

Access to Space for All Initiative KiboCUBE 6th Round Q&A Webinar





Access to Space for All Initiative



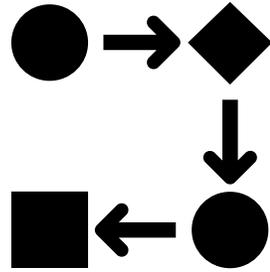
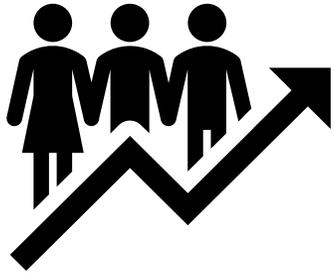
*The goal of the **Access to Space 4 All Initiative** is to provide research and orbital opportunities for UN Member States to access space and to ensure that the benefits of space, in particular for sustainable development, are truly accessible to all*



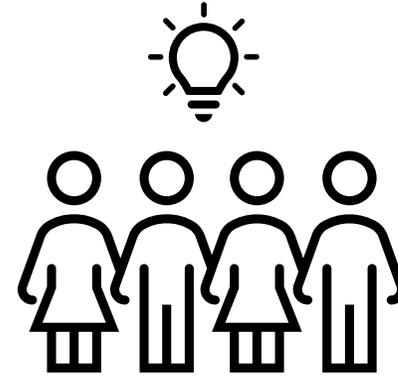
#AccSpace4All



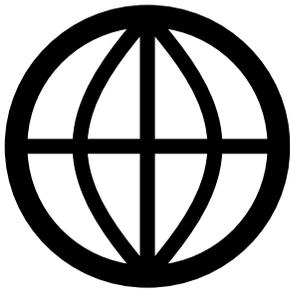
Access to Space for All Initiative



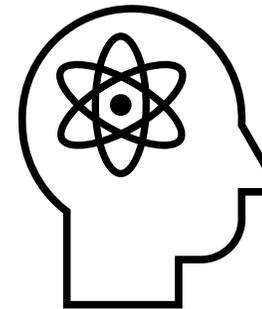
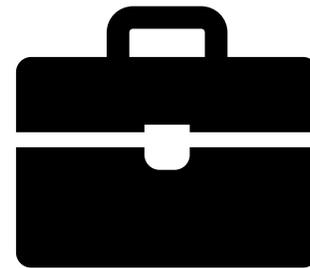
Hands-on Capacity from A-Z
Responsible & Sustainable Way



Social Impact: To your country,
region and young generations



Fosters international cooperation



Provides cutting edge skills for
jobs and other opportunities



Access to Space for All Initiative



Space is relevant to the SDGs!

The 2030 Agenda for Sustainable Development <https://sdgs.un.org/2030agenda>

To learn more about the SDGs go to <https://sdgs.un.org/goals>

UNOOSA SDGs page

<https://www.unoosa.org/oosa/en/ourwork/space4sdgs/index.html>



Access to Space for All Initiative



Goals

4

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

[← Prev](#) [Next →](#)



Target
4.4

By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship

Indicators ▲

4.4.1

Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill

Goals

9

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

[← Prev](#) [Next →](#)



