



OPEN DAY
2022



Government of Western Australia
Department of Mines, Industry Regulation and Safety

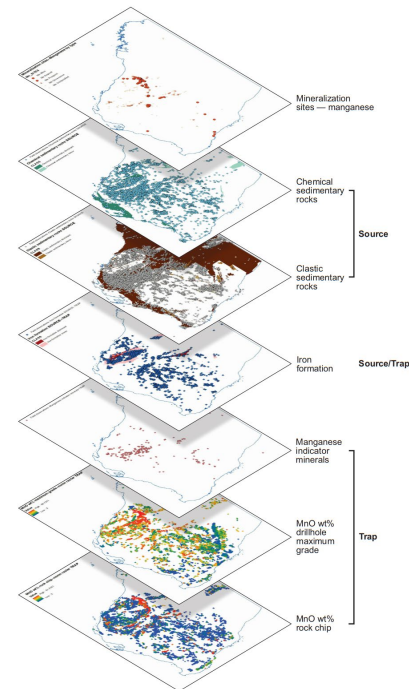


Mineral Systems Atlas

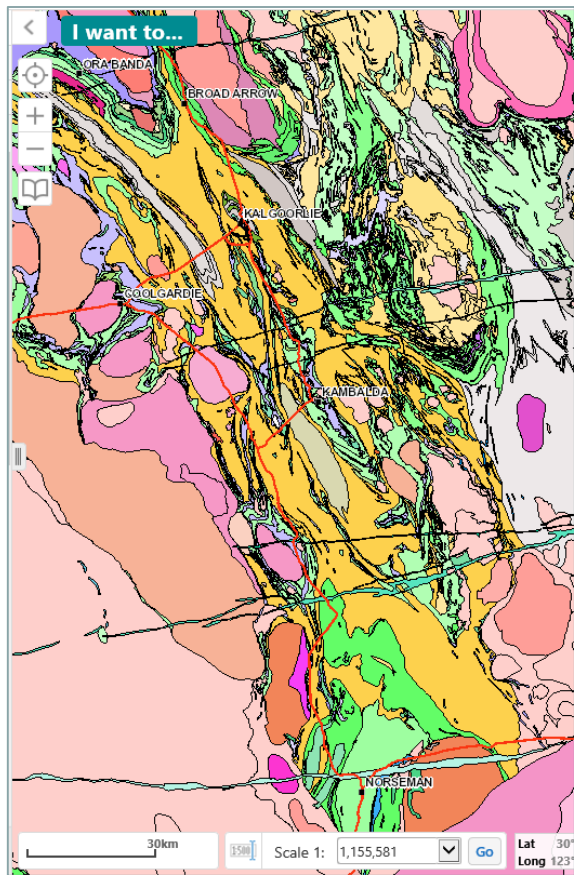
Matt Clarke, Senior Geologist

MSA – What is it?

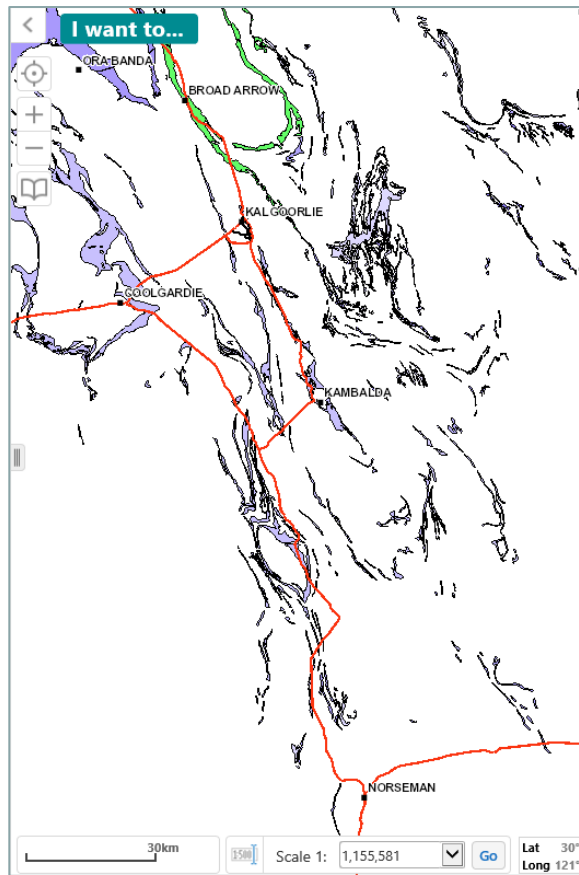
- Aim: Provide distilled and curated data to assist exploration and the understanding of mineral systems
- *Komatiite-hosted nickel*
- *Iron formations*
- *Rare-element pegmatites (Li-Ta-Sn)*
- *Layered intrusion-hosted vanadium*
- *Manganese*
- *Evaporite brine-related potash*



