

MAC Assessment Tools

Version Notes (updated 2025-10-28)

2025-10-28 New versions (v2025.X) posted for most tools following several iterations with AI review / code improvements for stability and compatibility. These are now bundled with all packages into a single, smaller .exe for download.

There are known layout challenges that will be addressed in future releases. Please reach out to mac-help@unols.org with descriptions of unexpected behaviors and example files if issues arise.

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Swath Coverage Plotter

2025+ versions

2025.08 (2025-10-28)

New version with many updates, including:

1. Convert coverage files to swath .pkl files for faster processing / reloading of large datasets
 - a. Similar to archive .pkl files in previous releases, but with a single .pkl for each raw file

2. Export all images from a single button

Previous versions

0.2.4 (2025-03-31)

Update to support EM2042 model info. Will need to update other apps accordingly.

0.2.3 (2022-06-22)

The user may now scan files for params only (faster) and then process full coverage (slower), or add/remove files and change types of processing without removing/reloading files. For instance, the user might want to scan a large batch of files to quickly find specific parameters, and then remove irrelevant files before processing coverage on a reduced file set.

0.2.2 (2022-05-17, bug fix 2022-06-01)

1. Added runtime and installation parameter tracking/sorting/searching
2. User can load and plot coverage data as normal, and all acquisition parameters will be shown in the Parameters tab with sorting/searching/saving options under the Search tab
3. Alternatively, the user can load files and select **Scan Params Only** to parse parameters only and skip all coverage data; this is much faster if simply looking for parameters applied during acquisition of large datasets
4. *There is an assumption that the files loaded are from a single system; changes in system model or serial number may be detected and used to update the system information tab (upper right), such as when removing/adding new data during routine coverage processing. However, these changes are NOT flagged in the acquisition parameter history window, so the user must ensure consistency in the loaded files or directories for this purpose!*
5. Future version will allow scanning params first (faster) and coverage second (slower, if desired) without having to reload files; presently, files must be reloaded if scanned for params only and then need to be scanned for coverage data as well

0.2.0 (2020-01-07)

1. Fixed bug that caused .kmal backscatter ('reflectivity1' field) color scaling and filtering to use 1/10 the parsed value in dB; all reflectivity values parsed from .all and .kmal are plotted/filtered in dB
2. Changed default upper limits for color scale and BS filter (if applied) from -20 dB to -10 dB

BIST Plotter

2025+ versions

2025.2 (2025-10-28)

New version with many updates, including:

1. Automatic export of plots
2. RX noise line plots with different dB averaging / binning / axis options

Previous versions

0.2.5 (2024-10-11)

1. Bug fix for RX channels unit

0.2.4 (2024-04-09)

1. Bug fix for 2022 Revelle EM124 TX Channels BIST format where model number is not obvious

0.2.3 (2023-10-25)

1. Better handling of missing TX Channels tests
2. Small updates to variable names for error printing

0.2.2 (2023-03-10)

1. Small updates to handle SIS 5.11.1 format with multiple RX units
2. Testing better spacing of X axis tick labels on RX and TX Channels plots for large arrays
3. Supports multiple RX Channels tests per file, but only one TX Channels test per file (future development)

0.2.0 (2020-06-10)

1. Fixed SN parsing bug for SIS 5 BISTs without 'System Information' sections; now takes first PU serial number, either from Sys Info or Software Version sections
2. Added new SIS 4 TX Channels telnet format
3. Added sorting options for noise test parameters (e.g., ascending, unsorted / as-parsed, etc.)

0.1.8 (2020-01-14)

1. Added EM2040 SIS 5 RX Channels support (high/low signal amplitude) with attempt to more evenly space subplots across systems with 2-4 RX boards; testing with SIS 5.6

0.1.7 (2020-01-05)

1. Fixed bug that caused SIS 4 format TX Channels plot to fail (manufacturer's impedance limits are not included in SIS 4 format, but are retrieved from a standard list after parsing and applied for plotting)

Swath Accuracy Plotter

2025+ versions

2025.5 (2025-10-28)

New version with many updates, including:

1. Export all to GeoTiff
2. IHO Order plot options
3. Shaded relief of reference surfaces
4. Store settings for processing
5. Bin by sounding count (instead of fixed angle) for more uniform sample count in stats across swath

