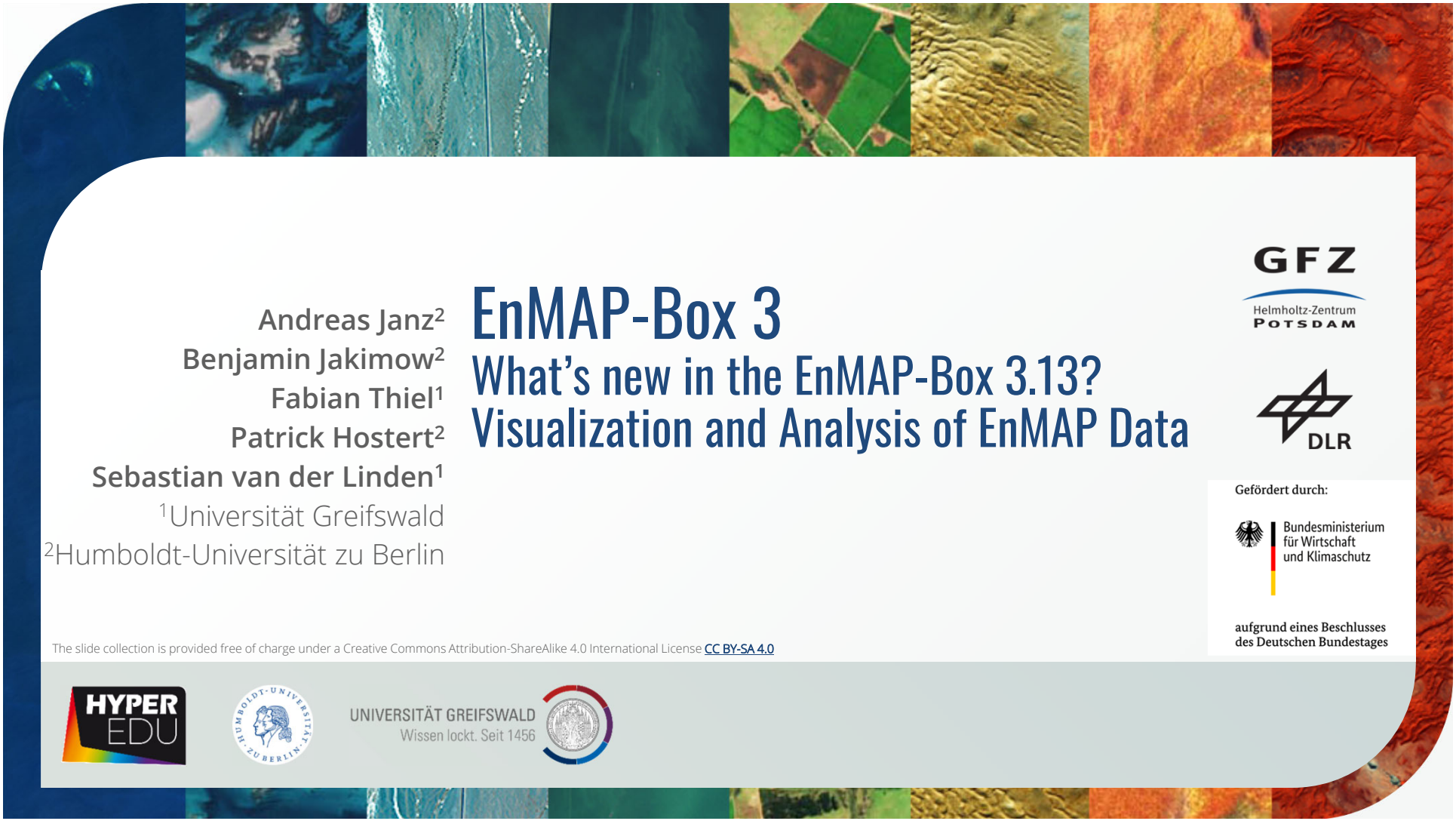

EnMAP-Box 3

What's new in the EnMAP-Box 3.13?
Visualization and Analysis of EnMAP Data

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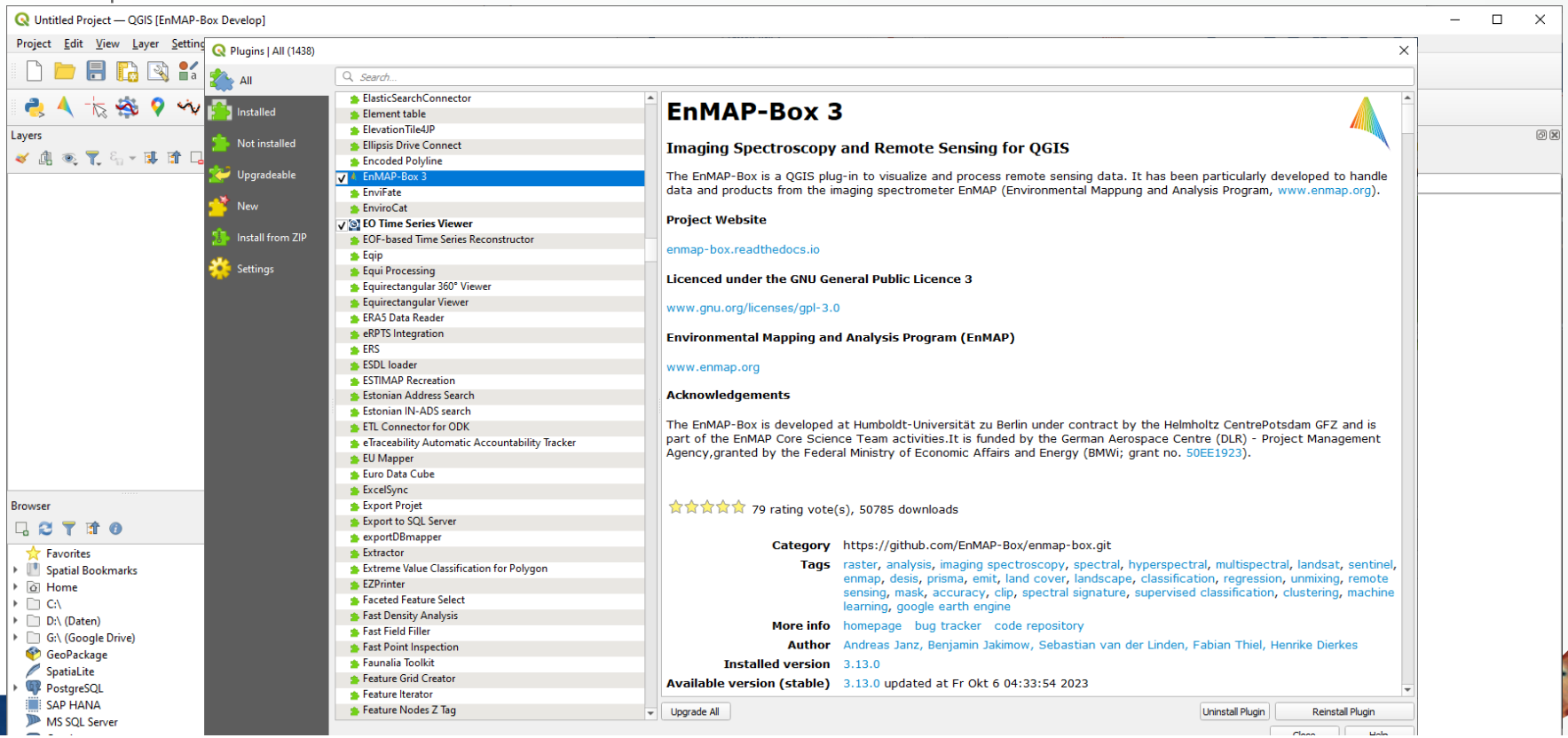
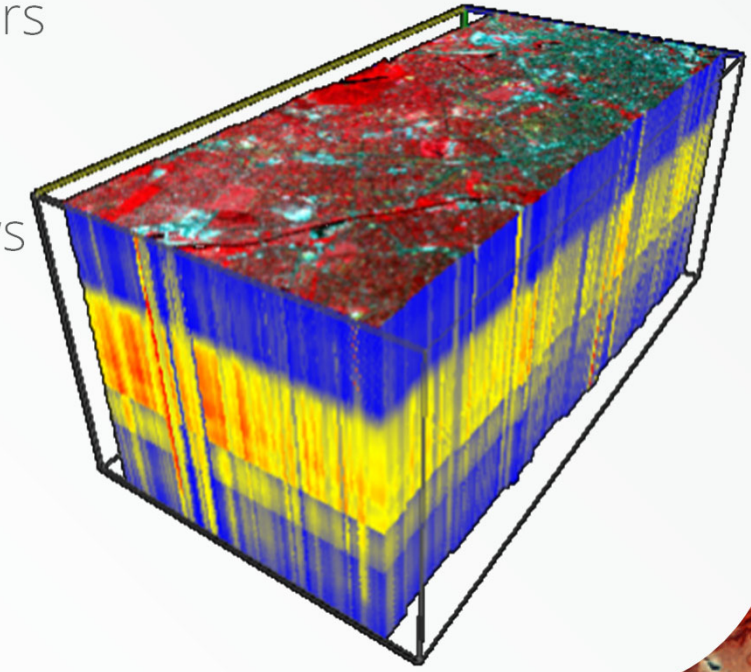
EnMAP-Box – just released v3.13

