The GTC and Calar Alto Virtual Observatory Archives

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Centro de Astrobiología (INTA-CSIC)
Spanish Virtual Observatory

Outline

- Introduction
  - ✓ The Spanish Virtual Observatory
  - ✓ GTC and Calar Alto
- What to publish?
- Why to publish in the VO?

The Spanish Virtual Observatory

http://svo.cab.inta-csic.es

Spanish Virtual Observatory

Home Help Desk

The SVO

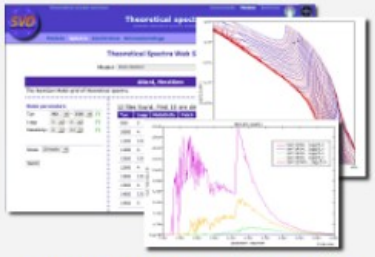
The Spanish Virtual Observatory (SVO) officially started in June 2004. Its purpose is to coordinate the VO activities at national level and act as a contact point for the other VO initiatives. The SVO core team is hosted at Centro de Astrobiología (INTA-CSIC).

- SVO participants
- VO FAQs

The CAB Scientific Data Centre

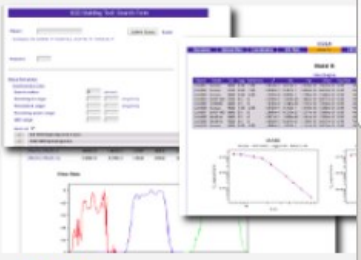
- Calar Alto
- DUNES
- GASPS
- GTC
- OMC
- X-exoplanets
- COROT
- DSS-63
- GAUDI
- INES
- Protostars
- Other archives in the SVO Network

Theoretical Data Server



- Stellar Spectra theoretical models
- Evolutionary Sysnthesis Models
- Isochrones and evolutionary tracks
- Asteroseismology

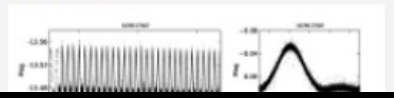
Services



- VOSA
- VOSED
- TESELA
- Filter Profile Service

VO Science

Data Mining



Education & Outreach

Miscellanea

Gran Telescopio Canarias (GTC)

- The world's largest optical-infrared telescope (10.4m).
- Location: Canary Islands (Spain).
- Start of scientific operations: May 2009.
- Instrumentation:

✓ OSIRIS: Imager (broad-band and narrow-band tunable filters) & spectrograph (long slit and multiobject) in the optical range.

✓ CANARICAM: a mid-infrared (7.5 - 25 micron) imager with spectroscopic, coronagraphic, and polarimetric capabilities.

Public Data Archive since Nov. 2011

The Calar Alto Observatory

- The largest observatory in continental Europe.
- Location: Almería (Spain).
- Founded in 1973. Three telescopes: 1.23m., 2.2m., 3.5m.
- Different instruments with imaging and spectroscopic.

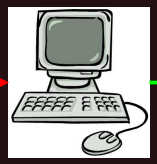
capabilities operating in the optical and near-IR regime.

Public Data Archive since Sep. 2011

Data transfer and ingestion

Telescopes
(Almería, La Palma)

RSYNC



Data Centre
(Madrid)

