Point of view of a developer about models in votable

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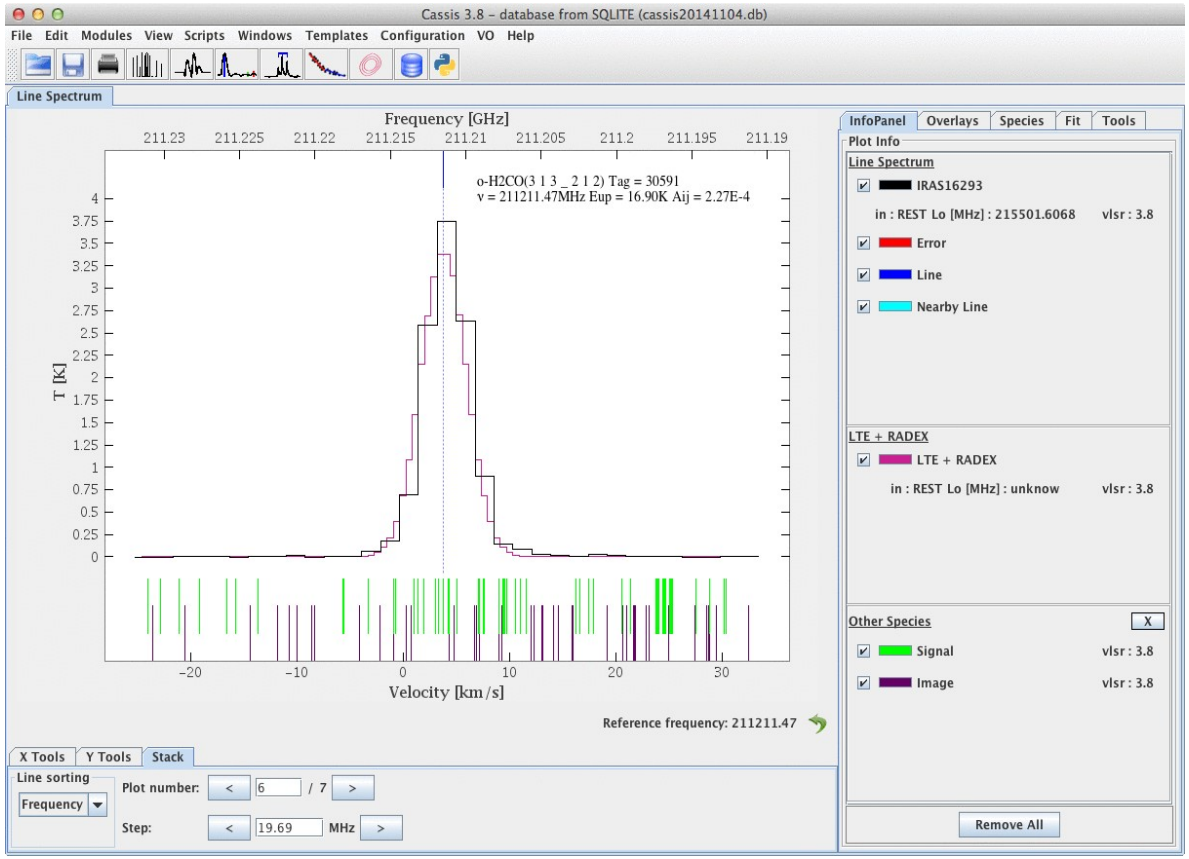
Outline

- Quick presentation of CASSIS
- My understanding on the data models
- Why annotated votable could be useful ?
- What can I say about the work in progress on the annotated votable ...

Quick presentation of CASSIS

- **VO Tool** (SAMP) to access (SSAP, EPN-TAP), read, visualize, treat and analyze electromagnetic **spectra** using
- **chemical species** (SLAP, VAMDC), 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)

My understanding on the data models

- First : I m not (yet) an active member of the Data models Group
  - sometimes, I do not know all the ins and outs of the discussion

- For me data models allow to define a data product like Spectrum, Spectral line, Spectral Data cube Image, Time serie, ….

- VODML is a common language for the data models

My understanding on the data models

- As a developer on CASSIS tool, my favorite data models are
  - Simple Spectrum Data Model ,
  - Simple Spectral Lines Data Model
  -
- CASSIS receive Votable from
  - SSAP,
  - SLAP or
  - TAP with dataproduct_type = spectrum

And for each parameters and fields in the votable, the utype does the link with a parameter on a data model (when it is correctly entered)

My understanding on the data models

- But very often, **utype is not enough**

- A lot of times, even for simple spectrum, CASSIS has to use the
  - UCD, UNIT or NAME to try to retrieve the data he needs
  - even sometimes, CASSIS has to ask to a human

Why annotated votable could be useful ?

- To HELP the client application like CASSIS to **automatically** retrieves and uses the data (ie plotting, input parameters, ...)

- I would like to know
  - Are there astrophysics spectra describe in the votable ?
  - Where can I find information about the spectrum (spectral axes, error spectral axes, flux, flux errore, flux unit,
  - Are there spectral lines information
    - Frequency, error frequency,
- Where the spectrum come from ?

Why annotated votable could be useful ?

- Pointing to the client what is the link between differents columns of a table in a votable
  - Flux value with Error Flux value
  - Flux value with Normalize flux value
  - . . .
- Pointing to the client all the information useful for a specific field in the votable
  - Like for spectral axes the velocy offset, reference frequency, redshift, errors, lo frequency , reference Frequency, ...
- May be add the possibility to combine in one votable
  - A list of spectra with a list of spectral lines

What can I say about the work in progress on the annotated votable ...

- Important in a Proposal : add a mapping block **without breaking** existing VOTable blocks

- Agree to use the annotated votable (ie in CASSIS tool) but
  - Help developer of client applications : provide library (java, python) to parse the annotated blocks
  - Help data provider : provide library (java, python) to generate the annotated blocks

- About implementation : What is the best solution to do that ?
  => I don't know