CEVO Task 4.2 progress report
Since last Tech Forum

F.Bonnarel (CDS)
as coordinator

Task 4.2 goals

- Implementation of FAIR principles for ESFRI data through the Virtual Observatory
- Push ESCAPE priorities at IVOA level
  - Help ESCAPE ESFRIs to use VO standards and expose the data
  - ESFRI feedback on VO standards and evolution of those.
- Community training events for scientists and data producers/providers
  - Vo schools
  - Data provider formats

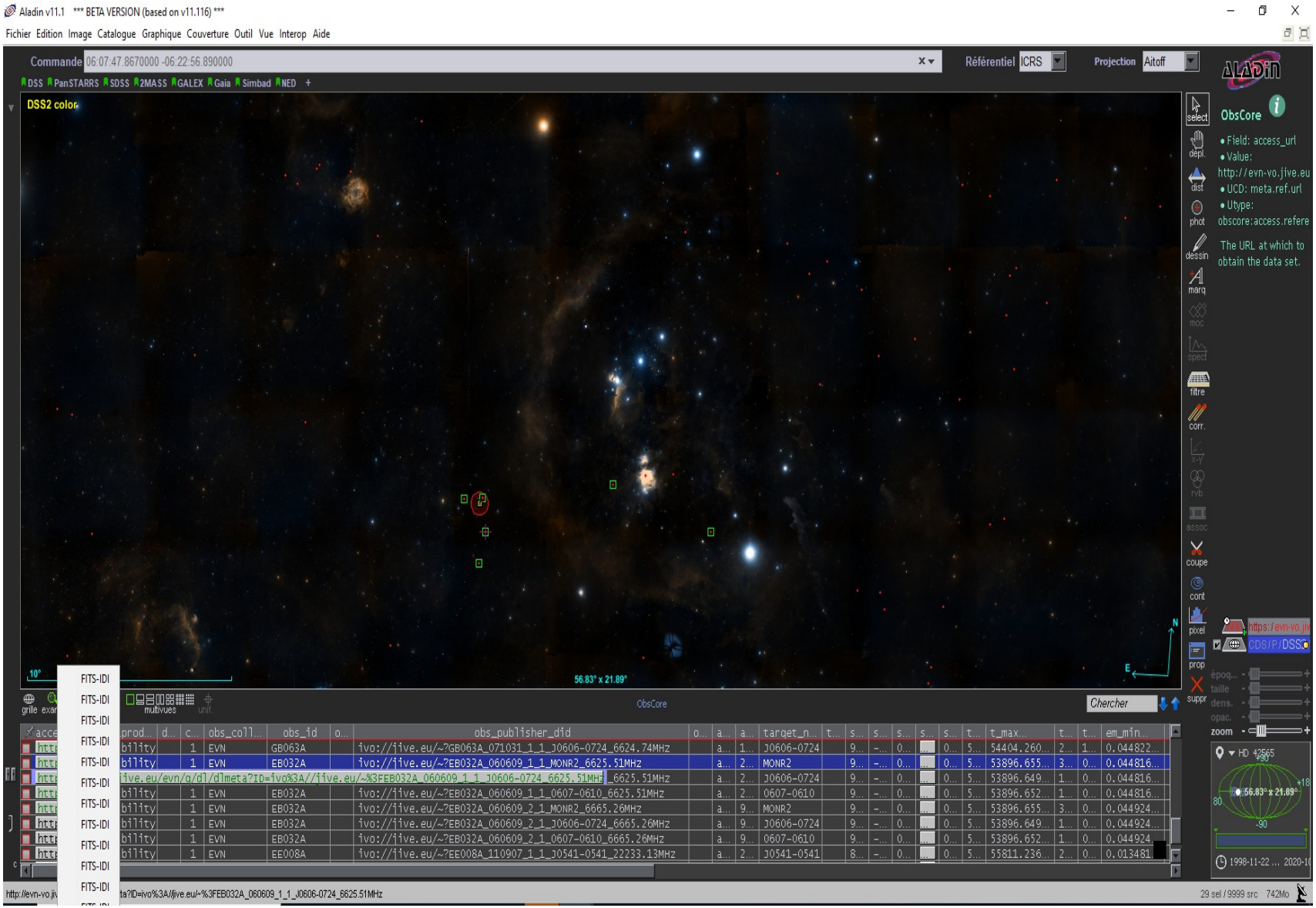
ESFRIs achievments

- ASTRON : LOTSS DR2

  (see tomorrow Yan Grange)
- JIVE : JIVE visibility data service release

  (see next screenshots)

