

OFFICIAL

AUSTRALIA MINERALS

REALISE THE OPPORTUNITY

South Australia's next copper opportunities

Tom Wise
Acting Director
Geological Survey of South Australia



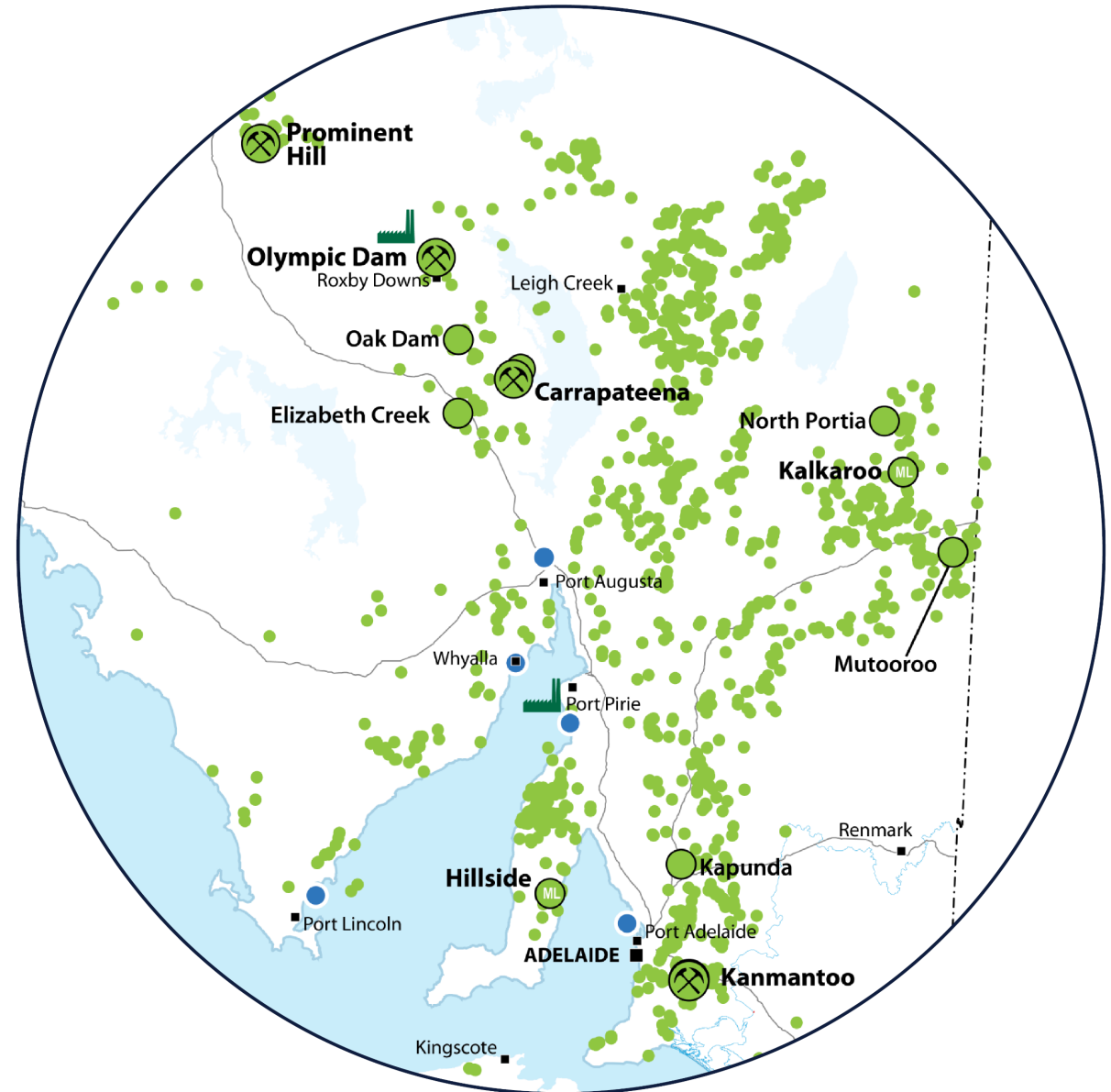
South Australia

A copper capital

Hosts **68%** of Australia's known copper resources

Produced **>320,000 tonnes** of copper in 2024

SA's **#1 export** commodity

