

IVOA Newsletter - June 2015

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IVOA Newsletter Editors: Mark G. Allen, Deborah Baines, Sarah Emery Bunn, Chenzou Cui, August Muench, Mark Taylor, & 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](#). 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



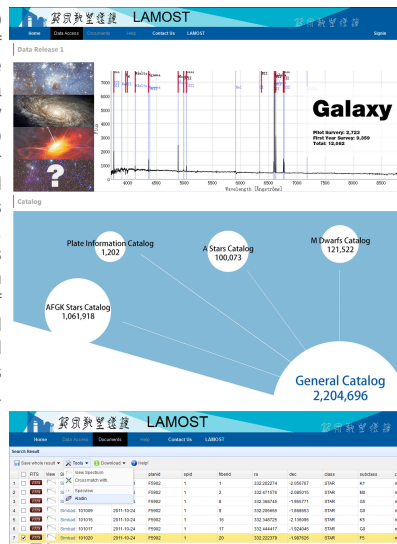
ChiVO officially launched On April 24th the Chilean Virtual Observatory (ChiVO) was officially launched to the community in a seminar held at Technical University Federico Santa María, Valparaíso, Chile.

The highlights of the seminar were: **First dataset:** ChiVO offers all the ALMA Cycle 0 FITS (<http://chivo.cl/resources/data.html>), which are accessible through the IVOA registry under SCS, SIA, and TAP protocols. **Web portal:** with information about ChiVO and a web-based interface to SCS, SIA, and SSA protocols (<http://www.chivo.cl>); **Ongoing projects:** presentation of the prototype tools for intelligent data analysis, automatic source identification, and smart indexing, strongly focused on ALMA-like spectroscopic data cubes. **Community feedback:** a meeting was held with local astronomers interested on publishing their datasets through ChiVO, in order to explain and collaborate on this process.

Please note that though ChiVO is up and running, the core services will soon be migrated to a dedicated data center for astronomy, which will allow ChiVO to properly growth as needed.

LAMOST DR1 Public Release LAMOST DR1 was released to the public in March, 2015, consisting of 2.2 million of spectra of stars, galaxies, quasars, and other unknown types. It is the largest astronomical spectra archive in the world. The data access system is developed by Chinese Virtual Observatory (China-VO) under a collaboration with LAMOST team. VO tools, such as Aladin and SpecView, and dedicated tools for LAMOST are integrated into the web portal. Search results and spectra can be displayed and analyzed on the fly. Large results and datasets can be retrieved in several ways, including FTP, wget, China-VO AstroCloud storage, and VO data access interfaces. Based on CDS X-Match Service, cross identification with dozens of well-known catalogs is provided. List of identifiers or coordinates supported by CDS SIMBAD and VizieR, or list of LAMOST identifiers is acceptable to upload and search the database in batch mode. An SDSS CasJobs mirror system is built with both SDSS DR12 and LAMOST DR1 catalogs inside.

More information is available at: <http://dr1.lamost.org>





First IVOA Meeting in Africa The 2016 Northern Spring Interoperability Meeting of the IVOA will be hosted by the South African Astroinformatics Alliance (SA3). It will be held at the Stellenbosch Institute for Advanced Study (sias.ac.za), near Cape Town from 8-13 May 2016.

The local organizing committee comprises Sudhanshu Barway (SAAO), Lindsay Magnus (SKA), Nazli Mohamed (SAAO), Jaquiline Rodgers (SKA), Russ Taylor (UCT, UWC), and Patricia Whitelock (SAAO, UCT).

The meeting 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.

More information is available at: <http://ivoa2016.sa3.ac.za>

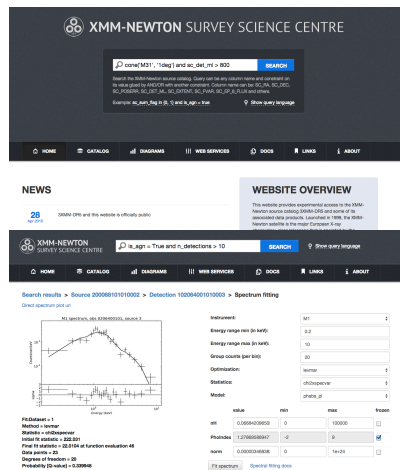
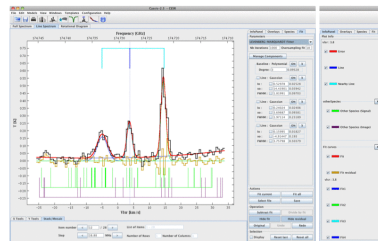
VO APPLICATIONS AND IMPLEMENTATION HIGHLIGHTS

CASSIS Spectral Tool updates A new version of CASSIS (free spectral tools) has been released. It is made available as either a stand alone application (<http://cassis.irap.omp.eu/?page=installation>), or it can be used via Java web start technology (<http://cassis.irap.omp.eu/online/cassis.jnlp>).