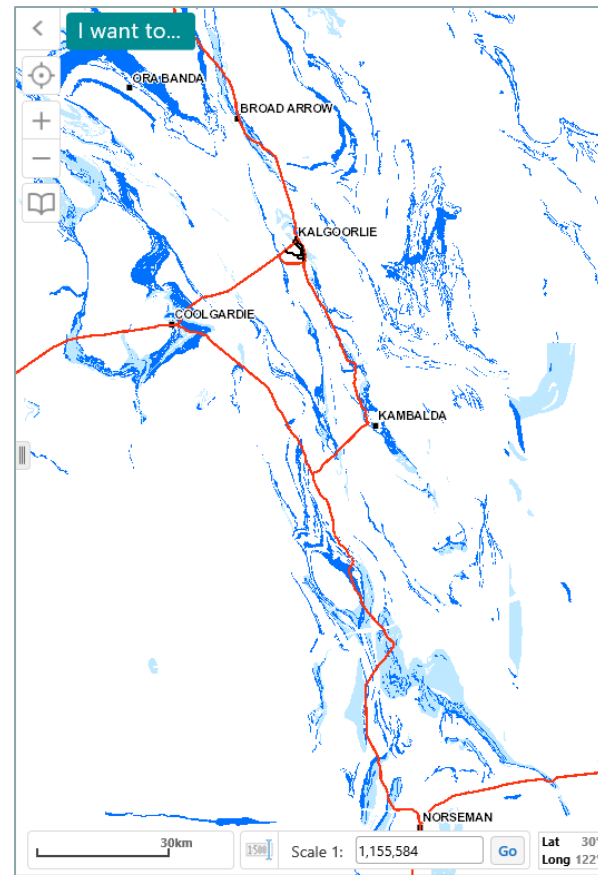
1:500k IBG



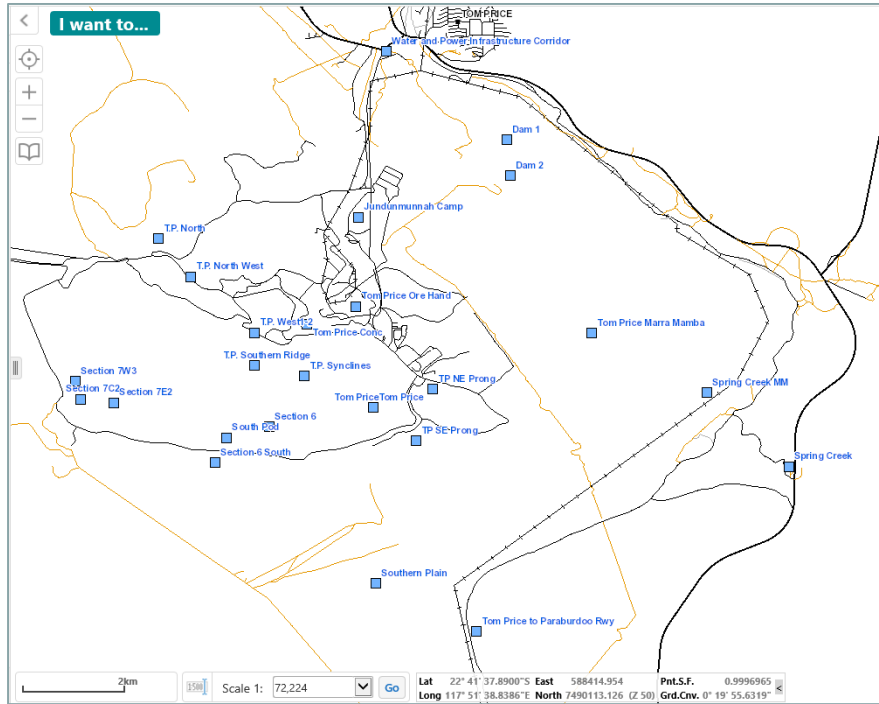
IBG simple UM filter



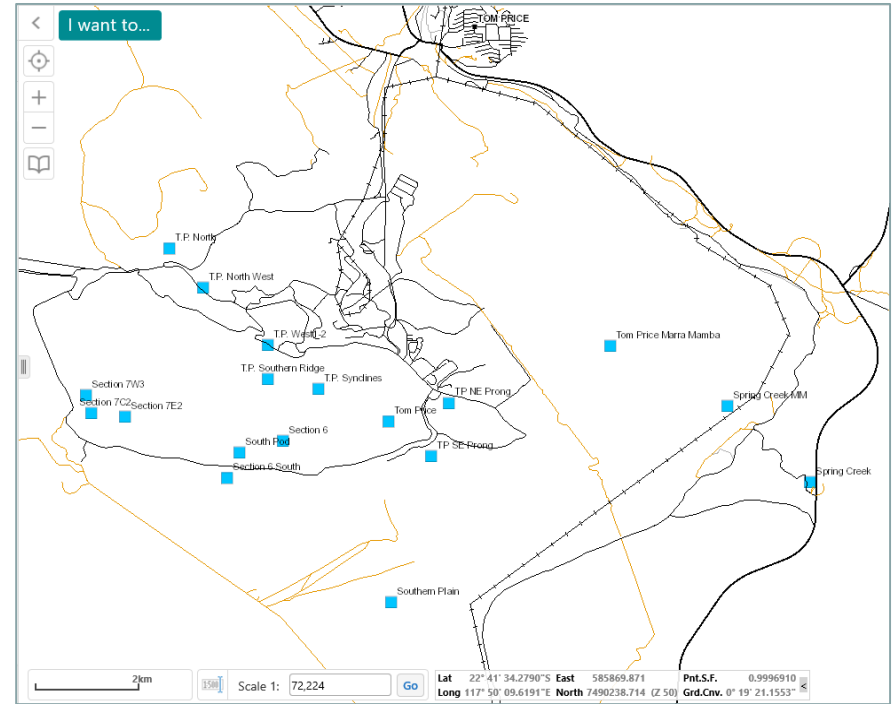
MSA UM Layer



