

特別企画 III

パネルディスカッション「今後の国際宇宙探査で行う科学の検討サイクル構築」に向けた **Task Force** 報告

Panel Discussion: Task force report on study cycles construction for henceforward International Space Exploration sciences

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1. Task Force and its Study Report

The International Space Exploration Committee, Institute of Space and Astronautical Science, established a task force in April 2023 to share the science roadmap and a common goal of international space exploration between the International Space Exploration Center and the academic communities. The ISE Committee met 11 times online from April to July and discussed the way to construct an information transfer cycle among the ISE Center, the Science and Engineering Committees of ISAS, and academia in the views of (a) information exchange in the cycle, (b) re-organization of the academic communities, and (c) priorities of the action plans.

Their discussions were summarized in the Study Report, submitted in November 2022 and accepted by the Science and Engineering Committees of ISAS in May 2024. Although this acceptance terminated the TF activity, TF members realized that the Study Report includes many issues and suggestions to the academic communities, which are meant to be not only the current supporters of ISAS explorations but also the newcomers of International Space Exploration. Therefore, the TF wishes to propagate a wide variety of academic communities willing to participate in the International Space Exploration, and further to industrial partners.

2. Issues of Academic Communities

The TF activity was initiated with an awareness of the scarce mutual communication between the academia and the ISE Center and the lack of a specific science roadmap of the nation's strategy to promote scientific research and industrial development on the Moon and Mars. The Study Report argue these issues in the above viewpoints, namely, (a), (b), and (c).

2.1. Information exchange in the cycle

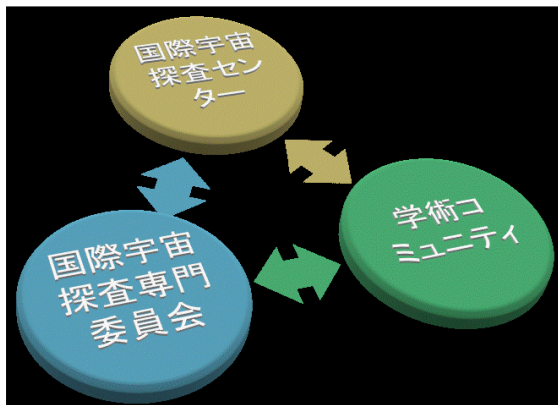


Figure 1. A schematic image of the information transfer cycle. The cycle consists of three major members, the Science and Engineering Committee of ISAS, ISE Center, and academic communities. The last member includes various academic societies, science organizations, and research groups.

First and foremost, the ISE Center shall provide the long-range framework of International Space Exploration. This framework must share the visions and goals with ISE participating countries. At the same time, the visions and goals shall be modified considering the current status of space development as well as the future limits of our nation's resources. Also, the framework needs to include a time frame, not only JAXA's but also commercial mission plans, and foreseeing and substantive plans. Examples of information to be transferred in this framework are,

- Expected launch opportunities
- Plans of non-science missions, such as the ones aiming at industry development
- Feasible platforms and transport vehicles

On the other hand, the academia shall provide the following information to the ISE Center

- The community's science goals and roadmap and its relation with the Global Exploration Roadmap
- Status of international corporation/collaboration
- Link and merge with different fields of science as well as industry
- Cost estimate, implementation plan, current status of development, and social values

2.2. Re-organization of the academic communities

The participants of ISE owe responsibility for the management of human as well as budgetary and technical resources. They need to understand their capabilities to allocate these resources depending on the progress phases. Such responsibilities are widely recognized among the current supporters of ISAS explorations; however, they may be difficult for newcomers. Therefore, suitable guidance from current supporters will be helpful, and such a guidance system should be intentionally organized.

2.3. Priorities of the action plans

Deciding the priority of various science mission plans will be extremely difficult, while general guidelines exist, such as a significance in solar system science or a contribution to future human residence on the Moon and Mars. The Study Report does not propose a specific solution yet emphasizes the importance of continuing debate at a free forum, which must be built with the cooperation of many academia and industries.



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