



DOCUMENT

Announcement of Opportunity for Interdisciplinary Scientists and Guest Investigators in the ExoMars 2022 mission

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1 INTRODUCTION

1.1 Purpose and scope

The purpose of this Announcement of Opportunity (AO) is to solicit the participation of the scientific community as Interdisciplinary Scientists (IDS) and Guest Investigators (GI) in the ExoMars 2022 mission.

Establishing whether life ever existed, or is still active on Mars today, is one of the outstanding scientific questions of our time. The ExoMars programme seeks to address this important scientific goal and to demonstrate key flight and *in situ* enabling technologies underpinning European and Russian ambitions for future planetary exploration missions. The ExoMars Programme is a cooperative undertaking between the European Space Agency (ESA) and the Russian federal space agency, Roscosmos.

The ExoMars Programme consists of two missions. The first was launched on 14 March 2016 and arrived at Mars on 19 October 2016. It deployed two elements: 1) the Trace Gas Orbiter (TGO), to study atmospheric trace gases and subsurface water; and 2) the European Entry, Descent, and Landing (EDL) demonstrator, named Schiaparelli, to prove technologies for controlled landing and perform measurements on the martian surface. Despite the fact that the last phase of the EDL sequence was not successful, the lander relayed valuable information during descent, allowing to assess its behaviour. In addition, TGO also provides data communication services for rovers and surface probes.

The second ExoMars mission's launch is planned for the window from 20 September to 1 October 2022. The mission would deliver in June 2023 two science elements to the martian surface: 1) a lander instrumented to conduct environmental and geophysics measurements, and 2) a rover tasked with conducting a search for past or present signs of life.

The rover – named after Rosalind Franklin – will use a drill with a maximum reach of 2 m to collect samples from outcrops and the subsurface. Such depth has never been probed on Mars before. ExoMars' sampling capability will provide the best chance yet to access and analyse sedimentary deposits, possibly containing molecular biosignatures, that may have been shielded from the ravages of ionizing radiation prevailing at the surface.

ESA and Roscosmos aim to appoint up to five IDSs and up to eight GIs for the ExoMars 2022 mission.

It is anticipated that two IDS positions will be devoted to a rover/surface platform science liaison function (one at the Rover Operations Control Centre, ROCC, and one at IKI). These IDSs will focus on performing cross-element science, also ensuring the provision of data products derived from one element that are necessary or useful to operate or conduct science with the other.

The IDSs and the GIs will be appointed until the end of the nominal mission (lasting approximately 211 sols); the appointment could be renewed in case of mission extension.



ESA will not fund the activities of the IDSs or the GIs (travel, etc.) 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
3 December 2020	Release of this AO
12 January 2021 at noon (CET)	Mandatory Letter of Intent due
15 February 2021 at noon (CET)	Proposals due
4 th quarter 2021	Appointment of IDSs and GIs

1.2 Background Documentation and information

[AO-D1] ExoMars Science Management Plan; ESA/SPC(2014)7 / ESA/PB-HME(2014)2

[AO-D2] ExoMars 2020 Mission Summary

1.3 Mission summary and IDS and GI tasks

A mission summary is included in Section 2 of [AO-D1], and a more detailed description of the different elements and instruments is given in [AO-D2].

The ExoMars Science Management Plan (SMP) [AO-D1] defines the top-level scientific management of the mission, and describes the respective roles of the parties involved, the data products, the data products delivery scheme, and the data rights. It also defines modes of participation of the scientific community in the ExoMars programme, including IDSs and GIs.

Proposers are strongly encouraged to contact and discuss their planned investigations with the PIs of the instrument(s) they plan to use data from.

The added value of IDSs is that their efforts are devoted to scientific cross-fertilisation. IDSs are expected to take part in the analysis of data from different instruments on board one or both mission elements with the goal to pursue interdisciplinary objectives not already covered by the scientific objectives of the selected instruments. The scientific objectives associated with the IDSs' tasks will not compete with the selected instruments' scientific objectives.

The IDSs, as part of their role, will have to participate in the ExoMars Science Working Team (ESWT) activities, including attending the regular ESWT meetings. Scientists applying for an IDS position submit proposals as individuals, possibly supported by a team.

