MINERAL PROSPECTIVITY
current approaches
and future innovations

October 24th-26th, BRGM, Orleans, France
http://www.brgm.eu/mineral-prospectivity

PROGRAMME

Warning: this is a provisional version, subject to future modifications

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October 24th, 2017

18:30 – 21:30	*Welcome of participants, registration and Icebreaker party at:* *Garden Ice Café, 1 place de la Loire, 45000, Orleans*

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October 25th, 2017

8:00 – 8:30	*Welcome coffee and registration of participants*
8:30 – 8:40	Introduction **Pierre Toulhoat** *Deputy CEO, Scientific Director, BRGM, Orleans, France*
8:40 – 8:50	Welcome address **Ioan Todinca** *Vice-President of the Research Commission, University of Orleans, Orleans, France*
8:50 – 9:00	Welcome address **Anne Besnier** *Vice-President for Higher Education and Research, Centre-Val de Loire region, Orleans, France*
9:00 – 9:30	Introductory keynote lecture: Mineral predictive mapping - from intuition to quantitative hybrid 3D modelling **Andreas Barth** *Beak Consultants GmbH, Freiberg, Germany*

Session I

Data for predictive geosciences

Chairs: Alexandre Lima (Univ. Porto, Porto, Portugal), Vesa Nykanen (GTK, Finland)

9:30 – 10:00	Keynote lecture: Building a Global Data Infrastructure to enable programmatic access to Geoscientific data for effective 4D Mineral Prospectively Analysis **Leysley Wyborn** *Australian National University, Acton, Australia*
10:00 – 10:15	Integrated approach to prospectivity assessment, based on GIS **Abderrazak Hamzaoui et al.** *ONHYM, Rabat, Morocco*
10:15 – 10:30	From spatial to genetic links evidenced between mafic magmatism and Variscan Sb deposits in the Armorican belt (France) **Charles Gumiaux et al.** *ISTO, Orleans, France*
10:30 – 10:40	***Questions & Answers***
10:40 – 11:00	***Coffee break***
11:00 – 11:15	Information and Functional Capabilities of the Internet Infrastructure for Support of Geological Researches in the Russian Far East **Vera V. Naumova et al.** *Vladivostok, Russia*
11:15 – 11:30	Uncertainties in prospectivity analysis of surficial uranium mineral system in Western Australia **Bijal Chudasama et al.** *IIT Bombay, Mumbai, India*
11:30 – 11:45	Modelling uncertainty of GIS-based prospectivity models **Vladimir A. Lisitsin and Alok Porwal** *Geological Survey of Queensland, Brisbane, Australia*
11:45 – 12:00	Common Uncertainty Research Explorer Uncertainty Estimation in Geological 3D Modeling **Evren Pakyuz-Charrier et al.** *CET, University of Western Australia, Crawley, Australia*
12:00 – 12:15	***Questions & Answers***

12:15 – 13:45	***On-site lunch at BRGM's 'Petits Salons'***

Session II

Contributions from deterministic modelling and experimentations to mineral assessments

Chairs: Mohammed Azaroual (BRGM, ISTO, Orleans, France), Mark Reed (University of Oregon, Eugene, USA)

13:45 – 14:15	Keynote lecture: Thermochemical modeling reveals ore deposit source-trap systems **Mark H. Reed and James L. Palandri** *University of Oregon, Eugene, USA*
14:15 – 14:30	Improving prospectivity by numerical modeling of hydrothermal processes **Laurent Guillou-Frottier et al.** *BRGM, Orleans, France*

14:30 – 14:45	Geodynamic Model of Lithosphere Evolution and Metallogeny of Armenia (Central Mediterranian Mezocenozoic Divergent and Convergent systems) **K. M. Mouradian** *Institute of Geological Sciences, National Academy of Sciences of Armenia, Yerevan, Armenia*
14:45 – 15:00	New developments of the Cell Based Association method for 3D mineral prospectivity **Bruno Tourlière et al.** *BRGM, Orleans, France*
15:00 – 15:10	*Questions & Answers*
15:10 – 15:30	*Coffee break*
15:30 – 16:00	Keynote lecture: Hydrodynamics of hydrothermal systems, what is the outcome for mineral exploration? **Stanislas Sizaret et al.** *ISTO, University of Orleans, Orleans, France*
16:00 – 16:15	Contribution of the RSCM geothermometry to understand the thermal history of the Variscan Jebilet massif and its ore deposits **Sylvain Delchini et al.** *BRGM, Orleans, France*
16:15 – 16:30	Multifractal Mapping of Anomalies in Oil Fields : Thermodynamic Approach **Klaudia Oleschko** *Universidad Nacional Autonoma de México, Queretaro, México*
16:30 – 16:45	*Questions & Answers*

