



VO resources for astronomical education and collaboration prospects

Chenzhou Cui

Chinese Virtual Observatory

National Astronomical Observatories, Chinese Academy of Sciences

Contents

- Education Resources for VO
 - IVOA website and wiki pages
 - Curriculums and Tutorials
 - Schools, Meetings and Workshops
- IAU Scientific Bodies on Education



IVOA Website and Wiki Pages

<https://www.ivoa.net/>

IVOA Events

[2021](#) | [2020](#) | [2019](#)

[2015](#) | [2014](#) | [2013](#) | [2012](#) | [2011](#) | [2010](#) | [2009](#) | [2008](#) | [2007](#) | [2006](#) | [2005](#) | [2004](#) | [2003](#) | [2002](#) | [2001](#) | [2000](#)

Home Astronomers Deployers Members About

INTERNATIONAL VIRTUAL OBSERVATORY ALLIANCE

The Virtual Observatory (VO) is the vision that astronomical datasets and other resources should work as a seamless whole. Many projects and data centres worldwide are working towards this goal. The International Virtual Observatory Alliance (IVOA) is an organisation that debates and agrees the technical standards that are needed to make the VO possible. It also acts as a focus for VO aspirations, a framework for discussing and sharing VO ideas and technology, and body for promoting and publicising the VO.

To learn more about the IVOA as an organisation, read the "About" section.

To learn more about the VO from a user's point of view, including how to find VO tools and services, read the "Astronomers" section. There is also a page about the VO for students and the public.

To learn how to publish VO services, or write VO-compatible software, start by reading the "Deployers/Developers" section.

Internal IVOA discussions are publicly viewable in the "Members" section.



IVOA
July 2021 Issue of the IVOA News

UPCOMING MEETINGS
Virtual IVOA Interop, 2-4 November 2021

Welcome to the IVOA TWiki!

This is the web-based collaboration area of the [International Virtual Observatory Alliance](#)



Main topics:

- [Who is Who?](#)
- [Documents and Standards](#)

- [Events](#)
- [Training Materials](#)

- [Exec Reports & Minutes](#)
- [Mailing Lists](#)

- [Technical Coordination Group](#)
- [VO Glossary](#)

Working Groups:

- [Applications](#)
- [Semantics](#)

- [Data Access Layer](#)
- [Registry](#)

- [Data Model](#)

- [Grid & Web Services](#)

Interest Groups:

- [Theory](#)
- [Education](#)

- [Time Domain](#)
- [Operations](#)

- [Data Curation & Preservation](#)
- [Radio Astronomy](#)

- [Knowledge Discovery in Databases](#)
- [Solar System](#)

Other Groups / Committees:

- [Standing Committee on Standards & Processes](#)

- [Liaison Committee](#)

For Astronomers



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



For Deployers/Developers



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



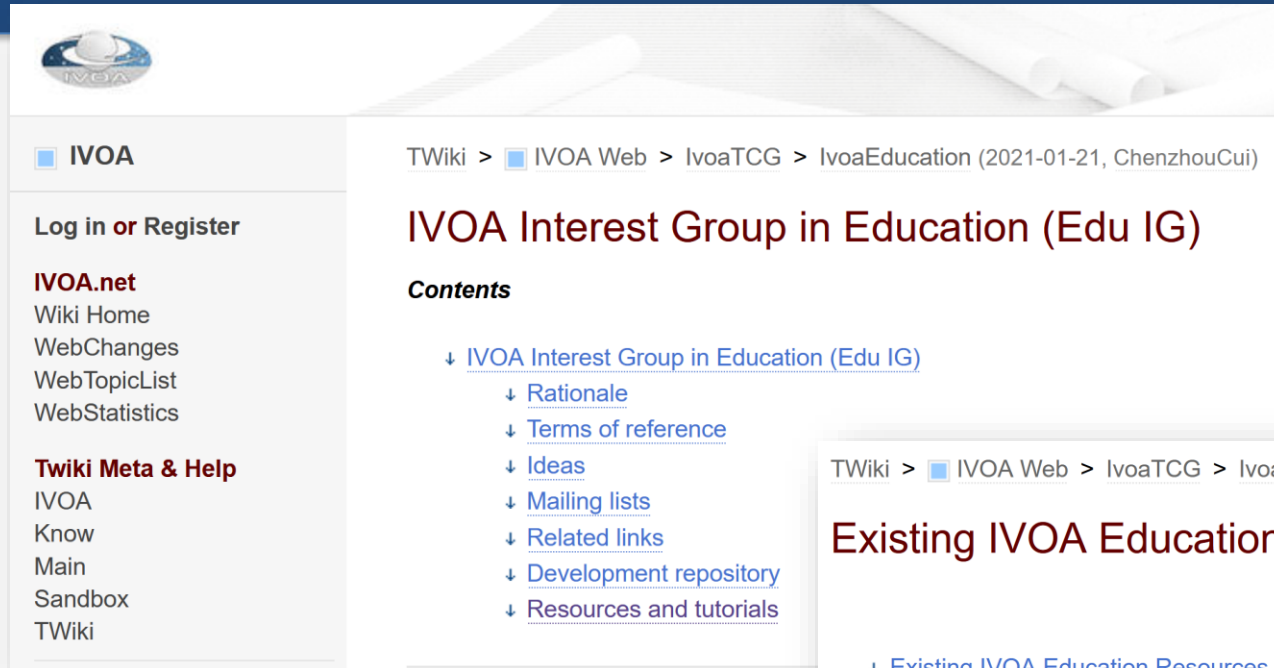
For Members



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



IVOA Education Interest Group



IVOA

Log in or Register

IVOA.net
Wiki Home
WebChanges
WebTopicList
WebStatistics

Twiki Meta & Help
IVOA
Know
Main
Sandbox
TWiki

TWiki > IVOA Web > IvoaTCG > IvoaEducation (2021-01-21, ChenzhouCui)

IVOA Interest Group in Education (Edu IG)

Contents

- ↓ [IVOA Interest Group in Education \(Edu IG\)](#)
 - ↓ [Rationale](#)
 - ↓ [Terms of reference](#)
 - ↓ [Ideas](#)
 - ↓ [Mailing lists](#)
 - ↓ [Related links](#)
 - ↓ [Development repository](#)
 - ↓ [Resources and tutorials](#)

<https://wiki.ivoa.net/twiki/bin/view/IVOA/IvoaEducation>

Your contributions are welcome!