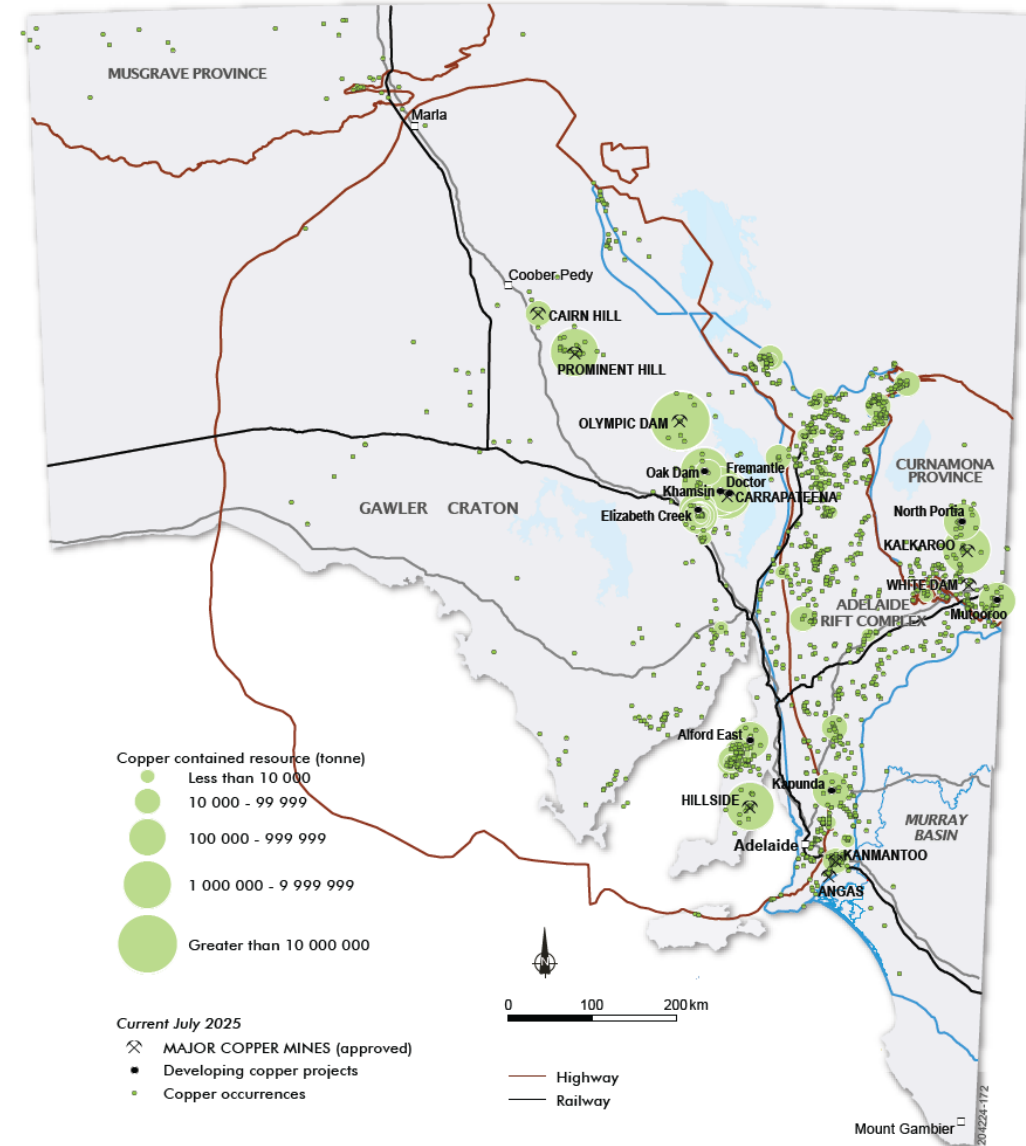


SA's Copper landscape

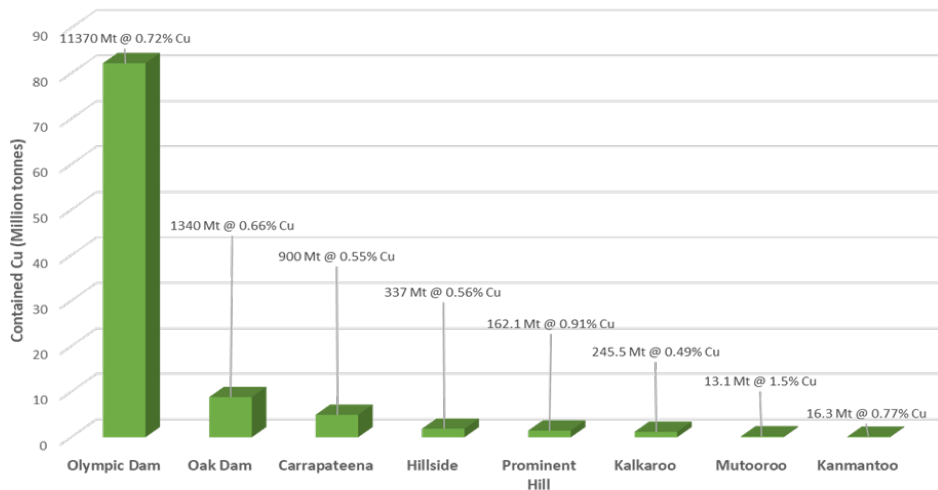
South Australia has 68% of Australia's economically demonstrated resources of copper.

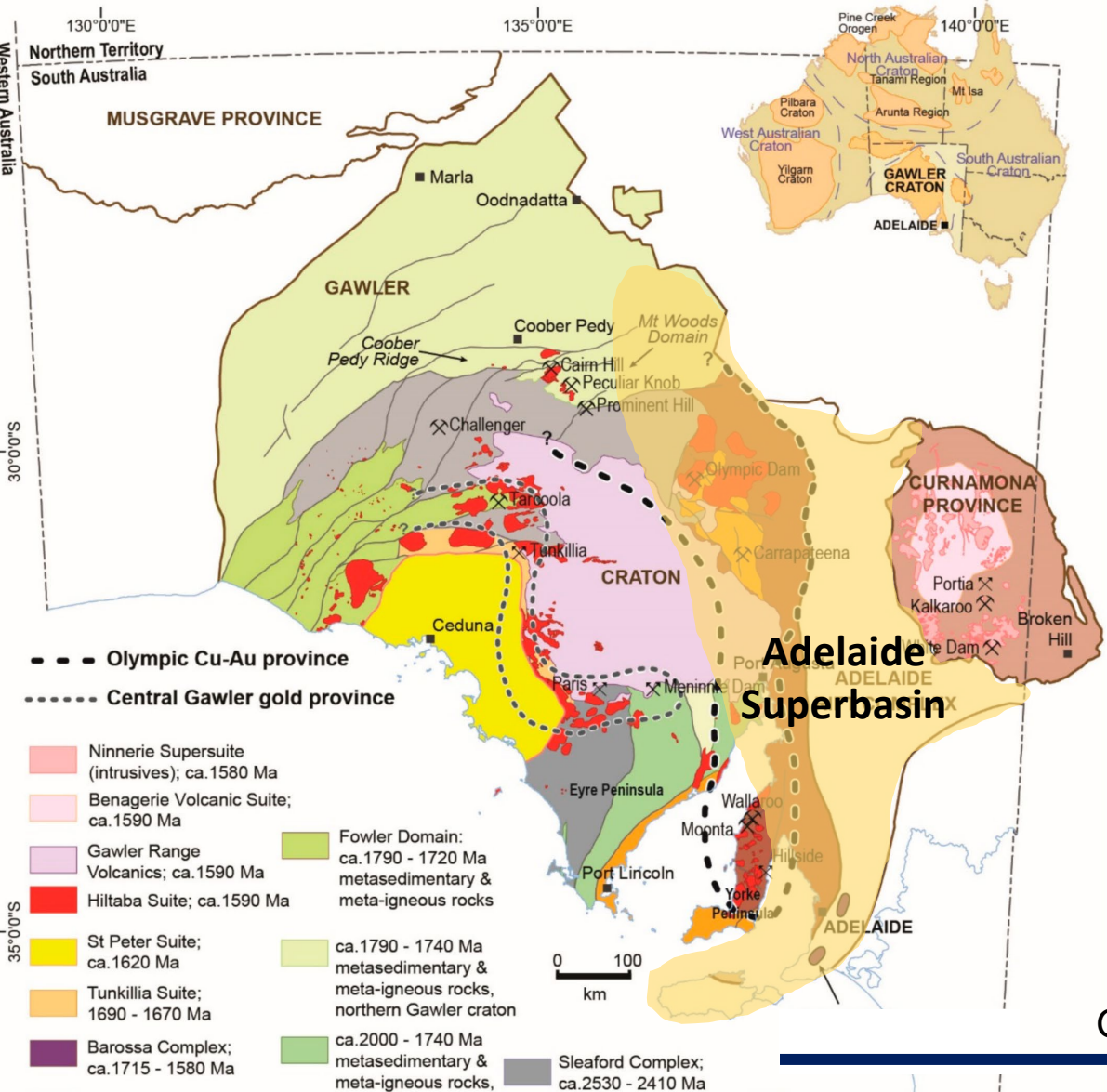
These resources occur in different deposit styles:

- Iron oxide-Copper-Gold (IOCG)
- Other magmatic-hydrothermal Cu deposits (skarn, etc.)
- Sediment-hosted copper