JIVE ObsTAP service with DataLink



ESFRIs achievments

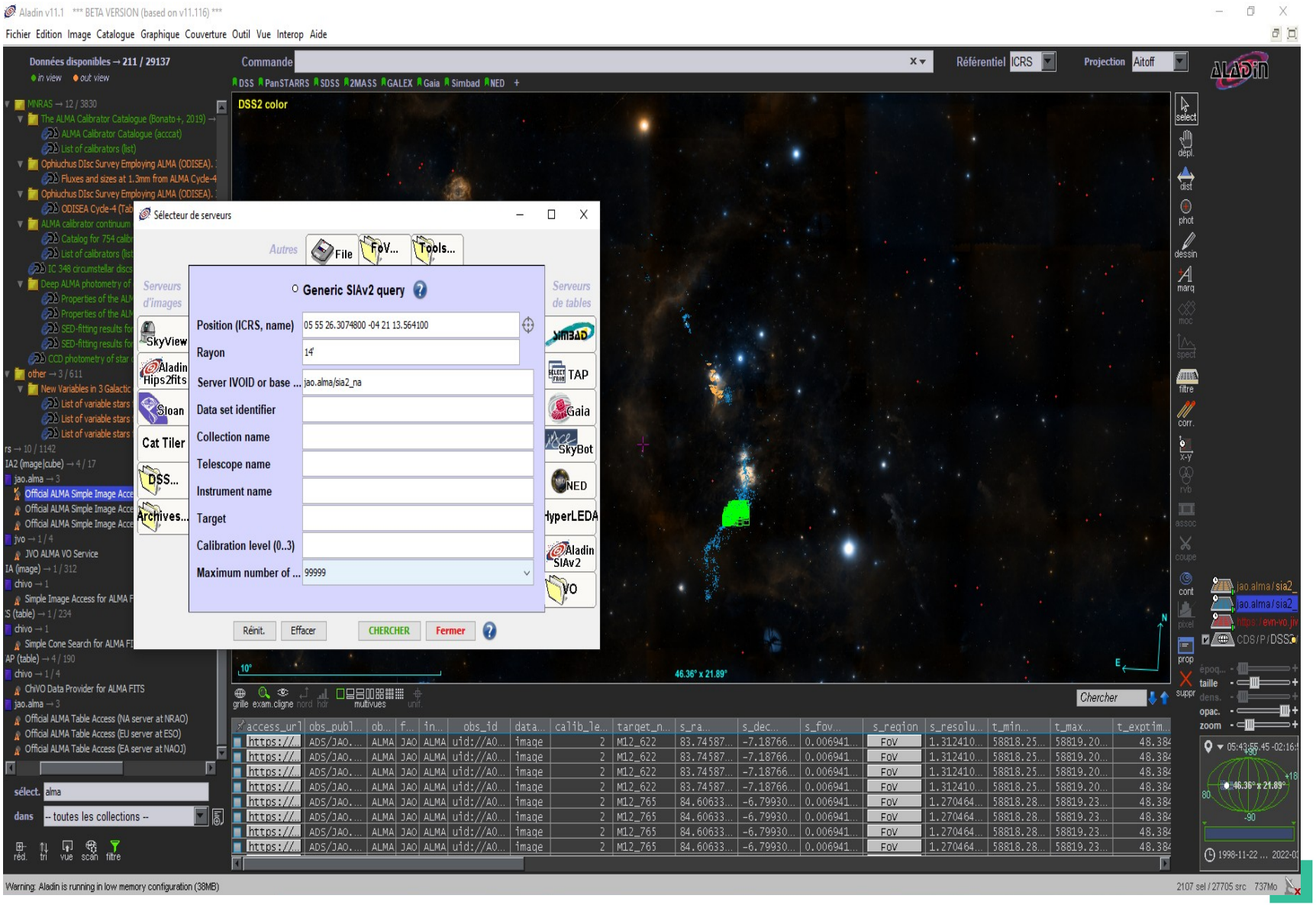
- ALMA : SIAV2 and ObsTAP services

(see next screenshots)

