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IVOA NEWSLETTER

May 2009

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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

What is the IVOA?

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 17 VO projects from Armenia, Australia, Canada, China, Europe, France, Germany, Hungary, India, Italy, Japan, Korea, Russia, Spain, the United Kingdom, the United States, with Brazil "Observatorio Virtual Brasileiro" joining in April 2009. Membership is open to other national and international projects according to the IVOA Guidelines for Participation. You can read more about the IVOA and what we do at <http://www.ivoa.net/pub/info/>.

VO APPLICATIONS HIGHLIGHTS

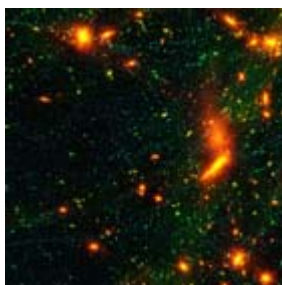
US-VO Data Discovery Website



The US National Virtual Observatory web page has been redesigned and has new links to a number of astronomer-friendly tools for data discovery and exploration. The new home page has a simplified design and a set of icons that we hope will help users identify frequently used tools and understand how the tools can be used together. There is a link to the NVO book, which is based on the NVO Summer Schools and gives extensive background on VO services and how to use them. Improved on-line help facilities with numerous examples and science use cases are also available. A new Discovery Wizard can help you determine which tools are most useful for your particular research needs.

More information: <http://www.us-vo.org>

VisIVO Server: Huge Data Exploration



VisIVO is a suite of tools specifically designed for the Virtual Observatory environment. VisIVO is made of three main tools: VisIVO Desktop, a standalone application for interactive data exploration, VisIVO Server, and VisIVO Web, a web portal for data manipulation using VisIVO Server. VisIVO Server is a command-line application for intuitive data exploration with 3D views being created from data tables. Its defining characteristic is support for very large data sizes with no fixed limit on dimensions. A grid version was recently deployed in the Cometa Consortium computational grid.

More information: <http://visivoserver.oact.inaf.it>

VOPlatform

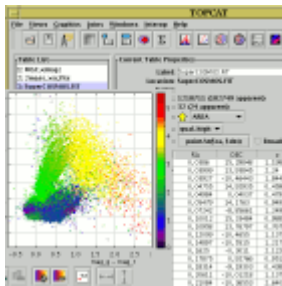
VOPlatform is a tool that provides users with an environment in which to place their frequently used VO tools and datasets, along with other resources such as



documents, web links etc. The application has been developed in Java, and acts on data available in the VO Standard VOTable format. To launch a tool from within VOPlatform, it must be PLASTIC or SAMP compatible. VOPlatform supports drag-and-drop functionality and personalized bookmarks.

More information: <http://vo.iucaa.ernet.in/~voi/VOPlatform.html>

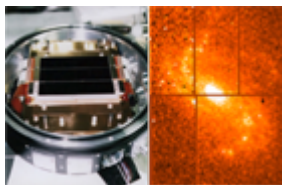
TOPCAT: Does what you want with tables



TOPCAT is an easy to use but powerful GUI tool for all kinds of analysis and manipulation of tabular data, especially source catalogues. It has very flexible capabilities for plotting, calculation, selection, and crossmatching, amongst other things. It can read and write data in VO-standard formats (VOTable) as well as old favourites such as FITS and CSV. TOPCAT provides access to remote services and other desktop applications using VO standard protocols as well as being suitable for standalone use on local data. Operations are fast, and tables with few or many columns - up to around a million rows - are easily handled. A pure Java implementation makes it easy to install and robust to run. The companion package STILTS provides command-line access to the same facilities. TOPCAT is currently developed within the UK's AstroGrid project.

More information: <http://www.starlink.ac.uk/topcat/>

JVO On-Line Mosaicing Service for the SUBARU SuprimeCAM Images



The SUBARU telescope is located in Mauna Kea, Hawaii, and is operated by the National Astronomical Observatory of Japan (NAOJ). The SuprimeCAM is a wide-field ($\sim 30' \times 30'$) optical camera, and about 10 TBytes of raw image data has already been archived. The Japanese Virtual Observatory (JVO) opened access to the SUBARU SuprimeCAM Images archive in March 2008. JVO also provides an on-line data reduction (flat, bias, distortion correction, astrometry) and mosaicing service for the SuprimeCAM images. It is recommended to obtain an account with the service, but guest users may enjoy the services.

