

WP4 – DADI Data Access, Discovery and Interoperability

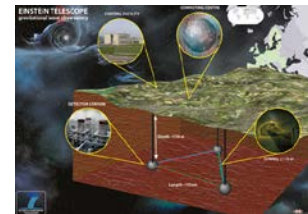
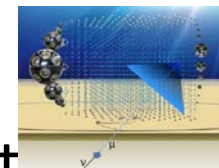
Françoise Genova and the WP4 team

WP4 objectives

- Make the ESFRI and pathfinder project data available in the international VO framework
- Three complementary and interacting tasks
 1. Support to ESFRI facilities and gathering their requirements & feedback (INAF/UHEI)
 2. Support to the European science community and gathering their requirements and feedback (CNRS-CDS/INTA)
 3. Update of the VO framework from feedback and requirements (incl. liaison with RDA et al.) (CNRS-CDS/UEDIN)
- *ALL partners involved in ALL activities*

Who is 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
 - CTA (CNRS/LUTH + OBSPAR)
 - EGO/VIRGO and ET (CNRS/APC)
 - KM3NeT (CNRS/CPPM)
 - SKA (ASTRON)
- ESO (E-ELT) is an associate of the project
- ESA (ESAC) has been working in close collaboration with Euro-VO



Activities during the period

- DADI is structured around the organisation of Workshops (Deliverables) and participation in external events (IVOA meetings, which are Milestones, plus ADASS, RDA)
- Technological activities on VO standards and VO-enabled tools in the IVOA framework
- Intense activity during the first 8 months (2015), with one deliverable for each Task, which created the DADI community, introduced newcomers to the VO, and initiated work in common
- Intense activity since then in the three strands of work
 - one Workshop for Tasks 4.1 and 4.3
 - preparation of the Second School (4.2, D4.5, 15-17 November 2016)
 - technological work in the IVOA context and in collaboration between the partners
- Specific activities in support of the ESFRIs/pathfinders
- Collaborations with an impact!

Deliverables

#	Title	Lead partner	Due date	Actual date and location
D4.1	First DADI Technology Forum	CNRS/CDS (Task 4.3)	September 2015	Held 17-18 Sept. 2015 Strasbourg Del. 3 Nov.
D4.2	First ASTERICS European School	INTA (Task 4.2)	November 2015	Held 15-17 Dec. 2015 Madrid Del. 17 March 2016
D4.3	First ESFRI Forum & Training Event	INAF (Task 4.1)	November 2015	Held 3-4 Dec. 2015 Trieste Del. 17 March 2016
D4.4	Second DADI Technology Forum	UEDIN (Task 4.3)	March 2016	Held 7-8 March 2016 Edinburgh Del. 28 June 2016
D4.6	<i>First European Data Provider Forum & Training Event</i>	<i>UHEI (Task 4.1)</i>	<i>November 2016</i>	<i>Held 3-4 June 2016 Heidelberg Del. 7 Oct. 2016</i>