Target
9.1

Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all



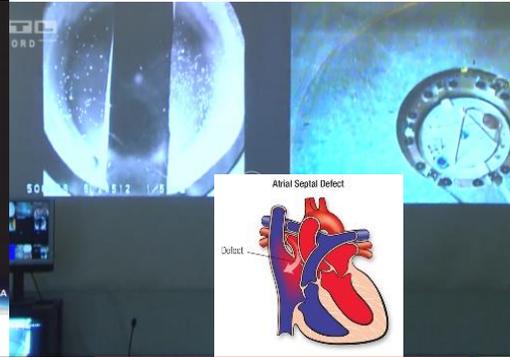
Target
9.5

Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending



Access to Space for All Initiative

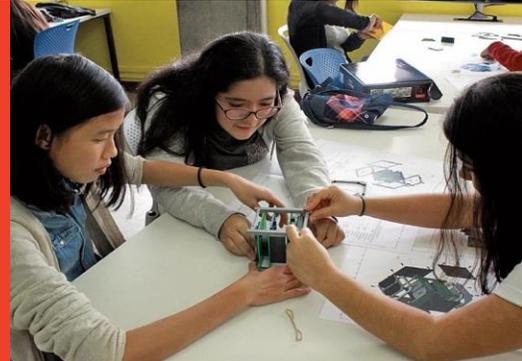
3 GOOD HEALTH AND WELL-BEING



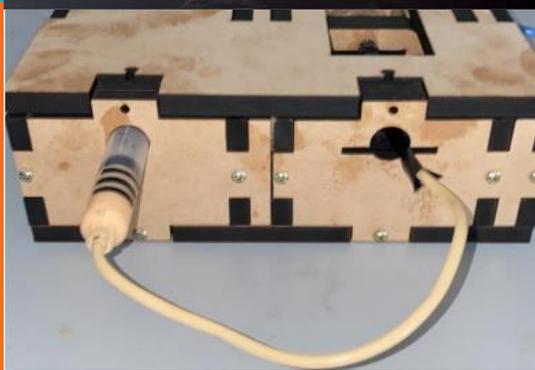
6 CLEAN WATER AND SANITATION



5 GENDER EQUALITY



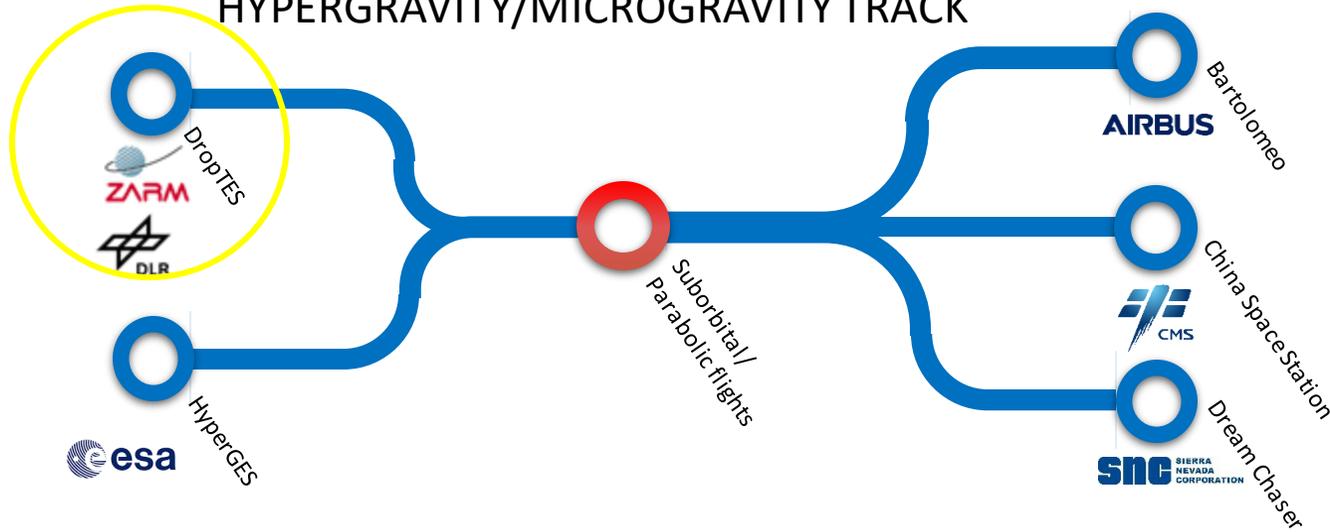
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE





