Results of MODIS Band-to-band Registration Characterization Using On-orbit Lunar Observations

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ABSTRACT

Since launch, lunar observations have been made regularly by both Terra and Aqua MODIS and used for a number of sensor calibration and characterization related applications, including radiometric stability monitoring, spatial characterization, optical leak and electronic cross-talk characterization, and calibration inter-comparison. MODIS has 36 spectral bands with a total of 490 individual detectors. They are located on four focal plane assemblies (FPA). This paper focuses on the use of MODIS lunar observations to characterize its band-to-band registration (BBR). In addition to BBR, the approach developed by the MODIS Characterization Support Team (MCST) can be used to characterize MODIS detector-to-detector registration (DDR). Long-term BBR results developed from this approach are presented and compared with that derived from a unique on-board calibrator (OBC). Results show that on-orbit changes of BBR have been very small for both Terra and Aqua MODIS and this approach can be applied to other remote sensing instruments.

Keywords: Terra, Aqua, MODIS, Moon, band-to-band registration