

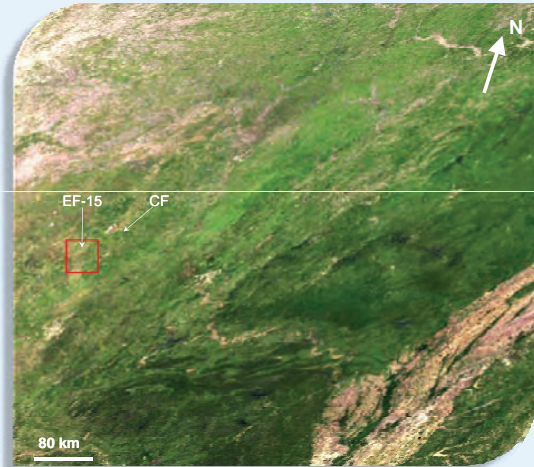


MODIS Albedo Temporal and Spatial Validation at the SGP Site

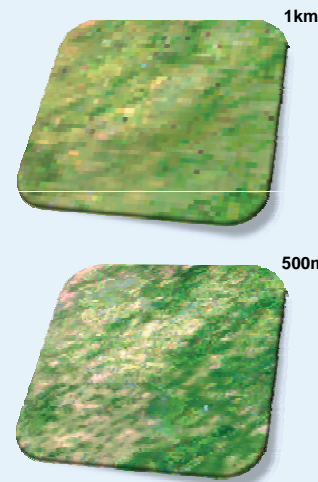
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The newly reprocessed (Version 005) MODIS BRDF/Albedo product is now being produced from Aqua and Terra data every eight days at an increased 500-meter spatial resolution. Once reprocessing is complete, the data record will stretch from 2000 to present. The spectral product provides semi-empirical, kernel-driven anisotropy models which are retrieved from all clear-sky, high quality, atmospherically-corrected surface reflectances available over a 16-day period. Once a model has been obtained, intrinsic measures of the surface albedo and reflectance can be produced for any illumination condition and (with knowledge of the atmospheric optical depth) combined to produce surface albedos equivalent to those measured in the field. The ability of this product (albeit a product based on multi-day inputs) to characterize the surface anisotropy and to capture the daily temporal and spatial albedo variations observed by field instruments at the Southern Great Plains site is demonstrated below.



White Sky Albedo from the MODIS 1km product, MCD43B3, a true-color image in sinusoidal projection, nominal date 5/9/2003.

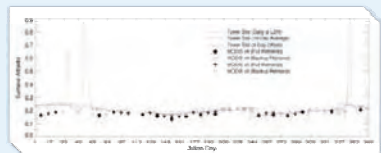
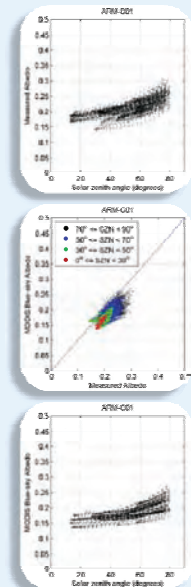
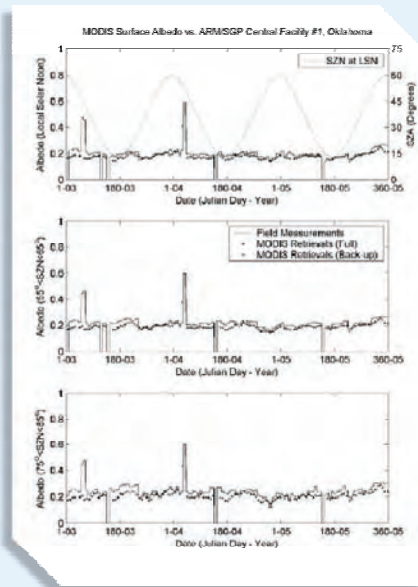


▲ ARM Southern Great Plains Site - Extended Facility #15

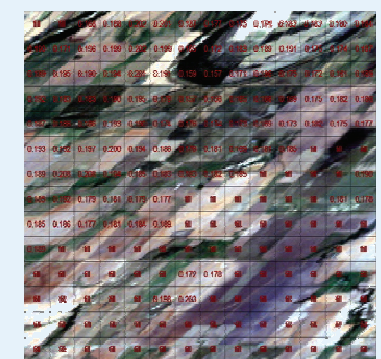
Analyses and intercomparisons of MODIS V005 blue-sky albedos using 8-day and 500m resolution over two ARM Southern Great Plains sites demonstrate product consistency over a broad range of spatial, temporal, and angular scales.

This project is using ARM data for validation of the treatment of anisotropic multiple scattering between surface and atmosphere in applications of the MODIS BRDF/Albedo products. We are tapping into the time sequences of measured surface albedo for the Southern Great Plains site and comparing these with MODIS-based estimates that specifically account for anisotropic surface scattering. The focus is on the effect of anisotropic surface scattering on the diffuse irradiance in order to determine the circumstances under which a correction for anisotropic effects is required.

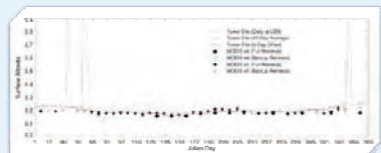
ARM-SGP Central Facility (C01)



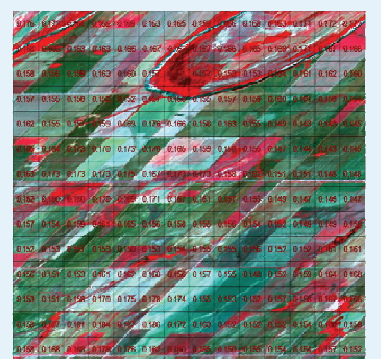
Central Facility (C01)



ETM+ (left) and ASTER (right) scenes collected on 7/12/01 and 5/23/06 (respectively) at the ARM-C01 station. These 7km x 7km scenes have been superimposed against two MODIS ASCII subsets using blue-sky albedos at 500m resolution.



Extended Facility #15 (EF-15)



ARM-SGP Extended Facility #15 (EF-15)