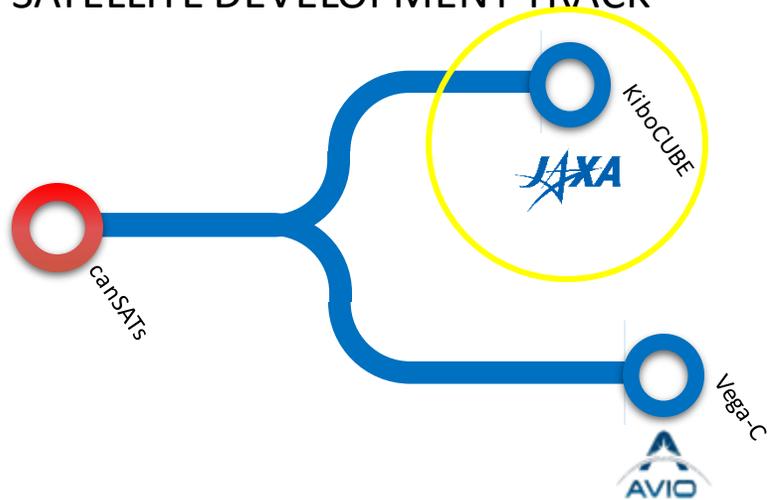
Access to Space for All Initiative

HYPERGRAVITY/MICROGRAVITY TRACK

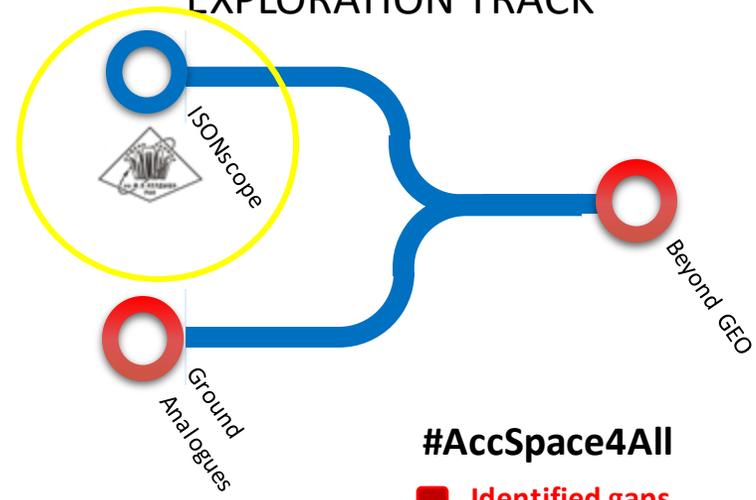


Opportunities are OPEN!
 ISONscope: 1 May 2021
 KiboCUBE : 31 May 2021
 DropTES: 30 June 2021

SATELLITE DEVELOPMENT TRACK



EXPLORATION TRACK



#AccSpace4All

Identified gaps



Webinar Series

April 21
Introduction to Hypergravity/Microgravity



Life Science R&D

- ✓ Biology April 28
- ✓ Physiology May 5
- ✓ Pharmacology May 12

Physical Science R&D

- ✓ Material Science May 19
- ✓ Fluid Dynamics May 26

June 2
Technology Demonstration

June 9
Available Opportunities/Regional Activities

June 16





What is KiboCUBE?

- A cooperation programme between United Nations Office for Outer Space Affairs (UNOOSA) and Japan Aerospace Exploration Agency (JAXA) which started from 2015, implemented under the Access to Space for All Initiative.
- Aims to provide educational or research institutions from developing countries with opportunities to deploy cube satellites (CubeSats) which they develop and manufacture from the International Space Station (ISS) Japanese Experiment Module (Kibo)

Photo credit: JAXA



Why KiboCUBE?

- CubeSats offer a large variety of applications and developing a CubeSat can be the first step for a country in acquisitions of the skills and know-how needed to develop a space programme
- CubeSats are affordable to develop and represents an achievable entry point to space activities; in KiboCUBE **JAXA will bear the cost of the launch of the CubeSat to the ISS and deployment from Kibo**
- Lower vibration and more friendly environment during launch
- Administrative support from UNOOSA and technical support from JAXA during the development



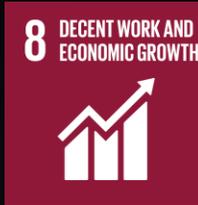
KiboCUBE for Sustainable Development Goals (SDGs)

KiboCUBE may contribute to the SDGs below by fostering innovation and supporting education and training on skillsets for developing cutting-edge technology.

SDG 4 “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”;

SDG 8 “Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all”

SDG 9 “Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation”





KiboCUBE



	Winner		Objective	Deployed	Launched	Selected
1 st round	KENYA: University of Nairobi "1KUNS-PF"		To monitor agriculture and coastal areas	11.05.2018	04.2018	08.2016
2 nd round	GUATEMALA: Universidad de Valle De Guatemala "Quetzal-1"		To acquire remote sensing data for natural resource management	29.4.2020	03.2020	09.2017
3 rd round	MAURITIUS: Mauritius Research Council "MIR-SAT 1"		To collect thermal infrared images and to test onboard communication	Currently under development		06.2018
3 rd round	INDONESIA: Surya University "SS-1"		To demonstrate remote communication	Currently under development		09.2018
4 th round	MOLDOVA: Technical University of Moldova "TUMnanoSAT"		To demonstrate technology and test various components	Currently under development		06.2019
5 th round	SISTEMA DE LA INTEGRACIÓN CENTROAMERICANA "MORAZAN-SAT"		To monitor weather variables in remote areas providing early warning during extreme weather events	Currently under development		12. 2020



How to apply to the 6th Round

Find the documents at

<https://www.unoosa.org/oosa/en/ourwork/psa/hsti/kibocube/kibocube/2020.html>

! PLEASE READ!!!!!!

