

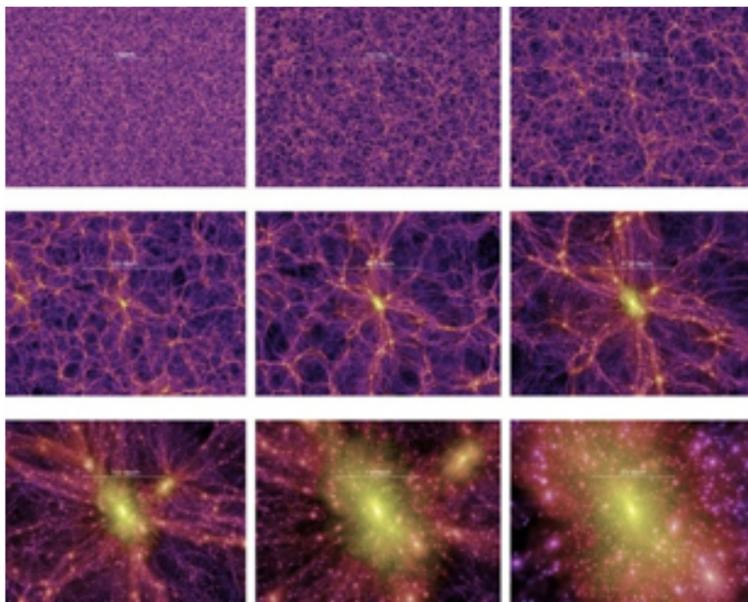
THE VIRTUAL OBSERVATORY (VO)



CENTRO DE ASTROBIOLOGÍA · CAB
ASOCIADO AL NASA ASTROBIOLOGY PROGRAM



DATA, DATA, AND MORE DATA!



ASTRONOMICAL ARCHIVES



esdc

ESDC » Home

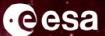
- Home
- About ESDC
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- Newsletter
- Science Archives
- Archive Image Browser
- ESASky
- DOIs
- User Survey Results
- Videos
- Scientific Tutorials
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- Euro-VO Registry
- Archives User Groups
- Contact Us

ESAC SCIENCE DATA CENTRE

Monthly Users (*)
 16 879
* Monthly averages in 2021

ESDC Statistics
 101. TB

Archive Total Size
 662.2 TB





European Southern Observatory

Public Science User Portal Intranet

Science Users Information > Science Archive Facility

ESO — Reaching New Heights in Astronomy



02 Sep 2021

Search

Go!

Welcome to the ESO Science Archive Facility

The ESO Science Archive Facility contains data from ESO telescopes at La Silla Paranal Observatory, including the APEX submillimeter telescope on Llano de Chajnantor. In addition, the raw UKIDSS/WFCAM data obtained at the UK Infrared Telescope facility in Hawaii are available.

The Principal Investigators of successful proposals for time on ESO telescopes have exclusive access to their scientific data for the duration of a proprietary period, normally of one year, after which the data becomes available to the community at large. Please read the [ESO Data Access Policy](#) statement for more information, along with the [relevant FAQs](#).

Browsing the archive does not require authentication. Please [acknowledge the use of archive data](#) in any publication.

There are three main ways to access the archive, varying for content and presentation/interface: the usual Raw Data query form, the innovative Science Portal to browse and access

use access to both raw and processed data, and to the ambient condition measurements,

of this page.

SEARCH

MENU



MIKULSKI ARCHIVE
SPACE TELESCOPES

The Mikulski Archive for Space Telescopes is an astronomical data archive focused on the optical, ultraviolet, and near-infrared. MAST hosts data from over a dozen missions like Hubble, Kepler, TESS, and soon JWST.

On This Page

[Missions](#) | [High Level Science Products](#) | [Search Tools](#) | [Catalogs](#) | [APIs](#) | [Publishing Resources](#) | [Latest MAST News](#)

