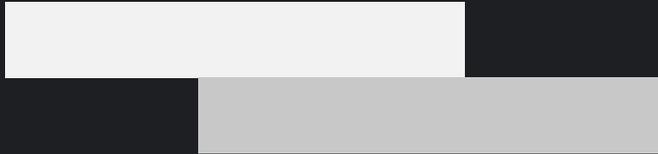


Synthetic Seeding for AGC Surveys

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Problems / Motivation

- For dynamic surveys, how can we demonstrate that we are able to meet the projects objectives throughout the survey area. To answer questions like:
 - Are there areas, where due to site noise items could be missed?
 - On my site - how deep can you classify anomalies correctly?
- Co-located seeds were not always correctly identified in cued/static surveys.
- Can the assessment of background measurements be improved?

Note: These presentation is forward looking, while I hope these will be in the next release this may change.

Synthetic Seed Dynamic Data

- Add a synthetic seed responses to survey data
 - Location, random within a defined area but avoid anomalies
 - Depth, random within a range
 - Orientation - Inclination (Horizontal/Inclined/Vertical) or random
- A new datatype, DSD
- Preparation for seeding
 - Data processing
 - Leveling
 - Background removal
 - Create Located Database
 - Create Amplitude grid
- Post seeding (just like DAM)
 - Create Located Database
 - Create Amplitude and Coherence Anomaly grids
 - Pick targets
 - Classify and Rank
- Report on Seeds Statistic

Synthetically Seed Dynamic Database

Survey (DAM) data

- * Database prefix: T1_DAM
- Lines to process from located database: Selected lines
- * Sensor channel suffix: NORM_LEV
- Gates:
 - Low: 5
 - High: 18
 - Time gates (ms): 0.134 to 2.428
- * Pitch channel: LUXA_PITCH_FILTER
- * Roll channel: LUXA_ROLL_FILTER
- * Heading channel: LUXA_YAW_True_FILTER
- * Survey line direction (deg): 6.4
- * Amplitude anomaly grid: T1_DAM_AmpAnomaly.grd(GRD)
- * Background amplitude threshold (V/A): 0.23
- Area to seed (blank entire grid area):

Library database

- * Name: SiteLib3ms.gdb
- * Group: ISO
- * Item description channel: LUXA_LIBRARY_ID

Seeds

- * Item: Medium ISO 40--TEM2X2X3-BP_71_002_11
- * Depth (m): Min: 0.00, Max: 0.40
- Orientation: Horizontal
- * Number: 50
- * Output database prefix: test1

OK Cancel



Calculate Seed Statistics

- Easy to use for AGC data
- Ideally your seed data include:
 - Depth
 - Signal amplitude
 - Polarizabilities
 - Size and Decay
- Output
 - Add result channels to the seed database
 - Identify the seeds in the source database
 - Export seed results to a CSV
 - Summary plot
 - Map

Calculate Seed Statistics

Source database

* Name: T1_DAM_Source.gdb

Group: Target

Mask channel:

* Size channel: UXA_SIZES

* Decay channel: UXA_DECAY14

Seed database

* Name: Test1_DynSeed-GT.gdb

Group: DSeeds

Mask channel:

Seed type: Synthetic

* Seed Id channel: ID

Depth channel (m): Depth_m

Signal amplitude channel: UXA_SigAmp

Size channel: UXA_SIZES

Decay channel: UXA_DECAY14

Output

Create map

New map Existing map

* Name: seed1.map

Map template (page): landscape ledger

Map scale: 43.73975

Map symbol size (mm): 2

Plot non-seeded sources

Plot legend

X Location (mm):

Y Location (mm):

