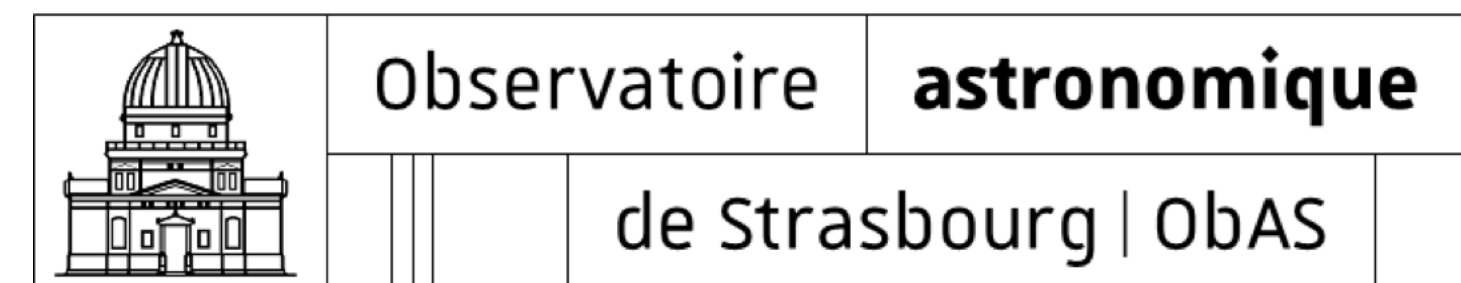
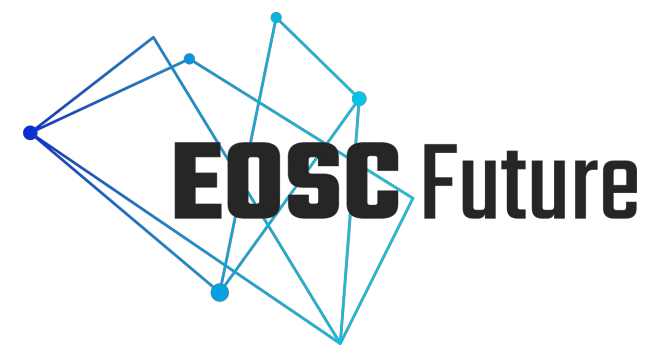


On-boarding CDS services and training materials to EOSC

Mark Allen

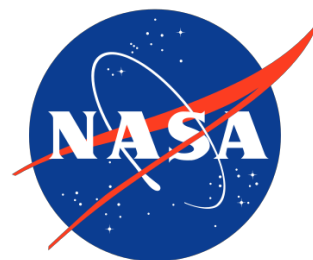
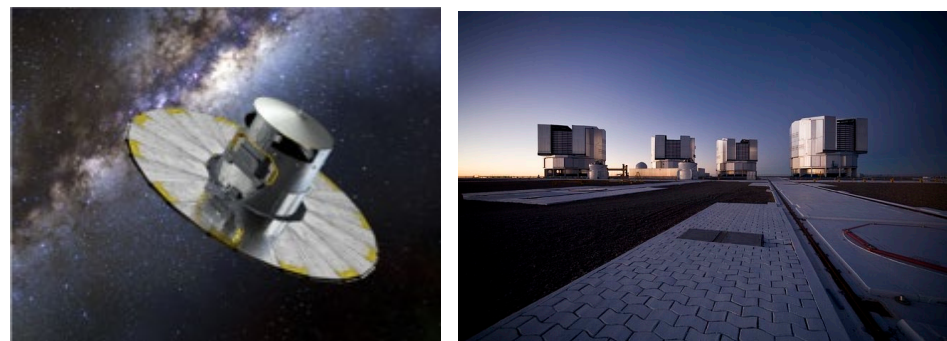
(Director: **C**entre de **D**onnées astronomiques de **S**trasbourg)

M. Marchand, G. Landais, A. Gonneau, A. Oberto, S. Derriere, A. Schaaff. *With thanks to ESCAPE, EOSC Future, EOSC Pillar*



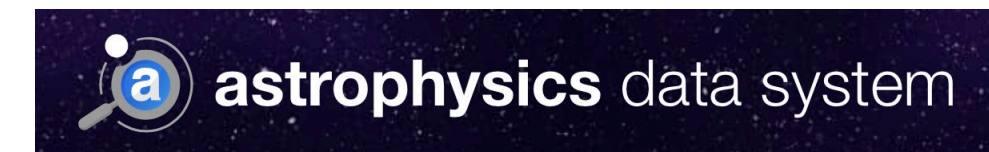
CDS - a part of the global astronomy data infrastructure

Connections to the Observatories and Space Agencies



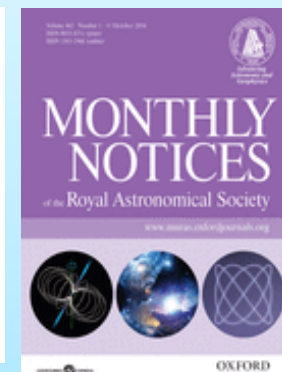
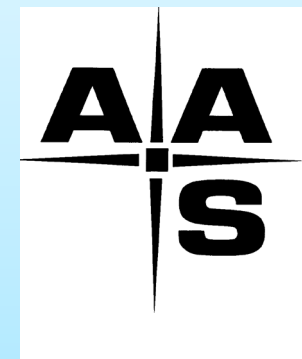
Université
de Strasbourg

Collaboration with other Astronomy Data Centres



- Harvard Smithsonian ADS
- NASA Extragalactic Database

Astrophysics Journals



+ ...

