



Coordinating and integrating state-of-the-art
Earth Observation Activities in the regions of
North Africa, Middle East and Balkans
and Developing Links with GEO related initiatives
toward GEOSS

GEO-CRADLE pre-Kick-Off Meeting
Friday, 18th of February, 2016

Veronika Kopačková, Czech
Geological Survey

EO-MINERS and Minerals 4EU



IONIC Centre, 11 Lysiou Street
Athens, Greece





EO-MINERS (2010-2013)



EO-MINERS was a Research and Technological Development project funded by the European Commission

- To help EC improve its raw material policy and better exploiting mineral resources from the European territory
- To demonstrate how to improve the capacity of Europe in implementing new mining sites
- To improve interaction between the mining industry and society

Scientific objective 1: Define environmental, socio-economic, societal and sustainable development criteria and indicators to be possibly dealt with EO

Scientific objective 2: Demonstrate the capabilities of integrated EO-based methods and tools in:

- monitoring,
- managing
- Contributing to reducing the environmental and societal footprints of all phases of a mining project

<http://www.eo-miners.eu/>



EO-MINERS (2010-2013)



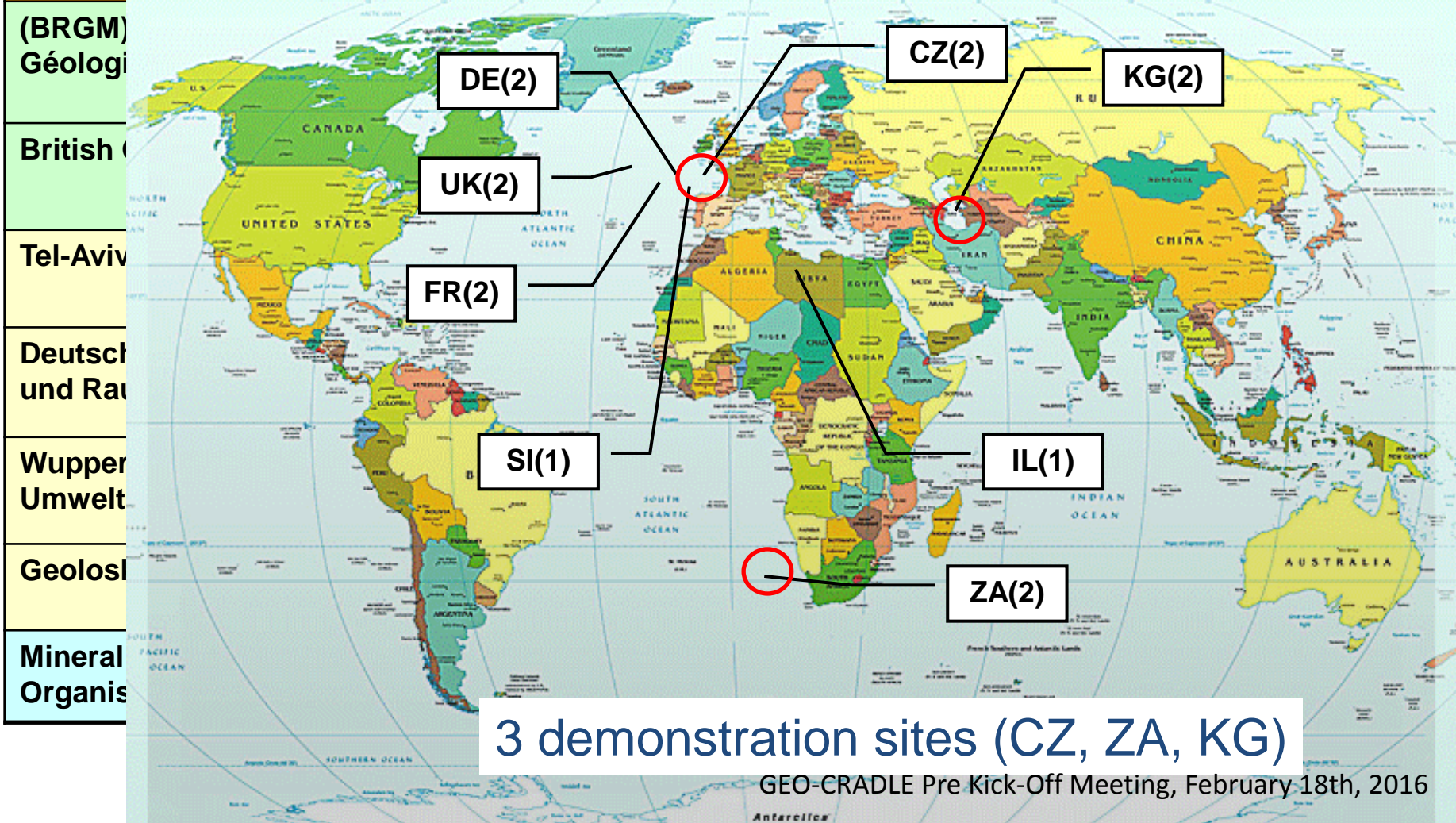
| Beneficiary name | Country | Beneficiary name | Country |
|---|------------------------|---|-------------------|
| (BRGM) Bureau de Recherches Géologiques et Minières | France Coordination | Council for Geoscience | South Africa |
| British Geological Survey | UK | Anglo Operations Limited, Anglo Technical Division | South Africa |
| Tel-Aviv University | Israel | Université de Versailles – St Quentin | France |
| Deutsches Zentrum für Luft - und Raumfahrt e.V. | Germany | Česká Geologická Služba | Czech Republic |
| Wuppertal Institut für Klima, Umwelt, Energie GmbH | Germany | Sokolovská Uhelná a.s. | Czech Republic |
| Geoloski Zavod Slovenije | Slovenia | Central Asian Institute for Applied Geoscience | Kyrgyzstan |
| Mineral Industry Research Organisation | UK | KyrgyzAltyn | Kyrgyzstan |