- Announcement of Opportunity
- CubeSat Mission Application Template
- JEM Payload Accommodation Handbook
- Guidance on Space Object Registration and Frequency Management for Small and Very Small Satellites



Our Work > Programme on Space Applications > Human Space Technology Initiative (HSTI) > Orbital Opportunities > KiboCUBE

KiboCUBE Sixth Round of Applications

THE APPLICATION PERIOD FOR THE SIXTH ROUND OF KIBOCUBE IS OPEN. WE LOOK FORWARD TO YOUR APPLICATIONS!

The United Nations Office for Outer Space Affairs (UNOOSA) and the Japan Aerospace Exploration Agency (JAXA) are pleased to announce the **sixth round** of the *United Nations/Japan Cooperation Programme on CubeSat Deployment from the International Space Station (ISS) Japanese Experiment Module (Kibo) "KiboCUBE"*.

Background: KiboCUBE ▶



Sixth Round: How to Apply

DOCUMENTS

- [Announcement of Opportunity \(.pdf\)](#)
- [CubeSat Mission Application template \(Word\)](#) - Updated 18 December 2020 (see [change log](#))
- [JEM Payload Accommodation Handbook \(.pdf\)](#) *scheduled to be updated soon
- [Guidance on Space Object Registration and Frequency Management for Small and Very Small Satellites](#)

REFERENCE MATERIALS

- Video: "Deployment from Kibo" (provided by MEXT/JAXA)
- [CubeSat Design Specification](#) developed by the California Polytechnic State University
- [Technical Presentation by the Japanese Delegation](#): At the 58th Session of the Committee on the Peaceful Uses of Outer Space
- Webinar materials: 9 October 2020 "Enabling more countries to access to space through the KiboCUBE opportunity" (click to see video)
- [Agenda / Presentations: UNOOSA , JAXA, Guatemala, Mauritius, Indonesia, Moldova, SICA](#)
- Webinar materials: "Tips for an Access to Space for All application" (click to see webpage)
- Webinar materials: See more below for webinars conducted especially for the 6th round

WEBINARS

Our Work

Secretariat of COPUOS

Programme on Space

Applications

PSA News

Schedule of Activities

Fellowships

Basic Space Science Initiative (BSSI)

Basic Space Technology Initiative (BSTI)

Human Space Technology Initiative (HSTI)

Events

Ground-based Experiments

ZGIP

DropTES

HyperGES

Orbital Opportunities

KiboCUBE

Orbital Mission

China Space Station

Bartolomeo

CubeSats with Vega-C

Areas of work

Regional Centres for Space Science

and Technology Education

Publications

Reports

UN-SPIDER

International Committee on GNSS

UN-Space

UNISPACE+50

Space Law

Benefits of Space

Space4Health

Access to Space for All

Space for People with Disabilities



How to apply to the 6th Round

CHECK OUT WEBINARS!!!!!!!

- 1) How to build a great Application Form: Details of how to fill in the Application form
- 2) KiboCUBE Academy: 4 webinars that dive into theoretical, technical knowledge about how to develop, operate and utilize a satellite.

In collaboration with UNISEC Global (Japanese universities)

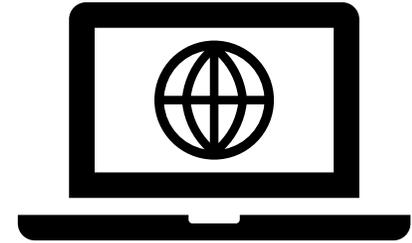
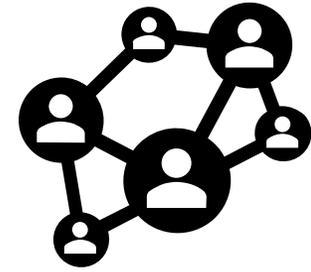
<https://www.unoosa.org/oosa/en/ourwork/psa/hsti/kibocube/2020.html>

