



## ASTERICS - H2020 - 653477

# Open access publications from citizen science experiments

### ASTERICS GA DELIVERABLE: D2.6

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## I. DELIVERY SLIP

	Name	Partner/WP	Date
From	Stephen Serjeant	OU/WP2	31 Dec 2017
Author(s)	Stephen Serjeant	OU/WP2	31 Dec 2017
Reviewed by	Rob van der Meer	ASTRON/WP1	24 Jan 2018
Approved by	Rob van der Meer		27 Feb 2018

## II. DOCUMENT LOG

Issue	Date	Comment	Author/Partner
1	31 Dec 2017	Shared Publications list	Stephen Serjeant/OU

2	8 Jan 2018	First draft deliverable report	Stephen Serjeant/OU
3	9 Jan 2018	Requested more information about deliverable	Rob van der Meer/ASTRON
4	23 Feb 2018	Updated report and added information	Stephen Serjeant/OU
5	27 Feb 2018	Made final	Rob van der Meer/ASTRON

### III. APPLICATION AREA

This document is a formal deliverable for the GA of the project, applicable to all members of the ASTERICS project, beneficiaries and third parties, as well as its collaborating projects.

### IV. DOCUMENT AMENDMENT PROCEDURE

Amendments, comments and suggestions should be sent to the authors. The procedures documented in the ASTERICS “Document Management Procedure” will be followed:  
<https://wiki.asterics2020.eu/wiki/Procedures>

### V. TERMINOLOGY

A complete project glossary is provided at the following page:  
<http://www.asterics2020.eu/about/glossary/>

### VI. PROJECT SUMMARY

ASTERICS (Astronomy ESFRI & Research Infrastructure Cluster) aims to address the cross-cutting synergies and common challenges shared by the various Astronomy ESFRI facilities (SKA, CTA, KM3Net & E-ELT). It brings together for the first time, the astronomy, astrophysics

and particle astrophysics communities, in addition to other related research infrastructures. The major objectives of ASTERICS are to support and accelerate the implementation of the ESFRI telescopes, to enhance their performance beyond the current state-of-the-art, and to see them interoperate as an integrated, multi-wavelength and multi-messenger facility. An important focal point is the management, processing and scientific exploitation of the huge datasets the ESFRI facilities will generate. ASTERICS will seek solutions to these problems outside of the traditional channels by directly engaging and collaborating with industry and specialised SMEs. The various ESFRI pathfinders and precursors will present the perfect proving ground for new methodologies and prototype systems. In addition, ASTERICS will enable astronomers from across the member states to have broad access to the reduced data products of the ESFRI telescopes via a seamless interface to the Virtual Observatory framework. This will massively increase the scientific impact of the telescopes, and greatly encourage use (and re-use) of the data in new and novel ways, typically not foreseen in the original proposals. By demonstrating cross-facility synchronicity, and by harmonising various policy aspects, ASTERICS will realise a distributed and interoperable approach that ushers in a new multi-messenger era for astronomy. Through an active dissemination programme, including direct engagement with all relevant stakeholders, and via the development of citizen scientist mass participation experiments, ASTERICS has the ambition to be a flagship for the scientific, industrial and societal impact ESFRI projects can deliver.

## VII. EXECUTIVE SUMMARY

We report three open-access publications for this deliverable on the green open access site arXiv so far from our two citizen science experiments, CREDO and Muon Hunter. The science analysis of Muon Hunter is still underway and further open access publications are expected. One of the problems we have had to deal with is the surprising success of the project, which almost entirely exhausted the experiment of data to classify. The publication outputs to date are as expected at this stage of the analyses. Furthermore, we have another experiment in active development, currently un-named, which aims to identify strong gravitational lens events in simulated Euclid data and in Hubble Space Telescope data. This project will be a pioneer of the mobile device capabilities for our Zooniverse platform. Our second citizen science workshop was in January 2018, and citizen science experiment launch(es) are expected to follow in quick succession.

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## 1. Open access publications from citizen science experiments

To date, our two active citizen science experiments have produced three publications:

- Feng, Q., et al., 2017, arXiv:1708.06393 (in Proceedings of the 35th International Cosmic Ray Conference (ICRC 2017), Busan, South Korea): *A citizen-science approach to muon events in imaging atmospheric Cherenkov telescope data: the Muon Hunter*.
- N. Dhital, P. Homola, J. F. Jarvis, P. Poznanski, K. Almeida Cheminant, Ł. Bratek, T. Bretz, D. Góra, P. Jagoda, J. Jałocha, K. Kopanski, D. Lemanski, M. Magrys, V. Nazari, J. Niedzwiedzki, M. Nocun, W. Noga, A. Ozieblo, K. Smelcerz, K. Smolek, J. Stasielak, S. Stuglik, M. Sułek, O. Sushchov, J. Zamora-Saa, 2017, arXiv:1709.05196: *We are all the Cosmic-Ray Extremely Distributed Observatory*
- O. Sushchov, P. Homola, N. Dhital, Ł. Bratek, P. Poznański, T. Wibig, J. Zamora-Saa, K. Almeida Cheminant, D. Alvarez Castillo, D. Góra, P. Jagoda, J. Jałocha, J. F. Jarvis, M. Kasztelan, K. Kopański, M. Krupiński, M. Michałek, V. Nazari, K. Smelcerz, K. Smolek, J. Stasielak, M. Sułek, 2017, arXiv:1709.05230, *Cosmic-Ray Extremely Distributed Observatory: a global cosmic ray detection framework*

## 2. Content of deliverable

### Publications within and beyond ASTERICS

These publications have been facilitated by ASTERICS, and they involve ASTERICS members as co-authors. They support pathfinder / precursor facilities to the ASTERICS ESFRIs, and as such they involve research consortia that extend beyond the ASTERICS consortium itself and indeed beyond the EU. This is a strong advantage since it enhances the international impact of the ASTERICS projects.

### Publication output management

We are monitoring the publication outputs but we are not taking steps to actively encourage rapid publication; rather, we are devolving this responsibility to the individual science teams who have already invested time and effort into launching and running the experiments. We reserve the right to make more active interventions in due course if need be, but at present we believe a lighter touch management is more appropriate, and there is no sign at present that the teams are being slow to publish.

## Publication budget implications

No ASTERICS budget was used to make these publications. The arXiv open access repository is free at the point of use. This makes these publications extremely cost-effective, indeed infinitely so by some metrics.

## Publication output rate and quality

We do not aim to maximise the number of publications. Much more important than number is the quality of the publication outputs. This follows the international practice of research assessment exercises, including the German *Forschungsrating*, the Australian *Excellence in Research for Australia*, the UK's *Research Excellence Framework*, the Italian evaluation by *Agenzia Nazionale di Valutazione del Sistema Universitario e della Ricerca*, the French *Agence d'évaluation de la recherche et de l'enseignement supérieur*, and many others. This further justifies our current light-touch oversight of the publications since we would prefer fewer but higher quality outputs rather than a race to publish.

## Plans for D2.9

We do not currently intend to change our publication management for deliverable 2.9, but will continue our light-touch oversight in monitoring the progress of the teams.