Air Quality Prediction Using Time Space Analysis

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ABSTRACT

Air pollution is a serious threat to the environment and ecology. The monitoring and prediction of air quality is an important aspect, as it helps to issue early warnings and adopt suitable control measures in time. Particulate matter of size less than and equal to 2.5 microns is the prominent air pollutant. It easily penetrates through lungs affecting human health. This paper investigates the performance of the empirical mode decomposition and the wavelet transform in non linear non stationary PM2.5 time series prediction problem. The prediction is carried out by applying Adaptive Neuro-Fuzzy inference system (ANFIS). It is found that the wavelet transform outperforms empirical mode decomposition for non linear PM2.5 time series.

KEY WORDS: Particulate Matter, Air Quality Index, Empirical Mode Decomposition, Wavelet Transform, Adaptive Neuro-Fuzzy inference system.