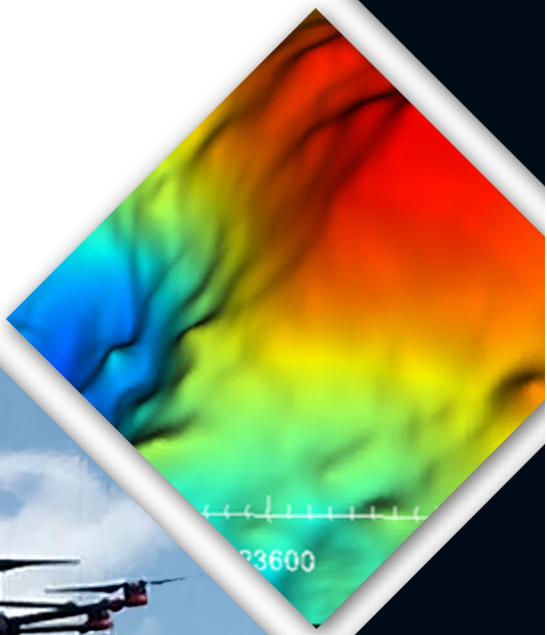
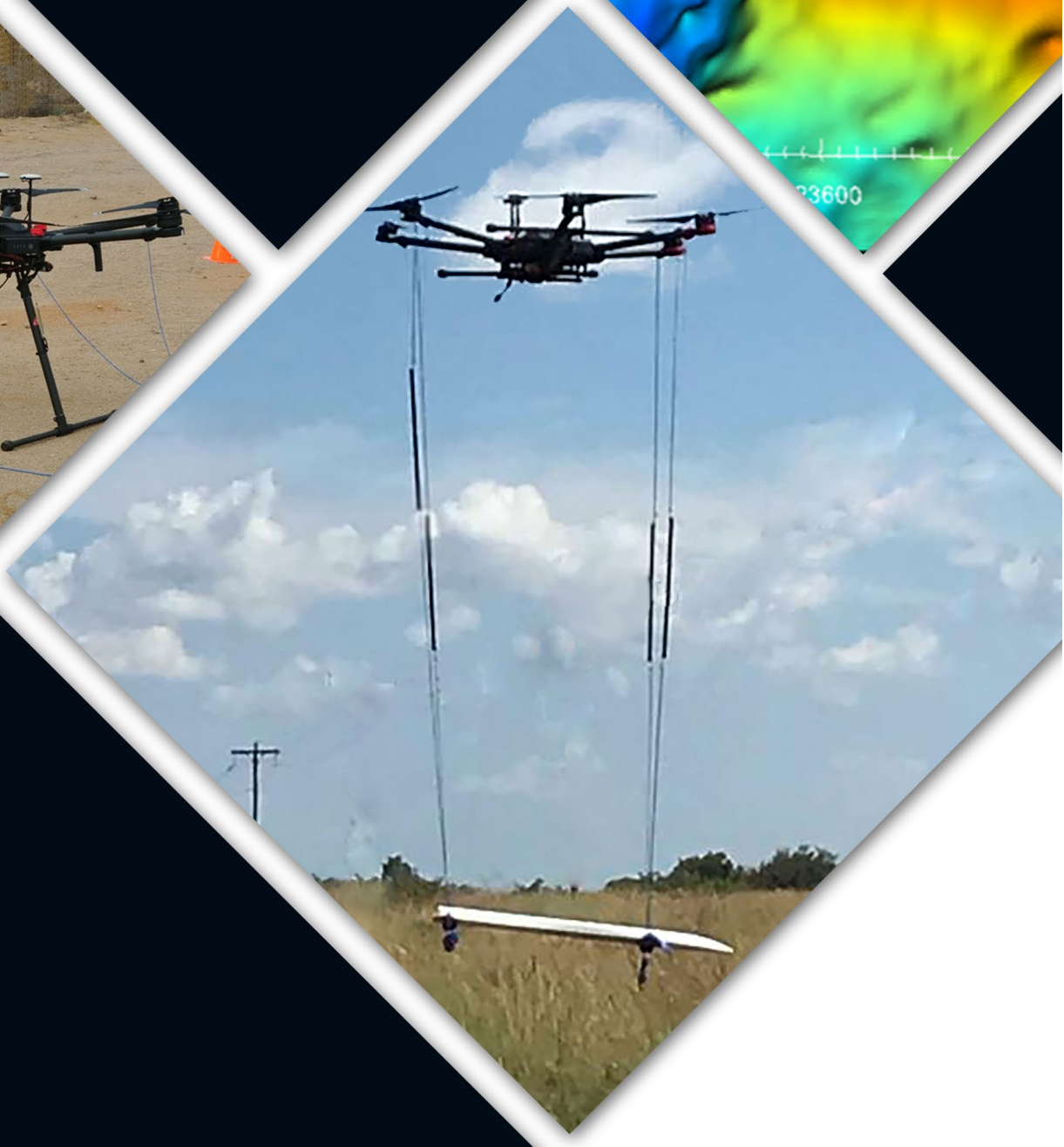
AeroPhysX

