



Ground Penetrating Radar

THE STATE-OF-THE-ART, INTELLIGENT GPR SOLUTION FOR AIRBORNE SURVEYS

What is GPR?

Ground Penetrating Radar (GPR) is a nondestructive and rapid geophysical method that operates by transmitting electromagnetic waves from an antenna that reflects off layers and objects in the ground. These reflections are collected, saved and presented as images of the subsurface.

The MALÅ GeoDrone

The MALÅ GeoDrone is an airborne GPR solution for efficient field work, designed specifically for data collection in open remote, hazardous and inaccessible areas.

The MALÅ GeoDrone uses the latest MALÅ HDR GPR technology, for fast and high quality GPR data collection. Data collection and real-time monitoring is carried out with the user-friendly and cloud connected MALÅ Controller App. The MALÅ GeoDrone antennas are most suitable for automated drone surveying.

The GPR Method

Ground Penetrating Radar (GPR) is an extremely versatile geophysical method, suitable for applications ranging from detecting rebars to conducting deep ice investigations. GPR surveys can be performed on the ground surface or in boreholes. Various antenna frequencies are available for different needs. Additionally, GPR systems can also be mounted on drones for airborne investigations.



The transmitter antenna radiates repetitive short-duration electromagnetic signals into the subsurface as the antenna moves over the surface.

and sand.

GeoDrone 80

The MALÅ GeoDrone 80 is an excellent solution for bathymetry investigations as well as deeper investigations of ice, snow and geological layers (peat, depth to bedrock etc). It is also suitable for the detection of larger objects, sinkholes or cavities (>1 m).

The MALÅ Geodrone 80 has a centre frequency of 80 MHz and a light-weight omnidirectional

antenna construction (3.72 kg / 8.2 lb).

The MALÅ GeoDrone 80 features dual battery operation for extended survey campaigns, exceptional depth penetration, high quality builtin DGPS, GPS Time Synchronization (PPS), MALÅ Motion trig and cloud connection through the MALÅ Controller App for on-site interpretations and data storage.

GeoDrone 600

The MALÅ GeoDrone 600 is an efficient tool for near surface target detection, shallow river surveys, lake bottom profiling as well as ice and snow investigations and shallow geological mapping.

The MALÅ GeoDrone 600 has a centre frequency of 600 MHz and a light-weight directional antenna construction (2.7 kg/5.95 lb).



Electromagnetic waves are reflected back to the receiver by interfaces between materials with differing electrical properties, e.g. ice and bedrock, or peat



The collected traces (also called scans) of the reflections form a 'radargram', the result of the GPR investigations, and is presented to the user, in realtime, as data is being collected.



The MALÅ GeoDrone 600 features the innovative MALÅ Motion Trig technology, PPS support for post synchronization with external RTK GNSS devices, power connectivity with external power sources and MALÅ AI compatibility for automatic hyperbola identification.

Bathymetry investigations

Bathymetry investigations are a common application for airborne GPR solutions like the MALÅ GeoDrone. It enables measurements in freshwater lakes, dams, and rivers, allowing for the investigation of water volume even during periods of high flooding.

lee and Snow investigations

Investigating ice and snow can often be challenging and dangerous due to crevasses, rugged terrain, and high altitudes. With a MALÅ GeoDrone, these areas can be explored more efficiently and safely.

Geological mapping

The MALÅ GeoDrone can be an efficient tool when carrying out investigations of geological layers, such as peat thickness estimations or depth to bedrock surveys, across extensive open areas. The drone allows for automated measurements and can also access otherwise inaccessible areas, such as very wet bogs and peatlands.

Want to learn more?

Check out our webinar covering GPR surveys over water, including GPR theory, survey design, instrument deployment, data processing for water-based surveys, and more.



GUIDELINEGEO

GUIDELINE GEO has been in the geophysics business since 1923 and is the global leader in near-surface geotechnology. Our advanced technology ensures practical solutions to everyday, societal, and global problems. We deliver total solutions in the technological fields of ground penetrating radar, seismic, geoelectrical and electromagnetic measurement. The Guideline Geo AB share (GGEO) is listed on Nasdaq First North Growth Market. We are a Swedish company with international offices and regional partners serving clients in over 100 countries.