



25 March 2015

### **Presentation to Chief Geologist Group**

Attached is a presentation to be given by IVR Managing Director, John Anderson, to the Chief Government Geologist's group which is visiting to the Paris silver project as part of a regional technical tour on Wednesday 25 March 2015.

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# Regional, exploration & collaborative research context of the Paris silver deposit within the Uno Province

**INVESTIGATOR  
RESOURCES  
LIMITED**



**ASX : IVR**

John Anderson – Managing Director

Technical Presentation  
for the Chief Government Geologists' visit  
to the Paris Project

25<sup>th</sup> March 2015

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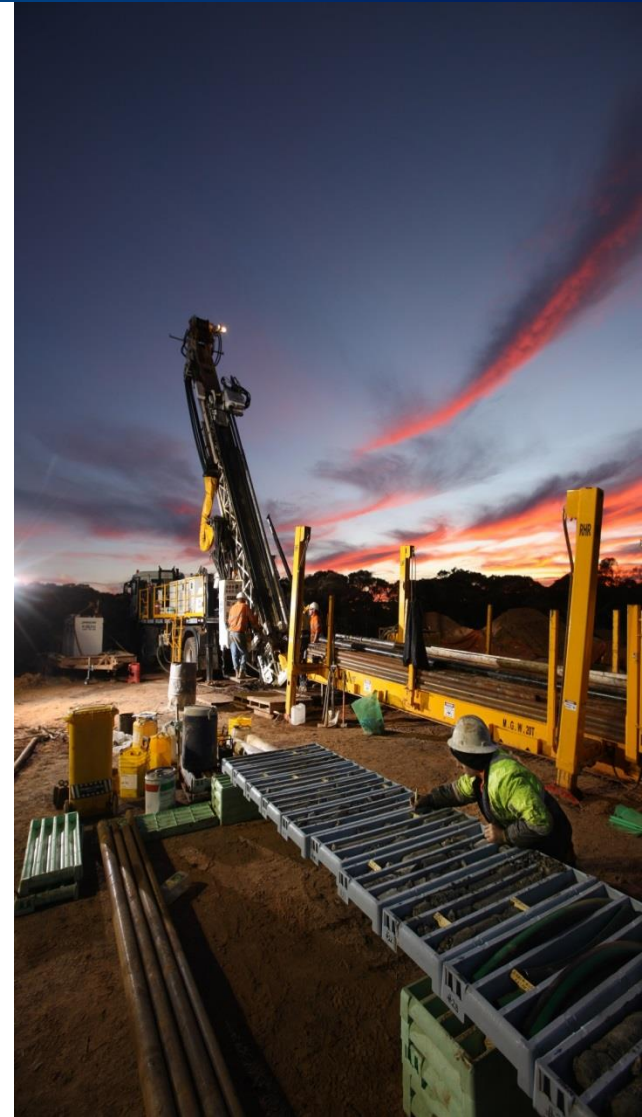
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## COMPETENT PERSON STATEMENT

The information in this presentation relating to exploration results is based on information compiled by Mr. John Anderson who is a full time employee of the Company. Mr. Anderson is a member of the Australasian Institute of Mining and Metallurgy. Mr. Anderson has sufficient experience of relevance to the styles of mineralisation and the types of deposits under consideration, and to the activities undertaken, to qualify as a Competent Persons as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr. Anderson consents to the inclusion in this presentation of the matters based on information in the form and context in which it appears.





Australia is not exploration mature – shallow discoveries are still to be made

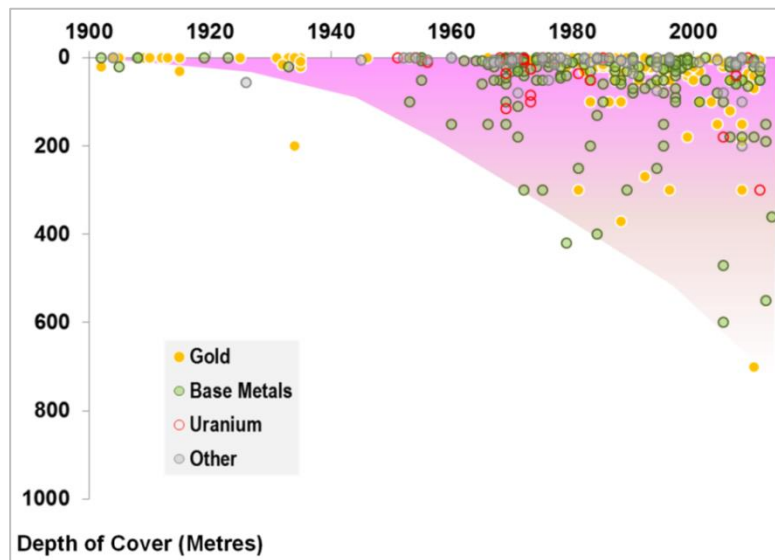
Identifying new or re-invigorating belts with new concepts are real opportunities

Investigator prides itself in undertaking & applying collaborative research & innovative ideas

Government/University research & pre-competitive data are valuable

*- South Australia is a leader in the national Uncover Initiative to improve discovery rates*

## Depth-to-top of Australian mineral discoveries (non-bulk)

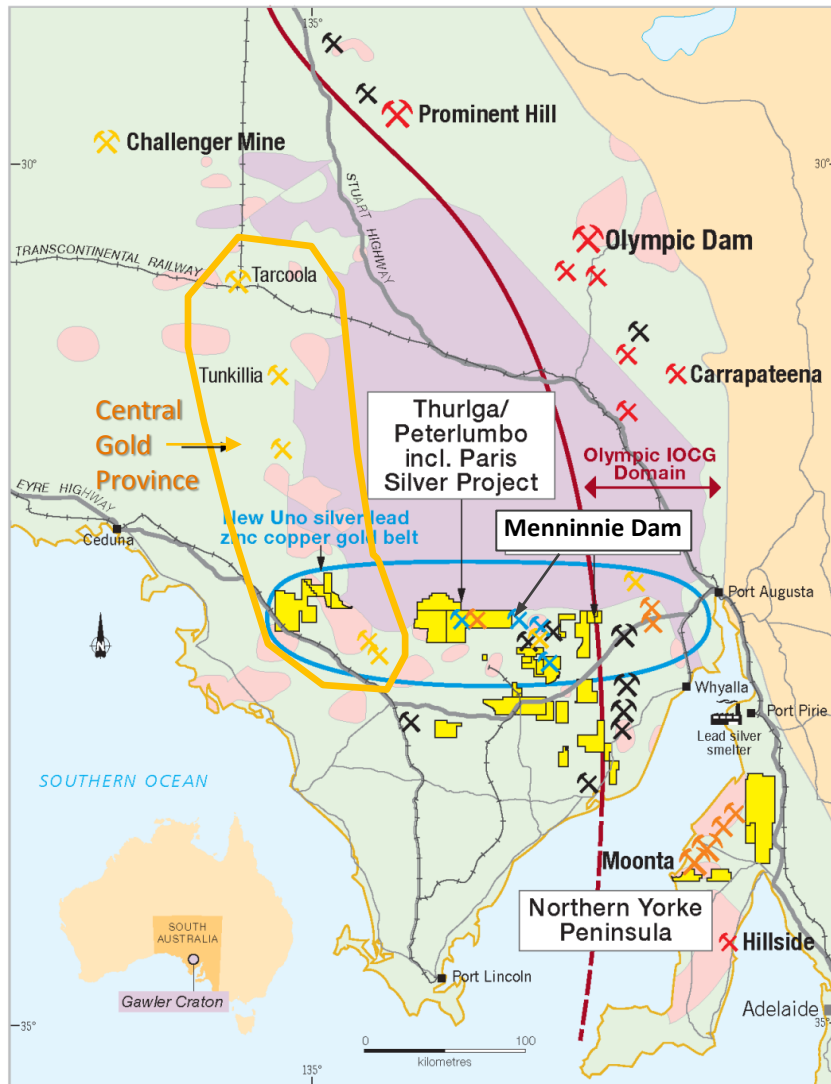


← **Many recent discoveries are still relatively shallow**

*\*Source: Richard Schodde, Minex Consulting  
UNCOVER Summit, Adelaide March 2014*



