

# FOMENTERA – ARGENTINA: LITHIUM TRIANGLE

Prepared by Southernrock Geophysics

## 1. The Lithium Triangle

Electromagnetic methods play a central role in the exploration and characterization of hypersaline brines hosted within the salt flats of the “Lithium Triangle.” This broad geographic region, centred on the tri-border area of Chile, Argentina, and Bolivia, hosts numerous lithium-rich salares distributed across the Central Andes.

These deposits are found in endorheic basins with evaporitic processes having concentrated salts, probably in conjunction at least in some cases with volcanic processes also contributing to the elevation of the concentration of certain minerals. The high concentration of dissolved salts result in these deposits generally presenting themselves as very good, often laterally extensive, conductors with resistivities generally below 1 ohm. This pronounced electrical contrast makes them particularly well suited to investigation using electromagnetic techniques.



Economist.com

### **EM Imaging of Hypersaline Brines**

- Lithium Triangle (Chile–Argentina–Bolivia)
- Salt flats near triple junction
- Highly conductive brine targets

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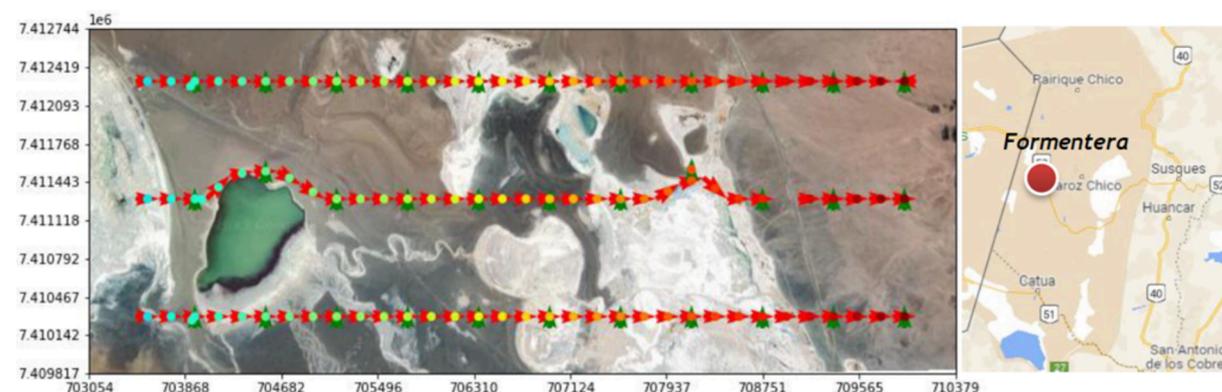
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## 2. Magnetotellurics for Lithium Brine Exploration

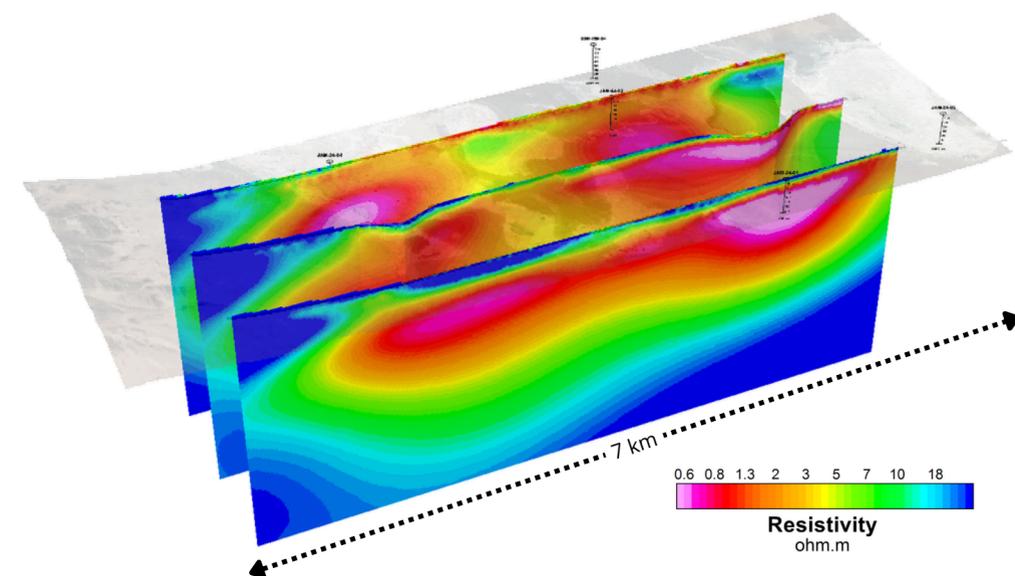
Although Transient Electromagnetics (TEM) has often been employed to image highly conductive brine targets, Magnetotellurics (MT) has proven capable of delivering equally high-resolution imaging while providing greater depth of investigation in these extremely conductive environments.

In addition, MT significantly simplifies field logistics. Although salar surfaces are generally flat, vehicle access can be challenging and, at times, treacherous. Compared to high-power TEM, MT requires less burdensome equipment and installations, reducing operational complexity.

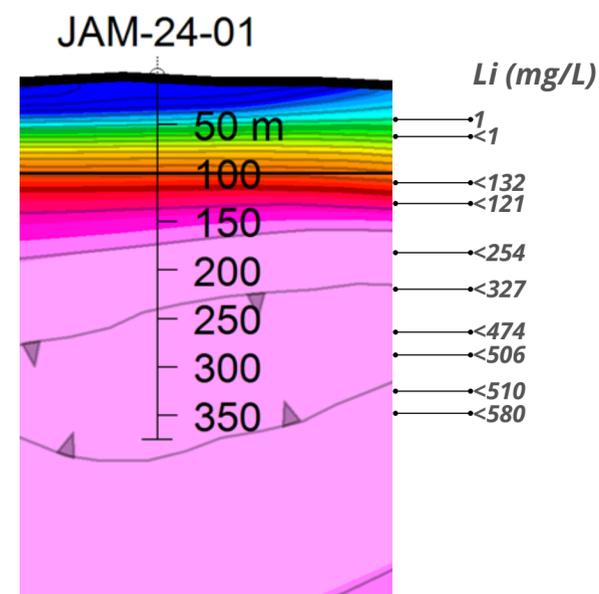
The example shown here presents a magnetotelluric survey conducted over the Fomentera Project in northwestern Argentina. Two-dimensional inversion resistivity sections along three east-west profiles identify intervals where resistivity falls below 1 ohm·m. Drilling on the right-hand side of the nearest section (shown in greater detail in the lower-right image) demonstrates a clear correlation between decreasing resistivity and increasing lithium concentration, reaching over 500 mg/L in the interval contained by the 1 ohm.m contour.



*Fomentera profiles*



*Fomentera - 2D MT Inversion resistivity sections*



*Correlation between decreasing resistivity and increasing lithium concentrations.*