Missions



Hubble



Webb

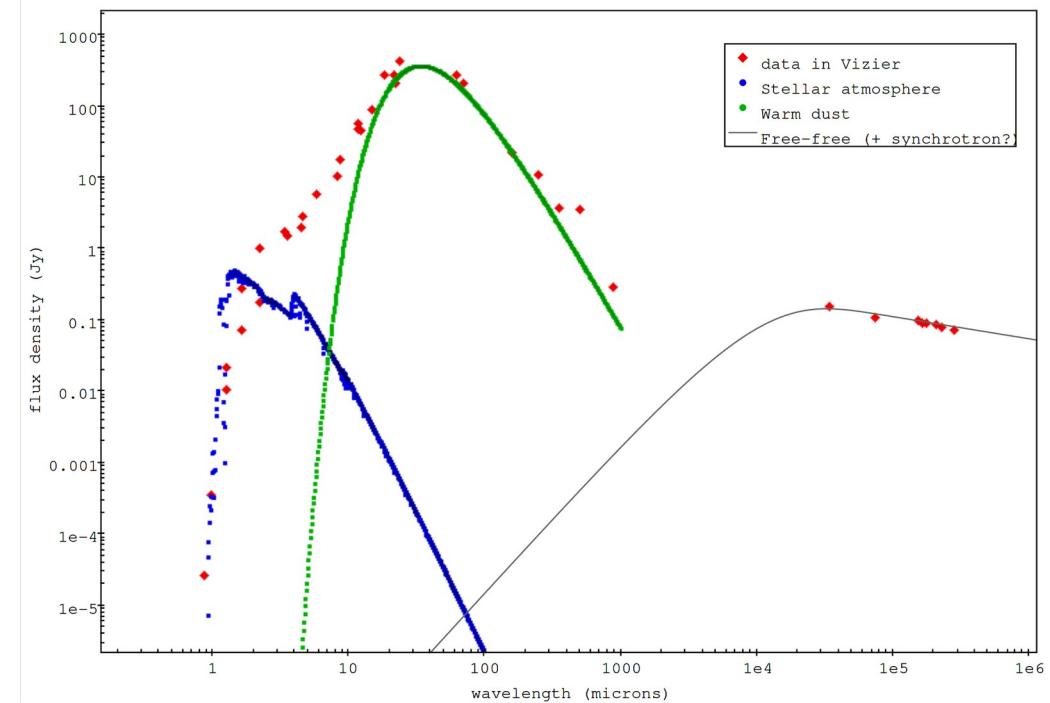


TESS



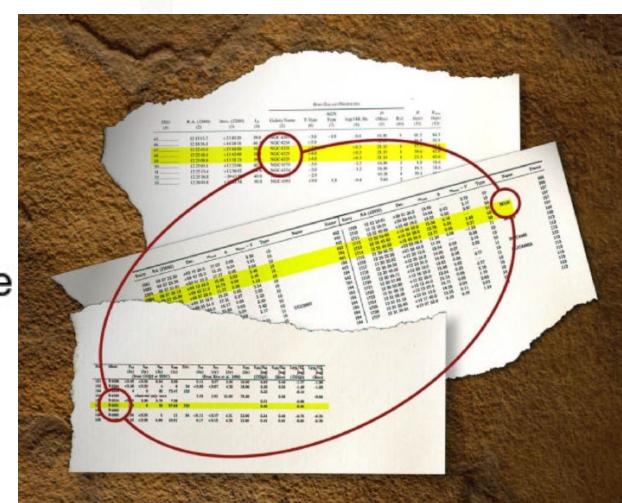
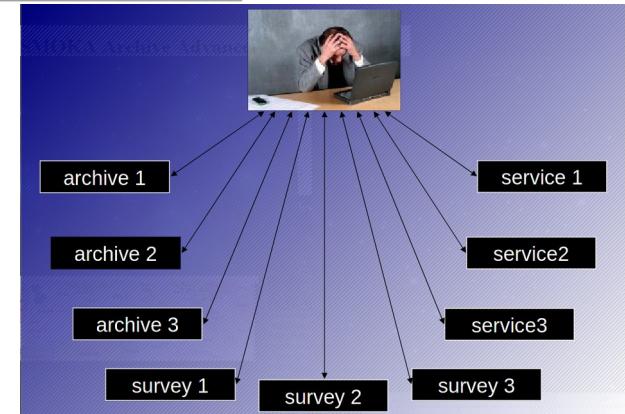
See All of MAST's
Missions and Data

MULTI-WAVELENGTH ASTRONOMY

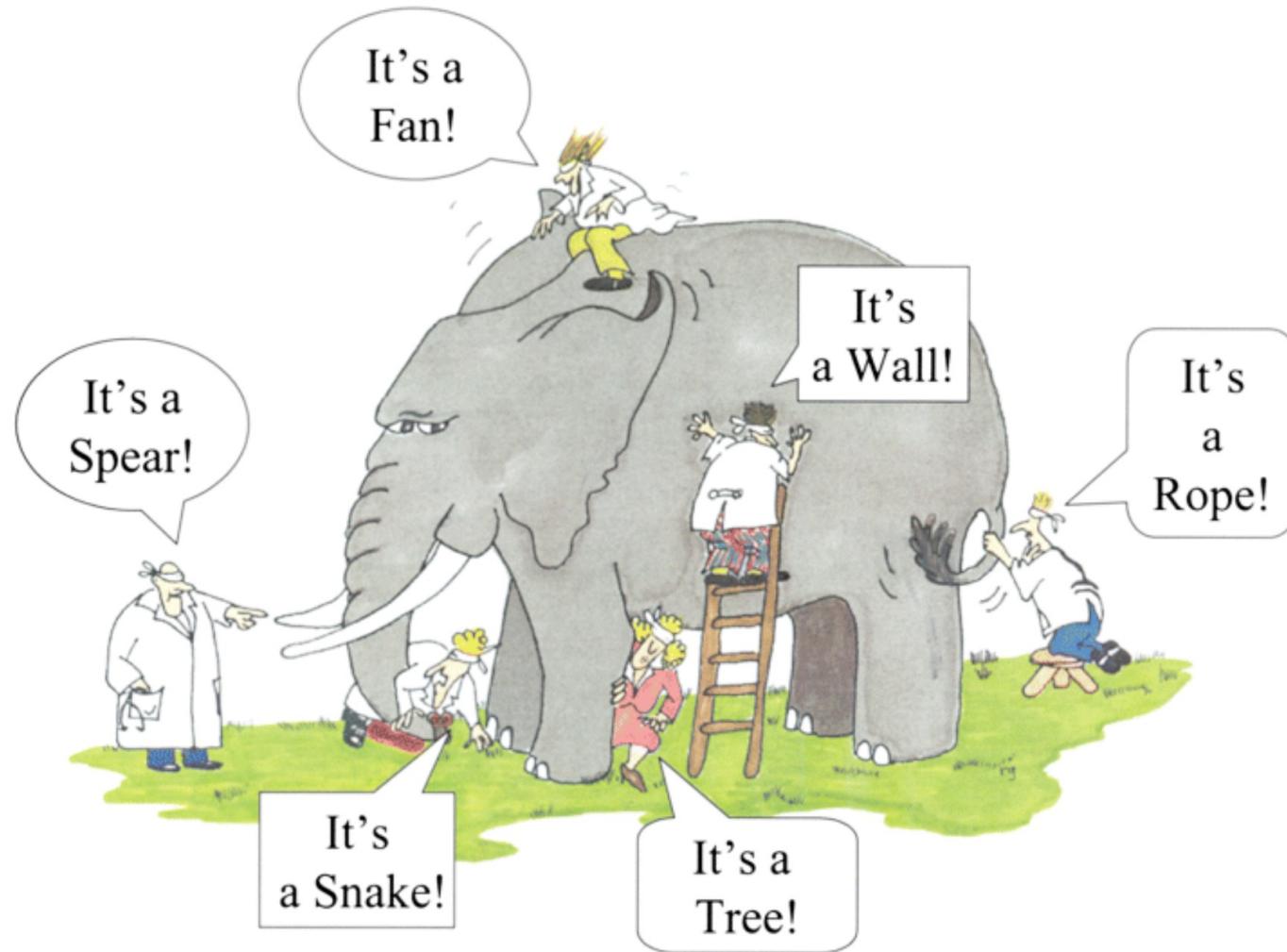


The multi- λ nightmare

- Data discovery
 - How can I find archives that contain the data I am looking for?
 - Once identified, how to select only those fulfilling certain conditions (spectral resolution, wavelength range, spatial resolution,...).
- Data access: Access protocols of very diverse nature.
- Data analysis: How to put all the pieces of the puzzle together?
 - For images:
 - Different pixel scales, orientations,...
 - For spectra:
 - Different unit both in flux and wavelength.
 - For photometry:
 - Where to find the filter / filter + detector / filter+detector+telescope filter+detector+telescope+atmosphere curves?
 - And the zero-points?
 - For catalogues:
 - Different labels for the same magnitude (V, Vmag, Johnson V,...)



