

# LineTAP

## Prototype implementation in SPLAT

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DAL Meeting on LineTAP July 2022

- open questions discussed, text adapted.
- Current state: submitted as Working Draft  
<https://github.com/ivoa-std/LineTAP>
- Implementations can show what can be improved

- Cassis (see presentation by J.M.Glorian)
- SPLAT (ongoing implementation)
- LineTAP tables can be found with TopCAT or other TAP clients
- Issues
  - how to address species (especially molecules)
    - InChI, name, formula...
  - idea: add a species table to the standard? - trying this now
  - need more line data to test!

- splat new beta release with LineTAP (end of May)
- get feedback on what can be added/improved

Short demo:

# Searching for Barium lines on a spectrum

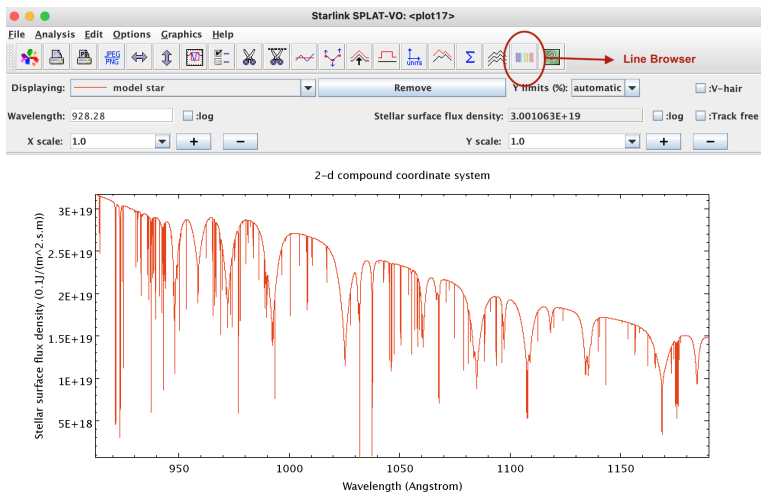


Figure: theossa model star spectrum

[http://dc.zah.uni-heidelberg.de/getproduct/theossa/spec/upload/pgcool\\_hheco\\_e8575\\_ba\\_fuse\\_1.5e-3\\_2015-05-13\\_11\\_16\\_29.vot](http://dc.zah.uni-heidelberg.de/getproduct/theossa/spec/upload/pgcool_hheco_e8575_ba_fuse_1.5e-3_2015-05-13_11_16_29.vot)