- Optimized for QGIS LTR 3.28 and QGIS Latest 3.32



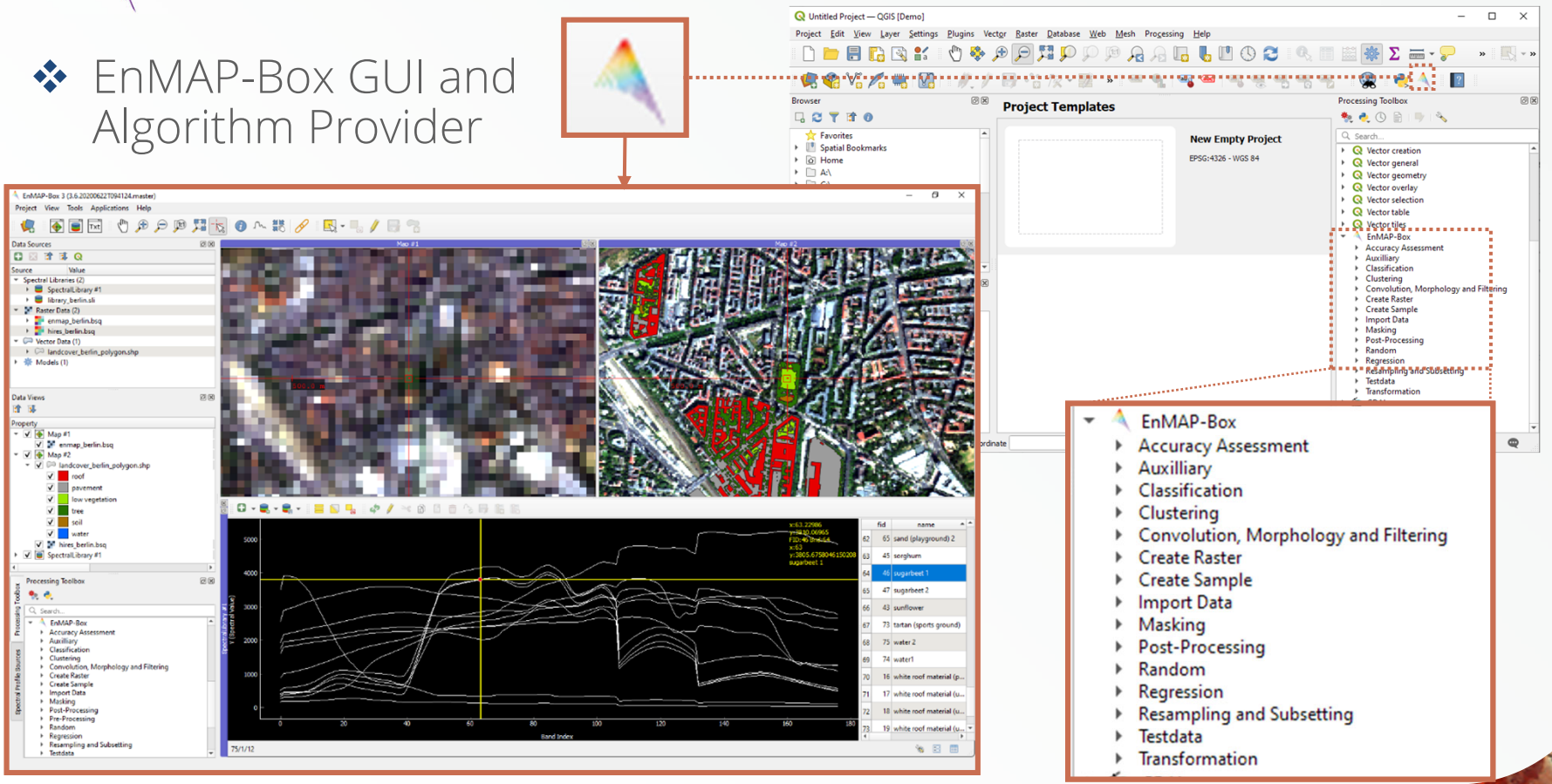
EnMAP-Box – Motivation and Aims

- Offer a free and open source environment for visualizing and analyzing EnMAP data together with other EO data
- Increase the number of EnMAP data users
- Integrate full GIS functionality with advanced image/spectral processing
- Application-oriented advanced Workflows (Vegetation, Geology, Soil, Water…)
- Foster the availability and exchange of state-of-the-art approaches for the analysis of imaging spectroscopy data and spectral libraries

