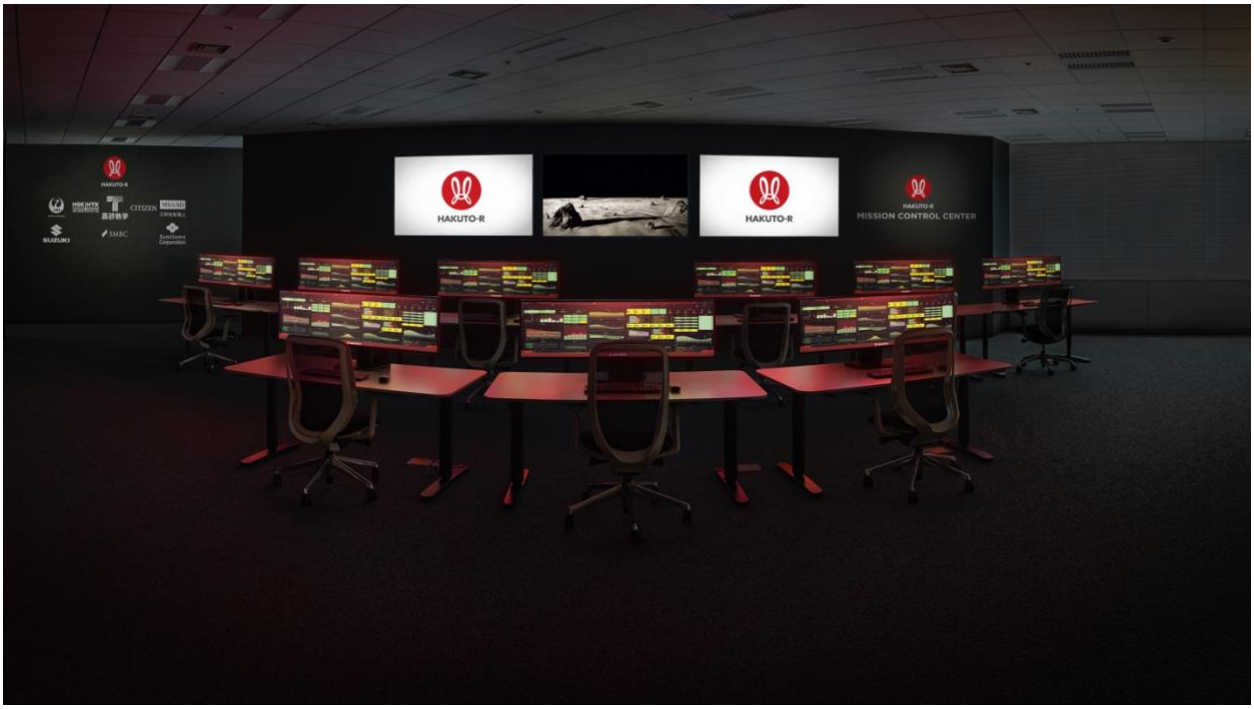
ispace Unveils its “HAKUTO-R” Mission Control Center in Prime Location in Central Tokyo

The facility will access an EU-based ground station network for mission operations

December 9, 2020 – Today, ispace opened its Mission Control Center for its commercial lunar exploration program “HAKUTO-R” in Nihonbashi, Tokyo, a central business district in Japan’s capital.

A Mission Control Center (MCC) is a facility that manages space mission operations from the point of launch until the end of the mission. It is staffed with personnel who monitor every aspect of the mission, particularly the health and status of the spacecraft, and sends commands to the vehicle(s) via ground stations on Earth. In addition to monitoring aspects such as the HAKUTO-R lander’s propulsion, temperature, on-board computers, and payload status, imagery from the lander will be transmitted to the HAKUTO-R MCC during the mission.



(HAKUTO-R Mission Control Center)

The HAKUTO-R Program will utilize a ground station network of the European Space Agency (ESA). The ESA Tracking Station Network (ESTRACK) is operated from the European Space Operations Centre (ESOC) in Darmstadt, Germany. HAKUTO-R will use five of the ESTRACK network’s antennas across four continents, located in:

- Kourou (French Guiana)
- New Norcia (Western Australia)
- Cebreros (Spain)
- Malargüe (Argentina)
- Malindi (Kenya)

In line with ispace’s philosophy to enable greater access to space for all, the HAKUTO-R MCC aims to provide an open place where all kinds of people can gather. ispace sought to create an environment that is accessible to a wide variety of companies and the general public. This direction, we believe, will provide many opportunities to promote greater cooperation and collaboration not only with HAKUTO-R partners, but with stakeholders across many industries, as well as to deliver a source of inspiration for the general public to take interest in commercial space development.

