

MINERALS EXPLORATION IN BRAZIL: THE PERSPECTIVE OF A MAJOR MINING COMPANY

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ADIMB – Exploration Manager's Meeting

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bhpbilliton

BHP Billiton is a global explorer

Countries & major offices : 2007

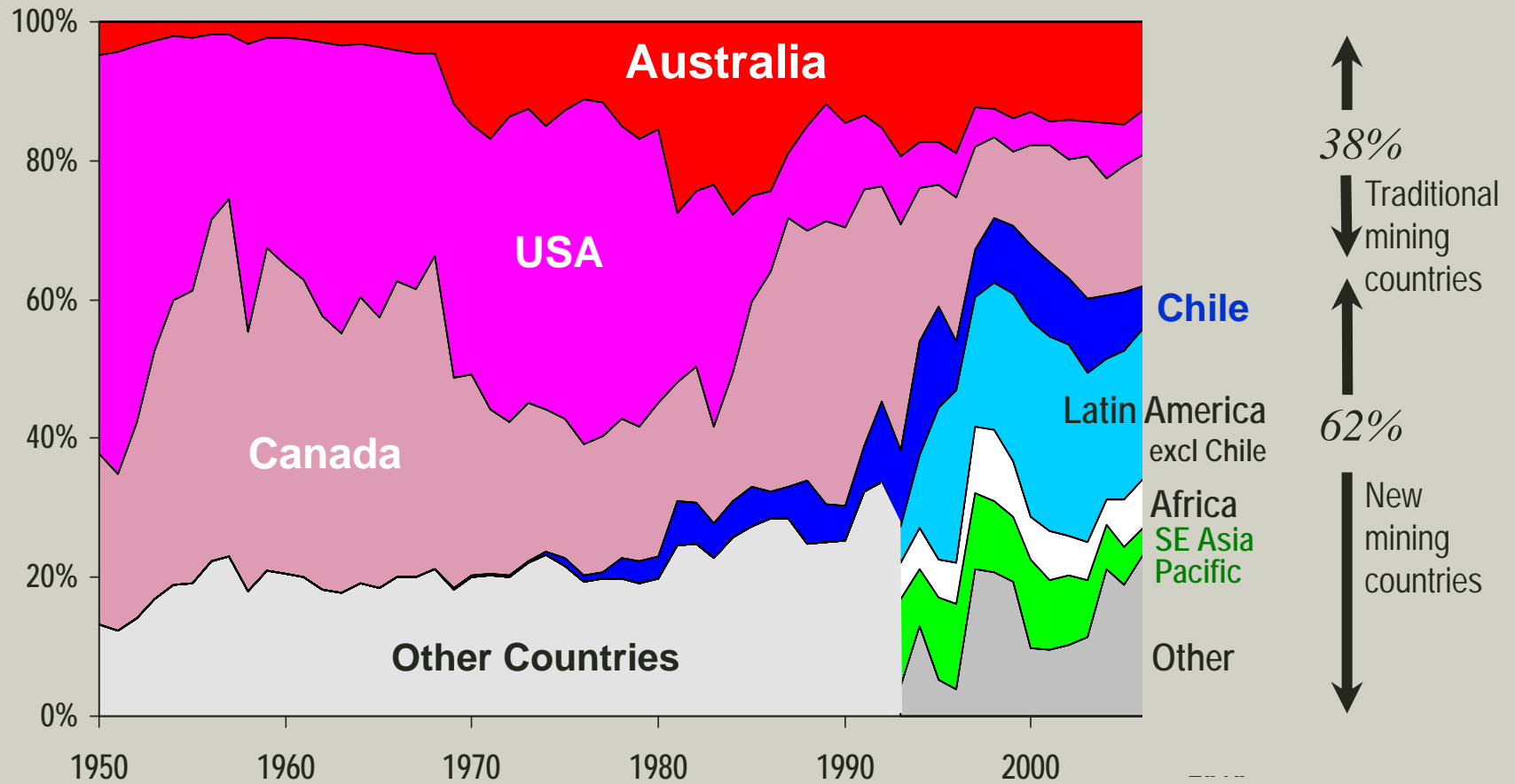


Active exploration programs in countries shaded yellow (2007)

Evidence of the move to new countries

Percentage breakdown of base metal exploration expenditures: 1950-2006

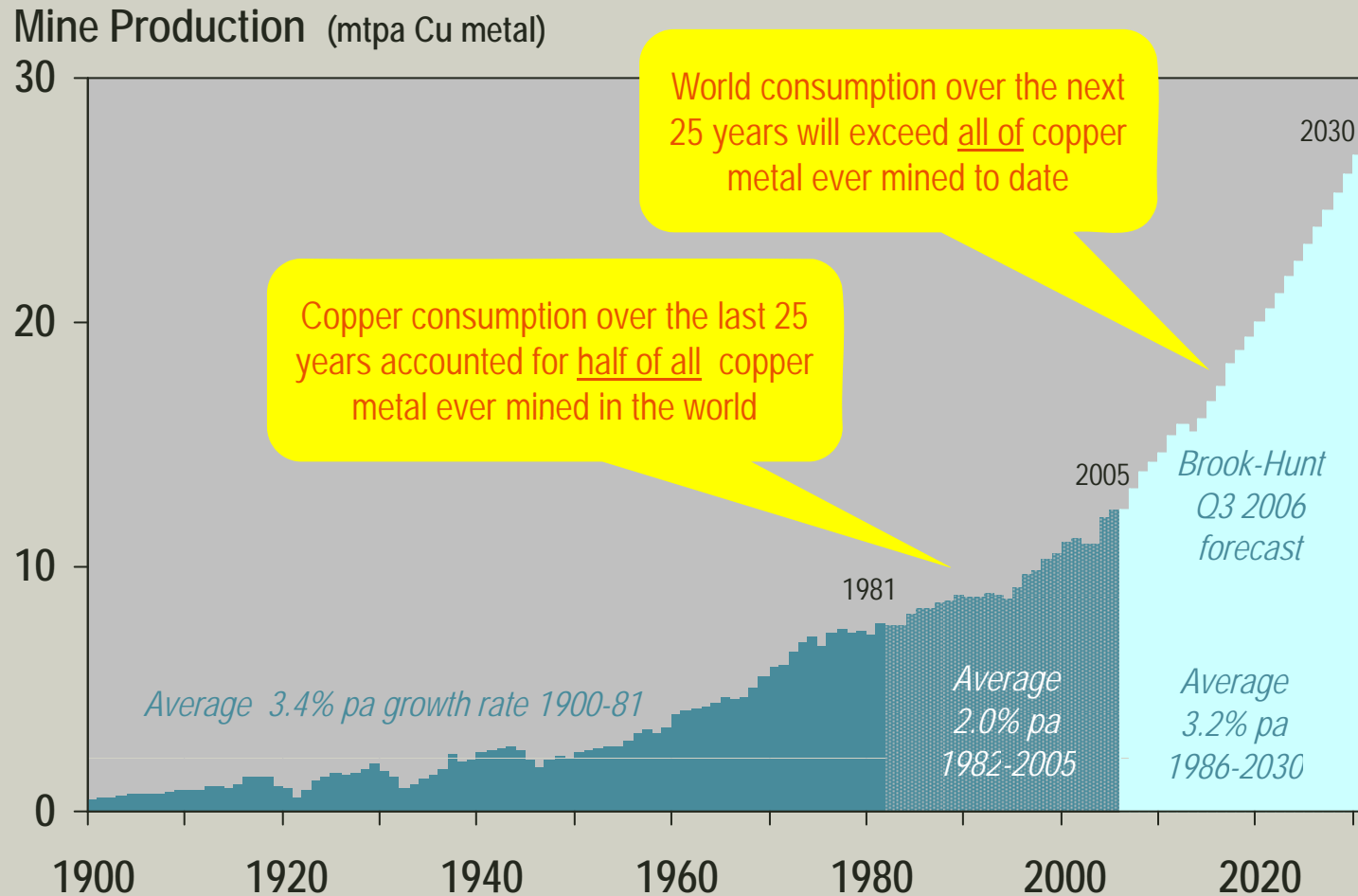
Percentage split of western world expenditures on base metals by country



