



## JOGMEC Funded Program at Samuel Copper Project Underway. Drone Aeromagnetics, Mapping & Sampling Targeting New Copper Systems

### Highlights

- ❑ An exploration program targeting large copper systems, fully-funded by Japanese organisation JOGMEC, is underway at the Samuel Copper Project - Chile.
- ❑ Phase 1 of the exploration program consists of:
  - An ultra-detailed (50m line space) aeromagnetic survey, utilising cutting-edge UAV Drone technology (covering the entire 40km<sup>2</sup> project area).
  - Detailed geology, alteration and structural field mapping.
  - Rock-chip sampling (for geochemical analysis and lithological assessment).
- ❑ The Samuel Copper Project is considered highly prospective for large-scale porphyry copper and manto-style copper systems, is located nearby to infrastructure, at low altitude in the Coastal Range of Region IV.

### Next Steps

- ❑ Data collected from these initial field activities will be combined with satellite-based ASTER alteration data to define zones of interest and refine target areas for follow-up work.
- ❑ Induced Polarisation surveys are expected to be used in the next phase of geophysics, prioritising the target areas, prior to the first-ever drilling at the Samuel Project in 1H19.

### About Samuel Copper Project JV

- ❑ The Samuel Copper Project JV Agreement requires JOGMEC to fund exploration of up to US\$2.4m (AUD\$3.3m) in three phases over 2.5 years to earn a 60% interest in the Project.
- ❑ The JV will deliver additional copper exploration news-flow from a third-party fully-funded program, and an opportunity to potentially partner with a Japanese company in the future.
- ❑ The Samuel JV forms part of Helix's 2018 project rationalisation strategy and provides for the advancement of another large, potentially value-accretive Helix copper asset at no cost to Helix.

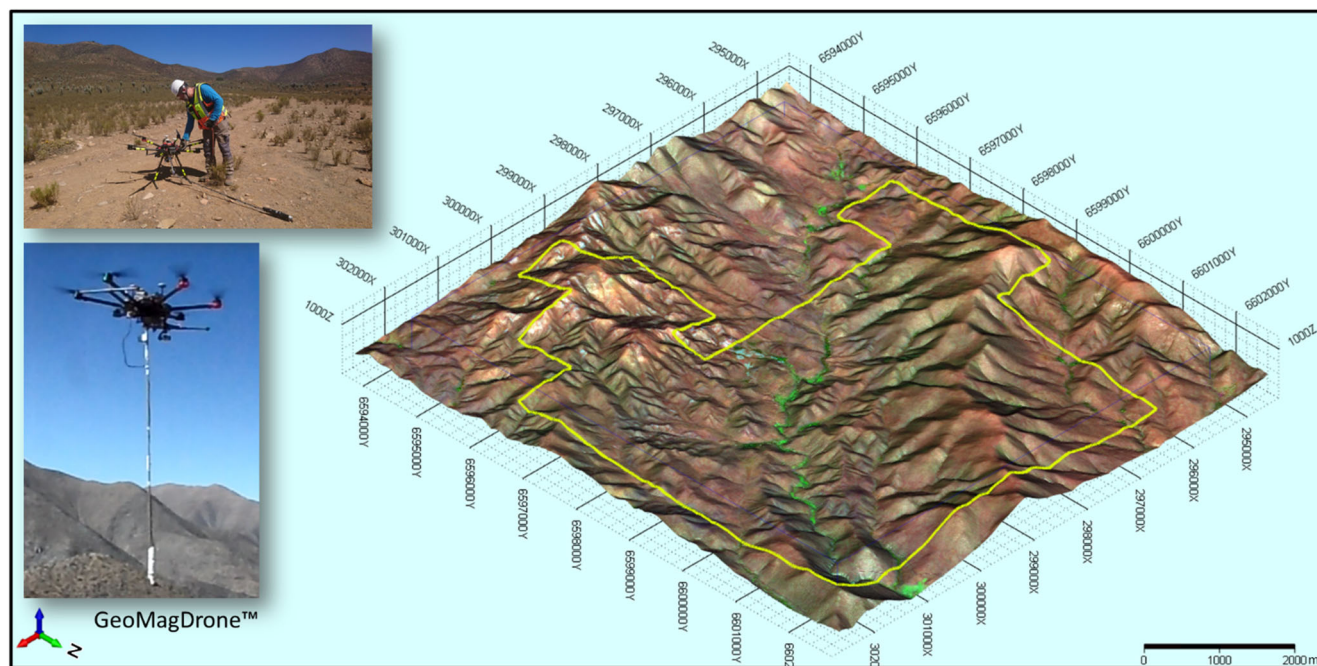
Helix Resources Limited (ASX:HLX) (**Helix** or the **Company**) is pleased to advise that field activities are now underway at the Samuel Copper Project in Region IV, Chile. Japanese organisation and JV Partner JOGMEC is fully funding the Phase 1 exploration program, with work programs initially consisting of detailed mapping, surface sampling and the commencement of an ultra-detailed UAV drone aeromagnetic survey over the entire 40km<sup>2</sup> project area.

