

1 **Trans-Pacific Transport and Evolution of Aerosols and Trace Gases**
2 **from Asia during the INTEX-B Field Campaign**

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12 (Supplemental Information)

13 Table S1. Summary statistics of DC-8 observations and STEM model predictions.
 14

	Below 1 kilometer				
	Observed	Obs. Std	Modeled	Mod. Std	R
Pressure (hPa)	9.8E+02	2.9E+01	9.8E+02	2.9E+01	1.00
Temperature (K)	2.8E+02	7.2E+00	2.8E+02	7.2E+00	0.99
Relative Humidity (%)	7.4E+01	1.8E+01	8.4E+01	1.6E+01	0.86
Wind Direction (Degs)	1.8E+02	9.4E+01	1.7E+02	9.0E+01	0.71
Wind Speed (m/s)	8.4E+00	4.4E+00	8.3E+00	4.0E+00	0.70
CO (ppbv)	1.5E+02	1.6E+01	1.2E+02	1.9E+01	0.40
Ethane (ppbv)	1.4E+00	2.4E-01	1.0E+00	2.4E-01	0.63
Ethene (ppbv)	3.0E-02	9.1E-02	2.9E-02	7.1E-02	0.56
Ethyne (ppbv)	2.6E-01	8.4E-02	2.3E-01	9.5E-02	0.60
Formaldehyde-NCAR (ppbv)	3.6E-01	3.8E-01	3.0E-01	3.1E-01	0.90
Formaldehyde-URI (ppbv)	2.9E-01	4.3E-01	3.6E-01	4.0E-01	0.94
H ₂ O ₂ -URI (ppbv)	8.3E-01	5.3E-01	9.1E-01	5.9E-01	0.68
HNO ₃ (ppbv)	1.6E-01	3.8E-01	3.2E-02	1.8E-01	0.15
HO ₂ (ppbv)	1.2E-02	8.4E-03	6.6E-03	5.1E-03	0.54
NO ₂ (ppbv)	1.6E-01	6.2E-01	2.5E-01	1.2E+00	0.45
NO _y (ppbv)	4.6E-01	1.0E+00	1.1E+00	2.8E+00	0.71
NO (ppbv)	4.2E-02	3.2E-01	6.4E-02	4.1E-01	0.22
OH (ppbv)	7.3E-05	6.8E-05	6.8E-05	7.5E-05	0.55
O ₃ (ppbv)	4.6E+01	7.3E+00	4.8E+01	7.1E+00	0.50
PAN (ppbv)	7.6E-02	1.7E-01	2.2E-01	1.4E-01	0.21
Propane (ppbv)	2.4E-01	1.0E-01	2.3E-01	1.0E-01	0.64
SO ₂ (ppbv)	5.4E-01	8.9E-01	9.8E-02	5.4E-01	0.07
UNH Ca ⁺⁺ (μg/m ³)	2.0E-01	2.0E-01	2.6E-01	3.0E-01	-0.21
UNH K ⁺ (μg/m ³)	7.4E-02	4.3E-02	1.0E+00	8.8E-01	0.06
UNH NH ₄ ⁺ (μg/m ³)	2.9E-01	2.0E-01	1.1E-02	2.5E-02	0.14
UNH NO ₃ ⁻ (μg/m ³)	2.8E-01	2.3E-01	2.4E-01	2.5E-01	0.35
UNH SO ₄ ⁻ (μg/m ³)	1.1E+00	7.0E-01	6.3E-01	1.6E+00	-0.01
JO ₃ (1/s)	1.7E-05	1.1E-05	9.5E-06	1.1E-05	0.43
JNO ₂ (1/s)	6.7E-03	2.2E-03	4.5E-03	4.0E-03	0.18
JH ₂ O ₂ (1/s)	4.6E-06	1.8E-06	3.1E-06	3.0E-06	0.22

15 Table S1 continued

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	Between 1-3 kilometer				
	Observed	Obs. Std	Modeled	Mod. Std	R
Pressure (hPa)	8.0E+02	5.4E+01	8.0E+02	5.3E+01	1.00
Temperature (K)	2.8E+02	9.0E+00	2.8E+02	8.8E+00	0.99
Relative Humidity (%)	4.8E+01	3.2E+01	5.5E+01	2.5E+01	0.82
Wind Direction (Degs)	2.0E+02	9.3E+01	2.0E+02	9.3E+01	0.63
Wind Speed (m/s)	8.7E+00	6.2E+00	8.5E+00	5.5E+00	0.88
CO (ppbv)	1.4E+02	2.4E+01	1.2E+02	1.9E+01	0.61
Ethane (ppbv)	1.3E+00	3.4E-01	9.5E-01	2.6E-01	0.82
Ethene (ppbv)	1.4E-02	1.3E-02	1.5E-02	1.7E-02	0.44
Ethyne (ppbv)	2.2E-01	9.8E-02	2.3E-01	1.1E-01	0.71
Formaldehyde-NCAR (ppbv)	2.7E-01	2.6E-01	2.7E-01	2.0E-01	0.83
Formaldehyde-URI (ppbv)	2.5E-01	2.5E-01	2.8E-01	2.3E-01	0.89
H ₂ O ₂ -URI (ppbv)	8.3E-01	5.3E-01	9.1E-01	5.9E-01	0.68
HNO ₃ (ppbv)	1.7E-01	1.4E-01	3.4E-02	6.1E-02	0.53
HO ₂ (ppbv)	1.5E-02	9.3E-03	1.3E-02	7.1E-03	0.69
NO ₂ (ppbv)	3.7E-02	8.8E-02	4.4E-02	1.4E-01	0.28
NO _y (ppbv)	3.7E-01	2.5E-01	5.8E-01	4.3E-01	0.48
NO (ppbv)	1.7E-02	1.6E-02	2.5E-02	9.6E-02	0.27
OH (ppbv)	9.5E-05	8.3E-05	1.6E-04	1.4E-04	0.52
O ₃ (ppbv)	5.4E+01	1.2E+01	5.2E+01	8.4E+00	0.56
PAN (ppbv)	1.1E-01	1.3E-01	2.7E-01	1.6E-01	0.48
Propane (ppbv)	1.9E-01	1.1E-01	2.0E-01	1.0E-01	0.82
SO ₂ (ppbv)	1.1E-01	2.9E-01	4.1E-02	1.2E-01	0.02
UNH Ca ⁺⁺ (μg/m ³)	2.4E-01	2.5E-01	9.7E-02	4.9E-02	-0.23
UNH K ⁺ (μg/m ³)	4.7E-02	3.2E-02	3.4E-01	1.9E-01	-0.24
UNH NH ₄ ⁺ (μg/m ³)	3.7E-01	2.7E-01	5.3E-03	1.1E-02	0.35
UNH NO ₃ ⁺ (μg/m ³)	1.9E-01	1.6E-01	2.5E-01	2.4E-01	0.13
UNH SO ₄ ⁺ (μg/m ³)	1.0E+00	1.1E+00	8.3E-01	6.5E-01	0.27
JO ₃ (1/s)	2.3E-05	1.5E-05	2.4E-05	2.3E-05	0.75
JNO ₂ (1/s)	9.1E-03	3.5E-03	1.1E-02	6.4E-03	0.41
JH ₂ O ₂ (1/s)	6.4E-06	2.9E-06	7.7E-06	5.2E-06	0.56

