

Supplementary Information for:

Molecular Characterization of Organosulfates in Arctic Ocean and Antarctic atmospheric aerosols

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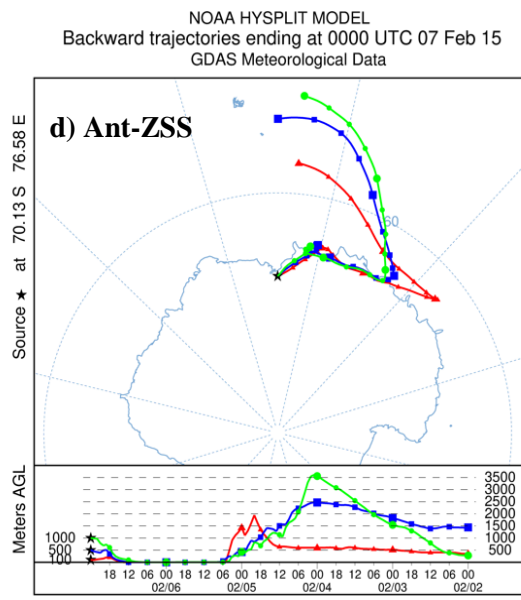
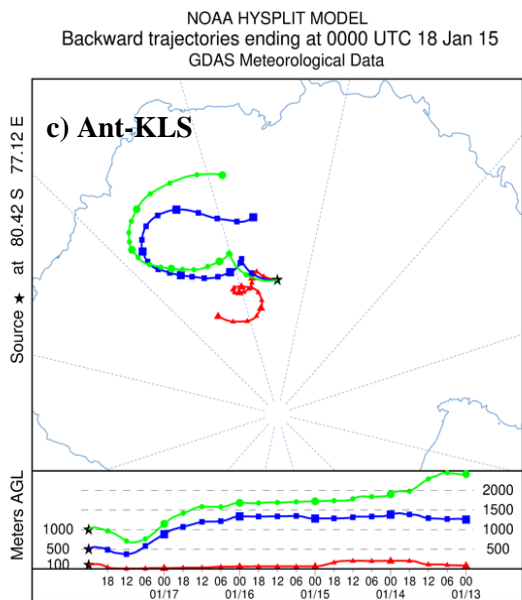
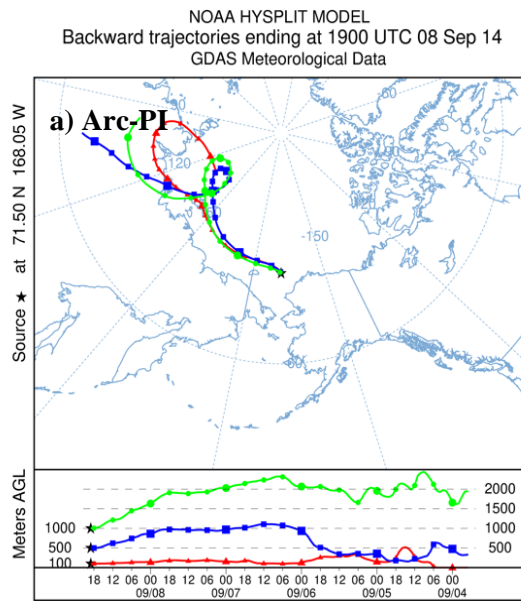
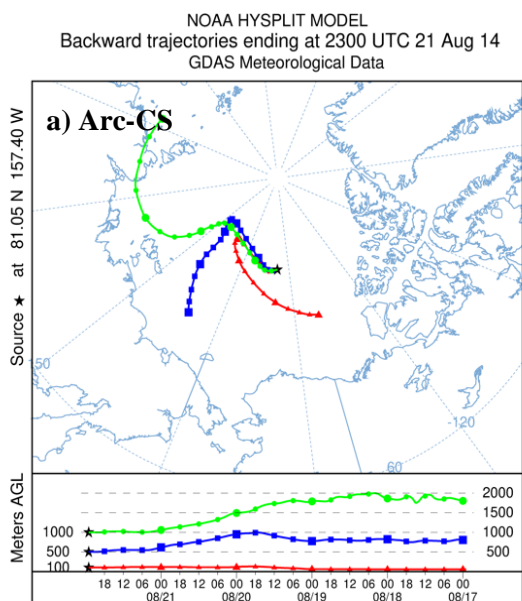


Figure S1. HYSPLIT model results for 120 h back trajectories of four sampling sites.

