



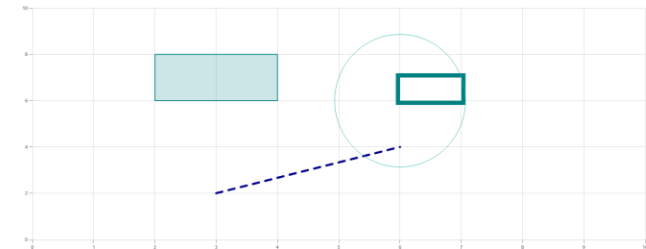
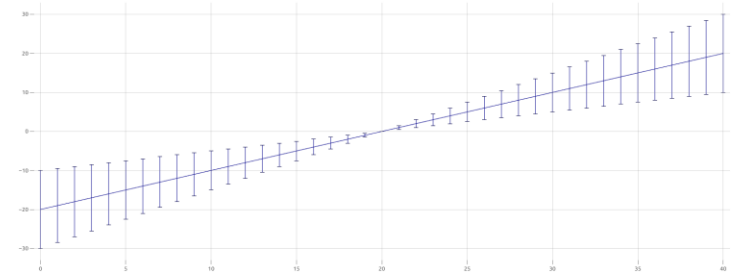
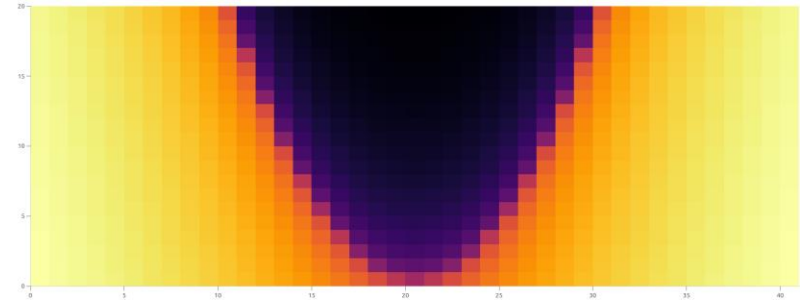
H5Web

Current status and roadmap

Axel BOCCIARELLI, ESRF

Library

WebGL visualizations (line, heatmap, etc.),
canvas, axes, toolbar, interactions, ...

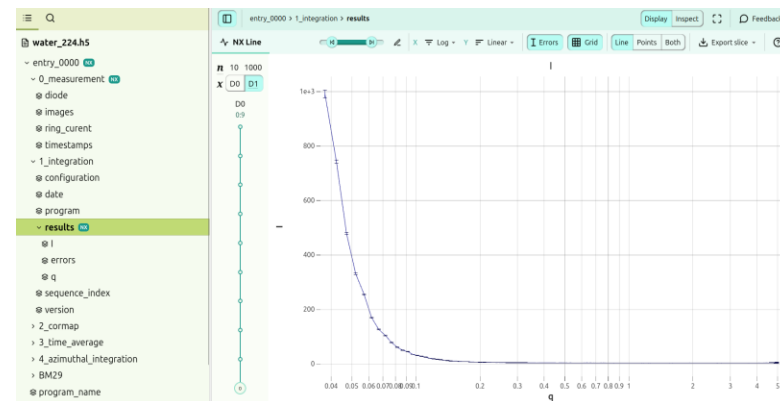
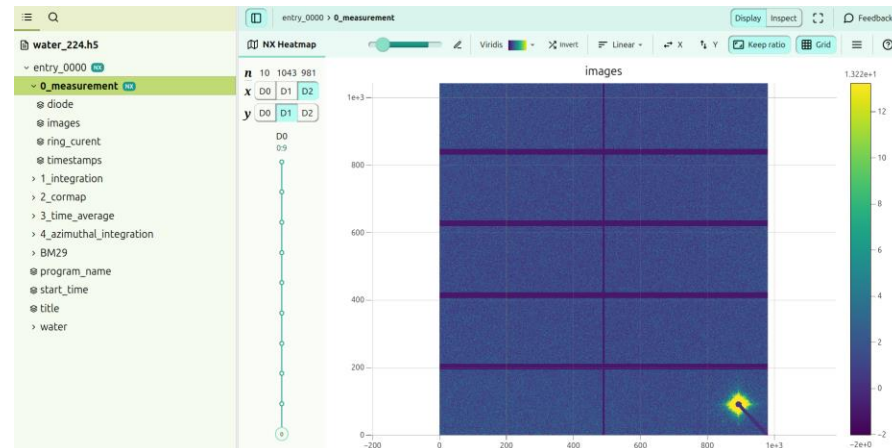


