



Documentation

Version 1.0.0

[Minmod Documentation](#)

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Section 1 Overview

The MinMod HMI is a web application designed to visualize, analyze, and edit mineral site data. It includes features such as exploring current mineral site statistics, mapping site distributions, plotting grade tonnage models, and downloading data. It also supports updating information on a single mineral site, merging duplicate sites, and adding new mineral sites. This tool allows the users to ensure the quality of the data extracted automatically from databases, articles, and mining reports.

Section 2 Home Page

This main page consists of statistics about the system, primarily focusing on the Mineral Sites, Mineral Inventories, and Documents.

Mineral Sites: Mineral sites are physical locations where valuable minerals, metals, or geological materials are found.

Mineral Inventory: A mineral inventory provides detailed information about the grade and tonnage of a commodity within a deposit site. It includes predicted numbers or records of historical production, along with the level of certainty associated with the reported data.

Documents: Documents encompass all databases, articles, mining reports or any written document that provides evidence about the mineral site.

2.1 Statistics : Counts

The MinMod home page provides the current statistics counts of the data loaded into the system.

It provided the following statistics on the home page:

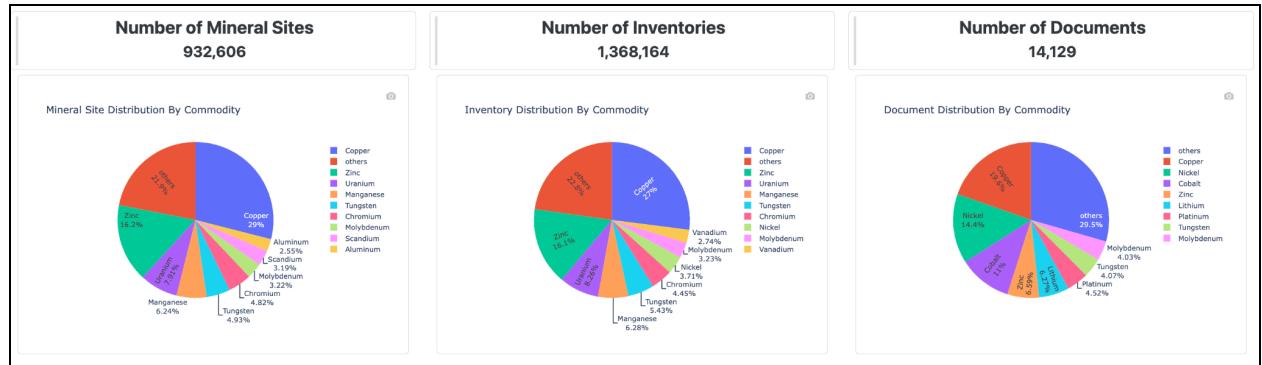
- Number of Mineral Sites
- Number of Inventories
- Number of Documents

2.2 Statistics : Distribution By Commodity

The MinMod also provides pie charts representing the distribution of the above with respect to the commodity.

It provides the following pie charts on the home page:

- Mineral Site distribution by commodity
- Inventories distribution by commodity
- Document distribution by commodity

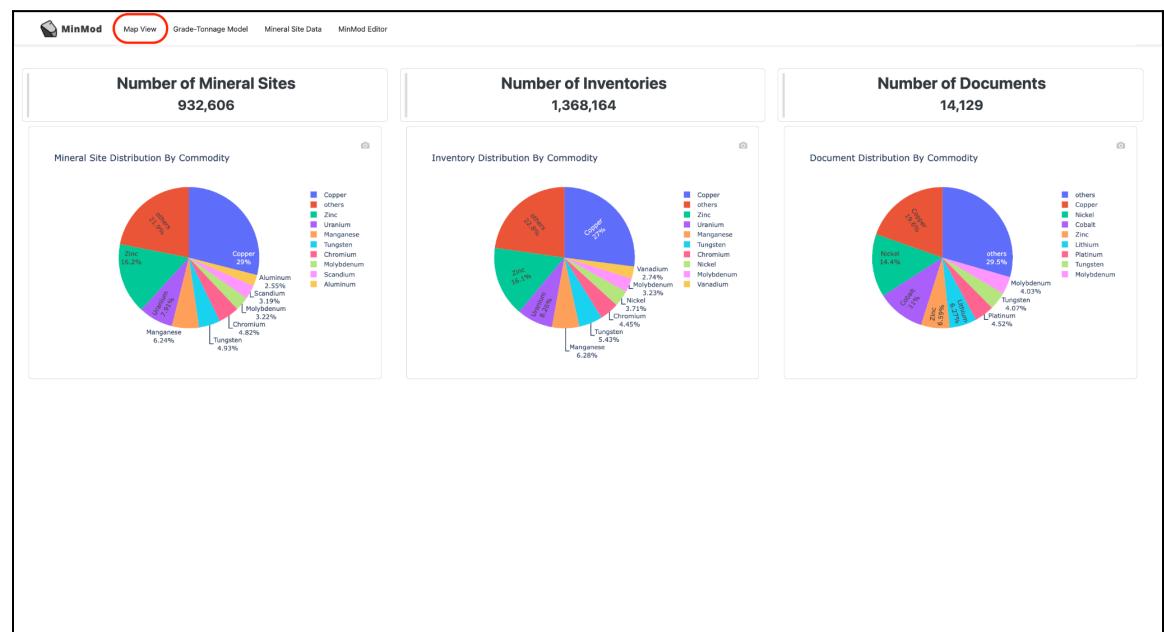


Section 3 Map View

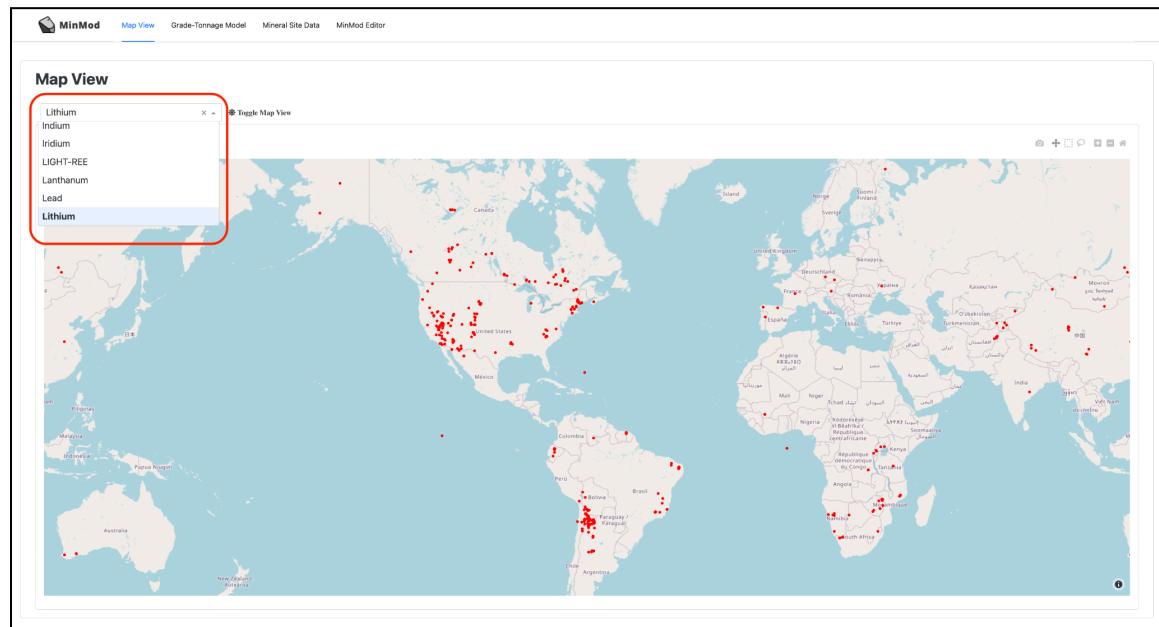
The map view provides features to visualize the distribution of mineral sites over a map, users can zoom into the map and get more detailed information about the mineral sites. This page also provides the users to toggle between street view map and satellite map.

3.1 Visualize Mineral Sites over a Map

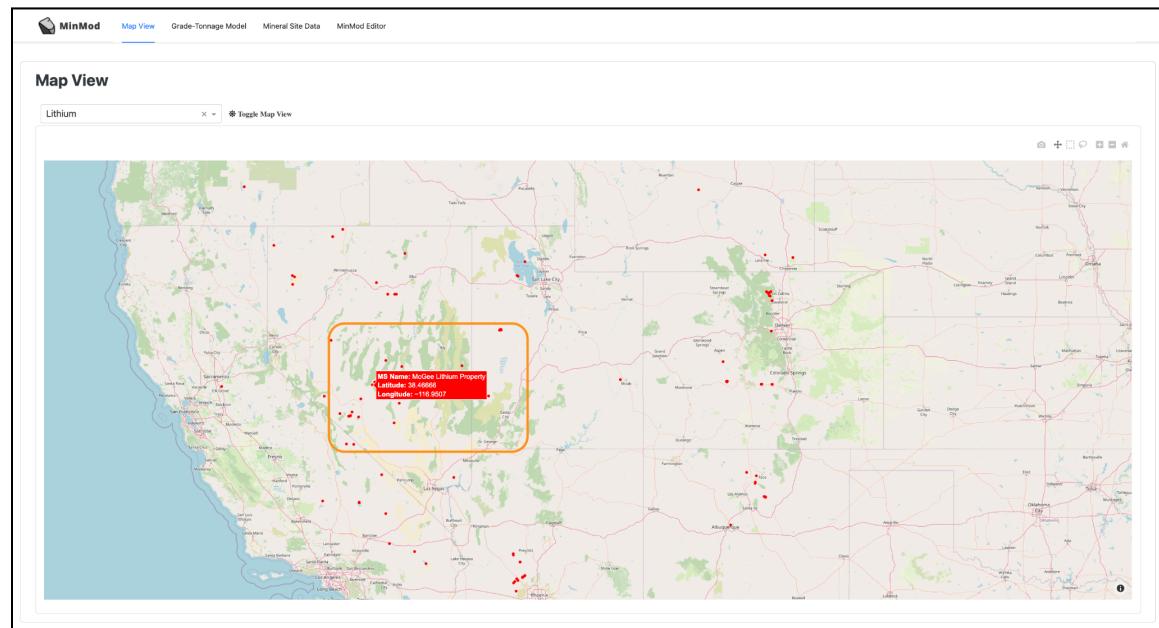
1. Go to <https://minmod.isi.edu> and select Map View Tab



2. Search for commodities of interest in the dropdown menu.



3. Zoom into the map by scrolling and hover on the points to get detailed information about the mineral site, latitude, and longitude.

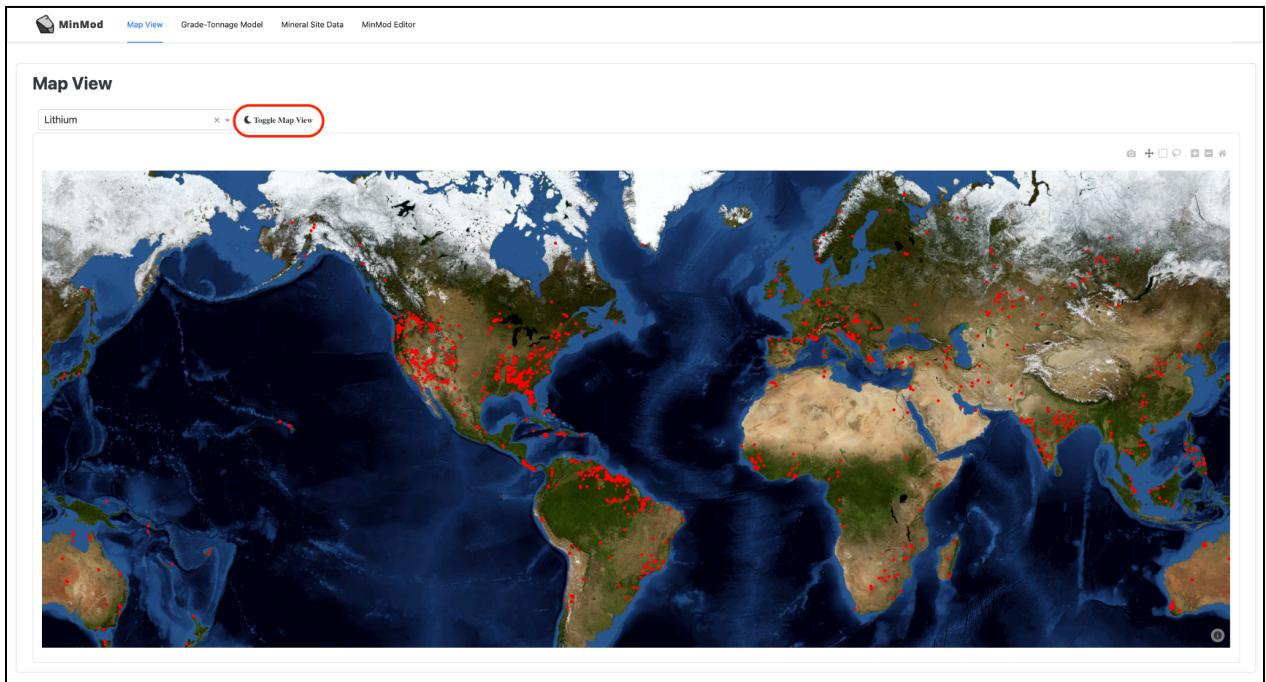


4. To obtain further details of the mineral site, click on the point to view the resource page.

md:dedup_site__api-cdr-land-v1-docs-documents_026ed1c44cd18311193b017df7e4dbf172a1b3e42885fb55436817c0780c7c433c
https://minmod.isi.edu/derived/dedup_site__api-cdr-land-v1-docs-documents_026ed1c44cd18311193b017df7e4dbf172a1b3e42885fb55436817c0780c7c433c
rdf:type mo:DedupMineralSite
md:commodity Lithium
md:site McGee
md:site McGee Lithium Clay Deposit
md:site McGee Lithium Property
md:site_commodity site_minmod-isu-edu-papers-lithium-in-nevada-simon-jowitt-2024_mcgee-9@Q569
md:site_commodity site_api-cdr-land-v1-docs-documents_026d32dd20c02fded5851ac031987c73f3fb5da90f69d9b82bcd44ec3d345d98f@Q569
md:site_commodity site_api-cdr-land-v1-docs-documents_026ed1c44cd18311193b017df7e4dbf172a1b3e42885fb55436817c0780c7c433c@Q569

3.2 Toggle Map

Click on the toggle map view button to toggle between street view map and satellite view map.

