

2023 AGC Sensor Status

Presented by:

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Parsons

Available
AGC
Sensors

MetalMapper 2x2 (MM 2x2)

TEMSense

Man Portable Vector (MPV) System

UltraTEM

APEX

MM 2x2 Update



GEOMETRICS

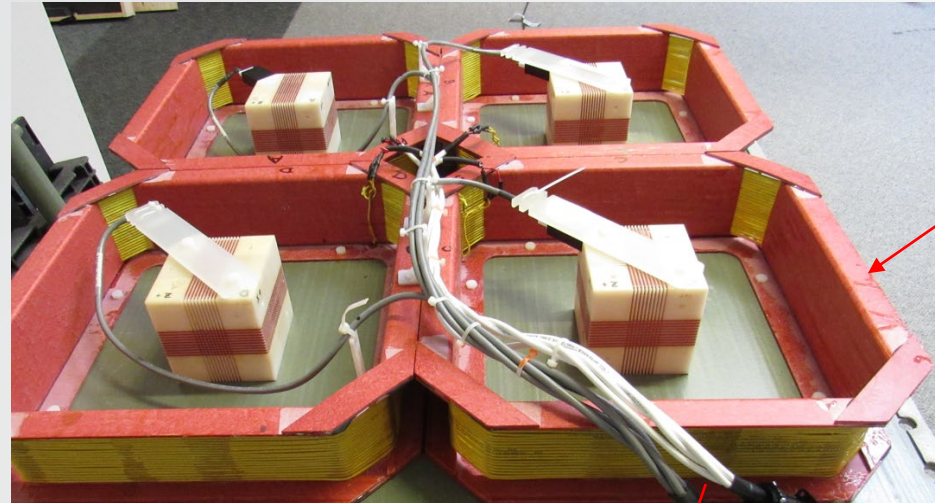
Simplify your search

Updates/Improvements

- Geometrics has made improvements and upgrades in the MM 2x2 system based on customer feedback and common repairs
- Following slides will present these updates/improvements

