

Supplementary Materials

Title: Chemical Composition and Deposition Characteristics of Precipitation into a Typical Temperate Forest in Northeast China

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Supplementary Material Contents:

In total 7 pages including: Figures S1 to S5 (Pages 2-6) and Table S1 (Page7).

Supplementary Figures



Figure S1: Bulk deposition samplers in Qingyuan rural sites. (Li Z.J. et al. 2020, [39])

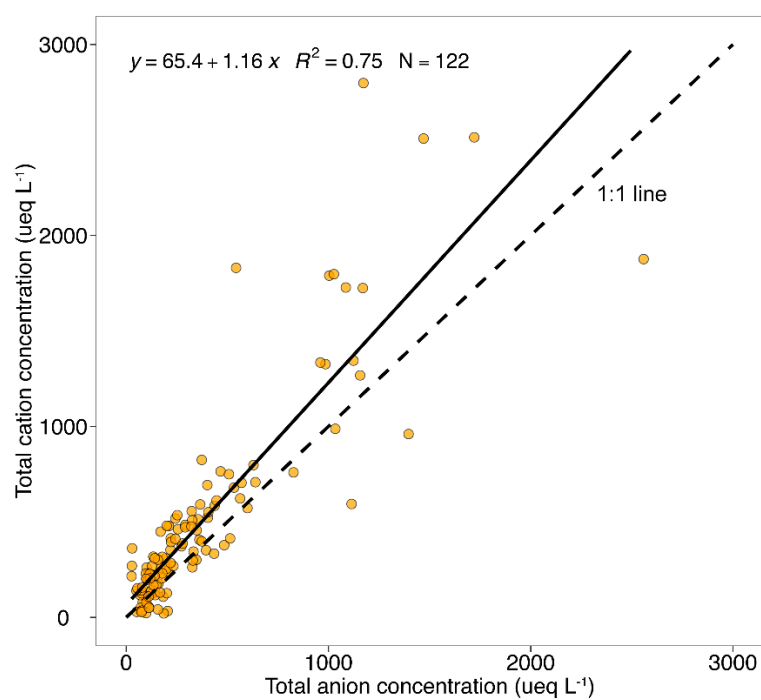


Figure S2: The correlation between total anion and cation concentrations in precipitation in the Qingyuan forests over the study period from 2018 to 2020.

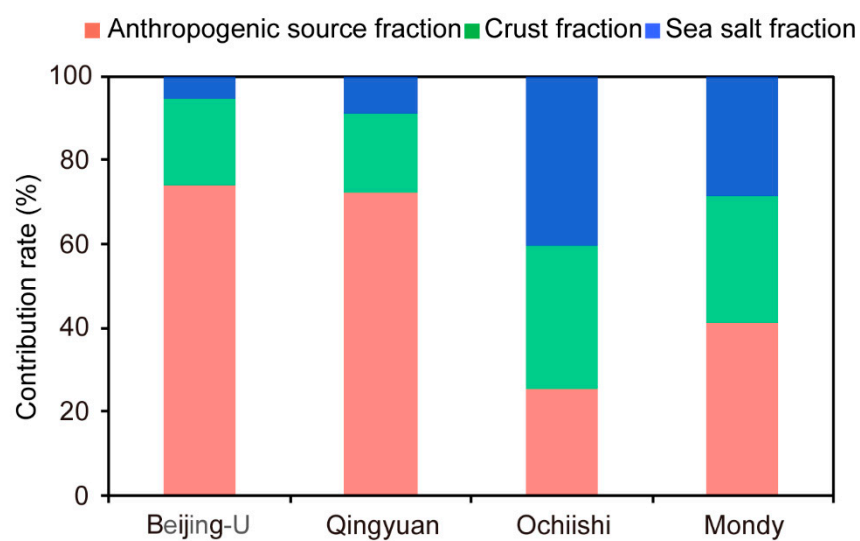


Figure S3: Contribution of each source to total ions in precipitation in the Qingyuan forest over the study period, compared to Beijing, Mondy, and Ochiishi.