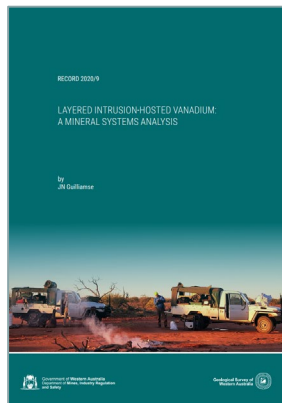
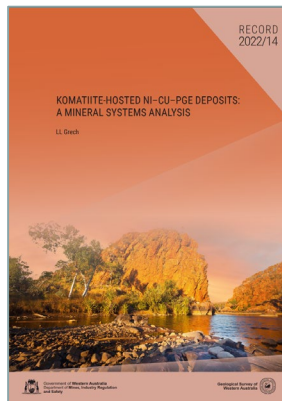
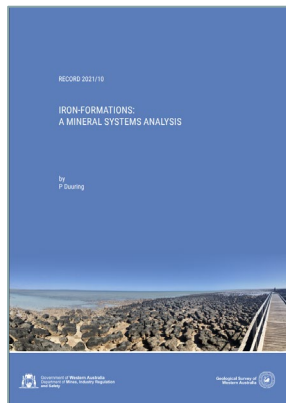
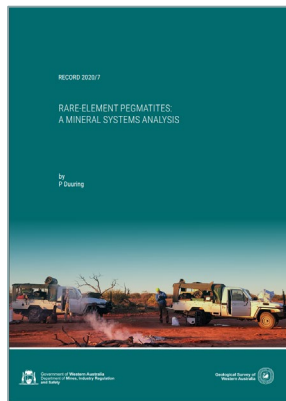
MINEDEX Fe Ore



