



## **Effect of Meteorological Conditions on Air Pollution of Surat City<sup>#</sup>**

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**Abstract:** Meteorology is the science of the atmosphere and study of the characteristics of the weather elements and meteorological conditions including certain meteorological parameters like Wind Speed, Wind Direction, Temperature, Atmospheric Stability, Mixing Height etc. Generally, the degree to which air pollutants discharged from various sources, concentrate into a particular area depends on meteorological conditions. So, the knowledge of these meteorological parameters which influence the dispersion process of air pollutants will give certain results like whether the air pollutants will be diluted in to the atmosphere or they just simply tend to concentrate on to the ground. Based on this aspect the present study has been conducted with the objectives like observation of the weather and the meteorological parameters of specific area of the city, to correlate meteorological conditions (wind speed, wind direction and temperature) with present Air Quality of selected area and to determine which parameter mainly affects air pollutants dispersion. So, for fulfilment of the same we have selected two stations, first is the monitoring station (which will serve as source station from where air pollutants are emitted) and the other is the dilution station (this station is selected 6 to 7 kms far towards North from the source station) looking to the wind rose diagram. The air quality parameters and the meteorological parameters which we are going to measure are as follows. Air Quality Parameters: NO<sub>x</sub>, SO<sub>2</sub>, SPM. Meteorological Parameters: Wind Speed, Wind Direction, Temperature. From the results and graphical representation of the study it is found that as wind speed and temperature are high the dispersion is high, because of which the difference in air pollutants concentration between source station and dilution station is also very high and vice versa. Out of three meteorological parameters Wind Speed is found to affect the dispersion of pollutants the most. All the Air Quality parameters are found to be within limit. If we compare the summer and post monsoon season, the higher air pollution level has been found in summer season.

**Keywords:** Meteorology, Source station, Dilution station

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