

عنوان مقاله:

A comparative study of PM2.5 and PM10 concentrations between Iran and Australia and identification of their sources in Iran

محل انتشار:

پانزدهمین کنگره علوم خاک ایران (سال: 1396)

تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

This paper aimed to compare particulate matter (PM) concentration between Iran and Australia and then addressed the causes of the quantified differences in PM concentrations between these two countries. In addition, we reviewed the sources of PM in Iran and potential controlling methods. High level of PM, in particular, PM10 and PM2.5, has negative impact on the air quality, soil resource management, crop productivity, human health and climate. We collected annual average PM2.5 and PM10 concentration data from world health organization (WHO) database for all cities in these two countries from 2010 to 2014 and conducted a comparative data analysis. The results showed that the annual averaged PM2.5 and PM10 concentrations in Iran were 80 ± 10 and 100 ± 20 $\mu\text{g}/\text{m}^3$ respectively, which was 10 times higher than Australia. The main causes of high PM value in Iran, especially in Ahvaz and Zabol, are draught, water deficiency, climatic changes, long-range transport and divert water. In order to control high level of PM concentrations especially for dust stabilization in Iran, many studies applied different methods, including biopolymer, chemical polymer, planting in salinity and draught soil. However, but the results were not satisfactory. It is suggested that different control strategies should be targeted in different regions of Iran considering local/regional emission sources and meteorological condition. In addition, the government should provide more funds to conduct suitable urban planning management research for the water and soil resources management in Iran to minimize the negative impact of dust storms.

کلمات کلیدی:

Aggregate Stability, Dust, Iran, Australia, Particular Matter

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