

Frequently Asked Questions (version 25 March 2021)

If you have a question that is not answered here, please contact unoosa-access-to-space@un.org

Q: What is the collaboration between UNOOSA and KIAM about?

A: The United Nations Office for Outer Space Affairs (UNOOSA) and the [Keldysh Institute of Applied Mathematics](#) (KIAM) (Russian Academy of Sciences), signed a Memorandum of Understanding (MoU) on 14 June 2019.

The overall objective of this collaboration is to assist involved developing countries with the development of research and education programmes in astronomy.

Q: What will be the opportunity about?

A: The objective of this opportunity is to provide small telescopes to selected academic and research institutions in developing countries and training to operate them free of charge. It is a great opportunity for developing countries to start in the exciting field of astronomy supported by the experience of the [Keldysh Institute of Applied Mathematics](#).

Applicants are expected to make the link between their application and the [2030 Agenda for Sustainable Development](#) and its [17 Sustainable Development Goals](#) and are also expected to contribute to broaden space activities and applications and to foster capacity-building in space science and technology.

Q: What are the benefits of this opportunity?

A: International cooperation has always been at the heart of big astronomical projects. Observations that requires covering the complete sky stimulate large international cooperation and are fundamental for many scientific fields.

The selected institutions will become a part of the International Scientific Optical Network (ISON), an open international project consisting telescopes at more than 20 observatories in different countries. In addition, KIAM staff members will provide training on the use of the telescopes provided to obtain the best research results. The selected institutions will also take part in ISON observation campaigns and research papers based on their data. The institutions can take advantage up to 50 percent of telescope observing time for their own research projects.

Q: How often will the opportunity be opened in a year?

A: This is the first opportunity under this cooperation. Depending on the outcomes of this opportunity, UNOOSA and KIAM will discuss the next rounds. However, we hope to provide more opportunities.

Q: Should the participant take care of all the necessary regulatory clearances?

A: Applicants need to ensure compliance with all applicable domestic and/or international regulations.

Q: What does the applicant have to provide?

A: The applicant has to provide an infrastructure to the telescope installation or the firm commitment to provide this infrastructure on the date of the telescope installation.

Q: Where is the list of eligible countries?

A: This Opportunity is open to entities located in developing countries that are Member States of the United Nations. 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. (https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/WESP2020_FullReport_web.pdf)

Q: Is it possible for independent applicants (not affiliated to an institution) to apply and be selected?

A: No, this opportunity is not open to individuals. It is only open to entities located in developing countries that are the Member States of the United Nations. As required, applicants must provide a certificate (Letter of endorsement) from the head of the entity.

Q: Could an NGO apply or apply associated with the university?

A: Yes, according to the Announcement of opportunity, research organizations, higher education institutions and universities, regional or international organizations in developing countries are eligible to apply.

Q: Does applying/being awarded this opportunity prevent entities from applying to other opportunities?

A: No, applying or being awarded this opportunity will not prevent entities from applying to other UNOOSA activities.

Q: May I know what type of telescope will be provided?

A: The telescope is a small wide field-of-view telescope (about 3 x 3 degrees), including an optical tube having an aperture of about 20 cm, telescope mount, CCD/CMOS camera (if necessary), focuser (if necessary).

Q: How many telescopes are going to be distributed?

A: In the first round of opportunity, two telescopes will be distributed.

Q: What is the list of equipment compatible with ISON for?

A: That is the list of equipment that may be used jointly with the equipment provided under the opportunity or instead of some components of the equipment provided under the opportunity. The presence of the equipment from this list will be taken into account during the evaluation of applications. Applicants are expected to consider the preparation of these components (including procurement fees) in the application phase, but it is not necessary to purchase them before being announced as winners.

Q: What is the value of the telescope which is going to be distributed?

A: The value of the telescope varies between different countries. Optical tube of the telescope and some other its components custom-made in Russia. However, the value of the training and support from KIAM are hard to quantify and also the impact of being part of a renowned astronomical scientific network as ISON (International Scientific Optical Network). Winners will benefit from the opportunity much more than the just monetary value of the telescope.