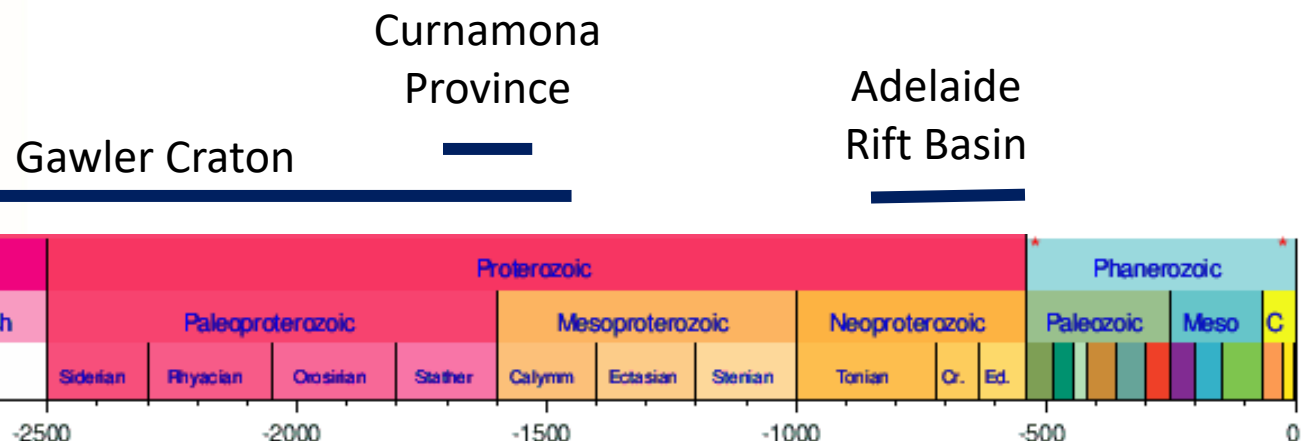


South Australian Copper Deposits





- South Australia's main geological provinces for copper:
 - Gawler Craton (3250 Ma – 1450 Ma)
 - Curnamona Province (1800 Ma – 1550 Ma)
 - Adelaide Superbasin (800 Ma – 540 Ma)



Curnamona Province

Adelaide Rift Basin

Gawler Craton

Adelaide Superbasin

Iron Oxide Copper Gold deposits (IOCG)

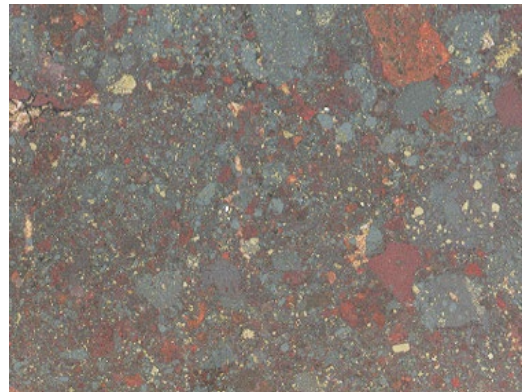
Two main types: Magnetite-dominant and hematite-dominant

South Australia renowned for hematite-dominant IOCG deposits, typically larger than magnetite-dominant deposits

Associated commodities: Cu, U, Au, Ag \pm Mo, Co, LREE. Fe is enriched but uneconomic to produce due to impurities

South Australian IOCG deposits:

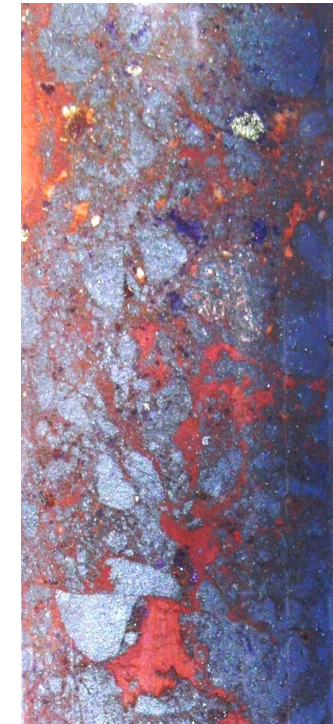
- Olympic Dam
- Carrapateena
- Prominent Hill
- Oak Dam



