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The Geophysical Response
of the Tusker Gold Deposit,
Lake Victoria Goldfields, Tanzania

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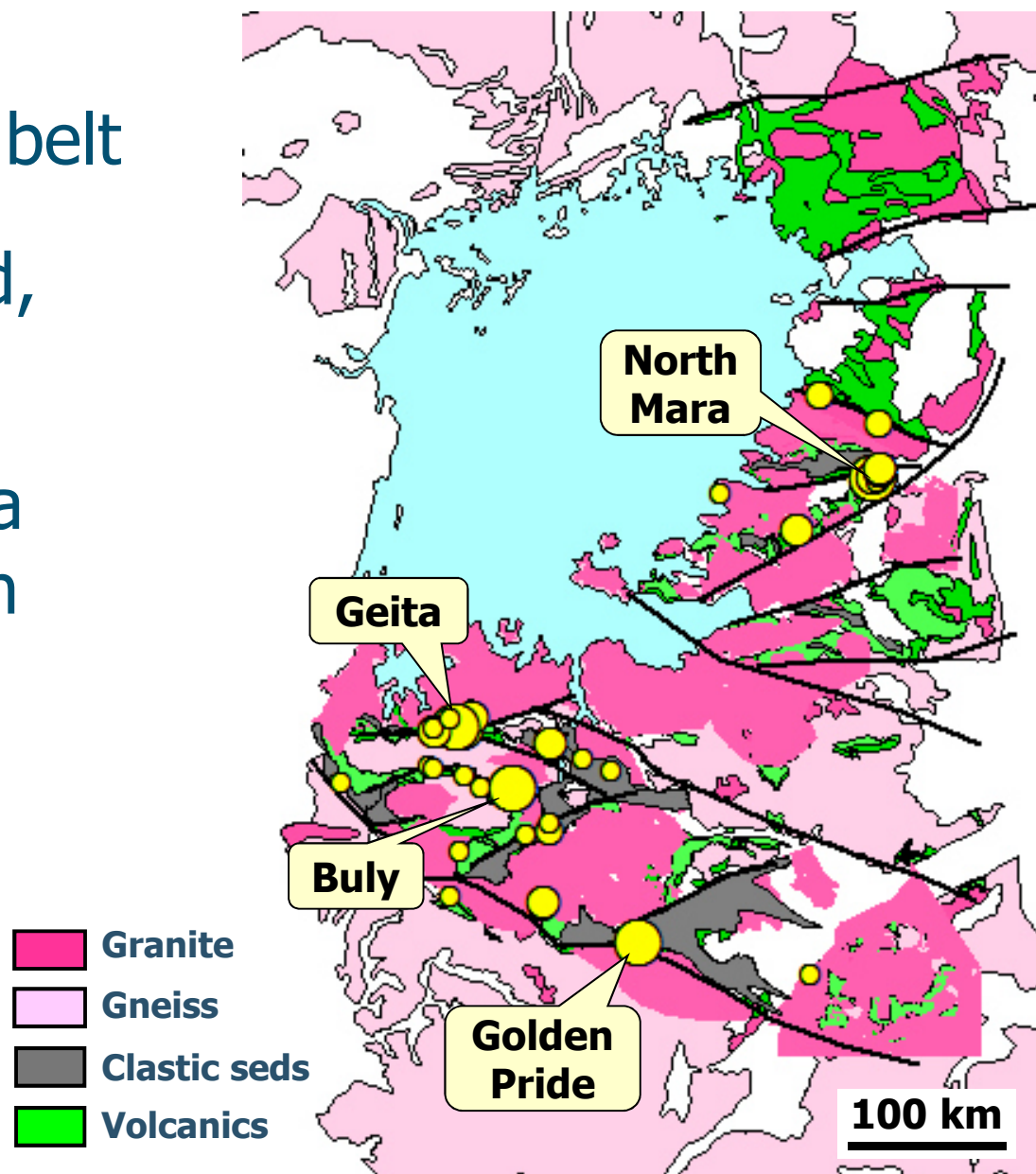
We disclaim any intention or obligation to update or revise any forward-looking statements whether as a result of new information, future events or otherwise, except to the extent required by applicable laws.

Lake Victoria Gold Fields, Tanzania



- Archaen greenstone belt
- +65 Moz known gold, mainly in the south
- Bulyanhulu and Geita gold deposits contain +10Moz each
- Tusker 4.54Moz @

1.5g/t

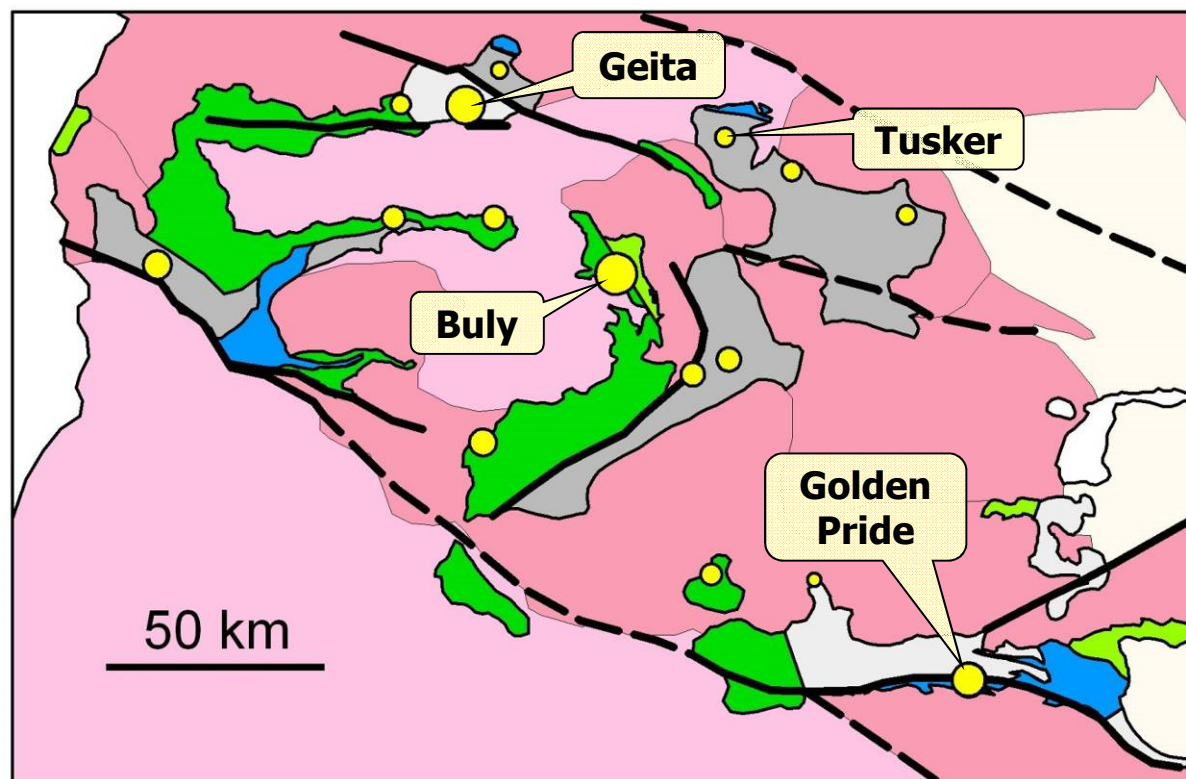
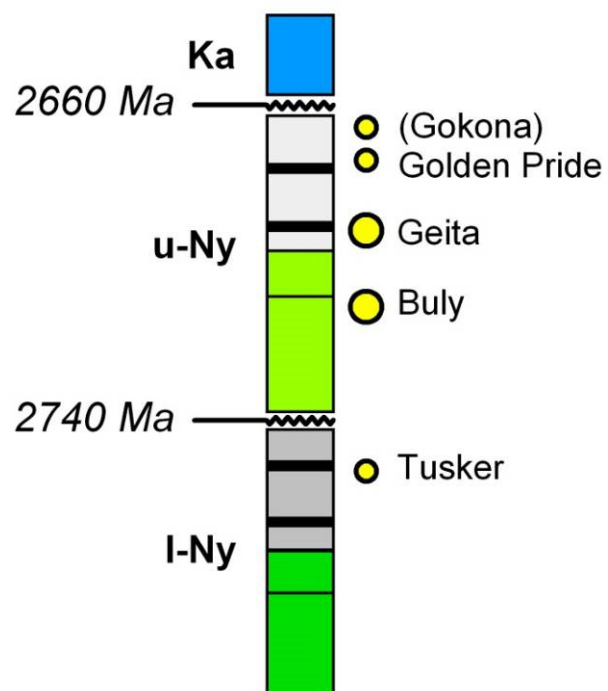


