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Current Status and Plan of the First Korean Satellite Laser Ranging System(ARGO-M)

The first Korean satellite laser ranging (SLR) system, SEJONG SLR station(SEJL station) was developed by Korea Astronomy and Space Science Institute (KASI) in 2012, whose main objectives is focused on space geodesy researches. So Korea became the 25th country that operates SLR system in support of the international laser tracking network. The SEJL station is designed to be capable of 2 kHz laser ranging with a few mm precision in daytime and nighttime observation for satellites with laser retroreflector array (LRA) up to the altitude of 25,000 km. In this study, the technical aspects including characteristics and specifications are addressed for the SEJL station. The ranging precision is also analyzed based on the single-shot root mean square (RMS) of ground calibration, Starlette and LAGEOS satellite in order to investigate its system performance compared to ILRS SLR systems. And the SEJL station was upgraded into 10 kHz laser ranging in 2015 with more compact operation system and new optoelectronic controller, which leads more returned signals and then increase ranging precision, With the high technology incorporated into SEJL station, it is expected that SEJL station plays an important role in the development of laser ranging data products.