Quality control

-Test File name
-Test Fits Header
-…

VO
Protocols

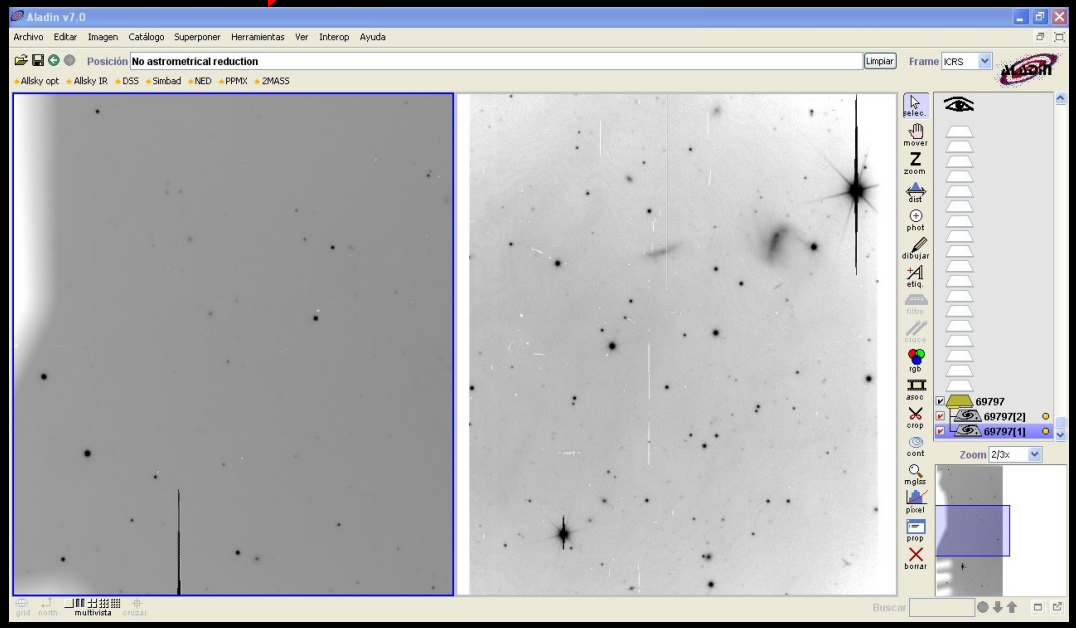
DB

Metadata

Data

What to publish? GTC / OSIRIS

Imaging	Spectroscopy	Multi-Object
Broad Band Imaging	LongSlit Spectroscopy	Multi-Object Spectroscopy (MOS)*
Narrow Band Imaging: Tunable Filters	Fast Spectroscopy*	Nod+shuffle*