Olympic Dam



Carrapateena



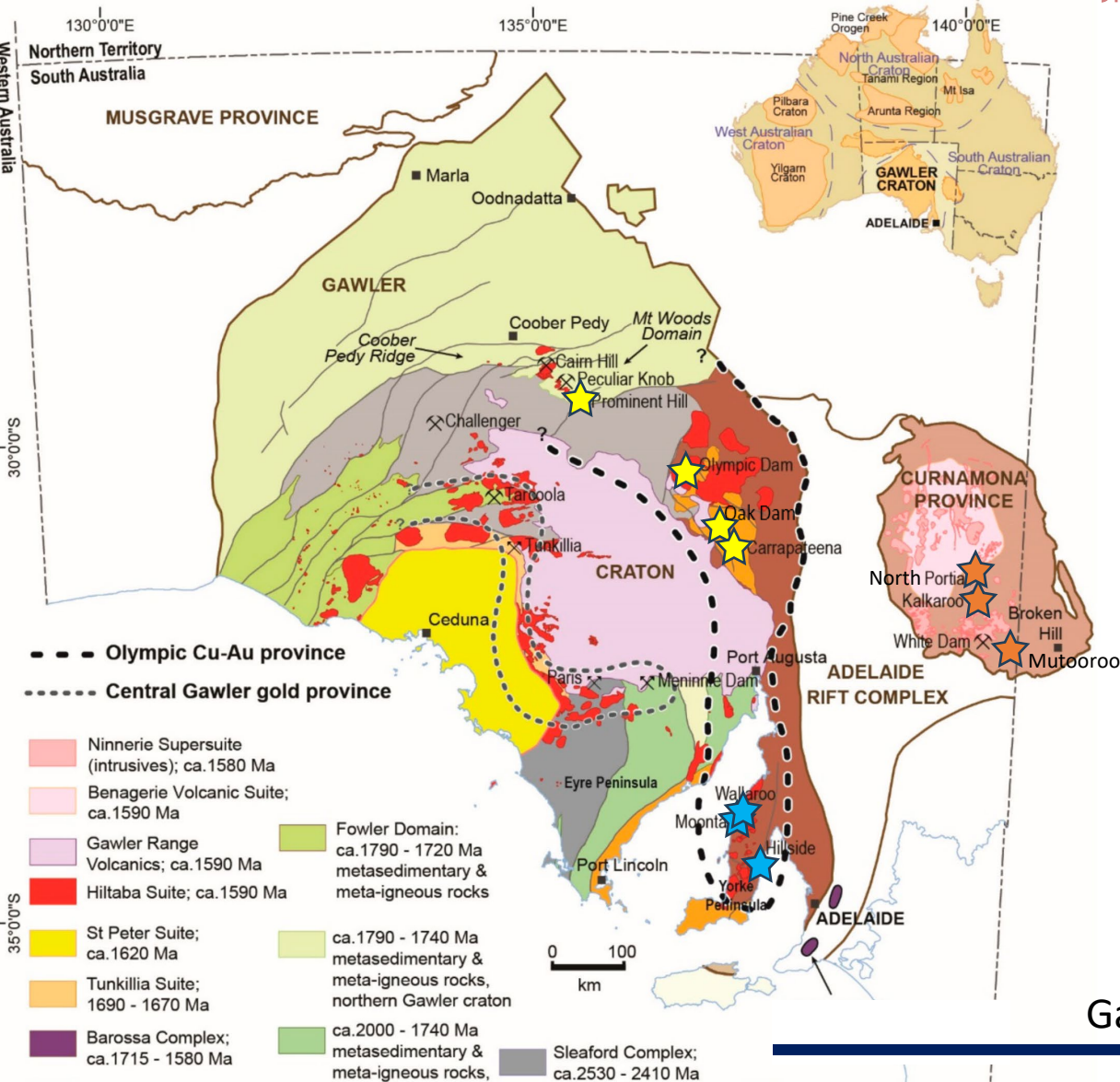
Prominent Hill



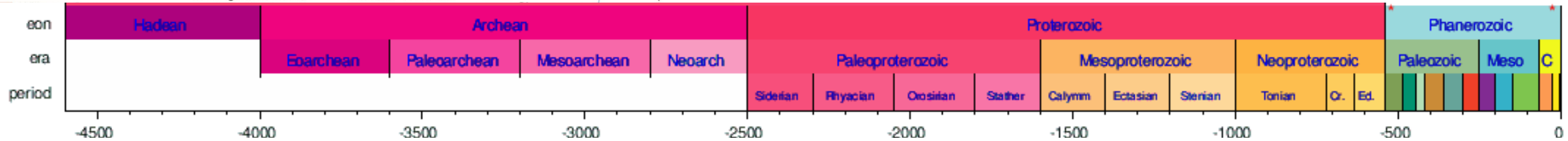
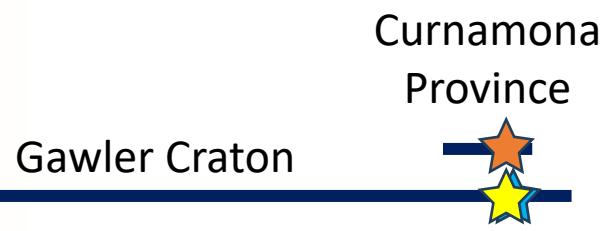
Reference drillholes from IOCG and associated deposits in South Australia

Adrian Fabris and Bernd Michaelsen





- South Australia's main geological provinces for copper:
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 - ★ IOCG mineralisation in Olympic Cu-Au province at c. 1590 Ma
 - ★ Skarn and other Cu-Au mineralisation at c. 1590 Ma
 - Curnamona Province (1800 Ma – 1550 Ma)
 - ★ Cu-Au mineralisation at c. 1590 Ma



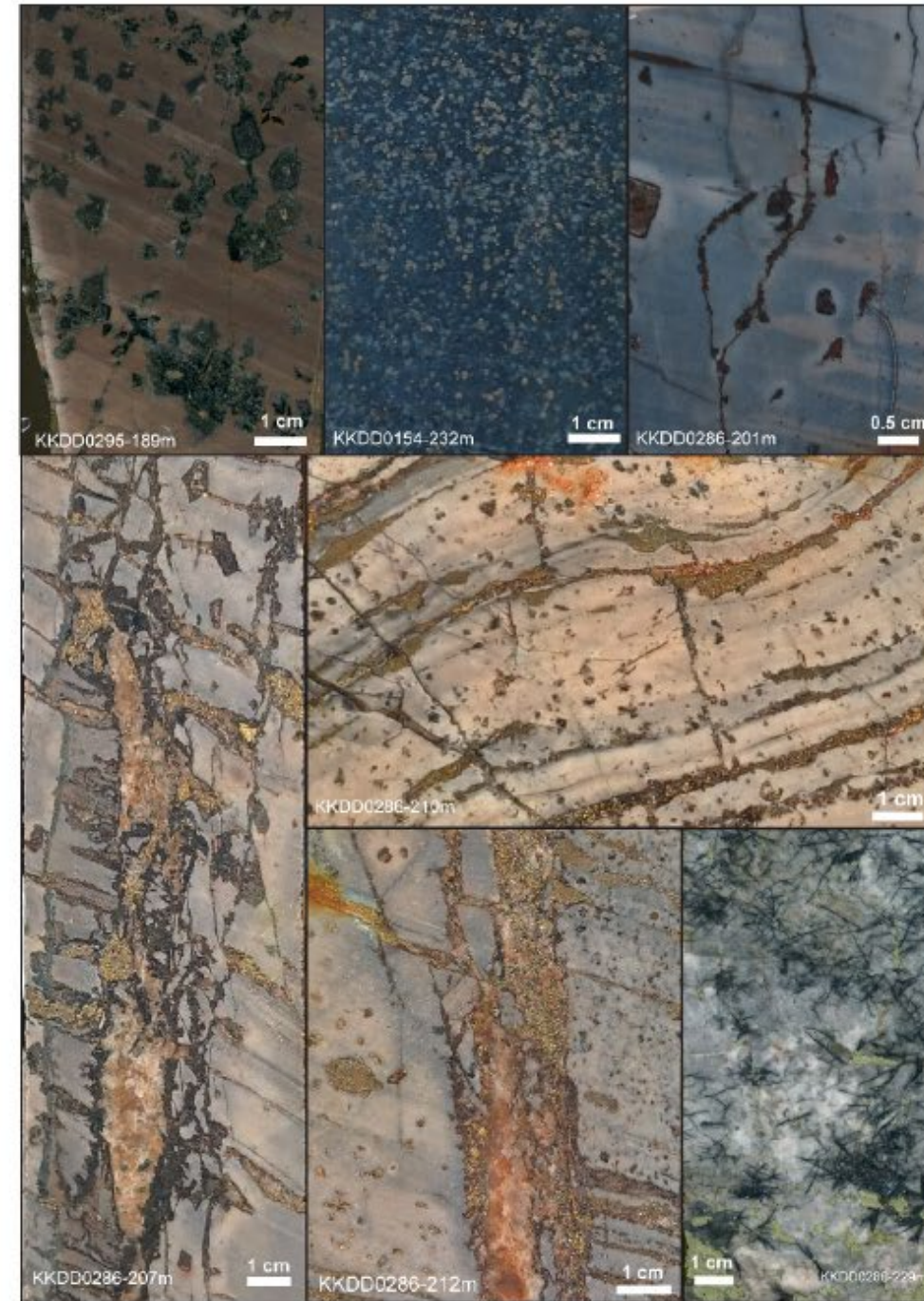
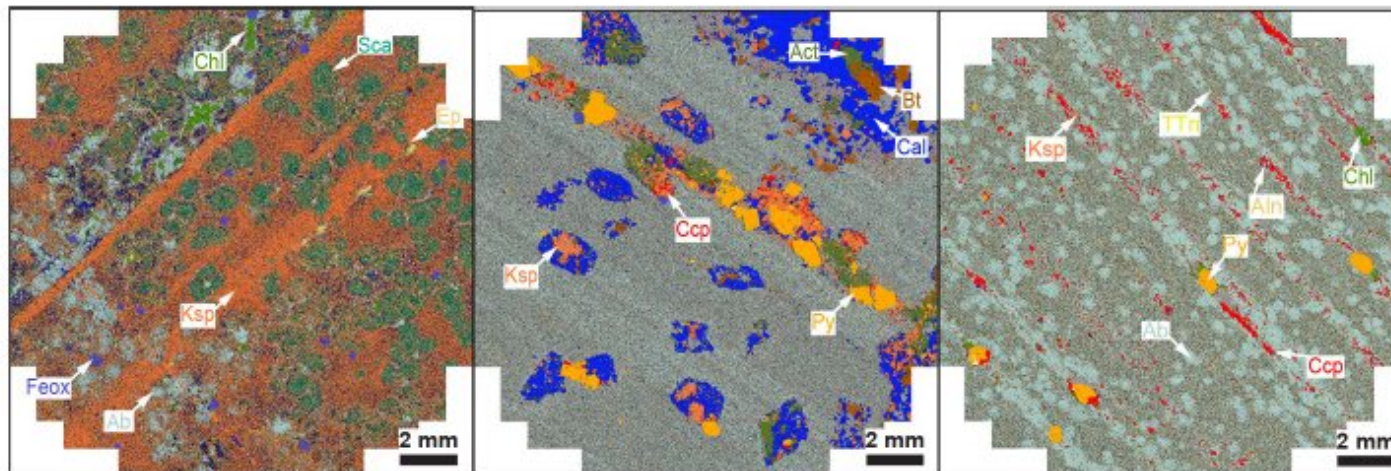
Curnamona Province Cu-Au

