The Thursday's Gossan Porphyry – it can't run, but it can hide

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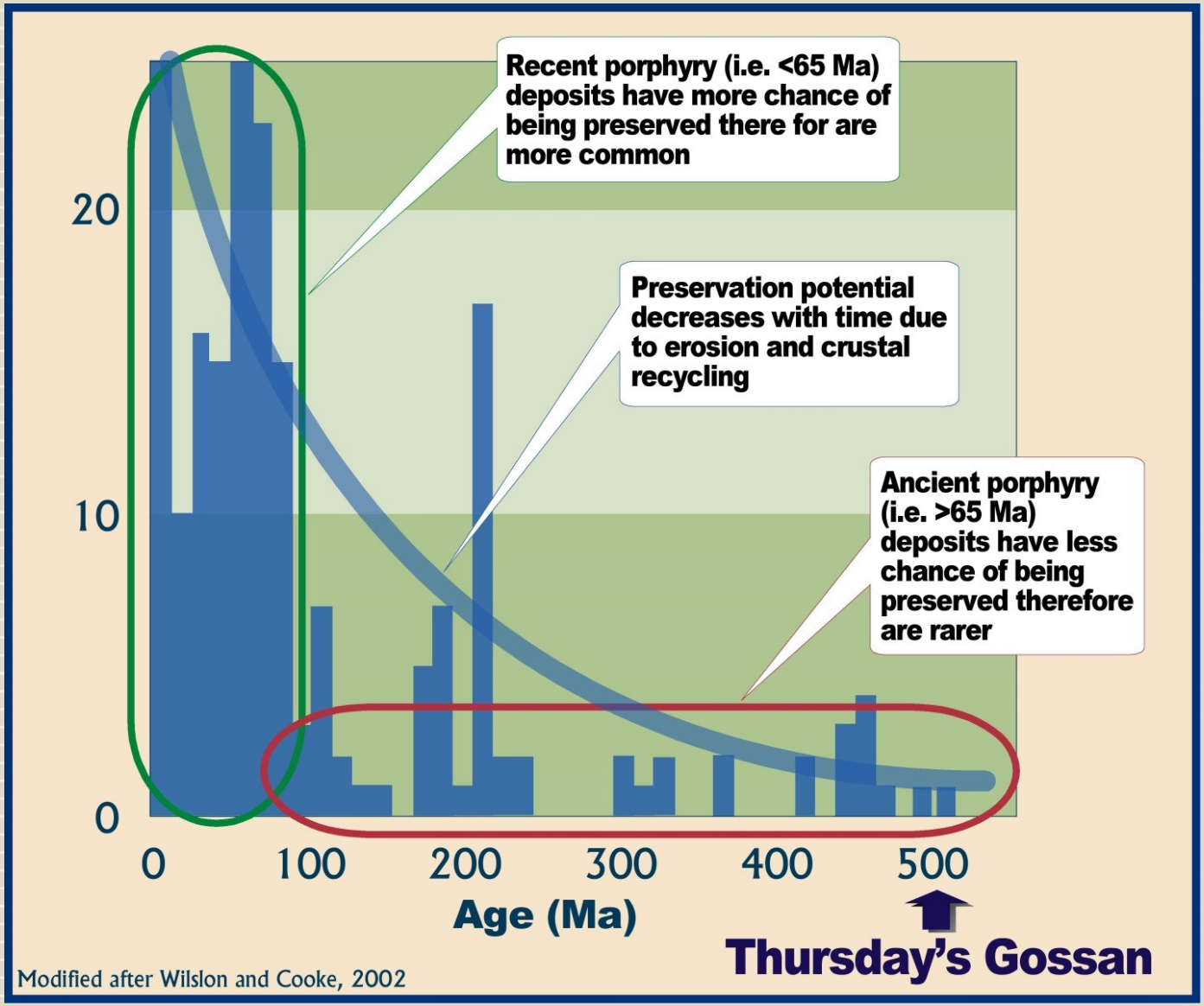
WHY LOOK FOR PORPHYRIES IN WESTERN VICTORIA?

ANCIENT PORPHYRIES

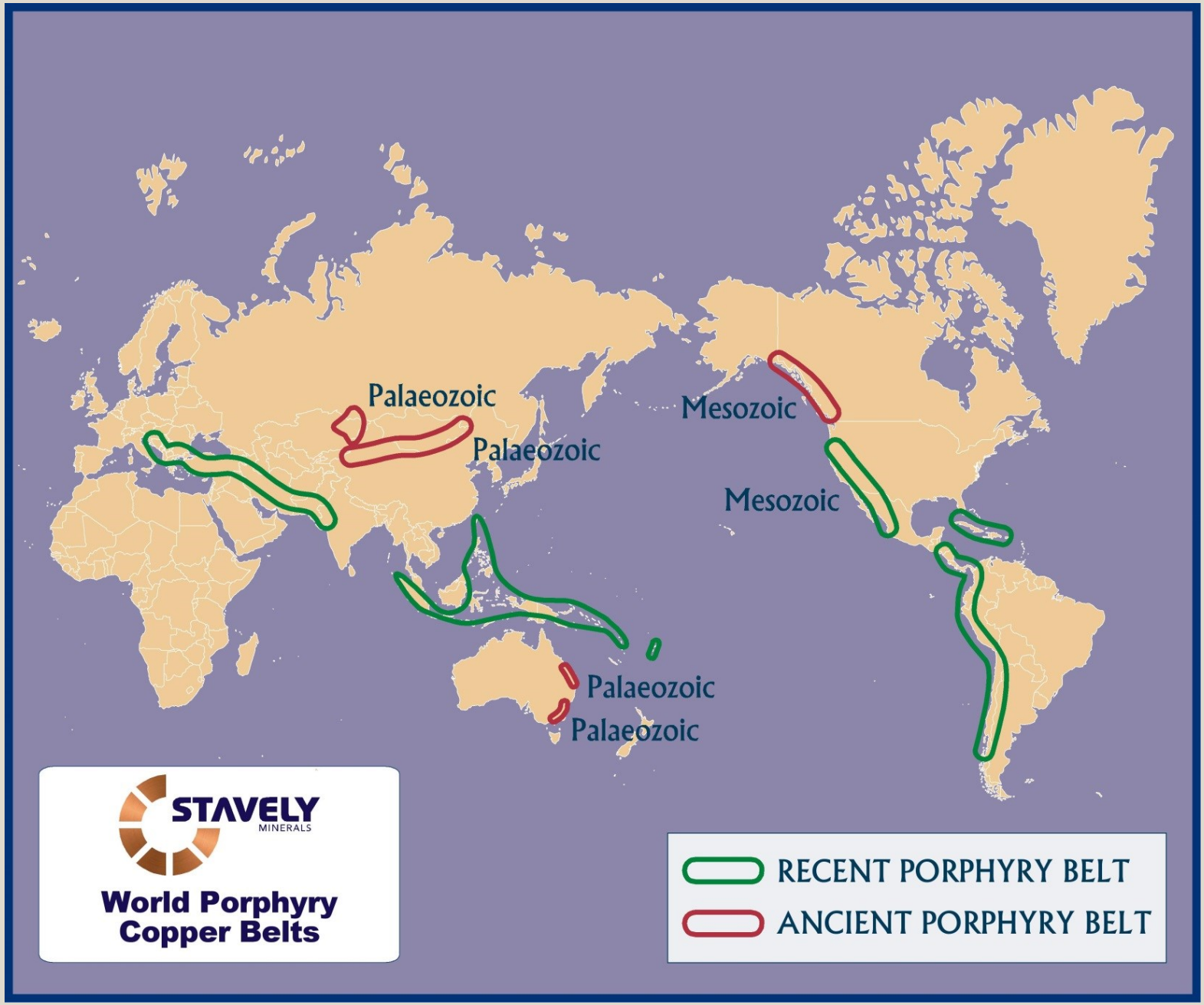
- Porphyries are large metal systems with a well understood alteration zonation typically an order of magnitude larger than the deposit itself – ie. The ‘hydrothermal system’ has a large footprint that has a recognisable zonation from cooler outer alteration to hotter inner alteration
- There are several types of porphyries – copper, copper-molybdenum, copper-gold, molybdenum etc
- Many are operated as large open pits but a special class are attractive as underground ‘block cave’ operations – those deposits are alkalic copper-gold porphyries typically with higher copper and/or gold grades and this is what we are looking for!

ANCIENT PORPHYRIES

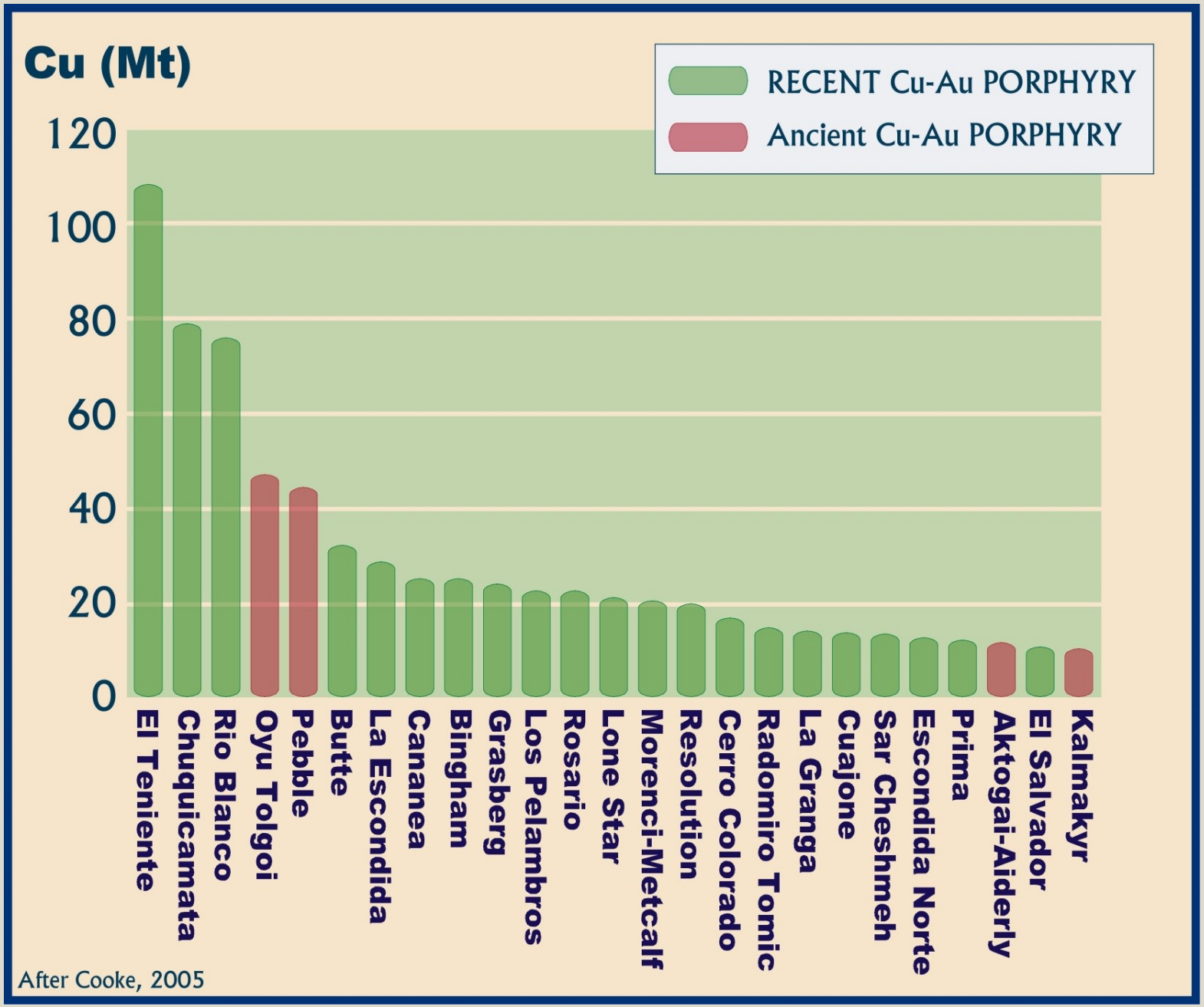


- Porphyry deposit examples from as early as Archaean age
- Likelihood of porphyry deposit preservation decreases with age due to erosion and crustal recycling

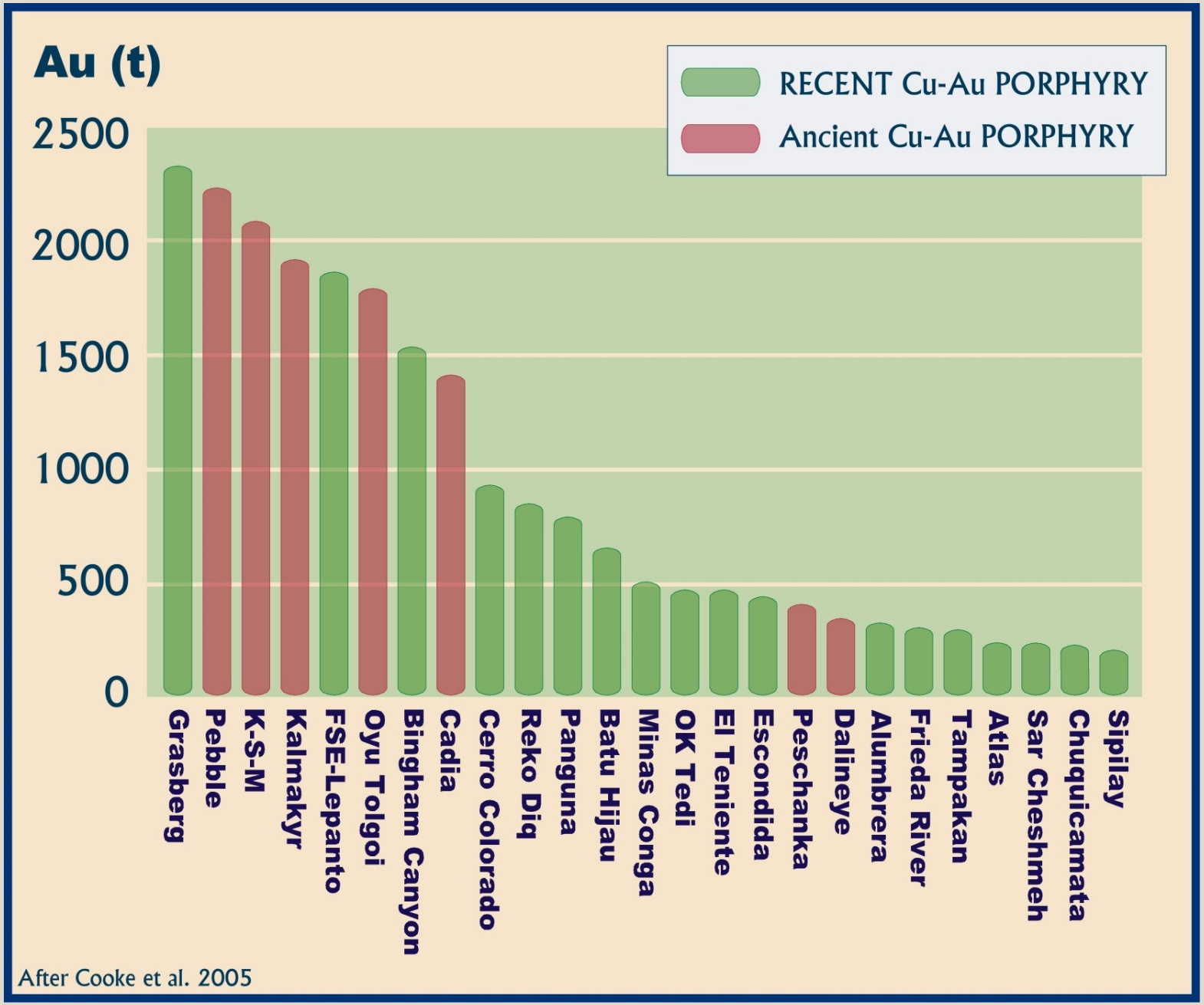
ANCIENT PORPHYRIES



ANCIENT PORPHYRIES



ANCIENT PORPHYRIES



ANCIENT PORPHYRIES

- ✓ Despite the reduced likelihood of preservation, the ‘ancient’ porphyries are disproportionately gold-rich
- ✓ The better value per tonne allows development by less obtrusive yet very cost-efficient block-cave mining method

Alkalic porphyries are characteristically smaller spatially, and can have more limited alteration haloes making them a more difficult exploration target

- ➢ 7 phases of drilling lead to the discovery of Cadia Ridgeway – initial Mineral Resource:

  44Mt at 2.6 g/t gold and 0.82% copper*

**Discovery of the Cadia Ridgeway gold-copper porphyry deposit, Halliday et al, 1999*

ANCIENT PORPHYRIES

But what is the evidence that the Thursday's Gossan porphyry is an alkalic copper-gold porphyry?