# IVR's focus on the Uno Province – continues to be re-invigorated by breakthroughs & advances over 30 years since the Menninnie Dam discovery

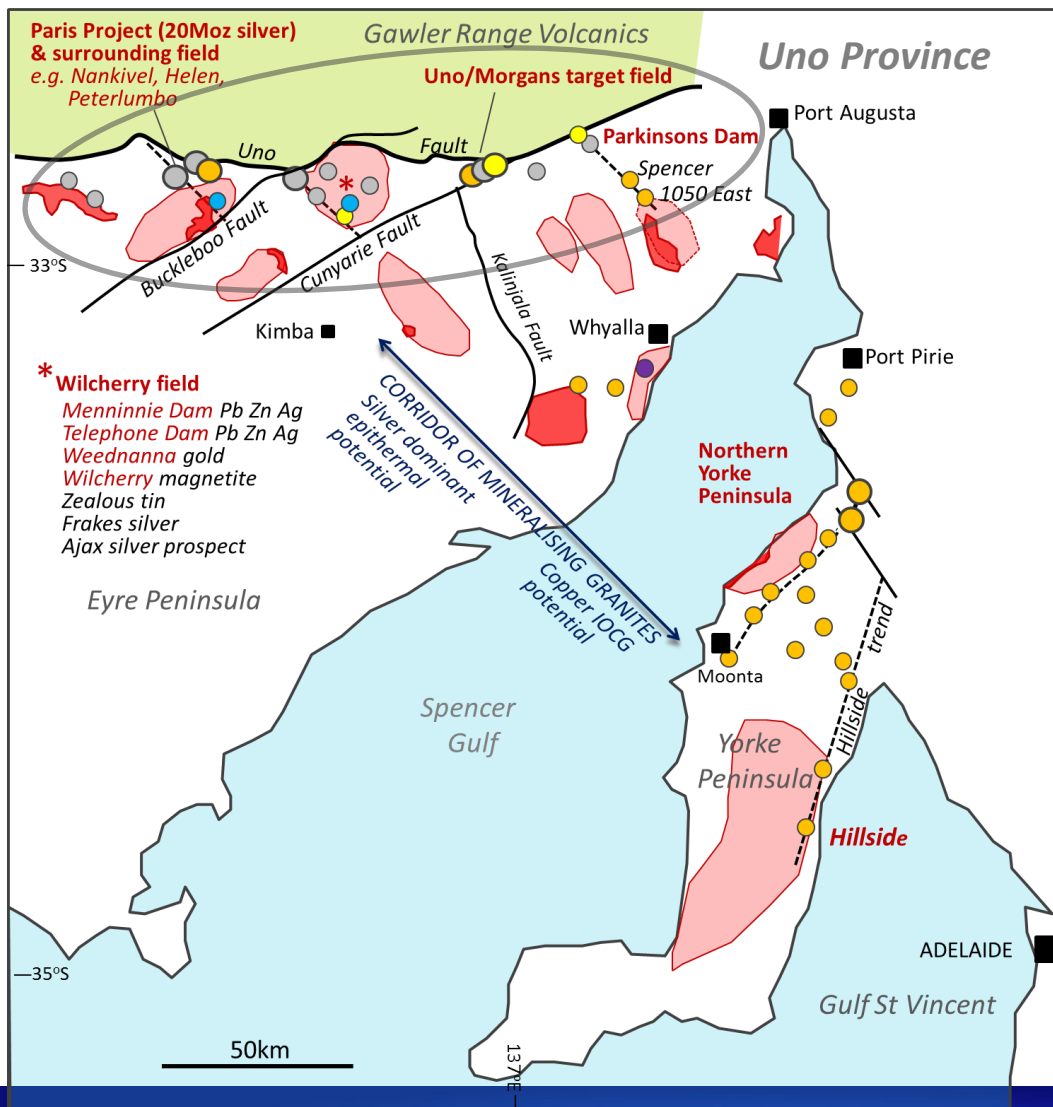


- IVR and JV tenement
- Gawler Range Volcanics
- Hiltaba Granite
- Gawler Craton
- Iron oxide copper/gold+/-uranium mine, deposit
- Iron ore mine, deposit
- Gold mine, deposit
- Silver lead zinc deposit, prospect
- Copper prospect

IVR's initial driver was the concept of the northwest "Moonta Corridor" stitching the Kalinjala Fault such that the Uno Province connected the "Central Gold Province" with the Olympic Domain around the southern margin of the GRV massif.

2011 Paris discovery validated IVR's approach & firmed the surrounding potential for OD-aged deposits of various styles along 200km long east-west Uno Province

# We are getting a better understanding of the metallogenic controls & diverse new potential in the province



## Mineralising granites

*Outcropping* *Geophysical interpretation*

## Prospective structures & deposit trends

### Investigator Targets

*silver* *gold* *copper*

## Other related deposits & prospects

*silver* *gold* *copper*  
*lead zinc*

*magnetite* *uranium*

## Possible regional zoning of epithermals & copper target styles across the Uno Province

West end: Intermediate-high sulphidation & hybrid-porphyry copper potential

East end: Low-sulphidation gold & IOCG Potential.

# Early breakthroughs - included *collaborative research* with CSIRO



Shell 1983 Menninnie Dam discovery using BHT model & magnetics: **CSIRO Pb isotopes**

Aberfoyle 1988 farm-in – recognised GRV “cover”

1990 Landsat signatures & first major epithermal outcrop at Nankivel

1992 **CSIRO soil (radiogenic regolith, hydro-chem) geochem studies** show MD has target signature

