

IVOA Newsletter - October 2015

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IVOA Newsletter Editors: Mark G. Allen, Deborah Baines, Chenzou Cui, August Muench, & Ivan Zolotukhin.



The International Virtual Observatory Alliance (IVOA) was formed in June 2002 with a mission to facilitate the international coordination and collaboration necessary for the development and deployment of the tools, systems and organizational structures necessary to enable the international utilization of astronomical archives as an integrated and interoperating virtual observatory. The IVOA now comprises 20 VO programs from Argentina, Armenia, Australia, Brazil, Canada, Chile, China, Europe, France, Germany, Hungary, India, Italy, Japan, Russia, South Africa, Spain, Ukraine, the United Kingdom, and the United States and an inter-governmental organization (ESA). Membership is open to other national and international programs according to the [IVOA Guidelines for Participation](http://ivoa.net/about/). You can read more about the IVOA and what we do at <http://ivoa.net/about/>.

What is the VO?

The Virtual Observatory (VO) aims to provide a research environment that will open up new possibilities for scientific research based on data discovery, efficient data access, and interoperability. The vision is of global astronomy archives connected via the VO to form a multiwavelength digital sky that can be searched, visualized, and analyzed in new and innovative ways. VO projects worldwide working toward this vision are already providing science capabilities with new tools and services. This newsletter, aimed at astronomers, highlights VO tools and technologies for doing astronomy research, recent papers, and upcoming events.

IVOA NEWS



China-VO enabled Popular Supernova Project

On July 29, 2015, the Popular Supernova Project was launched. It is the first astronomical citizen science project in China as a joint venture between China-VO and Xingming Amateur Astronomical Observatory. In the morning of Sep. 12, a supernova candidate was discovered by a 10-year old pupil. Inspired by the news, number of the registered users of China-VO platform raised rapidly to 105K by the end of September. Currently, two supernova candidates discovered by public users have been confirmed by professional observations.

The project webpage is prepared in Chinese; an English version is planned for a proper time in the future.

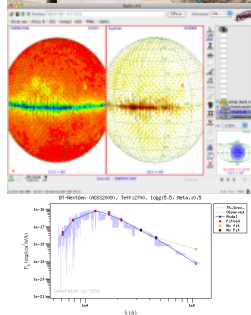
ASTERICS Virtual Observatory School

The ASTERICS project is organising a VO School at Centro de Astrobiología, Madrid, Spain. The goal of the school is twofold: Expose European astronomers and representatives of the ESFRI projects involved in ASTERICS to the variety of VO tools and services available today so that they can use them efficiently for their own research and gather requirement and feedback from them.

Important dates:

- Deadline for submission of participants' use cases: 13 November 2015
- Deadline for registration: 30 November 2015
- Meeting: 15-17 December 2015

More information can be found at the school website.



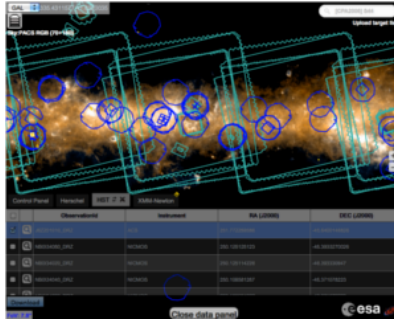
WWT Guided Tour Design Competition

The award ceremony of the 2nd WWT Guided Tour Contest was held on July 28, 2015. The contest was organized by China-VO, Microsoft Research and other partners, began in early 2015, and was designed to promote the concept of scientific data-based science education and the open sharing of scientific and technological resources and knowledge. About 100 tours were submitted by school students and amateur astronomers. Videos of awarded tours are released to the public at <http://wwt.china-vo.org/tours2015/>.

VO APPLICATIONS AND IMPLEMENTATION HIGHLIGHTS

ESA Sky: the ESA Astronomy Multi-Mission Interface

We are pleased to announce the beta v1.0 release of ESA Sky, the ESA Astronomy Multi-Mission Interface, a science-driven discovery portal for all ESA Astronomy missions. ESA Sky provides simplified access to high level science-ready data products from ESA Astronomy missions and a number of ESA produced source catalogues. No prior knowledge of the involved ESA missions is needed, simply explore the sky with the sky exploration interface, or conduct single or multiple target searches. From a technical point of view, the system offers new all-sky multi-resolution maps of full mission datasets; detailed geometrical footprints to connect the all-sky mosaics to individual observations; direct access to the underlying mission-specific science archives; and uses the TAP and MOC VO protocols. The beta release contains data (imaging only) and catalogues from the following missions: INTEGRAL, XMM-Newton, HST, Hipparcos, ISO, Herschel, and Planck.



