Joint research call overview

The JAXA Space Exploration Innovation Hub's joint research will establish a research agenda and issue Request for Proposals (RFP) based on applicants' responses to Request for Information (RFI). We look forward to receiving your proposals and submissions for both RFI and RFP. Please note that only RFP submissions may be accepted.

STEP1 Request for Information (RFI) submission

We request relevant technical information to establish a research agenda. Please complete and submit the designated information form in accordance with application guidelines. (Japanese only)

STEP2 Request for Proposal (RFP) submission

JAXA will establish a research agenda and issue RFP based on the information provided in the RFI. Applicants are requested to complete the designated research proposal form and submit it within the application period. Please note that the RFP is open to research proposals not limited to those who provide information in RFI. *Non-disclosure agreements are signed upon request.

STEP3 Selection

JAXA (including outside experts and technical specialists) screens and selects research proposals based on the submitted details.

STEP4 Create research implementation plans

A research implementation plan will be developed in collaboration with JAXA for selected proposals. A joint research contract and (if necessary) researchers' secondment to JAXA (including a cross-appointment system) will be made based on the research implementation plan.

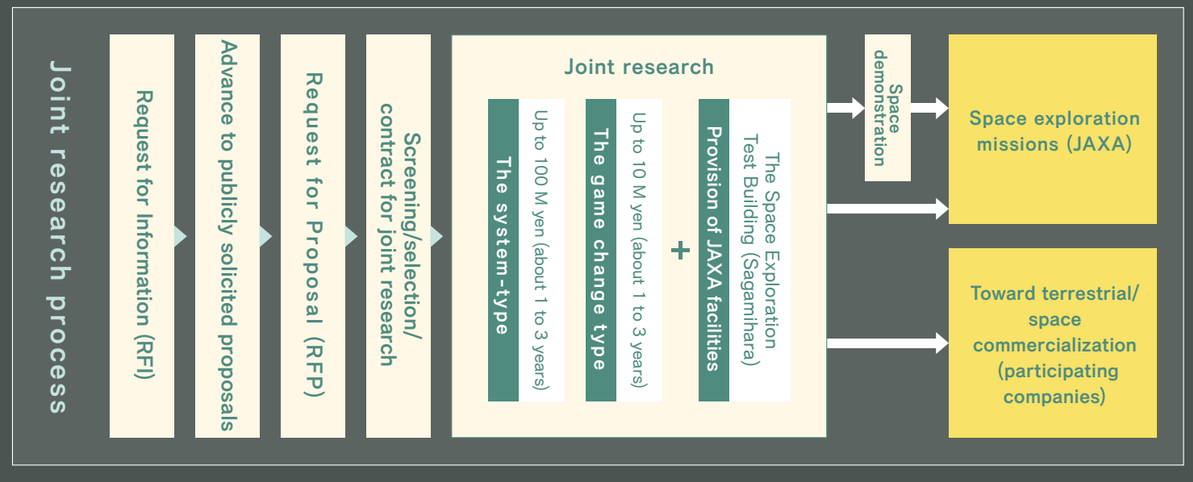
*Each contract is subject to JAXA's terms and conditions. The contract shall be a multi-party agreement with all institutions involved in the joint research.

STEP5 Conclude the joint research contract, etc.

Joint research begins once the contract is signed. All researchers are required to report research progress annually and research results upon completion. Interviews, as well as other evaluations or assessments, are also conducted as needed. Research progress and results are evaluated annually to decide whether or not to continue the research the following fiscal year. Depending on the evaluation, JAXA may decide to revise, cancel, or extend the research implementation plan, regardless of the original plan/research period.

STEP6 Conduct research

Applicants are allowed to continue their own commercialization research after the research period is completed. Our collaboration may continue through the system-type program for further research.