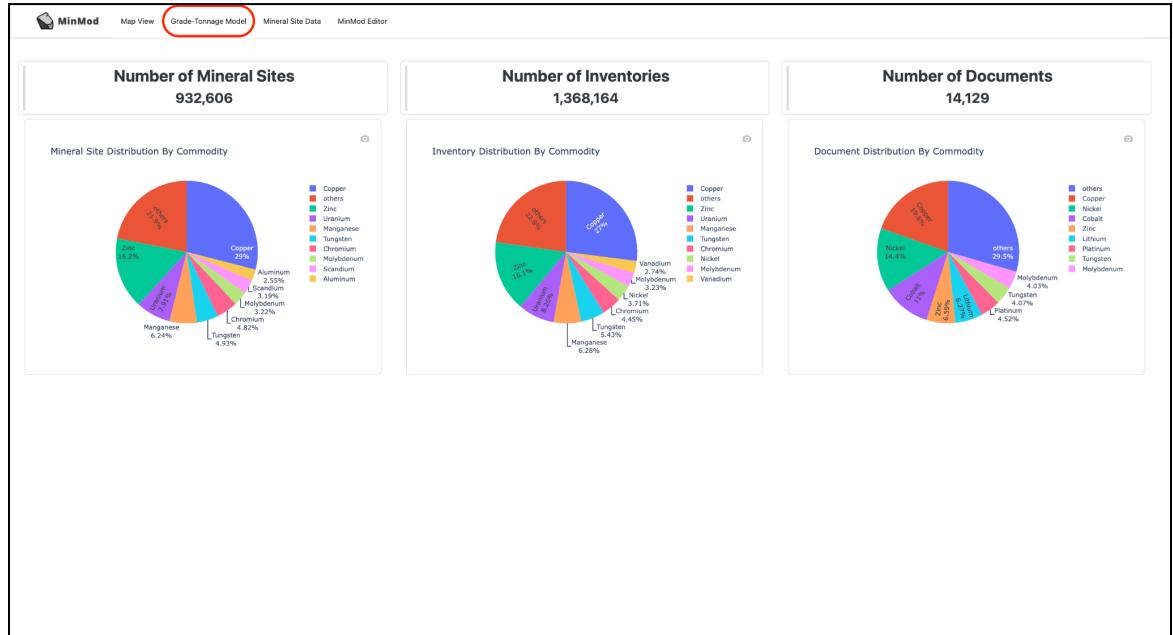


Section 4 Grade and Tonnage Model

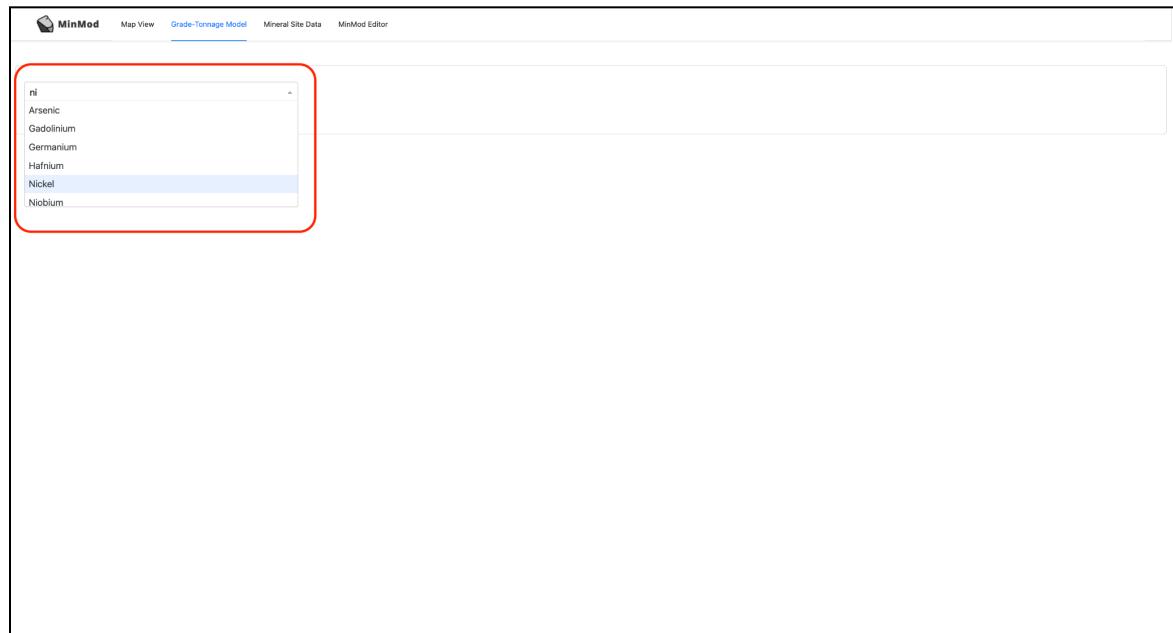
The Grade Tonnage Model section lets the users generate the GT model for the commodity of interest, filter based on deposit types, geo spatial aggregation and download the GT model data.

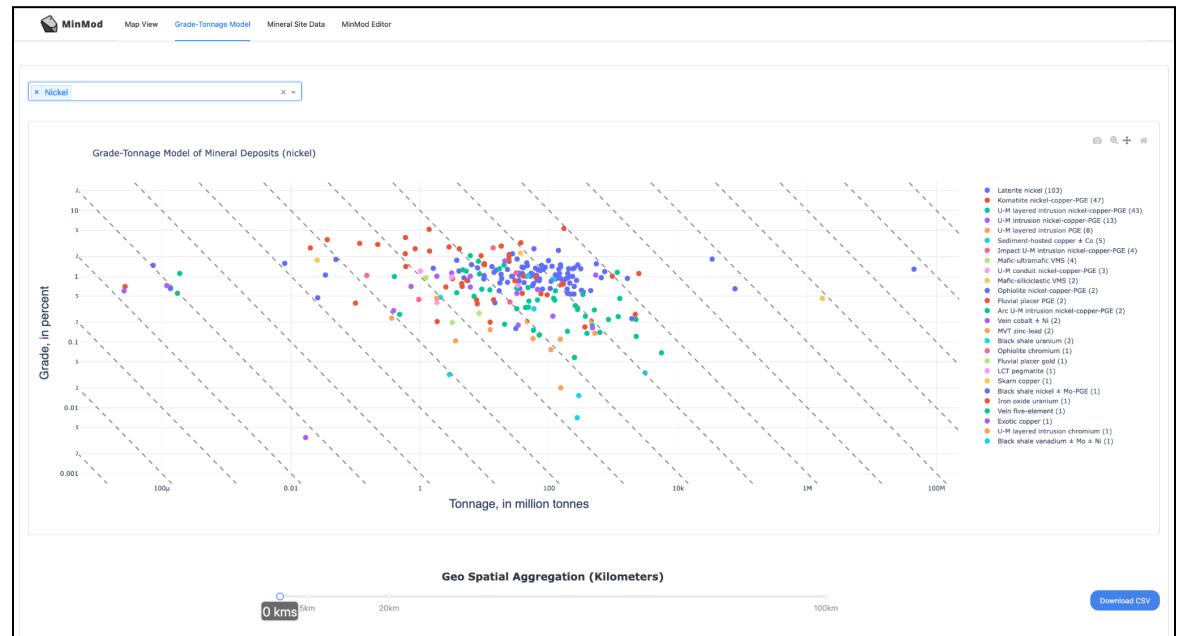
4.1 Generate Grade and Tonnage (GT) Model

1. Go to <https://minmod.isi.edu> and select Grade - Tonnage Model Tab.

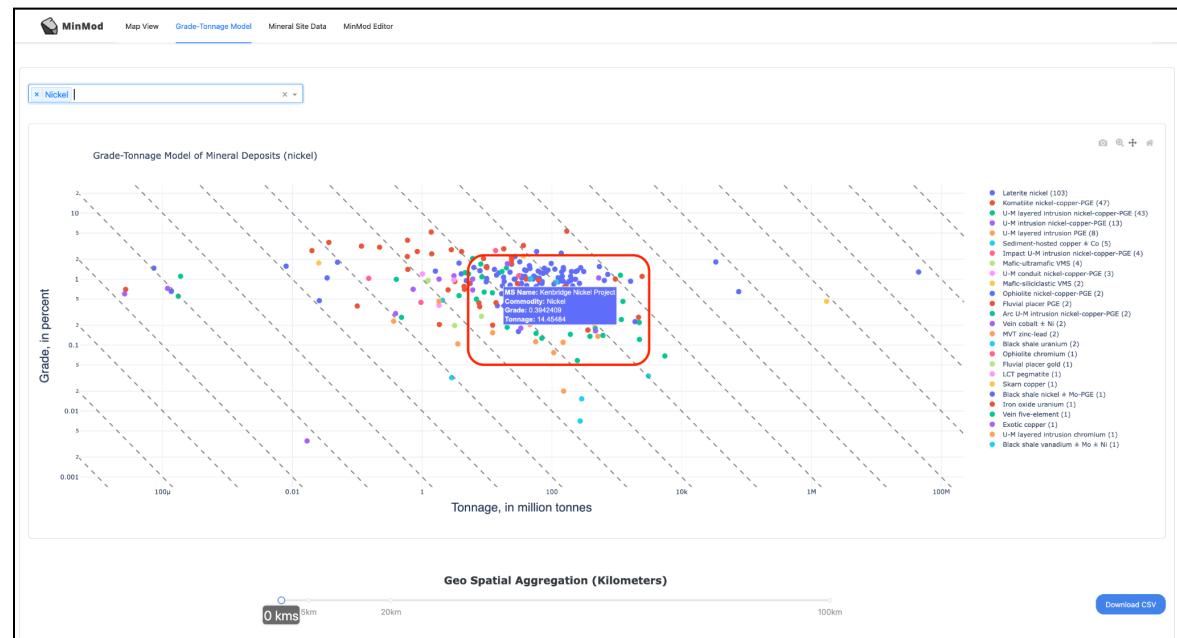


2. Select and search a commodity from the dropdown to display its grade-tonnage model.





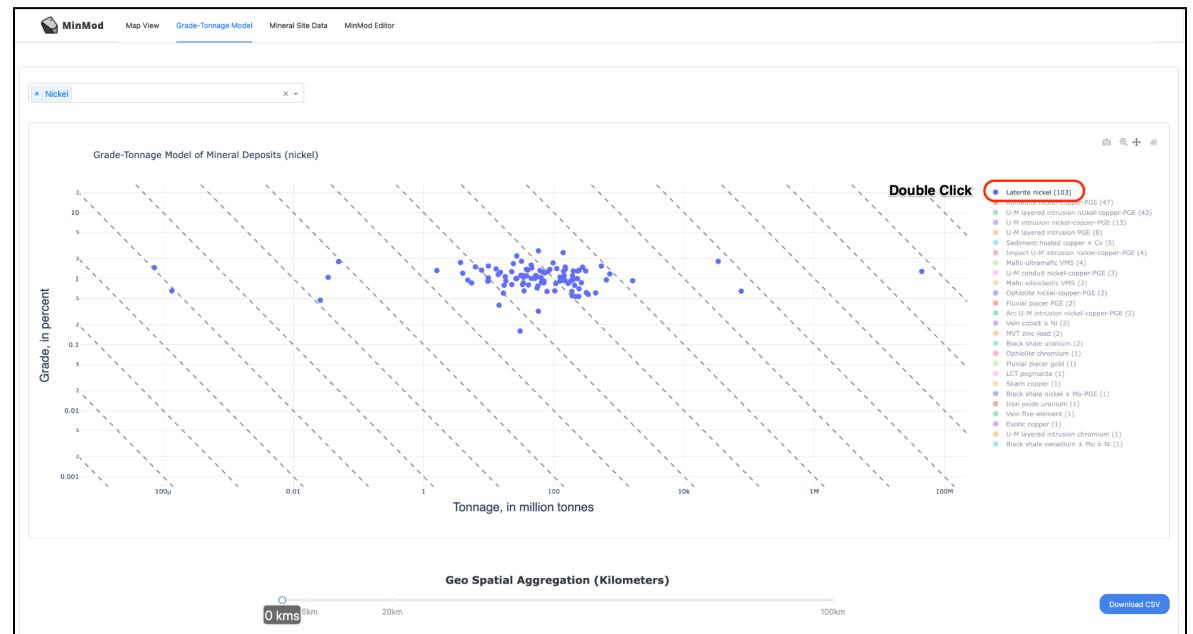
3. Hover on points to view mineral site details with grade and tonnage values; click a point to access mineral site resource details in a new tab.



