

Data Metallogenica

The value of representative geological collections

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**GEOLOGICAL
SURVEY OF**
South Australia

DISCOVERY DAY



While many collections contain the extraordinary.....



Representative collections contain the ordinary





South Australian Drill Core Library

Data Metallogenica (DM)

In South Australia.....





What makes it representative?

A good **representative collection** is one that accurately reflects the geology, lithology, mineralisation and characteristics of the deposit

Data Metallogenica is designed to offer a cross section of a locality from the surface down



The benefits of representative collections



- Enables a **comparison** of mineralisation styles and ore systems across regions
- Provides an archive of high-quality **reference** material for academic studies
- Allows for **future technology** (new analyses) and potential discovery of new minerals
- Supports **informed decision-making** in exploration and evaluating deposits
- Facilitates **education** in economic geology
- Collections often contain material from localities that are **now inaccessible** (e.g., mined out areas or restricted regions), allowing research to continue when new fieldwork is not possible

Data Metallogenica



DATA METALLOGENICA
LASER HAZARD
NO ENTRY
DANGER

DATA METALLOGENICA

Rack - A
P 1 - 201

Rack - B
P 497 - 742

Rack - C
P 443 - 7472
P 222 - 2148

Rack - D
P 443 - 2042
P 2748 - 2012

Data Metallogenica: Foundations

- The idea was founded by geologist, Peter and Šárka Laznicka, then living in Manitoba, Canada
- During contract work in Australia in 1970, Peter gathered field samples from the localities he visited as physical references relating to his reports
- The collection was purchased jointly by the Australian Mineral Foundation and AMIRA International. The collection along with the Laznicka's moved to Australia in mid 1999
- Originally housed in a facility in Adelaide at Glenside, near the old Drill Core Library
- In 2016, the collection moved to its current location at the South Australian Drill Core Reference Library at Tonsley, Adelaide



Data Metallogenica: A unique repository

- DM is owned and operated by AMIRA Global, a not-for-profit research-based organisation, on behalf of the minerals industry and associated institutions
- Samples sourced from **70 countries** representing over **3000** individual deposits
- Lithotheque (rock library) sample plates make up the bulk of the collection ~ **65,000 individual samples** on over 4000 plates
- GSSA plates of selected **South Australian** deposits are available on request
- Macrotheque samples are hand samples of host rock, mineralised rock, and ore samples ~ **7000 samples available**
- Approximately **1500 thin section** slides and **225 polished sections**
- Extensive library of books and reference materials



DATA METALLOGENICA

The Global Encyclopaedia of Ore Deposits

[[Log In](#)]

This is truly the most
extraordinary resource

I have come across. I must recommend it.

- Jack Caldwell,
InfoMine, Vancouver

DATA METALLOGENICA IS THE GLOBAL ENCYCLOPAEDIA OF ORE DEPOSITS.
It is the world's largest mineral deposit database, a unique technical information system made possible through the support of over one hundred international Foundations. Sponsors from industry, government and

2003.....The AMIRA DM website is launched !!

About DM



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Deposit

Deposit Name:

Region

World Part:

Country:

State/Prov:



Commodity Class

 Base Metals Bauxite Copper Diamond Lithology Fe & Mn Ni Au & Ag PGE & Cr Other REE & Nb Sn & W Mineral Sands Uranium All

Advanced Search



Commodity:

Deposit Type

Model:

Deposit Type:

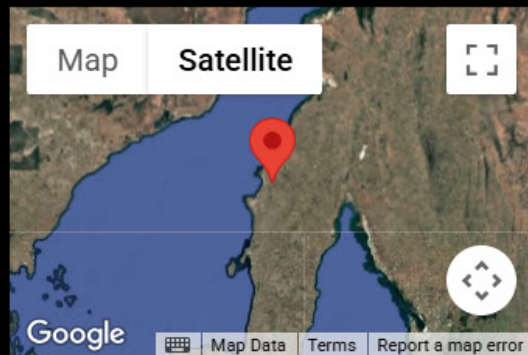
DM Sample Photographs

 Plate Hi-Res (individual) Spectral Data **BETA**

Special Categories

 General District Overview AMIRA Project Info Discovery History Environmental Geology Technical Reports Video Core Photographs Drilling Geochemistry Geophysics