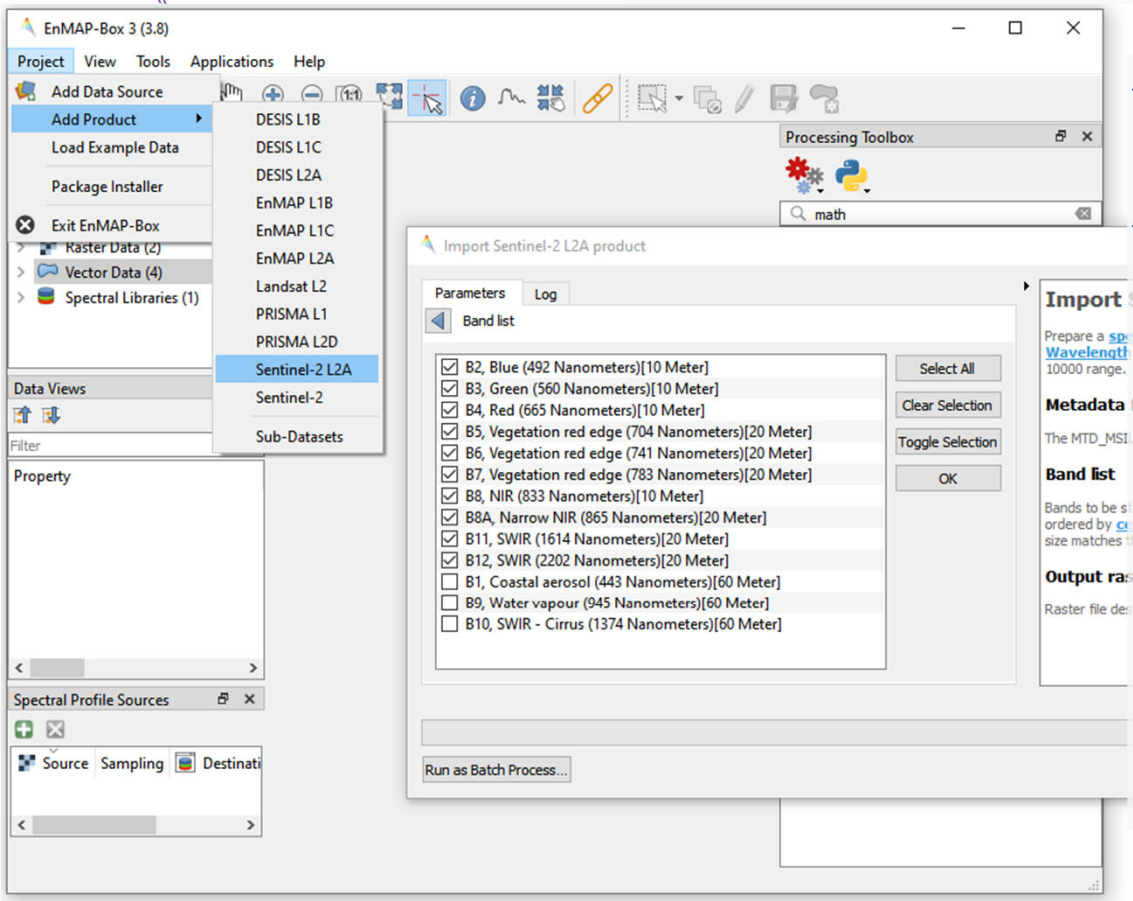


EnMAP-Box – Imaging Spectroscopy in QGIS

- EnMAP-Box GUI and Algorithm Provider

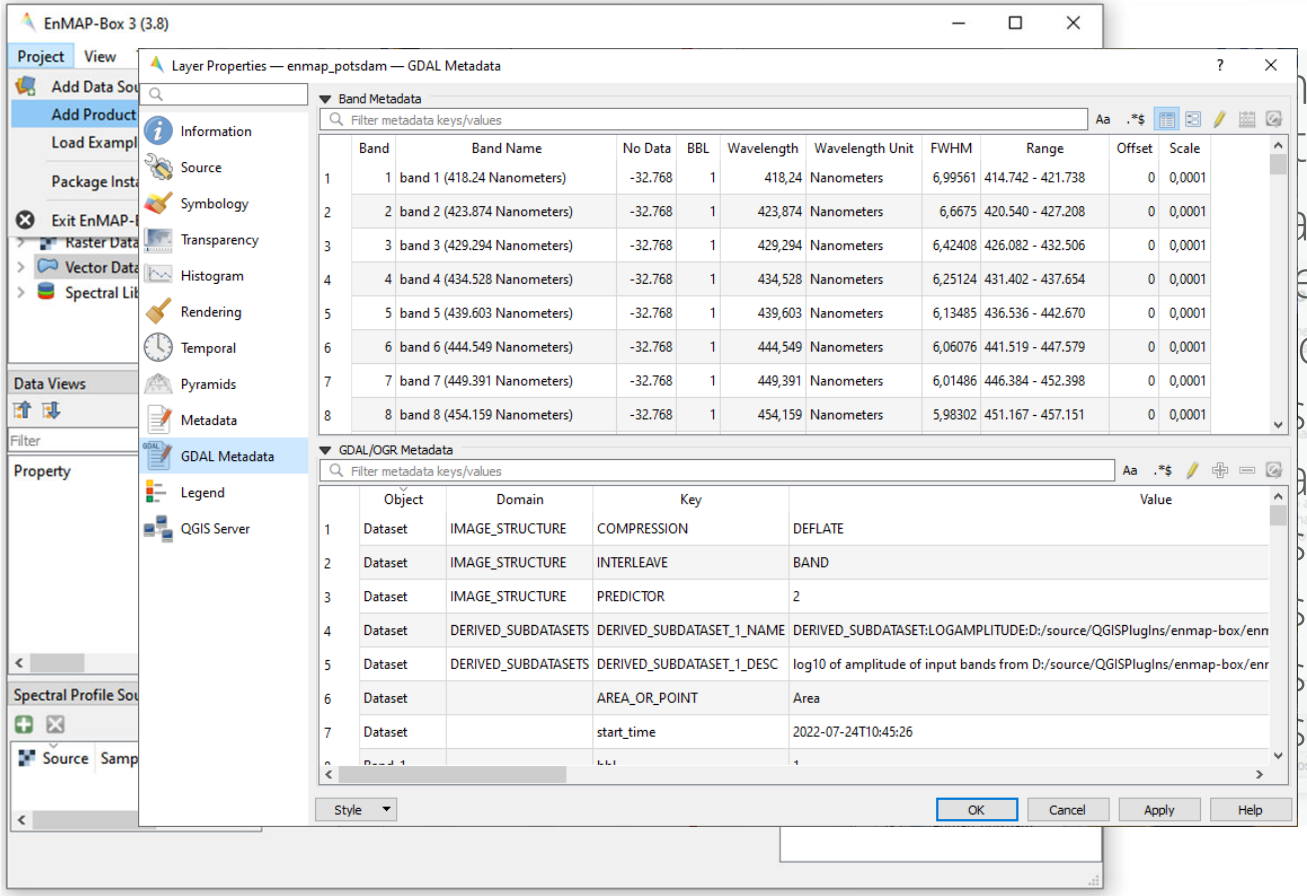


Create Sensor Synergies



- Comfortably import multiple optical sensors
- Create analysis-ready raster data:
  - (convert data)
