Using gravity to target gold at Tampia, Western Australia

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Outline

- Tampia local geology
- Geophysical surveys
- Re-interpreted regional geology
- Spatial statistical analyses on gravity data
- New targets

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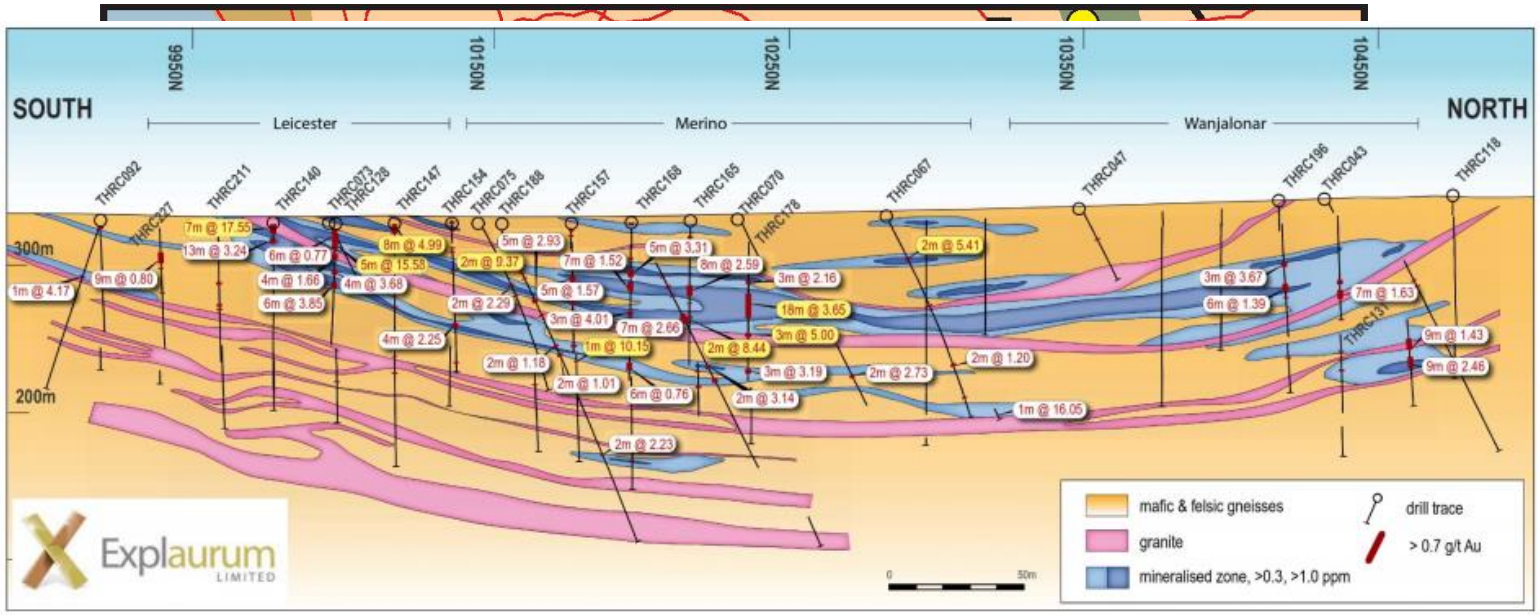
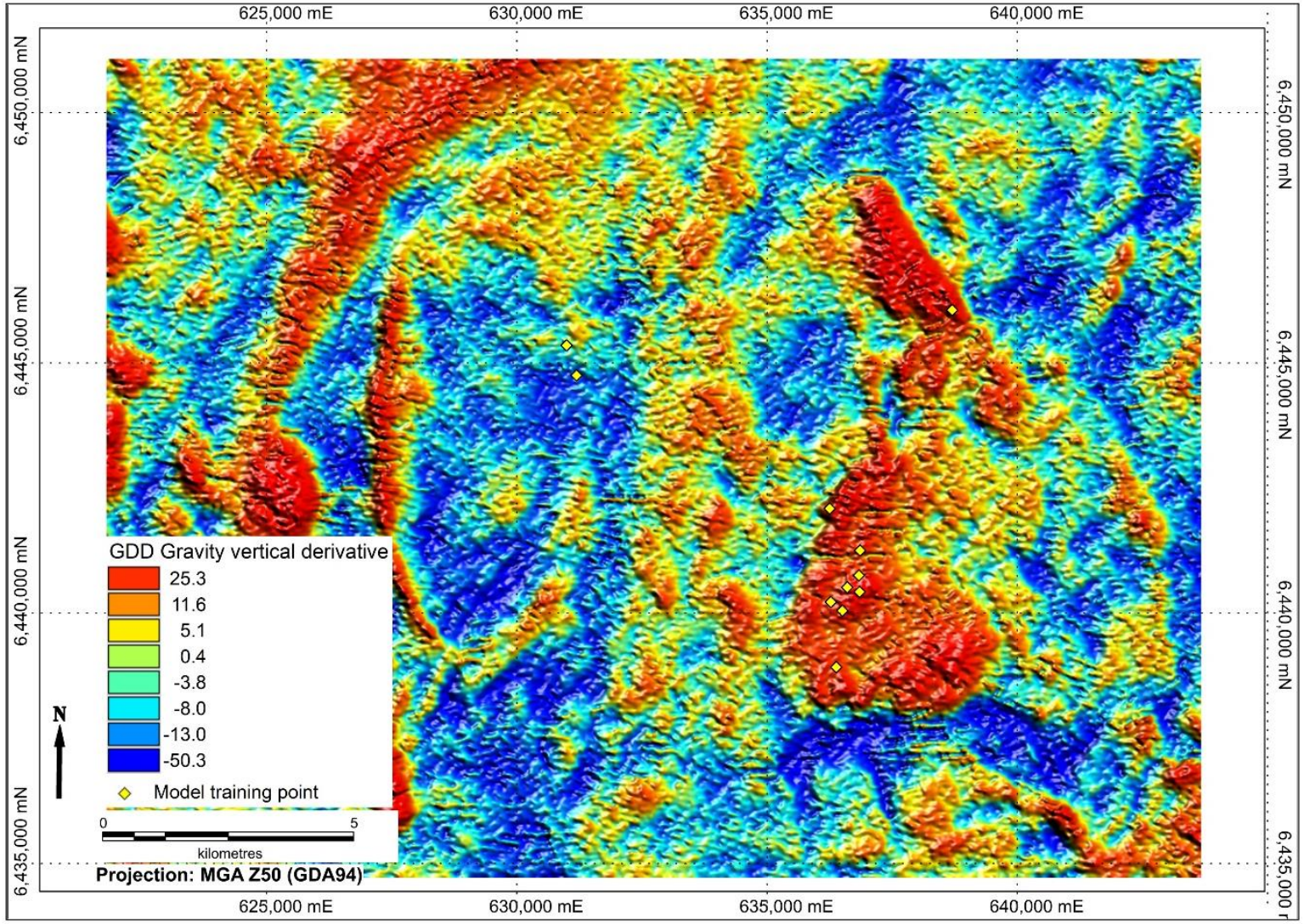
Tampia Introduction