1993 New deposit model – OD age Subvolcanic breccia/replacements (**U of Tas PhD**)

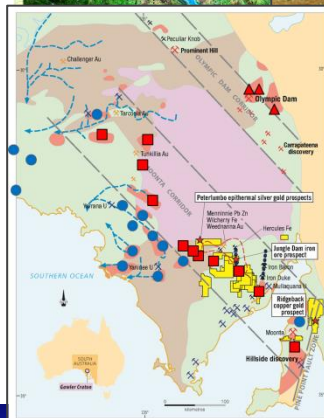
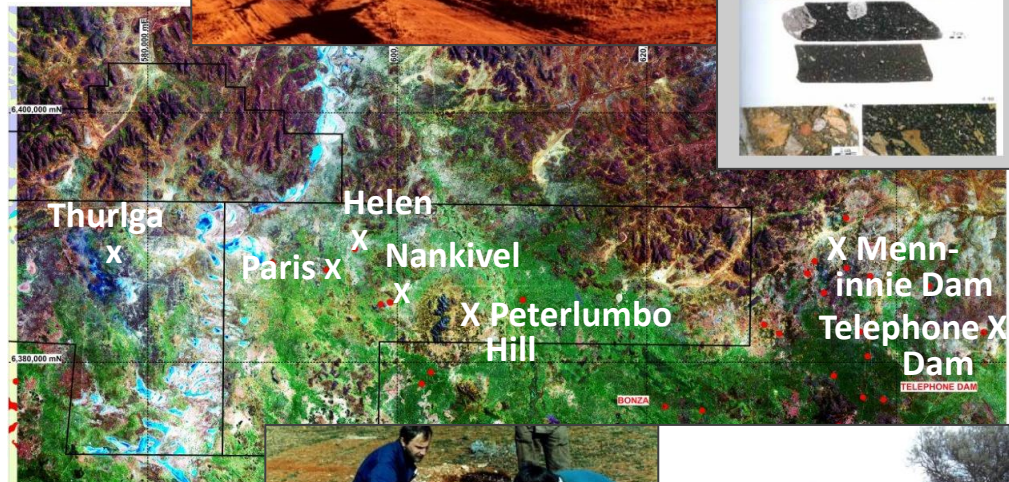
1994 Moonta Corridor concept & Nankivel soil survey mapped Paris Helen

## MIM

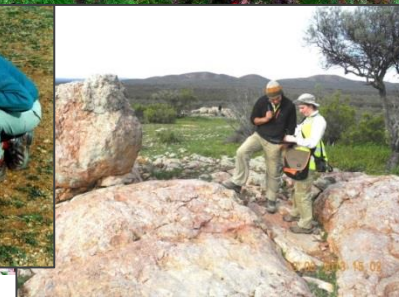
1995/6 Mapped Nankivel epithermal system & located Helen silver outcrop

1997-2003 – **U of Adelaide Hiltaba Granite study** (e.g. of counter-cyclic research) confirms Moonta Corridor as trend of oxidised, fractionated & U-anomalous Hiltaba granites

Menninnie Dam



Russian CHIM at Menninnie Dam 1992



Nankivel rhyolite breccia; Background: Peterlumbo Hill



# Capitalising on the new ideas & tactics

– including collaborations between State Govt (GSSA) & Investigator



## AuStrike Resources

2003 - pegged Peterlumbo for epithermals & IOCGs

## Southern Gold

2005/2006 – gravity targeting (after Carrapateena)  
-> Victory mafic -> potential Cu metal source rocks

**GSSA 2km gravity survey** extended along Uno Province

## Investigator Resources

2009 -2010 - regional soils map Paris, Helen etc.  
targets & follow-up mapping delineated  
Paris epithermal field

**2010 - GSSA Hymapper /Dating**

2011 Porphyry potential proposed under  
Peterlumbo Hill

2011 Paris discovery & 2012-13 drill out

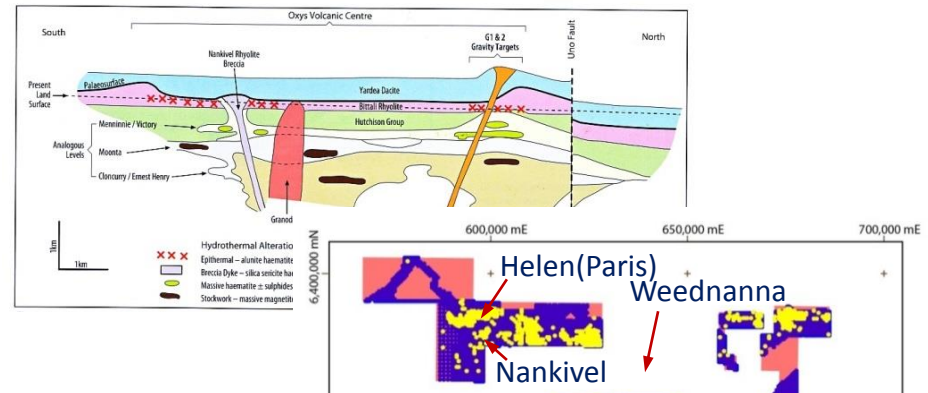
2013 **GSSA VTEM surveys** -> assists mapping  
of alteration zones

2014 – Paris/Nankivel system drilling & model

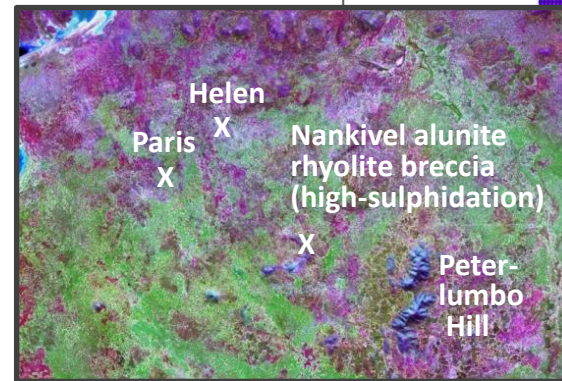
2014 - **GSSA preliminary Hylogger scope at Paris**

