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Supplement of

Surface ozone at Nam Co in the inland Tibetan Plateau: variation, synthesis comparison and regional representativeness

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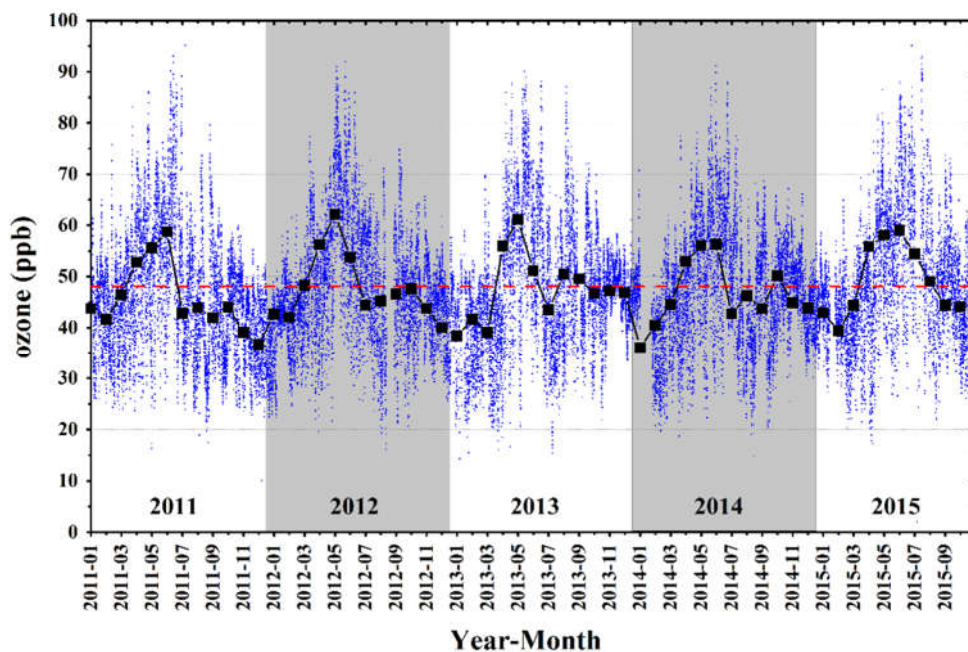


Fig. S1. Variation of surface ozone at Nam Co Station from January 2011 to October 2015. Hourly mean mixing ratios of surface ozone are in blue dots; monthly mean mixing ratios of surface ozone are in black squares; average mixing ratio of surface ozone during whole measurement period in red dash line.

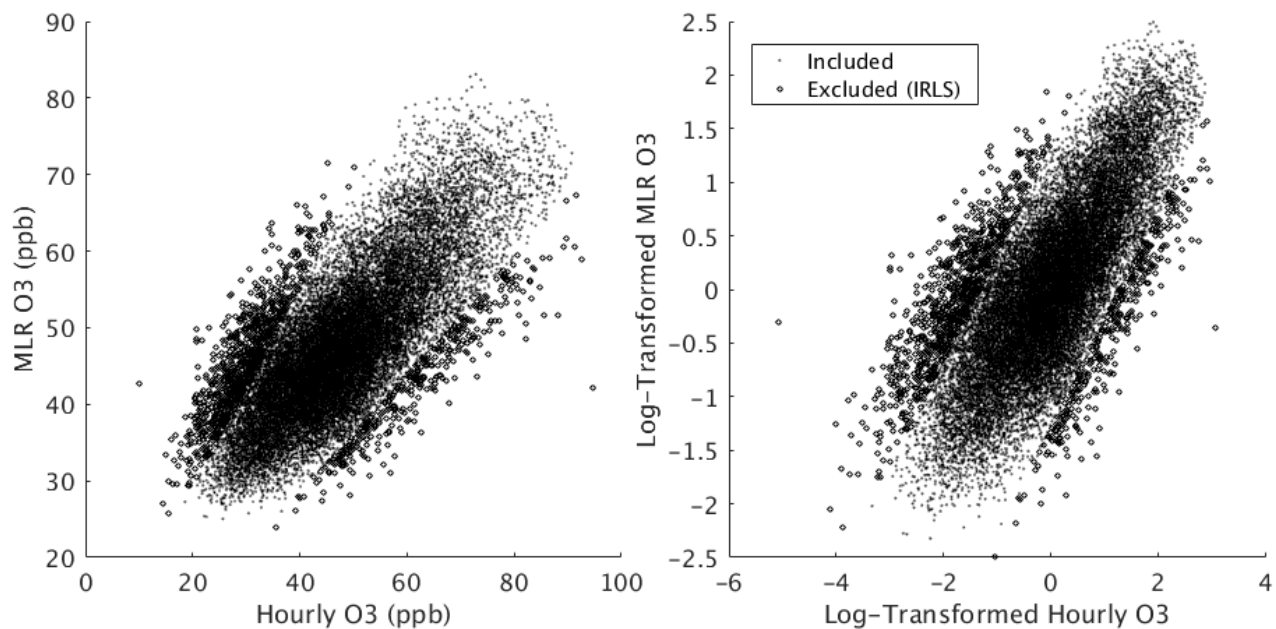
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60 **Fig. S2: Scatter plot of model surface ozone mixing ratio against observed surface ozone mixing ratio at Nam Co Station for the Multiple Linear Regression (MLR) model. The dots are points that are included in the regression; the circles are points that were excluded as outliers by the Iteratively Reweighted Least Squares (IRLS) method.**

