

Supplemental information for manuscript:

**Explainable Machine Learning diagnosis of Ozone Formation Sensitivity in China:
Spatiotemporal Evolution and Driver Attribution**

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Table S1. The optimal hyperparameters for RF models in the key regions.

Region	n_estimators	max_depth	min_samples_leaf	max_features
BTH	160	16	1	4
FWP	160	16	1	7
YRD	160	14	2	6
SCB	160	16	1	5
PRD	200	12	1	6

Table S2. Prediction performance for the test set of RF models in the key regions.

Region	BTH	FWP	YRD	SCB	PRD
Average Accuracy	0.87	0.85	0.89	0.84	0.84
Precision _m	0.86	0.84	0.87	0.78	0.82
Recall _m	0.86	0.84	0.87	0.74	0.84
Fscore _m	0.86	0.84	0.87	0.76	0.83

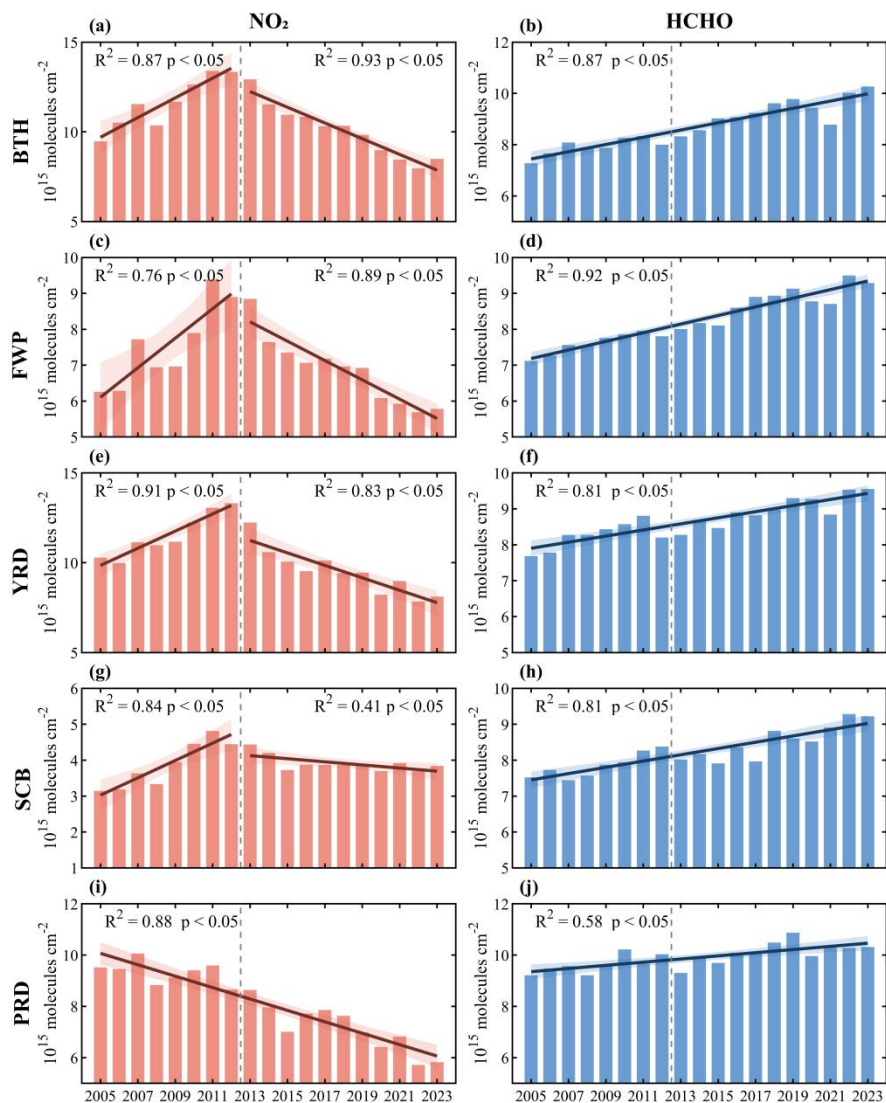


Figure S1. Interannual variations of NO_2 and HCHO column density in five key regions from 2005 to 2023.

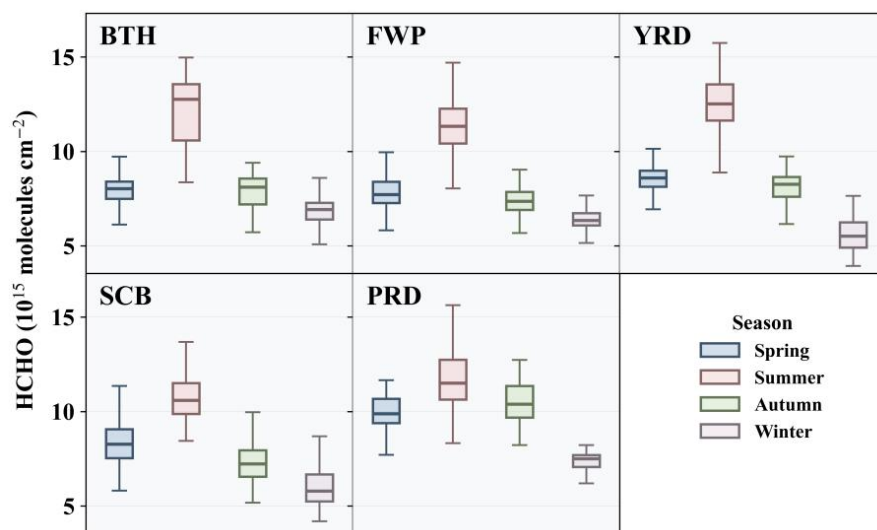


Figure S2. Seasonal distribution of average HCHO columns in five key regions from 2005 to 2023.

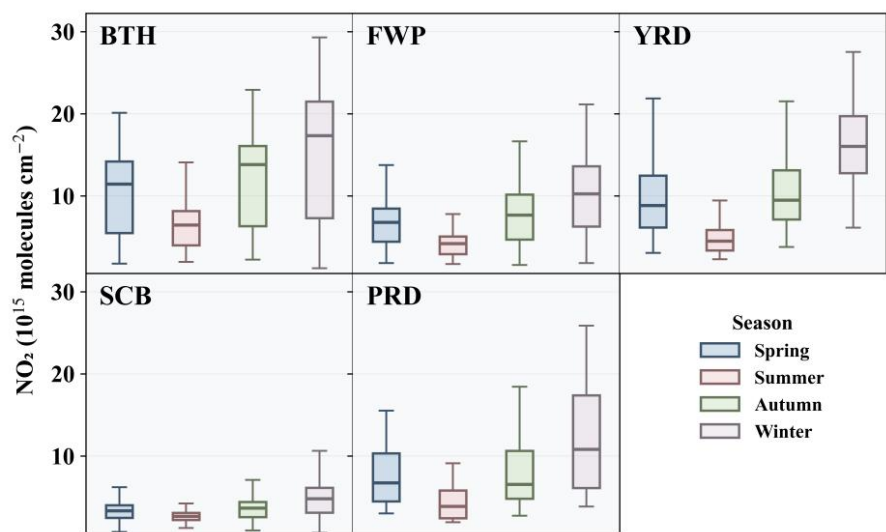


Figure S3. Seasonal distribution of NO₂ average columns in five key regions from 2005 to 2023.