GREATLAND GOLD PLC

TASMANIA PROJECT – Firetower and Warrentinna

This dataset contains contours and images derived from LIDAR survey datasets available via a data portal of Department of Primary Industries, Parks, Water and Environment. http://elevation.fsdf.org.au

SURVEY NAME	METHODS	SURVEY YEAR	DATA STATUS
Firetower	LIDAR	2010/2012	Open File
Warrentinna	LIDAR	2012/2013/ 2014/2017	Open File

Elevation data was derived from LiDAR (Light Detection and Ranging) and has a resolution of 1 metre. Final products are delivered in a MapInfo-compatible format using the GDA94 datum and MGA zone 55 projection.

Image Files (GeoTIFFs and ECWs)...

These are typically imaged as either greyscale or rainbow spectrum with purple/blue values being low and red/white values being high.

ELEVATION

- _DEM_Xshade_L — Digital Elevation Model (Lin) shaded with 50% X Gradient

X *refers to the sun-shade angle (SE, E, NE or N)*
1-99% data clip used unless otherwise stated

Vector Files (MapInfo/ArcGIS format)...

Contours @ 1:10,000

ELEVATION

- _DEM_10k_cont — Digital Elevation Model contours (intervals @ 0.5, 2.5, 10 m)

Gridded Data (ER Mapper format and ASCII xyz)...

ELEVATION

- _DEM_1m — Digital Elevation Model grid

Abbreviations: TMI - Total Magnetic Intensity, RTP - Reduced to Pole,
AGC - Automatic Gain Control , AS - Analytic Signal,
1VD - First vertical derivative, 2VD - Second vertical derivative,
ASVI – Analytic Signal of Vertical Integral,
TC - Total Count, K - Potassium, U - Uranium, Th - Thorium,
U/Th - Uranium/Thorium Ratio, K/Th - Potassium/Thorium Ratio.
Lin - Linear colour stretch, NL - Non-linear colour stretch

Coordinate System...

GDA94 Datum
MGA Zone 55
Southern Hemisphere

SOUTHERN GEOSCIENCE CONSULTANTS

FILTER AND IMAGE DESCRIPTIONS

Abbreviation	Name	Definition and Use
TMI	Total Magnetic Intensity	'Raw' data as measured in field, at a specific time and location (including height), in the presence of the Earth's local magnetic field. Provides an overview of the magnetic signature of a particular area before any enhancement filtering.
RTP	Reduced to Pole	The reduction-to-the-pole process recalculates the observed magnetic field to what it would look like at the north or south magnetic pole, where the Earth's magnetic inclination is vertical. It theoretically removes the asymmetry of the TMI anomaly and places the peak response directly over the magnetic bodies. In practice it can result in artefacts, particularly if remanence is present. It can also be misleading / unstable for N-S striking bodies in low-latitude environments.
N,NE,E,SE	Direction of Horizontal Gradient	Ratio of magnetic response to horizontal distance. Used to emphasize the change in amplitude of an anomaly, which can be useful for detecting edges, faults and/or contacts. Maximum values are recorded over the largest changes in amplitude relative to distance, while a zero response is recorded directly over anomaly highs or lows. North(N) will tend to highlight E-W trending features, East(E) will tend to highlight N-S trending features.
1VD	1st Vertical Derivative	Enhances shallower anomalies and improves the resolution of closely spaced sources by sharpening and separating magnetic anomalies. Equivalent to measuring the magnetic field simultaneously at two points vertically above each other and dividing the result by the distance between the points.
2VD	2nd Vertical Derivative	Enhances shallow anomalies even further but needs high quality data as noise levels are also amplified. Equivalent to the rate of change of the 1st vertical derivative relative to height.
N,NE,E,SE SHADE	Shadowing direction, or direction of sun-angle illumination	A mixture of a colour image (eg. TMI) with a greyscale horizontal gradient, normally 50:50. Typical colour/sun-angle illumination image.
AGC	Automatic Gain Control	Process whereby anomalies or features in an image are all reduced to similar amplitudes. This is very useful for extracting fine detail from images that are otherwise dominated by one or two high amplitude features. The amplitude of the original response is lost during the process so the relative amplitudes of anomalies from an AGC image cannot be compared directly.
AS or ANSIG	Analytic Signal	A combination of the vertical and horizontal derivatives. Generates a maximum directly over a discrete body, or alternatively maxima over the edges of wider bodies, regardless of the presence of any remanent magnetisation or the Earth's local magnetic inclination. It can therefore be a useful tool in reducing the difficulties associated with interpreting the location of bodies with remanent magnetisation and/or in low-latitude environments where the RTP is unstable. However, contrary to popular belief, the ANSIG is NOT totally independent of the inclination field or remanent magnetisation, with the size, shape and location of the calculated anomalies still affected by both of these factors.

TILT	Tilt Angle	Uses a ratio of the vertical and total horizontal derivatives to enhance magnetic bodies and their edges. Maximum values are detected directly over the centre of the magnetic body, while the zero value corresponds to the edge of the source. Provides a sharper indication of magnetic contacts than the ANSIG. It is independent of the magnitude of the magnetic response, and is therefore useful for mapping stratigraphy in low amplitude areas. Like the AGC filter, the TILT cannot be used to directly compare anomaly amplitudes.
ASVI	Analytic Signal of Vertical Integral	Process aimed at reducing the effects of remanent magnetisation, but done more for the purposes of 3D modelling than imaging. Smoother version of ANSIG.
LIN or L	Linear	Refers to the colour scaling of the image being an even (linear) distribution from the lowest through to the highest response. Useful for comparing strength/amplitude of anomalies directly, but can sometimes show little information other than the very high or very low anomalies.
NL	Non Linear	Colour scaling which gives more detail to low amplitude, background areas. A Non Linear colour stretch modifies the image so that there is an equal amount of all colours. Useful for datasets with a large dynamic range, but the relative amplitudes of anomalies cannot be compared directly.
RADIOMETRICS		
TC	Total Count Radiometric	Surface mapping - combination of all radiometric channels. Useful as a general overview image of the total radiometric spectrum, but does not discriminate individual elements.
K	Potassium	Surface mapping - highlights K-feldspar granitoids, clays, alteration, pegmatite, siltstones, etc.
U	Uranium	Surface mapping and uranium anomaly detection. Uranium mineralisation is not normally associated with coincident potassium or thorium highs.
Th	Thorium	Surface mapping - highlights granitoids, laterite and monazite.
K/Th or KTh	Potassium to Thorium ratio	Useful for discriminating sericite alteration from radioactive granites with mixed uranium-thorium-potassium content.
U/Th or UTh	Uranium to Thorium ratio	Highlights uranium anomalies in the absence of a response in the thorium channel and discriminates pure uranium sources from radioactive granites with mixed uranium-thorium-potassium content.
U^2/Th or U2Th	Uranium squared to Thorium ratio	Similar to U/Th but can be useful when uranium levels are only slightly elevated.
TERN	Ternary	Combination of all 3 radiometric channels (K, U & Th) and coloured by red, blue & green respectively. Colours are additive and zero in any channel is black (e.g. high in potassium and uranium and low in thorium = red+blue+black = purple). High in all channels is white.