- U of Adelaide PhD study of Paris mineralogy commenced

2015 **Current GSSA Hylogger, Biogeochem, Micro-dating**



*IVR regional soil coverage (blue)  
& silver anomalies (yellow)*



*Hymap image*





# The Paris subvolcanic epithermal breccia model



**WARM** ————— *Paris target vectors* —————→ **HOT**



**Distal volcanic & granite breccia**



**Altered overlying volcanics**



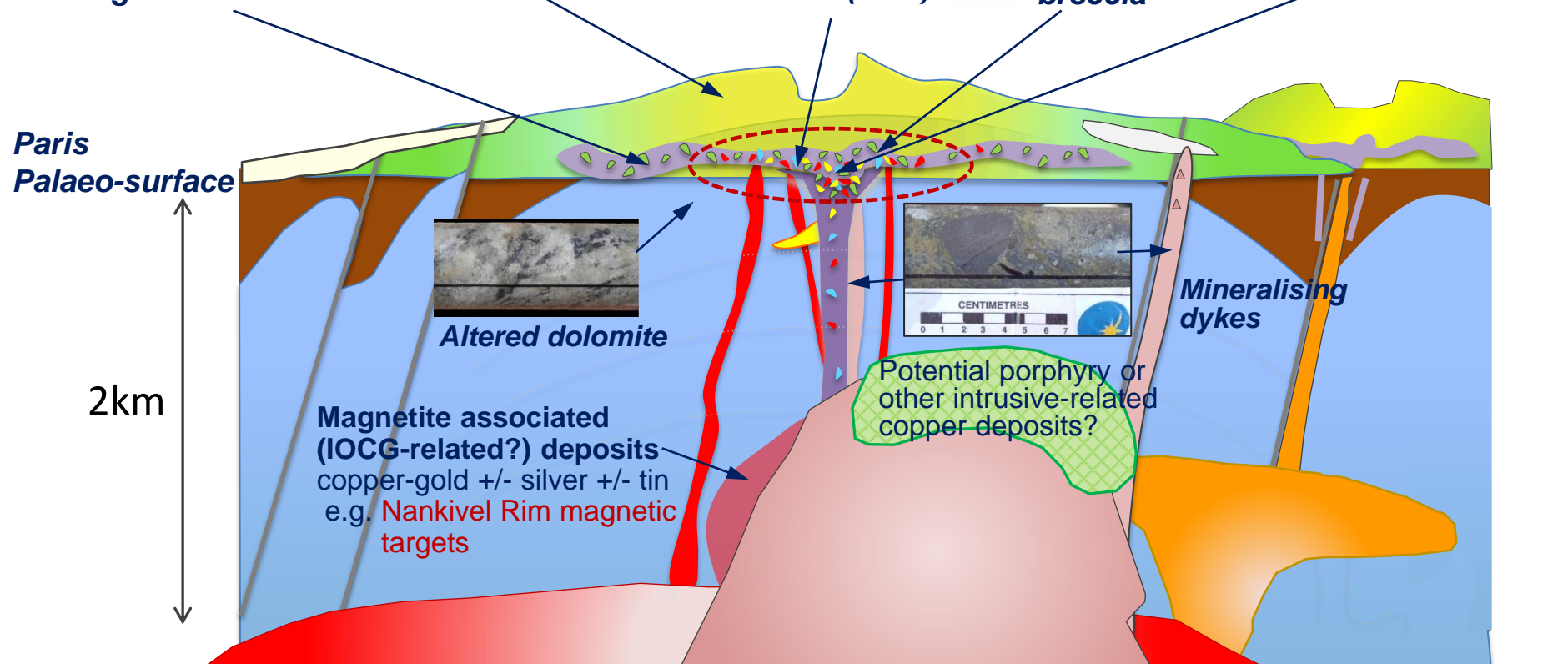
**Altered polymict breccia (vent)**



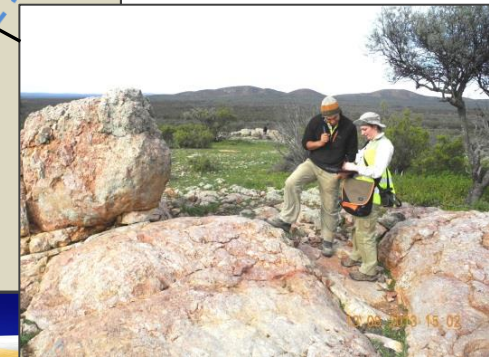
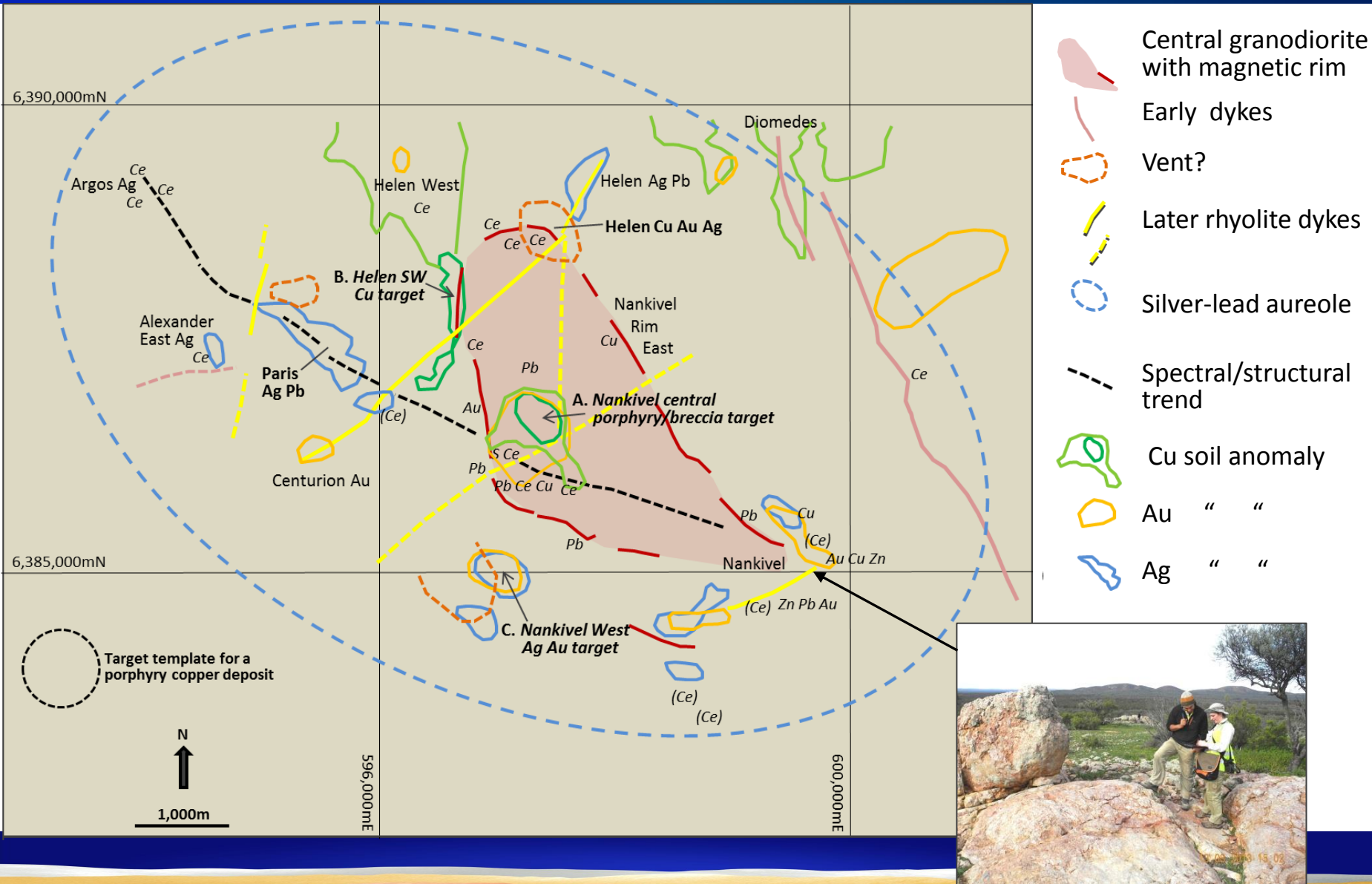
**Hydrothermal breccia**