A NEW STANDARD IN EXPLORATION TECHNOLOGY

DroneTDEM

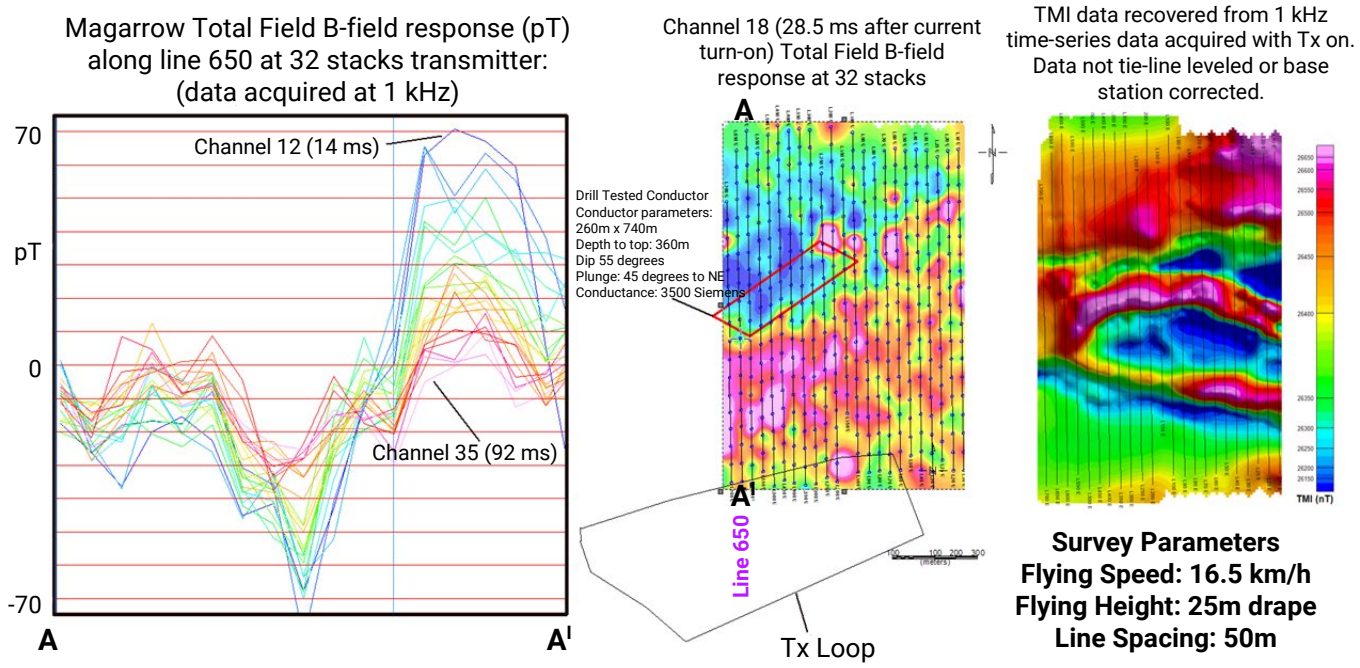
DRONE MAGNETICS AND TIME DOMAIN ELECTROMAGNETICS