17 Table S1 continued
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	Between 3-6 kilometer				
	Observed	Obs. Std	Modeled	Mod. Std	R
Pressure (hPa)	5.8E+02	6.4E+01	5.9E+02	6.4E+01	0.99
Temperature (K)	2.6E+02	1.0E+01	2.6E+02	1.0E+01	0.99
Relative Humidity (%)	4.1E+01	3.2E+01	4.6E+01	2.6E+01	0.83
Wind Direction (Degs)	2.2E+02	9.1E+01	2.3E+02	8.2E+01	0.49
Wind Speed (m/s)	1.4E+01	8.6E+00	1.3E+01	8.5E+00	0.95
CO (ppbv)	1.4E+02	2.7E+01	1.2E+02	2.0E+01	0.46
Ethane (ppbv)	1.2E+00	3.6E-01	8.3E-01	2.6E-01	0.83
Ethene (ppbv)	2.1E-02	2.1E-02	9.1E-03	1.1E-02	-0.18
Ethyne (ppbv)	2.2E-01	1.1E-01	2.1E-01	9.1E-02	0.64
Formaldehyde-NCAR (ppbv)	1.1E-01	1.0E-01	1.2E-01	8.3E-02	0.70
Formaldehyde-URI (ppbv)	1.2E-01	8.7E-02	1.4E-01	8.3E-02	0.74
H ₂ O ₂ -URI (ppbv)	8.8E-01	6.2E-01	7.1E-01	5.1E-01	0.69
HNO ₃ (ppbv)	8.7E-02	1.2E-01	2.9E-02	4.0E-02	0.23
HO ₂ (ppbv)	1.4E-02	8.3E-03	1.1E-02	6.5E-03	0.77
NO ₂ (ppbv)	1.6E-02	2.3E-02	9.3E-03	1.4E-02	0.39
NO _y (ppbv)	4.0E-01	2.3E-01	6.2E-01	2.7E-01	0.22
NO (ppbv)	1.4E-02	1.1E-02	3.8E-03	5.0E-03	0.18
OH (ppbv)	1.2E-04	9.2E-05	1.1E-04	1.1E-04	0.69
O ₃ (ppbv)	6.4E+01	1.5E+01	6.4E+01	1.5E+01	0.54
PAN (ppbv)	1.9E-01	2.2E-01	3.4E-01	1.7E-01	0.33
Propane (ppbv)	1.7E-01	1.0E-01	1.9E-01	8.9E-02	0.76
SO ₂ (ppbv)	7.3E-02	1.1E-01	1.8E-02	2.3E-02	0.11
UNH Ca ⁺⁺ (μg/m ³)	4.0E-01	4.7E-01	5.2E-02	3.7E-02	0.28
UNH K ⁺ (μg/m ³)	5.0E-02	3.5E-02	1.1E-01	1.2E-01	0.09
UNH NH ₄ ⁺ (μg/m ³)	3.2E-01	2.2E-01	5.1E-03	6.7E-03	0.19
UNH NO ₃ ⁻ (μg/m ³)	2.7E-01	2.6E-01	7.4E-02	7.5E-02	0.10
UNH SO ₄ ⁻ (μg/m ³)	8.8E-01	6.8E-01	5.5E-01	6.1E-01	0.21
JO ₃ (1/s)	2.8E-05	1.8E-05	2.5E-05	2.1E-05	0.79
JNO ₂ (1/s)	1.2E-02	3.9E-03	1.3E-02	6.3E-03	0.51
JH ₂ O ₂ (1/s)	8.1E-06	3.3E-06	8.6E-06	4.9E-06	0.64

