ViaLactea: a Visual Analytic environment to explore our Galaxy

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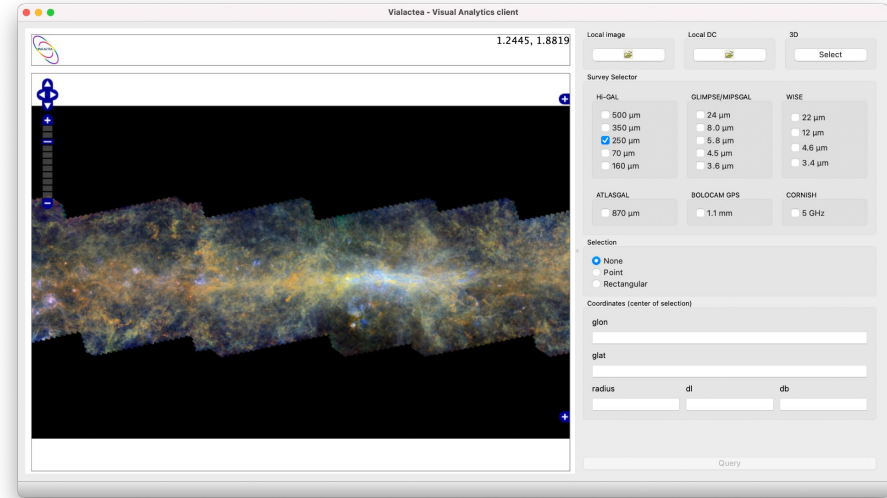Forum della Ricerca Sperimentale e Tecnologica in INAF 2022 - Bologna

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Overview

- Development started in 2015

- Part of the VisIVO Framework

- Open-source desktop application that offers a visual analytics environment to conduct research activities on two-dimensional regions of space and three-dimensional datacubes.

- Official client of the VLKB which includes 2D and 3D surveys, numerical model outputs, point-like and diffuse object catalogues.

https://github.com/NEANIAS-Space/ViaLacteaVisualAnalytics

https://hub.docker.com/r/neaniasspace/vialacteavisualanalytics

https://marketplace.eosc-portal.eu/services/space-vis-vialactea-service
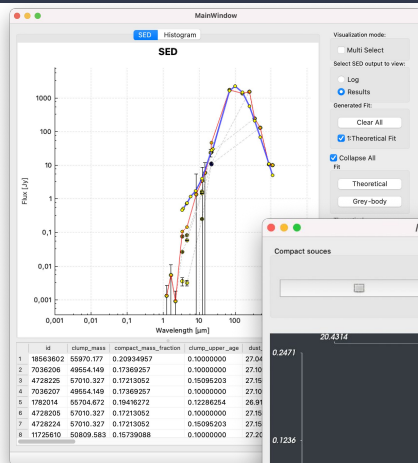
Image visualization

