



Report from event supported by RadioNet

TITLE	ADASS 2019
DATE:	06-10-2019 to 10-10-2019
LOCATION:	Groningen, the Netherlands
MEETING WEBPAGE:	https://www.adass2019.nl
HOST INSTITUTE:	<i>The organization of the conference is lead by ASTRON, but involves 8 Dutch institutes:</i> <ol style="list-style-type: none">1. ASTRON (Netherlands Institute for Radioastronomy)2. JIVE – Joint Institute for VLBI ERIC3. ALMA ARC Leiden – ALMA Regional Center Allegro4. RUG – University of Groningen5. Leiden University6. RU - University of Nijmegen7. UvA – University of Amsterdam8. SRON (Netherlands Institute for Space Research)
RADIONET BENEFICIARY / NO:	ASTRON / 02

Report:

1 SCIENTIFIC SUMMARY

The **Astronomical Data Analysis Software and Systems (ADASS)** conference is the premier conference for the exchange of information about astronomical software, and it is organized each year by a different hosting astronomical institution, at a different location. The conference provides a forum for astronomers, software engineers, and data specialists from around the world to discuss software and algorithms as used in all aspects of astronomy, from telescope operations, to data reduction, to outreach and education. In addition to presenting their work, delegates engage in discussions on emerging technologies and debate future directions in areas such as common data formats, software reuse and data dissemination. As such, ADASS is a vital mechanism to foster discussion for the advancement of the field.

The ADASS XXIX was organised in Groningen from 6 to 10 October 2019. It was a success with 354 registered participants. The first day of the conference consisted of four tutorials given in two parallel sessions. The contributions were submitted and presented in plenary sessions as part of the following themes:

Theme	Number of Orals	Number of Posters
Multi-wavelength astronomy	3	11
Open data access/provisioning	3	17
Data science challenges: tools from statistics to machine learning	4	18
Data visualisation from line plots to augmented & virtual reality	5	9
Delivering accessible and science-ready radio data	2	6
Local and global cloud infrastructure for processing and storage	3	6
Data discovery across heterogeneous datasets	2	11
Telescope operations and scheduling: from classical to autonomous	6	1
Evolution of software development and management	6	19
Data processing pipelines	4	53
Other	2	15

In total, 12 demo booths were present at the conference, covering a variety of topics and institutions. On top of this 9 “Birds of a Feather” discussions took place. These are discussion sessions on specific relevant topics. Because of the popularity of this type of contribution, those were held in three parallel sessions from 7 to 10 October. Another discussion was held in the plenary theatre on the future of the proceedings on 10 October.

Connected to the event, a hackathon was organised which involved top-tier local high-school students. Those students were introduced to the community, and therefore the RadioNet instruments by visiting the conference. The winning team was awarded on-stage.

1.1 RADIONET IMPACT

ADASS XXIX significantly contributes to the growth of all RadioNet facilities towards next generation astronomical research and techniques. It engaged both astronomers and developers in a very constructive dialogue which will eventually enable an improved science exploitation of many observatories. The participation from the RadioNet user community (radio astronomy) was significant, resulting from the strong role ASTRON had in the local and programme organising committees and also shown by the fact that both RadioNet and the SKA were main sponsors of the event. Moreover, it is expected that through this conference the number of users of various RadioNet facilities will grow, as attendees that are not yet engaged with these instruments, now have been given an extensive overview of the capabilities and incredible potential of their data, such as those produced by LOFAR, EVN, and ALTA/APERTIF.

The meeting provided an important forum for networking within the world-wide astronomical software community. Also, the meeting was followed by a tour of the two RadioNET facilities LOFAR and WSRT/APERTIF which was attended by 123 participants.

2 AGENDA OF THE EVENT

The full program is attached and can be found here: <https://www.adass2019.nl/conference-info/program/>



Figure 1 Left: ASTRON director Carole Jackson showing the WSRT. Right: Chair of the Local Organisation Committee (LOC) Roberto Pizzo presenting the members of the LOC. Credits: J. de Plaa, SRON.

3 PARTICIPANTS

There were 354 registered participants. 32 (9%) registered as student. The gender distribution is shown in the table below.

Gender	Number	Percentage
Female	70	20%
Male	255	72%
Other	2	0.6%
Prefer not to disclose	27	8%

Participants from all over the world attended. An overview of the countries of origin of our participants is shown below.