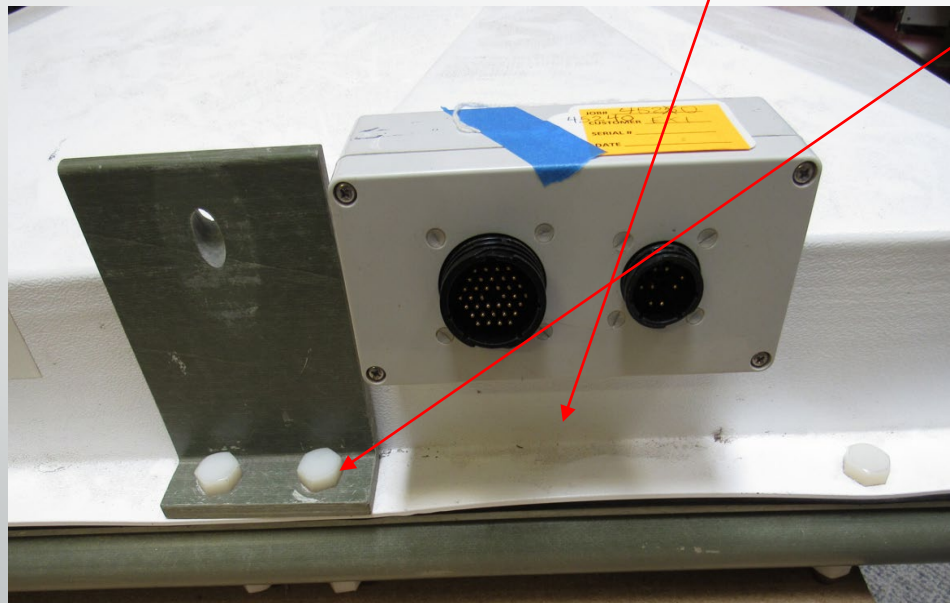


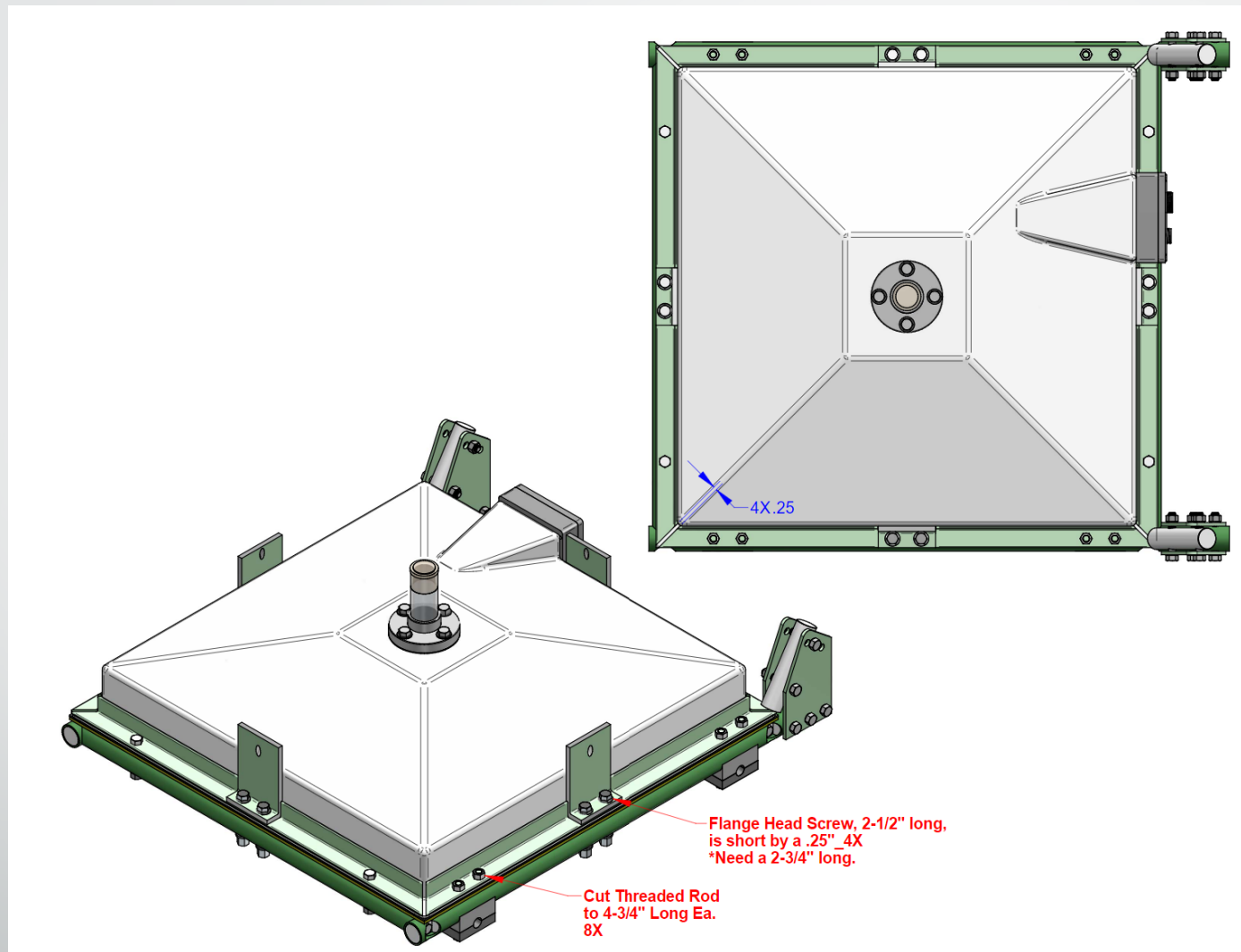
1. Added angle bar to reduce cart house warping, which may allow dust or moisture to enter.