  - stack bands
  - apply band scale/offset
  - set band names
  - set wavelength/fwhm
  - set spatial reference system and extent

Create Sensor Synergies



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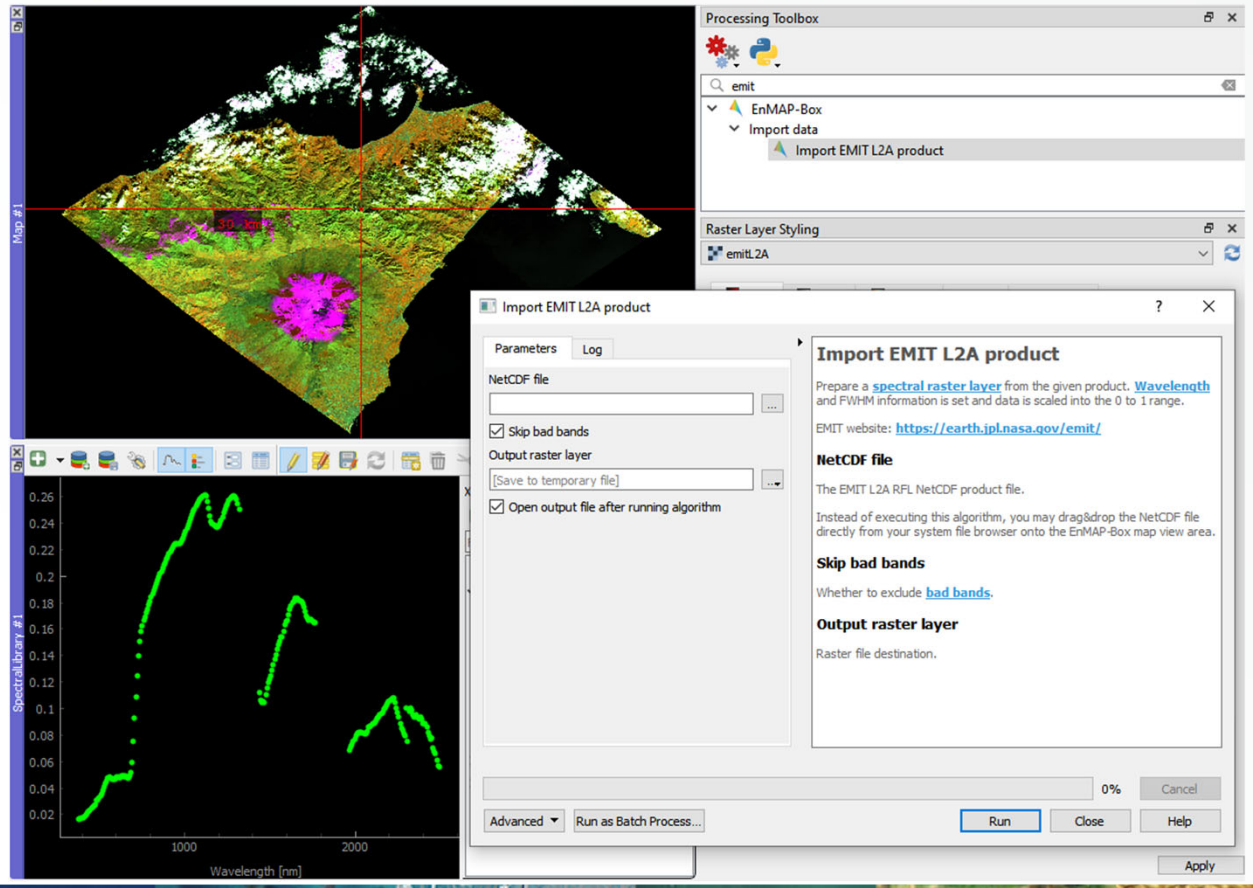
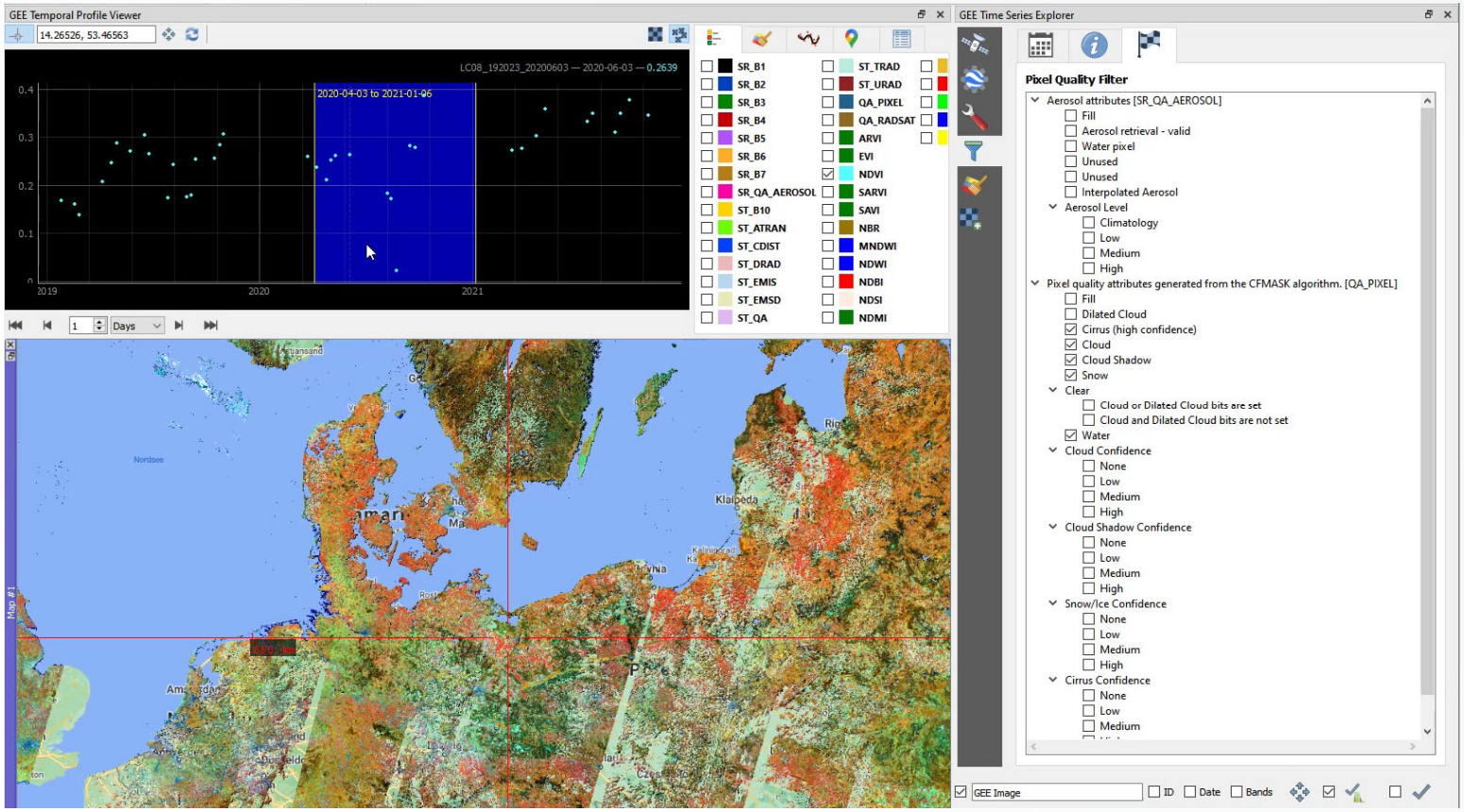