Country	Number of Participants
Netherlands	87
United States of America	76
Germany	32
France	29
United Kingdom	22
Spain	18
China	17
Australia	15
Italy	14
South Africa	7
Japan	6
Chile	5
Canada	4
Turkey	4
Switzerland	4
Russia	3
Czechia	2
Austria	2
Korea (the Republic of)	2
Taiwan	2
Mexico	1
India	1
Kenya	1

There were 10 invited speakers of which 3 were female, 5 male and 2 did not disclose. The attendance list, including name, affiliation and country, and signed by the participants, is attached.

NOTE – Personal Data provided in this document will be stored, made accessible to the EC and auditors & eventually published; all processes are designed according to the General Data Protection Regulation (GDPR, May 25th 2018). Read the RadioNet [Privacy Policy](#).



Figure 2 Conference group photo. Credits: J.de Plaa, SRON.



Figure 3 Telescope tour group photo. Credits: ASTRON.



Figure 4 Left: Jan David Mol (ASTRON) explaining LOFAR to some of the hackathon participants. Right: The IAU Inspiring Starts booth on inclusion in astronomy. Credits: J. de Plaa, SRON.

3.1 RADIONET NEWSLETTER

6 participants subscribed to the RadioNet Newsletter.

4 RADIONET FINANCIAL CONTRIBUTION

The financial contribution from RadioNet of 7000€ was used to pay part of the local organisation costs of the event.

5 PUBLICATIONS

A book of proceedings will be published by the Astronomical Society of the Pacific. To date, 182 articles have been submitted for inclusion in the ADASS XXIX proceedings. We confirm that we will acknowledge the RadioNet support with the acknowledgement sentence and logos of RadioNet & EC in the proceedings book.

6 CONFIRMATION

The organizers confirm that RadioNet is allowed to publish this report, including the list of participants, statistical details, pictures, etc.

Conference Programme

Sunday 6th of October 2019

12:00 - 13:00
Tutorials check-in/Registration (Martini Plaza: registration desk in main entrance hall)

13:00 - 17:30
Demo booth/Poster setup

Tutorial Session 1	Tutorial Session 2
Start Time: 13:00 Room: 10 & 11a	Start Time: 13:00 Room: 11b & 12
13:00 - 15:00 Francesco Pierfederici – Ridiculously Advanced Python 	13:00 - 15:00 Kai Lars Polsterer – Machine learning

14:30 - 15:30
Tutorials check-in/Registration (Martini Plaza: registration desk in main entrance hall)

15:00 - 15:30
Coffee Break

Tutorial Session 3	Tutorial Session 4
Start Time: 15:30 Room: 10 & 11a	Start Time: 15:30 Room: 13
15:30 - 17:30 Peter Williams – Interactively exploring and visualizing data on the sky with Jupyter and pywwt 	15:30 - 17:30 Felix Stoehr – DesignThinking

Welcome Reception

Start Time: 19:00

19:00 - 21:00

Welcome reception (Academiegebouw, Broerstraat 5, Groningen)



Monday 7th of October 2019

07:45 - 08:45

Registration

08:45 - 09:00

Welcome address by Prof. Carole Jackson (General and Scientific Director - ASTRON)

Session 1. Data discovery across heterogeneous datasets

Start Time: 09:00 | Room: Plenary Theatre | Chair: Xiuqin Wu

09:00 - 09:30

Invited talk (I1.1)

Joseph Mazarella –

Science Discovery with Diverse Multi-wavelength Datasets Fused in NED



09:30 - 09:45

Oral Contribution (O1.2)

Mauricio Araya –

Content-aware Data Discovery on VO Catalogs Using Succinct Representations



09:45 - 10:00

Oral Contribution (O1.3)

Sara Nieto –

A Science discovery portal for EUCLID data: The EUCLID scientific archive system



10:00 - 11:00

Coffee and Poster break

Session 2. Multi-wavelength astronomy

Start Time: 11:00 | Room: Plenary Theatre | Chair: Keith Shortridge

11:00 - 11:30

Invited talk (I2.1)

Ranga-Ram Chary –

Euclid, LSST, WFIRST Joint Survey Processing: The Whole is Greater Than the Sum of Its Parts



11:30 - 11:45

Oral Contribution (O2.2)

Mattia Vaccari –

The Ilifu Cloud Computing Facility and the HIPPO Project



11:45 - 12:00

Oral Contribution (O2.3)

Pierre Fernique –

Connecting space and time in a multi-messenger landscape: STMOC behind the scene



Lightning Session 1

Start Time: 12:00 | Room: Plenary Theatre | Chair: Keith Shortridge

12:00 - 12:03

L.1

Andrey Andrianov –

(P1.4) Computational aspects of Space-VLBI missions (“Radioastron” and “Millimetron”)



