

Critical Minerals Mapping Initiative Data Portal

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³United States Geological Survey

⁴Geological Survey of Queensland



What data is available through the Critical Minerals Mapping Initiative?

Tour of the Critical Minerals Mapping Initiative (CMMI) Portal, including:

- Downloading data
- Data analytics

Using Web Mapping Services (WMS) and Web Features Services (WFS) outside the CMMI Portal

- Loading CMMI data into GIS software
- Working with web services.





What data is available through the Critical Minerals Mapping Initiative?

- New deposit classification scheme (Hofstra, et al., 2021)
- A global ore deposit geochemistry database (Champion, et al., 2021)
 - 9553 samples from 1499 deposits
 - All deposits classified using Hofstra, et al. (2021)
 - Delivered as Web Mapping and Feature Services
- Sediment-Hosted Zn-Pb Mineral Prospectivity Maps (Lawley, et al., 2022)
 - Clastic-dominated (Zn-Pb) Prospectivity Model
 - Mississippi Valley-type (Zn-Pb) Prospectivity Model
- All data available through the Critical Minerals Mapping Initiative Portal



About

The Critical Minerals Mapping Initiative (CMMI) Portal is a free interactive mapping tool designed to share outputs from the geoscientific collaboration between Geoscience Australia (GA), the Geological Survey of Canada (GSC) and the United States Geological Survey (USGS). Focused on building a diversified critical minerals industry in Australia, Canada, and the United States, the CMMI is developing a better understanding of:

- known critical mineral resources.
- geologic controls on critical mineral distribution for deposits currently producing by-products.
- how to infer new sources of supply through critical mineral potential mapping and quantitative mineral assessments.

For more information on CMMI, see a fact sheet [here](#) or read more about the context for the collaboration [here](#).

As the primary data delivery platform for the CMMI, the CMMI Portal merges and delivers mineral resource information of the three geological organisations. New outputs from the collaboration will be added to the portal as they become available.

CMMI welcomes your feedback on [Client Services](#) on improving the CMMI Portal.

