MINERAL RESOURCES crucial components of a vital, healthy and wealthy society

KEY MESSAGES
- Raw Materials are the backbone of manufacturing industry and wealthy society and a need for future oriented technologies also to realise the GREEN DEAL.
- Demand on Primary Raw Materials will remain high, regardless circular economy
- Europe long-lasting history in mining and processing but has shifted some of the responsibilities to other actors
- Europe under exploration
- Data are basis to deliver new prospectively instruments and information for investments
- Responsible sourcing is an ethical and ecological imperative. Social responsibility calls e.g. on transparency in the supply chain
- GeoERA provides FAIR first class knowledge and innovation

THE RAW MATERIALS VALUE CHAIN
The value chain starts with understanding the geology and its mineralisation. It is the first step to increase efficiency.

GeoERA IN A NUTSHELL
GeoERA gives specific attention to ornamental stone resources for which Europe has a long tradition in mining, processing and usage. Designed to research the Strategic and Critical Raw Materials (SCRM) in Europe to gain new insights into reserves and resources taking into account new technologies and developments.

MOBILIZATION AND DRIVING FACTORS
- future generation needs
- climate change mitigation
- healthy aging
- industry 4.0 and digitalisation
- responsible economic and societal wealth

ACKNOWLEDGEMENT
The GeoERA Raw Materials Team

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GeoERA DATA INFRASTRUCTURE

More at EGU

D722 | EGU2020-20791 Title of European ornamental stone resource | [fulltext](http://www.europe-geology.eu)

D723 | EGU2020-22981 Title of European ornamental stone resource | [fulltext](http://www.europe-geology.eu)

D724 | EGU2020-10238 Title of European ornamental stone resource | [fulltext](http://www.europe-geology.eu)

D725 | EGU2020-13271 Title of European ornamental stone resource | [fulltext](http://www.europe-geology.eu)

D726 | EGU2020-13271 Title of European ornamental stone resource | [fulltext](http://www.europe-geology.eu)

705 | EGU2020-14165 | Highlight Title of European ornamental stone resource | [fulltext](http://www.europe-geology.eu)

706 | EGU2020-17309 | Highlight Title of European ornamental stone resource | [fulltext](http://www.europe-geology.eu)

721 | EGU2020-16935 | Highlight Title of European ornamental stone resource | [fulltext](http://www.europe-geology.eu)

https://tma.jrc.ec.europa.eu
MINERAL RESOURCES
crucial components of a vital, healthy and wealthy society

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on behalf of the GeoERA Raw Materials Team

EGU, virtual, 8 May 2020

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Motivation and driving factors

- future generation needs
- climate change mitigation
- healthy aging
- industry 4.0 and digitalisation
- responsible economic and societal wealth

All relying upon mineral raw materials that are sustainable produced and subsequently (re-)used at all steps of the value chain.
“Access to resources is also a strategic security question for Europe’s ambition to deliver the Green Deal.”

“The [European Defence] Fund must help develop technological skills and provide incentives to build integrated and competitive cross-border supply chains.” (COM(2017) 295 final)

“Ensuring the supply of sustainable raw materials, in particular of critical raw materials necessary for clean technologies, digital, space and defence applications [...] is therefore one of the prerequisites to make this transition happen.”

2025 target
13 million zero- and low-emission vehicles
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Forster sustainable supply from European sources

Boost resource efficiency and recycling

Ensure level playing field in access to resource in third countries

Critical Raw Materials (CRM) Lists

to be updated 2020

Blue Growth
The value chain starts earlier.

Understanding the geology and its mineralisation is the first step to increase efficiency.
'responsible sourcing’ e.g. of minerals, applies particularly to so-called ‘conflict minerals’ (tin, tantalum, tungsten and gold, in short ‘3 TG’)

EU Conflict Mineral Regulation 2017/821 will come into full force on January 1, 2021
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EUROLITHOS gives specific attention to ornamental stone resources for which Europe has a long tradition in mining, processing and usage.

designed to research the Strategic and Critical Raw Materials (SCRM) in Europe to gain new insights into reserves and resources taking into account new technologies and developments.