NB: Deliverables = Workshops, « text deliverable» (Del.) provided afterwards

Milestones and other relevant meetings

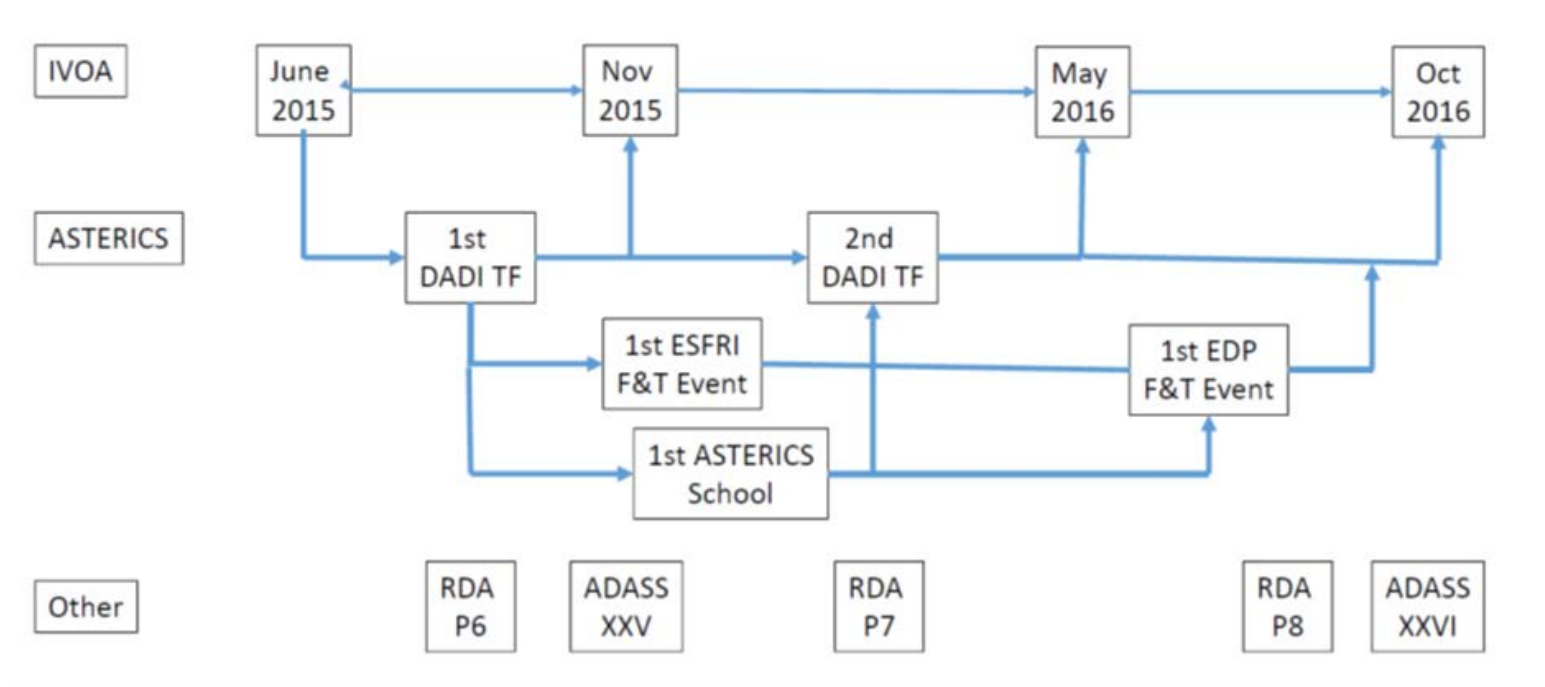
- Milestones: IVOA Interoperability meetings

M2	IVOA Sesto	Italy	14-19 June 2015
M5	IVOA Sydney	Australia	30 October-1 November 2015
M7	IVOA Cape Town	South Africa	8-13 May 2016
M11	IVOA Trieste	Italy	21-23 October 2016

- Other relevant meetings

- ADASS Meetings, Sydney (Nov. 2015) & Trieste (Oct. 2016)
- RDA Plenaries, Paris (Sept. 2015), Tokyo (March 2016) & Denver (Sept. 2016)

DADI in a nutshell (first 18 months)



Task 4.3: Technology Forums

- 34/24 participants
- Reports and discussion of technological work and collaborations among partners
- Preparation of the IVOA meetings
- «Hack-a-thon » = splinter discussions of technical topics
- First Tech Forum: **DADI kick-off**
 - Information about ASTERICS, DADI and IVOA
 - Presentation of partners' expertise and on-going work
 - Identification of topics of interest for DADI
- Second Tech Forum
 - Technical discussions on many topics