Previous versions

0.1.2 (2023-11-09)

1. Added step in convertXYZ to remove duplicate position time series ahead of interpolation onto ping time; this is based on a troubleshooting example of EM712 data collected with SIS 4 in .all format aboard I/B Nuyina (Australian Antarctic Division)

0.1.1 (2023-09-05)

1. Added filter for sounding count within 1-degree bins
2. Added options to flatten the mean bias curve to emulate a 'no refraction' condition (hover over options in the app for more information)

0.0.9 (2021-03-39)

1. Fixed density surface parsing bug to handle empty white space
2. Added tide formats
3. Various bugs based on user feedback

0.0.8 (2020-01-14)

1. Added crossline filtering options for depth, angle, backscatter, and difference from reference surface (meters or %WD); system information on plot now updated automatically from files, if available; added axis margin adjustment for reference surface plots; updated beam angle calculation to use z from sonar, not waterline; modified calc_accuracy to allow calling 'latest' necessary step (parsing / utm conversion / dz difference calc / binning) to save update time when modifying reference or crossline filters, adding files, or changing UTM zone of reference grid

V0.0.7 (2020-11-06)

1. In development; recently added .kmall crossline support, tide import, and reference surface filtering options

File Trimmer

All versions

0.1.5 (2021-10-21)

1. Added file concatenation option (e.g., combining calibration lines to simplify processing)

0.1.4 (2020-11-20)

1. Removed .kmall import option until a reduction method is developed for this format
 - a. in the meantime, .kmall files can be converted to .all with the Kongsberg app and run through the file trimmer to achieve significant reductions in file size for transfer to shore; note that some installation parameters (e.g., timing source for datagram vs system) may not convert properly from .kmall format to .all format; this has not been thoroughly investigated, but does not appear to impact the utility of the converted and trimmed .all files for normal bathymetry processing

ECDIS Converter

All versions

0.1.0 (2024-05-21)

1. Fixed bug with negative signs for W/S hemispheres in CSV_EX format

0.0.9 (2024-05-16)

1. Fixed bug for LNW files that cross UTM zones

- a. Now calling `utm.to_latlon` with `'strict'=False`; this addresses the immediate error for any waypoints crossing zone numbers within the same N/S hemisphere, but may create some projection issues over very long distances
- b. No testing has been done for waypoints crossing equator (northings potentially outside valid range for a zone letter)

0.0.8 (2024-05-09)

1. Added Hypack .Inw line file import

0.0.7 (2024-04-30)

1. Added second ECDIS CSV example (`_ECDIS_CSV_EX.csv`) from Okeanos Explorer

0.0.6 (2024-04-09)

1. Added Kongsberg DP (.txt), RXF (.rxf), and Fledermaus line file (.txt) formats

0.0.5 (????-??-??)

0.0.4 (2023-11-14)

1. Added ECDIS .rtz format based on example from I/B Nuyina (Australian Antarctic Division)
2. .rtz export currently ignores waypoint labels (numbered in export) and uses default / placeholder values for `vesselName`, `vesselMMSI`, `vesselIMO`, and other parameters (e.g., `radius`, `XTD`, `speedMin`, `geometryType`, etc.)
3. A future version of this app will attempt to apply waypoint labels, if parsed, and include user input fields for vessel info and route parameters

0.0.3 (2023-04-04)

1. Added ECDIS .csv format for R/V Atlantis, other DDD, DMM, and DMS .txt exports

0.0.0 (2023-02-21)

1. First version

GMRT Downloader

All versions

2025.2 (2025-10-30)

Fixed bug with variable cell size and added option to set fixed cell size

2025.1 (posted 2025-10-28)

New planning tool to easily download large GMRT datasets in tiles

SAT QAT Planner

All versions

2025.01 (posted 2025-10-28)

New tool to create test line plans over imported GeoTiffs

Coverage Graph Digitizer

All versions

2025.2 (posted 2025-10-28)

New tool to digitize theoretical coverage curves and export format for swath coverage plotter

KMALL to PKL Converter

All versions

Beta (posted 2025-10-28)

New tool to convert .kmall files to .pkl for faster processing in swath coverage plotter