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Laser link experiment between Hayabusa2 laser altimeter and SLR stations

We present results of laser link experiment between a laser altimeter called LIDAR aboard Japanese Hayabusa2 asteroid explorer and ground SLR stations. The experiment was carried out for 16 days from October to December 2015 when the spacecraft was close to the Earth for a gravity assist operation. In the experiment in December 2015, we confirmed that laser shots from Mt. Stromlo station in Australia were detected successfully by Hayabusa2 LIDAR at 6.6 million km distance, meaning that one-way laser link was established. At the same time, by scanning the spacecraft attitude, a trial to find out the field of view direction of the receiving telescope of LIDAR in the spacecraft frame was also successful. Finally, Hayabusa2 became the third spacecraft which established a laser link farther than the lunar distance, following NASA's MESSENGER and Mars Global Surveyor.