md:dedup_site__api-cdr-land-v1-docs-documents_02a1910991522c100740878905f3cf4d12ec4efed17608d0a5f9aa9322cea14dfb
https://minmod.isi.edu/derived/dedup_site__api-cdr-land-v1-docs-documents_02a1910991522c100740878905f3cf4d12ec4efed17608d0a5f9aa9322cea14dfb
rdf:type mo:DedupMineralSite
md:commodity Nickel
md:commodity Copper
md:commodity Cobalt
md:site Kenbridge
md:site Kenbridge
md:site Kenbridge Nickel Project
site_doi-org-10-5382-econgeo-4950_kenbridge@Q538,Q578,Q537
md:site_commodity site_doi-org-10-5382-econgeo-2018-4590_kenbridge-504@Q538,Q578,Q537
md:site_commodity site_doi-org-10-5382-econgeo-2018-4590_kenbridge-504@Q538,Q578,Q537
md:site_commodity site_api-cdr-land-v1-docs-documents_02a1910991522c100740878905f3cf4d12ec4efed17608d0a5f9aa9322cea14dfb@Q578,Q538,Q537

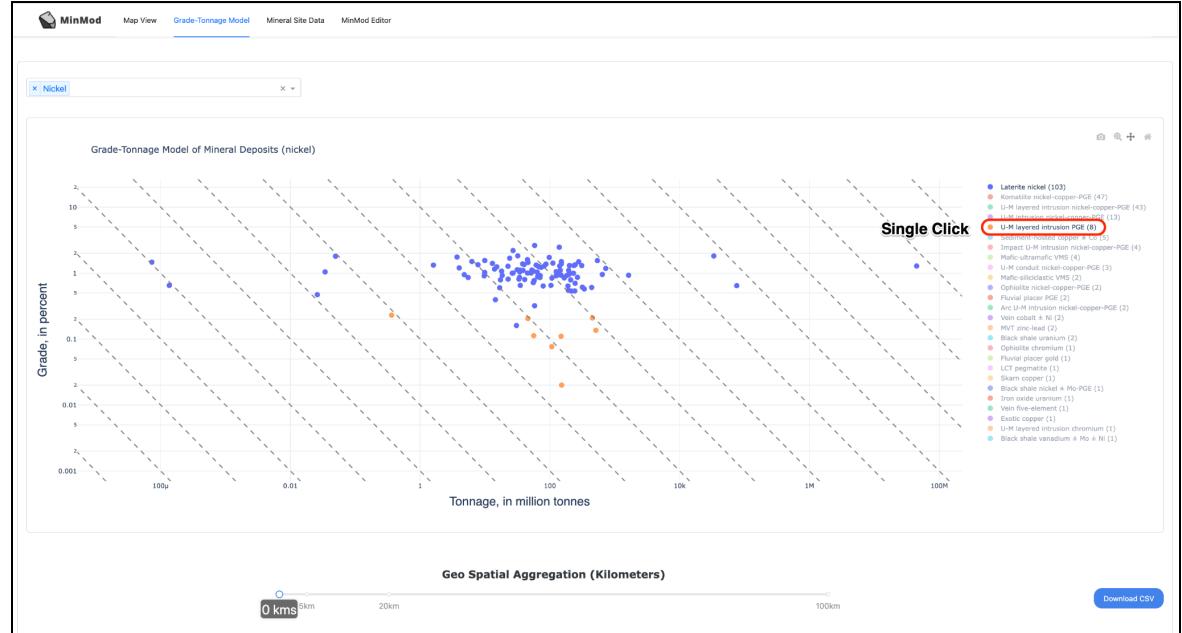
4.2 Filter by Deposit types

- On the right side of GT model we have Deposit type legend, **Double Click** on any of the deposit types to filter the data accordingly.



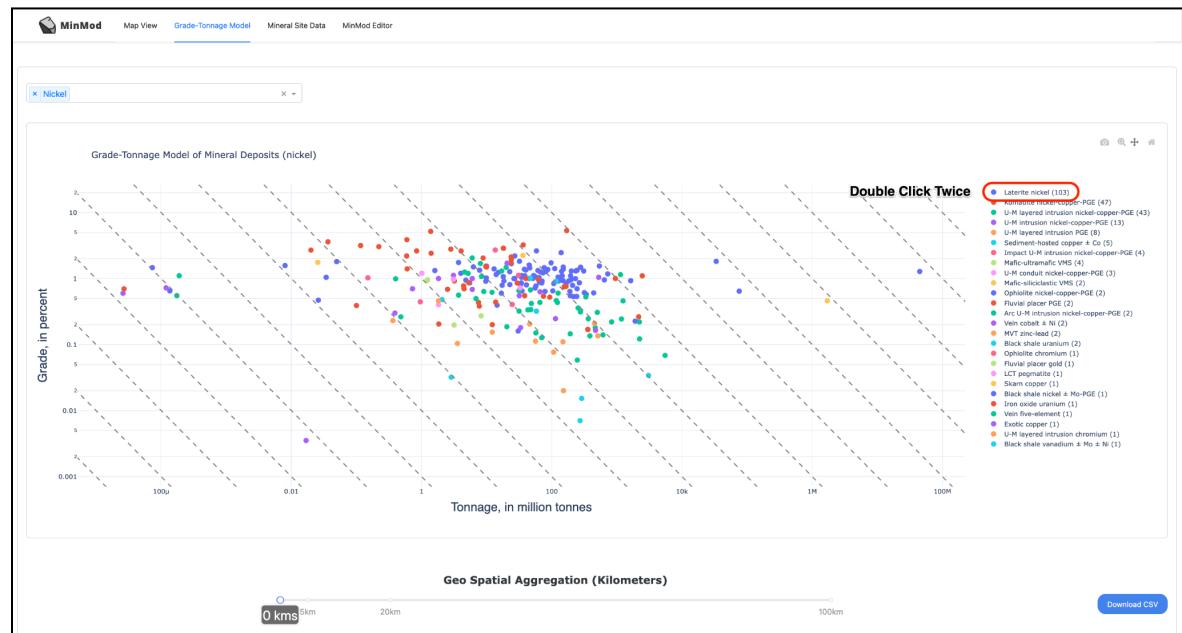
In the above example, double clicked on laterite nickel deposit type to filter the GT model view.

2. **Single Click** on any of the other deposit types to add the deposit type onto the GT model view.



In the above example, we single clicked on U-M Layered Intrusion PGE to add it onto the GT model View.

3. **Double click twice** again on the filtered deposit type to bring back all the deposit types to the GT model view.

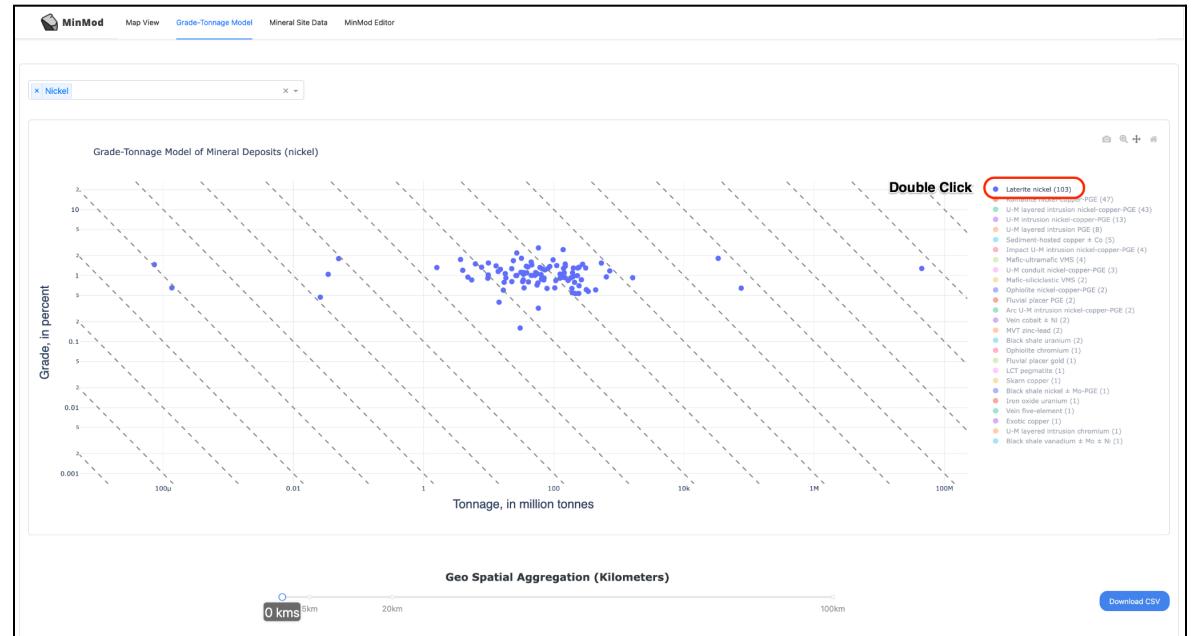


In the above example we double clicked the filtered deposit type (laterite nickel) to reset

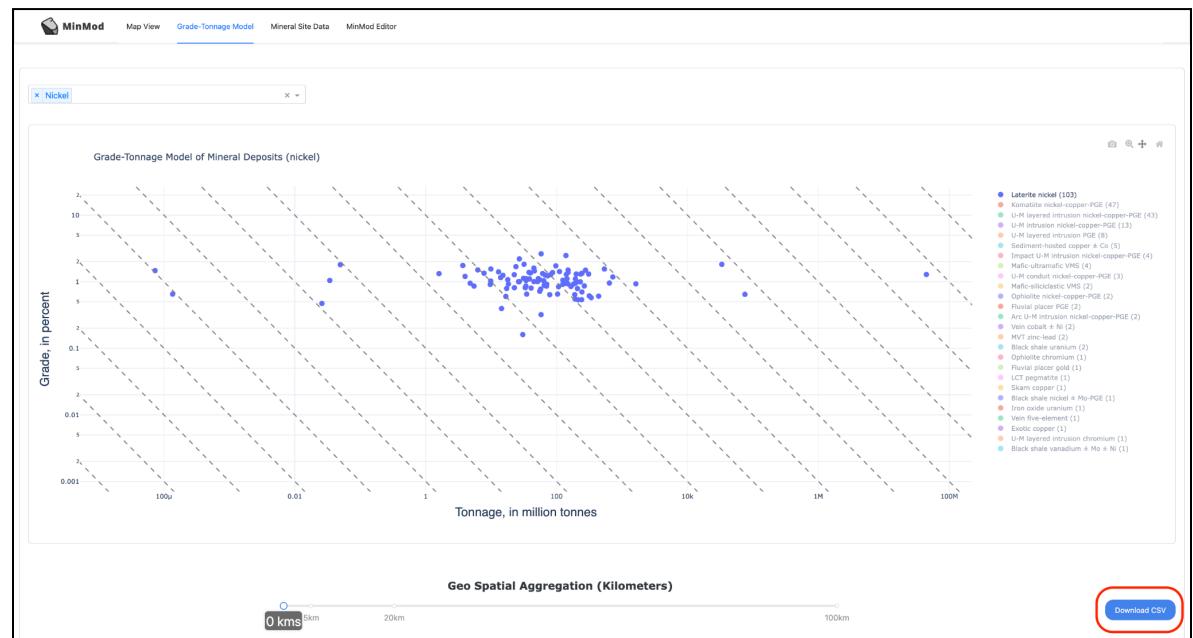
4.3 Download GT Data

1. Download Specific Deposit Data

- 1.1. Filter the data by double or single clicking on the required deposit type as mentioned above.



- 1.2. Click on the **Download CSV** button to download the GT model data in CSV format.

