



*Astronomy ESFRI & Research Infrastructure Cluster*  
ASTERICS - 653477



# ASTERICS WP4 – DADI Data Access, Discovery and Interoperability

Françoise Genova and the WP4 team

## WP4 high level objectives

Make the ESFRI and pathfinder project data available for discovery and usage by the whole astronomical community, interoperable in a homogeneous international framework, and accessible with a set of common tools.

European VO teams **AND** ESFRI/pathfinder teams are involved in **ALL** activities.



# Who's involved

- Euro-VO partners, i.e. VO initiatives from France (CNRS/OAS-CDS+UNISTRA), Germany (UHEI), Italy (INAF), Spain (INTA), UK (UEDIN)
- Representatives of ESFRI and pathfinders, the contact can involve people from other labs
  - CTA (CNRS/LUTH + OBSPAR)
  - EGO/VIRGO and ET (CNRS/APC)
  - KM3Net (CNRS/CPPM)
  - SKA (ASTRON)
- ESO is associated to the project
- ESA (ESAC) is working in close collaboration with Euro-VO
- **EST is participating in the activities**

# WP4 Targets

Three Tasks in support to three complementary targets

- Task 4.1: Support to astronomy ESFRI facilities, their pathfinders and other infrastructures of pan-European interest for implementation of their data in the VO framework (INAF/UHEI)
- Task 4.2: Support to the astronomical community (CNRS-CDS/INTA)
- Task 4.3: Updates of the VO framework from feedback and requirements (CNRS-CDS/UEDIN)

## WP4 Activities

- DADI is structured around the organisation of Workshops (Deliverables) and participation in external events (IVOA meetings, which are Milestones, plus ADASS, RDA)
- Repository of products (Deliverable)
- Specific meetings are organised when useful

# Workshops to date

- Towards data providers
  - Two ESFRI Forum & Training Events (Trieste, Dec. 2015 & 2017)
  - Two European Data Providers Forum & Training Event (Heidelberg, June 2016 & **this event**)
- Towards the science community
  - One school/year for early career & ESFRI staff (Madrid, Dec. 2015 & Nov 2017, Strasbourg, Nov. 2016 & **20-22 Nov 2018**)
- Technology Forums
  - Four to date (Strasbourg, Sept. 2015 & March 2017; Edinburgh, March 2016 & April 2018)
  - One to come (**Strasbourg, March 2019**)

