



Study of Characteristics of Haze and Dust Storm over Northwest China

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Based on satellite remote sensing data of CALIOP / CALIPSO and ground-based observations, characteristics of the haze and dust storms occurred in the East part of Northwest China (ENWC) was analyzed. The vertical distribution of particle shape and size, weather situation and features of meteorological elements were analyzed, during haze events occurred in ENWC in March 2013. The results show that, the frequency of haze events in ENWC decreased from 1980s to the end of the 20th century and then increased from the 21st century. Most of haze events occurred in winter and spring. The majority in the troposphere during the haze events are the particles with back-scattering coefficient ranged from 0.0008 to 0.0025 /km.sr, and the back-scattering coefficient of particles at 532nm increased with altitude below 10 km. Aerosols volume depolarization ratio was mostly less than 40% above 6 km and the means irregularities of aerosols were weakened with height. Color ratio was below 1.0 during haze events and centered at 0.0-0.4. More haze events occurred in southeast than northwest, especially in Eastern Gansu province, central and southern Shaanxi province of China. A comparison of the optical characteristics of particles in haze and dust storm were made in order to distinguish one from the others.