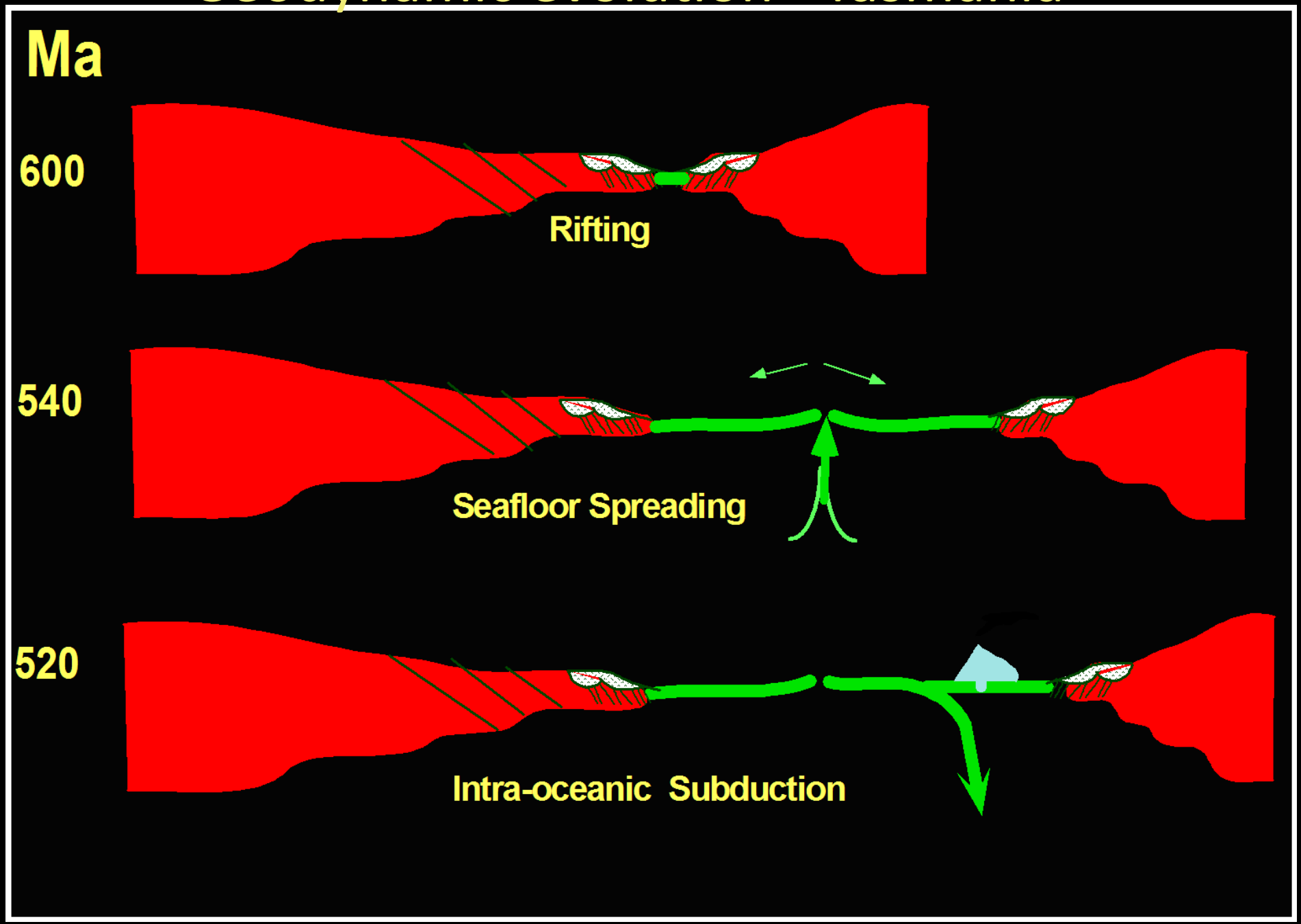
- ✓ Zones of pervasive hematite alteration
- ✓ Strongly negative δ34 sulphur isotope values
- ✓ Metal ratios – gold and silver rich zones
  - – **5m @ 1.4% copper, 0.25g/t gold and 11 g/t silver** from the Junction deposit
  - – D-veins from Thursday's Gossan
    - • **7.7 metres at 4.14% copper, 1.08 g/t gold and 77g/t silver**
    - • **9.5 metres at 2.93% copper, 0.44g/t gold and 42 g/t silver**
    - • VSTD001 – **32m at 0.8% copper and 0.4g/t gold**
- ✓ Geochemical similarity with alkalic 'switch' in the Mt Read Volcanics – Tony Crawford, UTAS

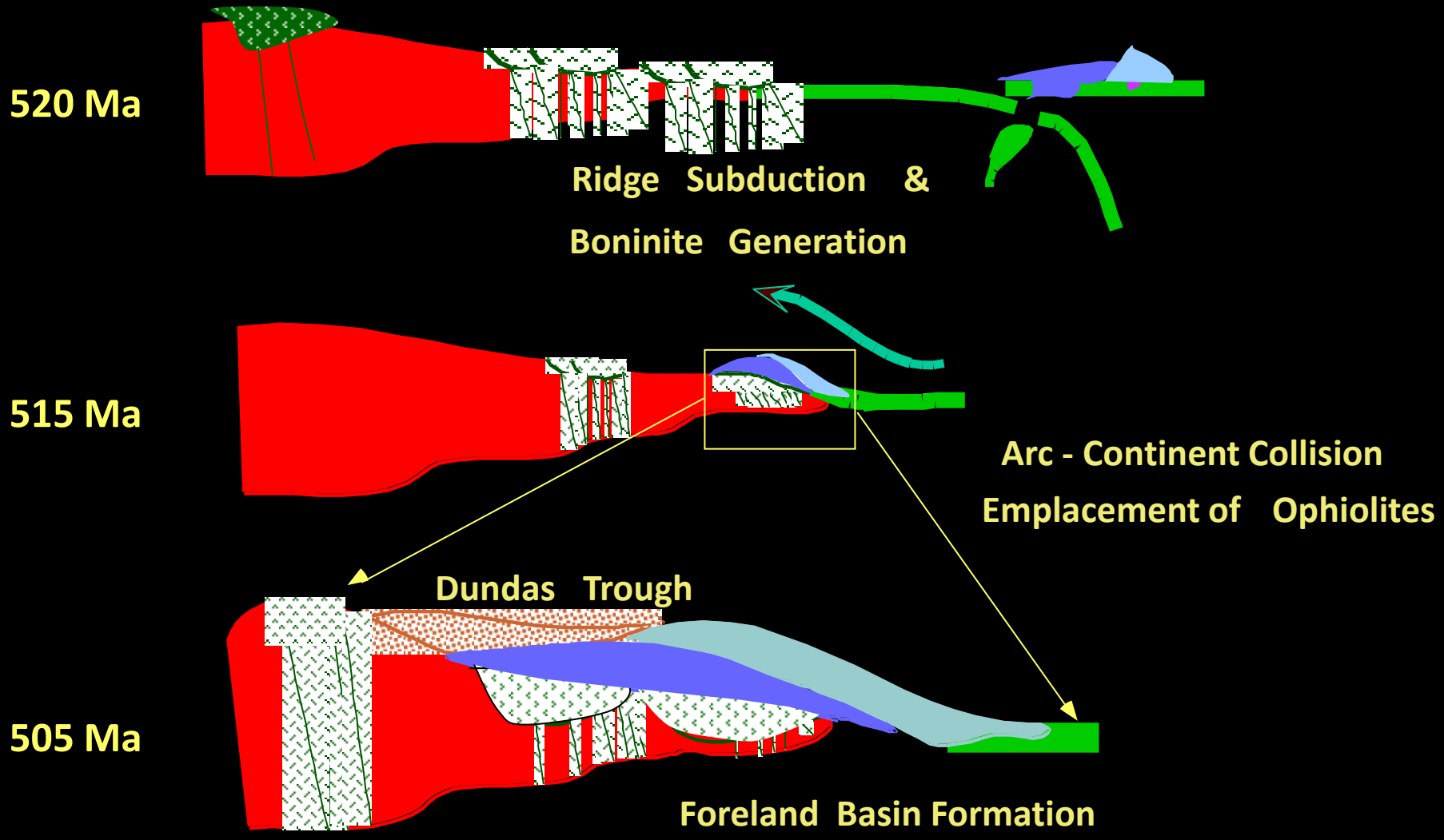
[1] see ASX announcement dated 12 May 2014 and available from www.stavely.com.au

THE MOUNT READ VOLCANICS LINK

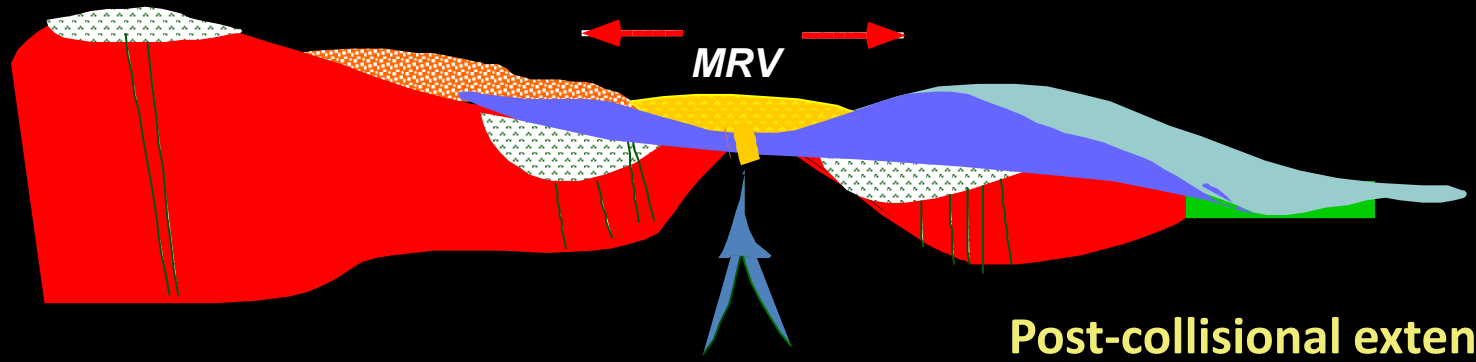
(the following slides are from Professor Tony Crawford's work, with permission)

Geodynamic evolution - Tasmania



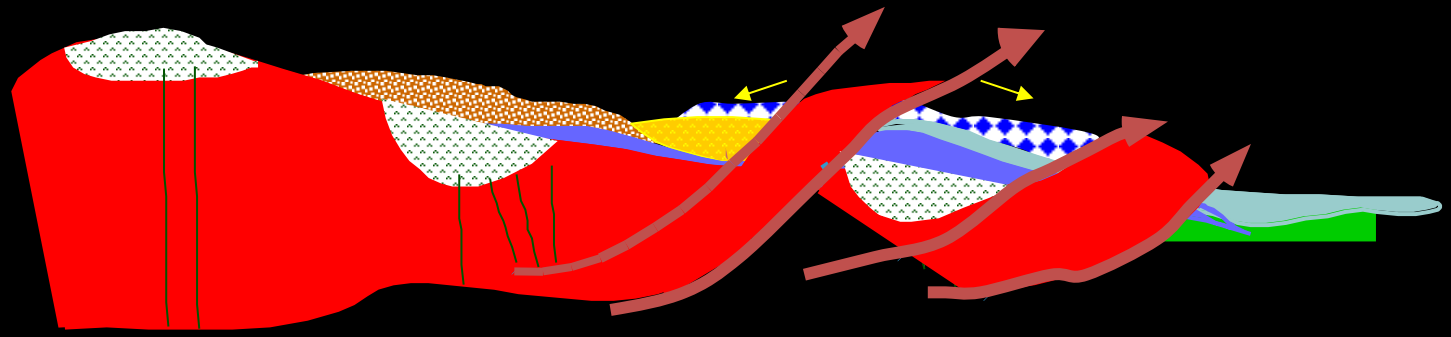

520 Ma
Ridge Subduction &
Boninite Generation
515 Ma
Arc - Continent Collision
Emplacement of Ophiolites
Dundas Trough
505 Ma
Foreland Basin Formation

500 Ma



Post-collisional extension
& magmatism

490 Ma



Exhumation of PreC Crust
Extensive proximal siliciclastic molasse

The Mineralising “instant” in the Mt Read Volcanics

- a time of rapidly increasing crustal extension, with a rapid passage from andesitic, to MINERALISATION then primitive basaltic magmas, in a submarine setting,

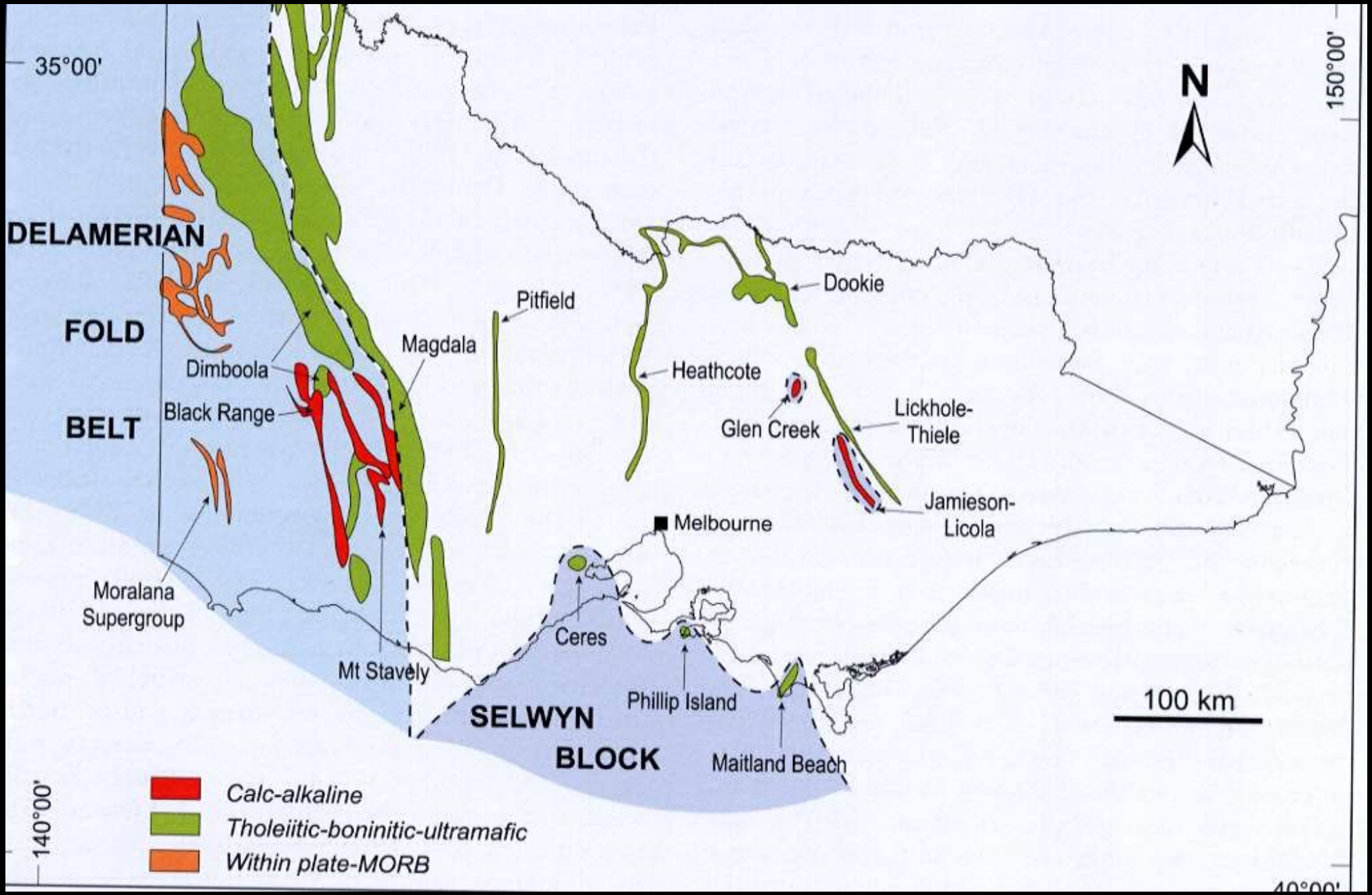
- a major and rapid change in magma type from medium-K calc-alkaline to hi-K and MINERALISATION and shoshonitic magmas, then into typical rift tholeiites, reflecting thinning of the lithosphere and eventual magma sourcing from convecting asthenospheric mantle