Various imaging spectrometers

- EnMAP
- PRISMA
- DESIS
- EMIT

Create Synergies - GEE Time Series Explorer



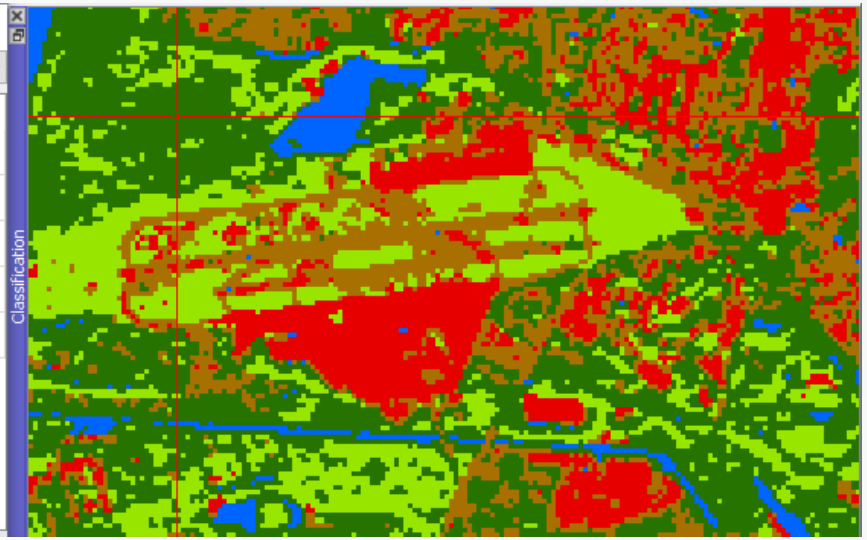
Basic Tools – Classification Statistics

- General tools with increased functionality, e.g. classification statistics

Classification Statistics

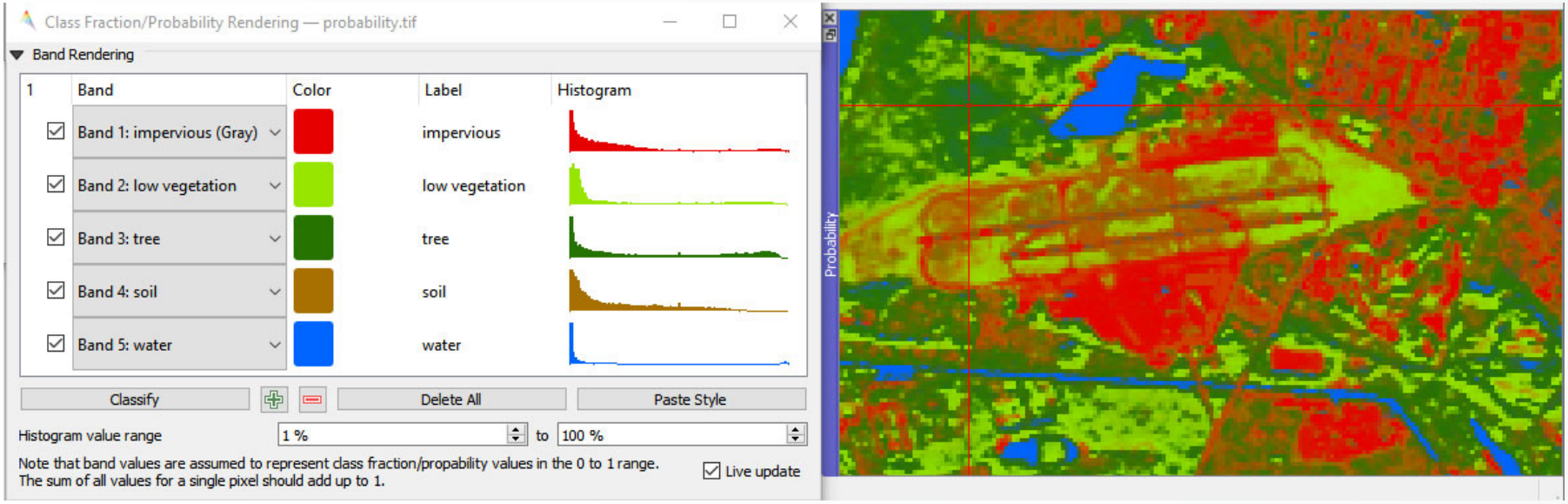
Classification layer: classification.tif

Value	Label	Histogram	Percentage	Pixel	Area
1	impervious		15.57	3238	291.42
2	low vegetation		21.16	4400	396.0
3	tree		38.32	7967	717.03
4	soil		21.3	4428	398.52
5	water		3.66	760	68.4

