

Informing Aerosol Transport Models With Satellite Multi-angle Aerosol Measurements

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As the aerosol products from the NASA Earth Observing System's Multi-angle Imaging SpectroRadiometer (MISR) mature, we are placing greater focus on ways of using the aerosol amount and type data products, and aerosol plume heights, to constrain aerosol transport models. We have demonstrated the ability to map aerosol air-mass-types regionally, and have identified product upgrades required to apply them globally, including the need for a quality flag indicating the aerosol type information content, that varies depending upon retrieval conditions. We have shown that MISR aerosol type can distinguish smoke from dust, volcanic ash from sulfate and water particles, and can identify qualitative differences in mixtures of smoke, dust, and pollution aerosol components in urban settings. We demonstrated the use of stereo imaging to map smoke, dust, and volcanic effluent plume injection height, and the combination of MISR and MODIS aerosol optical depth maps to constrain wildfire smoke source strength. This talk will briefly highlight where we stand on these application, with emphasis on the steps we are taking toward applying the capabilities toward constraining aerosol transport models, planet-wide.