Session III - Evolutions in 'Classical GIS-based' approaches

Chairs: Charles Gumiaux (ISTO, Orleans, France), Sergey Cherkasov (SGM RAS, Moscow, Russia)

16:45 – 17:15	Keynote lecture: Developments in GIS-based Mineral Prospectivity Mapping: An Overview **Emmanuel John Carranza** *James Cook University, Townsville, Australia*
17:15 – 17:30	Geographic Information Systems applied to lithium exploration. A case study in northern Portugal **Alexandre Lima et al.** *Univ. Porto, Porto, Portugal*
17:30 – 17:45	Knowledge-driven Prospectivity Model for Iron oxide-Cu-Au (IOCG) deposits in northern Finland **Tero Niiranen and Vesa Nykänen** *GTK, Rovaniemi, Finland*
17:45 – 18:00	Regional Scale prospectivity mapping on REE mineralization in Bergslagen district, Sweden **Martiya Sadeghi** *SGU, Uppsala, Sweden*
18:00 – 18:15	*Questions & Answers*
18:30	*Departure from BRGM by bus to the Meung-sur-Loire Castle for the Gala Dinner (return by bus to BRGM and Orleans city center at approx. 23:30)*

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October 26th, 2017

8:30 – 9:00	*Welcome coffee*

Session III (continued)

Evolutions in 'Classical GIS-based' approaches

Chairs: Emmanuel John Carranza (James Cook University, Australia), Martiya Sadeghi (SGU, Uppsala, Sweden)

9:00 – 9:15	Mineral prospectivity modelling for practical exploration targeting: challenges and limits of predictive science **Vladimir A. Lisitsin and Alok Porwal** *Geological Survey of Queensland, Brisbane, Australia*
9:15 – 9:30	Hybrid training approach for deep neural network to predict mineral deposits **I.I. Priezzhev and L.E. Chesalov** *Russian State Geological Prospecting University, Moscow, Russia*
9:30 – 9:45	The efficiency of logistic function and prediction-area plot in prospectivity analysis of mineral deposits **M. Yousefi and E.J.M. Carranza** *Faculty of Engineering, Malayer University, Iran*
9:45 – 10:00	Deficiencies of Raster-Based Models of Prospectivity and Ways to Vanquish Them **Helmut Schaeben et al.** *TU Freiberg, Germany*
10:00 – 10:15	Considerations on supervised data-driven approach for mineral potential mapping **Jan Mortier et al.** *BRGM, Orleans, France/Ecole Centrale de Nantes, Nantes, France*
10:15 – 10:25	*Questions & Answers*
10:25 – 10:45	*Coffee break*
10:45 – 11:00	Dynamic exploration data analysis - Mineral Prospectivity Modeller (MPM) **Vesa Nykänen and Maarit Middleton** *GTK, Rovaniemi, Finland*
11:00 – 11:15	Prospectivity Models for Volcanogenic Massive Sulfides Deposits (VMS) in Northern Finland **Tuomo Törmänen and Vesa Nykänen** *GTK, Finland*
11:15 – 11:30	System analysis of results of geological-geophysical, seismotomographic, remote sensing researches methods of the Earth for the prospecting of ore-bearing areas (on the example of East Asia) **Sergei L. Shevyrev et al.** *Far Eastern Federal University, Vladivostok, Russia*
11:30 – 11:45	Mineral Prospectivity Modeling of Podiform-Type Chromite Deposits in Sabzevar Ophiolite Belt, North of Iran **Bizhan Roshanravan et al.** *School of Mining, Petroleum and Geophysics, Shahrood University of Technology, Iran*
11:45 – 12:00	Quantitative Estimation of Gold Mineralization in Degdekan-Arga-Yuryakh District (Magadan Region, Russia) **I. Golubenko** *North-East Interdisciplinary Scientific Research Institute, Russian Academy of Sciences (NEISRI FEB RAS), Magadan, Russia*

