Particle turbulent flux retrievals through novel remotely sensing methodology

The main objective of this study is to develop and validate a new methodology that can be used for spaceborne retrievals of aerosol mass fluxes. The work will specifically be designed for the future spaceborne architecture of the NASA Atmosphere Observing System (AOS). The combined aim of the existing NASA project(s) and this funding will be to lay the groundwork for multi-platform and model-sensor data fusion and near-real-time data algorithm development. The proposed objective will be achieved through the following specific tasks:

Task 1: Explore using Doppler Lidar-retrieved aerosol backscatter at different heights for aerosol mass flux calculation. Compare the results with aerosol mass fluxes calculated using the eddy covariance technique and in-situ data.

Task 2: Work with the NASA Langley team to explore the application of model-satellite data fusion for the representation of the global profiles of aerosol turbulent mass fluxes.