USE CASE: LITHIUM

Supporting Core Lithium's Source for the Energy Transition

THE LITHIUM CHALLENGE

For lithium mineral exploration companies, it is difficult to find a technique for accurately identifying deposits (Li-bearing spodumene pegmatites). Core Lithium explained that there was no reliable technique previously that has allowed lithium pegmatites to be targeted undercover. The objective of the project was to allow the customer to conduct surveys over known areas to see if Ambient Noise Tomography (ANT) could detect lithium pegmatites.

WHO IS CORE LITHIUM?

Core Lithium operates the Finniss Lithium mine in the Northern Territory of Australia. The Finniss mine will provide the globe with high-grade and high-quality lithium suitable for lithium batteries used to power electric vehicles and renewable energy storage.

CORE LITHIUM

THE SOLUTION

Survey Conducted
1

Survey Size
4km²

No. of nodes
100 (200m apart)

Project Duration
7 days

Depth
500m

Resolution
~30m

"Core is one of the first companies to embrace Fleet's ExoSphere technology, and the first to use it successfully in lithium exploration. Core sees huge potential for ExoSphere to provide robust new targets, and focus drilling into the most prospective areas. Core considers that ExoSphere is an innovative new approach to exploration and looks forward to continuing a successful partnership with Fleet Space."

Andy Bennett | **Exploration Manager, Core Lithium**

Credit to Core Lithium, Core Finnis Lithium mine Site located in the Northern Territory of Australia

ANT

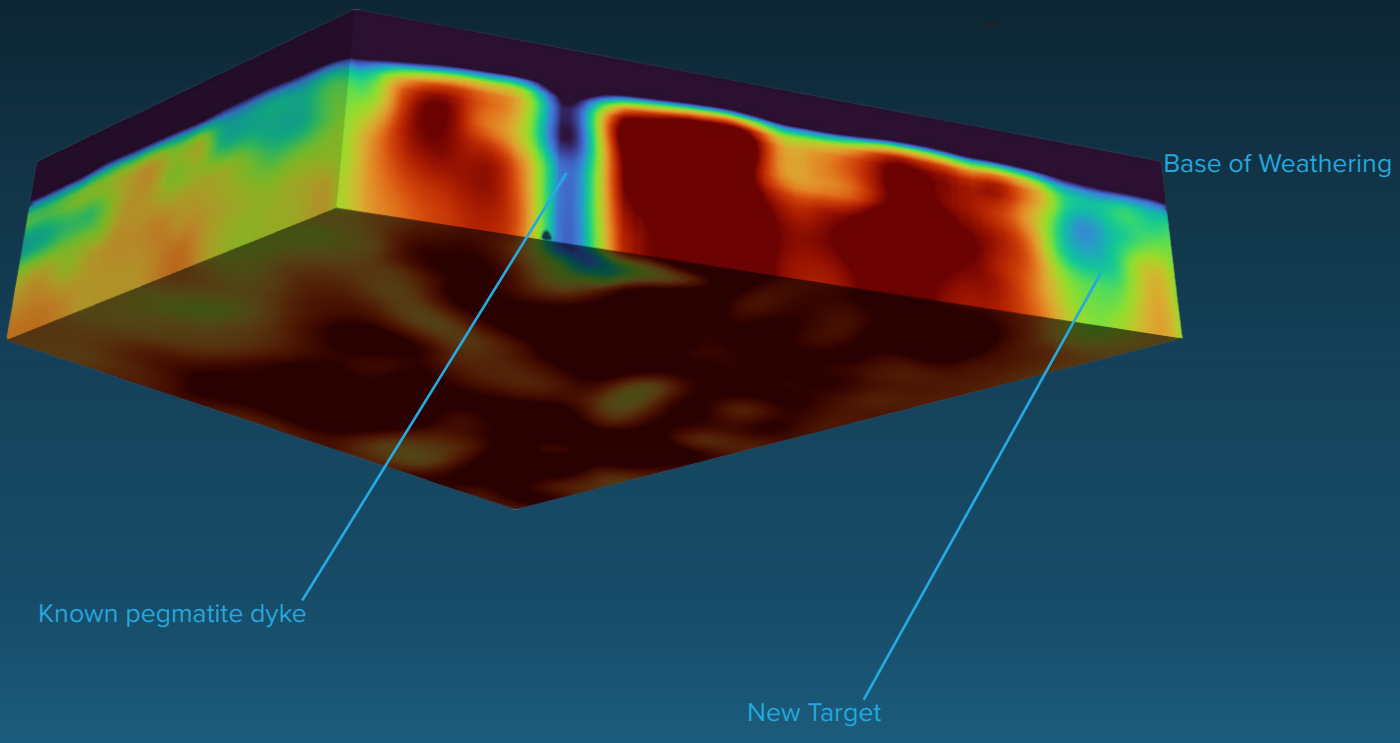
Fleet Space provided 100 nodes to the Finniss Lithium Mine site in April 2022. These nodes were placed 200 metres apart and were planted for 7 days to complete the survey. The ANT method utilises faint background vibrations from natural and anthropogenic sources to construct estimates of the seismic Green's function between station pairs, which effectively turns each receiver into a virtual active source that can be used to image or monitor the subsurface. Once the data has been processed, the result is a rich 3D survey image.

SUCCESSFUL RESULTS IN IMAGING THE PEGMATITE DYKE

ExoSphere successfully imaged the known pegmatite dyke: there was only a 5% velocity contrast between the slower pegmatite and the surrounding faster sandstone/phyllite, which was measured with a handheld velocity tester in core samples before deploying the survey. This result with ANT proves that the method only needs a 5% velocity contrast or more between lithologies to be able to image that contact at depth.

In addition, ExoSphere identified a number of new blind pegmatite targets: shown in blue as lower S-wave velocity anomalies. These are now drilling targets.Finally, the results determined the depth of base weathering (the cover).

Image shows: Slice through 3D velocity model. Anomalously slow (blue) region at the centre marks the location and extent of a shallow Li-bearing pegmatite. New targets identified at depth.



FLEET

Fleet Space Technologies Pty Ltd
8a Myer Court, Beverley SA 5009 AUSTRALIA
sales@fleet.space | fleetspace.com