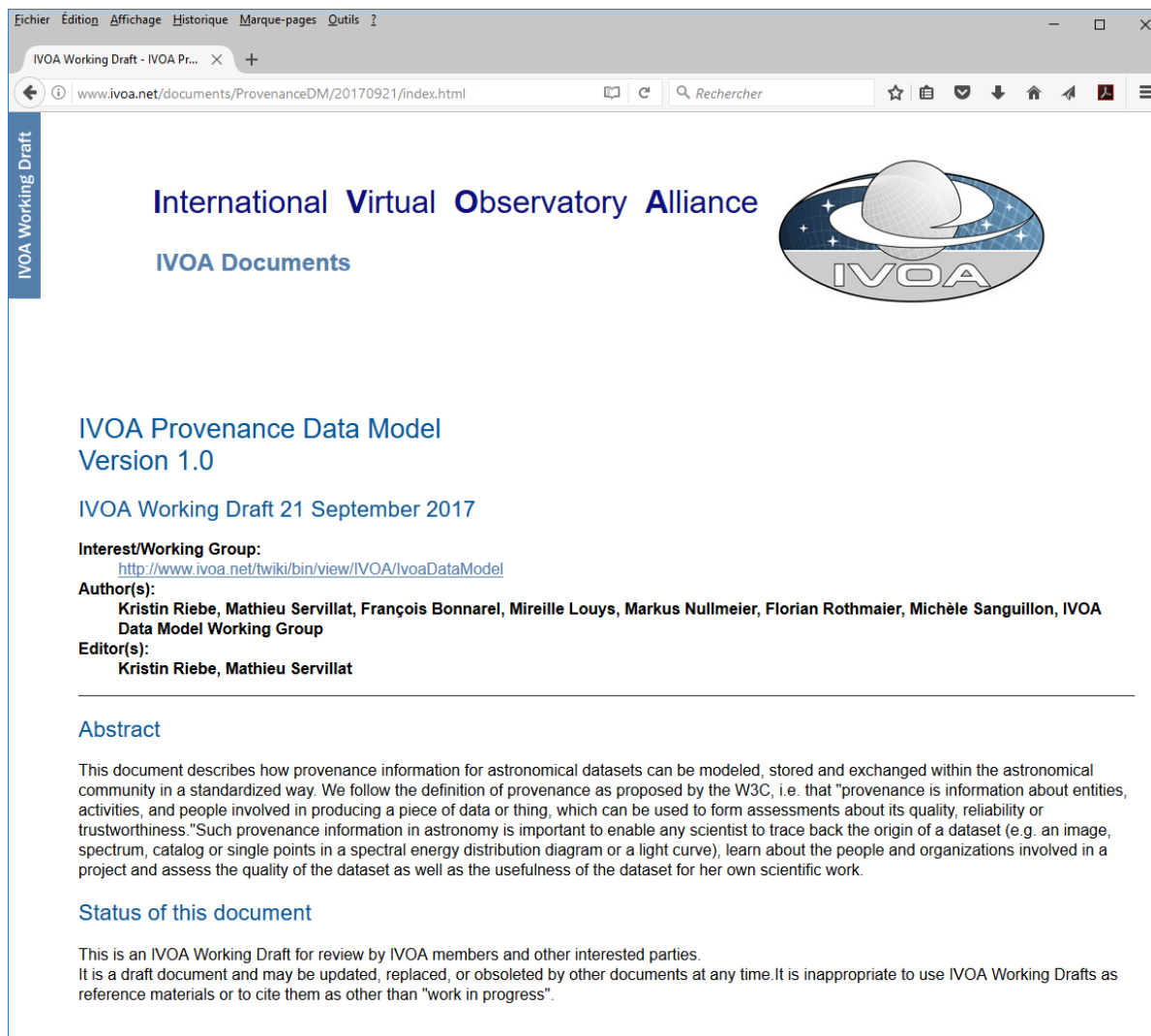
# Specific events

- Provenance meetings
  - 5 Provenance Days (co-organised with VO France)
  - 2 other meetings
- Time domain
  - DADI/CLEOPATRA (Strasbourg, March 2017), GAPS (Padova, June 2017), Time Series (Dec. 2017)
- A&A (Meudon, organised by CTA, Dec 2015)
- Gravitational waves (Strasbourg, June 2016)
- LOFAR/VO (Strasbourg, Nov. 2016)

# IVOA

- DADI technological activities (Task 4.3) are performed in the IVOA context
- Significant participation in all the IVOA meetings and WGs/Igs, including leadership of groups and on standards
- CTA actively participating in the Provenance Data Model definition – *adopted by CTA*
- Significant progress in DADI/IVOA priorities
  - Multi-dimensional data
    - « Standard caravan » completed in May 2017
    - Implementation and feedback
  - Strong focus on Time Domain
    - Started again in IVOA thanks to DADI momentum
    - Intense activity in DADI & IVOA





The screenshot shows a web browser window with the following content:

- Browser title: IVOA Working Draft - IVOA Pr...
- Address bar: www.ivoa.net/documents/ProvenanceDM/20170921/index.html
- Page header: IVOA Working Draft (vertical text on the left)
- Section: International Virtual Observatory Alliance
- Section: IVOA Documents
- Image: IVOA logo (a globe with stars and the text IVOA)
- Section: IVOA Provenance Data Model
- Section: Version 1.0
- Section: IVOA Working Draft 21 September 2017
- Section: Interest/Working Group:  
<http://www.ivoa.net/twiki/bin/view/IVOA/IvoaDataModel>
- Section: Author(s):  
Kristin Riebe, Mathieu Servillat, François Bonnarel, Mireille Louys, Markus Nullmeier, Florian Rothmaier, Michèle Sanguillon, IVOA Data Model Working Group
- Section: Editor(s):  
Kristin Riebe, Mathieu Servillat
- Section: Abstract  
This document describes how provenance information for astronomical datasets can be modeled, stored and exchanged within the astronomical community in a standardized way. We follow the definition of provenance as proposed by the W3C, i.e. that "provenance is information about entities, activities, and people involved in producing a piece of data or thing, which can be used to form assessments about its quality, reliability or trustworthiness." Such provenance information in astronomy is important to enable any scientist to trace back the origin of a dataset (e.g. an image, spectrum, catalog or single points in a spectral energy distribution diagram or a light curve), learn about the people and organizations involved in a project and assess the quality of the dataset as well as the usefulness of the dataset for her own scientific work.
- Section: Status of this document  
This is an IVOA Working Draft for review by IVOA members and other interested parties. It is a draft document and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use IVOA Working Drafts as reference materials or to cite them as other than "work in progress".

International Virtual Observatory Alliance

IVOA Documents



Observation Data Model Core Components and its Implementation Protocol  
Version 1.1

IVOA Recommendation 09 May 2017

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

**Author(s):**  
Mireille Louys, Doug Tody, Patrick Dowler, Daniel Durand, Laurent Michel, Francois Bonnarel, working group

**Editor(s):**  
Mireille Louys, Doug Tody, Patrick Dowler, Daniel Durand

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[Errata](#)

[No errata yet](#)

[Abstract](#)

International Virtual Observatory Alliance

IVOA Documents



IVOA Server-side Operations for Data Access  
Version 1.0

IVOA Recommendation 17 May 2017

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

**Author(s):**  
François Bonnarel, Markus Demleitner, Patrick Dowler, Douglas Tody, James Dempsey

**Editor(s):**  
François Bonnarel, Patrick Dowler

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[Errata](#)

[No errata yet](#)

[Abstract](#)

This document describes the Server-side Operations for Data Access (SODA) web service capability. SODA is a low-level data access capability or server side data processing that can act upon the data files, performing various kinds of operations: filtering/subsection, transformations, pixel

# ADASS

- Many invited/contributed talks and posters from DADI staff
- Also CLEOPATRA
- Lots of reference to the VO in general in the ADASS meetings

# THE RESEARCH DATA ALLIANCE

[www.rd-alliance.org](http://www.rd-alliance.org)

*building the social and technical bridges  
that enable open sharing of data*

## 23 FLAGSHIP OUTPUTS

of which 4 ICT  
Technical  
Specifications

## 75 ADOPTION CASES

across multiple  
disciplines,  
organisations &  
countries

## 93 GROUPS WORKING ON GLOBAL DATA INTEROPERABILITY CHALLENGES

of which 32 WORKING GROUPS  
& 61 INTEREST GROUPS

## 7,017 INDIVIDUAL MEMBERS FROM 137 COUNTRIES

67% Academia & Research  
15% Public Administration  
11% Enterprise & Industry

## 43 ORGANISATIONAL MEMBERS & 8 AFFILIATE MEMBERS



## Vision

Researchers and innovators openly share data across technologies, disciplines, and countries to address the grand challenges of society.

## Mission

RDA builds the **social and technical bridges** that enable open sharing of data.

[WWW.RD-ALLIANCE.ORG](http://WWW.RD-ALLIANCE.ORG)