MSA MINEDEX Derived Fe Ore



MSA – Records and guide



HOME
WHAT ARE MINERAL SYSTEMS?
Primary data layers
Structures
Tectonic units
Komatiite-hosted nickel
Mineralization localities
Geochemistry
Lithology
Komatiite SOURCE--TRAP
Ultramafic SOURCE--TRAP
Iron formation
Rare-element pegmatite
Layered intrusion-hosted vanadium
Manganese
Evaporite brine related potash
DOCUMENTATION
CONTACT US

Ultramafic dominant	Ultramafic rocks are considered to be a dominant lithology within the polygon. There is a high probability of observing ultramafic rocks in these areas
Ultramafic minor	Ultramafic rocks are considered to be a minor lithology within the polygon. There is a lower probability of observing ultramafic rocks in these areas

Derived from

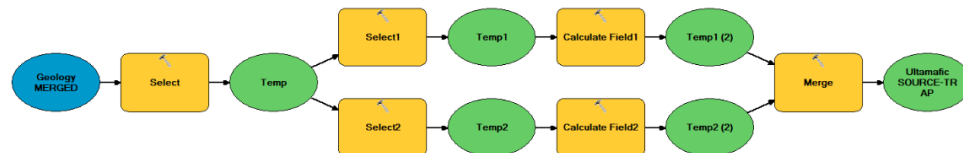
Geology MERGED

Filtered with

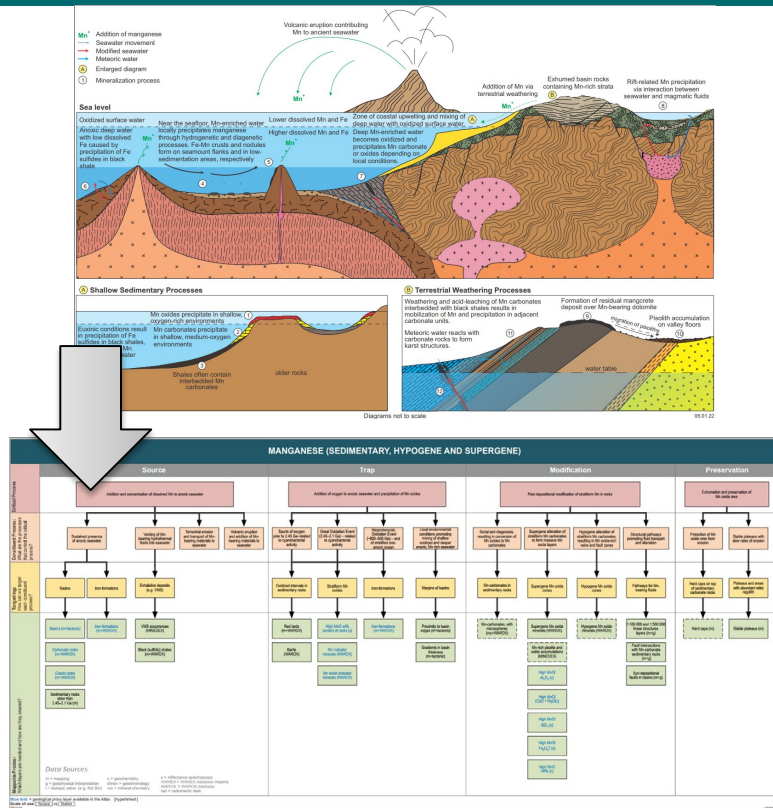
Ultramafic filter

Model logic and recipe

Operation	Expression	Operation	Expression	Operation	Expression	Operation
Select	Geology MERGED	Select1	"CODE" <> "P_mgnu-PTRO" AND ("CODE" LIKE "%a%" OR "CODE" LIKE "%u%" OR "CODE" LIKE "%ma%" OR "CODE" LIKE "%mu%")	Calculate Field1	"Ultramafic dominant"	Merge
		Select2	NOT ("CODE" <> "P_mgnu-PTRO" AND ("CODE" LIKE "%a%" OR "CODE" LIKE "%u%" OR "CODE" LIKE "%ma%" OR "CODE" LIKE "%mu%"))	Calculate Field2	"Ultramafic minor"	