* Text report name: Seed1.csv

OK Cancel

Less

Thresholds

* Maximum horizontal (radial) distance (m): 0.25

* Maximum vertical/depth (BGS) distance (m): 0.15

* Minimum model fit coherence: 0.8

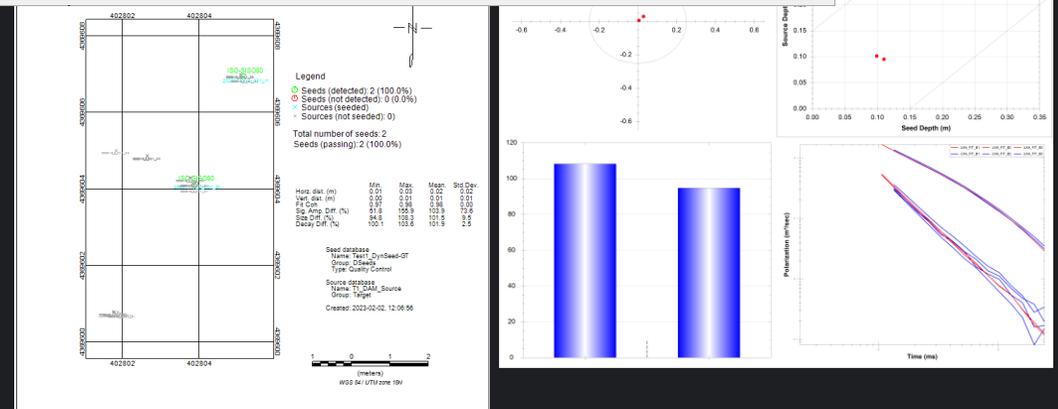
* Maximum inverted and sensor distance (m): 0.4

