

Mie scattering LiDAR observation of Asian dust event over the Ulsan located on the east coast of South Korea

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Mie scattering LiDAR was installed in Ulsan which is located on the east coast of South Korea at 26 February 2015. Knowledge of the vertical distribution of aerosols in the atmosphere is important in estimating its radiative forcing. The Mie scattering LiDAR presents main features of vertical distribution and temporal variation of Asian dust extinction coefficient at 532-nm wavelength. Vertical distributions of aerosols were measured with a Mie scattering LiDAR over Ulsan(35.57N, 129.19E) in March 2015. MODIS Terra AOD and HYSPLIT backward trajectory which is a computer model that is used to compute air parcel trajectories of atmospheric pollutants are analyzed to investigate the region where the dust came from. It was found that the high aerosol extinction coefficient during 13 March. The depolarization ratio, which indicate the aerosol nonsphericity, shows the aerosols are consist of non-dust aerosols. The HYSPLIT analysis shows that the aerosols are came from East China. The data obtained dust aerosols which descending its altitude from 4km to 500m are came from East China during 13 to 17 March. On 22 March, the data obtained high extinction coefficient at altitude of 1km over Ulsan. At that height the aerosol depolarization ratio shows the aerosols are consist of dust. These dust are came from Gobi desert, located on the North China and Mongolia by MODIS Terra AOD and HYSPLIT analysis.

Key words: LiDAR, aerosol, MODIS, HYSPLIT, Ulsan

References

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