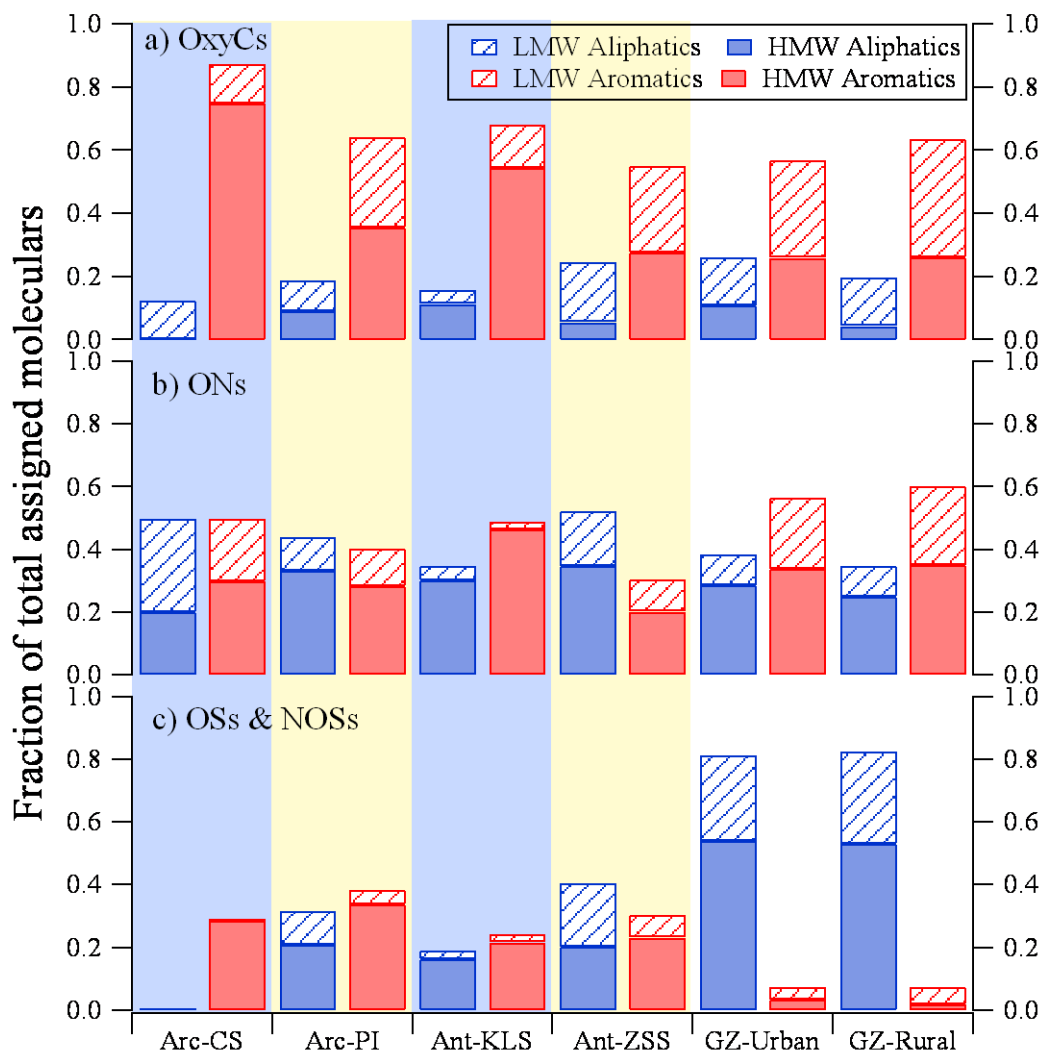


Figure S2. The aliphatic and aromatic fraction of total molecules in each group (a. OxyCs, b. ONs, c. OSs/NOSs) in six sampling sites.

