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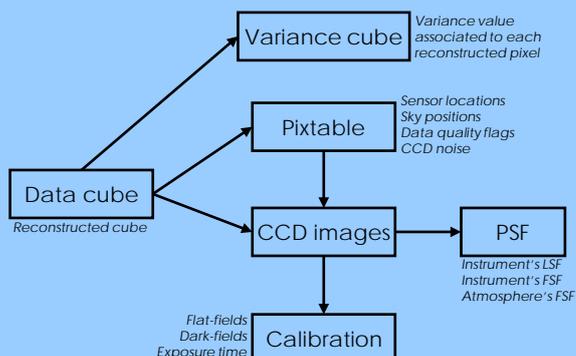
- **Hyperspectral observations** (2D + λ) and their related **parameters** (variances, PSF, metadata...) are large data whose **visualization, analysis and handling** are crucial for observational sciences in astronomy but can no longer be tackled by existing softwares. Indeed, the **size, the complexity and the heterogeneity** of such image cubes require new tools for data exploration and understanding
- We then propose a new **cross-platform visualization and analysis software** named **QuickViz** based on the **Aladin** software (developed at the CDS, Strasbourg) providing a set of basic and advanced features that ease the **exploration of hyperspectral data cubes**
- Moreover, **complex relationships between data cubes, parameters and metadata** can be managed using the **SAADA** strategy to build up **relational astronomical databases** automatically generated and populated from FITS files. **Queries** on the database can thus be executed in a user-friendly manner for **dataset exploration and interpretation**, despite the huge size of data and high number of logical links

Logical binding with SAADA

The SAADA application helps to easily build **databases for heterogeneous data collections**, with the ability to create and maintain **logical bindings** between various classes of datasets, for instance observations, metadata, calibration files, source catalogs, etc...

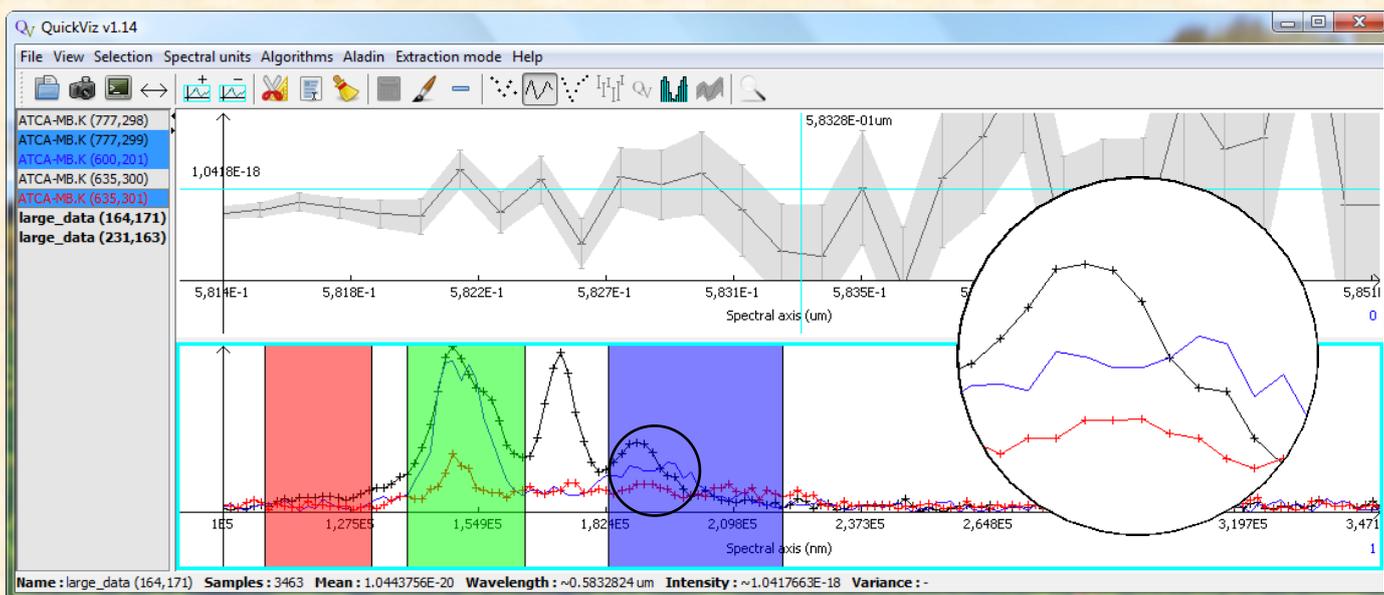
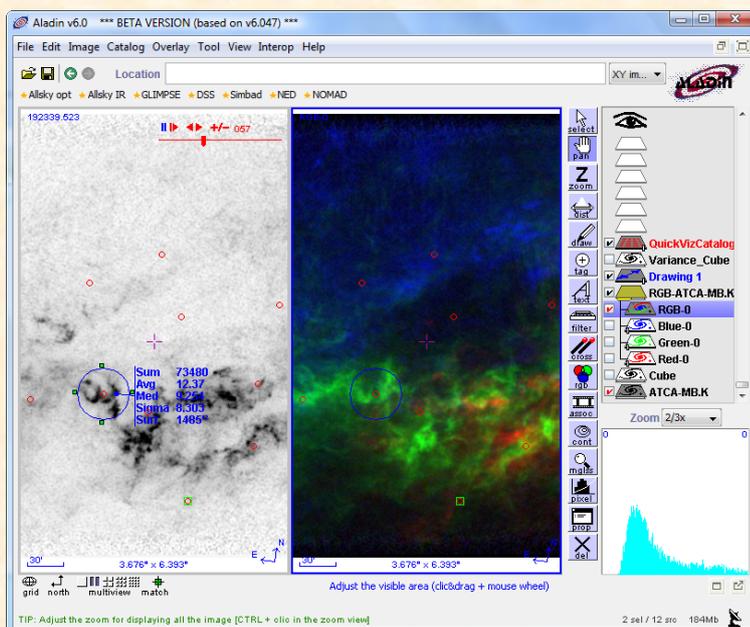
Besides an appropriate web interface, it offers a framework compatible to the Virtual Observatory interoperability tools. SAADA will support database queries, interface to services like **Obs/TAP, SIAP, SSA or CS**, and pass the visualizing task to **VO tools**, like Aladin (with QuickViz plugin compatibility), TopCat, VOSpec, etc...

Here is an example of a database setting for supporting IFU simulated data cubes (MUSE) with their associated parameters and bindings.



QuickViz Design

- **Written in Java** for portability
- **Plugin architecture** docked on Aladin platform : **VO interaction, image and catalog handling** inherited
- **Extensible classes for new algorithms and visualization modes**



Development Perspectives

- An **interactive map** representing the variance in the data cube is currently implemented. Various local PSF representation are being tested for a future release
- **Interoperability**: the finer astronomical analysis of spectra will be delegated to other VO tools (like SPLAT or VOSpec) thanks to the implementation of the SAMP protocol
- **Finer interaction between SAADA, Aladin and QuickViz** to automatically search through the SAADA repository from these visualization tools

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QuickViz's website: <http://lsit-miv.u-strasbg.fr/paseo/cubevisualization.php> **SAADA's website:** <http://saada.u-strasbg.fr>