International Workshop on Space Resources

Perspectives of New Entrant Space Exploration Programs

November 29 – December 1, 2023
Daejeon, South Korea

Venue: IBS Science Culture Center

Jointly Organized by

Korea Aerospace Research Institute (KARI)

Korea Institute of Geoscience and Mineral Resources (KIGAM)

Korea Institute of Civil Engineering and Building Technology (KICT)

Secure World Foundation (SWF)

Introduction and Background

Space resources and their use are attracting increasing global attention, including from emerging space programs. For nations planning to participate in space exploration, space resources present additional challenges and opportunities. This workshop, loosely coordinated with Korea's hosting of the ISECG meeting, aims to establish information-sharing links between the space resource community and the new entrant space exploration community.

In this workshop, international experts will present the science, technology, business, and policy aspects of space resources, providing the audience with a comprehensive view of the issues behind the development of space resources. In addition, the experts and space agency stakeholders will discuss approaches to effectively engage the new entrant space exploration programs so that they can contribute to and benefit from space resource activities in the coming future.

Format

This three-day event will be conducted in English. The first two days will be organized in a conference style and open to wide participation from the Korean space community, while the final day will be organized into group discussions with invited speakers and space agency stakeholders.

Outcome

A post-workshop report, including a summary of the final day's discussions, will be produced, and made available online. In addition, the outcome of the workshop may be presented to the wider community at appropriate occasions.

DRAFT AGENDA

[Day 1] Wed, November 29th

TIME	SESSION / SPEAKERS
09:00-10:00	Registration
10:00-10:30	**Opening Remarks** ▪ KARI, KIGAM, KICT, SWF
10:30-11:00	**Keynote: Global Space Exploration Overview** ▪ Stefaan De Mey – Chair, ISECG / ESA
11:00-12:30	**Presentations on space resources related plans and activities or interests (Part I)** ▪ AEB, AEM, CSIRO, CSA, ESA, JAXA, KARI, LSA, POLSA, and more (TBC)
12:30-13:30	Group Photo / Lunch Break
13:30-15:00	**Session 1: Scientific Knowledge and Interests on Space Resources** ▪ Moderator: Kyeong Ja Kim – KIGAM ▪ Panel: Angel Abbud-Madrid – Colorado School of Mines Clive Neal – University of Notre Dame Joseph A. Minafra – SSERVI
15:00-15:30	Coffee/Tea Break
15:30-17:00	**Session 2: In-Situ Resources Utilization (ISRU) Technology** ▪ Moderator: Hyu-Soung Shin – KICT ▪ Panel: Kroosh Araghi – NASA Kathryn Halder – ESRIC Robert Moses – Tamer Space

[Day 2] Thu, Nov 30th

TIME	SESSION / SPEAKERS
10:00-10:30	**Keynote: NASA's Programs and Activities on ISRU** ▪ Jerry Sanders – ISRU System Capability Lead, NASA
10:30-12:00	**Presentations on space resources related plans and activities or interests (Continued)** ▪ AEB, AEM, CSIRO, CSA, ESA, JAXA, KARI, LSA, POLSA, and more (TBC)
12:00-13:30	Lunch Break
13:30-15:00	**Session 3: Private Sector Drivers of Space Resources Activities** ▪ Moderator: Ian Christensen – SWF ▪ Panel: TBD – ICON (invited) Pierre-Alexis Joumel – Euro2Moon / Airbus Jim Keravala – OffWorld Pablo Sobron – Impossible Sensing Hiroki Furihata – ispace
15:00-15:30	Coffee/Tea Break
15:30-17:00	**Session 4: Policy and Governance Issues in Space Resources** ▪ Moderator: Soyoung Chung – KARI ▪ Panel: Steven Freeland – Western Sydney University Jacob Malthouse – Open Lunar Foundation Dovile Matuleviciute – Luxembourg Space Agency Dumitru-Dorin Prunariu – MVA GEGSLA
17:00-17:30	Wrap-up Remarks

[Day 3] Fri, December 1st (Invited Only)