ABOUT JAXA

The Japan Aerospace Exploration Agency, National Research and Development Agency (JAXA) is a core governmental agency for space development engaged in aerospace R&D under the corporate slogan "Explore to Realize." https://global.jaxa.jp/

Inquiries for the JAXA Space Exploration Innovation Hub/ Joint research call

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JAXA Space Exploration Innovation Hub Center

MOON TO MARS INNOVATION

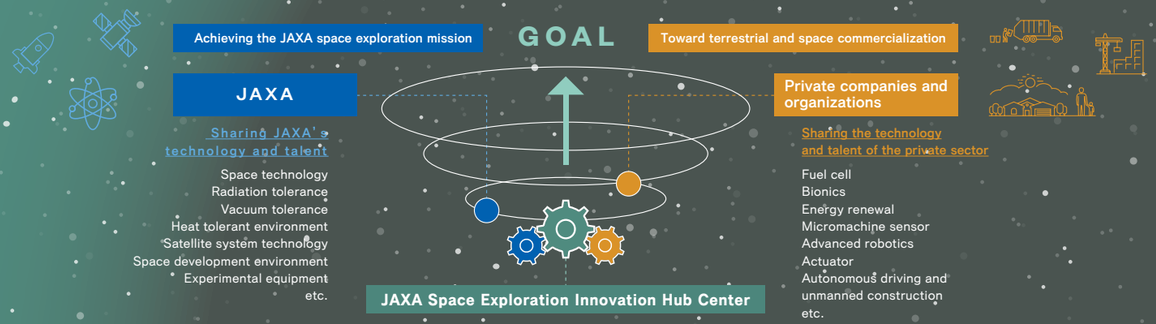
Industry-Academia-Government Collaboration for moon and mars exploration

We welcome companies/institutions/agencies and universities interested in space exploration!

New values from the JAXA Space Exploration Innovation Hub Center

What is the JAXA Space Exploration Innovation Hub Center?

The goal of the Space Exploration Innovation Hub Center at the Japan Aerospace Exploration Agency, JAXA is to create new value by collaborating with partners from diverse fields based on JAXA's technologies and expertise. The innovation hub drives open innovation initiatives at JAXA, which is involved in everything from basic aerospace research to development and application. We are promoting the acquisition of space exploration technologies and terrestrial/space commercialization through joint research, and conducting concept studies for progressive development from the Moon to Mars. We are currently engaged in joint research with various companies, academia, etc. through the "Moon to Mars Innovation (MMI)" program for sustainable Moon and Martian exploration.



'The co-creation spiral of the innovation hub connecting JAXA with companies, institutions, and universities' Looking for companies/institutions/universities interested in space exploration!

MOON TO MARS INNOVATION

Contributing to international space exploration, etc.

The JAXA Space Exploration Innovation Hub Center has launched a new research program called "Moon to Mars Innovation (MMI)" in 2024 in response to the changing environment, evolving landscape of international space exploration and inexpanding global space industry. Though this program, JAXA collaborates with private companies and other partners, etc. co-develop exit strategies tailored to the needs of lunar exploration. We conduct joint research to drive both future JAXA space exploration missions and the commercialization of space and terrestrialtechnologies, etc. Our goal is to develop game-changing technologies to ignite innovation in space exploration and enhane the global competitiveness of Japan's space industry. We are advancing research in Moon and Martian exploration and enable long-term human habitation in four key areas.

1. Next-Generation Energy Field

The objective is to establish electric power supply service on the Moon. Beginning with small-scale, short-range power systems, this project aims to expand in scale and scope to provide power as part of future lunar infrastructure.

2. Next-Generation Mobility Field

The objective is to establish transportation and hauling services on the Moon. This project aims to expand from exploration (surveys, observations, etc.) using small, few, short-range mobility systems to future transportation of goods and people on the Moon.

3. Assembly & Manufacturing Field

The objective is to establish manufacturing, assembly, production, and construction services both in lunar orbit and on the Moon. Initially, we plan to demonstrate these capabilities in low-Earth orbit and then expand to lunar regions. Ultimately, our goal is to utilize lunar resources for in-situ manufacturing.

4. Habitation Field

This research area aims to develop elemental technologies to support life beyond Earth's geomagnetic field.By studying the ISS and the lunar environment, we seek to provide food, clothing, and shelter services that will support extended human missions to the Moon.