Helix Managing Director, Mick Wilson, said: "We are excited to be starting the field campaign at the Samuel Copper Project JV in Chile. Our JV Partner, the highly regarded Japanese organisation JOGMEC, is fully-funding the programs, including the use of cutting-edge UAV Drone technology for the aeromagnetic survey. It provides our shareholders with yet another organically derived exposure to the copper market, and another opportunity to retain material interests in potentially large copper assets in this world-class copper jurisdiction. With third-party funding covering costs in Chile over the next few years, it allows Helix to retain exposure while the projects are de-risked, and allows Helix to continue to focus our main efforts on the advancement of our flagship copper assets in NSW."

## Aeromagnetic Survey

Helix has secured the use of a UAV based GeoMagDrone™ system from local Chilean provider GFDas. The system will carry out an 890 line kilometre ultra-detailed aeromagnetic survey over the entire 40km<sup>2</sup> Samuel Project area.

The survey is being flown at 50m line spacing, with a flight height of between 30-50m above the ground. This flight height is achievable by use of ultra-detailed (0.5m resolution) digital terrain model data derived from the Worldview-2 Satellite. The UAV uses this satellite data to maintain its low-level flight height during the survey (Refer Figure 1).



*Figure 1: 3D screenshot of the Samuel Project area's digital terrain model (draped with the 2018 ASTER false colour image). Inset shows the GeoMagDrone™ with fluxgate sensor being used for the aeromagnetic survey.*

The aeromagnetic survey (also used at the nearby Joshua Copper Porphyry Project) is expected to highlight variations in the local magnetic responses, highlight areas of possible porphyry-style alteration, intrusive bodies, potential mineralising structures and contrasting lithologies throughout the project area. Helix's consultants will assess the processed data and prioritise areas for follow up work.

## Mapping and Sampling

A field team is also undertaking 1:10,000 scale geological, structural and alteration mapping across the Samuel Project area during November and December 2018. The JV is utilising Helix's in-country team to complete these field campaigns.

Information derived from this field work, combined with the planned geophysics, will allow areas of interest and new targets to be derived and prioritised for further work.

Induced Polarisation (IP) geophysical surveys are a proven and effective tool for refining drill targets in both porphyry and manto-style copper systems in Latin America. IP surveys are expected to be used in the next phase of geophysics, prioritising the target areas, prior to the JV committing to first-ever drilling at the Samuel Copper Project (planned for the first half of 2019).

Helix is acting as manager during the early stages of the JV and are making our recommendations to the JV participants based on our extensive exploration experience and 8 years operational knowledge working in Chile. Helix is looking to maximise value for the JV participants by delivering an optimal outcome from the programs from funding made available by JOGMEC.

### About the Samuel Copper Project JV

Helix executed a binding Interim Joint Venture Agreement (**IJVA**) with JOGMEC in relation to Helix's 100%-owned Samuel Copper Project in Chile, announced 5<sup>th</sup> September 2018.

The IJVA provides for the continued exploration of the copper prospective and large-scale Samuel Project from a conceptual target without financial contribution from Helix through the earn-in period. In addition, Helix will receive a management fee while Helix's Chilean team manages the JV through Stages 1- 3.

### Key terms of the IJVA

The IJVA provides an avenue for JOGMEC to earn up to a 60% interest in the Samuel Project by funding a 3 stage US\$2.4M program to 31 March 2021. The JV terms are:

- ❑ **Stage 1:** Contribute **US\$0.4M (Minimum Commitment)** by 31 March 2019 primarily for the purpose of undertaking of large-scale geophysical surveys and mapping of the Samuel porphyry and manto-style copper systems.
- ❑ **Stage 2:** Contribute **US\$0.8M** by 31 March 2020 primarily for the purpose of undertaking initial **diamond drilling** to drill test the identified mineralised systems.
- ❑ **Stage 3:** Contribute **US\$1.2M** by 31 March 2021 primarily for the purpose of undertaking a second phase **diamond drilling** to establish scale and continuity of an identified mineralised system.
- ❑ At completion of Stage 3 JOGMEC will earn an option to acquire 60% equity in the project and have the right to sell their joint venture interest by tender to a Japanese company.
- ❑ Helix's Chilean team will manage the project until the completion of Stage 3 with Helix receiving a Management Fee for these services.

