



What's Needed, and What's Not

John Holliday, Holliday Geoscience

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Why UNCOVER?

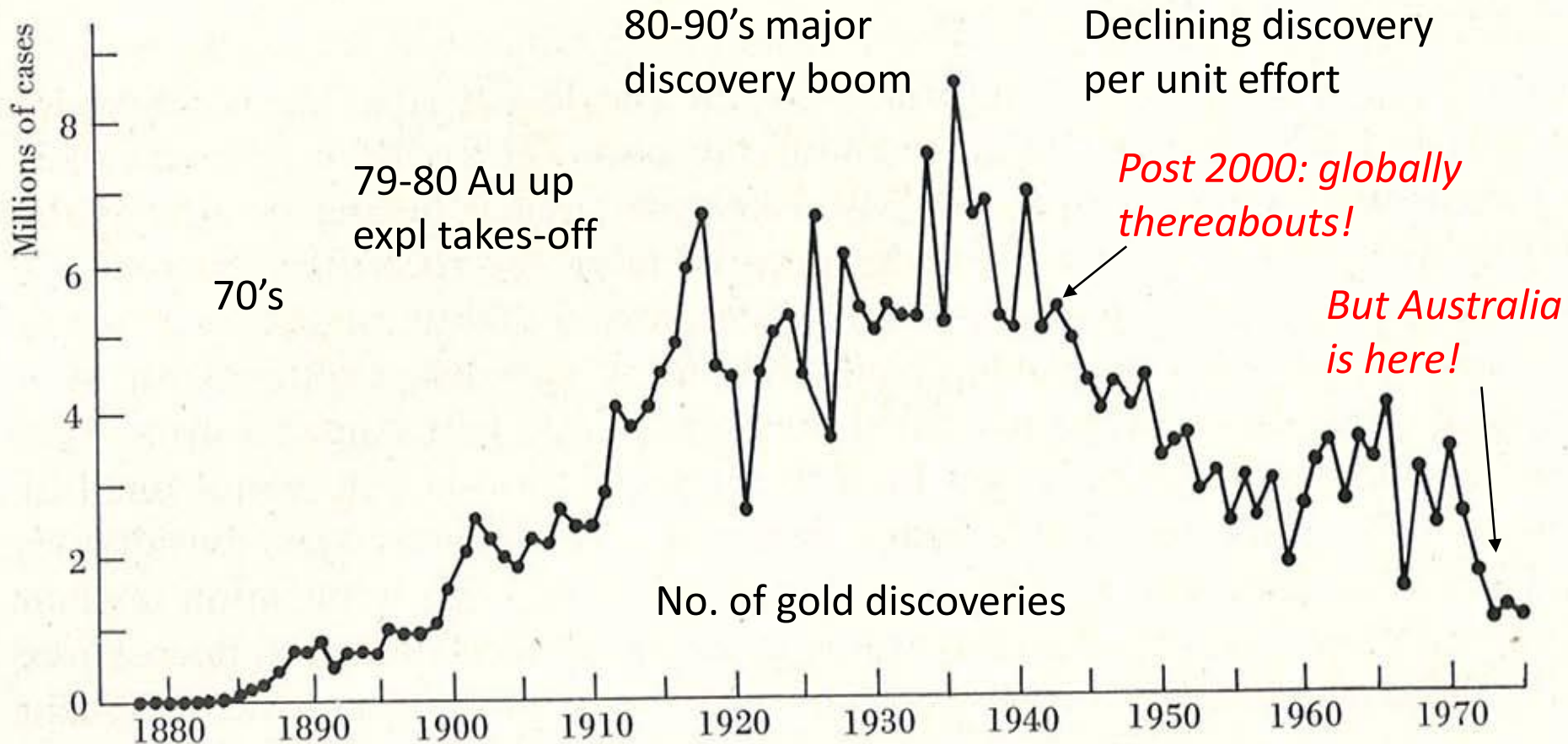


Figure 17.15. Total pack of canned salmon in Alaska, 1878–1975. Each case is 48 pounds net. (Data from *Fishery Statistics of the United States*.)