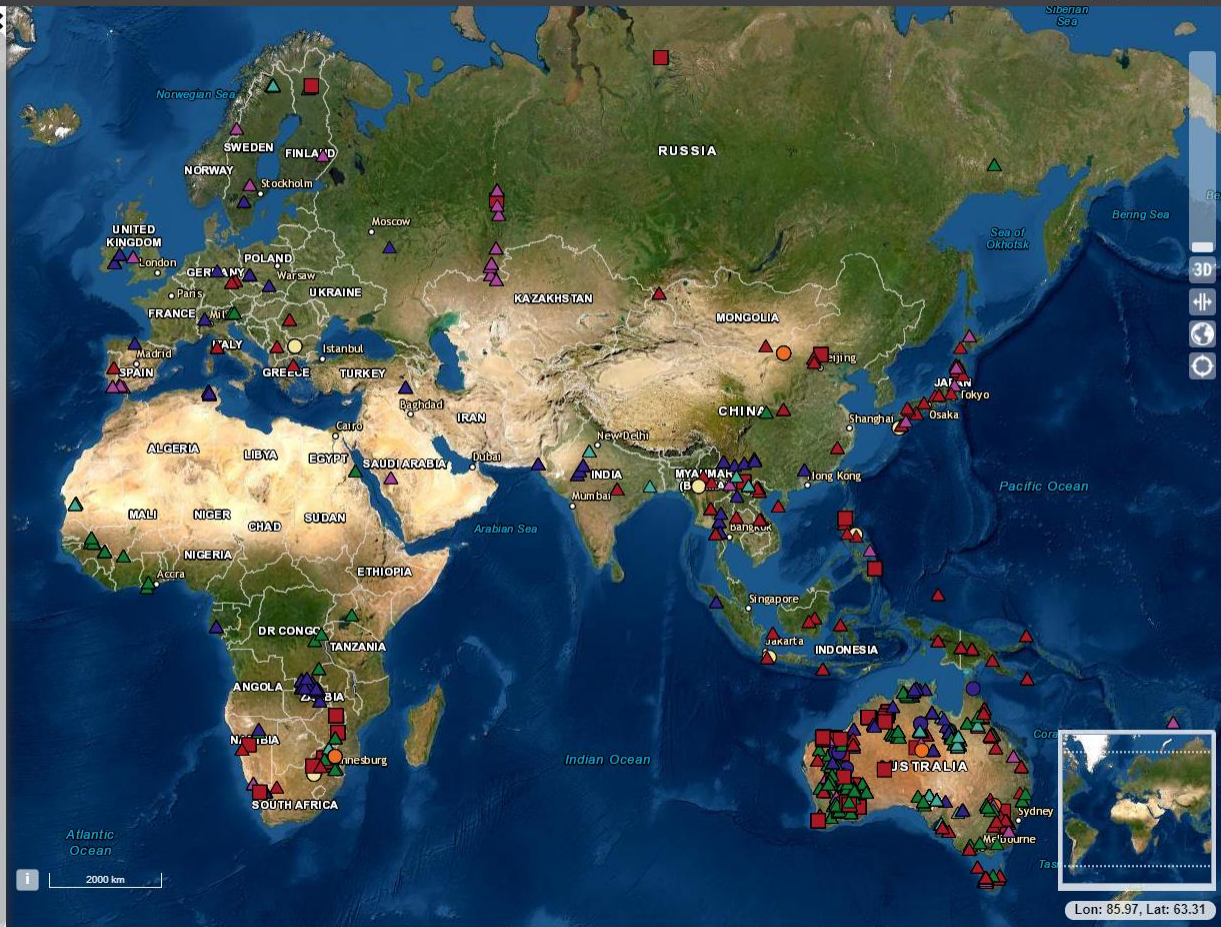


Critical
Minerals
Mapping
Initiative



Australian Government
Geoscience Australia

Canada





Layers

Base Layers

ArcGIS World Imagery

ArcGIS World Dark Gray Canvas

ArcGIS World DeLorme

ArcGIS World Light Gray Canvas

ArcGIS World Ocean Basemap

ArcGIS World Street Map

ArcGIS World Topographic

Opacity 100

ArcGIS National Geographic Map

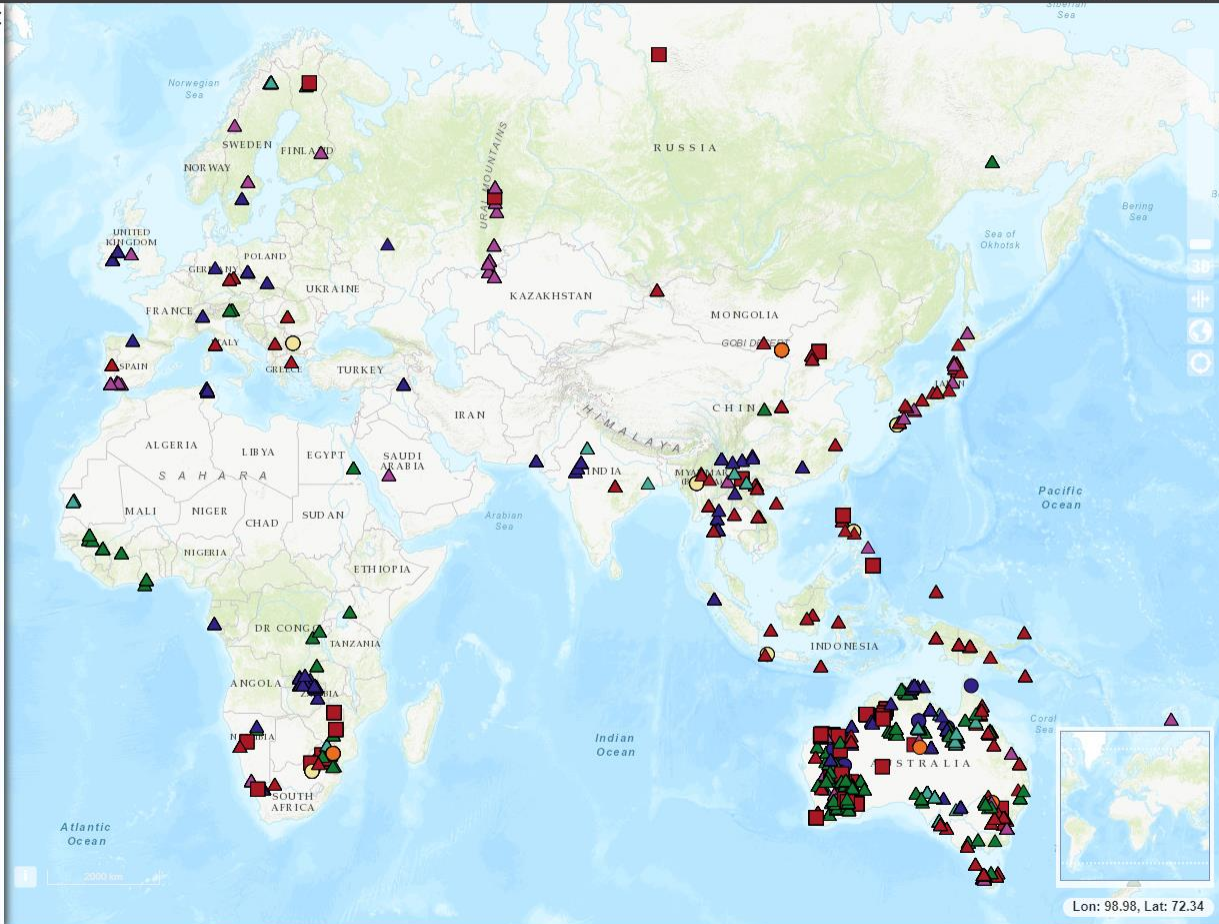
National Color Base Map

Open Street Map

Map Layers

3D Layers

Custom Layers





Layers

Base Layers

Map Layers

Search