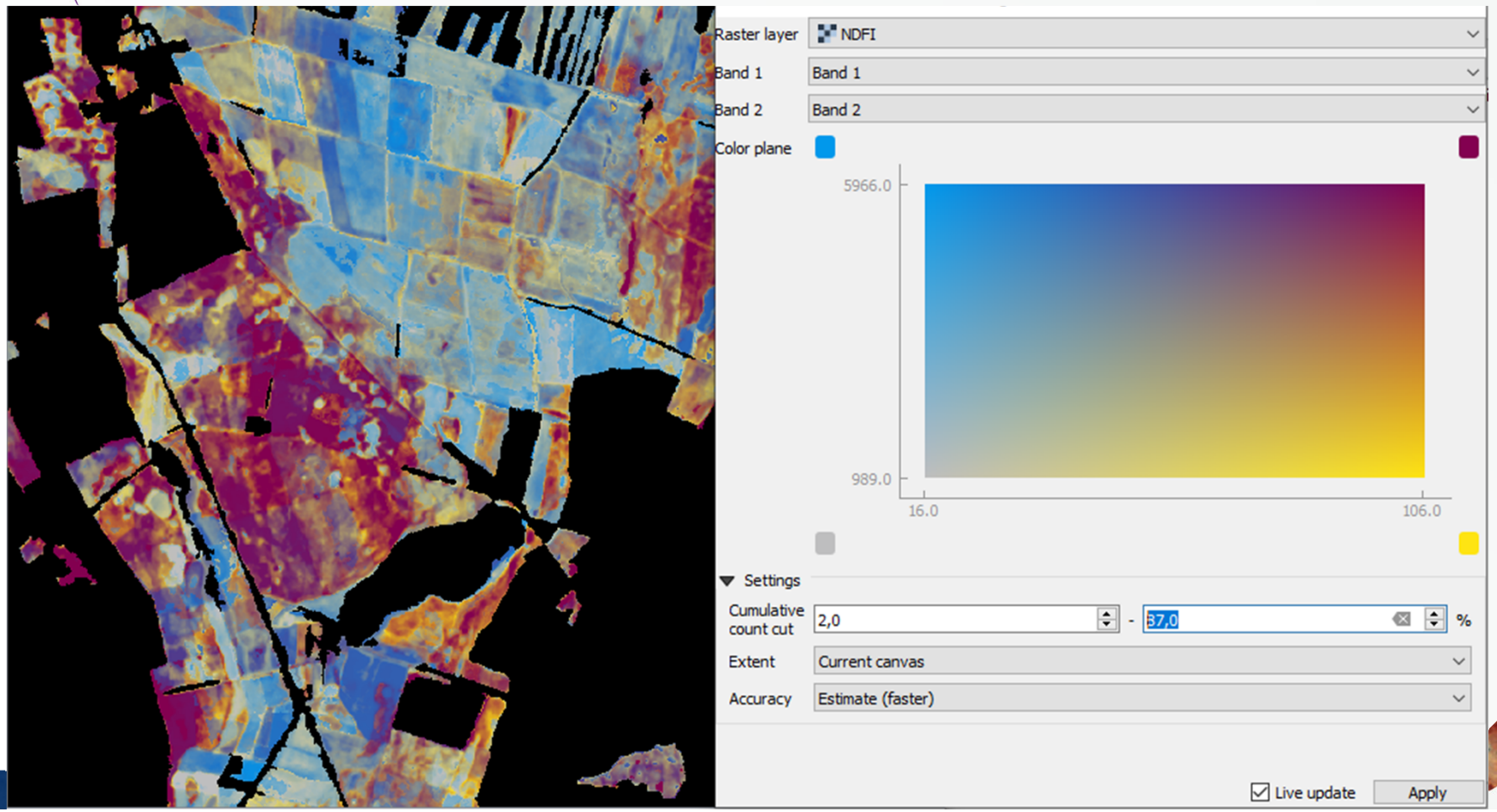


Basic Tools – Class Fraction Statistics

- General tools optimized for quantitative results from EnMAP products

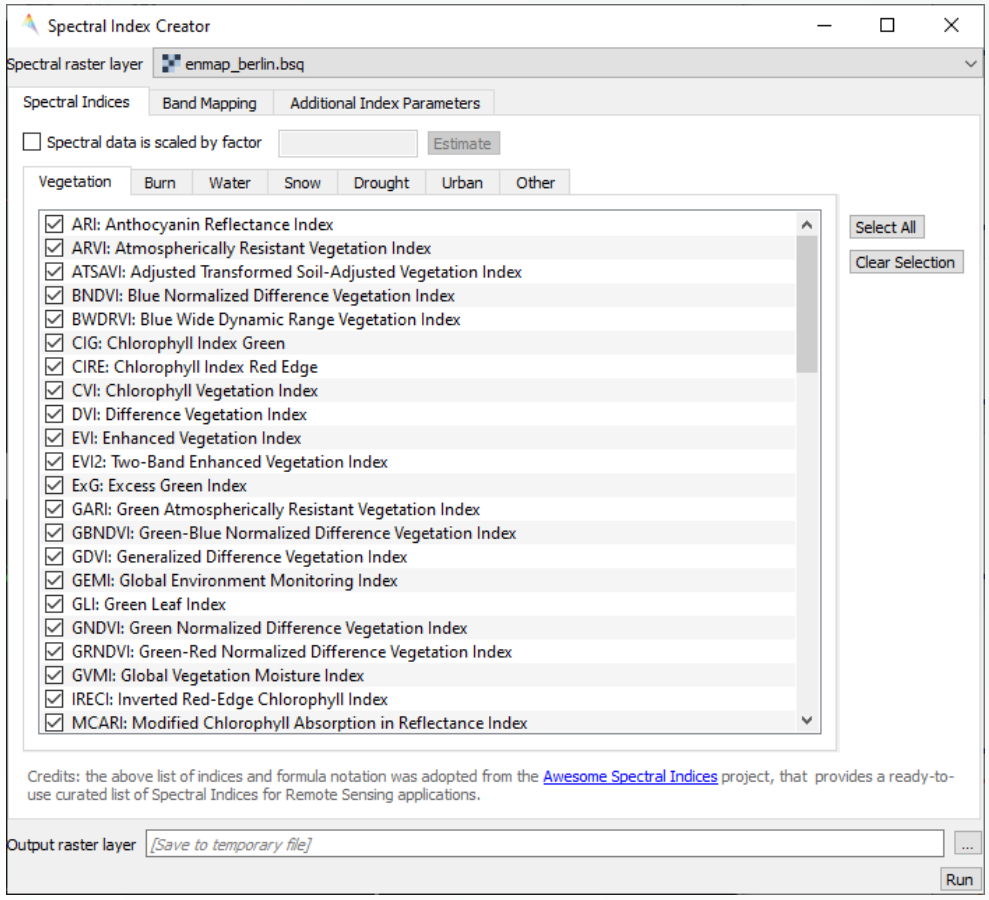


Basic Tools – Bivariate Color Renderer

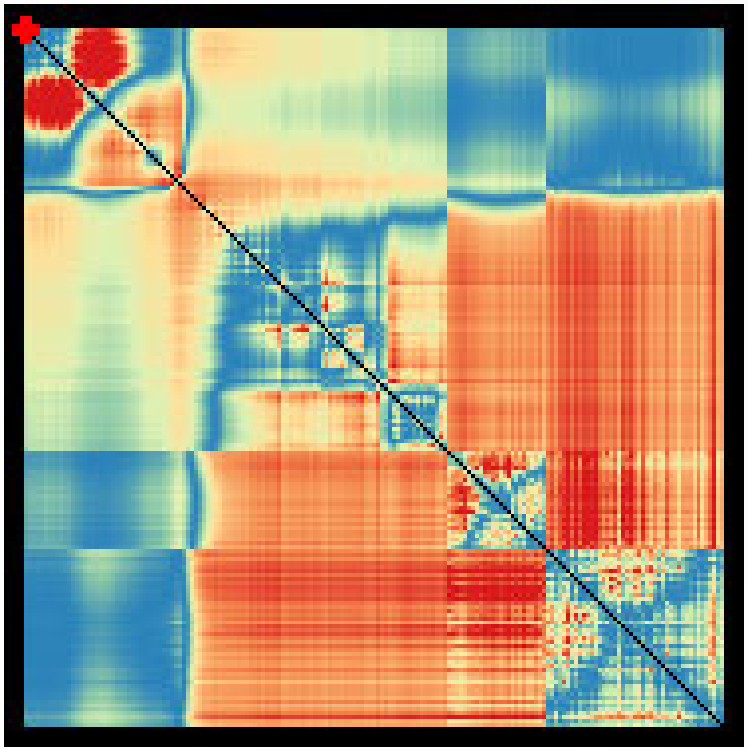


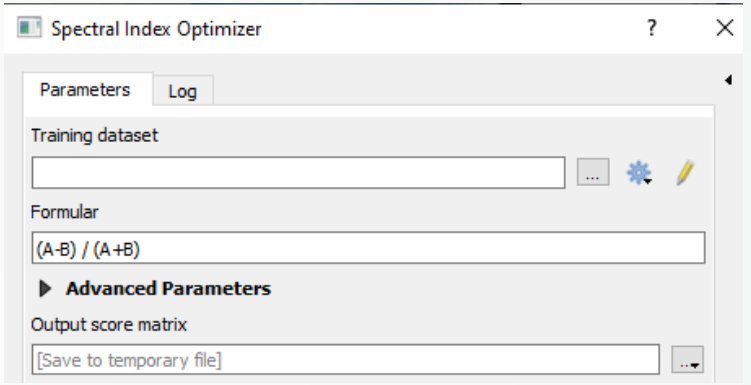
Spectral Tools – Spectral Index Creator

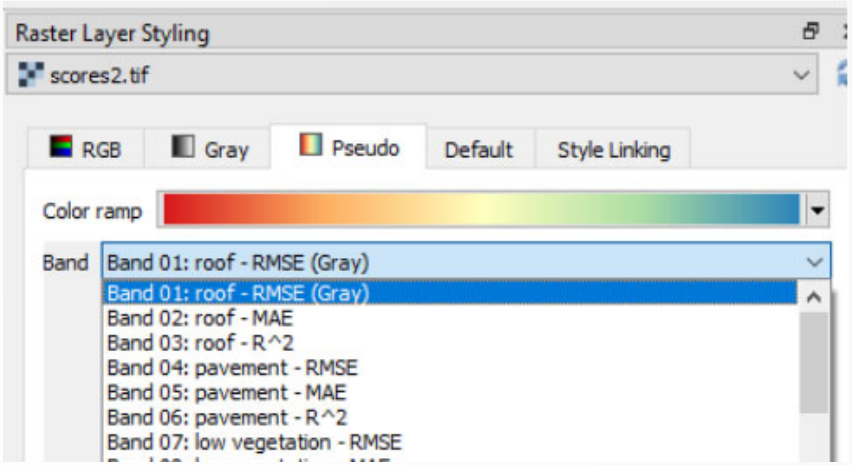
- Extensive index list taken from *Awesome Spectral Indices* project.