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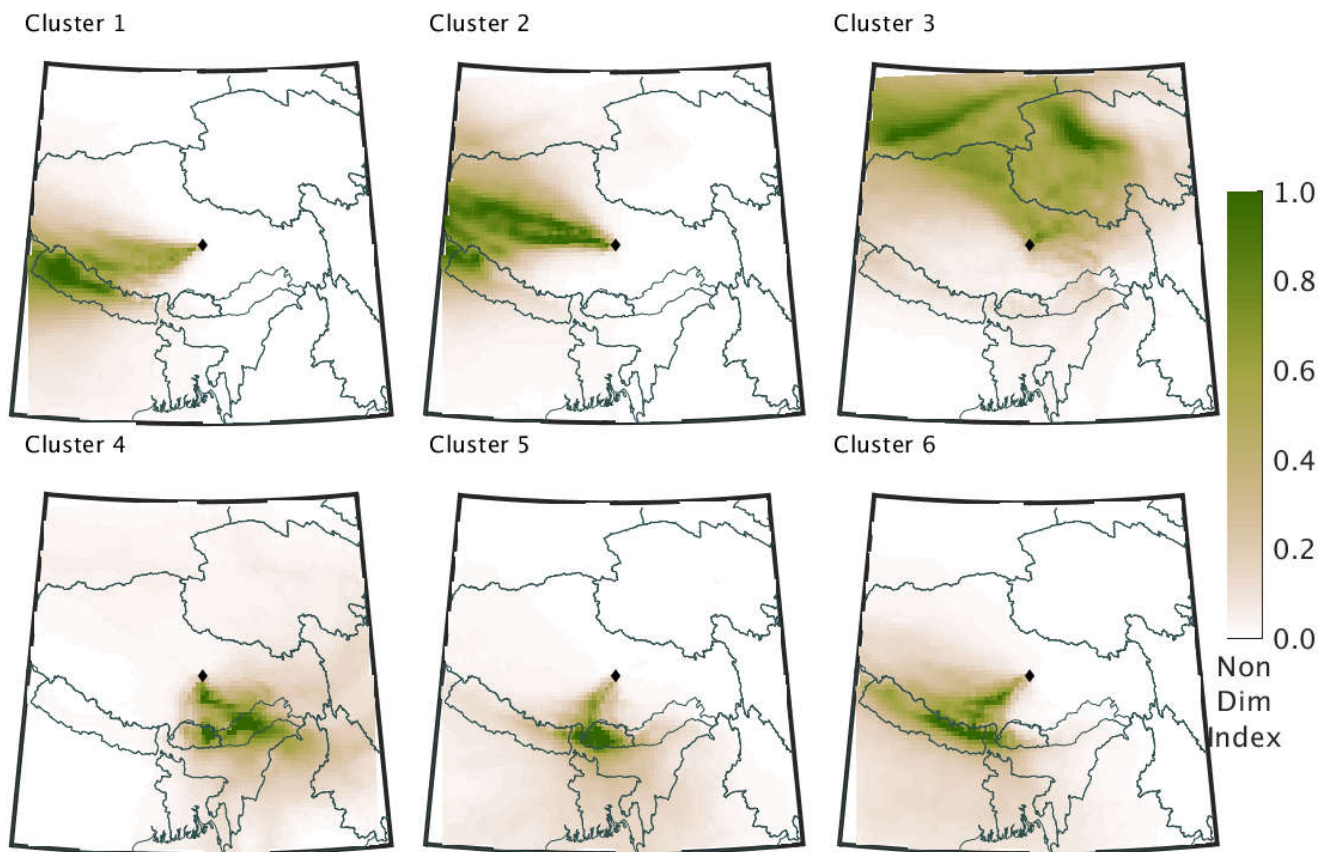