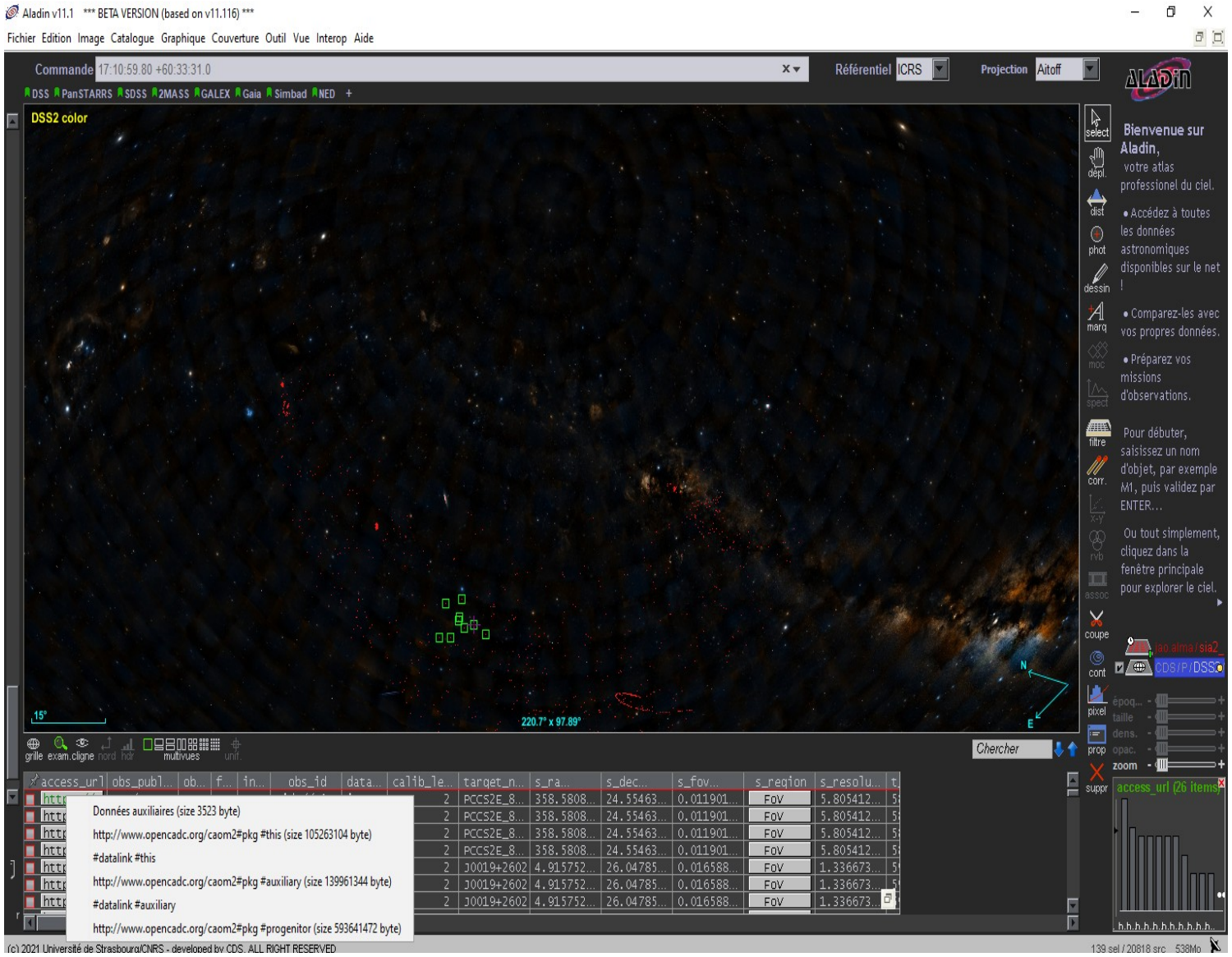
- SKAO : preparing for the SRC network / strong integration of VO standards in the design.