@RESDATALL



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# RDA

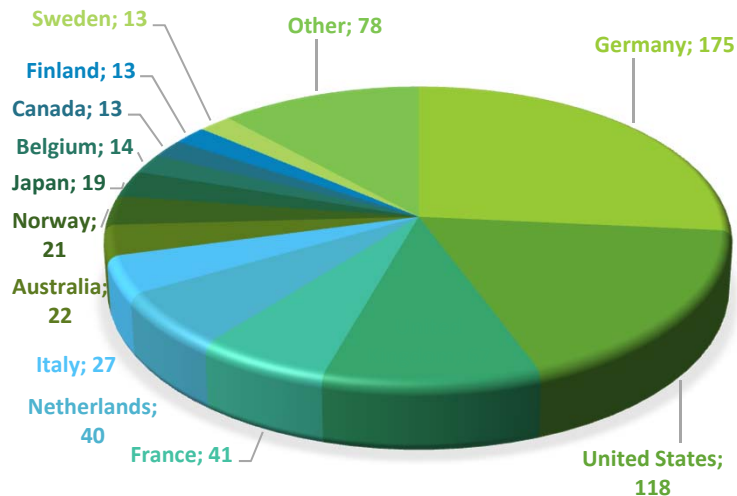
- No astronomy Group in RDA
  - Interoperability discussion in IVOA
  - An overarching Disciplinary Collaboration Frameworks IG co-chaired by D. Schade (CADC)
- Active participation in different Groups and adoption of recommendations
  - CM Zwölf's talk
  - Certification of Data Repositories – Core Trust Seal



### 83 Breakout meetings

- 19 Working Groups
- 37 Interest Groups
- 12 Joint Working & Interest Groups
- 15 Birds of a Feather
- 4 Final Recommendations presented
- 3 New Recommendations
- Collaboration projects with AGU and ISO on adoption and impact metrics

### 74 posters applications



**661 participants from 41 countries**



<https://rd-alliance.org/plenaries/rda-eleventh-plenary-meeting-berlin-germany>



# International Data Week 2018

will be held on 5-8 November 2018  
in Gaborone, Botswana.

*Hosted by the Botswana Open Science and Open Data Forum, IDW 2018 will bring together data scientists, researchers, industry leaders, entrepreneurs, policymakers and data stewards from all disciplines and geographies across the globe.*

Co-organized by the **ICSU World Data System (WDS)**, the **ICSU Committee on Data for Science and Technology (CODATA)** and the **Research Data Alliance (RDA)**, IDW 2018 combines the 12th RDA Plenary Meeting, the bi-annual meeting of the research data community, and SciDataCon 2018, the scientific conference addressing the frontiers of data in research.

Digital Frontiers of Global Science

INTERNATIONAL  
**DATA WEEK 2018**  
5 - 8 NOVEMBER

[WWW.INTERNATIONALDATAWEEK.ORG](http://WWW.INTERNATIONALDATAWEEK.ORG)

## Organisers



To find out more visit:

<https://www.rd-alliance.org/plenaries/rda-twelfth-plenary-meeting-part-international-data-week-2018-gaborone-botswana>

[rd-alliance.org/plenaries](http://rd-alliance.org/plenaries)

[WWW.RD-ALLIANCE.ORG](http://WWW.RD-ALLIANCE.ORG)

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# RDA's 13<sup>th</sup> Plenary Meeting Philadelphia, Pennsylvania 2- 4 April 2019

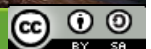


<https://rd-alliance.org/plenaries/rda-thirteenth-plenary-meeting-philadelphia-us>

[rd-alliance.org/plenaries](https://rd-alliance.org/plenaries)

WWW.RD-ALLIANCE.ORG

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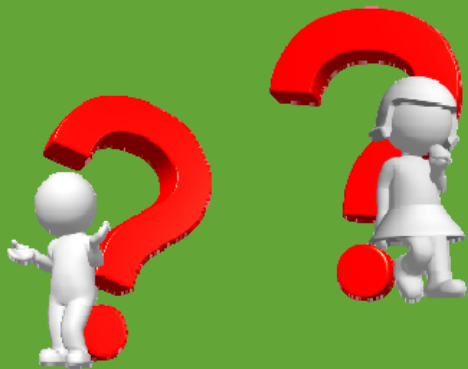


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## RDA in a Nutshell

WWW.RD-ALLIANCE.ORG/  
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### RDA Global

Email - [enquiries@rd-alliance.org](mailto:enquiries@rd-alliance.org)

Web - [www.rd-alliance.org](http://www.rd-alliance.org)

Twitter - @resdatall

LinkedIn - [www.linkedin.com/in/ResearchDataAlliance](http://www.linkedin.com/in/ResearchDataAlliance)

