

Extension and Telescoping Overprinted by Inversion and Erosion of Epithermal Systems in the Drummond and Bowen Basins

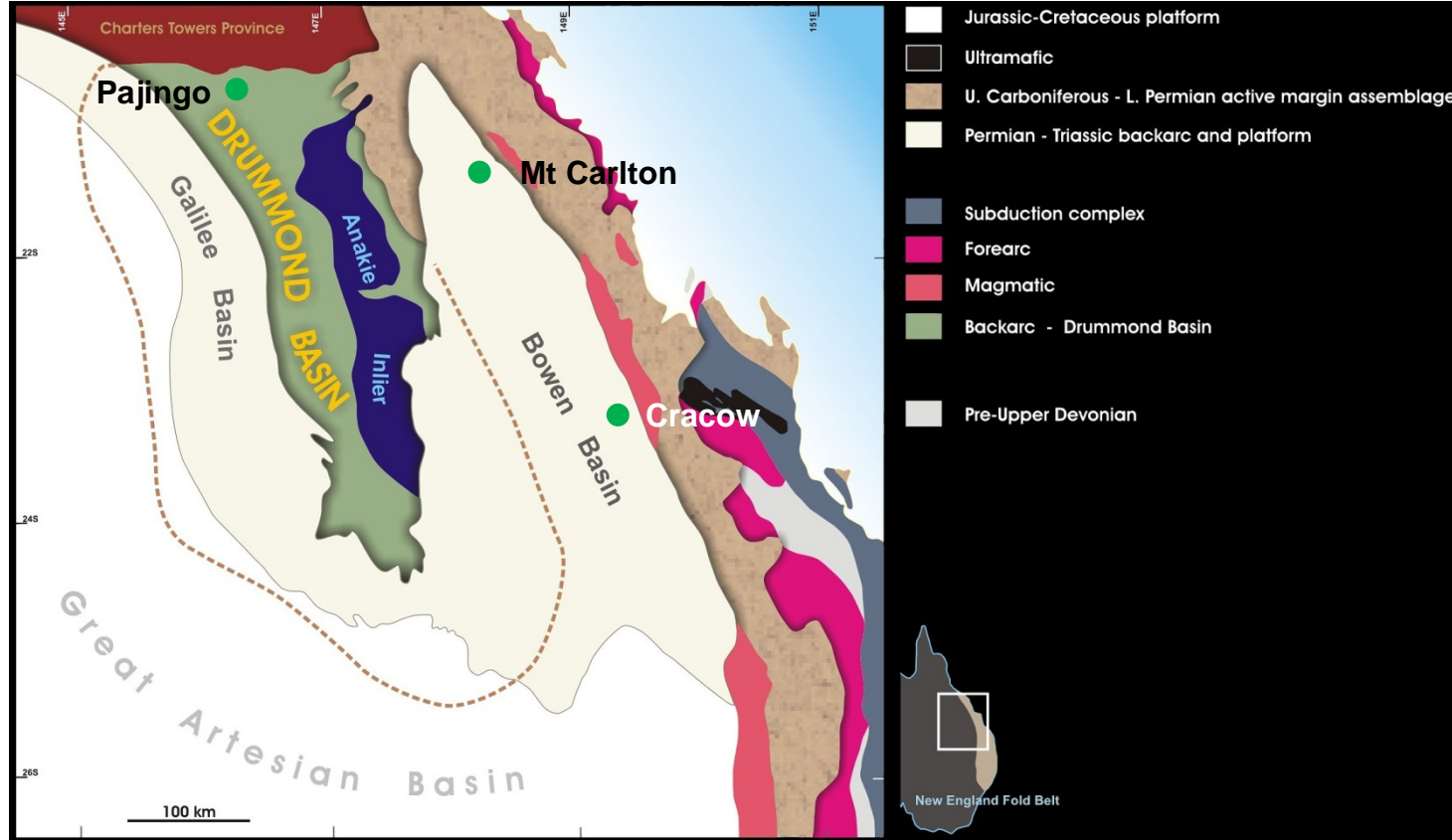
Roric Smith

Brentan Grant, David Hewitt and Shane Pike

Mines and Wines - 2013

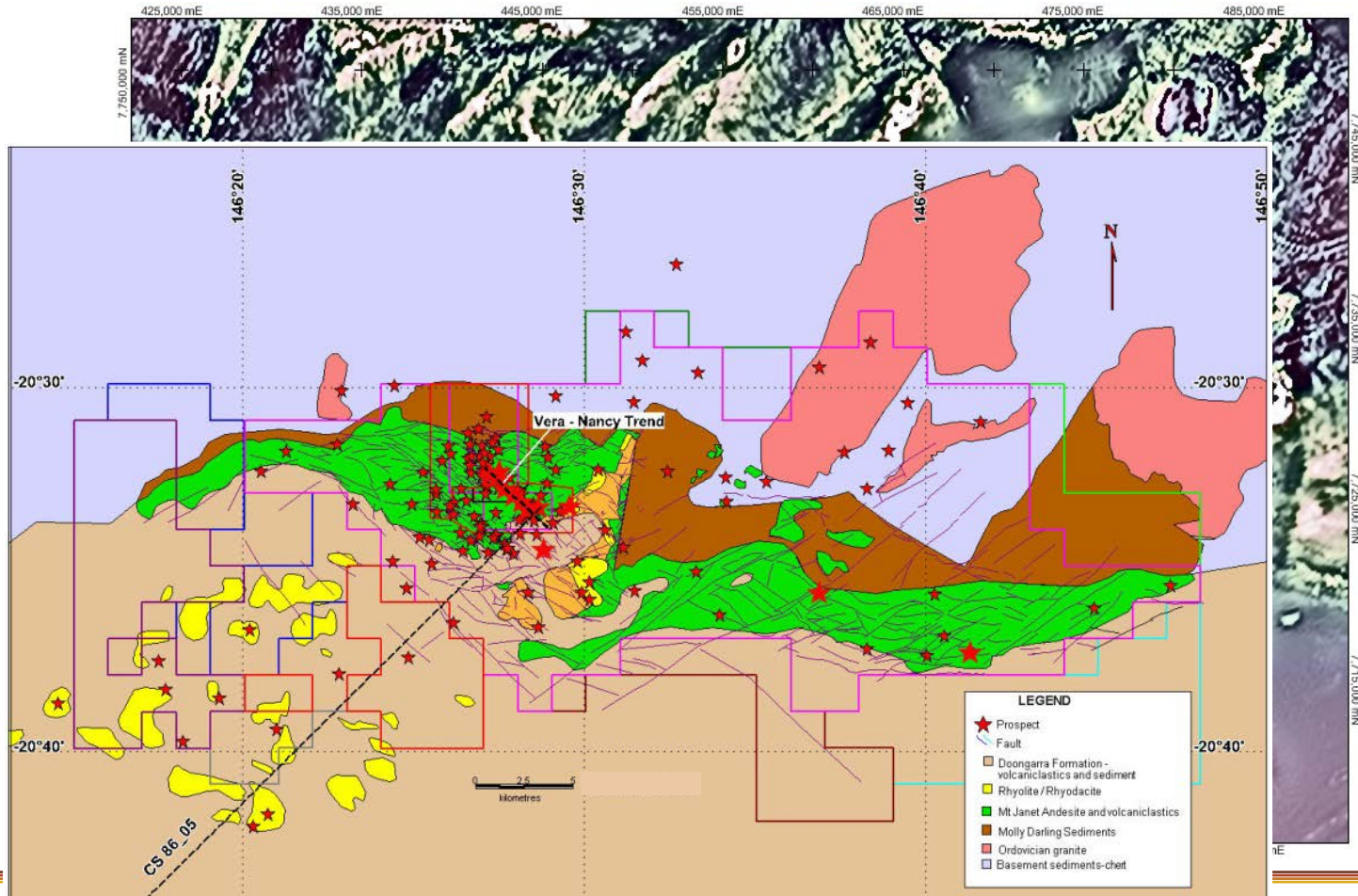


Regional Geology Map

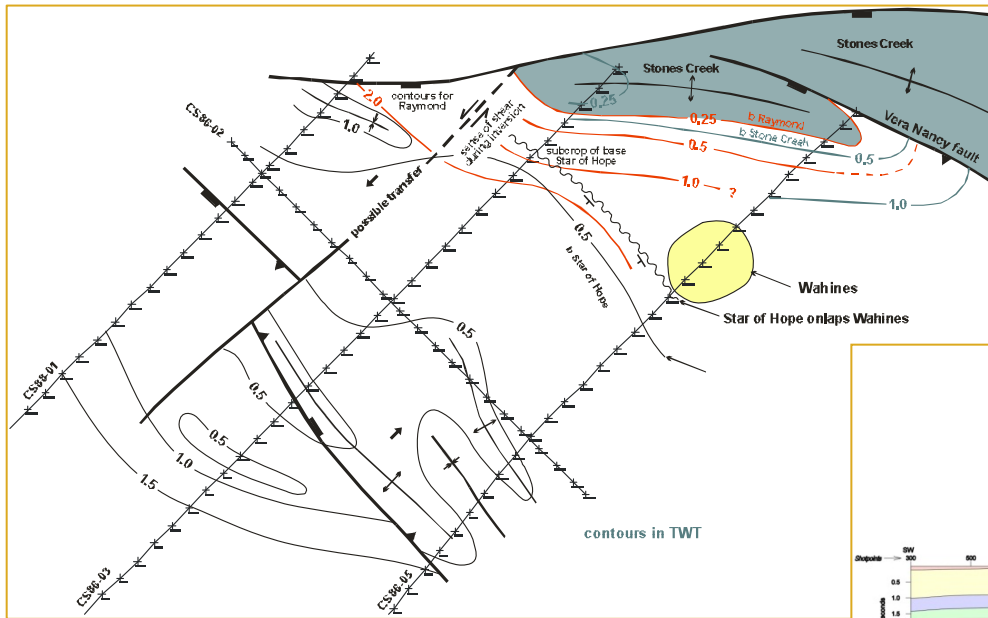