Spectral Tools – Spectral Index Optimizer

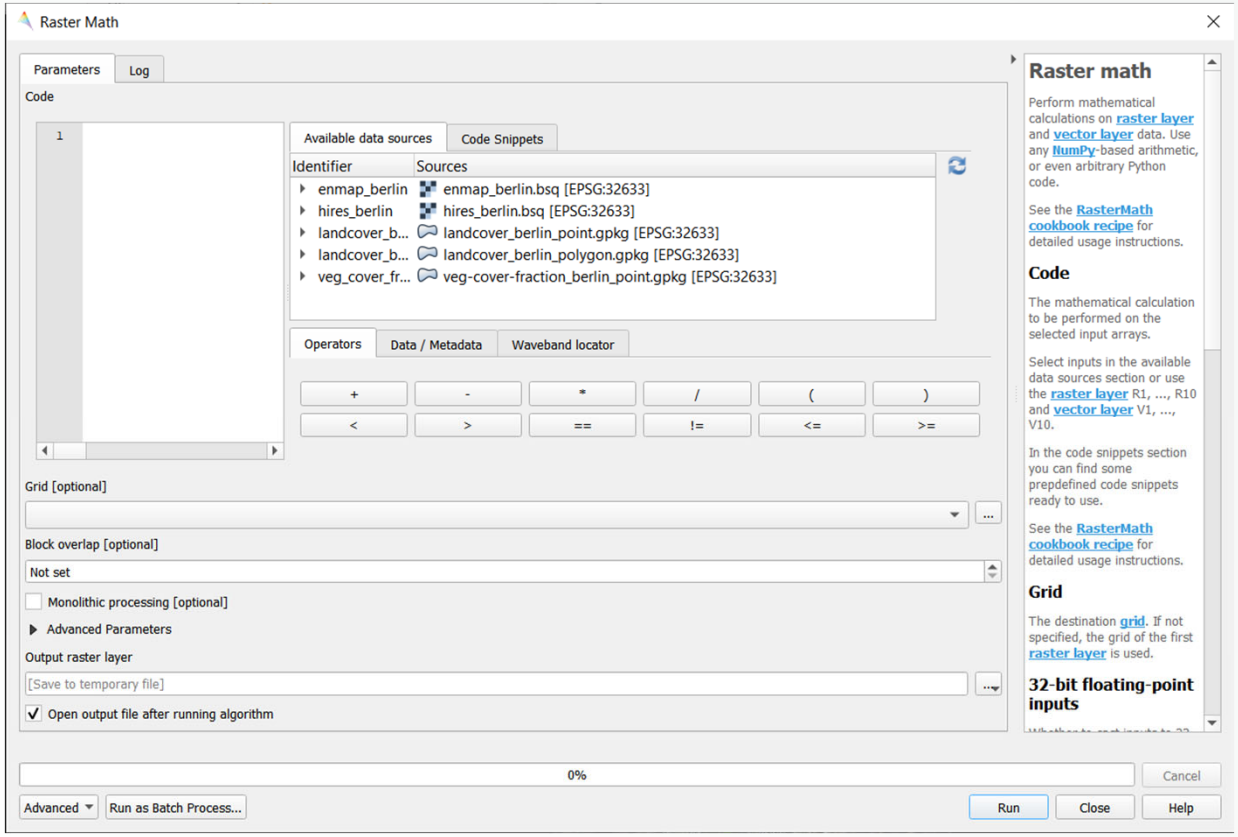




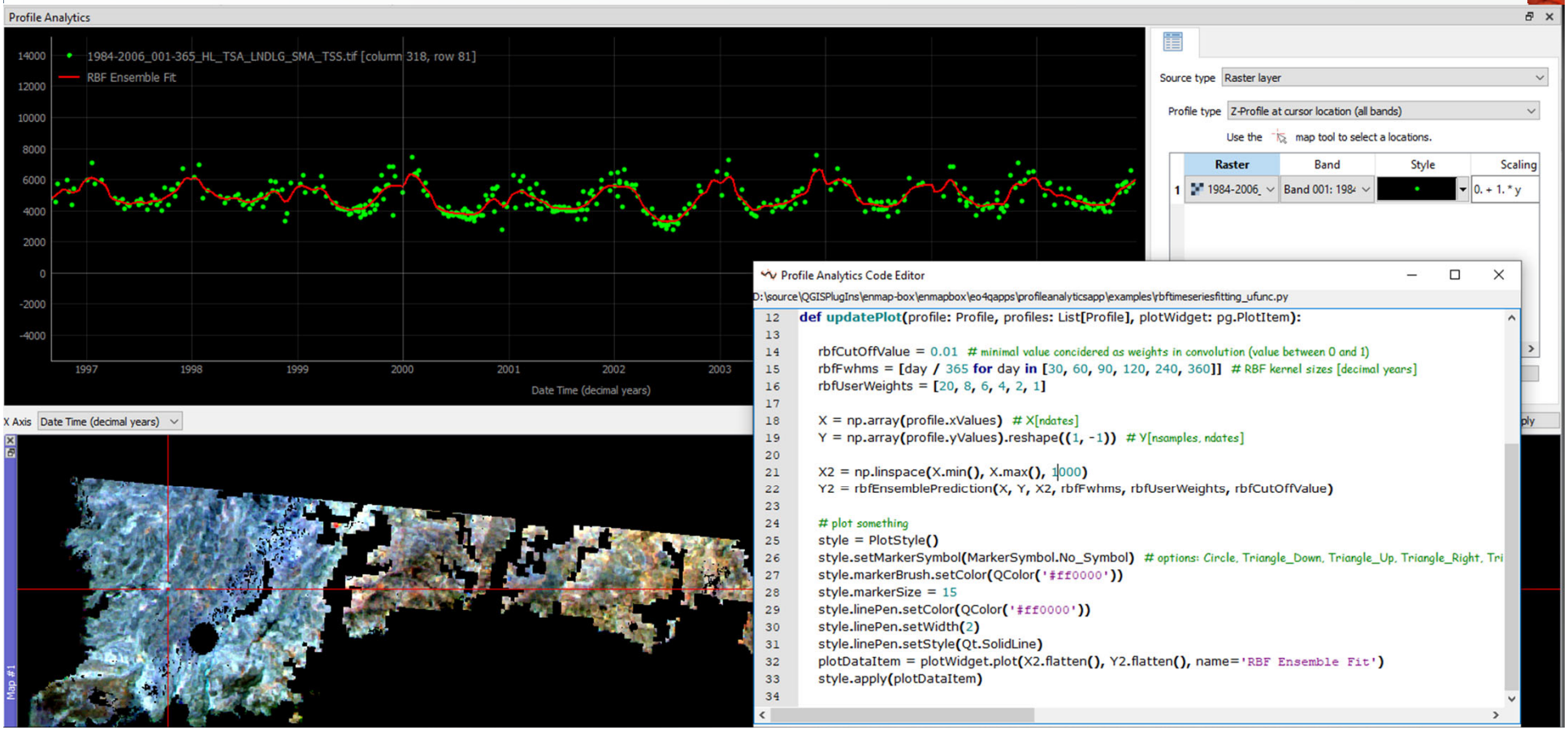


Raster Tools – Raster Math

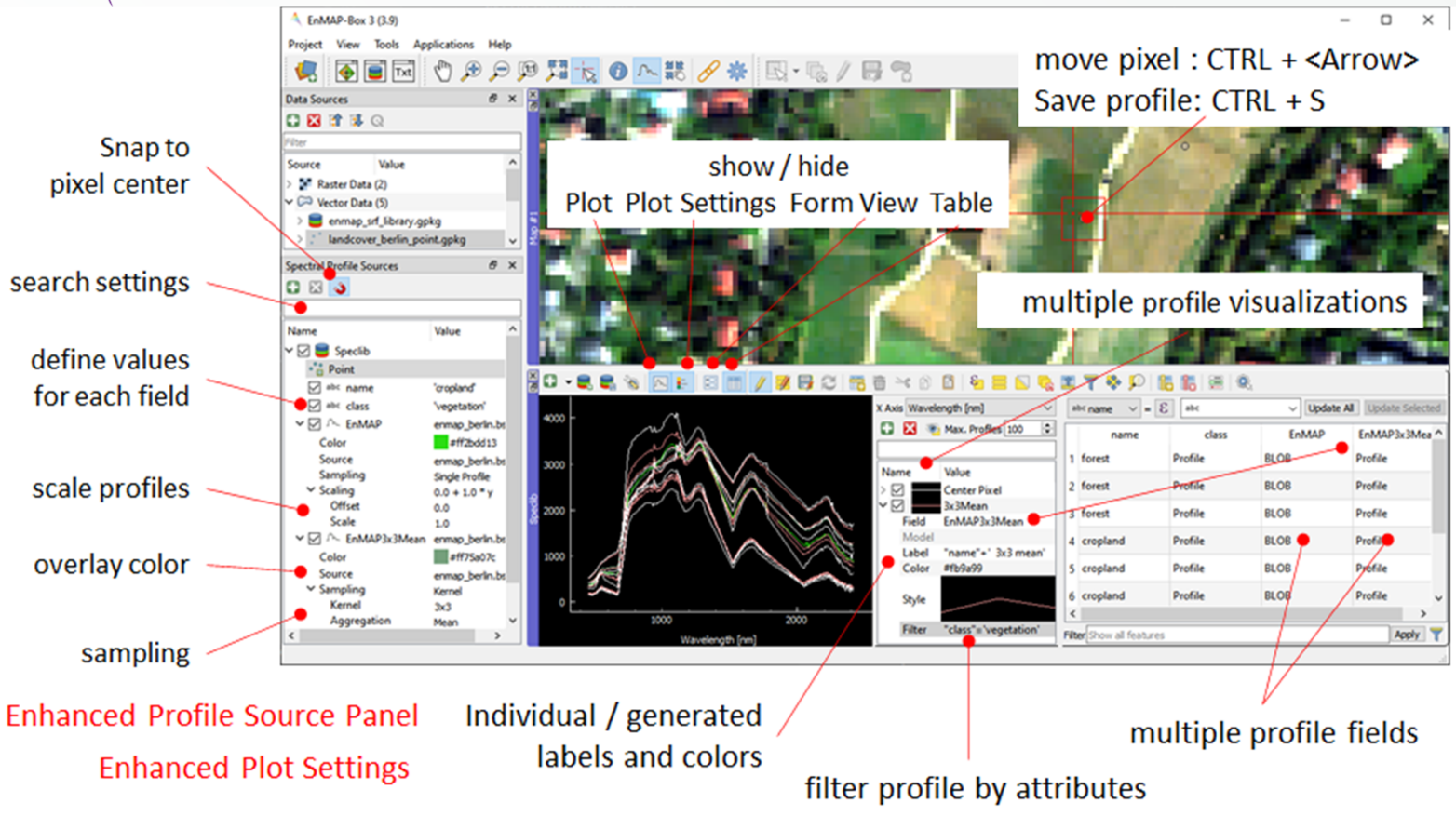
- Easy numpy scripting with data IO fully handled