We are extremely interested in your feedback and would like to hear from you via our helpdesk. You can see a video demo of the ESA Sky beta or try the beta interface.

Acknowledgement: ESA Sky makes use of the Aladin sky atlas and HiPS (Hierarchical Progressive Surveys), developed at CDS, Strasbourg Observatory, France.

Basic Search | **More Search Options** | **Released Programs**

1. Choose Instrument (all modes):

<input checked="" type="checkbox"/> HIRES	<input checked="" type="checkbox"/> NIRC2	<input checked="" type="checkbox"/> NIRSPEC
<input checked="" type="checkbox"/> DEIMOS	<input checked="" type="checkbox"/> ESI	<input checked="" type="checkbox"/> LRIS
<input checked="" type="checkbox"/> LWS	<input checked="" type="checkbox"/> MOSFIRE	<input checked="" type="checkbox"/> NIRC
<input checked="" type="checkbox"/> OSIRIS		

Check All Clear All

(To retrieve public Keck Interferometer data, use the dedicated KI Search Form)

2. Search for Data by Night or Location:

UT Observation Date(s):
mmddyyyy or yyyymmdd

Object Name or Location:
* Coordinates or object name, to be resolved by NED first then SIMBAD.
 Examples: "DQ Tau", "04h46m53.05s +17d00m00.2s, Iqgu J2000", "182.24771 -17.86600 ga"
Radius: 30 [arcsec] (0.1 arcsec - 6 deg)
 Use substring matching of TARGNAME. It is most useful for moving object searches. See help for limitations on use.

3. Return Results As:

List of Files *(Allows you to select which files to download)*

Download Package Containing all Results

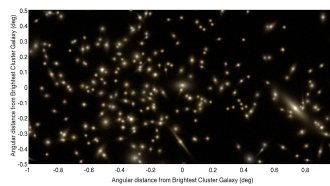
E-mail:
(You will be notified via email when the download package is ready)

Search Reset Form

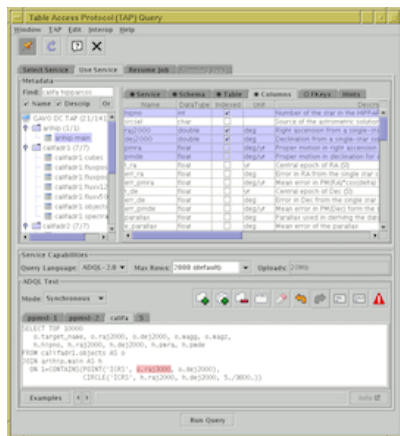
The Keck Observatory Archive The Keck Observatory Archive (KOA) (website) has released a program-friendly interface to public images acquired with all nine Keck instruments equipped with an imaging mode. The interface is compliant with the latest VO-image access standard, Simple Image Access Protocol (SIAP_v2, June, 2015). The interface is fully documented and includes a detailed description of the input and output parameters, examples for each instrument, a troubleshooting guide and a web-based query builder that allows users to create queries that are later run from a program.

TAO v2.0: The Theoretical Astrophysical Observatory

The Theoretical Astrophysical Observatory (TAO) houses data from popular cosmological N-body simulations and semi-analytic galaxy formation models, primarily focused on survey science. Mock catalogues can be built from the database without the need for any coding. Results can be funnelled through higher-level modules to build custom light-cones and images. TAO is accessible from anywhere you can access the internet.



TAO v2.0 has just been released with many front and back-end enhancements. These include the option to download premade mock catalogues (e.g. created in advance for a specific survey, like CANDELS or SDSS), significant improvements to the image module to make it easier to image your mock galaxies, and an update of the SAGE semi-analytic model to its public release version (Croton et al. 2015). Head over to TAO now and build your own universe!



TOPCAT TAP Improvements

The recent release (v4.3) of the table analysis tool TOPCAT features a major overhaul of its TAP window. TAP, the Table Access Protocol, lets you run flexible SQL-like queries on remote astronomical databases. The updated TAP window is easier to use and more powerful than before: improvements include the ability to search for datasets by table name or description, better query editing facilities, more useful information about the service you're using, and a list of example queries to help you write your own, including examples specific to the current database. It also now works well with very large TAP services, including HEASARC from NASA (900 tables) and VizieR from CDS (30,000 tables).