Hack-a-thon discussions in Edinburgh during the Tech Forum



Task 4.1: Forum & Training Events

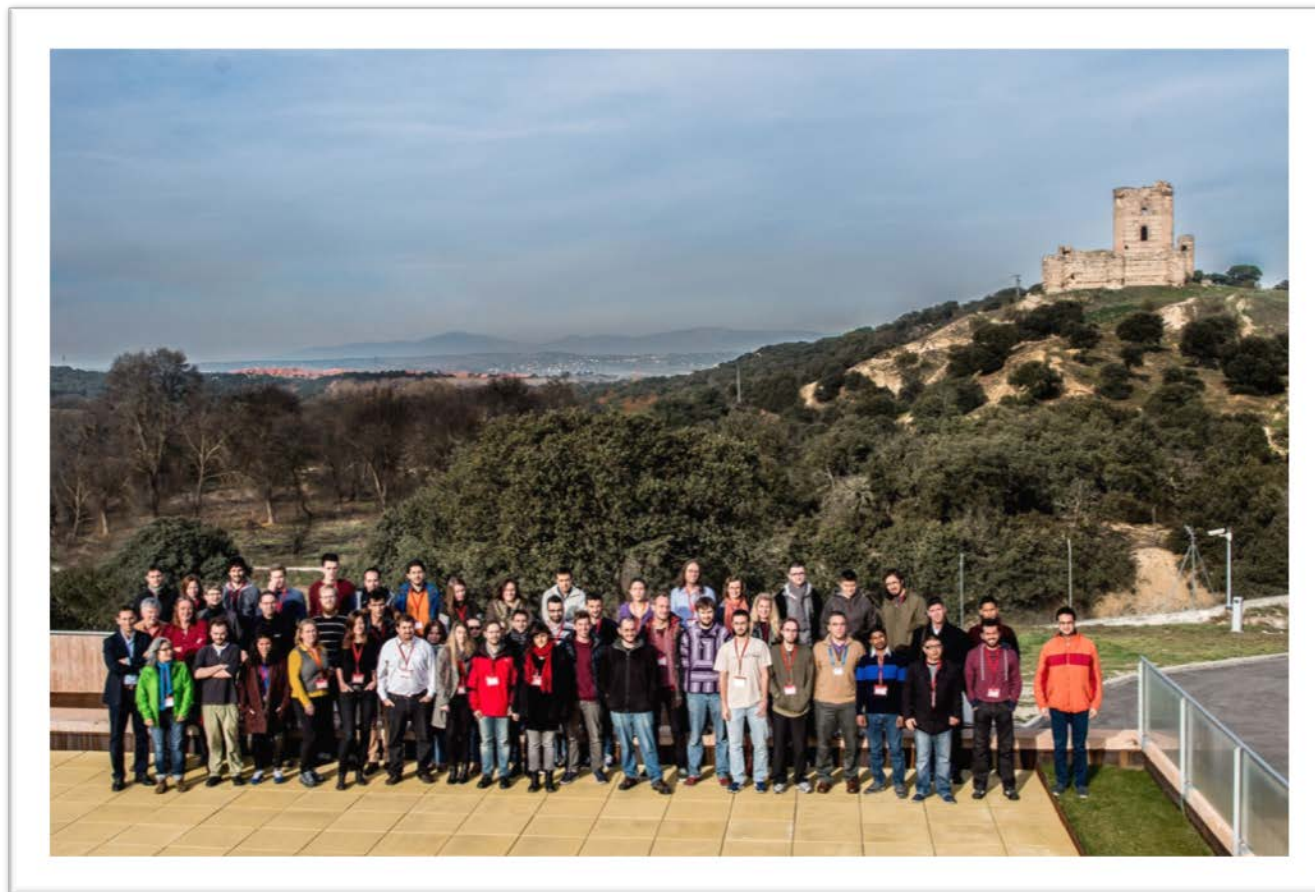
- D4.3: ESFRI Forum - *Requirements*
 - Organised around the topics identified during the First Tech Forum, incl. time domain data access (<> WP5) & Authentication & Autorisation (WP3)
 - VO standards and tools already in use
 - Initiation of discussion on specific support
- D4.6: Data Centre Forum & Training
 - Wide diversity of sizes and context
 - VO part of the landscape
 - First Training