More information: <http://jvo.nao.ac.jp/portal/>

VOSpec version 5.0



VOSpec is a multi-wavelength spectral analysis tool with access to spectra, theoretical models, and atomic and molecular line databases registered in the VO. The standard tools of VOSpec include line and continuum fitting, redshift and reddening correction, spectral arithmetic, and convolution between spectra and equivalent width calculations. The newly released version 5.0 improves the spectra handling capabilities, offering tree and table display modes, and offers organising functionalities according to the available metadata, including distance from the observation position. This version also updates the registry interface using the new Euro-VO registry and includes the functionality of adding a local registry. Finally, a new e-support portal is available where users can submit tickets and receive technical support from the ESA-VO Team.

More information: <http://www.sciops.esa.int/index.php?project=ESAVO&page=vospec>

SOME RECENT PAPERS ABOUT VO-ENABLED SCIENCE

Featured Paper

The construction of the large quasar astrometric catalogue (LQAC), Souchay J. et al., 2009, A&A, 494, 799.

Describes use of VO input data catalogues and manipulation tools to construct the Large Quasar Astrometric Catalogue.

The very large and increasing number of quasars reckoned from various sky surveys leads to a large quantity of data which brings various and inhomogeneous information in the fields of astrometry, photometry, radioastronomy and spectroscopy. In this paper, we describe our work that aims to make available a general compilation of the largest number of recorded quasars obtained from all the available catalogues, with their best position estimates, and providing physical information at both optical and radio wavelengths.

Refereed Publications

For conference proceedings and other non-refereed publications, see here

- The Hubble Legacy Archive NICMOS grism data Freudling W. et al., 2009, A&A, 490, 1165
- VOSA: Virtual Observatory SED Analyzer. An application to the Collinder 69 open cluster Bayo A. et al., 2008, A&A, 492, 277
- The TVO Archive for Cosmological Simulations: Web Services and Architecture Costa A. et al., 2008, PASP, 120, 933
- Initial data release from the INT Photometric H α Survey of the Northern Galactic Plane (IPHAS) Gonzalez-Solares E. et al., 2008, MNRAS, 388, 89
- Young stars and brown dwarfs surrounding Alnilam (eps Ori) and Mintaka (del Ori) Caballero J.A. & Solano E., 2008, A&A, 485, 931
- SDSSJ124155.33+114003.7 -- a Missing Link Between Compact Elliptical and Ultracompact Dwarf Galaxies Chilingarian I.V. & Mamon G.A., 2008, MNRAS, 385, 83
- Invisible sunspots and rate of solar magnetic flux emergence Dalla S., Fletcher L., Walton, N. A., 2008, A&A, 479, L1
- Stars and brown dwarfs in the σ Orionis cluster: the Mayrit catalogue Caballero J.A., 2008, A&A, 478, 667

More Ways to Find VO-related Publications

- All ADS links mentioning the "virtual observatory" in the abstract
- All refereed publications mentioning the "virtual observatory" in the abstract

VO CALENDAR

24-29 May, 2009 - IVOA Interoperability Meeting Strasbourg, France

The IVOA Interop Meetings are aimed at making significant progress in generating new standards powering the development of the world wide Virtual Observatory initiatives.

14 June - 5 July, 2009 - Wide-Fast-Deep Surveys: New Astrophysics Frontier Aspen, Colorado, USA

The goal of this workshop is to bring theorists, observers, and computational scientists together to discuss the discovery space of wide-fast-deep surveys, and to develop algorithms and observing strategies that maximize the scientific return of such a program.

22-26 June 2009 - Euro-VO AIDA Workshop on How to Publish Data in the VO European Space Astronomy Centre, Villafranca del Castillo, Madrid, Spain

The workshop is geared towards data centres and large projects to enable them to acquire the knowledge and experience necessary to publish data products and other resources to the Virtual Observatory.

3-5 August, 2009 - Earth and Space Science Informatics Workshop UMBC, Baltimore, Maryland

Developing the Next Generation of Earth and Space Science Informatics: Technologies and the People That Will Implement Them

4 August, 2009 - IAU Working Group on Virtual Observatories (at IAU General Assembly) Rio de Janeiro, Brazil

4-8 October, 2009: ADASS XIX Sapporo, Japan

The Astronomical Data Analysis Software and Systems (ADASS) conference is held each year at a different hosting astronomical institution. The conference provides a forum for scientists and programmers concerned with algorithms, software and software systems employed in the acquisition, reduction, analysis, and dissemination of astronomical data.

12-16 October, 2009: Workshop on High Performance Computing in Observational Astronomy: Requirements & Challenges Pune, India

The theme of this meeting will be to discuss computationally intensive techniques and new software approaches that are important for different branches of observational astronomy.

9-13 November, 2009 - IVOA Interoperability Meeting Garching bei Munchen, Germany

The IVOA Interop Meetings are aimed at making significant progress in defining standards and sharing best practices in the development of the world wide Virtual Observatory initiatives.

International Virtual Observatory Alliance

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