12:03 - 12:06

L.2

Martin Kuemmel –

(P1.6) Working with the SExtractor++ software



12:06 - 12:09

L.3

Simon O'Toole –

(P1.10) Data Central for Survey Teams



12:09 - 12:12

L.4

Vlad-Haralambie Ispas –

(P9.19) Death to IRAF



12:12 - 12:15

L.5

Katrina Sealey –

(P9.8) The Future of AAO-MQ Research Data and Software



12:15 - 13:45

Lunch break

Session 3a. Evolution of software development and management

Start Time: 13:45 | Room: Plenary Theatre | Chair: Jorge Ibsen

13:45 - 14:15

Invited talk (I3.1)

Michael Crusoe –

Saving money, time, and stress with standards-based workflows



14:15 - 14:30

Oral Contribution (O3.2)

Gijs Verdoes Kleijn –

Data model as agile basis for evolving calibration software



14:30 - 14:45

Oral Contribution (03.3)

Jouke Roorda –

Functional programming: why you should care



14:45 - 15:00

Oral Contribution (03.4)

Megan Sosey –

Evolution of Science Data Pipelines: From HST, to JWST, to WFIRST



15:00 - 16:00

Coffee and Poster break

Session 3b. Evolution of software development and management

Start Time: 16:00 | Room: Plenary Theatre | Chair: Jorge Ibsen

16:00 - 16:15

Oral Contribution (03.5)

Xiuqin Wu –

Experience in software development and management



16:15 - 16:30

Oral Contribution (03.6)

Yan Grange –

The struggle towards an open source policy



16:30 - 16:45

Oral Contribution (03.7)

Jessica Mink –

Lessons Learned From Developing and Maintaining Shared Astronomical Software Packages



16:45 - 17:05

Hackathon prizes

Birds of a Feather (B.1)	Birds of a Feather (B.2)	Birds of a Feather (B.3)
Start Time: 17:10 Room: Plenary Theatre	Start Time: 17:10 Room: 1 & 2	Start Time: 17:10 Room: 5 & 6
17:10 - 18:10 Chenzhou Cui – Education and public outreach in the era of Big Data science  	17:10 - 18:10 Jessica Mink – Data Formats BoF  	17:10 - 18:10 Jan Noordam – Escaping from the herd of white elephants 

Tuesday 8th of October 2019

08:55 - 09:00

Morning announcements

Session 4a. Data science challenges: tools from statistics to machine learning

Start Time: 09:00 | Room: Plenary Theatre | Chair: Peter Teuben

09:00 - 09:30

Invited talk (I4.1)

Daniela Huppenkothen –

Data Science Challenges in Time Domain Astronomy: Building Methods, Tools and Communities



09:30 - 09:45

Oral Contribution (O4.2)

Yanxia Zhang –

Photometric Redshift Estimation of Quasars by Machine Learning



09:45 - 10:00

Oral Contribution (O4.3)

Sweta Singh –

Scientific Visualisation of Extremely Large Distributed Astronomical Surveys





10:00 - 11:00

Coffee and Poster break

10:25 - 10:55

Focus Demo (F1)

Janet Evans –

High Impact Data Availability using Community Standards and Tools - the Chandra Experience



Session 4b. Data science challenges: tools from statistics to machine learning

Start Time: 11:00 | Room: Plenary Theatre | Chair: Peter Teuben

11:00 - 11:15

Oral Contribution (O4.4)

Shraddha Surana –

Machine Learning for Scientific Discovery



11:15 - 11:30

Oral Contribution (O4.5)

Antonia Rowlinson –

Identifying transient and variable sources in radio images



Session 5a. Data visualisation from line plots to augmented & virtual reality

Start Time: 11:30 | Room: Plenary Theatre | Chair: Brian Kent

11:30 - 12:00

Invited talk (I5.1)

Jacqueline Faherty –

Visualizing a billion stars



12:00 - 12:15

Oral Contribution (O5.2)

Bruce Berriman –

Creating High Quality All-Sky Visualizations of Astronomy Image Data Sets: HiPS and Montage



Lightning Session 2

Start Time: 12:15 | Room: Plenary Theatre | Chair: Brian Kent

12:15 - 12:18

L.6

James Nightingale –

(P3.7) PyAutoFit: An Open-Source Framework for Automated Bayesian Inference



12:18 - 12:21

L.7

Amanda Ibsen –

(P3.10) Prompt detection of super-luminous supernovae with deep learning



12:21 - 12:24

L.8

Venustiano Soanatl Aguilar –

(P4.9) Visualising Virtual Observatory Data in Digital Planetaria



12:24 - 12:27

L.9

Fred Lahuis –

(P3.16) The Horizon-2020 Exoplanets_A project: advancing the field of exoplanet science