Tx coil edge touching the plastic cover:
trimming edge

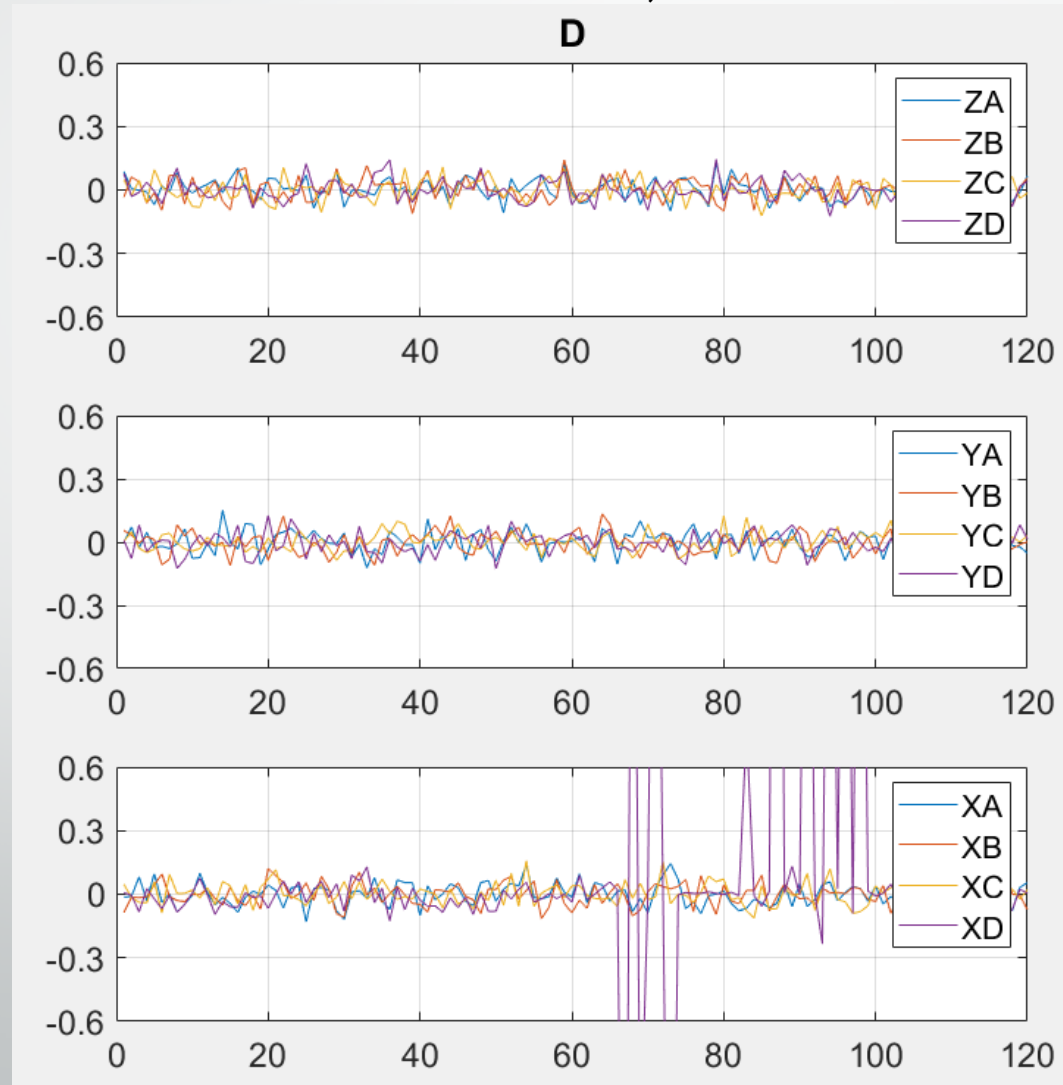
Cover not evenly pressed down:
adding an angled bar