Geochemistry

Inorganic Geochemistry

Critical Minerals - Deposits and Geochemistry

About Legend Filter (on) Fit Extent Remove

Opacity 100%

Style Critical Minerals - Deposit Environments

Remove Filter Exclude Null Values Apply Filter

Deposit Name

Deposit Environment Basin hydrothermal x

Deposit Group Alkali-calcic x Anorthosite conduit x +39

Deposit Type

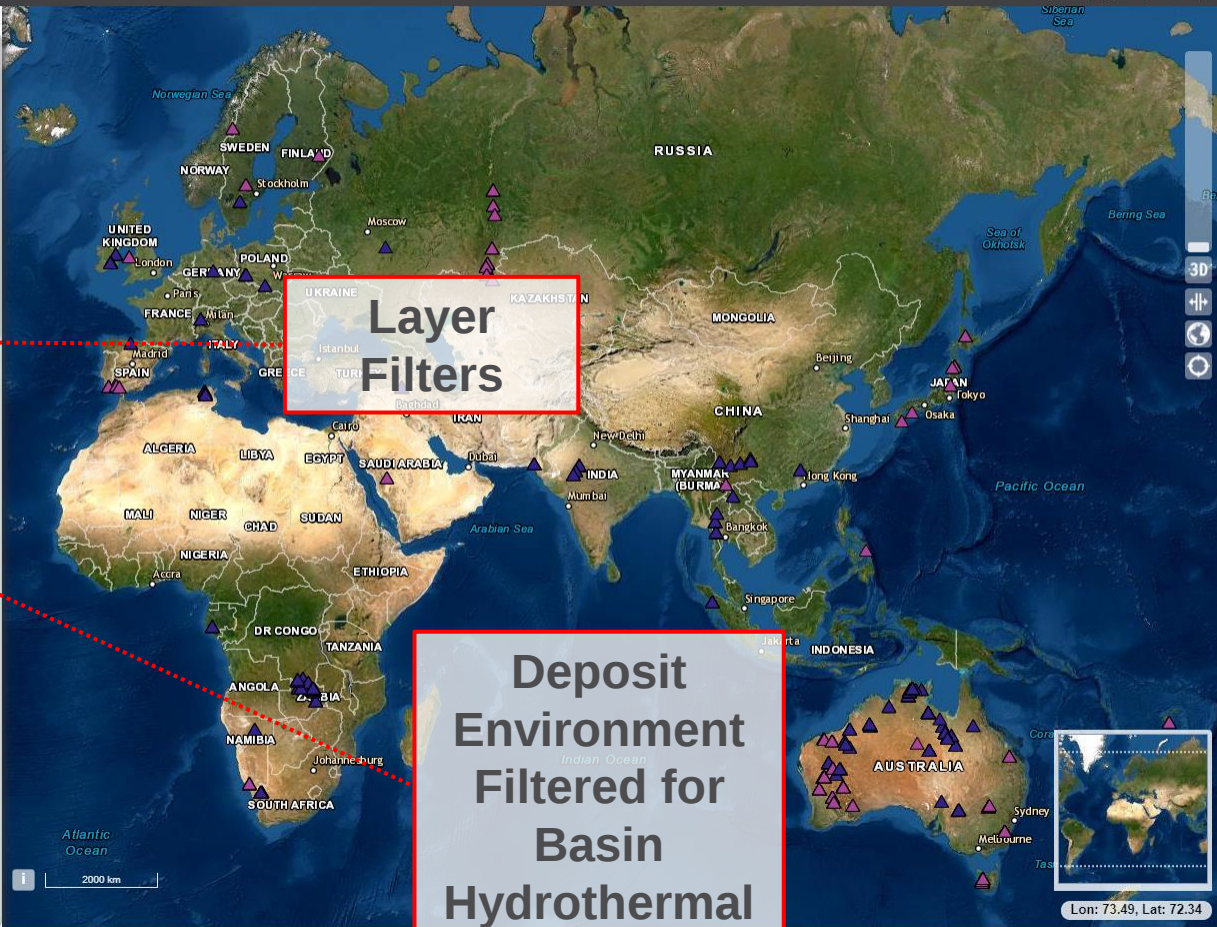
Primary Commodities Ag x Aggr x +70

Secondary Commodities Ag x As x +68

Feature Type borehole x field site x +6