Geologic Framework



Stratigraphic column

Chrono-stratigraphic map



Volcanics



Wacke, mudstone, BIF

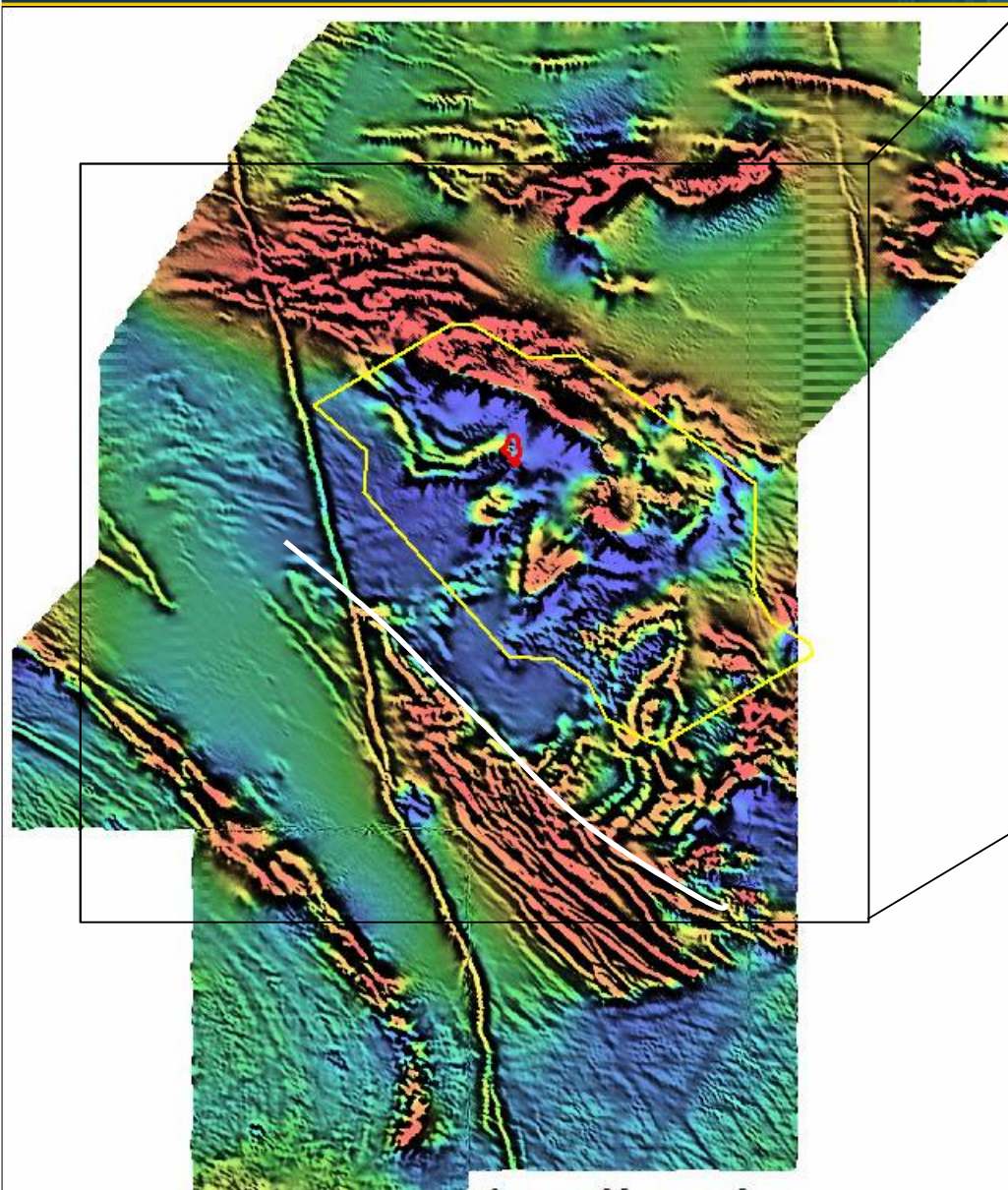


Conglom - arenite

Aeromagnetic Data

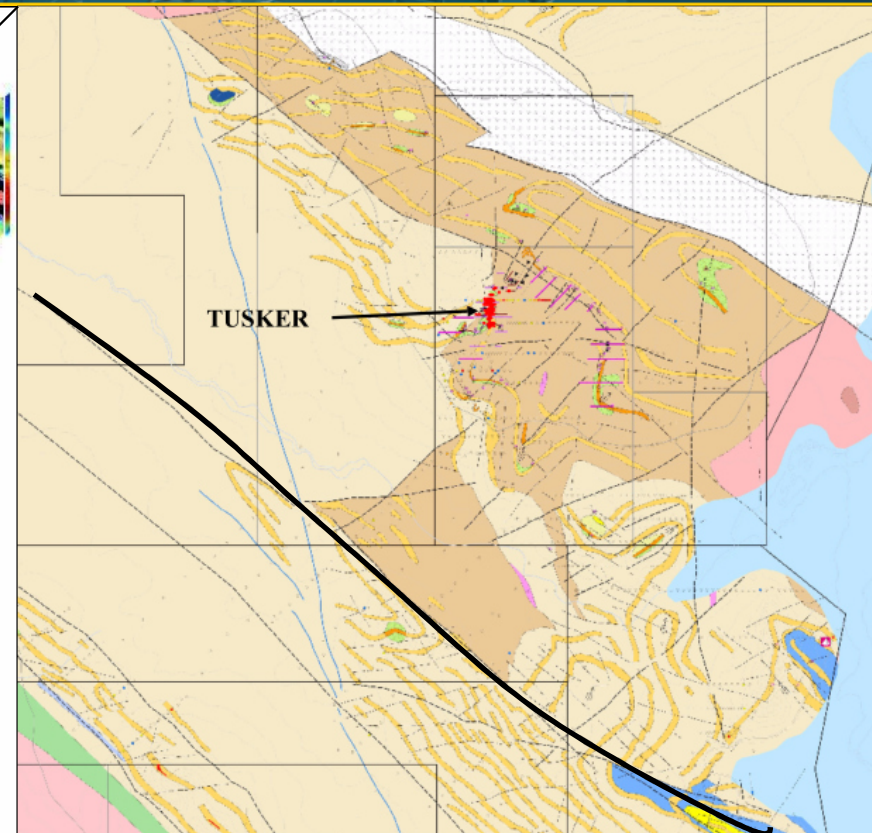


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RTP/ 1VD

0 2.5 5
kilometres



Geology



2004

**Magnetics/
Radiometrics**

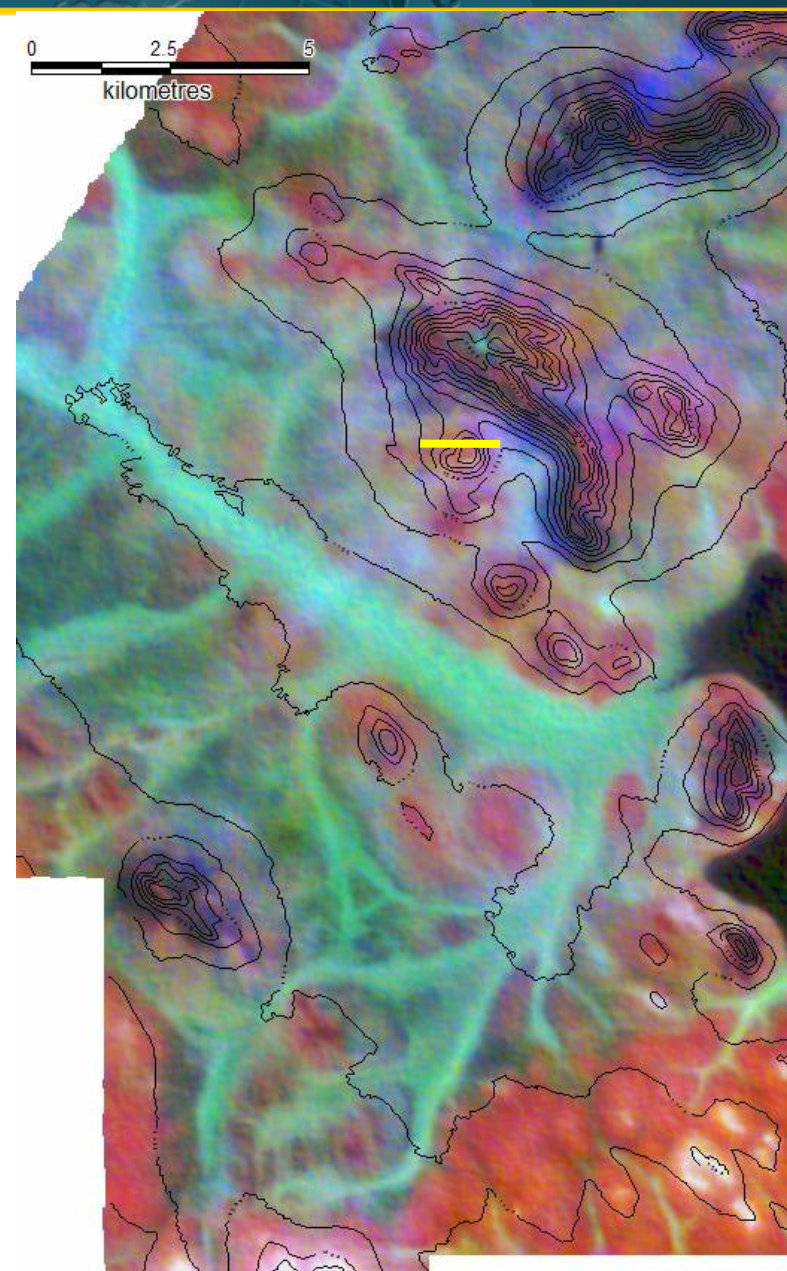
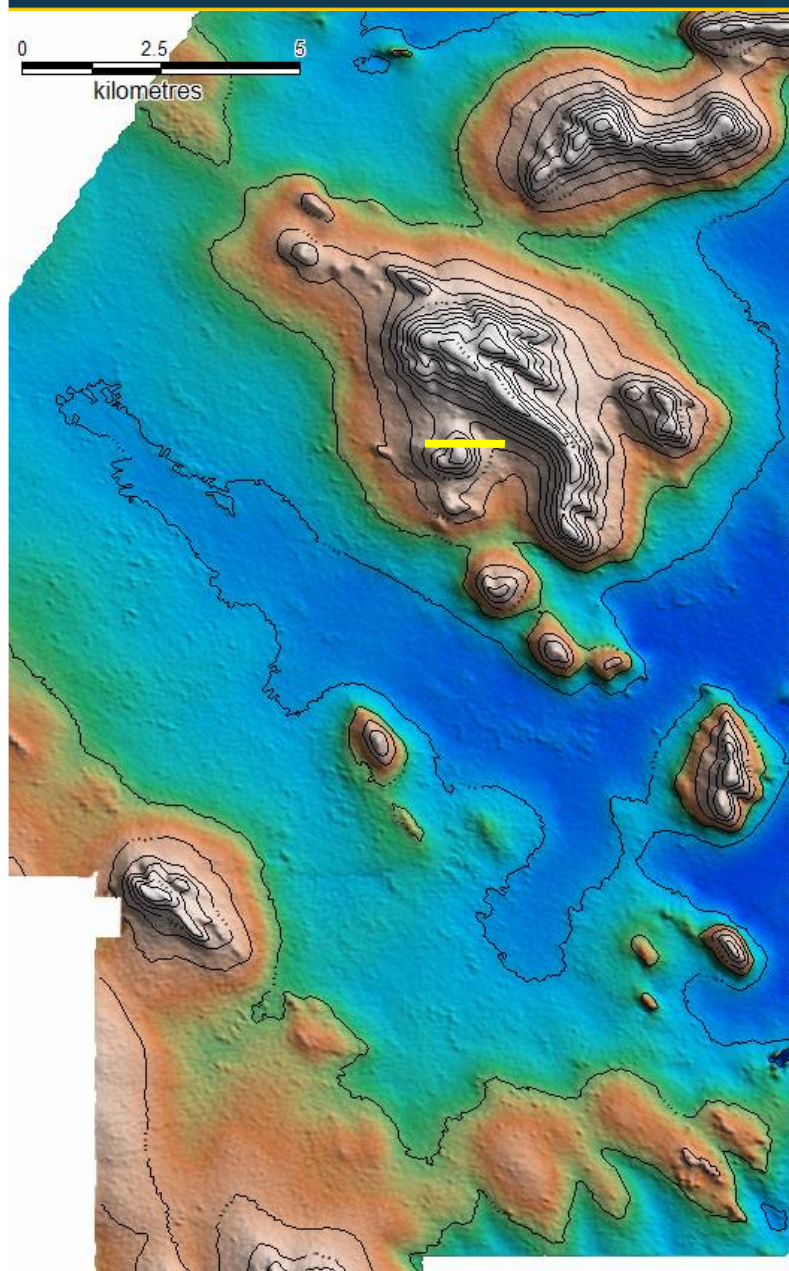
75m line spacing