**Sulphide fragments**



# Paris-Nankivel mineral system (camp, field)

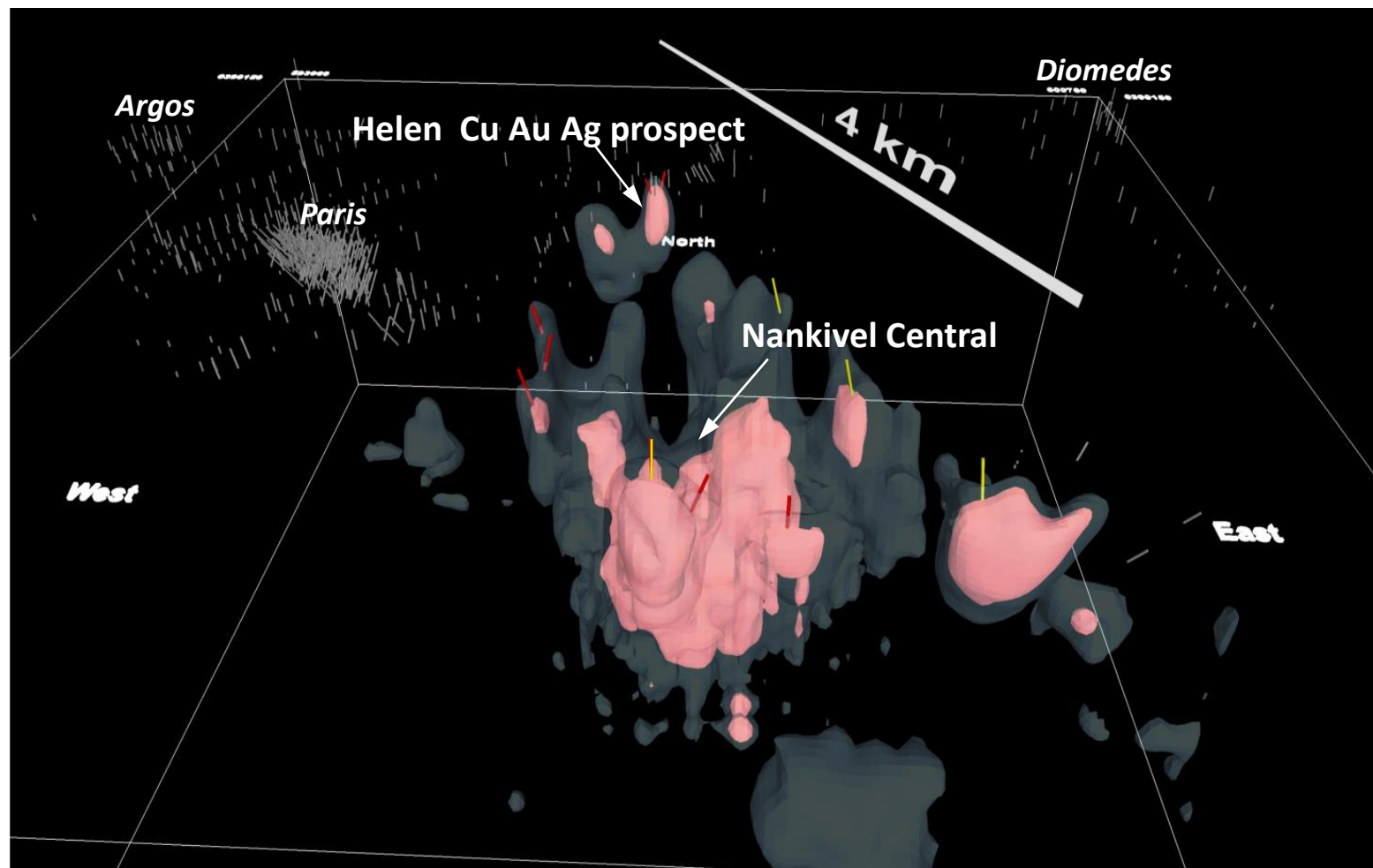


# Nankivel Rim & Central – modelled magnetics for copper gold targets



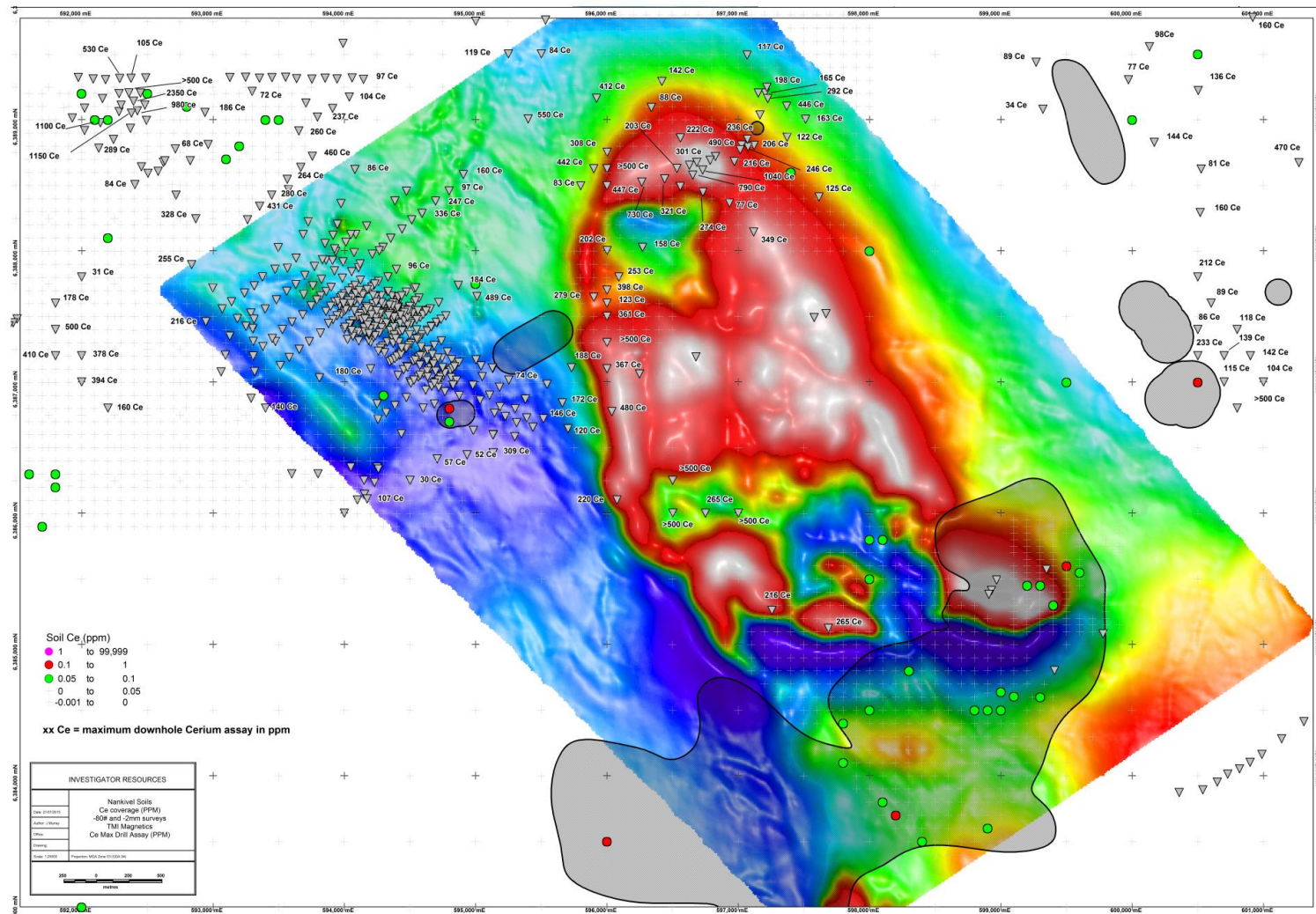
Latest drillholes (December)