# LineBrowser Window

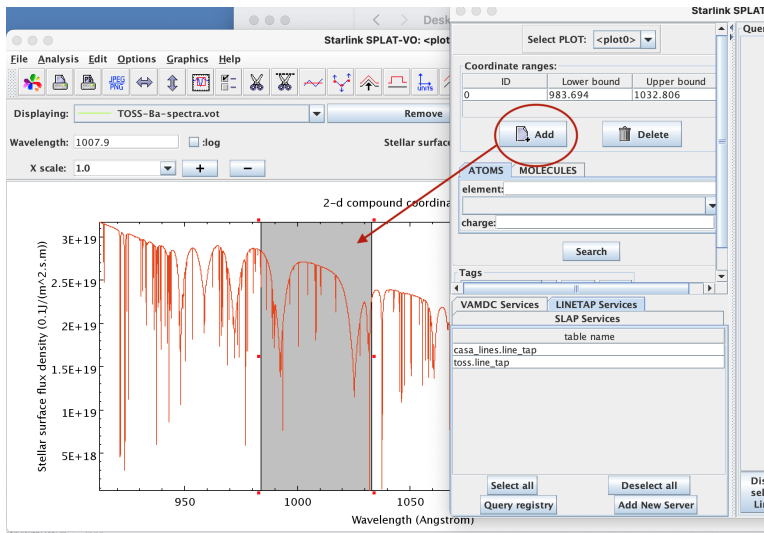


Figure: marking the range where to search for lines

# Choice of Species - Molecules

The figure consists of two screenshots from the Starlink SF interface. The left screenshot shows a search window with a 'Select PLOT:' dropdown set to '<plot0>'. Below it is a 'Coordinate ranges:' section with a table with columns 'ID', 'Lower bound', and 'Upper bound', and 'Add' and 'Delete' buttons. The 'MOLECULES' tab is selected, showing a list of molecules: 'meth', 'Methane', 'Hexamethylenetetramine', 'Cyanomethylidyne', 'Malononitrile, dicyanomethane, methylene cyanide', '\$I^{(2)}\$-azanylidene-methanone', 'Methyl Bromide', 'METHANOL CATION', and 'Methyl fulminate'. Below the list is a 'table name' field with 'casa\_lines.line\_tap' and 'toss.line\_tap' entries. The right screenshot shows a similar window but with a detailed view of the search results. The 'MOLECULES' tab is selected, and the search results are displayed in a table with columns 'ID', 'Lower bound', and 'Upper bound'. The search results include 'molecule:CO2', 'Protonated CO2', 'Protonated CO2', 'Oxyhydroxymethylum, Protonated CO2', and 'Carbon Dioxide'. The 'Tags' section is also visible, along with 'VAMDC Services' and 'LINETAP Services' tabs.

Figure: molecules search - search by InChI

search by name or formula to retrieve InChI  
from table species.main at <http://dc.zah.uni-heidelberg.de/tap>  
data from vamdc.org species