Building the Data Sharing framework of Astronomy:

The Virtual Observatory



Certified:



Networks:

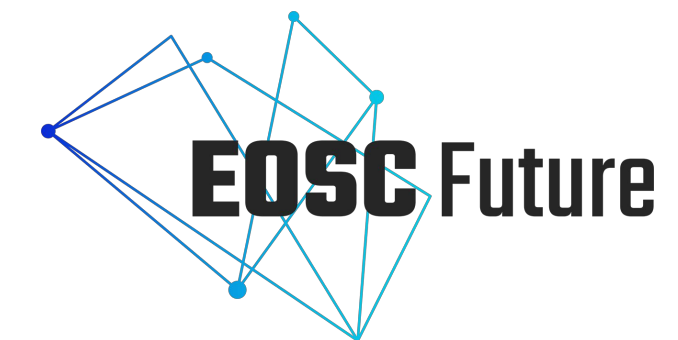


recherche.data.gouv.fr



□ Involvement in EOSC

- H2020 (INFRAEOSC-2018) **European Science Cluster of Astronomy & Particle physics ESFRI res. infrastructures**
 - *on-boarding of Astronomical 'Virtual Observatory' to EOSC.*
- H2020 (INFRAEOSC-03-2020) Research and Innovation Action — *Science project support, consolidation of ESCAPE work. Creation of training materials and on-boarding them to EOSC.*
- **CDS VizieR** service records harvested in multiple ways.
 - 24635 records (OAI-PMH, DOIs)
- **CDS SIMBAD** and **VizieR** services on-boarded to EOSC.
- CDS Participation in **EOSC TF on Researcher Engagement and Adoption** (*plus earlier work in EOSC Secretariat*).
- Contributions/interactions: EOSC Pillar, FAIRsFAIR.



CDS services for the Astronomy community

The screenshot shows the CDS website interface. At the top, there is a navigation bar with the CDS logo and links for Portal, Simbad, VizieR, Aladin, X-Match, Other, and Help. A search bar for CDS Web pages is also present. On the left, a sidebar menu includes links for Home, About CDS, People, Support (with sub-links for Help and Video tutorials, Developer's corner, and Publication support), myCDS, and Virtual Observatory projects (with sub-links for IVOA and Euro VO). The main content area features the CDS logo and the text 'Centre de Données astronomiques de Strasbourg' and 'Strasbourg astronomical Data Center'. Below this, there are four service tiles: 'CDS PORTAL' (Entry point to all services), 'SIMBAD' (Object database), 'VIZIER' (Catalogue database), and 'ALADIN' (Interactive sky atlas). Each tile has an information icon and a search input field with placeholder text: 'Object/position', 'Obj/position/bibcode', 'Keywords, target, ...', and 'Object/position'.

~17 M Objects

24k Catalogues

1100 Image surveys

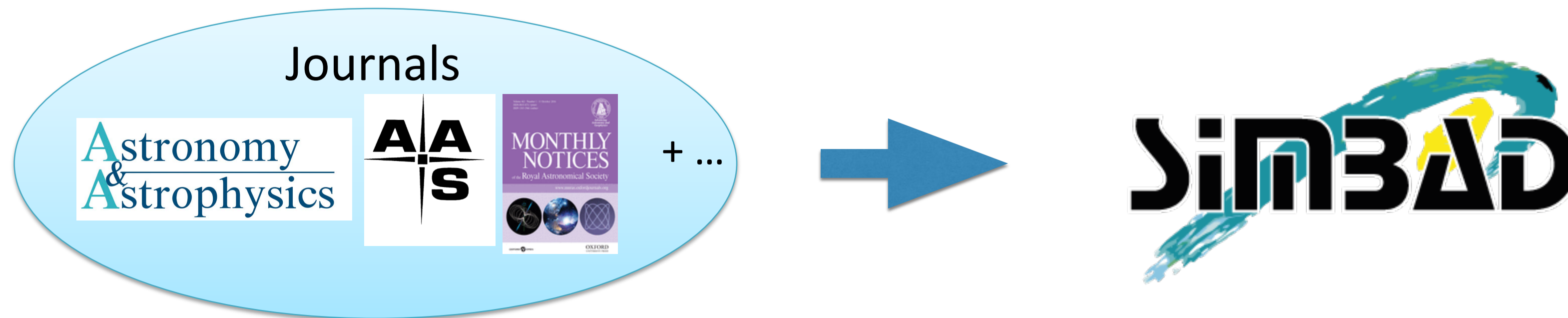
Heavily used: ~3M queries per day, 390k users per month

(mostly via programmatic interfaces)



□ SIMBAD

- **Treatment of ~15000 published articles processed per year**
- Astronomical objects identified in the text and tables



- **Supervised extraction and cross-identification**
- **Linking of Astronomical objects to the literature:**
 - Enables astronomy literature to be searched by Astronomy object name
 - Name resolver:

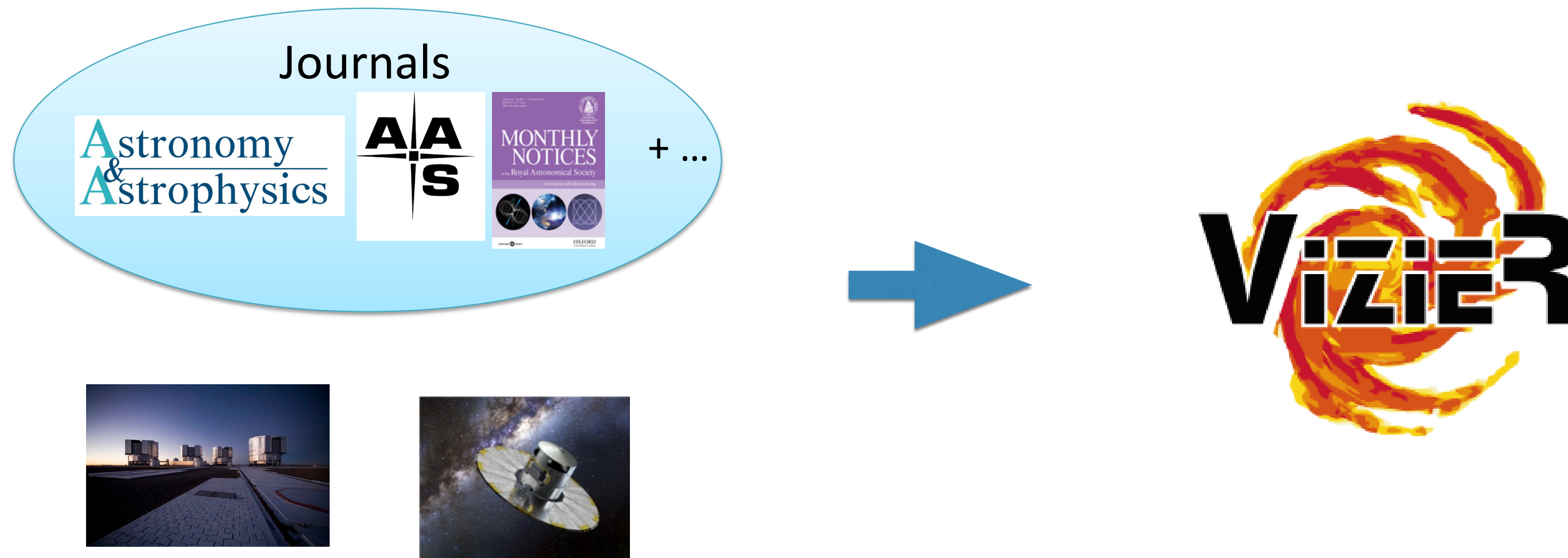
Target:

J2000 position : 12 01 53.800 -18 53 6.00



□ VizieR

- Currently **24635** data sets. (~ 80 billion table rows).
- ~**1400** '*astronomical catalogues*' published per year.
- Tabular and associated data from refereed articles, and also large surveys.



- **High level metadata curation, and value-added service functions:**
 - Interactive and programmatic interfaces, queryable by **IVOA standard protocols**.
 - Cross-catalogue searches using time, space and wavelength criteria.
- **DOIs assigned, CTS certification (2019-2022, 2024 pending)**



□ CDS as a 'Provider' in EOSC

The first steps were significantly helped by the EOSC-Pillar project

Contact Us Portal Home Catalogue & Marketplace Providers Dashboard Providers Documentation Mark ALLEN Logout




About Statistics For Providers For Catalogues

Home > [My Providers](#)

Show: Approved Pending Rejected Incomplete

Approved

Approved



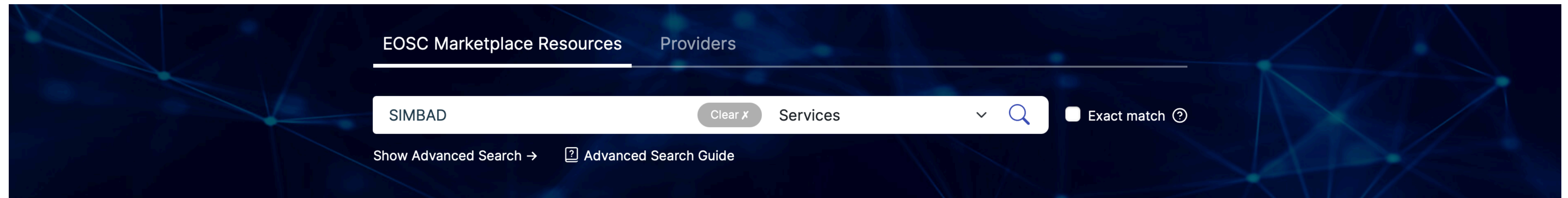
Strasbourg astronomical Data Centre

Provider Status: Approved
First Service Status: Approved

[Update Provider](#) [More](#)



SIMBAD on-boarded to EOSC



Filters

Research step

Discover Research Outputs (1)

Access type

Open access (1)

Scientific Domains

Natural Sciences (1)

Resource organisation

Language

Dedicated for


Rating

1 search results Services

[Download Results](#)

<< < 1

Sort By **Best match**



SIMBAD

Service OPEN ACCESS

0 Downloads 0 Views English

Organisation: [Strasbourg astronomical Data Centre](#)