MULTI-WAVELENGTH ASTRONOMY



MULTI-WAVELENGTH ASTRONOMY

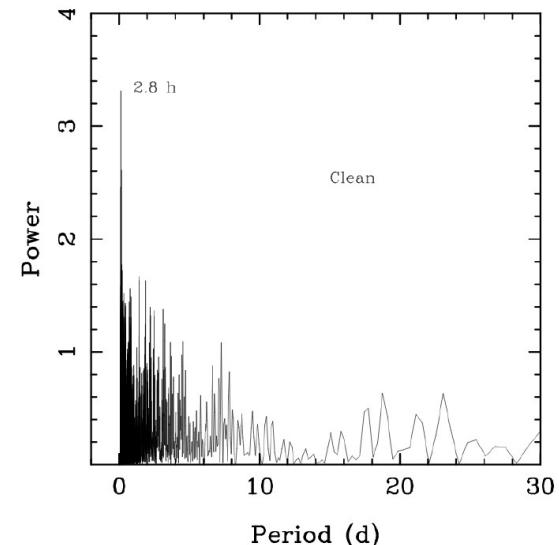
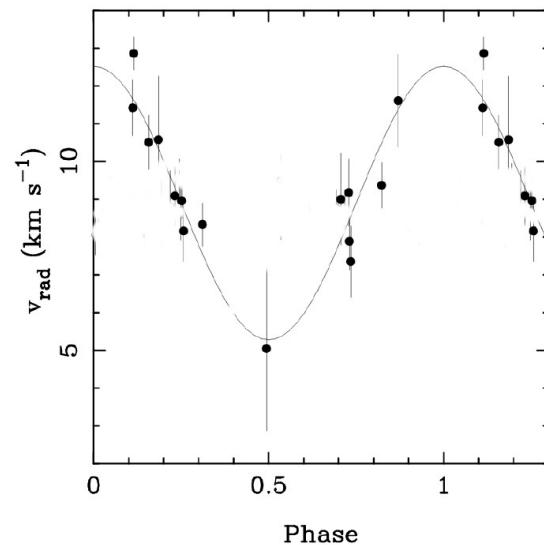
THE ASTROPHYSICAL JOURNAL, 644: L75–L78, 2006 June 10
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A MULTIWAVELENGTH RADIAL VELOCITY SEARCH FOR PLANETS AROUND THE BROWN DWARF LP 944-20