Fast Photometry		Micro-shuffle*
		λ-sorting*
*Observing mode not yet commissioned		



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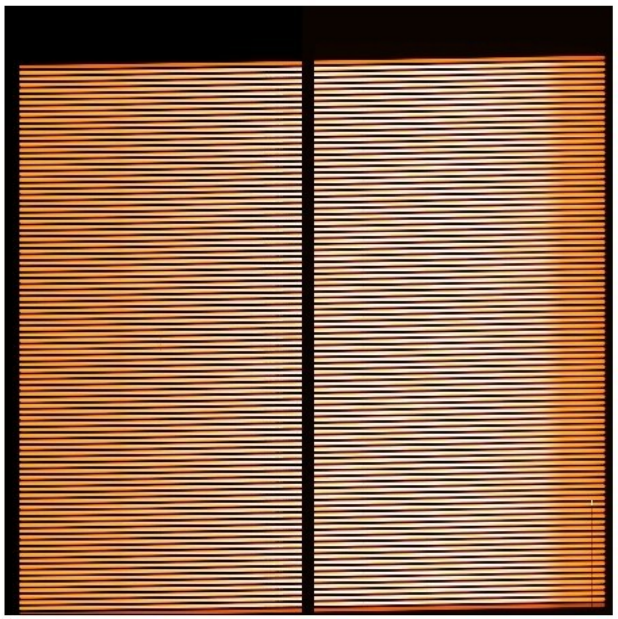

SIAP
(not yet implemented)

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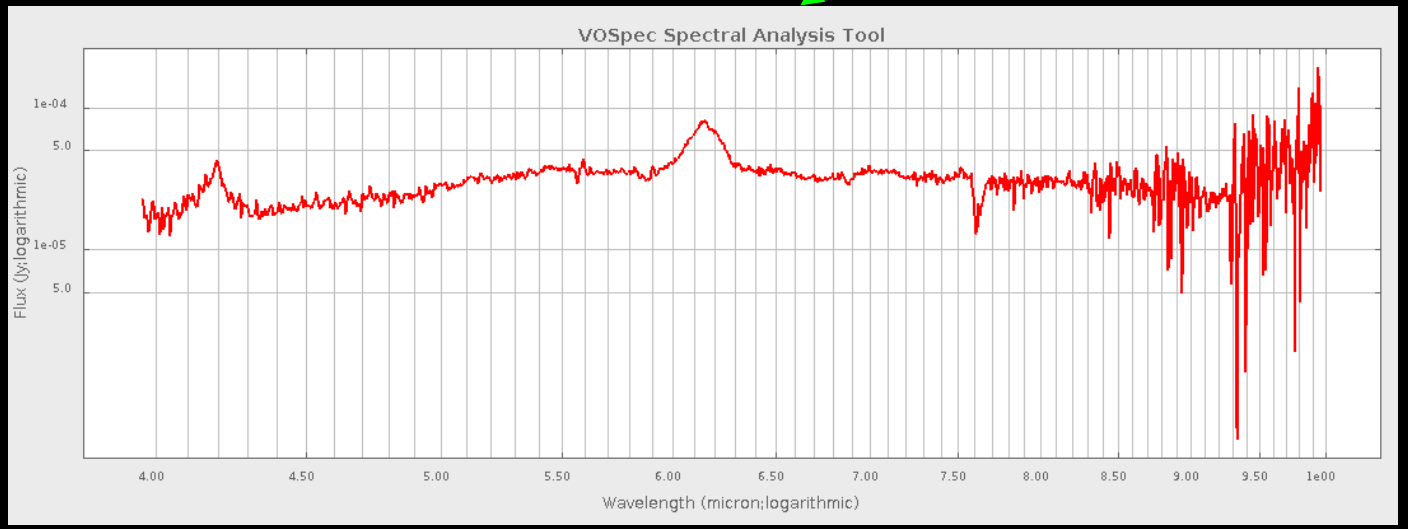
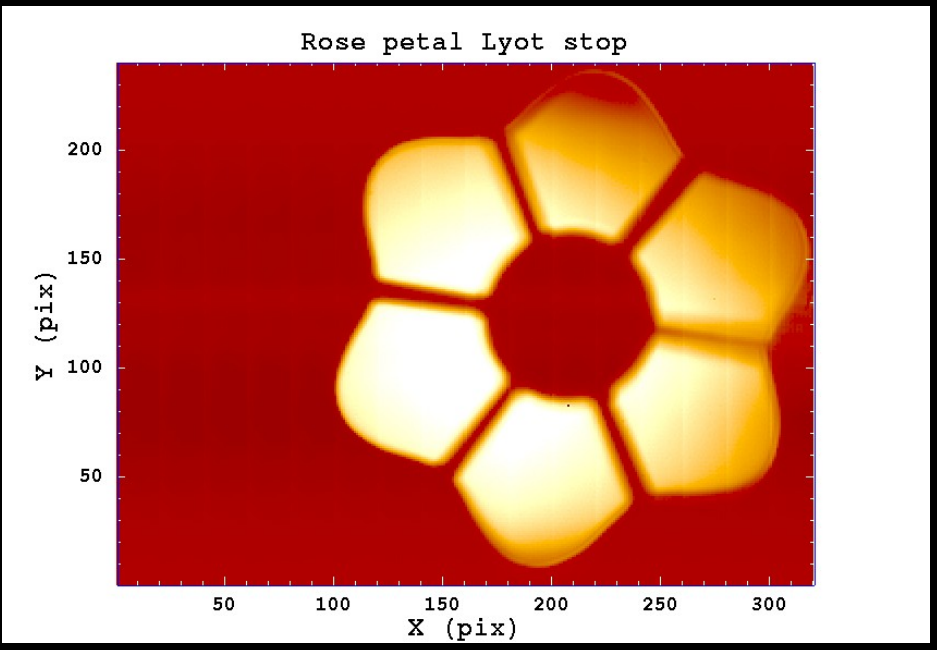


