

# Asian Try Zero-G 2022

February 24, 2021

Kibo-ABC Monthly web conference

**JAXA/Fumiaki Tanigaki, Yayoi Miyagawa**  
**AES/Kyoichi Arakane**

Information provided in or attached to this data may be subject to export restrictions imposed by the Government of Japan. Recipient is prohibited from exporting, distributing, or disposing of the information contained in this data, including any attachment, (1) to persons (s) not directly involved in this work, (2) to a third country, or (3) to a national of a third country without the express, written consent of AES. Recipient is also prohibited from selling the information contained in this data, including any attachments, without the express, written consent of AES.

<http://iss.jaxa.jp/en/kuoa/tryzerog/>

## Overview of Asian Try Zero-G

Japanese Astronaut performs space experiments proposed by the students in the Asia-Pacific region.

Kibo-ABC members are invited to submit proposals for experiments. Member agencies will work on the screening of proposals according to selection method, and this could develop the skills needed for feasibility studies of Kibo experiments. After feasibility assessments by JAXA, the final selection of experiment themes will be determined by member agencies.

Reference for past experiment videos.

<https://iss.jaxa.jp/en/kuoa/tryzerog/reference.html>

## Categories and considerations

- Category 1; under 18 years old
  - An experiment will be conducted in Kibo. It must be visually apparent.
  - Experiment needs to be done with no tools or with items scheduled to be available onboard ISS.
  - The time required to complete the experiment should be less than 10 minutes and the instructions should be easy enough for children to understand and follow.
- Category 2; Young scientists and Engineers, ages up to 27 years old
  - In addition to above, describe mathematical and theoretical assumption regarding your idea in the Application Form.

## Categories and considerations

(Up to 27 years old)

Group application is acceptable)

### • Category 1: Simple Experiments

- An experiment will be conducted in zero-gravity. It must be visually apparent.
- Experiment needs to be conducted with no tools or with items scheduled to be available onboard ISS.
- The time required to conduct the experiment should be less than 10 minutes and the instructions should be easy enough for children to understand and follow.
- Describe the practical and theoretical background (if possible) regarding your idea in the Application Form.

Used to be Category 1 & 2, now they are combined in one category.

\*The purpose of old category 2, fostering young scientists and engineers, is still valid.

## New category

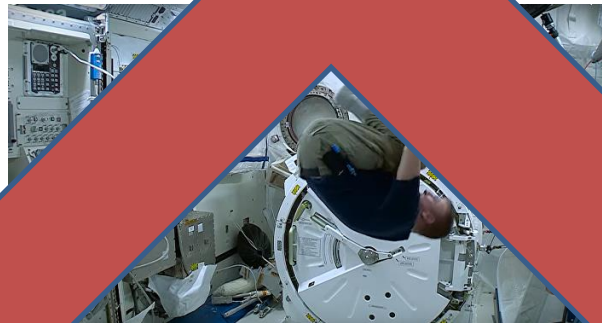
- Category B; Physical Activities

- JAXA would like to extend the scope of proposals to the area where previously not applicable.
- Physical and mental exercise and simple sports under microgravity will be an astronaut's way of keeping up themselves with fun.
- Ages up to 27 years old and no gender limit.

For example;