Sources : Mackenzie, MEG and BHP Billiton estimates

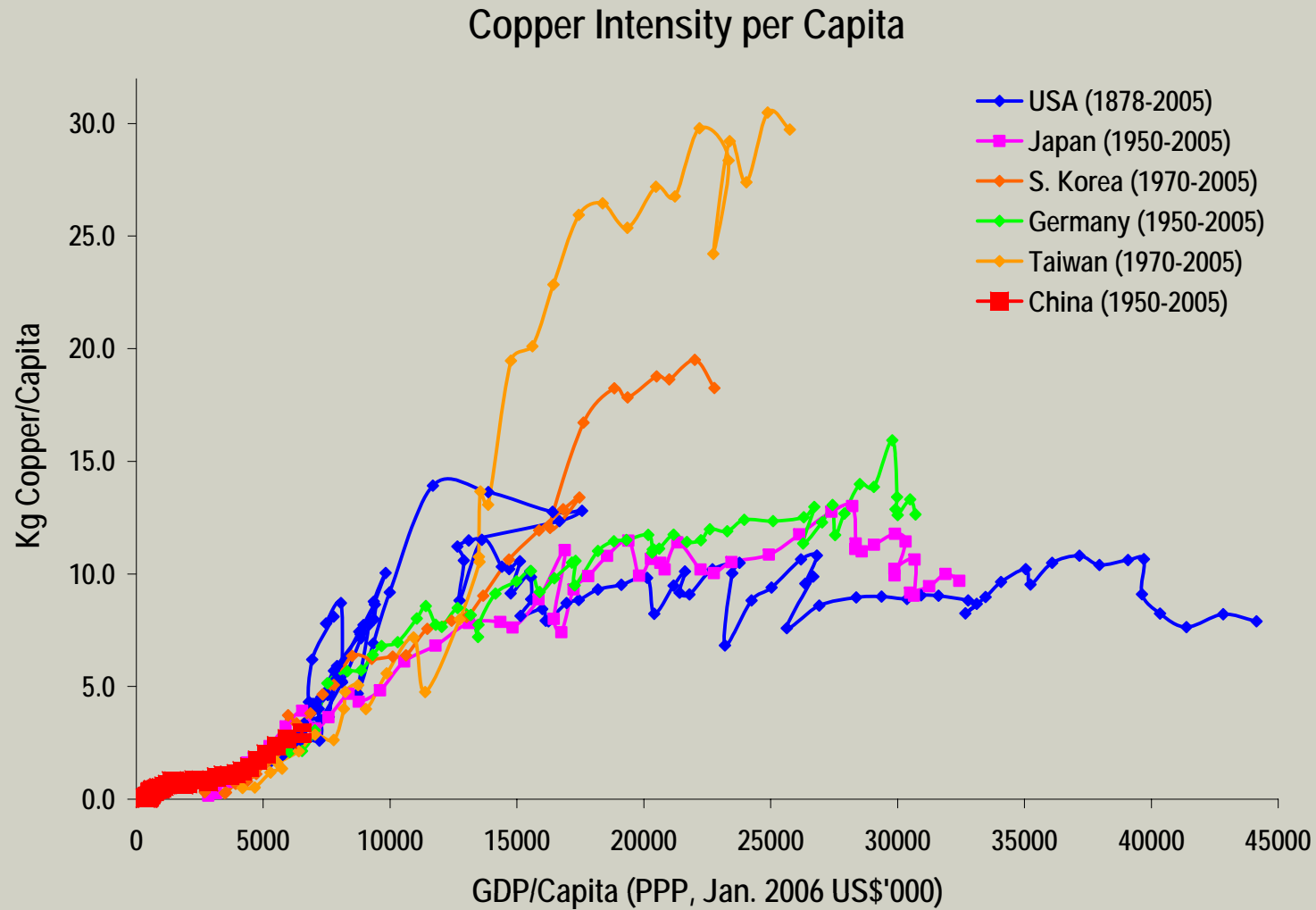
Fundamentals: why the world needs to find more deposits..

