

**United Nations/Keldysh Institute of Applied Mathematics, Russian Academy of Sciences,  
Cooperation Programme on Telescope Provision**

**Announcement of Opportunity**

**27 January 2021**

- 1. Thematic Area:** Access to Space for All
- 2. Title:** United Nations/Keldysh Institute of Applied Mathematics Cooperation Programme on Telescope Provision
- 3. Implementing Organizations:** United Nations Office for Outer Space Affairs (OOSA) and Keldysh Institute of Applied Mathematics, the Russian Academy of Sciences (KIAM RAS), which realizes the International Scientific Optical Network (ISON)
- 4. Deadline for Applications:** Fully completed application forms must be submitted to the United Nations Office for Outer Space Affairs **by 1 May at 23:59 CET**. Applicants will be notified of the outcome of their application by 1 July 2021.
- 5. Number of Opportunities:** 2 (one single organization cannot get two telescopes under this opportunity)
- 6. Language of the Programme:** English
- 7. Brief Programme Description**

The United Nations Office for Outer Space Affairs (OOSA) advances international cooperation and capacity-building in the area of space technology and its applications in the world, especially in developing countries, within the framework of the United Nations Programme on Space Applications.

This opportunity is part of the “Access to Space for All Initiative”. This initiative was created out of the need to support the growth of small research groups in universities and research establishments in the field of space technology, space data and space science.

Astronomy and basic space science have advanced rapidly in recent years. At the same time, the needs for additional efforts became obvious as countries strived to benefit from rapid progress in space science and technology. Although new development models have been applied with different levels of success, a large number of countries around the world continue to lack the human, technical, and financial resources to conduct activities in this field, such as operating a small astronomical telescope facility in a university environment and making use of such facilities for research and education.

To tackle this issue, both OOSA and KIAM RAS are pleased to announce a joint cooperation programme under the International Scientific Optical Network (ISON), for the provision of small telescopes to academic and research institutions in developing countries. In addition, this opportunity also offers assistance for the establishment of the telescope-related facilities and training of specialists on the use of the telescope.

In line with the mission and objectives of OOSA's "Access to Space for All" Initiative, and KIAM RAS's demonstrated commitment to promoting space science and technology in developing countries, this cooperation is intended to increase countries capabilities for astronomy and space data analysis. In this regard, this programme will contribute to the UN Sustainable Development Goals (SDGs), especially Goal 4 "Quality Education" and Goal 9 "Industry, Innovation, and Infrastructure."

By providing this opportunity open to educational or research institutions from developing countries which are United Nations Member States, OOSA and KIAM RAS will both raise awareness of the role that space science and astronomy play in promoting sustainable development while contributing to create indigenous capability.

## **8. Scope of Opportunity**

KIAM RAS coordinates the ISON project that includes tens of optical facilities worldwide, often through cooperation between KIAM RAS and scientific and academic organisations. ISON mainly focuses on collection observational data on space debris and near-Earth objects. These data used by KIAM RAS for space situational awareness and precise determination of near-Earth object orbits. Facilities of ISON usually participate in observation campaigns of KIAM RAS devoted to various types of objects and implying different observing strategies. Organisations that participate in ISON may have access to final results based on observations carried out using their facilities as well as suggest their targets for observations.

Through this Announcement of Opportunity, OOSA and KIAM RAS undertake to provide a small wide field-of-view telescope, including an optical tube having an aperture of about 20 cm, telescope mount, CCD/CMOS camera (if necessary), focuser (if necessary), and training of experts to operate it.

KIAM RAS undertakes to provide its workers to assist in installation and commissioning the telescope in-situ, and for appropriate training for its operation (presumably, in the course of two visits).

KIAM RAS undertakes to provide all possible assistance related to the telescope operation and primary data processing related to KIAM RAS (ISON) observation campaigns.

## 9. Programme Schedule and Milestones

### (A) Programme Schedule

Application Submission	1 May 2021
Selection and notification of shortlisted applicants	1 May 2021
Additional documentation request	1 July 2021
Review and signature of an agreement with KIAM RAS	24 October 2021
Announcement of the winner	24 October 2021
Preparation period including technical coordination	Approximately 6—18 months (subject to the progress towards deployment)
Deployment and training of experts	To be determined and arranged by KIAM RAS taking into account the progress of the preparation for the deployment
Report to be submitted to OOSA	Every 6 months after the deployment

It must be noted that the deployment schedule may change due to deployment preparatory activities or for any other reasons.

