Powerful Simplicity

The most powerful LA-ICP-MS imaging software on the market today

HDP

HDF-based Image Processing Software

- Proprietary software for automating elemental imaging with LA-ICP-MS
- *OptimizeLA:* Optimization for all laser and ICP parameters to simplify the generation of images with the best balance of resolution, mapping, and image contrast for every element
- *AutoPilot:* One-click image generation provides a fast-track to generating images
- Natively accepts all major ICP-MS file formats as well as raw TOFpilot data
- Efficiently handles vast data arrays for 2D, 3D, or RGB multi-element composite images

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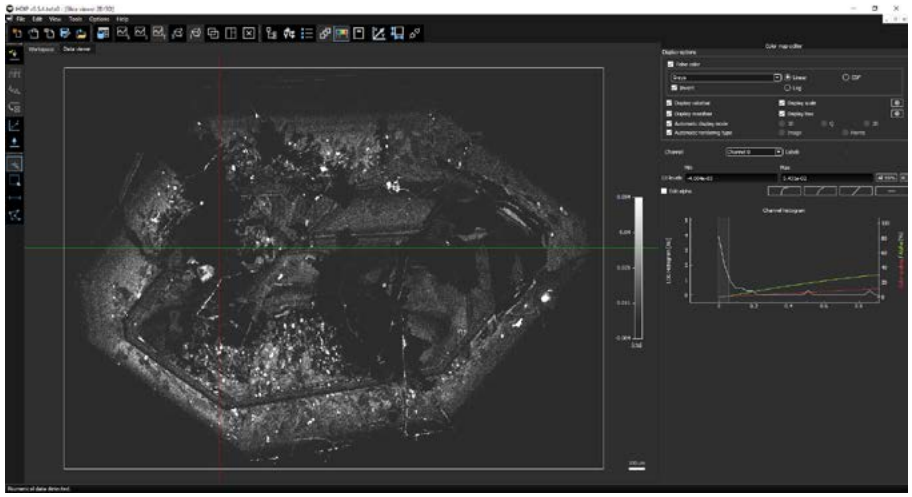
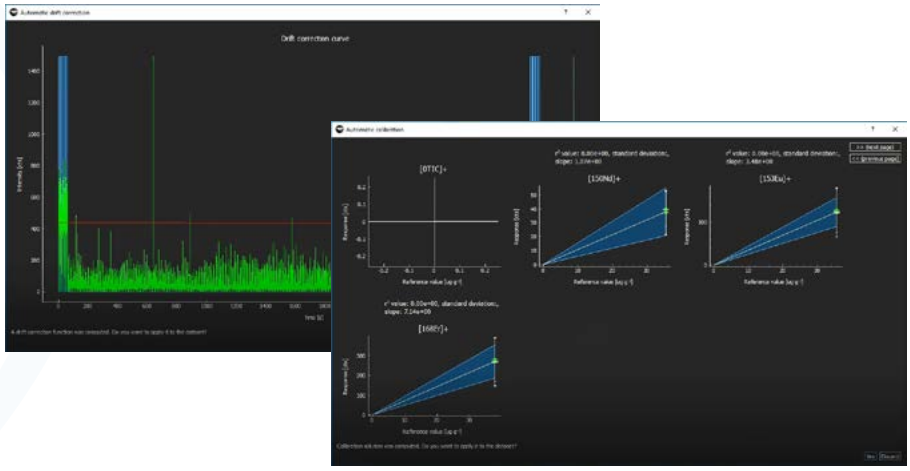
Loaded with Features

HDIP software is feature-rich to provide a fast and flexible platform for large, complex image processing in a straightforward, intuitive workspace. HDIP can handle data from a broad range of LA-ICP-MS instrumentation as well as from other microscopy techniques. The workspace contains all elemental images and optical images and images of any source can be layered on top of each other and aligned.