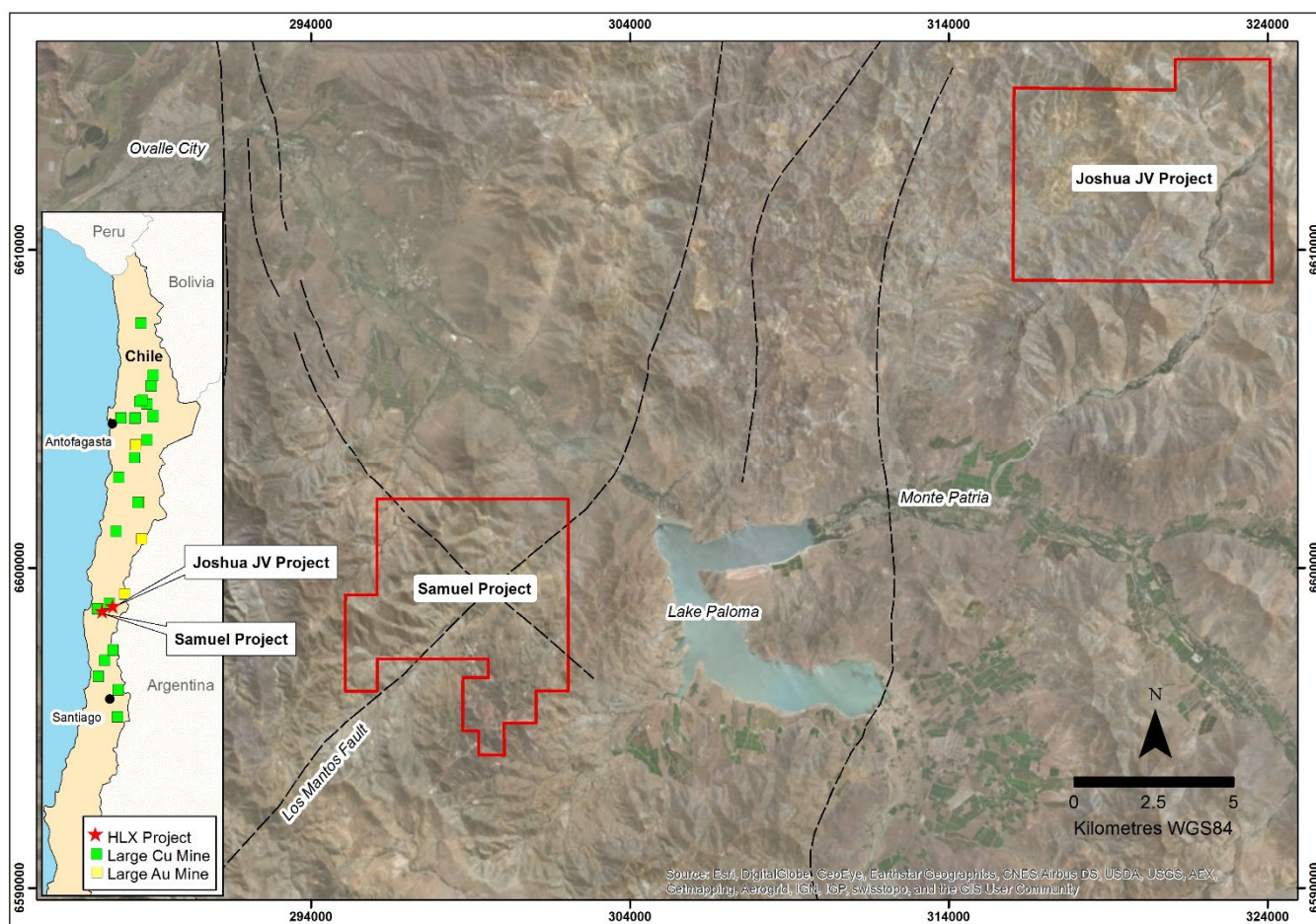


Figure 2: Location of the Samuel Project, situated on the intersection of two major regional structures, 25km southwest of Ovalle City – Region IV Chile

## History of the Samuel Copper Project

The Samuel Copper Project was a greenfield project generated by Helix and is located southeast of Ovalle City in Region IV, approximately 25km southwest of the Joshua Project and 320km North of Santiago - Chile. The Samuel Project lies on the intersection of the regionally significant Los Mantos Fault and a major NW trending lineament, both structures control numerous mineral deposits and mines in the district (Refer Figure 2).