Need heritage survey





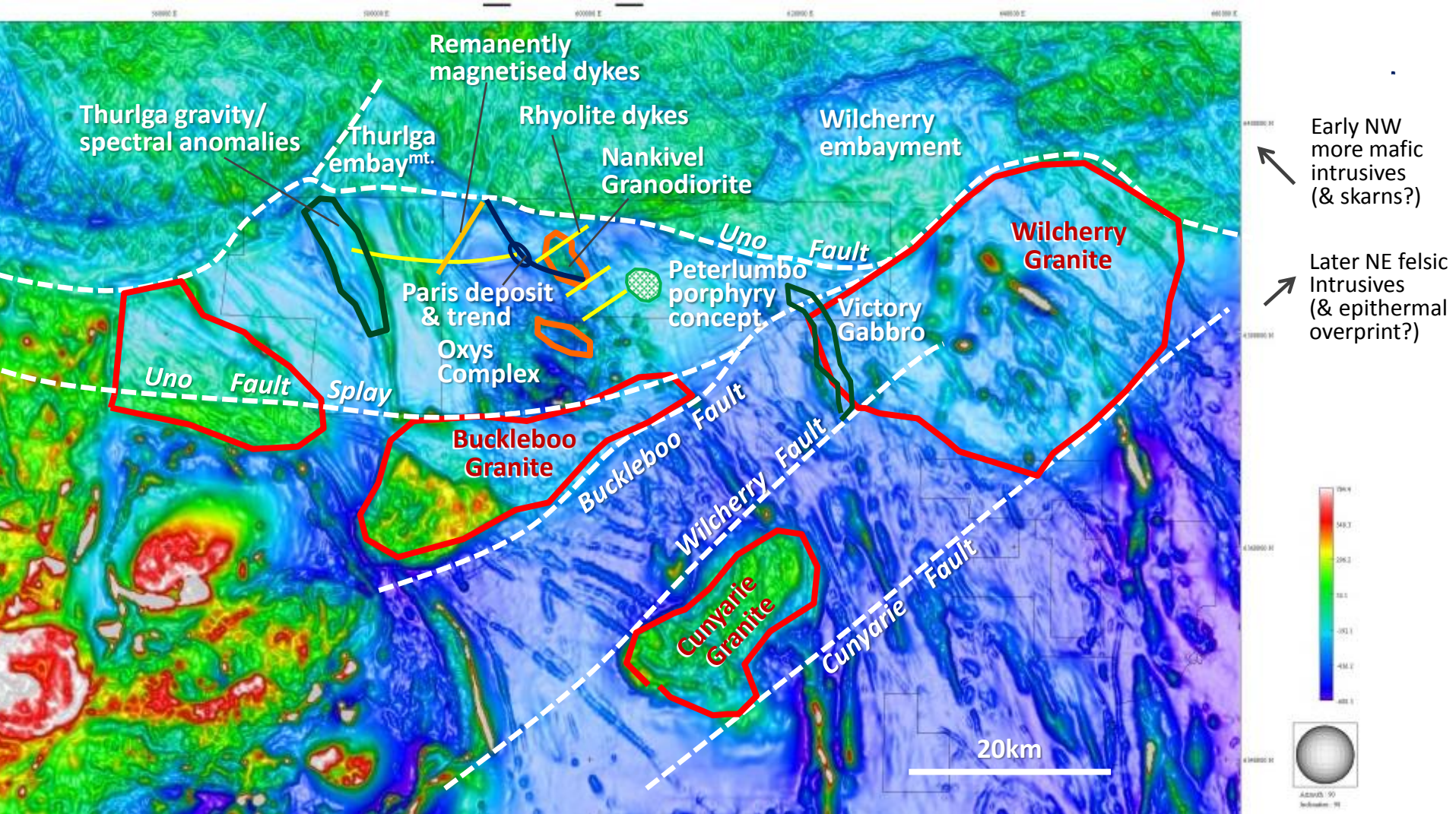
# Capitalising on the dataset – e.g. mapping new intrusive-centres with Cerium in soils & drill samples



## 12

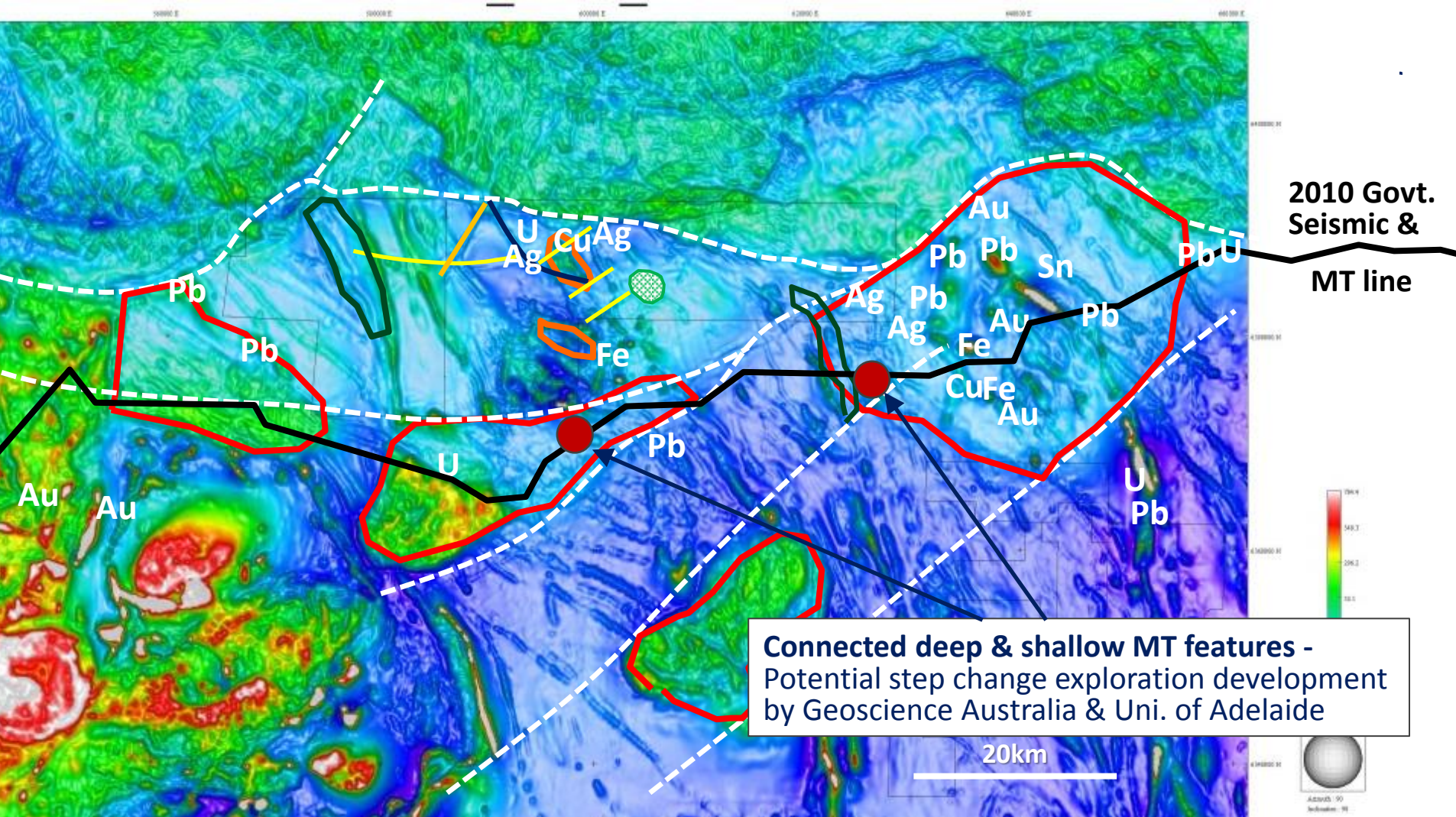


# Current multi-camp regional model – magnetics interpretation of structural & intrusive framework incl. mafic intrusives as metal sources