Fig. S3. Average Residence Time Analysis grids for each WRF-FLEXPART trajectory clusters at Nam Co Station. The black diamond represents the sampling site.

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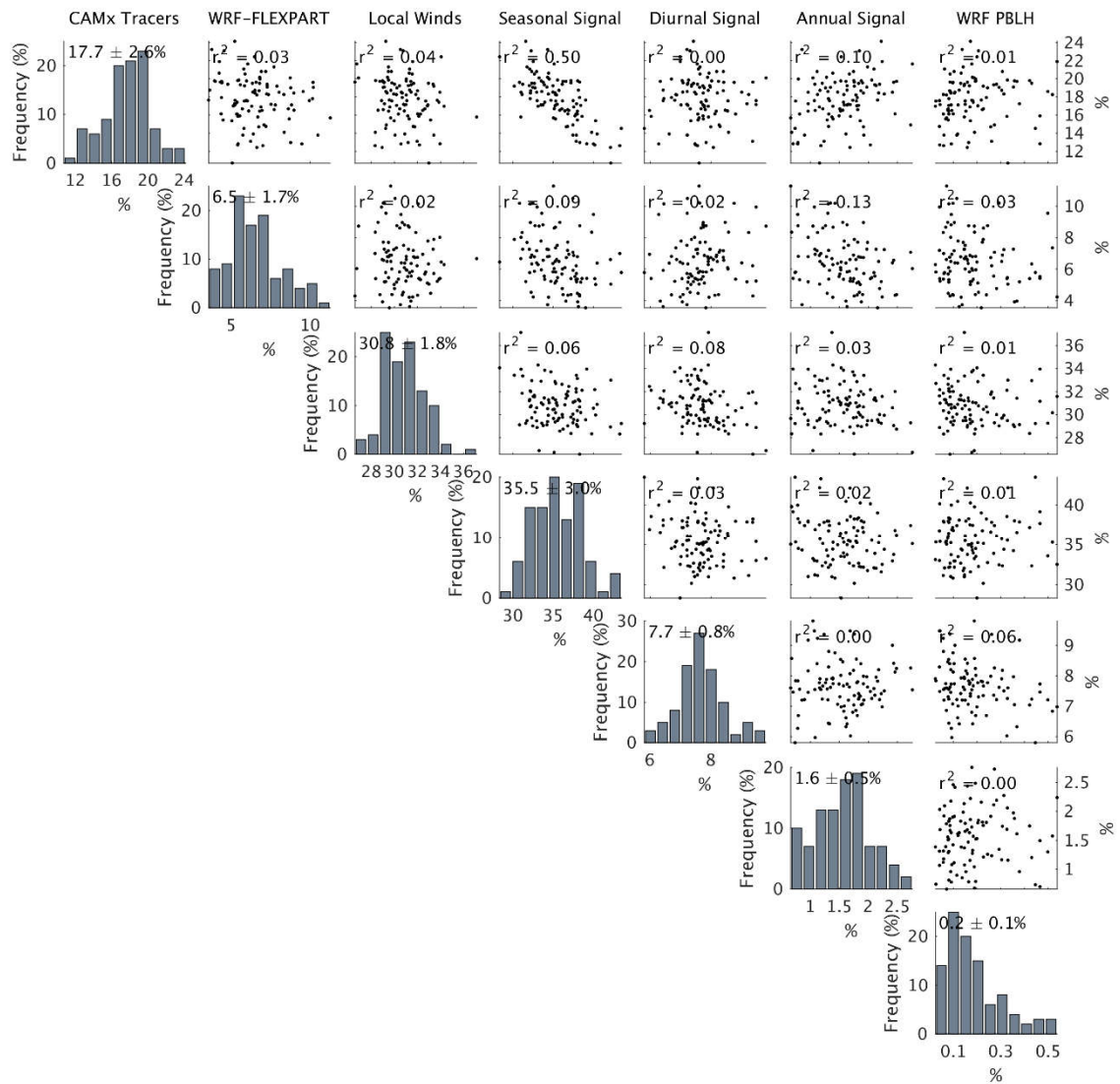