AutoPilot Image Reconstruction

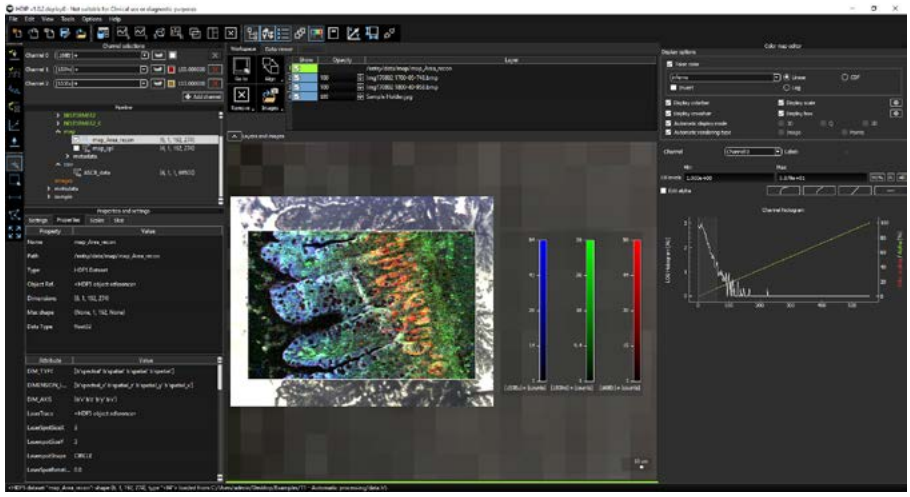
This feature allows HDIP to process data fully-autonomously from raw data towards the end-stages of data processing. *AutoPilot* will import data, synchronize *LaserTrace* and ICP-MS data, apply multiple corrections, reconstruct and calibrate the data, and export the data as publication-ready figures. The use of *AutoPilot* is optional.



AutoPilot drift correction (left) and calibration curve fitting (right)

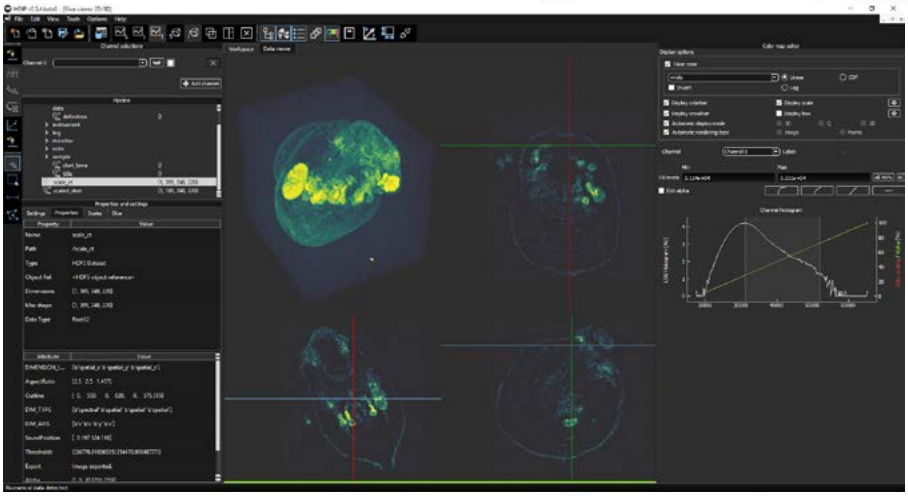
False Color Map Editor

Visualizations can be scaled using linear, logarithmic or CDF tools. The range of selected values is selected on a histogram. Additional tools allow the user to adjust transparency, scaling and thresholding. Any combination of channels can be used to make RGB composites.



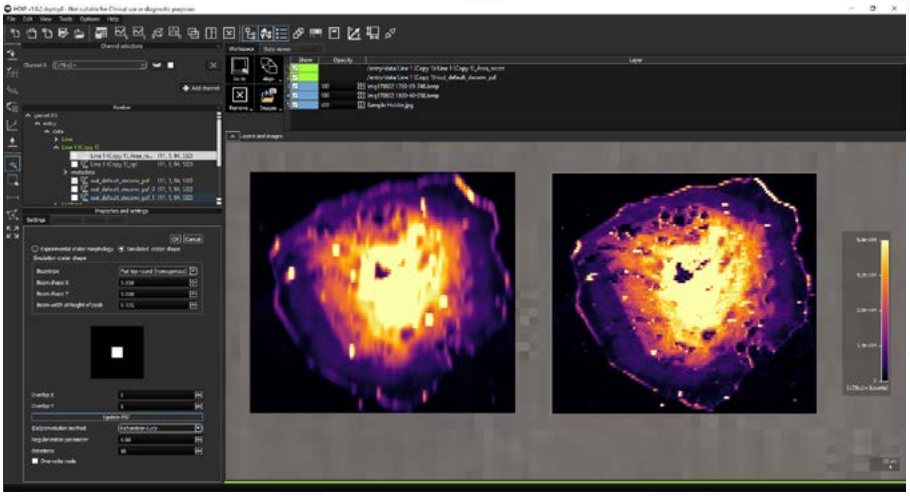
3D Viewer

Three-dimensional data can be inspected in the included 3D viewer. 3D data can be processed (e.g. calibrated) in the same manner as 2D data is treated. 2D images can be easily stacked to produce 3D datasets using automated image registration.



