

静止衛星及び低軌道衛星による対流圏NO₂観測を想定した地表面BRDFの影響に関する研究
Effect of Surface BRDF on the Geostationary and Low Orbit Observations of Tropospheric NO₂

野口 克行^{1*}; リヒター アンドレアス²; ロザノフ ラジミール²; ロザノフ アレクセイ²; バローズ ジョン²; 入江 仁士³
; 北 和之⁴
NOGUCHI, Katsuyuki^{1*}; RICHTER, Andreas²; ROZANOV, Vladimir²; ROZANOV, Alexei²; BURROWS, John²; IRIE, Hitoshi³; KITA, Kazuyuki⁴

¹ 奈良女子大学, ² ブレーメン大学, ³ 千葉大学, ⁴ 茨城大学

¹Nara Women's University, ²University of Bremen, ³Chiba University, ⁴Ibaragi University

We investigated the effect of surface reflectance anisotropy, Bidirectional Reflectance Distribution Function (BRDF), on geostationary and low orbit satellites' retrievals of tropospheric NO₂. We first develop an empirical model of the three BRDF coefficients for each land cover type over Tokyo, and then apply the model to the calculation of land cover type dependent AMFs and BAMFs. Results show that the variability of AMF among the land types is up to several tens percent, and if we neglect the reflectance anisotropy, the difference from BRDF's AMF reaches 10% or more. The evaluation of the BAMFs calculated shows that not to consider variations in BRDF will cause large errors if the concentration of NO₂ is high close to the surface, although the importance of BRDF for AMFs decreases for large AOD.