Fig. S4. Uncertainty and covariation of the Multi-Linear Regression estimates of the contribution to ozone variance by group, based on 100 realizations of the model using block-bootstrapping. Histograms show the distribution of the contribution estimates and the scatter plots show the cross-correlation of the estimates. Mean and standard deviation of the estimates are shown in the histogram, squared Pearson correlation coefficients are shown in the scatter plots.

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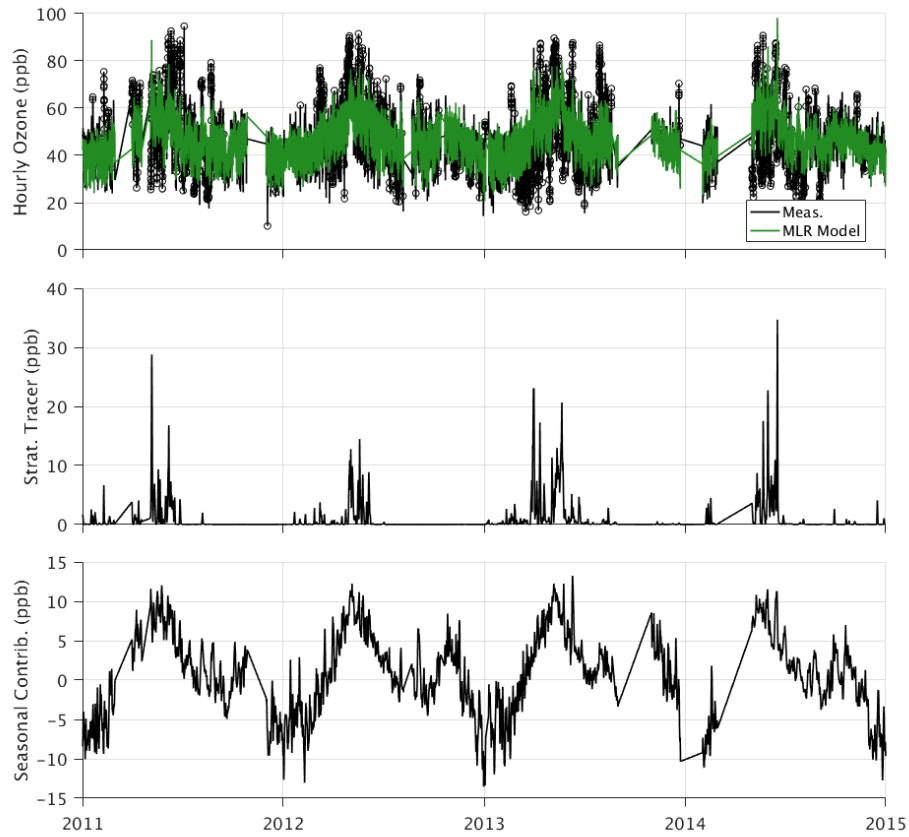