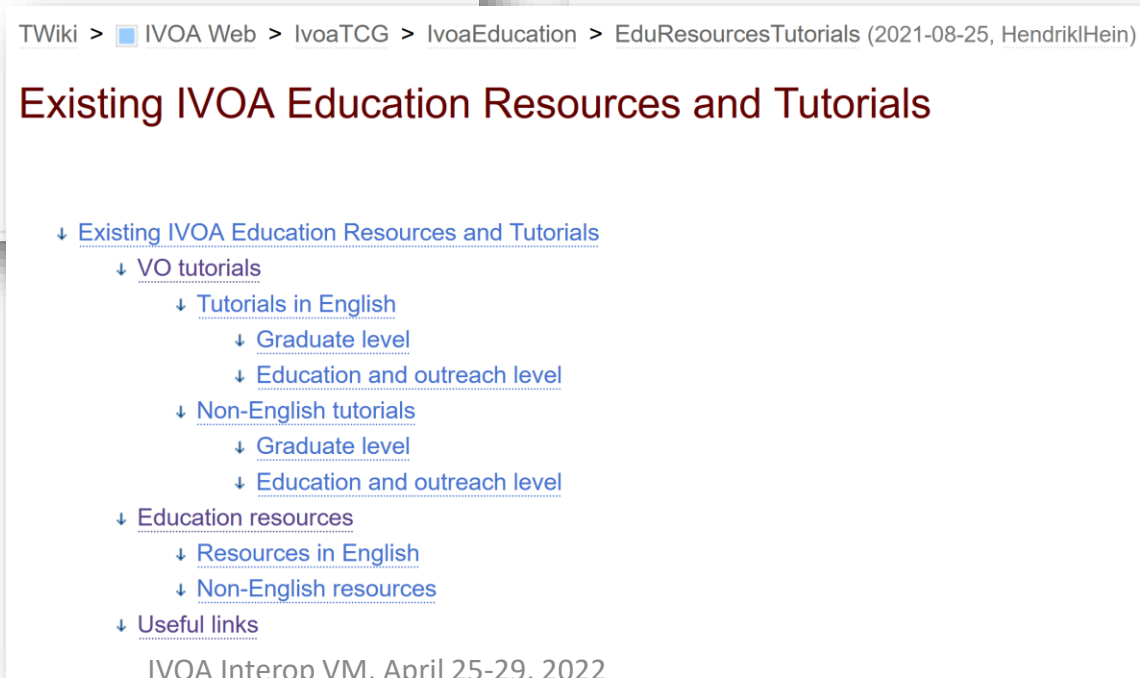


IVOA Note



International
Virtual
Observatory
Alliance

Educational Resources in the Virtual Observatory

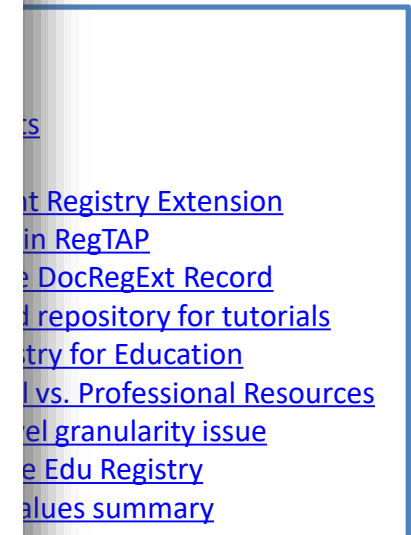


TWiki > IVOA Web > IvoaTCG > IvoaEducation > EduResourcesTutorials (2021-08-25, HendrikHein)

Existing IVOA Education Resources and Tutorials

- ↓ [Existing IVOA Education Resources and Tutorials](#)
 - ↓ [VO tutorials](#)
 - ↓ [Tutorials in English](#)
 - ↓ [Graduate level](#)
 - ↓ [Education and outreach level](#)
 - ↓ [Non-English tutorials](#)
 - ↓ [Graduate level](#)
 - ↓ [Education and outreach level](#)
 - ↓ [Education resources](#)
 - ↓ [Resources in English](#)
 - ↓ [Non-English resources](#)
 - ↓ [Useful links](#)

IVOA Interop VM, April 25-29, 2022



- Registry Extension in RegTAP
- DocRegExt Record repository for tutorials
- Country for Education
- vs. Professional Resources
- granularity issue
- Edu Registry
- values summary



Astronomical Society of the Pacific Conference Series

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Title: **The National Virtual Observatory: Tools and Techniques for Astronomical Research**

Volume: 382 Year: 2007 View this Volume on ADS

Editors: **Graham, Matthew J.; Fitzpatrick, Michael J.; McGlynn, Thomas A.**

Synopsis: **Note: An additional figure was inserted in the electronic version. Therefore page numbers beyond page 450 in this version are greater by 2 than in the printed volume.**
 In 2004, 2005, and 2006, the US National Virtual Observatory development project presented Summer Schools in Aspen, Colorado. During these week-long programs, presentations and tutorials were presented on all aspects of the Virtual Observatory.

ISBN: 978-1-58381-327-0 eISBN: 978-1-58381-328-7



Open Access

- 59 chapters, 3 appendixes, published by ASP in 2007

Prologue: The Virtual Observatory—A New Environment for Astronomical Research

Section 1. An Introduction to VO Tools

Section 2. Science with the Virtual Observatory

Section 3. Technologies and Protocols

Section 4. Discovering and Registering Resources in the VO

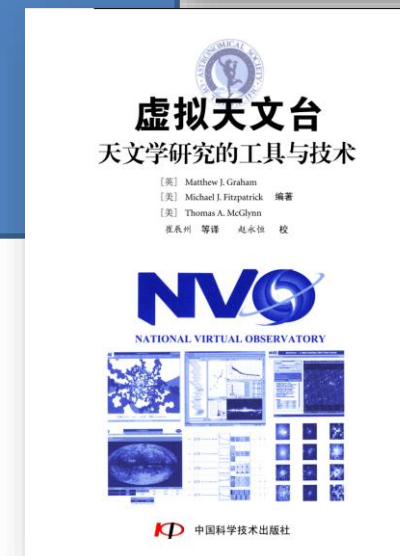
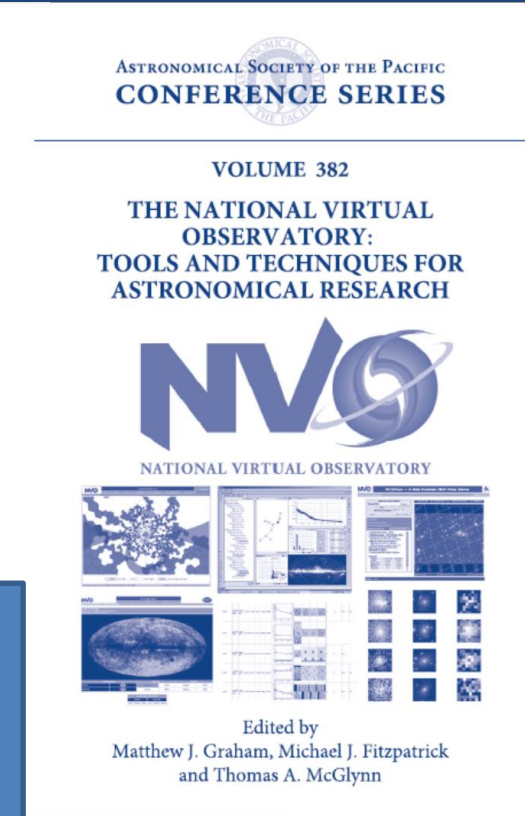
Section 5. Accessing Data in the VO