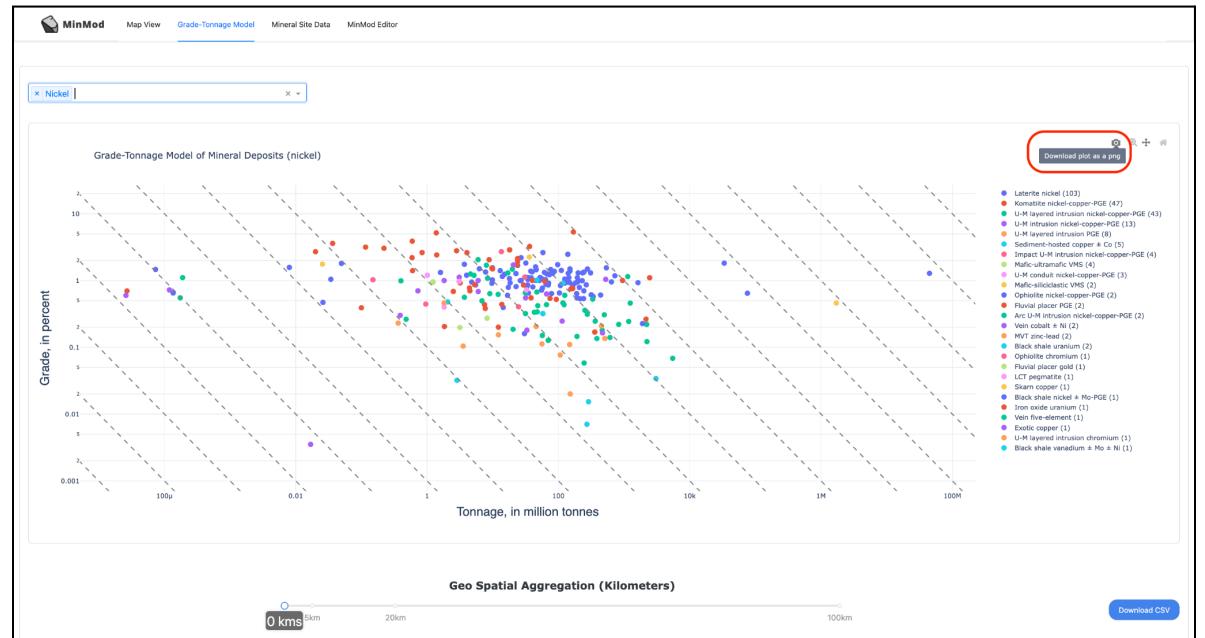


2.2. Download Data Preview.

The screenshot shows a Microsoft Excel spreadsheet titled "gt_data (10)". The data consists of approximately 35 rows of mineral site information, with columns labeled A through E. Column A contains URLs, column B contains names, column C contains latitudes (Q578), column D contains longitudes, and column E contains deposit names like "Laterite nickel". To the right of the spreadsheet is a filter sidebar titled "Deposit Name" with a list of deposit types. Many of these types have checkboxes next to them, and several checkboxes are highlighted with a red rectangle, indicating selected filters. The filter list includes: (Select All), Arc U-M intrusion nickel-copper-PGE, Black shale nickel ± Mo-PGE, Black shale uranium, Black shale vanadium ± Mo ± Ni, Exotic copper, Fluvial placer gold, Fluvial placer PGE, Impact U-M intrusion nickel-, Iron oxide uranium, Komatiite nickel-copper-PGE, Laterite nickel, LCT pegmatite, Mafic-siliciclastic VMS, Mafic-ultramafic VMS, MVT zinc-lead, Ophiolite chromium, Ophiolite nickel-copper-PGE, Sediment-hosted copper ± Co, Skarn copper, U-M conduct nickel-copper-PGE, U-M intrusion nickel-copper-PGE, U-M layered intrusion chromium, U-M layered intrusion nickel-, U-M layered intrusion PGE, Vein cobalt ± Ni, Vein cobalt ± Ni (2), Vein cobalt ± Ni (3), Vein cobalt ± Ni (4), Vein cobalt ± Ni (5), Vein cobalt ± Ni (6), Vein cobalt ± Ni (7), Vein cobalt ± Ni (8), Vein cobalt ± Ni (9), Vein cobalt ± Ni (10), Vein cobalt ± Ni (11), Vein cobalt ± Ni (12), Vein cobalt ± Ni (13), Vein cobalt ± Ni (14), Vein cobalt ± Ni (15), Vein cobalt ± Ni (16), Vein cobalt ± Ni (17), Vein cobalt ± Ni (18), Vein cobalt ± Ni (19), Vein cobalt ± Ni (20), Vein cobalt ± Ni (21), Vein cobalt ± Ni (22), Vein cobalt ± Ni (23), Vein cobalt ± Ni (24), Vein cobalt ± Ni (25), Vein cobalt ± Ni (26), Vein cobalt ± Ni (27), Vein cobalt ± Ni (28), Vein cobalt ± Ni (29), Vein cobalt ± Ni (30), Vein cobalt ± Ni (31), Vein cobalt ± Ni (32), Vein cobalt ± Ni (33), Vein cobalt ± Ni (34), Vein cobalt ± Ni (35). The "Auto Apply" button is checked, and the "Apply Filter" and "Clear Filter" buttons are visible at the bottom.

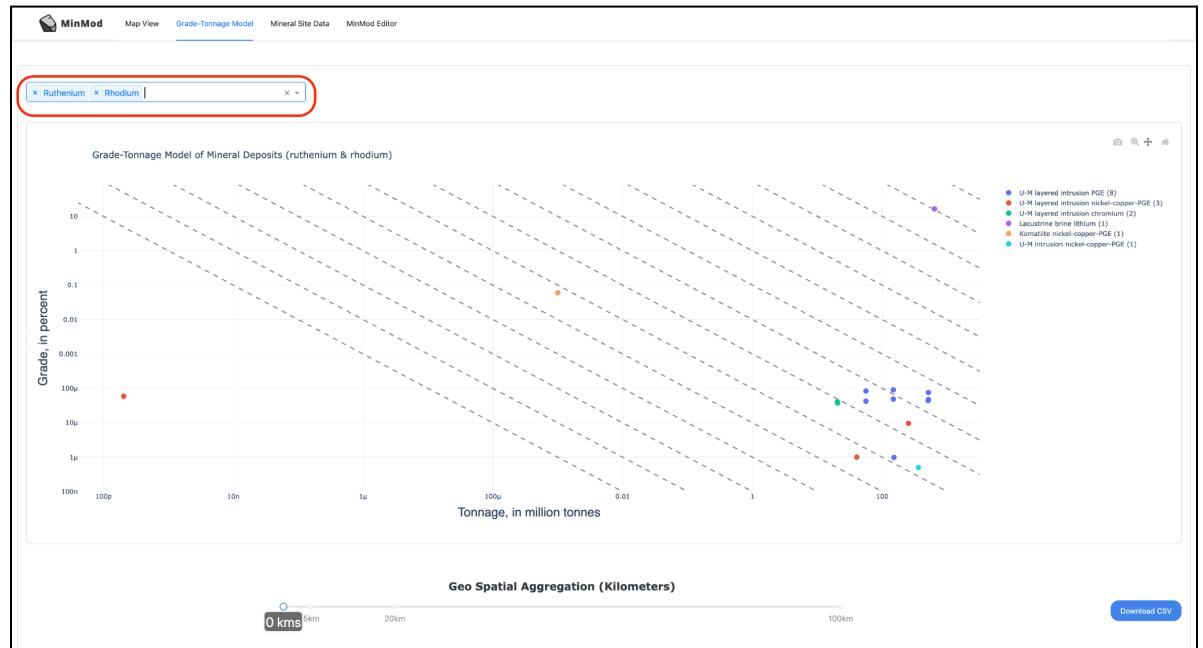
3. Extract GT Plot

3.1. Click on the download png button to extract the plot as a PNG.



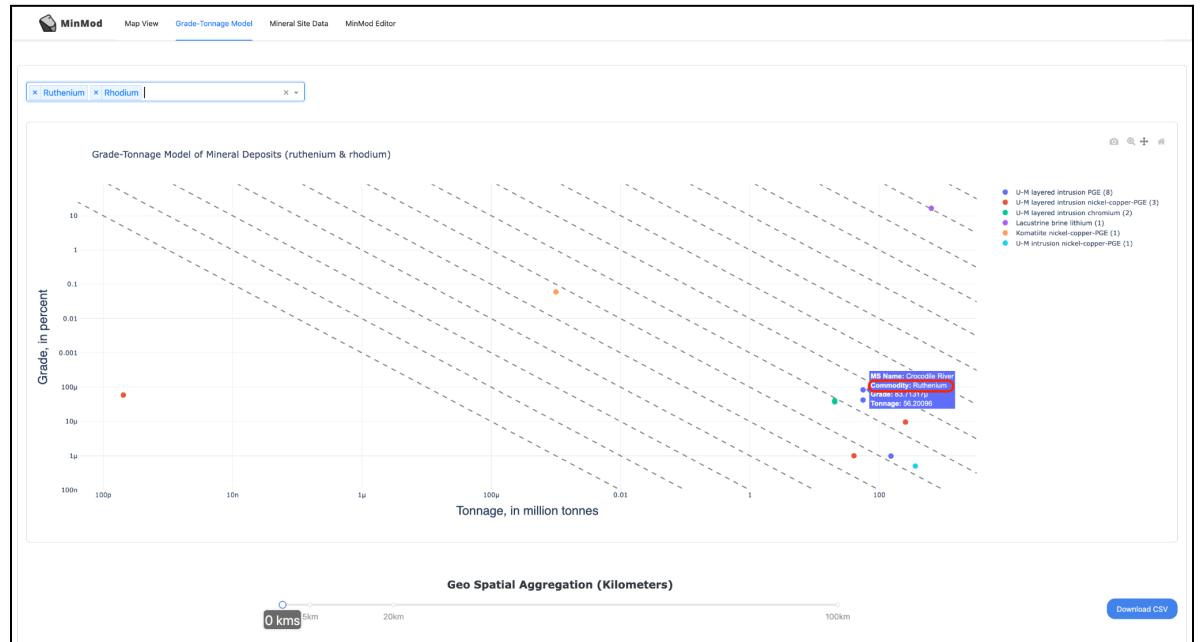
4.4 Generate Multi-Commodity GT Models

- The users can also generate GT models by selecting multiple commodities of interest.

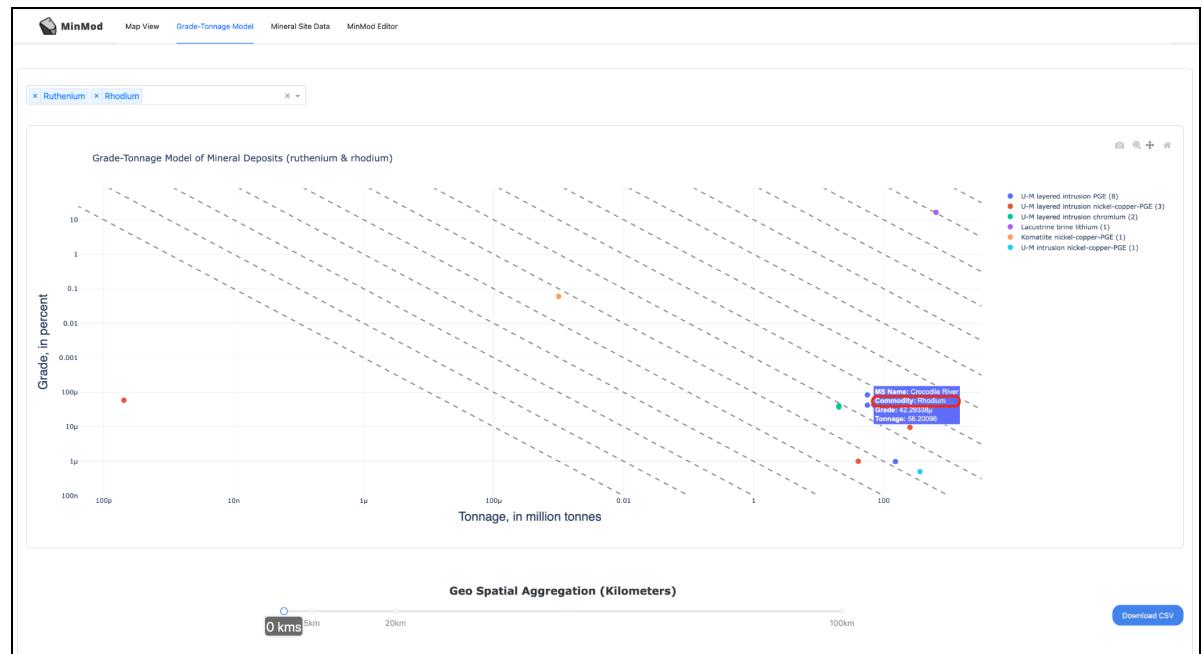


In the above example we have generated a multi commodity GT model for Ruthenium and Rhodium.

- Hover on the points to determine to which commodity the point belongs to.



On hovering on the above point we can see that it belongs to Ruthenium.

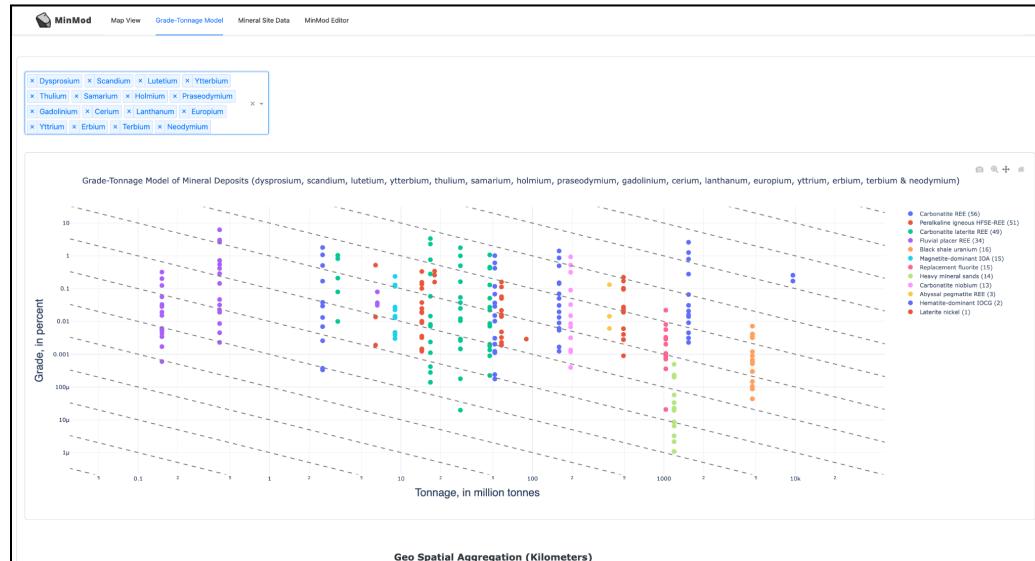


On hovering on the above point we can see that it belongs to Rhodium.