focuses on exploration and investigation of SCRM from seafloor mineral deposits in European waters. Identifying areas for responsible resourcing and information on management and ‘Marine Spatial Planning’ in European Seas are in its core of action.

improves European data on Raw Material by extending and harmonizing data, and tests the UNFC. Updated electronic Minerals Yearbook and Europe’s Minerals Inventory are among the products.
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GeoERA in a nutshell

Minerals Intelligence
Inventory, e-Minerals
Year Book; Atlas and Directory, “stone ID cards”

Knowledge Improvement for fact-based findings
- inventory, potential, spatial planning and forecasts of marine and land based minerals -

Common terminology vocabularies to harmonise data

Pan-European approach on assessment and regulation of seabed mining activities

Maps, models, metallogenic research

Technically neutral classification

Generating new technological developments and models

Focus on SRCM - energy transition and responsible sourcing -

Forecasts prospectivity maps, future potential of existing mine waste

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GeoERA in a nutshell

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Accessible and interoperable data are at the heart of data-driven innovation.

This data, combined with digital infrastructure [...] and artificial intelligence solutions, facilitate evidence-based decisions and expand the capacity to understand and tackle environmental challenges.
Promoting new forms of collaboration with industry and investments in strategic value chains are essential.

Strategic Action Plan on Batteries and support of the European Battery Alliance will be continued.

GeoERA contributes in particular throughout...
D705 | EGU2020-5950 | Highlight
FRAME’s (Forecasting and Assessing Europe’s Strategic Raw Materials Needs) contribution to the “European Green Deal”
Daniel P. S. de Oliveira, et al.

D718 | EGU2020-7025
Lithium, Cobalt and Graphite occurrences in Europe
Results from GeoERA FRAME project WP 5
Håvard Gautneb, Eric Gloaguen, and Tuomo Törmänen

D719 | EGU2020-7931
Prospectivity mapping of niobium and tantalum in Europe; a part of the GEOERA- FRAME project
Martiya Sadeghi, et al.

D720 | EGU2020-10228
FRAME: towards conflict-free Nb-Ta for the European Union
Helge Reginiussen, et al.

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• The role of oceans in mitigating and adapting to climate change is increasingly recognised. The sector can contribute by improving the use of aquatic and marine resources [...] .

• The 2020 United Nations Ocean Conference in Portugal will be an opportunity for the EU to highlight the importance of action on ocean issues.

➢ GeoERA contributes in particular throughout
D706 | EGU2020-13271
Critical minerals in the European seas: The project GeoERA-MINDeSEA
Javier Gonzalez et al.

D723 | EGU2020-22091
Hydrogenetic Fe-Mn crusts from European seas: source of potentially economic cobalt mining.
Egidio Marino, et al.
• The value of data lies in its use and re-use.
• Data interoperability and quality, as well as their structure, authenticity and integrity are key for the exploitation of the data value, especially in the context of AI deployment.
• Common European data spaces in strategic sectors and domains of public interest (Pillar 4 - EU Digital Strategy), COM(2020) 66 final)

GeoERA contributes in particular throughout
D721 | EGU2020-16935
Mintell4EU – Mineral Intelligence for Europe – a GeoERA project to improve and sustain the European raw materials knowledge base.
David Whitehead, et al.

D702 | EGU2020-17309
Minerals Inventory as a part of Mineral Intelligence for Europe
Špela Kumelj, et al.
• Heritage is made up of local stories that together make the history of Europe. COM(2014) 477 final
• BUT - Its economical, ecological and societal impact is poorly understood.

➔ GeoERA contributes in particular throughout

EUROLITHOS European Ornamental Stone Resources
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GeoERA turns data and information in to knowledge as

- Comprehensive scientific results are available to governmental decision makers, business and society.
- Transparent and easy access beyond the community is realized through EGDI and RMIS.
- GeoERA thus ensures a broad knowledge transfer to Platforms that follow FAIR data principles.

First class knowledge on Europe's Raw Material Potential
- forecast, prospection, exploration, harmonized mineral maps and datasets -
Key Messages

- Backbone of manufacturing industry and wealthy society and a need for future oriented technologies also to realise the GREEN DEAL.
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Thank you for your interest

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...find out more under https://geoera.eu