12:27 - 12:30

L.10

J. B. Raymond Oonk –

(P6.1) Pioneering the Exascale era with Astronomy





12:30 - 14:00

Lunch break

Session 5b. Data visualisation from line plots to augmented & virtual reality

Start Time: 14:00 | Room: Plenary Theatre | Chair: Brian Kent

14:00 - 14:15

Oral Contribution (O5.3)

Harro Verkouter –

jiveplot: Inspecting large volumes of raw radio data made easy



14:15 - 14:30

Oral Contribution (O5.4)

William Roby –

Firefly and Python- new ways to visualize data on the web



14:30 - 14:45

Oral Contribution (O5.5)

Lucia Marchetti –

The Data2Dome Initiative at the Iziko Planetarium in Cape Town and the IDIA Visualisation Lab



14:45 - 15:00

Oral Contribution (O5.6)

Tatiana Goldina –

Integrating Plotly charts into Firefly visualization system



15:00 - 16:00

Coffee and Poster break

15:25 - 15:55

Focus Demo (F2)

Brian Cherinka –

Marvin: A Toolkit for Streamlined Access and Visualization of the SDSS-IV MaNGA Data Set



Session 6. Local and global cloud infrastructure for processing and storage

Start Time: 16:00 | Room: Plenary Theatre | Chair: Francesco Pierfederici

16:00 - 16:30

Invited talk (I6.1)

Christine Banek –

Why is the LSST Science Platform built on Kubernetes?



16:30 - 16:45

Oral Contribution (O6.2)

Vicente Navarro –

Multi Mission Science Exploitation and Preservation Platform



16:45 - 17:00

Oral Contribution (O6.3)

Jun Han –

The design and realization of mass data processing model for the Five hundred meters Aperture Spherical Radio Telescope



17:00 - 17:15


Oral Contribution (O6.4)

Rees Williams –

The Euclid Archive Processing and Data Distribution Systems: a distributed infrastructure for Euclid and associated data






Birds of a Feather (B.4)	Birds of a Feather (B.5)	Birds of a Feather (B.6)
Start Time: 17:20 Room: Plenary	Start Time: 17:20 Room: 1 & 2	Start Time: 17:20 Room: 5 & 6
Theatre	17:20 - 18:20	17:20 - 18:20
17:20 - 18:20	Yan Grange – Accelerating scientific discoveries in the modern hardware landscape	Martin Vogelaar – Teaching our students astro computing
Vanessa Moss – Forming a global network for communication between astronomical observatories	 	 

Conference Dinner
Start Time: 20:00
20:00 - 23:00
Dinner at restaurant 'de Rietschans'


Wednesday 9th of October 2019

08:55 - 09:00
Morning announcements

Session 7a. Telescope operations and scheduling: from classical to autonomous
Start Time: 09:00 Room: Plenary Theatre Chair: Pascal Ballester
09:00 - 09:30
Invited talk (I7.1)
Josep Colomé – STARS: Telescope and space mission scheduling towards a multi-observatory framework
 
09:30 - 09:45
Oral Contribution (O7.2)
Roberto Pizzo – LOFAR: challenges and solutions to operate the World's largest radio telescope




09:45 - 10:00

Oral Contribution (07.3)

Vanessa Moss –

Preparing for the next generation of radio observatory operations



10:00 - 11:00

Coffee and Poster break

10:25 - 10:55

Focus Demo (F3)

Johannes Spreeuw –

GPU acceleration of the SAGECal calibration package for the SKA



Session 7b. Telescope operations and scheduling: from classical to autonomous

Start Time: 11:00 | Room: Plenary Theatre | Chair: Pascal Ballester

11:00 - 11:15

Oral Contribution (07.4)

Benjamin Winkel –

Starlink, OneWeb and 5G - A new dark age for radio astronomy?



11:15 - 11:30

Oral Contribution (07.5)

Matthias Schartner –

Presentation of a new VLBI scheduling software VieSched++



11:30 - 11:45

Oral Contribution (07.6)

Eva Sciacca –

Big Data Architectures for Logging and Monitoring Large Scale Telescope Arrays



11:45 - 12:00

Oral Contribution (07.7)

Luisa Arrabito –

A DIRAC based prototype for the Cherenkov Telescope Array data management, processing and simulations



Lightning Session 3

Start Time: 12:00 | Room: Plenary Theatre | Chair: Pascal Ballester

12:00 - 12:03

L.11

François Bonnarel –

(P2.6) Implementation feedback of the IVOA Provenance data model



12:03 - 12:06

L.12

Sander ter Veen –

(P8.13) Calibration of a phased array using holography: the LOFAR case.