- 3) Tips for Access to Space for All Application: Various webinars that can help you such as communication/awareness raising of your project, space law/regulations, and innovative technology such as Artificial Intelligence

https://www.unoosa.org/oosa/en/ourwork/access2space4all/accspace4all_tips.html

- 4) World Space Week: "Enabling more countries to access space through the KiboCUBE opportunity": Learn about the experiences from the past winners

<https://www.unoosa.org/oosa/en/ourwork/psa/hsti/kibocube.html>





Announcement of Opportunity: Deadline & Opportunity

- 1. Thematic Area:** Basic and Human Space Technologies
- 2. Title:** United Nations/Japan Cooperation Programme on CubeSat Deployment from the International Space Station (ISS) Japanese Experiment Module (Kibo) or “KiboCUBE”
- 3. Implementing Organizations:** United Nations Office for Outer Space Affairs (OOSA) and Japan Aerospace Exploration Agency (JAXA)
- 4. Deadline for Applications:** Fully completed application forms must be submitted to the United Nations Office for Outer Space Affairs 31 May 2021. Applicants will be notified of the outcome of their application by middle of July 2021.
- 5. Number of Opportunities for Deploying CubeSat:** For each AO, maximum of two entities/ One Unit (1U) CubeSat per entity will be selected depending on the number and content of applications and J-SSOD utilization plan.
- 6. Language of the Programme:** English



Announcement of Opportunity: Programme Schedule

9. Programme Schedule and Milestone

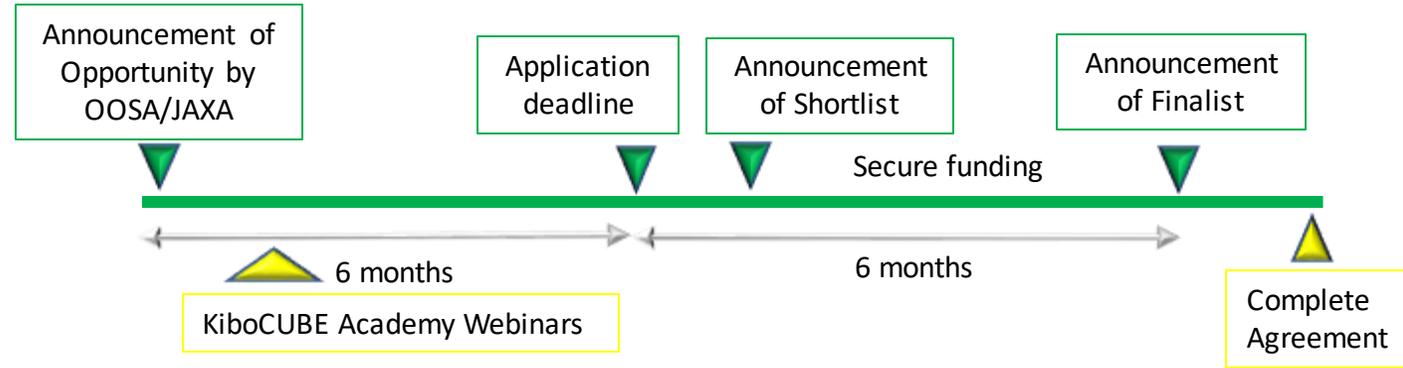
(A) Programme Schedule

Application Submission	31 May 2021
Selection and notification of shortlisted applicants	Middle of July 2021
Updated application submission	31 October 2021
Selection and notification of winner(s)	1 December 2021
Preparation period including technical coordination	Approximately 15-18 months (subject to the progress of the CubeSat development)
Safety Review and Compatibility Review	To be determined and arranged by JAXA taking into account the progress of the CubeSat development.
Deployment	Expected by the end of 2023, subject to the ISS operational requirements and progress of the CubeSat development.
Reporting	<ul style="list-style-type: none"> - A semi-annual report on the CubeSat mission, related activities and on any publications regarding the participation of this Programme by the Selected Entity must be submitted to OOSA and JAXA - A first briefing report on the operational results shall be submitted no later than 3 months after the deployment of the CubeSat. - A final report on the CubeSat mission and related activities must be submitted to OOSA and JAXA within 3 months following the re-entry of the CubeSat mission.