19 Table S1 continued
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	Between 6 - 10 kilometer				
	Observed	Obs. Std	Modeled	Mod. Std	R
Pressure (hPa)	3.6E+02	6.8E+01	3.7E+02	6.3E+01	0.99
Temperature (K)	2.4E+02	1.2E+01	2.4E+02	1.1E+01	0.99
Relative Humidity (%)	5.0E+01	3.4E+01	4.3E+01	2.0E+01	0.69
Wind Direction (Degs)	2.5E+02	6.8E+01	2.5E+02	6.8E+01	0.78
Wind Speed (m/s)	2.5E+01	1.5E+01	2.3E+01	1.3E+01	0.96
CO (ppbv)	1.2E+02	3.3E+01	1.2E+02	1.7E+01	0.39
Ethane (ppbv)	8.8E-01	3.2E-01	5.1E-01	2.2E-01	0.59
Ethene (ppbv)	1.4E-02	1.1E-02	1.0E-02	8.4E-03	-0.04
Ethyne (ppbv)	1.8E-01	1.0E-01	1.5E-01	7.0E-02	0.39
Formaldehyde-NCAR (ppbv)	4.8E-02	5.4E-02	5.3E-02	2.8E-02	0.34
Formaldehyde-URI (ppbv)	9.1E-02	4.5E-02	5.9E-02	2.9E-02	0.20
H ₂ O ₂ -URI (ppbv)	5.6E-01	4.2E-01	4.1E-01	3.1E-01	0.51
HNO ₃ (ppbv)	1.5E-01	3.4E-01	4.0E-02	4.1E-02	0.66
HO ₂ (ppbv)	1.1E-02	6.9E-03	9.0E-03	4.7E-03	0.79
NO ₂ (ppbv)	3.1E-02	3.7E-02	2.6E-03	2.1E-03	0.28
NO _y (ppbv)	4.7E-01	3.2E-01	5.8E-01	2.0E-01	0.23
NO (ppbv)	2.4E-02	2.2E-02	3.0E-03	2.7E-03	0.46
OH (ppbv)	1.5E-04	9.6E-05	8.8E-05	5.9E-05	0.73
O ₃ (ppbv)	1.1E+02	1.0E+02	8.6E+01	3.1E+01	0.69
PAN (ppbv)	1.6E-01	1.4E-01	3.4E-01	1.2E-01	0.25
Propane (ppbv)	1.2E-01	8.8E-02	1.3E-01	6.6E-02	0.59
SO ₂ (ppbv)	3.9E-02	4.9E-02	1.6E-02	1.9E-02	-0.01
UNH Ca ⁺⁺ (μg/m ³)	2.0E-01	2.4E-01	2.7E-02	2.4E-02	0.03
UNH K ⁺ (μg/m ³)	3.1E-02	2.1E-02	2.0E-02	1.9E-02	-0.14
UNH NH ₄ ⁺ (μg/m ³)	2.1E-01	1.2E-01	3.5E-03	2.7E-03	-0.07
UNH NO ₃ ⁻ (μg/m ³)	1.6E-01	1.8E-01	3.6E-02	5.5E-02	-0.21
UNH SO ₄ ⁻ (μg/m ³)	5.0E-01	3.1E-01	3.3E-01	3.8E-01	-0.22
JO ₃ (1/s)	3.0E-05	1.9E-05	2.3E-05	1.9E-05	0.74
JNO ₂ (1/s)	1.2E-02	4.2E-03	1.3E-02	6.7E-03	0.48
JH ₂ O ₂ (1/s)	8.6E-06	3.4E-06	8.5E-06	4.8E-06	0.60

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Table S2. Summary statistics of C-130 observations and STEM model predictions.

	Below 1 kilometer				
	Observed	Obs. Std	Modeled	Mod. Std	R
Pressure (hpa)	9.5E+02	2.7E+01	9.5E+02	2.8E+01	0.96
Temperature (K)	2.8E+02	7.0E+00	2.8E+02	6.3E+00	0.97
RH (%)	5.3E+01	2.9E+01	6.0E+01	2.4E+01	0.85
Wind direction (Degs)	2.3E+02	1.2E+02	2.2E+02	1.2E+02	0.51
Wind speed (m/s)	7.3E+00	4.9E+00	7.3E+00	4.1E+00	0.64
CO (ppbv)	1.5E+02	2.2E+01	1.4E+02	2.5E+01	0.48
Ethene (ppbv)	8.5E-02	1.3E-01	7.0E-02	8.5E-02	0.31
Ethyne (ppbv)	3.0E-01	1.0E-01	3.2E-01	1.4E-01	0.62
H ₂ O ₂ (ppbv)	6.5E-01	4.5E-01	9.0E-01	4.9E-01	0.62
H ₂ SO ₄ (ppbv)	4.8E-04	4.5E-04	4.5E-04	6.8E-04	0.10
HNO ₃ (ppbv)	2.6E-01	2.4E-01	1.8E-01	4.9E-01	0.49
HO ₂ (ppbv)	2.0E-02	1.3E-02	1.1E-02	5.8E-03	0.29
NO ₂ (ppbv)	6.5E-01	1.2E+00	6.8E-01	1.5E+00	0.45
NO _y (ppbv)	1.8E+00	2.4E+00	1.9E+00	2.5E+00	0.53
NO (ppbv)	2.1E-01	4.6E-01	2.4E-01	5.7E-01	0.45
OH (ppbv)	2.7E-04	1.9E-04	1.3E-04	7.4E-05	0.06
Ozone (ppbv)	5.7E+01	1.1E+01	5.8E+01	9.9E+00	0.44
PAN (ppbv)	2.7E-01	2.6E-01	3.6E-01	2.3E-01	0.57
Propane (ppbv)	3.8E-01	2.0E-01	2.8E-01	1.3E-01	0.57
SO ₂ (ppbv)	2.3E-01	5.3E-01	1.1E-01	2.5E-01	0.26
AMS SO ₄ ⁻ (μg/m ³)	7.4E-01	4.3E-01	5.8E-01	4.9E-01	0.43
AMS NO ₃ ⁻ (μg/m ³)	1.3E-01	2.9E-01	7.2E-01	1.3E+00	0.55
AMS OM converted to OC (μg/m ³)	7.1E-01	9.8E-01	3.5E-01	2.0E-01	0.68
JO ₃ (1/s)	2.4E-05	8.9E-06	2.6E-05	1.5E-05	0.57
JNO ₂ (1/s)	8.2E-03	2.4E-03	9.5E-03	4.9E-03	0.25
JH ₂ O ₂ (1/s)	5.8E-06	1.8E-06	7.1E-06	3.8E-06	0.33