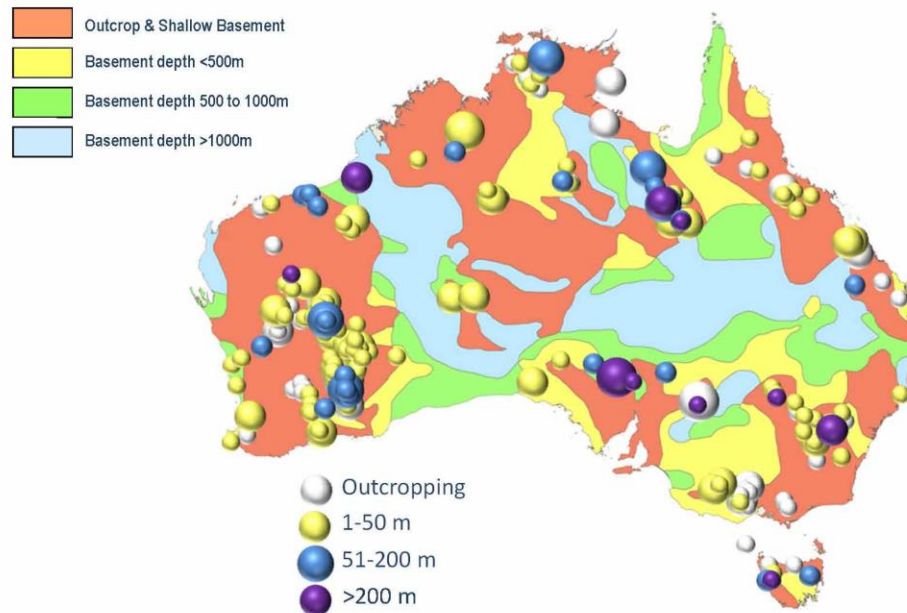
Australian outcrop and shallow basement is “over-fished”

Why UNCOVER?

- Australia's known mineralised provinces are mostly very exploration mature for tier one and two discoveries except under deeper cover
- Thus there are more prospective options for nearer-term, feasible discovery offshore
- To re-establish Australia's competitiveness new exploration immature provinces must be found

Where to UNCOVER?

Major mineral deposits in Australia Depth of cover



Note: Major defined as >1 moz Au, >1mt Cu, > 100kt Ni or equivalent
Excludes Bulk Minerals such as Coal, Bauxite and Iron Ore

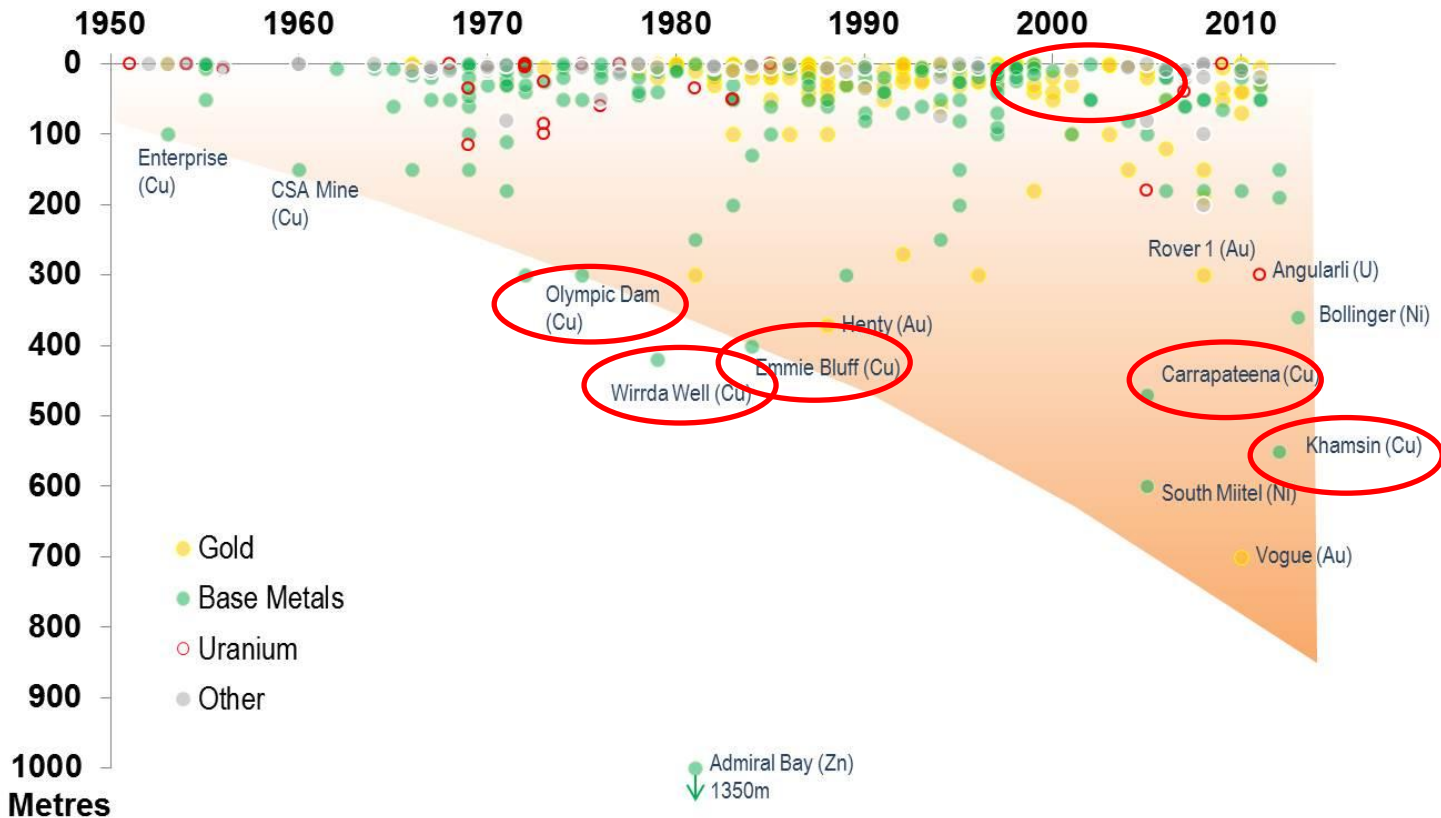
Sources: MinEx Consulting August 2010
Geoscience Australia