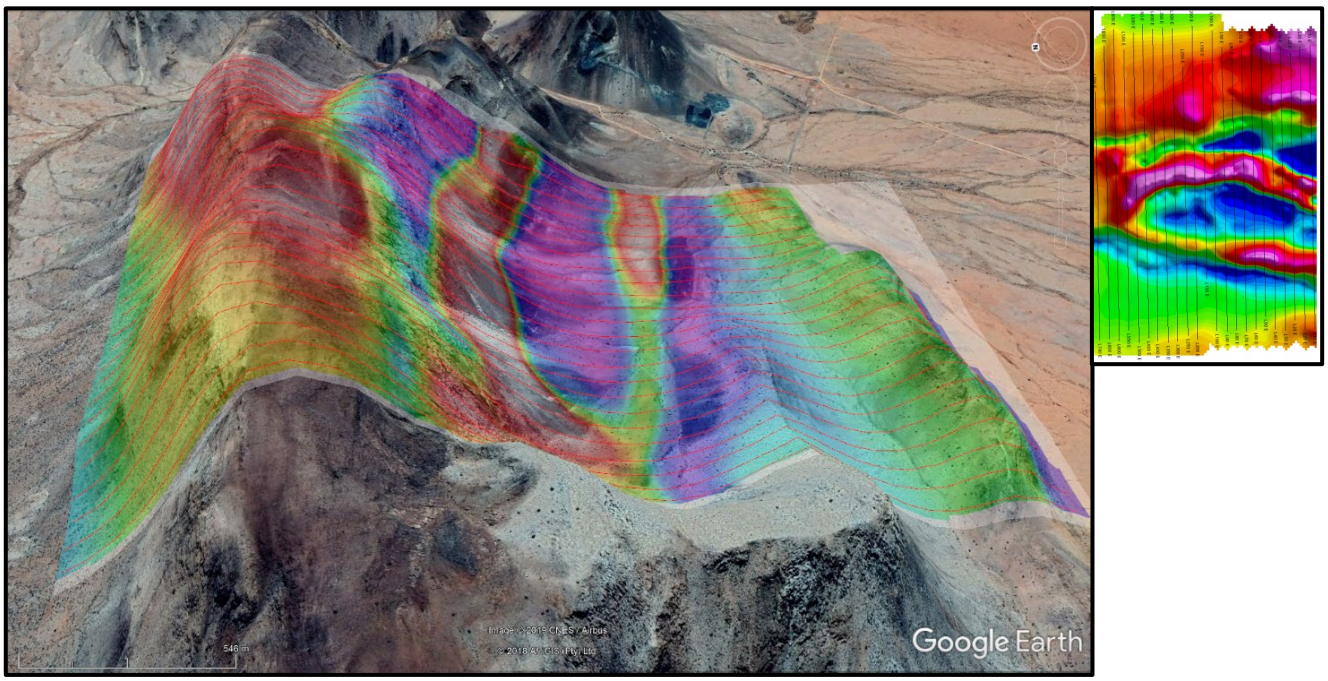


Time Domain or Transient Electromagnetics is a geophysical exploration technique whereby electric and magnetic fields are induced in the subsurface of the earth by manmade electrical pulses of very short duration in cabling, on the surface or above the surface of the earth. Since every electrical current has an associated magnetic field, the behaviour of the induced current can be tracked by measuring its associated magnetic field.

DroneTDEM is our proprietary technique where we measure simultaneously the slowly varying field strength of the earth's magnetic field and in addition, superimposed on this magnetic field, is also the magnetic signature of the fast-changing manmade induced currents in the subsurface.



Using this technique, we can model the ore body precisely in 3D in the ground as long as it is conductive or resistive. This will enable identification of precise target sites for test hole or well drilling.

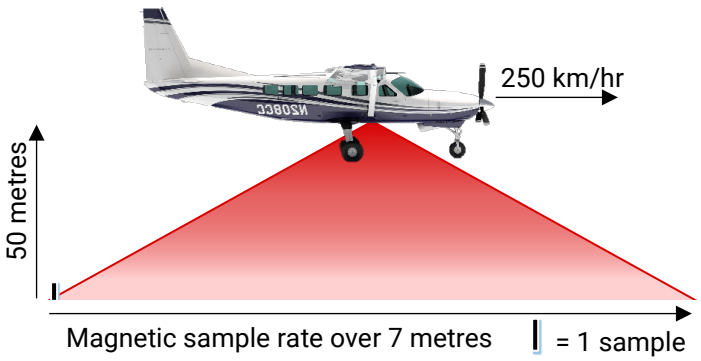


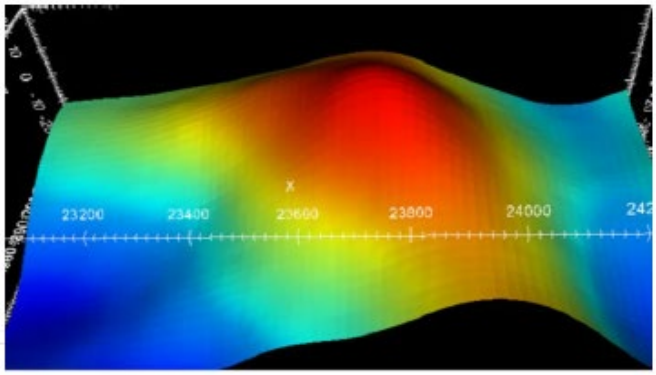
Total Field Magnetic Survey Draped Over Terrain