Slide from Davies, internal company report

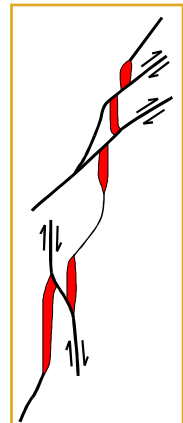
Pajingo Regional RTP-2VD and Geology



Drummond Basin - Geometry

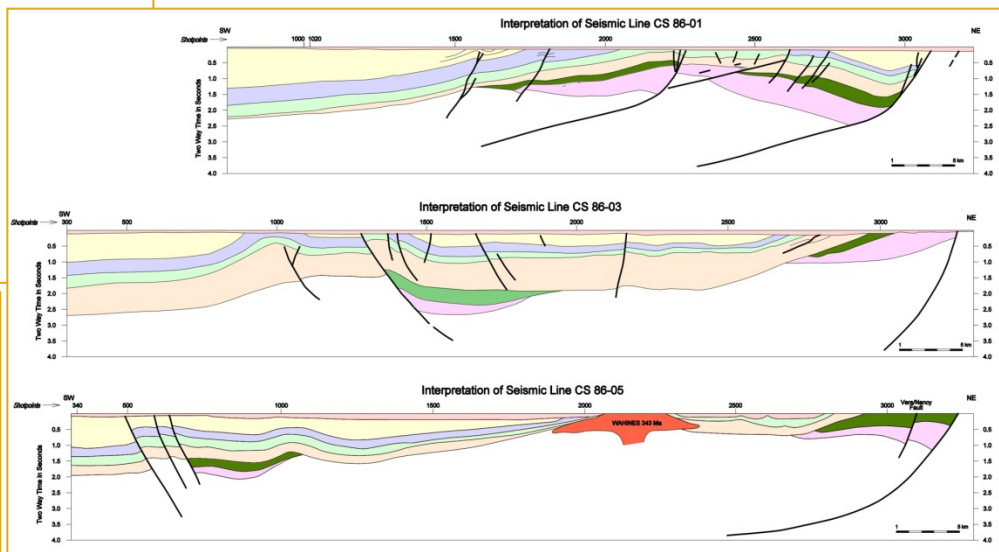


- Variable level of preservation
- Mixed geochemistry/confused textures
- Younger flat and steep faults
- Overprint mineralised faults