Past records and future prospects of the Space Exploration Innovation Hub Center

The JAXA Space Exploration Innovation Hub Center has a proven track record of joint commercialization research that integrating corporate needs of companies, from research agenda setting stage through Requests for Information (RFI). We launched the new "Moon to Mars Innovation (MMI)" research program in 2024, which focuses on developing a space commercialization research agenda aligned with the activities of the private space sector. The research includes "system types," to conduct system research beneficial to both space exploration missions and corporate space businesses, and "game-changing types," to create game-changing technologies that revolutionize the architecture of international space exploration.

As of February 2025

- No. of joint research institutions: 276*
- No. of joint research projects: 215
- No. of space demonstrations: 7
- No. of acceptances for space missions: 11
- No. of new businesses started by private companies: 10

*About 90% non-space company/university, about 100 SMEs & venture business

(KAJIMA CORPORATION)

Remote construction system by coordination of remote and automatic control

For manned base construction on the Moon by a remote and automatic system, novel technologies have been developed based on Kajima's automatic control techniques of construction. As an experiment, construction machinery at the Tanegashima Space Center worked by remote and automatic commands from the JAXA Sagamihara Campus(1,000km away). These results will lead to the construction of the lunar base.

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(Panasonic Industry Co., Ltd.)

Development of Ultra-light EMC Shielding Material

New electromagnetic shielding materials were developed by ultra-light materials to control electromagnetic field both in space components and next-generation communications on ground. The material is expected to be adopted to wireless drones aboard the ISS Kibo and planned to be marketed widely for terrestrial use.

©名古屋大学

(Shinyei Technology Co., Ltd.)

Research on technology for miniaturization, weight reduction, and robustness of trace moisture analyzer

It is assumed that water can be locally sourced for the Moon and Martian exploration, however the first step in lunar exploration is to determine the distribution and concentration of volatile materials such as ice. The research aimed to develop a highly-sensitive micro-moisture meter that capable of functioning under stress and noise conditions.

(TOMY Company, Ltd./Sony Group Corporation/Doshisha University)

Small robot control technology

We have conducted R&D using consumer toy technology to develop small, cost effective robots that capable operating in space and on Earth. Based on previously developed toy technologies, such as simplified communications, power efficiency, durability, and miniaturization, a deformable lunar robot, named LEV-2, has been developed and mounted on the Smart Lander for Investigating Moon (SLIM). On 20th January 2024, LEV-2 successfully landed on the Moon and captured images of the SLIM on the lunar surface.

(Sony Group Corporation)

Optical communication module for long-distance data communication

Recent activities in the micro-satellite and the reusable rocket technologies have accelerated the utilization of low earth orbit (LEO). However, since LEO is not always connected, the challenge of this research was to develop fundamentals for optical communication module that enable the connectivity in LEO.

©JAXA/Sony CSL

(Ball Wave Inc.)

Development of a high-sensitivity and high-precision portable gas chromatograph for the analysis of multiple volatile compounds

We have developed an ultra-small gas chromatograph which can separate and detect multiple gases for monitoring air in crewed space environments and conducting in-situ analysis of volatile organic compounds for planetary exploration. Other applications are expected to be implemented in multiple terrestrial feilds, including analysis of food aroma components, toxic gases in occupational and residential environments, and biological gases.

(Kanadevia Corporation)

Development of all solid-state lithium-ion rechargeable batteries

We have conducted R&D to develop storage battery technology for future planetary exploration missions, emphasizing on vacuum tolerance and high capacity in the extreme temperature fluctuations of the lunar surface. Space demonstrations on the ISS are expected to expand the R&D results into the space business and adress terrestrial energy storage challenges.

(Panasonic Advanced Technology Development Co., Ltd.)

Trial of a deep learning based object detection method using CG images for small amounts of data

Research has been conducted to enable that deep learning based object detection models (AI) can perform well even in locations where sufficient training data cannot be collected, such as disaster sites and the Moon. By using CG images that simulate the lunar environment in a simulator, we have created a function that detects rocks and craters from rover-mounted cameras, even with limited amounts of training data.