Deposit Portal



Wheal Hughes


Other Names:
District: *Moonta-Wallaroo Subdistrict*

Commodities : **Copper, Gold**

DM Sample Photographs




[2535-1 Legend](#)

Resolution : [Medium](#) | [High](#) 




[2536-1 Legend](#)

Resolution : [Medium](#) | [High](#) 




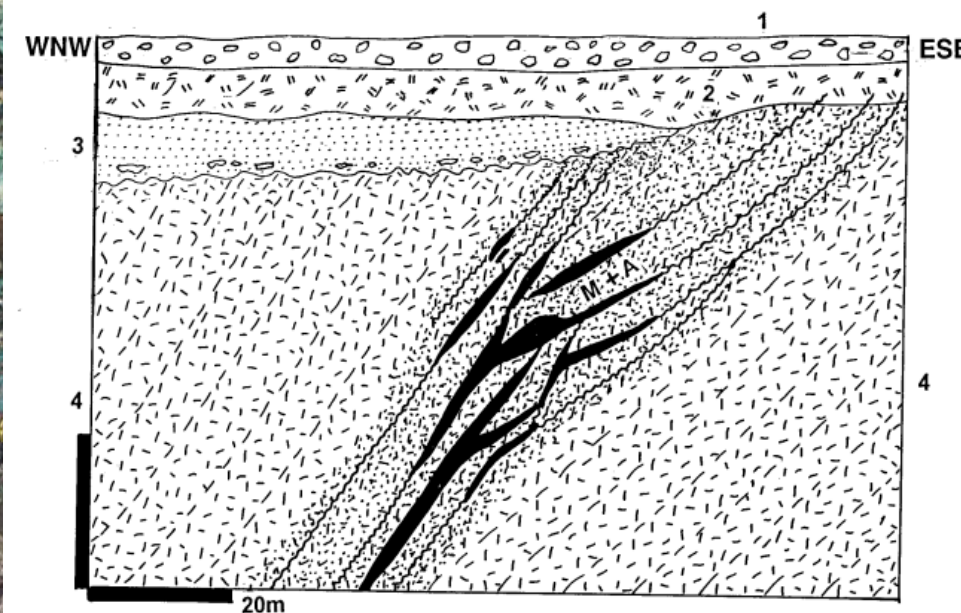
[2537-1 Legend](#)

Resolution : [Medium](#) | [High](#) 



[2538-1 Legend](#)

Resolution : [Medium](#) | [High](#) 



Wheal Hughes mine, diagrammatic cross section; Peter Laznicka (2001) modified after Hafer (1991)

LT 2535 LEGEND

Unit No	Unit Description
M	Mesothermal, replacement and dilation-filling subvertical tabular and lenticular massive, breccia, stringer and disseminated sulfides lodes of chalcopyrite, bornite > magnetite, hematite > molybdenite in quartz, tourmaline, K-feldspar, biotite, chlorite gangue controlled by predominantly brittle shears in hydrothermally altered, foliated "porphyry"
A	Retrograde metamorphic and hydrothermal alteration of tectonized "porphyry" within and adjacent to shears and breccia zones; mixture of pink K-feldspar, tourmaline, chlorite, muscovite, calcite
W	Weathering-produced alteration in regolith
1	Q+T topsoil, loam, rubble coated, cemented and infilled by pedogenic calcrite
2	Residual clay interlayered with calcrite and with calcrite concretions, resistate fragments from bedrock
3	Cm1 Winulta Fm., platformic cover: quartz- to arkosic sandstone with kaolinized feldspar and porphyry clasts and kaolinitic matrix/cement; local conglomeratic intervals above unconformity
4	Mp (1737-1740 Ma) Moonta Porphyry (or Volcanics): quartz-rich, felsic to intermediate volcanics and subvolcanics (sill ?); foliated, metamorphosed, locally porphyroblastic; portions could be feldspathic metasomatite
5	Mp (1737 Ma) Doora Schist: meta-sedimentary schist and gneiss, amphibolite; lower amphibolite facies