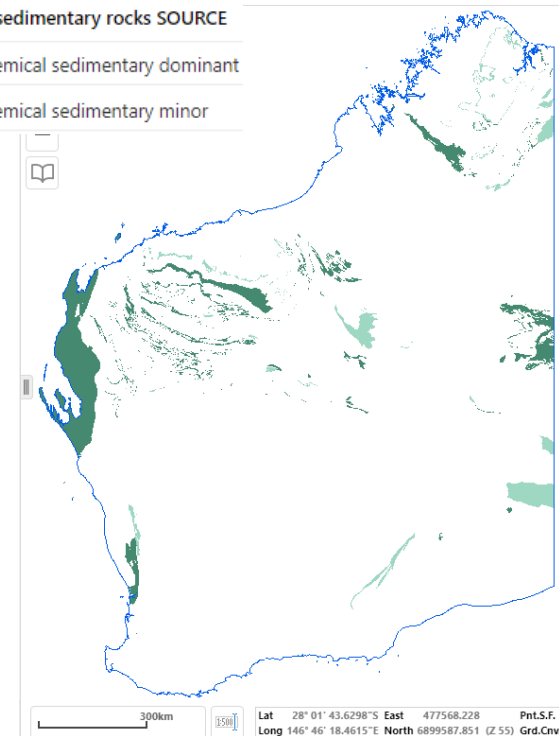


MSA - Manganese



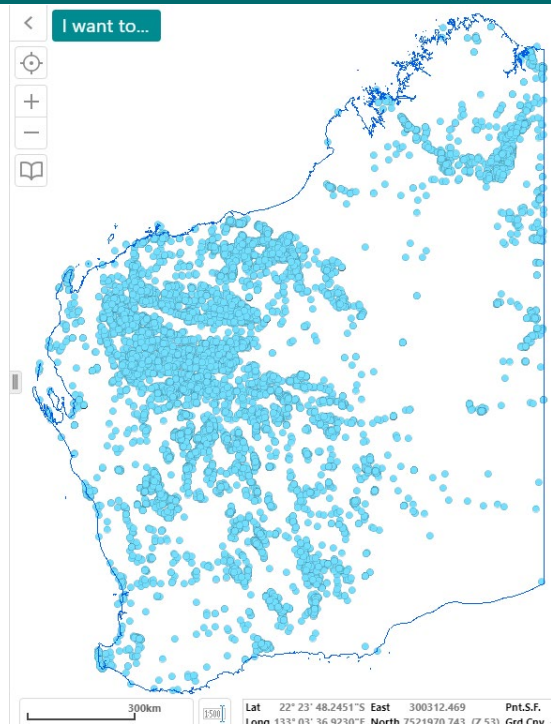
Chemical sedimentary rocks SOURCE

- Chemical sedimentary dominant
- Chemical sedimentary minor

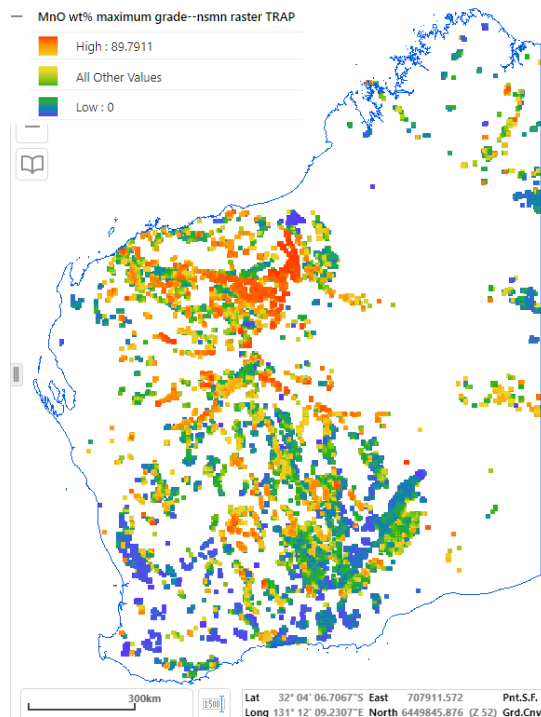