E. L. MARTÍN,^{1,2} E. GUNTHER,³ M. R. ZAPATERO OSORIO,⁴ H. BOUY,¹ AND R. WAINSCOAT⁵

Received 2006 April 10; accepted 2006 April 25; published 2006 May 26

- Optical range (UVES/VLT):
- 14 nights /841 days
- Period 2.5 - 3.7h



MULTI-WAVELENGTH ASTRONOMY

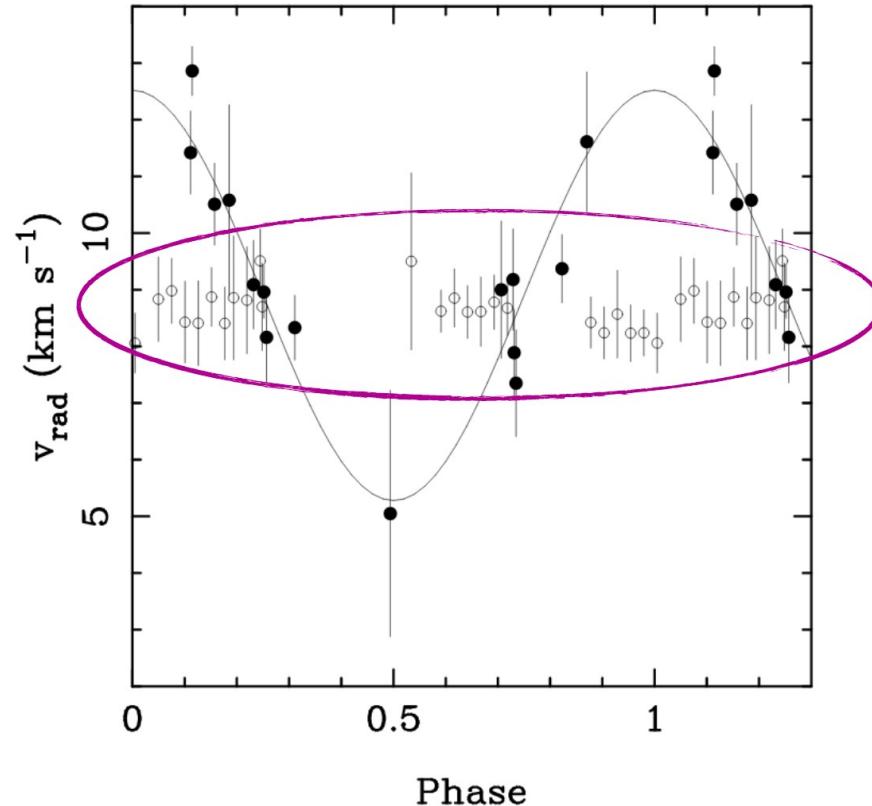
THE ASTROPHYSICAL JOURNAL, 644: L75–L78, 2006 June 10
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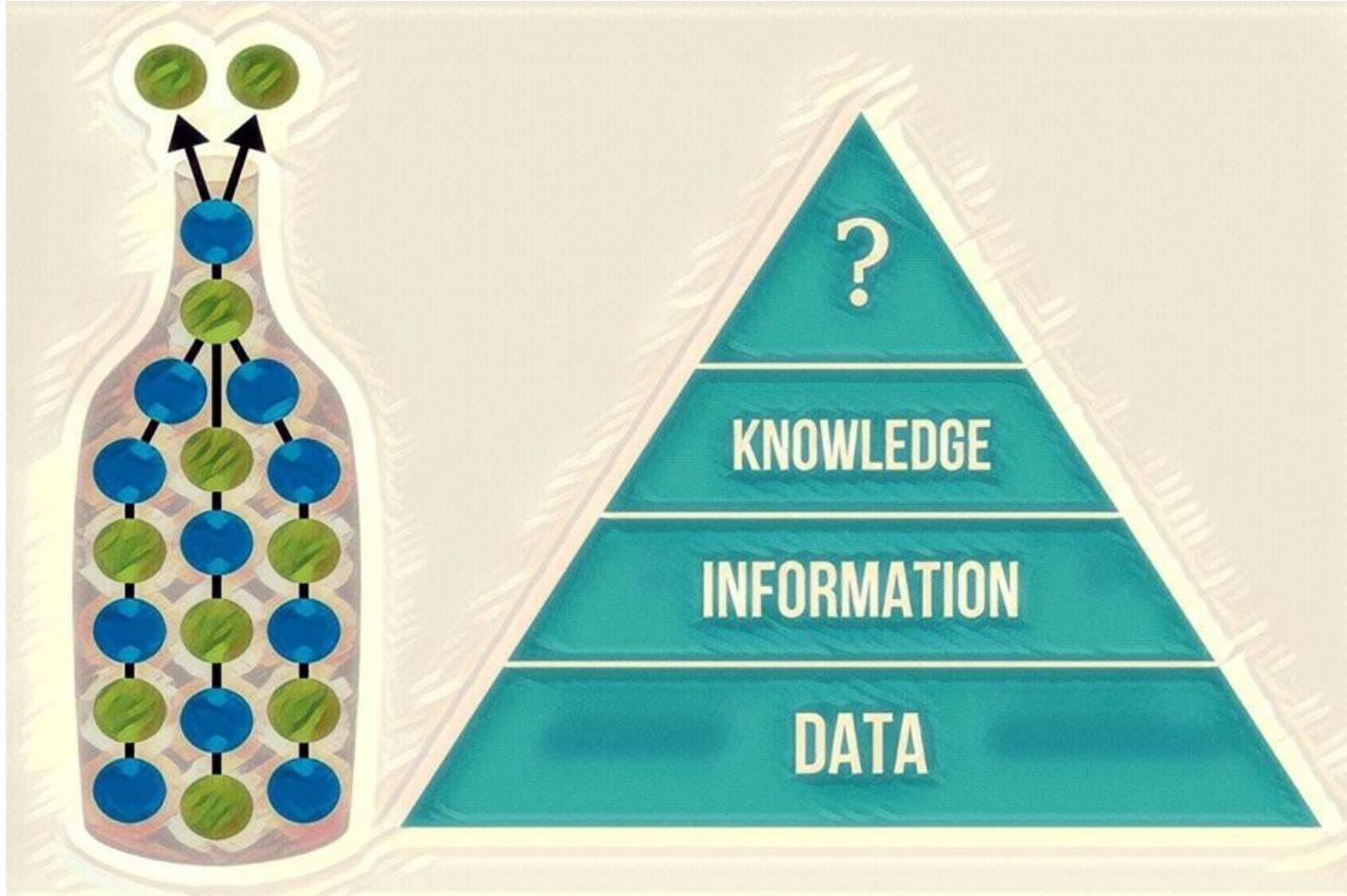
A MULTIWAVELENGTH RADIAL VELOCITY SEARCH FOR PLAN

E. L. MARTÍN,^{1,2} E. GUENTHER,³ M. R. ZAPATERO OSOR

Received 2006 April 10; accepted 2006 April 25;

Infrared range





THE GOAL: MAKING DATA F.A.I.R

F A I R



Findable



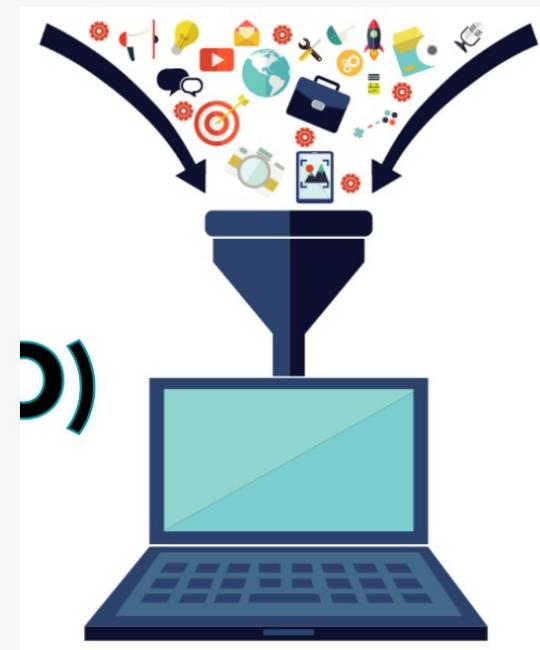
Accessible



Interoperable



Reusable



"Dame todo lo que existe en los archivos astronómicos sobre un determinado objeto. Y dámelo listo para hacer ciencia"