Rock type	Density (kg/m³)
Mafic gneiss	3000
Mineralised mafic gneiss	3200
Migmatite	2800
Migmatite veins	2500
Granite	2700
Felsic gneiss	2600

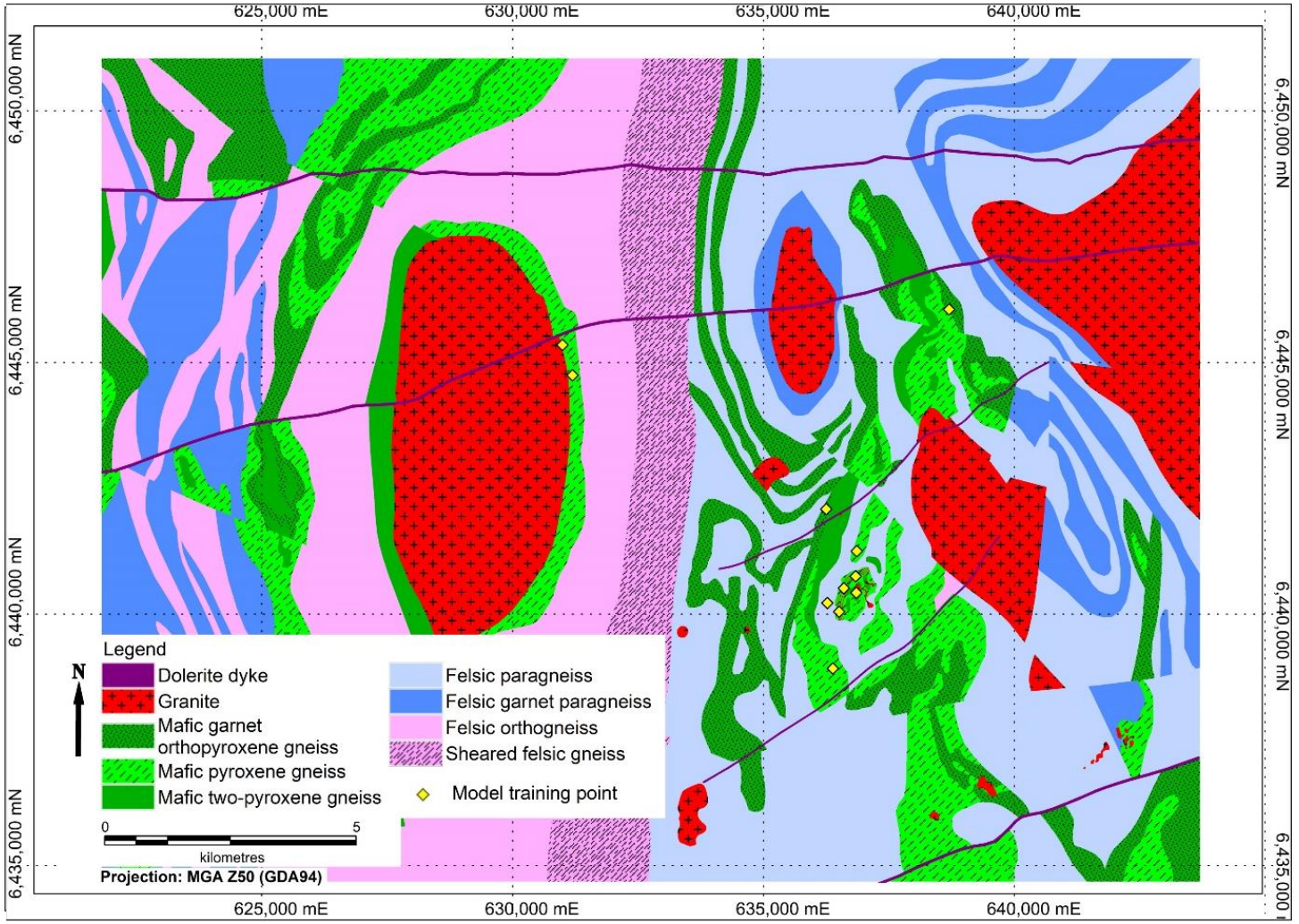
- Tampia Hill orogenic gold deposit
- 250 km east of Perth
- Region under-explored due to lack of outcrop
- Held by Explaurum Ltd
- 4.7 Mt @ 2.0 g/t Au, 310,000 oz. Au
- Granulite facies metamorphic terrane
- Mineralisation hosted by mafic gneiss and associated with undeformed granite intrusions
- Downhole televiewer logging – Rock types with different density values mean geophysics can be used for exploration under shallow cover