Section 6. Publishing Data in the VO

Section 7. Foundation Technologies

In 2004, 2005 and 2006, the US National Virtual Observatory development project presented Summer Schools in Aspen, Colorado. This volume is a collection of the Summer School lectures and tutorials. These materials are still relevant.

http://www.aspbbooks.org/a/volumes/table_of_contents/?book_id=420 IVOA Interop VM, April 25-29, 2022



Published in
Chinese in 2010

Science Software

Scientific Papers

Scientific Tutorials

Education

TUTORIALS

PREVIOUS VERSIONS OF TUTORIALS HERE

INTERACTIVE JUPYTER NOTEBOOKS

PREVIOUS TUTORIALS

Abell 1656: The Coma Cluster of galaxies:

- ▼ Apr 2019: [Tutorial](#)
- ▼ Jan 2017: [Tutorial](#)
- ▼ Jun 2014: [Tutorial](#)
- ▼ Mar 2011: [Tutorial](#), [step-by-step](#) and [more expanded presentation](#)

Discovery of Brown Dwarfs mining the 2MASS and SDSS databases:

- ▼ Dec 2019: [Tutorial](#)
- ▼ Apr 2019: [Tutorial](#)
- ▼ Nov 2017: [Tutorial for ASTERICS VO School Nov 2017](#), [corresponding Script](#)

<https://www.euro-vo.org/scientific-tutorials/>

EuroVO for education



- EuroVO for education is a project developed within the framework of the EuroVO with the aim of diffusing EuroVO data and software to the public, in particular students, teachers and astronomy enthusiasts.
- Usage examples are in the form of pedagogic modules consisting of two main parts. The first part presents a typical astronomical problem with a short introduction and a description of the solution found by astronomers, or, in some cases, an expanded treatment of the problem. The second part is a step-by-step guide to the commands needed to reach the solution of the problem with Aladin or Stellarium.
- The EuroVO resources are now maintained and upgraded/updated by VObs.it at INAF-OA Trieste.

<http://vo-for-education.oats.inaf.it>

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[about us](#)



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Usage examples aim at familiarizing the user with Aladin and Stellarium and at stimulating further interest and activities in astronomy. Usage examples are in the form of pedagogic modules consisting of two main parts. The first part presents a typical astronomical problem with a short introduction and a description of the solution found by astronomers, or, in some cases, an expanded treatment of the problem. The second part is a step-by-step guide to the commands needed to reach the solution of the problem with Aladin or Stellarium. Some of our usage examples include exercises that are proposed for teachers' activities in the classroom. Solutions are provided separately.


Astronomical Infrastructure for Data Access

1. **The sky - basic** 
Within this use case you discover the celestial coordinates allowing you to point and/or find a given star in the sky. You also learn how to use coordinate systems in order to learn the effects of Earth's rotation and revolution on the celestial sphere. Special topics are constellations and light pollution, both important for a basic appreciation of the night sky.
2. **The stars - intermediate** 
Within this use case you discover the basic observational parameters of stars, color and magnitude. These observational parameters are counterparts of the main physical parameters temperature and luminosity. By selecting stars on the sky you build the Hertzsprung-Russell diagram that shows the relation between color and magnitude, a milestone in the history of our understanding of how stars work and evolve.
3. **The shape of galaxies - basic** 
Within this use case you discover the shapes of galaxies and their classification according to the Hubble diagram. You are offered sequences of galaxies with different morphologies and are asked to order them. The morphological classification of galaxies is still in use even if we have discovered that the Hubble diagram "per se" has no direct physical or evolutionary meaning. Besides introducing the main shapes of galaxies, the use case offer a demonstration of the classification process, a fundamental tool of astronomers.
* download a galaxy set: [hubble_1.zip](#), [hubble_2.zip](#), [hubble_3.zip](#), [hubble_4.zip](#)
4. **The Pleiades open cluster - advanced** 


[CDS](#)
[Portal](#)
[Simbad](#)
[VizieR](#)
[Aladin](#)
[X-Match](#)
[Other](#)
[Help](#)

Centre de Données astronomiques de Strasbourg


Strasbourg astronomical Data Center




Entry point to all services



Object database





Catalogue database





Interactive sky atlas

Other services


X-match


Dictionary


Sesame



SimPlay


Latest news


- First announcement of the 2nd ESCAPE VO School
- CDS is hiring
- new CDS registry
- Solar System catalogue - VESPA
- Catalogs added between 09-Oct-2021 and 17-Oct-2021
- Catalogs added between 02-Oct-2021 and 09-Oct-2021

[More news](#)

Partner services


ADS


A&A


TIPTOPbase

[CDS](#)
[Portal](#)
[Simbad](#)
[VizieR](#)
[Aladin](#)
[X-Match](#)
[Other](#)
[Help](#)

Tutorials for CDS services

[SIMBAD tutorial](#)
[VizieR tutorials](#)
[Aladin tutorials](#)
[Use of VO tools for education](#)

SIMBAD tutorial

[Download PDF](#)

VizieR tutorials

VizieR basic tutorial

[Download PDF](#)

VizieR advanced tutorial

[Download PDF](#)

Aladin science cases

The HI shells of the Small Magellanic Cloud

[Download PDF](#)

The time dimension in Aladin, proper motion of **WN07

[Download PDF](#)

ALMA footprint in Aladin

[Download PDF](#)

Astrometric calibration with Aladin

[Download PDF](#)

Use of VO tools for education

Home

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People

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[Help and Tutorials](#)

[Developer's corner](#)

[Publication support](#)

myCDS

Virtual Observatory projects

IVOA

Euro VO

ESCAPE

ASTERICS

CoSADIE

Past projects:

Euro-VO ICE

- AIDA - DCA - VOTech

OV France

Europlanet

Other projects

RDA France

ARCHES

ASTRODEEP

Gaia

Authorities

Strasbourg astronomical

Links

[ADS](#)

[NED](#)

[CNES](#)

[ESA](#)

[ESO](#)

Home

About CDS

People

Support

[Help and Tutorials](#)

[Developer's corner](#)

[Publication support](#)

myCDS

Virtual Observatory projects

IVOA

Euro VO

ESCAPE

ASTERICS

CoSADIE

Past projects:

Euro-VO ICE

- AIDA - DCA - VOTech

OV France

Europlanet

Other projects

RDA France

ARCHES

ASTRODEEP

Gaia

Authorities

Strasbourg astronomical

Observatory

CNRS - INSU

University of Strasbourg

Links

[ADS](#)

[NED](#)

[CNES](#)

[ESA](#)

[ESO](#)

<http://cdsweb.u-strasbg.fr/tutorials/>





- Near Earth Asteroids Precovery
- Pro-Am collaborations
- Teaching Astronomy with the VO
- Undergraduate & graduate projects
- SVO schools and meetings

Tweets by ObsVirtEsp

Casos prácticos del Máster de Astronomía y Astrofísica de la Universidad Internacional de Valencia

- Título: "Composición mineralógica de asteroides". (PDF)
- Título: "Las lunas de Júpiter". (PDF)
- Título: "Búsqueda de exoplanetas y zona de habitabilidad". (PDF)
- Título: "Estudio multirringo de la galaxia NGC 2997 con VO". (PDF)
- Título: "Búsqueda de enanas marrones con VO". (PDF)
- Título: "Astrometría: Movimientos propios". (PDF)
- Título: "Cálculo de distancias entre galaxias: Las Cefeidas". (PDF)
- Título: "La constante de Hubble". (PDF)
- Título: "Análisis de datos espectroscópicos". (PDF)
- Título: "Estudio de cúasares y radiogalaxias con VO". (PDF)

Education

PhD Thesis

- Title: Integración de archivos y herramientas radioastronómicas en la arquitectura del Observatorio Virtual
 - Author: Juan de Dios Santander Vela
 - Affiliation: Instituto de Astrofísica de Andalucía -CSIC, Granada, Spain
 - Supervisors: Lourdes Verdes-Montenegro, Enrique Solano
 - Date: May 2009
 - Mark: Sobresaliente "cum laude"

Master Thesis

- Title: "Identificación y caracterización de objetos ultratráficos en los cartografiados J-PLUS y J-PAS".
 - Author: David López Justo
 - Affiliation: Universidad Internacional de Valencia
 - Supervisor: Miriam Cortés Contreras, Enrique Solano Márquez
 - Year: 2019-2020
 - Mark: Sobresaliente 9
- Title: "Técnicas de Visión Artificial e Inferencia Bayesiana aplicada a imágenes multirringo de campos cosm"
 - Author: María José Márquez Sánchez
 - Affiliation: Dpt. Inteligencia Artificial ETSI Informática - UNED
 - Supervisor: Luis Manuel Sarro
 - Year: 2008-2009
 - Mark: Matrícula de Honor (10/10)
- Title: "Evaluation of unsupervised clustering algorithms for variable stars data".
 - Affiliation: Dpt. Inteligencia Artificial ETSI Informática - UNED

Casos prácticos Euro-VO

En esta página podéis encontrar enlaces a una serie de prácticas de Astr marco de los proyectos Euro-VO y SVO.

El objetivo de estas prácticas es que el alumno utilice datos reales de arc construcción de un diagrama H-R a partir de datos de Hipparcos o el est en épocas diferentes.

Los casos prácticos (todos ellos de unas 6 páginas incluyendo figuras) co a utilizar, se procede a explicar de manera detallada la metodología de an

Relación de casos prácticos

The European Virtual Observatory (Euro-VO) initiative organizes regular VO schools since 2008. The goals are twofold:

- i) to expose early-career European astronomers to the variety of currently available VO tools and
- ii) to gather their feedback on the VO tools and services and the school itself.



SVO Meetings

Talleres on-line

- Aladin: visualización y análisis de imágenes y catálogos.
 - Youtube (en español)
 - Local file (en español)
 - Tutorial. (in English)
- TOPCAT: Manejo de tablas en el Observatorio Virtual
 - Youtube (en español)
 - Tutorial (in English).

Escuelas SVO

- XXI Escuela SVO (V Virtual VO School). Programas de Máster y Doctorado en Astrofísica. Octubre 2020
- XX Escuela SVO (IV Virtual VO school). Federación de Asociaciones Astronómicas de España. 1
- XIX Escuela SVO (III Virtual VO School). Sociedade Astronómica Brasileira. Diciembre 2020
- XVIII Escuela SVO (II Virtual VO School). Universidad Autónoma de Madrid. Diciembre 2020
- XVII Escuela SVO (I Virtual VO School). Universidad Complutense de Madrid. Noviembre 2020
- XVI Escuela SVO. Instituto de Astrofísica de Andalucía. Marzo 2020 (postponed)
- XV Escuela SVO. Universidad Autónoma de Madrid. Febrero 2020
- XIV Escuela SVO. Universidad Complutense de Madrid. Noviembre 2019
- XIII Escuela SVO. Universidad Complutense de Madrid. Febrero 2019
- XII Escuela SVO. Universidad Autónoma de Madrid. Noviembre 2018
- XI Escuela SVO. Centro de Astrobiología (Torrejón, Madrid). Mayo 2018
- X Escuela SVO. La Laguna. Marzo 2017
- IX Escuela SVO. Bilbao. July 19, 2016
- VIII Escuela SVO. Madrid. November 25-26, 2014
- VII Escuela SVO. Teruel 10 septiembre 2014
- VI Escuela SVO. Valencia 2-3 julio 2014
- V Escuela SVO. Santander 11-12 junio 2014.
- IV Escuela SVO. Barcelona. 18-19 noviembre, 2010
- III Escuela SVO. Madrid. 8-9 junio, 2010
- II Escuela SVO. La Laguna. Marzo, 2010
- I Escuela SVO. Granada, Octubre, 2009

Euro-VO schools

- First ESCAPE science with interoperable data school. 8-12, 19 February 2021

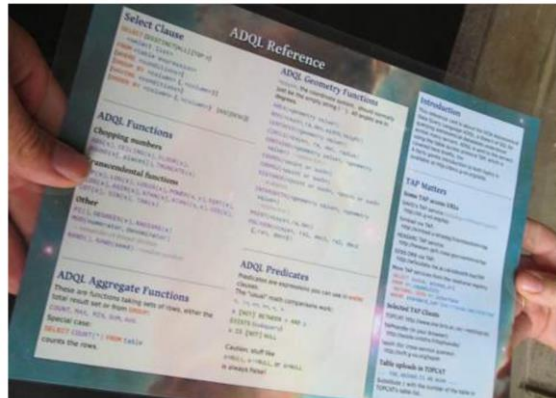
https://svo.cab.inta-csic.es/main/index.php

Hand-Outs/Tutorials:

- [Astronomical Data Query Language \(ADQL\) Reference Card](#)
- [ADQL Hands-on Course](#)
- [GAVO Tutorials](#)

The [ADQL Reference Card \(pdf\)](#) briefly gives an overview of the SQL dialect used in the VO. It is most useful when used with a more gentle course, e.g., our [short ADQL course](#).

