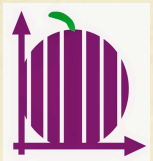
Les services de Spectroscopie Astronomique en France

Philippe Prugniel, CRAL-Observatoire de Lyon

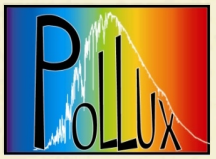
PASTEL



SOPHIE

Pégase

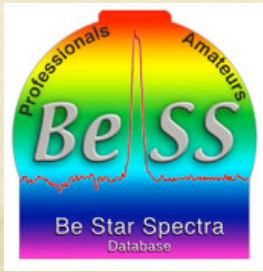
POLAR BASE

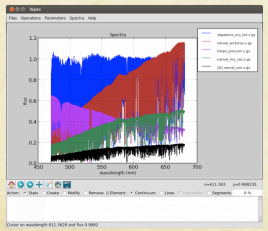


GAPAR

ASPIC

CDS

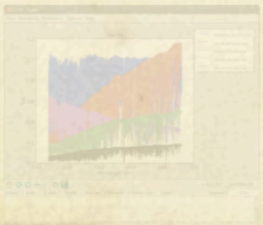




PHOENIX

A galaxy of services

- More than a dozen of services to support large surveys
  - VO compliant (SSAP) ... many since +10 years
- Organization & current status
- Data analysis tools
- Interoperability -- VO

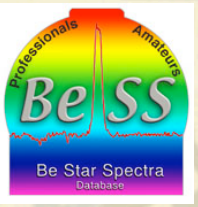


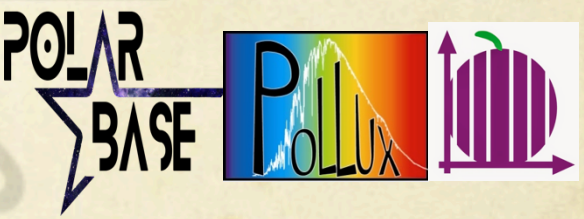
Organization

- Initiatives to organize the access to spectroscopic data

National workshops 2003 – 2006

Elodie/Sophie
BeSS
Pollux
CASSIS
PolarBase





Organization

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IWSSL 2011 – 2013 – 2017 – 2021

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Status

- Initiatives to organize the access to spectroscopic data

National workshops 2003 – 2006 ... **2016**

- Data access is not anymore the main concern
  - Still, care of preservation
- Need exchanges and coordination between the services
  - Creation of the PTNS
    - Observational data
    - Synthetic (theoretical) spectra
    - Data analysis tools
    - *Prospective*

Status

- Initiatives to organize the access to spectroscopic data

National workshops 2003 – 2006 ... **2016**

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- First priority: Data analysis tools

Data analysis tools

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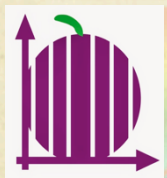

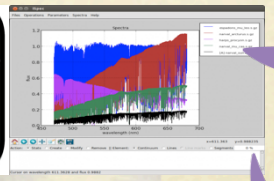

TAPAS

Data analysis tools

- Initiatives to organize the access to spectroscopic data

National workshops 2003 – 2006 ... **2016**

- Data access is not anymore the main concern
  - Still, care of preservation
- Need exchanges and coordination between the services
  - Creation of the PTNS
- First priority: Data analysis tools
  - For the last twenty years, the internal precision on the temperature or abundances of a star, or for the mass and metallicity of a galaxy are 0.03 dex ... but the accuracy (external precision) is 0.3 dex.

Data analysis tools

- Initiatives to organize the access to spectroscopic data

National workshops 2003 – 2006 ... **2016**

  - Data access is not anymore the main concern
    - Still, care of preservation
  - Need exchanges and coordination between the services
    - Creation of the PTNS
  - First priority: Data analysis tools
    - Dominated by systematics: Physics, data processing, implementation
    - Need: open source code, modularity, *standardized* interfaces