One of exercises

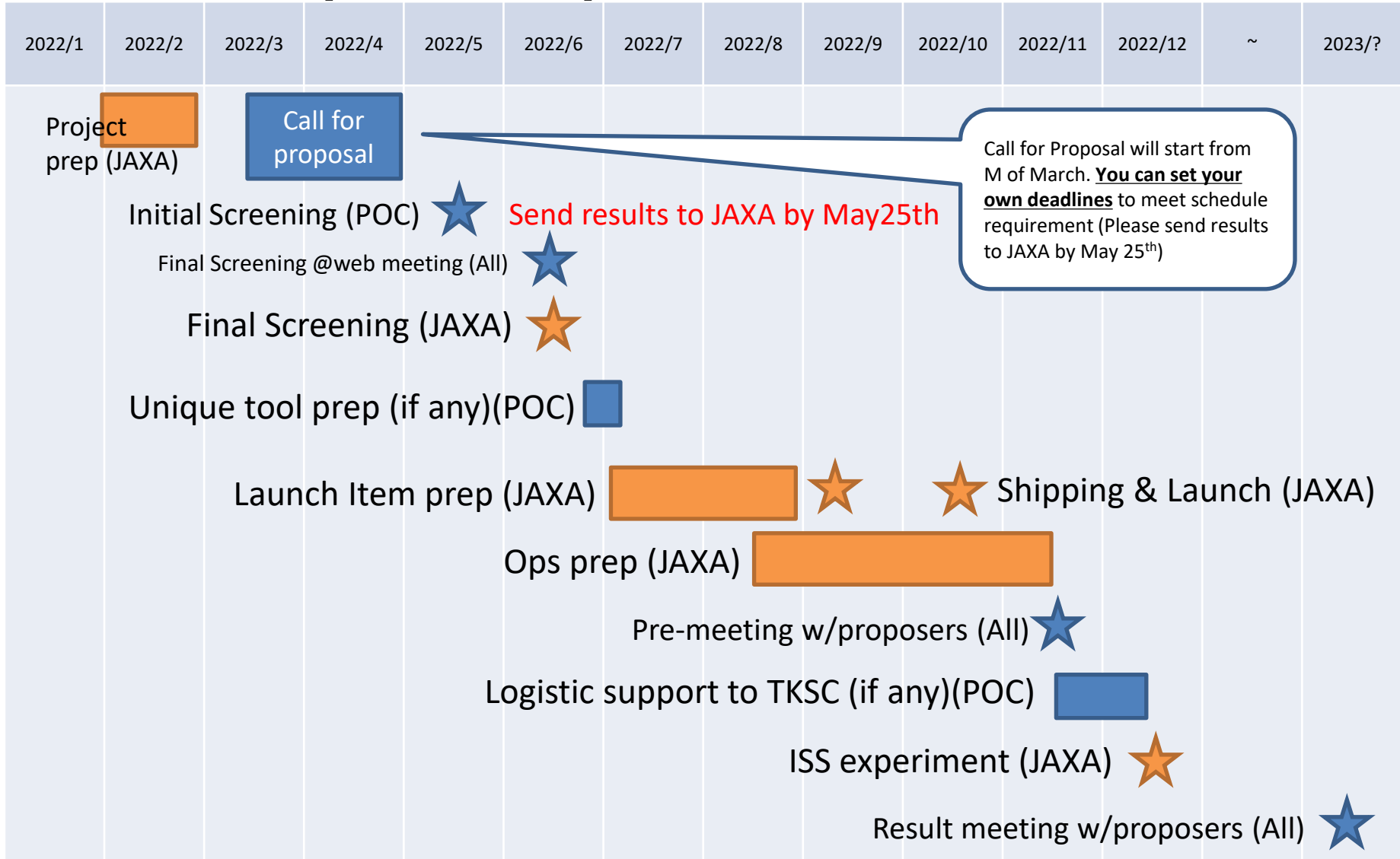


Spinning



Overhead Kick

## Schedule (tentative)



## Main tasks of POC

- Call for proposal
  - JAXA will provide an application guideline.
  - Promotion in each country/region.
  - Receive proposals from students.
- Initial Screening
  - Selection according to agreed criteria that is provided by JAXA.
  - Select 1-3 proposals (TBD) in each category.
  - Host an award ceremony (optional) in each country/region.
- Unique tool prep (if any)
  - If a proposal requires a custom-made tool which is not available in ISS, and simple and safe enough, you may want to develop it on your own.
  - Provide safety information (e.g. material, size)
  - Transport it to JAXA.
- Pre-meeting with proposers
  - JAXA hosts online meetings with proposers to explain how we modified procedure to accustom in microgravity. Please connect us with the proposers.
- Support logistics to Tsukuba Space Center
  - If proposers wish to come to Japan, please support them.
- Result meeting with proposers
  - JAXA hosts online meetings with proposers to share achievements of ISS experiments.