- sudden demise of the tholeiitic magmatism, reflecting abrupt cessation of crustal extension, and

- pooling of tholeiites in the lower crust, and melting out of the Tyndall Group felsic volcanics and correlates – the terminal flare-up of the Mt Read Volcanics

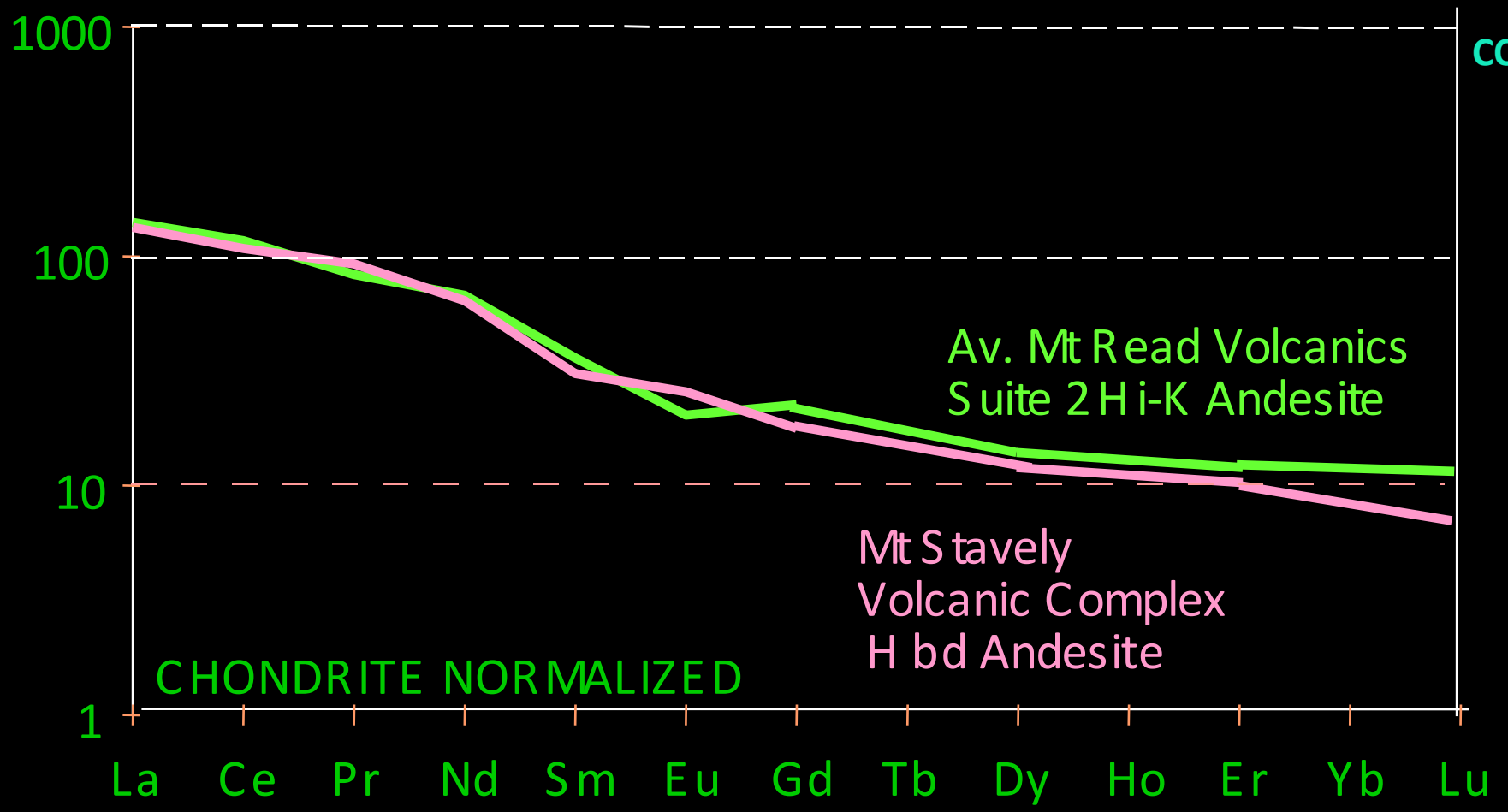
??? WHERE DOES THIS OCCUR IN W VICTORIA ?????

Late Neoproterozoic and Cambrian Greenstones, Victoria



MAIN ARGUMENTS

- That the Mount Stavely Volcanic Complex has pronounced age and petrological - geochemical similarities to the Mount Read Volcanics in W Tasmania
- Given the remarkably mineral-rich nature of the Mount Read Volcanics, the Stavely Greenstone Belt must be considered very prospective for VHMS- and porphyry Cu/Au exploration
- >300km of 'buried' Stavely Greenstone Belt beneath Murray Basin sediments (0-400m thick) demands relatively high-risk, high-resolution aeromag and drill-dominated exploration



Key point:

The higher-K andesites within the Stavely Volcanics are very similar petrographically and compositionally to the late (Suite 2) andesites in the Mt Read Volcanics

CONCLUSIONS

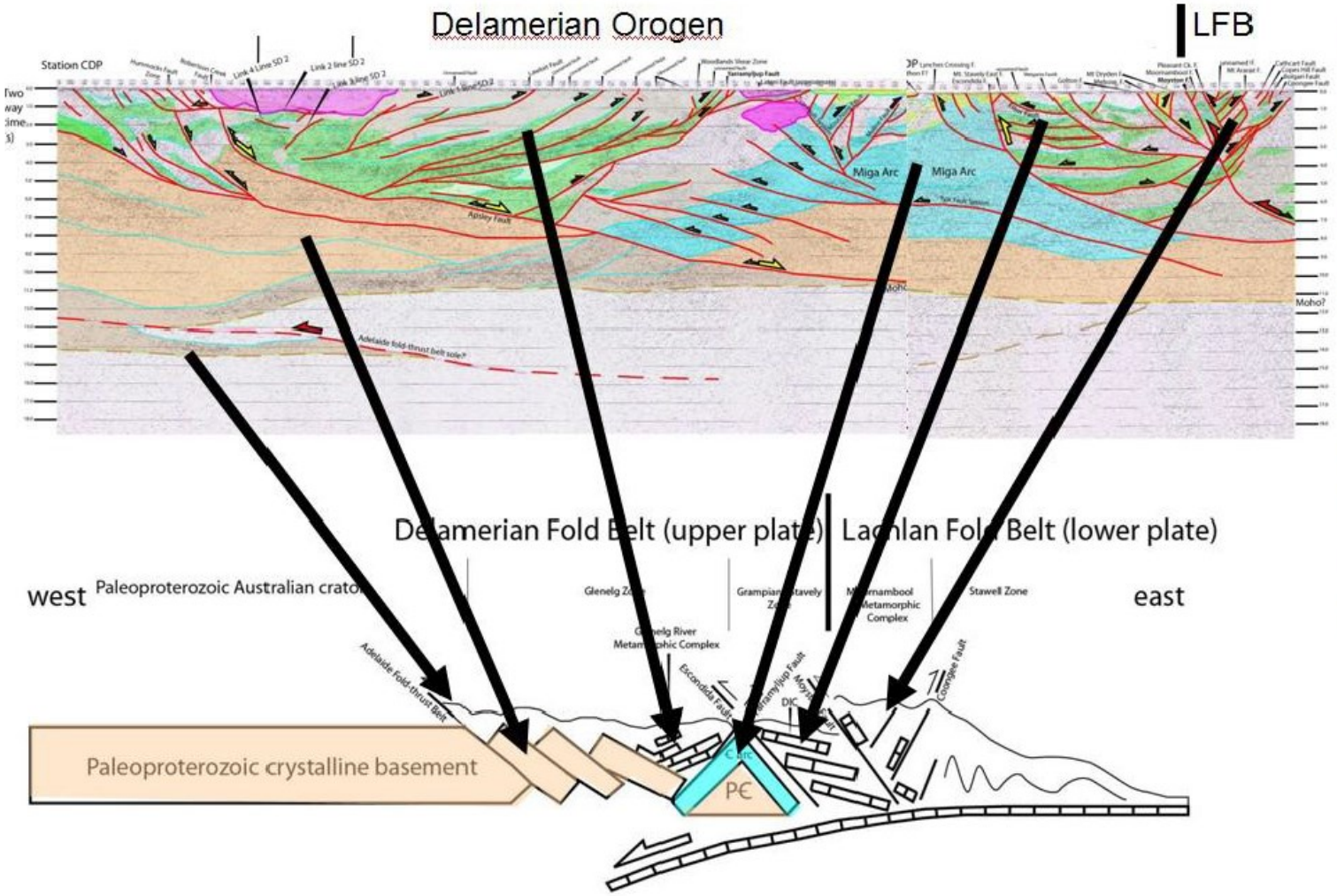
CODES 2001

- Pronounced temporal, lithostratigraphic, petrographic and geochemical similarities exist between exposed parts of the post-collisional ~500Ma volcanics in western Victoria, and the mineral-rich Mt Read Volcanics of W Tasmania
- In the latter region, mineralisation (both VHMS- and Mt Lyell-type) occurs almost synchronously at a time defined by a major, rapid change in magma type from medium-K calc-alkaline andesitic and felsic magmas to hi-K and shoshonitic basaltic magmas, reflecting abruptly increasing crustal extension
- Such changes reflect regional geodynamic controls and should be evident along the same 500Ma collision zone plate boundary in western Victoria

THE STAVELY VOLCANIC ARC

(as recognised through a joint GA and GSV collaborative seismic reflection acquisition project, 2006 and 2009)

Stavely Project – buried Andean Arc



Interpreted seismic data related to a theoretical plate tectonic scenario:

An accreted Cambrian back arc – arc – fore arc succession.

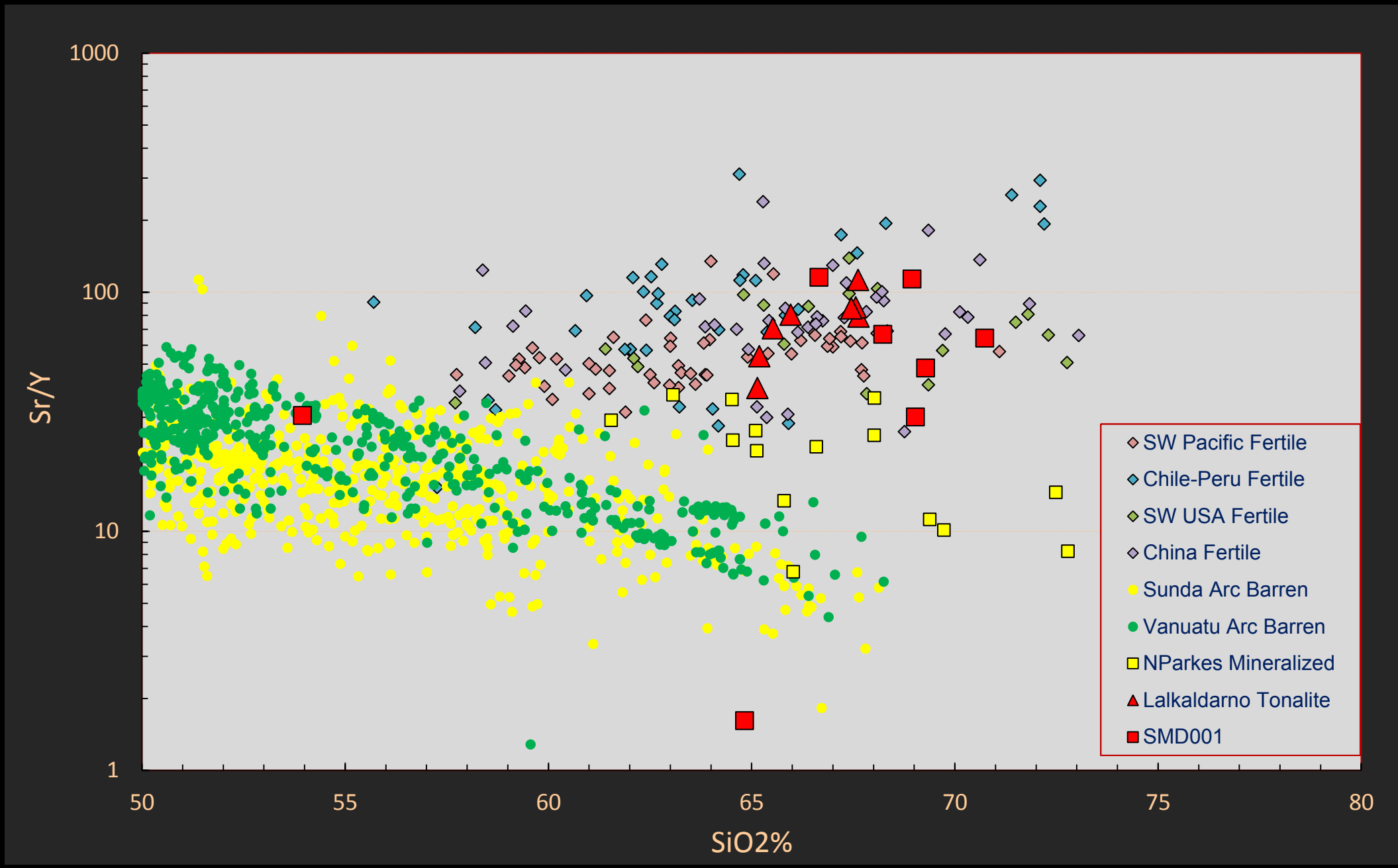
Victoria's earth resources under cover

Searching the Deep Earth Summit

31 March – 2 April 2014

DEPARTMENT OF STATE DEVELOPMENT BUSINESS AND INNOVATION

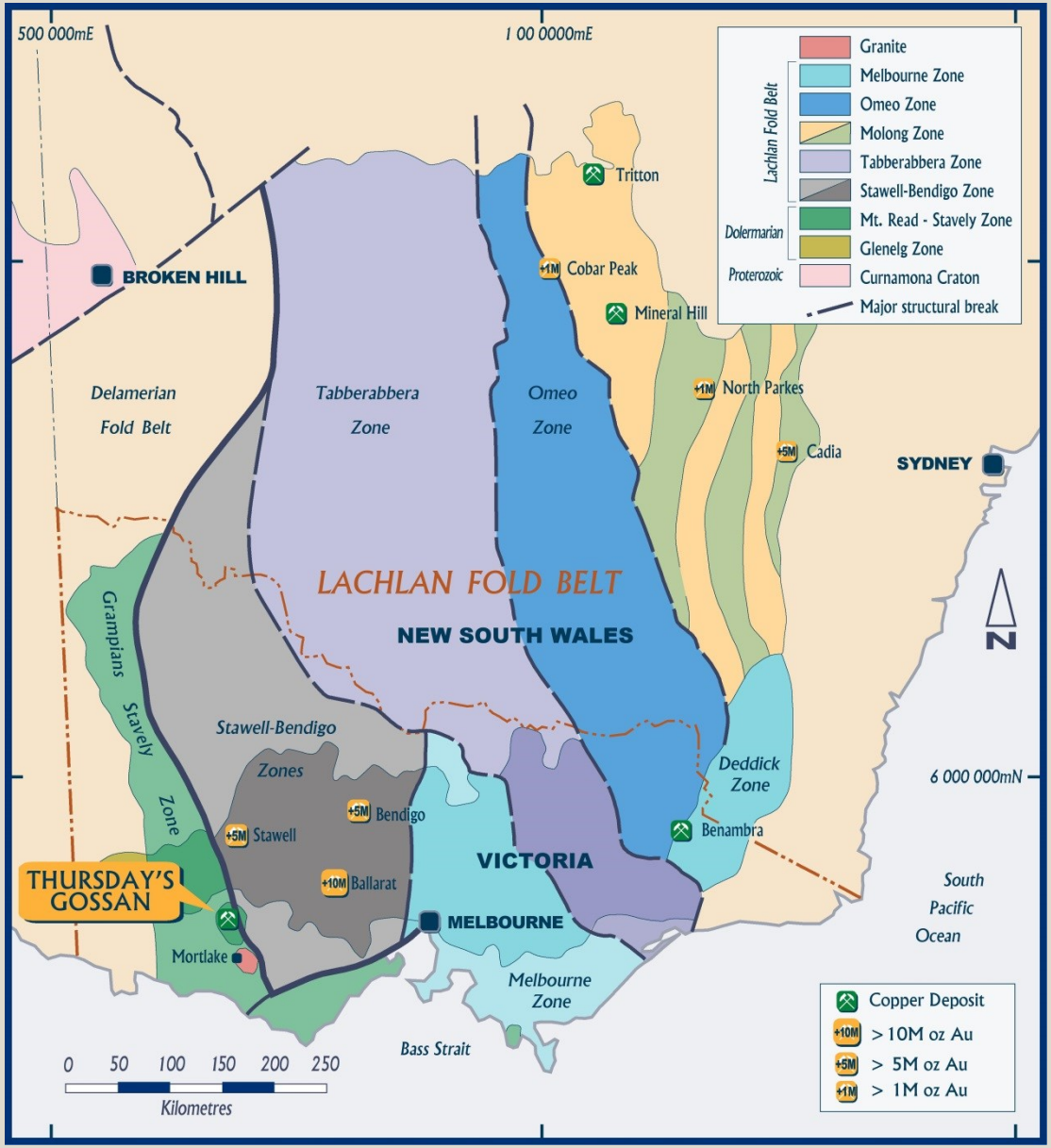
State Government Victoria



Plot provided by Professor Tony Crawford (UTAS), after Loukes, R.R., 2014, *Distinctive Composition of copper-ore-forming magmas*, in Australian Journal of Earth Sciences