Task 4.2: First DADI School

- 43 participants from France, Germany, Italy, Spain, UK, and from Belgium, Greece, Lithuania, Poland, Portugal and Slovakia, also CTA, LOFAR, ESO
- Learn enough about the VO to be able to use it in one's own research
 - Short presentation of the IVOA and ASTERICS
 - “Hands-on” tutorials & “Treasure Hunt”
 - Participants' own projects
 - Presentation of some of the projects and feedback session
- Significant preparatory work
 - Update of the tutorials
 - Discussion with the participants about their scientific interests
- Follow-up
 - *Provision of the tutorials*
 - *Feedback to tool providers*
 - *Follow-up activities in Greece, Poland and Italy*
 - *Students from ESFRIs became tutors at the Second School*
 - *Participants polled each year to follow the School impact and monitor their usage of the VO*





IVOA

- DADI technological activities (Task 4.3) are performed in the IVOA context
- Significant participation in the meetings and WGs, including leadership of Groups and on standards (editors/authors)
- CTA actively participating in the Provenance Data Model definition
- Focus session on projects in Cape Town, CTA and Gravitational Wave talks from ASTERICs participants
- Survey of project requirements on-going

ADASS XXV & XXVI

- The place to be to discuss with large projects about their data
- Excellent visibility of ASTERICS, with in 2016
 - ASTERICS booth
 - Gravitational Wave, Data Models and HPC keynotes
 - Several talks on DADI topics
 - CLEOPATRA presentation by A. Szomoru
 - Posters

Specific meetings & activities

- DADI-Gravitational Wave community meeting, Strasbourg, 31 May-1 June 2016
- 4 «Provenance Days», which are leading the preparation of the IVOA Provenance Data Model
- *DADI-LOFAR meeting, Strasbourg, 18 Nov. 2016 – publication of visibility data in the VO*
- Cross-WP discussion of A&A (WP3) and time domain (WP5 – *meeting on 21 March 2017*)

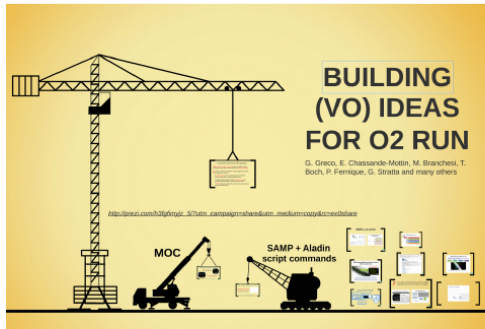
Summary of Results

- Creation of the WP4 team
- Training and support of the ESFRI staff, and gathering of their feedback and requirements
- Updated and new tutorials including from the ESFRIs
- Technological results
 - Adaptation of the VO Framework and tools to the ESFRI project needs
 - Impact on the IVOA (science requirements, multi-D and time domain standards, Provenance, tools)
- Reaching beyond the project partners
 - European data providers
 - Training and support of the wider European astronomical community, and gathering their feedback and requirements
 - *Liaison with RDA and other initiatives (EUDAT)*
 - *Cross-WP activities with WP2, WP3 and WP5*

Examples of impact

- The IVOA « caravan » of standards for multi-D data is nearly completed
- Collaboration between CDS and EGO on Aladin customization for the GWSky gravitational wave follow-up tool
- Publication of ANTARES data in the VO by GAVO
- CTA will use the IVOA Provenance Data Model in its pipeline
- Follow-up activities after the First School

