ABSTRACT for 2nd International Workshop on Multiangular Measurements and Models, 15-17 Sept 1999, Ispra, Italy

Surface BRF study using multiangle measurements from AirMISR

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MISR (Multiangle Imaging SpectroRadiometer) is an instrument on the EOS Terra platform, which is scheduled to be launched in August 1999. AirMISR is a radiometrically calibrated airborne imaging instrument used to simulate MISR measurements (9 view angles ranging from 70 deg forward to 70 deg aftward in spectral bands centered at 446, 558, 672, and 866 nm). The aircraft normally used for AirMISR observations is an ER-2 which flies at about 20 km altitude, allowing multiangle images of ground targets to be obtained which are about 9 km x 10 km in area. The pixel footprint size in the nadir view is approximately 8 m but the process of coregistration of the multiangle images results in a footprint size of 27.5 m for all view angles. So far, AirMISR has undertaken a very limited number of flights but two targets areas, both in Southen California, are currently available for analysis. One is a suburban area just northeast of Los Angeles, encompassing the NASA Jet Propulsion Laboratory and the other is a high desert dry lake about 80 km north of Los Angeles. These images have been corrected for atmospheric effects (both Rayleigh and aerosol scattering), effectively converting from radiance at the observation altitude to reflected radiance at the surface. This allows a comparison of the directional reflectance characteristics for the various surface types contained within the scene.