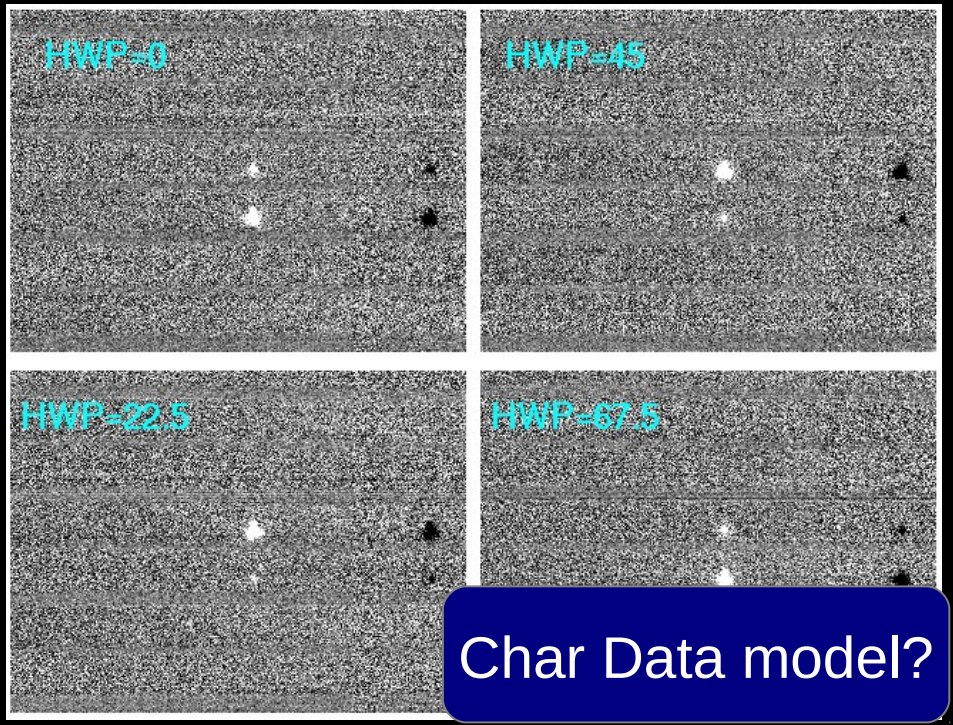
SSAP
(not yet implemented)

What to publish? GTC / Canaricam

Imaging	Spectroscopy*
Coronography**	Polarimetry

* Only low resolution spectroscopy at 10 and 20 micron is offered. High resolution spectroscopy is not offered.
** Not offered



