

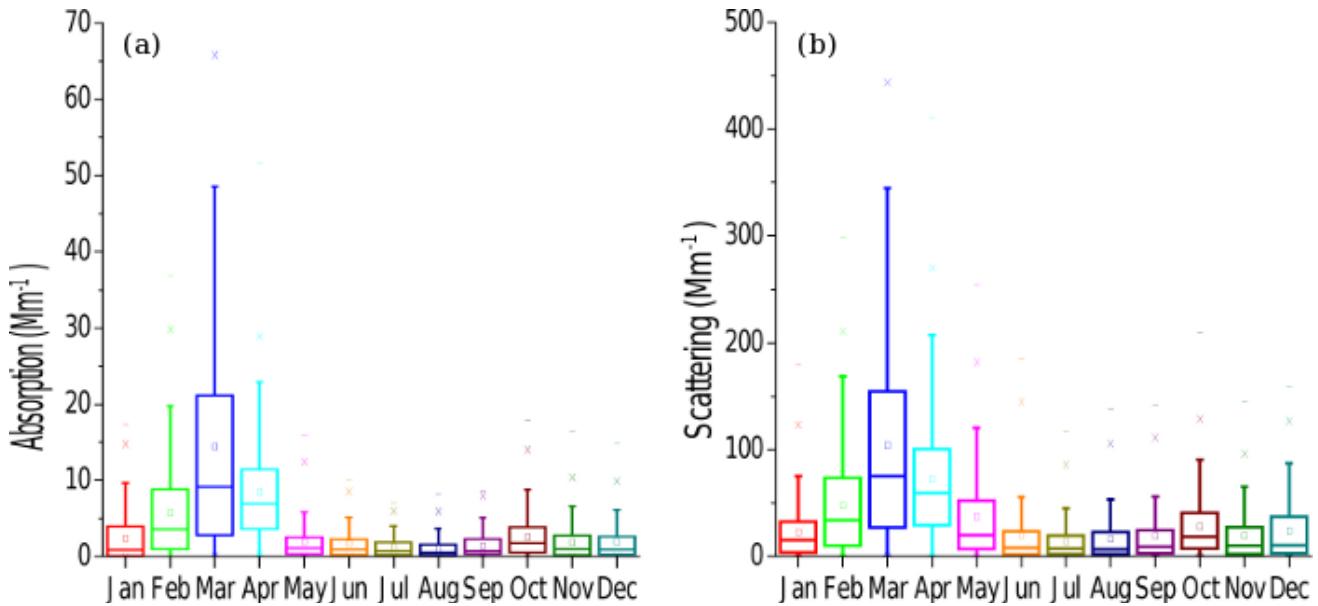
# Aerosol Optical and Radiative Properties Measured at Mt. Lulin During Biomass Burning Seasons

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This paper presents the parameters of aerosol optical properties including scattering, absorption, extinction, single scattering albedo, Angstrom exponent, aerosol optical depth, and derived radiative forcing efficiency at the Lulin Atmospheric Background Station (LABS) in central Taiwan, East Asia. The LABS held its grand opening for operation on 13 April 2006. It is located at the Mt. Lulin (2,862 m MSL; 23°28'07"N, 120°05'25"E) in central Taiwan. The LABS is unique because its location and altitude can enhance the global network of Global Atmosphere Watch (GAW) in the Southeast (SE) Asian region where no high-elevation baseline station is available. Our site is located between the GAW Waliguan Station (3,810 m) in Tibetan plateau and Mauna Loa Observatory (3,397m) in Hawaii. In autumn of 2008, light scattering and absorption measurements were added to the suite of instruments at our site. Trajectory study indicates that this site provides us a great of chances to observe a variety of air mass originated from contaminated or clear source regions, giving a distinctive contrast of atmospheric changes. Till present time, the average values of light scattering and absorption (550 nm) are 40.57 Mm<sup>-1</sup> and 4.76 Mm<sup>-1</sup>, respectively. To summarize the results, the maximum concentration of pollutants generally occurred during spring time, especially in March, the average values of light scattering and absorption (550 nm) are 103.89 Mm<sup>-1</sup> and 14.45 Mm<sup>-1</sup>, corresponding to the biomass burning from SE Asia, which are significantly higher than those values in other seasons. Further relationship of those optical parameters with pollutants will be further studied.



**Figure 1.** Seasonal variation of (a) aerosol light absorption coefficient, and (b) aerosol total light scattering coefficient.