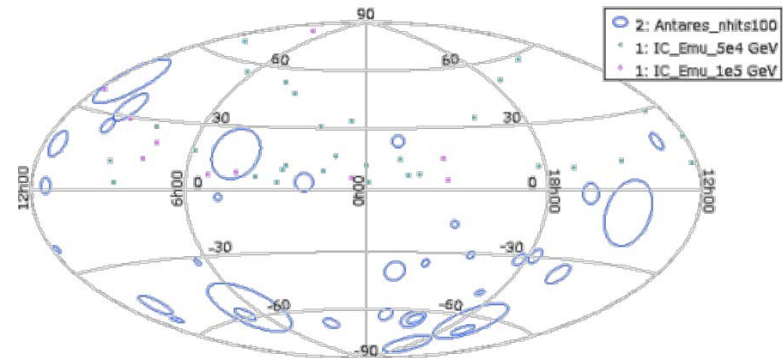
GW alerts and skymaps (2)



Credits: Giuseppe Greco (INFN)

- Help to define follow-up strategy
 - Visualize, tile and combine skymaps with other information (e.g., galaxy catalog for “mass targetting”)
 - On-going collaboration to demonstrate usage of VO tools (Multi Order Coverage Map)
 - Skymaps will soon include a distance estimate for binary mergers

TopCAT usage examples



Correlation between high energy IC40 events (Emu > 100 TeV) and Antares high energy events (nhits > 100)

Slides presented in Heidelberg
 June 2016

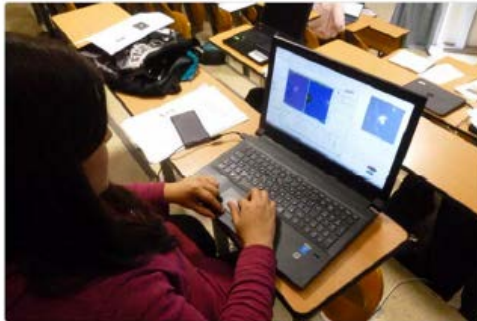
Impacts

- ESFRI pathfinder data publication in the VO
- Usage of VO-enabled tools by the ESFRIs for their own needs
- VO building blocks in the ESFRI systems (economy of scale!)
- Progress of the IVOA standards and tools (e.g. HiPS sky tessellation, multi-D standards, Provenance, A&A)
- The ESFRIs become actors of the VO so that it takes their requirements fully into account
- Dissemination of VO knowledge in the community
- *Excellent science*: the integration of astrophysics and astroparticle data is at the forefront

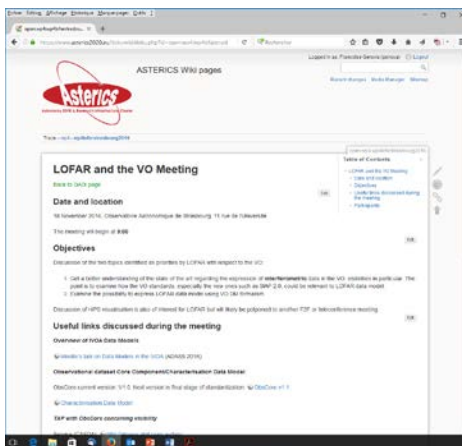
We go on!

Following the initial plans and more

Rosa Victoria @RosaVictoria · Nov 15
First day of #asterics2016 ended. Tones of useful knowledge! Looking forward for tomorrow!



Second School (D4.5),
15-17 November 2016,
Strasbourg



LOFAR and the VO,
18 November 2016,
Strasbourg

Third Tech Forum
(D4.7)
22-23 March 2017,
Strasbourg



DADI/CLEOPATRA
Time Domain,
21 March 2017



Spanish VO School,
6-8 March 2017
Tenerife



Expectations

- The initial expectations will be fulfilled
- DADI will have a legacy
- ESFRI and pathfinders fully involved in the VO
- Astronomy/astroparticle projects working hands in hands with common goals
- Wrt. Science community: the VO is and will be here and used but invisible because seamless access is the aim