We have rewritten the abstract as following:

"***Abstract.*** *Aerosols emitted from wildfires are becoming one of the main sources of poor air quality in the US mainland. Their extinction in UVB (wavelength range 280-315 nm) is difficult to be retrieved using simple lidar techniques because of the impact of O_3 absorption and the lack of data about the lidar ratios at those wavelengths. Improving the characterization at these wavelengths will enable their monitoring with different instruments and also will permit to correct the aerosol impact on the ozone lidar data. The 2018 Long Island Sound Tropospheric Ozone Study (LISTOS) campaign in the New York City region brought a comprehensive set of instruments that enabled the characterization of lidar ratio for UVB aerosol retrieval. The NASA Langley High Altitude Lidar Observatory (HALO) produced the 532 nm aerosol extinction product along with the lidar ratio for this wavelength by using a high spectral resolution technique. The Langley Mobile Ozone Lidar (LMOL) is able to compute the extinction provided it has the lidar ratio at 292nm. The lidar ratio at 292nm and the Ångström Exponent (AE) between 292 nm and 532nm for the aerosols were retrieved by comparing the two observations using an optimization technique. We evaluate the aerosol extinction error due to the selection of these parameters, usually done empirically for 292nm lasers. This is the first known 292nm aerosol product inter-comparison between HALO and Tropospheric Ozone Lidar Network (TOLNet) ozone lidar. It also provided the characterization of the UVB optical properties of aerosol in the lower troposphere affected by transported wildfire emission."*

The revised part in introduction (added flow chart and description of flow chart) are as follows:
"*To retrieve the S_1 and AE, an iterative method with 3 main steps was used as shown in Figure 1. The first step is the retrieval of the aerosol extinction at 292nm from LMOL. For that, the LMOL raw data are corrected from the ozone absorption. Then the Fernald method (Fernald et al., 1972, Fernald, 1984) is used with an empirical S_1 (which is modified in subsequent iterations to explore the parameter space). For the current study, the impact of the aerosols was low enough that an iterative correction to the O_3 density was not necessary to retrieve the aerosol extinction accurately; for dense aerosols layers, the method described in Browell et al., 1985 would have been used. The second step is the retrieval of the aerosol extinction at 292 nm from HALO. The conversion of the extinction from 532nm to 292nm is done by using an assumed AE which is also*

modified in subsequent iteration to explore the (S_1 , AE) parameter space. The third step is the comparison of the aerosol extinction from both instruments at 292 nm. The integration of the difference provides the partial aerosol optical depth (AOD) difference, refered later as the partial AOD index. Once the plausible (S_1 , AE) parameter space has been explored, there will be a minimum to the partial AOD index which points to the best (S_1 , AE) for the observed conditions. The LMOL aerosol extinction profile related to optimized S_1 and difference between the LMOL and HALO 292 nm aerosol profile related to the optimized S_1 and AE was also recorded for further analysis."

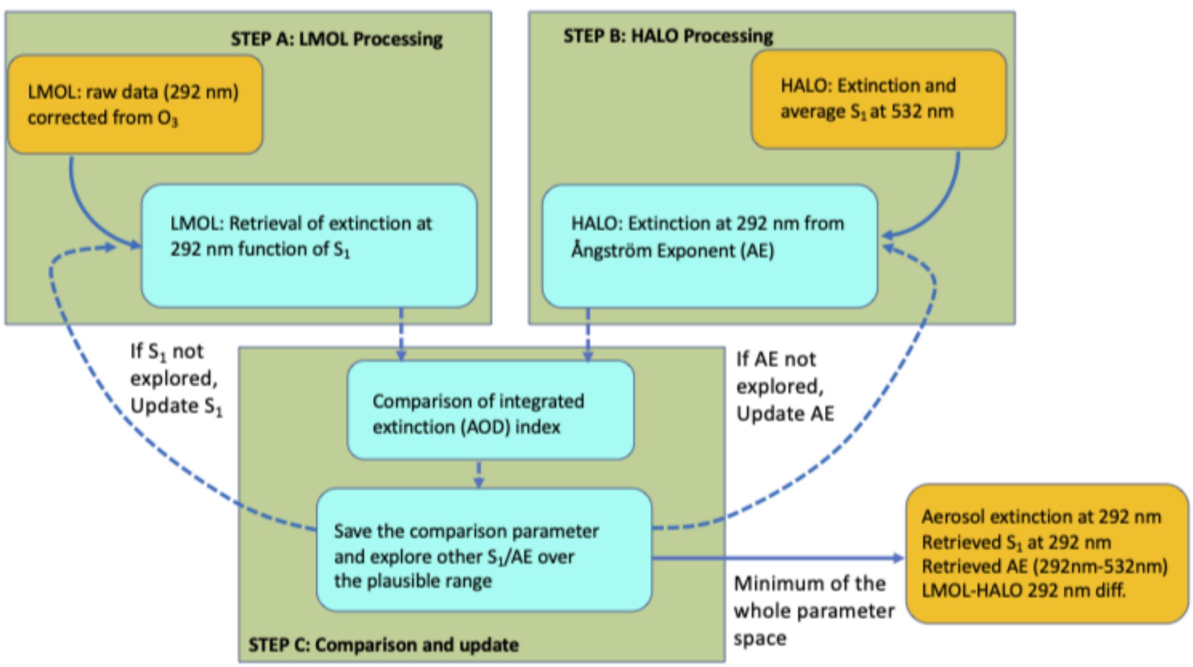

Figure 1. Flow chart for the approach used in this work. The cyan section corresponds to the processing needed for the retrieval of the optimal (S_1 , AE)