12:06 - 12:09

L.13

Pablo Gutiérrez-Marqués –

(P8.17) Operability vs optimization in automated telescopes. Lessons learnt from robotic space exploration.



12:09 - 12:12

L.14

Karan Vahi –

(P10.39) Gearing the DECam Analysis Pipeline for Multi-Messenger Astronomy using Pegasus Workflows



12:12 - 12:15

L.15

Gyula I. G. Jozsa –

(P10.40) MeerKATHI - an end-to-end data reduction pipeline for MeerKAT and other radio telescopes



12:15 - 13:45

Lunch break

Session 8. Open data access and provisioning

Start Time: 13:45 | Room: Plenary Theatre | Chair: Jessica Mink

13:45 - 14:15

Invited talk (I8.1)

Juan Gonzalez-Nunez –

Maximising data reach: bringing the Gaia dataset to the world



14:15 - 14:30

Oral Contribution (O8.2)

Anastasia Galkin –

Daiquiri - Python based framework for the publication of scientific databases



14:30 - 14:45

Oral Contribution (O8.3)

Anne-Marie Weijmans –

Streamlining the Sloan Digital Sky Survey public data releases: changes made and lessons learned



14:45 - 15:00

Oral Contribution (O8.4)

Javier Hernández Fuertes –

Implementing, with Python and PostgreSQL, Virtual Observatory services for publishing survey data from the Observatorio Astrofísico de Javalambre



15:00 - 16:00

Coffee and Poster break

15:25 - 15:55

Focus Demo (F4)

Gijs Verdoes Kleijn –

WISE information systems



Session 9. Data processing pipelines

Start Time: 16:00 | Room: Plenary Theatre | Chair: Stephen Gwyn

16:00 - 16:30

Invited talk (I9.1)

Eleonora Alei –

Exo-MerCat: a merged exoplanet catalog with Virtual Observatory connection



16:30 - 16:45

Oral Contribution (O9.2)

Steven Crawford –

Science Platforms for the reduction and analysis of data for the James Webb Space Telescope



16:45 - 17:00

Oral Contribution (O9.3)

Gijs Molenaar –

Easy to deploy and easy to modify data reduction pipelines using KERN and CWL



17:00 - 17:15

Oral Contribution (O9.4)

Mateusz Malenta –

Accelerating Radio Astronomy With High Performance Computing



17:15 - 17:30

Oral Contribution (O9.5)

Emmanuel Bertin –

The SExtractor++ software



Birds of a Feather (B.7)	Birds of a Feather (B.8)	Birds of a Feather (B.9)
Start Time: 17:35 Room: Plenary Theatre	Start Time: 17:35 Room: 1 & 2	Start Time: 17:35 Room: 5 & 6
17:35 - 18:35 Simon O'Toole – Building Balanced Teams	17:35 - 18:35 Giuliano Taffoni – Science platforms: towards data science.	17:35 - 18:35 Alice Allen – Future Governance of the Astrophysics Source Code Library

Thursday 10th of October 2019

08:55 - 09:00

Morning announcements

Session 10. Delivering accessible and science-ready radio data

Start Time: 09:00 | Room: Plenary Theatre | Chair: Roberto Pizzo

09:00 - 09:30

Invited talk (I10.1)

André Offringa –

Designing radio-astronomical software for delivering science-ready products



09:30 - 09:45

Oral Contribution (O10.2)

Mark Lacy –

The NRAO Science Ready Data Products Pilot Program



09:45 - 10:00

Oral Contribution (O10.3)

Alexandar Mechev –

LOFAR data: From archive to arXiv



10:00 - 11:00

Coffee and Poster break

Session 11. Other

Start Time: 11:00 | Room: Plenary Theatre | Chair: Nuria Lorente

11:00 - 11:15

Oral Contribution (O11.1)

Francois-Xavier Pineau –

ExXmatch: a tool for extremely fast cross-matches



11:15 - 11:45

Oral Contribution (O11.2)

BoF Summaries



11:45 - 12:15

Birds of a Feather Discussion (B.10)

Peter Teuben –

The Future of Proceedings



12:15 - 12:30

Closing remarks

12:30 - 13:30

Boxed lunch

13:30

Bus leaves for tour of telescopes (Departure Martiniplaza)



Legend

Invited