



Developing a visible and near infrared land surface BRDF model for RTTOV

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The next version of the RTTOV model (version 11) developed for satellite data assimilation in NWP will allow simulations in short-wave spectral domain. The objective of this study is to apply the methodology of the UW IR land surface emissivity model to provide land surface BRDF in visible and near infrared. The UW IR emissivity module provides high spectral resolution (HSR) IR emissivity spectra between 3.6 and 14.3 microns. The HSR IR emissivity spectrum is derived by using an eigenfunction representation of high spectral resolution laboratory measurements of selected materials applied to the UW/CIMSS Baseline Fit (BF) global infrared land surface emissivity database, which is a MODIS-based, global, gridded, monthly database. The methodology would follow the algorithm of the RTTOV IR emissivity module but using a newly selected set of laboratory (reflectance) spectra measurements within the spectral range of 0.4-2.5 microns. The laboratory spectra were selected from the USGS library version 6. During this study the big challenge is how to handle and take into account the bidirectional feature of the VIS-NIR part of the laboratory reflectance spectra. For that, the MODIS BRDF Albedo model parameters product at 7 short-wave bands is used. Results of this study will be presented on the SEVIRI instrument.