

| Discover the Ore | IMPROVE YOUR EFFICIENCY WITH OUR NEW EXPLORATION TECHNOLOGIES



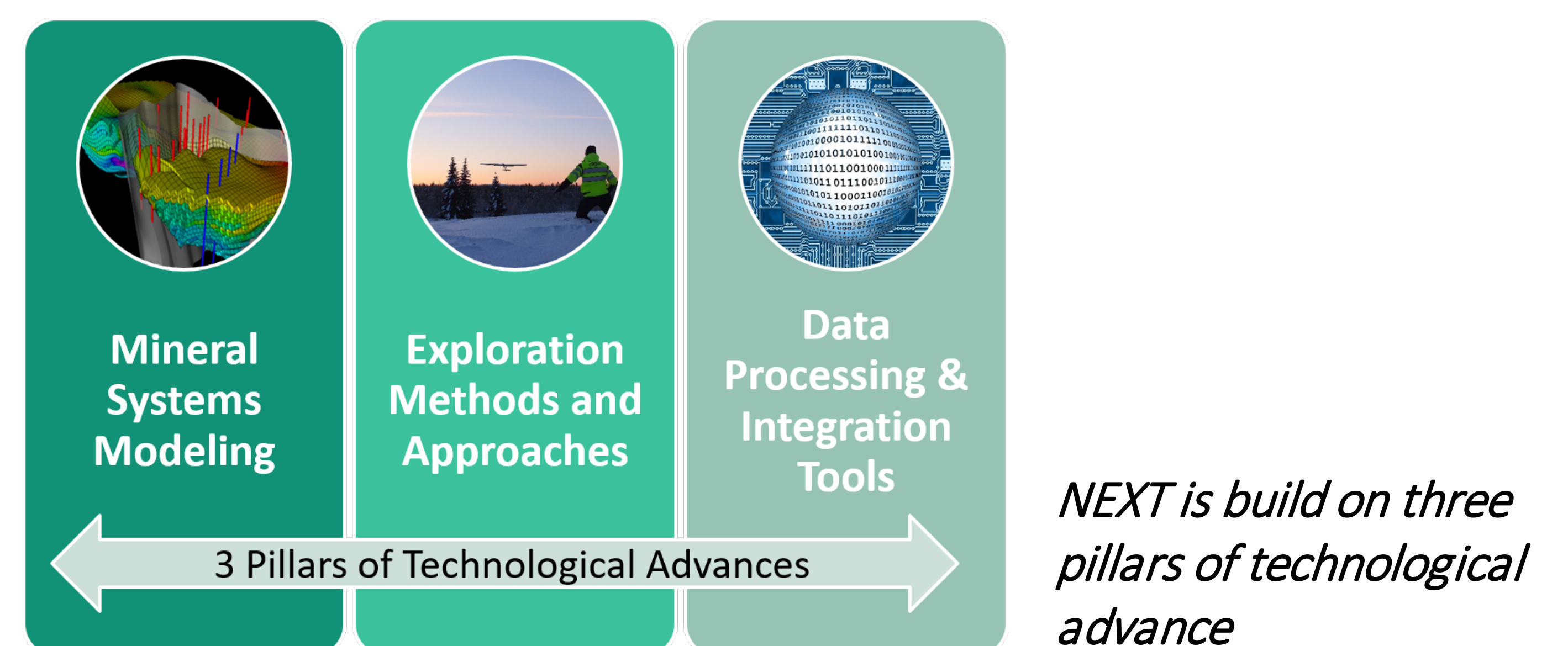
| What is NEXT |

ABOUT THE PROJECT

The project **NEXT (New Exploration Technologies)** will highlight the possibilities of exploring for raw materials in Europe in the most sustainable and socially sensitive way leading to an extension of the knowledge of existing deposits in Europe.

NEXT will enhance our understanding of the mineral systems and develop new more sensitive exploration techniques. By integrating industry, academia and research institutes with expertise and excellence in exploration and 3D modelling, it is our ambition in NEXT to develop new cost-efficient tools that are specifically aimed at increasing the competitiveness of the European exploration industry.

