



Relationship between particle matter and meteorological data in Canada

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The fine particulate matter (PM_{2.5}) has a strong influence on the hydrological cycle, cloud formation, visibility, global climate, and human health. The meteorological conditions have important effects on PM_{2.5} mass concentration. Canada's National Air Pollution Surveillance (NAPS) network measures air pollutants at urban, suburban and rural locations in Canada. In this study, the point monthly relationships between meteorological data provided by Environment of Canada and PM_{2.5} mass concentration from January 1st, 2010 to December 31st, 2015 of fifteen speciation stations in Canada were analyzed. The correlation analysis results between PM_{2.5} concentrations and precipitation as well as surface pressure demonstrated a negative correlation. It should be noted that the correlation between temperature and special humidity with PM_{2.5} in cold seasons and warm seasons were negative and positive respectively. Moreover, the weak correlation between wind speed and PM_{2.5} were obtained.