LT 2535 SAMPLE DESCRIPTION (collected and assembled by Peter Laznicka, 2001)

Unit No	Sample Description	Sample No
2	Concretionary calcrite	1, 2
3	Arkosic sandstone, kaolinized feldspar porphyry clasts	3-6
W+A	Oxidized ore zone in regolith: hematite impregnated argillized altered breccia	7-10
M+W	Supergene modified ore: chalcocite in breccia of massive hematite and argillized scapolite ?	11, 12
	Ditto, in argillized scapolite ? overprinting feldspathized porphyry breccia	13, 14
	Sooty chalcocite and covellite over relicts of hypogene chalcopyrite and > bornite in re-brecciated quartz-tourmaline metasomatite	15-20

LT: 2535
2539
Quartz, chlorite, chalcopyrite vein

275.3-6

Wheal Hughes Mine,
Moonta Cu-(Au), S. Australia
LT: 2539 275.3-6
Moonta Porphyry,
well indurated feldspathic,
with chlorite patches



275.3-8

LT: 2540
DM
-Au



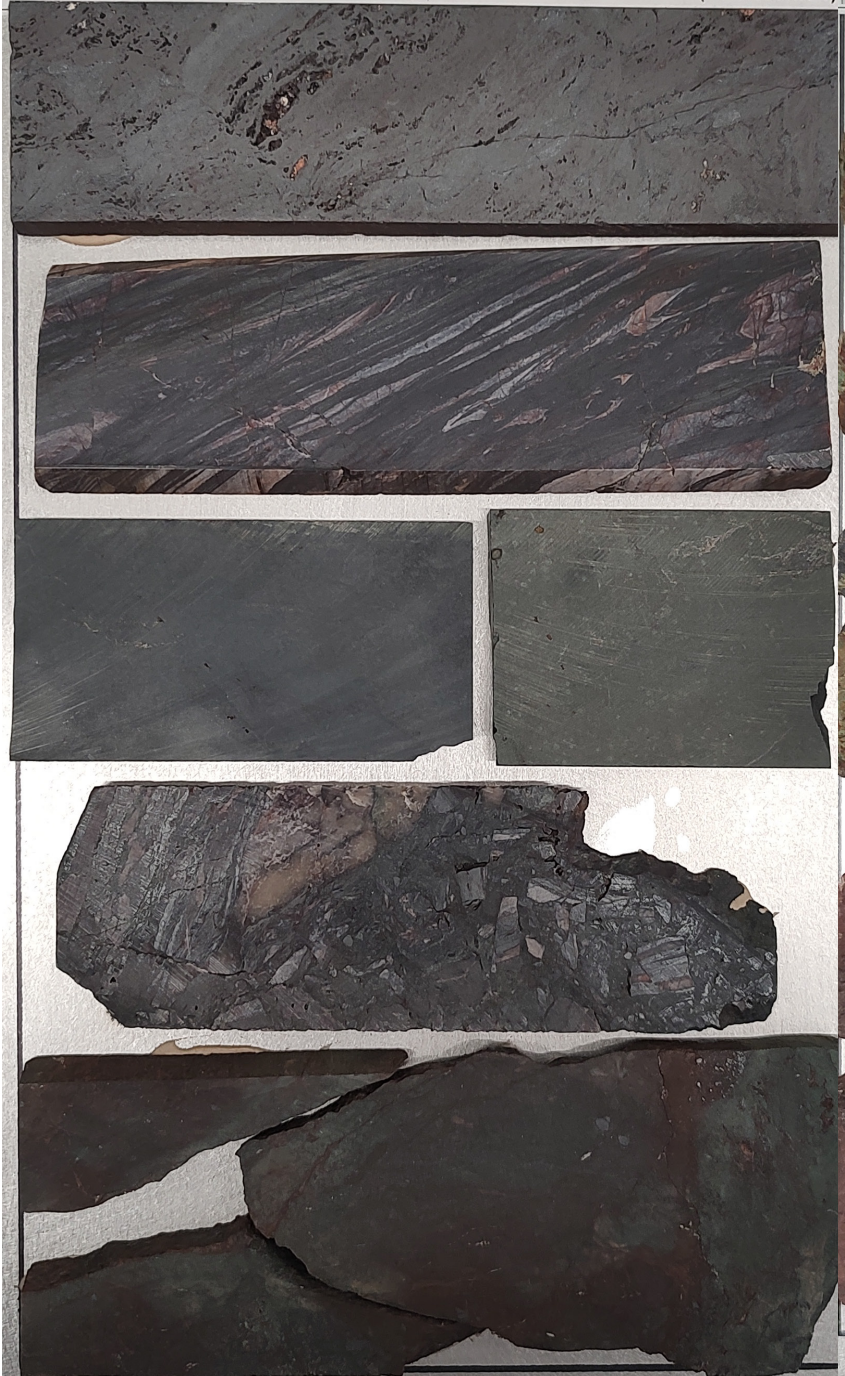
275.31-11

Wheal Hughes Mine,
Moonta, S. Australia
LT: 2535- 275.31-1
2539
Rich boronite > chalcop^{ore}
in re-brecciated Qz
gangue after replacement
veins and metasomatites,
dusting of chrysocolla

DM-PIRSA LITHOTHEQUE Gawler Craton, South Australia; Mount Woods Domain
4016 PROMINENT HILL Cu,Au,U-3; Mount Woods Inlier



DM-PIRSA LITHOTHEQUE Gawler Craton, South Australia; Christie Domain
4002 HAWK'S NEST Fe district, BUZZARD DEPOSIT 2 (DD87/88HN-1)



DM-PIRSA LITHOTHEQUE Gawler Craton, South Australia; Yorke Peninsula, Moonta Subdomain
4053 HILLSIDE Mine south of Ardrossan-Cu



“I have visited DM several times - the collection is unique and truly fascinating. The placing of high quality photos of the collection on the internet is a vital step”

- Nigel Radford, Consulting Geochemist, Newmont, Perth

“I am now using DM. I don't expect to watch television ever again!”

- Dr Rob Chapman, School of Earth and Environment, University of Leeds

“I really like the DM concept and think it is a valuable resource with immense potential. I am excited about the website”

- Simon Shee, formerly Research Manager, De Beers, Melbourne

**But technology has a way of making
yesterday's 'new' seem..... old school**







THE FUTURE

AMIRA Global is embarking on an exciting new global knowledge platform







collaborateore

The logo for 'collaborateore' features the word in a bold, dark grey sans-serif font. To the right of the word is a circular arrangement of 15 colored dots in various shades including teal, green, yellow, orange, and blue, forming a partial circle.



-  Aims to get the very **best validated information** to industry to support better decision making
-  The Platform is based on the successful **Cochrane Institute and Library** that offers the equivalent service to the medical industry.
-  The reimagining of **Data Metallogenica** is a vital step in achieving this
-  Initial consultation with members, researchers, and government agencies shows both commitment and promise. Amira's Strategic Advisor, **Dr Anil Subramanya** is leading this effort