40m flight height

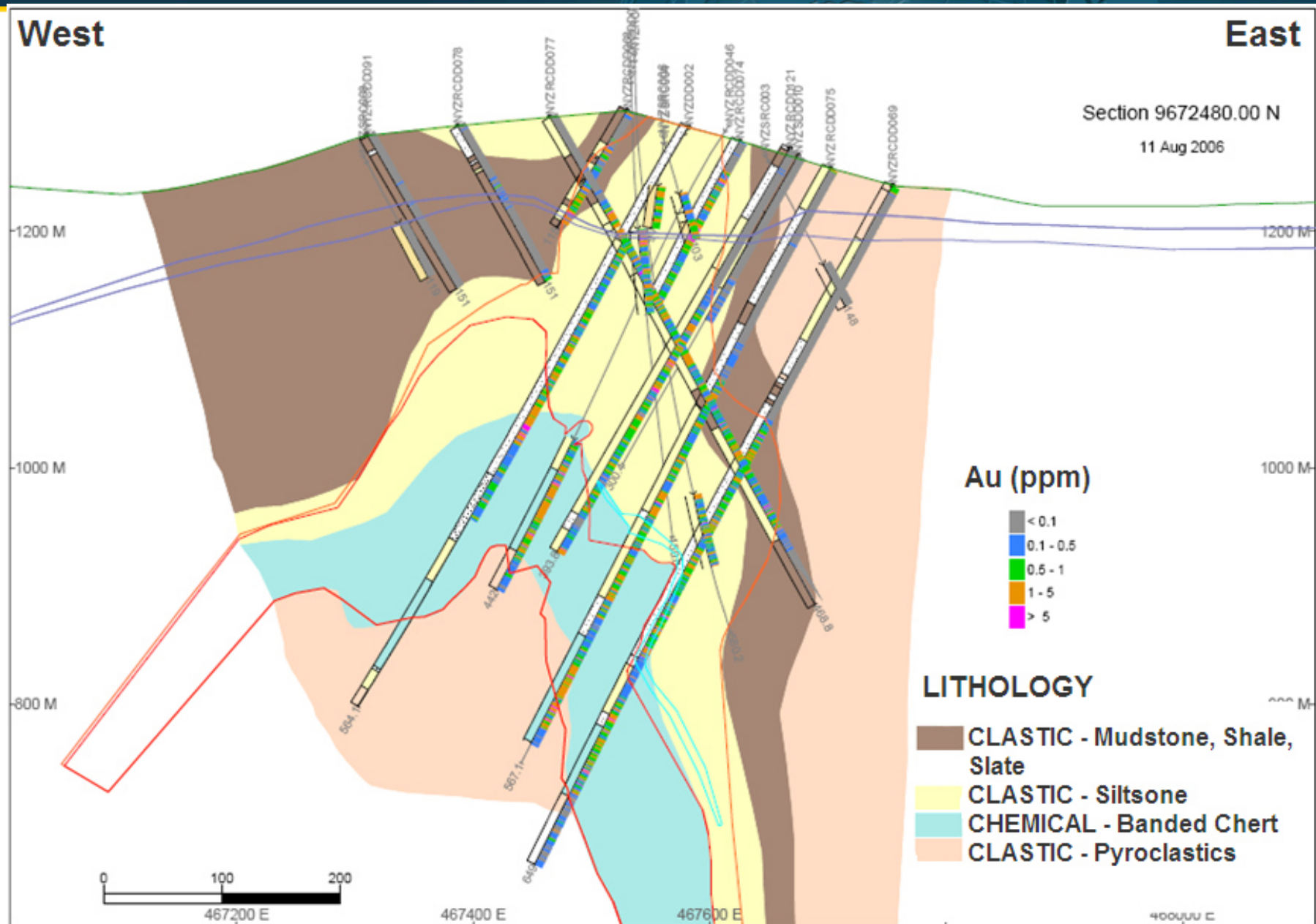
DTM & Radiometrics



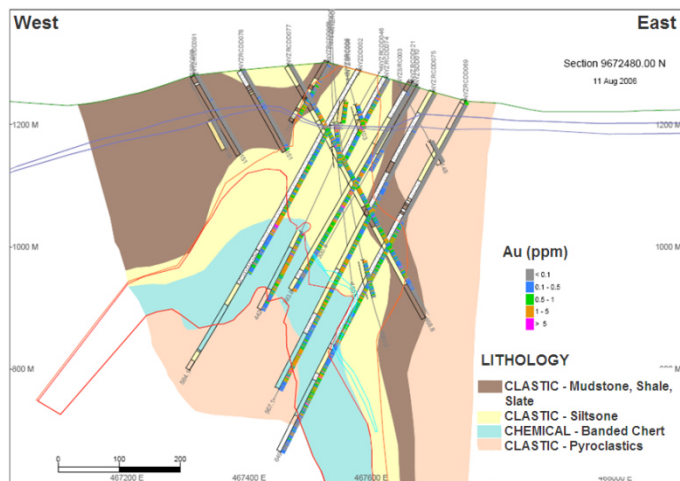
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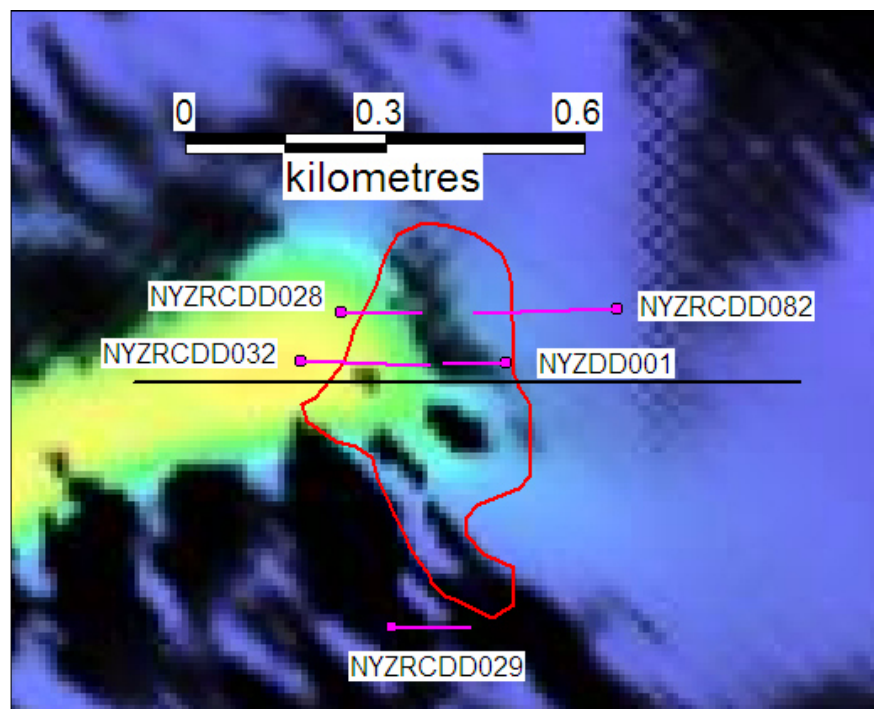
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Petrophysics – Down Hole Logs



- The bottom image shows the location of drill traces for the down hole geophysical logs to be shown in next slides.