EO-MINERS (2010-2013)

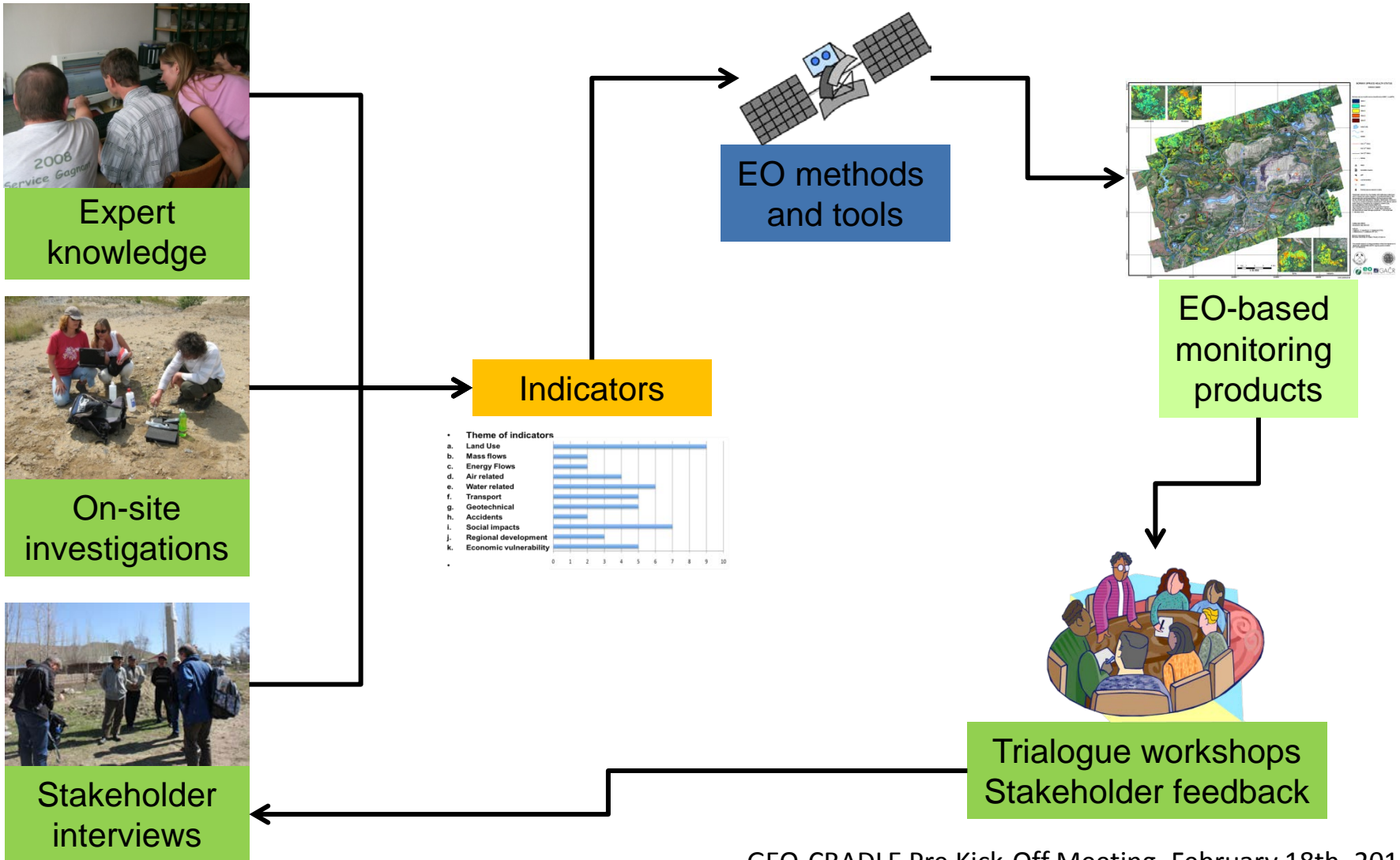


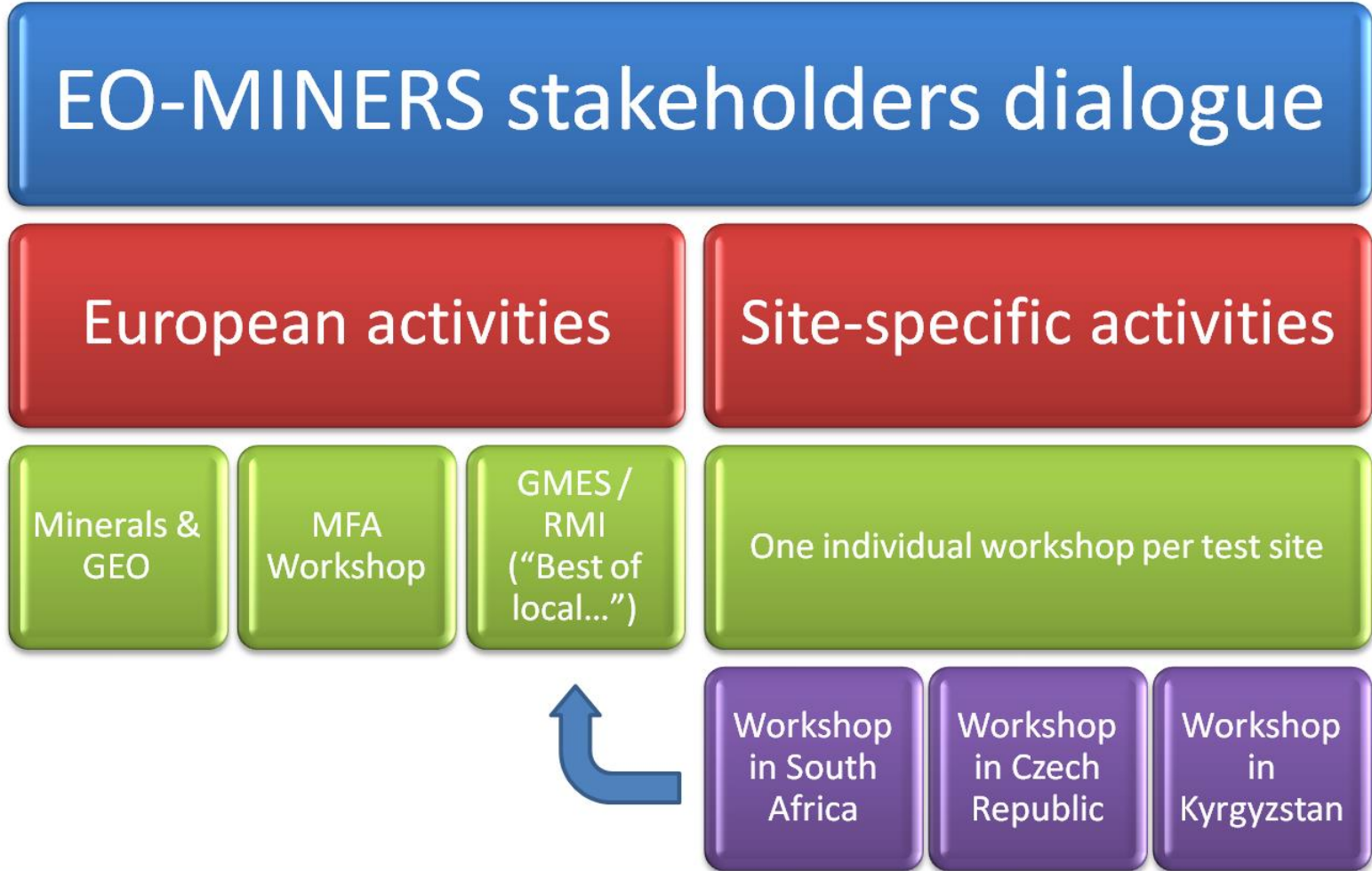
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| (BRGM) Géologi |
| British |
| Tel-Aviv |
| Deutsch und Ra |
| Wupper Umwelt |
| Geolosl |
| Mineral Organis |

