Working group summary report

Space Environment Utilization

SESSION CO-CHAIRS:

MR. CHENG HAI TAN (SSTA/SINGAPORE)

MR. FUMIAKI TANIGAKI (JAXA/JAPAN)

Participants of SEUWG

71 participants from 20 countries, 42 organizations

Country	participants	Institutes
Australia	1	Sydney University
Austria	1	UNOOSA
Bangladesh	1	SUESL
Bhutan	1	DITT
China	2	Beijing University, UNOOSA
Germany	1	Aviation Consulting
India	3	Caliche Global, NEHU, Indus University
Indonesia	9	LAPAN, Surya University
Japan	24	MEXT, JAXA, AIT, University of Tokyo, Kyutech, AES, MHI, Mitsui, JAMSS, Space BD
Kazakhstan	1	KAZCOSMOS
Malaysia	1	National Planetarium, UPM, SSTA
New Zealand	1	Kiwi Space
Philippines	2	DOST
Russia	1	Glavkosmos
Singapore	2	SSTA, NUS, NTU, AVDAC
Sri Lanka	2	SUESL, Open University Sri Lanka
Thailand	6	GISTDA, NSTDA, KUMTT, Astroberry
Turkey	1	Ministry of Transport and Infrastructure
USA	1	NASA
Vietnam	2	VAST/STI, NRSD
Total	71	

SEUWG : Country Reports

- Space policies, activities, and future plans about Space Environment Utilization were reported from eight Asian countries (Indonesia, Japan, Malaysia, New Zealand, The Philippines, Singapore, Thailand and Vietnam).

  - Space program
  - CubeSat development and deployment through J-SSOD
  - Material exposure experiments
  - “Asian Try Zero-G 2018” of Kibo-ABC initiative
  - Conferences, Workshops, and Space science festivals
  - Commercialization and new projects

“Kibo” Utilization / CubeSats

- JEM Small Satellite Orbital Deployer (J-SSOD) has deployed 224 satellites from Kibo since 2012.
- UBAKUSAT from Turkey was deployed in May 2018.
- 3 satellites (Bhutan / Malaysia / Philippines) have been deployed under BIRDS-2 project in August 2018.
- SpooQy-1 which is being developed by Centre for Quantum Technology (CQT) of National University of Singapore (NUS) will be deployed through J-SSOD in 2019.
- SuryaSat from Indonesia has been selected for the third round of KiboCUBE by UNOOSA and JAXA.

SpooQy-1 team in Singapore

Conclusion of KiboCUBE Agreement between Surya Univ. and JAXA

“Kibo” Utilization / Material Exposure Experiment

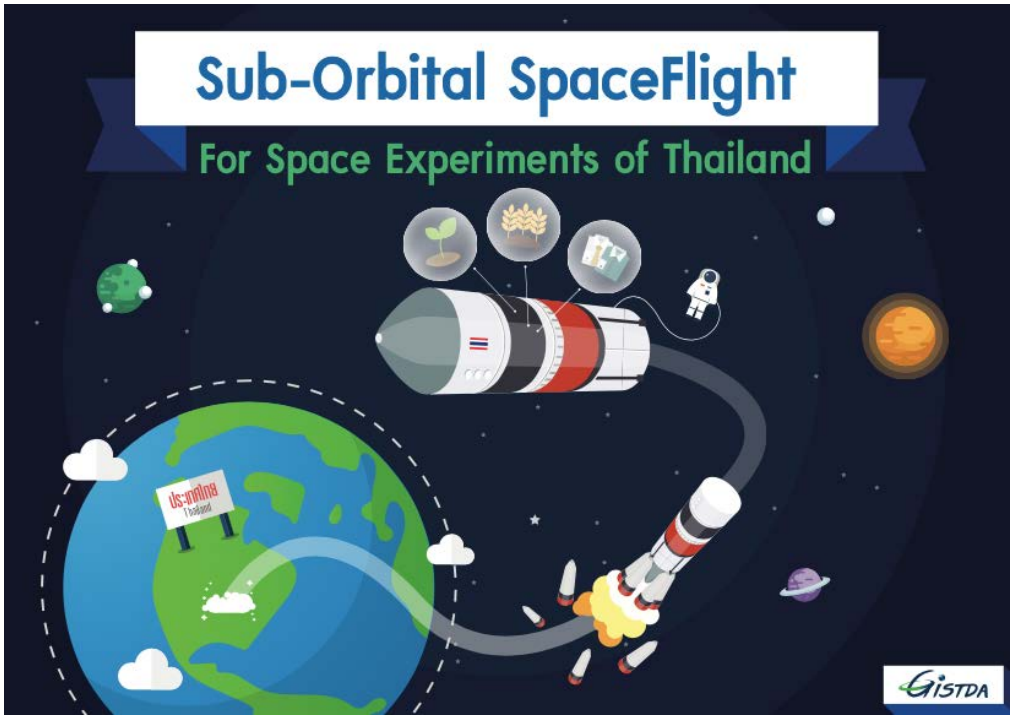
- Experiments of Turkey using Kibo’s Exposed Experiment Handrail Attachment Mechanism (ExHAM) are ongoing.
- Universiti Putra Malaysia has started a new experiment project using Kibo with ANGKASA / JAXA.
  - Smart Optical Fibres for Passive Dosimetry in Space, SOFPADS
    - ✓ E-SOFPADS experiment on ExHAM
    - ✓ I-SOFPADS experiment in Kibo Pressurized Module
  - The samples handed over to JAXA will be launched in 2019.

SOFPADS team in Malaysia

Samples were handed over on Nov.2 2018

Microgravity Experiment

- GISTDA/Thailand proposes a collaborative mission for space experiments with Asian-Pacific region in near future concerning sub-orbital rocket utilization by cost-sharing approach.
- Options of contributions by participants are open to all countries in the regional area.



ISS commercialization and beyond – Asian perspective -

- Arise of new commercial space industry in Japan, Singapore, and the world.
- JAXA made contracts of satellite deployment services from Kibo with Mitsui & Co., Ltd. and Space BD in 2018.
- Establishment of bioastronautics science community is proposed.
- Russian commercial programs in the field of manned flight opportunities is available.
- UN/China cooperation project on utilization of Chinese Space Station is open to all nations for space science and technology.
- JAXA's Space Exploration Innovation Hub is contributing to Research, R&D, and international cooperation for "Moon and Beyond".

Future plan and Next Steps

- SpooQy-1 of Singapore will be deployed from Kibo/J-SSOD in 2019.
- Dosimetry experiment samples of Malaysia were handed over to JAXA on November 2, 2018, waiting for the start of experiment in 2019.

Presentation of “Certificate of Acceptance” of the SOFPADS samples at APRSAF-25 in Singapore

- Indonesia and Thailand are studying the feasibilities of their microgravity experiments.
- We highly value human resource development in Asian countries through the Kibo-ABC programs and the start of space application research using micro satellites, and expect further progress of space development and applications in each country of our region through the utilization of ISS/Kibo.


25TH
APRSAF
ASIA-PACIFIC REGIONAL
SPACE AGENCY FORUM
SINGAPORE


SEUWG
Space Environment Utilization Working Group
APRSAF


KIBO-ABC
Asian Beneficial Collaboration through Kibo Utilization

Thank you !