- Plan image is magnetics RTP 2VD

— Location of geological section

— Drill hole traces

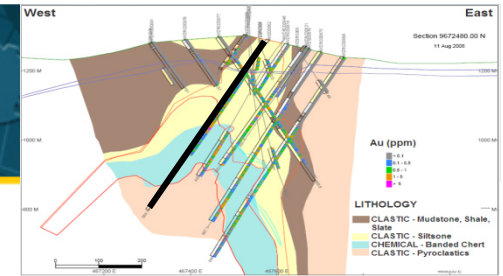
— Approx. mineralisation outline

Petrophysics – Down Hole Log

Azimuth: 270

Dip: 60

Drill Hole NYZRCDD001

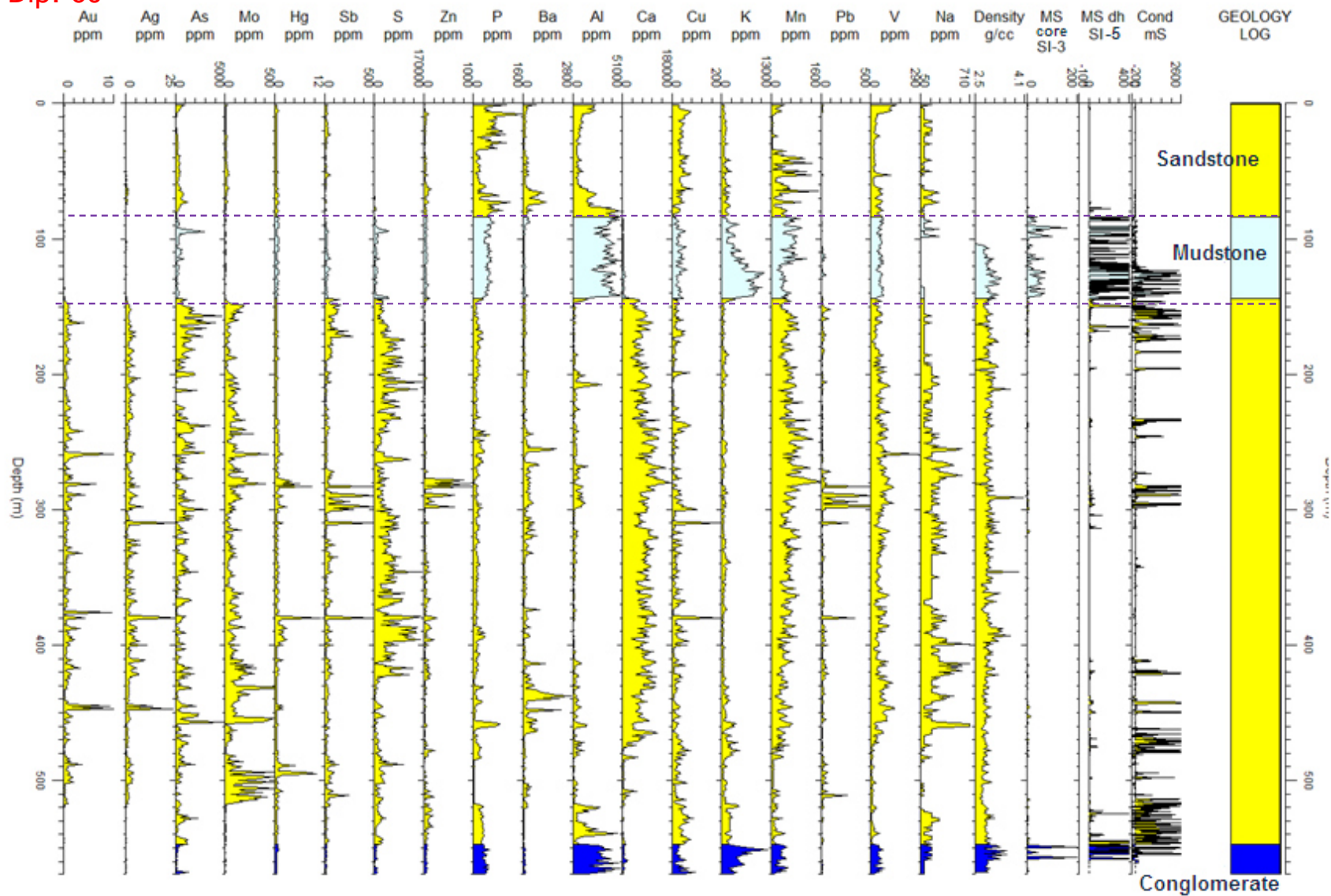
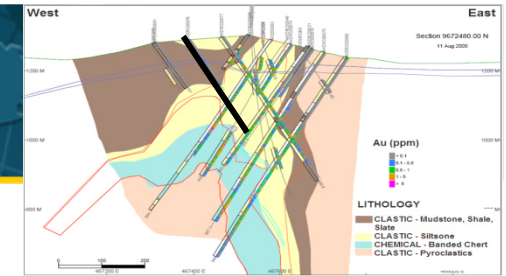