The CASSIS team is also announcing a change to the architecture of the software, and is requesting community feedback on improvements, new functionalities, and/or scientific uses cases to be implemented in CASSIS.

To provide feedback send email to: cassis-team@irap.omp.eu or for specific developers' questions, email: cassis-dev@irap.omp.eu. Finally, a subscription mailing list has been created to keep users informed about recent developments and for users to exchange their experiences. To subscribe to this list (cassis-user@irap.omp.eu), send email to cassis-team@irap.omp.eu.

More Information: <http://cassis.irap.omp.eu/>



Advanced web application for X-ray research Following the recent release of the largest catalog of X-ray sources ever created, built from the XMM-Newton data and nicknamed 3XMM-DR5, the supporting website has been opened. For the first time it provides an intuitive search interface for the database of almost 400,000 X-ray sources and several advanced features for scientific analysis such as XSPEC-style spectral fitting of a vast collection of X-ray spectra right in a web browser. Built-in communication layer allows creation of flexible workflows to conveniently bring images, lightcurves and spectra of sets of X-ray objects together for detailed analysis with no pre-installed software required. The database also has handy connections to other X-ray archives and contains pre-computed cross-matches with common X-ray objects catalogs to facilitate easy comparison of (yet unstudied) objects of user interest with known CV, LMXB, HMXB, ULX, AGN and X-ray active stars. The success of this website research model has been demonstrated during public tutorials with quick-look discoveries made online.

More Information: <http://xmm-catalog.irap.omp.eu>

New Release and upgrades to VOSA The Spanish VO will release a new version of VOSA in June 2015. VOSA (VO Sed Analyzer) is a web-based tool designed to build observational spectral energy distributions and to estimate physical parameters (Teff, logg, [M/H], masses, ages, etc) from comparison with models.



We are upgrading VOSA to give an efficient estimation of the physical parameters of thousands of objects at a time (an order of magnitude higher compared to the previous version). This upgrade has required the implementation of a new distributed environment capable of submitting and processing jobs in an asynchronous and parallelized way. An improved algorithm to detect the infrared extinction as well as new theoretical models and observational catalogues are some other capabilities available in the new release.



Iris v2.1 beta release We are glad to announce the Iris v2.1 beta release. The latest version of Iris includes new, powerful analysis features, like integrating under fitted model components, a tool for statistically combining groups of SEDs, and the ability to arbitrarily combine template libraries and table models with other libraries, models, and functions. For the full list of new features and known bugs, please refer to the release notes at <http://cxc.cfa.harvard.edu/iris/v2.1/releasenotes/>.

You can explore all of Iris' capabilities with the User Guide at <http://cxc.cfa.harvard.edu/iris/v2.1/guide.html>.

To download: Iris is now downloaded and installed through Conda. Please refer to the new download instructions at <http://cxc.cfa.harvard.edu/iris/v2.1/download/index.html> to install Iris.

Our plan is to migrate from beta to production in the fall once the science community has had a chance to use Iris and provide feedback.

More Information:

<http://cxc.cfa.harvard.edu/iris/v2.1/releasenotes/>

SOME RECENT PAPERS ABOUT VO-ENABLED SCIENCE

Special Issue on The Virtual Observatory

A two volume special issue on the development, deployment, and impact of the virtual observatory was published in the *Astronomy & Computing Journal* between November 2014 and June 2015. Bob Hanisch (NIST) was Guest Editor. Comprising 28 articles on a wide range of services, tools, infrastructure, and management of the virtual observatory efforts worldwide. Complete listings of articles can be found for [Volume 1](#) and [Volume 2](#) on the *Astronomy and Computing ScienceDirect* website.

Featured Science Publication

Isolated compact elliptical galaxies: Stellar systems that ran away

Chilingarian, I. and Zolotukhin, I.

Science, Volume 348, Page 418, 12 pp. (2015).

