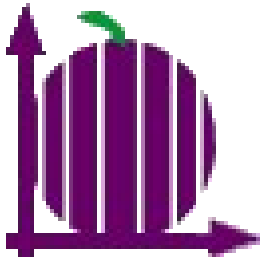
News of CASSIS

Jean-Michel Glorian & co



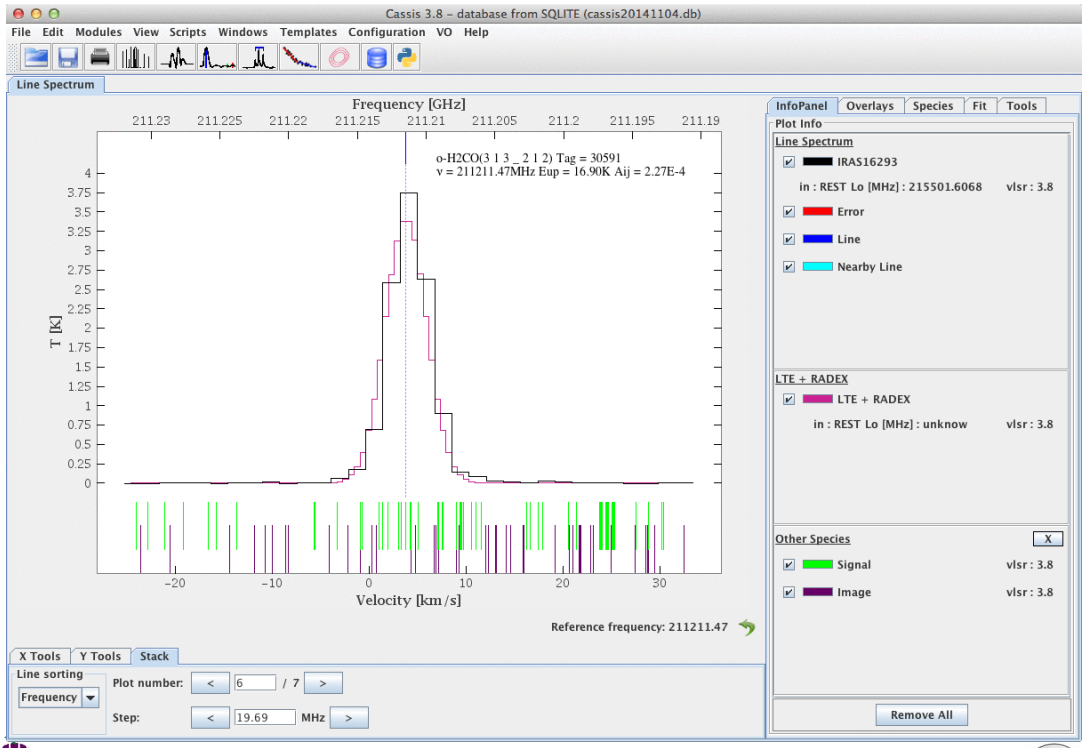
Summary

- General presentation
- What is new in the current version
  - Better SAMP integration
  - Module to read any ASCII spectrum file
  - Module Advanced fit module
- Use case with DataLink to process spectrum and
- Citation of data with VAMDC implementation in next version
- What is planned for the future version
- Links

General presentation 1/2

- **Tool to access, read, visualize, treat and analyze electromagnetic spectra** using **chemical species,** models and other synthetic or observed **spectra**

An example of the line analysis tool: inspecting o-H2CO lines in the observed spectrum (black) overlaid with an LTE model (pink)



General presentation 2/2

- CASSIS is part of the french structure OV-GSO-DC (Great South Western Virtual Observatory Data Center)

- Several ways to run it
  - On the fly (directly or Using the Applauncher application from JMMC) http://cassis.irap.omp.eu/online/cassis.jnlp
  - Via an installer http://cassis.irap.omp.eu/download/installCassis.jnlp
  - Download the tar.gz file and run the jar file by script shell or batch http://cassis.irap.omp.eu/?page=installation

- Regular update every 2 to 6 months
  - Last version 5.0 - July 2017
  - Next version expected before the end 2017

Better SAMP integration 1/3

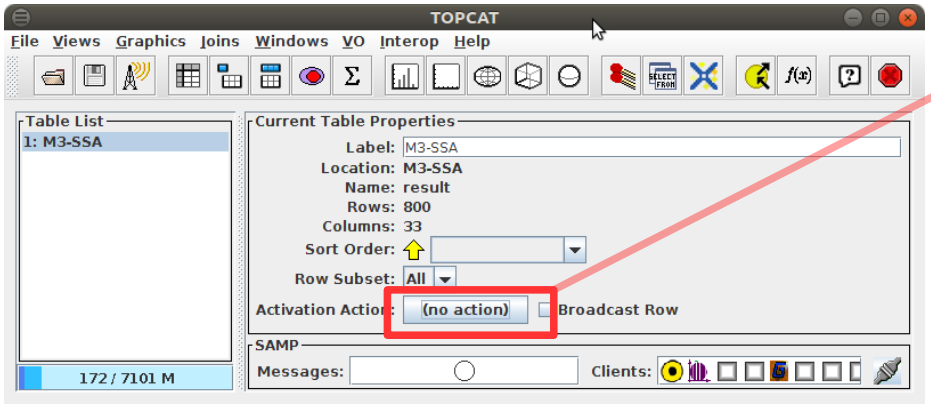
- Improvement of SAMP Connection to take into account all the SAMP metadata (not only url)