3 demonstration sites (CZ, ZA, KG)







EO-MINERS: product list



| Validated Products | Indicator |
|---|--|
| Dust pollution and vegetation health | Air Quality: aerosol concentration in off-site air Land-use: recultivation success on mined-out areas |
| Acid mine drainage contamination potential | Water Quality: acid drainage generation potential |
| Spatial distribution of iron oxides possibly associated with acid mine drainage | Water Quality: acid drainage generation potential |
| Fe content of water and acid mine drainage | Water Quality: acid drainage generation potential |
| Soil composition and acid mine drainage-producing minerals | Soil properties and water quality: acid drainage generation potential and Soil fertility |



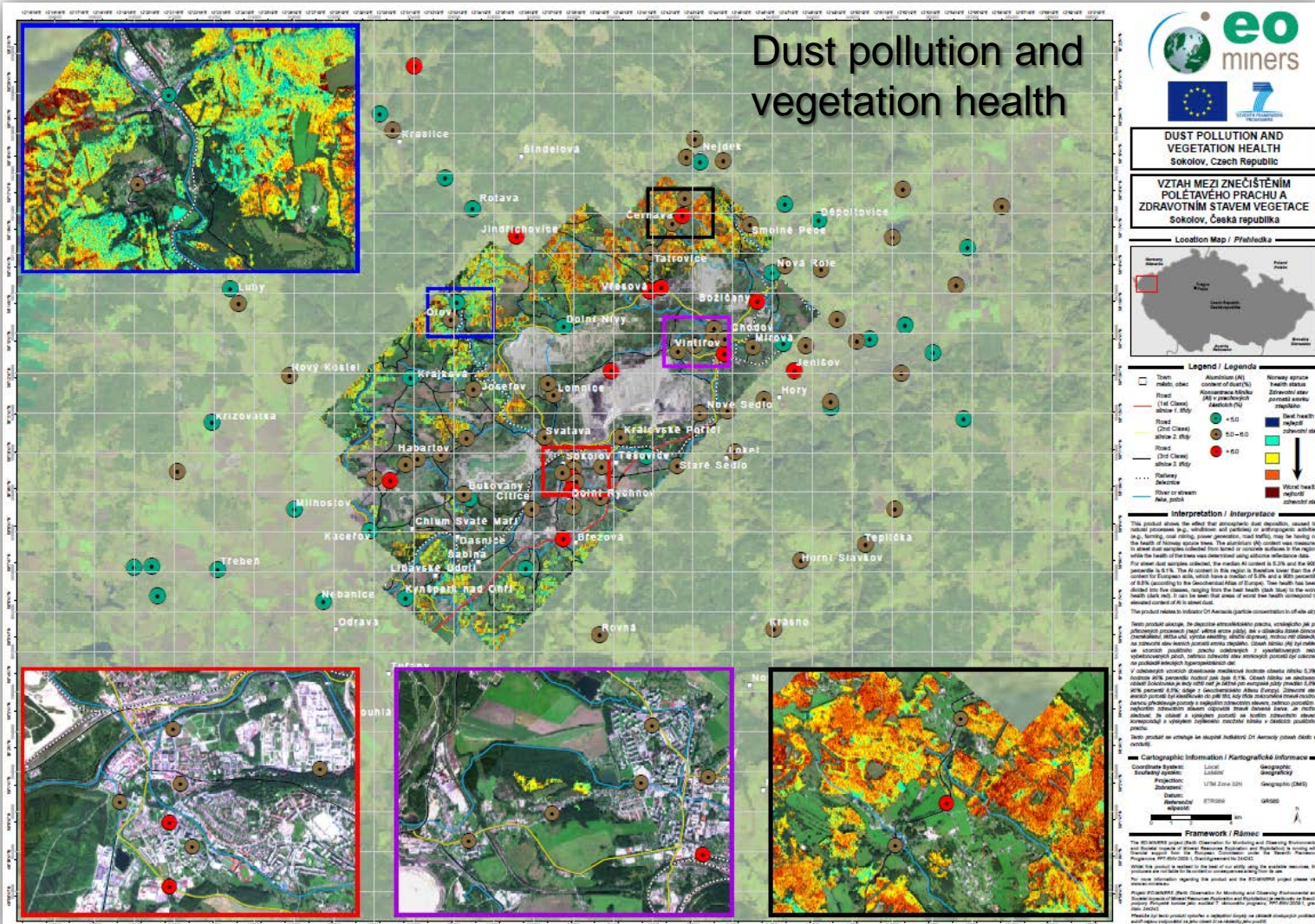
Project results are provided in a number of form, each designed to explain results to a range of stakeholders

- Reports
- Digital layers
- Paper maps
- Digital maps
- Animated fly-throughs

– *Each with associated information and validation histories*

Sokolov (Czech Republic)
Witbank (South Africa)
Makmal (Kyrgystan)