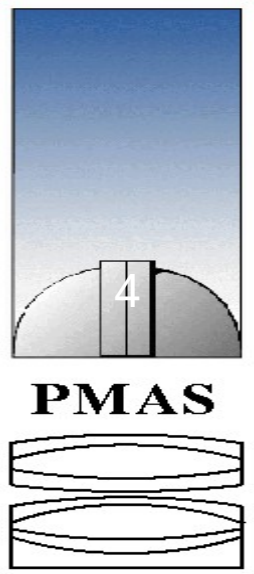


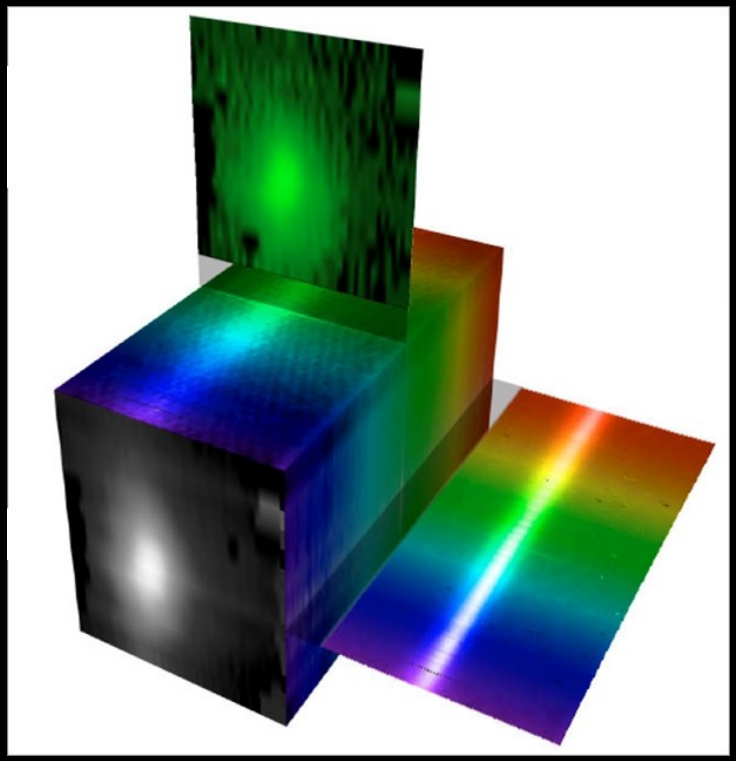
Char Data model?

What to publish? Calar Alto

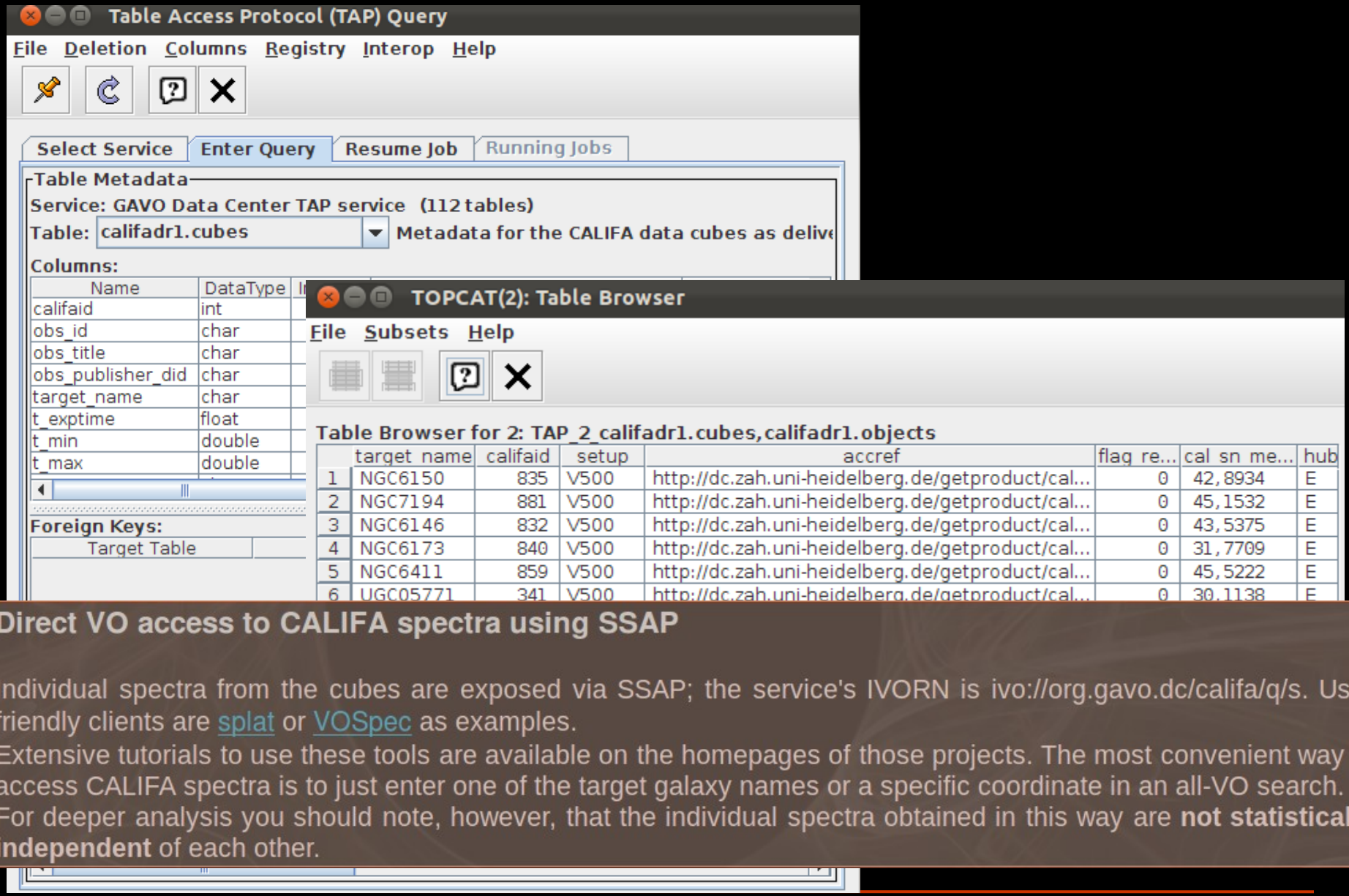
3.5m Telescope	2.2m Telescope	1.2m Telescope
Overview on **FOV sizes** and **spectral resolutions**		

