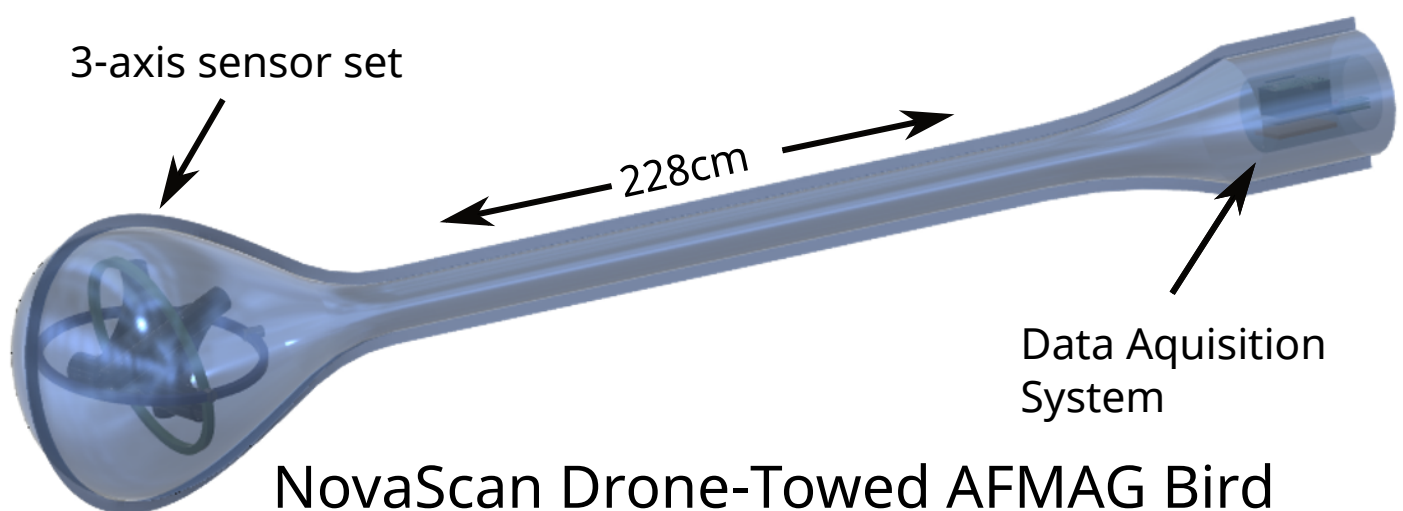


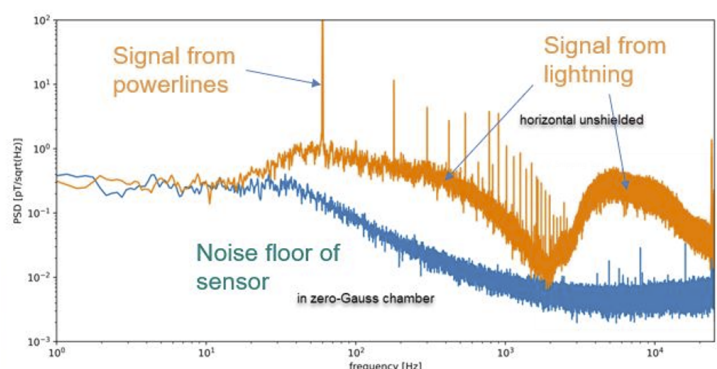
NovaScan Drone-Towed AFMAG System



NovaScan is a lightweight drone-towed AFMAG system under development by Novaminex. It uses passive geomagnetic signals to create subsurface 3D maps of electrical conductivity. In addition to being able to detect shallow mineral deposits, NovaScan will be useful in resolving lithologies and mapping structures. It can provide valuable geological information early in a project's life at a low cost and with low environmental impact. The system comprises a 2m-long bird housing a 3-axis EM sensor assembly in its head and a shielded data acquisition, orientation and positioning system in its tail. It is towed under a drone on a thin kevlar line. Its data are combined with those of its 3-axis base station to provide full-tensor transfer functions extracting the maximum amount of information about the earth's conductivity structure.



Weight: 6.5Kg
Bandwidth: 100Hz-25kHz
Noise Floor: 4fT/rt(Hz) @5kHz
Noise Floor: 80fT/rt(Hz) @100Hz
Data Rate: 50,000 x 3 ch
Orientation: Low-drift gyro
Post processing: Scalar, Full Tensor



NovaScan Flight Testing Sudbury

Early NovaScan testing in AFMAG and controlled-source mode. Upper plots show an AFMAG test conducted over the Broken Hammer Deposit in Sudbury. Three-axis data were collected in the air and at a fixed base station. Coherence of airborne and ground-based sensors is good in the 5kHz-20kHz band (Fig a). Figure (b) shows example of a single spheric event captured in flight compared to same spheric event captured by the base station. Lower plots show results of a controlled-source test. A 150mx150m loop transmitted a 100% duty-cycle square wave (3.2A) at a 1kHz base frequency. A snippet of time series is shown in Figure (f). Data in flight were stacked with 1000 stacks/station (one per second) along the profile starting 400m from the loop and traversing over it. The signal ranges from about 100pT at 400m to 20,000pT over the loop.