Sample Deposit Relation alteration material x high grade ore material x +8

Sample Type borehole specimen x core x +6





Layers 🗺️

Base Layers >

Map Layers >

3D Layers >

Custom Layers >

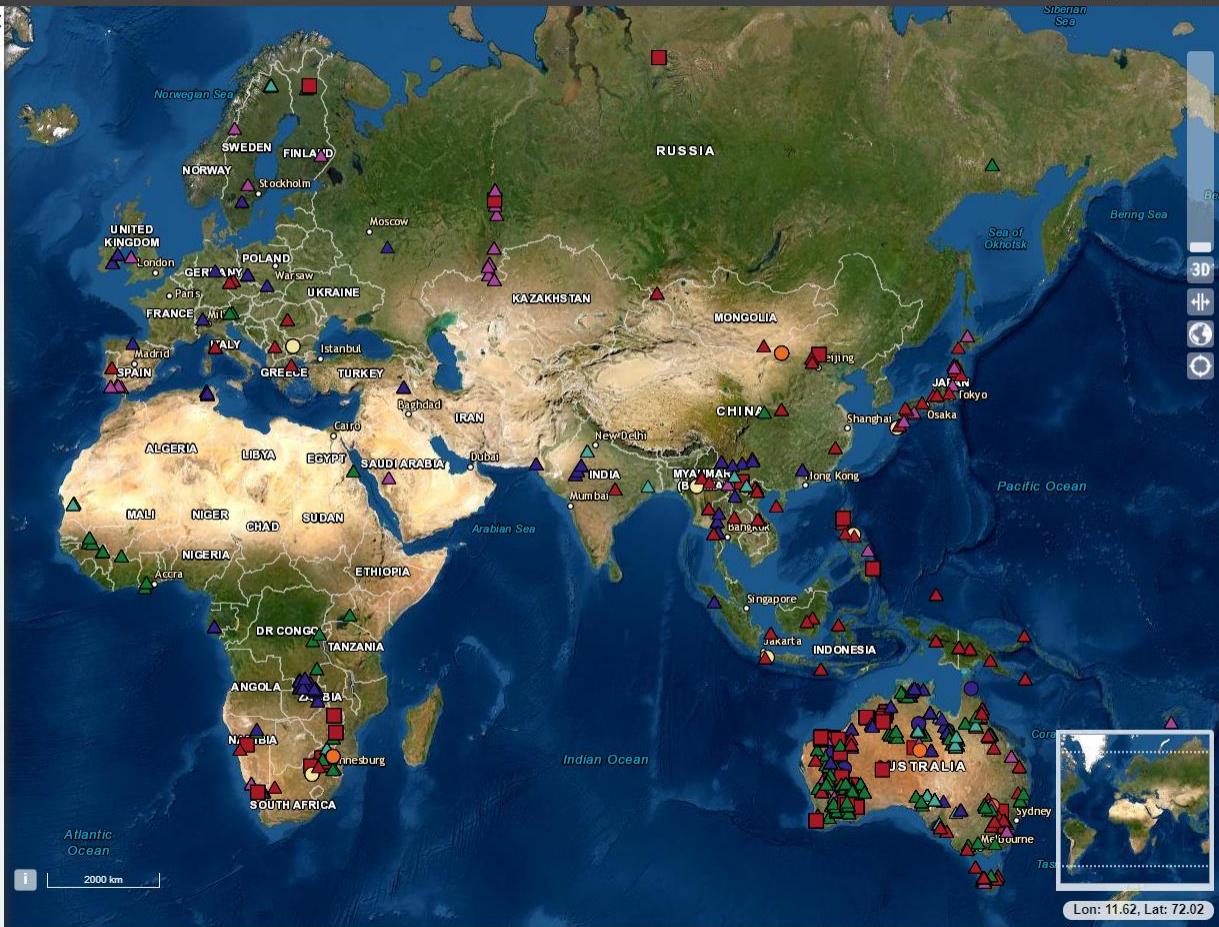
Add Local Data >

Australian geoscience WMS services can be found by using the [Search Data & Publications](#) button or by browsing a list of available WMS services [here](#).

Select Service Type >

No file chosen Choose File

Add Web Data >



Lon: 11.62, Lat: 72.02



Y

Click on the map to query a point, you may click again to select a different point.

