



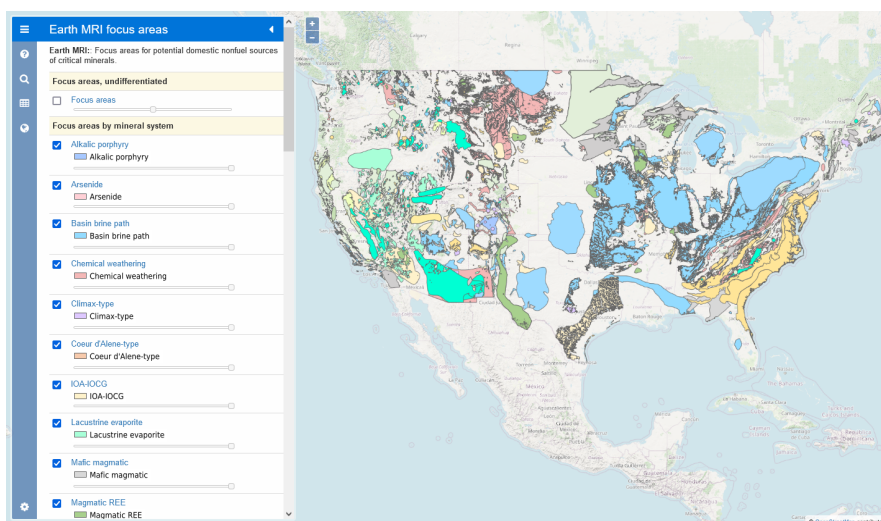
Mineral Resources (<https://www.usgs.gov/energy-and-minerals/mineral-resources-program>)
/ Online Spatial Data (/)

Earth MRI focus areas

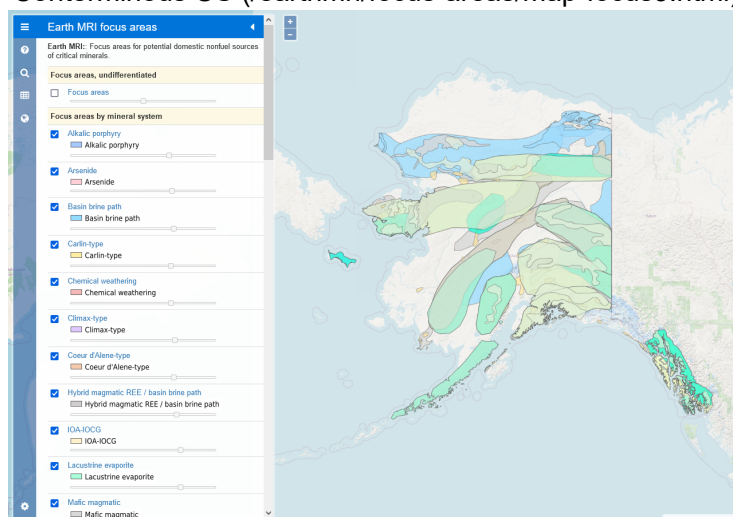
Locations of focus areas to be used in the Earth Mapping Resource Initiative (Earth MRI) for planning and collection of geophysical, geological, geochemical, and topographic (lidar) data pertaining to the study of critical mineral resources in the US.

View

Show in a web browser window:



Conterminous US (</earthmri/focus-areas/map-focus3.html>)



Alaska (</earthmri/focus-areas/map-focus3.html?x=-157&y=64.5&z=5>)

Show in Google Earth or other KML viewer:

[earthmrifocus.kml](/earthmri/focus-areas/earthmrifocus.kml) (</earthmri/focus-areas/earthmrifocus.kml>) (uncompressed KML file 287M bytes)

earthmrifocus.kmz (/earthmri/focus-areas/earthmrifocus.kmz) (compressed KML file 87M bytes)

Show in your GIS using [OGC \(Open Geospatial Consortium\)](#) web services:

[https://mrdata.usgs.gov/services/emri-focus \(/services/emri-focus?request=GetCapabilities&service=WMS&version=1.3.0\) \(WMS, version 1.3.0\)](https://mrdata.usgs.gov/services/emri-focus (/services/emri-focus?request=GetCapabilities&service=WMS&version=1.3.0) (WMS, version 1.3.0)