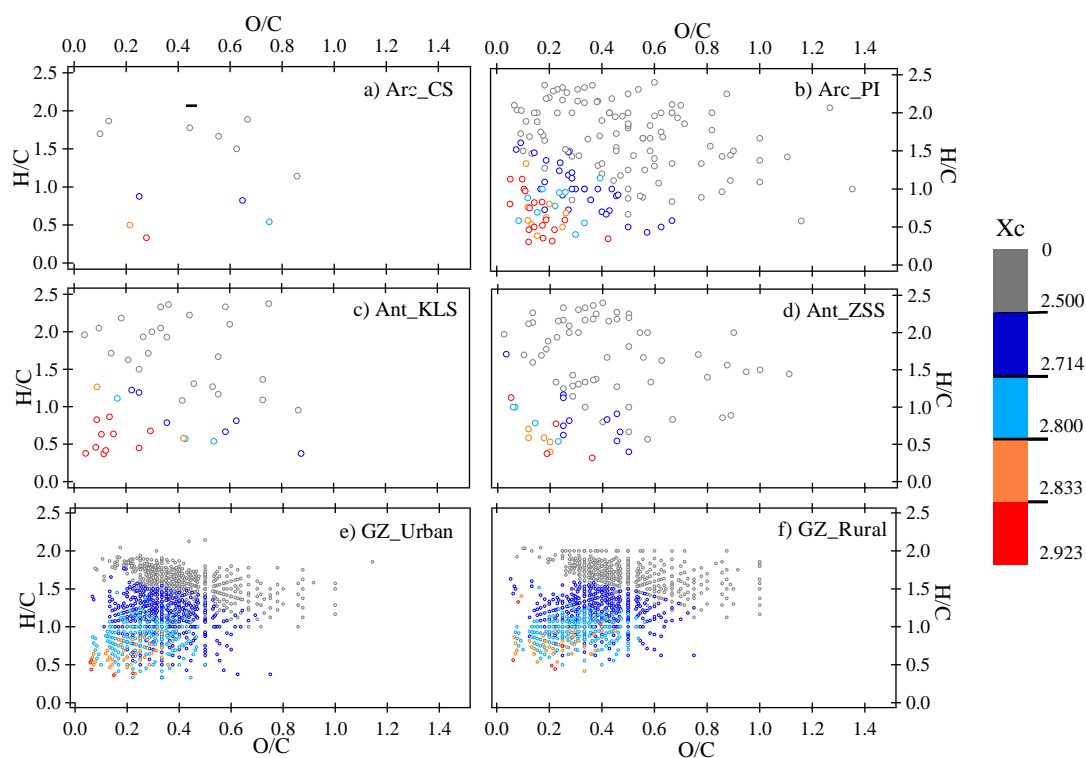


Figure S3. Van Krevelen Diagrams for ONs molecules in the six sampling sites. The color-coding indicates the X_c values calculated from Eq. (2). The gray marks represent aliphatic compounds ($X_c < 2.500$); the dark blue marks represent aromatics with a benzene core structure ($2.500 \leq X_c < 2.714$); the light blue marks represent aromatics with a naphthalene core structure ($2.714 \leq X_c < 2.800$); the orange marks represent aromatics with a anthracene core structure ($2.800 \leq X_c < 2.833$); the red marks represent aromatics with a pyrene core structure ($2.833 \leq X_c < 2.923$).