→How to integrate ivoa Provenance + …

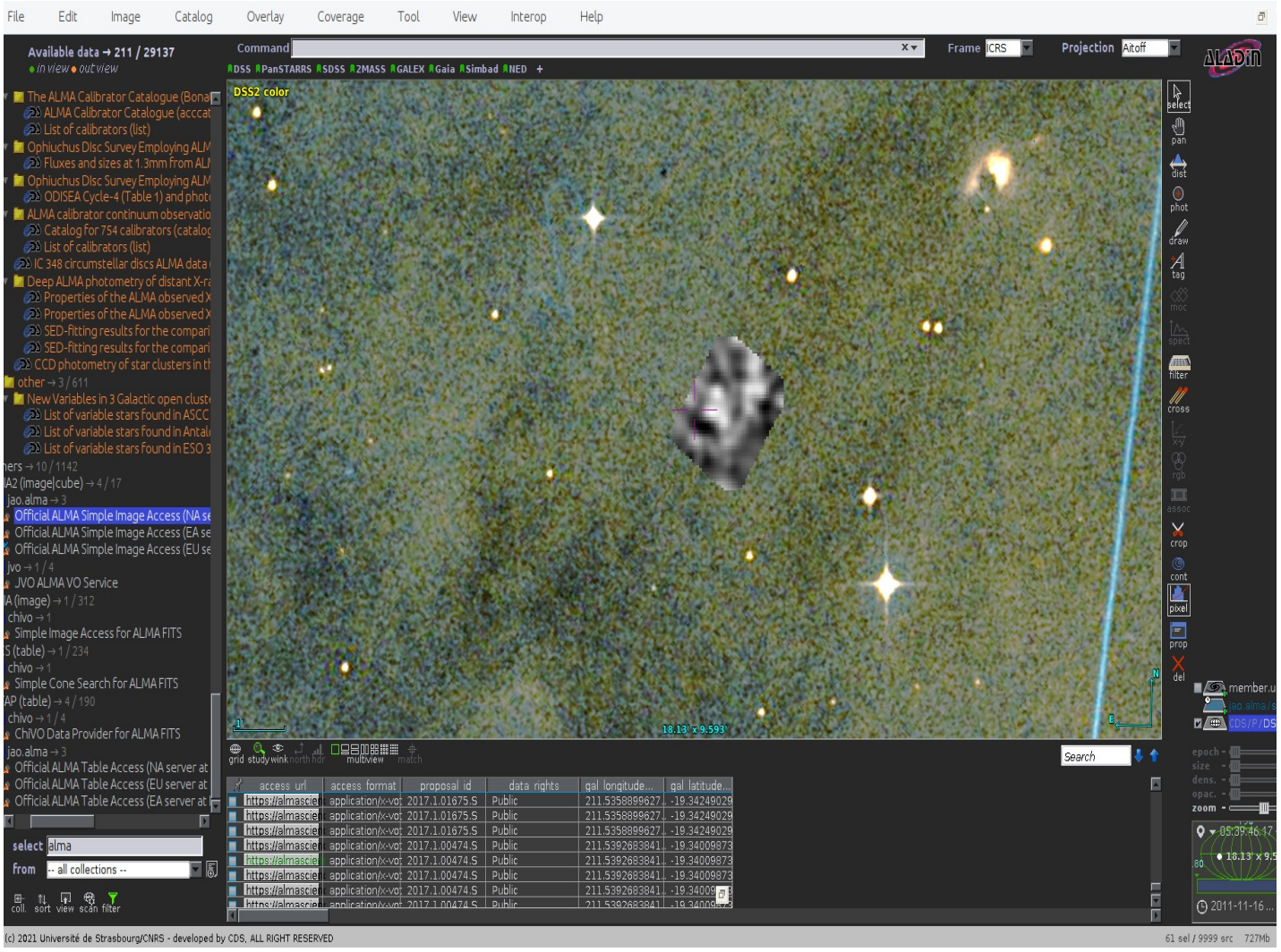
ALMA SIA2 service



ALMA DataLink



ALMA loaded moment image



ESFRIs achievments

- All radio ESFRI projects + INAF radio archive + Nançay team participate a lot to IVOA radio interest group
  - Implementation note
  - Pulsar and FRB data + Single dish running meetings (Hack a thon SD metadata/ObsCore tomorrow)
  - ObsCore extension for visibility data