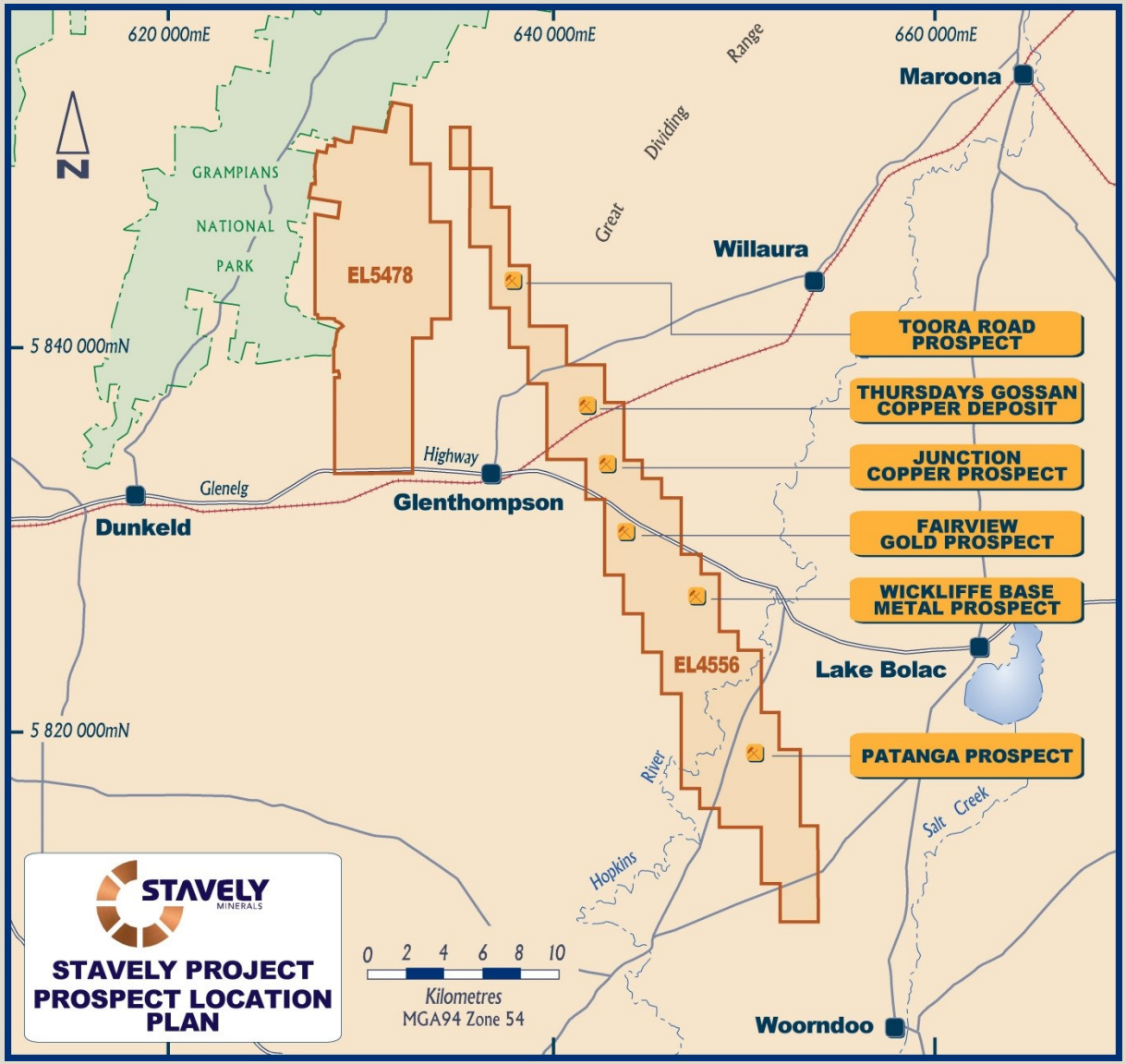
THE THURSDAY'S GOSSAN PORPHYRY

LOCATION



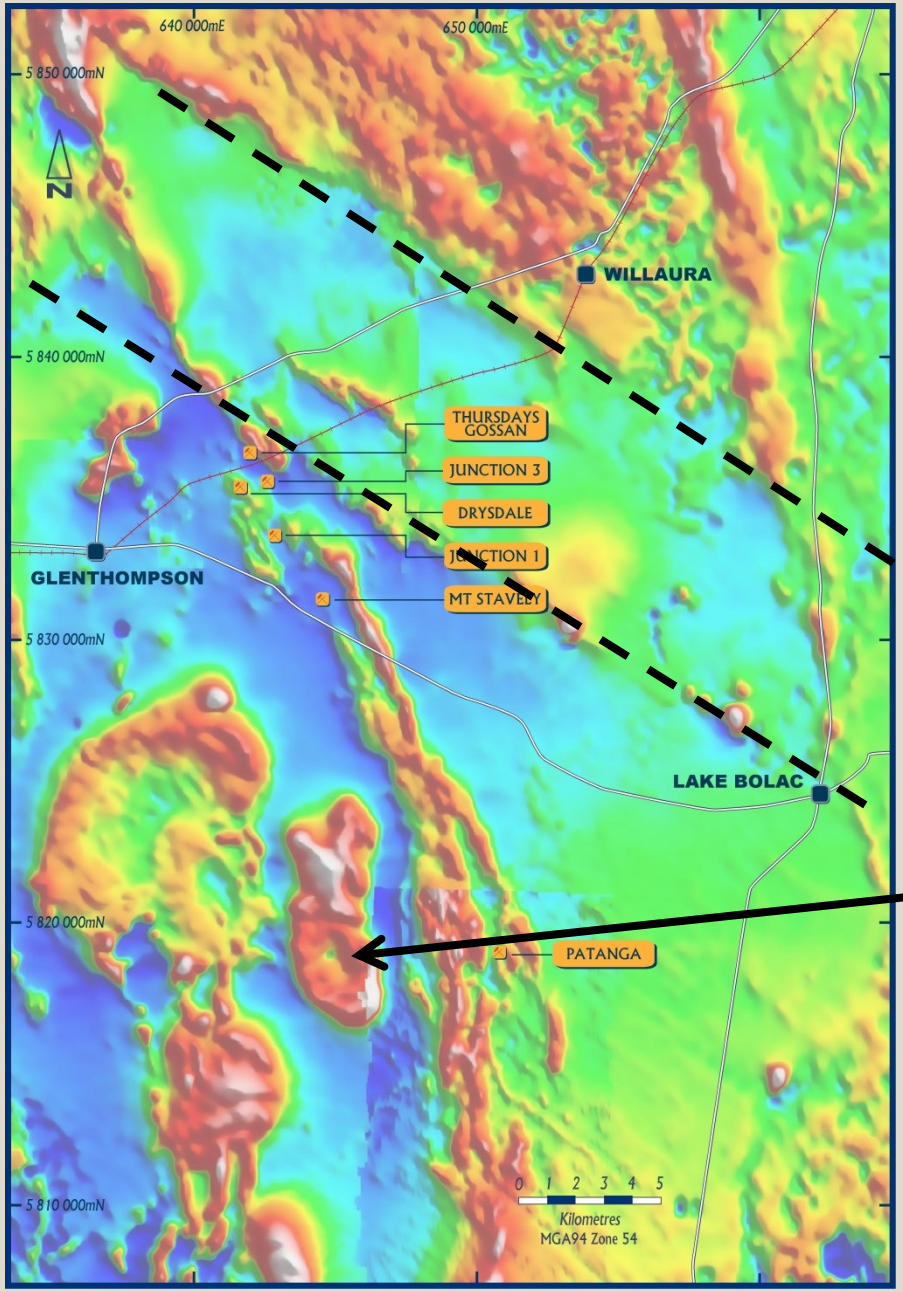
The Mount Stavely Volcanic Complex (MSVC) is prospective for ancient porphyry copper / copper-gold, VMS base metals-gold and intrusive-related gold mineralisation.

TENURE



Approximately 60 kilometres strike length of Mount Stavely Volcanic Complex (MSVC) under tenure

REGIONAL MAGNETICS 1VD

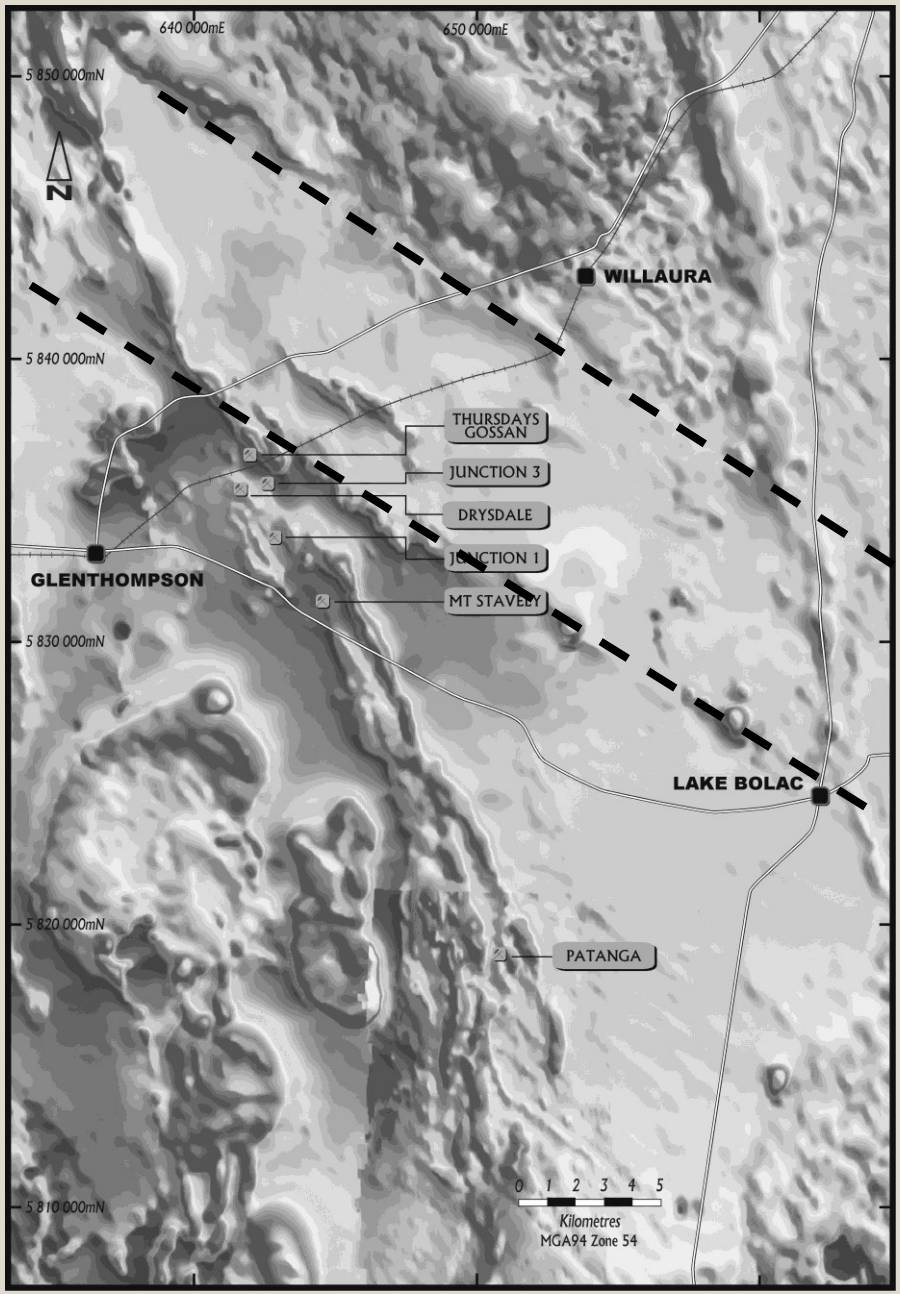


Similar structural setting to Cadia Valley

- ~N-S trending volcanic belt
- Major NW trending structures

The magnetic signature of the Bushy Creek Igneous Complex and the Buckeran Diorite suggests an ‘upright’ emplacement is preserved – by corollary, so too should be the late porphyries.

FOR THE OLDIES



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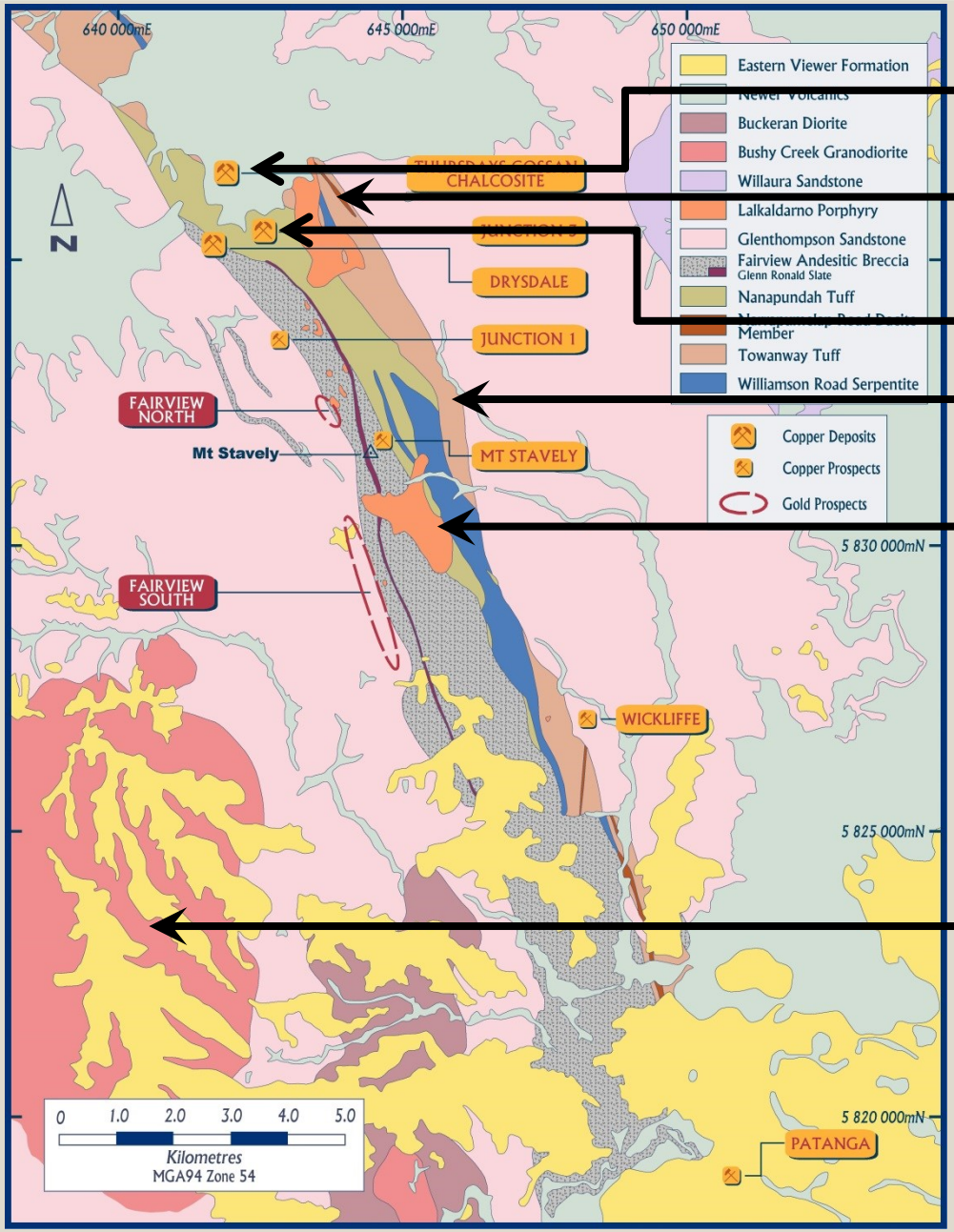
LOCAL GEOLOGY / AGE DATES