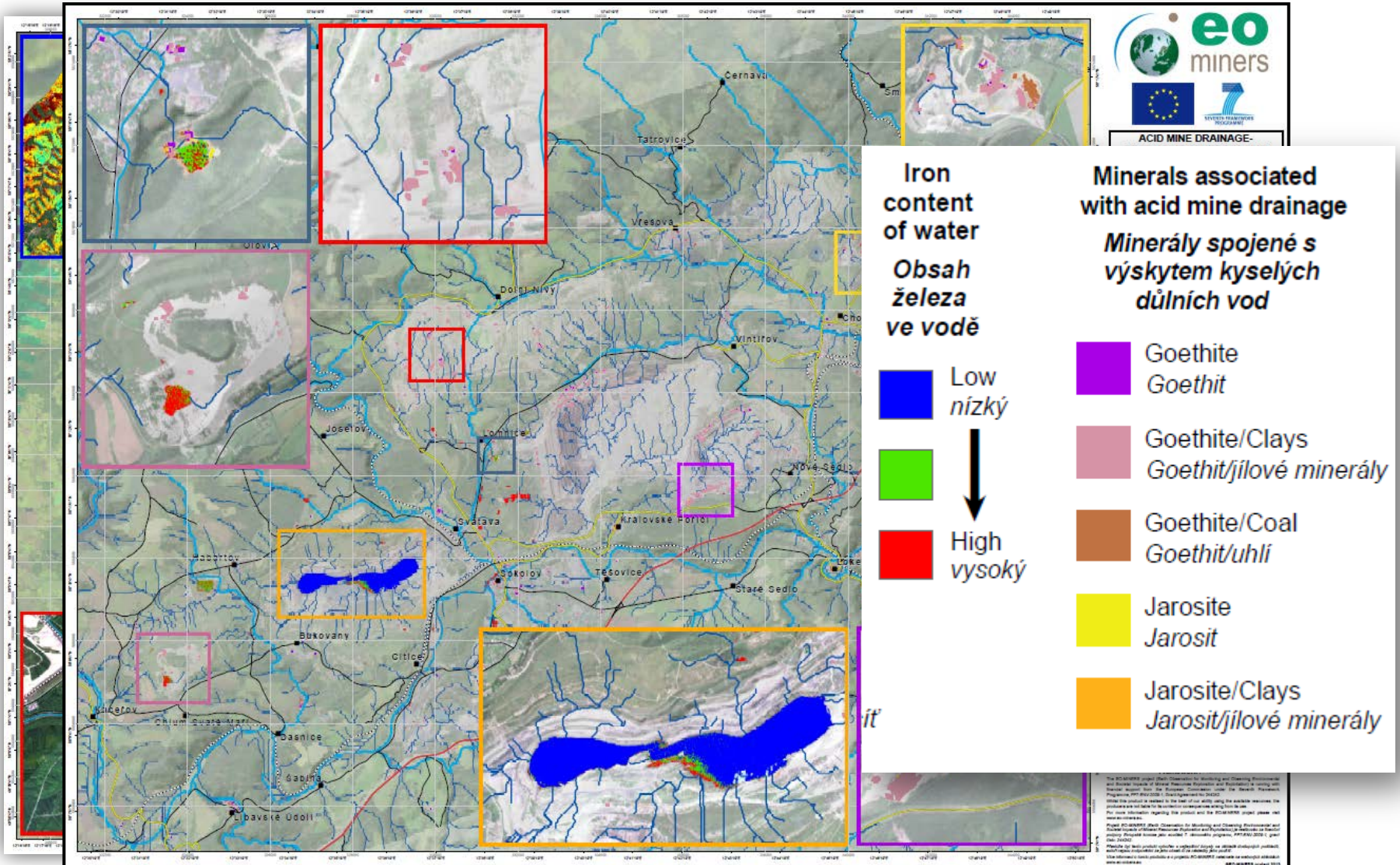
EO-MINERS: product list





EO-MINERS: product list

Mineral Mapping used for water quality assessment





Develop an EU Mineral intelligence network structure delivering a web portal, a European Minerals Yearbook and foresight studies

- Establish the EU minerals intelligence network structure, comprising European minerals data providers and stakeholders
- Support decision making on the policy and adaptation strategies of the Commission, as well as supporting the security of EU resource and raw material
- Make this the leading European mineral information network structure that will provide tools and expertise to enhance resource efficiency, minerals supply security and support sustainable mineral development for Europe
- <http://minerals4eu.brgm-rec.fr/>



Minerals 4EU



COORDINATOR

1. **GEOLOGIAN TUTKIMUSKESKUS**

PARTNERS

2. **EUROGEOSURVEYS – EGS (BE)**
3. **SELOR eeig (NL)**
4. **Institut Royal des Sciences Naturelles de Belgique (BE)**
5. **Natural Environment Research Council (UK)**
6. **Bureau de Recherches Geologiques et Minieres (FR)**
7. **Bundesanstalt fuer Geowissenschaften und Rohstoffe (DE)**
8. **Ceska Geologicka Sluzba (CZ)**
9. **Geologische Bundesanstalt (AT)**
10. **Geoloski Zavod Slovenije (SI)**
11. **The Geological Survey of Denmark and Greenland (DK)**
12. **Institutul Geologic al Romaniei (RO)**
13. **Department of Communications, Energy and Natural Resources (IE)**
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29. **Swiss Geological Survey Federal office of topography Swisstopo (CH)**
30. **Geological Survey Department GSD (CY)**
31. **Sherbimi Gjeologjik Shqiptar AGS (AL)**
32. **Raw Materials Group (SE)**



