A POTPOURRI OF HOT AGC TOPICS

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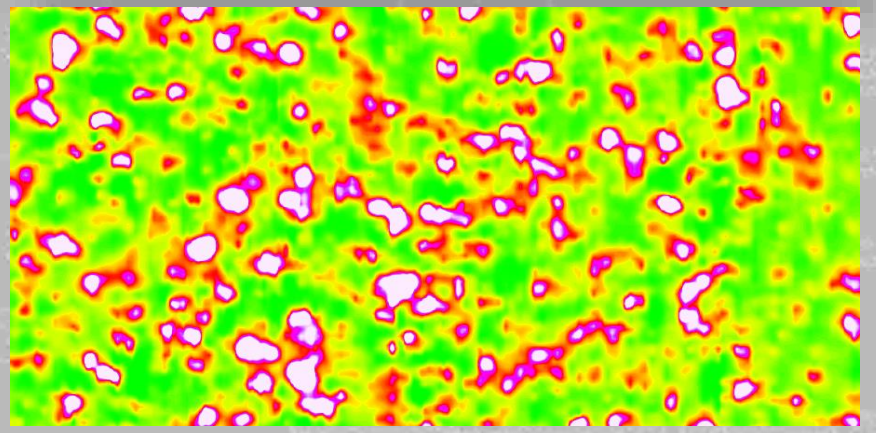
USACE-EMCX
11 December 2019



US Army Corps of Engineers®

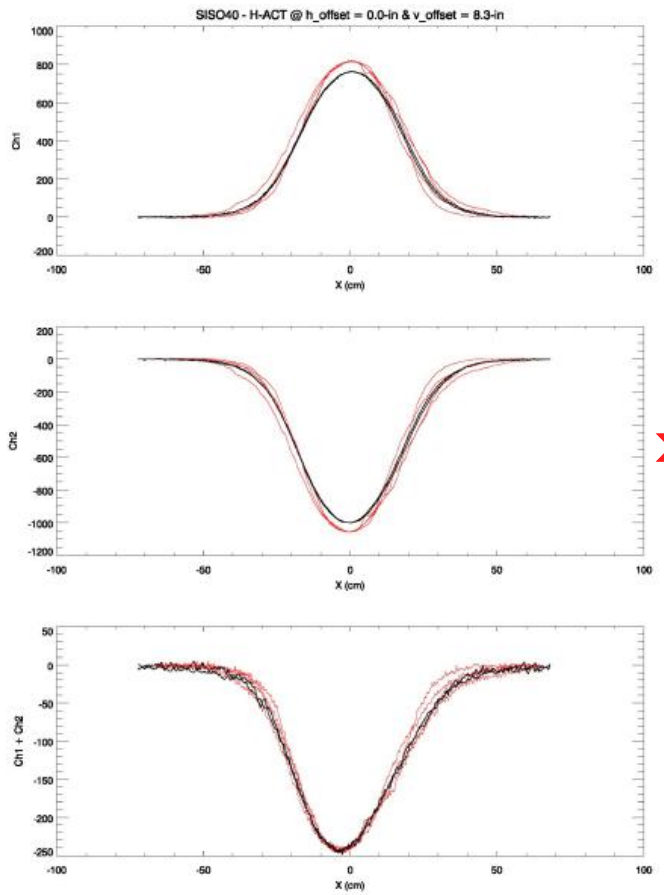
OVERVIEW

- Fancy Analog Instruments
- QSR 2.0
- DDESB
- SES Signature for Analog
- Software & Hardware Validation
- MR-QAPP Implementation Pilot Plan

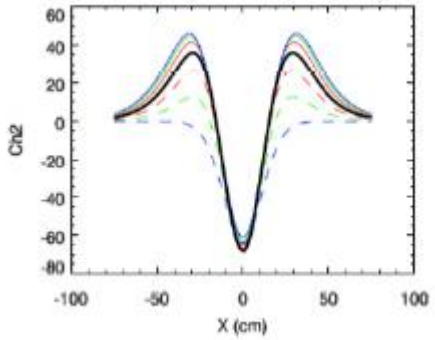
"We lost the UXO Guys at 'technology' and the scientists at 'quality.'"

-Anonymous Fool, 2019

FANCY ANALOG INSTRUMENTS



PDM8 example output



- BLUF: Must be viewed as an ANALOG instrument and tested as such (QC/QA/Verification/Validation/etc)
- Newer tools are coming out of research phase and may move this type of equipment to true DGM realm.