### (B) Programme Milestones

1. Selection of short-listed applicants.
2. If necessary, request for additional documentation.
3. If necessary, inspection of the proposed hosting site for the telescope.
4. Review and signing of an agreement between KIAM RAS and the Selected Entity.
5. Announcement of the winners.
6. If necessary, preparatory work at the site for the telescope installation.
7. Installation and commissioning of the telescope.
8. Training of the persons in charge of the telescope operation.
9. Routine telescope operation:
  - participation in observation campaigns of KIAM RAS (ISON);
  - provision of data obtained using the telescope to the Open Universe Initiative database;
  - outreach activities;
  - use of data obtained using the telescope in scientific articles.
10. Report every six months.

## 10. Requirements for Participation

## **(A) Eligibility Criteria**

This Opportunity is open to entities located in developing countries that are Member States of the United Nations. The following are eligible to apply:

- Heads of eligible institutions, namely, research organizations, higher education institutions and universities, regional or international organizations in developing countries<sup>1</sup>.

Entities applying for this are responsible for the preparation of the site where the telescope will be hosted, as well as its operations once installed.

To be eligible for this Opportunity, in addition to the above, the following criteria will be checked:

- Completeness of the application form (all mandatory fields filled in)
- Implementation feasibility
- Section 1.3 completed (signed and stamped)
- Description of all the costs to implement activities described in the application form shall be included in the budget section of the application form
- Conditions set in Paragraph 10 (Section B, Section C) are fulfilled.

## **(B) Selection Criteria**

The Selection Board consists of members nominated by OOSA and will be supported by KIAM RAS and will review the incoming applications according to the following criteria:

- Completeness of application form.
- Completeness of the outreach and communications plan.
- Suitability of the long-term plan for maintaining the facility and the operations.
- Adequacy of the facility where the telescope will be hosted. Aspects such as light pollution, average number of clear night hours per year, station visibility diagram (azimuth-elevation mask), available infrastructure (e.g. road, electricity supply, connectivity...), etc, will be considered. Sites having significantly less than 1500 clear night hours per year are not eligible for the selection process. Sites having significant light pollution (more than 4 on the Bortle scale or 20.4 mag/arcsec<sup>2</sup>) are not eligible for the selection process.
- Envisaged number of nights per year when the telescope will be in operation (in view of presence of an operator of the telescope, etc.). Applications implying less than 100 observation nights per year are not eligible for the selection process.
- Science objectives to be achieved.

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<sup>1</sup>The list of developed countries, economies in transition and developing countries used for this opportunity can be found in the statistical annex (tables A.1, A.2 and A.3) of the "[World Economic Situation and Prospects 2020](#)" report

- Inclusive team.
- Compliance with the Programme Schedule (Paragraph 9, Section A), including the deployment schedule.
- The total budget available for the Programme implementation: preparatory work at the site, maintaining and operation of the telescope, maintaining the telescope pavilion, travel expenses, etc.
- Availability of equipment that consistent with items in **the list of the equipment compliant with ISON**.

### **(C) Technical Requirements**

The Selected Entity at the time of the telescope installation and during its operation shall provide:

- Telescope shelter (dome, pavilion with sliding room, etc.) of not less than the following dimensions: 2x2x2 meters. Telescope shelter has to be equipped with a telescope pier arranged in such a way as to provide maximum visibility for the telescope.
- Control room for the telescope operation and data processing.
- Both telescope shelter and control room need a stable broadband internet connection (at least 1 Mbps) and a reliable power supply (220/110V 5kW·h).

## **11. Roles and Responsibilities**

1. The Selected Entity will conduct the following activities:
  - a. Provide a timeline of preparatory work at the site for the telescope installation.
  - b. Select a team of persons responsible for the telescope operation. The team will receive training from KIAM RAS.
  - c. Maintain the equipment and facilities related to the telescope and carry out regular observations.
  - d. Allocate at least 50% observing time for observation campaigns of KIAM RAS (ISON).
  - e. Submit a report on the executed activities (Operations Report) to OOSA every six months.
  - f. Submit a report on the progress in commissioning of the telescope and training of staff members to OOSA (Deployment and Training Report).
  - g. Provide the data to the Open Universe Nodes.
  - h. Cooperate with the public relations and promotion activities of OOSA and KIAM RAS including responding to press inquiries about the activities of the Selected Entity.

