Kalia limited

ACN 118 758 946

ASX Announcement
21 January 2019

Kalia Limited is exploring for copper, gold and energy metals in the Mt Tore region on Bougainville Island and Australia

Directors
Chairman
Hon. David Johnston
Managing Director
Mr Terry Larkan
Technical Director
Mr Peter Batten
Non-Executive Director
Mr Sean O'Brien

Operations
CFO & Company Secretary
Mr Phillip Hartog

Issued Capital
Ordinary Shares
2,514,347,391
Unlisted Options
144,500,000
Adviser Options
250,000,000

Share Price – 18 January 2018
$0.003

ASX Code
KLH

Further Contact:
Kalia Limited
Tel: 08 6555 0322
www.kaliagroup.com

PO Box 1470
West Perth WA 6872

Geophysical Survey Update

Kalia Limited ("Kalia" or "the Company") provides the following update on the geophysical survey recently completed in Bougainville.

Summary

- First airborne geophysical survey conducted in Bougainville since 1987
- Historic geophysics data covered ~20% of the 1,704 km^2 licence area
- 100% coverage of the area of EL03 and EL04
- Final data has been received by Fathom Geophysics
- Analysis shows data collected to be of high quality
- Data processing underway
- Early images identify deep seated intrusive complexes and structural pathways

An airborne magnetic and radiometric survey was carried out over EL03 and EL04 during the second half of 2018. The survey was conducted by Thomson Aviation between August and November 2018 and the final data received in January 2019.

The data are currently being processed by Fathom Geophysics (http://www.fathomgeophysics.com/). Fathom Geophysics are an independent organisation that have been providing geophysical and geoscience data processing and targeting services to the minerals and petroleum exploration industries, from the regional scale through to the near-mine deposit scale since 2008.

A set of preliminary images has been generated and these images are currently being used by Kalia personnel on site.

The magnetic response across the survey area, particularly in EL04 (western side); is strongly dominated by an apparent topographic signature. It was initially believed that a topographic correction applied to the data (along the lines of Gonzalo et al., 2018 – see "References") would remove this signature. A series of modelling tests by Fathom Geophysics (forward modelling and inversion of the residual topographic surface) has shown that the response is not purely topographic and is most likely due to variations in the thickness of the volcanic units – thick in some places and excised in others (the sharp valleys).

Preliminary inversion modelling has worked well to highlight deeper intrusive sources as well as deep-seated structural pathways; and further project specific filtering and inversion will be carried out to refine the products for detailed interpretation and targeting. In the interim, the drape normalized, reduced to the pole (RTP) data are being used to undertake first stage filtering, analysis and interpretation of the survey data.