* Maximum signal amplitude difference (%): 25

* Maximum size difference (%): 10

* Maximum decay difference (%): 25

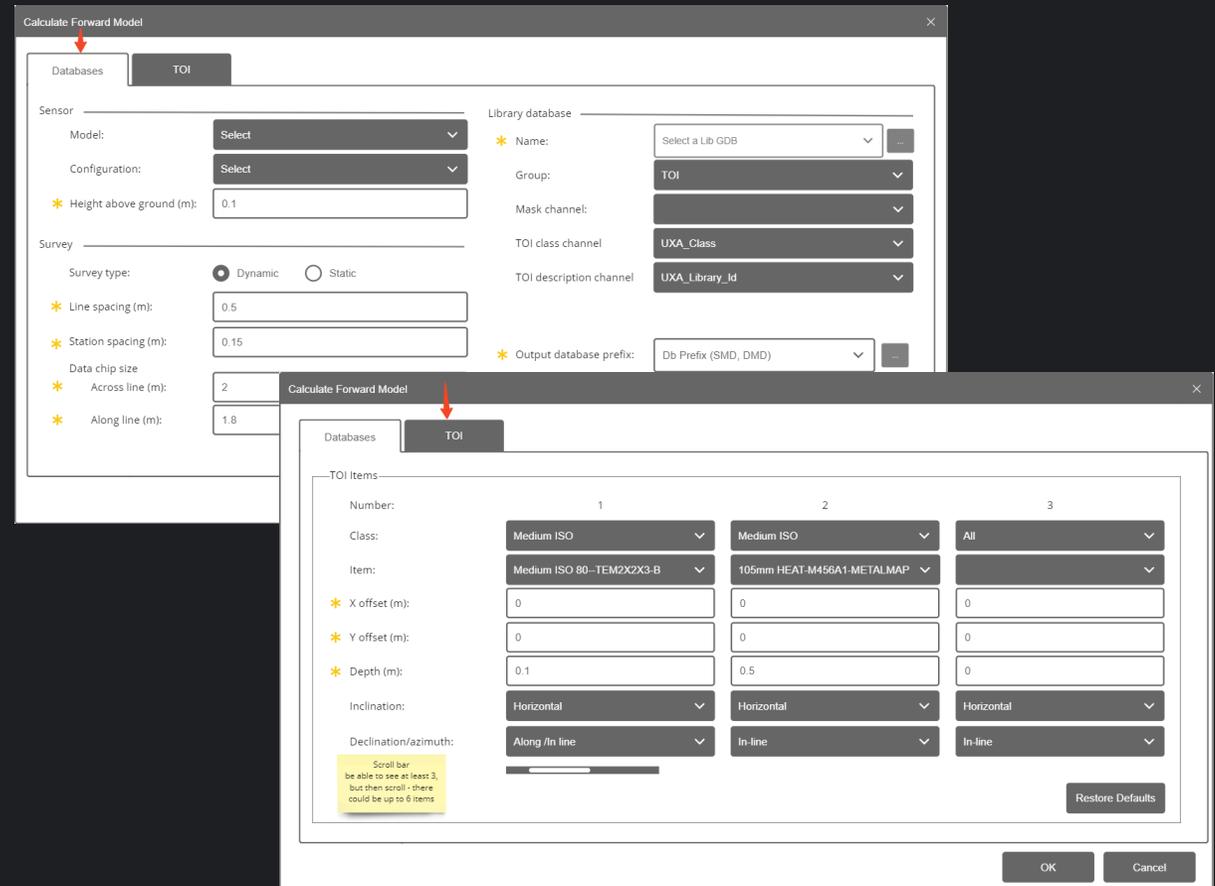
Restore Defaults





Forward Modelling

- Easier to use tool
 - Separation from Depth Response Curve
- Add support for:
 - dynamic (multi-shot) measurements
 - multiple TOI

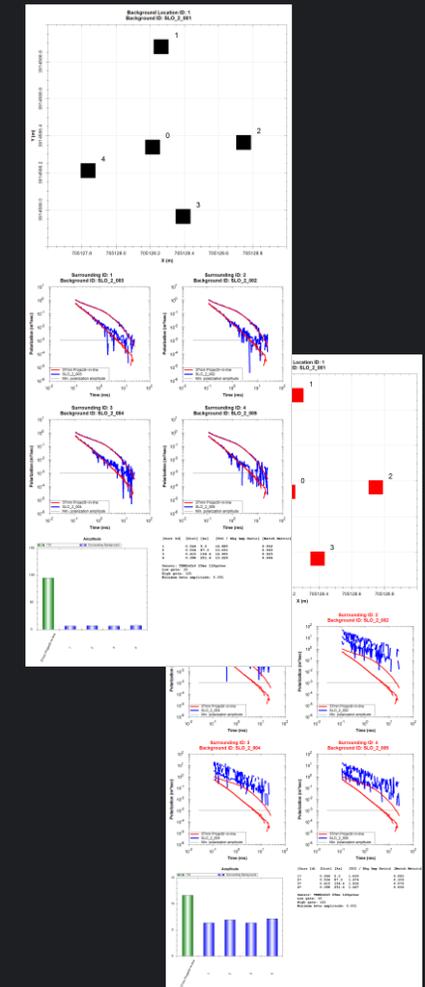




Background Location Validation Test

- Update to support multiple items

Note: For static/cued surveys, this tool along with the depth response, can be used to understand the limitations for AGC at a site.





Synthetic Seed Static Data

- Add synthetic seed to other static/cued data
 - Primarily background measurements (SBG)
- A new datatype SSD

Add Synthetic Seed to Static Data

Survey data

- * Database prefix: Db Prefix (SBG, SQC, SAM, SXM, SSD)
- Group name: Targets
- * Mask channel: Mask
- * Sensor channel suffix: Norm_Lev
- Gates: Low: FirstUseable, High: Last, Also Delay gate
Time gates (ms): 0.134, 2.428

Fwd Model / Synthetic Data

- * Database prefix: Db Prefix (SMD)
- Group name: Targets
- * ID channel: UXA_Target_ID
- * TOI description channel: UXA_Identification
- * Selected TOI: Medium ISO 80...
- * Sensor channel suffix: UXA_Data_Norm
- * Output database prefix: Db Prefix (SSD)

OK Cancel



What now, and next?

1. Do you have feedback and can provide data examples?

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2. Explore how can synthetic seeds help with improve AGC quality control, supplementing physical seeds?

- Enable a better understanding of the limitations of the current technology.
- Where can we (as the industry) further improve?