Petrophysics – Down Hole Log

Azimuth: 90

Dip: 60

Drill hole NYZRCDD028



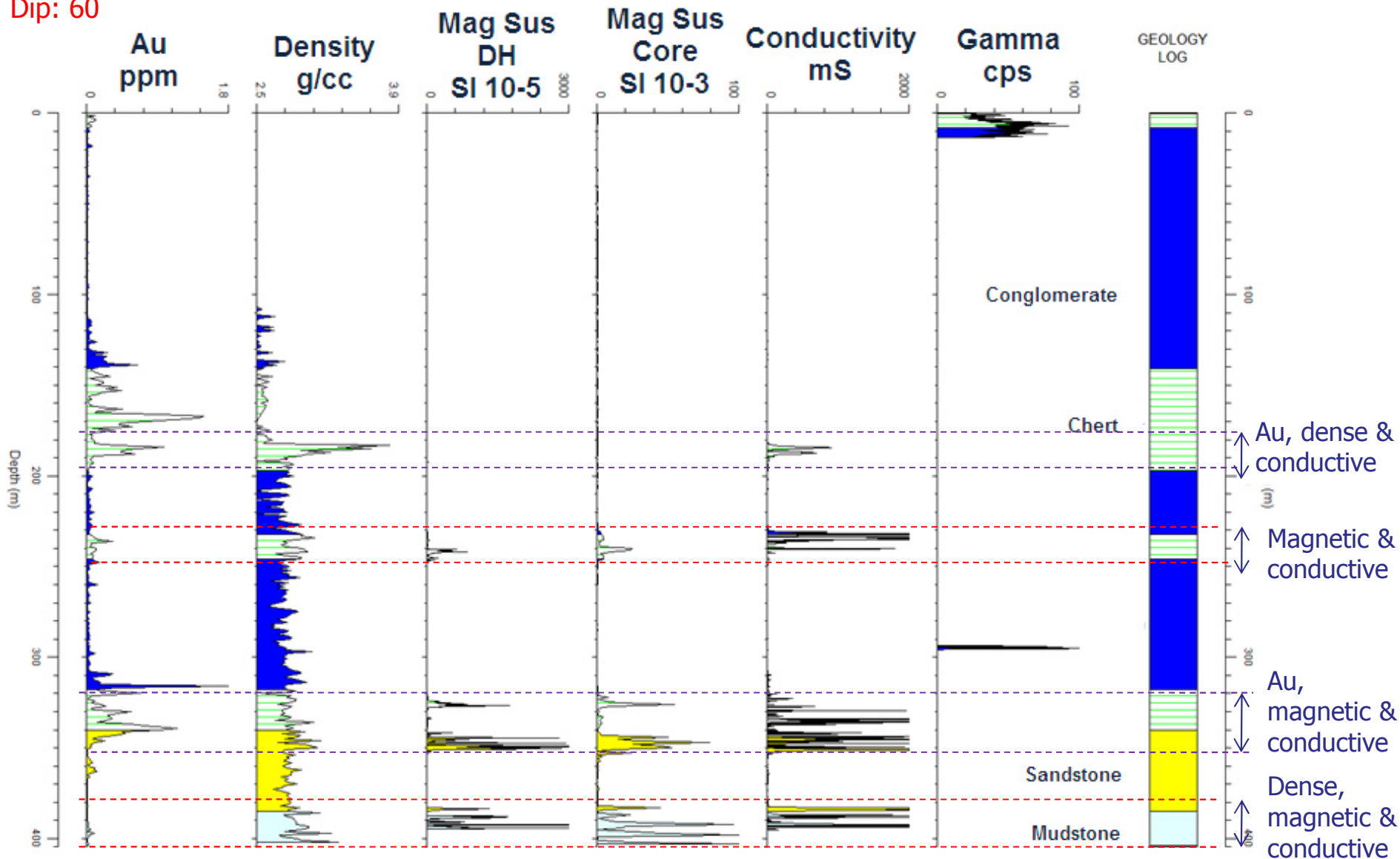
Petrophysics – Down Hole Log



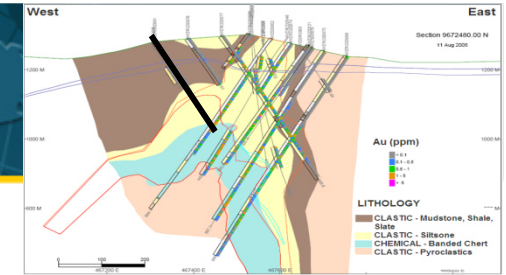
Azimuth: 90

NYZRCDD029

Dip: 60



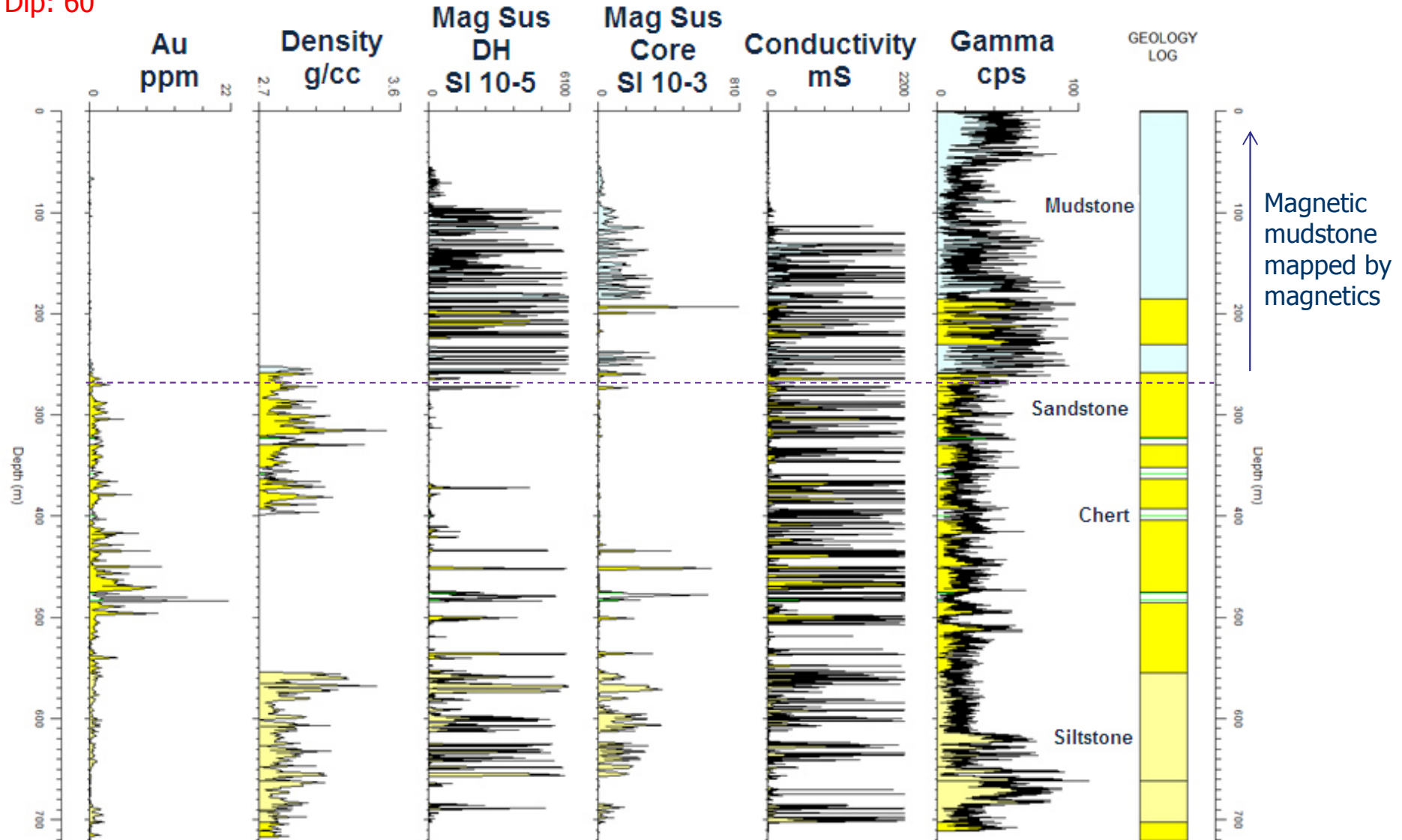
Petrophysics – Down Hole Log



Azimuth: 90

Dip: 60

NYZRCDD0032

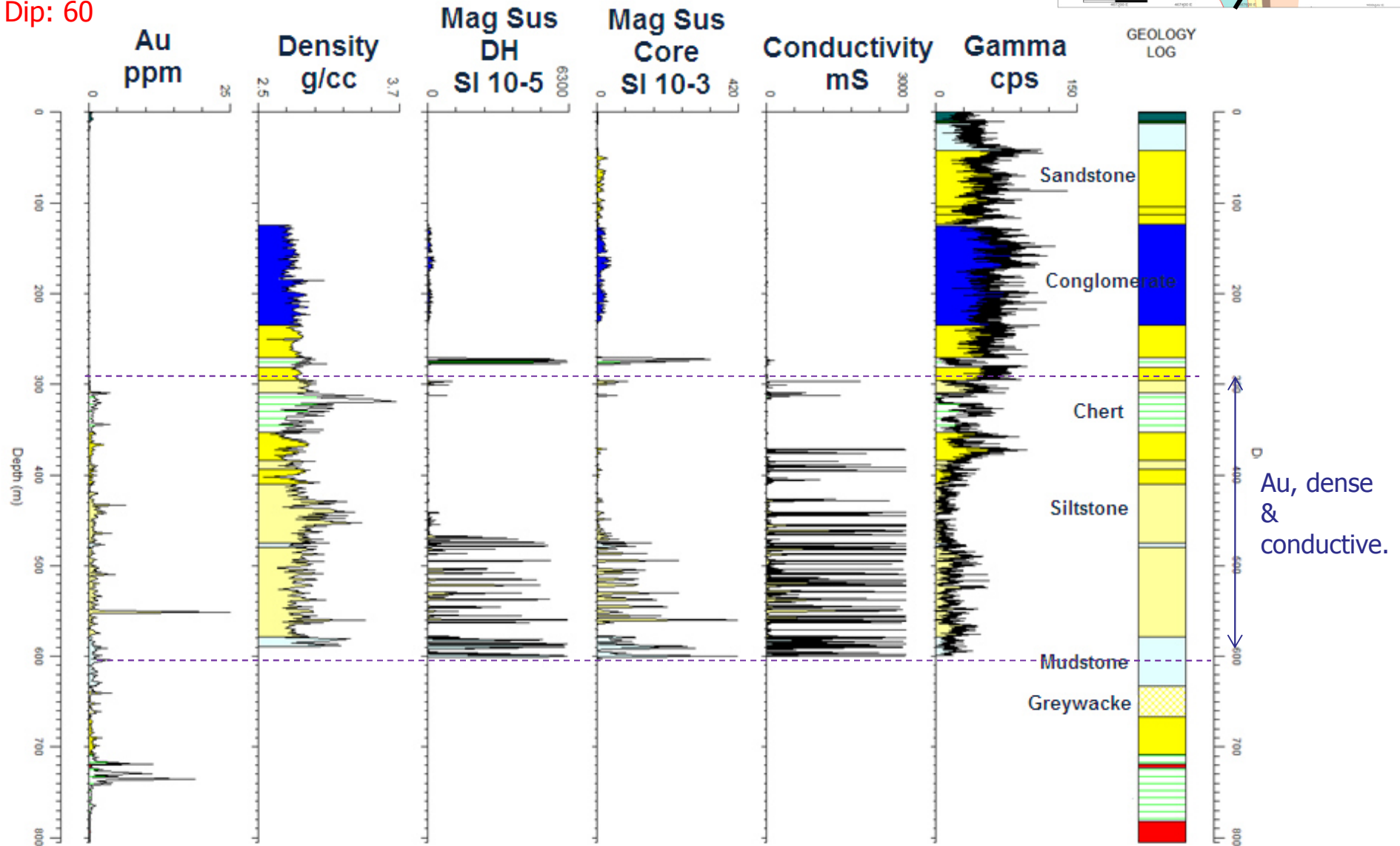
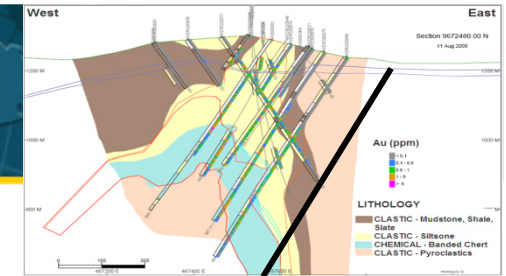