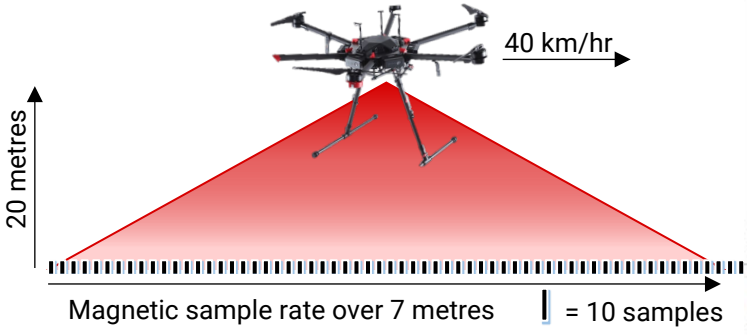
The DroneTDEM system comprises of:

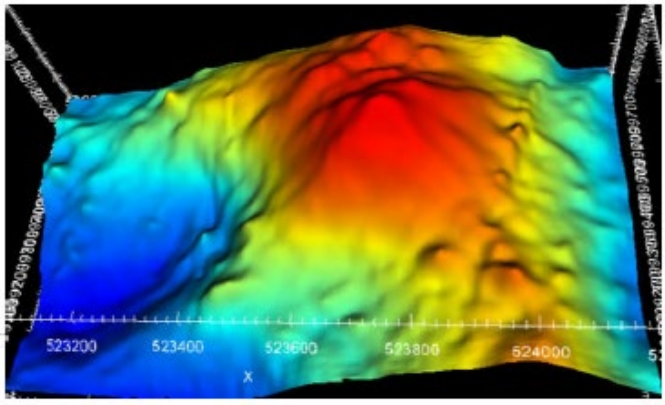
- Drone with large weight capacity and long endurance
- Magarrow - first ever 1000Hz UAV-enabled magnetometer
- Tx Loop
- Flight planning software

The DroneTDEM technique is significantly more cost-effective than standard geophysical exploration work and results in more data to accurately map the ore body. A ground survey would generally only produce about 10 points to be mapped. DroneTDEM would produce hundreds of points to map over the same area. DroneTDEM produces data notably more accurate than an airborne EM survey due to the high sampling rate of the magnetometer, as well as slower speed and lower height parameters only achievable using a drone.