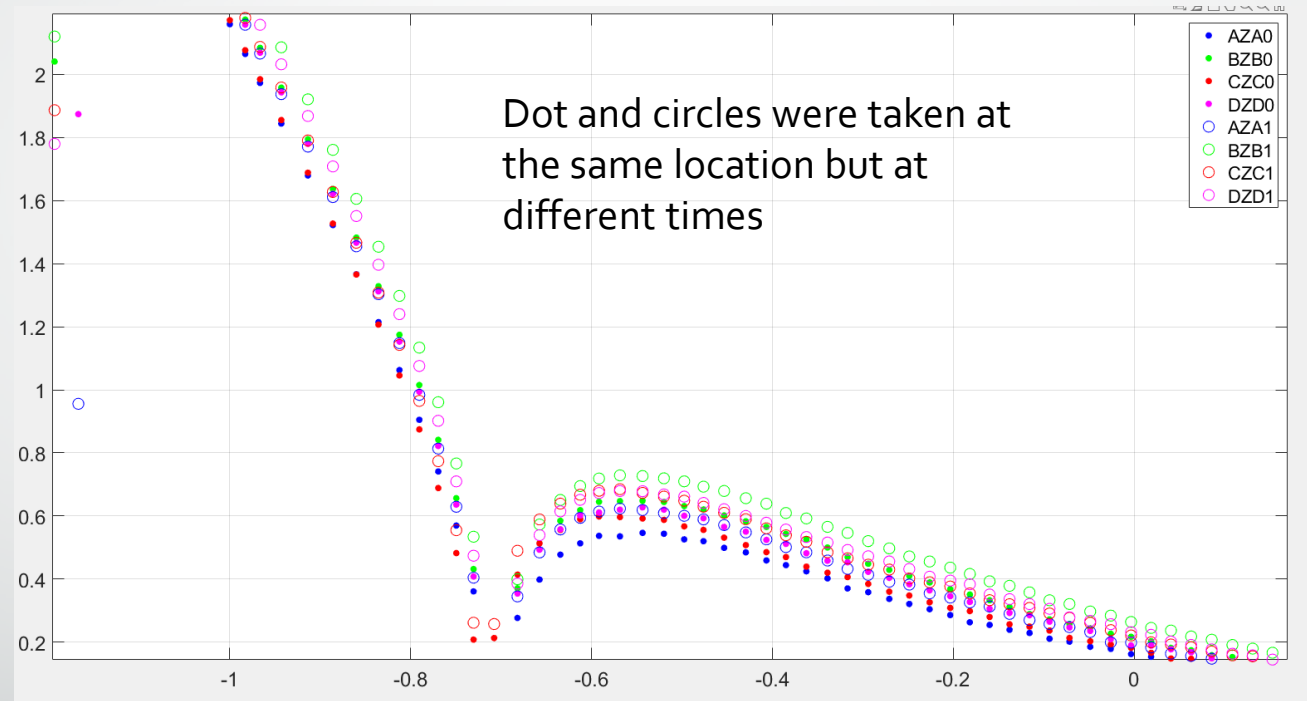
2. QC method for identifying intermittent cabling issues

MATLAB code freely available for analyzing dynamic data (similar to monostatic 5 channel in Geosoft). We can diagnose intermittent cabling issues easier now by recording the dynamic data while the cart remaining stationary and gently shaking the cables (credit to Stuart Bancroft from Jacobs).