Slideshare -

<http://www.slideshare.net/ResearchDataAlliance>

### RDA Europe

Email - [info@europe.rd-alliance.org](mailto:info@europe.rd-alliance.org)

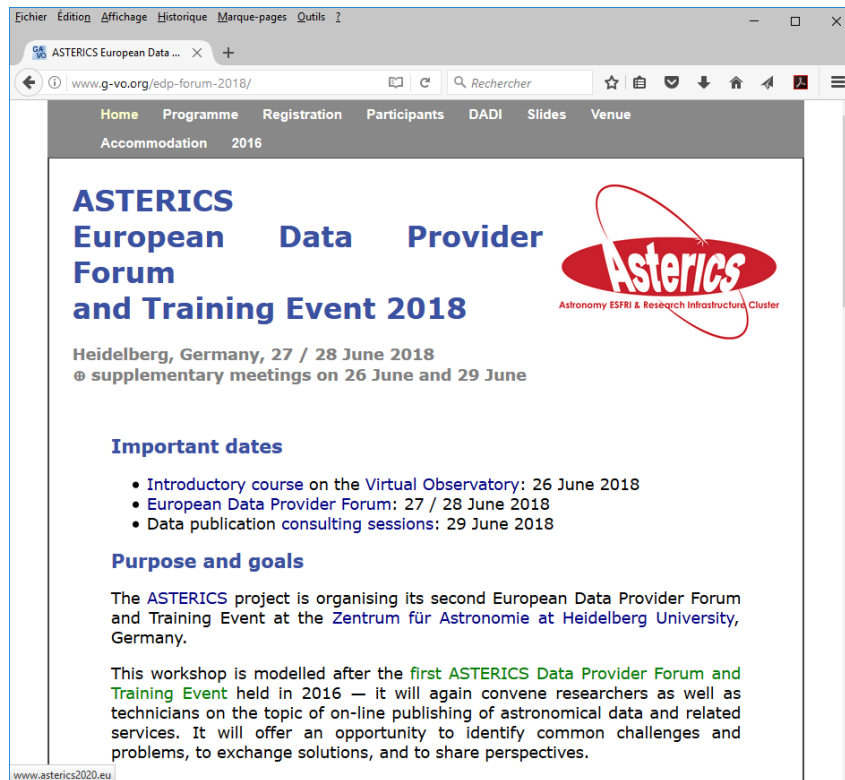
Twitter - @RDA\_Europe

**National nodes in 9 countries**

### RDA US

Twitter - @RDA\_US

# This meeting (D4.13)



The screenshot shows a web browser window displaying the website for the ASTERICS European Data Provider Forum and Training Event 2018. The page features the ASTERICS logo and the following text:

**ASTERICS European Data Provider Forum and Training Event 2018**  
Heidelberg, Germany, 27 / 28 June 2018  
@ supplementary meetings on 26 June and 29 June

**Important dates**

- Introductory course on the Virtual Observatory: 26 June 2018
- European Data Provider Forum: 27 / 28 June 2018
- Data publication consulting sessions: 29 June 2018

**Purpose and goals**

The ASTERICS project is organising its second European Data Provider Forum and Training Event at the Zentrum für Astronomie at Heidelberg University, Germany.

This workshop is modelled after the first ASTERICS Data Provider Forum and Training Event held in 2016 — it will again convene researchers as well as technicians on the topic of on-line publishing of astronomical data and related services. It will offer an opportunity to identify common challenges and problems, to exchange solutions, and to share perspectives.