[https://mrdata.usgs.gov/services/emri-focus \(/services/emri-focus?request=GetCapabilities&service=WFS&version=1.1.0\) \(WFS, version 1.1.0\)](https://mrdata.usgs.gov/services/emri-focus (/services/emri-focus?request=GetCapabilities&service=WFS&version=1.1.0) (WFS, version 1.1.0)

OGC WMTS tile services at <https://mrdata.usgs.gov/mapcache/wmts/> by mineral system:

Layer name	Mineral system
ms001	Alkalic porphyry (focus-search.php?minsystem=Alkalic porphyry)
ms002	Arsenide (focus-search.php?minsystem=Arsenide)
ms003	Basin brine path (focus-search.php?minsystem=Basin brine path)
ms004	Chemical weathering (focus-search.php?minsystem=Chemical weathering)
ms005	Climax-type (focus-search.php?minsystem=Climax-type)
ms006	Coeur d'Alene-type (focus-search.php?minsystem=Coeur d'Alene-type)
ms007	IOA-IOCG (focus-search.php?minsystem=IOA-IOCG)
ms008	Lacustrine evaporite (focus-search.php?minsystem=Lacustrine evaporite)
ms009	Mafic magmatic (focus-search.php?minsystem=Mafic magmatic)
ms010	Magmatic REE (focus-search.php?minsystem=Magmatic REE)
ms011	Marine chemocline (focus-search.php?minsystem=Marine chemocline)
ms012	Metamorphic (focus-search.php?minsystem=Metamorphic)
ms013	Meteoric recharge (focus-search.php?minsystem=Meteoric recharge)
ms014	Orogenic (focus-search.php?minsystem=Orogenic)
ms015	Placer (focus-search.php?minsystem=Placer)
ms016	Porphyry Cu-Mo-Au (focus-search.php?minsystem=Porphyry Cu-Mo-Au)
ms017	Porphyry Sn (granite-related) (focus-search.php?minsystem=Porphyry Sn (granite-related))
ms018	Reduced intrusion-related (focus-search.php?minsystem=Reduced intrusion-related)
ms019	Volcanogenic seafloor (focus-search.php?minsystem=Volcanogenic seafloor)
ms020	Carlin-type (focus-search.php?minsystem=Carlin-type)
ms021	Hybrid magmatic REE / basin brine path (focus-search.php?minsystem=Hybrid magmatic REE %2F basin brine path)
ms022	Marine evaporite (focus-search.php?minsystem=Marine evaporite)

Layer**name****Mineral system**

ms023

Meteoric convection ([focus-search.php?minsystem=Meteoric convection](https://mrdata.usgs.gov/earthmri/focus-areas/focus-search.php?minsystem=Meteoric%20convection))**Download**

Get the entire data set:

focusAreas_emri_gdb.zip (https://www.sciencebase.gov/catalog/file/get/610438e7d34ef8d7055fbcae?name=focusAreas_emri_gdb.zip) (File geodatabase 83M bytes)

focusAreas_emri_shp.zip (https://www.sciencebase.gov/catalog/file/get/610438e7d34ef8d7055fbcae?name=focusAreas_emri_shp.zip) (Shapefile 148M bytes)

EMRI_focus_area_data_table_csv.zip (https://www.sciencebase.gov/catalog/file/get/610438e7d34ef8d7055fbcae?name=EMRI_focus_area_data_table_csv.zip) (CSV 857k bytes)

Search focus areas by mineral system, deposit type, commodity, or state ([focus-search.php](https://mrdata.usgs.gov/earthmri/focus-areas/focus-search.php))

Mineral systems-commodities-critical minerals: Table 1 of OFR 2020-1042, JSON format.
([minsystem.json](https://mrdata.usgs.gov/earthmri/focus-areas/minsystem.json))

A re-expression of Table 1 in JSON format, including bibliographic references.