23 Table S2 continued
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	Between 1-3 kilometer				
	Observed	Obs. Std	Modeled	Mod. Std	R
Pressure (hpa)	8.0E+02	5.6E+01	8.0E+02	5.6E+01	0.99
Temperature (K)	2.8E+02	6.6E+00	2.7E+02	5.9E+00	0.98
RH (%)	4.2E+01	3.1E+01	4.8E+01	2.6E+01	0.80
Wind direction (Degs)	2.3E+02	1.0E+02	2.5E+02	9.5E+01	0.69
Wind speed (m/s)	7.8E+00	4.9E+00	8.1E+00	4.4E+00	0.76
CO (ppbv)	1.4E+02	2.5E+01	1.4E+02	1.8E+01	0.23
Ethene (ppbv)	4.0E-02	4.7E-02	4.2E-02	4.4E-02	0.27
Ethyne (ppbv)	2.7E-01	1.1E-01	3.0E-01	1.2E-01	0.49
H ₂ O ₂ (ppbv)	7.6E-01	5.7E-01	7.7E-01	5.3E-01	0.74
H ₂ SO ₄ (ppbv)	2.5E-04	2.5E-04	7.1E-04	1.6E-03	-0.02
HNO ₃ (ppbv)	1.4E-01	1.2E-01	8.6E-02	3.4E-01	0.34
HO ₂ (ppbv)	1.7E-02	1.3E-02	1.2E-02	5.7E-03	0.37
NO ₂ (ppbv)	1.2E-01	3.9E-01	3.2E-01	8.5E-01	0.26
NO _y (ppbv)	6.5E-01	8.7E-01	1.3E+00	1.7E+00	0.28
NO (ppbv)	5.0E-02	1.6E-01	1.4E-01	3.6E-01	0.22
OH (ppbv)	1.5E-04	1.7E-04	1.4E-04	9.5E-05	0.19
Ozone (ppbv)	6.2E+01	1.5E+01	5.8E+01	8.5E+00	0.47
PAN (ppbv)	2.3E-01	1.6E-01	3.6E-01	1.8E-01	0.34
Propane (ppbv)	3.6E-01	1.9E-01	2.7E-01	1.1E-01	0.47
SO ₂ (ppbv)	1.1E-01	1.7E-01	1.2E-01	3.0E-01	0.35
AMS SO ₄ ⁻ (μg/m ³)	8.8E-01	8.0E-01	4.9E-01	4.6E-01	0.26
AMS NO ₃ ⁻ (μg/m ³)	5.9E-02	1.1E-01	4.8E-01	8.8E-01	0.09
AMS OM converted to OC (μg/m ³)	4.8E-01	6.4E-01	3.0E-01	1.4E-01	0.32
JO ₃ (1/s)	2.4E-05	1.2E-05	2.8E-05	2.1E-05	0.80
JNO ₂ (1/s)	9.4E-03	2.6E-03	1.1E-02	6.5E-03	0.54
JH ₂ O ₂ (1/s)	6.4E-06	2.1E-06	8.3E-06	5.2E-06	0.66

25 Table S2 continued
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	Between 3-6 kilometer				
	Observed	Obs. Std	Modeled	Mod. Std	R
Pressure (hpa)	5.8E+02	6.7E+01	5.9E+02	6.8E+01	0.99
Temperature (K)	2.6E+02	7.5E+00	2.6E+02	6.9E+00	0.98
RH (%)	3.5E+01	2.9E+01	4.1E+01	2.6E+01	0.80
Wind direction (Degs)	2.6E+02	8.2E+01	2.5E+02	8.9E+01	0.83
Wind speed (m/s)	1.6E+01	8.6E+00	1.5E+01	7.7E+00	0.93
CO (ppbv)	1.3E+02	2.8E+01	1.2E+02	1.5E+01	0.43
Ethene (ppbv)	1.5E-02	1.8E-02	1.2E-02	1.1E-02	0.07
Ethyne (ppbv)	2.2E-01	1.2E-01	2.3E-01	8.6E-02	0.61
H ₂ O ₂ (ppbv)	8.1E-01	4.3E-01	6.0E-01	4.7E-01	0.72
H ₂ SO ₄ (ppbv)	1.4E-04	1.3E-04	4.1E-04	9.0E-04	0.19
HNO ₃ (ppbv)	9.4E-02	9.4E-02	2.4E-02	5.6E-02	0.08
HO ₂ (ppbv)	1.6E-02	1.1E-02	1.1E-02	4.9E-03	0.58
NO ₂ (ppbv)	2.6E-02	3.8E-02	1.2E-02	4.2E-02	0.38
NO _y (ppbv)	3.7E-01	2.7E-01	6.2E-01	2.9E-01	0.38
NO (ppbv)	1.2E-02	2.2E-02	7.2E-03	2.3E-02	0.17
OH (ppbv)	1.4E-04	1.0E-04	1.1E-04	7.5E-05	0.47
Ozone (ppbv)	6.7E+01	1.8E+01	6.4E+01	1.3E+01	0.60
PAN (ppbv)	2.2E-01	1.3E-01	3.5E-01	1.4E-01	0.39
Propane (ppbv)	3.6E-01	1.5E-01	2.2E-01	9.4E-02	0.56
SO ₂ (ppbv)	1.2E-01	2.4E-01	2.8E-02	5.4E-02	0.11
AMS SO ₄ ⁻ (μg/m ³)	9.4E-01	7.8E+00	5.6E-01	5.7E-01	0.00
AMS NO ₃ ⁻ (μg/m ³)	5.5E-02	2.6E-01	1.5E-01	2.1E-01	0.10
AMS OM converted to OC (μg/m ³)	3.7E-01	5.2E-01	2.8E-01	1.2E-01	0.19
JO ₃ (1/s)	3.0E-05	1.2E-05	2.9E-05	1.7E-05	0.87
JNO ₂ (1/s)	1.1E-02	2.5E-03	1.2E-02	5.7E-03	0.64
JH ₂ O ₂ (1/s)	7.8E-06	2.0E-06	8.7E-06	4.2E-06	0.75

