

KEY TO SUCCESS, LESSONS LEARNED, AND THINGS TO KEEP IN MIND FOR DEVELOPMENT IN DEEP SPACE EXPLORATION

PANELISTS:

- RYU FUNASE (THE UNIVERSITY OF TOKYO)
- MASAYUKI URATA (ISPACE)
- CHIEH LUNG (NATIONAL CENTRAL UNIVERSITY)
- EDGAR MILIC (GOMSPACE, LUXEMBOURG)
- AARON ZUCHERMAN (QINETIQ, USA)

MODERATOR: YUICHI TSUDA (ISAS/JAXA)

DSW in last year (2024)

The 1st UNISEC DEEP SPACE WORKSHOP



14:10 – 15:50

Session 1: Pioneering Deep Space Exploration: The Industry's Frontier



Maximilien Berthet
The University of Tokyo
(Moderator)



Hiroko Asakura
Ispace, Inc.



Valerio Di Ta
ARGOTEC S.r.l.



Nathaniel Guy
Ofractal



Toshihiro Shibukawa
ArkEdge Space Inc.

15:50 – 16:10

Break: Short Videos

16:10 – 17:50

Session 2: Lessons Learned from SLS-1 CubeSat Missions



Tatsuaki Hashimoto



Sami Asmar



Craig Hardgrove



Benjamin Malphrus



Ryu Funase

Round 1: Mission Experiences

Theme: Challenges and how they were overcome in small deep-space missions

Guiding Questions:

- What mission did you work on?
- What challenges did you face?
- How did you overcome them?

Focus per Speaker (example, you can freely deviate!):

- u **Ryu Funase** -Experiences from PROCYON and EQUULEUS – please introduce about these two missions, and then, what were the major hurdles in realizing small deep space missions?
- u **Masayuki Urata** -Lessons from HAKUTO-R 1/2 (RESILIENCE) – Lunar landing is of course challenging, but before it, even cruising to the Moon is a great challenge; what was the most difficult aspect?
- u **Chieh Lung** -Development and operation of deep space payloads such as the Deep Space Radiation Probe onboard RESILIENCE – what were the technical difficulties making deep space components, and how did they differ from low Earth orbit technologies?
- u **Edgar Milic** -Insights from Juventas/HERA – please introduce about Juventas, and then, what are the advantages and limitations of small deep space spacecraft deployed from motherships?
- u **Aaron Zucherman** -Experience from designing a deep space CubeSat during your time at Cornell University – what were the major challenges?

Round 2: Lessons Learned

Theme: From your mission experiences in deep space missions, what key lessons can be drawn?

Discussion Points:

- u What are the keys to success in small deep-space missions?
- u What lessons should future developers keep in mind?
- u What are the common pitfalls or things to avoid?

Goal: To extract practical insights from each mission that can guide future projects.

Round 3: Future Vision (Time Permitting)

Theme: The next frontier in small deep-space missions

Looking ahead, what would you like to achieve in future deep space missions?

Small deep space missions face challenges in both system feasibility and commercial viability. Please share your vision for expanding your activities into deep space.