The dashboard also provides different group elements search for quick visualization of the GT Model

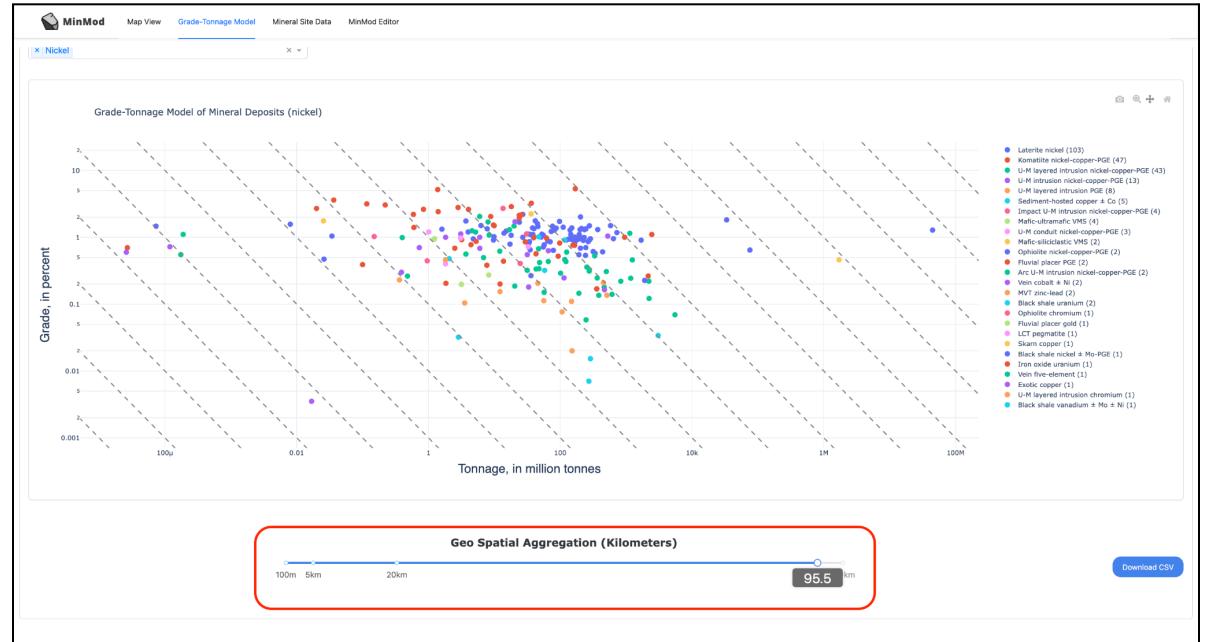
1. REE
2. HEAVY REE
3. LIGHT REE
4. PGE

Example : REE Minerals



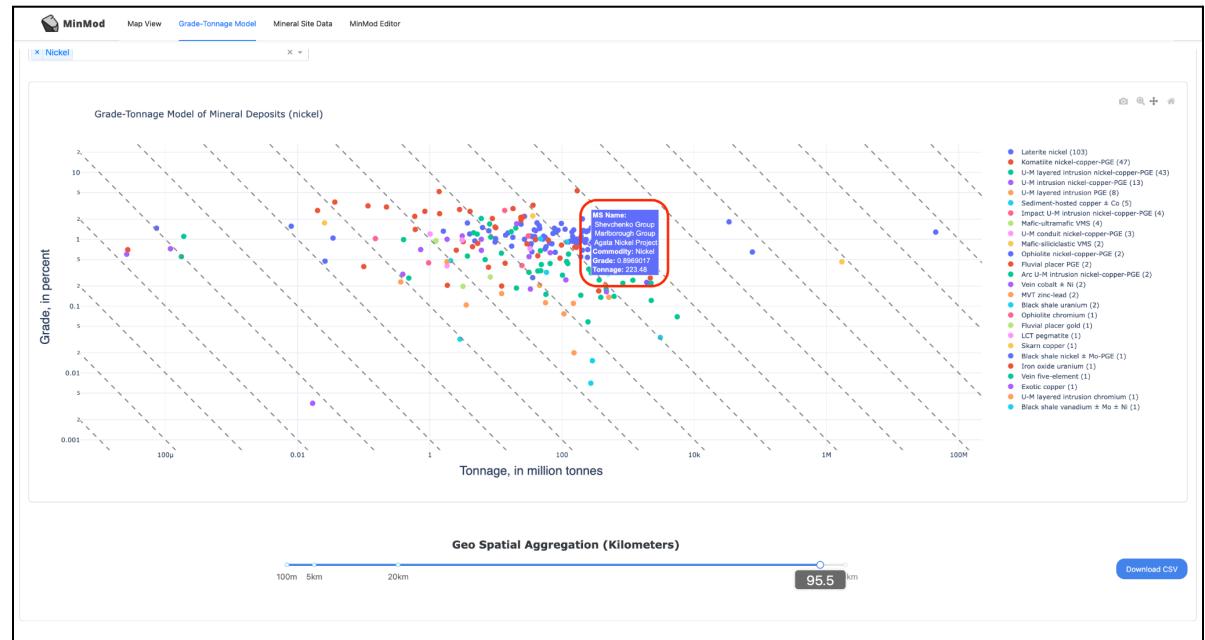
4.5 Geo Spatial Aggregation for GT Models

1. Generate a GT model and then move the slider below to set the proximity range.



In the above example, we have selected a proximity range of 95.5 km.

2. Hover on the point to see the mineral sites that have been spatially aggregated and contain their weighted averages of grade and tonnage.

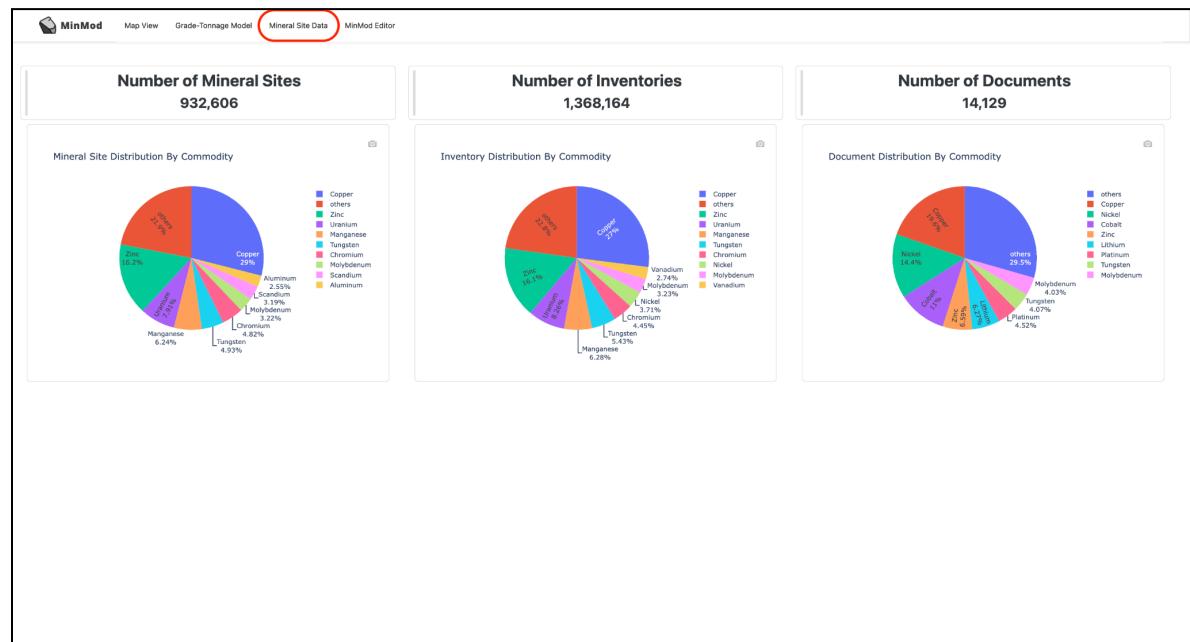


Section 5 Mineral Site Data

The mineral site data lets the user visualise the mineral site data based on the selected commodity of interest. It has several filter options to filter mineral site data and also download the required data in CSV format.

5.1 View Mineral Site Data

1. Go to <https://minmod.isi.edu> and select Mineral Site Data Tab.



2. Select and search a commodity from the dropdown to display the mineral site data.

The table displays 15 rows of mineral site data for Nickel. The columns include: Row ID, Mineral Site ID, Mineral Site Name, Mineral Site Type, Country, State/Province, Latitude, Longitude, Deposit Type, Deposit Type, Deposit Grade, Deposit Country, Total Grade, and Total Tonnes. The data shows various locations such as Greece, Alaska, and California, with different deposit types like Producer, Past Producer, Occurrence, Prospect, and Mine.

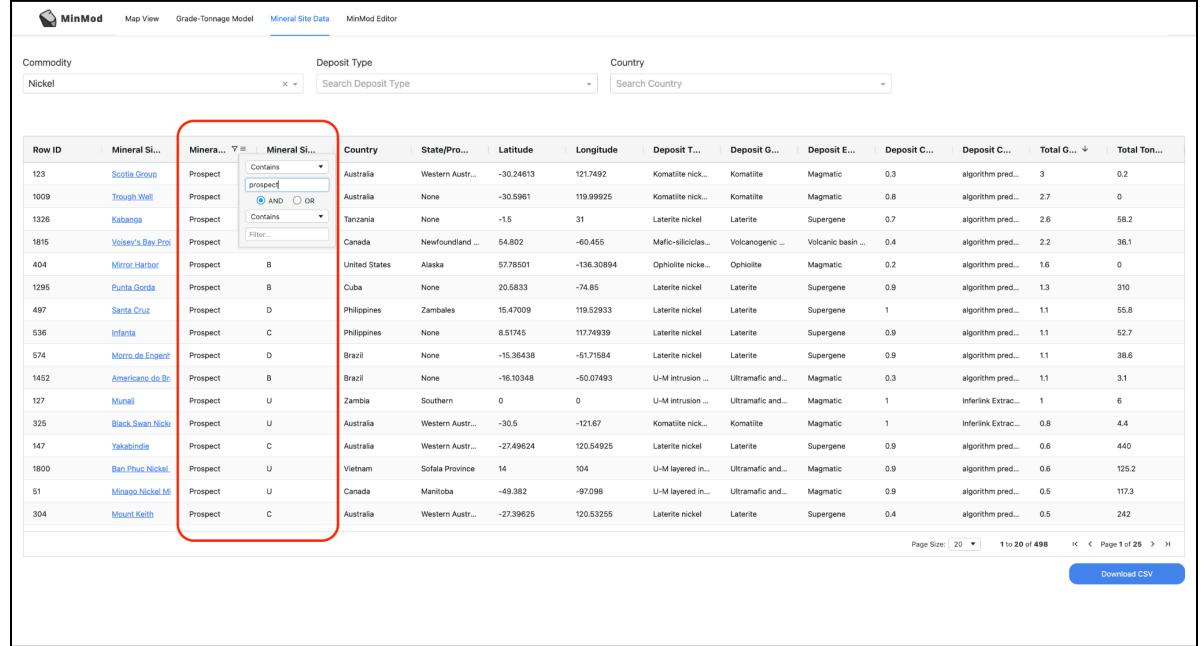
5.2 Filter Data

- Once a commodity is selected, the user can filter the data using the deposit type and country dropdowns.

Row ID	Mineral Si...	Mineral Si...	Mineral Si...	Country	State/Pro...	Latitude	Longitude	Deposit T...	Deposit G...	Deposit E...	Deposit C...	Total Grade	Total Ton...	
0	Ivanema	NotSpecified	U	Brazil	Minas Gerais	-19.88972222...	-41.735	Laterite nickel	Laterite	Supergene	0.9	algorithm pred...	1.2	4
1	Lagunay	NotSpecified	U	Philippines	None	14.01833333...	123.3125	Laterite nickel	Laterite	Supergene	0.9	algorithm pred...	0.6	35
2	Barro Alto	Producer	D	Brazil	None	-15.05	-48.8	Laterite nickel	Laterite	Supergene	1	algorithm pred...	1.3	81.5
3	Gornostal	NotSpecified	U	Kazakhstan	None	50.61222222...	76.75527777...	Laterite nickel	Laterite	Supergene	0.9	algorithm pred...	0.9	9.7
4	Agiou Ioannis	NotSpecified	U	Greece	None	38.50055555...	23.26194444...	Laterite nickel	Laterite	Supergene	0.9	algorithm pred...	0.8	57.1
5	Fenix Nickel Proj	NotSpecified	U	Guatemala	Ba	15.517	89.3661	Laterite nickel	Laterite	Supergene	1	Inferlink Extrac...	1.7	97.7
6	Buli	NotSpecified	U	Indonesia	None	0.84444444...	128.27388888...	Laterite nickel	Laterite	Supergene	0.9	algorithm pred...	1.1	194.6
7	Yakabindie	Prospect	C	Australia	Western Austr...	-27.49624	120.54925	Laterite nickel	Laterite	Supergene	0.9	algorithm pred...	0.6	440
8	Velvoro	NotSpecified	U	Madagascar	None	-20.9075	46.9975	Laterite nickel	Laterite	Supergene	0.9	algorithm pred...	1.7	3.7
9	Simileal	NotSpecified	U	India	None	21.67777777...	86.48083333...	Laterite nickel	Laterite	Supergene	0.5	algorithm pred...	1	27
10	Curral Hill Nick	NotSpecified	U	Dominican Rep...	Monsefor Nour...			Laterite nickel	Laterite	Supergene	1	Inferlink Extrac...	1.3	7.8
11	Shevchenko Gro	NotSpecified	U	Kazakhstan	None	51.8325	60.89972222...	Laterite nickel	Laterite	Supergene	0.9	algorithm pred...	0.8	107.4
12	Prony	NotSpecified	U	New Caledonia	None	-22.31638888...	166.80611111...	Laterite nickel	Laterite	Supergene	0.9	algorithm pred...	1.4	150
13	Casiluran	NotSpecified	U	Philippines	None	10.35166666...	125.61611111111	Laterite nickel	Laterite	Supergene	0.9	algorithm pred...	1	9.9
14	Sokary	Past Producer	C	Poland	None	50.99866	16.00223	Laterite nickel	Laterite	Supergene	0.9	algorithm pred...	0.6	16.8
15	Mayanquillo Proj	NotSpecified	U	Guatemala	None	14.6	-90.5	Laterite nickel	Laterite	Supergene	1	Inferlink Extrac...	1.3	245.3

