The 6th
Mission Idea Contest
For Achieving Sustainable Development Goals with Human Spaceflight

6th Mission Idea Contest (MIC6)

Achieving Sustainable Development for Human Spaceflight

2 December 2019

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(Chair of the reviewers)

UNISEC GLOBAL
University Space Engineering Consortium

Contents

- MIC6 Overview
- Background
- Comparison with previous MICs
- Requirements
- Process and Timeline
- Evaluation Criteria
- Awards

MIC6 Overview

- The MIC6 offers aerospace engineers, scientists, college students, consultants, and anybody interested in space an opportunity to present their creative ideas for a payload on the ISS and gain attention internationally.
- MIC6 is organized in cooperation with ICE Cubes and Space BD to utilize the ISS experimental modules: Columbus of ESA and Kibo of JAXA.
- Important dates: 8/8, 9/9, 10/10

  Abstract submission due: **August 8**, 2019
  Notification: **September 9**, 2019
  Full Paper submission due: **October 10**, 2019
  Final presentation: during 7th UNISEC-Global Meeting (Dec 2, 2019) the University of Tokyo, Tokyo, Japan

http://www.spacemic.net

Background (1)

- Mission Idea Contest was launched in 2010 to encourage innovative exploitation of micro/nano-satellites to provide useful capabilities, services.
- It provides aerospace engineers, college students, consultants, and anybody interested in space with an opportunity to present their creative ideas and gain international attention.

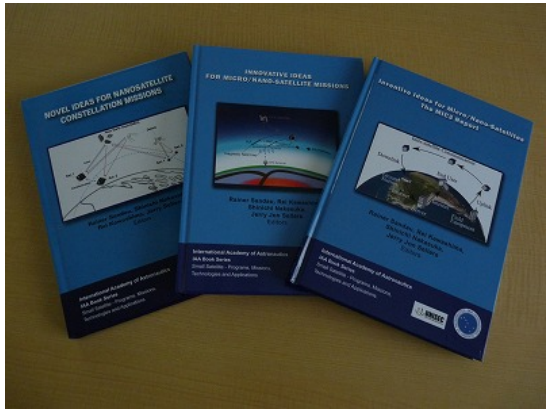
MIC3 finalists and reviewers, Nov 19, 2014, Kitakyushu, Japan

MIC4 finalists and reviewers, Oct. 21, 2016, Varna, Bulgaria

Background(2)

Five MICs and 3 Pre-Workshops were successfully organized in 2011-2018

- Results
  - Potential utilization of micro/nano-satellites was provided in the large number of submitted proposals
  - Four books were published as IAA book series



MIC1-3

MIC4 & DDC

Comparison of MIC1,2,3,4, 5, 6 and Pre-MIC3,4,5

	MIC1	MIC2	PreMIC 3	MIC3	PreMIC4	MIC4	PreMIC 5	MIC5	MIC6
Satellite mass	< 15 kg	<50 kg	<50 kg	<50 kg	<50 kg	<50 kg	<50 kg	<50 kg	ISS Platform
Number of satellites	2 or more (constellations only)	1 or more	1 or more	1 or more	1 or more	1 or more	1 or more	1 or more	N/A
Category	1 Mission idea for nano-satellite constellation	2 Mission idea& satellite design Mission idea & business model	2 User Developer	1 Mission idea and satellite design	2 Mission proposer Resource provider	1 Mission idea and satellite design	1 Mission idea and satellite design to satisfy any of SDGs	1 Mission idea and satellite design to satisfy any of SDGs	2 ICECUBES (inside) iSEEP (outside)

Requirements

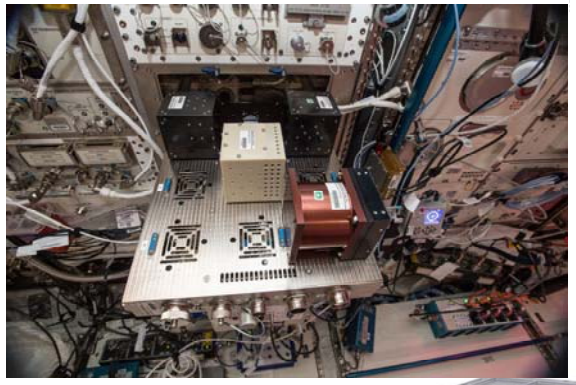
- Propose an innovative experiment idea which:
  - either contributes to a benefit on earth or contributes to human space exploration
  - contributes to any of the UN Sustainable Development Goals.
- Other requirements:
  - A research or technology idea for the international space station in which microgravity or radiation aspects of the space environment are mandatorily required.