503.2 ±1.7Ma – Thursday's Gossan

476 ±4.4Ma – Thursday's Gossan

495 ±5Ma – Narrapumelap Dacite

500.6 ±1.7Ma - Junction porphyry

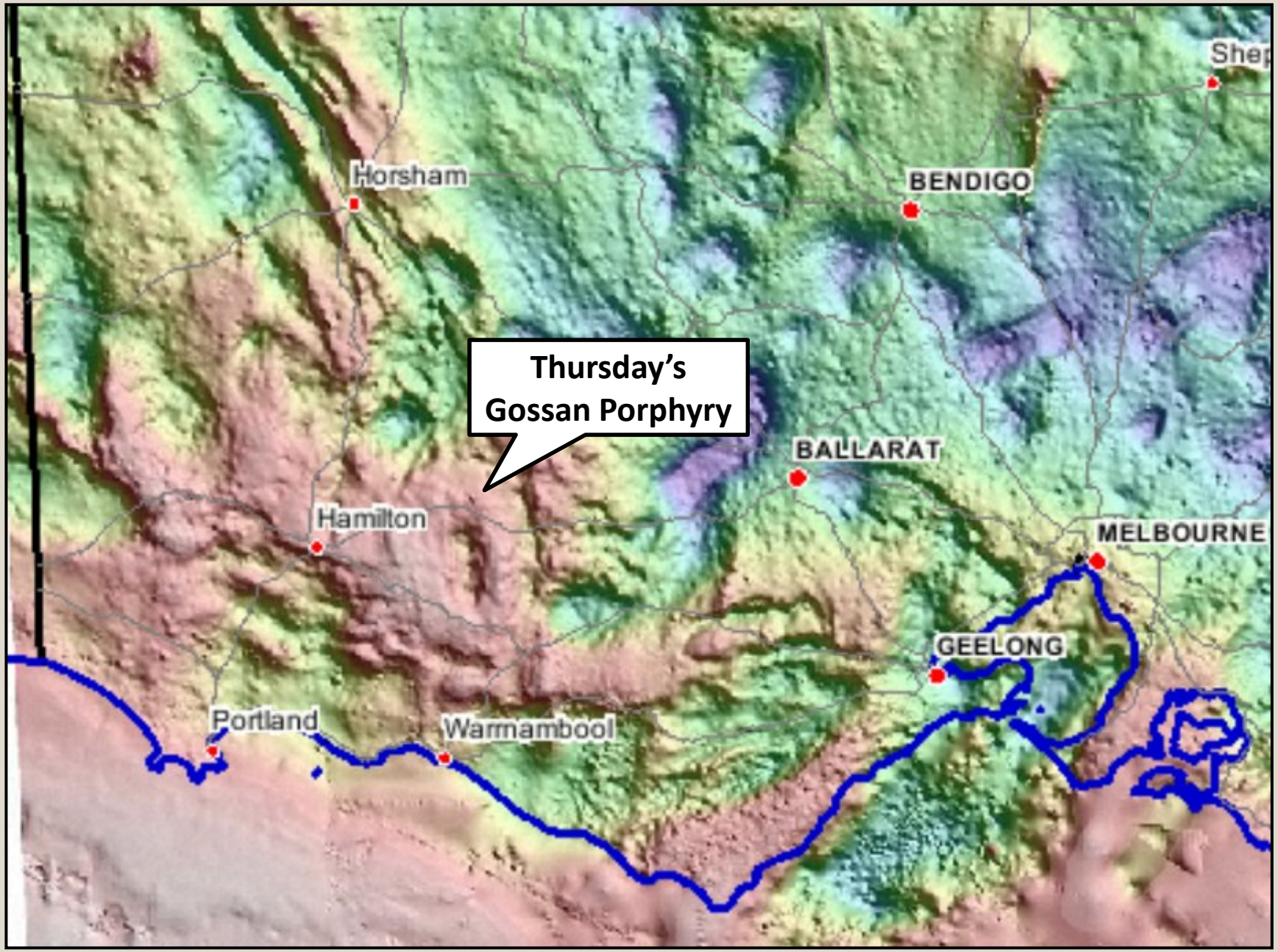
501 ±9Ma – Towanway Tuff

500 ±2Ma - Lalkaldarno Porphyry

489 ±7Ma – Bushy Creek Granodiorite

After Stuart-Smith and Black, 1999

REGIONAL GRAVITY



EXPLORATION HISTORY

1970s – WMC, stream sediment sampling generated anomalies but failed to follow-up

1980s – Penzoil, road verge RAB drilling following up WMC anomalies discovered bedrock copper mineralisation

1990s – North Limited, post discovery of North Parkes and Cadia systems, recognition of the potential for the MSVC to host porphyry copper/gold mineralisation. Drilled a large number of aircore drill holes in the chalcocite-enriched blanket and a number of diamond drill holes looking for the potassic core

Late 1990s – CRA, joint ventured into the North ground, drilled a number of diamond drill holes. Withdrew.

Ground subsequently dropped by North and picked up by New Challenge Resources Pty Ltd (ex-North Ltd Exploration Manager Mr Peter Legge)

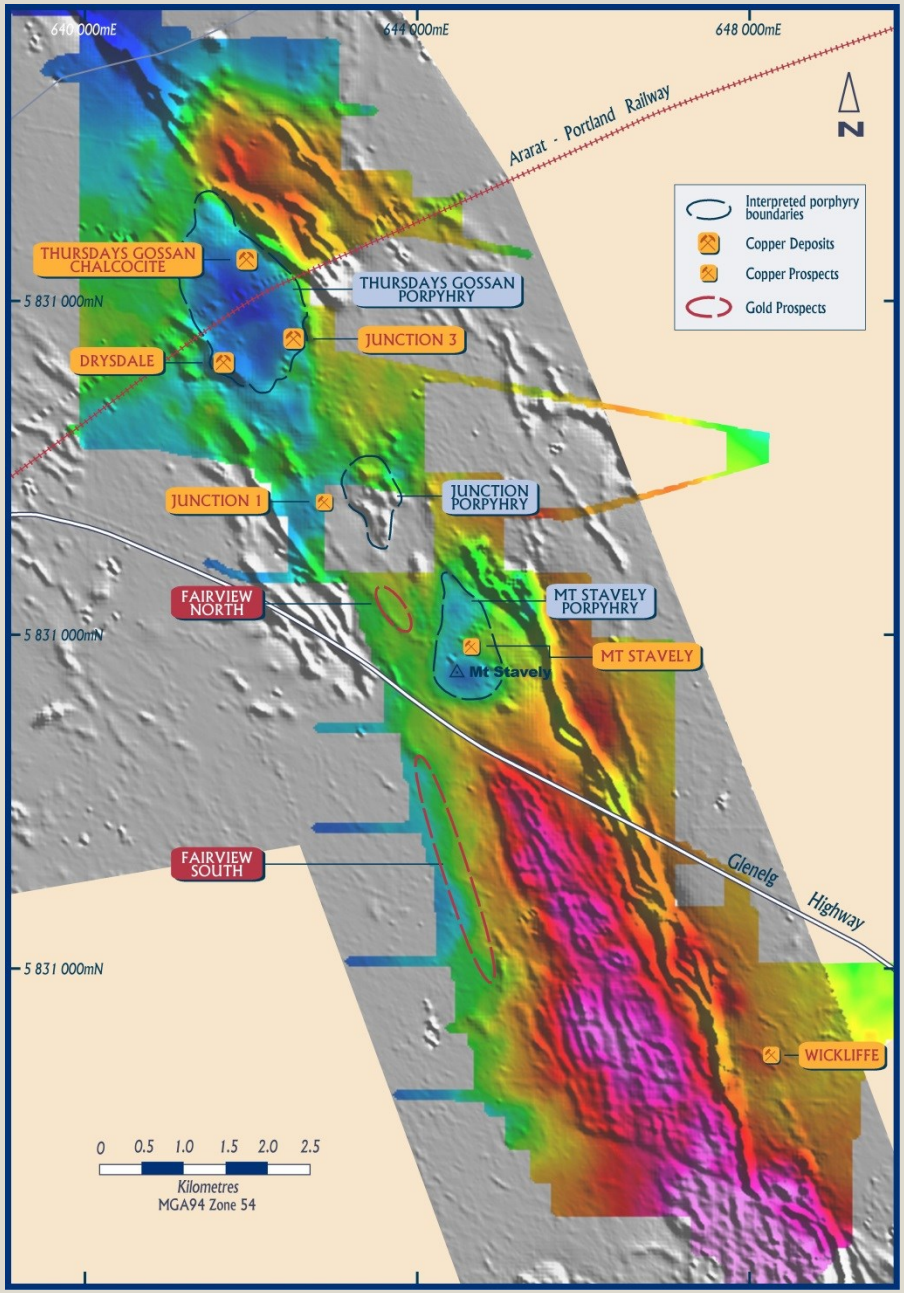
EXPLORATION HISTORY (con't)

2000s – Newcrest joint ventured with New Challenge. Drilled several diamond drill holes.

Late 2000's – Beaconsfield Gold joint ventured with New Challenge. Drilled a number of shallow diamond drill holes. Completed first 'modern' IP test survey with 2 lines of dipole/dipole. Acquired project from New Challenge.

2013 – Stavely Minerals Limited acquired project from Beaconsfield Gold. Completed extensive IP and gravity geophysical surveys, analysis of HyLogger data (on historic diamond drill holes) and drilled 5 deep diamond drill holes (3 into Thursday's Gossan porphyry and 2 into the Junction porphyry targets). Completed additional Terraspec Halo® SWNIR analysis, sulphur isotope analysis, structural study.

LOCAL GRAVITY DATA



Colour gravity drape over grey-scale aeromagnetics

Large gravity low associated with the Thursday's Gossan Porphyry.

Large thickness of Fairview Andesite Breccia expressed as a gravity high.

Clear NW offsetting structures orthogonal to the strike of the volcanic belt.

Structural thickening of the basal Williamsons Road Serpentinite.

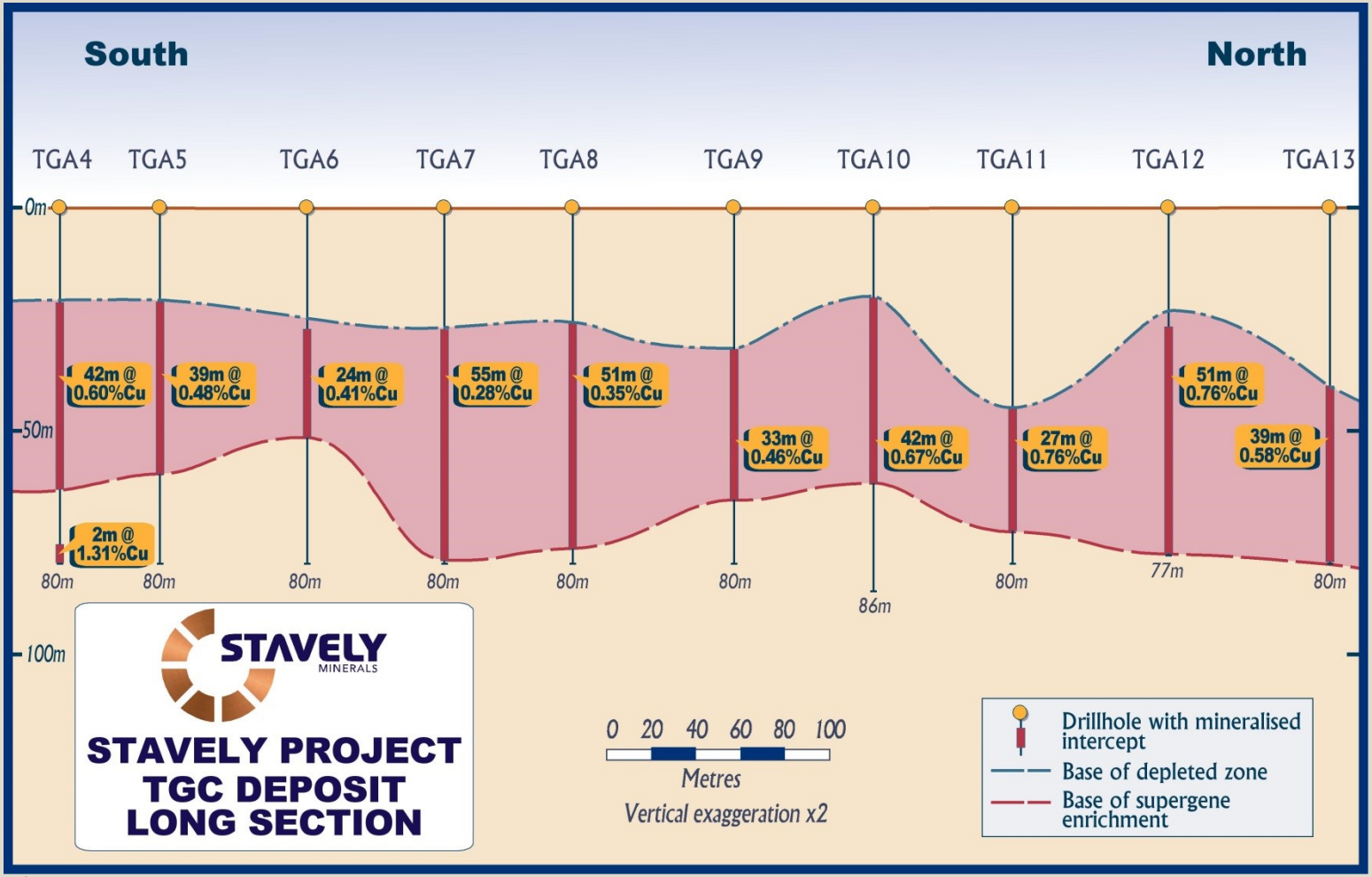
PROJECTED TO SURFACE

Regional structural orientations expressed at local scale

Strike parallel (NNW) and NW structures bound the near surface expression of the chalcocite-enriched blanket (red outline).

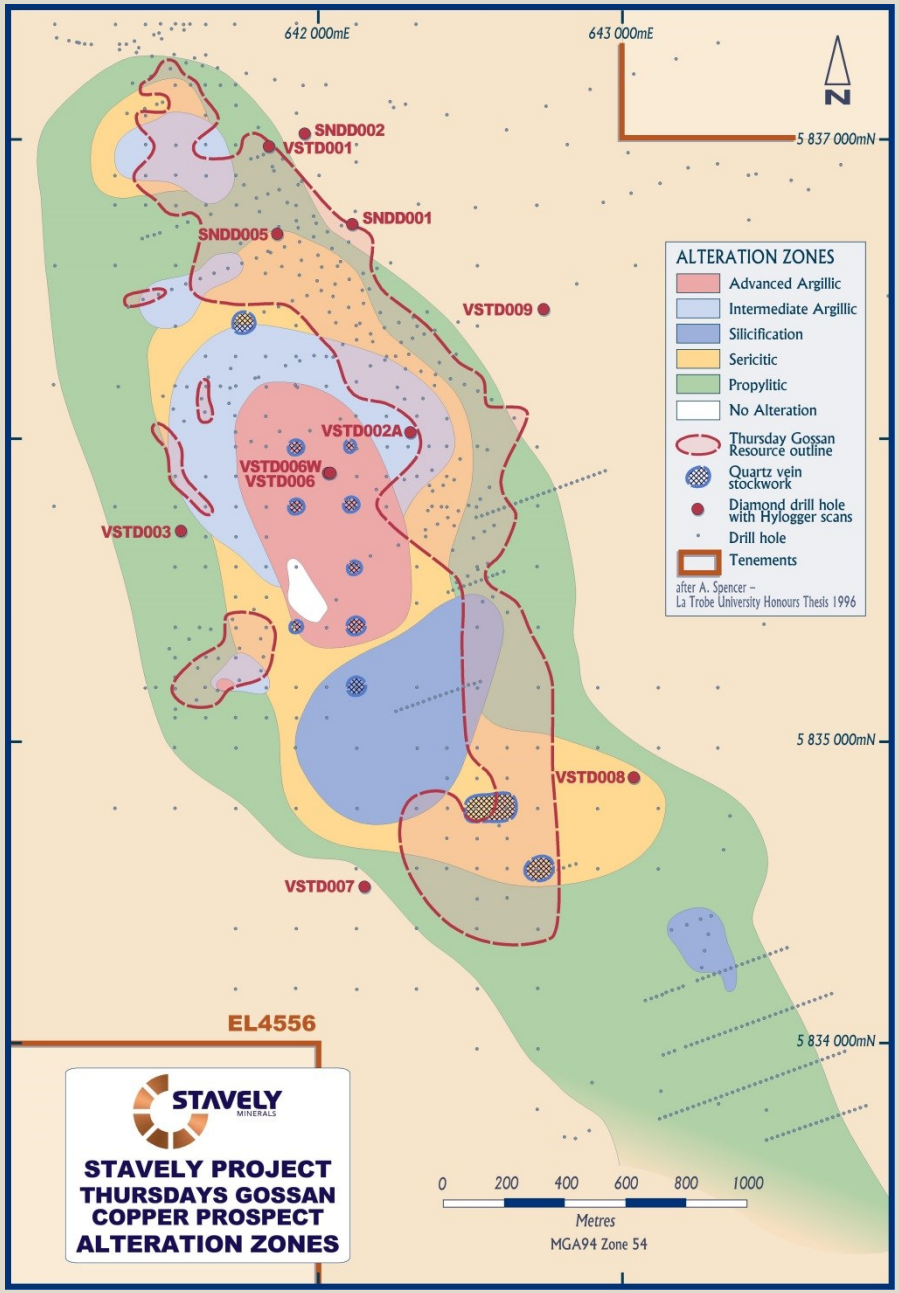
CHALCOCITE-ENRICHED BLANKET

Hosted in a secondary-enriched chalcocite blanket, an Inferred Mineral Resource estimate of 28 million tonnes at 0.4% copper for 110,000 tonnes of contained copper