More Information on TOPCAT TAP can be found:
<http://www.starlink.ac.uk/topcat/>

SOME RECENT PAPERS ABOUT VO-ENABLED SCIENCE

Featured Science Publication

The number fraction of discs around brown dwarfs in Orion OB1a and the 25 Orionis group

Downes, Juan José; Román-Zúñiga, Carlos; Ballesteros-Paredes, Javier; Mateu, Cecilia; Briceño, César; Hernández, Jesús; Petr-Gotzens, Monika G.; Calvet, Nuria; Hartmann, Lee; Mauco, Karina.

Monthly Notices of the Royal Astronomical Society, Vol. 450, 3490-3502 (2015).

We present a study of 15 new brown dwarfs belonging to the ~7 Myr old 25 Orionis group and Orion OB1a subassociation with spectral types between M6 and M9 and estimated masses between 0.07 and 0.01 M_{\odot} . By comparing them through a Bayesian method with low-mass stars ($0.8 \leq M/M_{\odot} \leq 0.1$) from previous works in the 25 Orionis group, we found statistically significant differences in the number fraction of classical T Tauri stars, Weak T Tauri stars, class II, evolved discs and purely photospheric emitters at both sides of the substellar mass limit. Particularly, we found a fraction of $3.9^{+2.4}_{-1.6}$ per cent low-mass stars classified as Classic T Tauri star and class II or evolved discs, against a fraction of $33.3^{+10.8}_{-9.8}$ per cent in the substellar mass domain. Our results support the suggested scenario in which the dissipation of discs is less efficient for decreasing mass of the central object.

Refereed Publications

- *Search with UVES and X-Shooter for signatures of the low-mass secondary in the post common-envelope binary AA Doradus*
Hoyer, D.; Rauch, T.; Werner, K.; Hauschildt, P. H.; Kruk, J. W. 2015, *Astronomy and Astrophysics*, Vol. 578, A125
- *Study of extremely reddened AGB stars in the Galactic bulge*
Jiménez-Esteban, F.M.; Engels, D. 2015, *Astronomy and Astrophysics*, Vol. 579, A76
- *Reaching the boundary between stellar kinematic groups and very wide binaries. III. Sixteen new stars and eight new wide systems in the beta Pictoris moving group*
Alonso-Floriano, F. J.; Caballero, J. A.; Cortes-Contreras, M.; Solano, E.; Montes, D. 2015, *arXiv:1508.06929*; *A&A in press*
- *The VLT Survey Telescope ATLAS*
Shanks, T.; Metcalfe, N.; Chehade, B.; Findlay, J. R.; Irwin, M. J.; Gonzalez-Solares, E.; Lewis, J. R.; Yoldas, A. Kupcu; Mann, R. G.; Read, M. A.; Sutorius, E. T. W.; Voutsinas, S. 2015, *Monthly Notices of the Royal Astronomical Society*, Vol. 451, 4238-4252
- *Hundreds of new cluster candidates in the VISTA Variables in the Vía Láctea survey DR1*
Barbá, R. H.; Roman-Lopes, A.; Nilo Castellón, J. L.; Firpo, V.; Minniti, D.; Lucas, P.; Emerson, J. P.; Hempel, M.; Soto, M.; Saito, R. K. 2015, *Astronomy and Astrophysics*, Vol. 581, A120
- *Spectro-photometric characterization of high proper motion sources from WISE*
Beamín, J. C.; Ivanov, V. D.; Minniti, D.; Smart, R. L.; Muzic, K.; Mendez, R. A.; Beletsky, Y.; Bayo, A.; Gromadzki, M.; Kurtev, R. 2015, *arXiv:1509.07507*; *MNRAS accepted*
- *The first pre-supersoft X-ray binary*
Parsons, S. G.; Schreiber, M. R.; Gänsicke, B. T.; Rebassa-Mansergas, A.; Brahm, R.; Zorotovic, M.; Toloza, O.; Pala, A. F.; Tappert, C.; Bayo, A.; Jordán, A. 2015, *Monthly Notices of the Royal Astronomical Society*, Vol. 452, 1754-1763
- *Shapley Supercluster Survey: construction of the photometric catalogues and i-band data release*
Mercurio, A.; Merluzzi, P.; Busarello, G.; Grado, A.; Limatola, L.; Haines, C. P.; Brescia, M.; Cavuoti, S.; Dopita, M.; Dall'Orta, M.; Capaccioli, M.; Napolitano, N.; Pimbblet, K. A. 2015, *Monthly Notices of the Royal Astronomical Society*, Vol. 453, 3685-3698
- *Far-ultraviolet Spectroscopy of Old Novae. I. V603 Aquila*
Sion, Edward M.; Godon, Patrick; Bisol, Alexandra 2015, *Astronomical Journal*, Vol. 150, 36
- *First X-ray detection of the young variable V1180 Cas*
Antoniucci, S.; Nucita, A. A.; Giannini, T.; Lorenzetti, D.; Stelzer, B.; Gerardi, D.; Delle Rose, S.; Di Paola, A.; Giordano, M.; Manni, L.; Strafella, F. 2015, *arXiv:1509.07730*; *A&A accepted*
- *Principal component analysis-based inversion of effective temperatures for late-type stars*
Paletou, F.; Gebran, M.; Houdebine, E. R.; Watson, V. 2015, *Astronomy and Astrophysics*, Vol. 580, A78