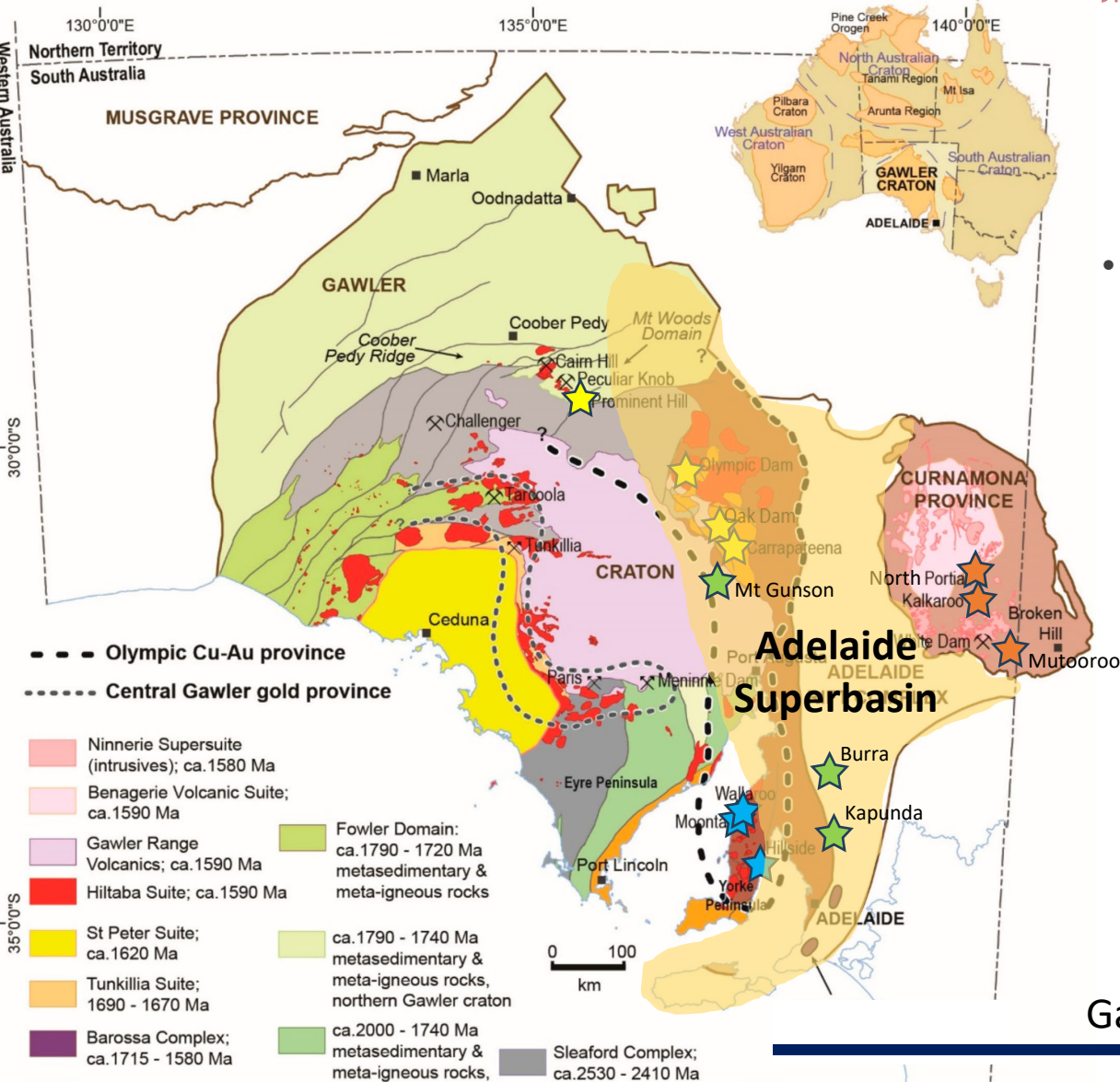
e.g. Kalkaroo Cu-Au-(Co) deposit

Host rocks: Albitites, pelites showing ovoids-ellipsoids and rhomboids pseudomorphs (Portia Fm.) and breccias

Ovoid and Rhomboid Features

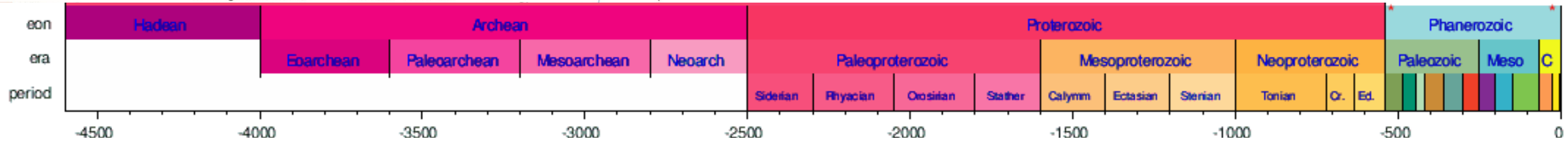
- rarely primary mineralogy present – Scapolite
- Carbonate ellipsoids are associated with K-feldspar, biotite, chlorite and host chalcopyrite.
- Mineralogy in ovoid and rhomboid match change in breccia mineralogy from east to west (see next slide).
- are first to get hydrothermally altered and kaolinised during weathering



