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SESSION   Session 4: Automation and autonomous station operations

TYPE   Presentation

TITLE   Automation successfully implemented at NGSLR

ABSTRACT

NASA's prototype Next Generation Satellite Laser Ranging system (NGSLR) was designed with the goal of automating the operational activities. The system was successful at fully automating star calibrations, automatically following a tracking schedule, determining if we were hitting the satellite, and other activities. The system never achieved full automation because of limitations in some hardware capabilities and because of U.S. Federal Aviation Administration regulations. These included: (1) the inability to adequately detect cloud cover day and night via the all sky camera due to calibration issues; (2) problems with implementation of an automatic telescope pointing system based on equalizing the counts in a quadrant detector due to a poor telescope star image and spatial variations in photocathode sensitivity; and (3) US Federal regulations requiring a human to be in the loop for aircraft avoidance. These issues and others will be discussed along with our planned solutions to these problems for SGSLR.