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[\[PDF \(1138K\)\]](#) [\[References\]](#)**Radiometric Cross Calibration of AVNIR-2 and MODIS Using Directional Functions of Top-of-Atmosphere Reflectance**Hiroshi MURAKAMI¹⁾, Takeo TADONO¹⁾ and Masanobu SHIMADA¹⁾

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Abstract

An effective cross-calibration scheme is proposed and used for evaluation of AVNIR-2 radiometric accuracy. The scheme uses top-of-atmosphere reflectance functions of satellite zenith angle at each sample point. Each function was made using MODIS 500 m observations at temporally and spatially stable ground sites over 16 days which includes an AVNIR-2 observation date. As the result, radiances of AVNIR-2 channels 1 (463 nm), 2 (560 nm) and 3 (652 nm) agreed well to the radiances of Aqua and Terra MODIS channels 3 (466 nm), 4 (554 nm) and 1 (646 nm) respectively within 5% accuracy. AVNIR-2 Channel 4 (821 nm) radiance was evaluated lower than that of MODIS channel 2 (856 nm) about 15% on average. If we considered influences of atmospheric absorption and spectral slope of the ground sites, the AVNIR-2 channel-4 difference against MODIS was estimated to be less than half of the 15%. This cross-calibration scheme among similar orbit satellite sensors can provide many samples which enable us to analyze sensor response dependency on different observation conditions such as sensor-pointing angles.

Keywords: ALOS, AVNIR-2, radiometric calibration, MODIS

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