DRAFT – please do not distribute

International Virtual Observatory Alliance

IVOA Obscore Extension for Visibility data

Version 1.0

IVOA Note 2021-10-27

Working group
Data Model Working Group

This version
http://www.ivoa.net/documents/ObsCoreExtensionForVisibilityData/20211027

Latest version
http://www.ivoa.net/documents/ObsCoreExtensionForVisibilityData

Previous versions

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Editor(s)
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Abstract

This is a proposed extension to the Obscore specification for description of visibility data

Status of this document

This is an IVOA Note expressing suggestions from and opinions of the authors. It is intended to share best practices, possible approaches, or other

4.2 uv parameters

uv_distance_min and uv_distance_max are evaluated by fitting an ellipse on the visibilities present in the uv plane.

To compute the ellipse's eccentricity of the UV distribution a principal component analysis (PCA) with 2 components is performed over the data points sampling the UV plane to select the main axis of data scattering. The first component is used to rotate the distribution of UV in a way that the major variation of the distribution is leaning towards the x axis of a bi dimensional xy Cartesian plane. The major axis length and the minor axis length of the ellipse are therefore defined as the semi distance between the most positive point along the x/y axis and the most negative point among the y axis. For instance, if the range of the rotated UV will cover on the $x \in [-10, 10]$ the major axis distance would be 10, a similar procedure is done on the y axis. This procedure allows the definition of the UV distribution eccentricity:

uv_distribution_exc) computed as follows:

$$uv\_distribution\_exc = \sqrt{1 - \frac{b^2}{a^2}} \tag{1}$$

where a is the major axis length and b is the minor axis length. The filling factor of the UV plane (hereafter uv_distribution_fill) is computed as the average number of samples found in a $N^{uv}_{samples}$x$N^{uv}_{samples}$ equispaced grid enclosing the rotated ellipse. In formulas, the boundaries of a cell (i,j) are defined by the boundaries

$$u \in [u_{min} + \frac{u_{max} - u_{min}}{N^{uv}_{samples}} \cdot i, u_{min} + \frac{u_{max} - u_{min}}{N^{uv}_{samples}} \cdot (i+1)] \tag{2}$$

and

$$v \in [v_{min} + \frac{v_{max} - v_{min}}{N^{uv}_{samples}} \cdot j, v_{min} + \frac{v_{max} - v_{min}}{N^{uv}_{samples}} \cdot (j+1)] \tag{3}$$

where u_{max}/v_{max} are the respective maximum u/v of the uv sample and u_{min}/v_{min} is the minimum u/v of the uv sample.

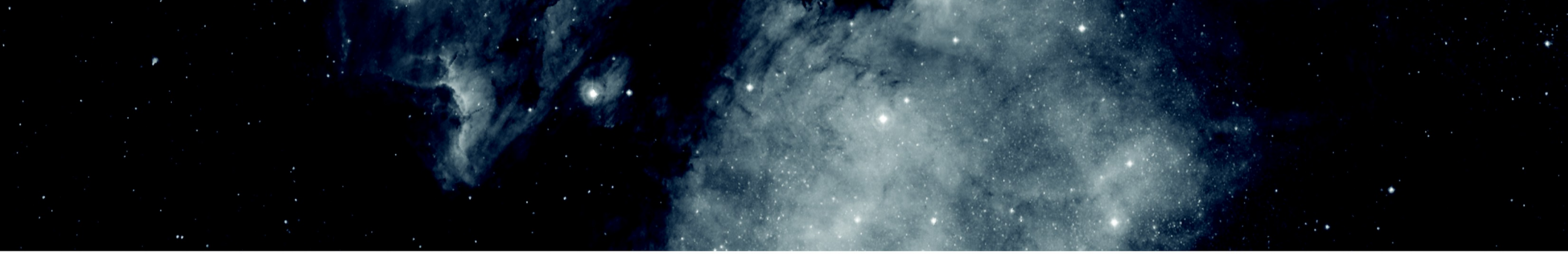
Given the above boundaries the number of samples within a cell (i,j) will be $n^{uv}_{i,j}$ and uv_distribution_fill will be then computed as

$$uv\_distribution\_fill = \frac{\sum_{i=1}^{N^{uv}_{samples}} \sum_{j=1}^{N^{uv}_{samples}} n^{uv}_{i,j}}{(N^{uv}_{samples})^2}, \tag{4}$$

in the preliminary analysis $N^{uv}_{samples} = 1000$.

