

NASA experience and lessons learnt in data quality and cal_val for optical missions

Kurt Thome¹, Stephen Mackin

1) kurtis.thome@nasa.gov, NASA Goddard Space Flight Center

Abstract

The combination of high quality optical imaging sensors over the past 25 years has allowed calibration and validation scientists to evaluate both the sensors themselves and the methods for on-orbit calibration. Early efforts in vicarious calibration have been refined to allow the intercomparison of sensors that allows data products to be developed from multiple sensors. Modifications to calibration approaches have been needed to address the large number of imagers being launched in recent years while still providing the high-accuracy, SI-traceable radiometric calibration needed for science applications. An overview of the vicarious methods used in optical imagery is presented with an emphasis on the three imagers on Terra, early commercial imagers, and vicarious approaches relying on in-situ measurements. Results from these sensors are presented along with the impact they have had on sensor design, on-ground testing approaches, and validation methods for data products.

Keywords - Calibration methodology and techniques