CCG28

Seasonal and Diurnal Variation of Aerosol Extinction Profile and Type Distribution from CALIPSO 5-year Observations

Lei Huang[1], Jonathan H. Jiang[2], Jason L. Tackett[3], Hui Su[2], Rong Fu[1]
leih@utexas.edu
1. Jackson School of Geosciences, The University of Texas at Austin, Austin, Texas
2. Jet Propulsion Laboratory, California Institute of Technology, California
3. Science Systems and Applications, Inc., Hampton, VA

We perform a statistical analysis on seasonal variations of the vertical distributions of aerosol properties, including extinction coefficient, aerosol type and layer top altitude, by using 5-year CALIPSO lidar measurements at 532 nm. Results show that dust contribution to the all-aerosol extinction is highly dependent on the emission source and time period. The vertical distributions of aerosol types also show large seasonal variation. The diurnal variations (differences between nighttime and daytime measurements) of aerosol properties are similar within the same aerosol regime. The all-aerosol extinction is generally larger during nighttime, while dust extinction shows little diurnal variation except when dust dominates in the aerosol composition. In general, smoke occurs more frequently at high altitude during nighttime, while dust and polluted dust occur less frequently. Aerosol layer top appears to reach high altitude more frequently during nighttime than during daytime.

Keywords: CALIPSO, aerosol profile, aerosol property, remote sensing