Mn chemical sedimentary rocks SOURCE

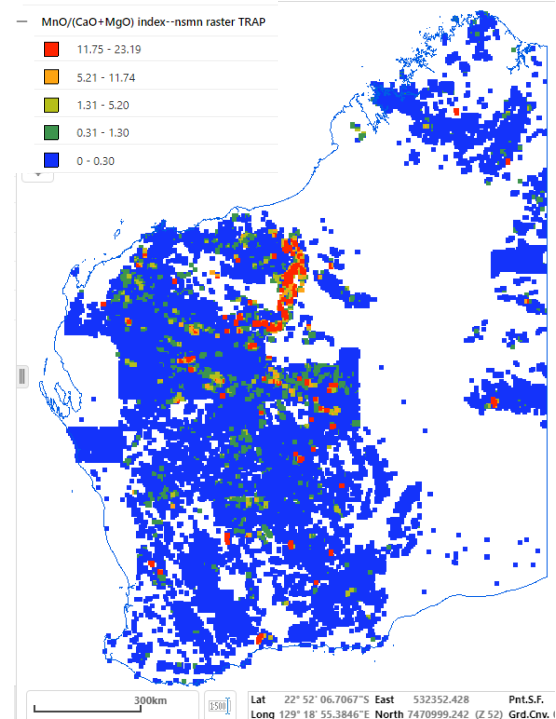
MSA - Manganese



Field observations - Mn
chemical sed. rocks SOURCE

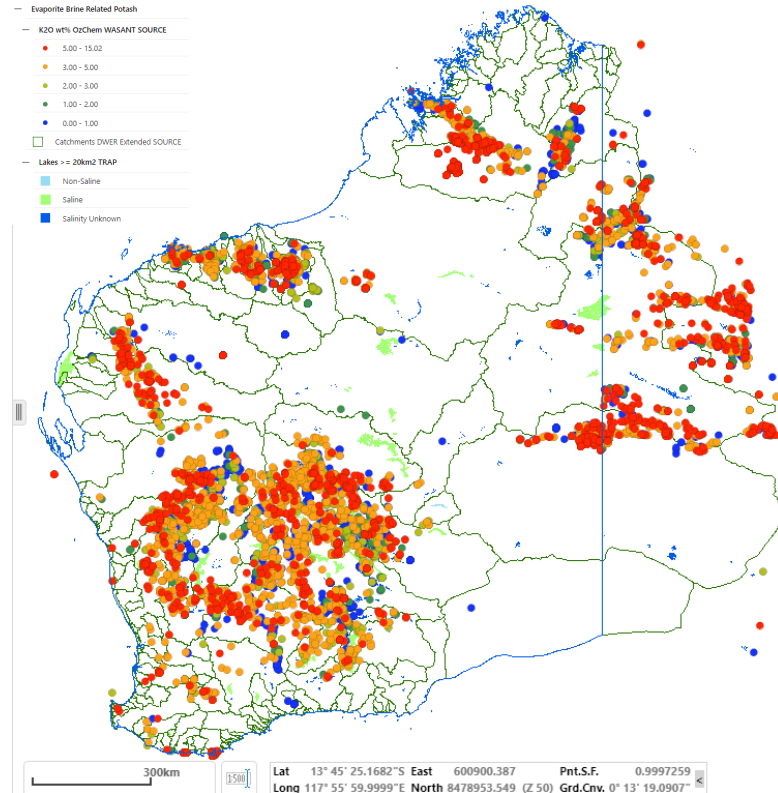
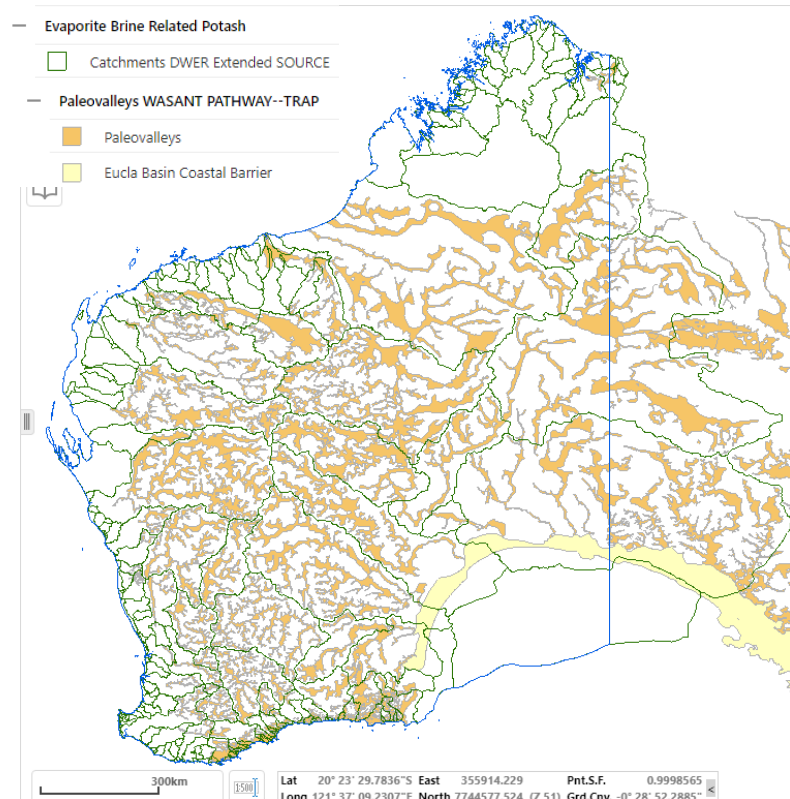