Scientific domain: [Physical Sciences](#) [Natural Sciences](#)

The SIMBAD service offers the following functionalities: - Query by identifiers and around identifiers - Query by coordinates specifying the radius and the equinox - Query by bibcode and partial bibcode - Sampling with a set of physical criteria - Que... [Show more](#)

Keywords: [ESCAPE](#) [astronomy](#) [astrophysics](#)

[Access the Service](#)

Exploration Toolkit

Navigating EOSC
Catalogue & Marketplace



Searching Pathways

Smart Strategies
for EOSC Exploration



Effective Data Reuse

Documentation and
Metadata Refinement



[Help](#)



**EUROPEAN OPEN
SCIENCE CLOUD**

CANCEL AND QUIT

Next

Access instructions

Pin to a project

This is an open access offer of the SIMBAD service. Press **Go to the service** button to reach the service website. You may also add the service to a **Project** in (SIMBAD is on-boarded to the European Open Science Cloud (EOSC) to serve the astronomical community.

2024.02.04-18:03:18

- Gain EOSC experts support
- Easily access the selected service
- Organise your services and orders into logical blocks

To find out more about Projects in EOSC Marketplace, please refer to our [FAQ](#)

Go to the service



Next

Round-trip



What is SIMBAD ?

Queries
basic search
by identifier
by coordinates
by criteria
reference query
scripts
TAP queries
Output options

The SIMBAD astronomical database provides basic data, cross-identifications, bibliography and measurements for astronomical objects outside the solar system.

SIMBAD can be queried by object name, coordinates or bibcodes.

Links to some other on-line services are also provided.

← Go to Search

About EOSC Browse Marketplace Providers Hub Monitoring Status Contact us

SIMBAD

SIMBAD

The SIMBAD astronomical database provides basic data, cross-identifications, bibliography and measurements for astronomical objects outside the solar system.

Organisation: *Strasbourg astronomical Data Centre*

☆☆☆☆☆ (0.0 /5) 0 reviews Add to comparison Remove from favourites

→ Webpage → Helpdesk → Helpdesk e-mail → Manual

Access the service

FULLY OPEN ACCESS

Ask a question about this service?

ABOUT DETAILS GUIDELINES REVIEWS (0)

The SIMBAD service offers the following functionalities:

- Query by identifiers and around identifiers
- Query by coordinates, specifying the radius and the equinox
- Query by bibcode and partial bibcode
- Sampling with a set of physical criteria
- Query by lists of objects, coordinates or bibcodes
- Display charts for list of objects resulting from coordinates query

Moreover, the interface provides links with many other data services : Links to the other CDS services: Tables in the Vizier astronomical catalogue service, links to Aladin images, surveys and observatory logs.

The SIMBAD service is targeted to the general astronomical community, but also to a broader audience with EOSC and EOSC communities.

SERVICE IDENTIFIERS

- EOSC PID: 25620ad9

SCIENTIFIC CATEGORISATION

- Natural Sciences
- Physical Sciences

SIMBAD is on-boarded to the European Open Science Cloud (EOSC) to serve users

On-boarding done by simple form...



Update Service | Provider: Strasbourg astronomical Data Centre | Catalogue: EOSC

SIMBAD

Preview

Submit

Fields with (*) are mandatory and must be completed in order to submit this form. Leaving optional fields blank will remove the relevant heading from the published resource/provider profile.

Suggest

Do you need help?

Service Profile Information Blocks

1. Basic *



2. Marketing *



3. Classification *



4. Availability *



5. Location

6. Contact *



7. Maturity *



8. Dependencies

9. Attribution

10. Management *



11. Order *



12. Financial

*Required fields

Name (*)

Brief and descriptive name of the Resource as assigned by the Provider.

SIMBAD

Suggested length is 80 characters

Abbreviation (*)

Abbreviation or short name of the Resource.

SIMBAD

Suggested length is 20 characters

Resource Organisation (*)

The name of the organisation that manages or delivers the resource, or that coordinates the Resource delivery in a federated scenario.

Provide feedback

VizieR on-boarded to EOSC in 2024

EOSC Marketplace Resources Providers

astronomy catalogues Clear X Services Exact match ?

Show Advanced Search → Advanced Search Guide

- All Resources
- Publications
- Data
- Software
- Other Products
- Services**
- Data sources
- Bundles [BETA]
- Training
- Interoperability Guidelines [BETA]

Gaia DR3 Part 1. Main source

Data: Dataset

2022

Author: Collaboration Gaia

Identifier: DOI: 10.26093/cds/vizieR.1355

Gaia Data Release 3 (Gaia DR3) will be released on 13 June 2022. The Gaia DR3 catalogue builds upon the Early Data Release 3 (released on 3 December 2020) and combines, for the same stretch of time and the same set of observations, these already-publish... [Show more](#)

Keywords: Solar System Astronomy Standard stars galactic and extragalactic astronomy Astrophysics and Astronomy Radial velocity Astronomical object identification Variable stars Physics Trigonometric parallax exoplanet astronomy Astrometry Photographic photometry Surveys stellar astronomy Asteroids Optical astronomy observational astronomy Photometry Proper motions Natural Sciences

Source [Cite](#) [Pin to the Marketplace Project](#)

- institutions (3)
- Build analysis environment (1)
 - Explore other research

[show more](#)

Access type

- Open access (36)
- Order required (10)