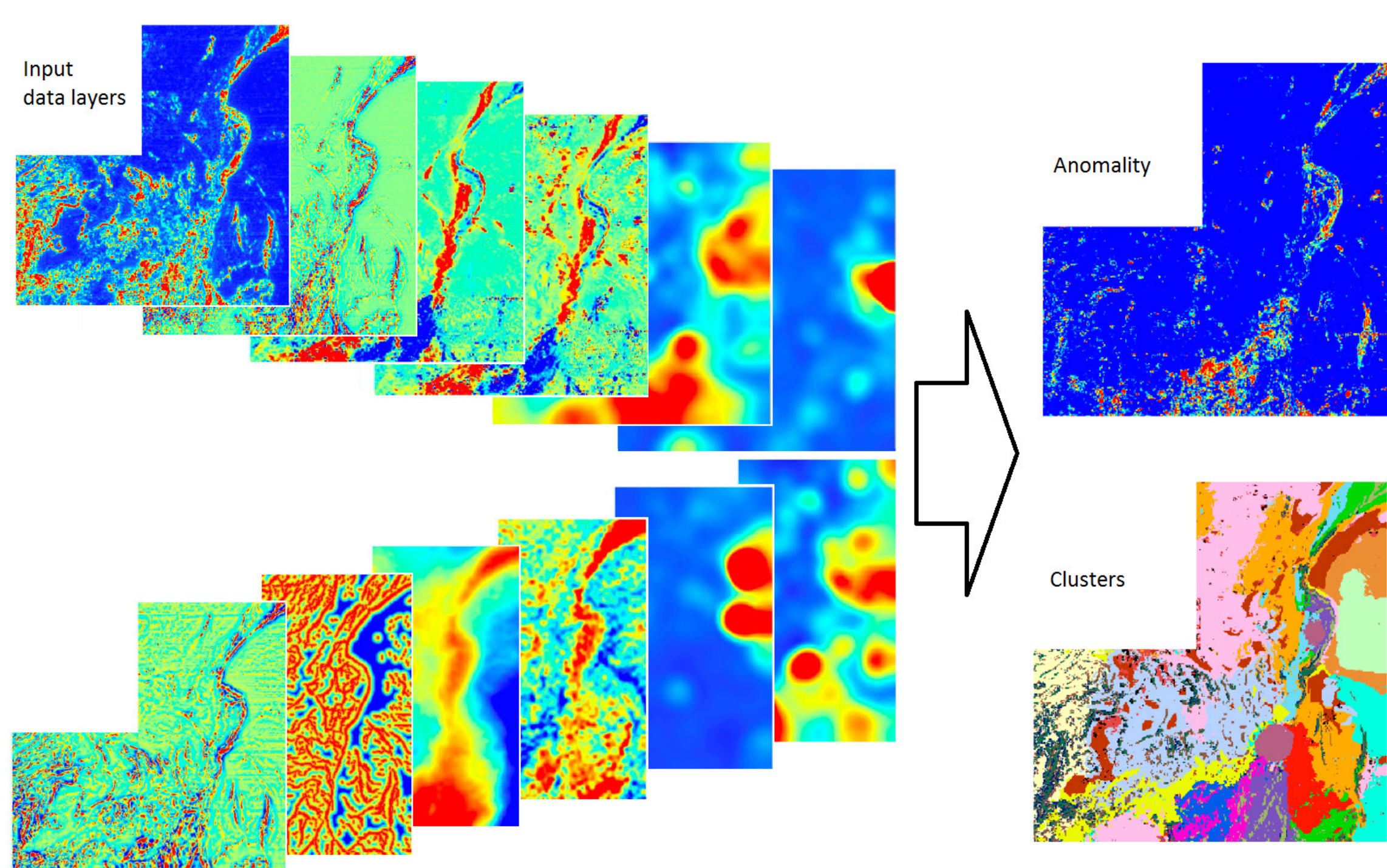
NEXT will create a totally new concept of unmanned aerial vehicles (UAV) technology for geophysical surveying combined with the well-established but constantly emerging portable geochemical exploration tools (XRF, LIBS, Raman) and remote sensing technologies.