Cover thicknesses realistic for BULK UNDERGROUND MINING
Suggest 100-1500m

The AIM?

Good evidence for a new mineralised province like the Stuart Shelf

Depth of cover on discoveries – by Commodity
Mineral discoveries in Australia : 1950-2013



How to UNCOVER?

An analogy – The DEEP SEA DRILLING PROJECT – except the Cover isn't water

Drilling is absolutely crucial



This rig can drill 3kms NQ

The Cover

- Thickness – past drilling, seismic, mag/grav
- Transparency to geophysics
- Drilling conditions – past drilling, seismic
- Groundwater, gas?

The Basement

- Geology (4D) – Drill samples, seismic
- Probability for mineralisation
 - Geochemistry (standard, litho, footprint) – Drill samples
 - Sulphides – Drill samples, IP/MT
 - Alteration – Drill samples, IP/MT
 - Iron formations – Drill samples, magnetics, gravity
 - Organic material – Drill samples

IP/MT

REGIONAL SULPHIDE MAPPING

Hugo Dummett
North (Logan,
2013)

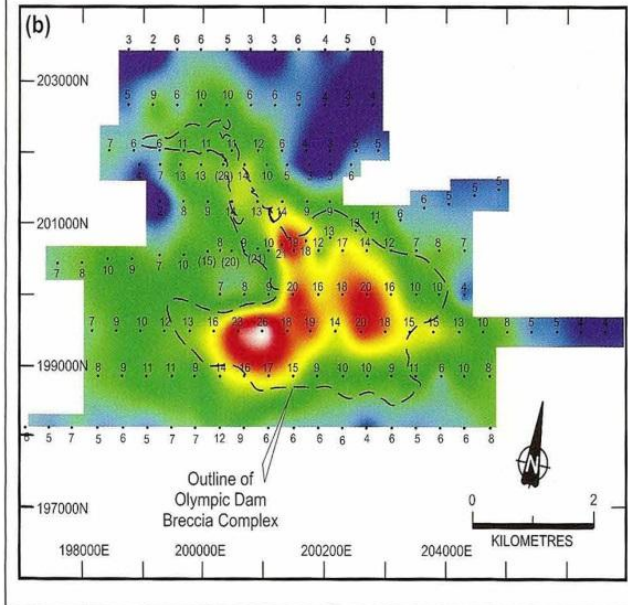
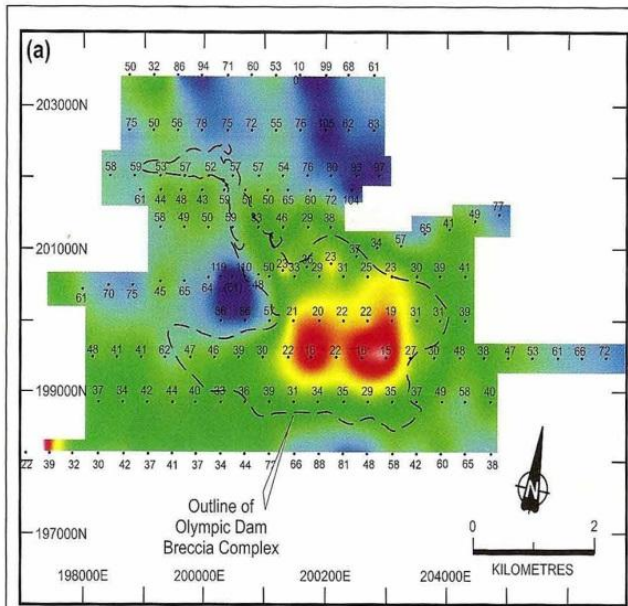
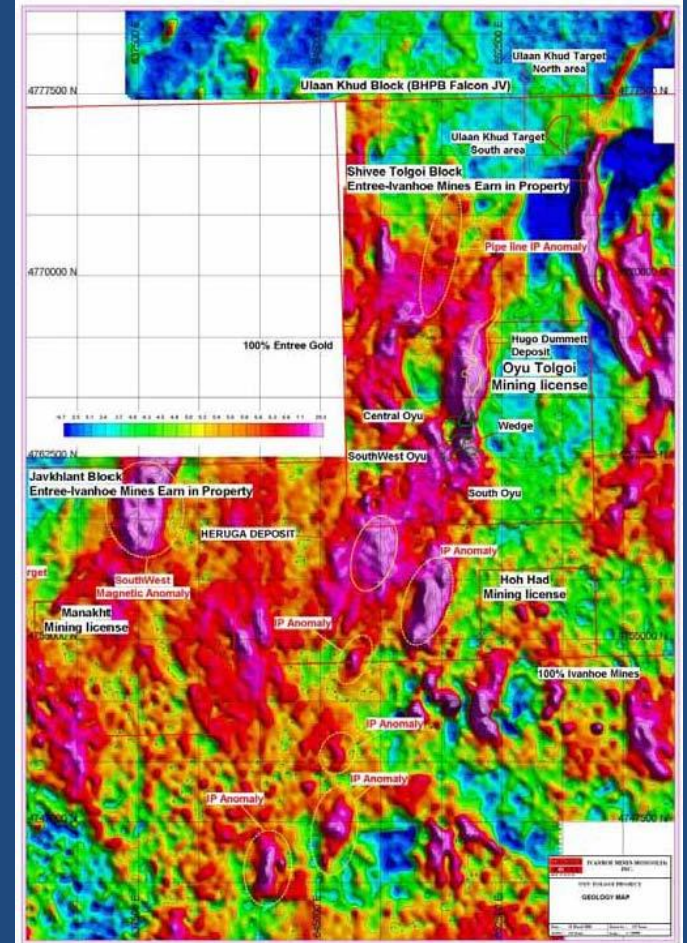
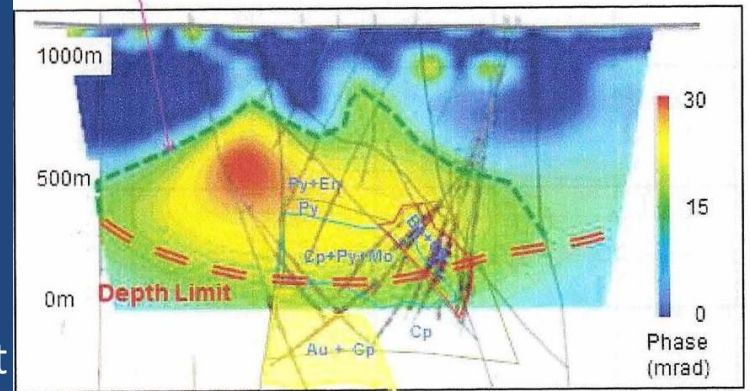


Fig.19. Maps of IP/resistivity data at $n=4$, 400 m dipole size. Brackets denote readings that are probably influenced by casing. a) Apparent resistivity at 0.125 Hz ($\Omega.m$), b) decoupled phase angle (mrad).

Oyu Tolgoi
Region
(Ivanhoe
website)

Olympic Dam
(Esdale et al, 2003)