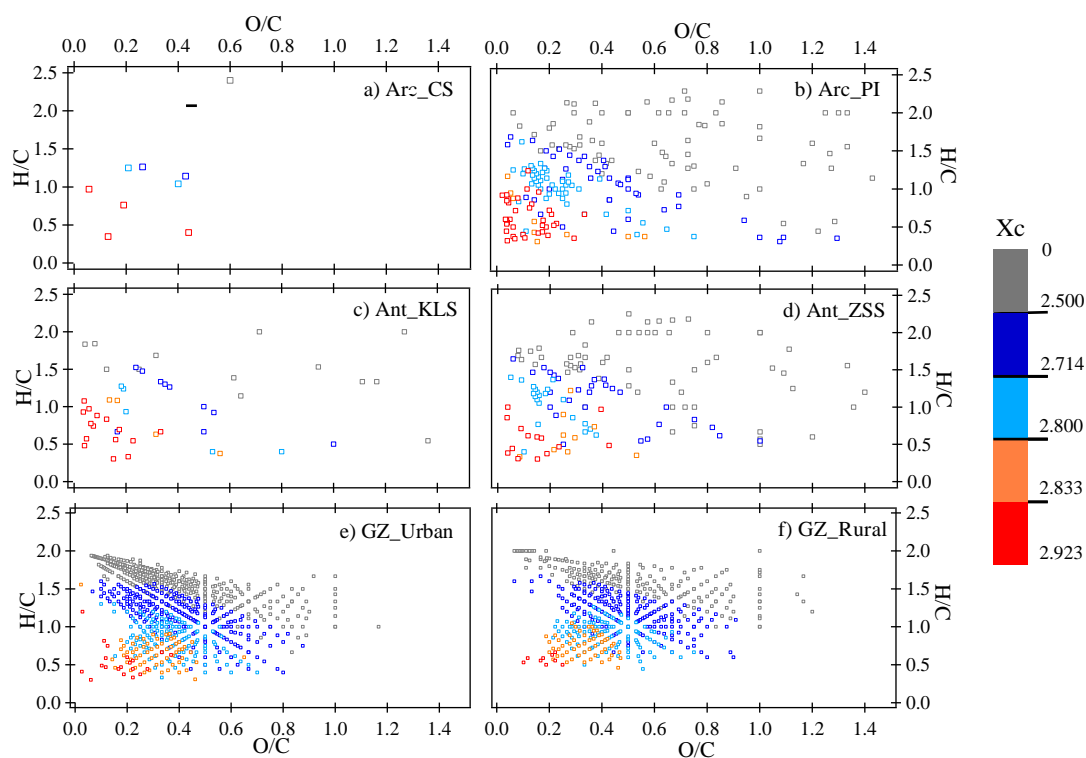


Figure S4. Van Krevelen Diagrams for OxyCs molecules in the six sampling sites. The color-coding indicates the X_c values calculated from Eq. (2). The gray marks represent aliphatic compounds ($X_c < 2.500$); the dark blue marks represent aromatics with a benzene core structure ($2.500 \leq X_c < 2.714$); the light blue marks represent aromatics with a naphthalene core structure ($2.714 \leq X_c < 2.800$); the orange marks represent aromatics with a anthracene core structure ($2.800 \leq X_c < 2.833$); the red marks represent aromatics with a pyrene core structure ($2.833 \leq X_c < 2.923$).