Documentation

Metadata:

Outline (/earthmri/focus-areas/metadata/focusAreas_emri.html) - Questions & Answers (/earthmri/focus-areas/metadata/focusAreas_emri.faq.html) - Plain text (/earthmri/focus-areas/metadata/focusAreas_emri.txt) - XML (/earthmri/focus-areas/metadata/focusAreas_emri_v2.xml)

Earth Mapping Resources Initiative (Earth MRI) (<https://www.usgs.gov/special-topic/earthmri>)

An effort undertaken by USGS as part of the Federal strategy to ensure secure and reliable supplies of critical minerals.

Earth MRI focus area service (</earthmri/focus-areas/focus-search-doc.html>)

Web service (GeoJSON) providing information about focus areas for studies of the Earth MRI whose characteristics match a specific mineral system, deposit type, commodity, or state.

Earth MRI focus area category service (</earthmri/focus-areas/focus-category-doc.html>)

Web service providing category information for focus areas of the Earth MRI, returning GeoJSON.

Publication

GIS, supplemental data table, and references for focus areas of potential domestic resources of critical minerals and related commodities in the United States and Puerto Rico

Dicken, C.L., Woodruff, L.G., Hammarstrom, J.M., and Crocker, K.E., 2022, GIS, supplemental data table, and references for focus areas of potential domestic resources of critical minerals and related commodities in the United States and Puerto Rico: U.S. Geological Survey data release, <https://doi.org/10.5066/P9DIZ9N8>.

(<https://doi.org/10.5066/P9DIZ9N8>)

GIS for focus areas of potential domestic resources of 11 critical minerals--aluminum, cobalt, graphite, lithium, niobium, platinum group elements, rare earth elements, tantalum, tin, titanium, and tungsten (version 2.0, August 2020)

Dicken, C.L., and Hammarstrom, J.M., 2020, GIS for focus areas of potential domestic resources of 11 critical minerals--aluminum, cobalt, graphite, lithium, niobium, platinum group elements, rare earth elements, tantalum, tin, titanium, and tungsten (version 2.0, August 2020): U.S. Geological Survey data release, <https://doi.org/10.5066/P9U6SODG>.

(<https://doi.org/10.5066/P9U6SODG>)

Focus areas for data acquisition for potential domestic resources of 11 critical minerals in the conterminous United States, Hawaii, and Puerto Rico--Aluminum, cobalt, graphite, lithium, niobium, platinum-group elements, rare earth elements, tantalum, tin, titanium, and tungsten

Hammarstrom, J.M., Dicken, C.L., Day, W.C., Hofstra, A.H., Drenth, B.J., Shah, A.K., McCafferty, A.E., Woodruff, L.G., Foley, N.K., Ponce, D.A., Frost, T.P., and Stillings, L.L., 2020, Focus areas for data acquisition for potential domestic resources of 11 critical minerals in the conterminous United States, Hawaii, and Puerto Rico--Aluminum, cobalt, graphite, lithium, niobium, platinum-group elements, rare earth elements, tantalum, tin, titanium, and tungsten, chap. B of U.S. Geological Survey, Focus areas for data acquisition for potential domestic sources of critical minerals: U.S. Geological Survey Open-File Report 2019-1023, 67 p., <https://doi.org/10.3133/ofr20191023B>.

(<https://doi.org/10.3133/ofr20191023B>)

Focus areas for data acquisition for potential domestic resources of 11 critical minerals in Alaska--Aluminum, cobalt, graphite, lithium, niobium, platinum group elements, rare earth elements, tantalum, tin, titanium, and tungsten

Kreiner, D.C., and Jones, J.V., 2020, Focus areas for data acquisition for potential domestic resources of 11 critical minerals in Alaska--Aluminum, cobalt, graphite, lithium, niobium, platinum group elements, rare earth elements, tantalum, tin, titanium, and tungsten, chap. C of U.S. Geological Survey, Focus areas for data acquisition for potential domestic sources of critical minerals: U.S. Geological Survey Open-File Report 2019-1023, 20 p., <https://doi.org/10.3133/ofr20191023C>.

