



APRSAF
ASIA-PACIFIC REGIONAL
SPACE AGENCY FORUM



Summary Report by Space Frontier Working Group

APRSAF-31, 2025

**November 17th
November 18th, 19th**

**Kibo-ABC Workshop
Space Frontier Working Group**



Space Frontier Working Group Working Group Summary Report

Co-Chairs:
Dr. Reinabelle C. Reyes (PhilSA)
Dr. Shirakawa Masaki (JAXA)

Participants

114 Participants from 17 countries/region, 79 organizations
(including on-line/video participants)

Country/Region	No	Organizations
Australia	4	ASA, OGLA,
Austria	3	Space Generation Advisory Council, UNOOSA
Bangladesh	1	STEMX365
Canada	1	Matrix Gemini
Germany	1	Berlin Space Technology
India	3	ISRO, SGAC
Indonesia	1	INASA/BRIN
Japan	34	DigitalBlast, JAMSS, JAXA, NEC Corp., Space BD, Tokushima Univ., ispace Inc., Space Cotan, MEXT, MOFA, Toyama Prefecture Univ., Mitsubishi Bussan Aerospace, Hokkaido Univ., Axiom, Star Signal solutions, Interstellar Technologies,
Korea	2	KASA, ispace Inc.
Malaysia	4	MYSA, National Planetarium, Univ. Teknologi MARA

Country/Region	No	Organizations
Philippines	38	Adamson Univ, Carolinian Physics and Astronomy Society, Saint Louis University Baguio, USC Physics and Astronomy Society, Ateneo de Manila University, PhilSA, Space Nutrition Network, University of San Carlos, Department of Education, Indian Aerospace University, SGAC, IAU, Mindanao State Univ., Department of National Defence, TERNAKLIMA Inc., Univ. of the Philippines,
Singapore	3	FUOU Consulting, OSTIn, Space Faculty
Sweden	1	Swedish Space Corporation
Taiwan	10	National Central University, TASA, National Tsing Hua University, Taiwan Space Generation, NTHU, University of Cambridge
Thailand	6	Burapha University, GISTDA, Mahidol University, NSTDA
UAE	1	MBRSC
Vietnam	1	VNSC

Activities and Future Plans from each organization

- Space activities and future plans for Space Environment Utilization were reported from **12** countries and region, including Kibo-ABC framework members.

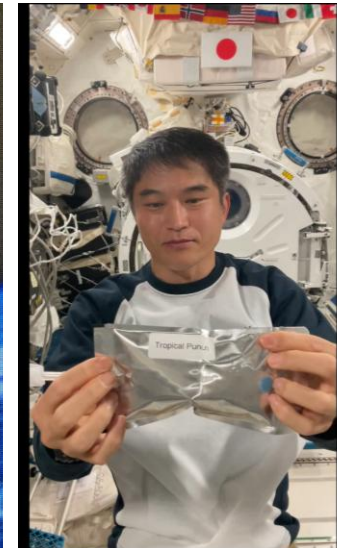
(Australia, Bangladesh, India, Indonesia, Japan, Malaysia, Philippines, Singapore, Taiwan, Thailand, UAE and Vietnam)

- ✓ Space Programs and National Policies
- ✓ Space Technologies & Space Exploration Projects
- ✓ STEM Programs and Activities, including Kibo-ABC Activities
- ✓ Participation to Conferences/Workshops, Space-science/Astronomy related Events/Programs
- ✓ Future Projects/Events



Special Session

- JAXA Astronaut Onishi introduced his experience of “Lives in Space”
 - Presented his personal background which led him to become one of the JAXA Astronauts.
 - Explained about the **life under microgravity environment**: its challenges and its unexpected surprises!
 - Inspired the audience with his stories about the ISS... yet space is still to be discovered.



- JAMSS presented their expertise in human spaceflight and their **trainings for Private Astronaut Missions**.

