UNIVERSITY OF OULU

RES TERRAE

Publications in Geosciences, University of Oulu
Oulun yliopiston geotieteiden julkaisuja

Ser. A, No. 49
2024

MINEARC WEBINAR
Mineral resource and sustainable exploration
23–24 April 2024
Abstracts

Shenghong Yang, Nils Jansson, and Juha Kaija eds.

MINEARC WEBINAR Mineral resource and sustainable exploration,
23–24 April 2024, Abstracts

Shenghong Yang, Nils Jansson, and Juha Kaija eds.

Res Terrae, Ser. A, No. 49, OULU, 2024

RES TERRAE - Publications in Geosciences, University of Oulu,
Oulun yliopiston geotieteiden julkaisuja

Ser. A, Contributions, Ser. B, Raportteja - Reports, Ser. C, Opetusjulkaisuja - Teaching material

Ser. A	ISSN 0358-2477 (print)
Ser. A	ISSN 2489-7957 (online)
Ser. B	ISSN 0358-2485 (print)
Ser. B	ISSN 2736-9552 (online)
Ser. C	ISSN 0358-2493 (print)
Ser. A, No. 49	ISBN 978-952-62-4106-7 (online)

Julkaisu ja levitys - Published and distributed by:
Oulu Mining School
P.O. Box 3000, 90014 University of Oulu, Finland

E-mail: kirsi.luolavirta@oulu.fi
www: http://www.oulu.fi/resterr/

Development of professional competence for geochemical and indicator mineral research in mineral exploration

Sarala P.[1]

[1]Oulu Mining School, University of Oulu, Finland, pertti.sarala@oulu.fi

The mining industry is growing business in Finland. The most significant growth and strongest investment are focusing on eastern and northern Finland, and especially in the Central Lapland area. At the same time, there is increasing demand on educating staff for the exploration purposes in the northern, Arctic or sub-Arctic environments. To response the demand, there are several examples of education development programs having also strong practical approach.

The Oulu Mining School (OMS) of the University of Oulu provides a state-of-the art platform for mining related research and education. In OMS, a big portion of geoscientific education and teaching is related to economic and surficial geology, and use of them in mineral exploration. Basic geological and surficial geological teaching and research are supported by the applied geochemistry and geophysics. Furthermore, the unit has a strong research input and a practical approach. For example, thesis works are carried out networked projects with business and research institutes, where students can apply their skills to real research questions. Postgraduate studies and other research activities are international and multidisciplinary, and funded not only own core funding, but also various co-funded funding sources and assignments from companies.

Education and teaching are also including strong development aspect for maintaining professional competence in mineral exploration on different levels. For example, one of the developing projects was 'Development of competence for ore exploration and research' (METSO) funded by the European Social Fund and lead by the Lapland Education Centre REDU, Sodankylä. OMS participated to the project as a partner. An aim of the METSO project was to increase the technical know-how of subcontractors doing simple ore exploration, for example by providing sampling services, field pre-processing and analyses, to improve and expand their product range and thus add value to their products. During the project, the readiness of teachers at REDU was increased by giving professional geoscience education and producing teaching materials in the field of modern ore exploration, and by planning and piloting exploration projects and equipment procurement. Based on the competence needs of companies, locally offered degree components or entities consisting of already existing degree components were planned, for research assistant and technician who have readiness to work in challenging Arctic conditions and are experienced in modern field techniques in ore exploration.

Other example is a basic course for exploration the battery metals and critical raw materials as a part of continuous learning. The course is designed for people working in tasks related to the battery metal industry. The course material includes self-study, online lectures, and additional material, including basic knowledge of bedrock and surfing geology, as well as the principles of mineral exploration.

In addition, OMS is providing practical training course for field techniques in mineral exploration and economy geology. The course is planned as one-week training in the field including the basic steps of mineral exploration starting from the regional geological overview and GIS-based data interpretation to practices related to mapping, sampling and survey techniques commonly used in generative greenfield exploration campaigns in the glaciated terrains. The methodological practices are supported using on-site geochemical analysers, heavy minerals concentration and analytical techniques, surface geochemical methods, and geophysical survey methods. The course can be organised in cooperation with exploration companies.