

Estimations of Spectral Dependence of Tropospheric Aerosol Single Scattering Albedo in Sukhothai, Thailand

Authors : Siriluk Ruangrungrrote

Abstract : Analyses of available data from MFR-7 measurement were performed and discussed on the study of tropospheric aerosol and its consequence in Thailand. Since, ASSA (w) is one of the most important parameters for a determination of aerosol effect on radioactive forcing. Here the estimation of w was directly determined in terms of the ratio of aerosol scattering optical depth to aerosol extinction optical depth ($\omega_{\text{scat}}/\omega_{\text{ext}}$) without any utilization of aerosol computer code models. This is of benefit for providing the elimination of uncertainty causing by the modeling assumptions and the estimation of actual aerosol input data. Diurnal w of 5 cloudless-days in winter and early summer at 5 distinct wavelengths of 415, 500, 615, 673 and 870 nm with the consideration of Rayleigh scattering and atmospheric column NO₂ and Ozone contents were investigated, respectively. Besides, the tendency of spectral dependence of ω representing two seasons was observed. The characteristic of spectral results reveals that during wintertime the atmosphere of the inland rural vicinity for the period of measurement possibly dominated with a lesser amount of soil dust aerosols loading than one in early summer. Hence, the major aerosol loading particularly in summer was subject to a mixture of both soil dust and biomass burning aerosols.

Keywords : aerosol scattering optical depth, aerosol extinction optical depth, biomass burning aerosol, soil dust aerosol

Conference Title : ICGG 2016 : International Conference on Geology and Geophysics

Conference Location : Barcelona, Spain

Conference Dates : February 15-16, 2016