Geophysical survey



- FALCON airborne gravity and magnetic survey by CGG Aviation Australia Pty Ltd
- 360 km^2, 4026.9 line-kilometres at 100 m spacing over the Tampia Hill deposit and Explaurum Ltd.'s tenement holdings
- Range of filters applied by Fathom Geophysics Australia to enhance different features in the data
- Edge detection filters to map structures

Geological Interpretation



- Magnetics and gravity vital for interpretation of the geology
- Terrain mostly flat, sparse outcrop, granite outcrops on small hills
- 1:250k Geological Survey mapping
  - Cover, granites, gneiss
- Interpretation post-geophysics
  - Bedrock and structural interpretation through cover
  - Better defined granite morphology
  - Felsic and mafic gneisses
  - Large areas of previously unmapped mafic gneiss – host of Tampia deposit
  - Folding and faulting apparent – shear zone, refolded folds, late dolerite dykes

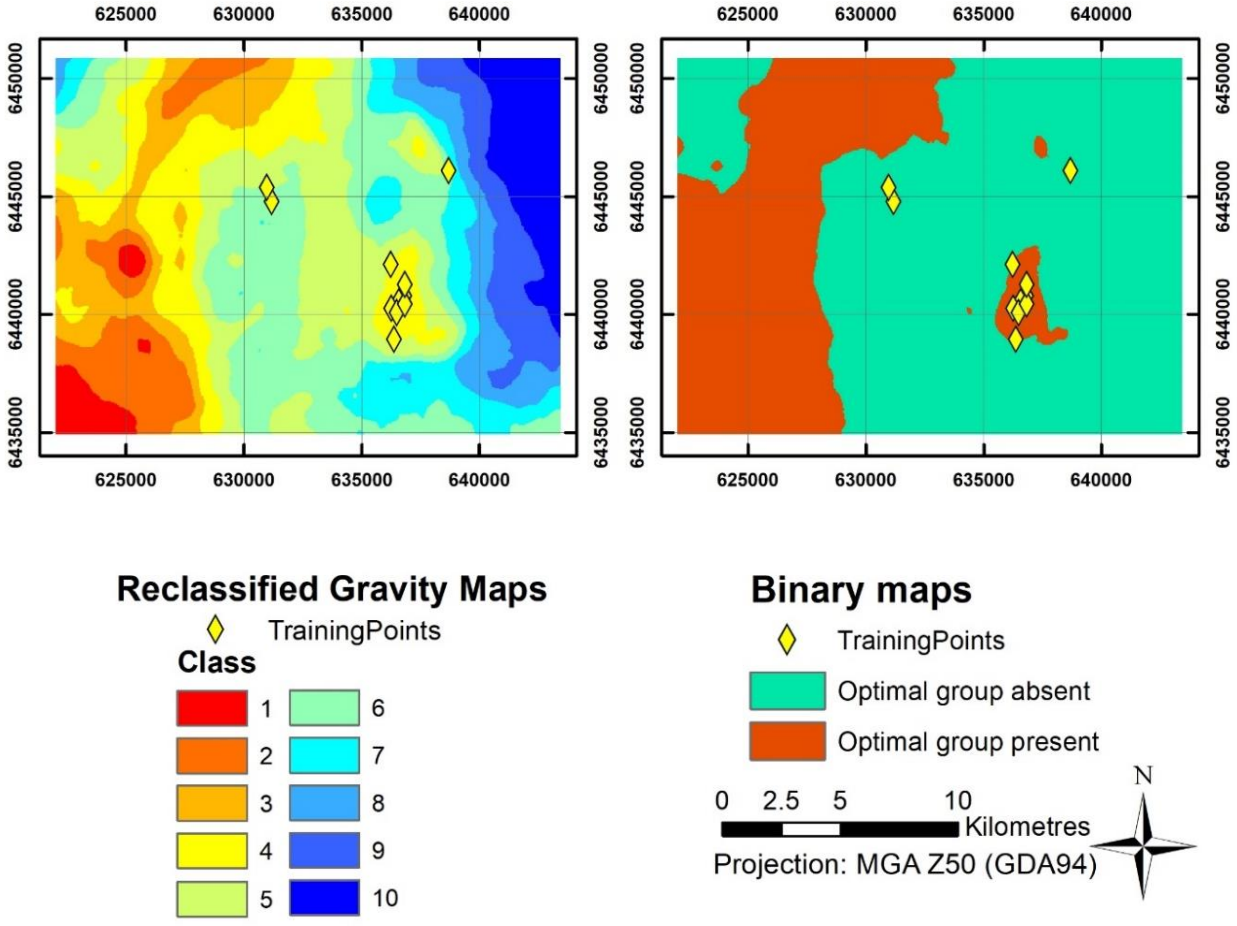
Spatial analysis

- Spatial statistical analysis using weights of evidence
- Creates predictive maps based on presence or absence of a characteristic
- Uses training points of known mineralisation – drill intersections above 0.4 ppm Au
- Assesses the relationship between the area covered by the characteristic of interest, and the number of training points within that area
- Better results when more training points captured within a smaller area
