

Supporting Information for:

Impact of Aerosol-cloud Cycling on Aqueous Secondary Organic Aerosol Formation

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3 pages, 2 tables

Table S1 shows conditions of the cloudwater portion of each simulation. Table S2 shows the initial gas phase concentrations specified at the beginning of each GAMMA simulation considered in this study.

Table S1. Cloudwater simulation conditions

Temperature	286 K
Pressure	847 hPa
Relative humidity	90%

84 **Table S2.** Gas phase initial number concentrations specified in GAMMA

Species	Initial concentration (molecules/cm ³)
Isoprene	2.21e10
Isoprene hydroxyhydroperoxyl radical	8.97e7
HO ₂	1.95e8
Isoprene hydroxyhydroperoxide	6.83e8
Methacrolein	6.05e9
Methylvinylketone	2.42e9
Glycolaldehyde	9.17e9
Glyoxal	4.68e9
Methylglyoxal	4.08e9
CO	3.01e12
HOOH	2.58e10
OH	6.56e4
Formaldehyde	5.40e10
Formic acid	4.80e7
Hydroxyacetone	9.38e9
Acetic acid	4.25e9
SO ₂	3.22e9
Methacrolein peroxy radical	1.20e6
Acetylperoxy radical	7.42e6
Methylvinylketone peroxy radical	3.60e6
Methylperoxy radical	3.00e7
4-hydroxy-2-methyl-but-2-enal peroxy radical	1.00e6
NO	9.20e8
NO ₂	3.84e9
NO ₃	7.51e6
N ₂ O ₅	1.03e7
HNO ₃	8.52e9
HNO ₆	1.90e8
O ₃	8.35e11
Acetaldehyde and higher aldehydes	8.78e9
Higher peroxides	4.81e8
Ketones	3.08e10
Methanol	7.30e10
Methylhydrogen peroxide	4.53e9
Peroxyacetyl nitrate	1.26e10
Higher acyl peroxy nitrates	1.54e9
C ₂ H ₄	1.01e10
C ₂ H ₆	1.81e10
C ₃ H ₆	2.53e9
C ₃ H ₈	3.05e9
CH ₄	3.97e13
CO ₂	8.49e15