World copper production: 1900-2006



Sources: US Geological Survey (1900-83), Brook Hunt (1984 onwards)

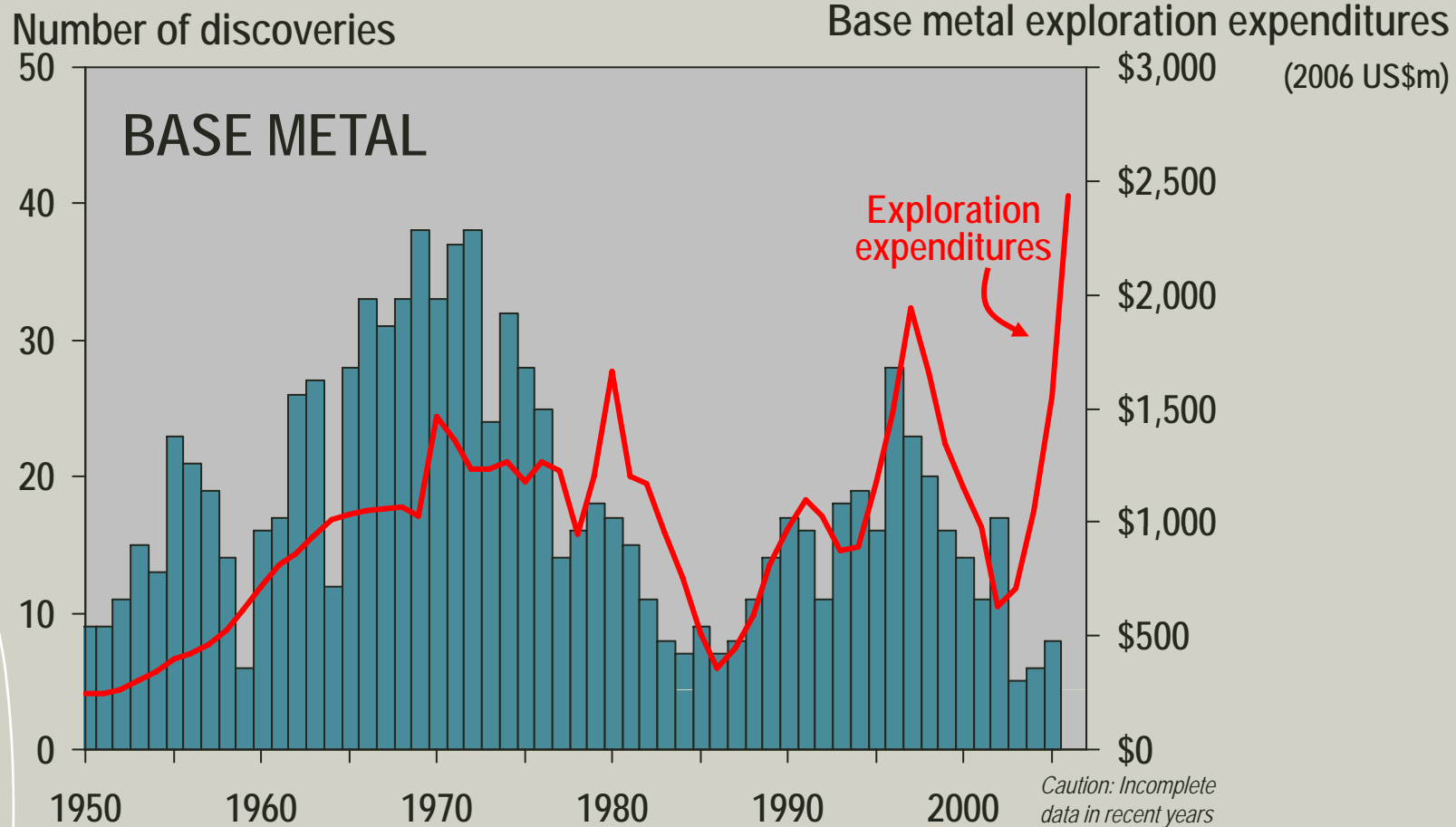
.. how does China ranks in terms of copper intensity of use?



Source: World Bank, OECD (GDP at Purchasing Power Parity), CRU

Industry performance - how many deposits were found ?

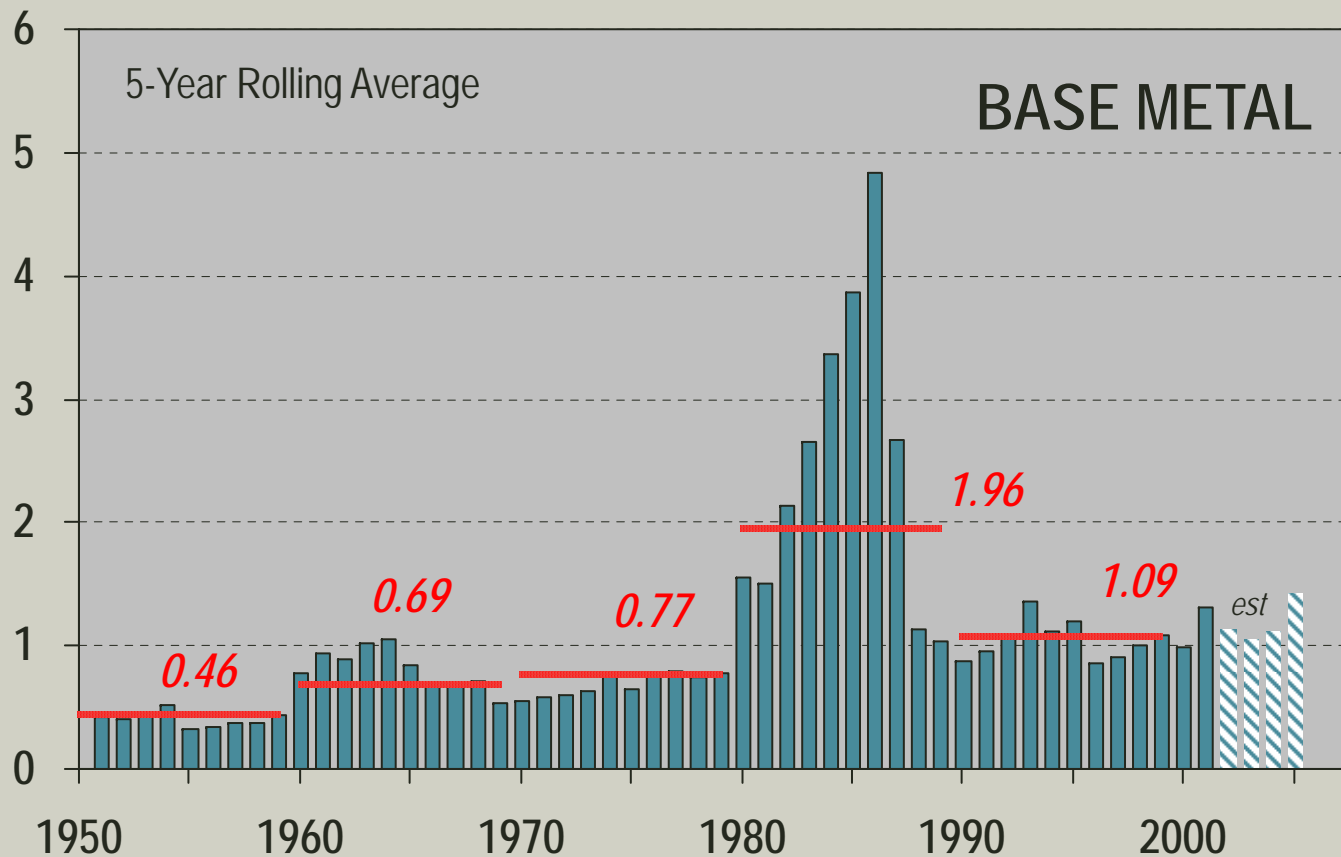
Base metal (Cu, Ni, Zn, Pb) discoveries > 0.1mt Cu-equiv: western world: 1950-2005