THE INTERNATIONAL VIRTUAL OBSERVATORY ALLIANCE



Caltech campus, Pasadena, Calif., USA

June 13 - 16, 2000

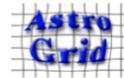
<http://astro.caltech.edu/nvoconf>

Email inquiries: nvoconf@astro.caltech.edu

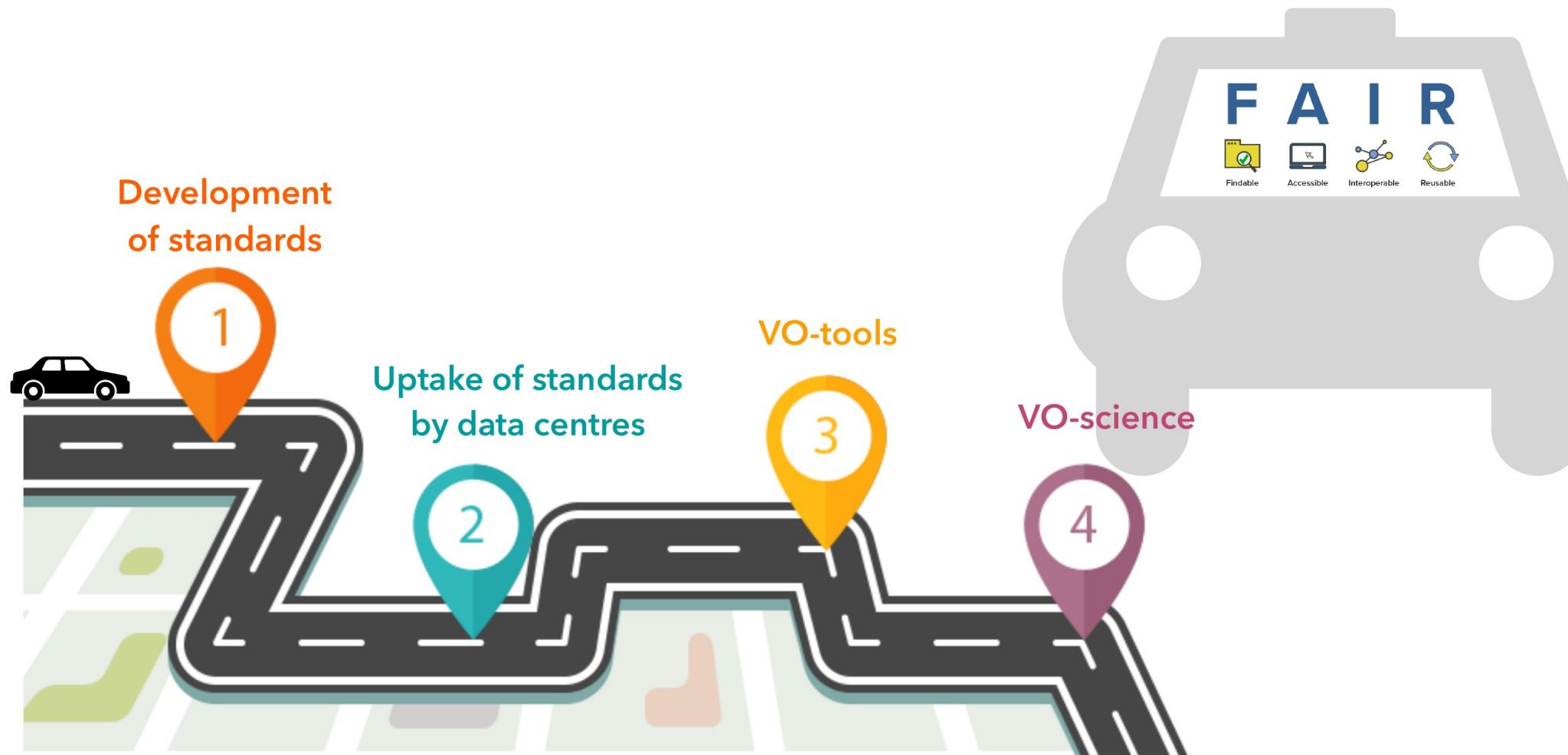


MPA/ ESO/ MPE Joint Astronomy Conference

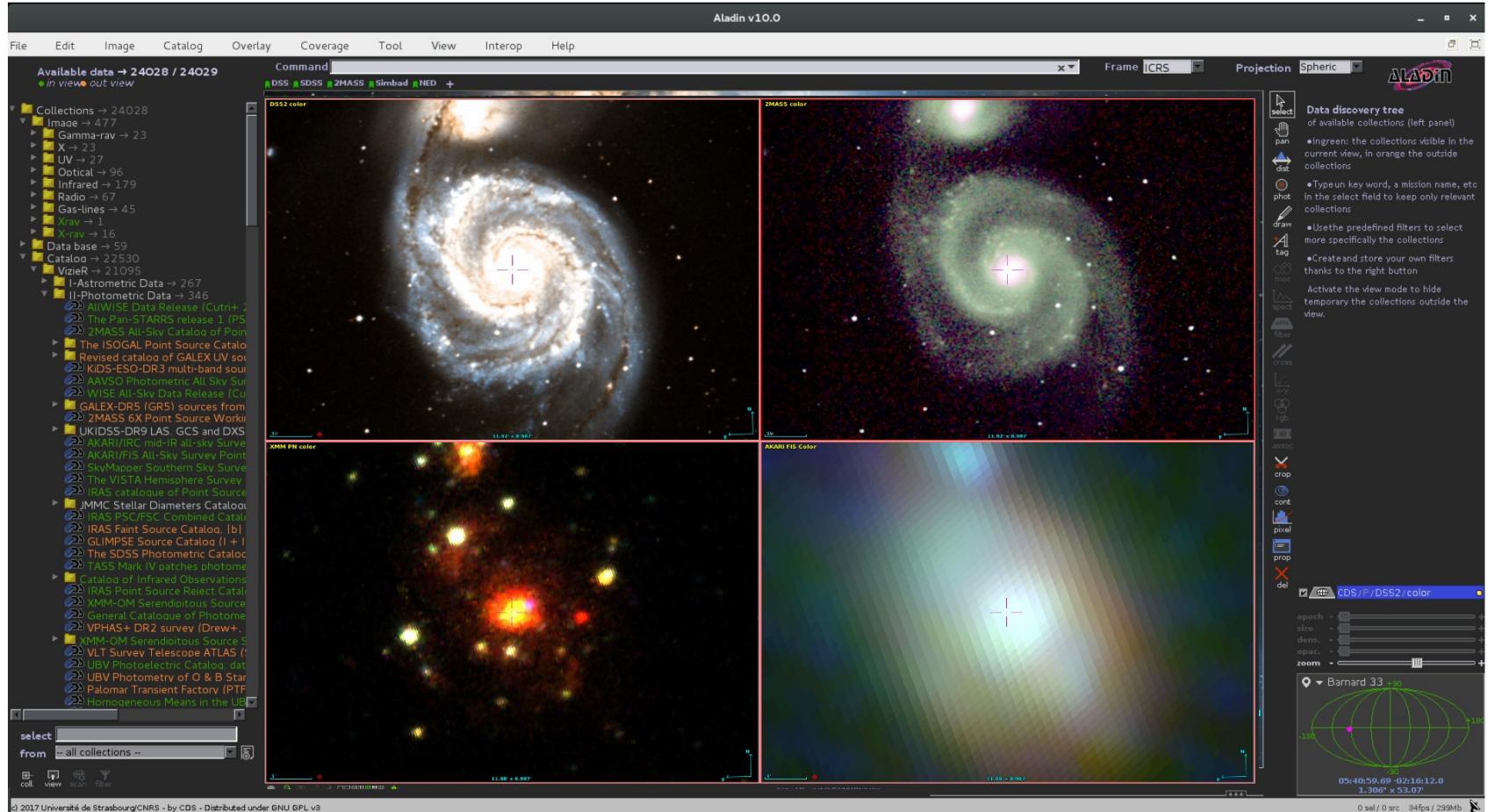
MINING THE SKY



THE VIRTUAL OBSERVATORY ROADMAP



THE POWER OF VO: ALADIN



THE POWER OF VO: TOPCAT



The figure displays the TOPCAT interface, a powerful tool for astronomical data visualization and analysis.

TOPCAT Main Window: The central window shows a "Plane Plot" of data points. The x-axis is labeled "g_min_ks" and ranges from 0 to 3.5. The y-axis is labeled "q_mag_abs" and ranges from 0 to 9. The plot contains a dense, red-colored cloud of points, indicating a concentration of data around (0, 0) and spreading out towards higher values of g_min_ks and q_mag_abs.