Kibo-ABC Activities for STEM Education and SDGs Contribution to the World

- **Development of Educational Tools within Kibo-ABC Activities**
 - Example of creation of **Mentorship system** in **Taiwan** and **Beginner course** in **Japan**, which are now open to participating countries and region.
- **Capacity Building Support through United Nations and Partners**
 - Introduction to **UNOOSA capacity building programs with partners**, such as KiboCUBE Program, which demonstrates the importance of accessibility, novelty, and strong publicity in attracting participants.
 - Stressed the fact that providing hands-on opportunities and education programs further reinforces the capacity building goals.
- **Student Talk: Success Story**
 - A student from **Ateneo de Manila University (Philippines)** highlighted the value of the Asian Try Zero-G program and delivered an inspiring message to encourage students to do their best and collaborate together.



Kibo/ISS Utilization Opportunities

● Kibo/ISS Program and Available Facilities

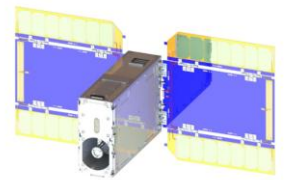
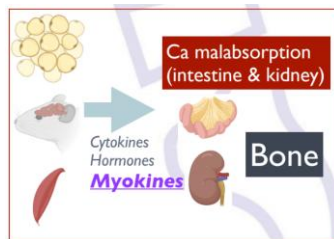
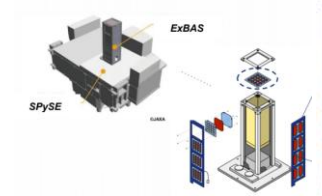
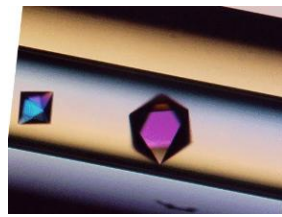
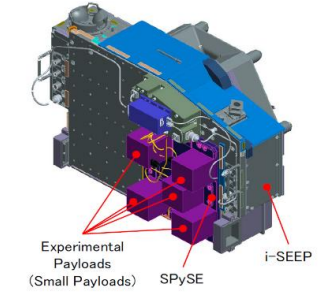
- Presentation on **JAXA's science program on the ISS** and **post-ISS era plan**, including activities on commercial space stations and lunar exploration.
- Video presenting JAXA's different **experiment facilities on Kibo module**.

● Industrial Challenges in Japan

- **Space BD (Japan)** presented their satellite launch, integration and deployment services through JAXA's JSSOD, and their in-orbit demonstration experiments services through JAXA's i-SEEP.
- **Mitsui Busan Aerospace (Japan)** presented their satellite one-stop services, including CubeSats deployment through JAXA's JSSOD, provision of satellite platform, ISS utilization and user integration, and space national security.

● Use cases of Kibo Module Utilization

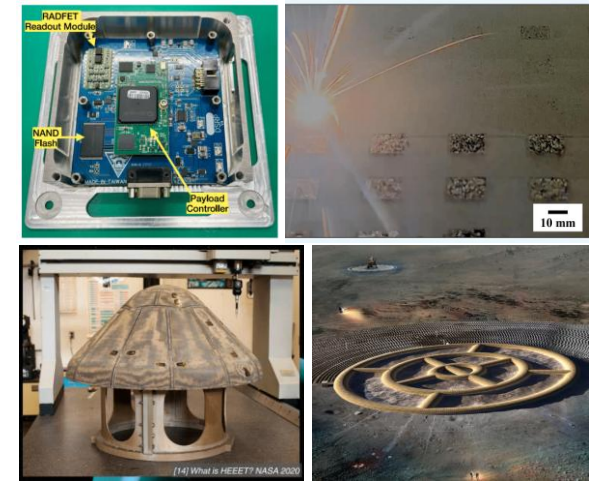
- **Mahidol University (Thailand)** presented their research content on muscle-derived factors on bone in space and introduced experiments results conducted through JAXA's Mouse Sample Share mission.
- **TASA (Taiwan)** presented Taiwan-Japan collaborative CubeSat mission ONGLAISAT conducted with the University of Tokyo, and their national CubeSat programs.