Source: BHP Billiton January 2007

... but average discovery costs have been slowly increasing
Base metal found divided by exploration expenditures: western world

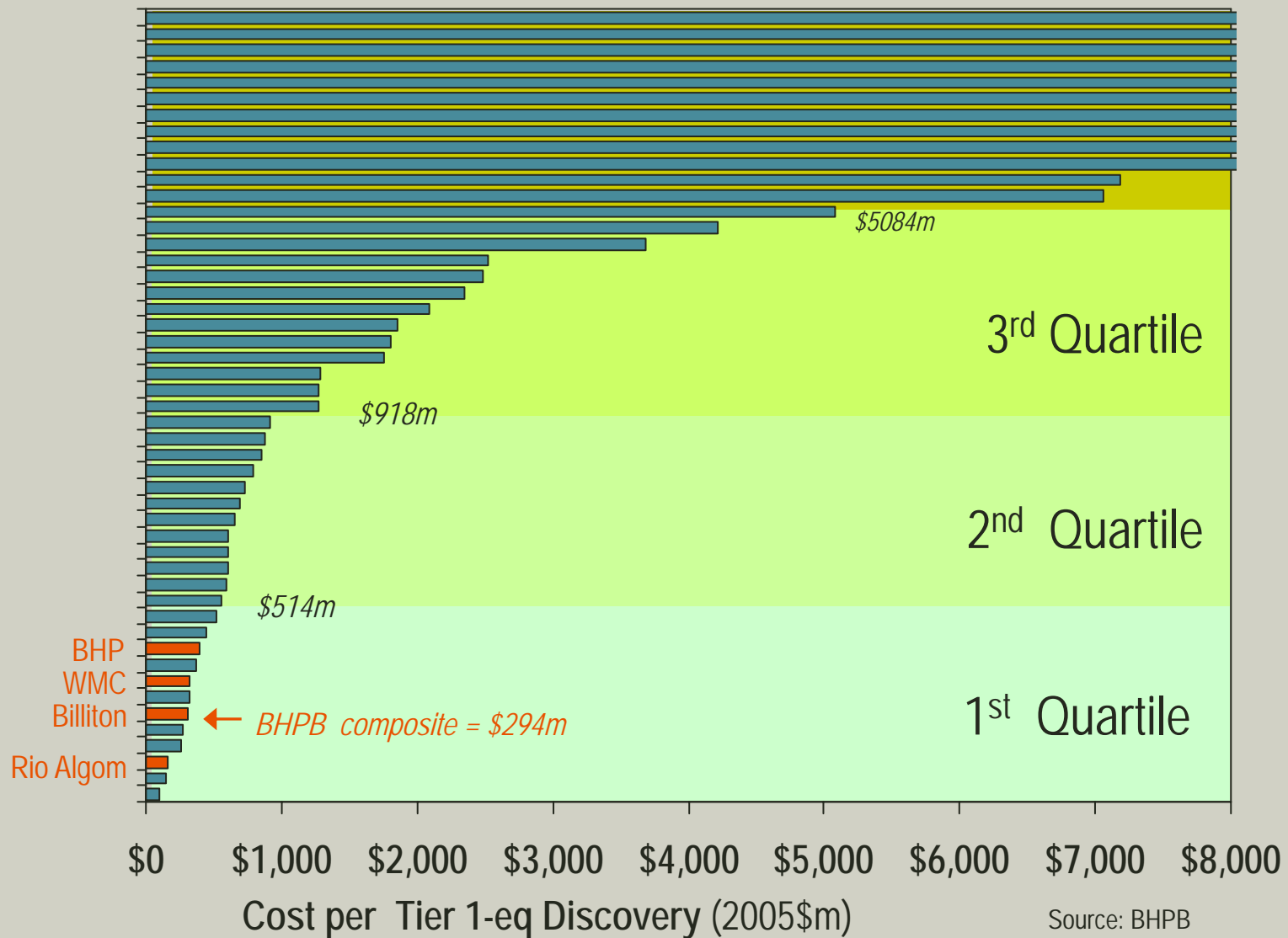
Unit discovery costs (2006 c/lb Cu-equiv)



Source: BHP Billiton January 2007

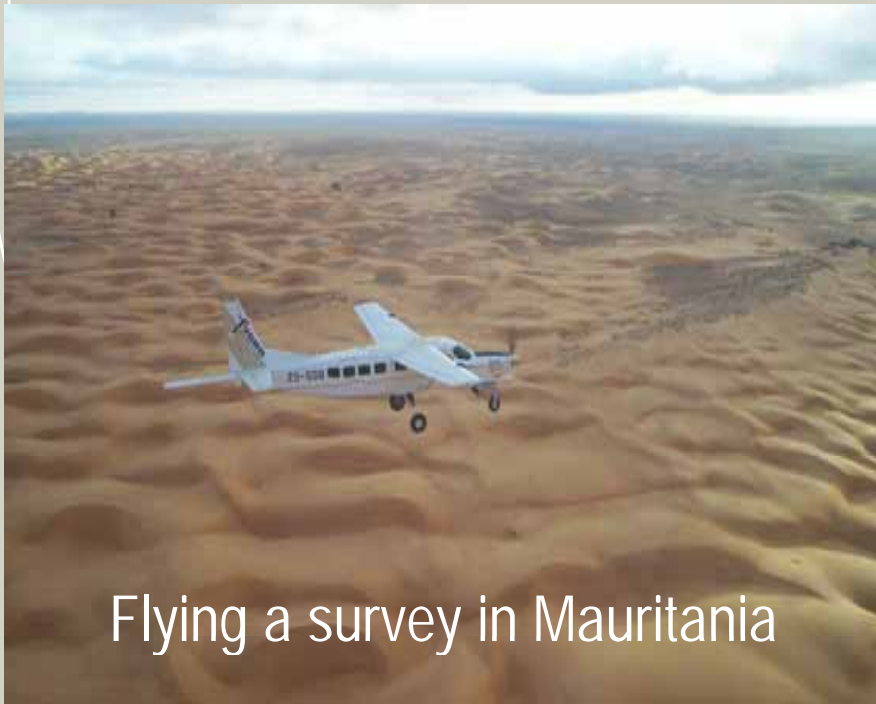
Exploration Performance of Major Companies