Table List: A list of tables currently loaded into TOPCAT, showing the number of rows and columns for each.

Current Table Properties: Details about the selected table, including its label, location, name, sync status, and column information.

SAMP: A panel for managing Service Access Point (SAMP) connections.

Table Access Protocol (TAP) Query: A separate window for querying astronomical databases using the TAP protocol.

Metadata: A table showing the schema of the selected service, listing columns, data types, and constraints.

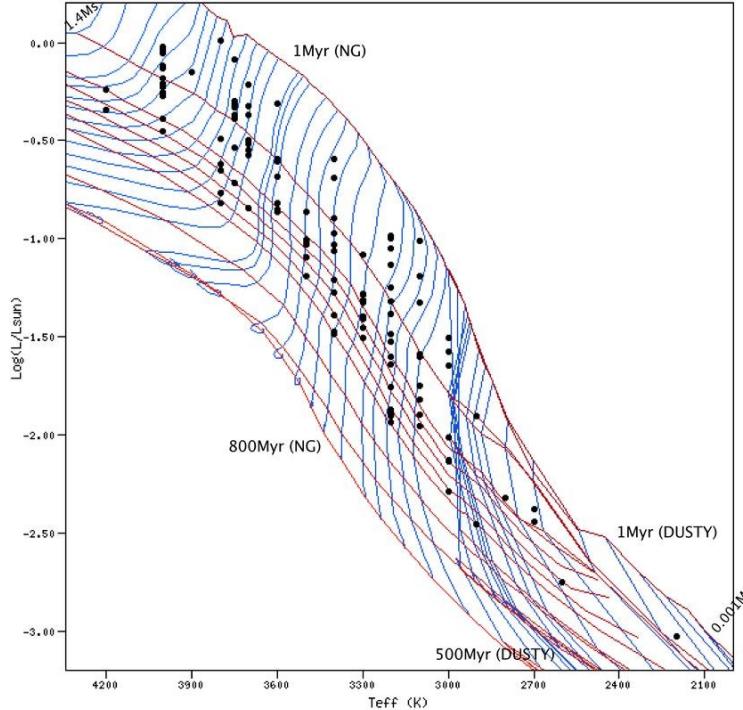
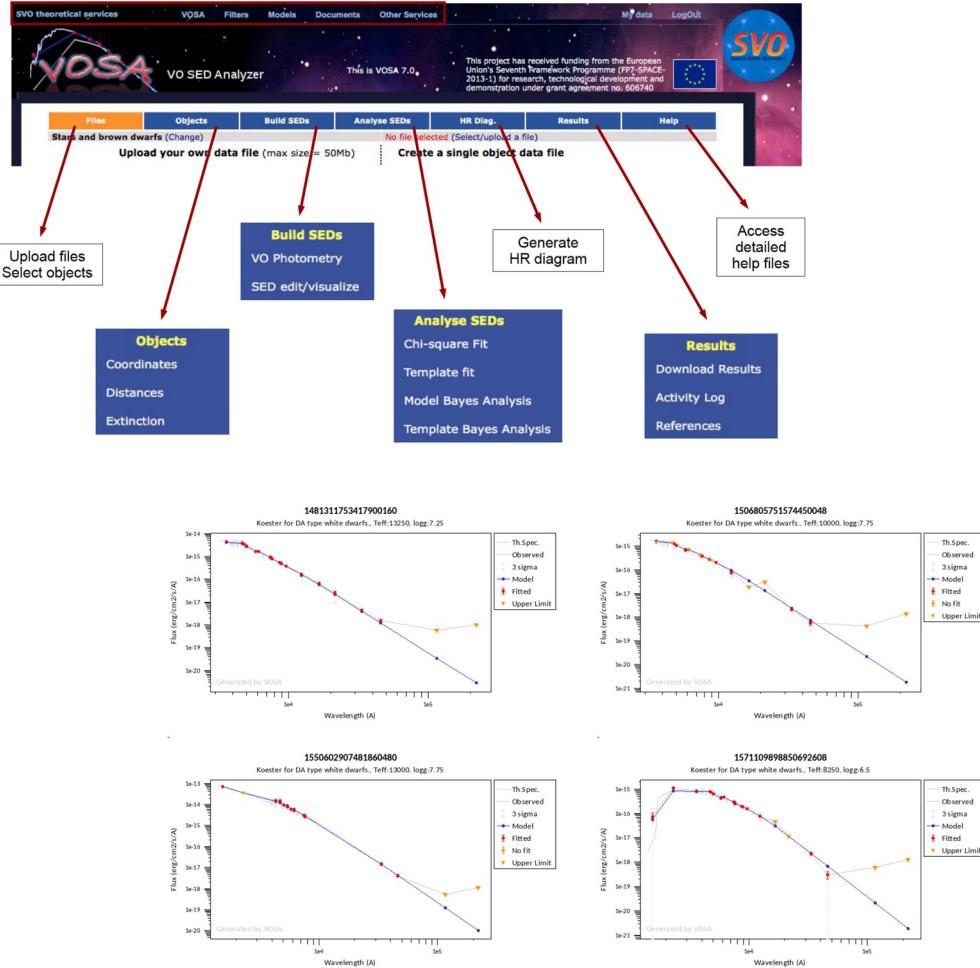
Service Capabilities: Information about the services available, including the query language (ADQL-2.0), maximum rows, and upload limits.