Community Catalog

All selection

46 search results Services

[Download Results](#)

<< < 1 2 3 4 5 >

Sort By **Best match**

VizieR astronomical catalogue service

Service OPEN ACCESS

0 Downloads 0 Views English

Organisation: Strasbourg astronomical Data Centre

Scientific domain: Physical Sciences Natural Sciences

The VizieR archive consists of scientific data from refereed astronomy journal publications or data from ground based observatories/experiments or space missions. In VizieR terminology a VizieR dataset is called a "catalogue". Each "catalogue" can cont... [Show more](#)

Keywords: astronomy astrophysics

[Access the Service](#)

Exploration Toolkit

Navigating EOSC Catalogue & Marketplace



Searching Pathways

Smart Strategies for EOSC Exploration



Effective Data Reuse

Documentation and Metadata Refinement



[? Help](#)



□ VizieR records in EOSC Portal

- An example of the ESA Gaia mission DR3 data hosted in the VizieR service.
- This record gets into EOSC in multiple ways because of *harvesting*.
- DOIs prevent multiplicity.

Source ▾ | Cite | Pin to the Marketplace

Dataset . 2022 ✓

DOI: /10.26093/cds/vizieer.1355


Hosted By: Strasbourg Astronomical Data Center

URL:
<https://dx.doi.org/10.26093/cds/vizieer.1355>

Dataset . 2022 ○

Hosted By: B2FIND

URL:
<http://dx.doi.org/http://doi.org/10.26093/cds/vi>



Gaia DR3 Part 1. Main source

Data: Dataset

2022

Author: Collaboration Gaia

Identifier: DOI: 10.26093/cds/vizieer.1355

Gaia Data Release 3 (Gaia DR3) will be released on 13 June 2022. The Gaia DR3 catalogue builds upon the Early Data Release 3 (released on 3 December 2020) and combines, for the same stretch of time and the same set of observations, these already-publish... [Show more](#)

Keywords: Solar System Astronomy Standard stars galactic and extragalactic astronomy Astrophysics and Astronomy Radial velocity Astronomical object identification Variable stars Physics Trigonometric parallax exoplanet astronomy Astrometry Photographic photometry Surveys stellar astronomy Asteroids Optical astronomy observational astronomy Photometry Proper motions Natural Sciences

Source ▾ | Cite | Pin to the Marketplace Project

□ The DOI landing page for this dataset

EDS Portal Simbad **VizieR** Aladin X-Match Other Help

CDS home

Gaia DR3 Part 1. Main source : I/355

Access to [VizieR](#) [FTP](#) [ReadMe](#) [TAP](#) [Xmatch](#) [Download notebook](#)

Authors : Gaia collaboration

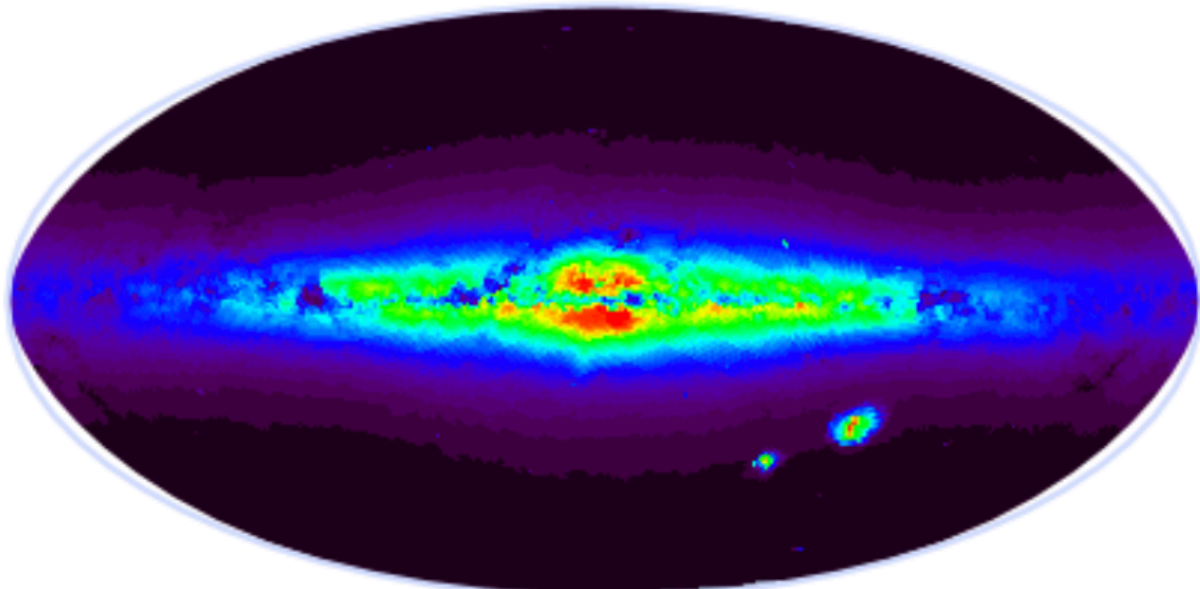
VizieR DOI : [10.26093/cds/vizier.1355](https://cds.u-strasbg.fr/vizier/10.26093/cds/vizier.1355) [Cite](#)

Bibcode : [2022yCat.1355....0G \(ADS\)](#)