We're handing out nice and shiny copies of these at conferences, VO days and similar events:



The material is distributed under the Creative Commons Attribution (CC-BY) license. If you change the [document source](#) (currently Scribus 1.4), please feed back your changes (or inquire about SVN access).

Mini-Tutorials

Here we collect our mini-tutorials for download which we present occasionally e.g. at VO-Meetings. Longer versions can also be used for VO-Days and workshops.

Need more explanations? Searching for more demos? Please contact us via vo@ari.uni-heidelberg.de.

- [add-pms.pdf](#) - Crossmatch with *TOPCAT* and TAP
- [astrometric-calib-aladin.pdf](#) - Astrometric calibration using *Aladin*
- [gavo_plates.pdf](#) - Image discovery with *Aladin 10* (and a bit of what to do with discovered images)
- [registry-data-discovery.pdf](#) - Data discovery with the registry
- [topcat-aladin-together.pdf](#) - *TOPCAT* and *Aladin* working together
- [pyvo.pdf](#) - Astropy and the VO
- [simulations.pdf](#) - Accessing simulation databases and visualising results with *TOPCAT*
- [simulations-short-dachs.pdf](#) - A shorter version, using a subset of the data in DaCHS, accessing the data directly from *TOPCAT* using TAP and ADQL
- [simulations-teachers.pdf](#) - Another simulations tutorial, adjusted for a teacher-workshop. Deals with density fields and dark matter halos. Includes instructions for plotting with *Gnuplot*, in case *TOPCAT* is not available.
- [rave.pdf](#) - Downloading and viewing RAVE data with *TOPCAT* and *Aladin*; Filter for *Aladin*: [RAVE-Map-Aladin.ajs](#)
- [Using TAP to access Gaia gog data](#)
- [Compute Redshifts of Quasars Using Splat VO - Downloads](#)
- [uwsintro.pdf](#) - First steps for interacting with a UWS web service from the command line to retrieve data from a database. Uses [htpie](#) and/or [uws-client](#).

Here is a HTML rendition of the notes for a

It's allowed to cut-and-paste the queries...

Also, there's a [PDF version](#) that you can print

The queries and problems in the text are supported

ADQL: Contents

- [ADQL and TAP](#)
- [Data Intensive Science](#)
- [A First Query](#)
- [Why SQL?](#)
- [Relational Algebra](#)
- [SELECT for real](#)
- [SELECT: ORDER BY](#)
- [SELECT: what?](#)
- [SELECT: WHERE clause](#)
- [SELECT: Grouping](#)
- [SELECT: JOIN USING](#)
- [SELECT: JOIN ON](#)
- [Geometries](#)
- [DISTANCE](#)
- [Subqueries](#)
- [Common table expressions](#)
- [TAP: Uploads](#)
- [Almost real world](#)
- [TAP: the TAP schema](#)
- [Data Discovery 1: the registry](#)
- [Data Discovery 2: use ADQL](#)
- [TAP: Async operation](#)
- [Simbad](#)
- [Onward](#)

ArVO – Armenian Virtual Observatory

Meetings and Events:

- 7th Byurakan International Summer School (7BISS), 07-11.09.2020, Byurakan, Armenia
- Astronomical Surveys and Big Data 2 (ASBD-2), 14-18.09.2020, Byurakan, Armenia

7th Byurakan International Summer School for Young Astronomers
"Astronomy and Data Science"
 7-12 September 2020, Byurakan (Armenia)

The School is the 7th of Byurakan International Summer Schools (BISS) series founded in 2006 and being held once every 2 years, one of the most important and regular astronomical summer/winter schools in the world. According to the analysis of the IAU Division C (Education, Outreach and Heritage), BISS is among the top 3 astronomical schools in the world (together with LAU ISVA and Vatican schools, VCSS), as well as the NEON OPTICON schools are among the best ones.

List of Lecturers

- Mahboob Ahmad Salameh (Algeria)
- Ivan Andrievko (Ukraine)
- Chen Zhou Cui (China)
- Markus Demleitner (Germany)
- Davidella Ilija (Italy)
- Ajit Kembhavi (India)
- Ashish Mahabal (USA)
- Oleg Malkov (Russia)
- Areg Micaelian (Armenia)
- Elena Nikoghosyan (Armenia)
- Fabio Pasian (Italy)
- Alain Sarkissian (France)

Main Topics

- Astronomical Surveys
- Data Reduction and Analysis
- Digitization of astronomical data
- Astronomical Catalogues, Archives and Databases
- Big Data in Astronomy
- Data Science
- Astrostatistics and Astroinformatics
- Virtual Observatories

Scientific Organizing Committee (SOC)

- Areg Micaelian (Armenia) (Chair)
- Markus Demleitner (Germany)
- Chen Zhou Cui (China)
- Ajit Kembhavi (India)
- Andy Lawrence (UK)
- Ashish Mahabal (USA)
- Oleg Malkov (Russia)
- Mikhail Moshir (Egypt)
- Fabio Pasian (Italy)
- Alain Sarkissian (France)
- David Schade (Canada)

Local Organizing Committee (LOC)

- Hayk Abrahamyan (Chair)
- Gor Mikayelyan (Co-Chair)
- Naira Azatyan (Secretary)
- Dimitri Andrievko
- Hasmik Andrievskan
- Daniel Bagdasaryan
- Sona Fakhriyevan
- Armi Harutyunyan
- Gayane Kostanyan
- Guzelna Patroyan
- Anahit Samsonyan
- Andriamk Sargsyan

Organizers and Sponsors

Contacts

Address: Byurakan Astrophysical Observatory (BAO), Byurakan 0213, Aragatzotn province, Armenia
 E-mails: 7biSS@bao.am, arvo@bao.am, 7biSS@yandex.ru, 7biSS@yandex.com, N.Azatyan@yandex.com
 Web: <https://www.bao.am/>

Astronomical Surveys and Big Data 2
 14-18 September, 2020, Byurakan, Armenia

The International Symposium Astronomical Surveys and Big Data 2 (ASBD-2) will take place on 14-18 September 2020. This will be the 2nd such meeting, we had a very successful meeting ASBD in 2015 with participation of astronomers and computer scientists. We combined astronomers and computer scientists with heavy involvement of astronomical surveys, catalogs, archives, databases and VOs.