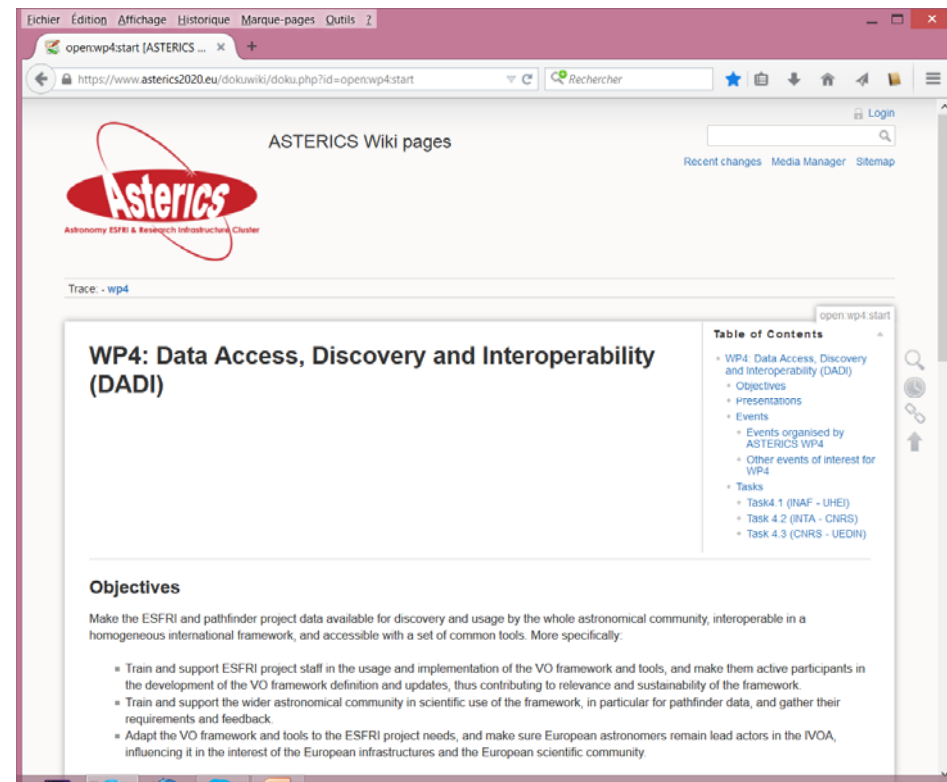
- Open to European data providers beyond the project partners
- Newcomer session: yesterday (feedback from the first F&T Event)
- Forum: Share methods and lessons learnt, identify needs
- Training on Friday

# DADI web site

<https://www.asterics2020.eu/dokuwiki/doku.php?id=open:wp4:start>

The site contains information about the Work Package activities and a link to all the meeting sites, which include all the slides and additional information

*try ASTERICS wiki page  
WP4 DADI*



The screenshot shows a web browser window displaying the ASTERICS Wiki page for WP4: Data Access, Discovery and Interoperability (DADI). The page features the ASTERICS logo and navigation links. The main content area is titled "WP4: Data Access, Discovery and Interoperability (DADI)" and includes a "Table of Contents" sidebar with links to Objectives, Presentations, Events, and Tasks. The "Objectives" section is expanded, showing a list of goals for the work package.

**WP4: Data Access, Discovery and Interoperability (DADI)**

**Table of Contents**

- WP4: Data Access, Discovery and Interoperability (DADI)
- Objectives
- Presentations
- Events
- Events organised by ASTERICS WP4
- Other events of interest for WP4
- Tasks
  - Task 4.1 (INAF - LHFI)
  - Task 4.2 (INTA - CNRS)
  - Task 4.3 (CNRS - UEDIN)

**Objectives**

Make the ESFRI and pathfinder project data available for discovery and usage by the whole astronomical community, interoperable in a homogeneous international framework, and accessible with a set of common tools. More specifically:

- Train and support ESFRI project staff in the usage and implementation of the VO framework and tools, and make them active participants in the development of the VO framework definition and updates, thus contributing to relevance and sustainability of the framework.
- Train and support the wider astronomical community in scientific use of the framework, in particular for pathfinder data, and gather their requirements and feedback.
- Adapt the VO framework and tools to the ESFRI project needs, and make sure European astronomers remain lead actors in the IVOA, influencing it in the interest of the European infrastructures and the European scientific community.

# Repository of products

« Products » produced by DADI or essential for VO implementation

- Tutorials from Schools
- VO Tools
- VO Standards
- Tools in support to data publishing in the VO
- Other results
- Talks presented by European participants in IVOA meetings

<https://www.asterics2020.eu/dokuwiki/doku.php?id=open:wp4:dadiproductrepository>