27 Table S2 continued
28

	Greater than 6 kilometer				
	Observed	Obs. Std	Modeled	Mod. Std	R
Pressure (hpa)	4.4E+02	2.5E+01	4.4E+02	2.8E+01	0.94
Temperature (K)	2.5E+02	6.2E+00	2.5E+02	4.9E+00	0.94
RH (%)	2.9E+01	2.6E+01	3.4E+01	1.9E+01	0.65
Wind direction (Degs)	2.4E+02	9.3E+01	2.4E+02	1.0E+02	0.85
Wind speed (m/s)	2.2E+01	1.1E+01	2.1E+01	9.0E+00	0.90
CO (ppbv)	1.3E+02	5.0E+01	1.2E+02	1.8E+01	0.47
Ethene (ppbv)	1.6E-02	1.3E-02	5.6E-03	2.3E-03	-0.34
Ethyne (ppbv)	2.6E-01	2.1E-01	2.0E-01	6.8E-02	0.42
H ₂ O ₂ (ppbv)	5.8E-01	3.1E-01	3.4E-01	3.1E-01	0.66
H ₂ SO ₄ (ppbv)	1.4E-04	1.8E-04	2.9E-04	5.1E-04	0.48
HNO ₃ (ppbv)	1.4E-01	2.4E-01	3.2E-02	5.3E-02	0.07
HO ₂ (ppbv)	1.1E-02	1.1E-02	8.5E-03	2.8E-03	0.28
NO ₂ (ppbv)	3.2E-02	4.0E-02	1.1E-03	6.4E-04	0.26
NO _y (ppbv)	4.6E-01	5.7E-01	6.1E-01	2.3E-01	0.24
NO (ppbv)	1.6E-02	2.0E-02	1.2E-03	7.5E-04	0.06
OH (ppbv)	8.3E-05	4.2E-05	6.4E-05	3.5E-05	0.65
Ozone (ppbv)	7.6E+01	2.1E+01	7.4E+01	1.5E+01	0.54
PAN (ppbv)	2.3E-01	1.9E-01	3.6E-01	1.6E-01	0.36
Propane (ppbv)	4.6E-01	2.1E-01	1.9E-01	7.2E-02	0.52
SO ₂ (ppbv)	3.8E-01	9.5E-01	2.9E-02	4.3E-02	0.19
AMS SO ₄ ⁻ (μg/m ³)	1.9E+00	3.0E+00	5.6E-01	9.5E-01	0.12
AMS NO ₃ ⁻ (μg/m ³)	7.5E-02	1.0E-01	5.6E-02	6.2E-02	-0.11
AMS OM converted to OC (μg/m ³)	4.5E-01	8.0E-01	2.5E-01	1.2E-01	0.08
JO ₃ (1/s)	2.3E-05	1.2E-05	2.0E-05	1.5E-05	0.89
JNO ₂ (1/s)	1.1E-02	2.5E-03	1.1E-02	5.6E-03	0.46
JH ₂ O ₂ (1/s)	7.3E-06	2.0E-06	7.3E-06	4.1E-06	0.69

29 Table S3. Model calculated lagrangian sampling between DC-8 and Mt. Bachelor
 30 (MBO).
 31

DC8			MTB		
Fl.No (date)	Start time	End time	Date	Start time	End time
14(5/1)	12:40	12:47	5/5/2006	12:30	15:30
14(5/1)	13:08	13:13	5/5/2006	0:00	5:00
15(5/4)	21:16	21:17	5/7/2006	22:00	7:30
15(5/4)	0:44	0:44	5/6/2006	9:30	13:00
16(5/7)	1:48	1:48	5/11/2006	5:30	13:00
17(5/9)	0:03	0:04	5/12/2006	10:00	9:30
17(5/9)	0:15	0:19	5/14/2006	0:00	3:00
17(5/9)	0:32	0:47	5/13/2006	15:00	4:30

