

## عنوان مقاله:

Seasonal variation of air quality index and assessment

## محل انتشار:

فصلنامه جهانی علوم و مدیریت محیط زیست, دوره 4, شماره 4 (سال: 1397)

تعداد صفحات اصل مقاله: 10

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## خلاصه مقاله:

Different methods have been designed to calculate the air quality index in form of mathematical formula. But the formula designed by Central Pollution Control Board in 2014 is more robust to find out the air quality category. The index has been calculated based upon four parameters like particulate matters (PM10, PM2.5), sulfur oxide and nitrogen oxide. The study area has affected by different sources like point, line and volume. Presence of different industries and mining activities polluting the natural environment of nearby areas more, although the industries taking mitigative measures proactively. In the present research, monitoring of ambient air quality has been carried out for a period from March 2013 to February 2016 for three years. It has been revealed from the study that the air quality status of the area has been declining from 2013 to 2016 i.e. 78.9 to 157.8 in summer, 49.4 to 84.3 in monsoon and 86.9 to 183.9 in winter season. It has also been found that, PM10 and PM2.5 were responsible for maximum sub-index as well as air quality index. During the study period 2015-16, out of the eight stations most comes under moderately polluted category especially in winter season followed by summer season. Statistical and Duncan's multiple range test has been applied to the results with two-way and one-way analysis of variance based on different seasons and stations. In two-way analysis of variance, F-value was computed to be 30.105 based on seasons and stations and one-way analysis of variance test shows the F-values as 186.07 and 18.97 based on seasons and stations respectively which is found to be significant ( $P < 0.01$ ). The present research is important to assess the environmental quality of a mining- industrial complex area and can be a reference for similar study in other areas.

## کلمات کلیدی:

Air quality index (AQI); Duncan's multiple range test (DMRT); Nitrogen oxide (NO<sub>2</sub>); Particulate matters (PM10; (PM2.5); Sulfur oxide (SO<sub>2</sub>)

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