Introduction to the 10th Mission Idea Contest Preliminary Workshop (PreMIC10)

”Orbit Change Without Using a Propulsion System”

MIC Office

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PreMIC10 Overview

- In order to ensure the sustainability of outer space, the avoidance of collisions with other satellites and space debris is expected to become an increasingly critical requirement.
- The 10th Mission Idea Contest invites proposals for methods and devices that enable orbital change without using a propulsion system.

Important dates:

Abstract submission due: **June 18, 2026**
Notification: **September 3, 2026**
Software submission deadline: **end of September**
Final presentation: **November 9, 2026** in Taiwan
(Selected finalists will make a presentation at PreMIC10.)

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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 opportunities to present their creative ideas and gain international attention.

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

MIC8 finalists and reviewers, Nov. 29, 2023, Tokyo, Japan

MIC9 finalists and reviewers, Nov. 1, 2025, Tokyo, Japan

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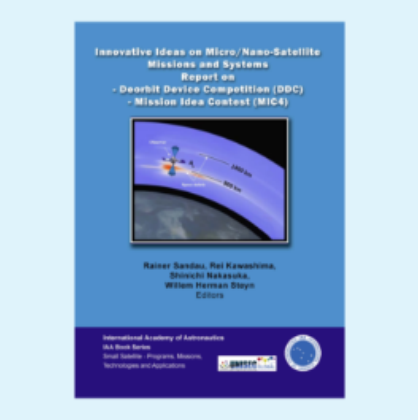
Background(2)

9 MICs and 5 Pre-Workshops were successfully organized in 2011-2025.

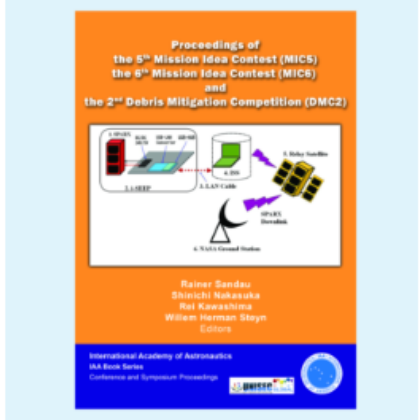
- Results
  - Potential utilization of micro/nano-satellites were provided in the large number of submitted proposals
  - Four books and three e–books were published as IAA book series

https://iaaspace.org/product-category/pub/bookseries/

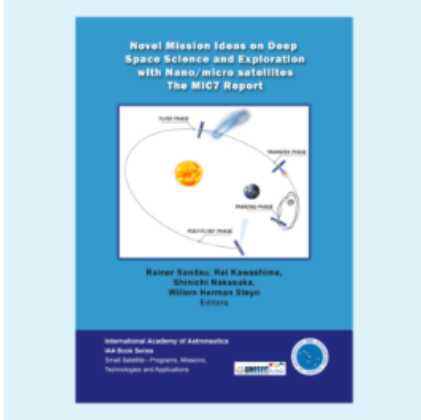


Innovative Ideas on Micro Nano-Satellite

Inventive Ideas for Micro/Nano-Satellite
The MIC3 Report



Proceedings of the MIC5 / MIC6 / DMC2



The MIC7 Report

The MIC8 report

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MIC Winners' Mission Ideas

	Proposed idea	Country
MIC 1 (2011,Tokyo) (constellation)	Integrated Meteorological / Precise Positioning Mission Utilizing Nano-Satellite Constellation	Japan (professional)
MIC 2 (2012,Nagoya) (Satellite Design)	SOLARA/SARA:Solar Observing Low-frequency Array for Radio Astronomy/ Separated Antennas Reconfigurable Array	USA (student)
MIC 2 (2012,Nagoya) (Business model)	Underground and surface water detection and monitoring using a microsatellite	South Africa (student)
MIC 3 (2014, Tokyo)	Clouds Height Mission	Germany, Italy, Slovenia (professional)
MIC 4 (2016, Bulgaria)	CubeSat constellation for monitoring and detection of bushfires in Australia	Australia (student)
MIC 5 (2018, France)	Smallsat Ionosphere Exploration at Several Times and Altitudes,	Taiwan, USA, India (student)
MIC 6 (2019, Tokyo) (ISS-IceCube)	MUSA: An ISS Experiment for research of a dual culture for Panama Disease	Costa Rica (student)
MIC 6 (2019, Tokyo) (ISS-iSEEP)	Spectrum Monitoring from Space with i-SEEP (SMoSiS)	Philippines (professional)
MIC 7 (2022, Tokyo)	PARS: Precursor Asteroid Remote Surve	Turkey (student)
MIC 8 (2023, Tokyo)	MOTHS: Moon Observation Through Hyperspectral Satellites	Italy (student)
MIC 9 (2025, Tokyo)	CubeSat Mission Concept for TREED (The REceiver Exploring Darkages)	Japan (student)