Area

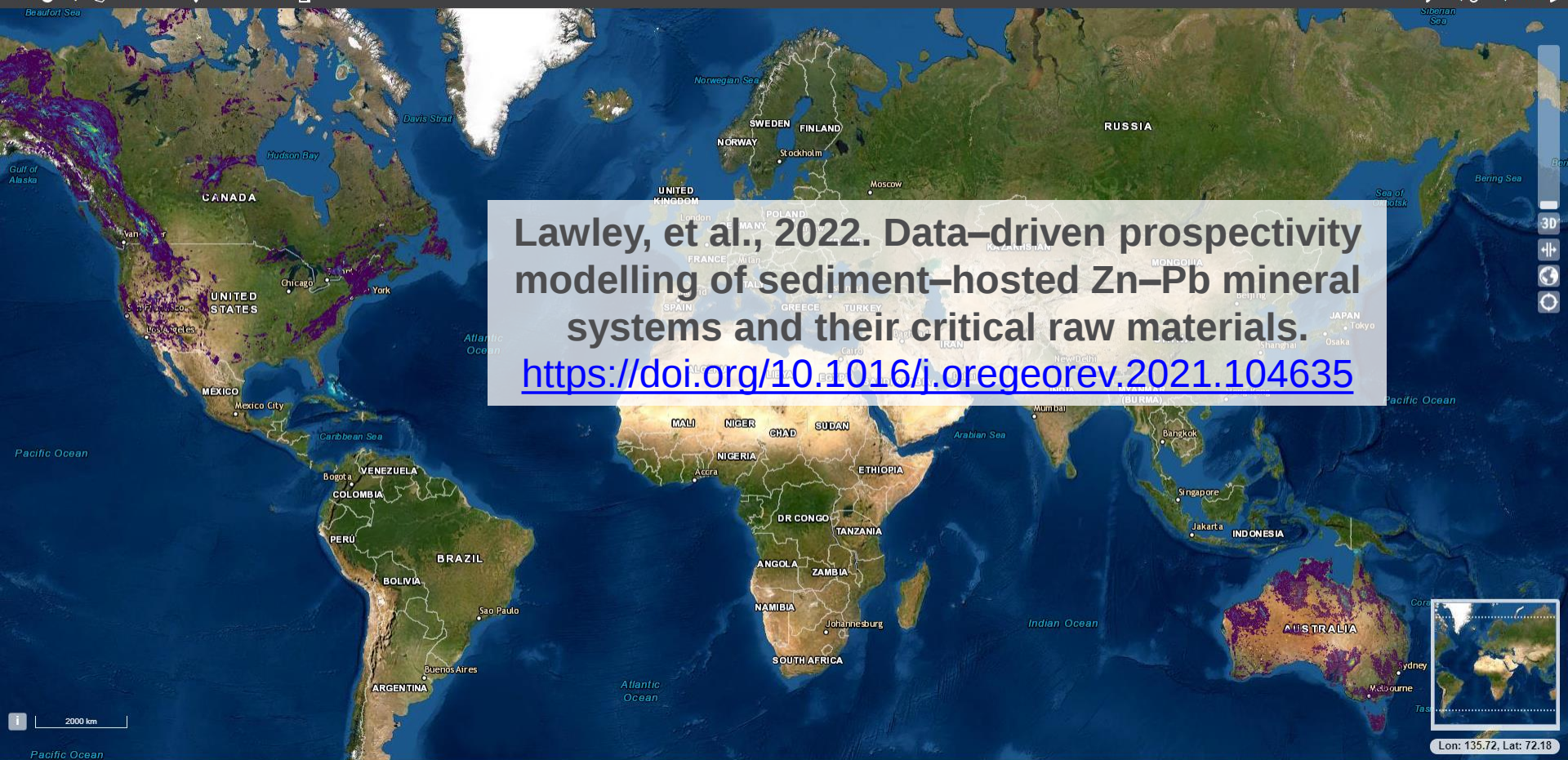
Statistics

RUSSIA Longitude -114.7695313, Latitude 60.5837307

Critical Minerals - Deposits and Geochemistry

General

DEPOSIT_UID	CAN.NT.12000264
DEPOSIT_NAME	Pine Point
DEPOSIT_LOCAL_ID	4
DEPOSIT_ENVIRONMENT	Basin hydrothermal
DEPOSIT_GROUP	Mississippi Valley-type (MVT)
DEPOSIT_TYPE	MVT Zn-Pb
ALL_COMMODITIES	Zn, Pb
DEPOSIT_SOURCE	GSC-Open File 8727 - Geological Survey of Canada
SAMPLE_UID	ca 829792
SAMPLE_NAME	SP001GN
SAMPLE_LOCAL_ID	85f4ba4b-e5ab-4ed3-9489-2a987fe8c13b
FEATURE_TYPE	borehole
FEATURE_NAME	Pine Point
FEATURE_UID	516280
SAMPLE_DEPOSIT_RELATION	unknown
SAMPLE_TYPE	mineral separate
SAMPLING_METHOD	mineral separation
MATERIAL_CLASS	rock
PROVINCE	Interior Platform
EARTH_MATERIAL_GROUP	rock
EARTH_MATERIAL	rock
MINERALS	galena
SAMPLE_DESCRIPTION	GN mineral separate from sample SP001 : a sample of sulphide ore taken from the Pine Point deposit
SAMPLE_PREPARATION	CS
FE2O3TOT_WT_PERCENT	0.24
FE2O3TOT_DETECTION_LIMIT	0.04
FE2O3TOT_METHOD	ICPOES_LBF
AG_PPM	1.4