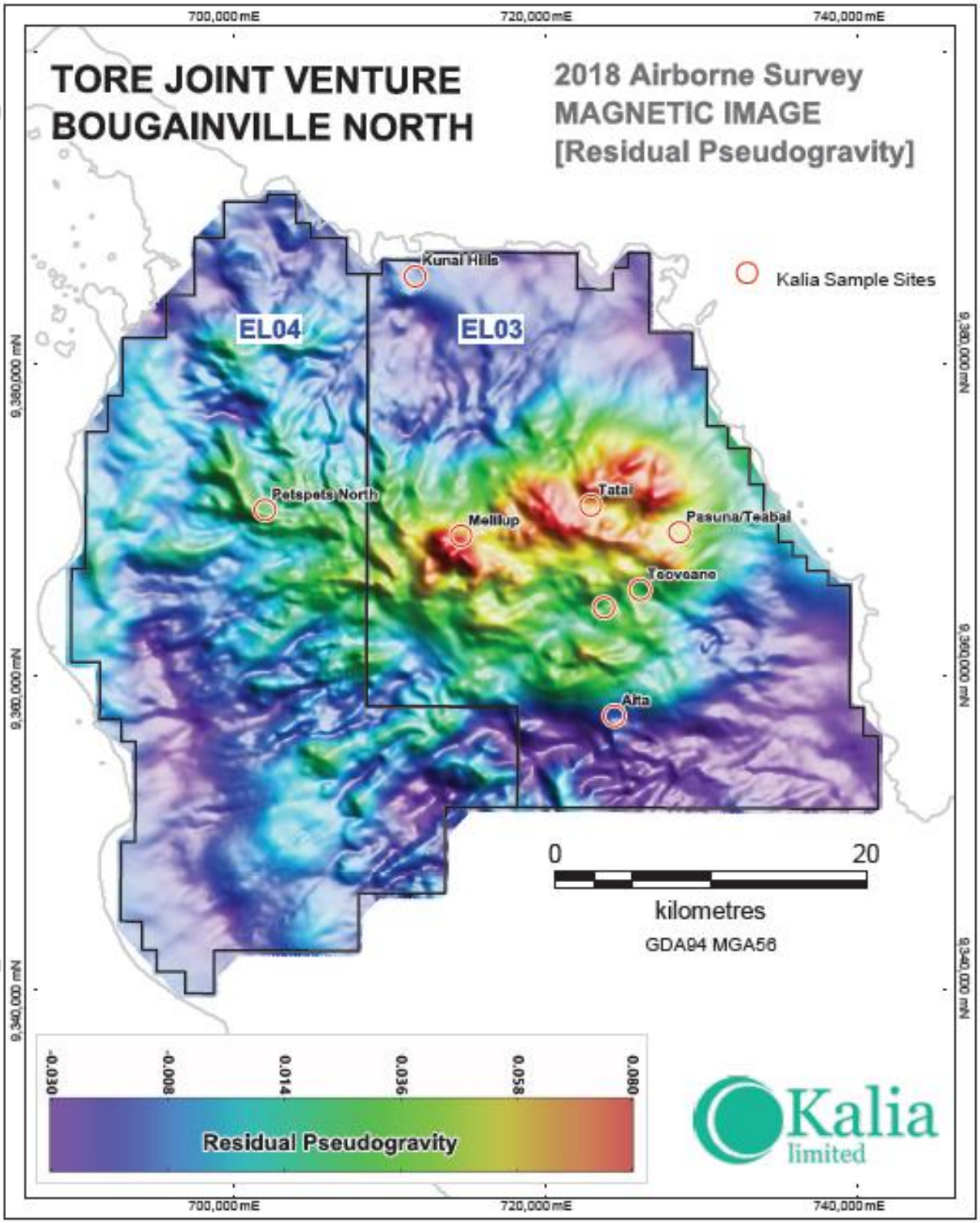

Figure 1 - Residual Pseudo-gravity data (Preliminary Image)

The residual pseudo-gravity data are shown in the image in Figure 1. A linear stretch with shading from the northeast has been applied. The Pseudo-gravity filter, which involves both pole reduction and vertical integration (removal of the dipolar field); enhances the deeper component of the signal; highlighting deeper magnetic intrusions and deep-seated structures. While the volcanic (pseudo-topographic) response is still strongly evident, the intrusive complex and its complexities are clearly discernible. The 2018 survey data replicates the anomalies seen in the 1980's data, but with much better spatial resolution and coverage.

Peter Batten, Technical Director of Kalia Limited, stated "2019 has commenced with fieldwork in EL03 toward the Teoveane - Puspa target with work scheduled to focus there and at Melilup this month.

To quote Fathom Geophysics, this new dataset will provide an excellent insight into the geology and structural framework of the project area and assist with optimizing on-ground target follow-up.

This will allow the team to more accurately plan for expeditions onto known targets and is especially important for EL04 where the complete lack of geophysical data has previously hampered effective exploration activities."

About the Bougainville Exploration Licences

The Company manages two exploration licences on the island of Bougainville, Autonomous Region of Bougainville, Papua New Guinea, through Tore Joint Venture Limited.

Tore Joint Venture Limited is 75% owned by Kalia Limited, with the remaining 25% being held by Toremana Resources Limited, a registered landowner association.

The two exploration licences, EL03 and EL04 were issued in November 2017 and cover a combined area of 1,704 km^2. There are only five licences issued by the Autonomous Bougainville Government for mineral exploration on the island of Bougainville,

The Company has previously disclosed details of the historical reports which note that potential exists for multiple deposits in the north and up to seven different styles of mineralisation were and these seven styles can be broadly grouped into three:

1. Porphyry Cu, Au;
2. Epithermal veining (including polymetallic veins and Au); and
3. Volcanogenic Massive Sulphides (VMS)

Kalia limited

ACN 118 758 946

Competent Person Statements

The information in this announcement that relates to Exploration Results is based on information reviewed by Mr. Peter Batten who is a member of the Australasian Institute of Mining and Metallurgy (AusIMM) and is a full time employee and shareholder of Kalia. Mr Batten has sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Batten consents to the inclusion of the information in the form and context in which it appears.

Information in this announcement that relates to Geophysics and Geophysical data is based on information reviewed by Ms Amanda Buckingham who is a consultant geophysicist and principal of Fathom Geophysics. Ms Buckingham was contracted by Kalia Limited and gives consent to the inclusion of the information in the form and context in which it appears.

Amanda Buckingham PhD has over 20 years' experience as a geophysicist, working in exploration, consulting, airborne acquisition and academia. She has worked on projects on all continents, across a broad range of commodities and deposit styles.

Amanda has worked for majors such as Rio Tinto, and junior explorers like the Toronto-listed Geoinformatics Exploration. She began consulting with SRK in Perth, and developed her expertise in airborne geophysical data from several years managing acquisition projects with High Sense Geophysics in Toronto, and Fugro Airborne Surveys in Southern Africa.