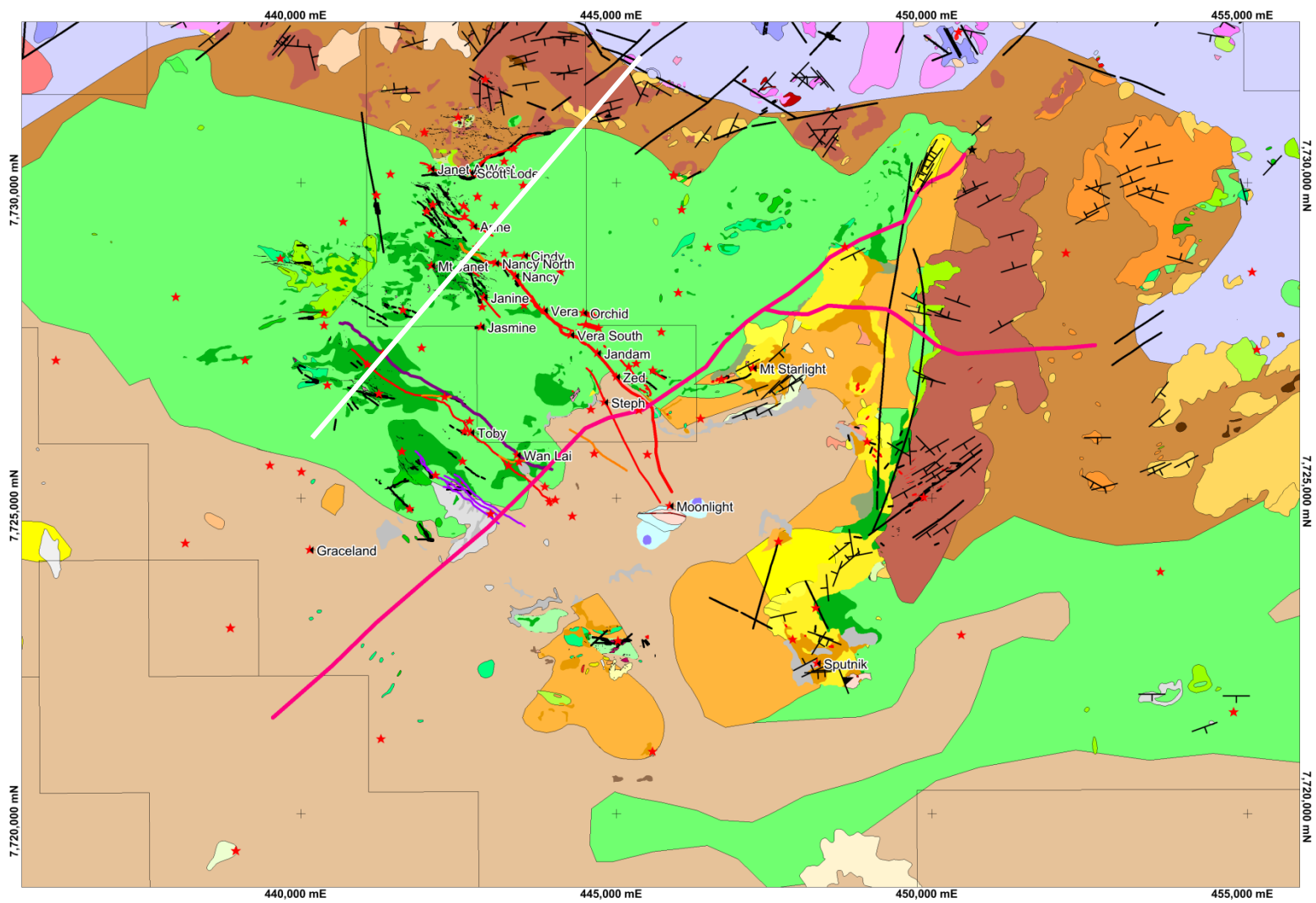


LEGEND

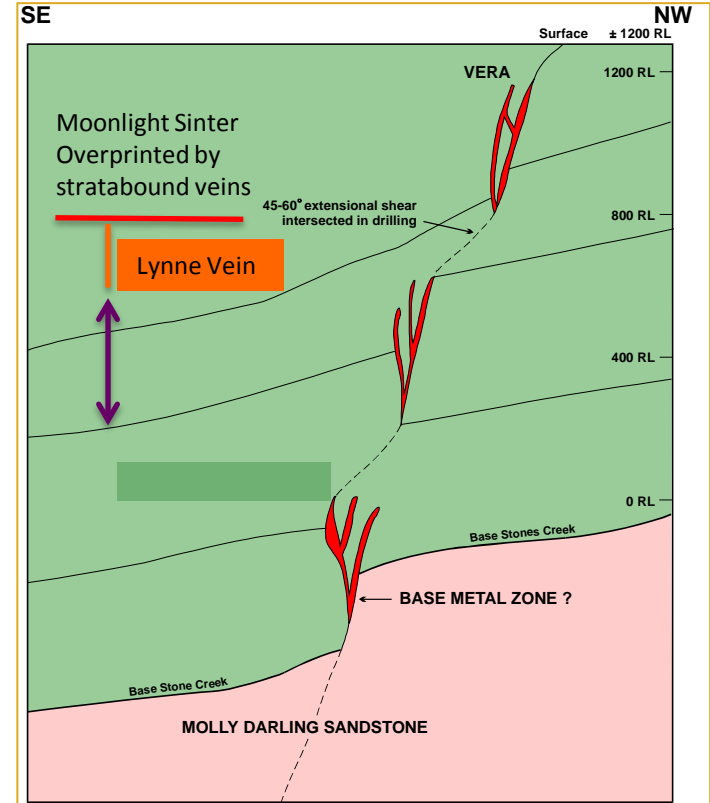
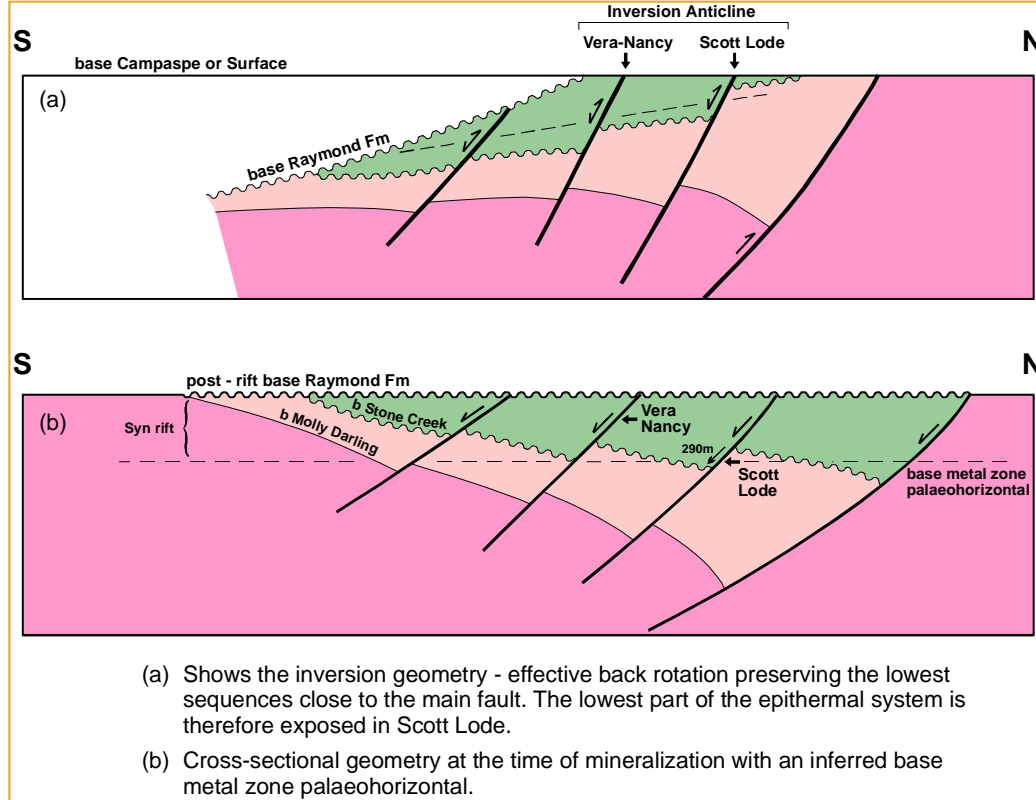
	base Campaspe Beds
	base Booderoo Formation
	base Bulliwallah Formation
	base Star of Hope Foundation
	base Raymond Formation
	base Stones Creek Andesites
	base Molly Darling