(<https://doi.org/10.3133/ofr20191023C>)

GIS for focus areas of potential domestic resources of 11 critical minerals: aluminum, cobalt, graphite, lithium, niobium, platinum group elements, rare earth elements, tantalum, tin, titanium, and tungsten

Dicken, C.L., and Hammarstrom, J.M., 2020, GIS for focus areas of potential domestic resources of 11 critical minerals--aluminum, cobalt, graphite, lithium, niobium, platinum group elements, rare earth elements, tantalum, tin, titanium, and tungsten: U.S. Geological Survey data release, <https://doi.org/10.5066/P95CO8LR>.

(<https://doi.org/10.5066/P95CO8LR>)

Systems-Deposits-Commodities-Critical Minerals Table for the Earth Mapping Resources Initiative
Hofstra, A.H., and Kreiner, D.C., 2020, Systems-Deposits-Commodities-Critical Minerals Table for the Earth Mapping Resources Initiative: U.S. Geological Survey Open-File Report 2020-1042, 24 p., <https://doi.org/10.3133/ofr20201042>.

(<https://doi.org/10.3133/ofr20201042>)

GIS and data tables for focus areas for potential domestic nonfuel sources of rare earth elements

Dicken, C.L., Horton, J.D., San Juan, C.A., Anderson, A.K., Ayuso, R.A., Bern, C.R., Bookstrom, A.A., Bradley, D.C., Bultman, M.W., Carter, M.W., Cossette, P.M., Day, W.C., Drenth, B.J., Emsbo, P., Foley, N.K., Frost, T.P., Gettings, M.E., Hammarstrom, J.M., Hayes, T.S., Hofstra, A.H., Hubbard, B.E., John, D.A., Jones, J.V., III, Kreiner, D.C., Lund, K., McCafferty, A.E., Merchat, A.J., Ponce, D.A., Schulz, K.J., Shah, A.K., Siler, D.L., Taylor, R.D., Vikre, P.G., Walsh, G.J., Woodruff, L.G., and Zurcher, L., 2019, GIS and data tables for focus areas for potential domestic nonfuel sources of rare earth elements: U.S. Geological Survey data release, <https://doi.org/10.5066/P95CHIL0>.

(<https://doi.org/10.5066/P95CHIL0>)

Related topics

Aluminum (</catalog/science.php?thcode=2&term=1390>), Antimony (</catalog/science.php?thcode=2&term=1393>), Arsenic (</catalog/science.php?thcode=2&term=1396>), Beryllium (</catalog/science.php?thcode=2&term=1406>), Bismuth (</catalog/science.php?thcode=2&term=1409>), Cesium (</catalog/science.php?thcode=2&term=1424>), Chromium (</catalog/science.php?thcode=2&term=1429>), Cobalt (</catalog/science.php?thcode=2&term=1433>), Critical minerals (</catalog/science.php?thcode=2&term=2094>), Economic geology (</catalog/science.php?thcode=2&term=312>), Gallium (</catalog/science.php?thcode=2&term=1460>), Geospatial datasets (</catalog/science.php?thcode=2&term=474>), Germanium (</catalog/science.php?thcode=2&term=1463>), Hafnium (</catalog/science.php?thcode=2&term=1466>), Indium (</catalog/science.php?thcode=2&term=1479>), Lithium (</catalog/science.php?thcode=2&term=1494>), Magnesium (</catalog/science.php?thcode=2&term=1498>), Manganese (</catalog/science.php?thcode=2&term=1499>), Mineral deposits (</catalog/science.php?thcode=2&term=2043>), Nickel (</catalog/science.php?thcode=2&term=1520>), Niobium (</catalog/science.php?thcode=2&term=1521>), Rhenium (</catalog/science.php?thcode=2&term=1558>), Rubidium (</catalog/science.php?thcode=2&term=1562>), Scandium (</catalog/science.php?thcode=2&term=1569>), Strontium (</catalog/science.php?thcode=2&term=1581>), Study areas (</catalog/science.php?thcode=2&term=2093>), Tantalum (</catalog/science.php?thcode=2&term=1584>), Tellurium (</catalog/science.php?thcode=2&term=1589>), Tin (</catalog/science.php?thcode=2&term=1596>), Titanium (</catalog/science.php?thcode=2&term=1597>), Tungsten (</catalog/science.php?thcode=2&term=1600>), Uranium (</catalog/science.php?thcode=2&term=1605>), Vanadium (</catalog/science.php?thcode=2&term=1610>), Zinc (</catalog/science.php?thcode=2&term=1618>), Zirconium (</catalog/science.php?thcode=2&term=1619>)

