

# Announcement of opportunity for Community Scientists in the Ariel Mission

Issue/Revision	1
Date of Issue	18 June 2021
Status	Issued

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## 1 INTRODUCTION

### 1.1 Purpose and scope

This Announcement of Opportunity (AO) solicits the participation of the scientific community in the role of Community Scientist (CS) in the Ariel mission. Through the appointment of the CSs, ESA intends to gather independent advice for optimising the exploitation of the mission by the general scientific community.

Ariel is the medium mission “M4” in ESA’s Science Programme. Ariel will perform a chemical survey of a diverse sample of at least 500 exoplanets orbiting host stars with a range of spectral types. Most Ariel observations will consist of transit and/or eclipse spectroscopy of the atmospheres of warm and hot exoplanets, to address the following fundamental questions:

- What are exoplanets made of?
- How do planets and planetary systems form?
- How do planets and their atmospheres evolve over time?

The Science Programme Committee adopted the Ariel mission at its meeting in November 2021, therefore the mission is now in its implementation phase.

ESA aims to appoint up to five CSs; Up to three Community Scientists are expected to cover science areas augmenting those of the Ariel Science Team (AST) members from the AMC and from international partners (e.g., they will have expertise in fields such as Solar System planetary science, data science, protoplanetary discs). A further two Community Scientists will be selected in scientific areas relevant for the Complementary Science programme. The CSs will be appointed for a period of three years, renewable. With the exception of expenses incurred while travelling to AST meetings, ESA will not fund the activities of the CSs and each proposer is responsible for securing his/her own funding from other sources.

The schedule for this AO cycle is given in Table 1.

**Table 1: AO schedule and deadlines**

Date	Event
18 June 2021	Release of this AO
9 July 2021, 12:00 hrs (noon) CEST	Mandatory Letters of Intent due
31 August 2021, 12:00 hrs (noon) CEST	Proposals due
3 <sup>rd</sup> Quarter 2021	Appointment of Community Scientists

### 1.2 AO documentation package

[AO-D1] Ariel Science Management Plan; ESA/SPC(2020)30

[AO-D2] Ariel Definition Study Report; ESA/SCI(2020)1

## 1.3 Mission summary and CSs tasks

A mission summary is included in Section 2 of [AO-D1]. A more detailed description of the Ariel mission science objectives, science measurements and mission requirements, payload, observation strategy and management organisation can be found in [AO-D2].

The Ariel Science Management Plan (SMP, AO-D1) describes the approach that will be implemented to ensure the fulfilment of the scientific objectives of the Ariel mission and to optimise its scientific return, with special emphasis on payload procurement, science operations and data generation and management. The SMP also outlines the data generation approach and data rights, and how the scientific community can participate in the mission. It describes the tasks and responsibilities of Ariel mission stakeholders up to the data distribution and archiving, and the principles for the publication policy and public relations. The responsibilities and tasks of the CSs are described in Section 5.1 [AO-D1].

### 1.3.1 Complementary Science

Science observation time that cannot be scheduled for the exoplanetary core survey science will be used for time-unconstrained Complementary Science (e.g. Solar System, Stellar observations, sparsely sampled exoplanet phase curves, etc.). This time is anticipated to be between 5 and 10% of the available science time. The AST will be involved in the definition of priorities for complementary science themes.

The selection of observations for the Complementary Science will be through an open ESA-run call.

## 2 APPOINTMENT REQUIREMENTS AND CONDITIONS

This call is open to scientists based in ESA Member States. Scientists involved in the Ariel Mission Consortium (AMC) (programmatic, scientific, or technical) management or being responsible for hardware or software development and procurement activities are not eligible.