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- 18. Magyar Földtani és Geofizikai Intézet (HU)

Minerals4EU –
 the leading European minerals
 information network structure
 providing tools and expertise to
 enhance resource efficiency,
 minerals supply security and
 support sustainable minerals
 development for Europe



<http://www.minerals4eu.eu/>

Nikolaos Arvanitidis, Scientific Coordinator, SGU/EGS MREG



Metada catalogue application (CGS) Metadata Catalogue application <http://m4eu.geology.cz>

The central access point to metadata concerning European mineral resources and related topics;



Metadata catalogue application (CGS) Metadata Catalogue

The screenshot displays the 'Minerals Intelligence Network for Europe Metadata Catalogue' interface. It includes a search bar with 'Fulltext' and 'Use map extent' options, a map showing a geographical area, and a list of records. The records include:

- Decorative stones in the Czech Republic - Places of usage**: Growing demand for materials suitable for decorative and building purposes has contributed significantly to the development of the mining and stone-processing industry. This database contains basic types of rocks that have been quarried for these purposes in the Czech Republic in past and presence.
- Economic Data**: The database contains information on prices of the main mineral commodities in both domestic and foreign markets. This includes both financial and volumetric representations of the Czech foreign trade with mineral commodities.
- Exploration Areas**: The database contains information on approvals of exploration for reserved minerals. This includes the information on the spatial delimitation of the exploration area, on the mineral for which the exploration was approved, on the validity of this approval and on the organization. Also listed as "Registry of Exploration Areas".
- Inventory of Mine workings**: This database contains information on individual underground mine workings. According to Section 8, §10 of the Law No. 51/1988 Coll. on mining operations, explosives and State Mining Administration, as amended, this includes all mine workings with an end open to the earth's surface and development workings that open a reserved deposit or its integrated part.
- Mineral Deposits and Resources**: This database contains information on reserved and non-reserved mineral deposits, prognosticated mineral resources, exhausted and abandoned deposits and resources, non-prospective areas, negative results of exploration, and geographic location of mineral resources.
- Mineral information system (SurtS)**: A VMS service provides the access to basic information on mineral deposits and prognosticated resources in the territory of the Czech Republic, protected areas of mineral deposits, protected areas for specific intervention in the Earth's crust, exploration areas and mining leases.
- Mineral Information System (SurtS)**: The Mineral information system (SurtS) collects and provides various comprehensive data on the mineral potential of the Czech Republic. It contains the following databases:
 - Mineral deposits and resources
 - Mining leases
 - Database of previous mining lease approvals
 - Protected areas of mineral deposits
 - Exploration areas
 - Spatial features
 - Administrative database

A red oval highlights the text: **Over 90 records in the MICKA catalogue**

ean




European Minerals Knowledge Data Platform (EU-MKDP)

- A simplified, user-friendly and efficient access to all available and new data related to mineral resources through the 'Minerals4EU' Knowledge Data Platform
 - Interactive, easy to use
 - contains a wider range of data than ever before attempted


European Minerals Knowledge Data Platform (EU-MKDP)

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 - Interactive, user-friendly and efficient access to all available and new data related to mineral resources through the 'Minerals4EU' Knowledge Data Platform.
 - contains a wide range of data related to mineral resources through the 'Minerals4EU' Knowledge Data Platform.




European Minerals Knowledge Data Platform (EU-MKDP)

A simplified, user-friendly and efficient access to all available and new data related to mineral resources through the 'Minerals4EU' Knowledge Data Platform.