Petrophysics – Down Hole Log

Azimuth: 270

NYZRCDD0082

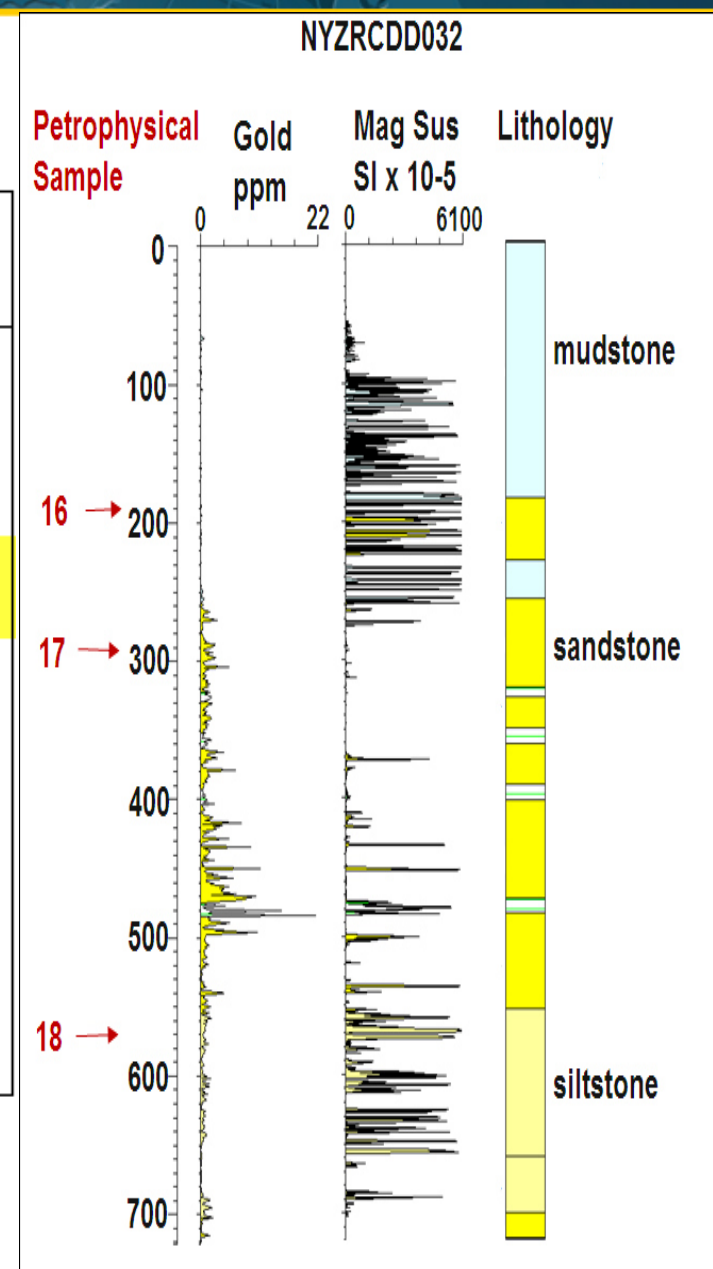
Dip: 60



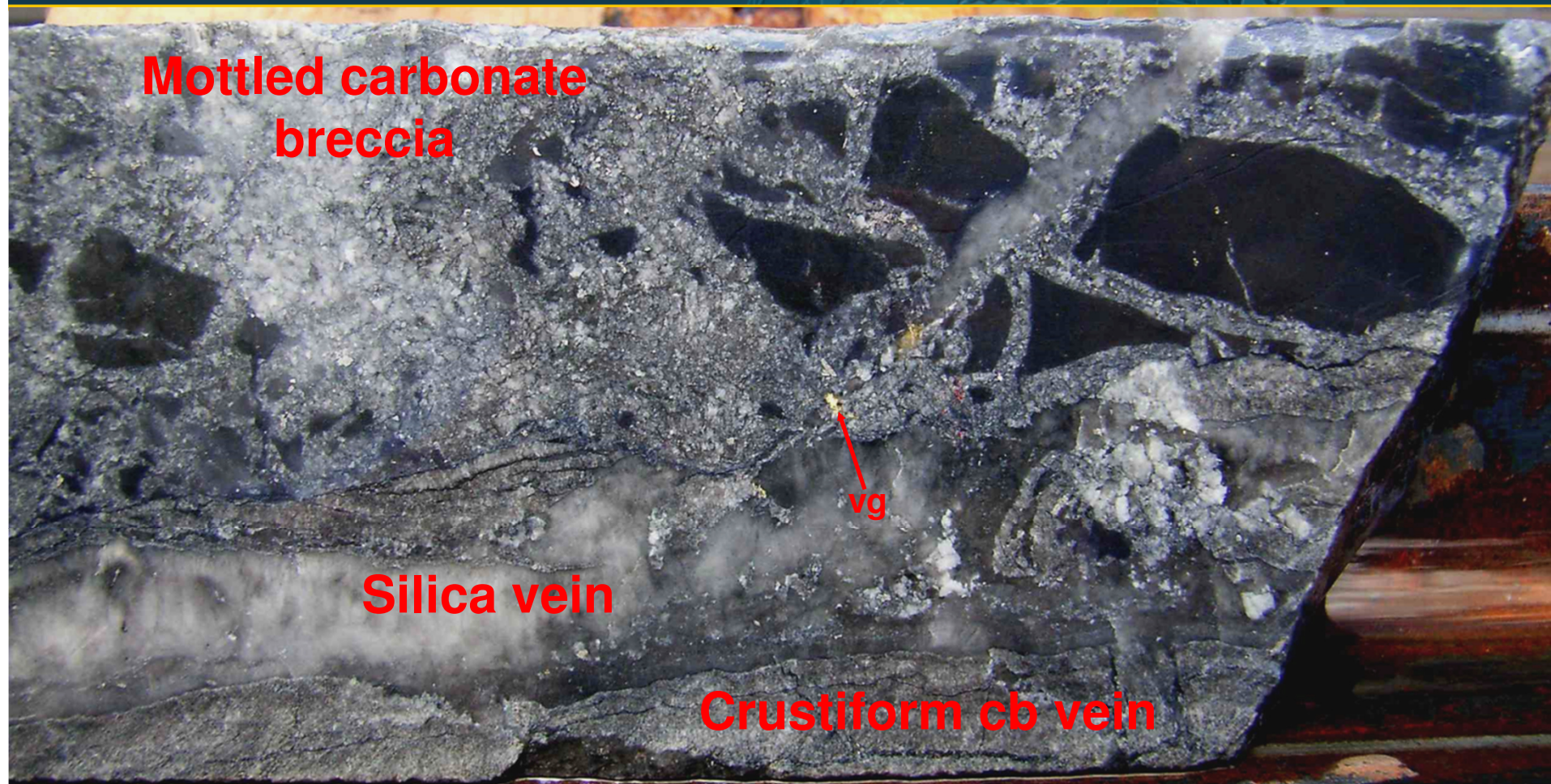
Petrophysics – Laboratory



#	Drillhole NYZRCDD	Gold ppm	Depth m	Lithology	Mag Sus SI x 10 ⁻⁵	WBD g/cm ³	apparent EM cond. S/m	Galvanic Res. ohm m	IP ms
16	32	0.005	189.75	Sandstone	89 263	2.90	→ 0	68323	66
17	32	0.75	290.0	Sandstone	2229 1122	2.93	23 - 200	2.3	221
18	32	0.42	569.9	Sandstone	189 128	2.77	→ 0	60044	34
22	126	0.005	176.35	Sandstone	8 3	2.70	→ 0	11053	8
23	126	0.005	164.6	Mudstone	18 14	2.77	→ 0	12770	13



Mineralisation

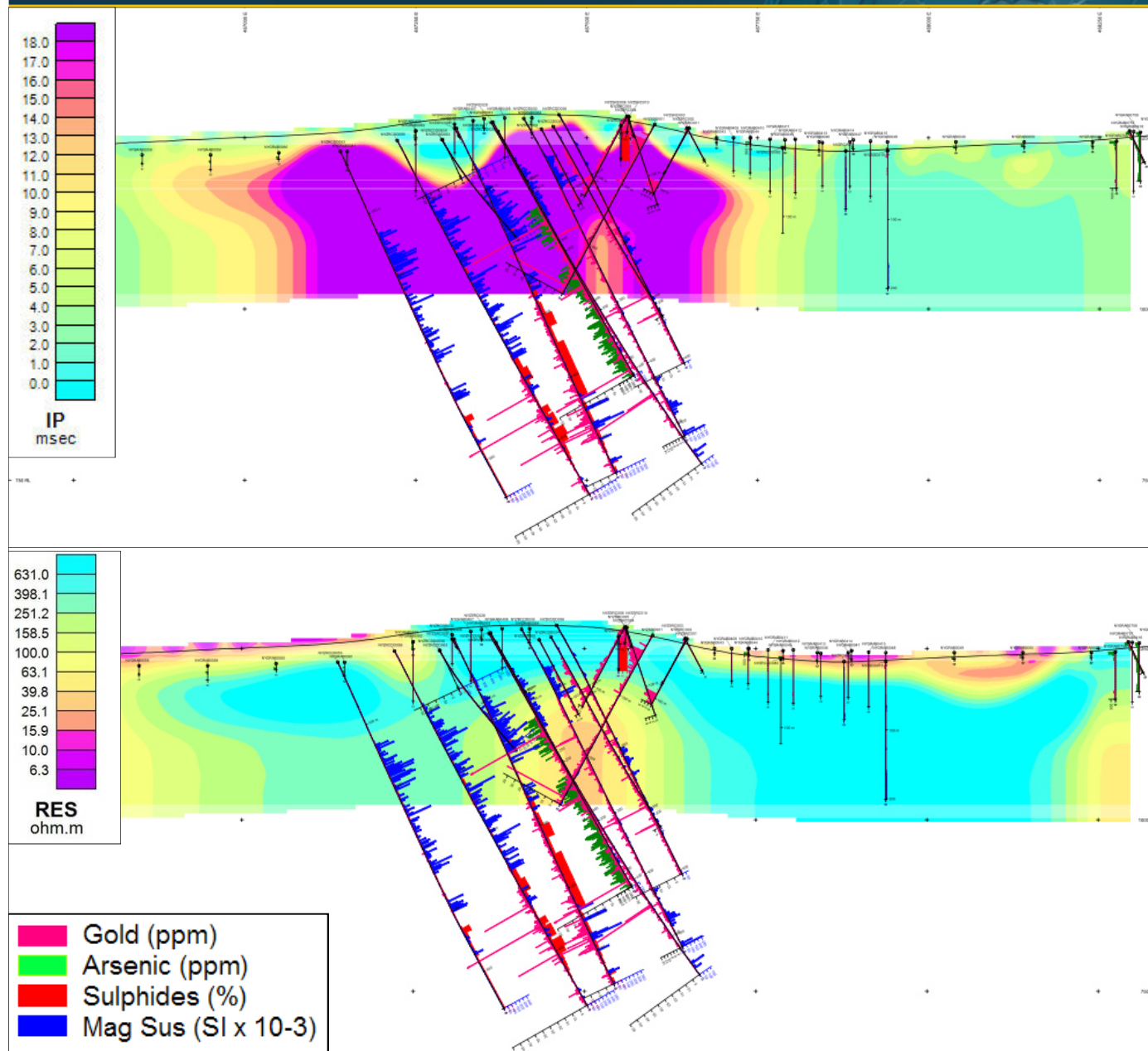


Hole 18: 188.5m. Mottled carbonate breccia cut by crustiform carbonate vein with later cut by silica vein with vg. Arsenopyrite disseminations throughout - 21.3g/t Au.