| New Exploration Methods |

DATA PROCESSING AND INTEGRATION TOOLS

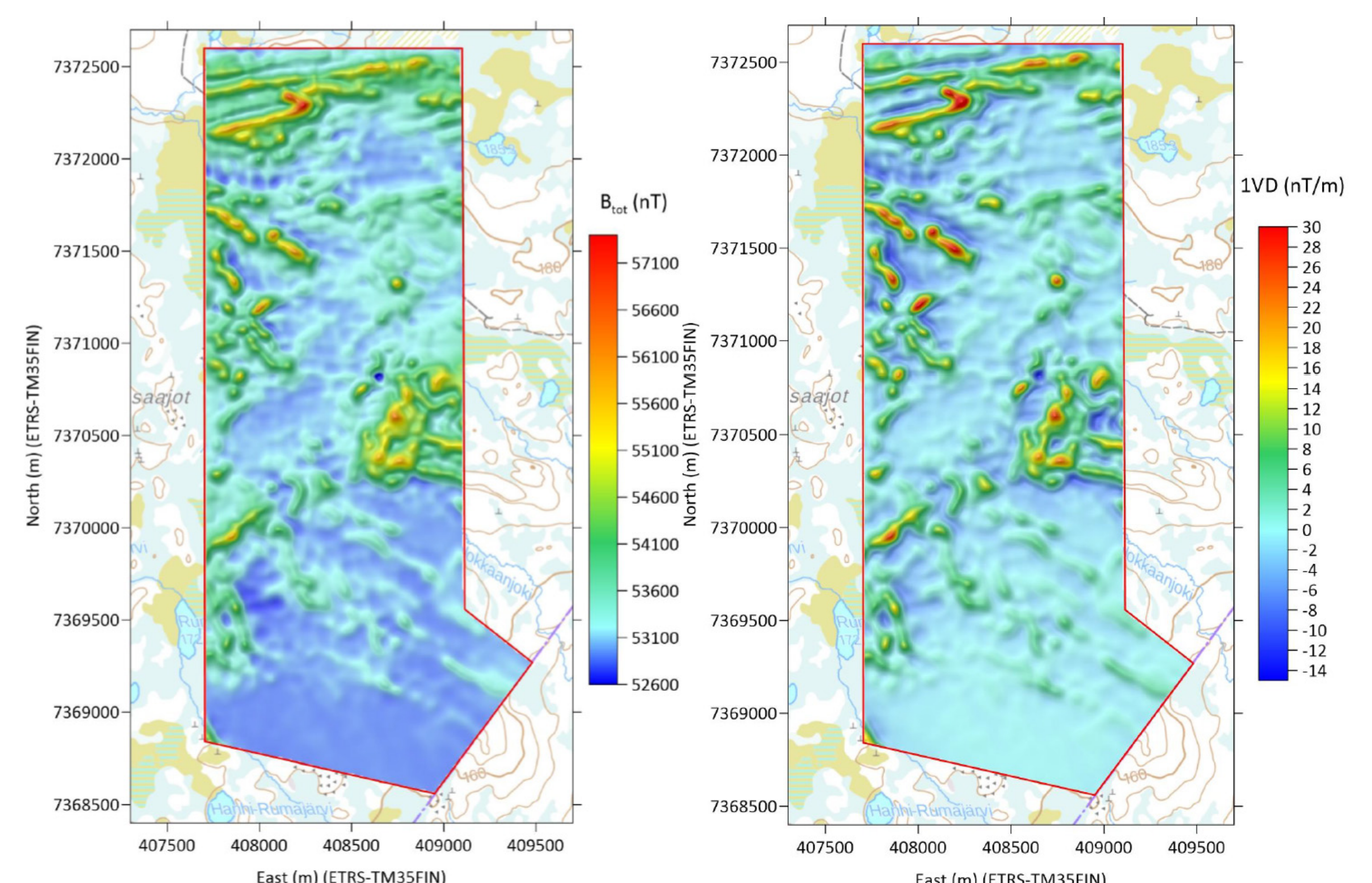
The existing data integration and clustering algorithm of **Self-Organizing Maps (SOM)** has been successfully re-developed as open-source (OS) “nextSOMcore”. It has now been integrated into a new OS GIS software package, called “GisSOM”. In addition, it has been integrated into “Esri ArcGIS” as free available Toolbox and as new extension into the commercial software “advangeo® 2D Prediction”. The SOM approach has been tested with existing data from the Erzgebirge site and was successfully applied to the available and newly acquired data from the target areas in Rajapalot and Elvira.



Left: Example of data integration using SOM: Multiple input data layers from geophysics and geochemistry are combined to produce maps showing either the level of anomaly or the areas with similar properties (so-called SOM clusters).

UAV ELECTROMAGNETIC TECHNOLOGY

The first prototype of the new electro-magnetic (EM) system has been built in 2018 and an improved system tested in autumn 2019. The prototype system consists of EM transmitter and receiver units which can be carried by drones or humans. For the EM system also new interpretation tools have been implemented.



Top: Magnetic total field (with sun shading) of the Palokkaanlampi survey area computed at the constant height of 10 m using ELM of low, mid and high-altitude data jointly (left). First vertical derivate of magnetic total field computed at the constant height of 35 m (right).

MULTI-SOURCE SURFACE GEOCHEMICAL AND SPECTRAL INVESTIGATIONS

This year two successful data collection campaigns at the Raja prospect in Ylitornio, Finland, were completed. In March 2019, a field crew collected **snow** samples in the study area of 2.5 km across. In summer, the same field sites were revisited for performing a **plant and soil survey campaign**. Top organic and mineral soil, foliage and tree bark, as well as transpired fluids from spruce foliage were sampled to be analysed for elemental and hydrocarbon concentration. Altogether 98 sites were visited resulting in more than 1,000 soil and plant samples and soil measurements. At our test sites in Spain, hyperspectral measurements in the field and on 7 km of drill core have been completed.

