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Application of New Data in the Pollution Event During the Spring Festival of 2014

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This article analyzed the pollution event background during the Spring Festival of 2014 using reanalysis data of NCEP/NCAR $1^\circ \times 1^\circ$ and monitoring data obtained by environmental protection agency(EPA) in Nanjing. Meanwhile, by analyzing the sounding data, observation data, wind profile radar data and the microwave radiometer data, the mixed layer height, ventilation coefficient and inversion layer during the Spring Festival of 2014 were discussed. According to the pollution, the process could be divided into two periods: the first period was from January 30th to February 2nd and the second was from February 3rd to 6th. During the first period, Nanjing lied in uniform pressure field, and the meteorological conditions for pollutant dispersion was poor. All these lead to the formation of inversion layer and pollutant accumulation, the pollution was serious. On the contrary, during the second period, the movement of atmospheric turbulence was more active, the thickness of mixing layer and ventilation coefficient were great risen, then the inversion layer was destroyed. Air quality improved significantly. In the first period. The results showed that, the lower mixing layer height, less ventilation coefficient, thicker and stronger inversion layer, then the pollution would be more serious. According to different pollution levels, the quantitative indixes for the four elements was established. When the mixed layer height less than 1 km, ventilation coefficient less than 2500 m2/s-1, inversion layer thickness greater than 500 m and inversion intensity more than 2 [U+2103]/100m, it is prone to moderate pollution. Accordingly, pollution weather will difficult to appear when mixing layer height higher than 2 km, ventilation coefficient greater than 7000 m2/s-1, inversion layer thickness less than 200 m and inversion intensity less than 0.5 [U+2103]/100m. The findings could provide the references for the future forecast.