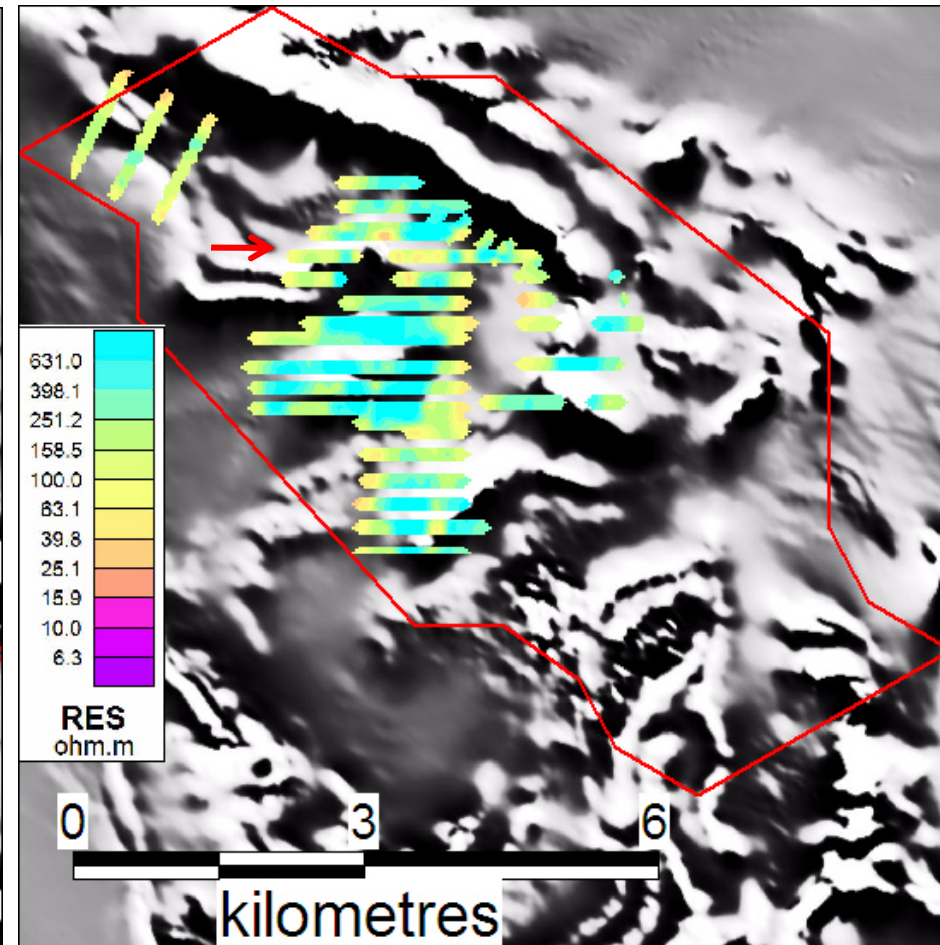
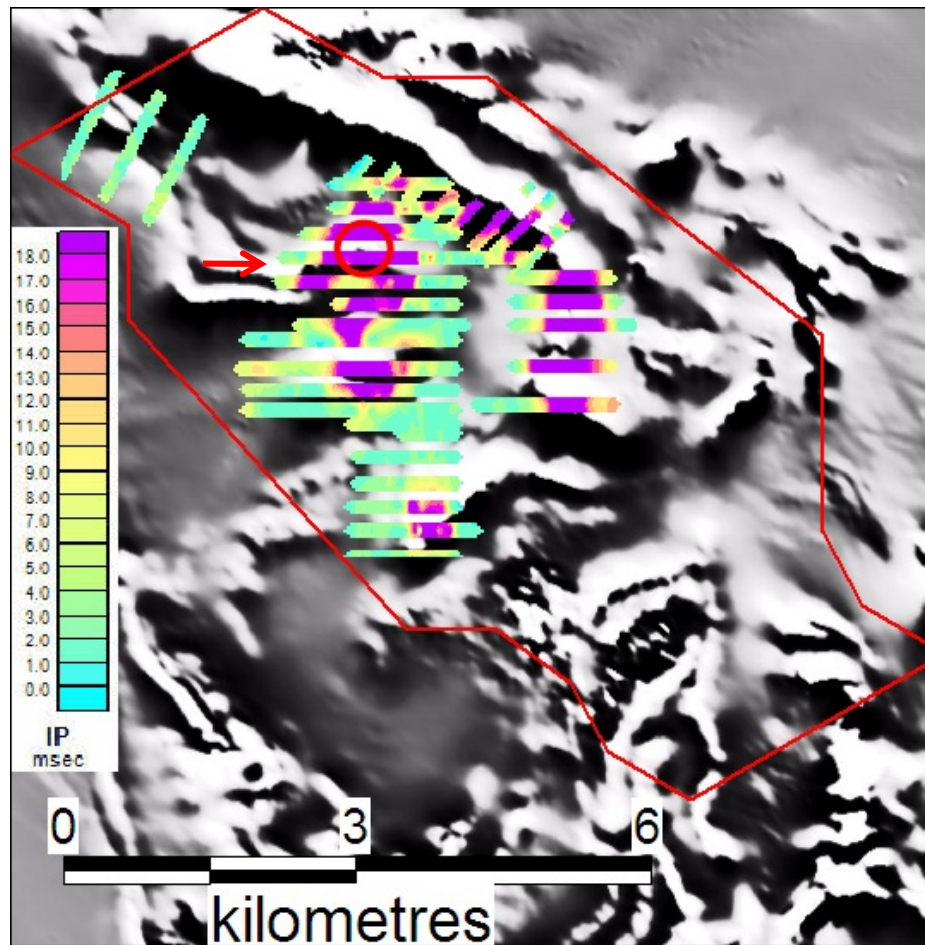
Dipole-dipole IP and Resistivity data



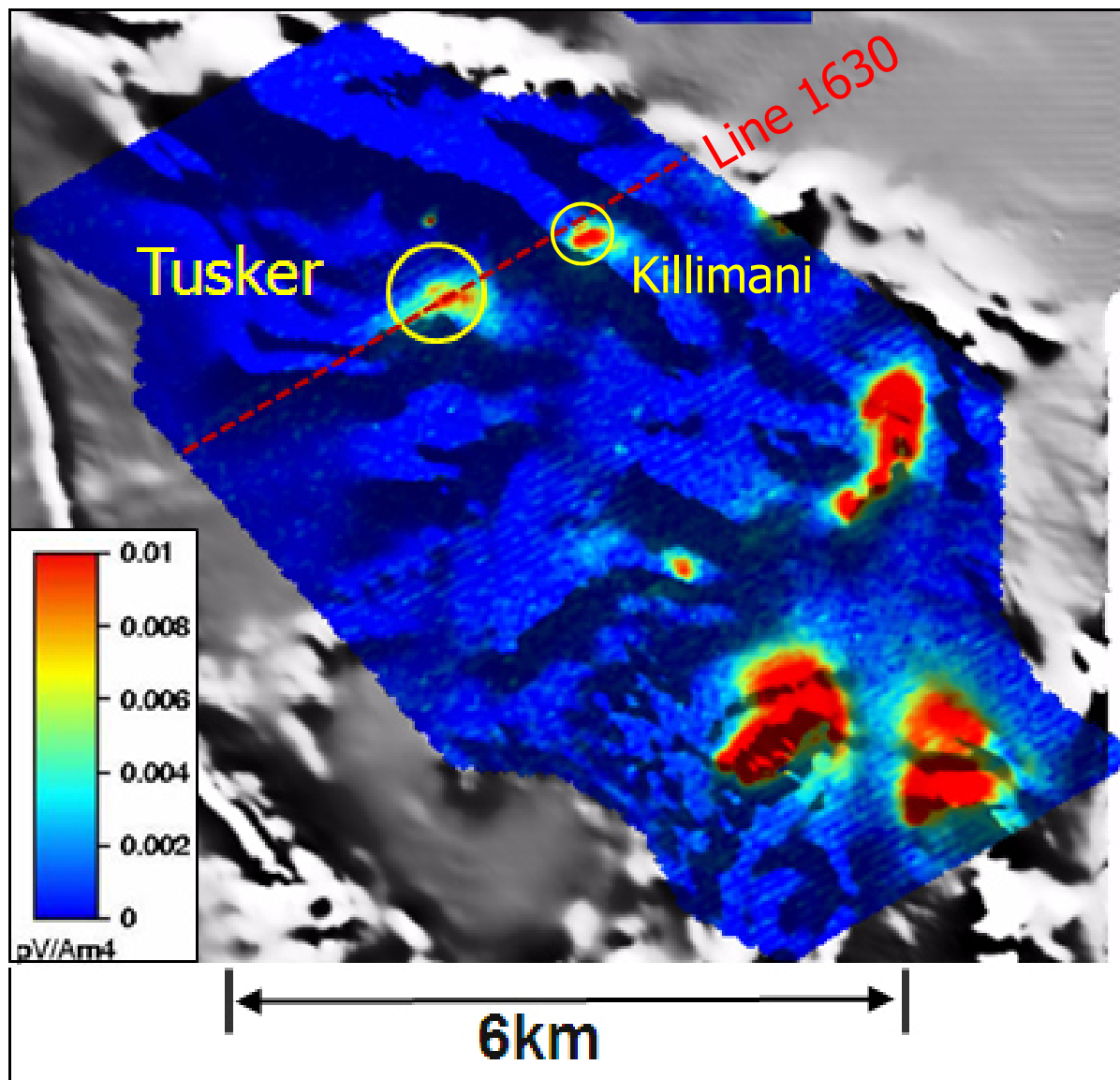
- IP and resistivity inverted sections through Tusker.
- Response of sulphide associated mineralisation is chargeable & conductive.