DOD QUALITY SYSTEMS REQUIREMENTS 2.0

The DoD Quality System Requirements version 2.0 (QSR) for Advanced Geophysical Classification was published in January 2019. The QSR introduced multiple changes, two of which affect how Performance Work Statements (PWS) and project specific QAPPs are written.

First, the DoD QSR requires that the following personnel be identified, however named:

- *Corporate Manager: i.e., the person having 1) overall responsibility and accountability for conforming with these requirements and 2) authority to commit resources on behalf of the GCO.*
- *Technical Manager: i.e., the person responsible and accountable for managing all technical operations of the GCO.*
- *Quality Assurance Manager: i.e., the person responsible for monitoring and implementing the GCO's management system.*
- *Project Geophysicist: i.e., the person responsible and accountable for implementing and overseeing project-specific technical operations for a specific client and contract*
- *Quality Control Geophysicist: i.e., the person responsible and accountable for implementing and overseeing project-specific quality systems at a given Munitions Response Site.*

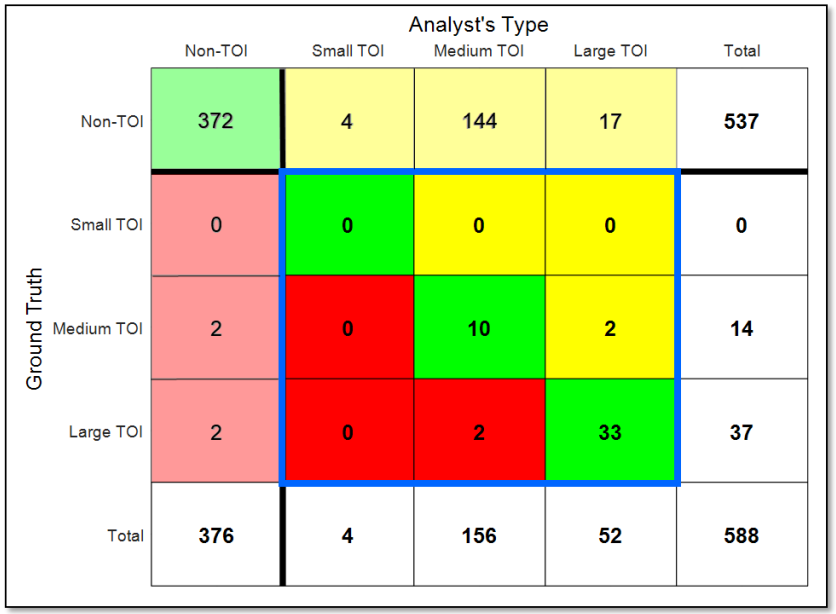
The GCO shall maintain current job descriptions defining roles and responsibilities for management personnel. With appropriate training and qualifications, personnel may fill more than one role; however, if management personnel have technical responsibilities, they may not perform oversight of their own work.

PWSs and QAPPs should properly cite/reference the above positions.

Second, Section 5.2 of the DoD QSR states that the *Quality Control Geophysicist is responsible for implementing and overseeing project-specific quality systems at a given Munitions Response Site. Section 7.1.1 c) expands the above requirement in situations where there's more than one contractor and states: "In cases where more than one accredited GCO provide services in support of a specific project (i.e., specific client and contract), the contract and project-specific QAPP shall define one QC Geophysicist with overall responsibility/accountability for the project, and identify one management system under which all work shall be performed. The DoD customer shall provide written approval of the arrangement prior to field work."* The communication drivers and organizational chart must reflect the above. Additionally, please ensure there is a communication pathway between the USACE Geophysicist and the GCO QC Geophysicist.

Any questions on the above, please contact me.

DDESB- AGC ADJUSTING MSD



Ground Truth \ Analyst's Type	Non-TOI	Small TOI	Medium TOI	Large TOI	Total
Non-TOI	372	4	144	17	537
Small TOI	0	0	0	0	0
Medium TOI	2	0	10	2	14
Large TOI	2	0	2	33	37
Total	376	4	156	52	588

TOI events = true TOIs detected and correctly classified

- Plan is for 2-year “data gathering” period to further assess results post-DAGCAP/QAPP/QC/QA/QSR
- QAPP requires 100% correct prediction or RCA/CA
- Please have Project/DC geophysicist connect with John Jackson for data mining effort

Overall unweighted averages:

- 89.85% (5,065/5,637) of TOI size predictions matched ground truth
- 7.38% (416/5,637) of TOI size predictions were larger than ground truth
- 2.77% (156/5,637) of TOI size predictions were smaller than ground truth

MR-QAPP SES SIGNATURE

As further provided and explained in The DoD/EPA Management Principles, adequate characterization of ranges, which is necessary to make informed risk management decisions and conduct effective response actions, requires the following:

- A permanent record of the data including a clear audit trail of data analysis and resulting decisions and actions. ***Exceptions should be limited to emergency response actions or cases where impractical.***
- Selection of the most appropriate and effective detection technologies.
- Regulatory and public involvement when selecting the most appropriate detection technologies at a site.