# Choice of Species - Atoms

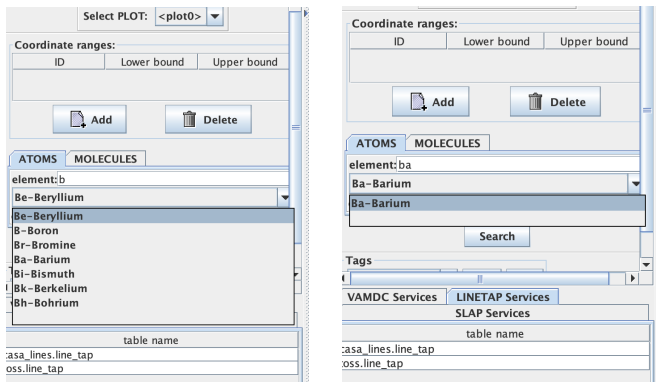


Figure: Atom search - search by Element

from hardcoded list of elements  
search by name or element symbol

# Search for Barium lines

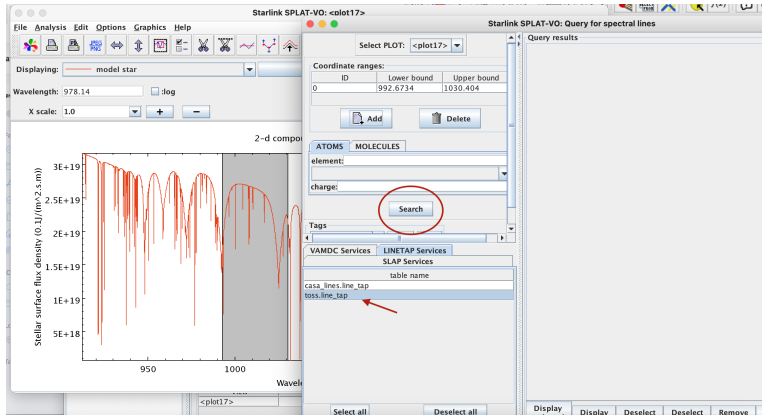


Figure: search for barium lines

# Search for Barium lines

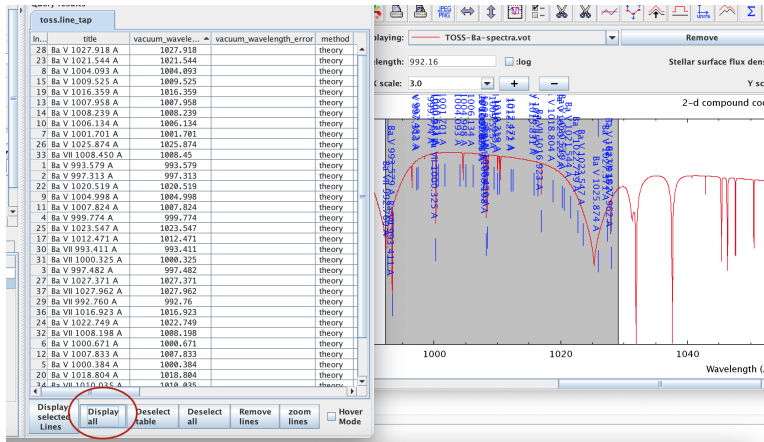


Figure: display all found barium lines

# Search for Barium lines

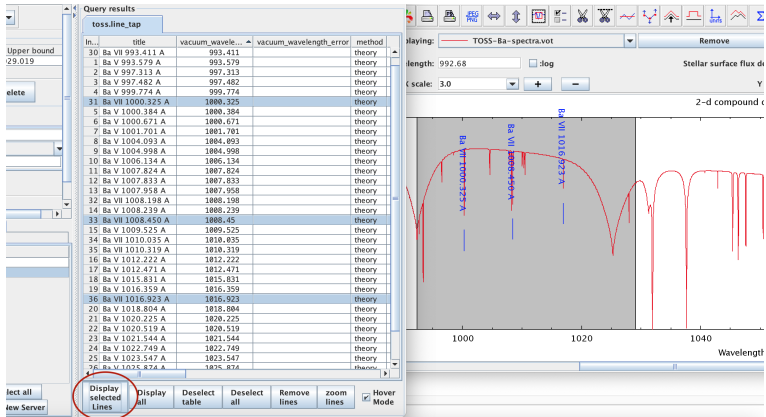


Figure: select and display lines

# Search for Barium lines

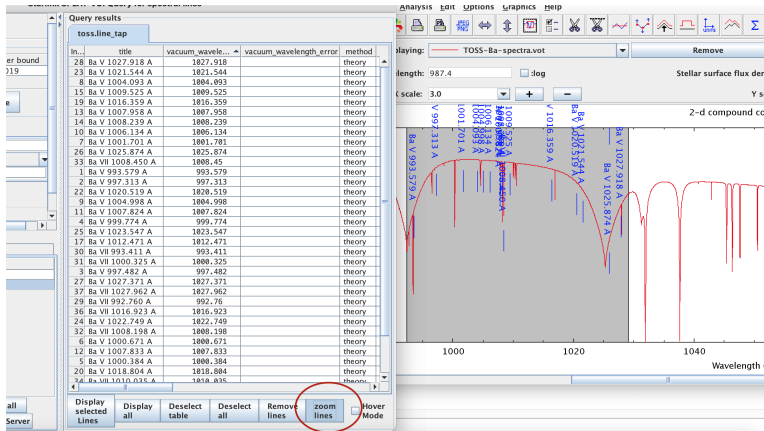


Figure: zoom lines based on EinsteinA

display "stronger" lines first, when zooming in more lines are displayed

# Search for Barium lines

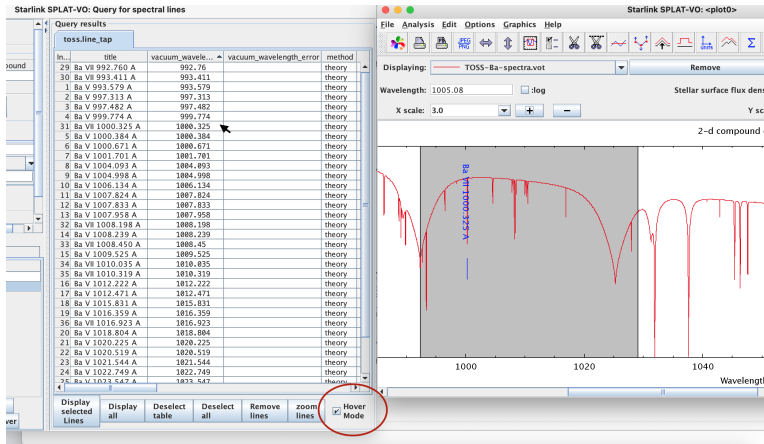


Figure: hover mode

display the line currently under the cursor

# too many lines

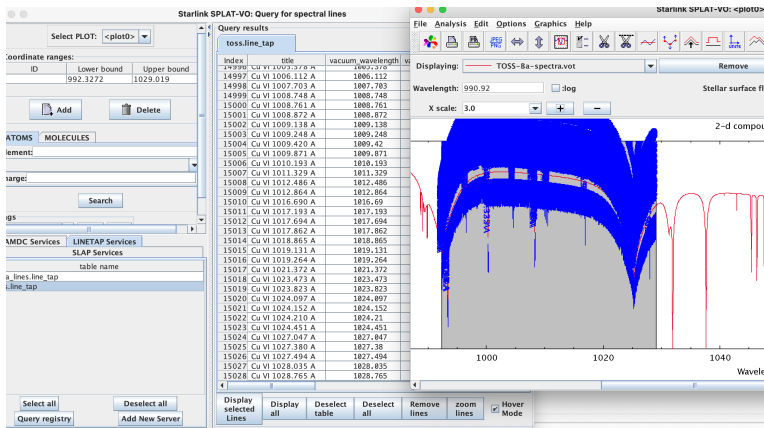


Figure: display all lines for all elements found

thanks!

Thank you!

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