4.3 time parameters

t_exp_min and t_exp_max are added because of strong variation in the individual time stamps duration.



Joint RadioIG/TDIG Meeting Jan 11, 2022, 20 UTC

On pulsar data and other time oriented radio data in the VO

Organized by Brent Miszalski, Mark Cresitello-Dittmar, (TDIG)
Mark Lacy, François Bonnarel (RadioIG)
Ada Nebot (as CSP chair)

Meeting topic was "Discovery and access of radio pulsar data and FRB data use cases : How current protocols work. do we need evolution for Time axis and radio specificities ?"

Meeting agenda :
V.Galluzi : pulsar/transient data at INAF : use cases and status report
M.Louys : ObsCore Extension for TimeDomain. Focus on PSRFITS mapping
F.Bonnarel : Discovery and Access strategies for radio timeseries.
ALL : open questions. Formats/datamodels. Next steps

Notes(etherpad) Notes(saved)

Attachments

I	Attachment	Action	Size	Date	Who	Comment
	INAF_radio_data_archive_ongoing_activities__future_plans_about_pulsar_FRB_data.pdf	manage	1632.9 K	2022-01-21 - 16:10	FrancoisBonnarel	Pulsar Data at INAF
	NotesTDIG-RadioIG.txt	manage	7.6 K	2022-01-26 - 20:56	FrancoisBonnarel	Meeting Notes
	ObscoreExtensionforTimeandFreq-MLouys.pdf	manage	650.6 K	2022-01-26 - 16:32	MireilleLouys	ObsCore Extension for Time Radio data
	RadioTimeSeriesDiscoverAcc.pdf	manage	1558.3 K	2022-01-21 - 09:33	FrancoisBonnarel	Radio data time series discovery and access

ESFRIs achievments

- CTA + KM3Net
  - Find out use cases for gamma-ray neutrino interoperability and VO exposition
  - Several meetings organized to understand the issues and pave the way to solutions (see next screenshot)
  - Hack a Thon this afternoon at 2 30 PM

25 June 2021	IVOA metadata and High Energy Astrophysics	preliminary Working meeting	face to face meeting in Meudon	Agenda Minutes by M.Louys and M.Servillat
9 July 2021	SKAO CEVO provenance meeting	Working meeting	(Virtual)	Agenda General ProvSDP introduction by S.Sanchez IVOA ProvDM presentation by M.Servillat SKAO feedback on IVOA data model by J.Garrido Minutes
1 September 2021	CEVO (CTAO + High energy) datamodels and standards for interoperability	Kickoff meeting	virtual	Agenda Introduction June25thView DL3 datamodel proposal minutes
13. September 2021	HiPS in the Data Lake	ESCAPE event	On-line event	
29 September 2021	ESCAPE General Assembly	Meeting	online	Link
24-28 October 2021	ADASS 2021	Conference	Cape Town and online	Link
02-04 November 2021	IVOA Interop	Conference	Videocon Meeting	On-line
23-26 November 2021	Hands-on workshop for Data Providers	Workshop	On-line (gather.town)	event page
08 December 2021	CTA/KM3Net CEVO "datamodels for interoperability" workshop	Workshop	on-line	Agenda+Intro CTA DL3 draft datamodel KM3Net GADF Legacy work 1 Legacy Work 2 IVOA DM/specs for HEA minutes
22-24 February 2022	2nd Science with interoperable data school	Hands-on School	Strasbourg (or on-line if necessary)	Event page

ESFRIs achievments

- EGO/VIRGO :
  - visualization using MOC and AladinLite (see Giuseppe Greco talk tomorrow)
- ESO :
  - use of ESO services in Aladin/CASSIS prototype for spectral cubes visualisation by CDS/OMP

  (see ADASS slides next)