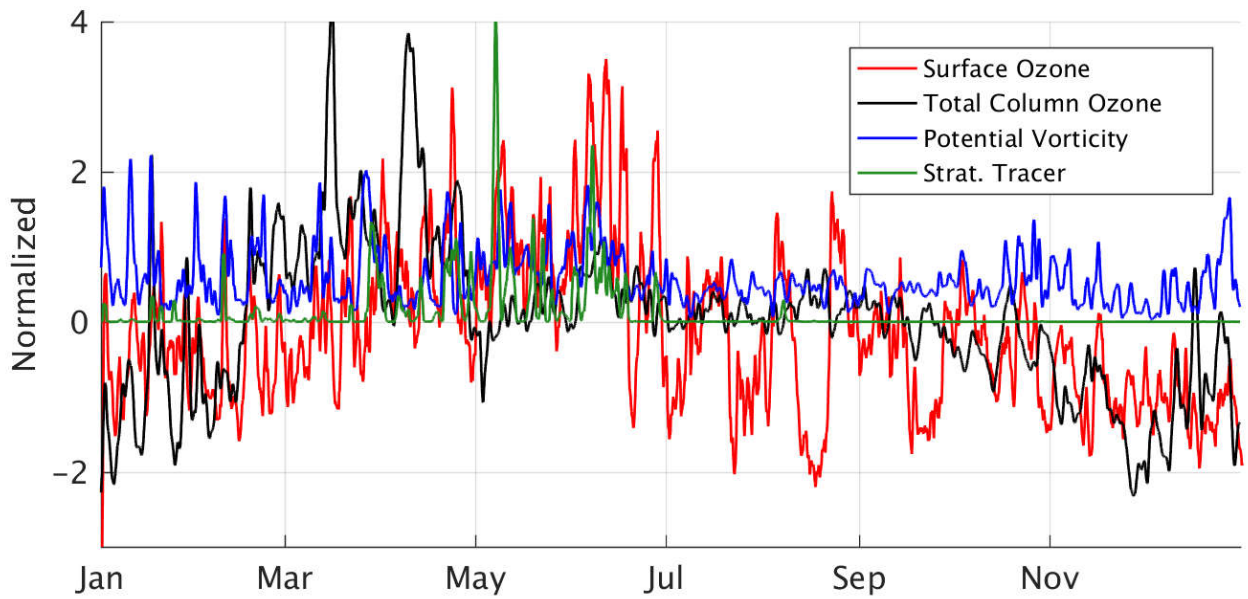
Fig. S5. Same as Fig. 4 but for the linear model. Because the model is linear, the contributions of the stratospheric tracer and the seasonal signal are in concentrations (ppb) rather than scaling factors.

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145 **Fig. S6.** Time series of 24-hour running average of surface ozone measured at Nam Co for 2011; ERA-Interim
 Total Column Ozone above the Himalayas, ERA-Interim Potential Vorticity at 350 hPa above the Himalayas
 (units of PVU); and stratospheric ozone tracer simulated by CAMx (units of 0.1 * ppb).

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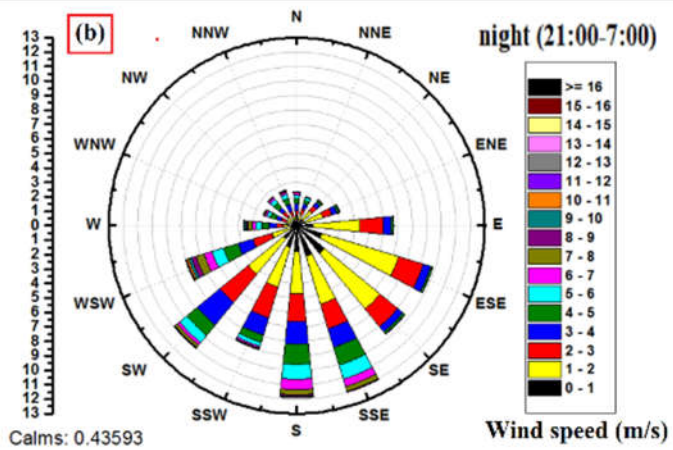
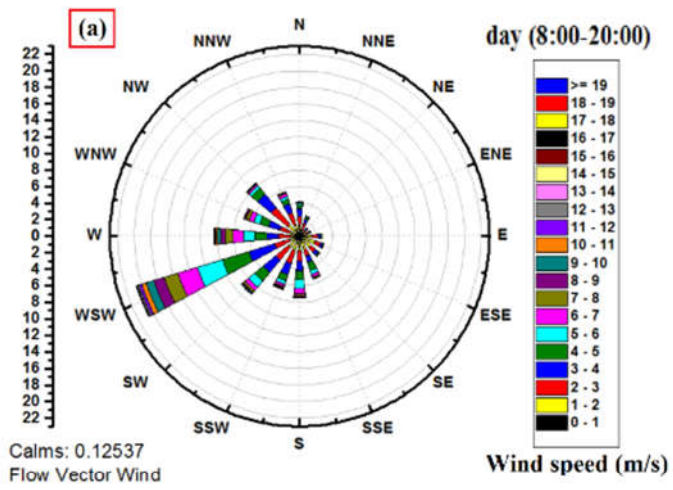


Fig. S7 Wind rose at Nam Co Station during the day (a) and at night (b).

