Ground level ozone and nitrogen oxides observations over east coastal state of India

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[05].[Greenhouse gases, tracers, and transport in the free troposphere and above] [Monday], [UTC 14:15]
[Monday_05_P04]

Instrumentation, dataset and analysis

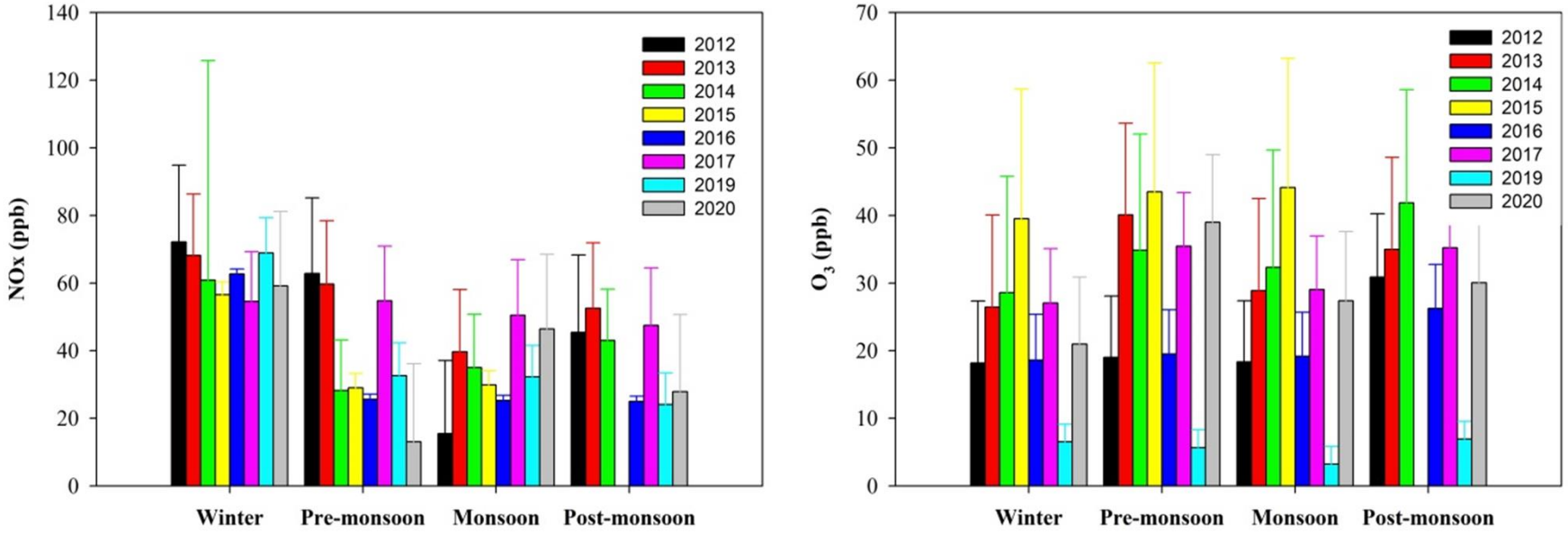
- The seasonal trends of NO_x and O_3 were analysed with respect to the local meteorology.
- NO_x, O_3 and meteorological parameters were measured for the period of 2012-2020 through the automatic installed system in an east coastal state Odisha, India.
- The multiple regression analysis and Principle component analysis were performed.

Results

nal variability of O_3 and NO_x

O_x concentration observed uniformly high in winter season and comparatively low in other three seasons (pre
nsoon, monsoon and Post-monsoon)

concentration found highest in pre-monsoon and monsoon season even high in all four season in compare to the
O_x.



Seasonal variation of NO_x and O_3 for 2012-2020

Results

endence of O_3 with the NO_x and meteorological parameters

The overall average pearson correlation analysis for period of 2012 to 2020 elucidates the association of O_3 with N and meteorological parameters.

Reasonable to strong negative correlations are noticed between O_3 and N which suggests decrease in the levels of NO_x with increase of O_3.

O3 shows moderate positive critical relationship with wind speed just during rainstorm while different seasons sh mmaterial connection.

Table: Correlation analysis of pollutants and meteorological variables

	NO_x	Temp	RH	WS	SR
Winter	-0.69	0.82	-0.69	0.42	0.72
Pre-monsoon	-0.85	0.74	-0.76	0.49	0.82
Monsoon	-0.62	0.92	-0.78	0.55	0.79
Post-monsoon	-0.87	0.91	-0.81	0.22	0.85

Conclusions

The long period trend analysis depicting the apparent and consistent behaviour of the trace gases within and w
meteorology and suggestive for the feasible measure to take care the problem.

Time to time update of air quality parameters is necessary to perceive the real time air quality and meteorology at lo
scale.