A Study on the Chemical characteristics of PM_{10} at Background area in Korean Peninsula

JAE-CHEOL NAM and SO-YOUNG BANG

Meteorological Research Institute, Korea Meteorological Administration, Seoul Korea

The purpose of this paper is to understand the time series and origin of a chemical component and to compare the difference during yellow sand episodes for analysis PM_{10} mass concentration and chemical components in the region of west in Korea, 1999-2001.

An annual mean concentration of PM_{10} is 29.1 $\mu g/m^3$. A monthly mean and variation(standard deviation) of PM_{10} concentration are very high in spring but there is no remarkably seasonal variation. Also, water soluble ionic component contained PM_{10} be influenced by double more total anion than total cation, be included NO_3^- and SO_4^{2-} for the source of acidity and NH_4^+ to neutralize.

Tracer metal components of PM_{10} slowly increases caused by emitted for soil and ocean (Fe, Al, Ca, Mg, Na) and Zn, Pb, Cu, Mn for anthropogenic source. According to method of enrichment factor(E.F) and statistics, assuming that the origin of metal component in PM10 most of element in the Earth's crust e.g. Mg, Ca, Fe originates soil and Cu, Zn, Cd, Pb derives from anthropogenic sources.

The ionic component for Na^+ Cl^-, $Mg2^+$ and Ca^{2+} and Mg, Al, Ca, Fe originated by soil component largely increase during yellow sand period and then tracer metal component as Pb, Cd, Zn decrease. According to factor analysis, the first group is ionic component(Na^+, Mg^{2+}, Ca^{2+})and metal component(Na, Fe, Mn and Ni) be influenced by soil. The second group, Mg, Cr also be influenced by soil particle.

Key words: PM_{10}, enrichment factor, factor analysis, yellow sand

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