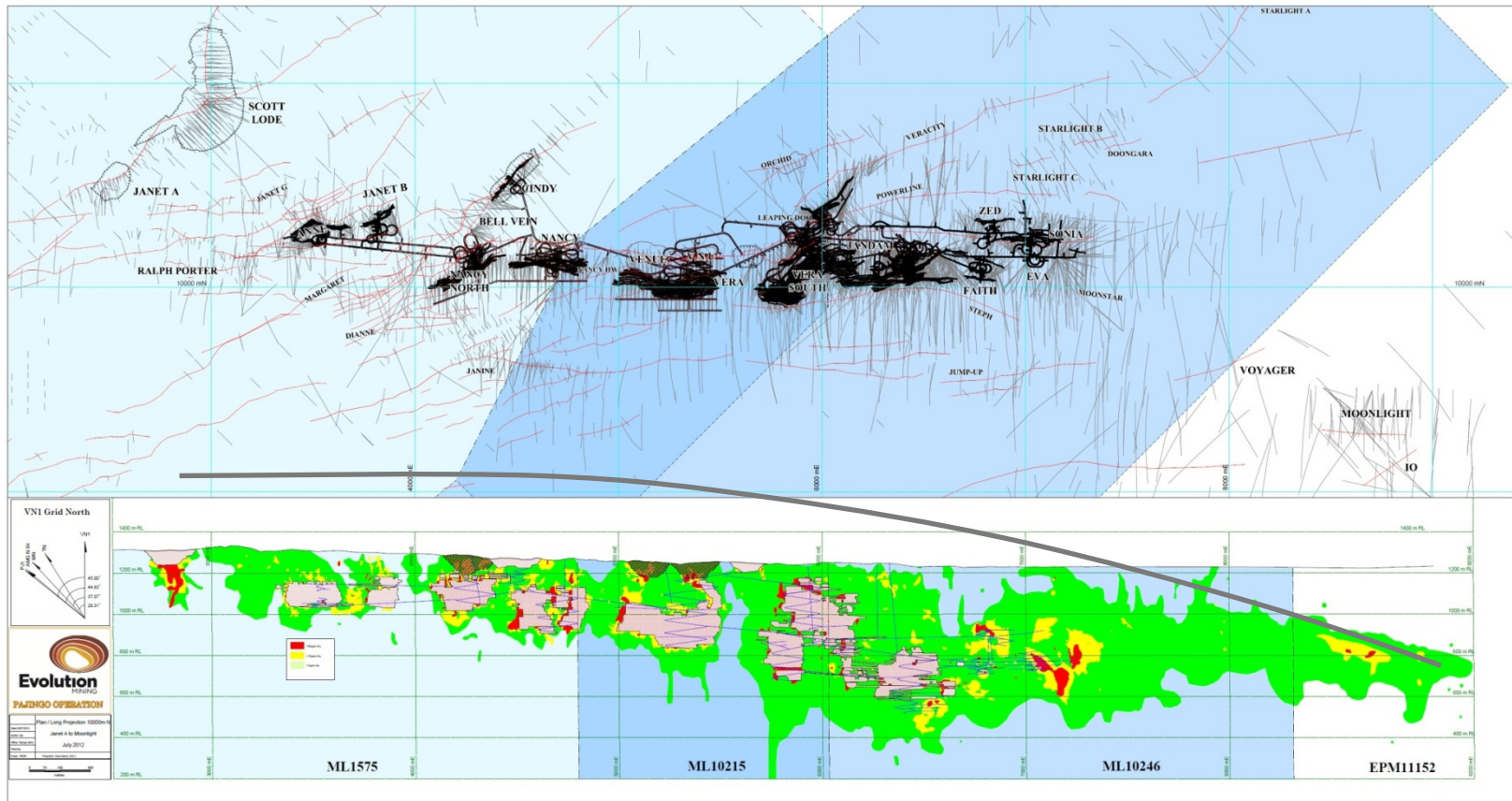
Pa



Pajingo – Inversion restored



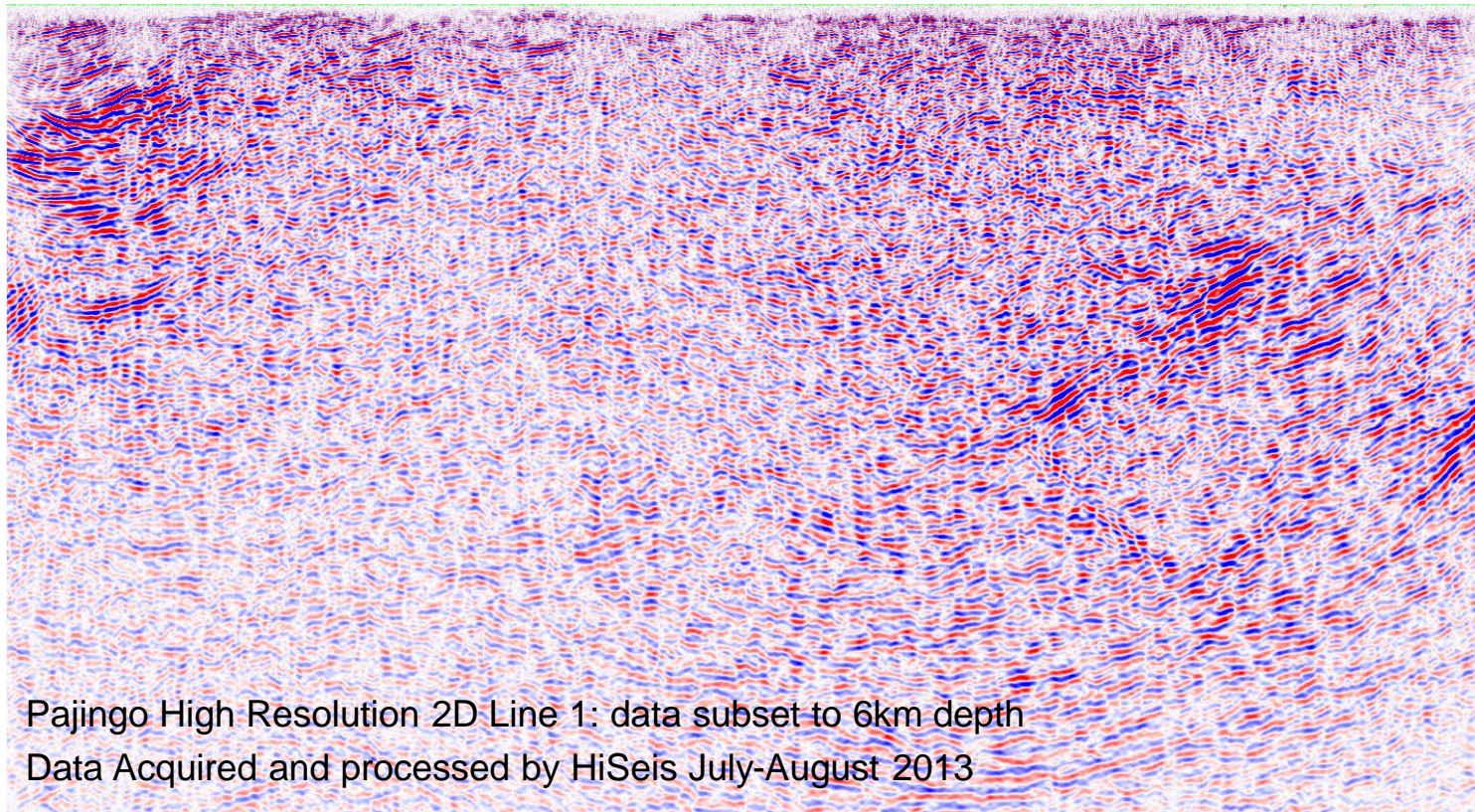
Pajingo – Epithermal veins





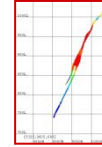