Location Search

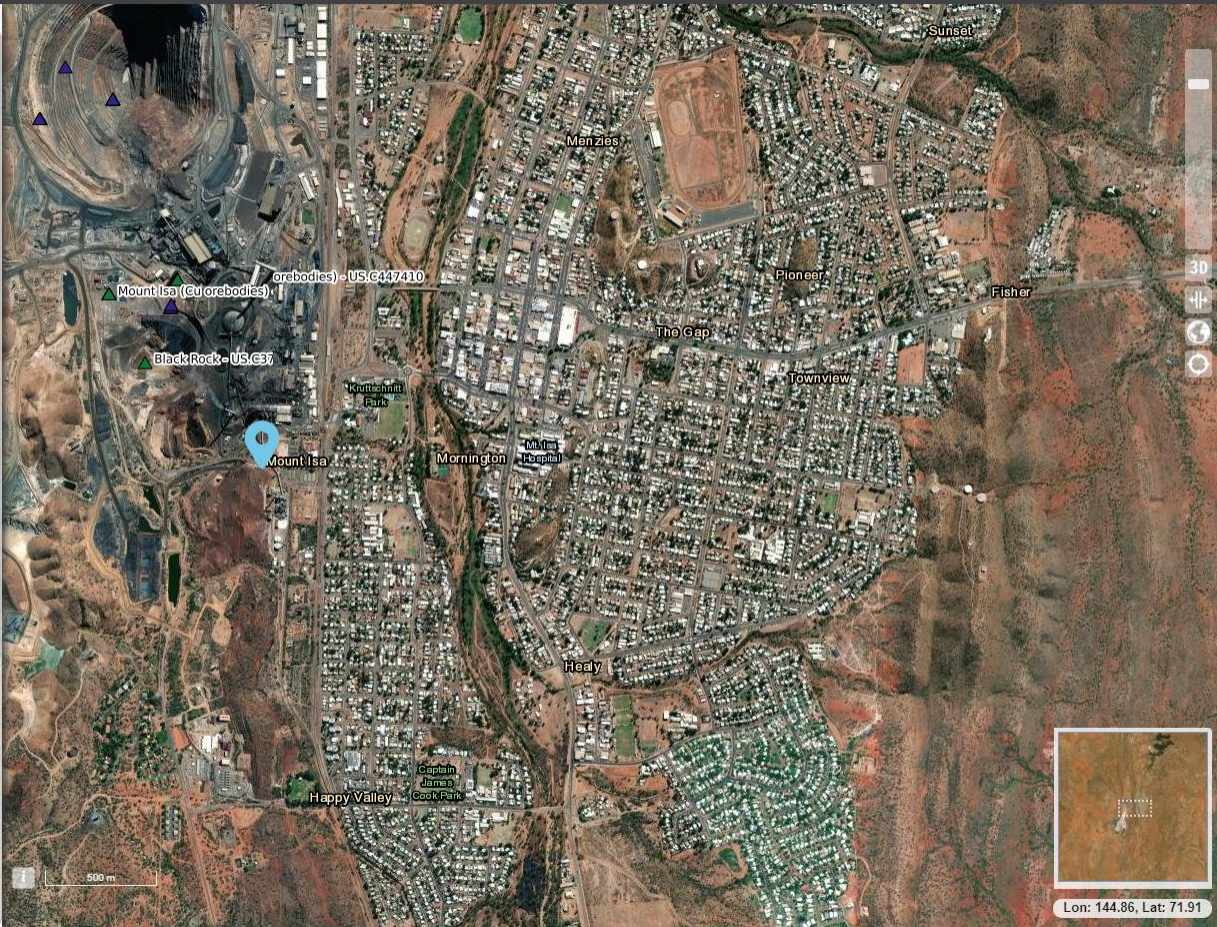
Mount Isa

Addresses

- Mount Isa Drive, Brymbo, Wrexham, Clwyd, Wales, LL11 5
- Mount Isa Duchess Rd, Bushy Park, Duchess, Queensland, 4825
- Mount Isa Duchess Rd, Bushy Park, Mount Isa, Queensland, 4825
- Mount Isa Duchess Rd, Duchess, Queensland, 4825
- Mount Isa Duchess Rd, Mount Isa, Queensland, 4825
- Mt. Isarog, Batong Malake, Los Baños, Laguna, Calabarzon
- Mt. Isarog, Dolores Pob., Taytay, Rizal, Calabarzon
- Mt. Isarog, Mambungan, Antipolo, Rizal, Calabarzon
- Mt. Isarog, Pinagsama, Taguig City, Fourth District NCR, National Capital Region
- Isa St, Mount Isa City, Mount Isa, Queensland, 4825
- Boulia Mount Isa Hwy, Boulia, Queensland, 4829
- Boulia Mount Isa Hwy, Buckingham, Georgina, Queensland, 4825
- Boulia Mount Isa Hwy, Buckingham, Queensland, 4825
- Boulia Mount Isa Hwy, Dajarra, Queensland, 4825
- Boulia Mount Isa Hwy, Dajarra, Waverley, Queensland, 4825

Places of Interest

- Mount Isa, Queensland
- Mount Isa City, Mount Isa, Queensland
- Mount Isaac
- Mount Isaac
- Mount Isabel





Data & Publications

Search

Documents

Minerals

Deposit Classification Scheme for the Critical Minerals Mapping Initiative Global Geochemical Database

About

Catalogue

Download

A challenge for the global economy is to meet the growing demand for commodities used in today's advanced technologies. Critical minerals are commodities (for example, elements, compounds, minerals) deemed vital to the economic and national security of individual countries that are vulnerable to supply disruption. The national geological agencies of Australia, Canada, and the United States recently joined forces to advance understanding and foster development of critical mineral resources in their respective countries through the Critical Minerals Mapping Initiative (CMMI). An initial goal of the CMMI is to fill the knowledge gap on the abundance of critical minerals in ores. To do this, the CMMI compiled modern multielement geochemical data generated by each agency on ore samples collected from historical and active mines and prospects from around the world. To identify relationships between critical minerals, deposit types, deposit environments, and mineral systems, a unified deposit classification scheme was needed. This report describes the scheme developed by the CMMI to classify the initial release of geochemical data. In 2021, the resulting database—along with basic query, statistical analysis, and display tools—will be served to the public through a web-based portal managed by Geoscience Australia. The database will enable users to trace critical minerals through mineral systems and identify individual deposits or deposit types that are potential sources of critical minerals.

Citation: Hofstra, A., Lisitsin, V., Corriveau, L., Paradis, S., Peter, J., Lauzière, K., Lawley, C., Gadd, M., Pilote, J., Honsberger, I., Bastrakov, E., Champion, D., Czamota, K., Doublier, M., Huston, D., Raymond, O., van der Wielen, S.E., Emsbo, P., Granitto, M., and Kreiner, D., 2021, Deposit classification scheme for the Critical Minerals Mapping Initiative Global Geochemical Database: U.S. Geological Survey Open-File Report 2021–1049, 60 p., DOI: 10.3133/ofr20211049.