Invited Speakers

- Mahboob Ahmad Salameh (United Arab Emirates)
- Chen Zhou Cui (China)
- Markus Demleitner (Germany)
- Davidella Ilija (Italy)
- Ashish Mahabal (USA)
- Oleg Malkov (Russia)
- Areg Micaelian (Armenia)
- Fabio Pasian (Italy)
- Kaustubh Vaghmare (India)

Main Topics

- Astronomical Surveys
- Data Reduction and Analysis
- Digitization of astronomical data
- Astronomical Catalogues, Archives and Databases
- Big Data in Astronomy
- Data Science
- Astrostatistics and Astroinformatics
- Virtual Observatories

Scientific Organizing Committee (SOC)

- Areg Micaelian (Armenia) (Chair)
- Markus Demleitner (Germany)
- Chen Zhou Cui (China)
- Ajit Kembhavi (India)
- Andy Lawrence (UK)
- Ashish Mahabal (USA)
- Oleg Malkov (Russia)
- Masatoshi Oishi (Japan)
- Fabio Pasian (Italy)
- Alain Sarkissian (France)
- David Schade (Canada)

Local Organizing Committee (LOC)

- Gor Mikayelyan (Chair)
- Naira Azatyan (Secretary)
- Hayk Abrahamyan
- Dimitri Andrievskan
- Hasmik Andrievskan
- Daniel Bagdasaryan
- Sona Fakhriyevan
- Armi Harutyunyan
- Gayane Kostanyan
- Guzelna Patroyan
- Anahit Samsonyan
- Andriamk Sargsyan

Organizers and Sponsors

Contacts

Address: Byurakan Astrophysical Observatory (BAO), Byurakan 0213, Aragatzotn province, Armenia
 E-mails: asbd2@bao.am, gormick@mail.ru (Gor Mikayelyan)
 Web: <https://www.bao.am/meetings/meetings/ASBD2/contacts.html>

7th Byurakan International Summer School for Young Astronomers "Astronomy and Data Science" 7-11 September 2020, Byurakan (Armenia)

Home
Topics
Poster
Organizers and Sponsors
SOC
LOC
Lecturers and Lectures
Programme
Introductory Session
Registration is closed
List of Participants
Deadlines
Contacts

Programme

All times are in Armenia Standard Time (GMT+4)

- Presentation, - Record, - Movie

07 September 2020, Monday

- 10:00-10:30 **Official opening of 7BISS: Welcome, Introductory Session**
- 10:30-11:30 **Areg MICKAELIAN (BAO, Armenia): Viktor Ambartsumian and Byurakan Astrophysical Observatory**
- 11:30-12:00 **Coffee break**
- 12:00-13:00 **Fabio PASIAN (INAF, Italy): Open Data, FAIR principles, and the Virtual Observatory**
- 13:00-13:30 **Markus DEMLEITNER (UH, Germany): Virtual Observatory Techniques With A View To Gaia Spectroscopy: The Byurakan Objective Prism Spectra**
- 13:30-14:00 **Meet your fellows**

- 11:00-11:40 **Ashish MAHABAL (USA) [IT]: The power of archives in the era of machine learning**
- 11:40-12:00 **Yuri PROTSYUK (Ukraine) [CT]: Catalogs of celestial bodies from digitized photographic plates of the Ukrainian Virtual Observatory Archive**
- 12:00-12:20 **Daria DOBRYCHEVA (Ukraine) [CT]: Machine Learning techniques for automated classification of galaxies into five classes by visible shape**
- 12:20-12:40 **Coffee/tea break**
- 12:40-13:20 **Areg MICKAELIAN (Armenia) [IT]: BAO plate archive project: digitization, electronic database and scientific usage**
- 13:20-14:00 **Fabio PASIAN (Italy) [IT]: Evolving the VO from interoperable data collections to an integrated system of services for data-intensive science**
- 14:00-15:20 **Lunch break**
- 15:20-15:40 **Monica SORAISAM (USA) [CT]: ANTARES: Brokering alerts in real-time in the Big-Data era**
- 15:40-16:00 **Aritra GHOSH (USA) [CT]: Galaxy Morphology Network (GaMorNet): A Convolutional Neural Network used to study morphology and quenching in ~100,000 SDSS and ~20,000 CANDELS galaxies**
- 16:00-16:20 **Casmir OBASI (Nigeria/Chile) [CT]: The Confirmation of Two New Bulge Globular Clusters in the Milky Way: NewGL FSR19 and FSR25**

September 18, Friday

SESSION 5, Chair: Oleg MALKOV

- 11:00-11:40 **Chen Zhou CUI (China) [IT]: Virtual Observatory, from Idea to Research Mode**
- 11:40-12:20 **Areg MICKAELIAN (Armenia) [IT]: The Armenian Virtual Observatory (ArVO)**
- 12:20-12:40 **Coffee/tea break**
- 12:40-13:20 **Markus DEMLEITNER (Germany) [IT]: Resurrecting the DFBS into the VO**
- 13:20-13:40 **Irina VAVILOVA (Ukraine) [CT]: Machine Learning techniques for binary morphological classification of SDSS-galaxies and their problem point**
- 13:40-14:00 **Anjali Shivani Reddy THADISINA (India) [CT]: Detection of Asteroids using Machine learning technique**
- 14:00-15:20 **Lunch break**

<https://www.bao.am/meetings/meetings/SS2020/index.html>
<https://www.bao.am/meetings/meetings/ASBD2/index.html>



- English
- ホーム
- JVOについて
- 資料
- 研究成果
- VOツール
- VO講習会
- リンク
- 問い合わせ先・メンバー
- JVOポータル
- アクセス統計
- 内部連絡

VO講習会

これまでに開催した講習会等の資料を公開しています。

VO講習会2015如月	2015年2月26日-27日	JVOポータル・VOツールの使用法、ユースケース実習。
VO講習会2014睦月	2014年1月27日-28日	JVOポータル・VOツールの使用法、ALMAデータ取得法、ユースケース実習。
VO講習会2013春	2013年3月25日-26日	JVOポータル・VOツールの使用法、ユースケース実習。
VO講習会2012秋	2012年9月27日-28日	JVOポータル・VOツールの使用法、ユースケース実習。
VO講習会2012	2012年3月26日-27日	JVOポータル・VOツールの使用法、ユースケース実習。
VO講習会2010@京大	2010年9月27日-28日	JVOポータルサイトの使用法・VOツールの使用法の講習。
VO講習会2010	2010年1月25日-27日	JVOポータルサイトの使用法・VOツールの使用法の講習。
VO夏の学校2006		VOサービスの立ち上げ方。JVOポータル・VOツールの使用法。

VO講習会2015如月

- 開催日 : 2015年2月26日(木)、27日(金) (両日も10:00~17:00)
- 参加申込締切 : 2015年2月12日(木)
- 旅費補助申請締切 : 2015年1月26日(月)
- 会場 : 国立天文台三鷹キャンパス 南棟二階共同利用室 (〒182-8601 東京都三鷹市五反田6-3-1)
- 講師 : 白崎 裕治 (国立天文台 天文データセンター)
川口 俊宏 (国立天文台 天文データセンター)
川崎 渉 (国立天文台 チリ観測所)