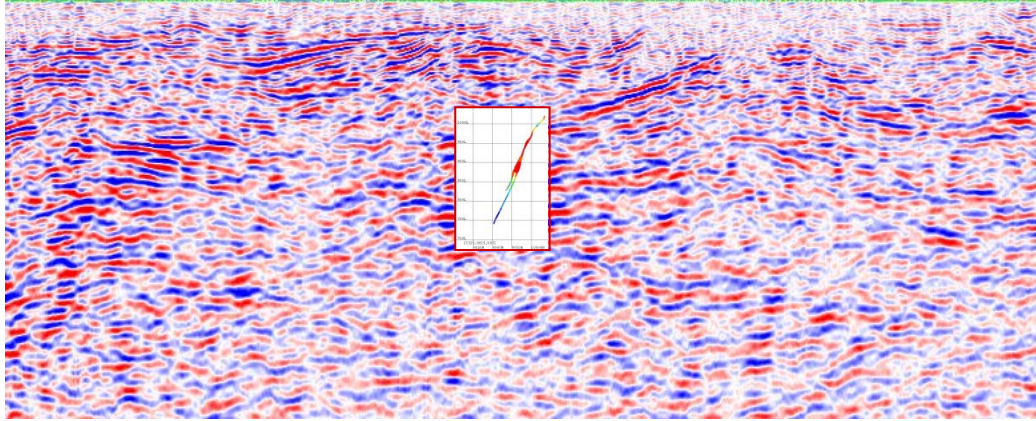
Pajingo – section across the trend

Vera graben



Pajingo High Resolution 2D Line 1: data subset to 6km depth
Data Acquired and processed by HiSeis July-August 2013

