

## **Development Status of JAXA's New SLR Station in Tsukuba**

Takehiro Matsumoto, Kazuhiro Yoshikawa, Masato Watanabe, Ayano Nakajima, Kiyoshi Hamada, Shinichi Nakamura  
Japan Aerospace Exploration Agency, Tsukuba, Japan

JAXA has been developing a new SLR station since 2017. Tanegashima station (GMSL) had been operated by JAXA since 2004 and had provided satellite ranging data as a part of the ILRS network. However, the operation of GMSL was terminated on 1st April 2021 due to aging and repeating system failures. The purpose of the new SLR station is to take its place and to introduce state-of-art SLR technology. The new SLR station is built in the Tsukuba Space Center (JAXA) where our office is located, and thus it is referred to as "Tsukuba station."The much better accessibility from our office than GMSL makes it easier to change the H/W configuration for experiments and investigate the cause of a system failure.

Tsukuba station is mainly developed by KDK (Japan), TOYO (Japan), and DiGOS (Germany).The design of Tsukuba station is modern and flexible which follows a standardized concept and based on the ESA's new SLR station, Izaña (IZN-1) in Tenerife, Spain, which was also developed by DiGOS. The lasers and the detectors are mounted on the telescope directly to avoid any Coudé Path, which results in the simple and compact design. Two lasers with the wavelength of 532 nm and 1064 nm are installed and the repetition rate of the lasers is 1 kHz. Tsukuba station has the capability of ranging from LEO to GEO satellites.

Although the operation of Tsukuba station was planned to start in April 2021, the development is about 2 years behind schedule due to the coronavirus pandemic. The construction was suspended in November 2020 and restarted in June 2022.Now, Tsukuba station is undergoing an acceptance test. The laser ranging to some satellites including Galileo is already performed. JAXA plans to start the operation of Tsukuba station from April 2023.