Mineral deposit areas (</catalog/science.php?thcode=3&term=686>)

Comma-delimited text (</catalog/science.php?thcode=7&term=18>), File geodatabase (Esri) (</catalog/science.php?thcode=7&term=18>)

</science.php?thcode=7&term=72>), Microsoft Excel format (</catalog/science.php?thcode=7&term=41>), Shapefile (</catalog/science.php?thcode=7&term=12>)
Aluminum (</catalog/science.php?thcode=28&term=3>), Antimony (</catalog/science.php?thcode=28&term=4>), Arsenic (</catalog/science.php?thcode=28&term=5>), Beryllium (</catalog/science.php?thcode=28&term=9>), Bismuth (</catalog/science.php?thcode=28&term=10>), Cesium (</catalog/science.php?thcode=28&term=15>), Chromium (</catalog/science.php?thcode=28&term=16>), Cobalt (</catalog/science.php?thcode=28&term=26>), Gallium (</catalog/science.php?thcode=28&term=32>), Germanium (</catalog/science.php?thcode=28&term=35>), Hafnium (</catalog/science.php?thcode=28&term=105>), Indium (</catalog/science.php?thcode=28&term=40>), Lithium (</catalog/science.php?thcode=28&term=50>), Magnesium (</catalog/science.php?thcode=28&term=51>), Manganese (</catalog/science.php?thcode=28&term=54>), Nickel (</catalog/science.php?thcode=28&term=58>), Niobium (</catalog/science.php?thcode=28&term=59>), Rhenium (</catalog/science.php?thcode=28&term=70>), Rubidium (</catalog/science.php?thcode=28&term=71>), Scandium (</catalog/science.php?thcode=28&term=69>), Strontium (</catalog/science.php?thcode=28&term=85>), Tantalum (</catalog/science.php?thcode=28&term=89>), Tellurium (</catalog/science.php?thcode=28&term=90>), Tin (</catalog/science.php?thcode=28&term=93>), Titanium (</catalog/science.php?thcode=28&term=94>), Tungsten (</catalog/science.php?thcode=28&term=98>), Vanadium (</catalog/science.php?thcode=28&term=99>), Zinc (</catalog/science.php?thcode=28&term=103>), Zirconium (</catalog/science.php?thcode=28&term=104>)

[DOI Privacy Policy \(https://www.doi.gov/privacy\)](https://www.doi.gov/privacy) | [Legal \(https://www.usgs.gov/laws/policies_notices.html\)](https://www.usgs.gov/laws/policies_notices.html) | [Accessibility \(https://www2.usgs.gov/laws/accessibility.html\)](https://www2.usgs.gov/laws/accessibility.html) | [Site Map \(https://www.usgs.gov/sitemap.html\)](https://www.usgs.gov/sitemap.html) | [Contact USGS \(https://answers.usgs.gov/\)](https://answers.usgs.gov/)

[U.S. Department of the Interior \(https://www.doi.gov/\)](https://www.doi.gov/) | [DOI Inspector General \(https://www.doioig.gov/\)](https://www.doioig.gov/) | [White House \(https://www.whitehouse.gov/\)](https://www.whitehouse.gov/) | [E-gov \(https://www.whitehouse.gov/omb/management/egov/\)](https://www.whitehouse.gov/omb/management/egov/) | [No Fear Act \(https://www.doi.gov/pmb/eeo/no-fear-act\)](https://www.doi.gov/pmb/eeo/no-fear-act) | [FOIA \(https://www2.usgs.gov/foia\)](https://www2.usgs.gov/foia)