- Downloadable data (cutouts / merge services) from the VLKB

- Layers stack

- Compact sources

- Filament structures

- SED Plot

- SED Fitting

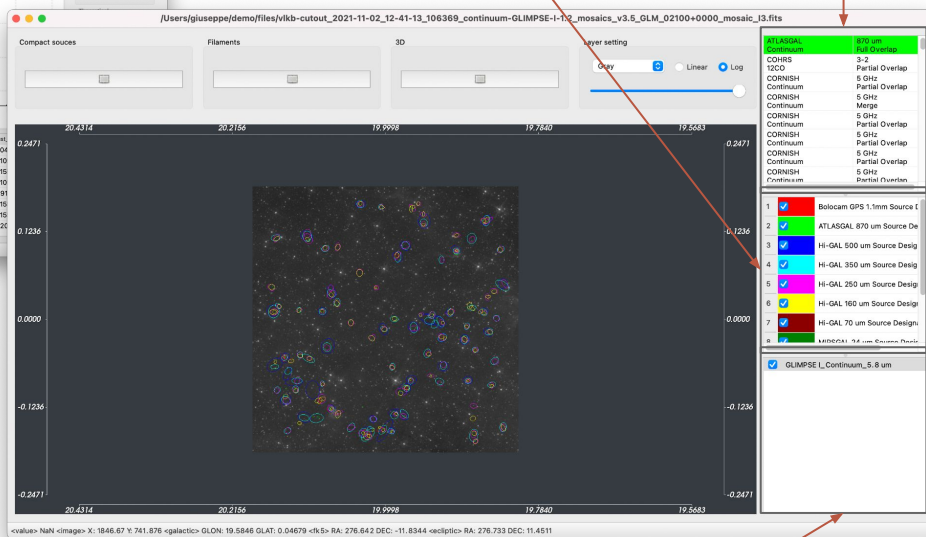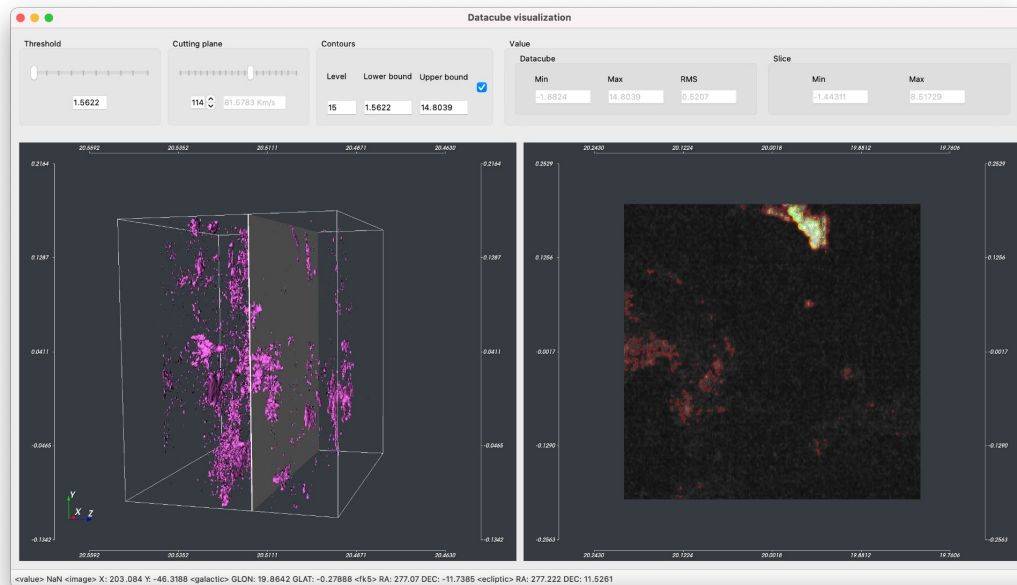
VLKB Inventory

Compact sources/ filaments

Image layers stack

Datacube visualization

- Volume rendering
- Slice visualization
- Isocontours
- Moment maps

Integration with CAESAR

- A REST-ful web service based on Flask framework for running CAESAR source finding jobs
- Upload current image to the SFinder service
- Source finder selection and job configuration
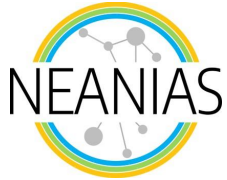- Job monitoring and job output download from VLVA