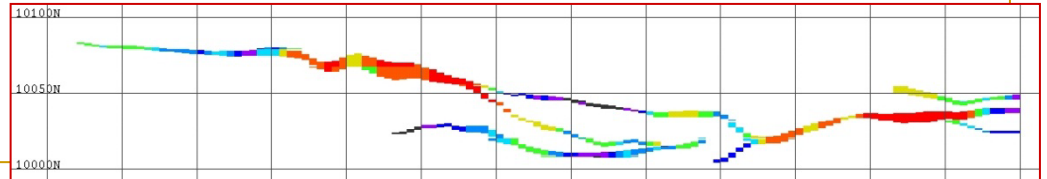
Integrating the scales



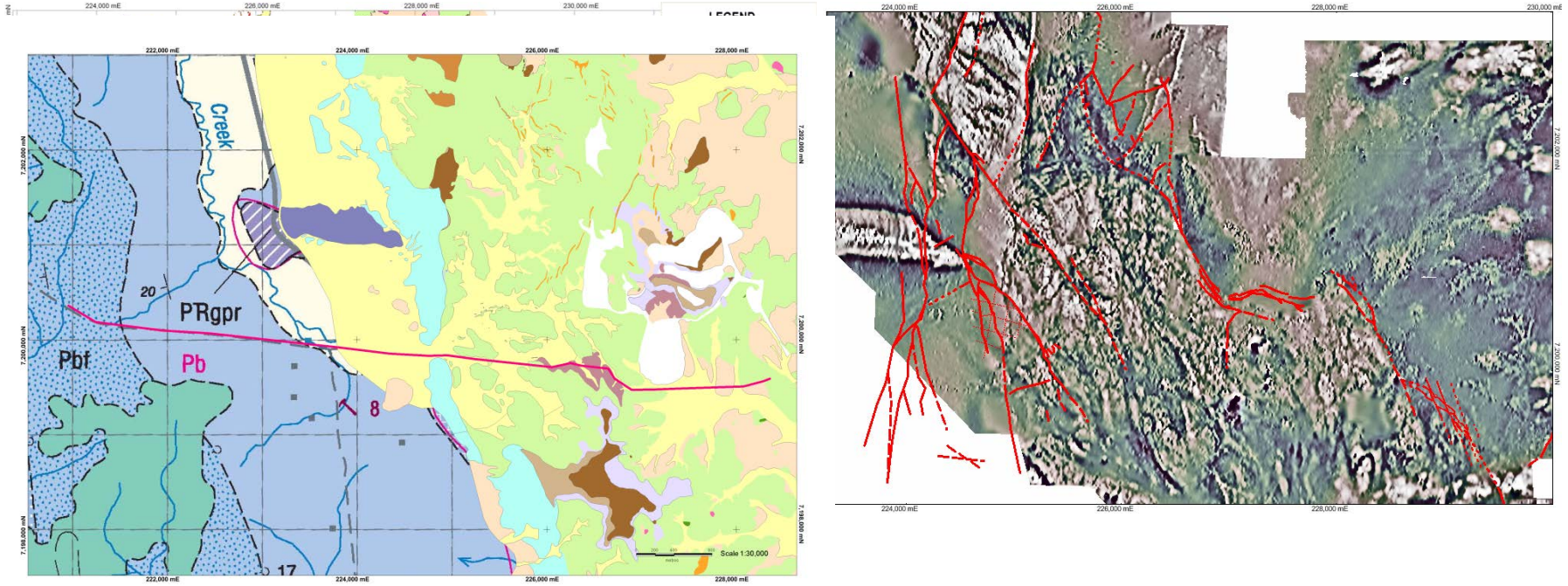
Red line 500m
Vein 250m vertical height
Seismic section 1km deep

- Veins on geometrically complex regional fault strands
 - Zones of dilation due to rupture and repeated dilation
 - Complex fault strands and relays

