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TITLE Transitioning the NASA SLR network from the Time Interval Mode to Event Timing Mode with improved Data quality and quantity

ABSTRACT

Seven of the SLR stations in the NASA network has been using the HP 5370 time interval counters for time of flight measurements for the last 25+ years. This product has been obsolete since the early 2000 and maintaining this product for network operations has become extremely hard or impossible. Event timer is widely used in the ILRS community for range measurements and is a natural successor. Despite this, for a network with global impact, transitioning to any replacement device requires significant scrutiny and long term validation. Long term measurement, however, has the potential for interrupting station operational data flow to ILRS through quarantine and hence a non-invasive concurrent strategy was devised for the new and old hardware to perform simultaneous phased measurements across multiple stations to bring about a robust transition. The unconventional concurrent data, although quarantined, forced an ILRS procedural change for the station upgrade. This paper describes the process for the measurement and analysis as well as the steps towards the transition