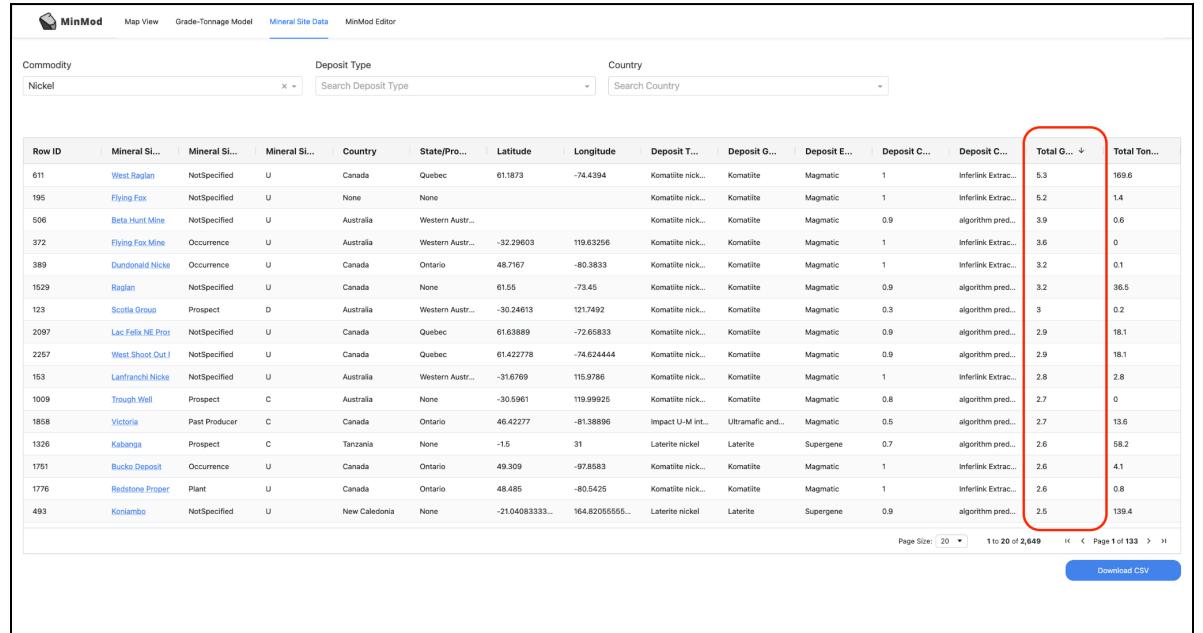
Row ID	Mineral Si...	Mineral Si...	Mineral Si...	Country	State/Pro...	Latitude	Longitude	Deposit T...	Deposit G...	Deposit E...	Deposit C...	Total Grade	Total Ton...	
0	FENIX	NotSpecified	U	Canada	Ontario			Laterite nickel	Laterite	Supergene	1	Inferlink Extrac...	1.8	33587.8
1	Old Nick Prospect	NotSpecified	U	Canada	British Columbia	49.0303	-120.3425	Laterite nickel	Laterite	Supergene	1	Inferlink Extrac...	0.2	30.5
2	Nickel King, Mair	NotSpecified	U	Canada	Northwest Terr...	60.26	-104.527	Laterite nickel	Laterite	Supergene	1	Inferlink Extrac...	0.3	58.1
3	Kenbridge Nickel	NotSpecified	U	Canada	None	49.483333	-93.633333	Laterite nickel	Laterite	Supergene	1	Inferlink Extrac...	0.4	14.5

2. Users can filter the data directly from the table by setting filter conditions over columns.



The screenshot shows a search interface with fields for Commodity (Nickel), Deposit Type (Search Deposit Type), and Country (Search Country). A red box highlights a dropdown menu for the 'Mineral Site...' column, which includes options like 'Contains' and 'prospect'. The main table displays various mineral site entries with columns for Row ID, Mineral Site ID, Mineral Site Name, Country, State/Province, Latitude, Longitude, Deposit Type, Deposit Grade, Deposit Epoch, Deposit Classification, Total Grade, and Total Tonnage.

3. Users can also click on the columns to sort the column data accordingly.



The screenshot shows a search interface with fields for Commodity (Nickel), Deposit Type (Search Deposit Type), and Country (Search Country). A red box highlights the 'Total Ton...' column header in the table, indicating it is sorted. The table displays various mineral site entries, similar to the first screenshot, but with the total tonnage column highlighted.

5.3 Download Mineral Site Data

- Once the mineral site data is available, click on the Download CSV button to download the data in CSV format.

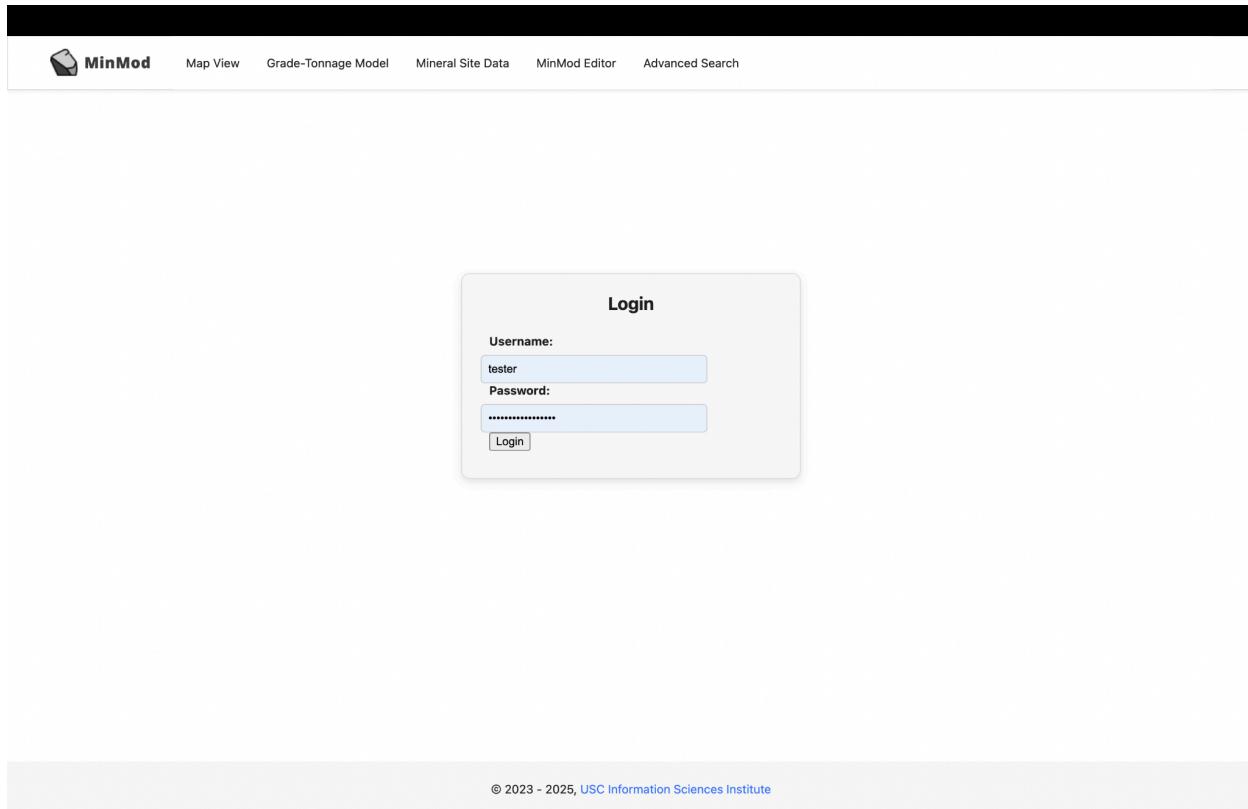
The screenshot shows the MinMod dashboard with the 'Mineral Site Data' tab selected. A search bar for 'Commodity' is set to 'Nickel'. The table lists 15 rows of mineral site data, including columns for Row ID, Mineral Site Name, Mineral Site Type, Country, State/Province, Latitude, Longitude, Deposit Type, Deposit Grade, and Total Grade. The 'Deposit Type' column shows values like 'Producer', 'Past Producer', 'Occurrence', 'Unknown', 'Prospect', and 'Mine'. The 'Country' column includes entries for Greece, United States, and Alaska. The 'Deposit Grade' and 'Total Grade' columns show values ranging from 0.3 to 1.0. At the bottom right of the table, there are pagination controls and a 'Download CSV' button, which is highlighted with a red box.

Section 6 Minmod Editor

The MinMod Editor Tab allows users to add and curate the mineral site data in the MinMod knowledge graph.

6.1 Login to the Editor

The first time you open the tab, it will prompt you to log in with your credentials. You can submit your request to create an account in this [form](#).



6.2 Search for Mineral Site Data

1. To find mineral sites containing a specific commodity, click the search box next to the Commodity label.

A screenshot of the MinMod dashboard showing the "MinMod Editor" tab selected. On the left, there is a search interface for "Commodity" with a dropdown menu showing options like Aluminum, Antimony, Arsenic, Bismuth, Chromium, Cobalt, Copper, and Graphite. A red box highlights this search dropdown. To the right of the search interface is a table with columns: Name, Location, Country, State/Province, Deposit Type, Dep. Score, Tonnage (Mt), Grade (%), and Action. The table currently displays the message "No data". At the top right of the dashboard, there is a "Add Mineral Site" button.

2. The related mineral sites will be displayed in a table with their attributes such as name, location, deposit types, and grade/tonnage. Each row shows a de-duplicated mineral site (also called dedup site) because a mineral site can be referred to in multiple reports or databases. MinMod uses [Fusemine](#) to link (or group) sites that are the same.

The screenshot shows the MinMod dashboard with the search term "Aluminum" entered in the "Commodity*" dropdown. The table has columns for Name, Type, Rank, Location, Country, State/Province, Deposit Type, Dep. Score, Tonnage (Mt), Grade (%), and Action. Nine rows of mineral sites are listed, each with an edit icon. The footer shows page navigation (1, 2, 3) and a copyright notice: "© 2023 - 2025, USC Information Sciences Institute".

	Name	Type	Rank	Location	Country	State/Province	Deposit Type	Dep. Score	Tonnage (Mt)	Grade (%)	Action	
<input type="checkbox"/>	Golden Wonder Property	NotSpecified	U	55.18300, -127.00000	Canada	British Columbia	Porphyry copper-molybdenum	0.1667	-	-	Edit	
<input type="checkbox"/>	-	NotSpecified	U	-	-	-	Black shale vanadium ± Mo ± Ni	1.0000	-	-	Edit	
<input type="checkbox"/>	Minago Nickel Mine	NotSpecified	U	-49.38200, -97.09800	Canada	Manitoba	U-M layered intrusion nickel-copper-PGE	0.5000	0.0000	0.11	Edit	
<input type="checkbox"/>	Mayaniquel Project	NotSpecified	U	14.60000, -90.50000	Guatemala	-	Laterite nickel	1.0000	115.6190	4.75	Edit	
<input type="checkbox"/>	Ravensthorpe Nickel Operations	NotSpecified	U	-33.00000, 120.00000	Australia	Western Australia	Laterite nickel	1.0000	0.0281	15.43	Edit	
<input type="checkbox"/>	Kuusamo Properties	NotSpecified	U	65.75000, 28.66670	Finland	-	U-M layered intrusion nickel-copper-PGE	0.3333	-	-	Edit	
<input type="checkbox"/>	Wellgreen Ni-Cu-Pt-Pd Project	NotSpecified	U	64.00000, -135.00000	Canada	Yukon	U-M layered intrusion nickel-copper-PGE	1.0000	-	-	Edit	
<input type="checkbox"/>	Nico Young Project	NotSpecified	U	-34.26670, 151.03750	Australia	New South Wales	Laterite nickel	1.0000	74.7000	5.50	Edit	
<input type="checkbox"/>	Agata Nickel Laterite Project	NotSpecified	U	-	Philippines	Norte Province	Surigao del Norte	Laterite nickel	1.0000	4.7870	2.29	Edit
<input type="checkbox"/>	West Raglan Property	NotSpecified	U	60.33330, -75.83330	Canada	Quebec	U-M conduit nickel-copper-PGE	1.0000	-	-	Edit	

3. A column is sortable if there is an up & down icon in its header, and users can sort by clicking on the column name.

The screenshot shows the MinMod dashboard with the search term "Nickel" entered in the "Commodity*" dropdown. The table has columns for Name, Type, Rank, Location, Country, State/Province, Deposit Type, Dep. Score, Tonnage (Mt), Grade (%), and Action. Six rows of mineral sites are listed, each with an edit icon. The "Tonnage (Mt)" column header is highlighted with a red box. The footer shows a copyright notice: "© 2023 - 2025, USC Information Sciences Institute".

	Name	Type	Rank	Location	Country	State/Province	Deposit Type	Dep. Score	Tonnage (Mt)	Grade (%)	Action
<input type="checkbox"/>	Gogota Ni-Co-Sc Project	NotSpecified	U	1.00000, 8.00000	Guinea	Lola Prefecture	Laterite nickel	1.0000	44890044.8900	1.28	Edit
<input type="checkbox"/>	Finn NickIO	NotSpecified	U	69.00000, 40.00000	United States	Alaska	-	-	1710000.0000	0.46	Edit
<input type="checkbox"/>	Nkamouna Cobalt Project	NotSpecified	U	5.00000, 13.10000	Cameroon	-	Laterite nickel	1.0000	75693.0000	0.64	Edit
<input type="checkbox"/>	FENIX	NotSpecified	U	-	Canada	Ontario	Laterite nickel	1.0000	33587.7810	1.82	Edit
<input type="checkbox"/>	Keivitsa	NotSpecified	U	0.00000, 0.00000	Finland	-	U-M layered intrusion nickel-copper-PGE	1.0000	5505.2700	0.07	Edit
<input type="checkbox"/>	Viken MMS Project	NotSpecified	U	63.07640, 14.27990	Sweden	Jämtland County	Black shale vanadium ± Mo ± Ni	0.3333	3062.0000	0.03	Edit

4. To find out sites that constitute a dedup site, click on the Edit button. For example, we see that the "*Nkamouna Cobalt Project*" dedup site is created by merging information from two different sites.