Our field crew during the summer field sampling campaign in Finland



| Improving the Relations between Mining Industry and Broader Society |

SOCIAL LICENSE TO EXPLORE AND OPERATE (SLO)

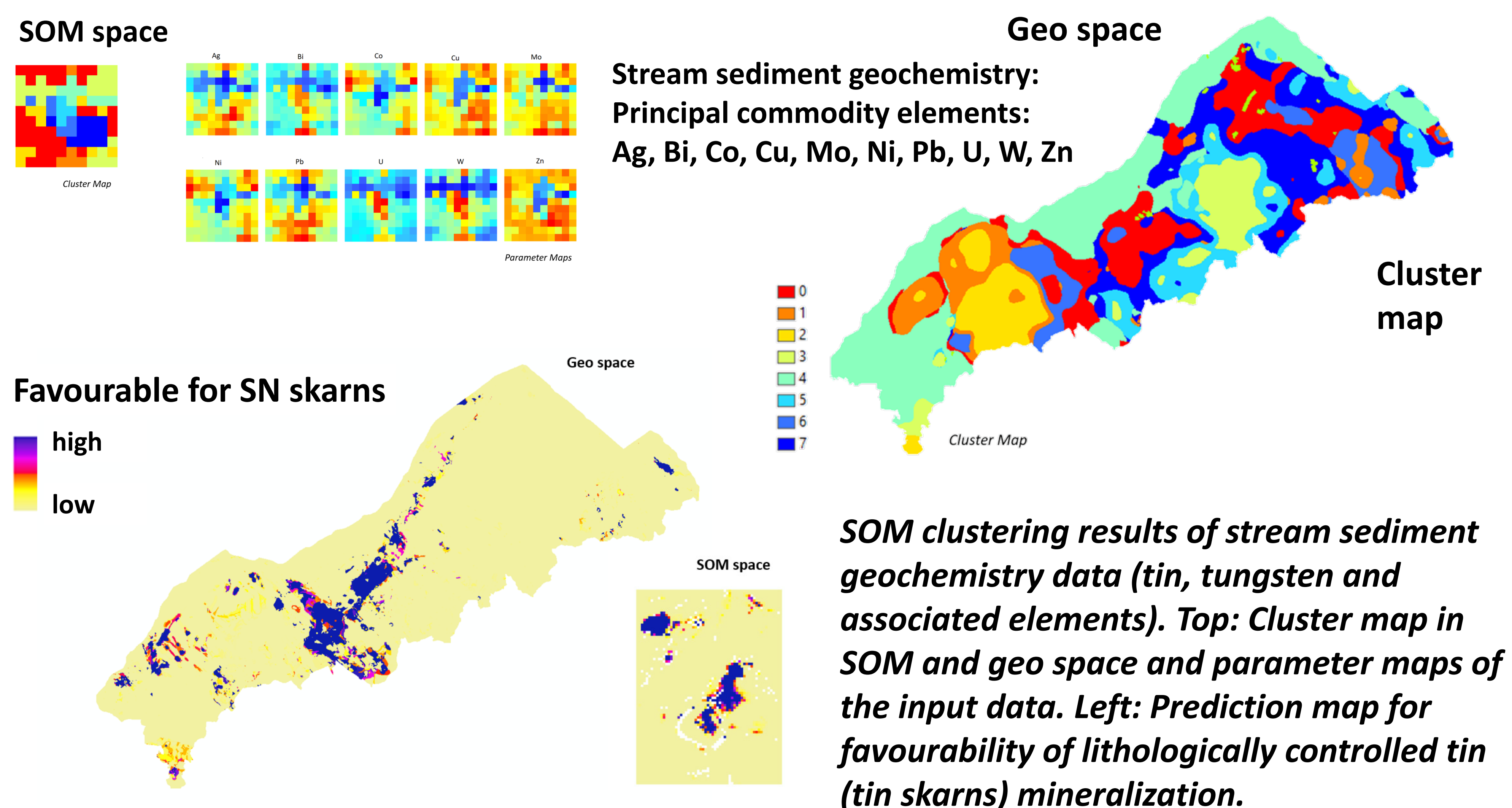
In the work package on SLO, key factors that influence the effectiveness of social licensing during the exploration phase are being identified. Now a **policy brief** on the importance and effectiveness of practices used to assess social impacts and interact with the local communities will be published.



NEXT public info day at local community in Finland

| PREDICTIVE MAPPING |

PREDICTIVE MAPPING OF LITHOLOGICALLY CONTROLLED SN-MINERALIZATION IN THE ERZGEBIRGE / GERMANY



| Figures |

Call:

H2020-SC5-13C-2016-2017

New solutions for sustainable production of raw materials

Duration:

01.05.2018 - 30.04.2021

16 PARTNERS

Consortium from research institutes, academia, service providers and industry from

6 EU COUNTRIES

Finland, Spain, Sweden, France, Germany and Malta

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Your opinion counts!

We appreciate your support in participating in our [online questionnaire](#).

Consortium:



European Commission

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