[1] reported in compliance with JORC 2012, see Stavely Minerals Prospectus dated 26 March 2014 and available from www.stavely.com.au

PIMA ALTERATION MAPPING



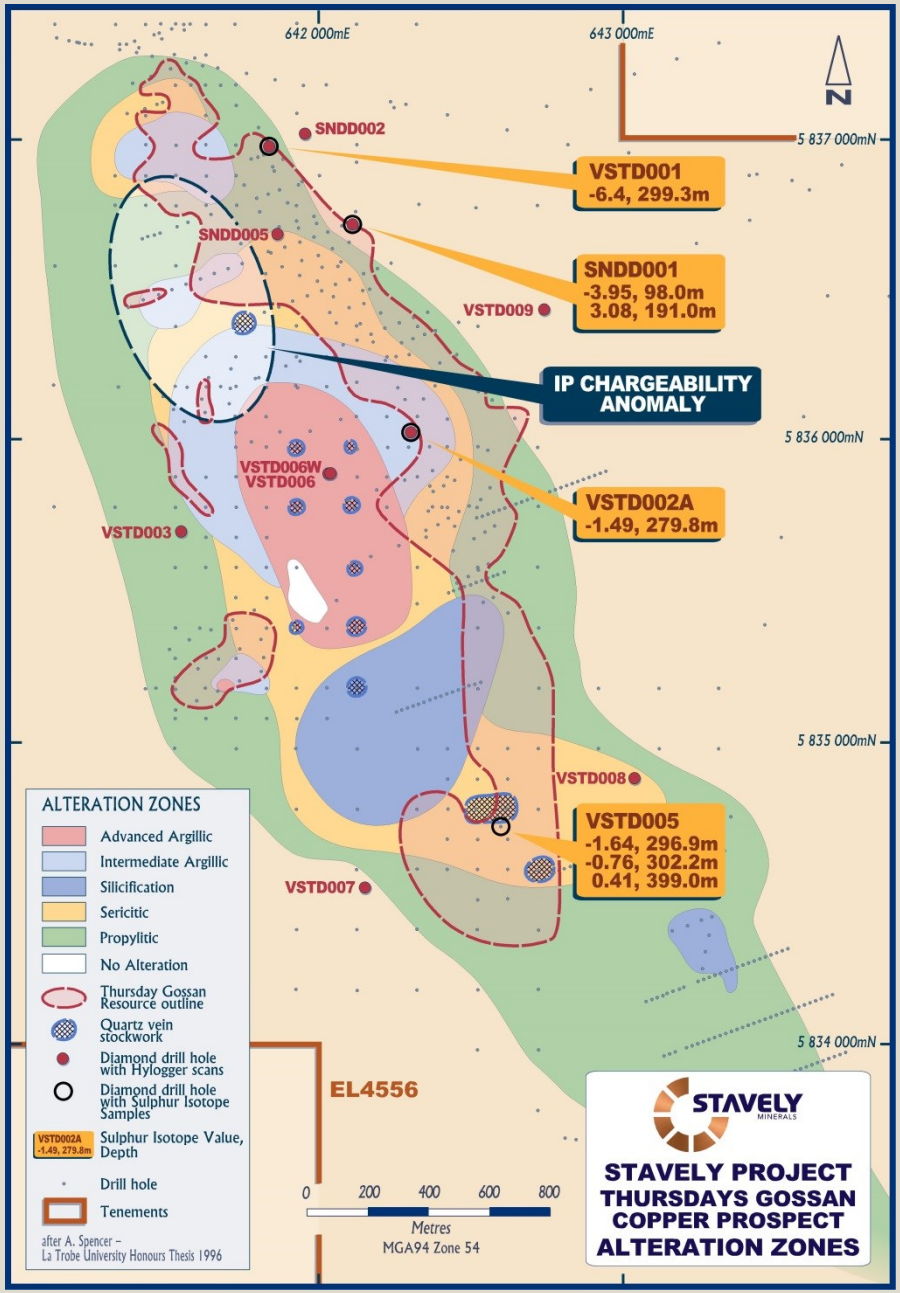
1996 Honours thesis by Arian Spencer – La Trobe University supervised by Mike Hornibrook (CRA)

PIMA analysis of existing aircore drill holes.

Classic concentric zonation of advanced argillic, intermediate argillic, sericitic and propylitic alteration.

Diamond drill holes shown in the figure subsequently analysed using the HyLogger™ TIR scanner.

IP CHARGEABILITY ANOMALY

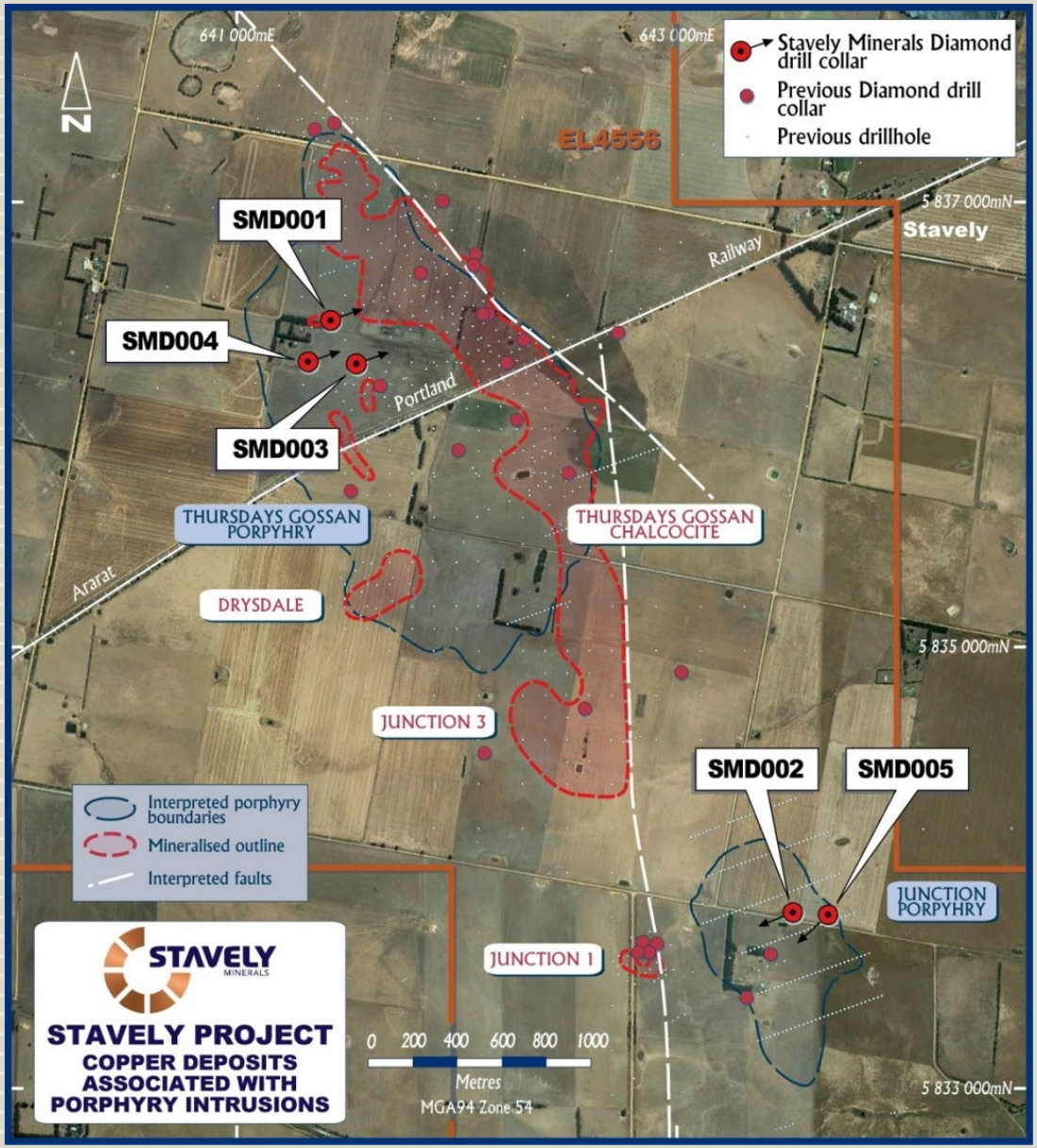


First comprehensive (modern) IP survey completed in 2013

Strong 30mV/V chargeability anomaly identified in the north central portion of the alteration zonation in an area of no previous drilling

Also in 2013, received from Geoscience Australia sulphur isotope results indicating a northward progression of increasingly negative δ34 sulphur isotopes

TIME TO DRILL

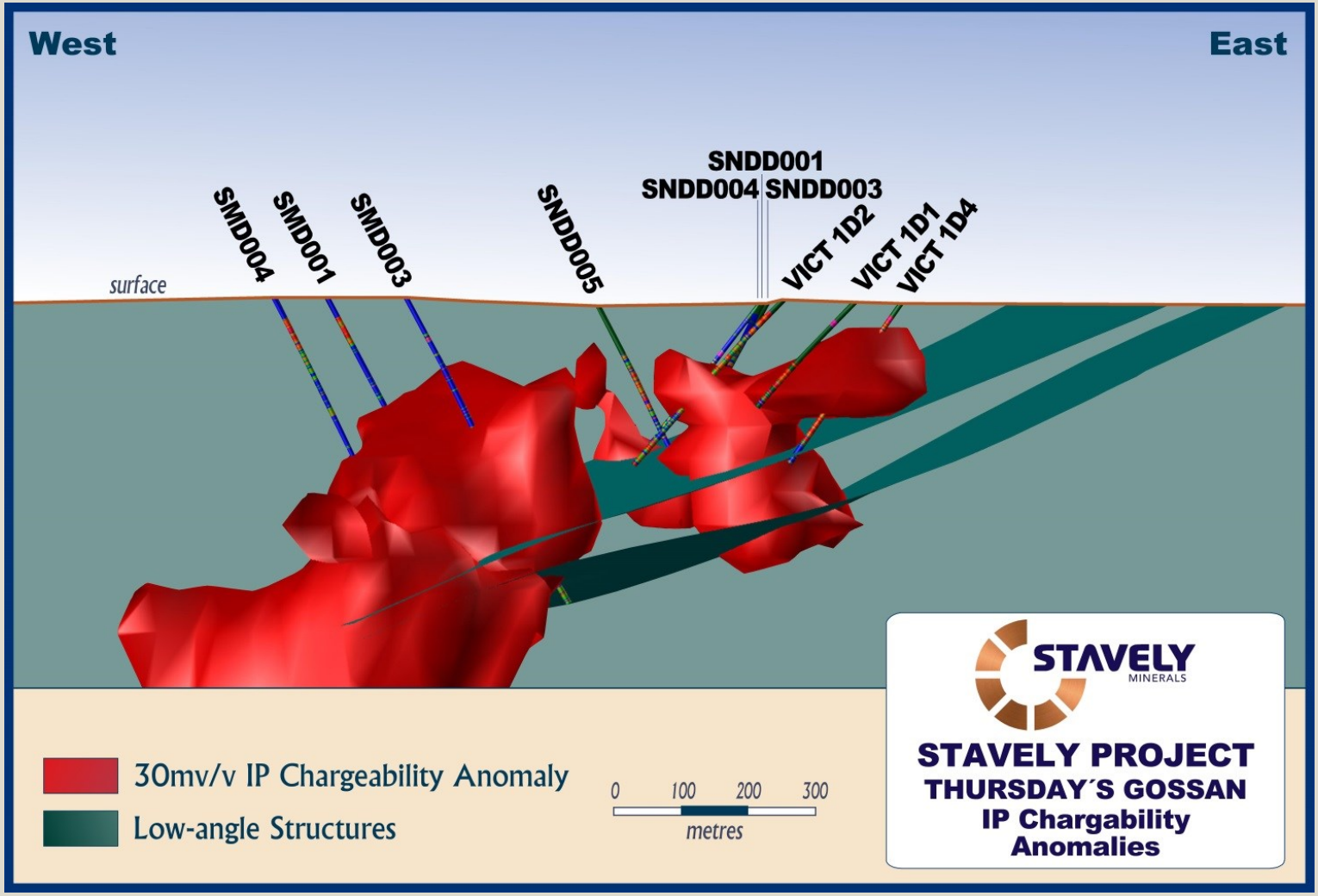


Three diamond drill holes completed to between 522 metres to 636 metres depth.

The three deep diamond drill holes identified a low-angle structural offset to the porphyry system

The collars are ~300 metres apart and provides an indication of the size of this porphyry system

DRILLING THE IP TARGET



Drilling intercepted well-developed phyllic alteration (sericite-pyrite) which corresponded well with the IP chargeability anomaly

LOOKING GOOD AND THEN…

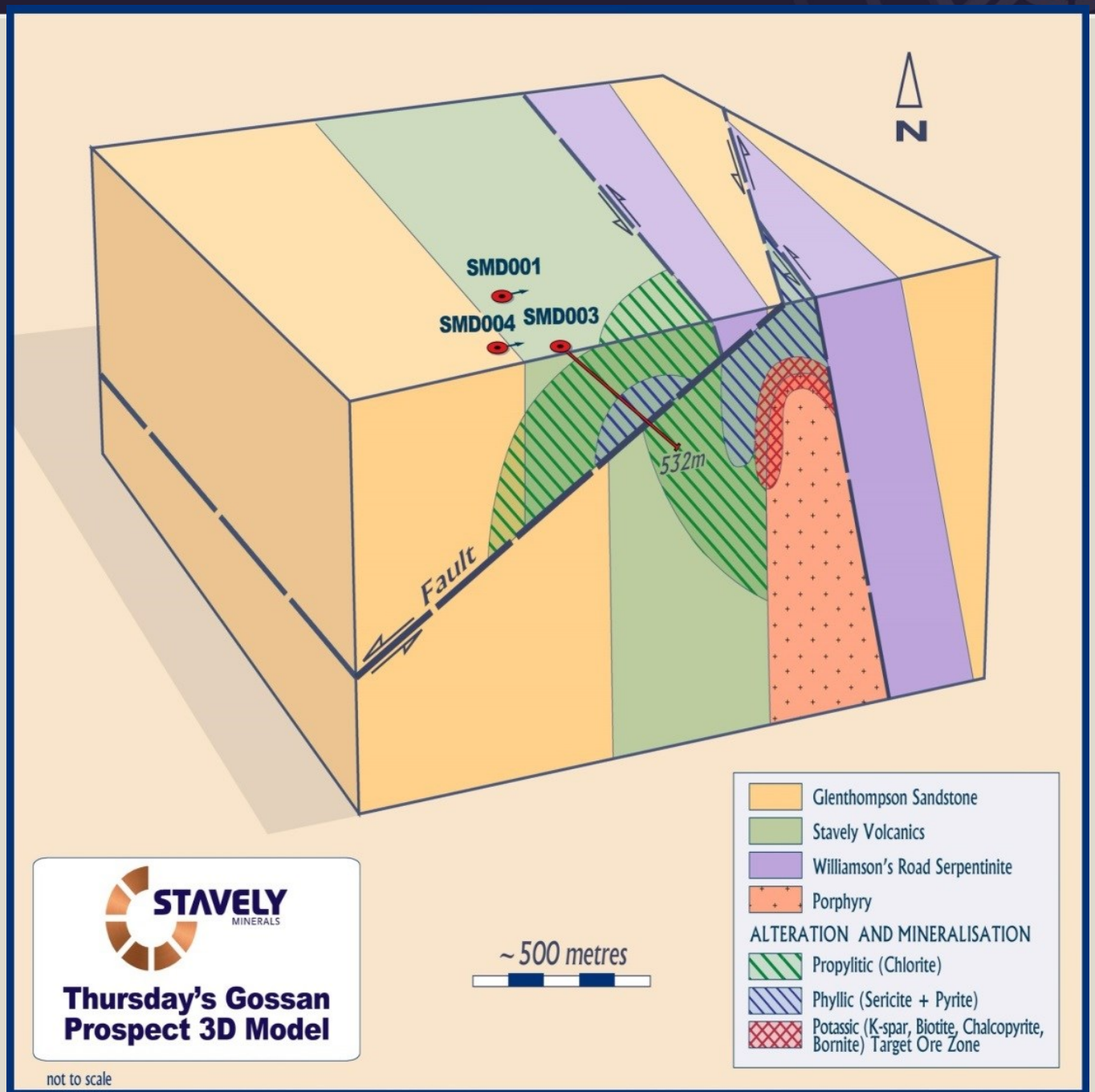
The alteration and veining looked good

From surface the weathering profile extends to ~100 metres. Initial alteration chlorite dominant and then as the drilling entered the IP chargeability anomaly, changed to sericite-pyrite with intensity increasing.