TIME	SESSION / SPEAKERS
10:00-10:45	Opening Remarks and Participant Self-Introductions ▪ Space Agency Participants, Subject Matter Experts, and Invited Guests
10:45-11:00	**Breakout Groups Instructions**
11:00-12:30	**Breakout Groups Exercise** **Exercise 1 – Space Resources Cooperation Program Design** *In this exercise participants will participate in a simulation designed to consider the different objectives, benefits, and challenges in building a cooperative space resources utilization project between established agencies, new entrant programs, and commercial actors. Participants will be asked to design a potential cooperation program from the perspectives of these stakeholder groups, starting from initial conditions, given by the organizers.*
12:30	Group Photo
12:30-13:30	Lunch Break
13:30-15:00	**Breakout Groups Report** **Implementation Challenges and Other Impressions from Exercise I**
15:00-16:00	**Breakout Groups Exercise** **Exercise II - Concerns and Myths About Space Resources**
16:00-16:30	**Discussion: Future Cooperation and Next Steps**
16:30-17:00	**Concluding Remarks**

Technical Tour

Tours are organised on the day before and after the workshop. Transportation to be provided.

Tour 1: KIGAM & KARI facility tour (Daejeon City)

Tuesday, November 28th	
15:00	Bus Pick-Up from Lotte City Hotel Daejeon
	KARI & KIGAM Facility Tour
17:00	Drop-off at Lotte City Hotel Daejeon

Tour 2: KICT facility tour (Goyang City)

Saturday, December 2nd	
08:00	Bus Pick-Up from Lotte City Hotel Daejeon
	Move to Going (approximately 2.5 hours)
	KICT Facility Tour (including Dirty Thermal Vacuum Chamber)
Around Noon	Lunch
After 13:00	Drop off in Seoul (For those heading Seoul or International Airport)
After 15:00	Return to Daejeon (Lotte City Hotel)

KARI is a government-funded research institute responsible for R&D in space and aeronautics. Established in 1989, KARI has developed a number of Earth observation satellites and space launch vehicles. It also developed Korea's first lunar mission, KPLO - currently orbiting around the Moon - and is preparing for Korea's lunar lander mission scheduled for launch in 2032. KARI houses spacecraft assembly, integration, and testing (AIT) facility and ground stations, including the control room from which KPLO is operated.

KIGAM is a government-funded geoscience research organization founded as the Geological Survey of Korea in 1918. Its research area includes geology and space, mineral resources, resource utilization, climate change response, marine geology and energy, and geologic hazards. Established in January 2023, the Space Resource Exploration and Utilization Center (SREUC) is investigating lunar geology and resources using the KPLO Gamma Ray Spectrometer (GRS) and has the vision of exploring space mineral resources.

KICT is a government funded research institute specializing in construction technology. Since 2016, KICT has expanded its research into space construction. With focus on the lunar construction, it developed facilities and control technologies for testing lunar surface environment. Notable is its large size Dusty Thermal Vacuum Chamber (DTVC) that simulates the lunar environment with simulants. KICT also conducts R&D on local site survey and drilling exploration and construction using in-situ materials.

Recommended Hotels

The following hotels are located within 5-10 min walk to the venue (IBS Science Culture Center).

Lotte City Hotel Daejeon www.lottehotel.com/daejeon-city	Hotel Onoma Daejeon www.marriott.co.kr/CJJAK	Hotel ICC www.hotelicc.com

How to get to Daejeon

From Incheon Airport – Airport Limousine Bus

For transportation from/to Incheon Airport, we recommend taking an airport limousine bus. It would take approximately 3 hours from Incheon Airport to the bus stop in Daejeon. Tickets can be reserved at https://intercitybuse.tmoney.co.kr (Be sure to you select the following stops: Incheon Airport T1 or T2 ↔ Daejeon Gov Complex) After getting off the airport limousine bus, you can take a taxi to your hotel. It would take about 10 minutes to reach the recommended hotels.

From Seoul – KTX Train or Intercity Bus

For transportation from/to Seoul, you can take either train or intercity bus. High speed train (KTX) from Seoul station to Daejeon station takes 1 hour. Intercity bus or express bus from Seoul to Daejeon takes about 2 hours. Reservations can be made online at Train https://letskorail.com, Intercity Bus https://intercitybuse.tmoney.co.kr, Express Bus www.Kobus.co.kr

Registration

Please complete the online form to register for the workshop: Online Registration Form.
Initial Deadline:

- International Particpants - November 5
- Domestic Participants - November 19

Further details about the event will be shared with the registered participants via email.

Contact Information

For more information, please contact:
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