

ILRS support and flight results of distributed nanosatellite mission S-NET

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The S-NET mission consists of four nanosatellites (each 9 kg) flying in a close train configuration to perform intersatellite communication demonstration. Each satellite is equipped with a unique reflector pattern on its nadir side by varying the number of 10mm fused silica cubes. The cube far field diffraction pattern measurement was done by GFZ Potsdam and the cube pattern design was supported by IWF/ÖAW Graz. The pattern was intended to identify the satellites in early stage of orbit insertion, since no GNSS receiver was accommodated onboard. The orbit insertion was defined for minimizing the relative drift of the satellite, so that radar tracking (e.g. NORAD) would take relatively long (several weeks) to identify the objects.

After successful orbit insertion of the satellites on Feb. 1st 2018, the first SLR return was obtained on April 12th. The continuous tracking supported the object identification and precise formation analysis. Thus the presentation will show the mission flight results and lessons learned from the laser ranging of S-NET mission.