UAT : Surveys, Standard stars, Astrometry, Proper motions, Optical astronomy, Photographic photometry, Astronomical object identification, Radial velocity, Variable stars, Asteroids, Optical astronomy, Trigonometric parallax

Observation (OC)

Records : 1811709771 sources



Inserted into VizieR : 09-Jun-2022
Last modification : 24-Jan-2024

Article Origin Description Acknowledgment See also History Prov FTP **VizieR**

Gaia Data Release 3 (Gaia DR3) Part 1 Main source. (2022)
[Go to the original article \(10.5270/esa-qa4lep3\)](#)

Keywords : catalogs - astrometry - parallaxes - proper motions - techniques photometric - techniques: radial velocities

Abstract: Gaia Data Release 3 (Gaia DR3) will be released on 13 June 2022. The Gaia DR3 catalogue builds upon the Early Data Release 3 (released on 3 December 2020) and combines, for the same stretch of time and the same set of observations, these already-published data products with numerous new data products such as extended objects and non-single stars.

On-boarding of Training Materials

- Developed as part of the EOSC Future project – showing how publishing in VizieR results in the data records being visible in EOSC Portal.



[About EOSC](#) [Browse Marketplace](#) [Providers Hub](#) [Monitoring](#) [Status](#) [Contact us](#)

[← Go to Search](#)



Training Resource

The journey of your data through the Virtual Observatory and the European Open Science Cloud

Resource organization: [Strasbourg astronomical Data Centre](#)

Provided by: [Strasbourg astronomical Data Centre](#)

[Access training](#)

OPEN ACCESS



About

The new initiatives for Open Science involve many actors: the journals, archives, the data sharing frameworks, and also the community of authors who publish their data. In this training we highlight the role of the authors, to show how efforts to describe astronomical data in standard ways has an important impact on achieving the goals of Open Science. In this training we concentrate on the publication of data via the Strasbourg Astronomical Data Centre (CDS) VizieR service and show how the process leads to the data being made visible in the EOSC Portal. We invite astronomy researchers to follow the journey of their data to EOSC!



Basic Details

Version Date

2023-06-09

License

<https://creativecommons.org/licenses/by-sa/4.0/>

Accessing the resource goes straight to the training tutorial in the CDS Git-hub



Learner View ▾

The journey of your data through the Virtual Observatory and the European Open Science Cloud