Cost per Tier 1-equivalent discovery : 1992-2004

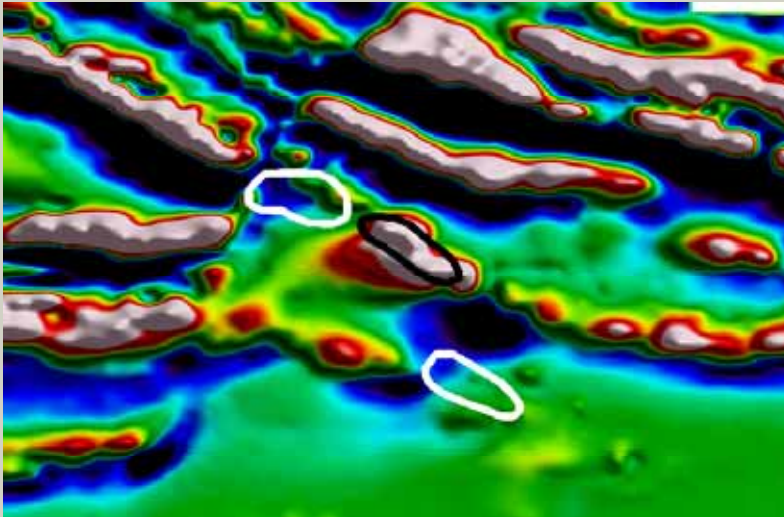


Source: BHPB

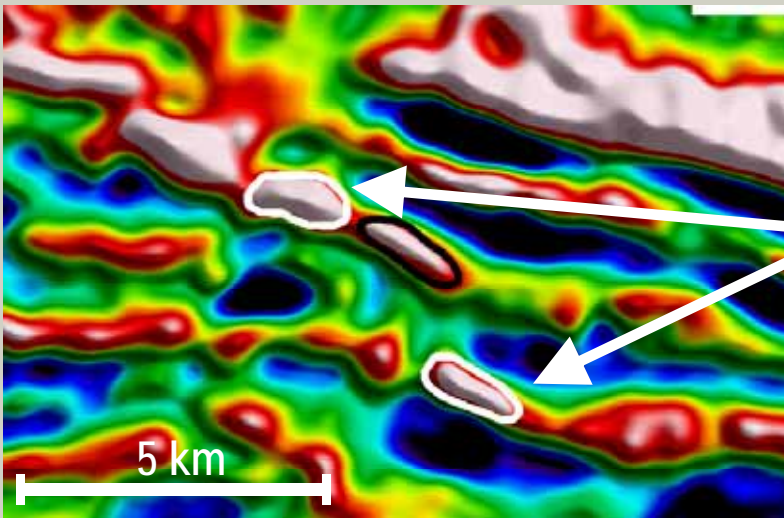
Falcon™ & Heli-Falcon™ airborne gravity gradiometer systems



Example of Falcon™ finding iron ore in Western Australia



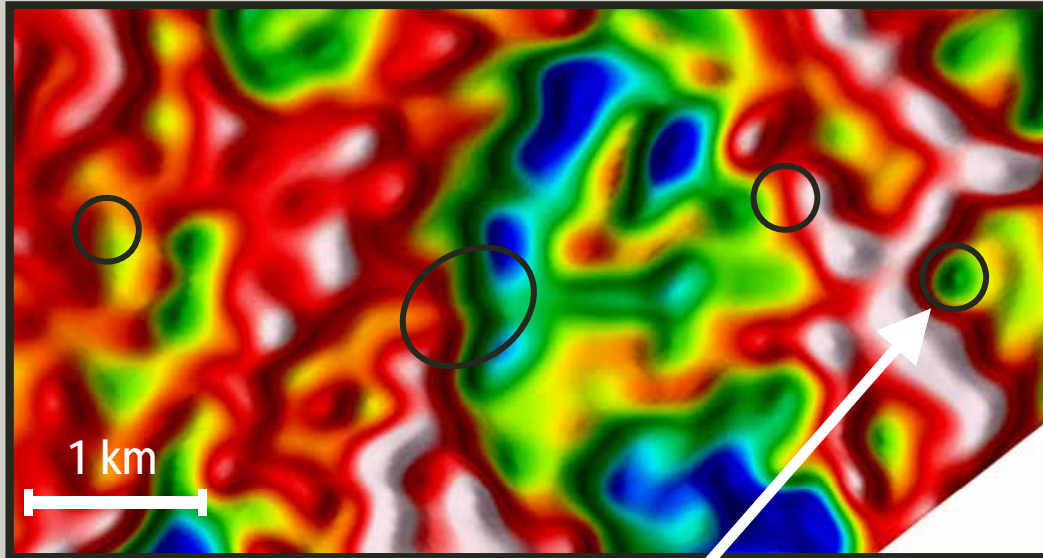
Conventional aeromag survey
Vertical Derivative of the Total Magnetic Intensity



Falcon™ survey (G_{DD})

Iron ore targets have clearly identifiable gravity highs but varying magnetic anomalies

Example of Heli-Falcon™ finding diamond pipes in Canada
... the higher resolution is great for mapping structures !