ADQL Text: A text editor for writing and running ADQL queries. The current query is:

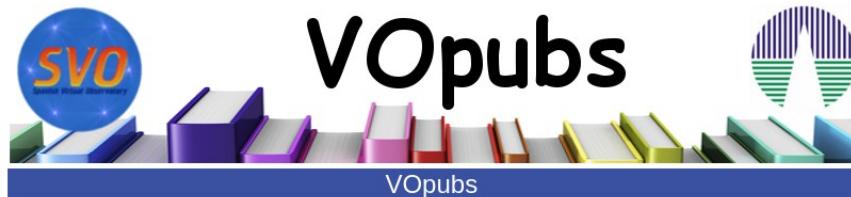
```
SELECT TOP 10000 gaia.source_id,  
       gaia.phot_g_mean_mag + 5 * log10(gaia.parallax) - 10 AS g_mag_abs ,  
       gaia.phot_g_mean_mag - tmass.ks_m AS g_min_ks  
FROM gaiaadr1.tgas_source AS gaia  
INNER JOIN gaiaadr1.tmass_best_neighbour AS xmatch  
        ON gaia.source_id = xmatch.source_id  
INNER JOIN gaiaadr1.tmass_original_valid AS tmass  
        ON tmass.tmass_oid = xmatch.tmass_oid  
WHERE gaia.parallax/gaia.parallax_error >= 5 AND  
      ph_qual = 'AAA' AND  
      sqrt(power(2.5 / log10 * gaia.phot_g_mean_flux_error  
                / gaia.phot_g_mean_flux, 2) ) <= 0.05 AND  
      sqrt(power(2.5 / log10 * gaia.phot_g_mean_flux_error  
                / gaia.phot_g_mean_flux, 2)  
          + power(tmass.ks_msigcom, 2)) <= 0.05
```

Run Query: A button to execute the current ADQL query.

THE POWER OF VO: VOSA



HOW USED ARE VO-TOOLS?



Search by bibcode:

Search by comment: (free text)

Only publications without comments

Search by dates:

from: January 2017

to: December 2017

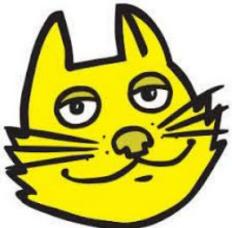
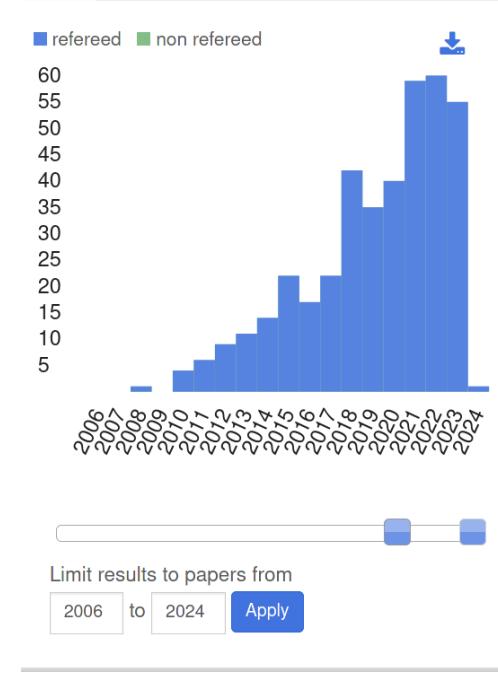
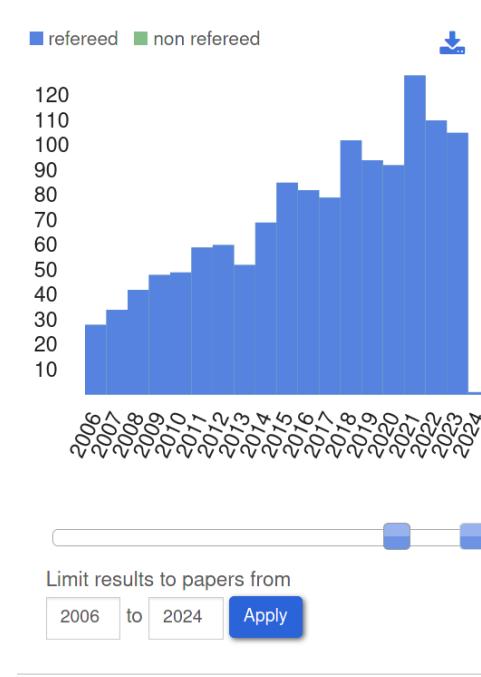
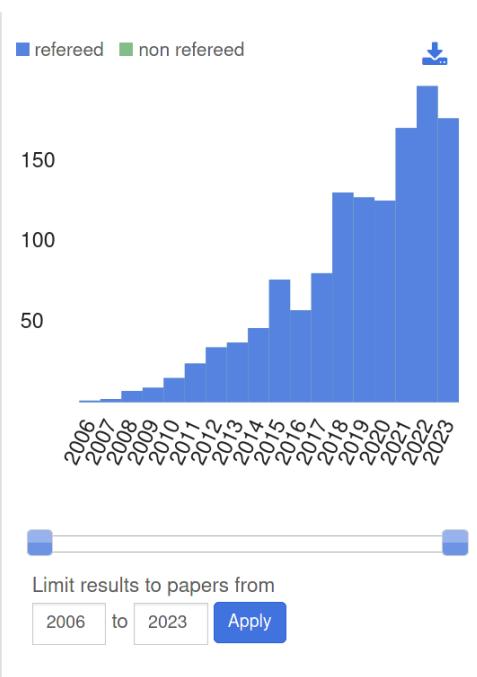
Submit Reset Form