Analog:

- Data quality depends on human factors that cannot be measured (including attentiveness/distraction and hearing ability).
- Decisions are made in the field based on the operator's judgment.
- The instrument response provides no information regarding the source of the anomaly; therefore, it is unable to distinguish munitions from non-hazardous debris or geology.
- The probability of detection, for munitions of concern, has been demonstrated to be between 50 and 72% (ITRC 2006).
- No permanent electronic record (of either location coordinates or instrument response) is provided; therefore, no auditable decision record exists.

MR-QAPP SES SIGNATURE (CONT)

Because of significant developments of geophysical technology during the past ten years, analog tools currently do not represent the best available science for most applications. Specifically, they do not provide a permanent, auditable record of the data, and do not generate data capable of being substantially reproduced. Developing rigorous QC measures capable of assessing operator performance is more challenging and less precise than for digital methods. For these reasons analog geophysical tools should not be used for munitions response activities, except in rare cases where threatened or endangered vegetation or difficult terrain precludes the use of digital tools. Furthermore, when using analog technology and making analog data publicly available, project teams must disclose the uses and limitations of the data; specifically, the probability of detection is inferior to that achieved using digital methods and the manner in which coverage is assessed is qualitative and subjective.

9. The undersigned concur that the use of analog technology is justified in area (to be completed)
   a. Lead Organization, Flag Level

   _____

   (name/title/signature/date)

   b. Lead Regulatory Agency

   _____

   (name/title/signature/date)

- Follow the DD procedures for signature.
- EMCX is tasked with insuring signature is obtained prior to finalizing QAPP and mobilization.
- Pilot Study will look at obtaining signature as part of Phase 1 & 2 (pre-RFP)

SOFTWARE/HARDWARE VALIDATION

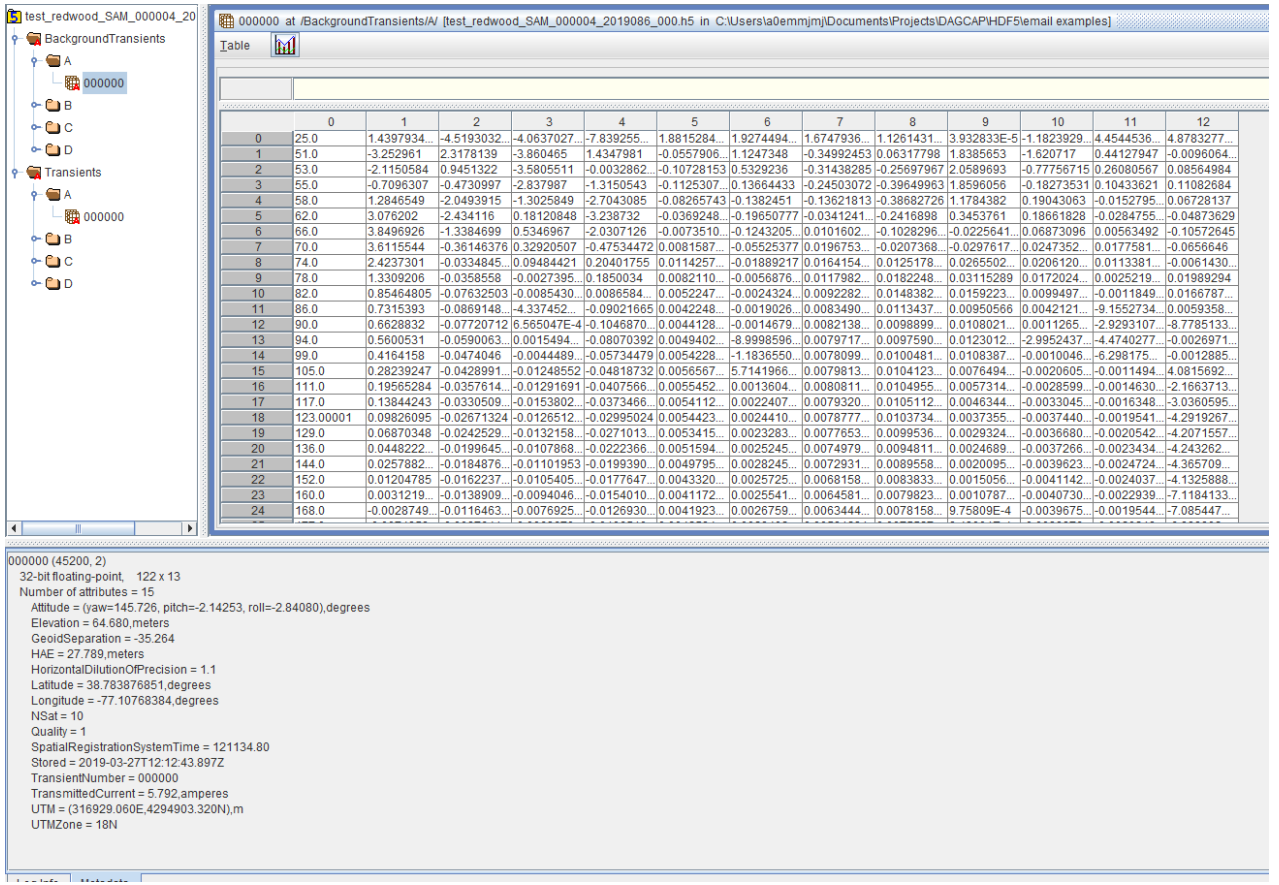
Currently validated software:

- UXAnalyze (various versions)
- UXOLab (various versions)
- EMCLASS (various versions)

Currently approved hardware:

- MetalMapper 2x2
- TEMTADS
- MPV
- UltraTEM

HDF5 Standardization: 30 June 2020



MR-QAPP IMPLEMENTATION PILOT

SWD	SWF	A06LA0006	FORMER CAMP CLAIBORNE	08	Impact Area 5 (MRS-5)	MMRP	RD
NWD	NWO	B08WY0649	FORT FRANCIS E. WARREN TAR & MANEUVER RGE	01	Multiple Use Range	MMRP	RA-C
NAD	NAE	C02NY0713	SUFFOLK CO AAF&B&C RGE	01	Bombing & Gunnery Range Complex	MMRP	RI/FS
NAD	NAE	C02NY1127	COLD SPRING FOUNDRY	02	Impact Area/Storm King Sector B	MMRP	RI/FS
NAD	NAB	C03VA0202	PLUM TREE ISLAND RANGE	04	Northern Bomb Cluster	MMRP	RA-C
NAD	NAE	D01MA0595	CAPE POGE LITTLE NECK BOMB TARGET SITE	01	Cape Poge Bomb Target - Land	MMRP	RA-C
POD	POA	F10AK0228	TANAGA ISL	03	Multi-Use Range Complex	MMRP	RI/FS
NWD	NWK	F10ID0128	POCATELLO BOMBING RANGE #3	01	Pocatello Bombing Range #3	MMRP	RD
POD	POH	H09HI0119	HEEIA COMBAT TRAINING CAMP	03	Heeia Kea Training Area	MMRP	RI/FS
POD	POH	H09HI0359	Waikoloa Maneuver Area	04	Areas B, O, Q and J-Remnants	MMRP	RA-C
SAD	SAJ	I02PR0069	DESECHEO ISLAND	01	Bombing Ranges	MMRP	RI/FS
SAD	SAS	I04SC0016	CP CROFT	07	Maneuver Area/Croft State Park	MMRP	RA-C
SPD	SPK	J08UT1108	Fort Douglas	01	Impact Area	MMRP	RI/FS
SPD	SPL	J09AZ1067	FORT HUACHUCA	04	Artillery/Mortar Range, Target Area B	MMRP	RA-C
SPD	SPL	J09CA2031	CAMP SAN LUIS OBISPO	05	Multi-Use Range Complex	MMRP	RI/FS
SPD	SPL	J09CA7281	MOJAVE GUNNERY RANGE	01	Bombing Target	MMRP	RD
SWD	SWT	K06AR0029	CAMP ROBINSON/CAMP PIKE	10	Central	MMRP	RA-C

- 1 RI & 1 RA per design center plus bonus requests
- IDQTF team will provide support
- Implement planning sessions 1 & 2 (pre-RFP) with IDQTF team representatives
- Contact Brian Jordan/John Jackson with questions/concerns/anger

RI/FS
RD Field Work
RA

QUESTIONS?