Commodity*: Nickel												Add Mineral Site
	Name	Type	Rank	Location	Country	State/Province	Deposit Type	Dep. Score	Tonnage (Mt)	Grade (%)	Action	
<input type="checkbox"/>	Gogota Ni-Co-Sc Project	NotSpecified	U	1.00000, 8.00000	Guinea	Lola Prefecture	Laterite nickel	1.0000	44890044.8900	1.28	Edit	
<input type="checkbox"/>	Finn NicklO	NotSpecified	U	69.00000, 40.00000	United States	Alaska	-	-	1710000.0000	0.46	Edit	
<input type="checkbox"/>	Nkamouna Cobalt Project	NotSpecified	U	5.00000, 13.10000	Cameroon	-	Laterite nickel	1.0000	75693.0000	0.64	Edit	

User	Select	Name	Location	CRS	Country	State/Province	Dep. Type	Dep. Confidence	Tonnage (Mt)	Grade (%)	Source
S 0.5	<input type="checkbox"/>	Nkamouna Cobalt Project	MULTIPOINT(13.1 5.0)	EPSG:4326	Cameroon		Laterite nickel	1.0000	75693.0000	0.64	NI 43-101 Technical ...
S 0.5	<input type="checkbox"/>	Nkamouna Cobalt Project		EPSG:4326	Cameroon		Laterite nickel	0.5000	52.7143	0.72	NI 43-101 Technical ...

5. Besides other information, such as who extracted the sites and the site scores (under the User column), name, and location, users can click on the little icon next to the source to view the original document of the extracted mineral site.

Commodity*: Nickel												Add Mineral Site
	Name	Type	Rank	Location	Country	State/Province	Deposit Type	Dep. Score	Tonnage (Mt)	Grade (%)	Action	
<input type="checkbox"/>	Gogota Ni-Co-Sc Project	NotSpecified	U	1.00000, 8.00000	Guinea	Lola Prefecture	Laterite nickel	1.0000	44890044.8900	1.28	Edit	
<input type="checkbox"/>	Finn NicklO	NotSpecified	U	69.00000, 40.00000	United States	Alaska	-	-	1710000.0000	0.46	Edit	
<input type="checkbox"/>	Nkamouna Cobalt Project	NotSpecified	U	5.00000, 13.10000	Cameroon	-	Laterite nickel	1.0000	75693.0000	0.64	Edit	

User	Select	Name	Location	CRS	Country	State/Province	Dep. Type	Dep. Confidence	Tonnage (Mt)	Grade (%)	Source
S 0.5	<input type="checkbox"/>	Nkamouna Cobalt Project	MULTIPOINT(13.1 5.0)	EPSG:4326	Cameroon		Laterite nickel	1.0000	75693.0000	0.64	NI 43-101 Technical ...
S 0.5	<input type="checkbox"/>	Nkamouna Cobalt Project		EPSG:4326	Cameroon		Laterite nickel	0.5000	52.7143	0.72	NI 43-101 Technical ...

In this example, it will open the PDF of the mining report

The screenshot shows a document viewer interface with a dark theme. At the top left is a red 'docs' logo with a 'new' badge. To its right are 'CDR' and a dropdown menu. Below the header are three blue buttons labeled 'Process', 'Select' (with a file icon), 'Select' (with a photo icon), and 'Select' (with a grid icon). The main area displays three pages of a document. The first page is titled 'NI 43-101 Technical Report Nkamouna Cobalt Project, Cameroon'. It includes a 'Prepared for' section for 'Geovic Ltd.', a date 'May 19, 2006', and a value '9402.00'. The second page is identical. The third page shows a large watermark of the 'pincock allen & holt' logo.

NI 43-101 Technical Report
Nkamouna Cobalt Project,
Cameroon

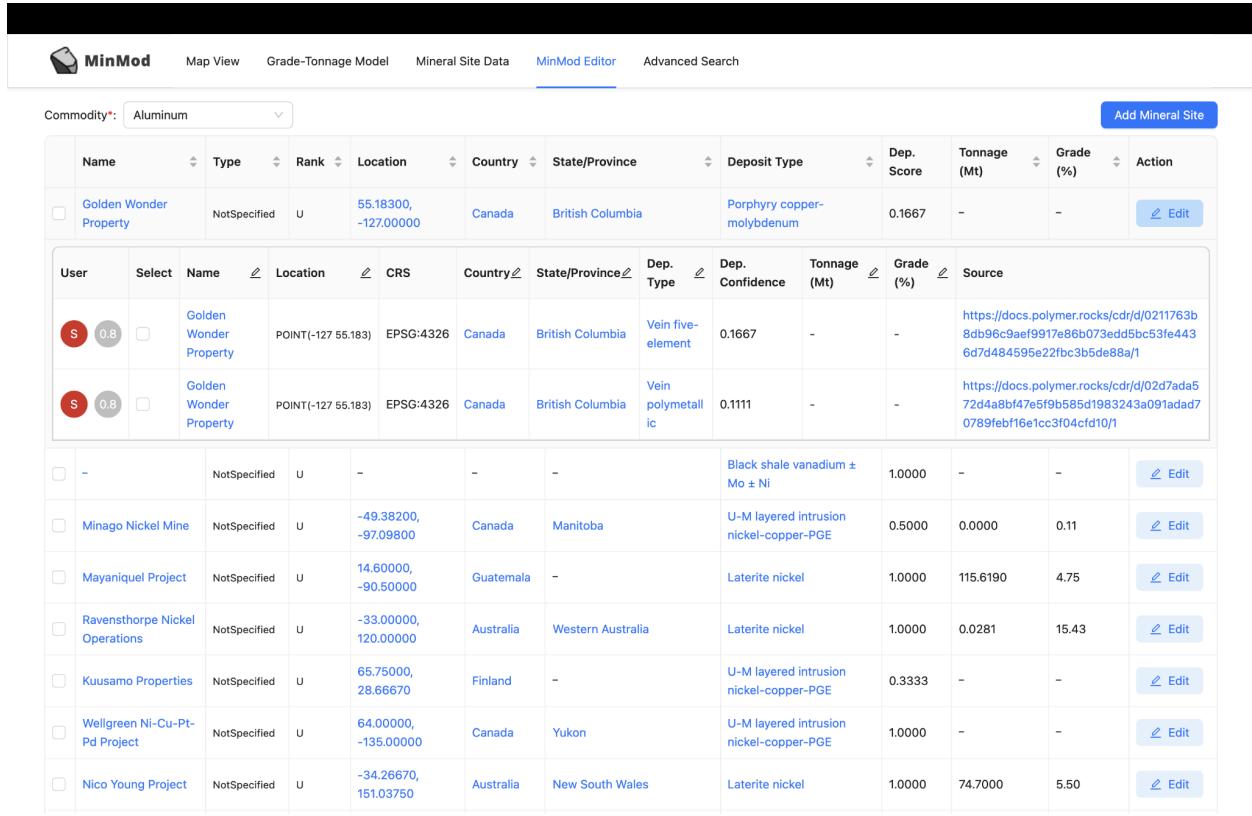
Prepared for
Geovic Ltd.

May 19, 2006
9402.00

pincock allen & holt

6.3 Edit Mineral Site Data

- To edit a (dedup) site, click the Edit button as shown in the Section 6.2 above.



The screenshot shows a table with the following data:

User	Select	Name	Location	CRS	Country	State/Province	Dep. Type	Dep. Confidence	Tonnage (Mt)	Grade (%)	Action	
S 0.8	<input type="checkbox"/>	Golden Wonder Property	POINT(-127 55.183)	EPSG:4326	Canada	British Columbia	Vein five-element	0.1667	-	-	Edit	
S 0.8	<input type="checkbox"/>	Golden Wonder Property	POINT(-127 55.183)	EPSG:4326	Canada	British Columbia	Vein polymetalllic	0.1111	-	-	Edit	
	<input type="checkbox"/>	-	NotSpecified	U	-	-	Black shale vanadium ± Mo ± Ni	1.0000	-	-	Edit	
	<input type="checkbox"/>	Minago Nickel Mine	NotSpecified	U	-49.38200, -97.09800	Canada	Manitoba	U-M layered intrusion nickel-copper-PGE	0.5000	0.0000	0.11	Edit
	<input type="checkbox"/>	Mayaniquel Project	NotSpecified	U	14.60000, -90.50000	Guatemala	-	Laterite nickel	1.0000	115.6190	4.75	Edit
	<input type="checkbox"/>	Ravensthorpe Nickel Operations	NotSpecified	U	-33.00000, 120.00000	Australia	Western Australia	Laterite nickel	1.0000	0.0281	15.43	Edit
	<input type="checkbox"/>	Kuusamo Properties	NotSpecified	U	65.75000, 28.66670	Finland	-	U-M layered intrusion nickel-copper-PGE	0.3333	-	-	Edit
	<input type="checkbox"/>	Wellgreen Ni-Cu-Pt-Pd Project	NotSpecified	U	64.00000, -135.00000	Canada	Yukon	U-M layered intrusion nickel-copper-PGE	1.0000	-	-	Edit
	<input type="checkbox"/>	Nico Young Project	NotSpecified	U	-34.26670, 151.03750	Australia	New South Wales	Laterite nickel	1.0000	74.7000	5.50	Edit

- Update fields such as grade, tonnage, location, or deposit type as needed by clicking on the edit icon on the corresponding columns. For instance, in the figure below, the site name is being updated. When making changes, you are required to provide a reference (e.g., the URL of a supporting document) for your information. Additionally, you can include a comment to further

explain your decision.

The screenshot shows the MinMod application interface. At the top, there are navigation links: Map View, Grade-Tonnage Model, Mineral Site Data, MinMod Editor (which is underlined, indicating it's the active page), and Advanced Search. Below this, a search bar has 'Commodity*: Aluminum' selected. The main area displays a list of mineral sites, including columns for Name, User, and Action. A modal window titled 'Edit Mineral Site' is open, prompting for 'Name' (set to 'westAluminum') and 'Reference' (set to 'http://localhost:3000/editor?commodity=Aluminum123456121'). There is also a 'Comment' field and a checkbox for 'This reference applies to all fields'. At the bottom of the modal are 'Save' and 'Cancel' buttons. The footer of the page includes a copyright notice: '© 2023 - 2025, USC Information Sciences Institute'.

3. Save your changes to ensure the data is updated.

The screenshot shows the MinMod Editor interface with the following details:

- Commodity:** Aluminum
- Table Headers:** Name, Type, Rank, Location, Country, State/Province, Deposit Type, Dep. Score, Tonnage (Mt), Grade (%), Action.
- Data Rows:**
 - west78: NotSpecified, U, 121.12000, 121.12000, Afghanistan, Badakhshan, Residual placer tin, 1.0000, 12.1200, 1.12, Edit
 - westAluminumFinal: NotSpecified, U, 121.12000, 121.12000, Afghanistan, Badakhshan, Residual placer tin, 1.0000, 12.1200, 1.12, Edit
 - westAluminumFinal (selected): User, Name, Location, CRS, Country, State/Province, Dep. Type, Dep. Confidence, Tonnage (Mt), Grade (%), Source. Details: POINT (121.12 121.12), Afghanistan, Badakhshan, Residual placer tin, 1.0000, 12.1200, 1.12, http://localhost:3000/editor?...
 - la: NotSpecified, U, 121.12000, 121.12000, Afghanistan, Badakhshan, Residual placer tin, 1.0000, 1.1200, 1.12, Edit
 - la: NotSpecified, U, 121.12000, 121.12000, Afghanistan, Badakhshan, Residual placer tin, 1.0000, 1.1200, 1.12, Edit
 - la: NotSpecified, U, 121.12000, 121.12000, Afghanistan, Badakhshan, Residual placer tin, 1.0000, 1.1200, 1.12, Edit
 - AluminumWest12: NotSpecified, U, 121.12000, 121.12000, United States, California, Fluvial placer niobium-tantalum, 1.0000, 12.1200, 1.12, Edit
 - Minago Nickel Mine: NotSpecified, U, -49.38200, -97.09800, Canada, Manitoba, U-M layered intrusion nickel-copper-PGE, 0.5000, 0.0000, 0.11, Edit
 - Golden Wonder Property: NotSpecified, U, 55.18300, -127.00000, Canada, British Columbia, Porphyry copper-molybdenum, 0.1667, -, -, Edit
- Pagination:** < 1 2 3 >

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6.4 Grouping and Ungrouping Sites

To group sites that are the same, perform the following steps:

1. Select the sites by clicking on the checkbox on the left

The screenshot displays the MinMod Editor interface. At the top, there are tabs for 'MinMod', 'Map View', 'Grade-Tonnage Model', 'Mineral Site Data', 'MinMod Editor' (which is active), and 'Advanced Search'. Below the tabs, a dropdown menu shows 'Commodity*: Aluminum'. A blue button labeled 'Add Mineral Site' is visible. Two tables of mineral site data are shown. The first table has columns for Name, Type, Rank, Location, Country, State/Province, Deposit Type, Dep. Score, Tonnage (Mt), Grade (%), and Action. It lists 'Golden Wonder Property' and 'Minago Nickel Mine' with checkboxes checked. The second table has similar columns and lists several other projects like 'Mayaniquel Project' and 'Ravensthorpe Nickel Operations'.

