

# **JOINT CALL FOR A MISSION FROM THE CHINESE ACADEMY OF SCIENCES (CAS) AND THE EUROPEAN SPACE AGENCY (ESA)**

The European Space Agency's (ESA) Directorate of Science and Robotic Exploration (ESA-SRE) and the Chinese Academy of Sciences (CAS) have agreed to jointly pursue a scientific space mission, to be implemented by the ESA Science Programme and the Chinese National Space Science Centre (NSSC) under the CAS.

The present Joint Call for Missions solicits proposals for such mission from the scientific communities in the ESA Member States and in China.

## **PURPOSE AND GOALS**

The goal of the present Joint Call is to define a scientific space mission to be implemented by ESA and CAS as a cooperative endeavour between the European and Chinese scientific communities. The mission selected as an outcome of the present Joint Call will follow a collaborative approach through all the phases: study, definition, implementation, operations and scientific exploitation. To promote the interaction between Chinese and European scientists, two workshops were held, in Chengdu and Copenhagen, in February and September 2014. Following on from the workshops, ESA and CAS issued the pre-announcement of the Call on 28 November 2014.

Proposals submitted in response to the present Joint Call have to satisfy a number of criteria. These include:

- The proposed mission has to aim at a launch readiness in 2021.
- Proposals have to be co-signed by two Co-PIs, one affiliated with an ESA Member State institution, the other with a Chinese institution;
- Proposals have to explicitly demonstrate compliance with the technical and programmatic boundary conditions defined by ESA and NSSC (detailed definition of these boundary conditions is provided as an Annex to the present Joint Call);
- Data policy will have to comply with ESA and NSSC rules; this implies that all data will have to be public after a one year proprietary period during which the data are the exclusive

property of the Co-PIs for the purpose of scientific exploitation.

- All stages of the mission's scientific preparation and exploitation have to be carried out by joint teams. Data rights will be in all cases shared;
- Payload has to be jointly provided by European and Chinese teams.

Submissions of proposals are accepted exclusively in electronic form through the interfaces at <http://sci.esa.int/2015-esa-cas-joint-call> or <http://jm.nssc.ac.cn>.

The submission deadline for all proposals submitted in response to the present Joint Call is 16 March 2015, 12:00 (CET)/19:00 (Beijing Time).

## **OUTLINE OF PROPOSALS**

A proposal outline is attached to the present Joint Call. All proposals must be written in English.

The page limit for proposals submitted in response to the present Joint Call is 50 A4 pages, with a minimum font size of 11 pt, and a maximum file size of 70 Mbytes. Proposals with file size in excess of the limit indicated above will be rejected by the submission system.

## **SELECTION OF PROPOSALS**

Proposals submitted in response to the present Joint Call will first undergo a screening for technical and programmatic feasibility, jointly performed by ESA and CAS. This screening will examine the proposal's technical feasibility in the light of the constraints stated in the Call and in the relative Annex, as well as the programmatic feasibility, including e.g. the achievability of the proposed schedule, the possibility for the mission to be implemented within the budget constraints, and the availability of funding for the payload elements.

Proposals that are jointly deemed feasible by ESA and CAS will then be subject to a scientific peer review, carried out by a joint, co-chaired committee of European-affiliated and Chinese-affiliated scientists. The peer review committee will provide its advise to ESA and CAS, who will take the final decision about which proposal or proposals to select for a study phase.

## **BOUNDARY CONDITIONS FOR THE MISSIONS**

To qualify for the present Joint Call in terms of feasibility (and thus to successfully pass the technical and programmatic screening mentioned above) proposals have to respect the constraints mentioned here.

The cost limit for all ESA-provided mission elements is 53 M€ (2015 e.c. plus a possible additional allowance to cater with, e.g., ITAR compliance), with a comparable sized contribution from CAS.

As is usual for ESA science missions, ESA Member States are assumed to provide (part of) the European contribution to the payload elements. Letters of Endorsement from the national funding agencies are required with the proposal. These letters should state the readiness of the national funding agency to fund the study phase, should the proposal be selected, and to pursue funding for the implementation phase, should the relative mission be adopted for implementation. Letters of Endorsement will have to be submitted by the same deadline as the proposal itself, by email to the addresses [ESA-CAS-Call@cosmos.esa.int](mailto:ESA-CAS-Call@cosmos.esa.int) and [jointmission@nssc.ac.cn](mailto:jointmission@nssc.ac.cn).

The mission's space segment will have to be free from ITAR restrictions. For what concerns the payload, scientists are advised to consult with ESA and CAS in advance of the proposal's submission for advice on the best approach to ensure ITAR compliance and shared provision of the payload.

The actual share of responsibilities between ESA and CAS will be discussed and agreed among the agencies following the proposal selection. Proposers can suggest an implementation schemes; the final scheme will in any case be determined by ESA and CAS, and will include the actual mission share of responsibility (e.g. provision of the S/C, the launcher, the operations, etc.) determined by both agencies.

The mission's science objectives can be in astronomy, solar system science or fundamental physics, with no a priori restriction on the science areas covered, with the exception of missions to the Moon and Mars, which are, for both Agencies, covered under different programmes.

The proposed mission must be able to achieve a launch readiness in 2021. Compliance with the constraints stated here will be strictly enforced during the evaluation of the proposals.

The technical boundary conditions for the Call are as follows:

- Spacecraft launch mass < 300 kg;
- Payload mass < 60 kg;
- Payload power < 65 W;
- Payload technology readiness: TRL  $\geq$  6 (ISO scale) for all payload elements;
- Platform technology readiness: TRL  $\geq$  7 (ISO scale) for platform equipment;
- Development schedule: < 4 years;
- Lifetime in orbit: 2-3 years;
- Potential launchers: Both European launchers (Soyuz as a passenger or Vega as a passenger or shared launch) and Chinese launchers (Long March 2C or 2D, possibly as a passenger) can be used;
- Orbit: No a priori limitation, as long as it is compatible with the other constraints (launchers, cost, schedule);
- Operations will be jointly provided by ESA and CAS, with a detailed share of responsibilities to be decided later by the two Agencies.
- Additional requirements: compatibility with the applicable debris regulations; the space segment will have to be free from ITAR restrictions.

## PRELIMINARY TIMELINE AND DEADLINES

|  |                 |
|--|-----------------|
| Issue of the joint Call for Missions                             | 19 January 2015 |
| Deadline for the submission of proposals in response to the Call | 16 March 2015   |
| <b>Indicative dates for following steps</b>                      |                 |
| Scientific peer review   | April 2015      |
| Selection of proposal(s) for study                               | Late 2015       |
| Study phase  | 2 years         |
| Implementation phase   | 4 years         |
| Launch   | 2021            |

## CONTACTS

Interested scientists can contact Luigi Colangeli (Luigi.Colangeli@esa.int) and Lilin Sun (sunll@nssc.ac.cn) for further information.