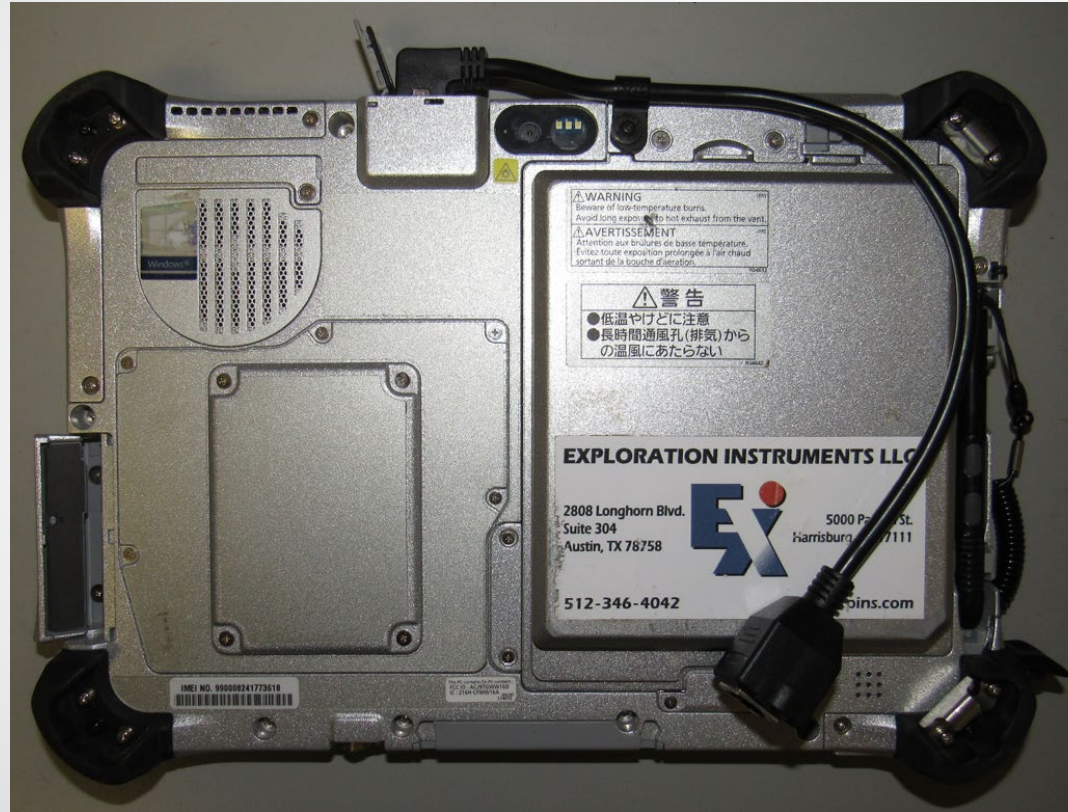


3. Background Drift with temperature changes requires customer to perform multiple background measurements throughout the day.

The background drift is related to the ambient temperature. Currently testing solutions (different wire gauges, twisted wire, temperature coefficient software option)



4. Tablet network connector improvements by adding strain relief



5. Added back-potting to the plastic connectors on both the cables and the cart for improved reliability (less moisture/dust).

New



Old



Metal plate added to reduce interface board breakage



6. Improved connector mounts and upgraded heat sink to mitigate overheating/vibration issues from extended deployments.



7. Long lead time on parts for boards.

Stocking up significantly higher, Geometrics has started this process months ago and are still in the process of getting on the right side of inventory

8. Added 2 backup Electronic Data Acquisition (EDA) boxes to rental pool.

9. Currently outputs HDF5 v1 and awaiting DAGCAP approval for project use

MM 2x2 Update

Available Systems

Owned – (16)

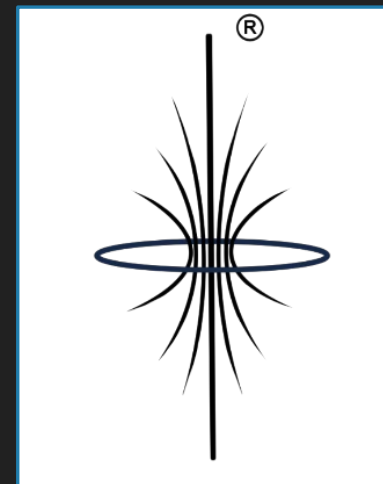
- Weston (6)
- Parsons (3)
- Arcadis (2)
- TetraTech
- FPM
- HGL (2)
- NAEVA
- USACE – Ft. Ord
- Navy

Rentals (3)

- Exploration Instruments (EXI) – (1)
- Geometrics (2 full systems)
(2 spare EDAs)

Manufacture more in 2023 as needed (11-12 week lead time)

TEMSENSE Update



TEMSENSE Update



- Manufacturer: TEMSENSE
- The TenseSense™ platform is fully DAGCAP approved for dynamic, cued, and one-pass operations.
- The system supports the DoD HDF5 EMI v1 specification.
- Although no one-pass surveys were performed in FY 2022 (pending approval), the production unit was in continuous use for the majority of the year at multiple sites, in dynamic and cued modes. There were no system hardware failures for the duration of the 2022 surveys.
- Geolocation systems compatible with TenseSense™ include RTK/GGA, RTS, and Stencil. All have been used successfully for commercial survey operations.
- Multiple systems are available for lease. There are presently no plans to construct units for sale.

MPV Update



MPV Update

- Manufacturer: AcornSI
 - AcornSI take over commercial development and sales from G&G Sciences in 2020
- Hand Held (HH)
- Dynamic and Cued Measurement Modes
- Previous MPV used successfully on projects but durability issues caused the systems to break down often causing the need to have multiple backup components to keep the systems running and avoid schedule delays.