The CSs will join the Ariel Science Team (AST). Their main responsibility will be to advise ESA on the means to optimise the use of Ariel data by the general scientific community. This includes looking after the interests of the scientific community, including the interests of the scientific community that will be involved in the Ariel complementary science programmes (see Section 5.3 of [AO-D1]). The CSs are expected to provide support to the outreach activities of ESA. In particular, the CSs will advise ESA on:

- Communicating the mission capabilities to maximize the community involvement and the mission scientific return;
- Contributing to the definition of the user requirements for the mission archive;
- Optimising the capabilities for complementary science within the mission constraints;
- Participating to the preparation of the complementary science open calls (e.g. documentation, tools, support);
- Optimising the exploitation of the Ariel mission data by the general community.

The CSs, as part of their role, will interact with the AST members, the Project Scientist, and the Science Operations Centre.

Candidates will have to describe in the proposals their expertise relevant to the Ariel science objectives described in Chapter 2 of [AO-D2] and/or to other complementary science fields that Ariel could address. Candidates will also have to describe their proposed contribution to the responsibilities and tasks defined above, and the relevance of their contribution to the mission. Candidates will have to declare their time commitment to the AST activities and their willingness to take up specific and time-limited tasks as assigned by the AST. The applicants shall guarantee participation in the AST meetings (3 meetings per year are expected). The proposals should include the explicit endorsement and support from their institutes.

The successful candidates will be appointed by the ESA Director of Science. The CS appointment is *ad personam*. Each selected CS will be required to submit short annual reports of his/her Ariel related activities to ESA.

The CSs will be full members of the AST with the same rights and responsibilities as the other AST members, as described in [AO-D1]. In particular, the CSs will have the same publication rights and rules as the members of the AMC ([AO-D1], Section 7.1.2).

### **3 LETTER OF INTENT**

Prospective proposers must submit a mandatory Letter of Intent (LoI) by the deadline indicated in Table 1. Proposals not preceded by a corresponding LoI will not be considered. LoIs are limited in length to 2 A4 pages (minimum font size 11 pt), and their purpose is to allow ESA to perform an initial assessment of the expected range of proposals, and to prepare for the evaluation process.

Letters of intent must be structured to contain the following information:

- Name and contact information of proposer;
- Short description of the proposer's expertise and its relevance to Ariel.

## 4 CONTENTS OF THE PROPOSAL

Proposals submitted in response to the AO are limited in length to 9 A4 pages (minimum font size 11 pt), and must contain the following information:

- A cover letter stating the proposer's name and affiliation and explicitly mentioning the proposer's title, position, institute, address, telephone number and e-mail address (max. 1 page);
- A brief curriculum vitae also including the 10 most relevant publications (max. 2 pages);
- A description of the scientific expertise relevant to the Ariel science objectives or complementary science field (max. 2 pages);
- A description of the scientific areas of interest and a statement concerning the time availability (max. 3 pages);
- A Letter of Endorsement, signed by the proposer's Head of Institute, with the endorsement to the proposer's application and the explicit support with respect to the proposed activities and the availability of facilities and infrastructure, as needed by the proposer for the accomplishment of the CS tasks (max. 1 page).

## 5 EVALUATION CRITERIA

The following criteria will be used (in no particular order) in assessing and evaluating individual proposals:

- Candidate's competence and experience relative to the Ariel science objectives, or complementary science field;
- The level to which the proposal identifies specific competences and addresses the contribution to the tasks described in Section 2.
- Adequacy of the time that the candidate intends to devote to activities related to the CS role.
- Adequacy of resources available to the candidate to carry out activities related to the CS role.

## 6 LETTERS OF INTENT AND PROPOSAL SUBMISSION

Letters of Intent and Proposals shall be submitted electronically in PDF format (file size cannot exceed 5 MB) according to the instructions on the following webpage:

<http://cosmos.esa.int/web/ariel-cs-2021>

and according to the deadlines listed in Table 1.

Proposers will receive confirmation upon successful receipt of their Letters of Intent and of their Proposals.

Further queries should be addressed to:

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## 7 ACRONYMS

AMC	Ariel Mission Consortium
AST	Ariel Science Team
AO	Announcement of Opportunity
CEST	Central European Summer Time
CS	Community Scientist
ESA	European Space Agency
LoI	Letter of Intent
SMP	Science Management Plan