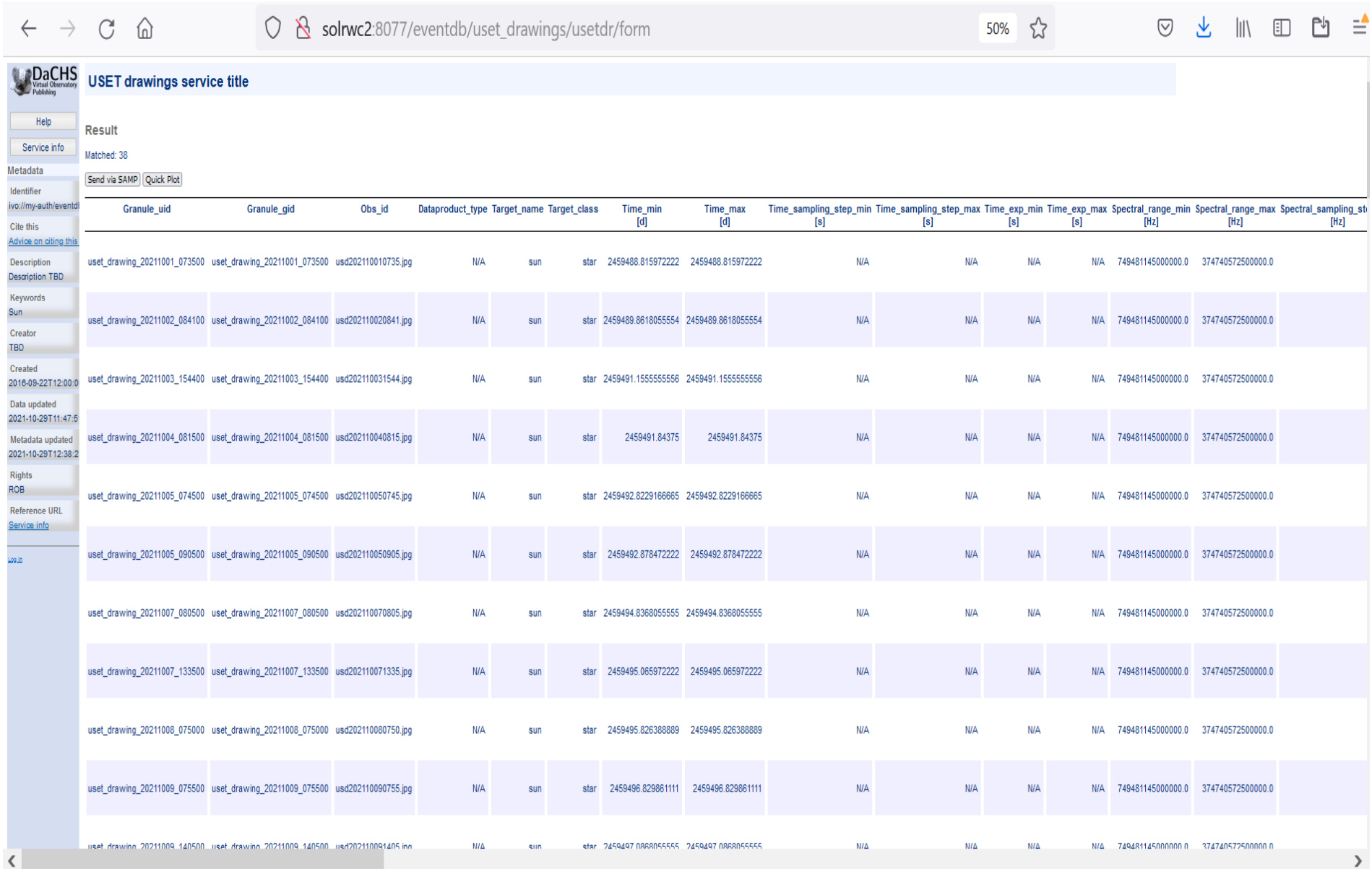
ESO VO interfaces to data MUSE

Figure 1. Discovery of MUSE cubes in Orion area with ESO ObsTAP service and SODA interface to obtain a cutout on one of the cubes.