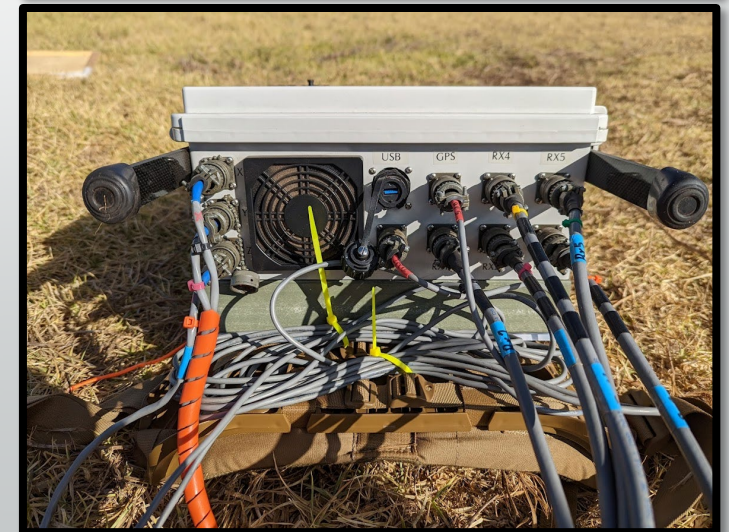
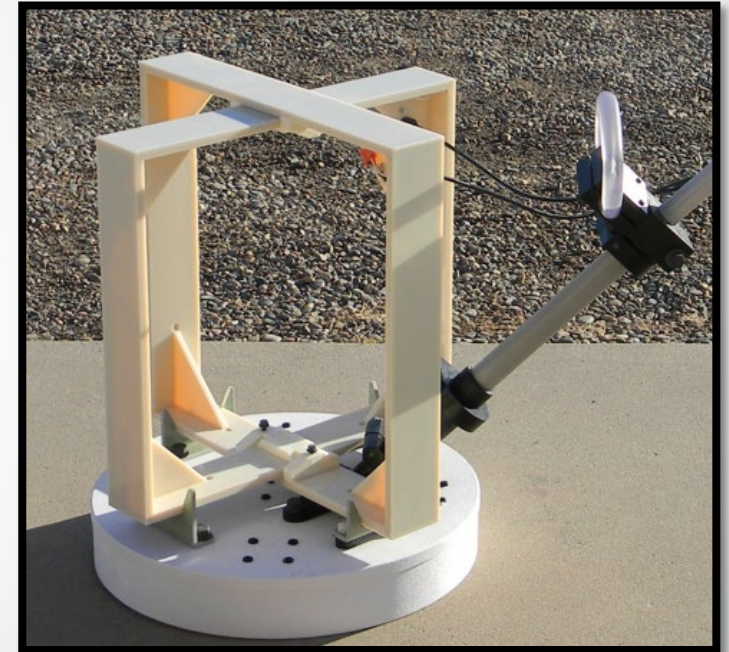
MPV Update

- New prototype with upgraded:
 - Handle boom
 - Connectors
 - Cables
 - Sensor Head



MPV Update

- All electronics housed in protective enclosure (s):
 - Data acquisition computer
 - Data acquisition hardware
 - Custom Transmitter and Receiver boards
 - IMU (handle-top box)
- Fully integrated with Stencil SLAM
- HDF5 (v1) compatible
- Upgraded GUI for dynamic and static collection modes



UltraTEM[®] Update



Gap EOD

Gap Explosive Ordnance Detection



Black Tusk
GEOPHYSICS

UltraTEM[®] Update

Manufacturer: GapEOD supported by BlackTusk Geophysics

- One-pass Classification form factors
- Screener form factors (Dynamic with ISS)

Multiple UltraTEM projects in progress and scheduled for:

- UltraTEM Classifier Towed-Array
- UltraTEM Classifier Portable
- UltraTEM Screener Towed-Array
- UltraTEM Screener Portable



UltraTEM[®] Update

UltraTEM Portable One Pass Classifier System now available:

- Production of 2 ac/day
- 1.8 m Swath
- Push + litter form-factors

UltraTEM Sensors now have tighter integration with Stencil

UltraTEM Software outputs HDF5 v1 for all configurations; awaiting DGACAP validation for HDF5 v1 format



UltraTEM[®] Update

- Mid 2023 - BTField capabilities will be extended for acquisition of cued data as well as to allow users to self process and classify cued data and one pass classification data.
- UltraTEM Hand-held array planned for 2023. Swath width of 0.6 m
- UltraTEM Marine demonstrated through ESTCP Program. Pathway for accreditation in discussion with DAGCAP.