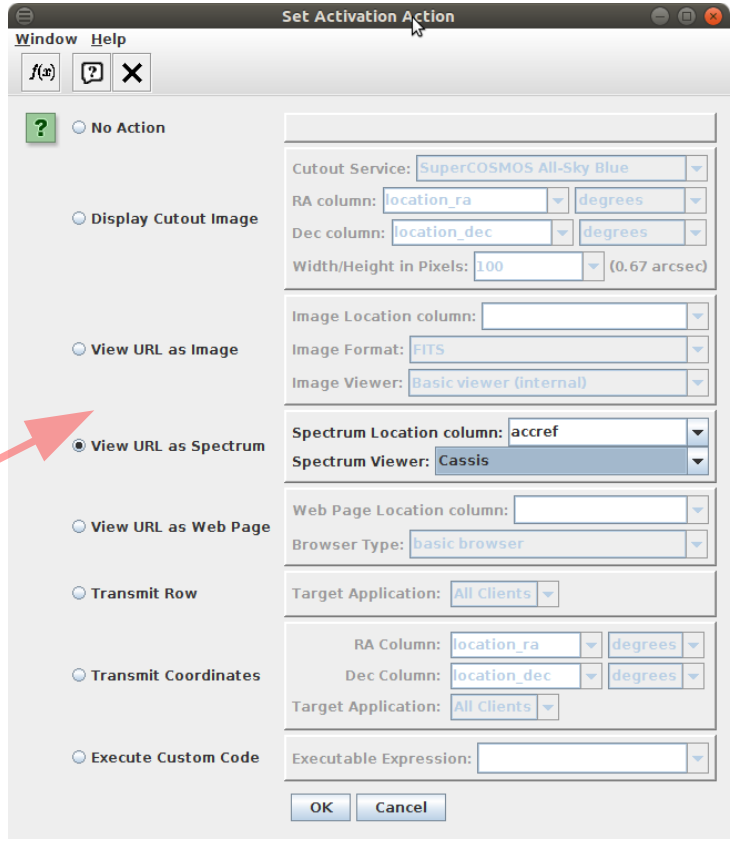
- Use case based on VO Tutorial: Discover rare galaxies (Igor Chilingarian and Ivan Zolothukin)
  - http://rcsed.sai.msu.ru/article/tutorial-discover-rare-galaxies-rcsed-catalog-data/

  - work with Pierre LeSidaner and Ivan Zolothukin
  - Use « Activation Action » functionality of Topcat

Better SAMP integration 2/3

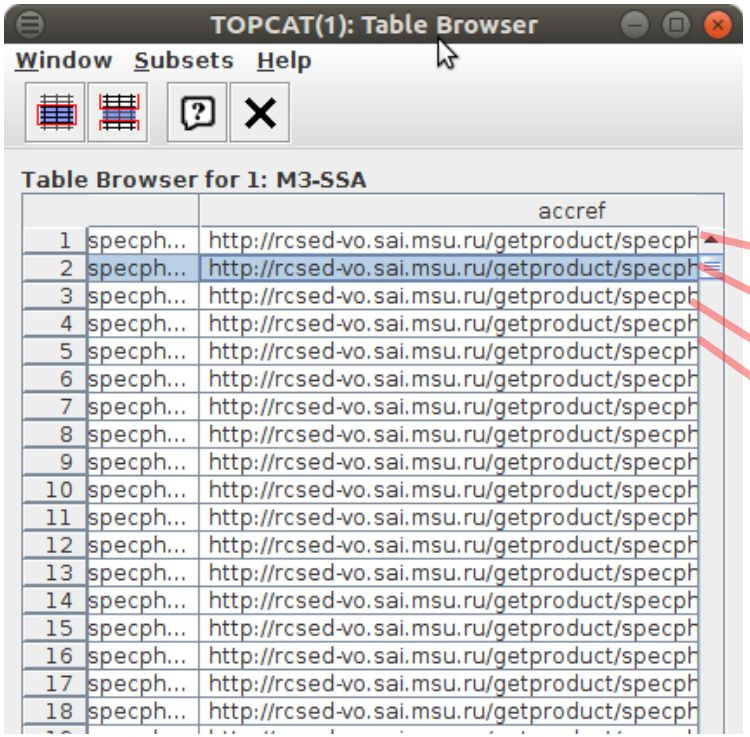
- Topcat → Menu VO → SSA
  - Service : http://rcsedvo.sai.msu.ru/specphot/ssap.q/ssa/ssap.xml?
  - Target : M31

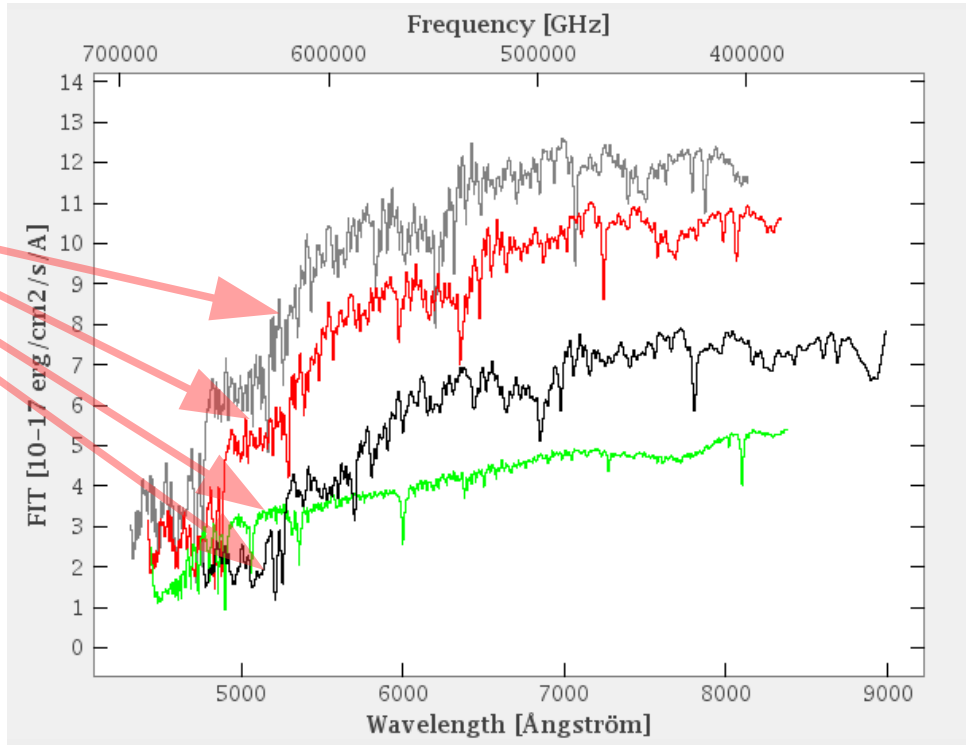




- Click on the Activation Action button
- Choose column accref and CASSIS as Spectrum Viewer