DATA SEARCH

Search into the EU-MKDP (Mineral Resources Database and Knowledge Documents) to find the best data




MAP VIEWER

View the data inside the EU-MKDP and combine them with other data to create decision support maps



MINERALS YEARBOOK

View data for primary minerals production, trade, resources and reserves; and for secondary materials



FORESIGHT STUDY

View Foresight Study reports on raw materials supply and demand in the EU

NEWS

August 24, 2015
[The EU-MKDP is operational](#)
 More than 17 European Geological Surveys are serving their national data and over 190 documents related to European mineral potential are available.

August 21, 2015
[European Minerals Yearbook First Edition available](#)
 The first edition of the new Electronical European Minerals Yearbook is available in the EU-MKDP

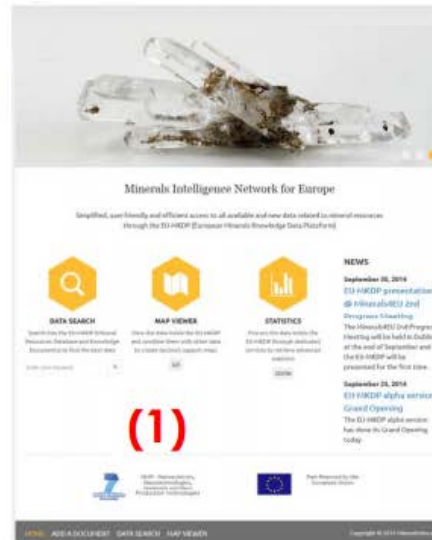
[All the news](#)



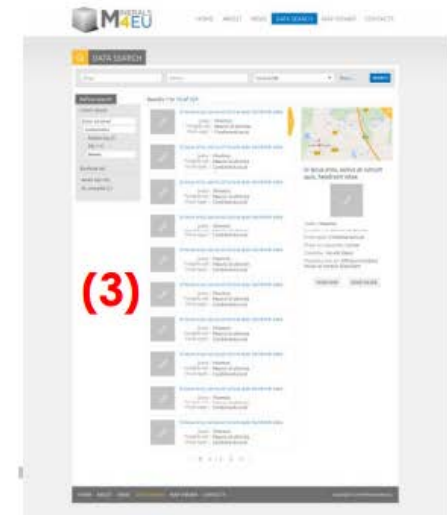
Minerals 4EU: European Minerals Knowledge Data Platform (EU-MKDP)



- 4 parts (front office)
 - Editorial (1)
 - Map Viewer (2)
 - Search (3)
 - Services such as the e-Minerals Yearbook (4)



- 1 part (back office)
 - Documents management
- <http://minerals4eu.brgm-rec.fr>





Minerals 4EU: European minerals yearbook



Yearbook contains data for primary minerals production, trade, resources and reserves; and for secondary materials it contains data for mineral-based waste generation, treatment and trade. It also contains case studies relating to the recovery of 10 commodities from key waste streams

The screenshot shows the website's main navigation and content area. At the top, there is a navigation bar with links for HOME, DATA SEARCH, MAP VIEWER, and a prominent YEARBOOK button. Below this is a 'Back to Menu' link and a header for 'EUROPEAN MINERALS YEARBOOK'. The main content area contains a welcome message and a list of four data viewing options, each with a corresponding icon and a 'VIEW' button. The options are: 'BY COUNTRY' (with a dropdown menu showing 'Albania'), 'BY COMMODITY FOR PRIMARY MINERALS' (with a dropdown menu showing 'Aggregates and relat'), 'BY CATEGORY FOR MINERAL-BASED WASTE FLOWS' (with a dropdown menu showing 'Batteries and accum'), and 'DATA SEARCH FOR CASE STUDIES ON COMMODITIES FROM WASTE AND OTHER YEARBOOK-RELATED DOCUMENTS'. At the bottom of the page, there are links for 'ACKNOWLEDGEMENTS' and 'DISCLAIMER', and a copyright notice for 2014 Minerals4eu.eu.