Data analysis tools

- Initiatives to organize the access to spectroscopic data

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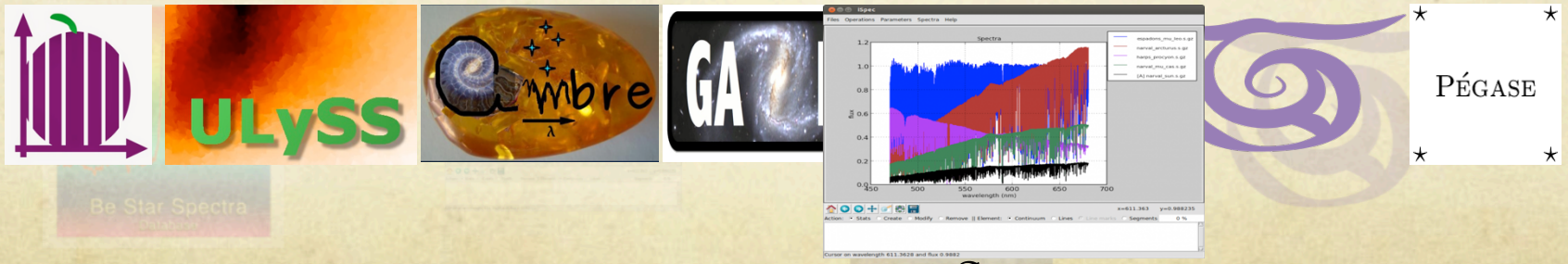


iSpec

Interoperability – Virtual Observatory

- Initiatives to organize the access to spectroscopic data

National workshops 2003 – 2006 … **2016**

  - Data access is not anymore the main concern
    - Still, care of preservation
  - Need exchanges and coordination between the services
    - Creation of the PTNS
  - First priority: Data analysis tools
  - Interoperability
    - The services use VO standards (SSAP) wherever relevant
    - The VO is not much used by the final users (compared to images or tables)

Interoperability – Virtual Observatory

- The spectro VO is not much used by the final users
  - How much are the services used at all?
  - Do we need or want the VO?
  - Why is it so, and what can we improve?

Interoperability – Virtual Observatory

- How much are the services used?

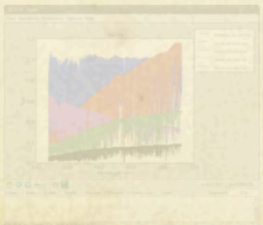
Service	Year (start)	Publications
Elodie/Sophie	2004	50 citations/year
Polarbase	2014	6 citations/year ↗
BeSS	2008	5 citations/year
Pollux	2010	6 citations/an
CASSIS	2004	30 citations/an
ULySS	2009	35 citations/an
TAPAS	2014	10 citations/an↗
iSpec	2014	10 citations/an↗
GAZPAR - LePhare - Cigale	 1999 2005	 40 citations/an 20 citations/an

Interoperability – Virtual Observatory

- How much are the services used?
  - VO:
    - CASSIS: Main access!
    - Other services: Little
      - Elodie/Sophie: Less than 1% of the data access.

Interoperability – Virtual Observatory

- Do we need or want the VO?
  - Yes
  - E. g. round tables at IWSSL in 2010, 2013 and 2017
    - High expectation and enthusiasm
    - People wait for easy access to the collections, are ready do do some efforts to make their data available (if they have some help)