- i. Use, where possible, obtained observing data in scientific papers.
2. Please note that any cost associated with the activities above, including employment costs, travel expenses, maintenance and operations of the facility and the telescope and any other fee derived from the operations of the telescope or related activities shall be borne by the Selected Entity.
3. KIAM RAS shall provide the telescope to the Selected Entity, including an optical tube, telescope mount, CCD/CMOS camera (if necessary), focuser (if necessary). The provision of the telescope will be implemented based on a signed agreement between KIAM RAS and Selected Entity for a period of 5 years with the possibility of further extension. The movement of the telescope and all related equipment to the country of the Selected Entity can be carried out based on temporary admission only (import regulations implying returning goods to the origin country after a certain amount of time).
4. KIAM RAS shall support the Selected Entity for installing and commissioning the telescope in-situ, and for appropriate training for its operation. KIAM RAS staff will be allocated to provide this support.
5. KIAM RAS shall provide and install the software needed for proper telescope operation and, images processing necessary to join KIAM RAS (ISON) observation campaigns.
6. KIAM RAS shall provide to the Selected Entity ephemerides and observing schedules needed to join KIAM RAS (ISON) observation campaigns.
7. KIAM RAS shall perform analyses of data obtained from the Selected Entity related to KIAM RAS (ISON) observation campaigns.

OOSA may request outreach material (e.g. pictures, updates), with the aim of raising awareness of the project, during the course of the project. All reports can be published in the OOSA website or used by OOSA for outreach, by submitting an application the applying entity is agreeing to this term.

The Selected Entity has included in their application whether or not, they are willing to allow OOSA to publish the application documentation in the OOSA website for the purpose of capacity-building and awareness-raising. The aim of publishing this information is to further extend the knowledge of deployment of telescopes to other institutions, thus increasing the capacity-building potential of the application.

## **12. Terms and Conditions:**

By submitting a completed Application, the applicant agrees to the following:

- Fulfill the requirements described in Section 10.
- Fulfill the requirements described in Section 10 (Part C) at the time of the telescope installation and during its operation.
- Undertake the Roles and Responsibilities described in Section 11.

### 13. Application Submission

The **fully completed application documents of the letter of endorsement from the head of the entity** (Document 1) and **KIAM RAS Telescope Application** (Document 2) must be submitted to OOSA by 1 May 2021, 23:59 CET by email to the following address:

unoosa@un.org

In the email, applying entities are requested to attach the application forms as a pdf-file (.pdf). **Text in the submitted file shall be selectable except for Section 1.3 of the application form, Section 1.3 should be submitted as a scan of the original.** Please note that the OOSA email account only accepts emails with a size limit of up to 10 Mbytes (please split your documentation if necessary). Submission of the complete application form is mandatory.

After receipt, OOSA, with the assistance of KIAM RAS, will proceed to evaluate each application. At OOSA's sole discretion, additional information may be requested from applicants, if necessary, to assist in the evaluation of the application. The selection process will be carried out in two stages, a set of entities will be shortlisted. Additional documentation may be requested from the shortlisted entities in order to conduct a further evaluation. This evaluation, if needed, is a pre-requisite aiming at the signature of the agreement on scientific and technical cooperation with KIAM RAS. Once the Selected Entity has signed the agreement with KIAM RAS, the selection results will be made public jointly by OOSA and KIAM RAS. All awards are final, are made at the sole discretion of OOSA, and not subject to challenge or review.

While OOSA solicits applications, OOSA will establish a Selection Board to review the received applications: The Selection Board will be chaired by the Director of OOSA and will consist of up to five (5) members selected by the Chair upon the recommendation of OOSA and KIAM RAS.

The Selection Board will review and evaluate all applications based on predefined technical criteria (Paragraph 10, Section B) agreed to between the OOSA and KIAM RAS. The Chair will select two applications.

### 14. Additional Information

The latest information on this opportunity is available on the website of OOSA at:  
<https://www.unoosa.org/oosa/en/ourwork/psa/bssi/isonscope.html>

For further information regarding this opportunity and the application process, please contact  
[unoosa-access-to-space@un.org](mailto:unoosa-access-to-space@un.org)