Better SAMP integration 3/3

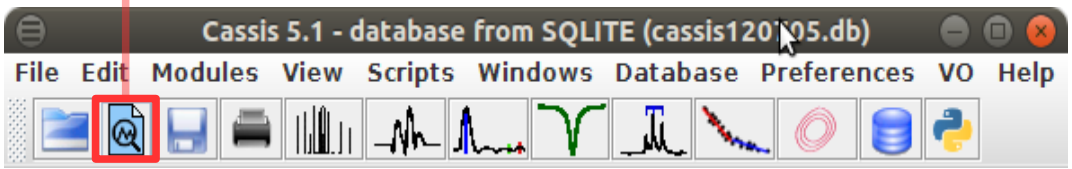


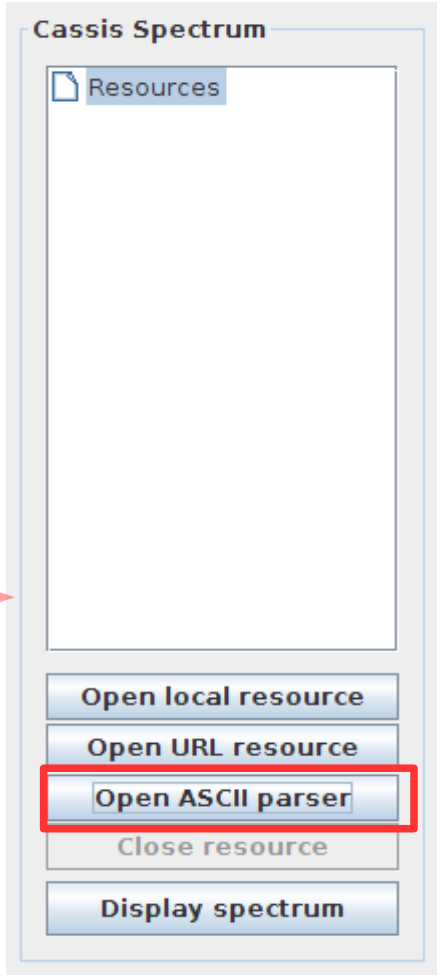


- Each click on a line in the accref column displays a spectrum in CASSIS via SAMP

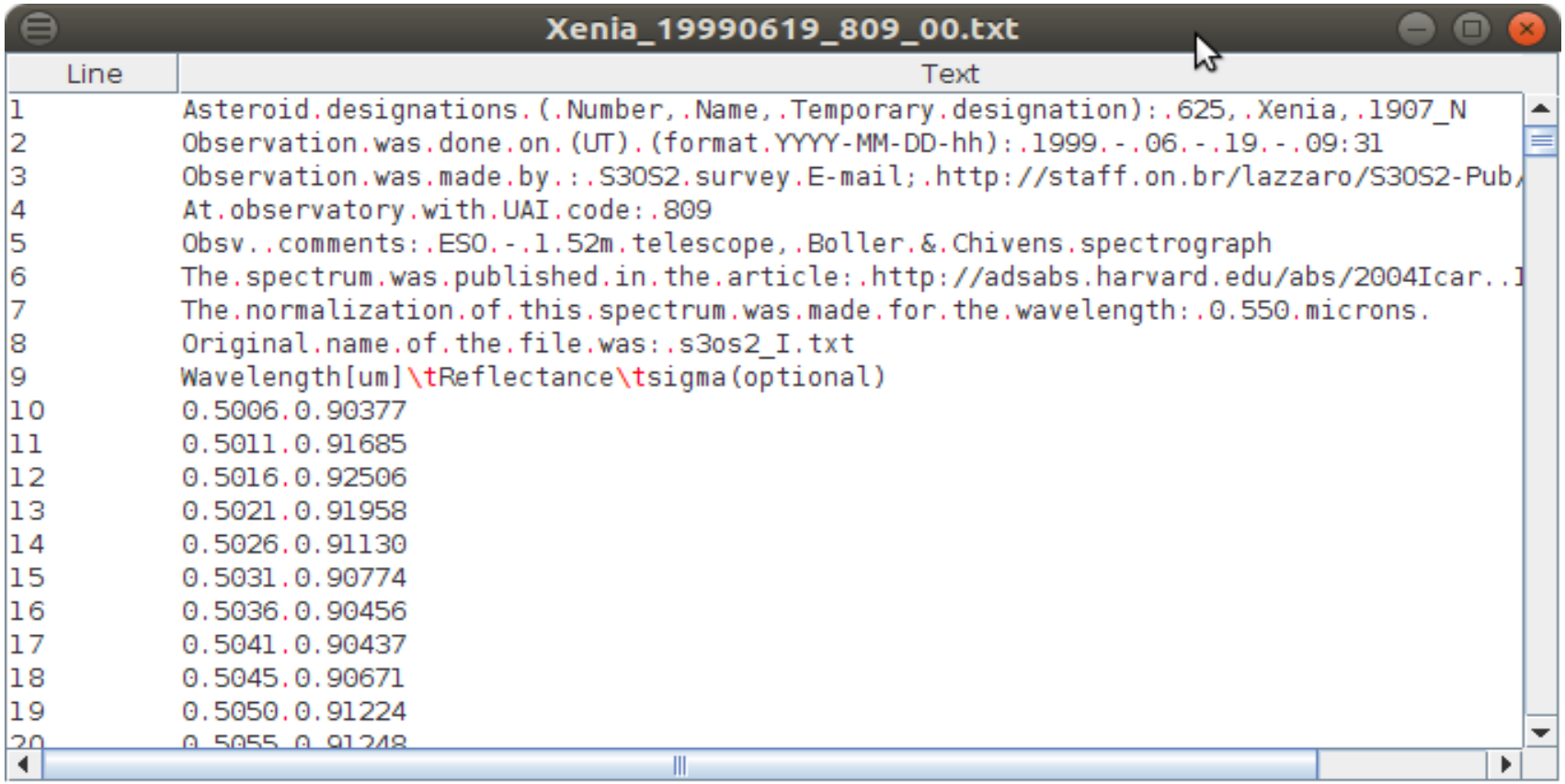
Advanced ASCII reader 1/3

- Goal : read a spectrum ASCII data file (no standard format)
  - metadata
  - Name of the column with unit
  - Data
- Access trough the Spectrum Manager Module