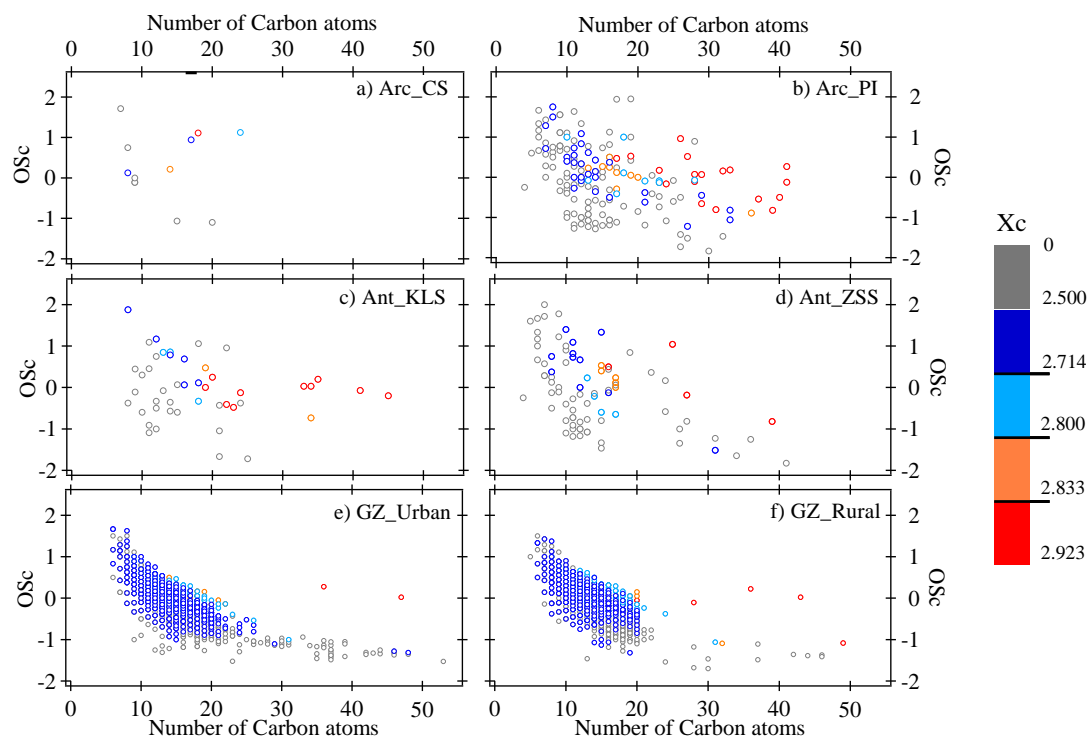


Figure S5. Carbon Oxidation State (OSc) plots for ONs molecules in the six sampling sites. The color-coding indicates the Xc values calculated from Eq. (2). The gray marks represent aliphatic compounds ($Xc < 2.500$); the dark blue marks represent aromatics with a benzene core structure ($2.500 \leq Xc < 2.714$); the light blue marks represent aromatics with a naphthalene core structure ($2.714 \leq Xc < 2.800$); the orange marks represent aromatics with a anthracene core structure ($2.800 \leq Xc < 2.833$); the red marks represent aromatics with a pyrene core structure ($2.833 \leq Xc < 2.923$).

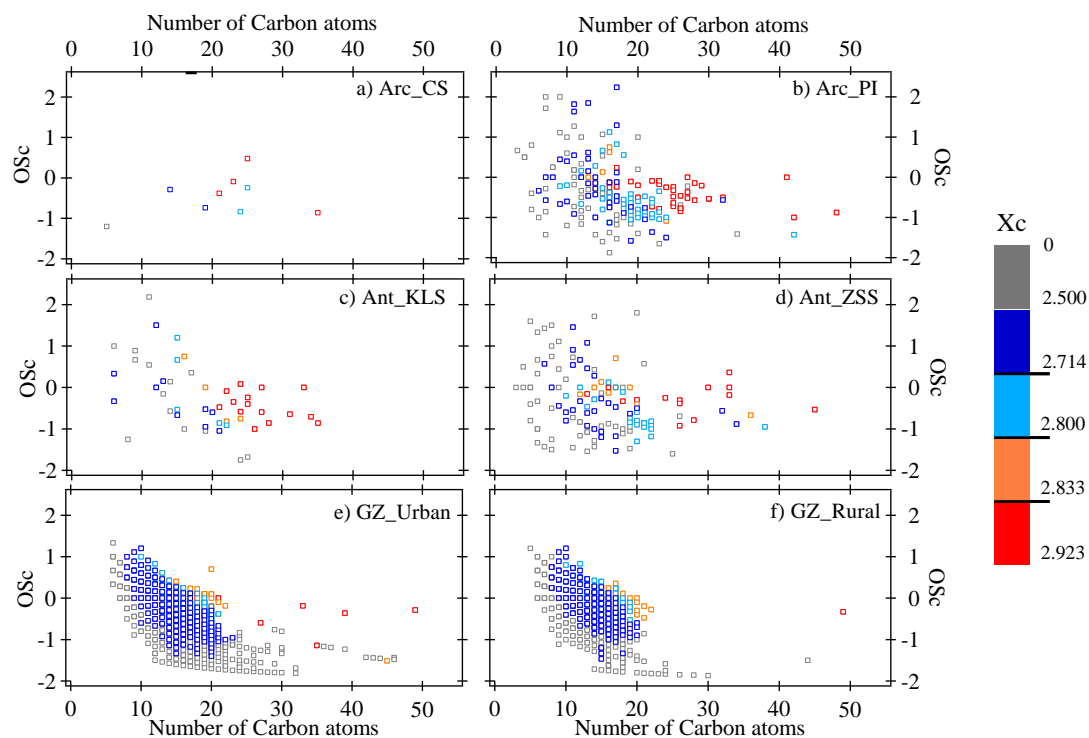


Figure S6. Carbon Oxidation State (OSc) plots for OxyCs molecules in the six sampling sites. The color-coding indicates the Xc values calculated from Eq. (2). The gray marks represent aliphatic compounds ($X_c < 2.500$); the dark blue marks represent aromatics with a benzene core structure ($2.500 \leq X_c < 2.714$); the light blue marks represent aromatics with a naphthalene core structure ($2.714 \leq X_c < 2.800$); the orange marks represent aromatics with a anthracene core structure ($2.800 \leq X_c < 2.833$); the red marks represent aromatics with a pyrene core structure ($2.833 \leq X_c < 2.923$).