Dipole-dipole IP and Resistivity data



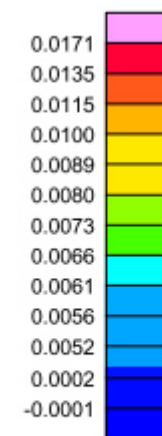
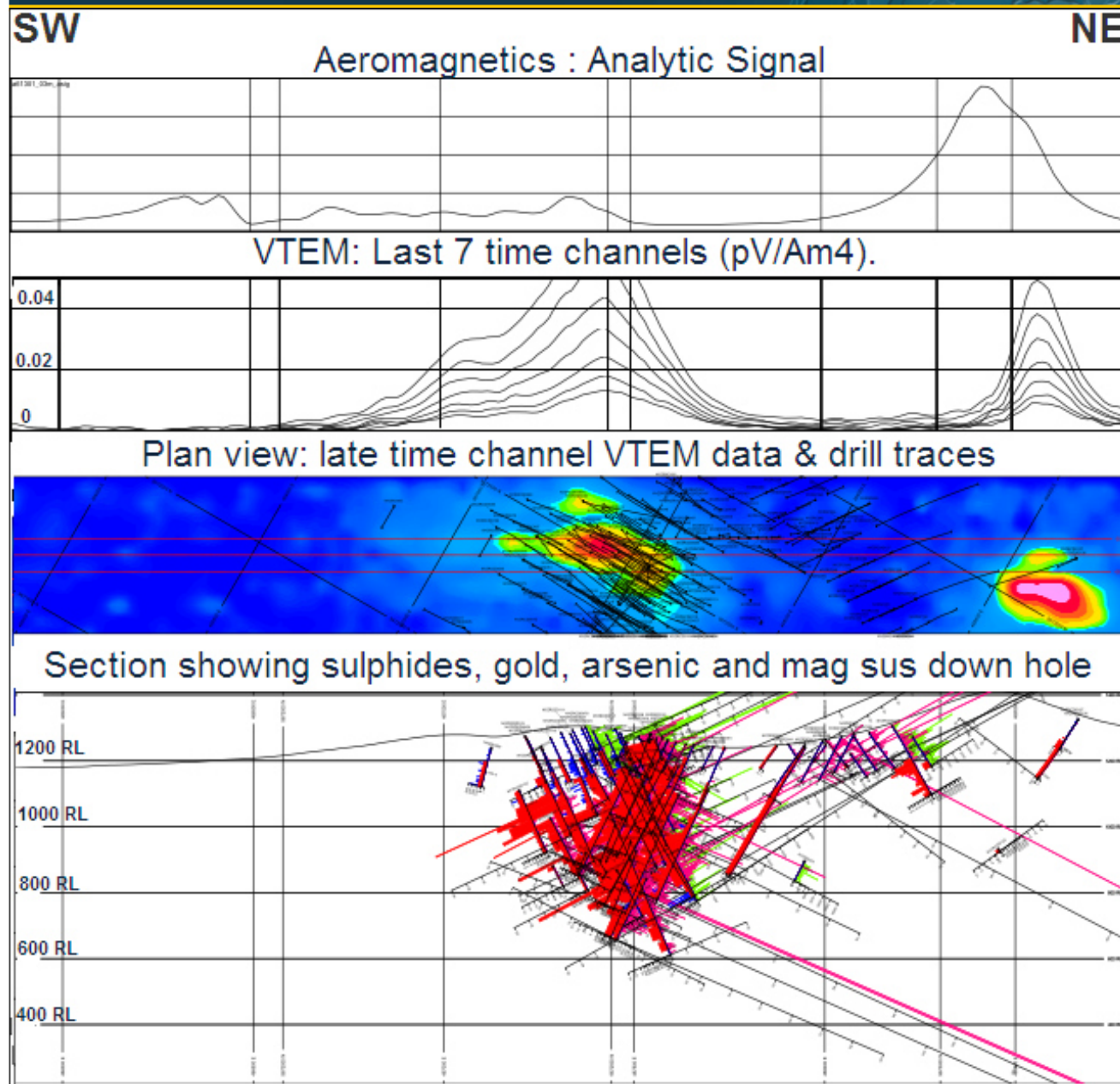
Airborne EM (VTEM)



- Helicopter time domain VTEM surveys flown in October 2006
- Late time channel data (8900us) shown to the left draped over aeromagnetic data (RTP 1VD)



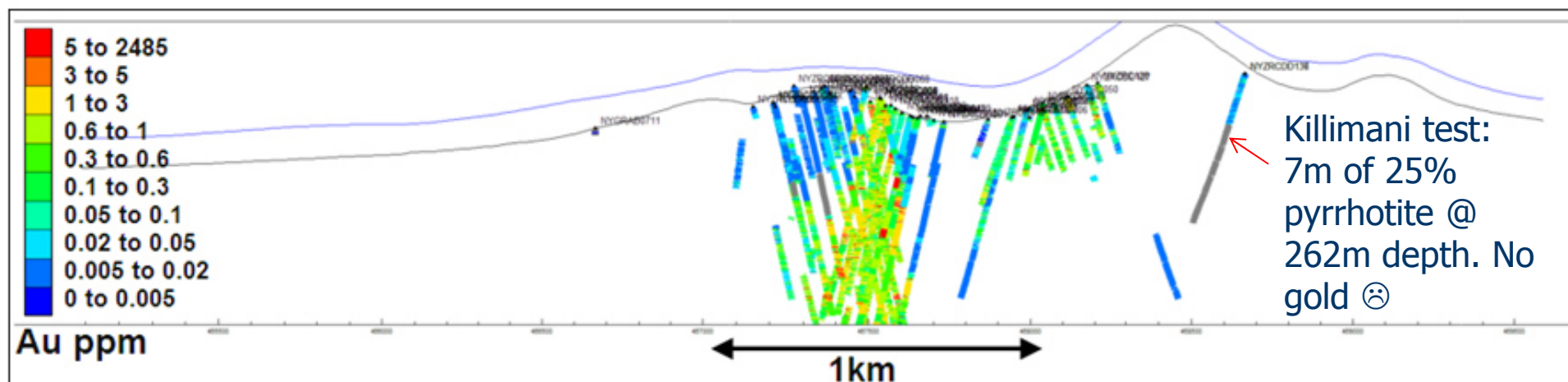
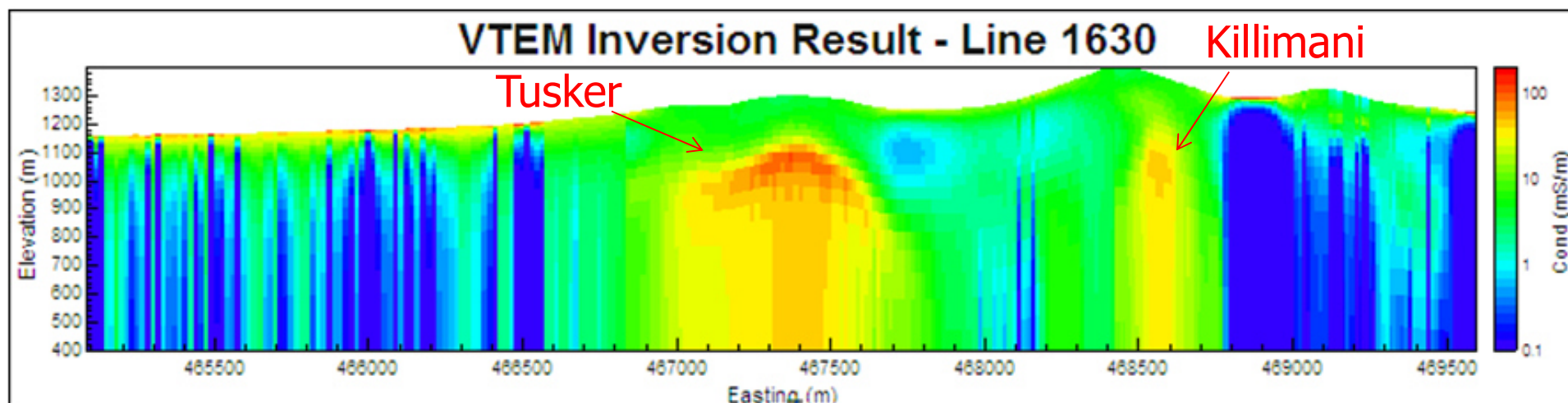
VTEM data: Line 1630



VTEM
8900 us (Ch 30)
pV/Am4

BAR GRAPHS	L/R	COL
As_ppm_d	R	█
Au_ppm_d	R	█
Magsus	L	█
Sulph_Total	L	█

VTEM Inversion: Line 1630



Conclusions

- A range of geophysical data have been acquired over the Tusker deposit, including petrophysical measurements, magnetics, dipole-dipole IP and resistivity, and airborne EM (VTEM).
- Airborne magnetic data map the magnetic mudstone package, show that stratigraphy has been deformed, and suggest the Tusker deposit lies at the intersection of a SE stratigraphic discontinuity, NS fault and NE fold and fault axis.
- Down hole petrophysical data show conductive highs and elevated densities (suggestive of sulphides) coincident with anomalous gold values.

Conclusions



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- Petrophysical measurements on core show elevated conductivity, density, and chargeability readings on a mineralised sample.
- Dipole-dipole IP data map the mineralisation as chargeable and conductive, consistent with petrophysical measurements on core.
- VTEM data show a conductive anomaly coincident with the Tusker deposit. VTEM data also effectively identified the presence of massive sulphides (7m @ 25% po) adjacent to mineralisation at the Killimani prospect.

Acknowledgements



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- Sub-Sahara for permission to published this paper
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