Data Metallogenica: Challenges

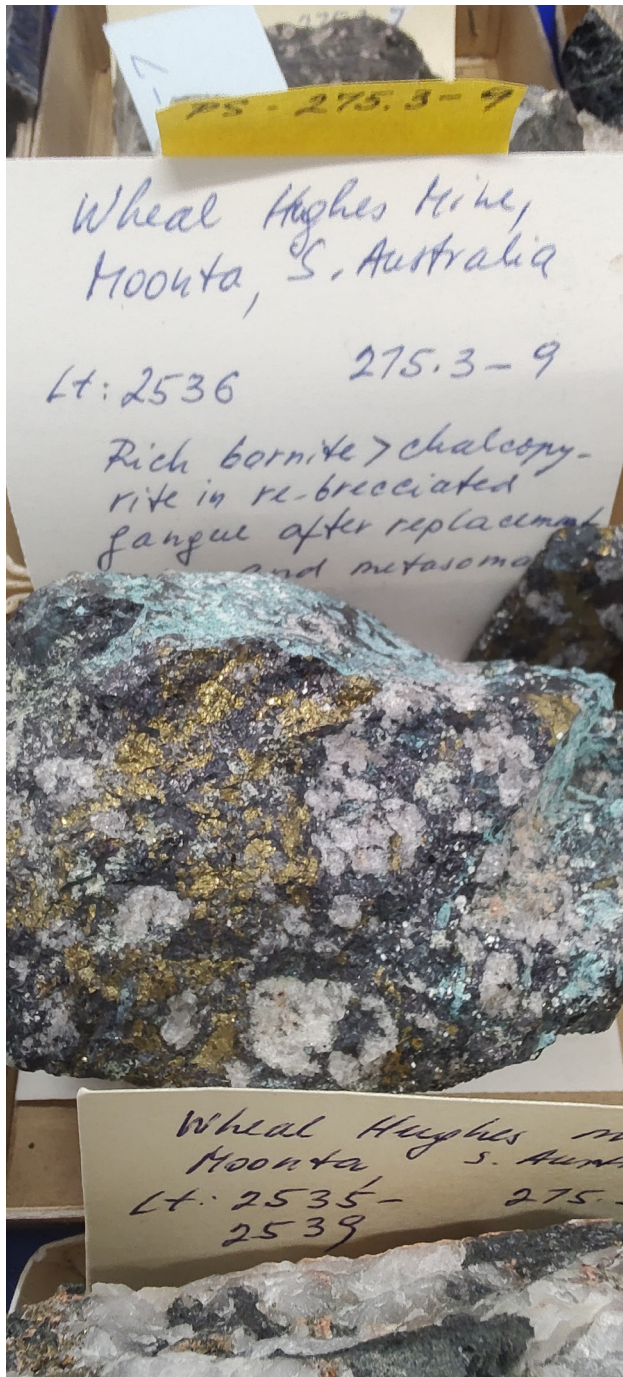
-  Maintaining and managing large collections – keeping control of inventory, conservation, new data, storage limitations
-  Static or Growth – expanding means more of EVERYTHING!
-  Obtaining new material – company policies, scale and mechanisation of operations; political and social instability
-  Storage – physical space
-  Extracting further relevant data – knowing what industry needs
-  Keeping the dream alive - making DM globally accessible and relevant for the 22nd century!



Data Metallogenica: Criteria

Good documentation is often more valuable than the specimen itself.

- **Sample Description** (main mineral(s) present, rock type with stratigraphic unit where possible)
- **Exact Location** (RL and GPS co-ords if possible)
- **Collector + date of collection**
- **Notes on any significant features** (fossils, ore minerals, textures, structures)



Data Metallogenica: Opportunities

- 🗺️ Engaging effectively with stakeholders on a global stage
- 🗺️ Providing a useful tool in the search for new mineral deposits
- 🗺️ A lasting legacy for generations to come



Acknowledgement of Country

As guests here on Kurna land, the Department for Energy and Mining (DEM) acknowledges everything this department does impacts on Aboriginal country, the sea, the sky, its people, and the spiritual and cultural connections which have existed since the first sunrise. Our responsibility is to share our collective knowledge, recognise a difficult history, respect the relationships made over time, and create a stronger future. We are ready to walk, learn and work together.



DISCOVERY DAY



Disclaimer

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