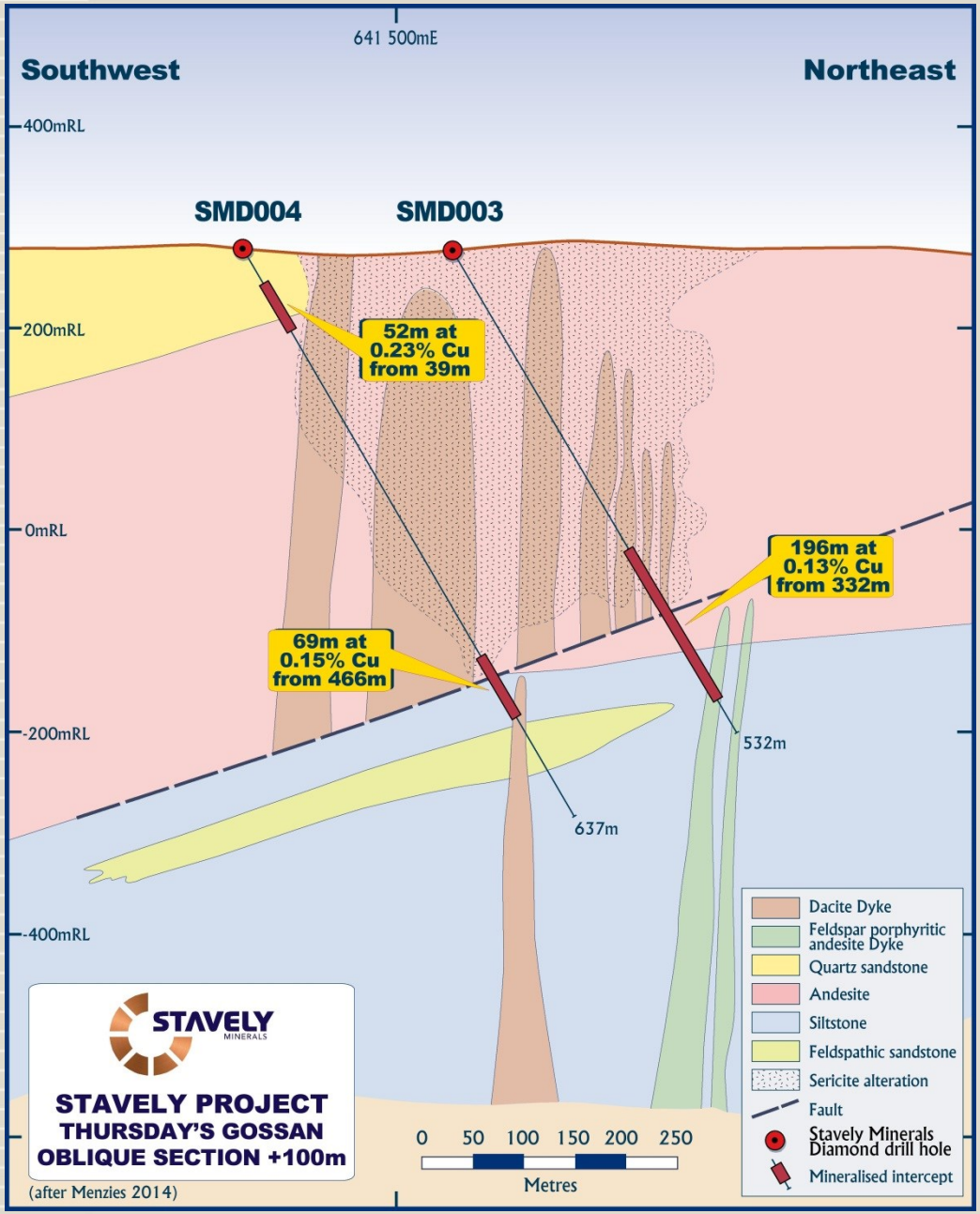
Approaching the structural offset zone, ‘D’ vein frequency increased.

On the other side – distal propylitic alteration (damn!)

SIMPLE MODEL OF OFFSET



SOMETHING STRANGE GOING ON…



Alteration changed but copper grades didn't

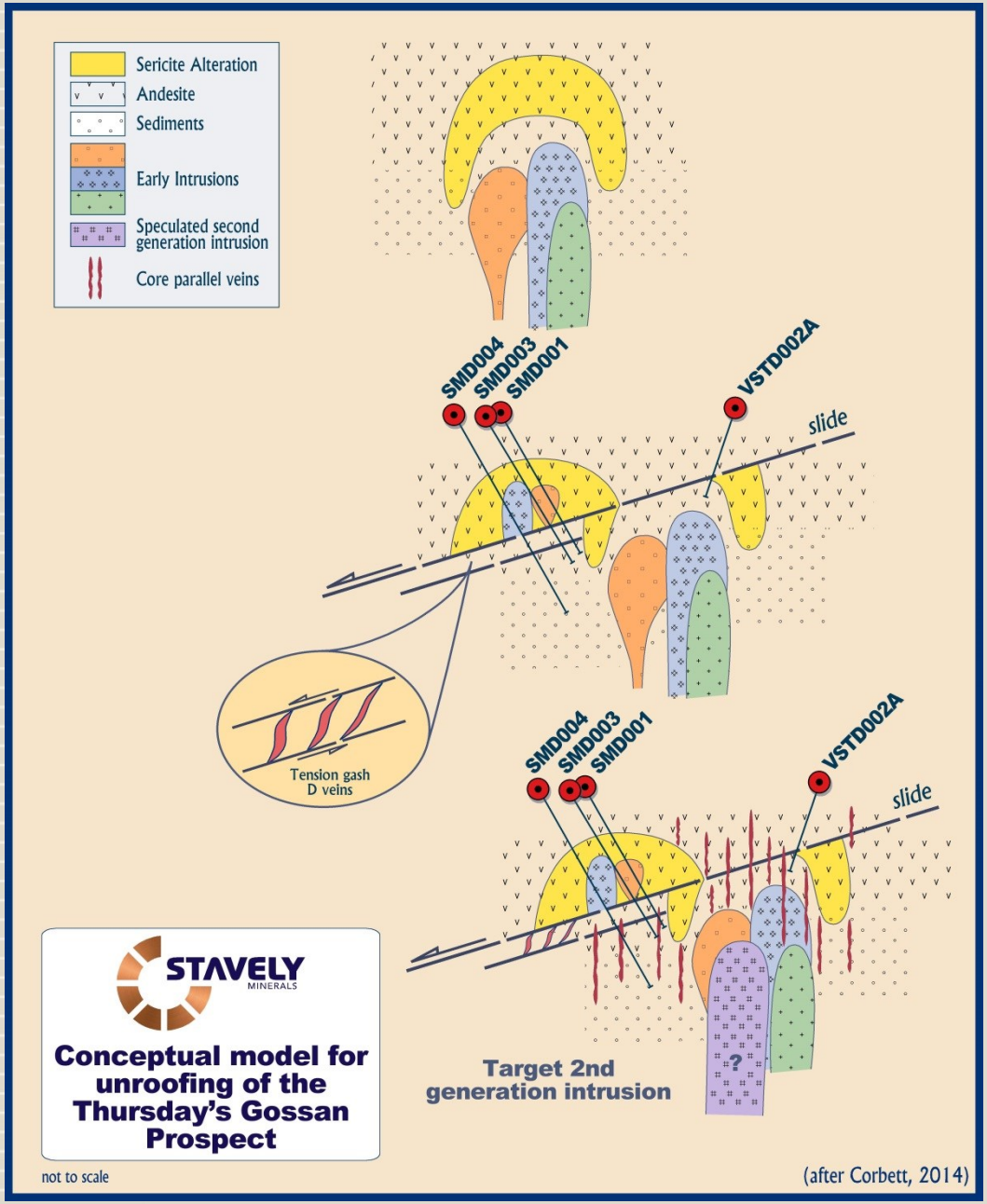
Copper grades persisted from the phyllic alteration above the structure into the propylitic alteration below the structure.

This posed a serious dilemma in terms of metallogenesis!!

Veining was fine fractures, core axis parallel with chalcopyrite fill.

Hypothesise a second phase of intrusion responsible for copper mineralisation while structural zone active.

PARAGENETIC HYPOTHESIS



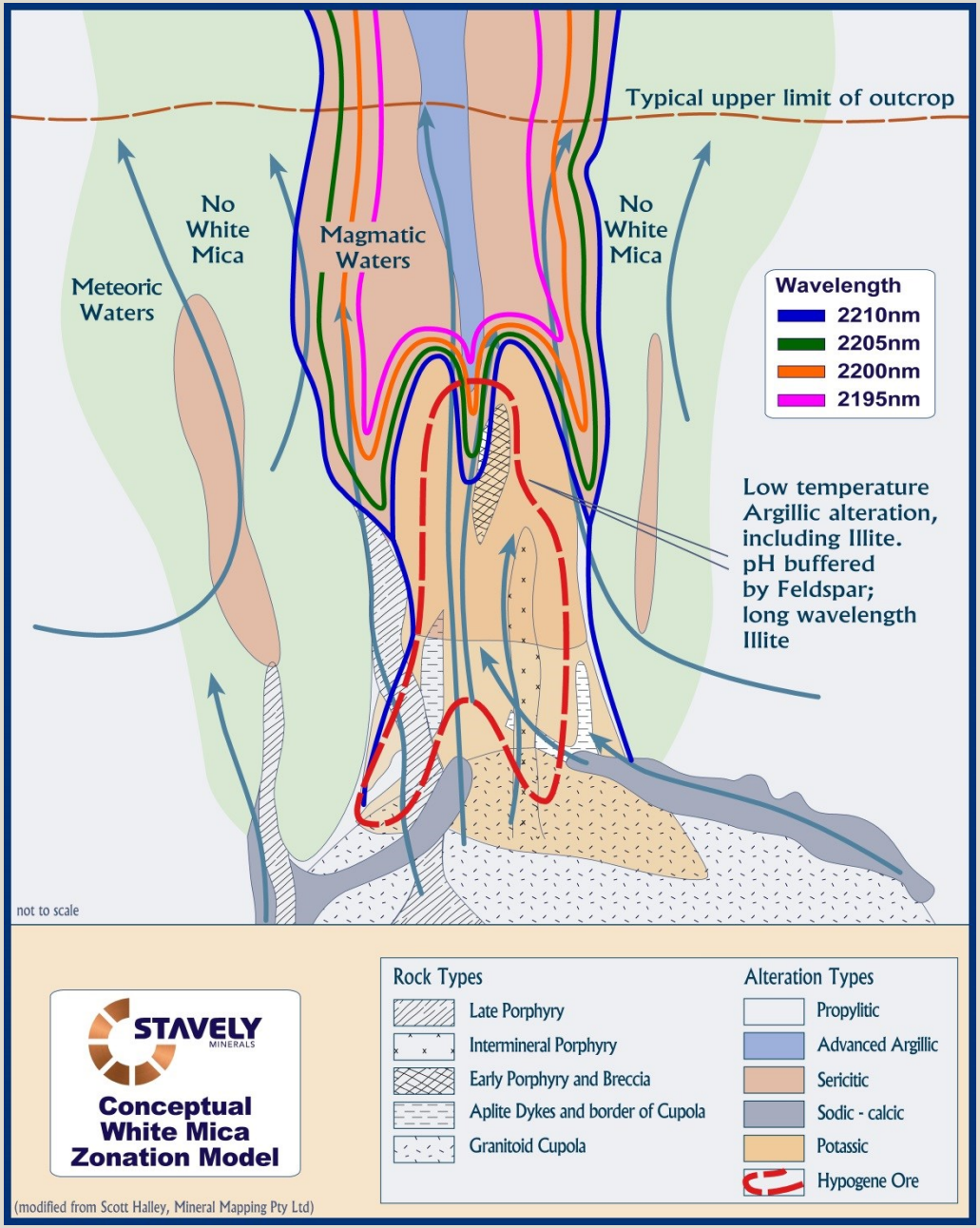
Two-phase intrusive history

Phase one has large-scale alteration zonation developed by copper-poor hydrothermal alteration associated with an early phase of intrusion.

As a possible result of uplift, low-angle normal faulting results in 'unroofing' of the system catalysing resurgent intrusion associated with a more metals-rich phase of hydrothermal mineralisation. A common theme in S. America and SW Pacific.

HOW TO VECTOR NOW?

WHITE MICA WAVELENGTH

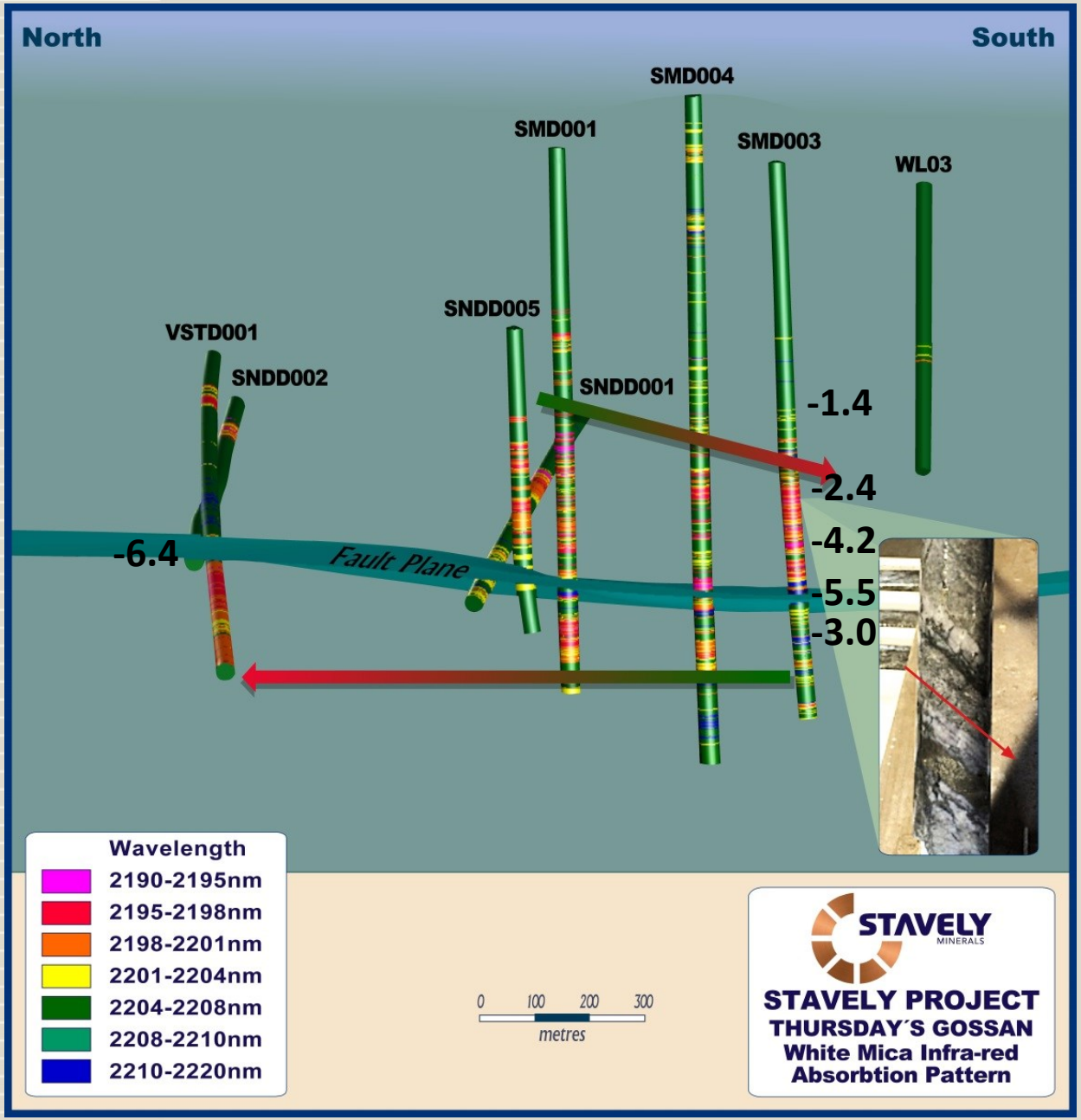


Based on the work of Scott Halley and others

In SWNIR data, the wavelength of the white mica absorption feature is shortest (~2195nm) for those micas formed from low pH fluids (read magmatic) while fluid mixing with meteoric fluids produces absorption features at longer wavelengths.

