March 17, 2023

Clark Memorial International High School
Space BD Inc.

The University of Tokyo, Graduate School of Engineering

High school inquiry-based learning in satellite launch & operations

Space Education Project jointly run by Clark Memorial International High School, the University of Tokyo, and Space BD

Satellite Clark sat-1 completed!

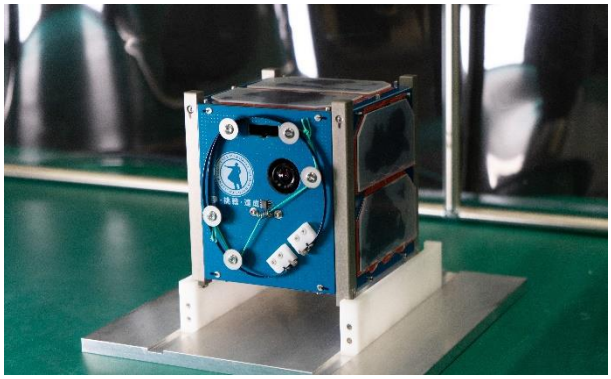
Hokkaido and Tokyo—Clark Memorial International High School (Clark International), the University of Tokyo, Graduate School of Engineering, and Space BD Inc. are running the Space Education Project with the goal of fostering future leaders by developing an inquiry-based learning program on the theme of space where high school students engage with satellite development and launch.

On this occasion, the three organizations would like to announce the completion of the satellite Clark sat-1 in the Space Education Project.

■Project overview

The aim of the Space Education Project is to develop an educational program to foster leaders for our future society by having high school students gain interest in space through experiencing satellite development for themselves and taking the lead in the execution of the mission and its operations. In the process, they will grow into future leaders who are able to consider and implement solutions to a variety of issues from a space perspective. Through satellite development and operation, the program will nurture the students' interest in space development and their initiative to successfully solve problems, while at the same time developing their non-cognitive skills that will be essential for them to be active members of our future society.

■Satellite Clark sat-1



Clark sat-1 (Nickname: Ambitious) is a 1U size satellite, 10 cm square and weighing approx. 0.94 kg. Development began in October 2021, and was completed in March 2023 following various application procedures and JAXA reviews. The satellite will now be handed over to JAXA. To operate this satellite, a control station was built on the grounds of Clark International.

In the course of the satellite development process over approx. one and a half years, the students of Clark International gained basic knowledge of space development, enhanced their teamwork, and learned how to ask questions of their own accord and solve problems. The students learned about the most up-to-date space development from Professor Nakasuka of Tokyo University, participated in various workshops developed by Space BD on the theme of space, visited companies engaged in space businesses, and had other learning experiences not limited the classroom.

The satellite will now aim to complete the space mission proposed by the students. The students

deliberated and decided on the following four stages for their mission.

To achieve the above mission and promote amateur radio technology, future operations will be conducted on a wide scale at the control station set up on the Clark International grounds by students who have obtained amateur radio operator licenses, with the support of Space BD and Clark International faculty members.

As soon as the satellite is operational, the Space Exploration Club plans to use the photo images received from the satellite to create mosaic art on the theme of the SDGs, and to send out encouraging audio messages to organizations and individuals working on Earth and space environmental issues. All students at Clark International will be engaged in inquiry-based learning activities to consider potential use of the satellite.

■Future Operations Schedule

- Summer 2023: Complete handover to JAXA
- Fall 2023: Launch to the International Space Station (ISS)
- Winter 2023: Launch satellite from the ISS Experimental Module Kibo. Operations in space to begin approx. one month following launch.

■ About Clark Memorial International High School

Clark Memorial International High School was named after William Smith Clark, Who was a professor and leader of agricultural education in the late 19th century. His parting words to his Japanese students became a nationally known motto in Japan 'Boys, be ambitious.' Combining daytime schooling with correspondence programs, we have introduced a new approach to secondary education, which has now spread nationwide.

■ About Intelligent Space Systems Laboratory (Nakasuka Laboratory)

The Nakasuka Laboratory developed and launched the first CubeSat globally in 2003, and it has led this field, launching 13 microsatellites to date. The microsatellites, which can be developed with lower costs and shorter periods than medium- and large-sized satellites, bring new players such as universities, startups, local governments, and emerging countries to the space industry. It also allows people to utilize space in new ways.

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■Inquiry about Educational guidance system at the University of Tokyo
The University of Tokyo Aerospace engineering major Nakasuka-Funase Laboratory (Kaneko) TEL/FAX : +81-3-5841-6590 E-mail : kaneko.mari@space.t.u-tokyo.ac.jp

In this era of microsatellites, the University of Tokyo contributes to the industrialization of space through research and the spin-off of space startups. The juice can-sized simulated satellite CanSat and microsatellites are also used for engineering education, with students allowed to develop independently. Graduates are active in many fields, including at JAXA.

■ **About Space BD**

We at Space BD are a one-stop provider of solutions for those in the space utilization field. Not only can we deliver payloads to space by a variety of methods and facilitate the use of International Space Station assets, but we can also assist with everything from business plans to hands-on technical operations. As of February 2023, Space BD's performance record marked over 70 satellite projects and over 300 orders.

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