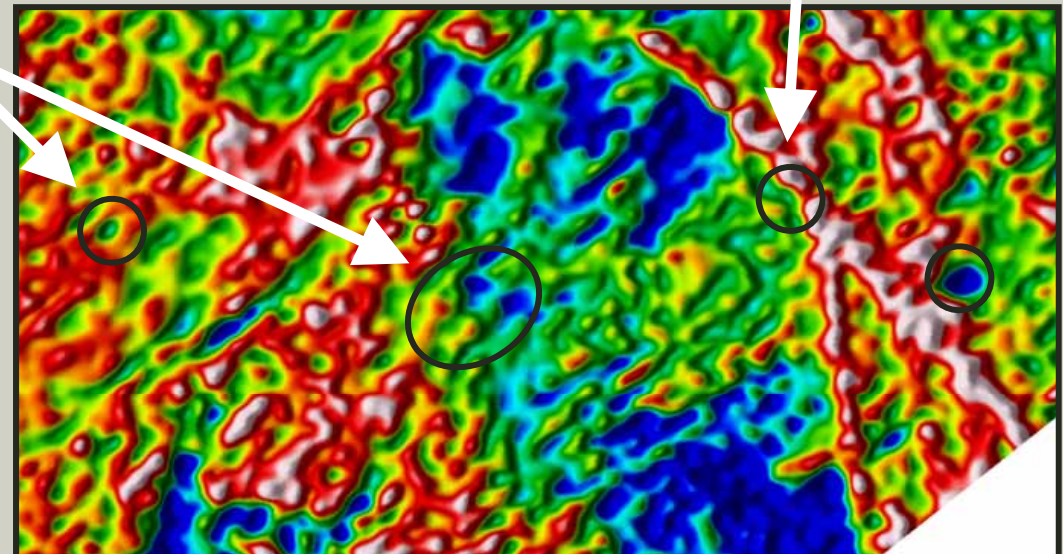


**Fixed wing data
(2003)**

*Pipe found at the
intersection of dikes*

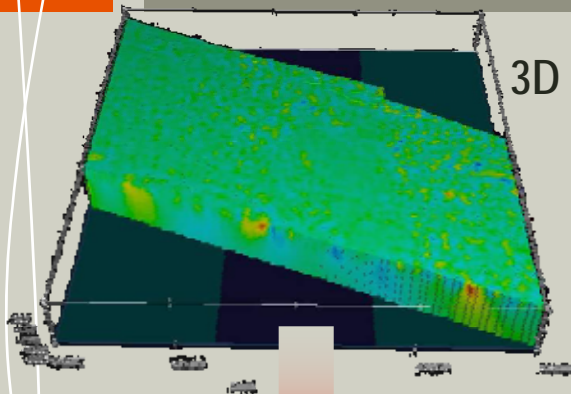
Kimberlite pipes

**Helicopter data
(2006)**

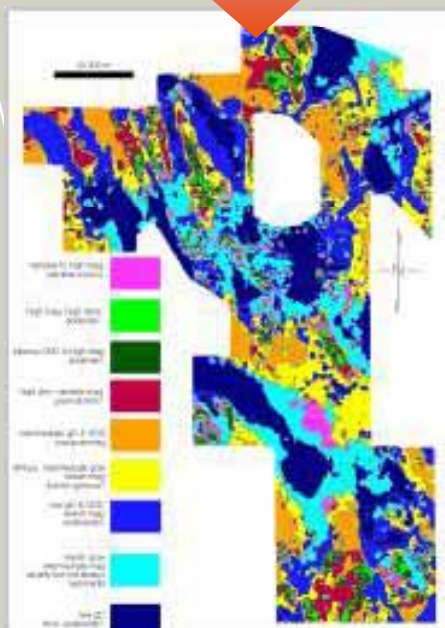
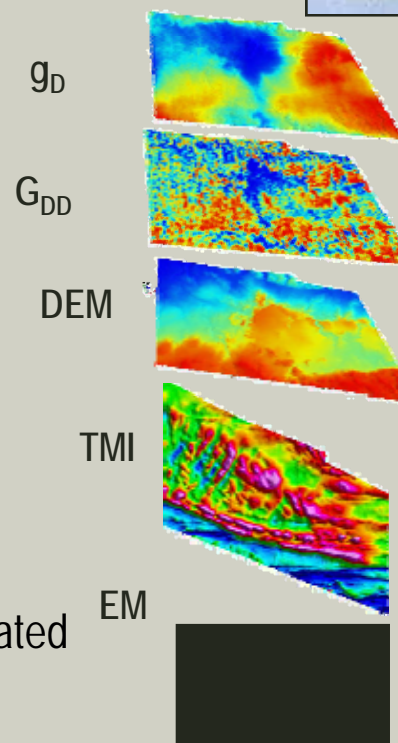