Instruments		
LAICA (I)	BUSCA (I)	CCD Camera (I)
MOSCA (I+S)	CAFOS (I+S)	
PMAS (S)	AstraLux (I)	
TWIN (S)	CAFE (S)	
OMEGA-2000 (I)	MAGIC (I+S)	
OMEGA-Cass (decommissioned)		
blue: optical, red: NIR, I = imaging, S = spectroscopy		





What to publish? Calar Alto



Direct VO access to CALIFA spectra using SSAP

Individual spectra from the cubes are exposed via SSAP; the service's IVORN is ivo://org.gavo.dc/califa/q/s. User friendly clients are splat or VOSpec as examples.

Extensive tutorials to use these tools are available on the homepages of those projects. The most convenient way to access CALIFA spectra is to just enter one of the target galaxy names or a specific coordinate in an all-VO search.

For deeper analysis you should note, however, that the individual spectra obtained in this way are **not statistically independent** of each other.

What to publish? Advanced data products

Benefits

- Facilitates the scientific exploitation of GTC and Calar Alto data.
- Enhances the value of the archive.
- Provides a higher visibility of scientific results.

✓ ADS: refereed papers (keyword in the abstract):

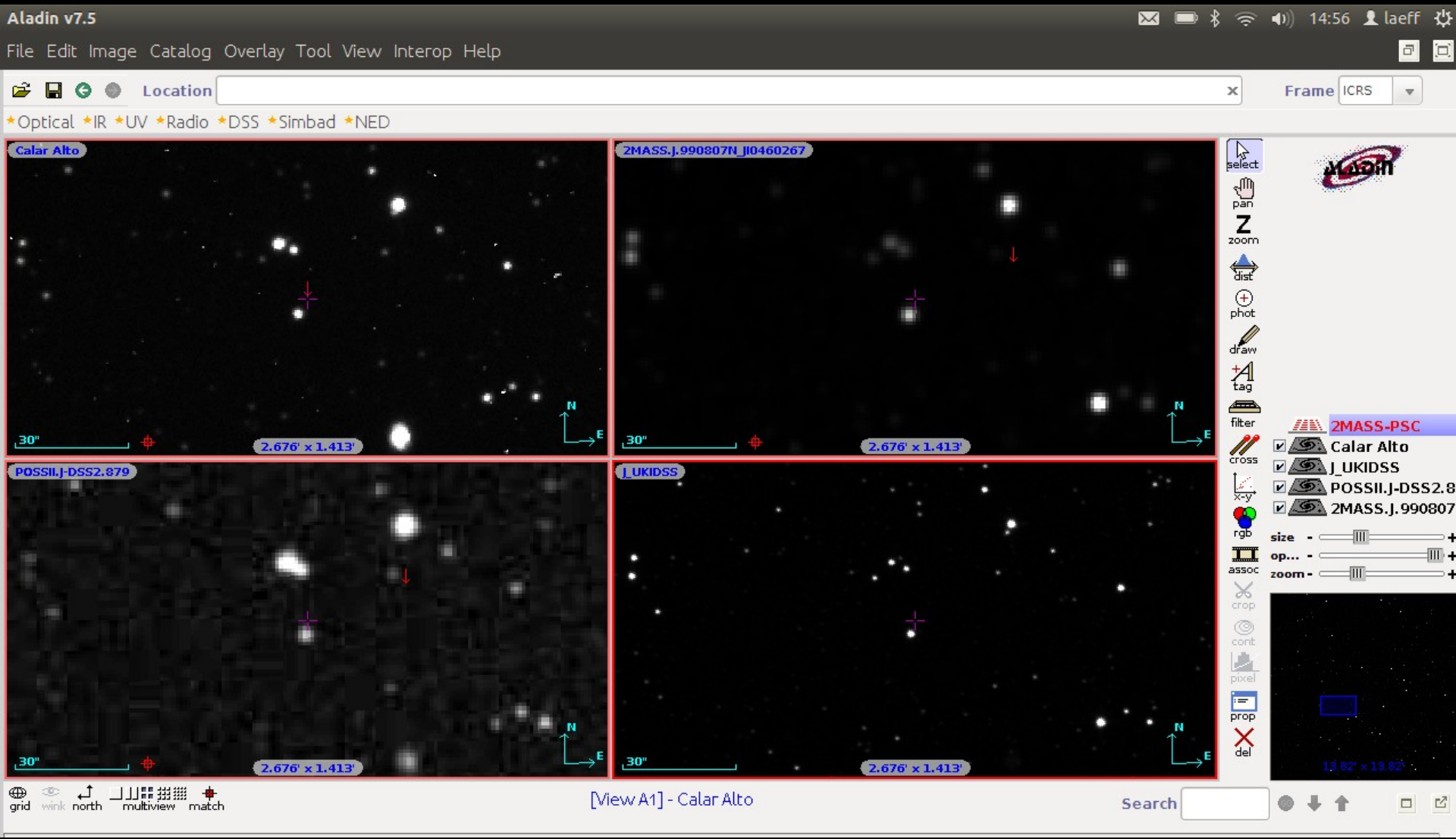
- SDSS : 3470
- 2MASS: 1569
- WISE: 223
- UKIDSS: 179