Geological Surveys Unite to Improve Critical Mineral Security

International database on the abundance of critical minerals in ores: Relevance to research and development of critical mineral resources

Toward an effective global green economy: The Critical Minerals Mapping Initiative (CMMI)

Factsheets

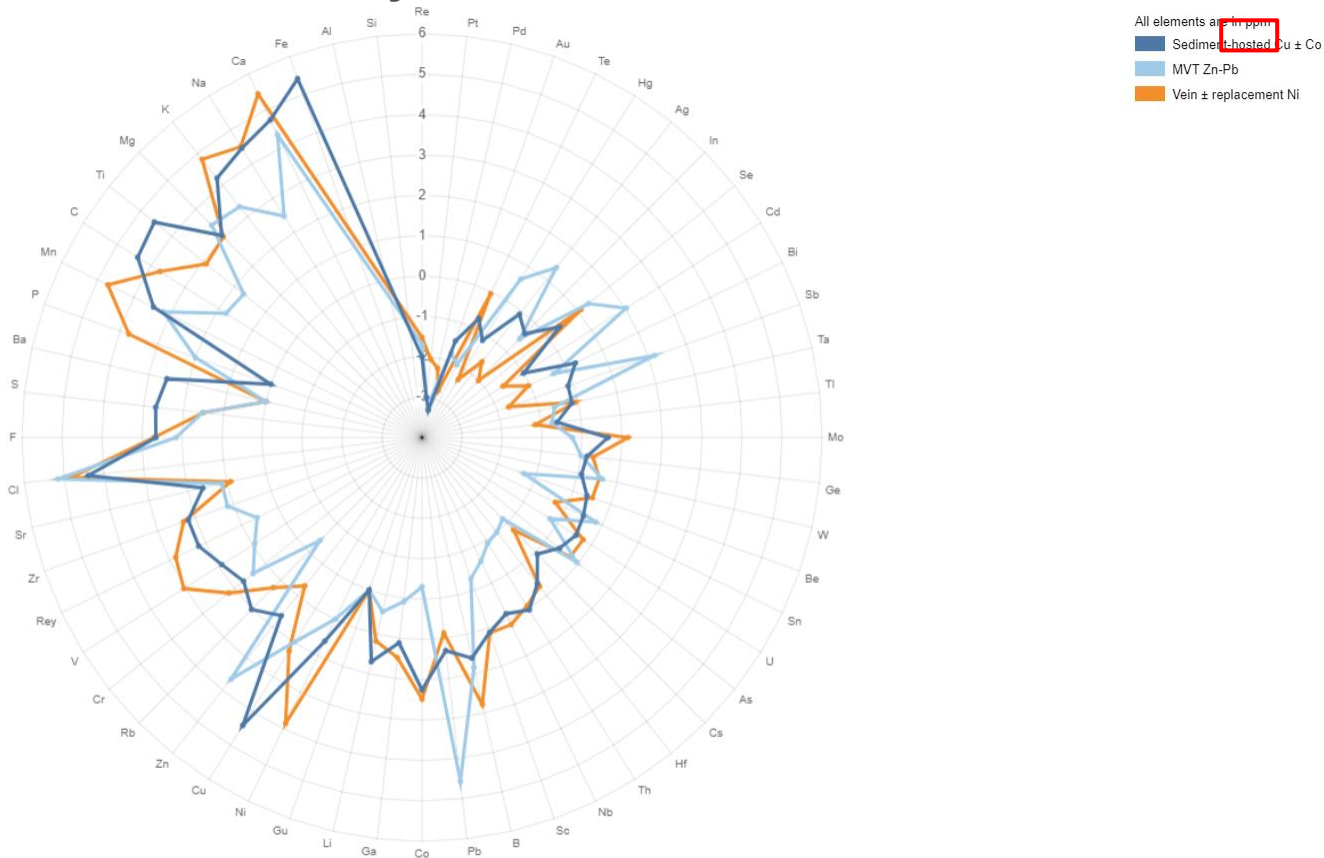
Presentations

Prepared as part of a joint research program between the U.S. Geological Survey, Geological Survey of Canada, Geological Survey of Queensland, and Geoscience Australia

Deposit Classification Scheme for the Critical Minerals Mapping Initiative Global Geochemical Database

Open-File Report 2021–1049

U.S. Department of the Interior
U.S. Geological Survey



Radar Plot



*Untitled Project - QGIS

[illegible]

▶ XYZ Tiles

Layers

Layers

ESRI Administrative Boundaries - Level 1

2021 Administrative Boundaries - Level 1

▼ ☒  Critical Minerals - Deposits and Geochemistry

🔍 Type to locate (Ctrl+K) Getting map via WMS.

Create a New WMS/WMTS Connection

Connection Details

Name: Critical Minerals

URL: <https://services.gov.au/gis/critical-minerals.html>

Authentication

Configurations: Basic

Choose or create an authentication configuration

No authentication

Configurations store encrypted credentials in the QGIS authentication database.

WMS/WMTS Options

Referer:

DPI scale: all

☒ Ignore GetMap/GetFeatureInfo reported in capabilities

☒ Ignore GetFeatureInfo URI reported in capabilities

☒ Ignore axis orientation (WMTS 1.3/WMTS)

☒ Invert axis orientation

☒ Smooth pixmap transform

OK Cancel Help

<https://services.ga.gov.au/gis/critical-minerals/wms>
<https://services.ga.gov.au/gis/critical-minerals/wfs>

🔍 Type to locate (Ctrl+K)

Getting map via WMS.