# Re-interpretation of 2010 MT/seismic line with new province model shows possible mantle-tapping MT plumes associated with camps





# MT/seismic – mapping structures, metal pathways & camps?

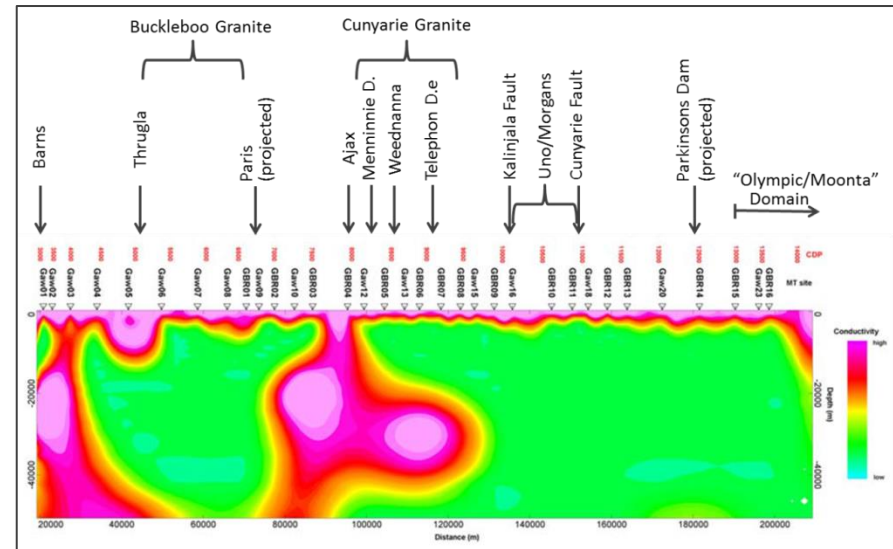


## 2010 E-W seismic/MT line south of Uno Fault

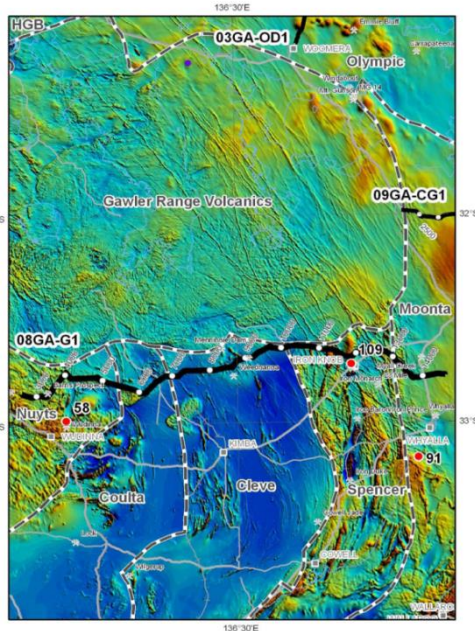
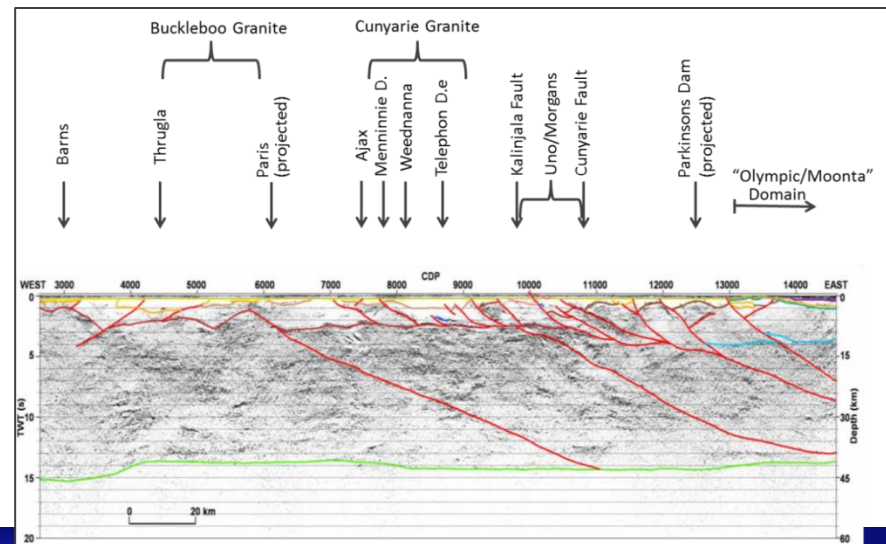
Deep sourced MT anomalies similar to those being researched at Olympic Dam warrant:-

- 1) N-S seismic & MT lines across Uno Fault
- 2) Re-processing of seismic to shallow structure depths

MT



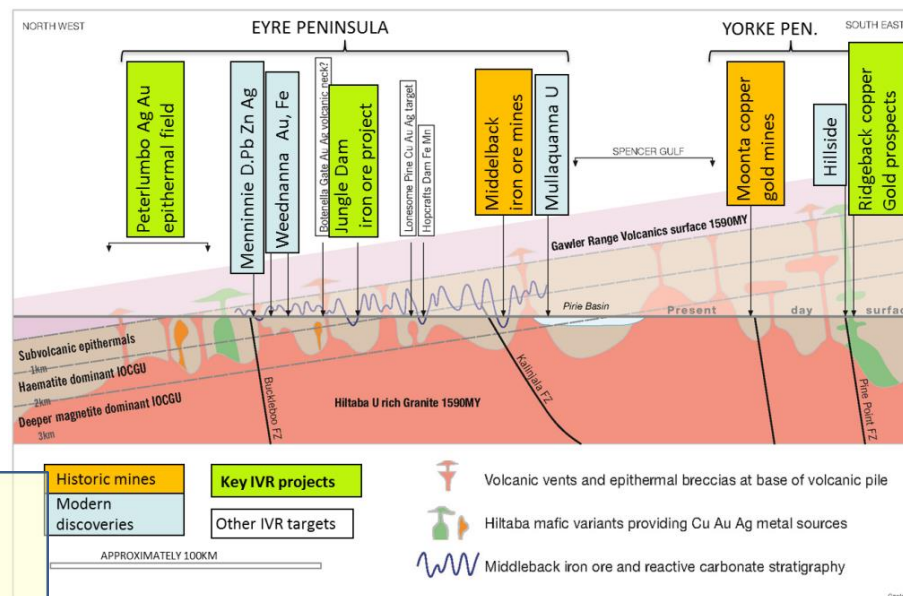
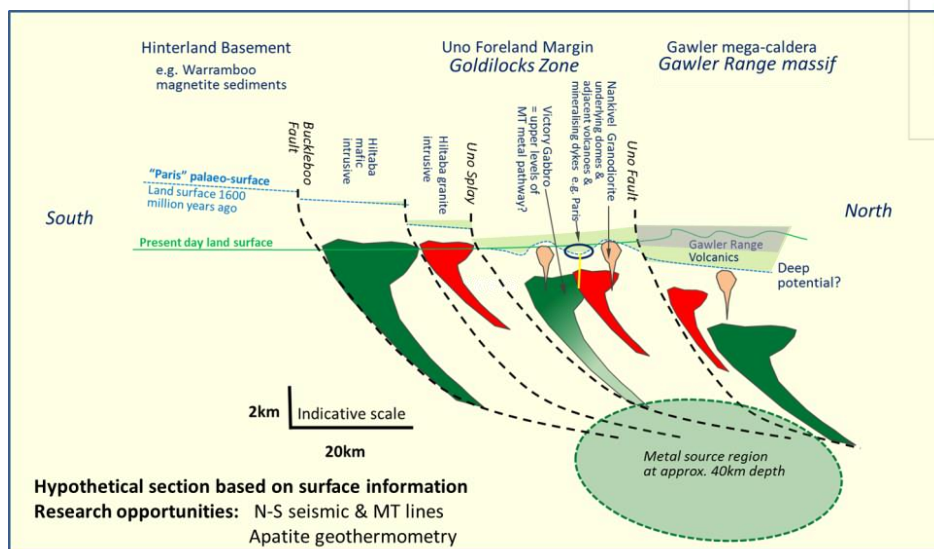
Seismic