https://github.com/SKA-INAF/caesar-rest
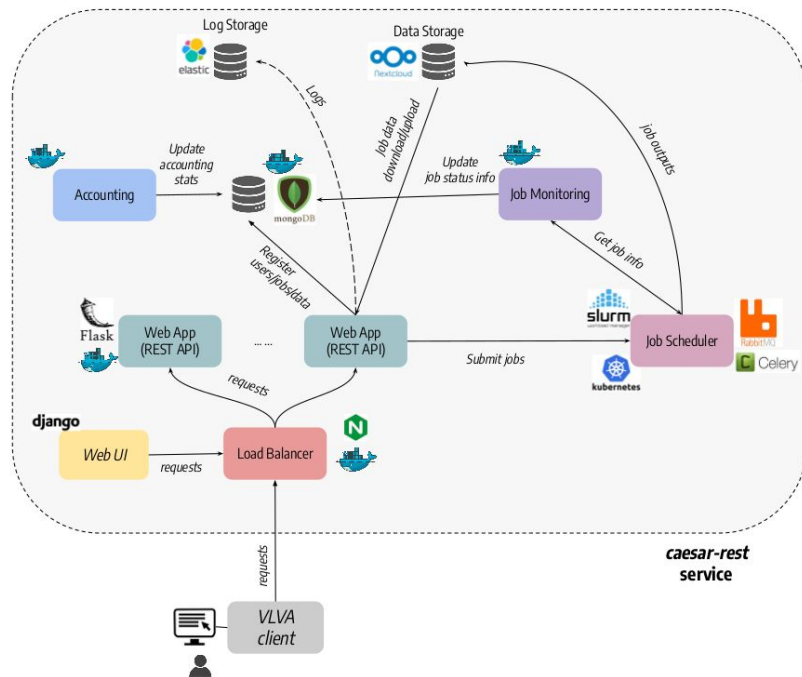
Source refinement

- Analysis of source finder results
- Refinement of extracted sources
- Removing false-positive sources detected
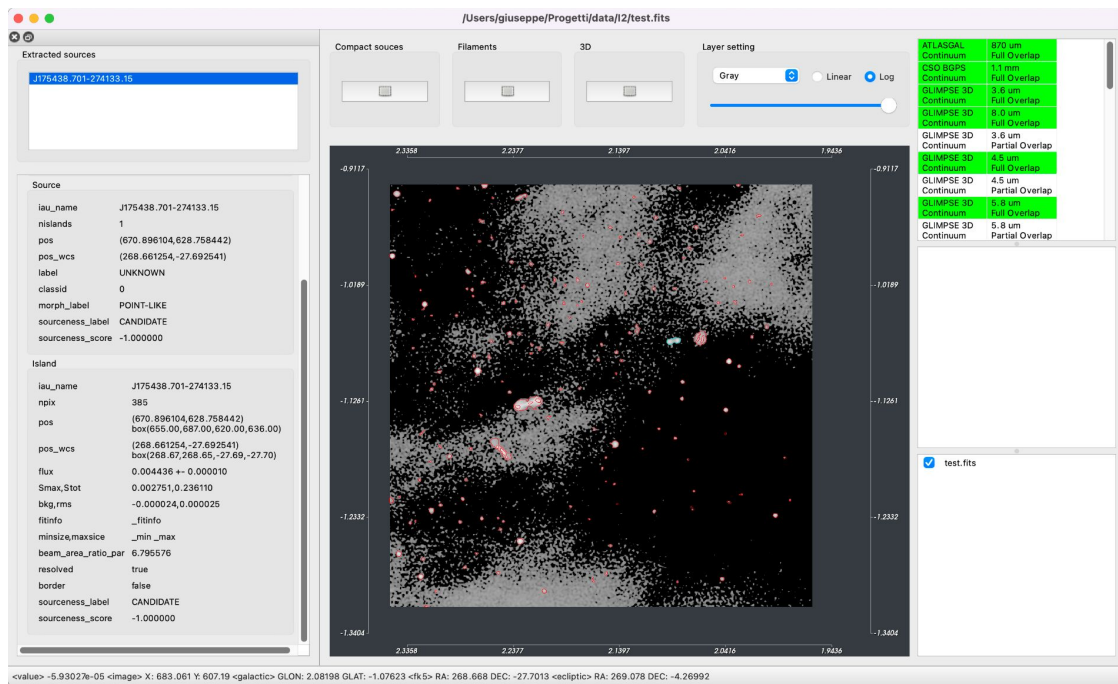
Conclusions and future developments

- Support for simulated data
- Source catalogue refinement with dedicated services
- Being upgraded to address SKA visualization and data analysis challenges
  - Remote visualization based on scalable infrastructures
  - Parallel and distributed visualization pipelines