Q: Who should fill in the application form?

A: The application form has to be signed by both Project coordinator and the head of the applying organization, but the whole form contains many technical aspects, so it may require technical staff to fill in the application form.

Q: Do you take into consideration in the application the meteorological conditions of the location that will welcome the telescope?

A: Yes, the meteorological conditions will be considered, detailed information see AO-10(B), but only extremely bad conditions will lead to ineligibility, such as very few clear hours per year or very severe light pollution, for instance, located in the middle of the big city. Applicants are required to provide the weather condition within application form (See AF-5.1).

Q: How could an applicant determine the light pollution of the targeting observation area?

A: Usually, a long-term study of astro-climate with narrowband filters precedes building a large observatory. However, you can use amateur pocket devices or check light pollution maps on websites for a rough estimate.

Q: Is there a maximum limit on the elevation angle of the objects on horizon?

A: The limit could come from many aspects, such as obstacles in specific direction. There are no stringent limits on the maximum height of these objects but overall visibility for the place where telescope proposed to install will be taken into account.

Applicants will provide an azimuth elevation diagram to evaluate the presence of obstacles.

Q: How can applicants apply with a limited information of the telescope candidate site?

A: Applicants are expected to provide the most reliable information available for the site. For instance, if there are no weather archive data for the envisaged site, an applicant can specify data of the nearby weather station or data of the world weather information service (<https://worldweather.wmo.int/en/home.html>). In case you specify some information for the site that you think not reliable or in case of the lack of data, please explain the reason in the application form.

Q: How do you determine the azimuth diagram for the site?

A: There are several ways to do that. Everything depends on the instruments available to you.

1. The simplest way is using a theodolite in daytime. You can directly measure both azimuth and height angles for the position when threads intersection visible in theodolite coincides with the boundaries of obstacles. To that end, you may ask your land surveying company or service.
2. For another method, you can use your own telescope as a theodolite. Aim it daytime (be careful, avoid the direction towards the Sun) or during the night to the boundaries of obstacles and write down two angles (right ascension and declination or azimuth and height depending on the construction of your mount). You can find these angles directly on the mount, if there is no azimuth scale on your mount, you may try to use a compass to estimate azimuth. It is important to correctly put an equatorial mount towards the North or the South (in the southern hemisphere), for

alt-azimuth mounts necessary to align azimuth circle with the actual direction to the North using a compass. Using known right ascension and declination of the telescope, latitude and longitude, and sidereal time for your site (Local Sidereal Time) you can calculate azimuth and zenith angle (or height) of the direction where are you pointing the telescope. To ease this process, you can find a star with coordinates (right ascension and declination) close to the position of your telescope in amateur sky atlas programs, usually they also provide information of azimuth and height of a star (be sure that geographical coordinates of your site and time are correct).

3. We also would like to propose one more straightforward, rough but acceptable method. You could draw an azimuth circle using a compass, to estimate heights of obstacles boundaries you may use a laser in the dark moving it along a protractor that is perpendicular to your azimuth circle. Position of a protractor will give you azimuth, position of a laser, which light crosses tips of obstacles, their heights.

It is worth to note that for this estimation there is no practical need to know height angle with an accuracy of better than 2 degrees and an azimuth angle with an accuracy of better than 5 degrees.

Q: Do the applicants need to build infrastructure for the telescope before application?

A: No, applicants do not have to build the infrastructure before the application, however, they will have to ensure that the infrastructure needed will be built once selected as a winner.

Q: Does the telescope need to be installed or is it portable?

A: Yes, the telescope has to be installed in the specific location, which will be determined in the agreement on scientific and technical cooperation between Keldysh Institute of Applied Mathematics and the winner.

Q: Is there a remote control with the telescope? Is it portable for outreach activities?

A: At this stage, the telescope cannot be operated fully remotely. You can use observing plans for automated observations during the night or remotely control the telescope using a connection to the telescope control computer via remote desktop software. However, even such types of operation would likely require manual intervention before and after observing night. Also, nearby should be a technician to resolve possible emergencies.