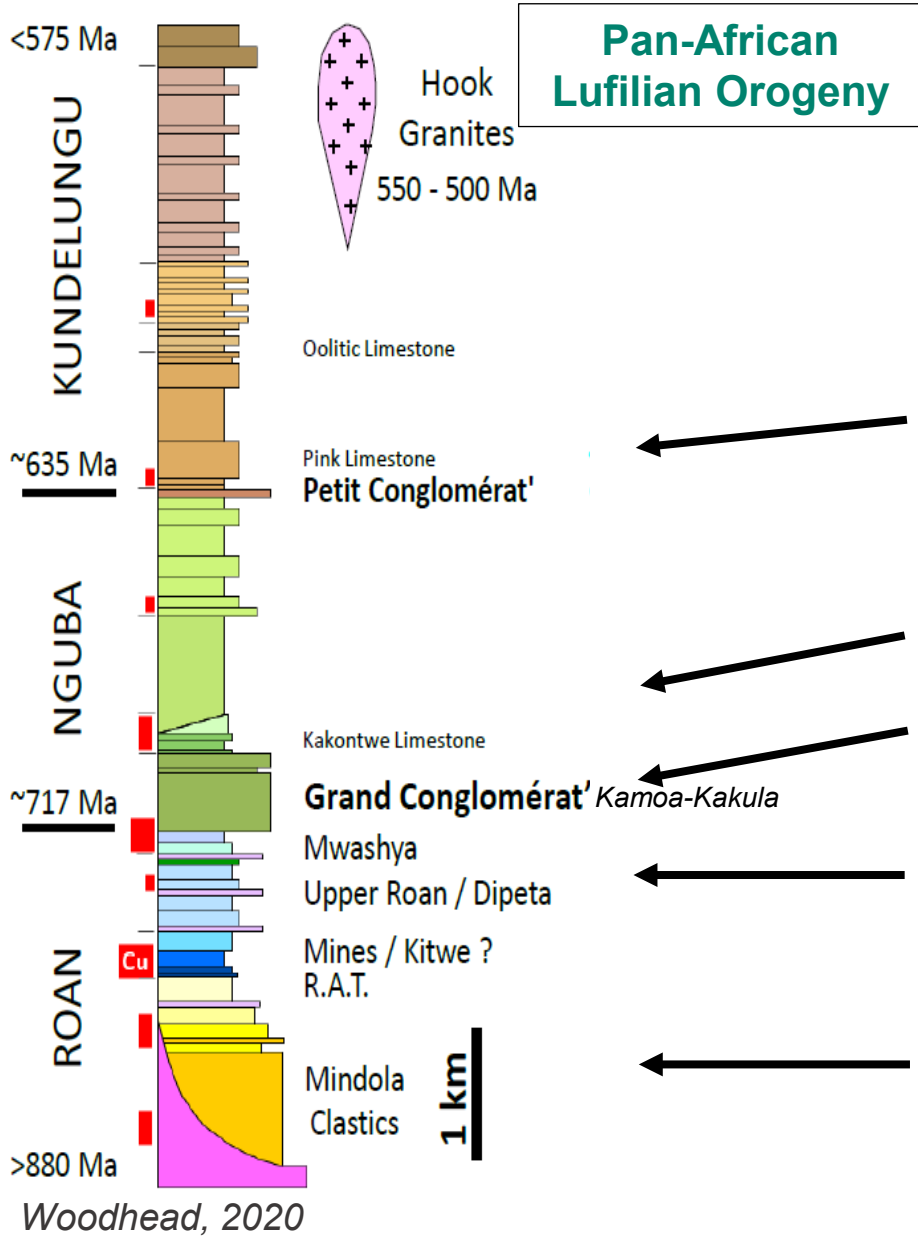


• South Australia's main geological provinces for copper:

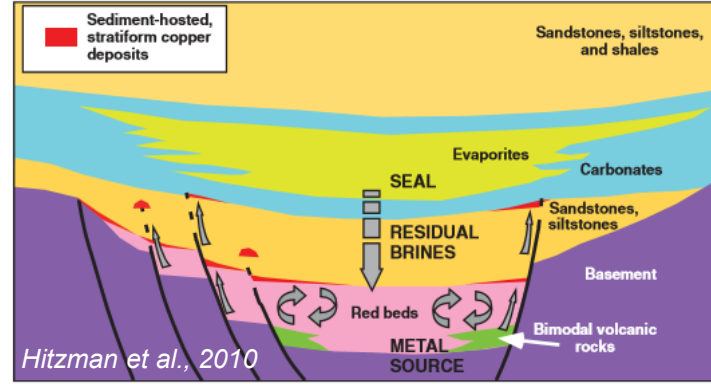
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- Adelaide Superbasin (800 Ma – 540 Ma)
 - ★ Sediment-hosted Cu mineralisation syn-sedimentary (?)



