

Answer to Anonymous Referee 1

I am happy that the authors addressed all my previous issues. The manuscript is now ready for publication after some minor changes.

Line 10 pag 2. I suggest to broad the discussion with few rows, stressing that aerosol layers can either cool or warm the the system earth-atmosphere, as suggested in Tosca, M.G. et al. *Attributing Accelerated Summertime Warming in the Southeast United States to Recent Reductions in Aerosol Burden: Indications from Vertically-Resolved Observations. Remote Sens.* 2017, 9, 674.

The following sentences with two new references are now included in the Introduction.”Clear-sky longwave forcing and cloudy-sky shortwave forcing of dust layer are very sensitive to the layer altitude, while the sign of the radiative effect of a biomass burning smoke layer depends on the presence of underlying stratus (Mishra et al. 2015, Tosca et al. 2017).”

Line 17 Pag 3: actually the adopted method in MPLNET retrievals pairing lidar measurements with sun-photometer data is used firstly by Marengo et al., 1997

The reference to Marengo et a.: 1997 has been made in the introduction.

Line 24 Pag. 4 How much ”cloudy” should be a profile to be deleted? Please specify

The selection of ”clear sky periods” is based on the removal of 1-min vertical profiles with cloud layers below 5 km, before looking at 30-min period with clear sky periods. The few lines describing the data selection now reads: ”Data filtering with lidar radiometric detection of a cloud (day only), with search for layers showing very strong backscatter below 5 km (day and night) and for high opacity of the 0-3 km atmospheric layer (day and night), selects very efficiently the 30-min time periods with no cloud layers below 5 km. The following criteria are then applied to eliminate the lidar data considered too cloudy: all the profiles with a daytime sky level (SB) greater than 7000 counts/s or with a 150 m layer where the backscatter ratio is greater than 17 between 0 and 4.5 km, or with attenuated backscatter smaller than $10^{-4} \text{ km}^{-1}\text{sr}^{-1}$ between 3 and 8 km cloud layers below 5 km”.