New Project to Drive Forward

● Presentation of Innovative Ideas and Projects for Space Exploration

- **JAXA** presented the International Space Exploration Coordination Group mission and roadmap, as well as Japanese long-duration exploration program and nutrition challenges.
- Introduction of a new Educational Program under **Kibo-ABC framework** that would allow students to conduct space-seeds experiments.
- **National Central University (Taiwan)** presented their lunar payload to measure space radiation, mounted on ispace's Hakuto-R Mission 2 lander.
- **National Tsing Hua University (Taiwan)** research on high-entropy alloys and Additive manufacturing for sustainable use in space applications.
- After an introduction on Philippines satellites, **Saint Louis University Baguio's** student (**Philippines**) presented deorbit and re-entry systems for CubeSats to help reduce space debris.
- **Matrix Gemini (Canada)** presented their deep-tech solutions for space infrastructures and construction.



Challenges and Opportunities in Space Nutrition and Health for Long-Duration Human Space Exploration

● Introduction to Space Nutrition in the Context of Long-Term Human Exploration

- **Space Nutrition Network (Philippines)** presented an overview of challenges in space nutrition and health.
- **Tokushima University (Japan)** presented their research on nutrients intakes in space, based on JAXA and NASA data.
- **PhilSA (Philippines)** explained their call for collaboration across the Asia-Pacific region to consider their local cuisines as potential space food.

● Panel Discussion

- Astronauts Onishi and Wakata shared their memories of food in space and offered **feedback on how nutrition could be improved**.
- **Psychological importance of food** and cooking, as well as the need for **interdisciplinary collaboration**.
- Insights on **nutritional aspect of space food** from her nutritionist point of view.
- Need to **consider new factors to maintain proper nutrition beyond low Earth orbit**, including future missions to the Moon.
- Key challenges in space-food production and discussed **potential Earth applications, particularly for emergency situations**.
- Views on **international cooperation for the post-ISS era**, especially in the field of nutrition.

Moderator:

Dr. Ernest Macalalad - PhilSA
Dr. Reinabelle C. Reyes - PhilSA

Panelists:

1. Ms. Kristine Jane Atienza - Space Nutrition Network
2. Ms. Danielle Camille Canillo - PhilSA
3. Ms. Nahoko Mizuno - Tokushima University
4. Astronaut Takuya Onishi - JAXA
5. Dr. Masaki Shirakawa - JAXA
6. Astronaut Koichi Wakata - Axiom Space

Challenges and Opportunities in Space Nutrition and Health for Long-Duration Human Space Exploration



Summary

1. Acknowledged the **effectiveness of Kibo utilization activities** in educational area with record number of participants in 6th Kibo-RPC and ATZ-G 2025.
2. Agrees to proceed with **consideration of new plant experiments** including use of regolith simulant, reflecting growing interest in long-duration missions and needs for continuous R&D for **future space exploration**.
3. Reaffirmed the **importance of educational initiatives**, supported by inspirational and motivational speeches from **Astronaut Onishi and Filipino students**.
4. Panel discussions organized by **the Philippines** explored future human spaceflight challenges, including **health, nutrition, and food supply in the post-ISS era**.
5. Recognized **SFWG** participating organizations' **continuous efforts to expand their local and international activities** and acknowledged their importance to **inspire the next generations**.



Kibo-ABC Workshop Summary Report

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Austria	1	UNOOSA
Bangladesh	1	STEMX365
Cambodia	2	MPTC
Indonesia	1	BRIN/INASA
Japan	11	JAXA, DigitalBlast, Inc., Space BD

Country/Region	No	Organizations
Malaysia	5	MYSA, National Planetarium
Philippines	7	PhilSA, Space Nutrition Network
Singapore	1	Space Faculty
Taiwan	2	TASA
Thailand	2	NSTDA
UAE	1	MBRSC
Vietnam	1	VNSC

Summary

1. 6th Kibo Robot Programming Challenge and Asian Try Zero-G 2025 registered a record number in participants.

2. Kibo-ABC members welcomed the Ministry of Posts and Telecommunications of Cambodia and the National Planetarium of Malaysia, raising the number of organizations to 22, from 15 countries and region.