Guest Investigators (GI) are individual scientists wishing to make use of the data collected by one or more instruments, spacecraft sensors or tracking data, in combination with results from other missions, ground-based observations, laboratory measurements, or numerical models. The purpose of GIs is to spread the use of, and complement, ExoMars data more widely in the planetary science community. The scientific objectives associated with the GIs' tasks will not compete with the selected instruments' scientific objectives.



2 APPOINTMENT REQUIREMENTS AND CONDITIONS

This call is open to scientists in institutions based in ESA Member States, Canada, and Russia. However, specific expertise not present in ESA Member States, Canada and Russia could be covered by scientists from other countries. Team members participating in a team supporting an IDS can be from any country. While Principal Investigators (PIs) and Co-PIs of the ExoMars instrument teams are excluded from this call, Co-Investigators (Co-Is) are eligible for IDS and GI positions.

The proposals submitted in response to this call must demonstrate the candidate's expertise in one or more of the ExoMars 2022 core science fields [AO-D1, AO-D2] and detail their expected contribution to the mission. The instrument data sets needed to carry out their research programme must be indicated. The proposals must also include an explicit mention of the time commitment to the proposed activities (the expected commitment should be not less than 0.2 FTE) and the endorsement and support from the head of the applicant's institution and/or the respective funding agency to their application. IDS applicants shall guarantee participation in the SWT meetings (on average two meetings per year are expected) and in any other activity associated to the IDS appointment.

The IDS and GI appointment is *ad personam*.

Each selected IDS and GI will be required to submit short annual reports of their ExoMars related activities to ESA and IKI/Roscosmos.

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 two A4 pages (minimum font size 11 pt). The purpose of the LoIs is to allow ESA and IKI/Roscosmos to prepare for the evaluation process.

LoIs must be structured to contain the following information:

- Proposal title (with clear indication if the proposal is for an IDS or GI position);
- Name and contact information of proposer;
- Summary description of the scientific objectives;

It is understood that the proposal's content may evolve between submission of the LoI and submission of the actual proposal.

4 CONTENTS OF THE PROPOSAL

Proposals submitted in response to the AO are limited in length to 14 A4 pages (minimum font size 11 pt), and must contain the following information:



- A cover page stating the proposal title (indicating clearly if the proposal is for an IDS or a GI position), 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 ExoMars 2022 science objectives described in [AO-D1] (max. 2 pages).
- A description of the proposed scientific investigation and a statement concerning the time availability (max. 8 pages).
- A Letter of Endorsement, signed by the proposer's Head of Institute or Lead Funding Agency, endorsing the proposer's application, stating explicitly the support to the proposed activities, and confirming the availability of facilities and infrastructure, as needed by the proposer to accomplish the IDS/GI tasks (max. 1 page).

It is strongly advised that proposers consult the PIs of the instruments whose data they require to perform their IDS/GI task, seek the PIs endorsement, and summarise this in their proposal (Annex - max. 1 page).

5 EVALUATION CRITERIA

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

- Candidate's competence and experience relative to the ExoMars 2022 mission's science objectives.
- The proposal's scientific value, whether the proposal identifies specific competences useful for the mission, and their relevance for the exploitation of the ExoMars 2022 data;
- Adequacy of the time that the candidate intends to devote to activities related to the IDS or GI role;
- Adequacy of resources available to the candidate to carry out activities related to the IDS or GI role.

6 LETTERS OF INTENT AND PROPOSALS SUBMISSION

Letters of Intent and Proposals must be submitted electronically in PDF format (file size cannot exceed 10 MB) via the interface available at

<https://www.cosmos.esa.int/web/call-for-exomars-2022>

according to the deadlines listed in Table 1.

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



Further queries should be addressed to:

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ACRONYMS

AO	Announcement of Opportunity
CET	Central European Time
Co-I	Co-Investigator
Co-PI	Co-Principal Investigator
ESA	European Space Agency
FTE	Full Time Equivalent
GI	Guest Investigator
IDS	Interdisciplinary Scientist
LoI	Letter of Intent
MEX	Mars Express
PI	Principal Investigator
SMP	Science Management Plan
SPC	Science Programme Committee
SWT	Science Working Team