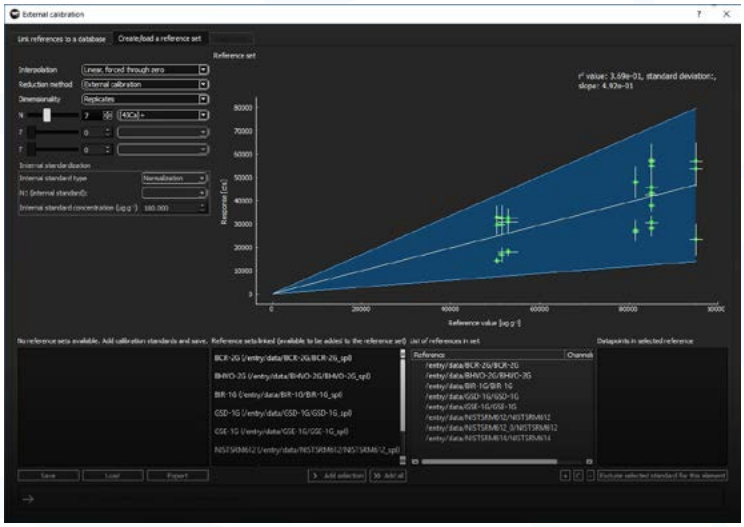
Data Restoration Approaches

Retrieve better spatial resolution with built-in convolution, deconvolution, and denoising tools. For example, a peak profile of a single laser shot can be used to correct for blurring effects which are caused by washout. Or better resolution can be extracted by accounting for spot position overlap.



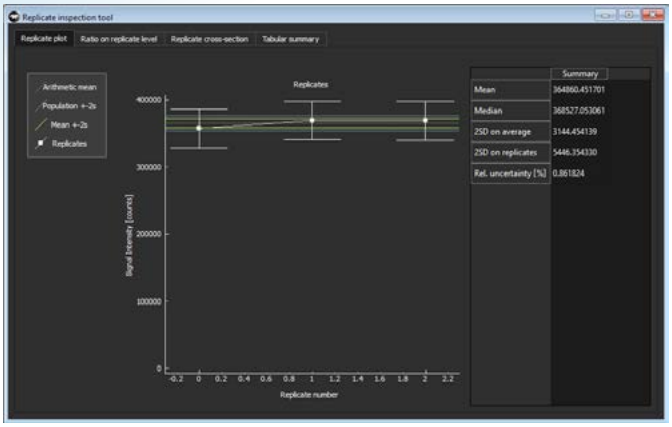
External Calibration Tool

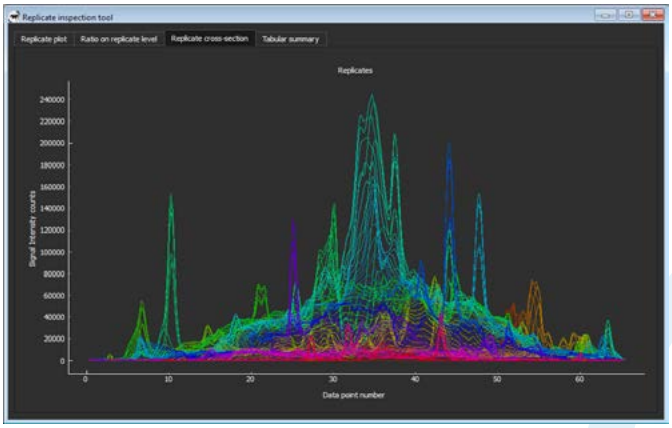
Multi-standard external calibration with internal standardization can be applied to compute quantitive elemental images. A database of standard and certified reference materials is included. HDIP can even automatically recognize standards by the name of the sample provided by the user, greatly streamlining the calibration process.