Katangan Supergroup



Sediment-hosted Cu



Delamerian Orogeny

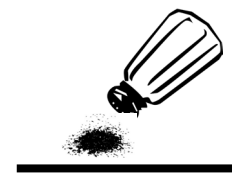
Cap carbonate
post-Marinoan glaciation

Seal/trap
→ carbonate

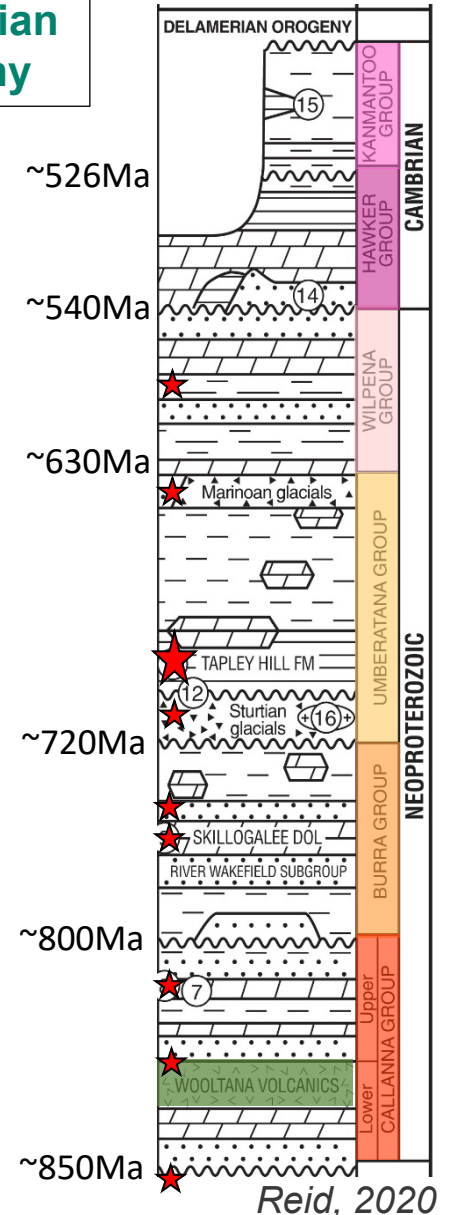
Sturtian glacials

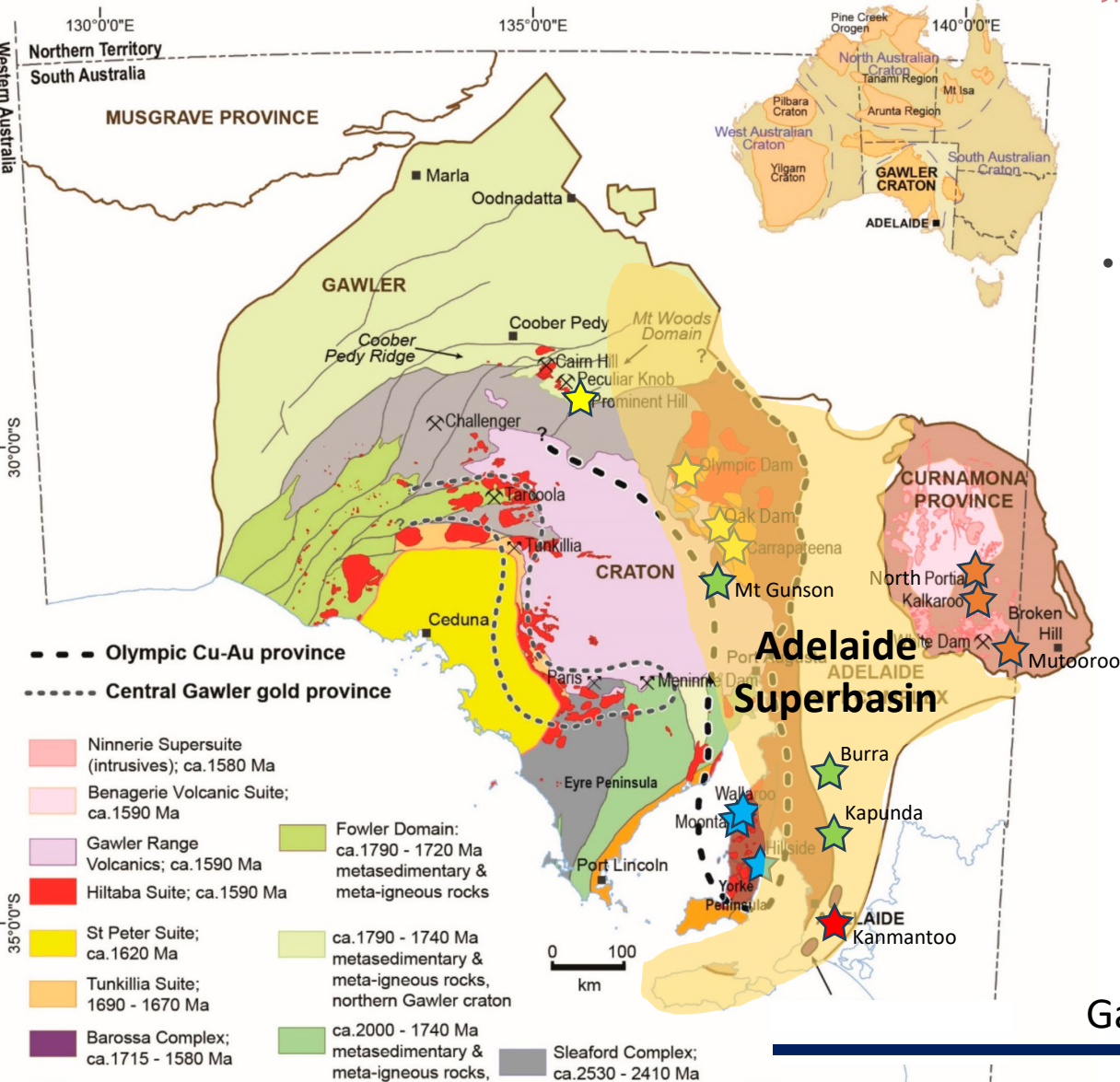
Renewed extension
→ finer-grained clastics and carbonates

Rift phase
→ coarse clastics, evaporites, carbonates, mafic igneous rocks

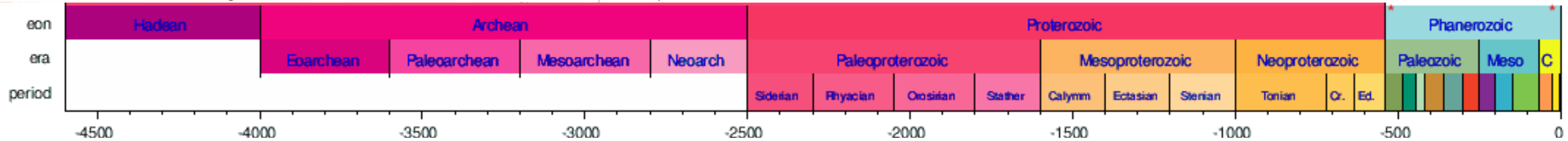
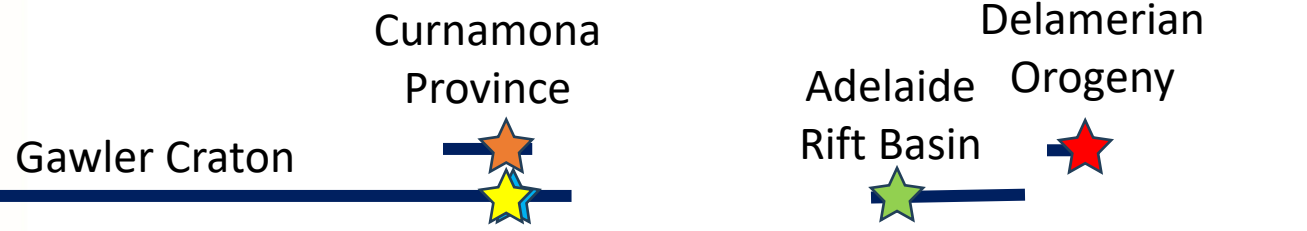