Amanda's PhD at the University of Western Australia involved the design of enhancement filters and edge-detection programs for potential field data. These algorithms have made possible significant advances in methodology for the semi-automated interpretation of data.

References:

Gonzalo et al., 2018; Topographic correction of magnetic data on rugged topography with application to Río Blanco-Los Bronces and El Teniente porphyry copper districts, Southern Andes, Chile. Exploration Geophysics, 2018, 49, 595–607

Kalia limited
ACN 118 758 946

ADDITIONAL INFORMATION
JORC CODE, 2012 EDITION – TABLE 1

The following sections are provided for compliance with requirements for the reporting of exploration results under the JORC Code, 2012 Edition.

Section 1 Sampling Techniques and Data
(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	• Kalia Limited is reporting a new airborne magnetic and radiometric survey carried out over the Mt Tore project area [EL03 and EL04] between 30/08/2018 and 30/11/2018. • The survey was based at Buka Airport in the Autonomous Region of Bougainville in Papua New Guinea. • The Aircraft used was an Airbus AS350B3E [Squirrel]
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• Not applicable – data from geophysical survey only
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Not applicable – data from geophysical survey only

Criteria	JORC Code explanation	Commentary
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• Not applicable – data from geophysical survey only
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Not applicable – data from geophysical survey only
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*	• Not applicable – data from geophysical survey only

Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.*
	• *The use of twinned holes.*
	• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*
	• *Discuss any adjustment to assay data.*
		• Thomson Aviation conducts stringent real time data validity checks.
		• The following products were generated on site
		  • Flight path plots, to demonstrate quality of navigation
		  • Magnetic stacked profiles, to demonstrate character of magnetic data Statistical summary of line data
		  • Magnetometer base station plots
		  • Progressive image presentation of magnetic and topographic data
		  • Daily plots of aircraft parking locations to verify GPS position

Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic*	• Datum: Geodetic Datum of Australia 94 (GDA94) • Projection: Map Grid of Australia (MGA) • Zone: Zone 56 • Airborne magnetic and radiometric survey data were located using the GPS Navigation System: Novatel OEMV-1VBS GPS Receiver.

Criteria	JORC Code explanation	Commentary
	control.	
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• The airborne survey was carried out using the following specifications: • Traverse line direction 45 • Traverse line spacing 200 m • Tie line direction 135 • Tie line spacing 2000 m • Block Traverse Kilometres 8,839 • Block Tie Kilometres 1,051 • Block Total Kilometres 9,890 • Mean terrain clearance 80m
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• Airborne magnetic and radiometric survey was flown perpendicular to the regional structure and stratigraphy with flight line direction: 045 degrees and tie line direction: 135 degrees.
Sample security	• *The measures taken to ensure sample security.*	• Not applicable – data from geophysical survey only
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• The airborne magnetic and radiometric data were initially processed and verified by qualified persons at Thomson Aviation Pty Ltd. Preliminary data was supplied to Amanda Buckingham at Fathom geophysics twice during the survey. After completion of the survey the data were verified by Amanda Buckingham of Fathom Geophysics. The final data supplied are within the specifications of the contract.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The Mt Tore Project consists of two exploration licences EL03 (865.3sqkm) and EL04 (838.7sqkm). • The Mt Tore Project is a joint venture between Kalia Limited (75%) and Toremana Resources Limited, a registered landowner association (25%).
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• All data sourced by the company has been disclosed.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Tore region consists of volcanic rocks in an island arc tectonic setting. Intrusive bodies are recorded in numerous locations throughout the project area and is highly prospective for porphyry Cu-Au-Ag-Mo and Epithermal Au deposits.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information*	• No drilling results reported

Criteria	JORC Code explanation	Commentary
	for all Material drill holes: o *easting and northing of the drill hole collar* o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* o *dip and azimuth of the hole* o *down hole length and interception depth* o *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• Not applicable – data from geophysical survey only
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	• Not applicable – data from geophysical survey only
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Figure 1 shows the airborne survey location and coverage. The image is residual Pseudo-gravity [explained in the text].
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• Not applicable – data from geophysical survey only
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method*	Equipment and sampling techniques used in the airborne survey are as follows: • Magnetometer: Geometrics G822A • Magnetometer Resolution 0.01 nT • Magnetometer sample interval: 20 Hz [a

Criteria	JORC Code explanation	Commentary
	of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	reading is taken 20 times per second] • Gamma ray spectrometer system: RSI RS 400 spectrometer • Radiometric sample interval: 1 Hz • Crystal pack: 33L • Radar altimeter: King KR 495B • Data Acquisition GeOZ DAS • Navigation: Novatel OEMV-1VBS GPS Receiver providing sub-meter resolution at 5 Hz.
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• The magnetic and radiometric data are currently being analysed, filtered, modelled and interpreted by Fathom Geophysics.