Q: Can the telescope be programmed to auto locate celestial bodies of interest?

A: Yes, it is possible to point the telescope to celestial bodies if we know their approximate position, for example, asteroids or space debris during ISON observation campaigns. However, we would like to mention that the telescope has a wide field of view and it could be more efficient in sky survey mode for some tasks like observing space debris in the geostationary region.

Q: Does this telescope need to be always connected to the Internet?

A: It's not necessary but desirable to have an Internet access during the observation.

Q: Once selected, can we access to other telescopes' data?

A: Yes, it is possible in some cases, details need to be discussed and reflected in the agreement between KIAM and winner.

Q: For the type of project to be proposed, does it have to be related to surveillance of space debris or does it have to be a short-term or a long-term project? Can it be monitoring objects in a specific group of objects like binary stars, exoplanets, variable stars, or transient objects?

A: ISON mainly focuses on collection observational data on space debris and near-Earth objects. These data used by KIAM for space situational awareness and precise determination of near-Earth object orbits. Nevertheless, besides observing campaigns related to ISON, the winner can get up to 50% of observation time for its own research, which can be related to other interests.

Q: What is the limiting magnitude of the telescope? Is the telescope available for observing ejections of the Sun? Is the telescope available for observing the ionosphere?

A: For this type of telescope, the limiting photographic magnitude is about 16. For daytime observation, the telescope may require some special equipment, which is not provided in this opportunity, so the telescope is not recommended to implement for daytime observation. For the ionosphere observation, it may require a bigger field of view, so the telescope is not appropriate to observe the ionosphere.

Q: What is the power requirement for the telescope?

A: The telescope, camera, and other equipment will require around 700 watts while running, but we suggest having at least 5 kilowatts power capability in-situ to be able to perform construction and repair works.

Q: Is the telescope in this opportunity a combination of radio waves and optical observation?

A: No, it is an optical telescope.

Q: Can closer guidance, advice, and support in the application process be provided?

A: UNOOSA and KIAM hope to be able to provide a detailed ISONscope brochure or guidance in the future. At this stage, we will upload and update any necessary and reference information on our website, and we are happy to support potential applicants to a limited extent within our staffing resources. Please send us your questions to unoosa-access-space@un.org.

Q: Will the winner get further technical assistance related to the telescope as well in this programme? What are the conditions for the provision of the telescope and the training, in particular the duration of the training, the location and the sponsorship if available? What is the number of people who can be trained? When is the training coming up?

A: Winners are encouraged to consult at any time with KIAM about technical issues. For training purposes, staff members of KIAM will visit the winners' countries at least twice, around two weeks for each visit. There will be no direct financial transactions between the winner and KIAM for the support. There is no restriction on the number of trainees, but it should be within a reasonable number and in discussion with KIAM.

Q: Do you need feedback from the winners once I have the telescope?

A: Yes, according to section 11 of the Announcement of Opportunity, winners must submit a report on the progress of the activities conducted with the telescope every six months after the commissioning of the telescope. Winners are expected to have active interaction with UNOOSA, like sharing the experience in applying for this opportunity for outreach purposes. Also, as per the normal practice of scientific and technical cooperation, there will be communication with KIAM on the implementation of joint observing campaigns and data exchange.

Q: Should the submission of the application form be done in Microsoft Word or PDF document?

A: As written in section 13 of the Announcement of Opportunity, "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." Applicants must send two PDF documents, one is the application form which should be generated to PDF from the Word document, and the other is a signed scan version of Section 1.3 (letter of endorsement).

Q: If an applicant cannot acquire a recommendation letter by the deadline, what will happen?

A: Applicants are expected to prepare complete applications by the deadline. If applicants cannot get a recommendation letter due to limited time, please clarify the situation in the application form, and the application will be deemed to complete. However, applicants must submit the recommendation letter afterwards in a timely manner.

Q: Is there a platform that applicants could use to get funding for the infrastructure like a control room?

A: Applicants do not have to own the infrastructure when they are applying the opportunity, we would suggest applicants describe it in the Application Form, section 8: Budget, and a plan on getting funding before the installation of the telescope.