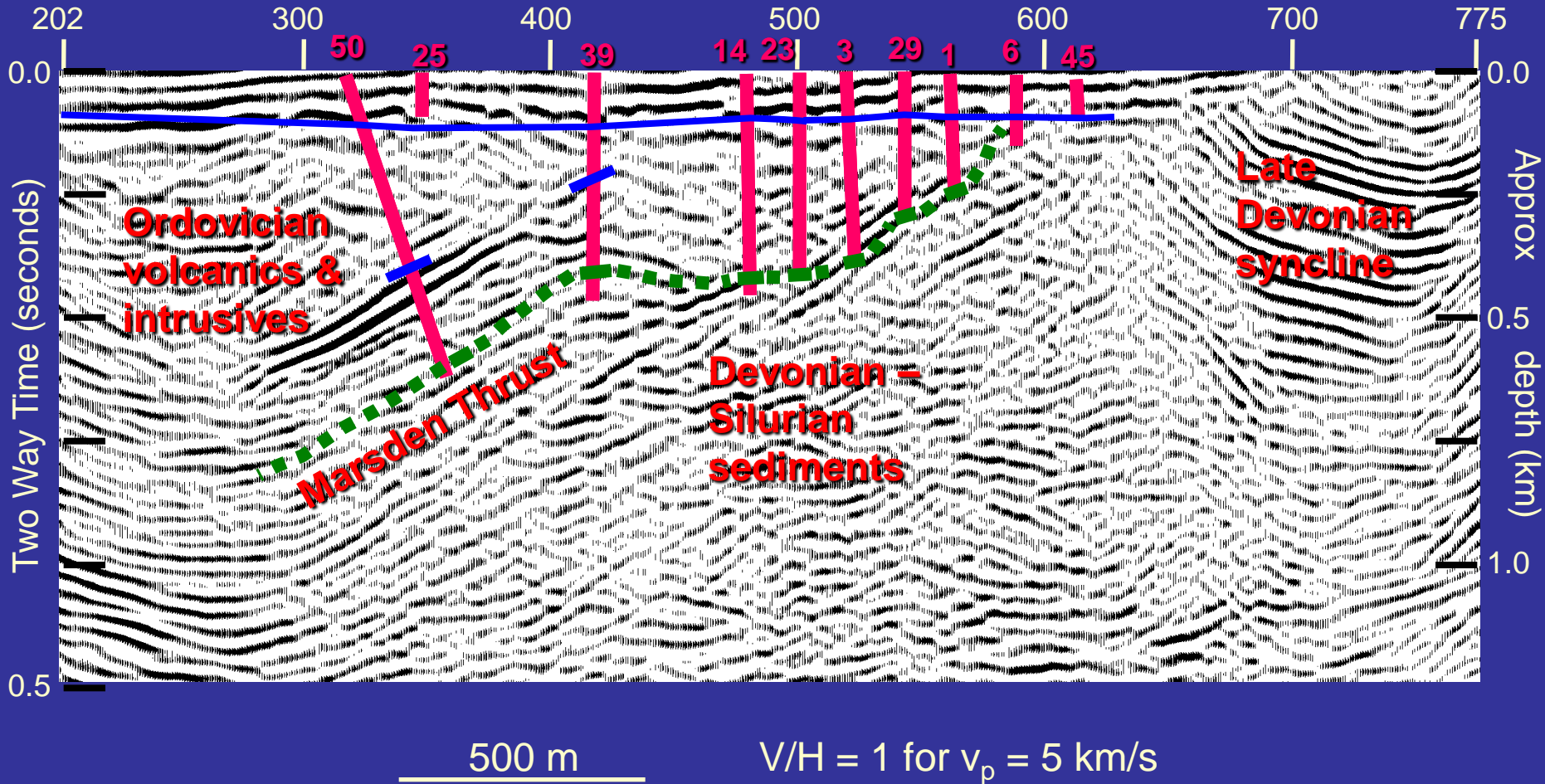
Pyrite alteration halo? - 2D Inversion of EM-Decoupled Phase



Seismic

High resolution at appropriate depths and if the geology is conducive

Marsden porphyry deposit, NSW: migrated seismic section



Pre-Competitive Rules

- UNCOVER should operate where Explorers aren't
- States need to impose tenement moratoriums over areas before UNCOVER investigates
- Eventually exploration rights should be given out by tender based on work program (not \$'s paid)

What's Needed, and What's Not

Needed

- New Provinces
- Basement samples (drill)
- Basic Info on Cover
- High Res seismic to 2km
- Regional IP/MT surveys
- Pre-competitive titles moratoriums

Not Needed

- More on known Provinces
- Reliance on remote sensing
- Detailed Cover studies
- Deep crustal seismic
- Airborne EM
- First in gets title

Concluding remarks

The unique research contribution UNCOVER can make is mapping the geology of the unknown Australian Basement.

More science on technologies and exploration toolkits can and will be applied anywhere, not just in Australia.

Therefore, without most effort focused on the rocks (Basement sampling) taxpayer support for UNCOVER is not justified.

AREAS

Suggestions only. SE bias merely reflects the authors knowledge