SolidEarth Technology

Falcon™

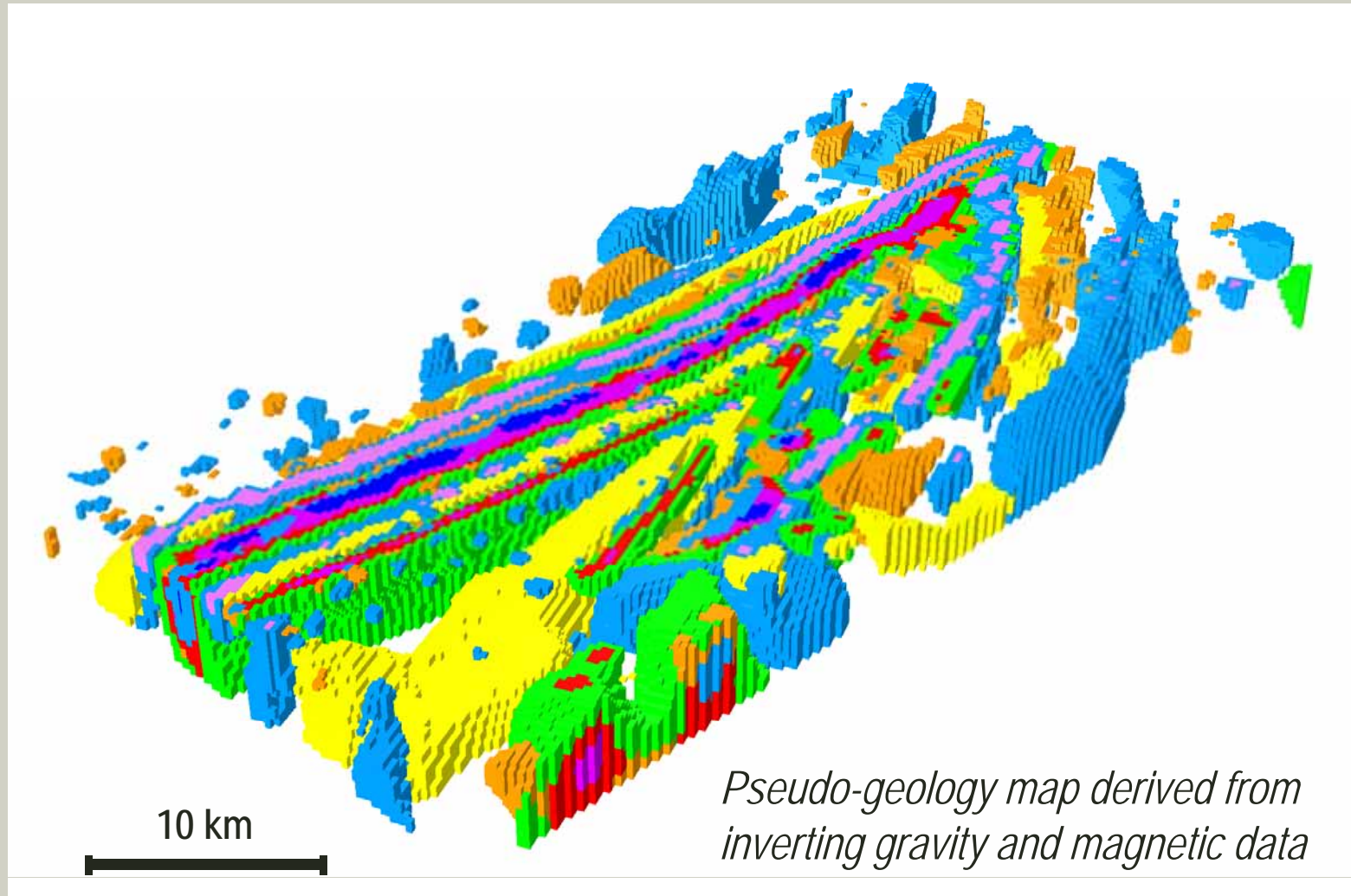


SolidEarth™
proprietary
software

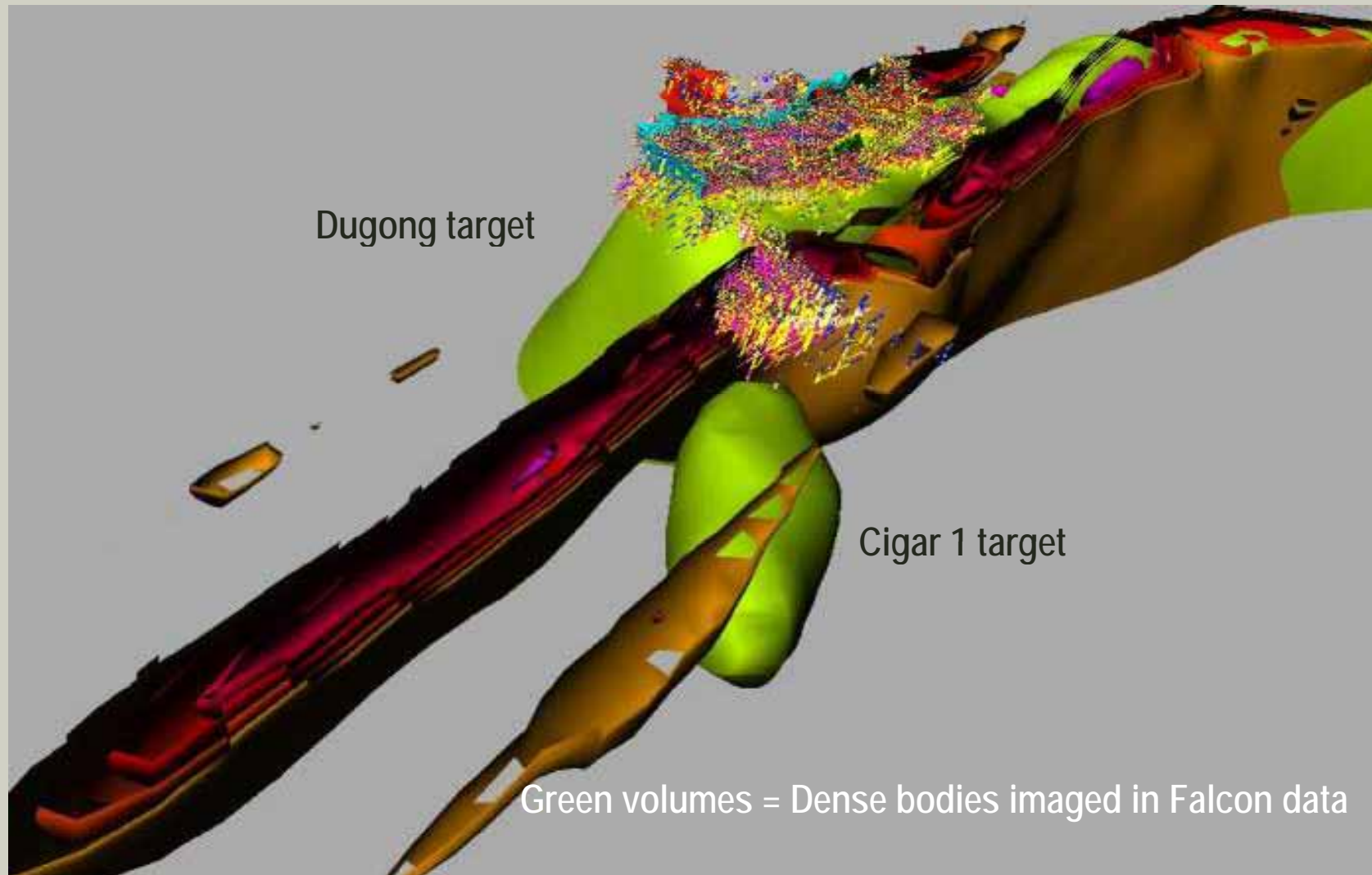


- Proprietary 3D geophysical inversions integrated with 3D GIS
- Proprietary clustering to 3D pseudo-geology
- Vision : 3D geological interpretation