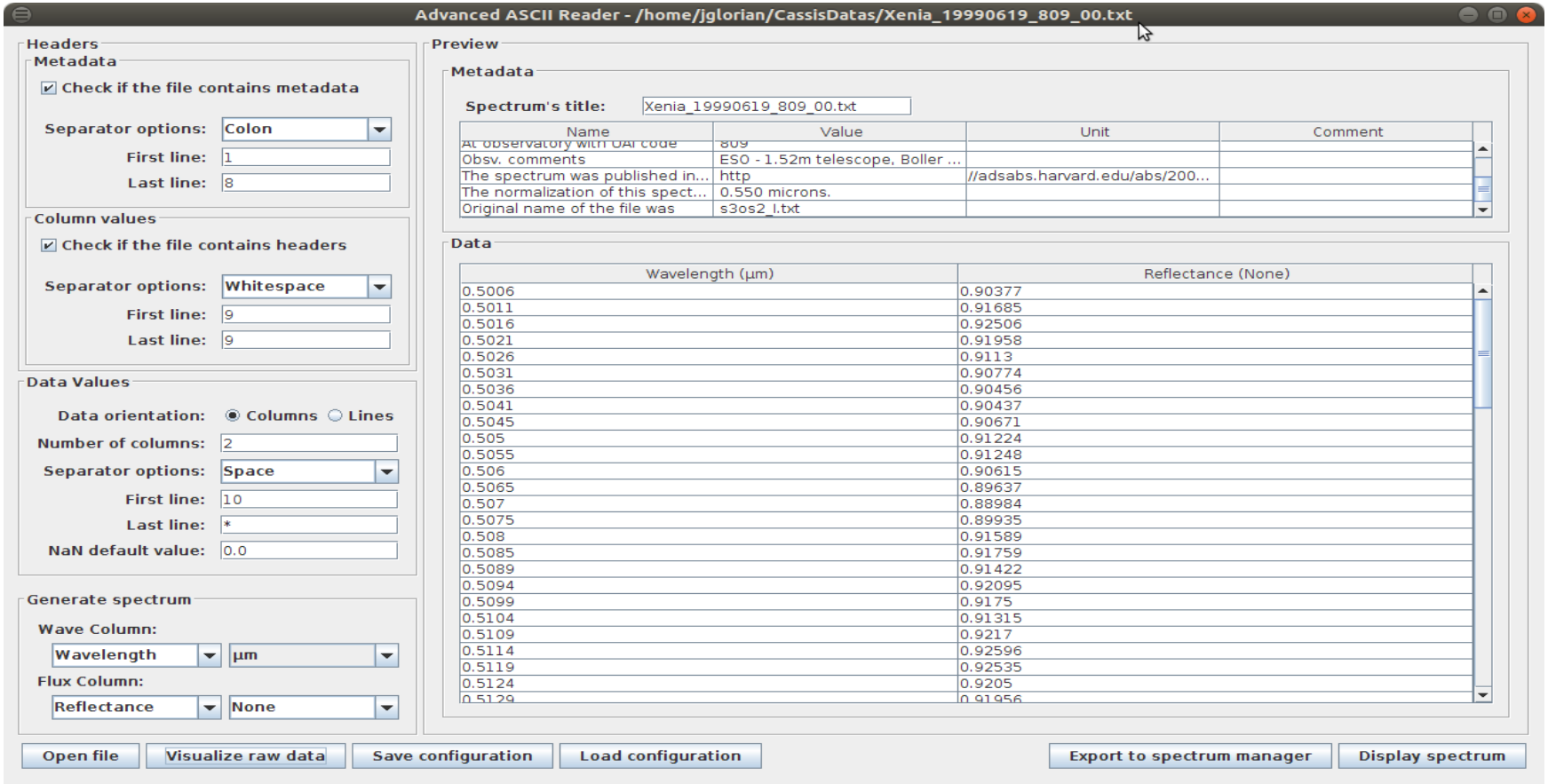


Advanced ASCII reader 2/3



- Raw text file

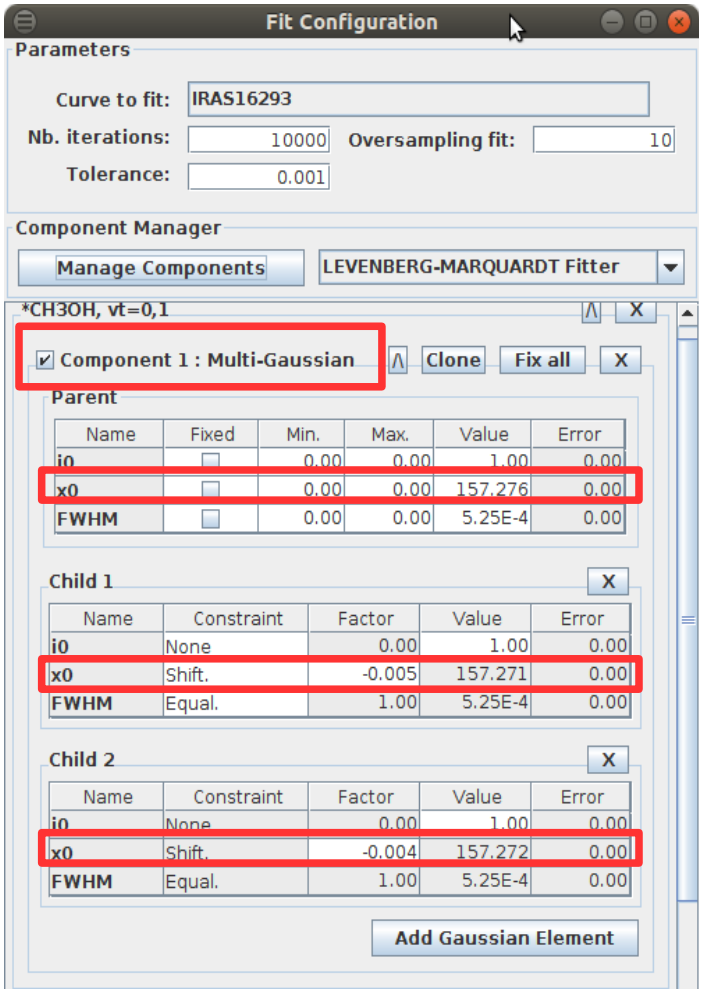
Advanced ASCII reader 3/3



- Automatic detection of metadata, columns and data
- Possibility to adjust them

Advanced Fit Module

- Works with fitting module developed in Hershel project by Do Kester
- Component constrain possible to simultaneously fit n-uplet transitions
  - Ex : 3 gaussians components with offset set on X0
- Initial guesses can be extracted from spectroscopic databases

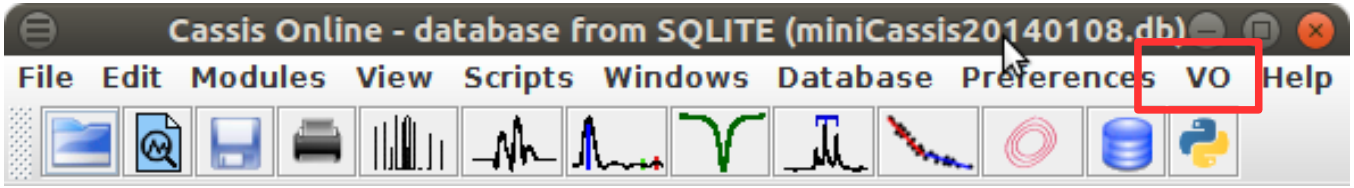


DataLink to process a spectrum 1/6

- Collaboration with M. Sanguillon concerning the synthetic spectra database POLLUX
  - Use case based on the tutorial of specflow http://www.euro-vo.org/sites/default/files/images/specflow_tutorial.pdf
  - DataLink implementation allows users to apply a convolution module on a part of the synthetic spectrum