Compact elliptical galaxies form a rare class of stellar system (~30 presently known) characterized by high stellar densities and small sizes and often harboring metal-rich stars. They were thought to form through tidal stripping of massive progenitors, until two isolated objects were discovered where massive galaxies performing the stripping could not be identified. By mining astronomical survey data, we have now found 195 compact elliptical galaxies in all types of environment. They all share similar dynamical and stellar population properties. Dynamical analysis for nonisolated galaxies demonstrates the feasibility of their ejection from host clusters and groups by three-body encounters, which is in agreement with numerical simulations. Hence, isolated compact elliptical and isolated quiescent dwarf galaxies are tidally stripped systems that ran away from their hosts.

Refereed Publications

- *Investigating the radio-loud phase of broad absorption line quasars*
Bruni, G., González-Serrano, J. I., Pedani, M., Benn, C. R., Mack, K.-H., Holt, J., Montenegro-Montes, F. M., & Jiménez-Luján, F. 2014, *Astronomy and Astrophysics*, Vol. 569, 87
- *Wide Cool and Ultracool Companions to Nearby Stars from Pan-STARRS 1*
Deacon, Niall R., Liu, Michael C., Magnier, Eugene A., Aller, Kimberly M., Best, William M. J., Dupuy, Trent, Bowler, Brendan P., Mann, Andrew W., Redstone, Joshua A., Burgett, William S., Chambers, Kenneth C., Draper, Peter W., Flewelling, H., Hodapp, Klaus W., Kaiser, Nick, Kudritzki, Rolf-Peter, Morgan, Jeff S., Metcalfe, Nigel, Price, Paul A., Tonry, John L., & Wainscoat, Richard J. 2014, *The Astrophysical Journal*, Vol. 792, 119
- *The Role of Stellar Feedback in the Dynamics of H II Regions*
Lopez, Laura A., Krumholz, Mark R., Bolatto, Alberto D., Prochaska, J. Xavier, Ramirez-Ruiz, Enrico, & Castro, Daniel 2014, *The Astrophysical Journal*, Vol. 795, 121
- *The expanding fireball of Nova Delphini 2013*
Schaefer, G. H., Brummelaar, T. Ten, Gies, D. R., Farrington, C. D., Kloppenborg, B., Chesneau, O., Monnier, J. D., Ridgway, S. T., Scott, N., Tallon-Bosc, I., McAlister, H. A., Boyajian, T., Maestro, V., Mourard, D., Meilland, A., Nardetto, N., Stee, P., Sturmann, J., Vargas, N., Baron, F., Ireland, M., Baines, E. K., Che, X., Jones, J., Richardson, N. D., Roettenbacher, R. M., Sturmann, L., Turner, N. H., Tuthill, P., van Belle, G., von Braun, K., Zavala, R. T., Banerjee, D. P. K., Ashok, N. M., Joshi, V., Becker, J., & Muirhead, P. S. 2014, *Nature*, Vol. 515, 234
- *Young stellar object candidates toward the Orion region selected from GALEX*
Sanchez, Nestor, Inés Gómez de Castro, Ana, Lopez-Martinez, Fátima, & López-Santiago, Javier 2014, *Astronomy and Astrophysics*, Vol. 572, 89
- *DT Serpentis: neither a symbiotic star nor a planetary nebula associate*
Frew, David J., Bento, Joao, Bojčić, Ivan S., & Parker, Quentin A. 2014, *Monthly Notices of the Royal Astronomical Society*, Vol. 445, 1605