Adelaide Superbasin

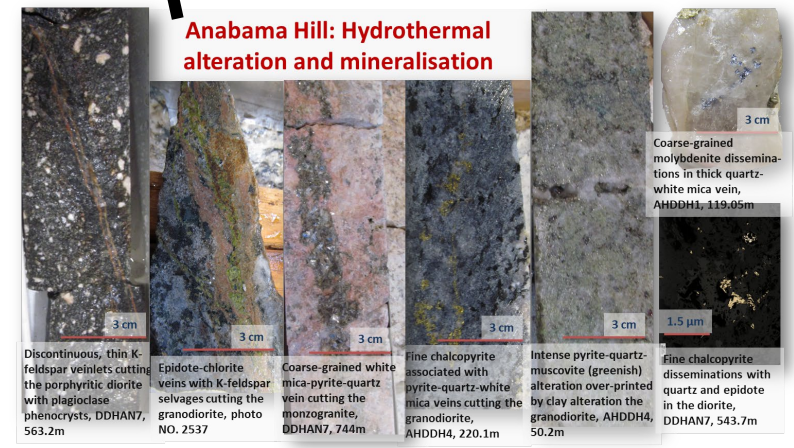
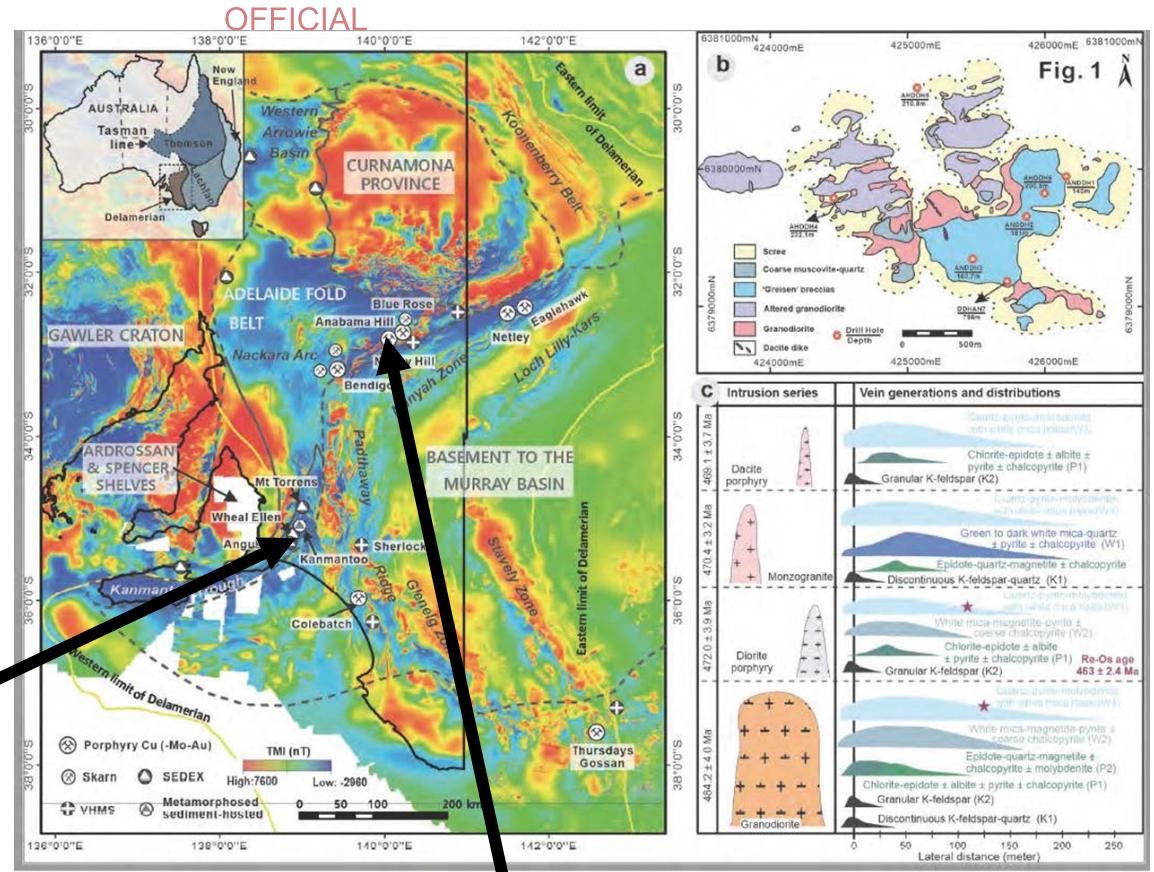




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 - ★ Sediment-hosted Cu mineralisation syn-sedimentary (?)
 - ★ Cu mineralisation associated with magmatism and deformation during Delamerian Orogeny (515 Ma – 480 Ma)

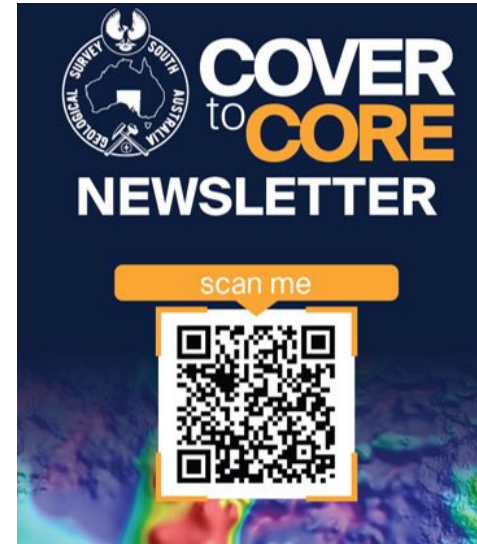
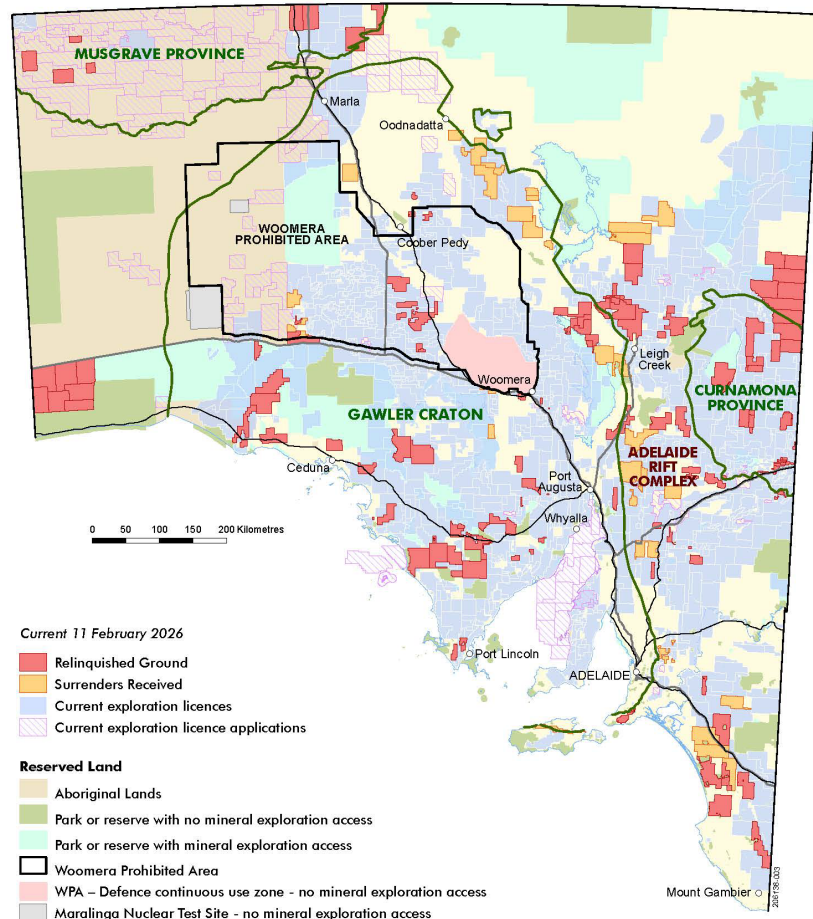


Kanmantoo Cu-Au Mine



Structurally-controlled porphyry systems: 480-460 Ma

Significant exploration acreage to be released over the next 6 months

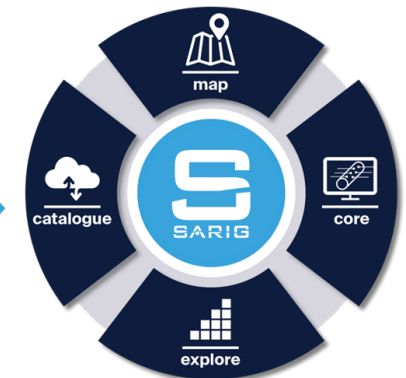


Access our data and find out more!

140 years of geoscience information

- People**
Easy access to accurate, up-to-date geoscience data for exploration drilling decisioning making.
- Process**
Cloud-based integration improving digital service efficiency, flexibility and scalability.
- Technology**
Establish open API endpoints making geoscience data findable, accessible, interoperable and reusable (FAIR data principles).

Digital Delivery
Expanded digital footprint of South Australia geoscience information to unlock mineral resources.



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Government
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Energy and Mining