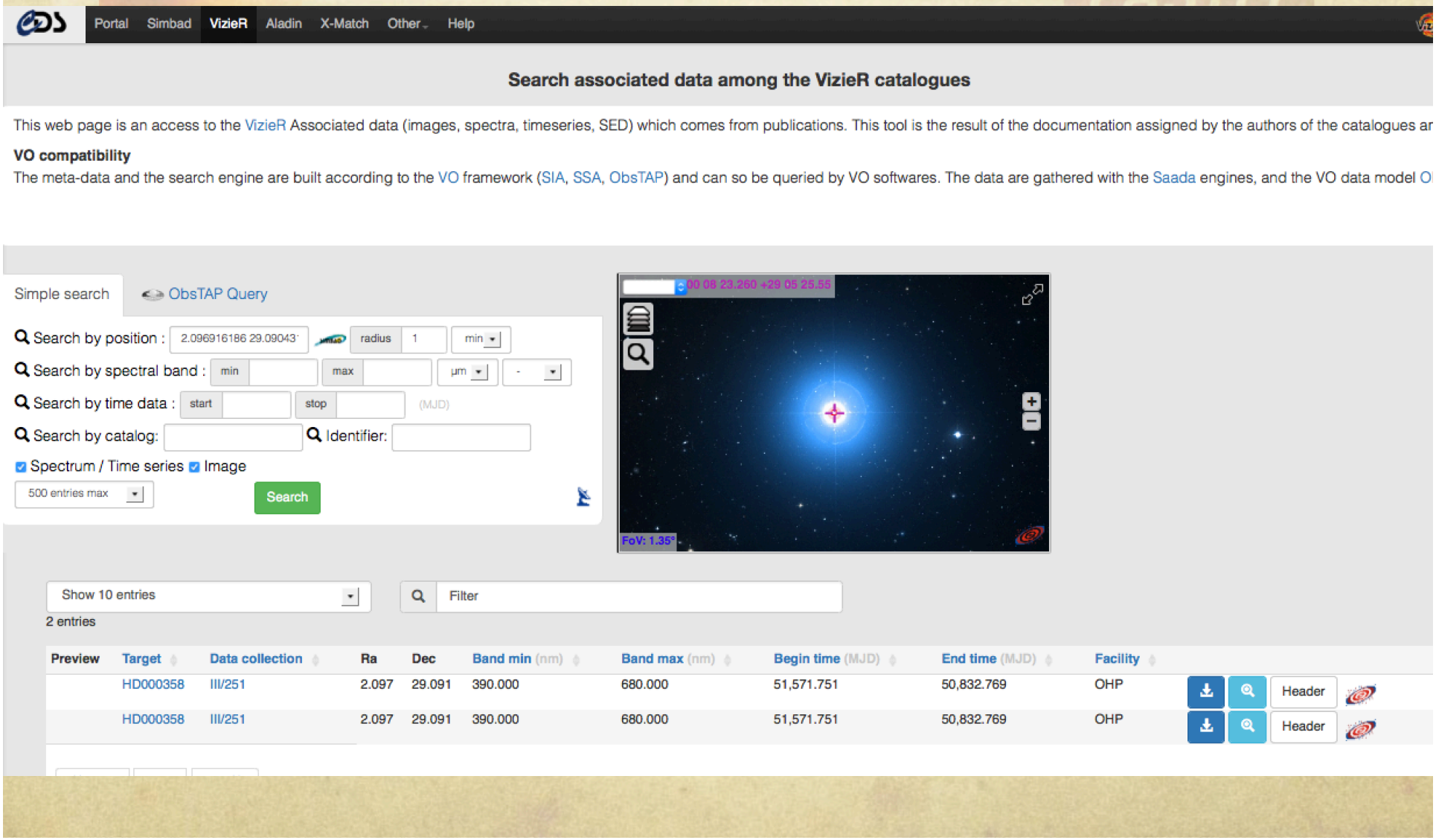
Interoperability – Virtual Observatory

- Why is the VO little used (and what can we improve)?
  - The standard are not suited (SSAP)?
    - There are clearly clearly some annoying limitations or features.
    - **This shall not prevent using them**

Interoperability – Virtual Observatory

- Why is the VO little used (and what can we improve)?
  - The standard are not suited (SSAP)?
  - Lack the services?
    - Only 10% of the registered services pass VOParis validation
    - When accessing through VO, it is hard to understand what the data are … at then end go to the web interface.
    - Some large collections are missing (maybe they will come?)

Interoperability – Virtual Observatory

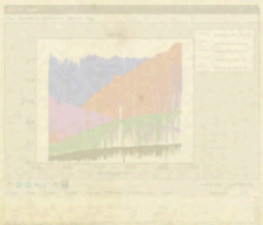


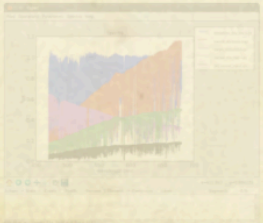
Interoperability – Virtual Observatory

- Why is the VO little used (and what can we improve)?
  - The standard are not suited (SSAP)?
  - Lack the services?
  - Clients are deficient?
    - VOSPEC … dead
    - SPLAT-VO … Maintened, and the developer is responsive. Still hard to get valuable output from it (complex, need to learn a lot more than on a web interface, without more capabilities)
    - CASSIS (as a VO-client) … Maintened, and developer very responsive. Best client yet. Still (too) complex to use

Interoperability – Virtual Observatory

- Why is the VO little used (and what can we improve)?
  - The standard are not suited (SSAP)?
  - **Lack the services?**
  - **Clients are deficient?**
  - We shall strengthen the links between the spectroscopists and the VO specialists



Conclusion

- A lot of activities and needs in spectroscopy, large sets of data are coming…
- Priority: Data analysis tools
- High expectations in the VO, currently not satisfied
- Seeking for interoperability between the VO spectroscopy specialists, and the final users