## Call For Proposal

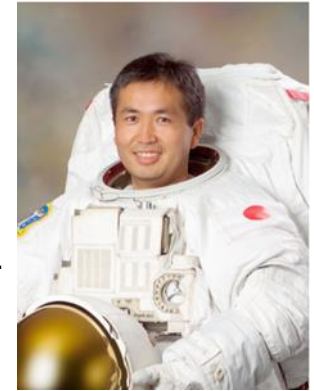
Call for Proposal for ATZG 2022 will be identical to ATZG 2018-19, except for specified point.

### 1. Important Notice

We expect unique, novel and/or informative ideas that have never been done in ISS/Kibo. Applicant shall have citizenship of any countries which have [Kibo-ABC member agency](#).

#### < Category 1; under 18 years old >

- a. Please be aware that ideas realized in the past experiments will be excluded. See the following movies. <https://iss.jaxa.jp/en/kuoa/tryzerog/reference.html>
  - b. Experiment will be conducted in Kibo.
  - c. It is necessary that the experiment is visually apparent.
  - d. Experiment needs to be done with no tools or with items scheduled to be available onboard ISS.
  - e. **Available items** are:
    - Office supplies (paper, pen, scissors, ruler, binder clip, ziploc bag, etc.)
    - Tools (driver, wrench, tweezers, inspection mirror, etc.)
    - Designated items (See Attachment-1, Available onboard items)
- \* Some items may not be available depending on work schedule/situation.



JAXA astronaut  
Koichi Wakata (Credit: JAXA)



## Call For Proposal

Call for Proposal for ATZG 2022 will be identical to ATZG 2018-19, except for specified point.

### < Category 1; under 18 years old> (cntn'd)

- f. The time required to complete the experiment should be less than **10 minutes** and the instructions should be **easy and clear to understand and follow**.
- g. **The experiment shall be achieved up to two crew members, however, one crew member is recommended.**
- h. The activity will be recorded with a high-definition video camera. The high-definition image data will be downlinked to the ground and sent to each space agency afterwards.
- i. Please do not submit proposals that financially profit a specific organization or agency.
- j. Group application is acceptable. Adult/teacher can be involved as a supervisor or guardian of the group, not as an applicant.
- k. Depending on the mission schedule and operational situation of ISS, another astronaut may take his place.

### < Category 2; Young scientists and Engineers, ages up to 27 years old>

- a) In addition to above, describe mathematical and theoretical assumption regarding your idea in the Application Form.
- b) Writing a paper about the observation after the experiment is highly recommended.
- ~~c) Group application is not acceptable. One idea from one person.~~

## Call For Proposal

Call for Proposal for ATZG 2022 will be identical to ATZG 2018-19, except for specified point.

### POINTS of CONSIDERATION

- Following points are considered as unsafe in ISS/Kibo
  - Usage of dangerous material/objects
  - Sprinkling a large amount of water (1 liter or more) into Kibo cabin
  - Releasing a certain amount of gaseous, especially the one ISS doesn't have capability of elimination. e.g. N2
  - Scattering tiny articles such as bolts and nuts, pieces of paper
  - Usage of high speed spinning objects with large mass
  - Items which have sharp edges
  
- Following points are considered as impractical in ISS/Kibo
  - Long duration of crew time
  - Sacrificing crew's rights, privacies
  - Requires to terminate air flow in cabin for a long time
  - Blocks crew's emergency evacuation path. e.g. closing hatches

## Call For Proposal

Call for Proposal for ATZG 2022 will be identical to ATZG 2018-19, except for specified point.