A proxy for proximity to the intrusive source.

WHITE MICA RESULTS AND SUPHUR ISOTOPES

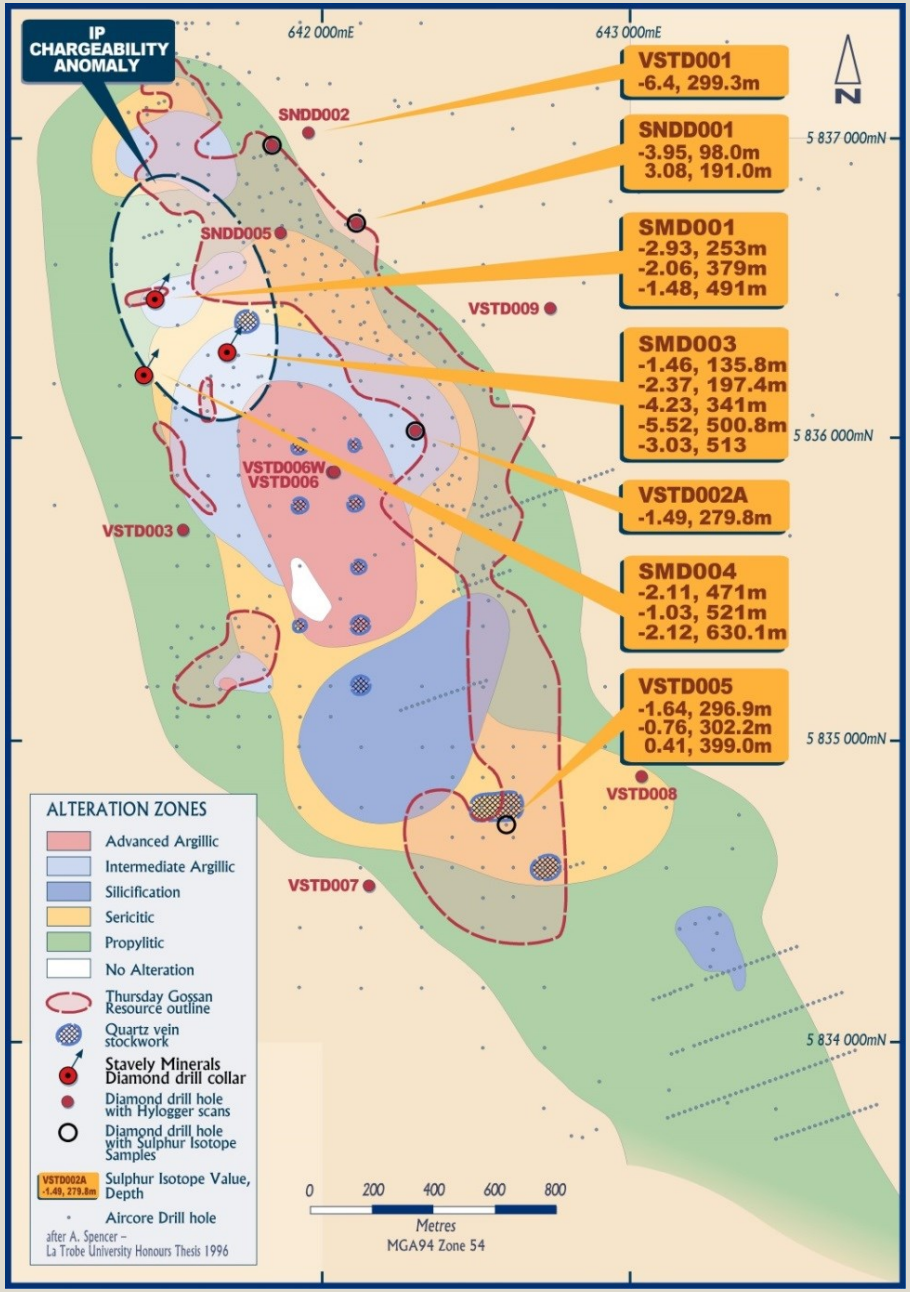


Multi-disciplinary approach to vectoring

Structural analysis, kinematic indicators, white mica shortwave infra-red absorption features and sulphur isotope results all concur the porphyry 'core' has been transposed north and east beneath the structural zone.

[1] see ASX announcement dated 12 May 2014 and available from www.stavely.com.au

GO NORTH



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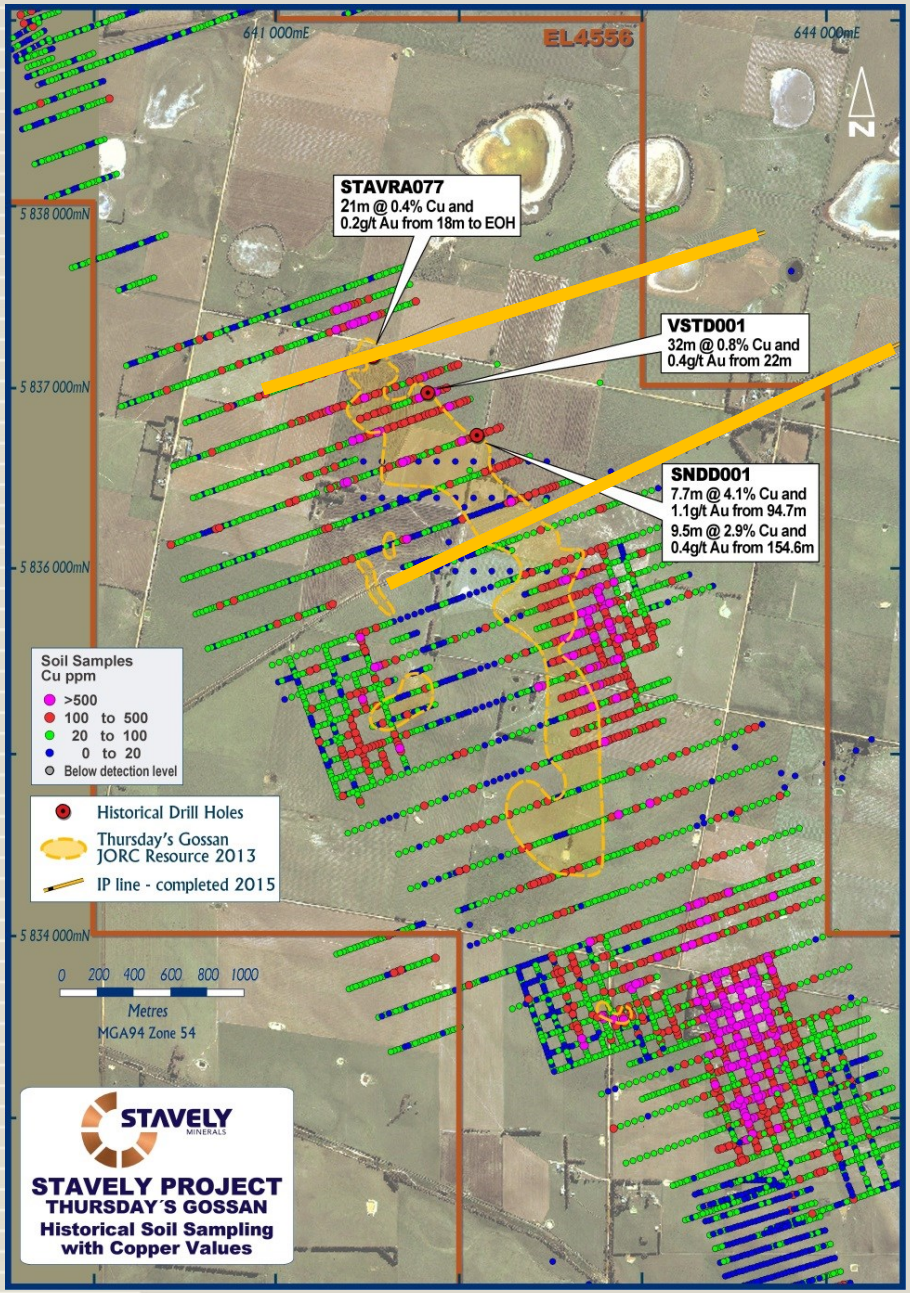
EXTENDING IP



Extending the IP

New IP survey lines to extend coverage to north and east and where structural model says the target porphyry 'core' has been transposed.

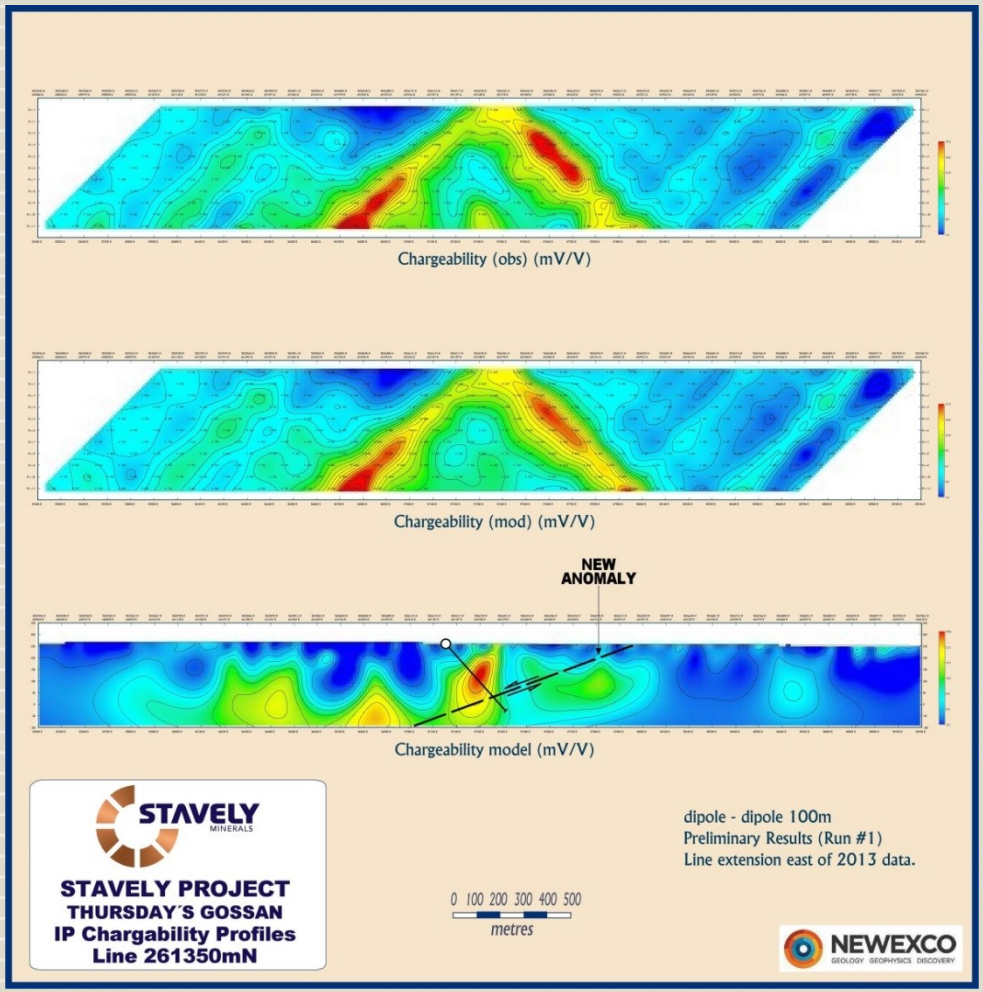
Note that this northern area has the best copper-gold grades in drilling:

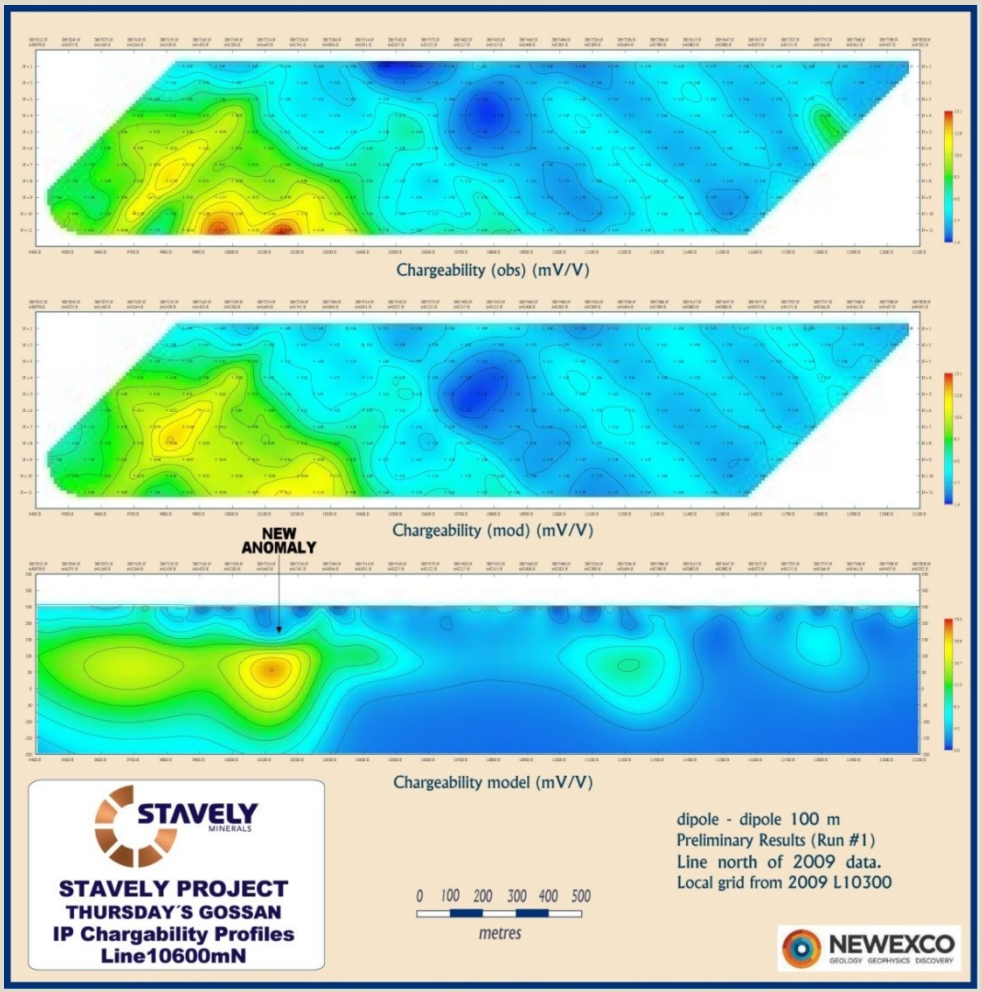
- ✓ 32m @ 0.8% Cu and 0.4g/t Au from 22m
- ✓ 21m at 0.4% Cu and 0.2g/t Au to EoH from 18m
- ✓ 7m @ 4.1% Cu and 1.1g/t Au from 95m
- ✓ 9.5m @ 2.9% Cu and 0.4g/t Au from 155m

NEW IP RESULTS

New IP chargeability anomalies on both lines:

- Line 261350, anomaly under low-angle structure
- Line 10600, strong chargeability anomaly





[1] see ASX announcement dated 12 May 2015 and available from www.stavely.com.au

GETTING READY TO DRILL AGAIN

Results to date:

- ✓ Very positive results from drilling the IP chargeability anomaly – increasingly intense alteration, very ‘busy’ drill core, low-grade copper mineralisation in peripheral alteration
- ✓ Intercepted a low-angle structure at ~400-480m depth – structural interpretation, kinematic indicators, white mica shortwave infra-red absorption features and sulphur isotopes all concur that the porphyry ‘core’ – where best developed copper-gold mineralisation could be expected – has been transposed to the north and east beneath the offset structural zone
- ✓ IP chargeability anomalies in areas predicted to host ‘core’

Thank You

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