32 Table S4. Model calculated lagrangian sampling between C-130 and Mt. Bachelor
 33 (MBO).
 34

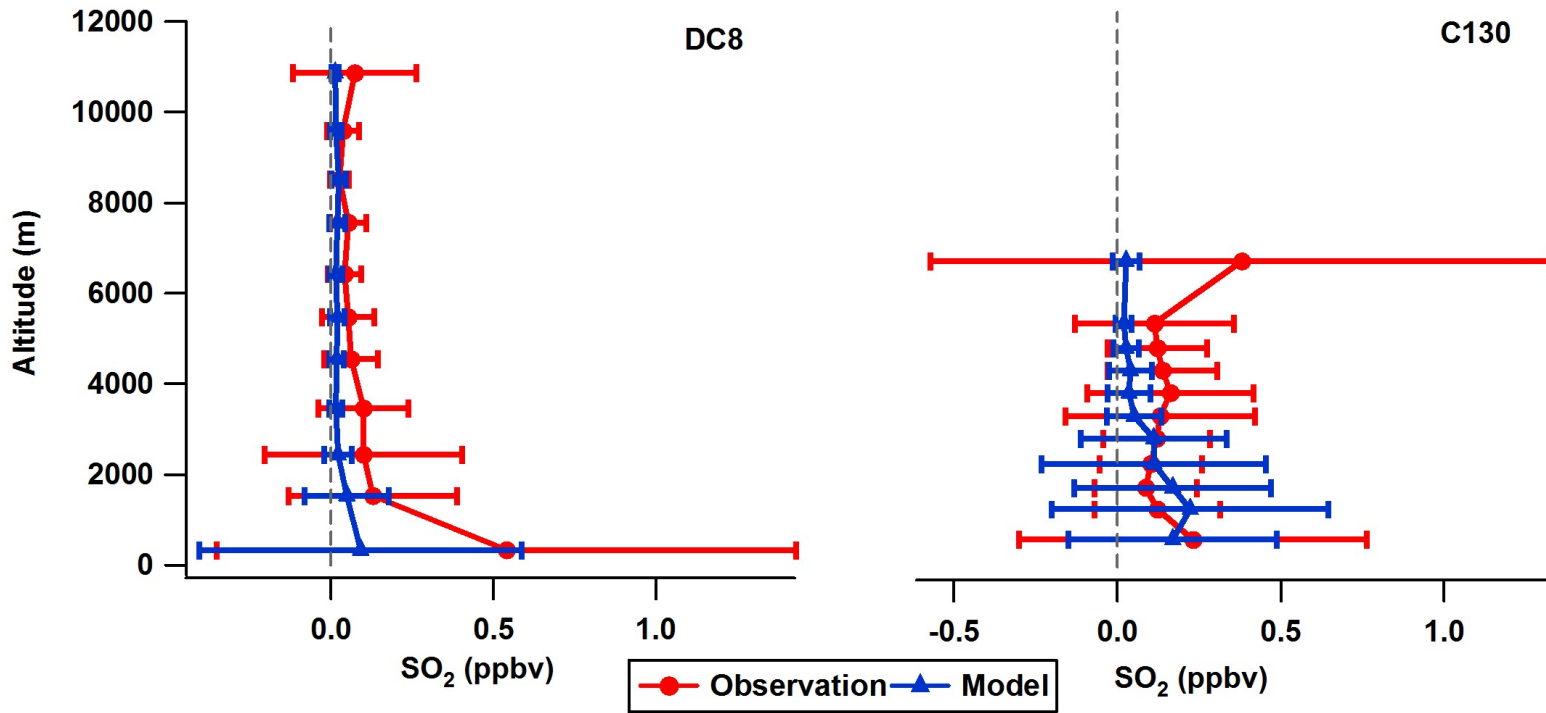
C130			MTB		
Fl.No (Date)	Start time	End time	Date	Start time	End time
15(4/21)	21:36	21:36	4/26/2006	2:30	3:00
15(4/21)	22:22	22:22	4/25/2006	13:00	23:30
15(4/21)	0:00	0:13	4/25/2006	2:00	15:00
16(4/24)	18:34	18:37	4/27/2006	16:30	7:30
16(4/24)	18:40	19:42	4/26/2006	7:00	10:30
16(4/24)	19:51	19:51	4/27/2006	1:20	10:00
16(4/24)	19:55	19:55	4/27/2006	23:00	1:20
16(4/24)	20:39	20:39	4/27/2006	0:00	0:00
16(4/24)	20:43	20:58	4/28/2006	11:00	11:00
16(4/24)	21:49	22:01	4/27/2006	16:30	18:30
16(4/24)	22:09	22:09	4/26/2006	20:00	23:00
16(4/24)	22:57	23:00	4/26/2006	14:00	22:30
17(4/26)	19:15	19:18	4/29/2006	6:00	10:00
17(4/26)	19:39	19:39	4/29/2006	6:00	13:00
17(4/26)	20:01	22:07	5/1/2006	3:30	4:00
17(4/26)	22:07	22:07	5/1/2006	23:00	4:00
17(4/26)	22:11	22:12	5/1/2006	17:00	4:00
17(4/26)	23:03	23:03	4/29/2006	23:30	1:30
18(4/28)	17:17	17:17	5/2/2006	20:30	7:30
19(5/1)	18:52	19:08	5/3/2006	8:00	22:00
19(5/1)	0:41	1:14	5/4/2006	1:00	5:00
20(5/3)	19:14	19:51	5/5/2006	9:30	15:30
20(5/3)	23:24	23:32	5/7/2006	7:30	10:30
20(5/3)	23:36	23:37	5/8/2006	5:00	0:30
20(5/3)	0:18	0:59	5/5/2006	0:00	2:30
21(5/5)	23:25	23:48	5/7/2006	8:00	2:30
21(5/5)	0:52	0:52	5/7/2006	2:30	5:30
22(5/8)	16:51	17:54	5/10/2006	0:00	18:00
22(5/8)	22:12	22:13	5/10/2006	9:30	17:30
22(5/8)	22:30	22:32	5/10/2006	11:00	18:00
22(5/8)	23:27	23:27	5/12/2006	19:10	0:30
22(5/8)	0:09	0:09	5/11/2006	17:00	20:30
22(5/8)	0:13	0:17	5/12/2006	7:00	0:00
23(5/9)	17:33	17:34	5/12/2006	10:30	23:30
23(5/9)	18:15	18:19	5/12/2006	11:00	19:30
23(5/9)	19:59	20:02	5/11/2006	1:30	3:30
23(5/9)	0:59	1:02	5/11/2006	4:30	23:00
24(5/11)	17:28	17:34	5/12/2006	18:00	1:30