12:00 – 12:15	Prospectivity mapping of orogenic gold deposits in the Central Lapland greenstone belt: improved dataset and comparison of computational methods **Johanna Torppa and Vesa Nykänen** *GTK, Kuopio, Finland*
12:15 – 12:30	***Questions & Answers***

12:30 – 14:00	***On-site lunch at BRGM's 'Petits Salons'***

Session IV

Knowledge discovery in databases (KDD) and machine learning

Chairs: Vincent Labbé (BRGM, Orleans, France), Vincent Lévorato (OCTO Technology, Paris, France)

14:00 – 14:30	Keynote lecture: Machine Learning, back to the present **Vincent Lévorato** *OCTO technology, Paris, France*
14:30 – 14:45	Twitter signals analysis for early mineral prospectivity mapping **Abed Benaichouche et al.** *BRGM, Orleans, France*
14:45 – 15:00	Mineral resources in energy system models **Antoine Boubault et al.** *Mines ParisTech, France*
15 :00 – 15 :15	The most challenging tasks for the mineral exploration targeting **Sergey Cherkasov** *SGM RAS, Moscow, Russia*
11:15 – 15:30	Mineral Prospectivity mapping: the potential of an unsupervised machine learning classification approach **Jeremy Rohmer** *BRGM, Orleans, France*
15:30 – 15:45	***Questions & Answers***
15:45 – 16h15	Results of the Mineral Prospectivity Contest **Bruno Tourlière, Charles Gumiaux, Vincent Labbé, Guillaume Bertrand** *BRGM and ISTO, Orleans, France*
16:15 – 16:45	***Final discussion and wrap-up*** ***(all participants)***
16:45 – 17:30	***Farewell coffee***

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Poster session (October 25th – 26th)

Theme	Title and Author(s)
Session I	GIS-based unmanned aerial remote sensing system and its application for geological mapping and estimation of mineral prospectivity of areas with complex landscape conditions of East Siberia **A. Parshin et al.**

	Vinogradov Institute for Geochemistry, Irkutsk, Russia
Session I	Application of geophysics for the detection of Dérangement of phosphate layers in the Oulad Abdoun basin **Essaid Zerouali et al.** *Cherifien Phosphate Group, Casablanca, Morocco*
Session II	A new model for the prediction of sulfide melt - silicate melt partitioning of chalcophile elements **Clément Ferraina et al.** *ISTO, University of Orleans, Orleans, France*
Session II	3D modelling within the Wollaston-Mudjatik Transition Zone, Canada: Exploration applications **Daniel Gerger et al.** *Areva Resources Canada, Saskatoon, Canada*
Session II	Local Deformation, Metasomatism, experimentaion, and numerical Modeling for skarn formation in the Middle-Late Jurassic Tongshanling Cu-Pb-Zn deposit in the Nanling Range, South China **Xudong Huang et al.** *School of Earth Sciences and Engineering, Nanjing University, China*
Session II	Mineral Prospectivity : RSCM geothermometry approach to detect thermal anomalies in metasediments including ore deposits. Case Study : Guemassa massif, Morocco **Abdeltif Lahfid and Sylvain Delchini** *BRGM, Orleans, France*
Session II	Rare Metal enrichment of Carbonatites and Alcaline magmas : experimental approach **Zineb Nabyl et al.** *University of Orleans, ISTO/CNRS, Orleans, France*
Session II	RCSM spectroscopy as a paleo-thermometric tool for skarn exploration : the case of the Salau W-Au-Cu deposit **Thomas Poitrenaud et al.** *e-Mines, France*
Session III	A new method to assess favorability of critical by-product commodities: application to rare earth elements in Europe **Guillaume Bertrand et al.** *BRGM, Georesources Division, Orléans, France*
Session III	Geomatic modeling of airborne geophysical data using weights of evidence methodology: Application to mineral potential mapping of Sn-W and rare metals of Laouni area, Central Hoggar, Algeria **Hocine Zeghouane et al.** *University of Tizi Ouzou, Algeria*