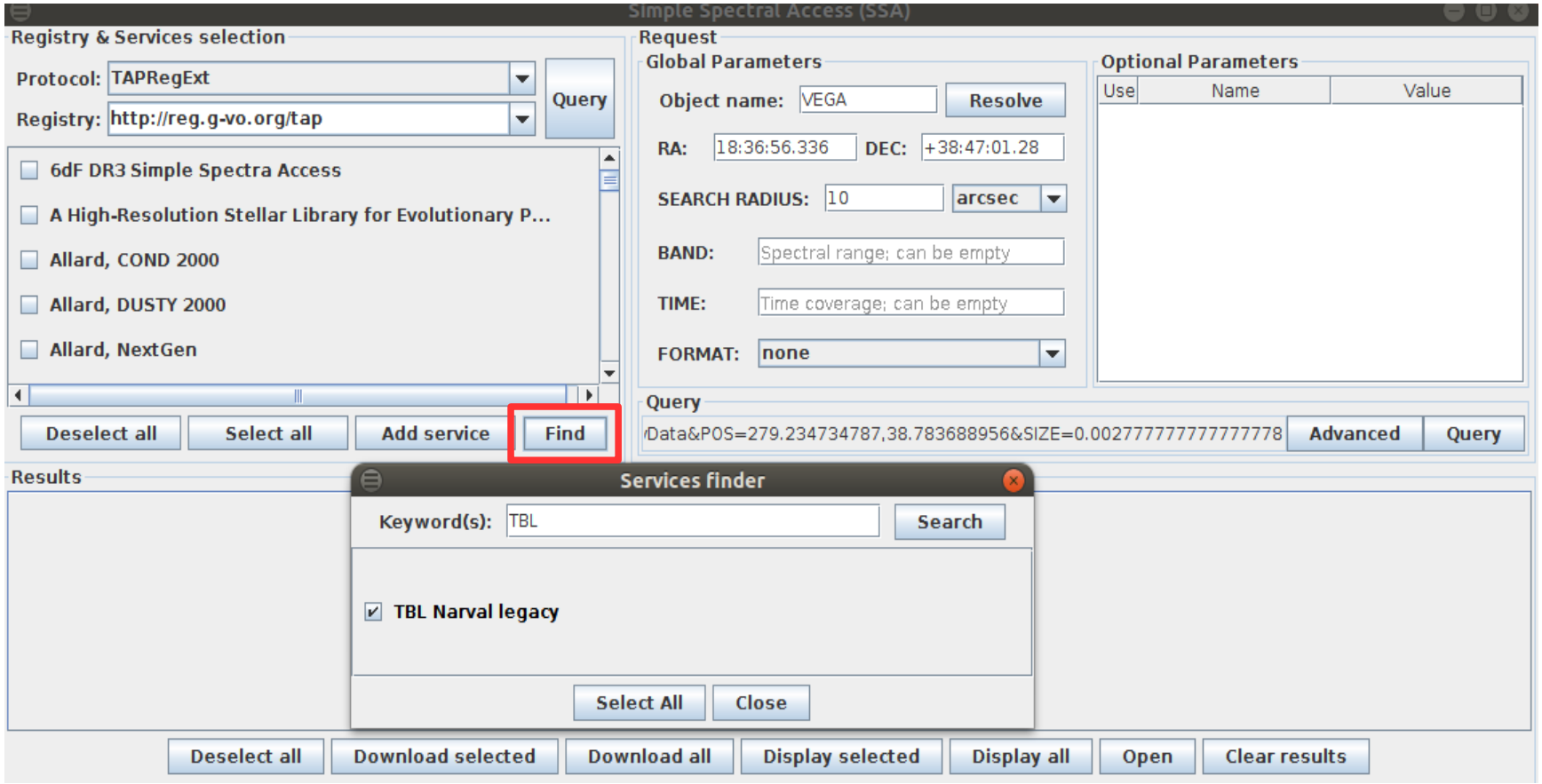
DataLink to process a spectrum 2/6

Run CASSIS from AppLauncher



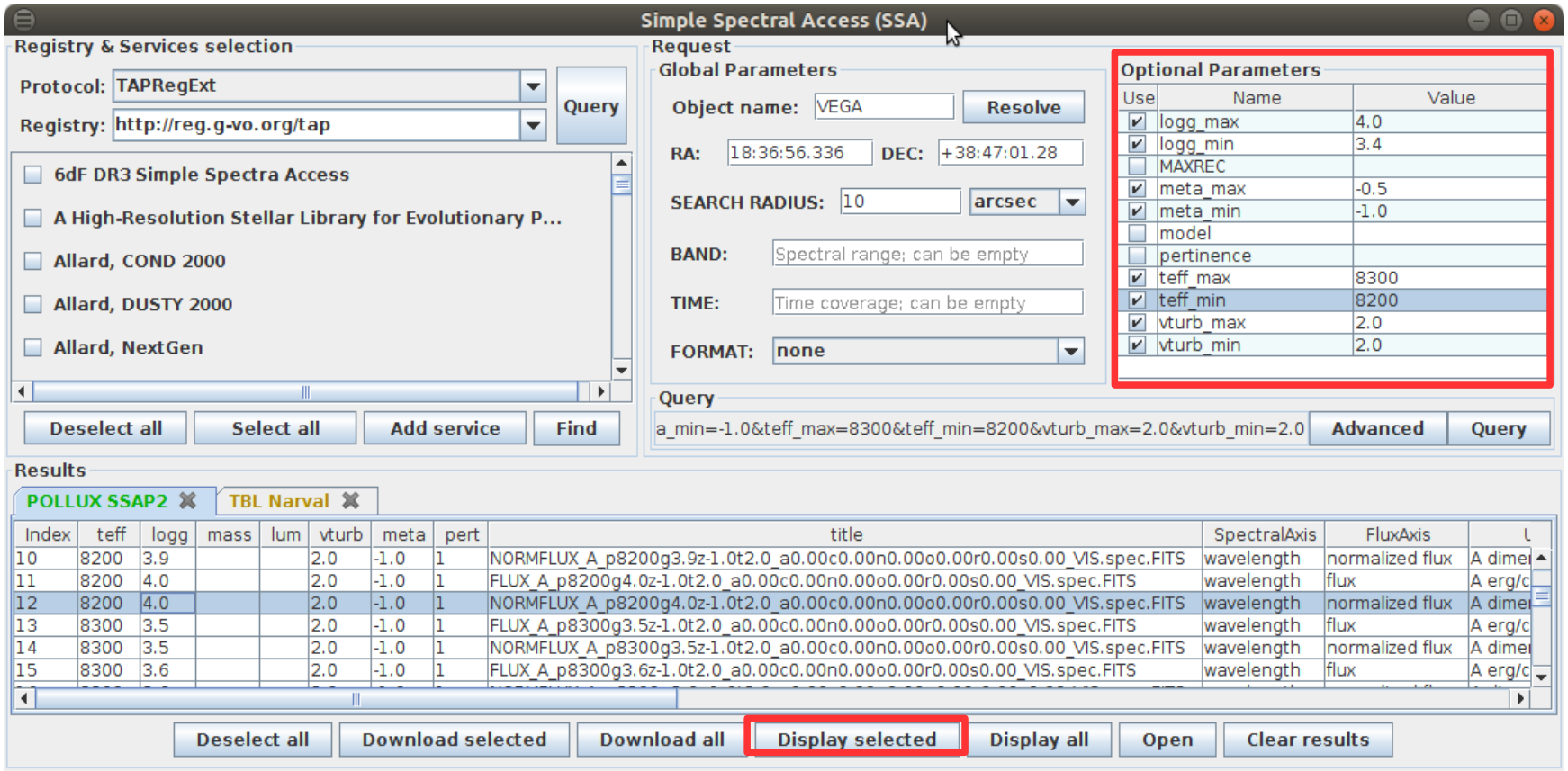
Run SSA Module