### 2. Proposal of Launch items

Applicant shall prefer onboard items shown as Attachment-1, though applicant can propose launch items which fulfill following conditions;

- Dimensions: within 35 x 30 x 8 centimeters, when folding
- Weight: less than 950 g
- Specifications: non flammability, no sharp edges, not included any motive power (electric, magnetic), no living thing, no chemicals

The proposed items may not be used for the experiments with various reasons. Also, launch items are not returned to applicants.

### 3. Application Format

Applicant shall describe following items in the Application Format (**Word format**).

- (1) Applicant Information
- (2) Activity Title
- (3) Hypothesis and Theory
  - a) Hypothesis
  - b) Schematic Model
  - c) Mathematical Assumption (**For Category 2 only**)
- (4) Verification method and Requirement
- (5) Tool, Item (include required launch items)

Unlike Kibo-RPC, we are not anticipating a large amount of statistic information, therefore, no Google Form is prepared.

## Mission Logo

- Can anyone volunteers on designing the logo of ATZG 2022?

If I remember correct, AHIS logo was designed by Thailand, and Kibo-ABC logo was designed by Malaysia (my apologies if I'm wrong).

We want the same approach this time. If some of you accept designing the logo, please raise your hands at the next web meeting.

We want to finalize the design by the **B of April** so that proposers can receive decals at the Initial screening.

## Screening points Example of past screening sheet and instructions.

(1) Science Visibility		(2) Safety		(3) Availability of Tools/Items			(4) Crew OPS Time		(5) Visually Apparent		
Score (4-0)	Rationale	Score (4-0)	Rationale	Launch item(s)	On-board tool/item(s)	Score (4-0)	Rationale	Score (4,2,0)	Rationale	Score (4,2,0)	Rationale
<b>Choose from following criteria:</b>  4 - Unique and novel. Never done before  3 - Unique and novel. Done before with different method  2 - Unique  1 - Novel  0 - Worthless	<b>Provide rationale of the score.</b>  *Describe the uniqueness and novelty of the physical phenomenon expected under micro gravity.	<b>Choose from following criteria:</b>  4 - Safe  3 - Safe with negligible amount of care  2 - Safe with small amount of care  1 - Safe with fair amount of care  0 - Dangerous /Catastrophic	<b>Provide rationale of the score.</b>  *Describe the safety concerns and possible countermeasures of the operations.	If any, specify item(s) and its quantity.	Specify tool/item(s) and its quantity. In case your item(s) are noted in available on-board list, please mention the item numbers.	<b>Choose from following criteria:</b>  4 - Available to be used on-board item(s)  3 - Available with substitute(s) or proposed launch item(s) that meets requisites.  2 - Available with launch item(s), but slightly out of requisites.  1 - Available with substitute(s), but it alters purpose of experiment.  0 - Not Available	<b>Provide rationale of the score.</b>  *Describe its feasibility and the considerations when using items/tools. In case of score 3 and 1, specify substitute.	<b>Choose from following criteria:</b>  Evaluator will exactly review the proposer's operations time (without prep time).  4 - Estimated within 10 min  2 - Available to reduce within 10 min.  0 - More than 10 min	<b>Provide rationale of the score.</b>  *Breakdown the procedure and provide estimated time for each step. In case of score 2, specify the applicable step(s) which can reduce the time.	<b>Choose from following criteria:</b>  4 - Visible to naked eyes.  2 - Need visual assistance (i.e. magnifications) to observe the phenomena.  0 - Invisible	<b>Provide rationale of the score.</b>  *Describe its visibility and the considerations when operations.

شكرا لك

আপনাকে ধন্যবাদ

谢谢啦

Thank you

ありがとう

Terima kasih

Ka Pai

நன்றி

ขอบคุณ

Cảm ơn bạn

Arabic

Bengali

Chinese

English

Japanese

Malay

Maori

Tamil

Thai

Vietnamese