Name	Type	Rank	Location	Country	State/Province	Deposit Type	Dep. Score	Tonnage (Mt)	Grade (%)	Action
<input checked="" type="checkbox"/> Golden Wonder Property	NotSpecified	U	55.18300, -127.00000	Canada	British Columbia	Porphyry copper-molybdenum	0.1667	-	-	Edit
<input checked="" type="checkbox"/> Minago Nickel Mine	NotSpecified	U	-49.38200, -97.09800	Canada	Manitoba	U-M layered intrusion nickel-copper-PGE	0.5000	0.0000	0.11	Edit

Name	Type	Rank	Location	Country	State/Province	Deposit Type	Dep. Score	Tonnage (Mt)	Grade (%)	Action
<input checked="" type="checkbox"/> Golden Wonder Property	NotSpecified	U	55.18300, -127.00000	Canada	British Columbia	Porphyry copper-molybdenum	0.1667	-	-	Edit
<input type="checkbox"/> -	NotSpecified	U	-	-	-	Black shale vanadium ± Mo ± Ni	1.0000	-	-	Edit
<input checked="" type="checkbox"/> Minago Nickel Mine	NotSpecified	U	-49.38200, -97.09800	Canada	Manitoba	U-M layered intrusion nickel-copper-PGE	0.5000	0.0000	0.11	Edit
<input type="checkbox"/> Mayaniquel Project	NotSpecified	U	14.60000, -90.50000	Guatemala	-	Laterite nickel	1.0000	115.6190	4.75	Edit
<input type="checkbox"/> Ravensthorpe Nickel Operations	NotSpecified	U	-33.00000, 120.00000	Australia	Western Australia	Laterite nickel	1.0000	0.0281	15.43	Edit
<input type="checkbox"/> Kuusamo Properties	NotSpecified	U	65.75000, 28.66670	Finland	-	U-M layered intrusion nickel-copper-PGE	0.3333	-	-	Edit
<input type="checkbox"/> Wellgreen Ni-Cu-Pt-Pd Project	NotSpecified	U	64.00000, -135.00000	Canada	Yukon	U-M layered intrusion nickel-copper-PGE	1.0000	-	-	Edit
<input type="checkbox"/> Nico Young Project	NotSpecified	U	-34.26670, 151.03750	Australia	New South Wales	Laterite nickel	1.0000	74.7000	5.50	Edit

2. Click the Group button to combine them into a single group

The screenshot displays two tables from the MinMod dashboard. The top table lists geological features: 'la' (NotSpecified, U), 'AluminumWest' (NotSpecified, U), and 'Minago Nickel Mine' (NotSpecified, U). The bottom table lists mineral deposits: 'Minago Nickel Mine' (0.8 confidence), 'Minago Nickel Property' (0.8 confidence), 'Golden Wonder Property' (0.8 confidence), and another 'Golden Wonder Property' entry (0.8 confidence). Both tables include columns for User, Select, Name, Location, CRS, Country, State/Province, Dep. Type, Dep. Confidence, Tonnage (Mt), Grade (%), and Source.

User	Select	Name	Location	CRS	Country	State/Province	Dep. Type	Dep. Confidence	Tonnage (Mt)	Grade (%)	Source
S 0.8	<input type="checkbox"/>	Minago Nickel Mine	POINT(-97.098 -49.382)	EPSG:4326	Canada	Manitoba	U-M layered intrusion nickel-copper-PGE	0.5000	0.0000	0.11	https://docs.polymer.rocks/cdr/d/02d056136c331c6ec665ce36afab0169aedf1813c123740404946b412f8300df632/1
S 0.8	<input type="checkbox"/>	Minago Nickel Property	POINT(-97.1577 49.8951)		Canada	Manitoba	Volcanic-hosted copper	0.0588	-	-	https://docs.polymer.rocks/cdr/d/02ad3e9246df19d58b68751eb9e1e49bf8631d31c1c70d9737647bfab306354fa0cf/1
S 0.8	<input type="checkbox"/>	Golden Wonder Property	POINT(-127 55.183)	EPSG:4326	Canada	British Columbia	Vein five-element	0.1667	-	-	https://docs.polymer.rocks/cdr/d/0211763b8db96c9aef9917e86b073edd5bc53fe4436d7d484595e22fbcc3b5de88a/1
S 0.8	<input type="checkbox"/>	Golden Wonder Property	POINT(-127 55.183)	EPSG:4326	Canada	British Columbia	Vein polymetallic	0.1111	-	-	https://docs.polymer.rocks/cdr/d/02d7ada572d4a8bf47e5f9b585d1983243a091dadad70789febf16e1cc3f04cf10/1

< 1 2 3 >

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To ungroup sites, perform the following steps:

1. Click the edit button of a mineral site

The screenshot shows a table of mineral sites with columns for ID, Name, Location, CRS, Country, State/Province, Dep. Type, Dep. Confidence, Tonnage (Mt), Grade (%), and Source. The 'Minago Nickel Mine' entry is selected, highlighted with a red circle and a checked checkbox. Below the table, there are two buttons: 'Ungroup Separately' and 'Ungroup Together'. The 'Ungroup Together' button is highlighted with a blue border.

User	Select	Name	Location	CRS	Country	State/Province	Dep. Type	Dep. Confidence	Tonnage (Mt)	Grade (%)	Source
S 0.8	<input checked="" type="checkbox"/>	Minago Nickel Mine	POINT(-97.098 -49.382)	EPSG:4326	Canada	Manitoba	U-M layered intrusion nickel-copper-PGE	0.5000	0.0000	0.11	https://docs.polymer.rocks/cdr/d/02d056136c31c6ec665ce36afab169aedf1813c123740404946b412f8300df632/1
S 0.8	<input checked="" type="checkbox"/>	Minago Nickel Property	POINT(-97.1577 49.8951)		Canada	Manitoba	Volcanic-hosted copper	0.0588	-	-	https://docs.polymer.rocks/cdr/d/02ad3e9246df19d58b68751eb9e1e49bf8631d31c70d9737647bfab306354fa0cf/1
S 0.8	<input type="checkbox"/>	Golden Wonder Property	POINT(-127 55.183)	EPSG:4326	Canada	British Columbia	Vein five-element	0.1667	-	-	https://docs.polymer.rocks/cdr/d/0211763b8db96c9aef9917e86b073edd5bc53fe4436d7d484595e22fbcc3b5de88a/1
S 0.8	<input type="checkbox"/>	Golden Wonder Property	POINT(-127 55.183)	EPSG:4326	Canada	British Columbia	Vein polymetallic	0.1111	-	-	https://docs.polymer.rocks/cdr/d/02d7ada572d4a8bf47e5f9b585d1983243a091dadad70789f6bf16e1cc3f04cf10/1

< 1 2 3 >

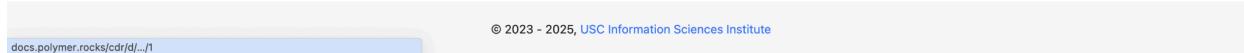
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[...isi.edu/](http://isi.edu/) /site/_api-cdr-land-v1-docs-documents_02d7ada572d4a8bf47e5f9b...

2. Click the checkboxes of the sites that you want to ungroup (i.e., move out of the current group). You will have two ungroup options: ungroup separately, and ungroup together. The ungroup separately option will move the N selected sites as N separated groups (the selected sites are not the same). The ungroup together option will move the N selected sites as a single group (the

selected sites are the same).

									Score	(Mt)	(%)	
User	Select	Name	Location	CRS	Country	State/Province	Dep. Type	Dep. Confidence	Tonnage (Mt)	Grade (%)	Source	
S 0.8	<input type="checkbox"/>	Minago Nickel Mine	POINT(-97.098 -49.382)	EPSG:4326	Canada	Manitoba	U-M layered intrusion nickel-copper-PGE	0.5000	0.0000	0.11	https://docs.polymer.rocks/cdr/d/02d056136c531c6ec665ce36abfb0169aedf1813c123740404946b412f8300df632/l	
S 0.8	<input type="checkbox"/>	Minago Nickel Property	POINT(-97.1577 49.8951)		Canada	Manitoba	Volcanic-hosted copper	0.0588	-	-	https://docs.polymer.rocks/cdr/d/0ad3e9246df19d58b68751eb9e1e49bf8631d31c70d9737647bfab306354fa0c/l	
	<input type="checkbox"/>	Golden Wonder Property	NotSpecified	U	55.18300, -127.00000	Canada	British Columbia	Porphyry copper-molybdenum	0.1667	-	-	<input type="button" value="Edit"/>

< 1 2 3 >



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docs.polymer.rocks/cdr/d/.../l

6.5 Adding New Mineral Site

- Click on the Add New Site button in the dashboard.

Name	Type	Rank	Location	Country	State/Province	Deposit Type	Dep. Score	Tonnage (MT)	Grade (%)	Action	
Golden Wonder Property	NotSpecified	U	55.18300, -127.00000	Canada	British Columbia	Porphyry copper-molybdenum	0.1667	-	-	Edit	
-	NotSpecified	U	-	-	-	Black shale vanadium ± Mo ± Ni	1.0000	-	-	Edit	
Minago Nickel Mine	NotSpecified	U	-49.38200, -97.09800	Canada	Manitoba	U-M layered intrusion nickel-copper-PGE	0.5000	0.0000	0.11	Edit	
Mayaniquel Project	NotSpecified	U	14.60000, -90.50000	Guatemala	-	Laterite nickel	1.0000	115.6190	4.75	Edit	
Ravensthorpe Nickel Operations	NotSpecified	U	-33.00000, 120.00000	Australia	Western Australia	Laterite nickel	1.0000	0.0281	16.43	Edit	
Kuusamo Properties	NotSpecified	U	65.75000, 28.66670	Finland	-	U-M layered intrusion nickel-copper-PGE	0.3333	-	-	Edit	
Wellgreen Ni-Cu-Pt-Pd Project	NotSpecified	U	64.00000, -135.00000	Canada	Yukon	U-M layered intrusion nickel-copper-PGE	1.0000	-	-	Edit	
Nico Young Project	NotSpecified	U	-34.26670, 151.03750	Australia	New South Wales	Laterite nickel	1.0000	74.7000	5.50	Edit	
Agata Nickel Laterite Project	NotSpecified	U	-	Philippines	Norte Province	Surigao del Norte	Laterite nickel	1.0000	4.7870	2.29	Edit
West Raglan Property	NotSpecified	U	60.33330, -75.83330	Canada	Quebec	U-M conduit nickel-copper-PGE	1.0000	-	-	Edit	

< 1 2 3 >

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2. Fill in the required details such as: Name, Location (latitude and longitude), Deposit Type and Confidence, Grade and Tonnage, Commodity, Source and Reference Document

The screenshot shows the 'Add New Mineral Site' interface. On the left, a sidebar lists mineral sites with checkboxes: Golden Wonder Property, -, Minago Nickel Mine, Mayaniquel Project, Ravensthorpe Nickel Operations, Kuusamo Properties, Wellgreen Ni-Cu-Pl-Project, Nico Young Project, Agata Nickel Laterite Project, and West Raglan Property. The main form has sections for General Information (Name: AluminumWest, Rank: U, Type: NotSpecified), Location (Country: United States, State or Province: California), Deposit Info (Deposit Type: Fluvial placer niobium-tantalum, Deposit Type Confidence: 1), Mineral Inventory (Grade: 1.12 percent, Tonnage: 12.12 million tonnes), and Source & Reference (Source: Database selected). A right-hand panel shows a list of mineral sites with columns for Grade (%), Action, and a pagination control.

Add New Mineral Site

General Information

* Name: AluminumWest * Rank: U * Type: NotSpecified

Location

* Country: United States * State or Province: California

Latitude: 121.12 Longitude: 121.12

Deposit Info

* Deposit Type: Fluvial placer niobium-tantalum * Deposit Type Confidence: 1

Mineral Inventory

Grade: 1.12 percent Tonnage: 12.12 million tonnes

* Commodity: Aluminum

Source & Reference

* Source: Database Technical Article Mining Report Unpublished

Grade (%)	Action
0.11	Edit
0.75	Edit
5.43	Edit
5.50	Edit
2.29	Edit

< 1 2 3 >

3. Save the new site to add it to the database.

The screenshot shows the MinMod Editor interface. At the top, there are navigation links: MinMod, Map View, Grade-Tonnage Model, Mineral Site Data, MinMod Editor (which is underlined), and Advanced Search. Below this is a search bar with the placeholder "Commodity*: Aluminum". A blue button labeled "Add Mineral Site" is located on the right side of the search bar. The main area contains two tables. The first table lists mineral sites with columns: Name, Type, Rank, Location, Country, State/Province, Deposit Type, Dep. Score, Tonnage (Mt), Grade (%), and Action (with an edit link). The second table shows a detailed view of a selected site, with columns: User, Name, Location, CRS, Country, State/Province, Dep. Type, Dep. Confidence, Tonnage (Mt), Grade (%), and Source. The selected row in the second table is highlighted with a yellow background. At the bottom right of the interface, there are page navigation buttons: <, 1, 2, 3 (which is highlighted in blue), and >.

Name	Type	Rank	Location	Country	State/Province	Deposit Type	Dep. Score	Tonnage (Mt)	Grade (%)	Action
west78	NotSpecified	U	121.12000, 121.12000	Afghanistan	Badakhshan	Residual placer tin	1.0000	12.1200	1.12	Edit
west78	NotSpecified	U	121.12000, 121.12000	Afghanistan	Badakhshan	Residual placer tin	1.0000	12.1200	1.12	Edit
west78	NotSpecified	U	121.12000, 121.12000	Afghanistan	Badakhshan	Residual placer tin	1.0000	12.1200	1.12	Edit
west78	NotSpecified	U	121.12000, 121.12000	Afghanistan	Badakhshan	Residual placer tin	1.0000	12.1200	1.12	Edit
la	NotSpecified	U	121.12000, 121.12000	Afghanistan	Badakhshan	Residual placer tin	1.0000	1.1200	1.12	Edit
la	NotSpecified	U	121.12000, 121.12000	Afghanistan	Badakhshan	Residual placer tin	1.0000	1.1200	1.12	Edit
la	NotSpecified	U	121.12000, 121.12000	Afghanistan	Badakhshan	Residual placer tin	1.0000	1.1200	1.12	Edit
AluminumWest	NotSpecified	U	121.12000, 121.12000	United States	California	Fluvial placer niobium-tantalum	1.0000	12.1200	1.12	Edit

User	Name	Location	CRS	Country	State/Province	Dep. Type	Dep. Confidence	Tonnage (Mt)	Grade (%)	Source
T 1	AluminumWest	POINT (121.12 121.12)		United States	California	Fluvial placer niobium-tantalum	1.0000	12.1200	1.12	http://localhost:3000/editor?...

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