ESFRIs achievments

- EST :
  - Mapping solarnet metadata / UCD + a few VEPs
  - 3 EPN-TAP services at ROB : USET sunspots and SPOCA coronal holes.
  - Study for VO integratiojn of SPASE event database

Uset Drawing service (ROB-EST)



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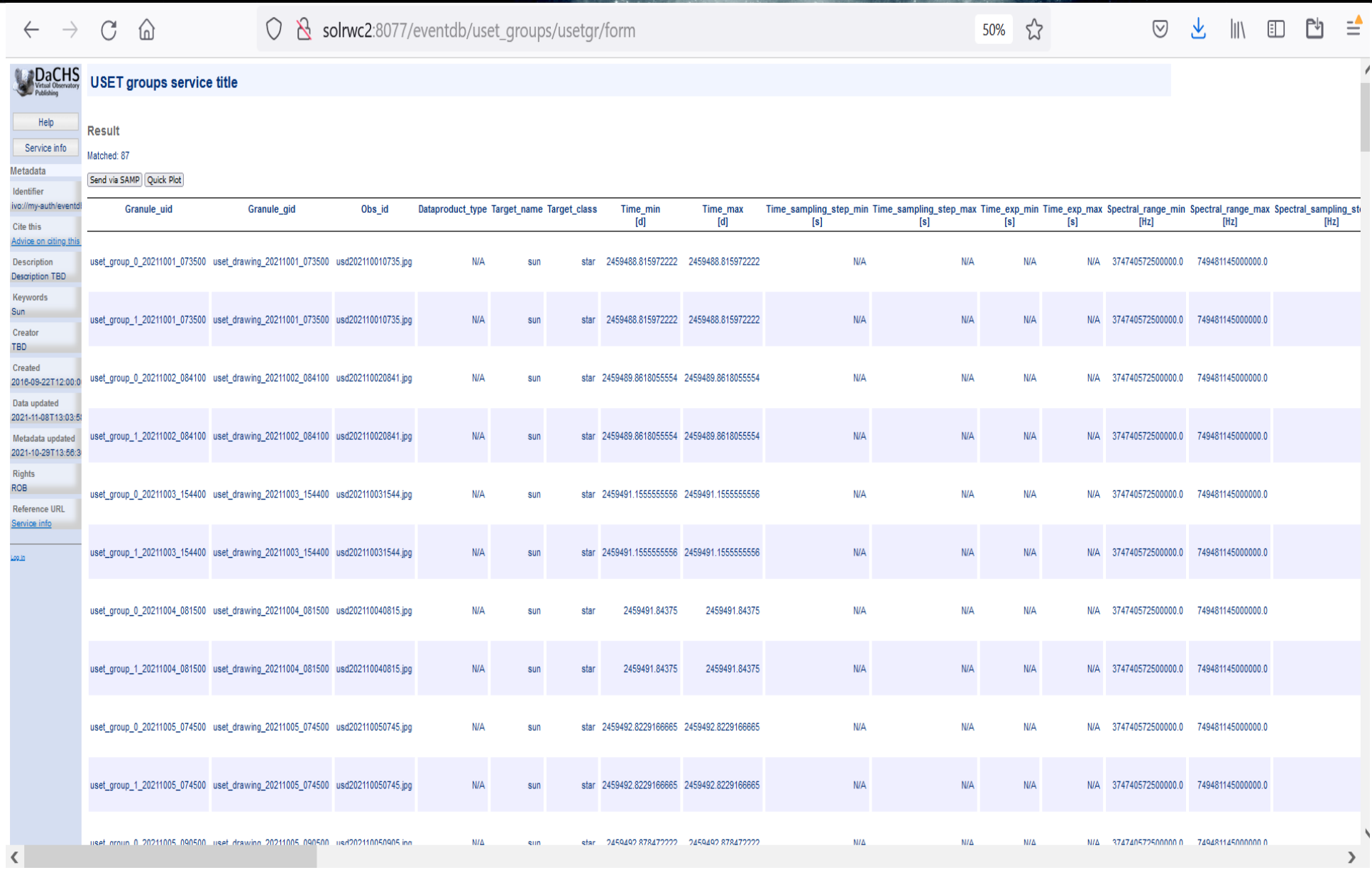
Uset groups service



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