Level plan of typical
epithermal vein array

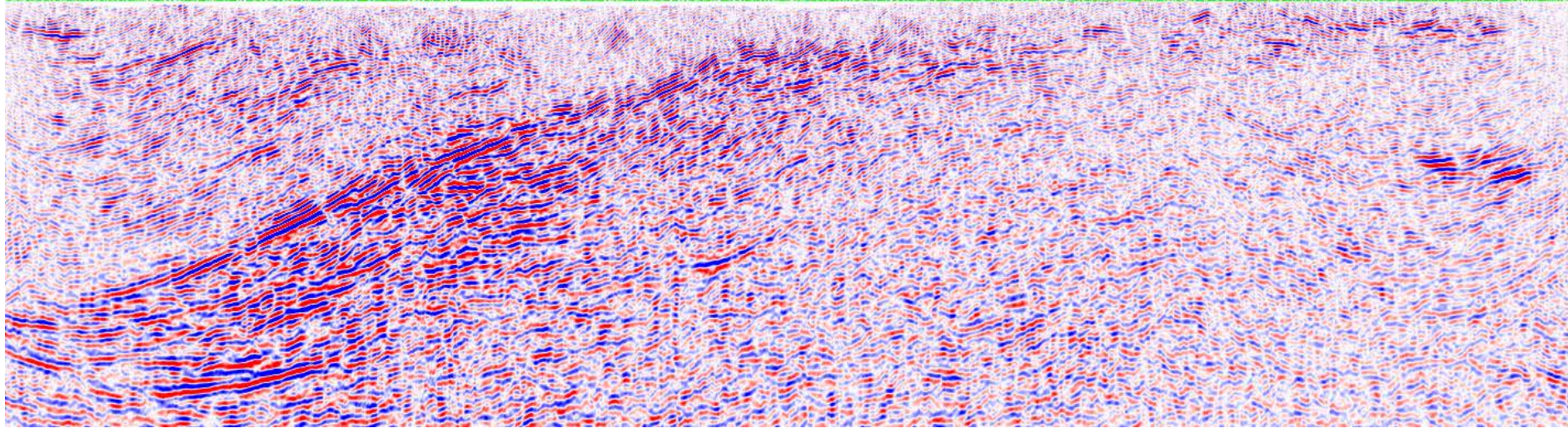


Southern Bowen Basin – Cracow Area



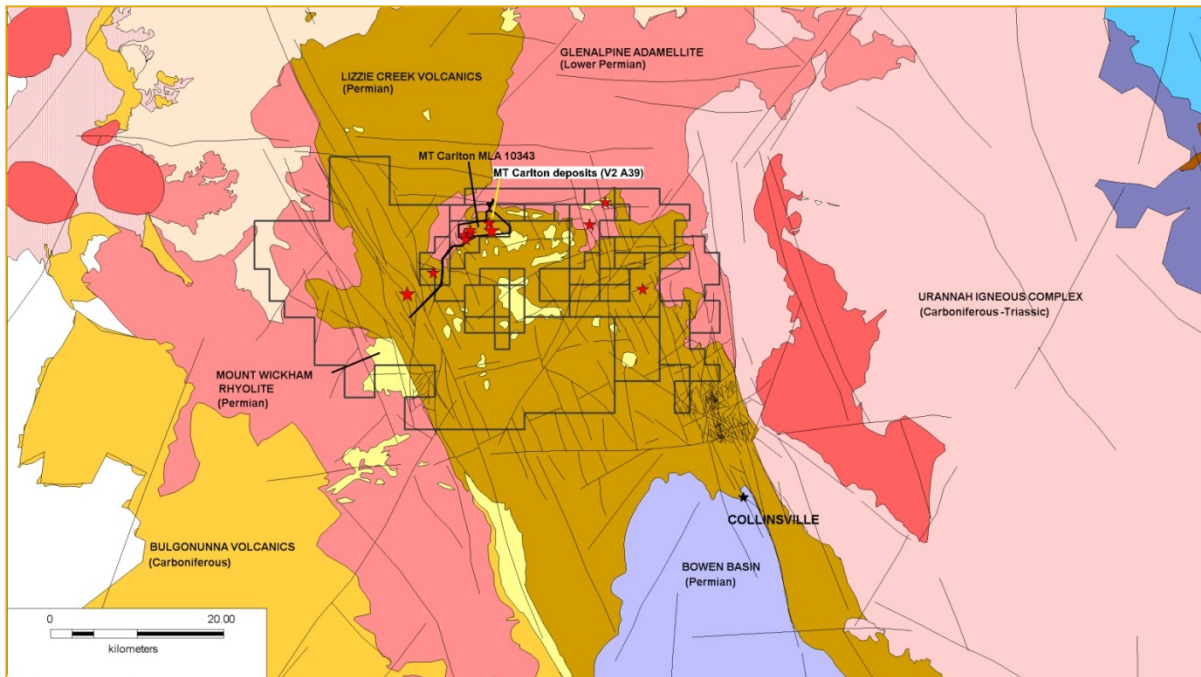
Geology map and aeromagnetic image of the Cracow Epithermal Field

Southern Bowen Basin – Cracow Area



West-East Cracow High Resolution 2D Line: data subset showing line length = 8km and depth = 2km
Data Acquired and processed by HiSeis July-August 2013

Northern Bowen Basin – Mt Carlton Area



Regional map showing the location of the Mt Carlton H/S epithermal deposits and Crush Creek L/S epithermal mineralisation

What does the map tell us:

- Basin extension
- Basin inversion

Structures

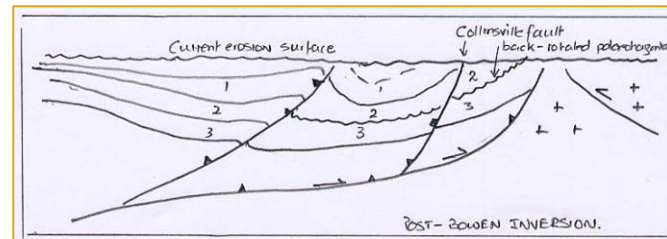
- Control mineralisation
- Post-mineral

Mineralisation

- L/S and H/S epithermal
- porphyry Cu-Mo mineralisation

Level of erosion

- Preservation
- Exhumation



Implications

- Understand the regional structural geology
 - Extended vertical extent of veins
 - Overprinted telescoped systems during rift development
 - sinter overprinted by flat and vertical veins (deeper over shallow)
 - Deeper genetically connected veins
 - Fault rupture and boiling produce systems 800-1200 m high from single event
 - Seismic – possibly the breakthrough for mapping fault geometry and blind systems
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I would like to acknowledge both current and past colleagues at Evolution Mining, AngloGold Ashanti and Normandy Mining who contributed to robust discussion and development of some of these ideas presented today. I would also like to thank Jeremy Cook, Chief Geophysicist at Evolution Mining for re-working the magnetic images and effectively working with HiSeis to acquire the high resolution seismic on time and on budget.