VO講習会2014睦月

Announcement



日程: 2014年1月27日(月)、28日(火)
 応募締切: 2014年1月17日(金)
 会場: 国立天文台三鷹キャンパス

- [1st circular](#)
- [講習会参加者への連絡](#)

Announcement

- [final circular](#)
- [2nd circular](#)
- [1st circular](#)

プログラム

一日目 2/26 (木)		
10:00 - 10:20	VO概論	白崎 pptx pdf
10:20 - 11:50	JVOポータル利用法(前半)	白崎 pptx pdf
11:50 - 13:00	昼休み	
13:00 - 13:30	JVOポータル利用法(後半)	白崎
13:30 - 14:30	Vissage利用法	川崎 ppt pdf
14:30 - 15:00	休憩	
15:00 - 15:40	VOツール利用法 (TOPCAT)	白崎 pptx pdf
15:40 - 16:20	VOツール利用法 (Aladin)	川口
16:20 - 17:00	VOツール利用法 (Specview)	白崎 pptx pdf

プログラム

1月27日 (月)		
10:00 - 10:20	VO概論	白崎
10:20 - 11:50	JVOポータル利用法	白崎
11:50 - 13:00	昼休み	
13:00 - 13:30	ALMAWebQL利用法	江口
13:30 - 14:30	Vissage利用法	川崎
14:30 - 14:50	休憩	
14:50 - 17:20	VOツール利用法	TOPCAT: 小宮 Aladin: 江口 Specview: 小宮



<http://jvo.nao.ac.jp/voschool.html>

China-VO Annual Meetings



会议日程	
时间	
11月21日(周三)	18:00-20:00
11月22日(周四)	上午第一节
08:30-09:00	09:00-09:10
09:10-09:40	09:40-10:10
上午第二节	10:10-10:30
10:30-10:50	10:50-11:10
11:10-11:30	11:30-11:50
11:50-12:10	12:10-12:40
12:40-14:00	
下午第一节	14:00-14:20

会议日程	
时间	
11月27日(周三)	13:00-18:00-20:00
18:00-20:00	
11月28日(周四)	上午第一节
08:30-09:00	09:00-09:10
09:10-09:40	09:40-10:10
上午第二节	10:10-10:30
10:30-11:00	11:00-12:00
12:00-12:30	12:30-14:00
下午第一节	14:00-14:20

会议日程	
时间	
11月25日(周三)	13:00-20:00 报到 (酒店大堂)
18:00-20:00	晚餐 (餐饮楼一楼自助餐厅)
11月26日(周四)	地点: 312会议室
上午第一节	主席:崔辰州 (国家天文台)
07:30-08:30	08:30-08:45
08:45-09:15	09:15-09:45
09:45-10:15	
上午第二节	主席:王俊峰 (厦门大学)
10:15-10:30	10:30-10:45
10:45-11:00	11:00-11:15
11:15-11:30	11:30-12:00
12:00-13:30	
下午第一节	主席:范玉峰 (云南天文台)
13:30-13:45	13:45-14:00
14:00-14:15	

<http://www.china-vo.org/events.html>

IVOA Interop VM, April 25-29, 2022

- HOME
- About Us
- VO News
- Events
- Services
- publications
- Documents

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China-VO Related Meetings

Upcoming:

- Astroinformatics and China-VO 2021, Dec. 4- 8, 2021, Lijiang

Past:

- China-VO and Astroinformatics 2020, Nov. 25- 29, 2020, Xian
- China-VO and Astroinformatics 2019, Nov. 27- Dec. 01, 2019
- China-VO and Astroinformatics 2018, Nov. 21- 25, 2018, Jin
- China-VO and Astroinformatics 2017, Nov. 28- Dec. 02, 2017
- IVOA Interop. Spring 2017, May 14-19, 2017, Shanghai, Chi
- China-VO and Astroinformatics 2016, Sep. 26-30, 2016, Uru
- China-VO and Astroinformatics 2015, Nov. 26-30, Tianshui, C
- China-VO and Astroinformatics 2014, Nov. 26-30, 2014, Xin
- China-VO and Astroinformatics 2013, Nov.13-17, 2013, Ya'a
- China-VO and Astroinformatics 2012, Nov.28 to Dec. 2, 2012
- China-VO and Astroinformatics 2011, November 9-13, Guiya
- The 2nd WWT Teacher Training, July 22-26, Huhhot
- China-VO 2010, Nvo. 24-28, Lijiang Yunnan
- China-VO 2009, Nov. 26-28, Chongqing
- China-VO 2008, Nov. 27-30, TaiYuan
- China-VO 2007, Nov. 19-21, Guangzhou
- Astronomical Data Analysis Software & Systems XVII, 23-26
- IVOA Interoperability Meeting. May 14-18, 2007. Beijing, Chi
- China-VO 2006. Nov. 29 to Dec. 3, 2006
- IVOA Interoperability Meeting. Sep. 18-22, 2006. Moscow, R
- The 20th International CODATA Conference. 2005.10.23-25,
- IAU GA 26th. August 14-25, 2006. Prague, Czech
- IVOA Interoperability Meeting. 14-19 May, 2006. Victoria, Ca
- China-VO 2005, Nov. 25-27, 2005. Weihai, Shandong
- ADASS XV and IVOA Interoperability Meeting. October 2-7.
- IVOA Interoperability Workshop in Kyoto, May 16-20, 2005
- China-VO Internal Concentrated Study, 7-18 March 2005, Be
- 3rd China-VO national workshop, December 2004: Wuhan, C
- ADASS XIV, 24-27 October 2004: Pasadena, California, US
- IVOA Interop Meeting, 27-29 September 2004: Pune, India
- Astronomical Telescopes and Instrumentation 2004, 21-25 J
- IVOA Small Projects Meeting 2003, 26-28 November 2003: E
- The Second National VO Meeting, 25-26 September 2003: E
- IAU XXV, 13-26 July 2003: Sydney, Australia

China-VO EPO Resources

Observation Data Services Science Platform Public

最新专题
国家天文科学数据中心日食计算网站

国家天文科学数据中心
日食计算器

日食计算网站 (Eclipse Calculator) 可以帮您预测从某一地点日食发生的日期。该网站结合了上下三千年的日食信息。用户可在任意日期范围内进行查询。数据库最多可提供100条数据。此外，网站还可以获取日食带的详细地图。用户可在日食带范围内选择一个观测点或观测信息进行查看。

球幕电影
巡天先驱—郭守敬天文成就
PRELUSOR - GUO SHOUJING'S ASTRONOMICAL ACHIEVEMENTS

宇宙魅影 搜寻暗物质
PHANTOM OF THE UNIVERSE

China-VO SkyView

每日天文图桌面壁纸工具 (APOD China-VO)

