GREENPEG

Joint meetings

Cluster Conferences

Summer School

Join us feeding the energy transition!

Clustering / B2B

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GREENPEG

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BLACKSTAIRS LITHIUM LIMITED   EUROPEAN LITHIUM   IFU GMBH   UNIVERSITY OF EXETER   UCD DUBLIN   UiO : Natural History Museum University of Oslo

FELMICA Minerais Industriais, S.A.   MCS PORTUGAL   terratec Geophysical Services   U.PORTO FC   PNO   GKZ Freiberg

Target ore body type and exploration methodology

GREENPEG research is focused on the improvement of the exploration of lithium-caesium-tantalum (LCT) and niobium-yttrium-fluorine (NYF) pegmatites, a unique ore body being relatively common in Europe. They have the size and grade to especially attract small mining operations.

These pegmatites are geophysical non-responders, almost non-magnetic and may not cause a sufficient density contrast to allow for a clear differentiation from the host rock. Airborne radiometric data have proven potential to discover buried pegmatites despite their small penetration depth. However, non-appropriate acquisition like too large flight line distances (>50 m) are commonly applied and prevented successful detection. Existing wall rock lithogeochemistry and soil and stream-sediment geochemistry have only led to a few surface discoveries and globally have had low exploration success because they have not been integrated with geophysical survey data. Even more, there is a rather poor understanding of petrophysical and chemical-mineralogical properties, including the complex textural, mineralogical and chemical variability of pegmatites and their halos, all in all leading to an allegedly not profitable cost-benefit ratio. Consequently, only an integrated approach can provide exploration success:

The GREENPEG choice of geophysical and geochemical methods is based on a well-designed strategy depending on the specific characteristics of the pegmatite ores:
1) Low contrast of petrophysical properties compared with their wall rocks;
2) High mineralogical variability in different pegmatite types;
3) Relatively small ore body volumes (0.01 to 5 million m3) and lateral extent;
4) The occurrence of pegmatites in clusters (fields);
5) The existence of Li, B, F, Cs, Be, Ta and Sn halos (10 to 100 m scale) around pegmatite bodies.

Aim and expected results

GREENPEG aims at reducing exploration costs and impact on environment by developing two innovative and competitive toolsets, including:

- three new instrumental techniques and devices (piezoelectric sensor, helicopter-complementary nose stinger magnetometer, drone-borne hyperspectral imaging system),
- two new datasets and workflows for prospect scale (<50 km²) and district scale (50-500 km²) exploration.

The development of the integrated toolsets is based on a new genetic model valid for the majority of European pegmatite-type ore deposits, published recently by the GREENPEG partners, and on a new multi-level (province-, district- and prospect scale) approach combing several technological innovations to come forward with integrated solutions.

Validation
Validation will be ensured from industry-led trials at locations in Norway, Finland, Austria, Portugal, Ireland, and Spain testing different landscape, vegetation and climate environments, and geological settings.

Join us! Let´s cooperate!

GREEENPEG aims at clustering for cross-fertilisation amongst EU, national, and regional projects to exchange know how and to achieve synergies but also to raise the impact of the key exploitable results (KER). We offer clustering at partner level or between our multiplicators in the consortium to keep our collaboration sustain.

GREENPEG work plan comprises:
- a one-day Cluster Conference in Brussels in the year 2023
- active participation on national and international conferences and fairs, such as the PDAC Toronto
- Contributing to the EU Raw Materials Weeks in Brussels and from remote
- Networking with EU platforms such as ETP on Sustainable Mineral Resources, Euro-Geologists, EuroGeosurvey, European Mining Association, EUROMINES and, internationally e.g. with the International Council on Mining and Metals

Validation
GREENPEG will run a cross European Summer School aimed at young careers for one month, with student exchanges at three of GREENPEG's test sites and hosted by the regional universities.

Fostering Exploitation
Our target group in the exploitation stage are possible end users but also institutions providing specialized training, education, research, information and technical support such as public institutions and universities, standard identifier agencies and consultancies, and geological surveys.

Keep updated!

Ask four our Information packs, notes on 'best practice', training resources and information about available workshops and e-learning and training activities, mainly electronically, but also via leaflets distributed on demand and at relevant meetings and conferences.