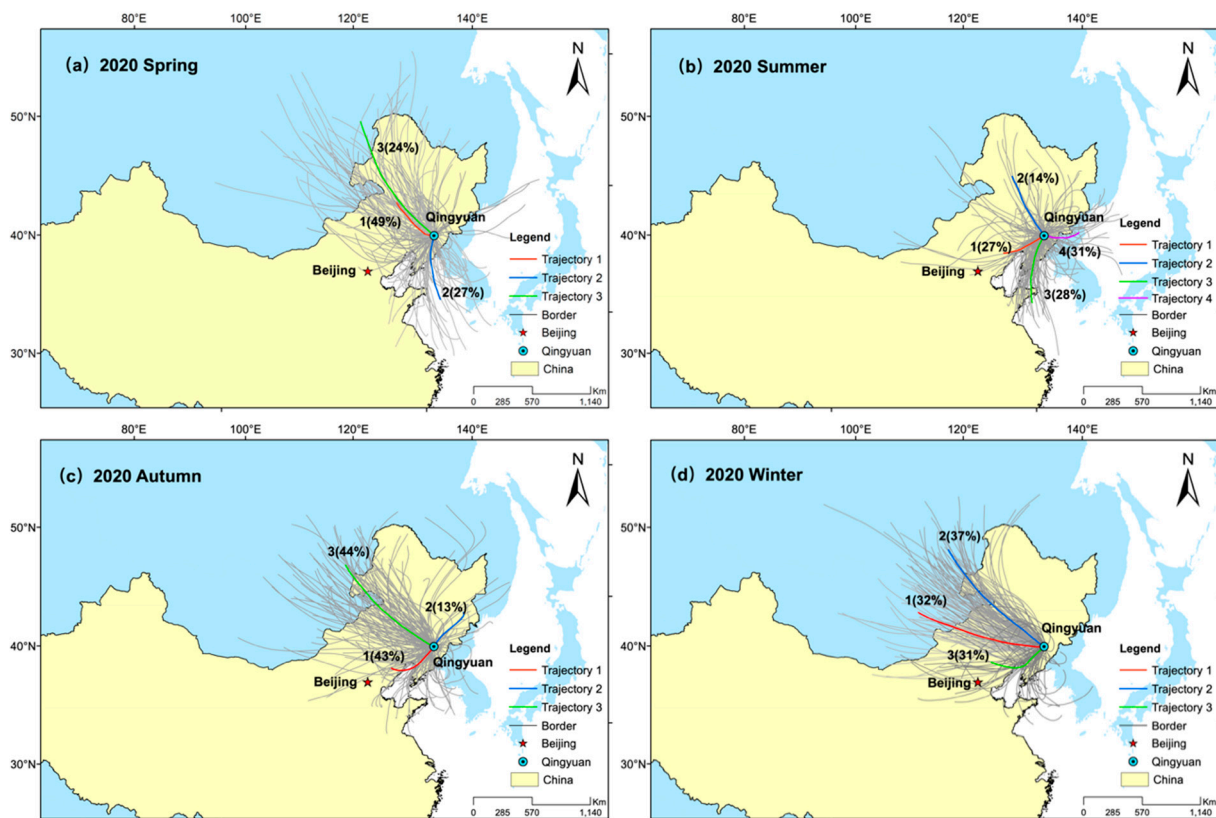


Figure S4: 500 m above ground level air mass backward trajectory analysis for the year 2020 from the NOAA HYSPLIT model. The blue circle indicates our study site (the Qingyuan station). The red star indicates Beijing. The grey lines represent the 72-hour backward trajectories of all air masses in each season (spring, summer, autumn, winter) that end in a trajectory at this study site. Spring from March to May, summer from June to August, autumn from September to November and winter from December to February. The red, blue, and green lines show the sources of water vapour in different directions.