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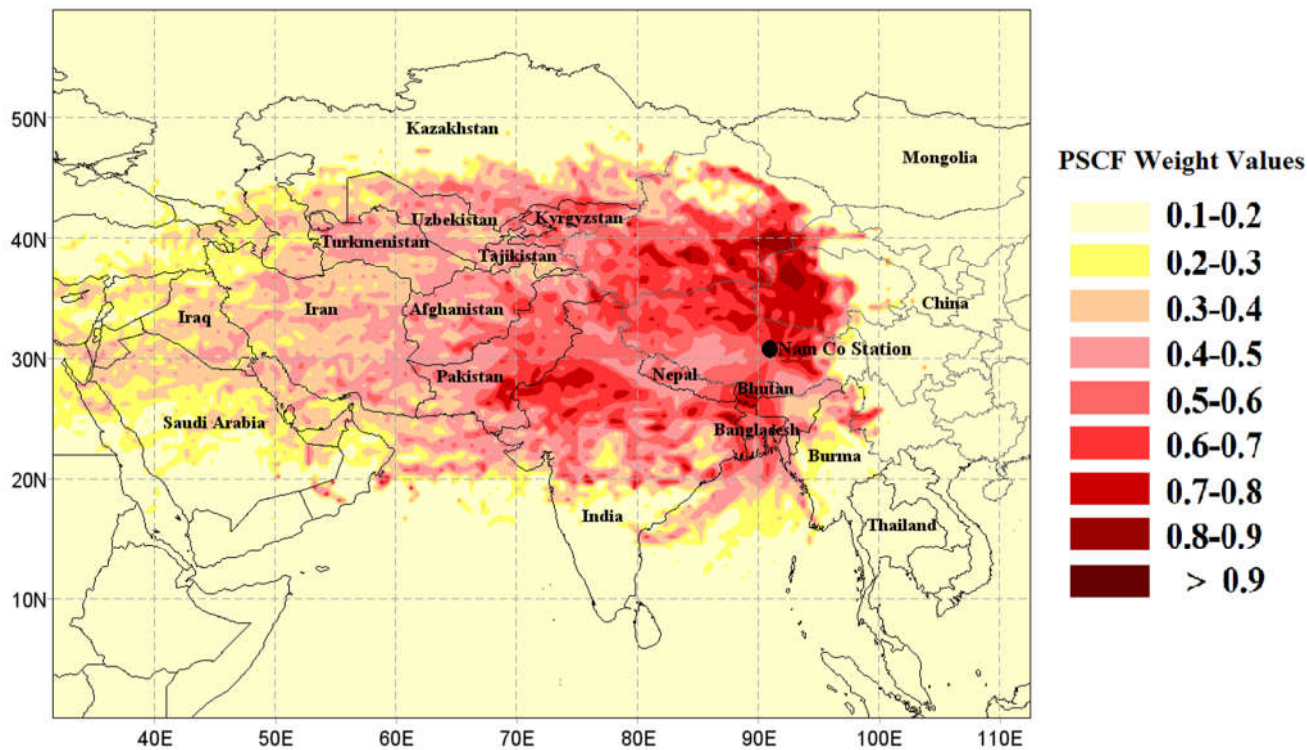


Fig. S8. Likely source areas of air masses associated with higher surface ozone concentrations at Nam Co Station during the whole measurement period identified by PSCF (Potential Source Contribution Function).

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Table S1. Multi-linear regression model by season using log-transforms and CAMx stratospheric tracers (corresponding to Model A in Table 2) and the contribution to ozone variance (%) by group in different seasons.

Statistical Metrics	Spring	Summer	Autumn	Winter
Number of all hourly data	6043	7992	6157	7118
Number of IRLS hourly data	5750	7615	5878	6759
r (all hourly data calculated)	0.83	0.77	0.68	0.74
r (IRLS hourly data calculated)	0.86	0.81	0.73	0.79
CAMx Strat Tracers	21.10%	3.85%	0.41%	4.41%
WRF-FLEXPART Clusters	0.91%	8.99%	0.70%	0.46%
Local Winds	28.30%	29.30%	38.40%	54.20%
Seasonal Signal	33.60%	45.60%	44.30%	20.60%
Diurnal Signal	6.32%	8.58%	10.30%	15.40%
Annual Signal	7.87%	2.80%	3.94%	3.43%
WRF PBLH	1.85%	0.84%	2.00%	1.55%