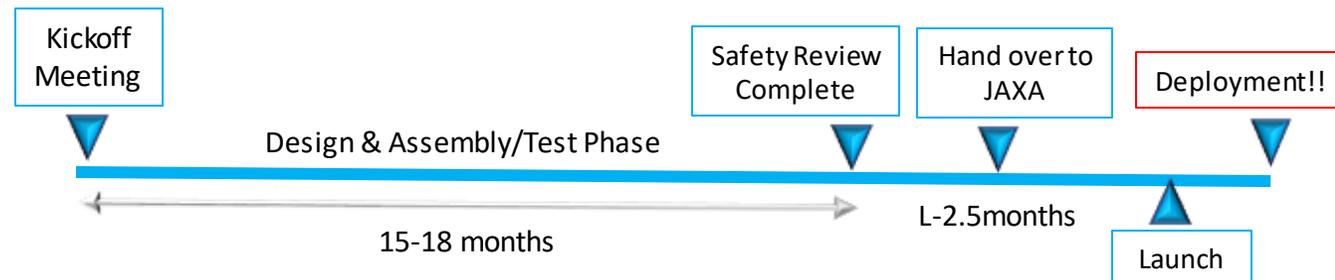
It must be noted that:

- The application process consists of two stages, in the first stage, entities shall describe the cost elements of the CubeSat. If the entity is shortlisted, the entity will have 3.5 months to submit a detailed explanation on how the budget will be acquired.
- The number of opportunities and the launch and deployment schedule may change due to constraints on the ISS operation or for any other reasons.

Selection Schedule (around 12months)



Development Schedule (around 18months)





Announcement of Opportunity: Eligibility

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:

- Heads of research institutes, universities, and other public organizations are eligible to apply for this Opportunity. Private companies, non-governmental or non-profitable agencies are ineligible.
- Entities located in countries that have the means to transport artificial satellites into space and place them in orbit are not eligible, taking into account the objectives of this Opportunity.

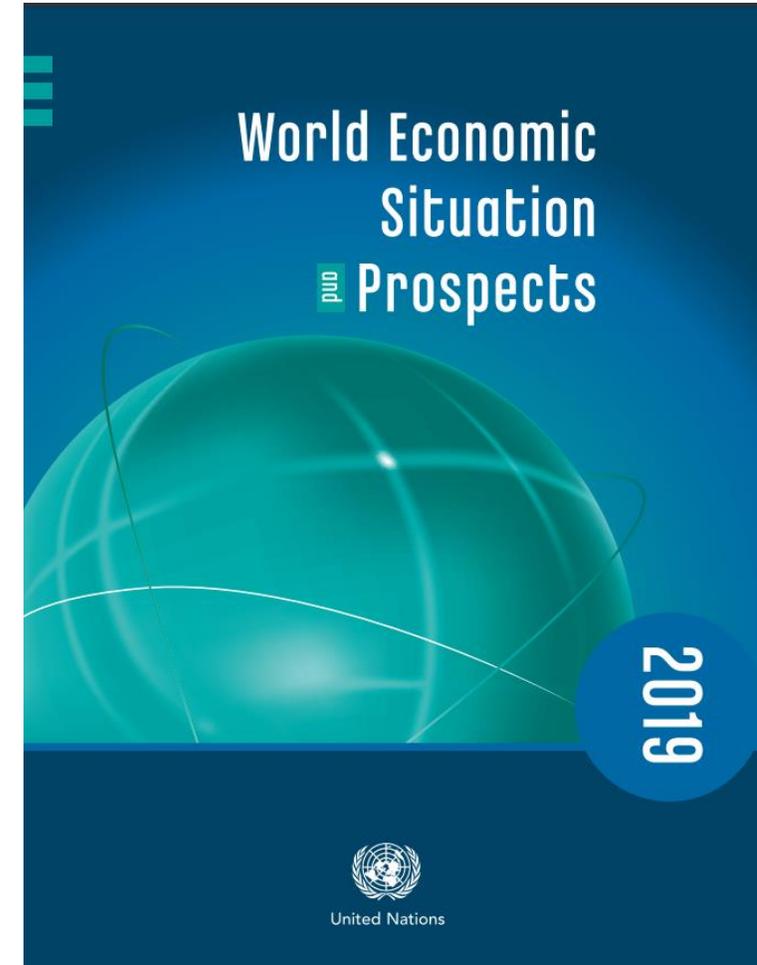
OOSA and JAXA will use the list of developing countries indicated in the joint report, *World Economic and Situation Prospects* published by United Nations Department of Economic and Social Affairs and other related organizations:

https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/WESP2019_BOOK-ANNEX-en.pdf