- *Mass and period limits on the ringed companion transiting the young star J1407*
Kenworthy, M. A., Lacour, S., Kraus, A., Triaud, A. H. M. J., Mamajek, E. E., Scott, E. L., Ségransan, D., Ireland, M., Hamsch, F.-J., Reichart, D. E., Haislip, J. B., LaCluyze, A. P., Moore, J. P., & Frank, N. R. 2015, *Monthly Notices of the Royal Astronomical Society*, Vol. 446, 411
- *Sample of optically unidentified X-ray binaries in the Galactic bulge: constraints on the physical nature from infrared photometric surveys*
Zolotukhin, Ivan Yu. & Revnivtsev, Mikhail G. 2015, *Monthly Notices of the Royal Astronomical Society*, Vol. 446, 2418
- *The prospective search for highly ionized technetium in hot (pre-) white dwarfs*
Werner, K., Rauch, T., Kučas, S., & Kruk, J. W. 2015, *Astronomy and Astrophysics*, Vol. 574, 29
- *New low-mass members of the Octans stellar association and an updated 30-40 Myr lithium age*
Murphy, Simon J. & Lawson, Warrick A. 2015, *Monthly Notices of the Royal Astronomical Society*, Vol. 447, 1267
- *Properties of Galaxies around AGNs with Most Massive Supermassive Black Hole Revealed by the Clustering Analysis*
Shirasaki, Yuji, Komiya, Yutaka, Ohishi, Masatoshi, & Mizumoto, Yoshihiko 2015, ArXiv e-prints,
- *The small binary asteroid (939) Isberga*
Carry, B., Matter, A., Scheirich, P., Pravec, P., Molnar, L., Mottola, S., Carbognani, A., Jehin, E., Marciniak, A., Binzel, R. P., DeMeo, F. E., Birlan, M., Delbo, M., Barbotin, E., Behrend, R., Bonnardeau, M., Colas, F., Farissier, P., Fauvaud, M., Fauvaud, S., Gillier, C., Gillon, M., Hellmich, S., Hirsch, R., Leroy, A., Manfroid, J., Montier, J., Morelle, E., Richard, F., Sobkowiak, K., Strajnic, J., & Vachier, F. 2015, *Icarus*, Vol. 248, 516
- *Fundamental parameters of the close interacting binary HD 170582 and its luminous accretion disc*
Mennickent, R. E., Djurašević, G., Cabezas, M., Cséki, A., Rosales, J. G., Niemczura, E., Araya, I., & Curé, M. 2015, *Monthly Notices of the Royal Astronomical Society*, Vol. 448, 1137
- *Spectral analysis of BD+30°623, the peculiar binary central star of the planetary nebula NGC 1514 ★*
Aller, A., Montesinos, B., Miranda, L. F., Solano, E., & Ulla, A. 2015, *Monthly Notices of the Royal Astronomical Society*, Vol. 448, 2822
- *The Seven Sisters DANCe. I. Empirical isochrones, luminosity, and mass functions of the Pleiades cluster*
Bouy, H., Bertin, E., Sarro, L. M., Barrado, D., Moraux, E., Bouvier, J., Cuillandre, J.-C., Berihuete, A., Olivares, J., & Beletsky, Y. 2015, *Astronomy and Astrophysics*, Vol. 577, 148
- *Hundreds of new cluster candidates in the VISTA variables in the Via Lactea survey DR1*
Barba, R. H., Roman-Lopes, A., Nilo Castellon, J. L., Firpo, V., Minniti, D., Lucas, P., Emerson, J. P., Hempel, M., Soto, M., & Saito, R. K. 2015, ArXiv e-prints, 1505.02764
- *Morphological fractions of galaxies in WINGS clusters: revisiting the morphology-density paradigm*
Fasano, G., Poggianti, B. M., Bettoni, D., D'Onofrio, M., Dressler, A., Vulcani, B., Moretti, A., Gullieuszik, M., Fritz, J., Omizzolo, A., Cava, A., Couch, W. J., Ramella, M., & Biviano, A. 2015, *Monthly Notices of the Royal Astronomical Society*, Vol. 449, 3927
- *Hierarchical progressive surveys. Multi-resolution HEALPix data structures for astronomical images, catalogues, and 3-dimensional data cubes*
Fernique, P., Allen, M. G., Boch, T., Oberto, A., Pineau, F.-X., Durand, D., Bot, C., Cambresy, L., Derriere, S., Genova, F., & Bonnarel, F. 2015, ArXiv e-prints, 1505.02291

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

15-19 June 2015 - IVOA Interoperability Meeting

Sexten (BZ), Italy

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. A programme of planned topics can be found [here](#).

5-9 October 2015 - Astronomical Surveys and Big Data

Byurakan, Armenia

A meeting "Astronomical Surveys and Big Data" dedicated to 50th anniversary of Markarian Survey and 10th anniversary of the Armenian Virtual Observatory (ArVO) will be held on Oct 5-9, 2015 in Byurakan, Armenia. We intend to combine astronomers and computer scientists with heavy involvement of astronomical surveys, catalogs, archives, databases, and virtual observatories. The deadline for abstract submission and registration is 2015-06-30.

25-29 October 2015 - ADASS XXV

Rydges World Square, Sydney, Australia

This annual conference, held in a different location each year, is a forum for scientists, developers and programmers working in areas related to algorithms, software and systems for the acquisition, reduction, analysis, and dissemination of astronomical data. Key 2015 themes include:

- Knowledge discovery and data management tools for astronomical Big Data
- LSST and lessons learned from current programs
- Algorithms for astronomical data reduction
- Real-time processing

- Visualization and innovative user interfaces
- Data pipelines

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. Interest deadline is 2015-06-26.

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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