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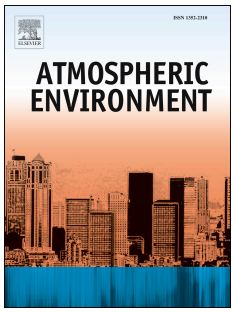

$PM_{2.5}$ forecasting using SVR with PSOGSA algorithm based on CEEMD, GRNN and GCA considering meteorological factors

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$PM_{2.5}$ forecasting using SVR with PSOGSA algorithm based on CEEMD, GRNN and GCA considering meteorological factors

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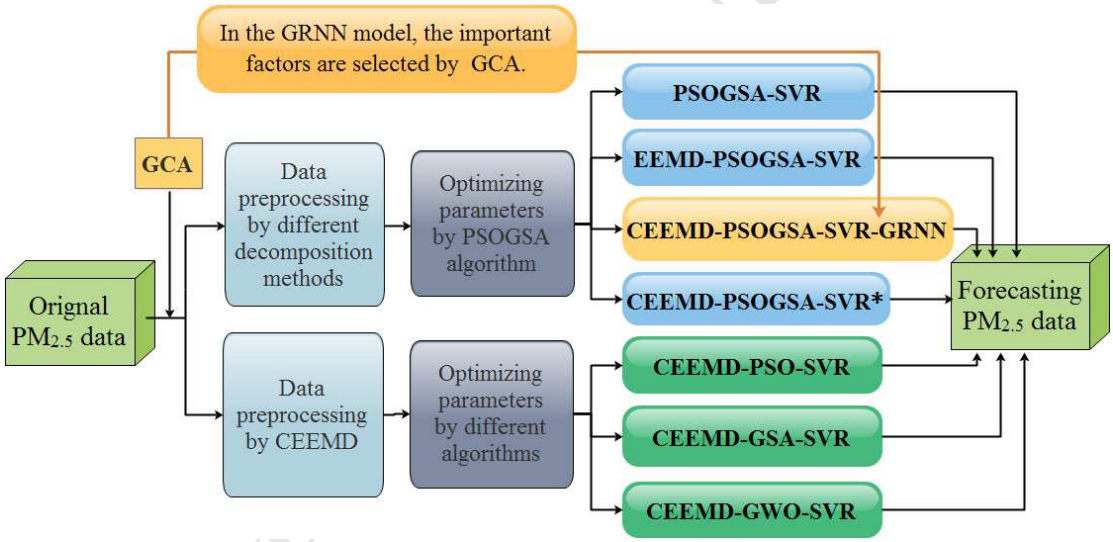

Graphic abstract

ABSTRACT

The $PM_{2.5}$ is the culprit of air pollution, and it leads to respiratory system disease when the fine particles are inhaled. Therefore, it is increasingly significant to develop an effective model for $PM_{2.5}$ forecasting and warnings that informs people to foresee the air quality. People can reduce outdoor activities and take preventive measures if they know the air quality is bad ahead of time. In addition, reliable forecasting results can remind the relevant departments to control and reduce pollutants discharge. According to our knowledge, the current hybrid forecasting techniques of $PM_{2.5}$ do not take the meteorological factors into consideration. Actually, meteorological