High-level data products

Catalogues. ✓

Stacked images, mosaics,…

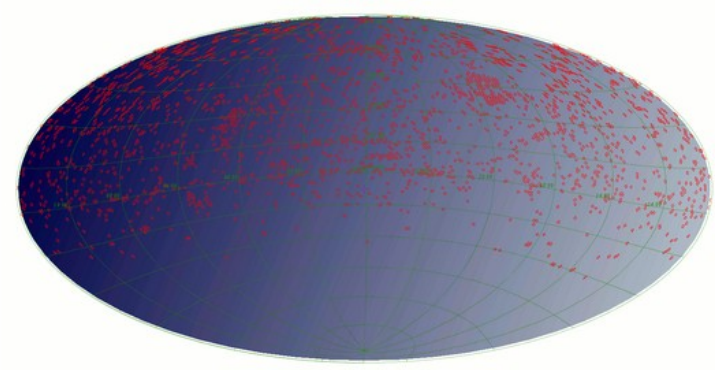
Taking advantage of VO (I)



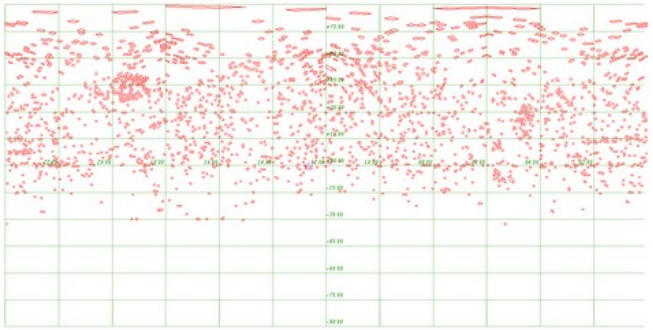
Taking advantage of VO (II)

Calar Alto Archive: Search Form

CAHA footprint MOC:



Aitoff (click to see an enlarged view)



Cartesian (click to see an enlarged view)

View MOC in Aladin (use Beta version of Aladin)
Download MOC

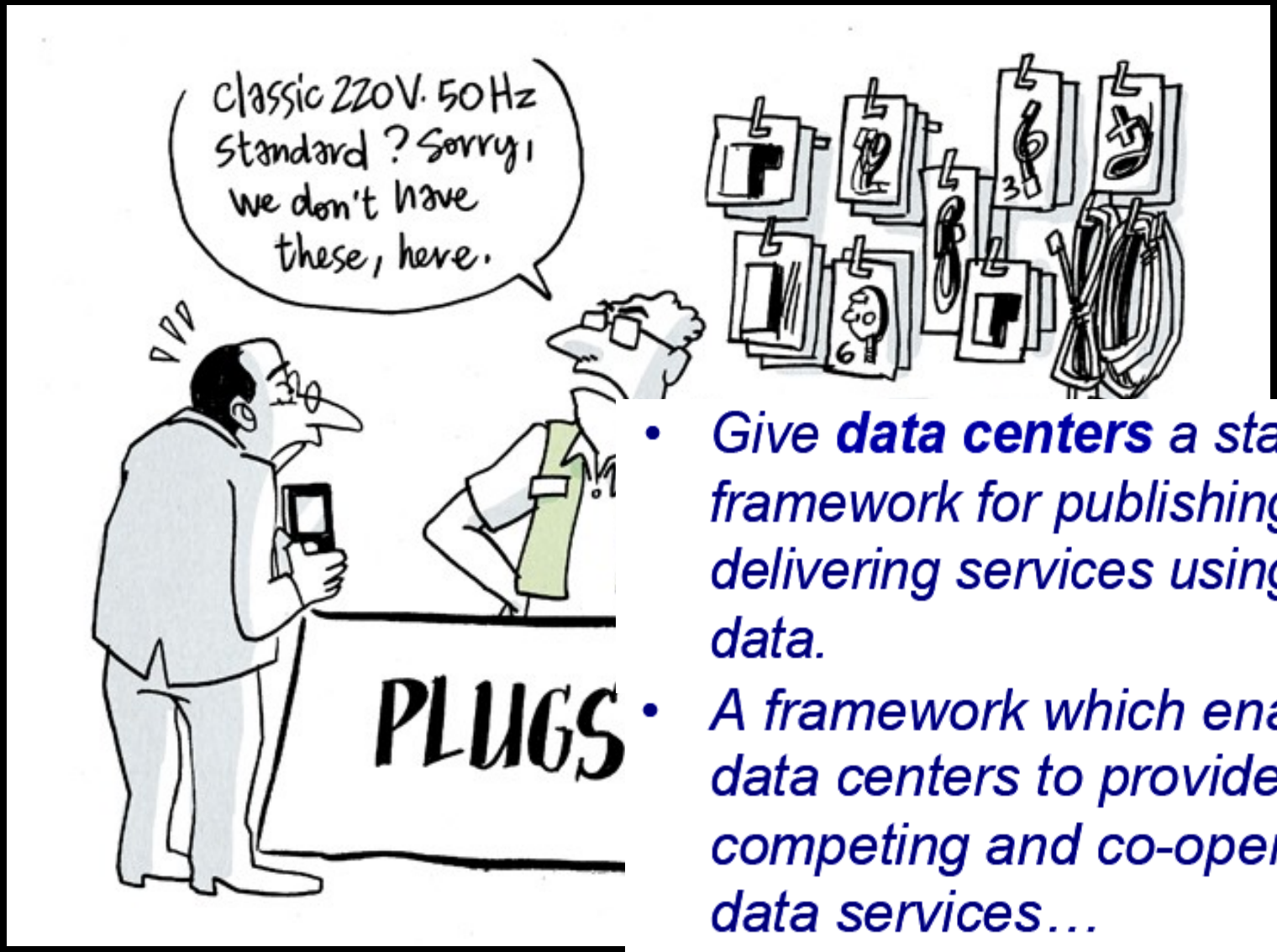
Taking advantage of VO (III)