35 Table S5. Model calculated lagrangian sampling of air mass between DC-8 and Trinidad
 36 Head (THD).
 37

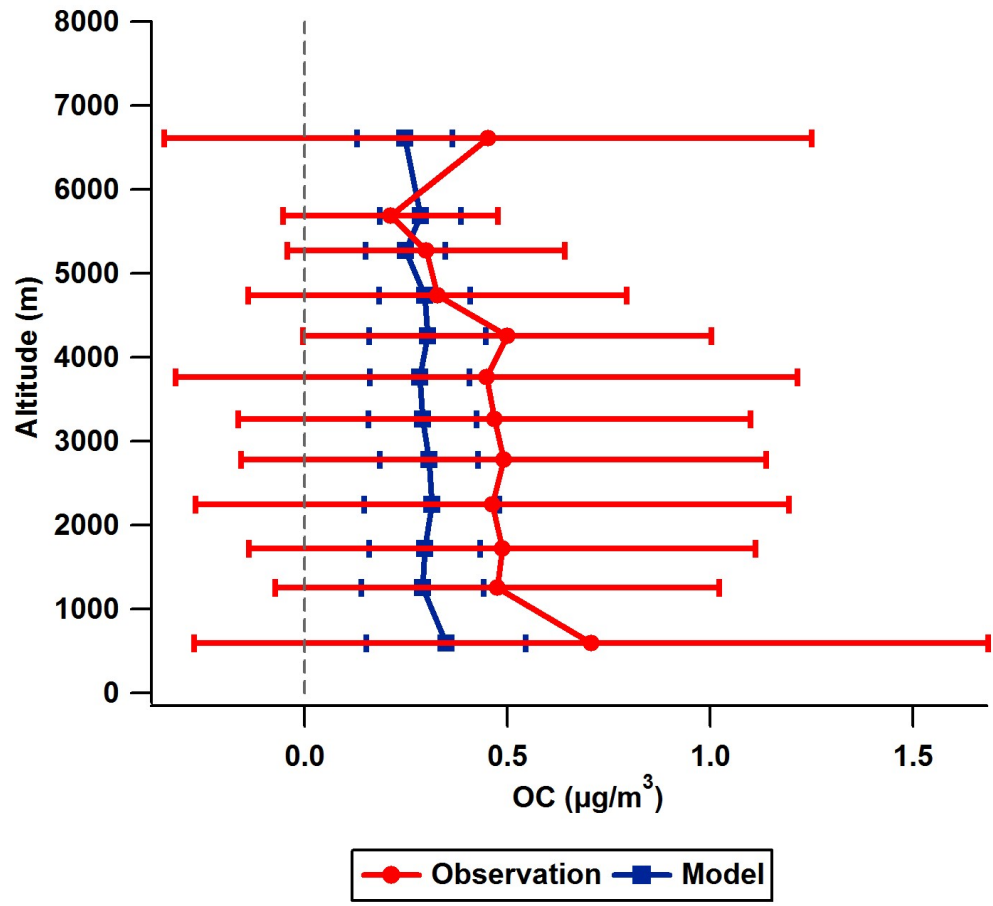
DC8			THD		
Flight No	Start time	End time	Date	Start time	End time
10(4/17)	20:03	20:07	4/21/2006	17:30	14:00
10(4/17)	20:08	20:36	4/18/2006	23:00	9:00
14(5/1)	12:40	12:47	5/5/2006	15:00	8:30
14(5/1)	13:01	13:06	5/4/2006	1:00	10:30
16(5/7)	23:08	23:09	5/10/2006	3:00	12:30
16(5/7)	1:47	1:47	5/11/2006	21:30	3:30
16(5/7)	1:52	1:52	5/12/2006	0:00	2:30
17(5/9)	0:05	0:05	5/11/2006	14:30	17:30
17(5/9)	0:15	0:17	5/13/2006	20:00	2:30
17(5/9)	0:32	0:35	5/12/2006	7:00	17:30

Table S6. Model calculated lagrangian sampling of air mass between C-130 and THD.