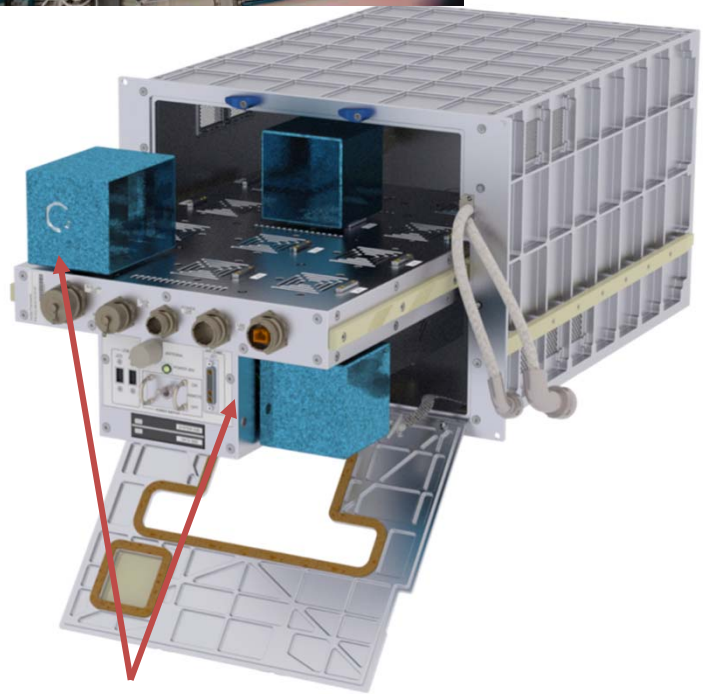
Platform (A) ICECUBES Facility

Installed in ESA's Columbus module: Payload of dimension of between

1U (10*10*10cm) and 3U*4U (30*40*10cm)

www.icecubesservice.com





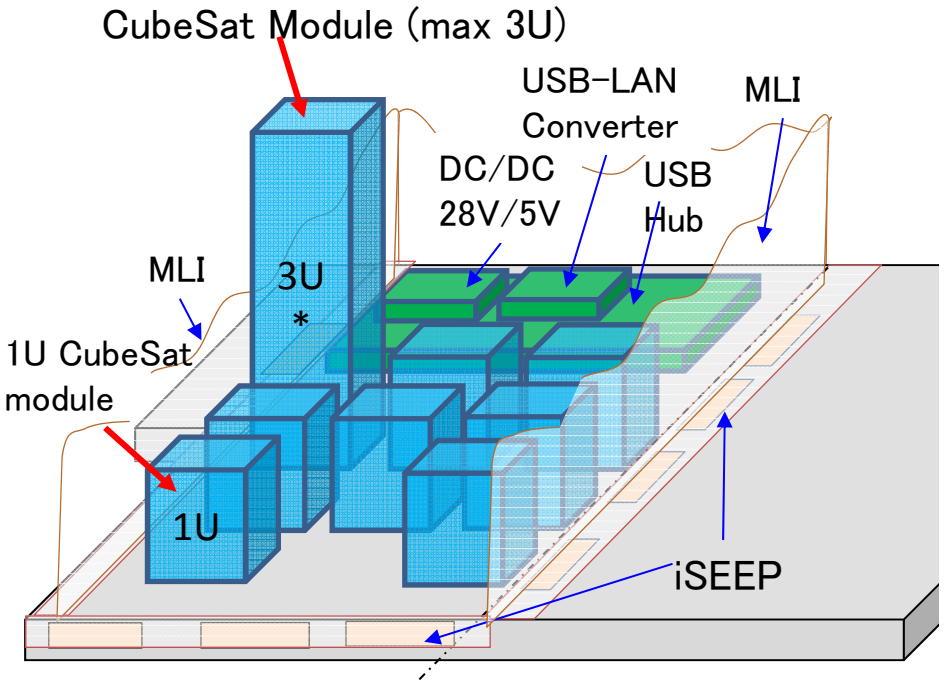
Payloads accommodated inside the ICE Cubes Facility

Platform (B) Space BD Facility

Use **iSEEP in JAXA's Exposed Facility of Kibo module**

Payload of dimension of between

1U (10*10*10cm) and 3U (30*30*10cm)



Space BD

http://iss.jaxa.jp/en/kiboexp/ef/i-seep/

Requirement for MIC6

Your proposal needs to satisfy any of the 17 SDGs.

https://sustainabledevelopment.un.org/sdgs

Process and Timeline

Application Submission : Deadline August 8, 2019

Submitted abstracts will be evaluated by review team

Notification of Finalist: September 9, 2019

Title of paper and finalist(s)' name and affiliation will be published on the website.

Final Paper Submission: October 10, 2019

Submitted final paper will be distributed to review team for evaluation

Presentation in Japan on December 2, 2019

at the 7th UNISEC-Global Meeting

Evaluation Criteria

Originality (50 points)	Novel concept not yet realized or proposed, or a new implementation of an existing capability or service (25) Impact on society / Sustainable Development Goals / human spaceflight exploration (25)
Feasibility (50 points)	Technical (20) Programmatic (cost estimate, development schedule, infrastructure requirements) (15) Operational (protocol, communication and interaction during experiment) (15)

Awards

- 1st place:
  - (A) ICE Cubes:
    - 25% discount on a 1U cube of 1 kg for 4 months of operations and a launch within 2 years from award and a visit to the ICE Cubes control centre / clean room and the European Astronaut Centre or Monetary award (50,000 Japanese Yen)
  - (B) iSEEP:
    - 25% discount on a 1U-3U size payload for 6 months operations and a launch within 2 years from the award and Monetary award (50,000 Japanese Yen)
- Student Prize:
  - (A) ICE Cubes:
    - 10% discount on a 1U cube of 1 kg for 4 months operations and a launch within 2 years from the award and Monetary award (25,000 Japanese Yen)
  - (B) iSEEP:
    - 10% discount on a 1U-3U size payload for 6 months operations and a launch within 2 years from the award Monetary award (25,000 Japanese Yen)
- IAA award (Certificate) International Collaboration, Health Sciences contribution