- Tested various filters applied to the geophysical data

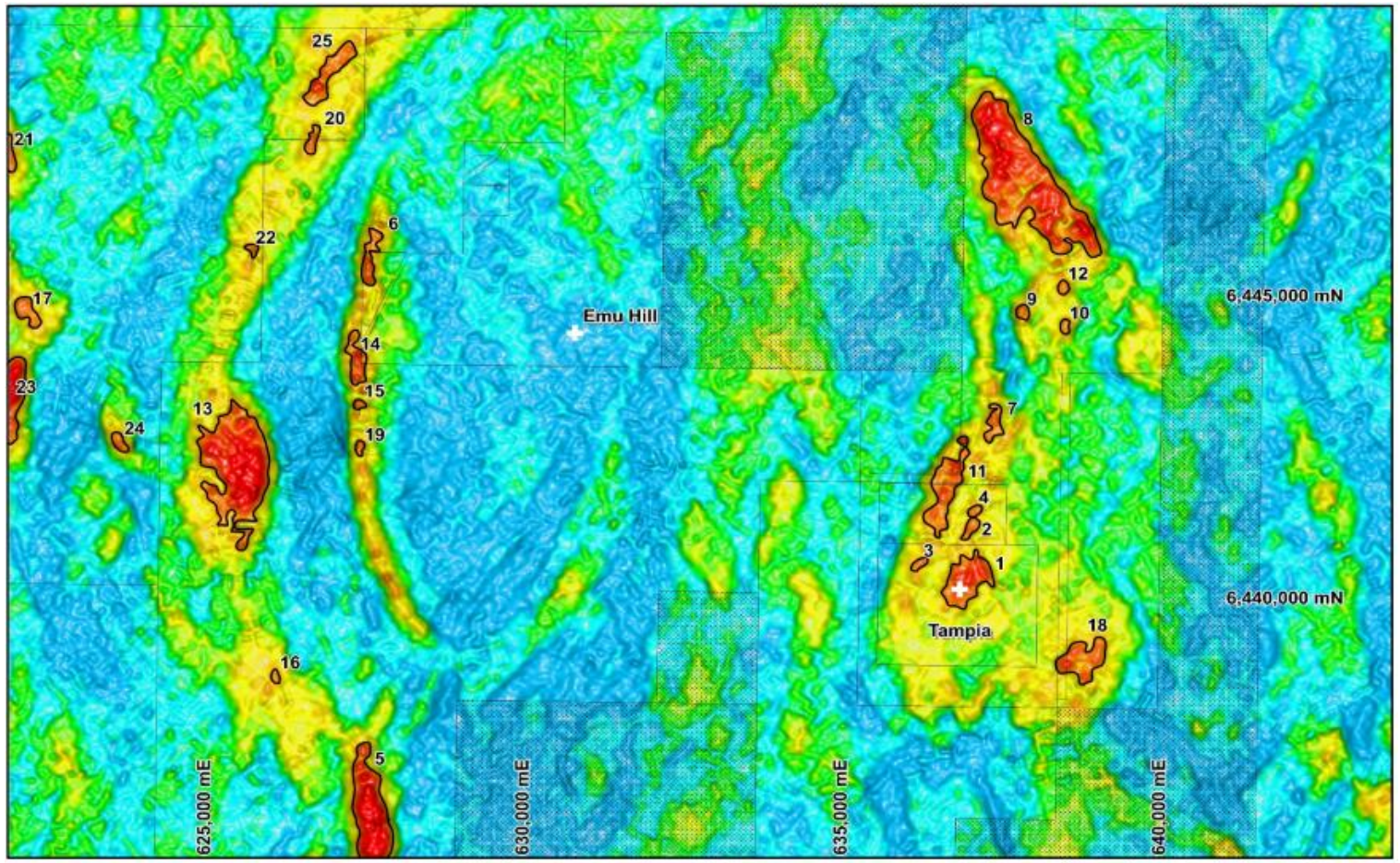
Hole ID	MGA50 E	MGA50 N	RL (m)	Depth (m)	Gold
B013	638699	6446056	330	50	4 m @ 1.63 ppm from 16 m
GR028	636835	6440754	346	25	4 m @ 108.9 ppm from 9 m
GR119	636600	6440517	338	25	3 m @ 2.12 ppm from 21 m
GR280	636272	6440222	328	20	2 m @ 3.53 ppm from 10 m
NRC2	636504	6440050	330	100	1 m @ 6.97 ppm from 86 m
NRC39	636849	6440425	340	100	10 m @ 2.25 ppm from 86 m
THDD004	636251	6442090	336	153.9	1 m @ 0.44 ppm from 12 m
THP003	636381	6438921	357	94	1 m @ 2.26 ppm from 30 m
THRC080	636858	6441253	337	84	1 m @ 27.5 ppm from 51 m
03EHAC053	631192	6444748	301	69	3 m @ 0.58 ppm from 48 m
03EHVR022	630992	6445349	314	30	6 m @ 2.5 ppm from 6 m