International
Virtual
Observatory
Alliance

IVOA DataLink Protocol
Version 1.0

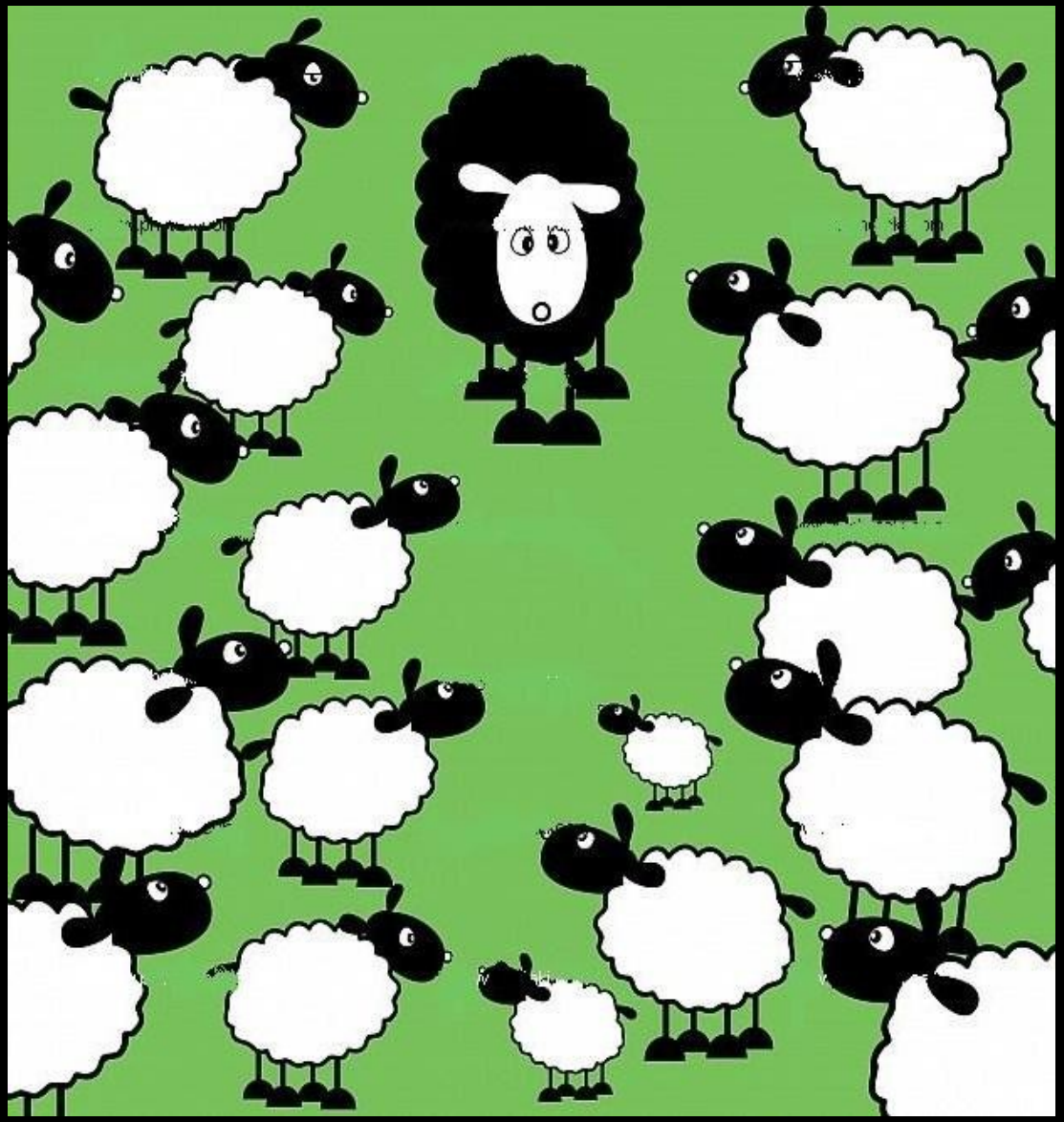
IVOA Note May 3, 2013

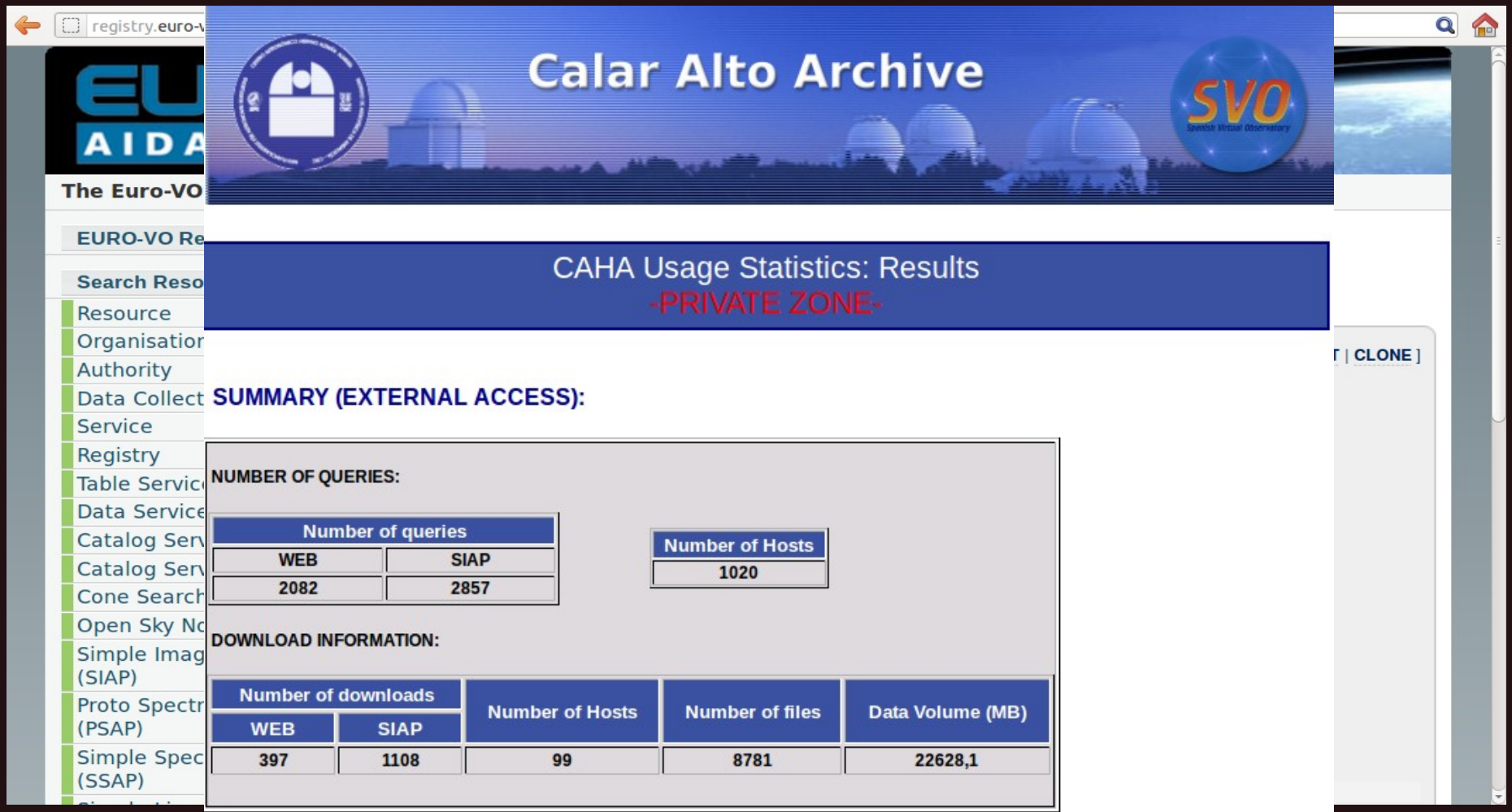
Why to publish in the VO?



- *Give **data centers** a standard framework for publishing and delivering services using their data.*
- *A framework which enables data centers to provide competing and co-operating data services…*

Why to publish in the VO?



Virtual Observatory services

VO-compliance: CAHA → other archives + VO tools