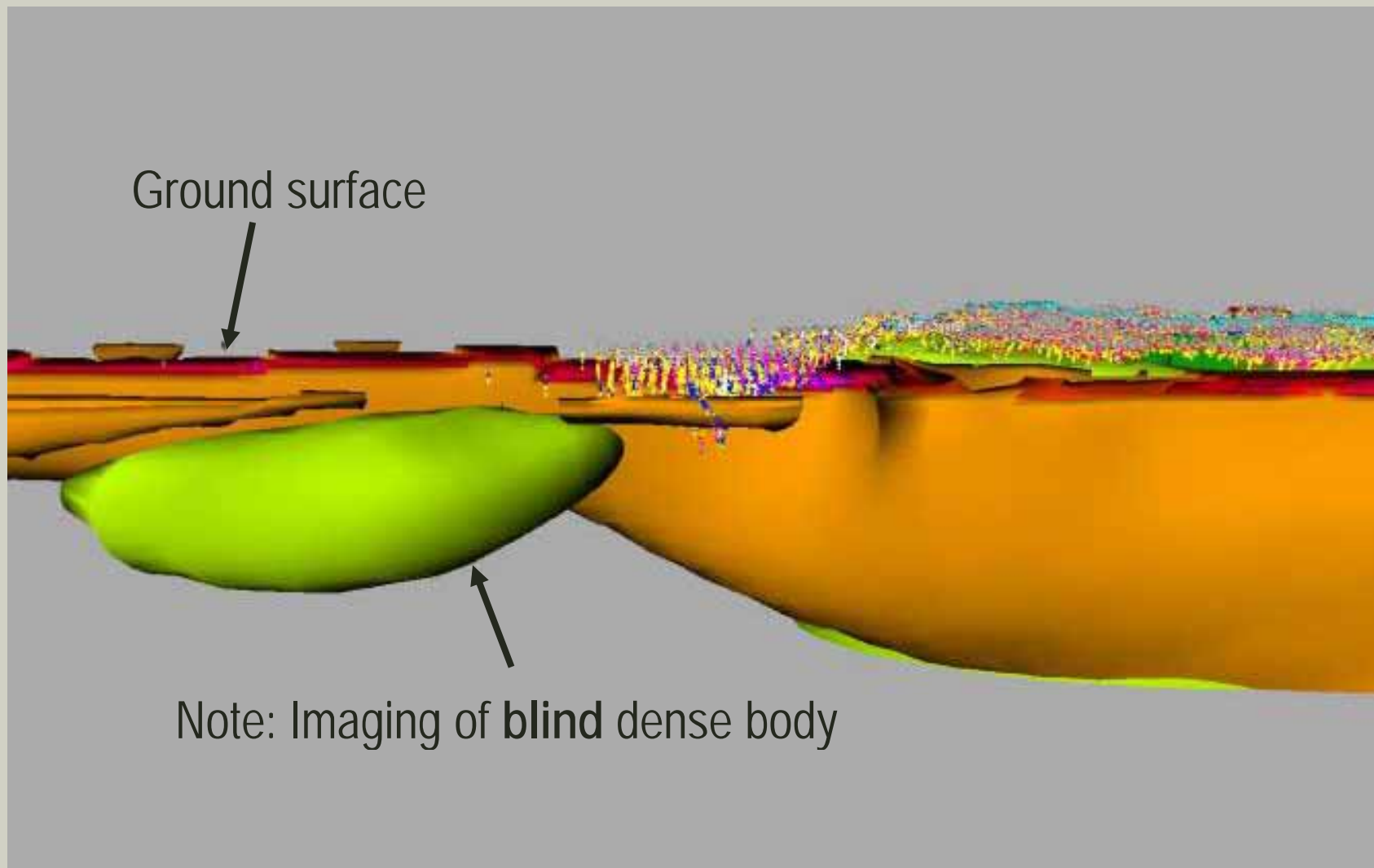
SolidEarth™ data inversion technique for generating detailed 3D models of geological structures



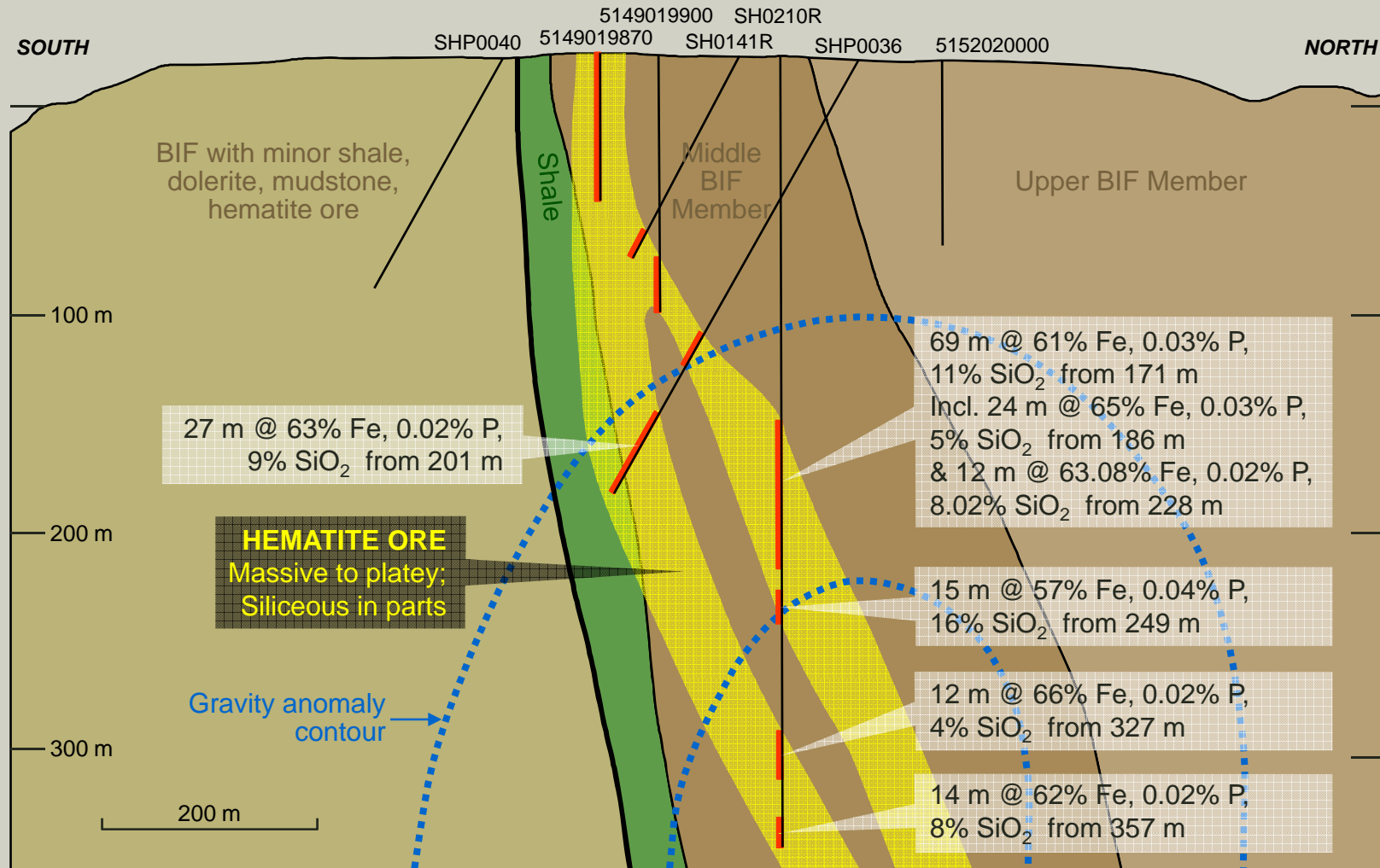
Case Study:
Yarrie Mining Complex, North Pilbara Iron Ore belt , Western Australia



Cigar1 Target - Yarrie Mining Complex



Dugong Falcon Target, Yarrie Mining Complex



Specific issues for discussion

- Liberation of restricted areas for exploration & mining
- Liberation of border zones for multinational companies
- Liberation of Indian reserves for exploration & mining
- Infra-structure and long term supply of energy.
- Airborne geophysics survey data.
- Basic geological information.
- Transfer of ICMS credits.
- Open file systems.