538 Results

Comment	Number
Use of VO tools: TOPCAT	231
Use of VO tools: Vizier	155
Use of VO tools: SIMBAD	125
Use of VO tools: Aladin	83
Use of VO services: SVO Filter Profile Service.	79
Use of VO tools: VOSA	53
VO project (SVO) acknowledged in the paper.	42
Use of VO tools: CASSIS	19
VO project (China-VO) acknowledged in the paper	15
Australian All-Sky Virtual Observatory (ASVO)	12
Use of VO tools: STILTS	10

Bibcode	Title	author	Comment	Citation
2023A&A...669A.120Z	Supervised machine learning on Galactic filaments. Revealing the filamentary structure of the Galactic interstellar medium	Zavagno, A.;Dup��, F. -X.;Bensaid, S.;Schisano, E.;Li Causi, G.;Gray, M.;Molinari, S.;Elia, D.;Lambert, J. -C.;Brescia, M.;Arzoumanian, D.;Russeil, D.;Riccio, G.;Cavuoti, S.	Use of VO tools: Aladin	-
2023A&A...669A.137H	PRODIGE - envelope to disk with NOEMA. II. Small-scale temperature structure and streamer feeding the SVS13A protobinary based on CH ₃ CN and DCN	Hsieh, T. -H.;Segura-Cox, D. M.;Pineda, J. E.;Caselli, P.;Bouscas��e, L.;Neri, R.;Lopez-Sepulcre, A.;Valdivia-Mena, M. T.;Maureira, M. J.;Henning, Th.;Smirnov-Pinchukov, G. V.;Semenov, D.;M��ller, Th.;Cunningham, N.;Fente, A.;Marino, S.;Dutrey, A.;Tafalla, M.;Chapillon, E.;Ceccarelli, C.;Zhao, B.	Use of VO tools: CASSIS	1
2023A&A...669A..23G	SIT 45: An interacting, compact, and star-forming isolated galaxy triplet	Grajales-Medina, D.;Argudo-Fern��ndez, M.;V��squez-Bustos, P.;Verley, S.;Boquien, M.;Salim, S.;Duarte Puertas, S.;Lisenfeld, U.;Espada, D.;Salas-Olave, H.	Use of VO tools: TOPCAT	2
2023A&A...669A..27S	Galaxy and Mass Assembly (GAMA). Mid-infrared properties as tracers of galaxy environment	Sureshkumar, U.;Durkalec, A.;Pollo, A.;Bilicki, M.;Cluver, M. E.;Bellstedt, S.;Farrow, D. J.;Loveday, J.;Taylor, E. N.;Bland-Hawthorn, J.	Use of VO tools: TOPCAT	2
2023A&A...669A..55C	An empirical model of the Gaia DR3 selection function	Cantat-Gaudin, Tristan;Fouesneau, Morgan;Rix, Hans-Walter;Brown, Anthony G. A.;Castro-Ginard, Alfred;Kostrzewa-Rutkowska, Zuzanna;Drimmel, Ronald;Hogg, David W.;Casey, Andrew R.;Khanna, Shourya;Oh, Semyeong;Price-Whelan, Adrian M.;Belokurov, Vasiliy;Saydjari, Andrew K.;Green, G.	Use of VO tools: TOPCAT	12
2023A&A...669A..60P	Do Miras show long secondary periods? Investigating the hot molecular core, G10.47+0.03: A pit of nitrogen-bearing	Pawlak, Micha��	Use of VO tools: TOPCAT	1
		Mondal, Suman Kumar;Jabal, Wasim;Gorai, Prasanta;Bhat, Bratati;Wakelam,		

HOW USED ARE VO-TOOLS?



F.A.I.R. PRINCIPLES BEYOND ASTROPHYSICS



We agree and endorse the principles below when dealing with research results stemming from EU funded research grants related to COVID-19 on prevention (including vaccines), testing and treatment:

- 1** Make the generated results, whether tangible or intangible, **public and accessible** without delay, for instance on the Horizon Results Platform, on an existing IP sharing platform, or through an existing patent pool.
- 2** Make scientific papers and research data available in **open access** without delay and following the **FAIR principles** via preprint servers or public repositories, with rights for others to build upon the publications and data and with access to the tools needed for their validation. In particular, make COVID-19 research data available through the European COVID-19 Data Platform.
- 3** Where possible, grant for a limited time³, **non-exclusive royalty free licences** on the intellectual property resulting from EU-funded research. These non-exclusive royalty free licenses shall be given in exchange for the licensees' commitment to rapidly and broadly distribute the resulting products and services under fair and reasonable conditions to prevent, diagnose, treat and contain COVID-19.

ISBN 978-92-76-20627-9 · doi:10.2777/6631122 · KI-01-20-450-EN-N



The FAIR principles are fulfilled in Astronomy thanks to the Virtual Observatory making reality what in other disciplines is just a dream

HILL: I felt a little bit like I stepped into the future when I went to a meeting of the virtual observatories in astronomy. They've already done a lot of the things that we're aiming to do in the sense that they've got observatories from all around the world that are sharing, through a common infrastructure, the data that they're measuring. And they're integrating it into a unified picture of the sky and our universe. These same data contribute to building large-scale simulations of the universe. I think that's extremely inspiring. If we can have a common infrastructure that allows us to have a globally integrated view of the data being produced, and the tools to run large-scale simulations from the data, we will really have made progress in neuroscience.



Human Brain Project

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Welcome to the Human Brain Project

The Human Brain Project aims to put in place a cutting-edge research infrastructure that will allow scientific and industrial researchers to advance our knowledge in the fields of neuroscience, computing, and brain-related medicine

[Learn more about the project](#)

FINAL REMARKS



If you have any question please, let us know: svo-support@cab.inta-csic.es