Integrated Ray Tracing model for GOCI in-orbit calibration simulation

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GOCI (Geostationary Ocean Color Imager) is one of the two COMS science instruments that KARI and Astrium are jointly developing and planned to be launched at around 2008. The main objectives of the payload include observation of the coastal water environment such as red tide around Korea peninsular. We report the current progress in development of the integrated ray tracing model as one of the key analysis tools for the GOCI in-orbit imaging and radiometric performance verification. The model was used for the stray light analysis at the optical subsystem level, proving that the simulated stray light performance with the design improvement meets the GOCI stray light requirement. The application of the model for measurement simulation for the water leaving radiance demonstrates, though it may be in the first order approximation, that GOCI is capable of monitoring the red tide infection. The model concept, computational details, and simulation results together with the implications are presented.