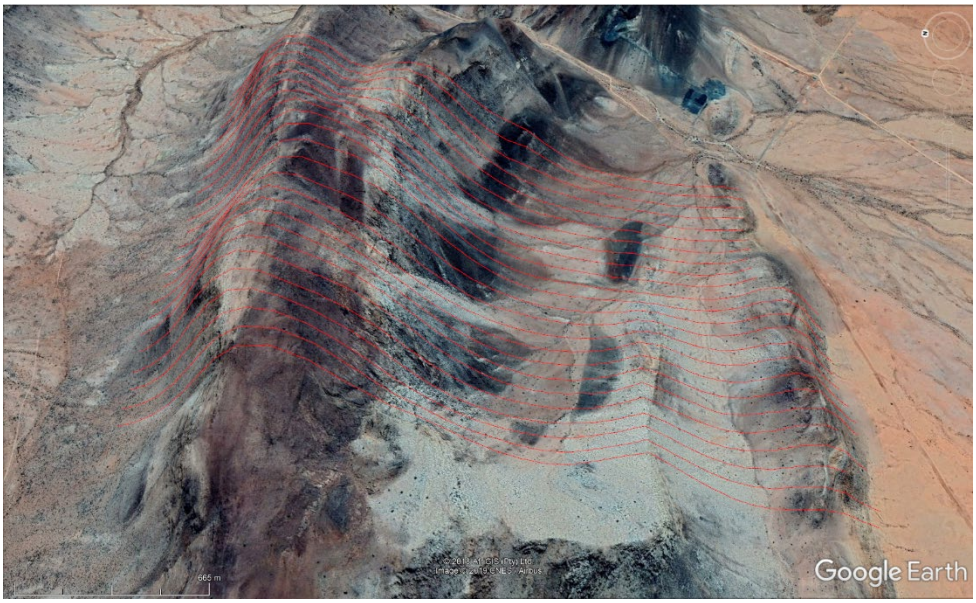




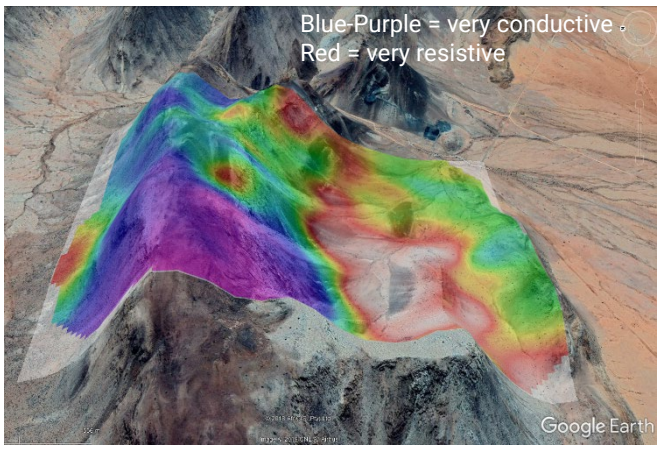


Case study conducted in 2019:

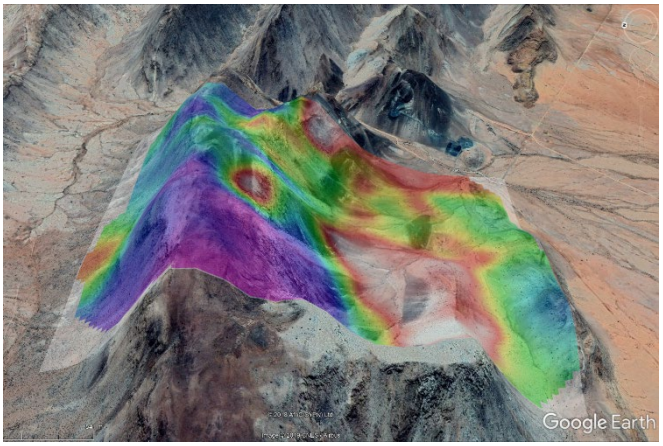
Actual flight path based on previous Lidar survey



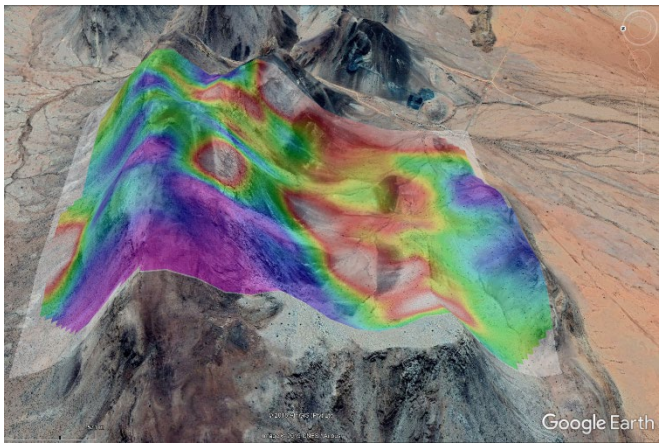
Channel 2, .004 sec after current switch-off



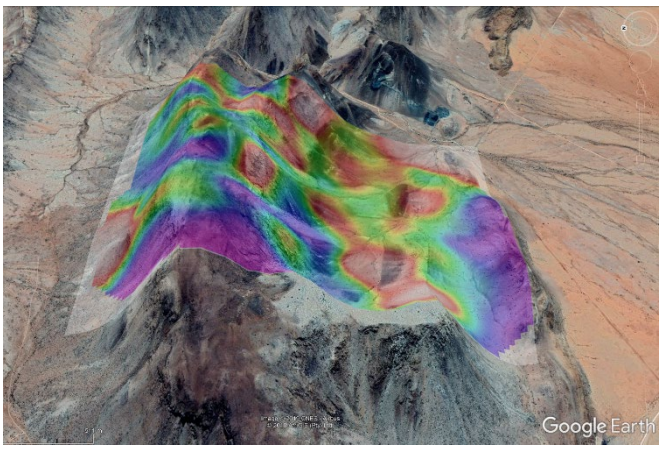
Channel 8, .010 sec after switch-off



Channel 18, 0.0285 sec after switch-off



Channel 35, .092 sec after current switch-off



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