



IAF Committee Briefs

Summer 2023

IAF SPACE ENTREPRENEURSHIP AND INVESTMENT COMMITTEE (SEIC)

The IAF Space Entrepreneurship and Investment Committee (SEIC) is Taking on Space Resources Utilization and Sustainability in 2023

1. Introduction

The IAF Space Entrepreneurship and Investment Committee (SEIC), previously known as the EIC, was inaugurated in 2007, and promotes dialogue among entrepreneurs, established companies, government, and academia, focusing on space economic innovation and PPP. Our SEIC Chair, Nancy C. Wolfson (AIAA), and Vice-Chairs, Gary Martin (AIAA), Ken Davidian (Former-FAA, Current-ISU), and Joerg Kreisel (AIAA) are committed to continue working on innovative initiatives for the SEIC and the IAC 2023.

<https://www.iafastro.org/about/iaf-committees/technical-committees/entrepreneurship-and-investment-committee-eic.html>

2. Latest Developments

The SEIC is actively bringing Space Resources-related topics to the IAF-IAC as part of their agenda from 2021 to 2028. The SEIC Chair and committee members are monitoring all the new development regarding the new space economy, sustainability, and resource utilization.

- 1. NASA's Artemis program:** This is a multi-national effort to establish sustainable exploration of the Moon and, eventually, Mars. Part of the program includes developing technologies for utilizing lunar resources, such as water ice, which can be used for life support, fuel, and other purposes.
- 2. Private Space Mining Companies:** Several private companies, such as Deep Space Industries and Planetary Resources, are developing technologies and capabilities for mining resources from asteroids and other celestial bodies. These resources may include water, precious metals, and other minerals. Here we list companies involved in various space projects and activities, including asteroid mining,

lunar exploration and resource utilization, launch services, space tourism, and more. *a. SpaceX, b. Blue Origin, c. Planetary Resources, d. Deep Space Industries, e. Asteroid Mining Corporation (AMC) f. Shackleton Energy Company, g. Moon Express, h. Astrobotic, I. space Inc., J. Virgin Galactic*

- 3. OffWorld:** Built for extreme unstructured environments. OffWorld (Jim Keravala) robots pave the future by working collectively to maximize the customer-defined key performance indicators in mining operations.
- 4. The Colorado School of Mines** provides a program that focuses on developing technologies and methods for exploring and utilizing space resources such as water, minerals, and metals on the Moon, Mars, and other celestial bodies. The program offers graduate-level courses and research opportunities in space mining, geology, and space law. It also collaborates with organizations such as NASA, the National Space Society, and the Colorado Space Grant Consortium to advance the space resources field.
- 5. International Cooperation:** Several international organizations, such as the United Nations Office for Outer Space Affairs, are working to establish guidelines and regulations for commercializing space resources to ensure responsible and equitable use.

3. Breakthroughs

A new Working Group on Space Resources Utilization at the IAF! One of the core activities, Nancy C. Wolfson, proposed creating and implementing an IAF-SEIC Working Group on Space resources utilization (IAF-SEIC-WG-SRU) in 2021, and her organizational structure and research objectives were approved by the members in 2022. Its implementation started in 2023, with goals to

further the understanding of space resources in terms of making space activities and the commercialization of space sustainable. The IAF-SEIC-WG-SRU was invited to present the preliminary steps of their research at the Luxembourg Space Resources Week (SRW) Conference 2023. The IAF-SEIC-WG-SRU presented their work at the SRW and further discussed the following: *“The Outer Space Treaty, signed by more than one hundred countries in 1969, is still in force; its first article states, “The exploration and use of outer space, including the Moon and other celestial bodies of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.” But which public or private sector will be the first to explore an asteroid with commercial and mining objectives? Which company/country will be the first to reach Mars? The first to arrive will have access to exorbitant gains, which will not be shared or socialized with other countries or companies. After all, if the investments are private, why should the profits be socialized?”*

The International Astronautical Federation (IAF) Space Entrepreneurship and Investment Committee (SEIC) approved the creation of a dedicated team, “IAF SEIC Working Group on Sustainability and Space Resources Utilization (WG-SSRU),” to answer some of these questions.

This paper will focus on the initial literature analysis and surveys regarding the International Telecommunications Union (ITU) for the space area. We will present the initial results of our evaluation, which enabled the IAF SEIC-SSRU to work on the specific action that could effectively facilitate an initial mapping of steps toward the creation of an institution that models the International Telecommunications Union (ITU) for the space area, having as our main objective a strategic approach via an ITU for space resources and asteroid mining and other related topics. The above is only one of the agenda items of the IAF SEIC-SSRU for 2023 – 2025.”



4. Action Plan for the Year

- IAC 2023:** The SEIC Committee proposed to have for the first time a session that will explore space resources activities within our E6 Symposium on Space Business and Innovation (E6.2); this session

will be implemented at the IAC 2023. But this is just the first step; the committee is discussing the creation of an exclusive session dedicated only to all the various space resources aspects and mainly focus on asteroid mining. We hope to collaborate with another IAF committee that deals with the legal elements of this topic in 2024.

- Our SEIC research:** We will disclose the second phase of our research on space resources and the UN International Telecommunication Union (ITU) during the IAC in Baku. This research welcomes the space agencies’ representatives to join the team. We are currently partnering with the Brazilian Space Agency.
- Keynote Speakers and E6.2 New Sessions’ Panelists:** We will welcome our Symposium Speakers and panelists of E6.2, which include Dr. Angel Abbud-Madrid Program Director and Professor of the Colorado School of Mines, Nancy C. Wolfson, Chair of the IAF SEIC and a surprised guest from Government, if you wish to know more about this fantastic line of speakers join the E6.2 session at the IAC in Baku.
- Webinars and Space Talks for the IAF online Channel:** The committee is currently discussing the proposal and will formally approve it in 2023 for an implementation plan in 2024. Some of the objectives are to represent the interests of our SEIC and disseminate the SEIC topics. Encourage international collaboration, communication, engagement, and participation. These webinars and space talks will focus on education and training for young professionals, other non-space professionals, and the general public. This initiative could also be extended as a Podcast. The SEIC invites other committees to join this proposal.
- Welcome to our new members 2023** approved during our SEIC Spring Meeting in Paris: Bruce Morris (former NASA, current SNCORP), Susana Fornies (Airbus), Swarnajyoti Mukherjee (SGAC), Victor Tadeo Ribeiro(former AEB current SGAC).