Entities applying for this Opportunity are responsible for the development of their CubeSat including the design, manufacturing, test and verification of their CubeSat, as well as its operation and utilization after the deployment. Therefore, to be eligible for this Opportunity, applying entities must have sufficient capability in the following areas, as demonstrated in their application materials upon submission:

- CubeSat design, manufacture, testing and operation
- Ability to transport the CubeSat to JAXA (planning, budget, export/import control etc.)
- Preparation of safety review (submission of safety assessment reports etc.)
- International coordination of the CubeSat's radio frequency
- Ability to obtain a license of radio stations for CubeSat in the country
- Development of the ground station facility with radio frequency license
- Letter of endorsement from the head of the entity

The balanced participation of women and men in teams as well as supervising positions is encouraged.



https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/WESP2019_BOOK-ANNEX-en.pdf



Announcement of Opportunity: Selection

(B) Selection Criteria

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

- Completeness of application form;
- Scientific and technical value of the CubeSat to be deployed under this Opportunity, as determined by either:
 - (a) The CubeSat's expected contribution to developing human knowledge and capacity to undertake activities in the field of space science and technology in the applying entity's home country or abroad; or
 - (b) The CubeSat's expected contribution to enhancing research and development through the technological demonstration of deploying and operating the CubeSat in the applying entity's home country or abroad.
- Capability of meeting or exceeding the minimum technical requirements as outlined by OOSA and JAXA;
- Compliance with the Programme Schedule, including the deployment schedule;
- Communication and dissemination plan
- Inclusiveness (In case of proposals with the same score, the shares of men and women in the teams will be compared. The proposal with the share closer to 50/50 will rank higher)
- Demonstrating that the applying entity itself and the intended design and function of the CubeSat are consistent with peaceful exploration and use of outer space, and are not intended solely for commercial, political or religious purposes.
- Link between the CubeSat in the Sustainable Development Goals



Announcement of Opportunity: Roles and Responsibilities

11. Roles and Responsibilities

The Selected Entity will conduct the following activities:

- Submit the overall schedule/timeline for the CubeSat development and its mission to JAXA.
- Design, analyze, manufacture and test the CubeSat and its supporting systems including verification of the compatibility with the technical requirements, except for the tests that will be conducted by JAXA as specified in Section 12.
- Conduct all radio frequency related matters in full compliance with the applicable International Telecommunication Union radio regulations.
- Implement the safety assessment to verify the compliance with JAXA technical requirements and prepare the materials and operations required for the review.
- Attend the technical coordination meeting which is to be arranged by JAXA.
- Deliver the CubeSat to the location specified by JAXA (expected to be Tsukuba Space Center) for the compliance tests (Fit-check and outgassing test can be conducted by JAXA.) and conduct a visual inspection, uninstall non-flight items for the compatibility tests and the handover.
- Operate the CubeSat including tracking control and data acquisition after the deployment from Kibo.
- Register the space object (the CubeSat). For more information, please refer to the following document: http://www.unoosa.org/documents/pdf/psa/bsti/2015_Handout-on-Small-SatellitesE.pdf
- Cooperate with the public relations and promotion activities of OOSA and JAXA including responding to press inquiries about the CubeSat and preparing information materials upon request from OOSA and JAXA.

Please note that any cost associated with the activities above, including employment costs, travel expenses and transportation fees shall be borne by the Selected Entity.



Announcement of Opportunity: Submission

13. Application Submission

The **fully completed application documents of the letter of endorsement from the head of the entity (Document 1) and CubeSat Mission Application (Document 2)** must be submitted to OOSA by 31 May 2021 by email to the following address:

unoosa-access-to-space@un.org

In the email, applying entities are requested to attach scanned copies of the Document 1 and the cover page of Document 2 as pdf-file (.pdf) and the entire document of the Document 2 in pdf. Please note that the OOSA email account only accepts emails with a size limit of up to 10 M bytes. Submission of all necessary documents (Document 1 and Document 2) is mandatory.

After receipt, OOSA and JAXA will proceed to evaluate each application. At OOSA's or JAXA's sole discretion, additional information may be requested from applicants, if necessary, to assist in the evaluation of the application. The Selected Entity will then be notified with the results of the selection process. All awards are final, are made at the sole discretion of OOSA and JAXA, and not subject to challenge or review.