Key Points

Glossary

Learner Profiles

More ▾

%

EPISODES

Collapse <

- Summary and Setup

Overview

Target audience

Learning outcomes

Key Points and Glossary

Type of course

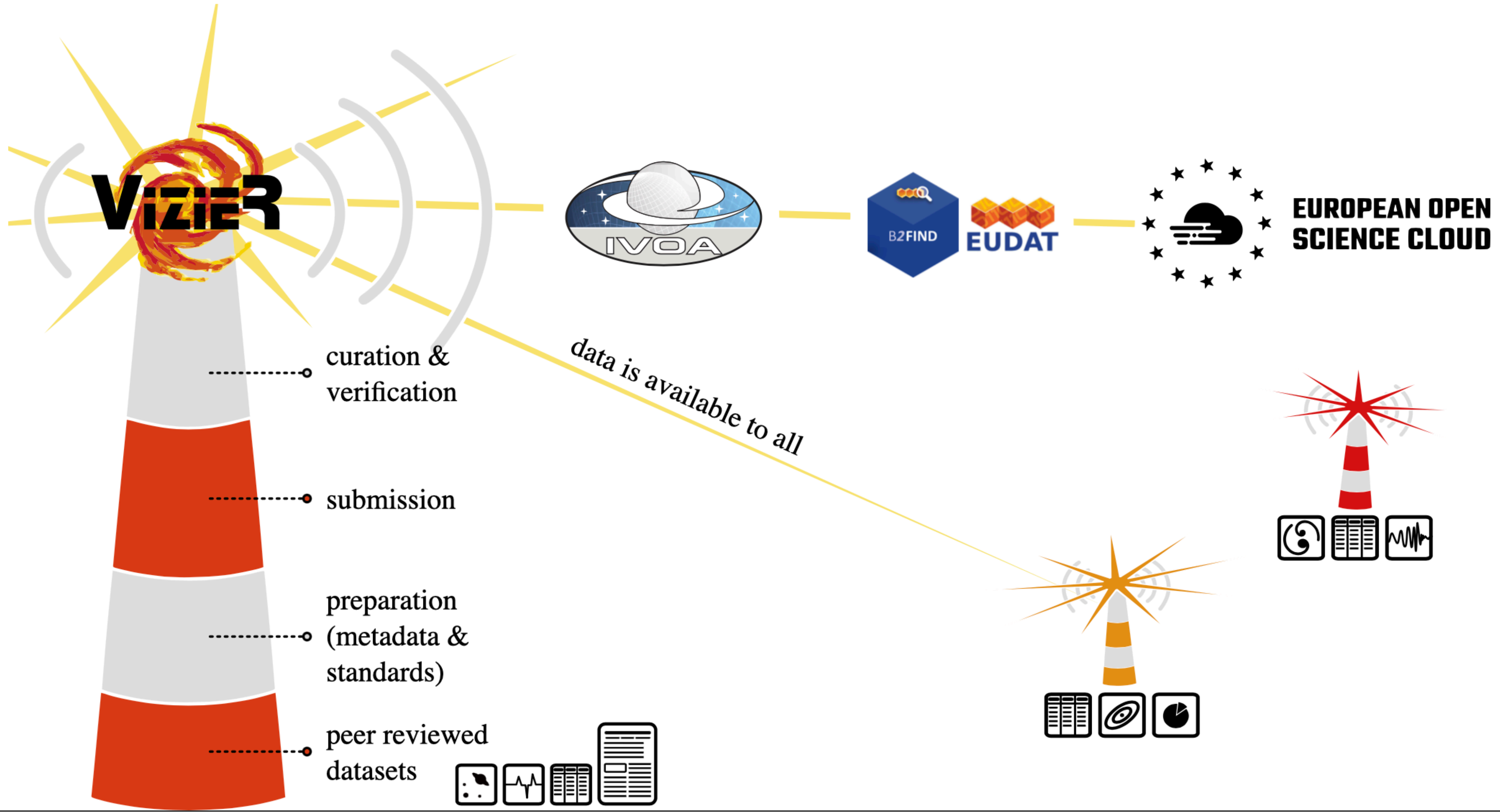
Version

Summary and Setup

[Next: Why distribute your... →](#)

Welcome to this course summarizing the journey of your data through the Virtual Observatory (VO) and the European Open Science Cloud (EOSC).

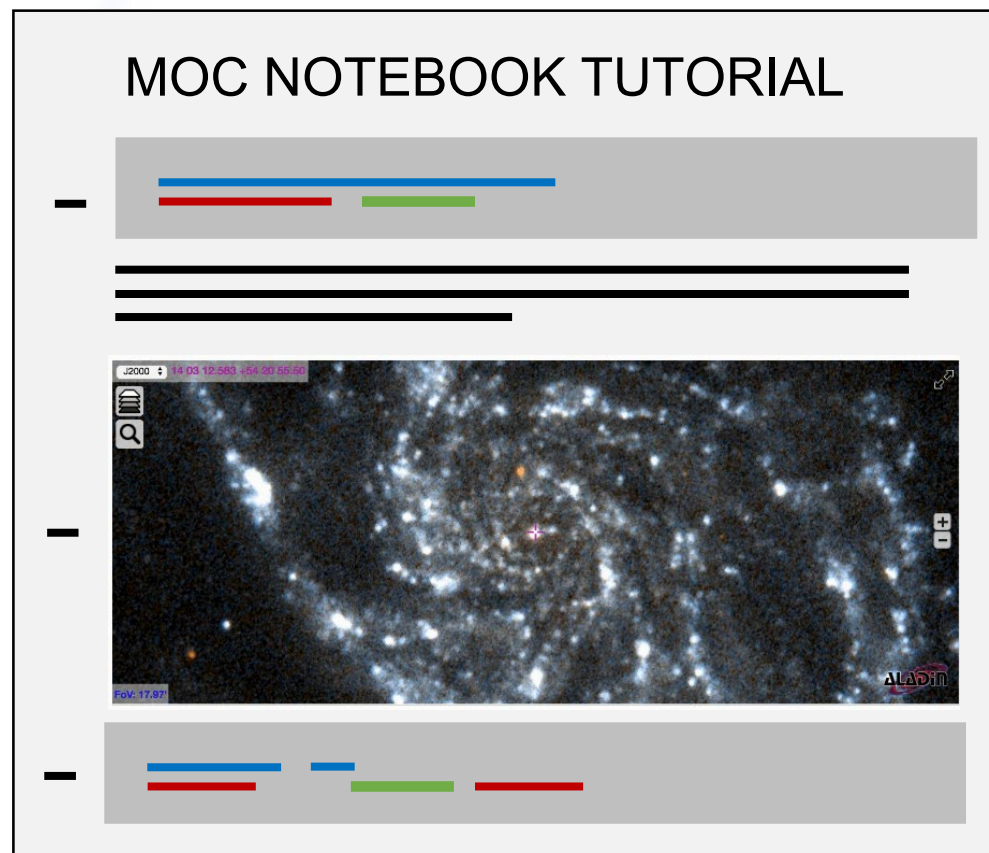
In this course, you will learn how to publish your data and you will become aware of new Open Science capabilities like EOSC.



□ Just the beginning...

- On-boarding shows we can add CDS services into the generic EOSC system.
- It is important to show that existing infrastructures can be included.
- The CDS resources are more 'discoverable' but ...
 - Statistics show **very few** people use SIMBAD or VizieR via EOSC Portal!
 - CDS users already know how to find the services and go there directly.
- **So, why do it ?**
 - Because EOSC is still in very early stages, and we agree with the vision.
 - Because we can bring astronomy interoperability into EOSC.
 - The expectation that EOSC will provide access to computational resources, e.g. for running python notebooks – as prototyped in ESCAPE:





Open Science example : *RI requirements* → *Re-usable* *notebooks*

6. Training notebook tutorials on-boarded to ESCAPE-OSSR

7. Deployed in ESCAPE platform and Virtual Research E

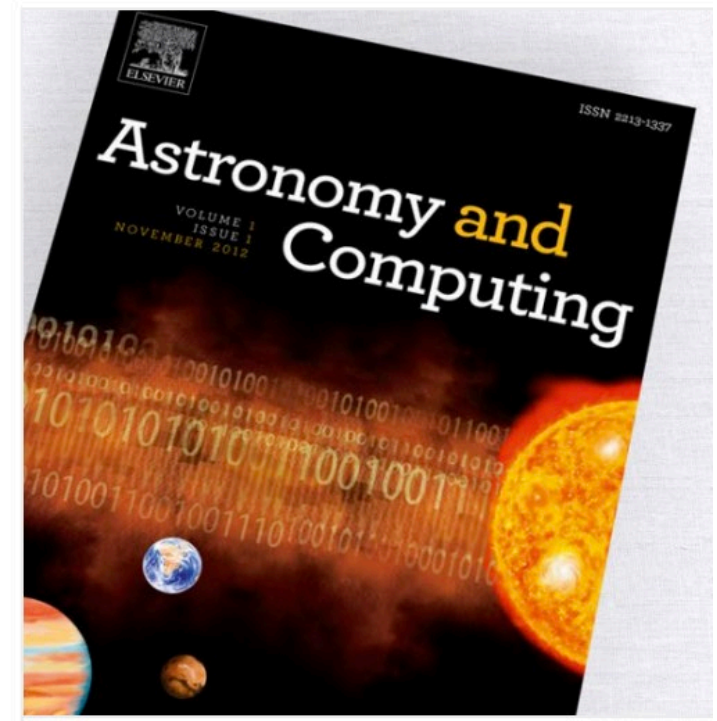
ESCAPE Science Platform prototype

- JIVE Binder
- MyBinder
-

5. ESCAPE school on interoperable data + follow on events



4. Publication in Astronomy & Computing journal

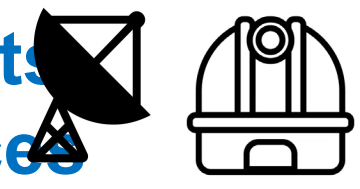


3. Reference implementation in open source software onboarded to ESCAPE-OSSR



Ready for integration in EOSC systems

1. ESFRI/RI requirements for interoperable services and data



2. definition of international open standards

MOC: Multi-Order Coverage map
Version 2.0
IVOA Recommendation 27 July 2022



Interest/Working Group:
<http://www.ivoa.net/twiki/bin/view/IVOA/IvoaApplications>

Author(s):
Pierre Fernique (CDS), Ada Nebot (CDS), Daniel Durand (CADC), Matthieu Baumann (CDS), Thomas Boch (CDS), Giuseppe Greco (EGO-Virgo), Tom Donaldson (STScI/NASA), Francois-Xavier Pineau (CDS), Mark Taylor (University of Bristol), Wil O'Mullane (Vera C. Rubin Observatory), Martin Reinecke (Max Planck), Sébastien Derrière (CDS)

Editor(s):
Pierre Fernique, Ada Nebot, Daniel Durand












□ Launching notebooks

 Portal Simbad **VizieR** Aladin X-Match Other Help 

[CDS home](#)

Gaia DR3 Part 1. Main source : I/355

Access to      [Download notebook](#) 

 Portal Simbad **VizieR** Aladin X-Match Other Help 

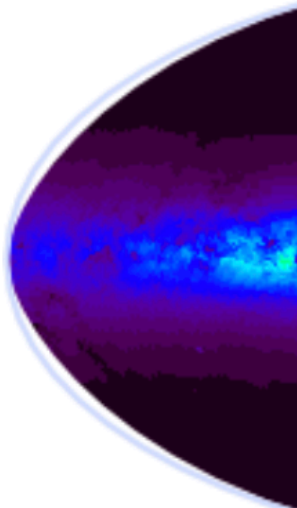
Authors : Gaia

VizieR DOI : 10.1051/00000000000000000000
Bibcode : 2022

UAT : Surveys,
Optical astrono
object identifc
Asteroids, Opti

Observation (O

Records : 1811



VizieR notebook generation

This [notebook](#) has been generated by VizieR for catalogue [I/355](#)

[↓ Download notebook](#)

Notebook quick view (not executable)


```
In [ ]: # Access astronomical databases
from pyvo import registry # version >=1.4.1

# Moc and HEALPix tools
from mocpy import MOC

# Sky visualization
from ipyaladin import Aladin

# For plots
import matplotlib.pyplot as plt
```

Welcome to VizieR example workflow

 VizieR

It is a generic notebook, highlighting what can be done once you chose a catalog. This workflow is suggested by [CDS](#) (Strasbourg Astronomical Data Center, house of [VizieR](#)).

Modify the [VizieR catalogue](#) name (variable **CATALOGUE**) and anything else you might feel like exploring!

1 Setup

By CDS (G.Landais, M.Marchand)

Summary

- CDS has on-boarded 2 services : SIMBAD and VizieR.
- A tutorial about publishing in VizieR has been created and on-boarded as an EOSC Training resource.
- On-boarding is important, but currently very little added-value.
- Expect EOSC to provide way to access computing resources for e.g. running notebooks close to the data.
- Expect a lot of evolution and new capabilities in the future.

Acknowledgments

- ESCAPE - The European Science Cluster of Astronomy & Particle Physics ESFRI Research Infrastructures has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement no. 824064.
- The EOSC Future project is co-funded by the European Union Horizon Programme call INFRAEOSC-03-2020 - Grant Agreement Number 101017536.