More Ways to Find VO-related Publications

The ADS query we manually curate for the bibliography in this newsletter.

All ADS links mentioning the "virtual observatory" in the abstract.

All refereed publications mentioning the "virtual observatory" in the abstract.

VO CALENDAR

30 October - 1 November 2015 - IVOA Interoperability Meeting

Sydney, Australia

The International Virtual Observatory Alliance (IVOA) semi-annual Interoperability meetings provide for discussion and development of virtual observatory standards and VO-based applications, and are open to those with an interest in utilizing the VO infrastructure and tools in support of observatory operations and/or astronomical research.

3-6 November 2015 - Astronomy 7

Sydney, Australia

.Astronomy (pronounced 'dot-astronomy') aims to bring together an international community of astronomy researchers, developers, educators and communicators to showcase and build web-based projects, from outreach and education to research tools and data analysis. Follow the meeting events on Twitter with the hashtag #dotastro.

15-17 December 2015 - ASTERICS Virtual Observatory School

Centro de Astrobiología, Madrid, Spain

The ASTERICS project is organising a VO School to expose European astronomers and representatives of the ESFRI projects involved in ASTERICS to the variety of VO tools and services available today. Important deadlines include submission of use cases by 13 November 2015 and meeting registration on 30 November 2015.

15-17 March 2016 - 2016 Conference on Big Data from Space - BiDS'16

Santa Cruz de Tenerife, Spain

Big Data from Space refers to the massive spatio-temporal Earth and Space observation data collected by space-borne and ground-based sensors. The objective of the Big Data from Space conferences is to bring together researchers, engineers and users working in the area of Big Data from Space. The 2016 Big Data from Space conference (BiDS'16), is jointly organised by the European Space Agency (ESA), the Joint Research Centre (JRC) of the European Commission, and the European Union Satellite Centre (SatCen). Deadline for abstract submission is 30 October 2015.

8-13 May 2016 - IVOA Interoperability Meeting

Stellenbosch, Cape Town, South Africa

The Spring 2016 IVOA Interoperability meeting will be held 8-13 May 2016 at the Stellenbosch Institute for Advanced Study (stias.ac.za) and is hosted by the South African Astroinformatics Alliance (SA3). This will be the first IVOA Meeting held in Africa and will be preceded by a one day workshop for South African postgraduate students organized at the South African Astronomical Observatory (SAAO) by SA3 with the Strasbourg Astronomical Data Centre (CDS) on 6th May 2016.

6-10 June 2016 - Statistical Challenges in Modern Astronomy VI

Carnegie Mellon University, Pittsburgh, Pennsylvania, USA

This meeting will continue the interdisciplinary tradition of its predecessors, bringing together researchers in astronomy, cosmology, statistics, and machine learning to facilitate progress on the significant data analysis challenges that result from current and future astronomical sky surveys. The deadline for abstracts for contributed talks and posters is 1 February 2016.

26 June- 1 July 2016 - SPIE Observatory Operations: Strategies, Processes, and Systems VI

Edinburgh, Scotland

This conference provides a forum for discussion of a broad range of issues relevant to operation of ground-based and space observatories, including observing/support models, calibration, data-reduction/archiving, quality control, engineering and infrastructure, fault-handling, productivity and staffing. Preliminary topics include: optimizing operations management for scientific productivity, observatory operations in the era of massive data, and process coordination for the time domain. The abstract submission deadline is 14 December 2015.

For Astronomers



Getting Started / Using the VO
VO Glossary / VO Applications
IVOA newsletter / VO for Students
& Public
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For Deployers/Developers



Intro to VO Concepts /
IVOA Standards/ Guide to
Publishing in the VO / Technical
Glossary
◆◆◆

For Members



IVOA Calendar / Working Groups/
Twiki / Documents in Progress /
Mailing Lists / IVOA Roadmap
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