Coordinate 42.0,115.2 Scale 108360018 Magnifier 100% Rotation 0.0 ° ☒ Render EPSG:4326

Working with Web Mapping and Feature Services

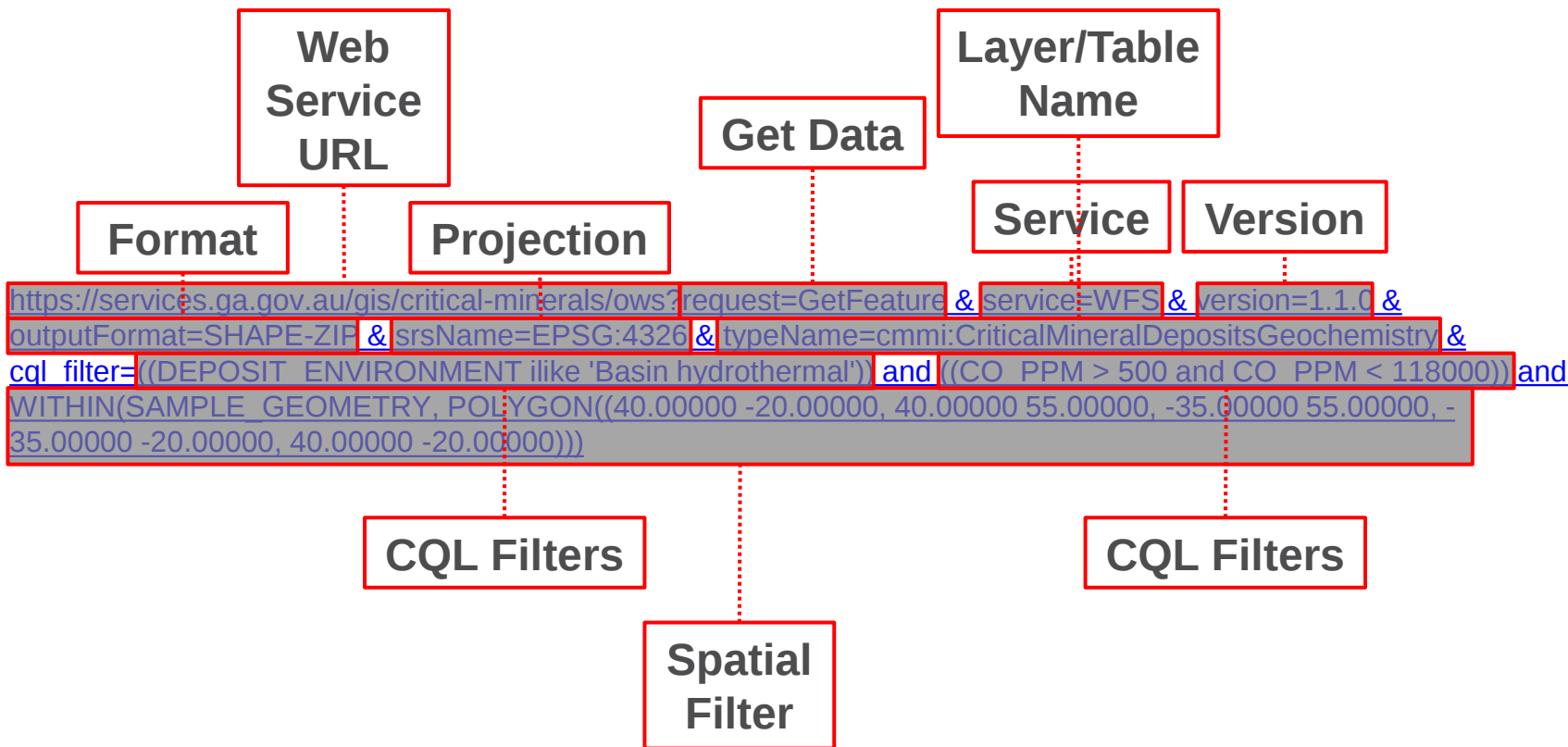
<https://services.ga.gov.au/gis/critical-minerals/ows?REQUEST=GetCapabilities&SERVICE=WMS&VERSION=1.3.0> **WMS Get Capabilities Request**

<https://services.ga.gov.au/gis/critical-minerals/wfs?service=wfs&version=1.1.0&request=DescribeFeatureType&typename=CriticalMineralDepositsGeochemistry> **WFS Describe Features Request**

<https://services.ga.gov.au/gis/critical-minerals/ows?request=GetFeature&service=WFS&version=1.1.0&outputFormat=csv&typeName=cmmi:CriticalMineralDepositsGeochemistry> **Get Features (CSV) Request**

<https://services.ga.gov.au/gis/critical-minerals/ows?request=GetFeature&service=WFS&version=1.1.0&outputFormat=SHAPE-ZIP&srsName=EPSG:4326&typeName=cmmi:CriticalMineralDepositsGeochemistry> **Get Features (Zipped Shape file) Request**

Querying Web Feature Services (WFS)



Thank you



Australian Government
Geoscience Australia



Critical Minerals Mapping Initiative Data Portal

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