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The Ambient Air Quality Change during Typhoon Period in the Korean Peninsula

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This study has analyzed the concentration variation of the four pollutants (PM10, NO_2, CO, and SO_2) during typhoon period in the Korean Peninsula. In the period 2002 to 2011, we selected 10 typhoons that were accompanied by a rainfall, and used the observation data of automatic air pollution from the Ministry of Environment (MOE) and the rainfall data from the Korea Meteorological Administration (KMA). We calculated the monthly average for the total period and typhoon period to examine the concentration of PM10, NO_2, CO, and SO_2 during the typhoon period. For the total period, 34% of the rainfall can be explained by typhoon, and the concentration (PM10, NO_2, CO, and SO_2) of the typhoon period was lower (23.7%, 17%, 4.4%, and 12.3%, respectively) compared to the concentration of the total period. The change of pollutant concentration was classified into three categories: the difference by concentration between the day before typhoon in effect and typhoon period (Case 1), the last day of typhoon in effect (Case 2), and the day after typhoon period (Case 3). The results indicated that Case 3, Case 1, and Case 2 were in order of concentration from high to low. In addition, the reduction rate of PM10, NO_2, CO, and SO_2 was 30.1%, 17.9%, 11.6%, 9.7%, respectively (Case 1), 39.8%, 26.6%, 15.7%, 12.0% (Case 2), and 22.8%, 21.0%, 9.0%, 8.0% (Case 3), respectively. It appears that the result implies that the concentration of air pollutants became low as the duration of rainfall increased.