This is why ispace selected Nihonbashi, at the center of Tokyo, as its location. Dating back to the Edo period of Japan, Nihonbashi is one of Tokyo's oldest commercial districts. Although its historic nature is preserved in the atmosphere of the area, Nihonbashi has transformed into a modern, lively business quarter, surrounded by high rises and buzzing with crowds of businesspeople, shoppers and tourists. In addition to enabling closeness with non-space businesses and a broad range of external stakeholders, the HAKUTO-R MCC is within close proximity to the company's Tokyo headquarters, allowing efficient access to the facility for all staff, as well as an easy access point for ispace's MCC personnel residing around the city.

The HAKUTO-R MCC will be staffed with ispace engineers experienced in satellite operations and Earth observation missions for programs led by leading international public space agencies and top-tier aerospace companies—bringing together the best qualities of each of their experiences. In total, the MCC will be operated by around 20 personnel, including 6 mission directors.

The HAKUTO-R MCC facility also contains a dedicated area for running simulations, which is used to perform operational tests before and during the mission to identify potential risks. Prior to Mission 1, ispace engineers will spend approximately six months to identify potential mission challenges, develop simulation plans, and carry out testing. During the real-time mission operations, ispace MCC personnel will work in shifts around the clock, especially during the most critical phases of the mission, such as launch and landing.

Currently, HAKUTO-R is preparing for its Mission 1 lunar lander to enter the final assembly, integration, and testing (AIT) phase, which will be carried out at an ArianeGroup GmbH facility in Germany starting in early 2021. The landing site for that mission, which is scheduled to launch in 2022, has changed from *Lacus Mortis* ("Lake of Death") to *Lacus Somniorum* ("Lake of Dreams"), which has its center located at the lunar coordinates 38° N, 29.2° E. The location of the new landing site is more compatible to enable backup landing scenarios in case it is necessary. In addition, the new site's terrain is relatively flat and safe to land, which is ideal for Mission 1 as a technology demonstration mission.

Comment by Takeshi Hakamada, Founder & CEO of ispace: "From the beginning, ispace has always promoted the concept of lunar development based on inclusion and collaboration among all types of stakeholders. Following this philosophy, we aim to showcase our missions in a way that inspires interest in lunar exploration among the general public and every industry sector. The HAKUTO-R Mission Control Center is a place where the Moon and the Earth become connected. And, with its location in the heart of Tokyo, we can easily share that connection with everyone."

ispace, inc. (https://ispace-inc.com/)
ispace is a lunar exploration company with over 100 staff and offices in Japan, Europe and the United States. Founded in 2010, ispace managed Team HAKUTO, one of the 5 finalists in the Google Lunar XPRIZE competition. The company has raised a cumulative total investment of approximately $125 million (USD) in investment. The funding is being used to build a lunar lander, which aims to provide a high-frequency, low-cost delivery service to the Moon. Aspiring to be a gateway for the private sector to bring their business to the Moon, ispace has also launched a lunar data business concept to support companies with lunar market entry. ispace is part of a team led by Draper, which was selected by NASA to compete in its Commercial Lunar Payload Services (CLPS) Program, and ispace Europe was selected by ESA to be part of the Science Team for PROSPECT, a program which seeks to extract water on the Moon.

HAKUTO-R (https://ispace-inc.com/hakuto-r/)
HAKUTO-R is a multinational commercial lunar exploration program operated by ispace. It includes ispace's first two lunar missions: Mission 1, a soft lunar landing planned to launch in 2022[i], and Mission 2, a lunar landing and deployment of a rover planned to launch in 2023[ii]. For both missions, the HAKUTO-R lander is planned to launch on SpaceX's Falcon 9 rocket. The program aspires to lay the groundwork for high-frequency lunar transportation. Partners of HAKUTO-R include Japan Airlines, Suzuki Motors, Citizen Watch, Mitsui Sumitomo Insurance, NGK Spark Plug, Takasago Thermal Engineering, Sumitomo Corporation, and SMBC Group.

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[i] Planned launch schedule as of December 2020.

[ii] Planned launch schedule as of December 2020.