) • Upgrade of small scale miners • Community Relations Management 	
Project Management Drill & Blast Kosovo – SaarMontan GmbH	2001-2002	Kosovo/Serbia	<ul style="list-style-type: none"> • Management of Operation in Kosovo • Correspondence with international parties such as UN, UNMIK, EU etc. • Supervision of Drilling and Blasting Teams; planning of quarries (Pit Design) • Cost estimation of all operations and combined with the recommendations of new strategies • Consulting for Mining Industry (Trepca, Mg-Mine, Quarries) 	> 1MUSD
Ghana Manganese Company Ltd	1999-2002	Ghana/ W-Africa	<ul style="list-style-type: none"> • Introduced mine equipment performance reports that exposed the true cost of operating an aged fleet due to down time from breakdowns and awaiting spares and repairs. This resulted in the decision to purchase a new fleet. • Evaluated the financial feasibility of a build operate transfer (BOT) project which led to a substantial infrastructure investment in Ghana railways to improve rail tracks from the Nsuta mine to the port of Takoradi. The project resolved shipping bottlenecks caused by constant derailments and increased train travel speeds resulting in the company saving on expensive contract road transport. 	> 100 MUSD

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Mine Closure Heiligenwald Germany- Saar Montan	1999	Gerrmany	<ul style="list-style-type: none"> • Mine and cave backfilling on a historical mine site • Planning and supervision of all construction work • Jet grouting 	> 750 000 USD
Project Management Geotechnical Reconnaissance south Paris sewerage system/Solen	1998	France	<ul style="list-style-type: none"> • management of all drilling and other geotechnical investigation methods • Investigation included core drilling in-situ testing (Pressiometer testing, SPT) and water wells /piezometer. 	> 650 000 USD
Project Management Geotechnical reconnaissance A89 -Fondasol	1997	France	<ul style="list-style-type: none"> • management of all drilling and other geotechnical investigation methods for a highway (A89) between Egléton and Brive la Gaillarde. • Up to 5 drill rigs simultaneously. • Investigation included core drilling in-situ testing (Pressiometer testing, SPT) and water wells/ piezometer. 	> 750 000 USD
Ghana Manganese Company Ltd	1996-2000	Ghana/ W- Africa	<ul style="list-style-type: none"> • Production management of Mn mine • set up of Geology & Survey department to international standard • short and long-term exploration for Mn and Au (geochemical) • layout of mine as well as planning of production schedules and tasks. • advising in strategic investments in regard to production and mining. 	> 100 MUSD

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HYDROTRACE University Freiberg/Germany	1996	Canada	<ul style="list-style-type: none"> Preparation of research trip and representing the geological part of this project to a group of scientists (e.g. biologists) of other institutions; member of the research expedition (HYDROTRACE SONNE 109) Water sampling & analysis; mapping of ocean floor; sampling & description of sea floor sample Tutoring geology and mining engineering students in mineralogy <div data-bbox="743 592 1111 839" data-label="Image">  </div> <div data-bbox="1124 592 1447 839" data-label="Image">  </div> <div data-bbox="1458 459 1749 839" data-label="Figure">  </div>	> 5MUSD

PUBLICATIONS & PRESENTATIONS

- ✓ Presentation “Transparent supply chains & responsible mining” at 12th German Geologist Day; BDG (Association of German Geoscientists), Berlin May 2022
- ✓ Paper “Positions on a sustainable raw materials strategy in Germany”, expert group RawMaterials in Scientists 4 Future, 2021
- ✓ Paper “Supply chain law with brittle chain links”, experts group RawMaterials in Scientists 4 Future, 2021
- ✓ Speaker at EIT RawMaterials Export Forum 2021 – responsible mining

- ✓ Presentation responsible mining at Raw Materials group of Scientist4Future 2021
- ✓ Presentation “Raw Materials for E-Mobility – How are they mined?”; Climate Week Bielefeld, August 2020
- ✓ Mines & Money London, presenting the results of the “Goleshi Magnesite Scoping Study”, Dec 2019
- ✓ Presentation “Raw Materials – Fake News & Reality – Where do our raw materials for renewable energy and e-mobility come from”, Twistringen Nov 2019
- ✓ Presentation of Vision “Collective Commodity Intelligence” to politicians of Economic Affairs Germany at the Reichstag in Berlin July 2018
- ✓ Presentation “Capacity Building” for Ministry of Mines & Steel Development Nigeria Aug 2018
- ✓ Key Note Speaker Developing a National Biodiversity Offset Scheme: “A Road Map for Liberia’s Mining Sector” World Bank Group 26th March 2015.
- ✓ Key Note Speaker “3rd Session of the regional dialogue platform in extractive industry, Central Asia, 7th – 9th April 2014, Dushanbe/TAJ” Presentation: Government Investors Relationship.
- ✓ World Bank Workshop “Aggregated Biodiversity Offsets in Liberia” Keynote speaker 1st-2nd April 2014
- ✓ Environmental Officer – certified Modul I + II TUEV NORD, June 2010
- ✓ “World of Mining” magazine 6/2008: article on Ni laterites in the Balkan Region – Geology, Mining and Processing
- ✓ SGA Conference Dublin August 2007: paper and presentation “Fossil Nickel Laterites of the Tethyan Belt – Deposits in Albania and Turkey”
- ✓ 2nd Balkan Mining Congress Serbia 2007: paper “Laterite Nickel Ore In The Vicinity Of Bilishti - East Albania” and presentation “Fossil Nickel Laterites of the Balkan – Case Studies”
- ✓ 4th Balkan Conference 2006 at Zlatibor/SCG: presentation + paper “Ni laterite deposits in the Ophiolite belts of the Alpine Himalayan System”
- ✓ Presentation for the University Beograd Faculty of Mining & Geology “Case Studies of Ni Laterite deposits in the Balkan Region & New Technologies in exploration and exploitation with regards to Serbia” Beograd 2005
- ✓ International Earth Science Colloquium on Aegean Regions with Presentation “Ophiolites in the Alpine Himalayan Belt: Case Studies of Ni laterite deposits in the Balkan Region & Turkey” Izmir 2005
- ✓ SE Europe Conference & Field Trip Copper/Gold Porphyries Bulgaria 2005
- ✓ Internal Customer Care / Team Building Skills 1998
- ✓ Workshop “The Formation of World-Class Ore Deposits in Relation to Plate Tectonics” 1996