每日天文图桌面壁纸工具 (APOD Astronomy Picture of the Day) 网站上每天更新的天文图片设置为个人电脑上的桌面壁纸。



国家科技资源共享服务平台
Chenzhou Cui welcome! Dashboard Logout 中文

NADC National Astronomical Data Center
国家天文科学数据中心

Observation Data Services Science Platform Public

Selected Collections MORE

Latest Collections MORE

LAMOST Data Release 8 V1.0

China Astronomical Plates Data Release 1

LAMOST Data Release 7 V2.0

LAMOST Data Release 9 V0

LAMOST Data Release 9 V0 Q3

Public

- WWT
- PSP
- Eclipse Calculator
- IAU DAEPO
- ESASky
- More EPO Services

Microsoft Research
WorldWide Telescope

WWT Community Beijing 北京

首页 WWT简介 中国星空 漫游库 社区资源 活动 在线讨论 友情链接

体验 万维望远镜, 在无限的星空中畅游

万维望远镜 个人版 v2.0 正式发布 2019/5/6

软件下载:

- 万维望远镜个人版
- Multi-language China-VO Public Version WWT (x64)

可能需要的组件:

- .net Framework 4.8
- .net Framework 3.5

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<https://nadc.china-vo.org/?&locale=en>

MoU between IVOA and IAU OAD

INTERNATIONAL VIRTUAL OBSERVATORY ALLIANCE

Member Organizations



- Argentine Virtual Observatory
- Armenian Virtual Observatory
- AstroGrid, United Kingdom
- Australian All-Sky Virtual Observatory
- Brazilian Virtual Observatory
- Chinese Virtual Observatory
- Canadian Virtual Observatory
- Chilean Virtual Observatory
- European Space Agency
- European Virtual Observatory
- German Astrophysical Virtual Observatory
- Hungarian Virtual Observatory
- Japanese Virtual Observatory
- Netherlands Virtual Observatory
- Observatoire Virtuel France
- Russian Virtual Observatory
- South African Astroinformatics Alliance
- Spanish Virtual Observatory
- Italian Virtual Observatory
- Ukrainian Virtual Observatory
- US Virtual Observatory Alliance
- Virtual Observatory India

Contacts for the IVOA Member Organizations

Partners



IAU Office of Astronomy for Development (OAD)

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Overview

Partners & Networks

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Development in Radio Astronomy (DARA) is a joint UK — South African partnership that uses radio astronomy training to develop high level scientists and engineers. The partnership is an implementation of the concept and involves collaboration at both strategy and project evaluation levels. In 2018, DARA funded six astronomy for development projects and these were carried out by DARA participants.

International Virtual Observatory Alliance (IVOA) – The IVOA was formed in June 2002 and aims to facilitate international coordination and collaboration in tools, systems and organizational structures for astronomical archives. The IVOA now comprises 20 Virtual Observatory programmes 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). The purpose of the partnership is to bring together the complementary resources and expertise of the IVOA and the OAD to advance the application of astronomical data and/or technology use in different areas of society, most notably for education, development and public outreach.



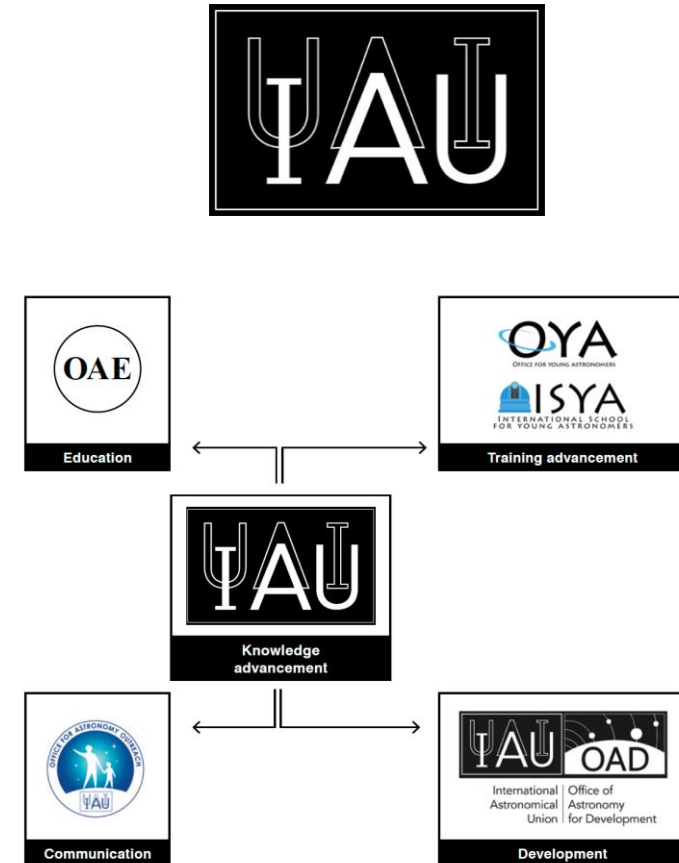
Collaboration between IVOA and IAU OAD

- Both the OAD and IVOA have ongoing projects of astronomical education and public outreach and realize that astronomical data and technology have the potential to be applied in various fields to benefit society.
- Purpose of the collaboration
 - Both the OAD and IVOA are motivated to use astronomical data for education, development and public outreach. ***The purpose of this collaboration is to bring together the complementary resources and expertise of IVOA and of the OAD to advance the application of astronomical data and technology use in different areas of society.***
- Initial pilot activities
 1. ***The development of a blended-learning Masters course in Astrophysics*** for universities based in Southern Africa. This pilot initiative could later be expanded to other regions.
 2. ***Astronomy for development and education activities***, for example the Shristi Astronomy Project , run virtually from India, which trains students on using archival astronomy data for discoveries.
 3. ***Data driven citizen science projects***, for example [Worldwide Telescope \(WWT\) guided tour contest](#).



IAU EPO Related Bodies

- **Divisions**
 - Division B Facilities, Technologies and Data Science
 - Division C Education, Outreach and Heritage
- **Commissions**
 - C1 Astronomy Education and Development
 - C2 Communicating Astronomy with the Public
- **Offices**
 - Office for Astronomy Outreach
 - Office of Astronomy for Development
 - Office for Astronomy Education
- **WGs**
 - C: Key Initiatives in Education, Outreach and Development
 - C1: Astronomy Education Research & Methods
 - C1-F2-F3-H2: Education and Training in Astrobiology
 - EC: Astronomy for Equity and Inclusion
 - **B2: Data Driven Astronomy Education and Public Outreach (DAEPO)**



The **IAU Hands-On Workshops (I-HOW)** is an initiative to train young scientists in developing countries in accessing, analysing and using those data for their research projects.

Collaborations



- Data
- Technologies
- Communities