DataLink to process a spectrum 3/6



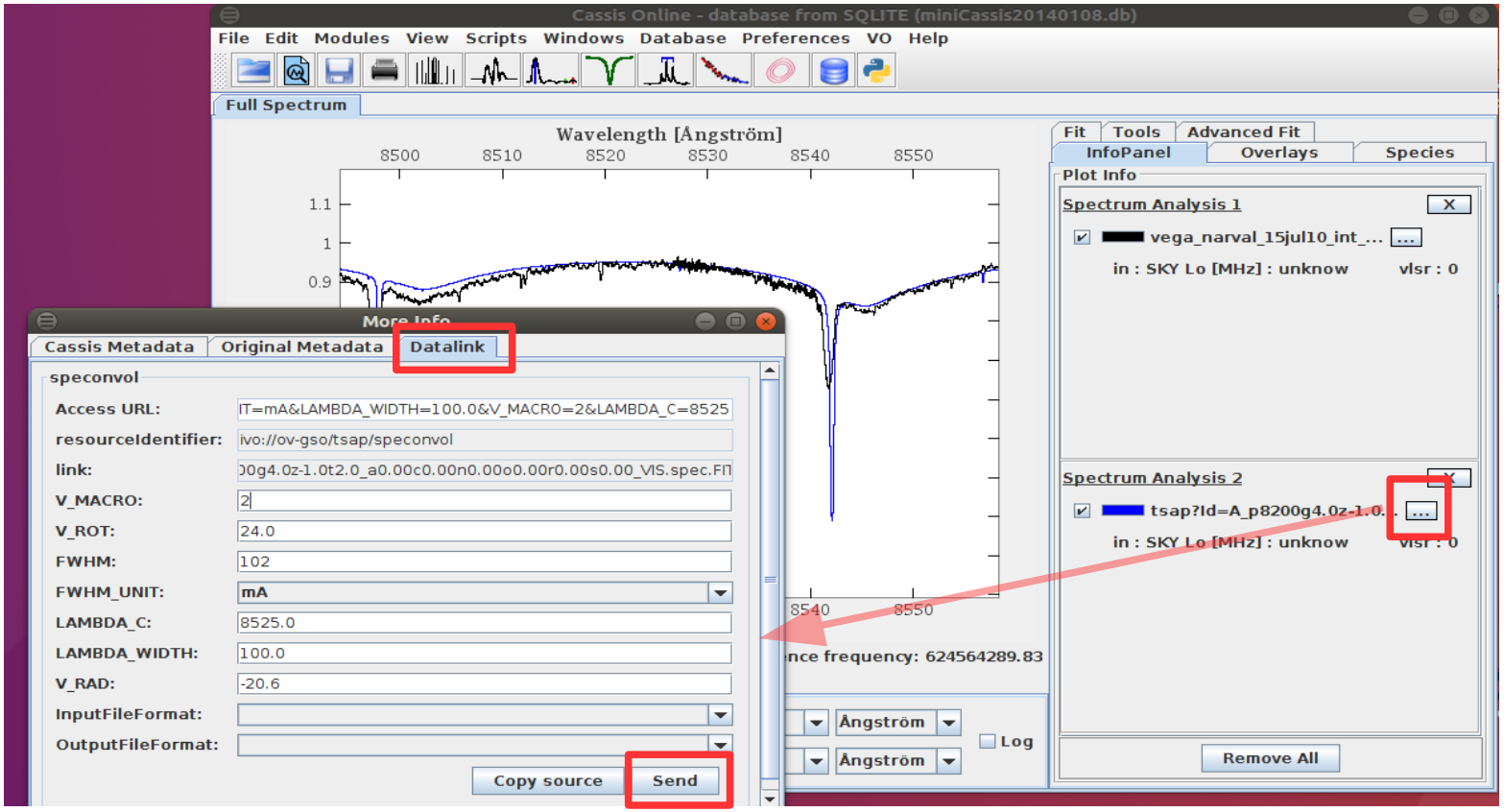
- Select observed spectrum from SSA TBL service with VEGA target

