



## **An Observational and Experimental Study on the Electric Effect of Sandstorms**

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The results of wind tunnel experiment simulation for blown sand electrification show that the sands of different particle sizes at certain speeds can produce varied electric field intensities and electric potentials of different polarities. Blown sand electrification intensifies becomes large with increase of wind velocity and weak with enlargement of sand particle size. Twenty seven times of observations to the electric field and wind velocity associated with varied sandstorms have been made at the height 16m, 8m, 4m, and 1m at a desert area. During fine days, the electric field at these four heights has positive values which decrease with reducing height with the maximum intensity less than 5kV/m. And the daily change of wind speed has no major influence on the fluctuation of the electric field at each height. During days with blown sand, the intensity of electric fields at all heights change with wind speed. The electric field at the height 16m is negative, with the average value -20kV/m. At the height 8m, the electric field is positive and as large as 10-40kV/m, which is oppositely correlated to that at the height 16m. At the height 1m, the electric field changes little, and its magnitude is below 1kV/m. During the days of strong sandstorm, the electric field at the four heights are all negative and its values decrease with reducing height. Among them the maximum average intensity of electric field at 16m reaches -200kV/m or more, with the instantaneous value exceeding -2500kV/m, and is contrary to that of fine days in polarity.