Results

Grid name	Optimal group	Area km^2	Training points	W+	Ws+	W-	Ws-	C	Cs	Stud C
GDD Fourier 2.67 Enhanced	Class 1-3	28.83	9	2.35	0.35	-1.62	0.71	3.97	0.79	5.04
gD Fourier 0.0 Enhanced Conformed	Class 1	17.82	8	2.75	0.38	-1.25	0.58	4.00	0.69	5.80
gD Fourier 2.67 Enhanced	Class 1-3	46.18	9	1.84	0.34	-1.57	0.71	3.41	0.79	4.34



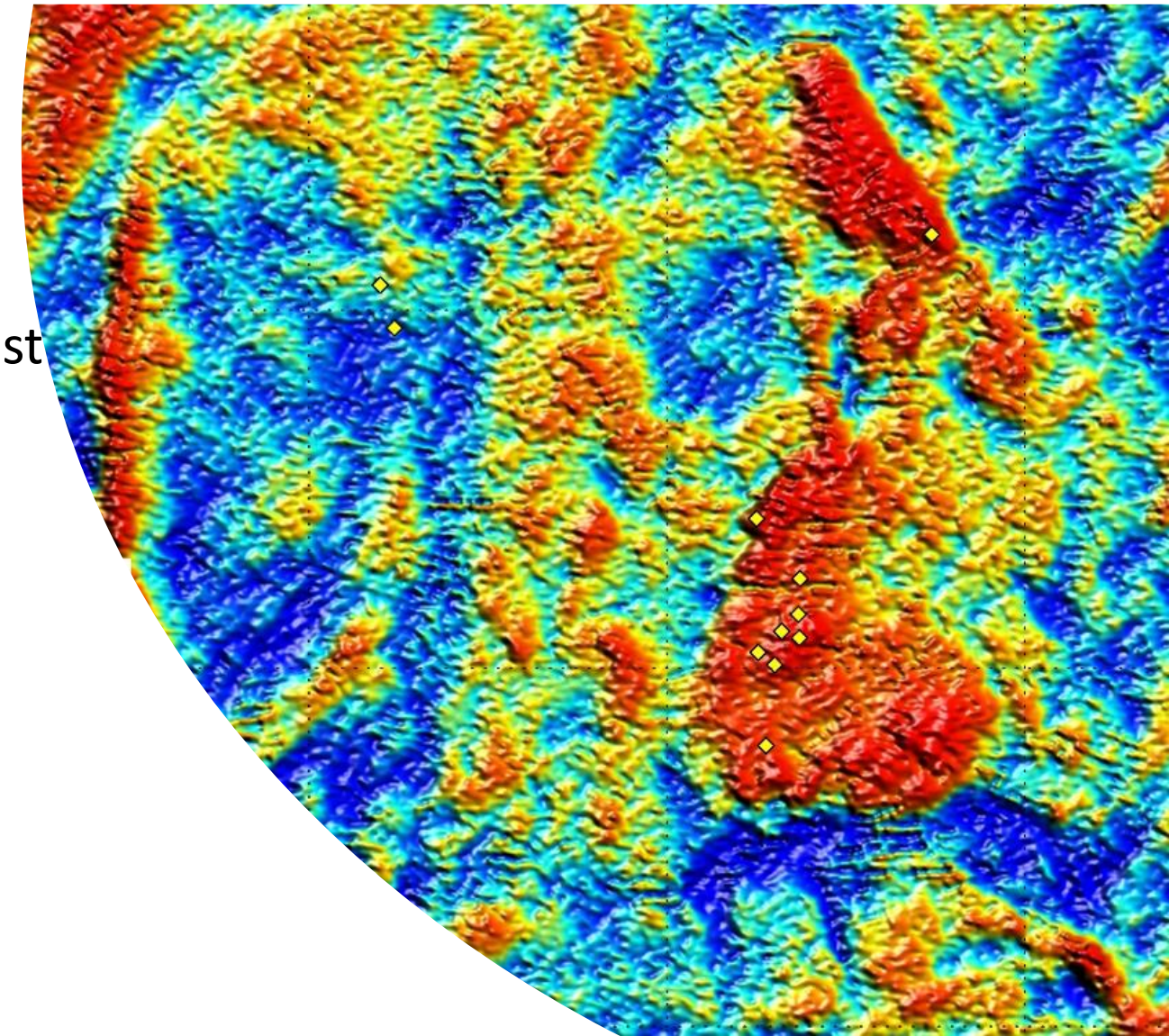
Future Targets



- Strong correlation of high gravity to known mineralisation
- Gravity survey outlines new targets with similar characteristics to Tampia Hill
- Prospectivity model using geophysical, lithological, structural and geochemical data will further refine targets
- Best chance at finding more gold similar to Tampia

Gravity at Tampia

- Provided critical information about the geology and mineralisation potential in the area
- Full reinterpretation of the geology
- Identified mafic gneiss similar to the host of the Tampia Hill deposit, where previously colluvium, sand and granite mapped
- Spatial statistics show a strong correlation of high gravity to existing mineralisation
- Gravity is a robust predictor of mineralisation in the region
- 23 new targets



Thanks

- Co-Authors Duncan Franey and Greg Partington
- Explaurum Ltd for allowing publication of the work

- Simon Nielsen – Downhole logging in 3D geology and mineral potential modelling 11.20 am Wednesday

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