DataLink to process a spectrum 4/6



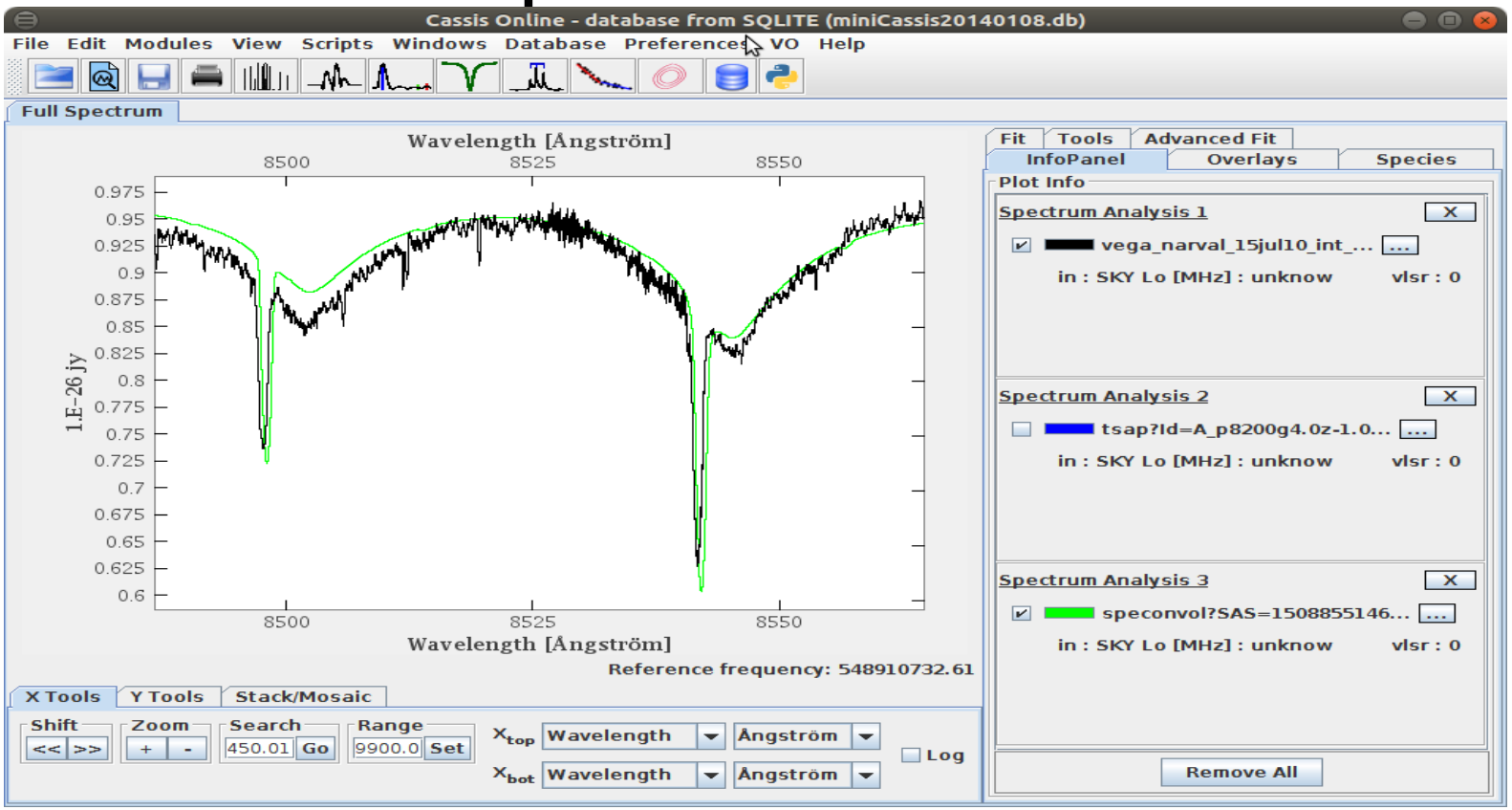
- Select synthetic spectrum from SSA POLLUX service with VEGA SIMBAD and VizieR parameters

