

## عنوان مقاله:

Spatial and temporal variability of heavy metals concentration in urban dust, a case study from Isfahan city

## محل انتشار:

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## خلاصه مقاله:

In this Study a spatiotemporal study has been conducted on heavy metals including Pb, Cd, Co, Zn, Mn, Fe, Cu and Ni existing in Isfahan air pollutants. Time trend analysis of concentrations of heavy metals through sampling during 7 months (May to November 2014) showed the elevation of heavy metals Pb, Cd, Zn, Ni and Cu in the last month of sampling (November). This is because of immovable cold weather and the increasing traffic. Spatial investigation of heavy metals variations in the area under study also shows that the highest concentrations of Zn, Cu, Ni, Cd and Pb exist in the center and southern part of the city; but, Co, Mn and Fe were almost uniformly distributed in all parts of the city. By comparing the concentrations of heavy metals analyzed on dust collected in Isfahan city with concentration of metals in the reference soil, it was realized that the source of heavy metals except Mn and Fe is due to the anthropogenic activities leading to enrichment of these metals in atmospheric dust. Normalized elemental content of soil dust in ratio to their corresponding value in reference soil has displayed the following enrichment order: Zn > Cu > Co > Pb > Ni > Fe > Mn. The results of principal component analysis and clustering shows that there are three main sources for heavy metals available in atmospheric dust in Isfahan city. The first group are metals with industrial-traffic source that contain Pb, Cd, Zn, Ni and Cu. The second group comprises metals from natural soil that contains Fe and Mn; and the third includes Co that originates from various manufacturing industries.

## کلمات کلیدی:

Dust atmosphere, Heavy metals, spatial distribution, temporal distribution

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