Raster Tools – Profile Analytics App

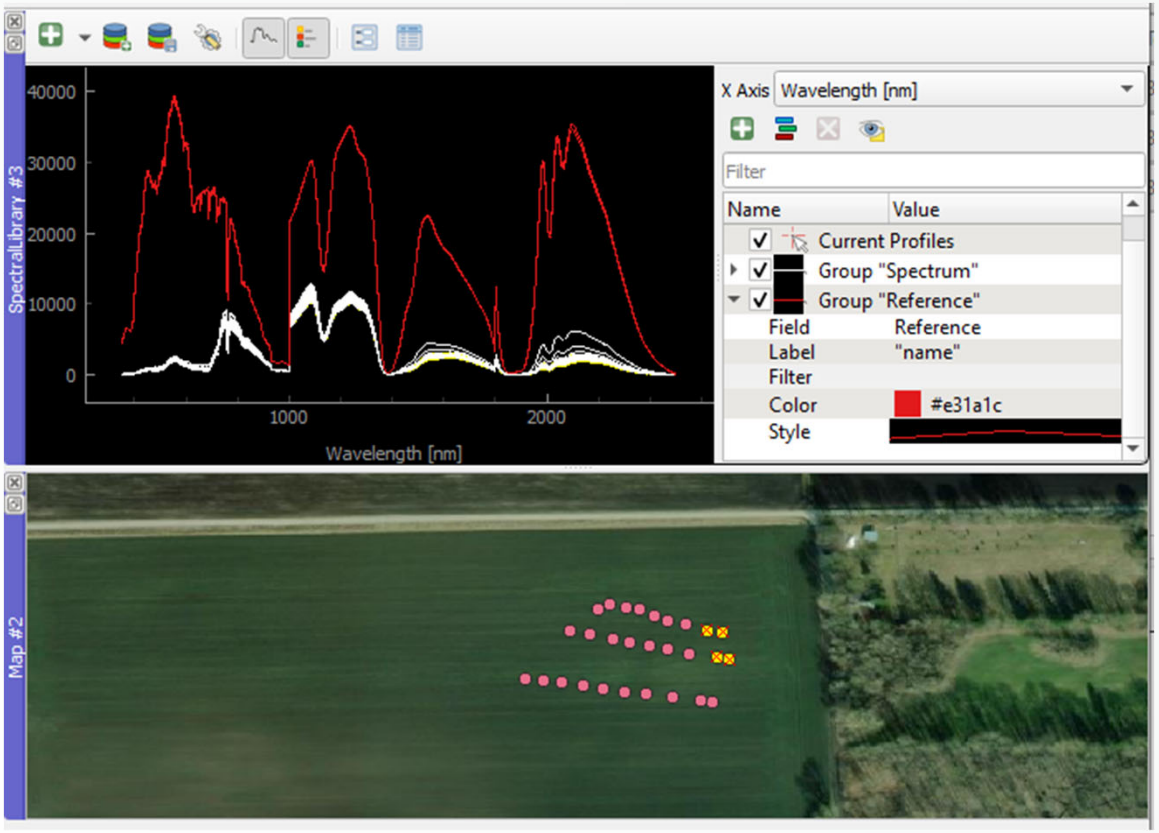


Spectral Library Tools



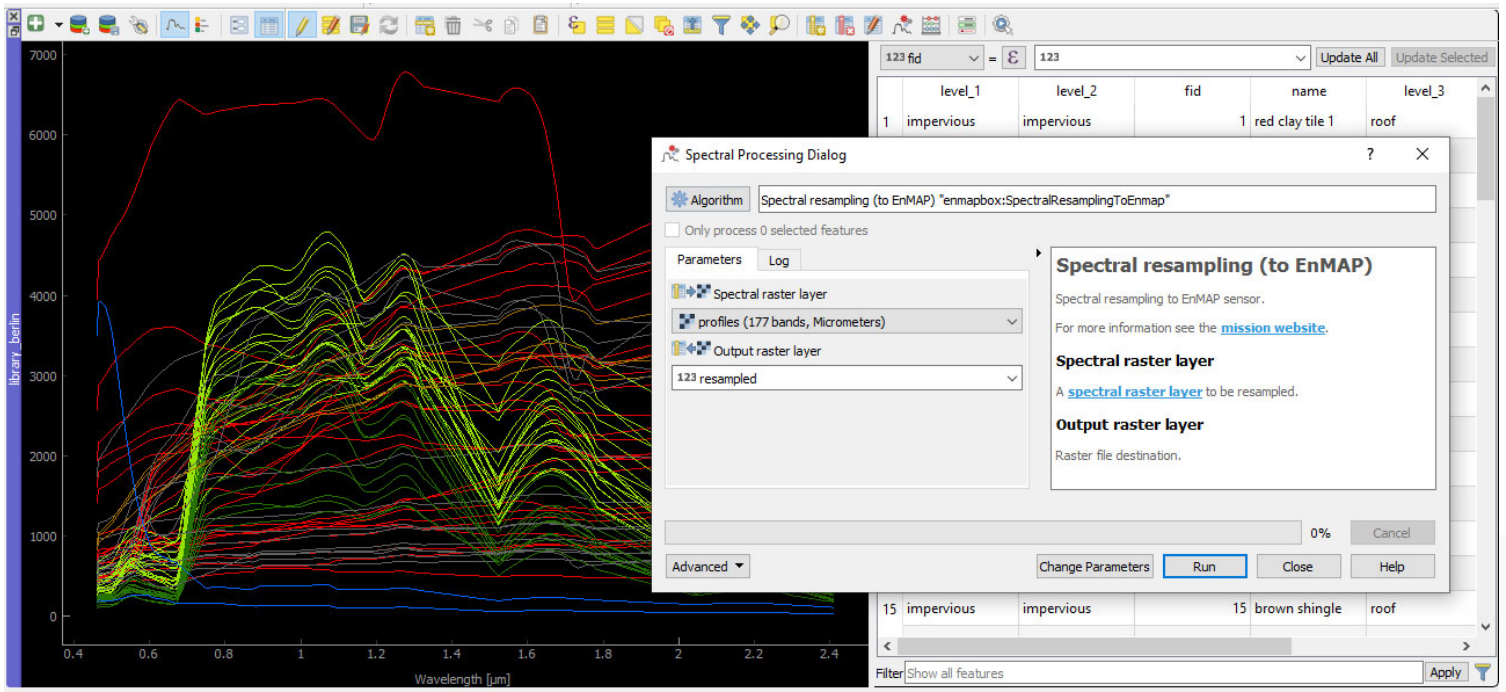
Spectral Library Tools – Data Format and Import

- Spectral Profiles in Geopackage Format
- Flexible Attributes stored with Spectra: location, white reference…



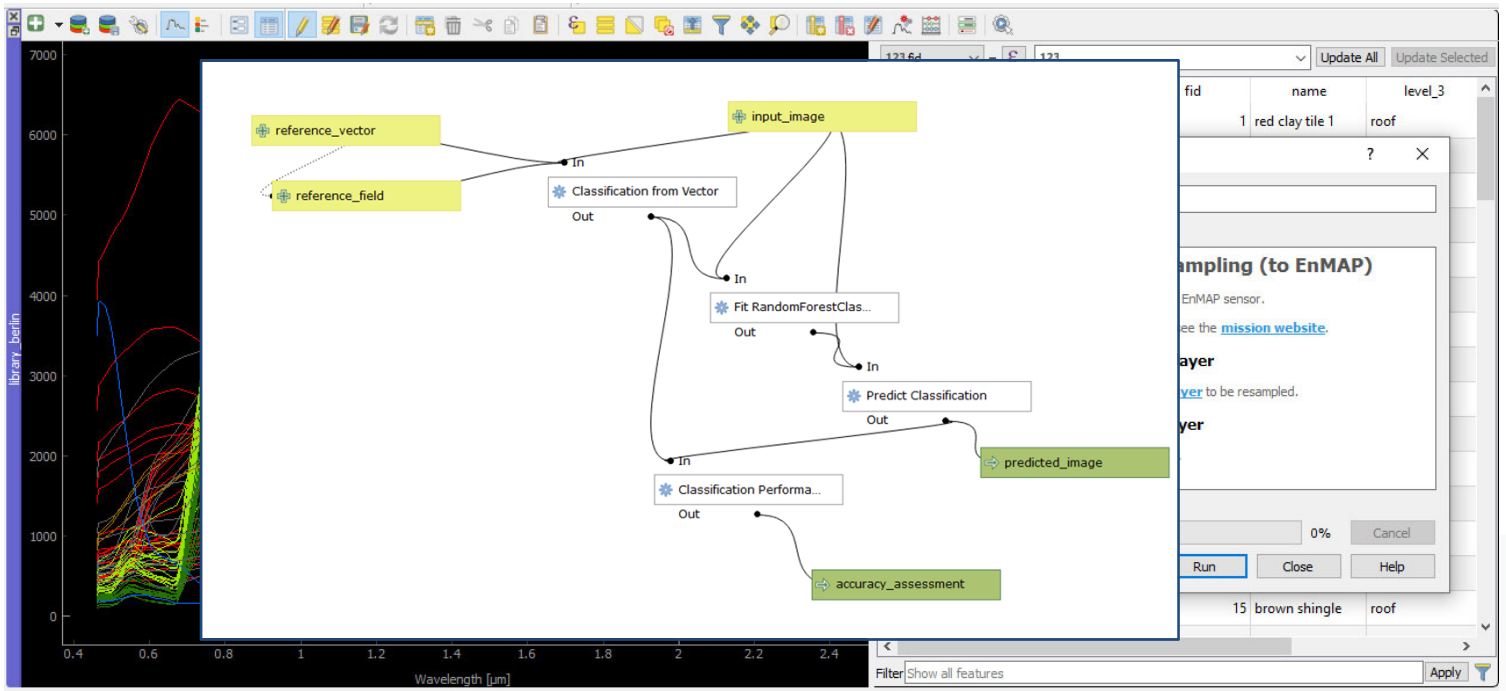
Spectral Library Tools – Spectral Processing

- all Processing Algorithms are also applicable to Spectral Libraries
  e.g. *Spectral resampling (to EnMAP)*



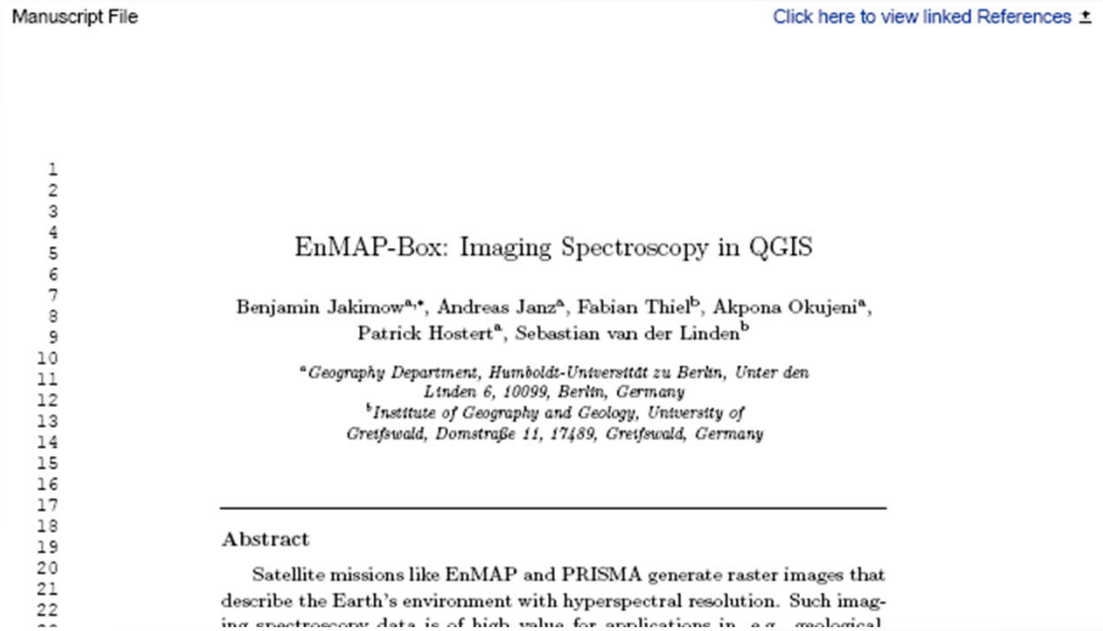
Spectral Library Tools – Spectral Processing

- Spectral Processing is also supporting models from the QGIS Model Designer



EnMAP-Box Publication

- Jakimow B, A Janz, F Thiel, A Okujeni, P Hostert, S van der Linden (2023). EnMAP-Box: Imaging Spectroscopy in QGIS. SoftwareX, *in review*.



Manuscript File

Click here to view linked References

EnMAP-Box: Imaging Spectroscopy in QGIS

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[b]*Institute of Geography and Geology, University of Greifswald, Domstraße 11, 17489, Greifswald, Germany*

Abstract

Satellite missions like EnMAP and PRISMA generate raster images that describe the Earth's environment with hyperspectral resolution. Such imag-

Contact

- For detailed information, installation, application tutorials have a look at https://enmap-box.readthedocs.io/en/latest/

- Or write us: enmapbox@enmap.org