KiboCUBE



Q: Are there any advisory services and additional fliers for educational purposes?

A: KiboCUBE Academy

KiboCUBE Brochure



https://www.unoosa.org/documents/pdf/psa/hsti/KiboCUBE/20-05460_KiBocube_flyer_ebook.pdf

Q: What are the characteristics of a payload or general description and how should we lay our hands on it?

A: KiboCUBE Academy

From KiboCUBE Academy 14 January 2021
 “CubeSats Change the World”

by Dr. Toshinori Kuwahara, Tohoku Univ.
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https://www.unoosa.org/documents/pdf/p/sa/hsti/KiboCUBE/KiboCUBEAcademy2021/KiboCUBE_Academy_Day1/KiboCUBE_Academy_2021_UNISEC_1-1_Kuwahara.pdf

2. Introduction to CubeSat Systems

CubeSat Standards

- A 1U CubeSat is a 10 cm cube with a mass of up to 1.33kg.

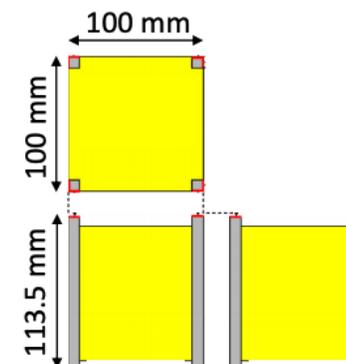
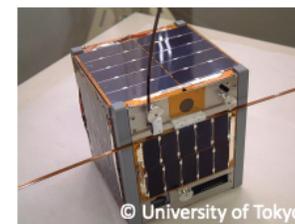
Some standards are available:

- CubeSat Design Specification rev.13
 - California Polytechnic State University (2014/2/20)
<https://www.cubesat.org/>
- CubeSat System Interface Definition version 1.0
 - UNISEC Europe (2017/8/24)
<http://unisec-europe.eu/wordpress/wp-content/uploads/CubeSat-Subsystem-Interface-Standard-V2.0.pdf>

- JEM* Payload Accommodation Handbook Vol.8 D (Japanese)
 - JAXA (2020/5/25)
<https://iss.jaxa.jp/kibouser/provide/j-ssod/#sw-library>
https://iss.jaxa.jp/kibouser/library/item/jx-espcc_8d.pdf

JEM Payload Accommodation Handbook Vol.8 C (English)
 - JAXA (2018/11)
https://iss.jaxa.jp/kibouser/library/item/jx-espcc_8c_en.pdf
 rev. D (English) is to be released soon.

* Japanese Experiment Module (JEM) = Kibo



Q: How do we obtain license for S band frequency in Japan?

A: You do not need to obtain a license in Japan. You will need to register your radio frequency through the International Telecommunication Union (ITU).

Guidance on Space Object Registration and Frequency Management for Small and Very Small Satellites

https://www.unoosa.org/documents/pdf/psa/hsti/KiboCUBE/Guidance_on_Space_Object_Registration_and_Frequency_Management.pdf



Guidance on Space Object Registration and Frequency Management for Small and Very Small Satellites

From KiboCUBE Academy 4 February 2021

“Satellite Operation and Related Regulations” by Dr. Toshinori Kuwahara, Tohoku Univ.

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https://www.unoosa.org/documents/pdf/psa/hsti/KiboCUBE/KiboCUBEAcademy2021/KiboCUBE_Academy_Day4/KiboCUBE_Academy_2021_UNISEC_4-1_Kuwahara.pdf

7. Regulations

7.1. Frequency Allocation – ITU Registration

- Satellites are space mobile radio stations.
- Specifications of transmitting radio signals must be informed to the world:
 - frequency band
 - from where? (ground location, or satellite orbit)
 - strength of the signal, etc.
- Transmitting signal from satellite can affect other communications internationally.
- Radio frequencies to be used by satellites need to be registered to the Master International Frequency Register (MIFR) maintained by the International Telecommunication Union (ITU).
- The ITU is one of the specialized agencies of the United Nations responsible for information and communication technologies. It promotes shared global use of the radio spectrum and facilitates international cooperation in assigning satellite orbits.
- Radio frequency allocation process requires international coordination and needs to be started well before (1 year earlier or more) the satellite launch.

Thank you!

For inquiries:

UNOOSA Access to Space

unoosa-access-to-space@un.org