MnO wt% maximum grade-
nsmn raster TRAP

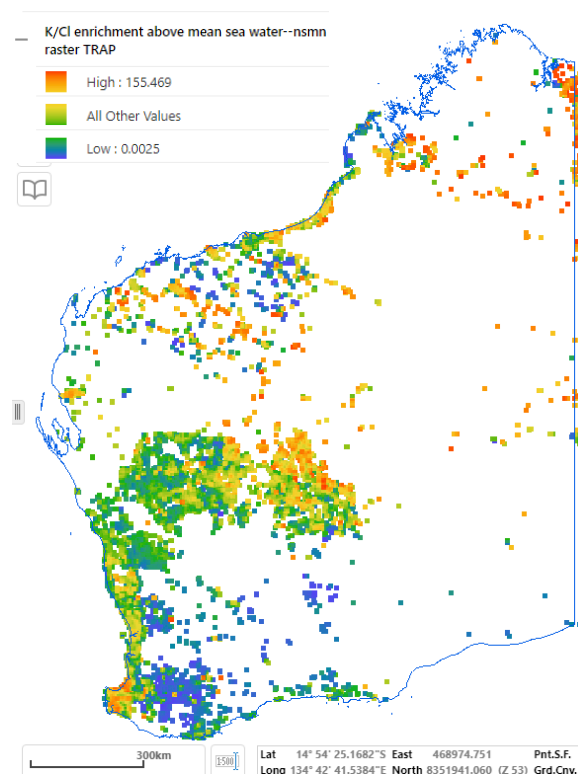
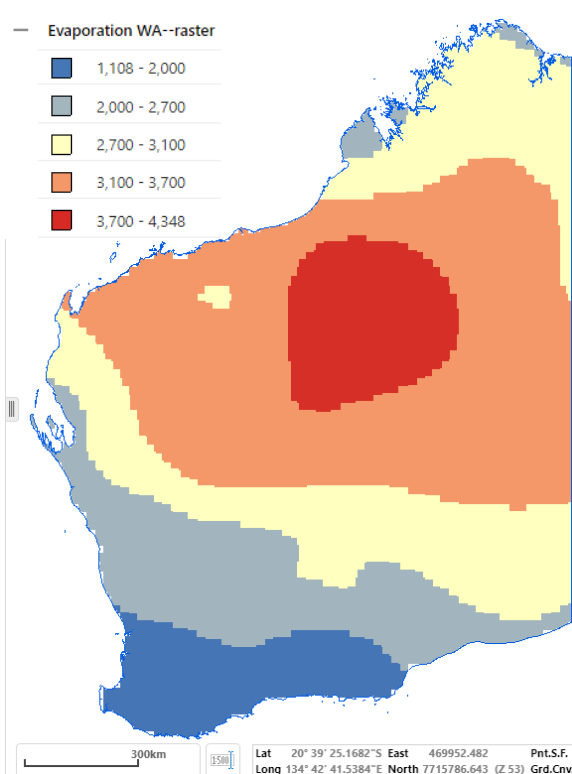
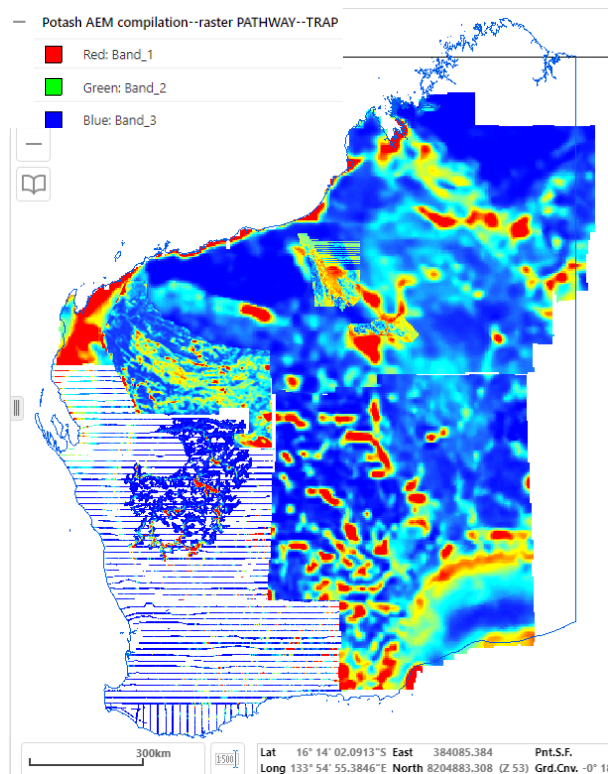