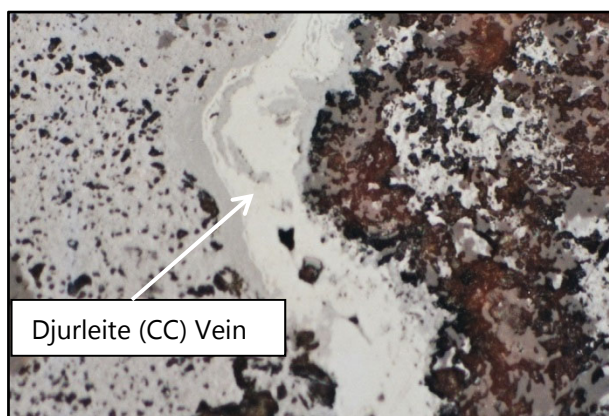
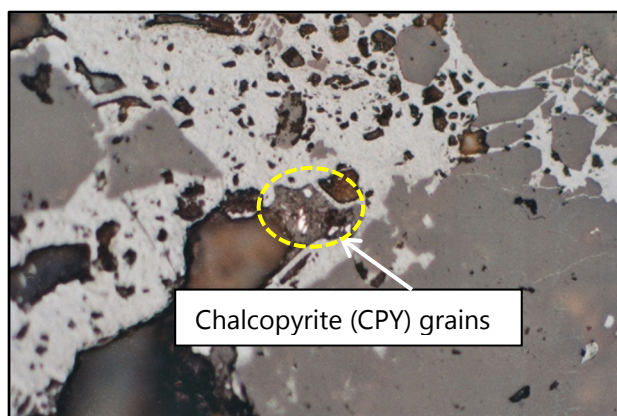
The project is prospective for both porphyry and manto-style copper mineralisation. The main target area is defined by an approximate 19km<sup>2</sup> zone of mixed intrusives, volcanics, stockworks and breccias with porphyry related alteration defining the extent of the system.

Previously, Helix's Chilean team had mapped and surface sampled the main target area at a broad scale (1:20,000), collecting rock chip samples returning peak results of 7.7% Cu, 0.8g/t Au and 176ppm Mo within the system<sup>1</sup>. Of significance, samples of the quartz-limonite stockwork present at Samuel highlighted the existence of several primary and secondary copper sulphide species (Refer Photo 1-3).

The exploration activities at the time on the Samuel Project included collection of samples for petrology and photomicroscopy, to identify the copper minerals present. This work highlighted the existence of high-grade supergene copper mineral djurleite ("white chalcocite") and chalcopyrite in the limonite veinlets associated with the quartz-limonite stockworks that were noted throughout the main target area. These zones will be further assessed and prioritised in the early stages of the Samuel Copper Project JV.



*Photo 1: Extensive stockwork present at the Samuel Project containing limonite after sulphides, note copper coating an iron nail when acid is applied to the weathered rock<sup>1</sup>.*



*Photo 2 and 3: Microphotographic images of thin-sections from the location shown on photo 1. Photo 2 shows fine grains (<1mm) of chalcopyrite preserved in limonite veins. Photo 3 shows a vein of djurleite (white chalcocite) within the limonite veins<sup>1</sup>.*

- ENDS -

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#### **Competent Persons Statement**

The information in this announcement that relates to Exploration Results, Mineral Resources or Ore Reserves is based on information reviewed by Mr M Wilson who is a full time employee of Helix Resources Limited and a Member of The Australasian Institute of Mining and Metallurgy. Mr M Wilson has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 and 2012 Editions of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr M Wilson consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Details of the assumptions underlying any Resource estimations are contained in previous ASX releases or at [www.helix.net.au](http://www.helix.net.au)

<sup>1</sup> For full details of exploration results refer to previous ASX announcements 17 October 2014, 30 January 2015 and 9 September 2018 on Helix's website. Helix Resources is not aware of any new information or data that materially effects the information in this announcement

#### **Forward-Looking Statements**

This ASX release may include forward-looking statements. These forward-looking statements are not historical facts but rather are based on Helix Resources Ltd.'s current expectations, estimates and assumptions about the industry in which Helix Resources Ltd operates, and beliefs and assumptions regarding Helix Resources Ltd.'s future performance. Words such as "anticipates", "expects", "intends", "plans", "believes", "seeks", "estimates", "potential" and similar expressions are intended to identify forward-looking statements. Forward- looking statements are only predictions and are not guaranteed, and they are subject to known and unknown risks, uncertainties and assumptions, some of which are outside the control of Helix Resources Ltd. Past performance is not necessarily a guide to future performance and no representation or warranty is made as to the likelihood of achievement or reasonableness of any forward-looking statements or other forecast. Actual values, results or events may be materially different to those expressed or implied in this presentation. Given these uncertainties, recipients are cautioned not to place reliance on forward looking statements. Any forward- looking statements in this announcement speak only at the date of issue of this announcement. Subject to any continuing obligations under applicable law and the ASX Listing Rules, Helix Resources Ltd does not undertake any obligation to update or revise any information or any of the forward-looking statements in this announcement or any changes in events, conditions or circumstances on which any such forward looking statement is based.

No new information that is considered material is included in this document. All information relating to exploration results has been previously released to the market and is appropriately referenced in this document. JORC tables are not considered necessary to accompany this document