



- Highly flexible software package for processing of Cameca SIMS images
 - interactive or automated
- Windows-based, built on PV-WAVE programming language
 - Visual Numerics, Inc. (www.vni.com)
 - Similar to IDL
- Quantitative Analysis
- High-quality output for publication/presentation

LOAD IMAGES

- Load entire .im file or selected species/ cycles
- Preview images before load
- Optional deadtime correction during loading
- Can also post-correct for deadtime, QSA

Image Alignment

- Correct for cycle-to-cycle drift
- Automatic (cross-correlation) or manual

SAVE IMAGES

- Output to popular formats (JPEG, TIFF etc)
- Many options for generating high-quality presentation-quality results
 - With or without color/scale bars
 - Automanual scaling
 - Optional ROI outlines
 - Includes ratio images
- Re-save raw data as .im file or 16-bit TIFF
- Copy to Clipboard

BUFFERS

- Combine images/plots into single-page output/display (save to various formats or copy to clipboard)

DISPLAY IMAGES

- View total images or individual image planes
- Automatic or manual scaling
- Smoothing and Logarithmic display
- Pixel Counts or count rates
- Overlay ROI outlines
- Interactive display of pixel intensities under cursor
- Popup menu on window allows image profiling, zooming, cycle animations, quick saving, more
- Individual cycle display with log scaling of count rate
- View total count rates for all cycles/species
- Large choice of color tables (user-editable)

IMAGE PROFILES

- Resolution Estimation
- Depth Profiling

RGB IMAGES

- Combine ion images (including ratio images) into 24-bit RGB composites.

Image Stitching

Regions of Interest (ROIs)

DEFINE ROIS

- Several options for ROI definition
 - Manual (mouse-drawn)
 - Threshold-based
 - Square/circle
 - Automatic Particle Finding
 - Automatic Image tiling

ROI MATH

- Combine defined ROIs using BOOLEAN operators

View detailed quantitative isotope ratio data for single ROI

Or for all ROIs

RATIO IMAGES

- Calculate pixel-by-pixel ratio images and associated error images

- Flexible "masking" of images
- Plot as δ -values or absolute ratios
- Automatic or manual scaling
- Exclude planes from calculation
- Overlay ROI outlines
- "sigma image": gives measure of significance of ratio in a given pixel
- "Error image": gives relative error of ratio in a given pixel
- Interactive display of pixel intensities under cursor
- Popup menu on window allows image profiling, zooming, cycle animations, quick saving, more

Ratio Image Profiles

Ratio Image Histograms

L'image Feature Summary

File handling /image correction

- Load .im files created by Cameca ims-series and NanoSIMS ion probes. Load entire data file or selected species/ cycles. Optional re-binning of multiple image cycles into fewer number of cycles to increase processing speed.
- Automatic alignment of image cycles to correct for image drift.
- Correct images for EM deadtime.
- Stitching of image files.

Display /Output

- Interactive display of images: view images for individual cycles or integrated over many cycles, mouse-driven zooming, image smoothing, linear or logarithmic color scales, pixel intensities displayed as counts or counts/second, animations of individual cycle images, manually set minimum/maximum pixel intensities to display, optionally rotate/flip images.
- Interactive image profiling: Mouse-driven interface to define line profiles. Semi-automatic spatial resolution estimation from line profiles. High-quality plot outputs and data export to spreadsheet.
- Image depth profiling (intensities for selected pixel over multiple cycles).
- Flexible control over color tables.
- Display/export pseudo-3d representations of data (contour plots, surface plots)
- Combine images/plots from various analysis tasks and multiple image files into single-page displays.
- Flexible Output: Export images with or without color bars, scale bars to popular formats (JPEG, TIFF, MetaFile, etc) or copy to Windows clipboard. Optionally overlay ROI outlines. Save processed images as .im files for future analysis in L'image.

Ratio Images

- Generate pixel-by-pixel ratio images and associated error images with flexible definition of parameters. Mouse-driven interactive viewing of data including zooming, ROI outline overlay, manual selection of maximum/minimum intensities. Printing and exporting of ratio images to wide variety of formats.
- Highly flexible profiling of ratio images.

Quantitative Processing

- Region of Interest (ROI) definition: Segment image into ROIs for quantitative analysis. Define ROIs manually with mouse or automatically by threshold, automatic particle finding or tiling entire image with square-/hexagon-shaped regions. Combine ROIs using logic. Plot/export count rates for individual cycles/species for given ROI.
- Ratio Calculation: Calculate isotopic or elemental ratios for ROIs, including flexible control of drift correction (for peak jumping measurements) and correction for EM background. Interactively interrogate data for single ROIs or generate scatter plots or histograms of results for multiple ROIs. Flexible output of data to spreadsheet format and generation of high-quality plots. Combination of data from multiple image files into easy-to-use databases.
- "Pixel Plot": Make scatter plots of individual pixel intensities for both ion images and ratio images. User can select groups of pixels from plot and use as ROI definition.

Automatic Processing

- Automation of most processing tasks for a set of image files without user intervention.