DataLink to process a spectrum 5/6



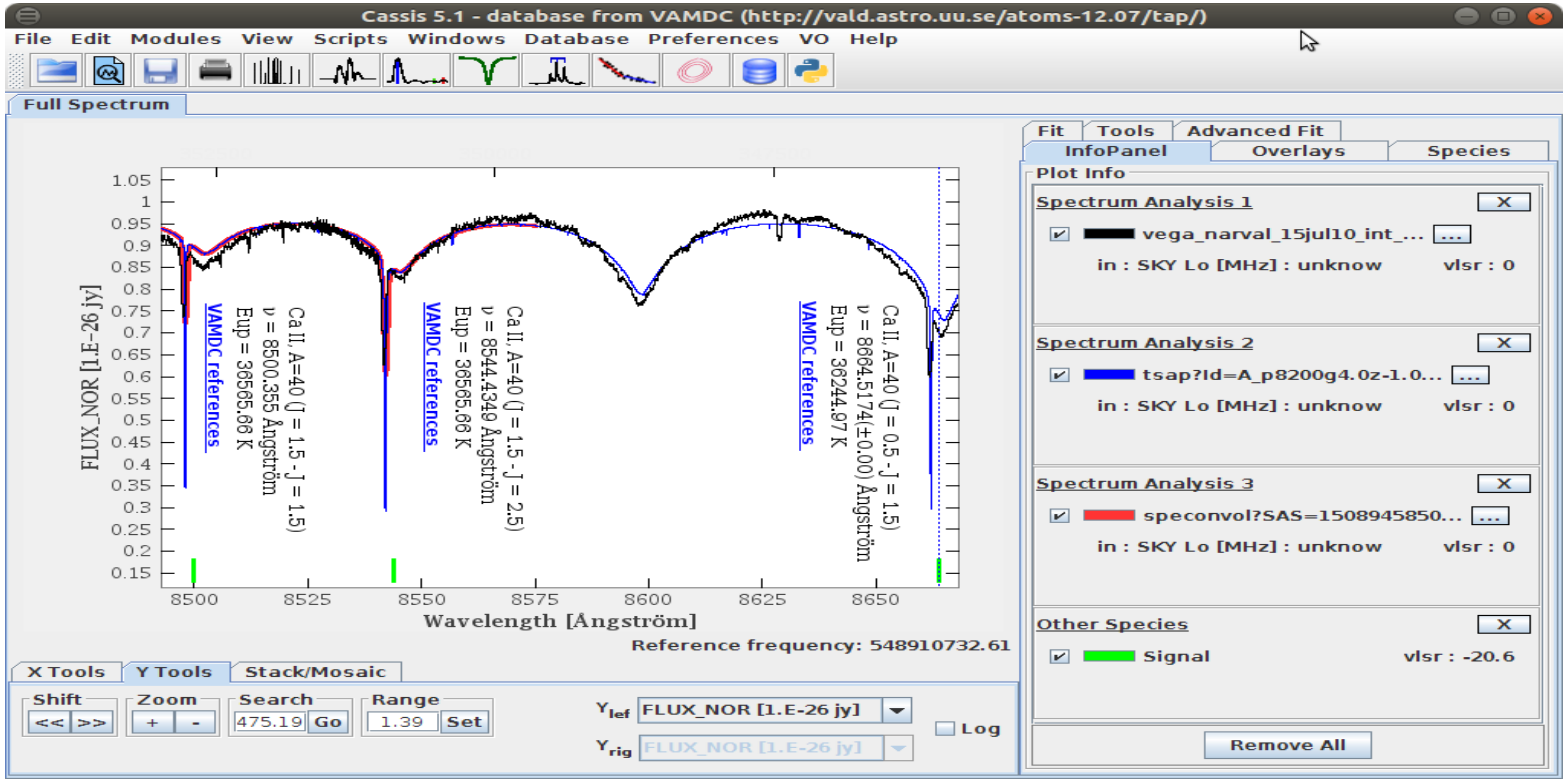
- Click to see the DataLink and to run the convolution

DataLink to process a spectrum 6/6



- The convolved spectrum fits better the observed data

Data citation with VAMDC



- Interrogate the atomic VALD database with the VAMDC protocol
- Interrogate the query store of VAMDC to have the DOI and the references of the lines

Future features

- Development of an **ObsTAP access** module
- Development of a **UWS access** module
  - To launch spectral models
- Development of a SIMDAL access module
  - Collaboration with Franck Le Petit to interrogate the ISM database
- Processing and modeling a set of spectra from a data cube
- Read more types of files containing spectra
- Interface with new chemical species databases

And may be

- Have a simpler and lighter software version of CASSIS ?
- Have a CASSIS lite on your web browser ?
  - As Aladin Lite
- Some modules of CASSIS in python ?

Links

- CASSIS
  http://cassis.irap.omp.eu
- OVGSO-DC
  https://ov-gso.irap.omp.eu/
- POLLUX
  http://pollux.oreme.org
- AppLauncher
  http://www.jmmc.fr/applauncher
- IVOA
  http://www.ivoa.net
- VAMDC
  http://portal.vamdc.org
- Tutorials
  - http://rcsed.sai.msu.ru/article/tutorial-discover-rare-galaxies-rcsed-catalog-data/
  - http://www.euro-vo.org/sites/default/files/images/specflow_tutorial.pdf