More HDIP Features

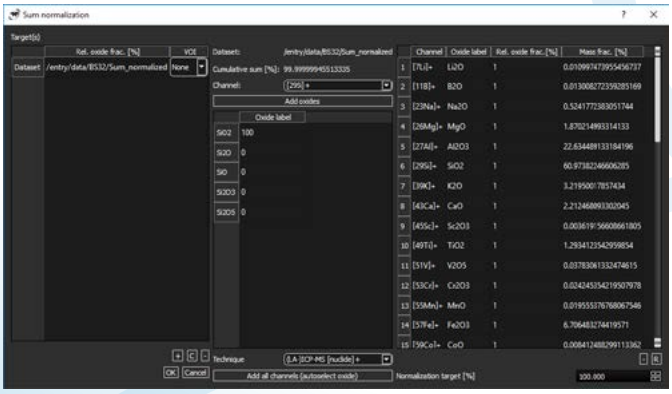
Replicate Inspection Tool





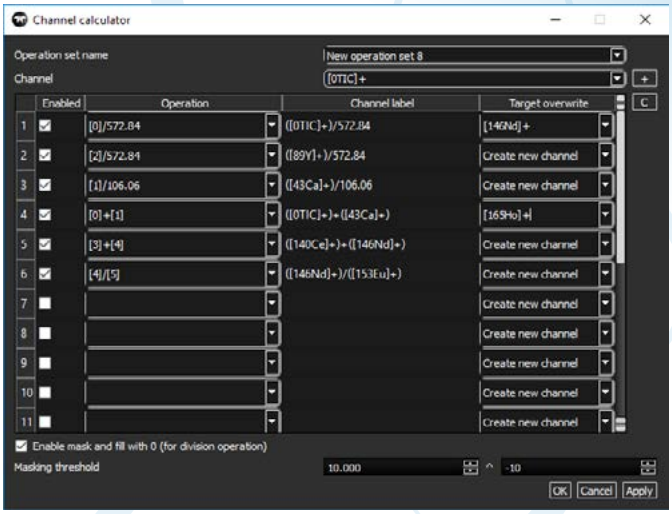
Inspect replicates of samples and summarize bulk analysis data.

Sum Normalization



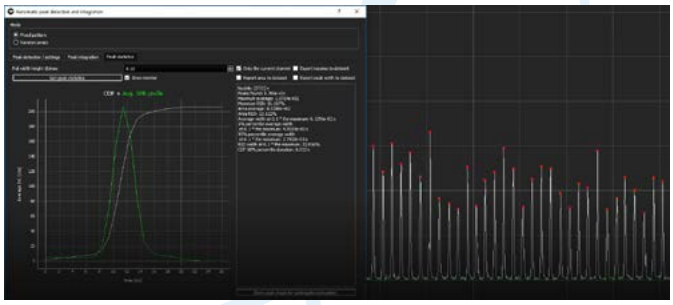
After calibration, HDIP can normalize any sum of oxides to any known percentage on a per-pixel basis. This can significantly increase data accuracy. A single element can be attributed multiple oxidation states, and the fraction of each oxidation state can be added.

Channel calculator



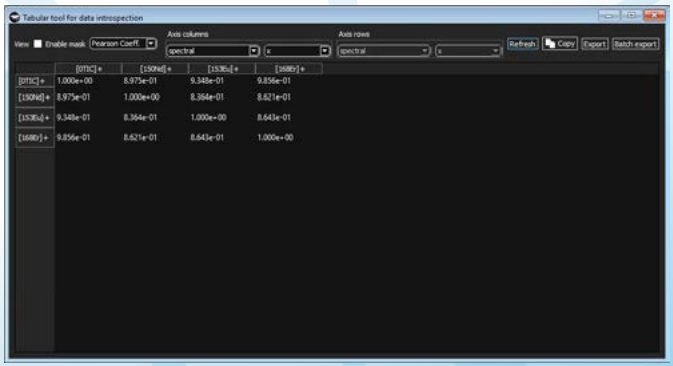
HDIP can perform basic arithmetic operations (division, multiplication, addition, subtraction, etc.) on the mass channels. Sets of these operations are automatically stored for quick reference.

Automatic Peak Analysis



Peaks can be automatically detected, and the peak detection can be modified and inspected.

Spreadsheet Tool



Inspect any slice of the dataset, make quick calculations and export data to Microsoft Excel™

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