MnO/(CaO+MgO) index-nsmn
raster TRAP

MSA – Evaporite brine-related potash



MSA – Evaporite brine-related potash



MSA – Where and how?

- MSA viewer
- Data and Software Centre
- eBookshop
- MSA Guide website

The image displays three overlapping screenshots of the Mineral Systems Atlas (MSA) interface. The top-left screenshot shows the 'Mineral Systems Atlas Guide' website with a red box highlighting the 'Open Mineral Systems Atlas viewer' and 'Download datasets' links. The top-right screenshot shows the 'Mineral Systems Atlas' viewer interface with a red box highlighting the 'Mineral Systems Atlas Guide' and 'Download individual mineral systems' links. The bottom-right screenshot shows the 'Data and Software Centre' interface with a red box highlighting the 'Statewide spatial datasets - (GDA2020)' link.

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Mineral Sys

Getting Around Identify Tools Drawing & Measurement Data Help & Feeds

What's New? Mineral Systems Atlas Guide Tips & Tricks Download individual mineral systems Same area in GeoVIEW.WA Full I

Layers

All Available Layers

Filter Layers

Filter

What's new

Datasets [GDA2020]

Datasets [GDA1994]

Accelerated Geoscience - [GDA2020]

Statewide spatial datasets - (GDA2020)

1:100,000 geological series mosaic images

1:250,000 geological series mosaic images

1:250,000 topographic series mosaic images

Geochemistry

Geochronology & Isotope Geology

Geology

Geophysics

Passive Seismic

Graticular blocks

Indexes

Land use planning

Mineral information

Mineral Systems Atlas

Primary Data Layers - [GDA2020]

Tectonic units - [GDA2020]

Iron formation system - [GDA2020]

Komatite hosted nickel system - [GDA2020]

Rare element pegmatite system - [GDA2020]

Layered intrusion hosted vanadium system - [GDA2020]

Welcome to the Mineral Systems Atlas Guide

What is the Mineral Systems Atlas?

Mineral Systems Analysis

The Atlas interface

The Atlas Guide

What's new?

Acknowledgements

Open Mineral Systems Atlas viewer

Download datasets

MSA – Conclusion



Available on our website

www.dmirs.wa.gov.au/MineralSystemsAtlas