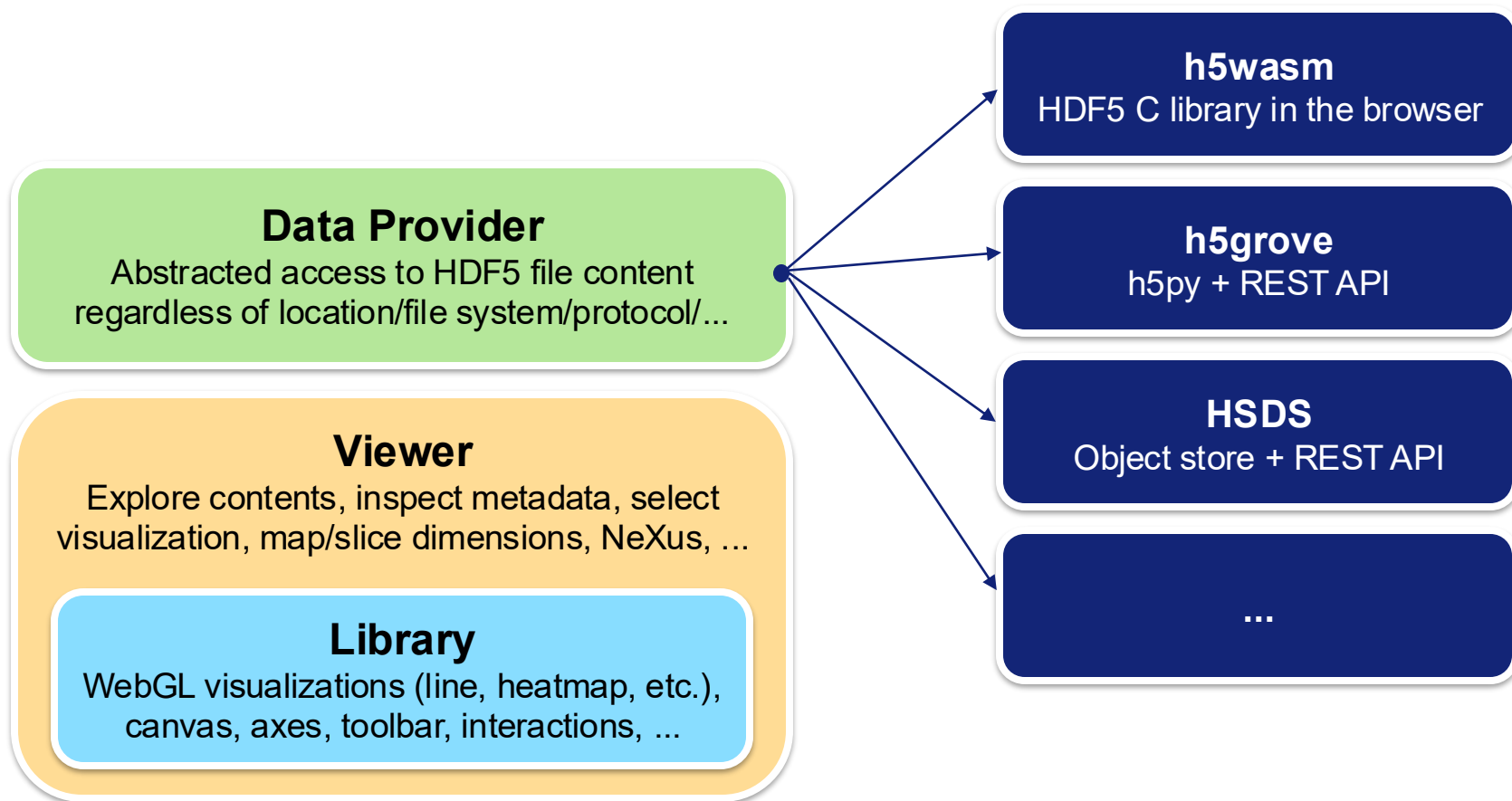
Viewer

Explore contents, inspect metadata, select visualization, map/slice dimensions, NeXus, ...

Library

WebGL visualizations (line, heatmap, etc.),
canvas, axes, toolbar, interactions, ...