UltraTEM[®] Update

Multiple sensors available for lease. Long term project lease are options available.

Available Systems

Current April 2023

- 3 x UltraTEM Classifier Towed-Array
- 2 x UltraTEM Classifier Portable
- 4 x UltraTEM Screener Towed-Array
- 5 x UltraTEM Screener Pedestrian

Upcoming Late 2023

- 4 x UltraTEM Classifier Portable
- 3 x UltraTEM Classifier Hand-held (0.6 m)

APEX Update



**white river
technologies**

APEX Update

Manufacturer: White River Technologies

DAGCAP Accepted:

- Dynamic One-Pass Classification
- Dynamic-Cued Classification
- Dynamic Informed Source Selection

2023 Highlights:

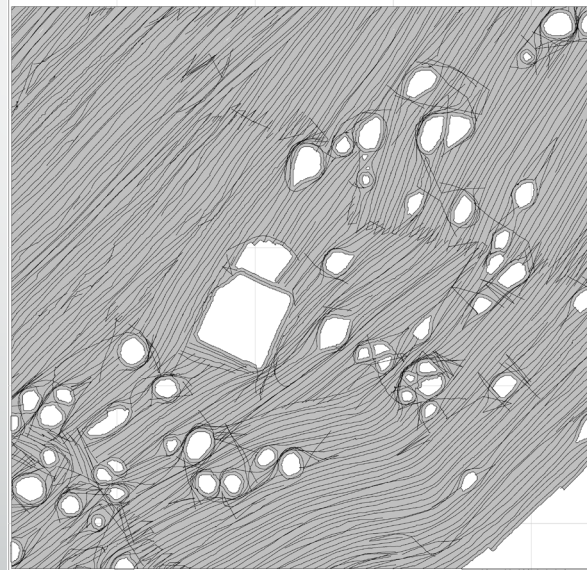
- Third-Party QA seeding projects (dynamic-cued)
- RA/RD projects (dynamic one-pass grid sampling)
- RI/RD projects (dynamic one-pass transect sampling)
- Currently outputs HDF5 v1 and awaiting DAGCAP approval for project use



APEX Update

2022/2023 Improvements:

- Optimized data collection and processing workflows for AGC/SLAM operations
- Flexible deployment configurations minimize gaps around trees/obstructions
- Flexible survey design maximizes efficiency in wooded or obstructed areas
- Outputs HDF5 V1 format, anticipating HDF5v1 DAGCAP validation in Spring 2023



APEX Update

Available Systems

Multiple APEX sensors available for short or long-term leases, including:

- Person portable systems
- Towed array systems
- Litter systems



AGC Sensor System Usability Chart

Sensor	Hand Held Cued	Hand Held Dynamic	Hand Held One-Pass	Litter Cued	Litter Dynamic	Litter One-Pass	Push Cart Cued	Push Cart Dynamic	Push Cart One-Pass	Towed Array Dynamic	Towed Array One-Pass
MM 2x2							●	●			
TEMSENSE							●	●	●		
MPV	●	●		●	●						
UltraTEM	12-23	12-23	12-23	6-23	●	●	6-23	●	●	●	●
APEX				●	●	●	●	●	●	●	●

Date In Development

● DAGCAP Accepted

● Dynamic One-Pass

Summary

- ✓ Commercial AGC sensors are absolutely needed
 - ✓ AGC is the preferred method of investigation by DoD
- ✓ Flexibility
 - ✓ Multiple terrains and environments
 - ✓ Cued & dynamic capabilities
 - ✓ Arrays
- ✓ Durability – Reduce cost and schedule risks
- ✓ Better documentation - User reports, bug reports, fixes, lessons learned, technical specifications
- ✓ Industry, government, AGC sensor and software providers need to continue and improve communication
- ✓ HDF5 V1 file format is being implemented by equipment manufacturers

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