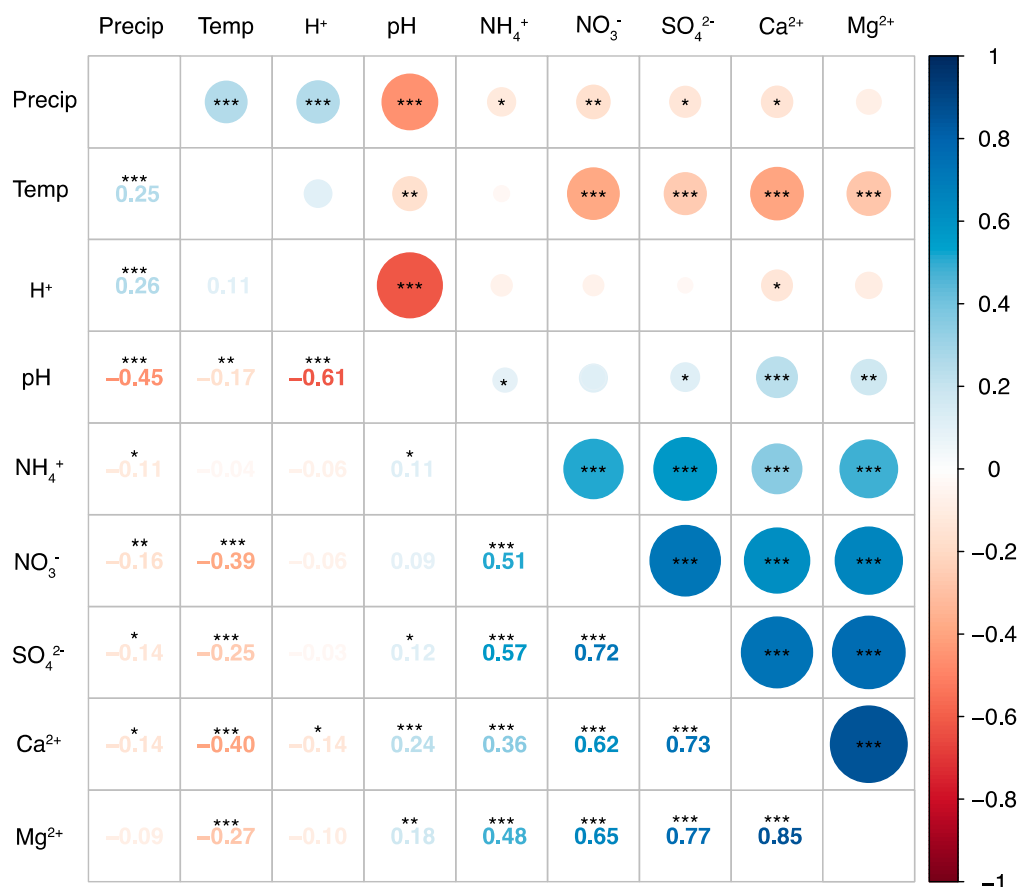


Figure S5: Correlation of concentrations of major ions in precipitation at the Qingyuan station: blue indicates a positive correlation, red indicates a negative correlation, and the number is the correlation coefficient in the ellipse. ** indicates a significant correlation at the 0.05 level (two-sided), *** indicates a significant correlation at the 0.01 level (two-sided).

Supplementary Table

Table S1: To calculate the different sources of ions in Qingyuan precipitation, the reference values for the ratio of $[X/Na^+]_{seawater}$ and $[X/Ca^{2+}]_{soil}$ in Equations (3) to (5) were used to calculate the relative contributions of the sea salt fraction (*SSF*), crust fraction (*CF*), and anthropogenic source fraction (*AF*).

ions	$[X/Na^+]_{seawater}$	$[X/Ca^{2+}]_{soil}$
SO ₄ ²⁻	0.121	0.019
NO ₃ ⁻	—	0.002
Cl ⁻	1.160	0.561
Na ⁺	—	0.504
K ⁺	0.022	0.003
Ca ²⁺	0.044	—

Data refer to the existing literature Keene et al., (1986) [43] and Taylor, (1964) [44], respectively.