

Efforts in the Space Human Resource Development Program at the Space Exploration and Research Office, Nagoya University

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Since FY2018, the Space Exploration and Research Office within the Center for Orbital and Suborbital Observations, Institute for Space-Earth Environmental Research (ISEE), Nagoya University, has conducted an intensive **two-week basic and advanced course entitled “Space Utilization in the Private Sector”** as a short-term space human resource development program. This program has targeted a wide range of participants nationwide—including students from technical colleges, universities, and graduate schools, as well as working professionals—regardless of academic background in the humanities or sciences. The objective of the program is to foster human resources who possess fundamental knowledge of microsatellites and their data utilization, and who are capable of identifying latent needs for satellite applications in the private sector.

The program combines conventional lectures with hands-on training in satellite development using space environment testing facilities owned by Nagoya University, group work to design original missions using microsatellites, proposal exercises for microsatellite utilization, and remote sensing data analysis exercises in which participants analyze satellite data to address scientific and societal challenges. This integrated approach provides a high educational impact that cannot be achieved through classroom lectures alone. To date, the program has attracted a cumulative total of more than 600 participants, producing tangible outcomes such as publications in academic journals and the establishment of startup companies by former participants.

From FY2026 onward, a new space human resource development program that further expands and enhances the current program is planned. Building on the know-how accumulated through past programs, the new initiative aims to offer a more practical and systematic curriculum, implemented through collaboration among academia, industry, and government. The program will consist of four main courses: a **foundational education course** covering a broad range of space-related topics such as space development, satellites and data, project management, space business, and space law; a **satellite data utilization course** focused on learning analysis methods for remote sensing data and addressing societal issues through group discussions; a **satellite systems course** in which participants learn system design and testing methods using small satellite kits and satellite environmental testing facilities; and a **project creation and implementation course** in which participants learn project management techniques and create and realize their own projects using stratospheric balloons and microsatellites.

In particular, remote sensing data utilization—covering accessible themes such as weather, vegetation, oceans, and disaster prevention and infrastructure—is especially important for broadening the base of space human resources, as it is approachable for space beginners and working professionals newly entering the field.

In this presentation, we will introduce the space human resource development programs that have been conducted by the Space Exploration and Research Office at Nagoya University to date, as well as the

plans and content of future programs.

Keywords: Space Education, Satellite, Remote Sensing, Data Utilization, Human Resource Development