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MIC1-9 & Pre-MIC3-10 Comparison

	MIC1	MIC2	Pre MIC3	MIC3	Pre MIC4	MIC4	Pre MIC5	MIC5	MIC6	MIC7	Pre MIC8	MIC8	Pre MIC9	MIC9	Pre MIC10
Satellite mass	< 15 kg	<50 kg	<50 kg	<50 kg	<50 kg	<50 kg	<50 kg		ISS Platform	Deep Space	<6'U		<12'U		50kg
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		N/A	N/A	2 or more		1 or more		N/A
Rover mass													<10 kg (Maximum Convoy Mass)		
Number of Rover													1 or more		
Category	1	2	2	1	2	1	1		2	2	1		2		1
	Mission idea for nano-satellite constellation	Mission idea& satellite design	User	Mission idea and satellite design	Mission proposer	Mission idea and satellite design	Mission idea and satellite design to satisfy any of SDGs		ICECUBES	Mission idea for Deep Space Science and Exploration with Nano/Micro Satellite	Multiple satellites mission (constellation and Formation flying)		Lunar Orbit CubeSat Mission		Methods and devices that enable orbital change without using a propulsion system
		Mission idea & business model	Developer		Resource provider				(inside)	cis-lunar orbit or deep space trajectory orbit			Lunar Surface Rover Mission		
									iSEEP						
									(outside)						

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PreMIC10 Call for Proposal

Theme: **“Orbit Change Without Using a Propulsion System“**

Details of Call for Proposal：
https://www.spacemic.net/pdf/premic10/PreMIC10_call_for_proposal.pdf

Please download and use the abstract template on the website.

https://www.spacemic.net/

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Process and Timeline

Application Submission: Deadline June 18, 2026

Submitted abstracts will be evaluated by review team

Notification of Finalist: September 3, 2026

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

Software submission by End of September

Presentation in Taiwan: November 9, 2026 (in-person)
at the 10th Mission Idea Contest Preliminary Workshop

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Evaluation Criteria

Final evaluation will be based on a comprehensive assessment of:

- **Quantitative performance (amount of orbital deviation and degree of recovery),** and
- **Qualitative factors including:**
  - Novelty of the device concept
  - Feasibility
  - Compatibility with the given satellite size
  - Validity of force calculations
  - Effectiveness of the post-avoidance recovery strategy

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Function of MIC Coordinators

- **Mentor**: Offer advice and expertise, as well as facilitate the coordination of potential applicants, within your region and beyond.

- **Coordinate**: Liaise with the MIC Office to develop effective ways for participants to engage and apply for the PreMIC10

  (e.g. organizing a regional seminar, using a space event in your region or disseminating information through an existing network).

- **Network**: Develop methods to help link students, researchers, policymakers, and business people in your region for the realization of mission ideas with an implication of contributing to a better future of your society or country/region.

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Reasons for joining MIC

1. Capacity building via training opportunities.
2. Seek meaningful mission ideas.
3. Make a difference in the real-world. MIC can function as catalyst and result in projects which are innovative, affordable and technically reachable.
4. Receive exposure for your ideas. Develop your career profile and find potential future collaborators among a worldwide network.
5. Recognition of excellence; awards/prizes (TBA).

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JOIN US!!

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