Local Survey Relationships to System Calibration and Bias Identification

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ABSTRACT

For SLR systems that perform system calibrations to external ground targets, it is important to have multiple targets that vary in range and azimuth to help in the identification of system bias, target or station movement. The periodic ranging to multiple terrestrial targets, and the subsequent analysis, can serve as an initial diagnostic tool in detecting potential ground target movement. Local surveys and system ties are also necessary to help monitor the local site stability between system and terrestrial targets. Inaccuracies or movements in survey values to primary calibration targets above tolerances will contaminate calibration data leading to biased satellite data.

Movements in ground targets have occurred as a result of apparent subsurface events affecting the geological stability and characteristics on which these piers are supported. Movements of have been isolated within short periods of time; thus rendering regular monitoring of ground target stability essential to operational activities.

This poster will describe the importance of multiple terrestrial ground targets; the value of regular ground testing to multiple ground targets, and the monitoring of calibration data in the detection of potential target movements. It will also present evidence supporting the importance of performing regular survey to maintain accuracy of system ties. To help describe the potential problems associated with this issue, this poster will provide a summary of recent events at the Goddard Geophysical and Astronomical Observatory (GGAO) and present recommendations for ensuring accurate ground calibration ranges and preventing the loss of satellite range data due to calibration bias.