Integration

Real-world solution for end users

Data Provider

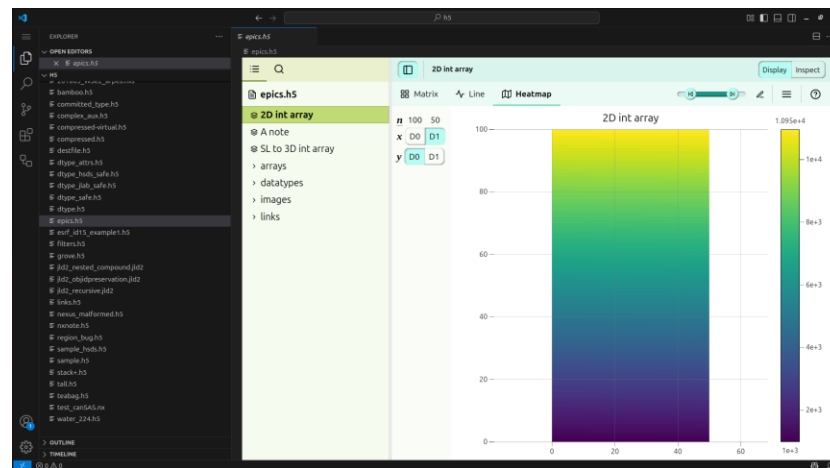
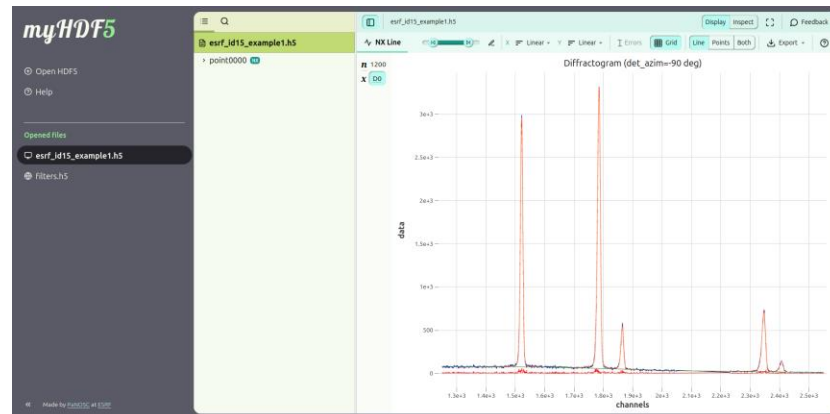
Abstracted access to HDF5 file content
regardless of location/file system/protocol/...

Viewer

Explore contents, inspect metadata, select
visualization, map/slice dimensions, NeXus, ...

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WebGL visualizations (line, heatmap, etc.),
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👉 Demo site: <https://h5web.panosc.eu/>

Highlights

- **Browsing and inspecting** metadata
- Displaying nD datasets as **Matrix**, **Line** and **Heatmap**
- **Visualisation controls**: colormap, limits, scale, flip, etc.
- **NeXus support**: default plot, signal interpretation, custom axes, etc.
- **Interactions**: zoom/pan, select-to-zoom, tooltip

KNOWN INTEGRATIONS

With h5wasm :

- [myHDF5](#)
- [VS Code extension](#) — 53k installs 🎉
- Dataverse, SimWrapper, [and more](#)

With h5grove :

- [JupyterLab extension](#)
- [h5whale](#) (full-stack Docker application)
- ESRF Data Portal, Daiquiri, NOMAD, Galaxy, [and more](#)

Library :

- [Braggy](#) (diffraction image viewer)
- Daiquiri, Davidia, [and more](#)

RECENT(-ISH) DEVELOPMENTS & ADVANCED FEATURES

- Local files of **unlimited** size in myHDF5 and VS Code
- Support for **compression filters** with h5wasm (Blosc 2, LZ4, ZSTD, etc.)
- Inspection of **advanced HDF5 types** (compound, vlen, boolean, enum, etc.) and **committed datatypes**
- Visualise **compound, boolean, enum, complex** and **(u)int64** datasets
- Visualise **JPEG/PNG** images stored as opaque datasets
- Special **RGB** and **scatter** visualisations
- Support for NeXus **auxiliary signals** (line, image, complex)
- **Search** panel
- Built-in **CSV export** with NeXus support
- **Preserve** dimension mapping/slicing when possible

Priorities

- More data fetching flexibility for consumers of h5grove/HSDS providers (token-based authentication, retries, etc.)
- Maintain camera zoom/pan when switching dataset
- React 19 upgrade
- Support latest version of HSDS

Backlog

- SVG/PNG export with axis, colour bar, etc.
- Video-like playback of image stack with prefetching
- Select axis dimension from dataset
- More customisable/composable viewer
- Better support for fully custom viewers
- Better support for other data formats than NeXus
- HDF5 dimension scales
- h5wasm provider with range-based fetching
- More providers (Tiled API, Zarr, etc.)
- Array of JPEG/PNG images
- Nested compounds
- JSON serialization limitations (NaN, int64, etc.)
- Safer handling of very large datasets
- Float16Array
- Sorting in explorer panel
- Categorical axes
- nD scatter plots
- 3D visualisations