# Role of the Uno Fault – timing?, dip?, movement?, conjugate?, feeder from mantle source?, reactivated?



Is the GRV an extensive blanket that has been eroded off exposing the optimal basal volcanics fortuitously just below the surface along the southern side of the Uno Fault?

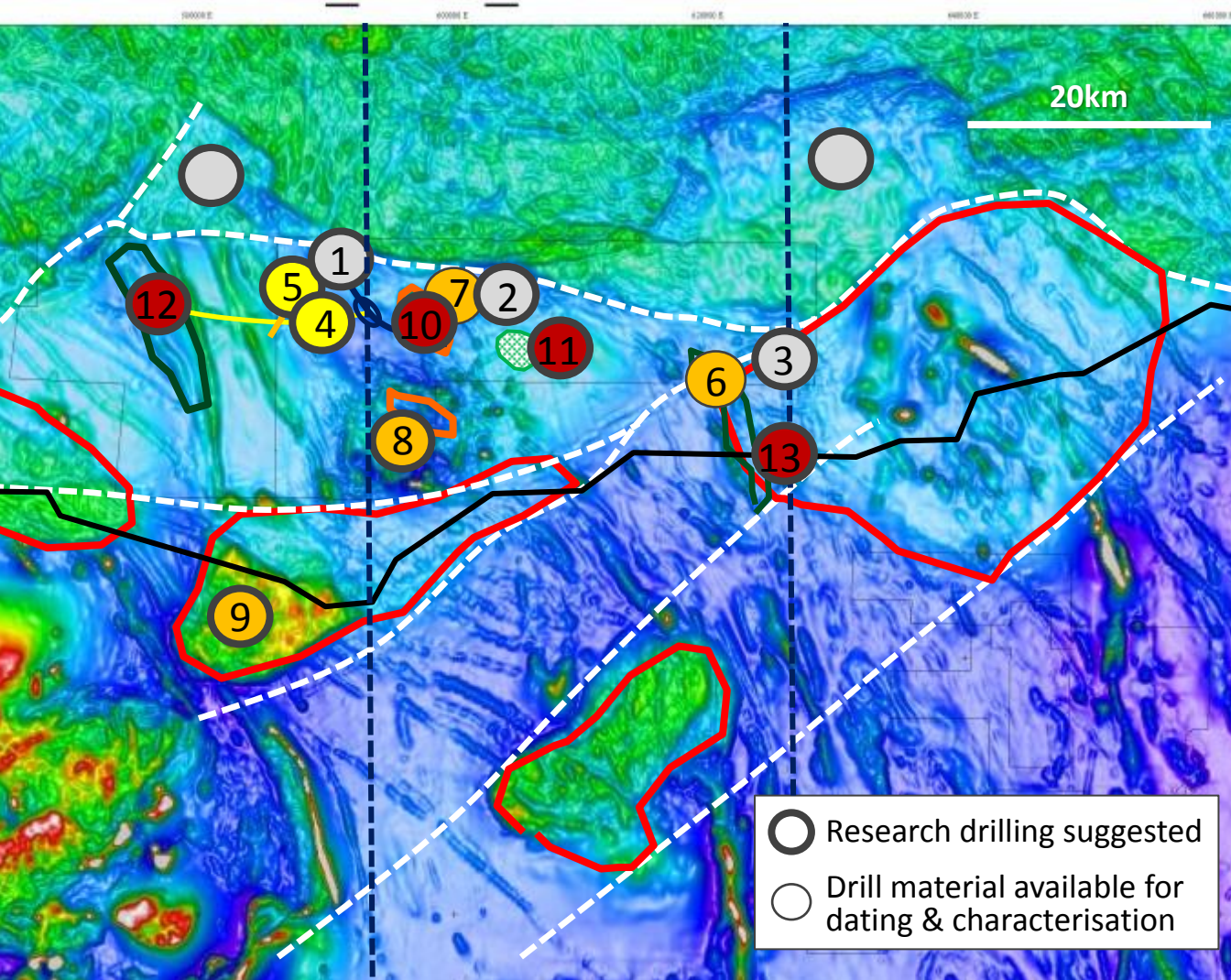


Or is the Uno Fault a fundamental structural complex that has focussed feeder intrusives along the southern side of the GRV massif?

Proposed collaborative research with U of Adelaide on timing of fault movements using fission track geothermochronometry of apatite








# Collaborative Research opportunities



*In progress with IVR:*  
Paris mineralogy, Spectral/  
Hylogger, VTEM, geobotanical

*Recommended for  
research consideration:*

-  **Depth to prospective Paris palaeo-surface**
  1. Argos North
  2. Diomedes
  3. Ajax (plus Wilcherry & Thurlga embayments)
-  **Feeder dykes**
  4. Paris-Thurlga dyke
  5. Remanently magnetised
-  **Copper source rocks/drivers**
  6. Victory Gabbro
  7. Nankivel Granodiorite
  8. Oxys complex
  9. Buckleboo mafic phase
-  **Big systems potential**
  10. Nankivel Deeps
  11. Peterlumbo Porphyry
  12. Thurlga gravity/spectral
  13. MT Finger of God
-  **N-S seismic/MT surveys**  
to characterise Uno Fault  
system (caldera margin?)



Continue to prioritise & coordinate research to maximise Survey + GA + University + Explorers' expertise in realising the discovery potential of the Uno Province

Use exploration drillholes, data & knowledge as a research platform

Targeted mapping to speed up strategic outputs

- Metallogenic context of diverse deposit models (e.g. Tin rhyolites, Kidston)

Intrusives need attention as key as drivers, source rocks & determining deposit styles

- More characterisation & age dating including mafics & dyke phases
- Supplementary government drilling for geology & dating

Spectral is still good – more work on Hymap data; tie Paris Hylogger results into soil/geobotanical, Hymap and Aster signatures

Uno Fault system – *in addition to Hills/Glorie geothermochronometry*

- N-S seismic & MT lines (plus detailing?)
- E-W zoning - high-sulph. breccia/porphyry potential to west; low-sulph. Vein gold potential to east?

Roll out AusLamp/SEP MT results ASAP

- What is under the GRV massif? Is the Uno Foreland unique?

Mineralisation & fault movement dating