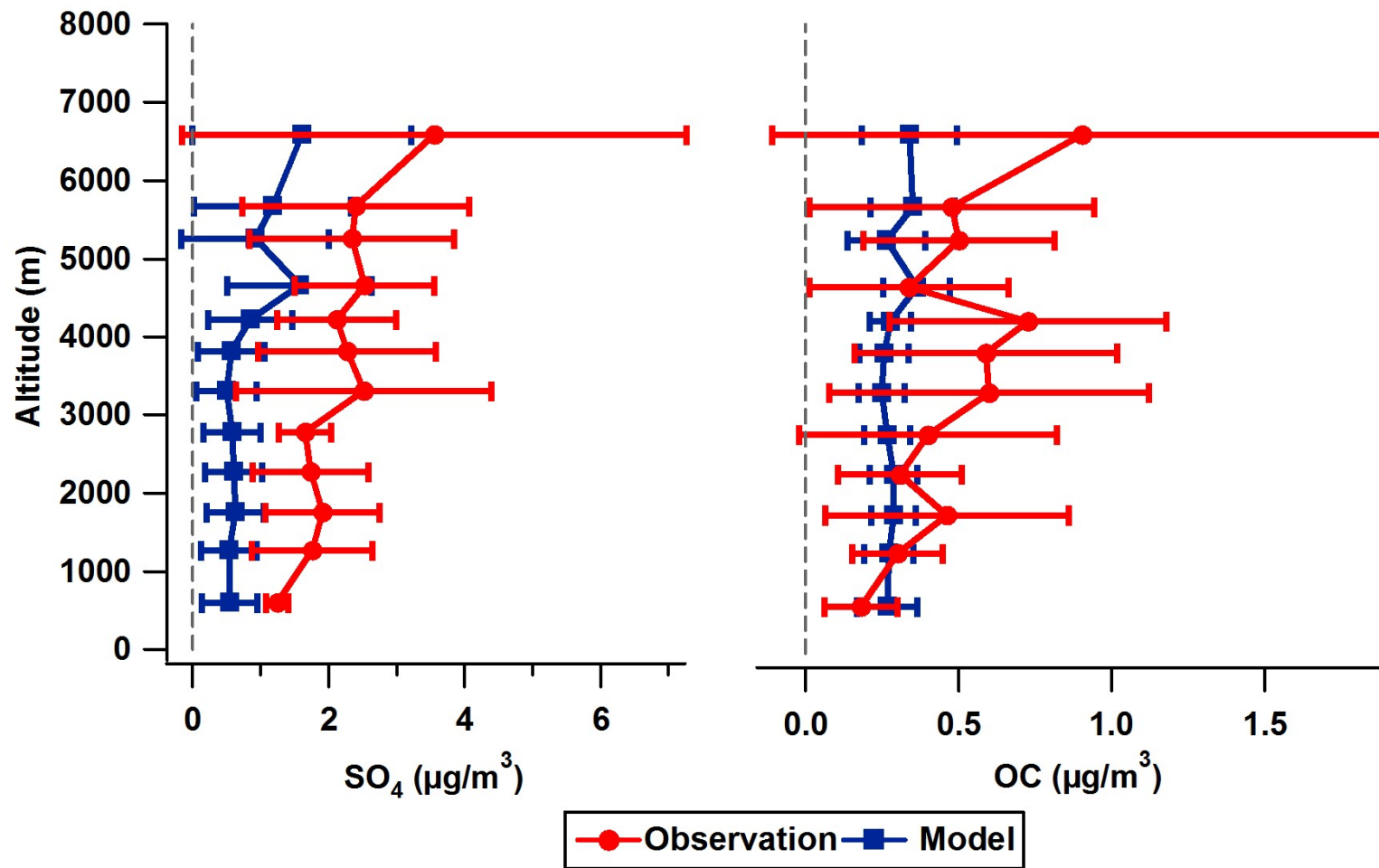
C130			THD		
Fl.No (Date)	Start time	End time	Date	Start time	End time
15(4/21)	21:32	21:32	4/24/2006	15:30	18:00
15(4/21)	22:12	22:12	4/23/2006	14:30	20:30
15(4/21)	22:54	22:55	4/24/2006	0:30	8:30
15(4/21)	23:54	0:10	4/23/2006	19:00	14:00
16(4/24)	18:33	18:33	4/27/2006	2:00	4:30
16(4/24)	18:38	18:43	4/27/2006	2:30	20:00
16(4/24)	19:03	19:04	4/26/2006	10:30	23:30
16(4/24)	19:22	19:25	4/26/2006	9:30	23:30
16(4/24)	20:54	20:57	4/28/2006	13:00	18:30
17(4/26)	19:10	19:13	4/29/2006	1:00	6:00
17(4/26)	19:19	19:20	4/30/2006	22:30	15:00
17(4/26)	19:33	19:34	4/30/2006	6:30	0:00
17(4/26)	22:11	22:11	4/30/2006	16:00	19:00
17(4/26)	23:08	23:08	4/30/2006	22:00	13:30
18(4/28)	0:38	0:38	5/3/2006	20:30	0:00
20(5/3)	18:48	18:48	5/6/2006	3:00	3:00
20(5/3)	19:24	19:24	5/8/2006	21:30	23:30
20(5/3)	19:49	20:39	5/6/2006	9:00	9:00
20(5/3)	19:51	20:04	5/8/2006	6:00	13:30
20(5/3)	21:24	21:27	5/7/2006	7:30	15:30
20(5/3)	23:12	23:14	5/8/2006	1:00	6:30
20(5/3)	23:27	23:31	5/6/2006	23:00	23:30
20(5/3)	23:36	23:39	5/8/2006	19:30	0:30
20(5/3)	23:42	23:42	5/5/2006	13:30	17:30
20(5/3)	23:46	0:02	5/8/2006	18:00	6:00
20(5/3)	23:51	0:06	5/6/2006	20:00	5:30
20(5/3)	0:14	0:47	5/5/2006	14:30	23:30
20(5/3)	0:53	1:03	5/6/2006	18:30	10:00
21(5/5)	18:40	18:40	5/8/2006	1:00	9:30
21(5/5)	19:20	19:45	5/5/2006	0:00	17:00
21(5/5)	19:21	19:21	5/8/2006	4:00	13:30
21(5/5)	23:23	23:24	5/7/2006	22:30	0:30
21(5/5)	23:51	23:52	5/7/2006	19:30	3:30
21(5/5)	0:05	0:07	5/7/2006	18:30	7:30
21(5/5)	0:09	0:09	5/8/2006	17:30	18:00
21(5/5)	0:44	0:44	5/8/2006	8:00	11:30
21(5/5)	0:45	0:46	5/7/2006	0:30	6:00
21(5/5)	0:50	0:51	5/7/2006	1:00	9:30
22(5/8)	16:58	17:02	5/11/2006	20:00	7:30
22(5/8)	17:18	17:18	5/10/2006	9:30	10:30
22(5/8)	17:55	17:55	5/10/2006	7:30	18:00
22(5/8)	22:09	22:12	5/10/2006	17:00	4:00
22(5/8)	22:45	22:45	5/10/2006	7:30	10:00
22(5/8)	23:20	23:26	5/11/2006	16:30	13:30
23(5/9)	18:17	18:18	5/11/2006	16:30	22:00
24(5/11)	17:31	17:31	5/12/2006	22:30	10:30



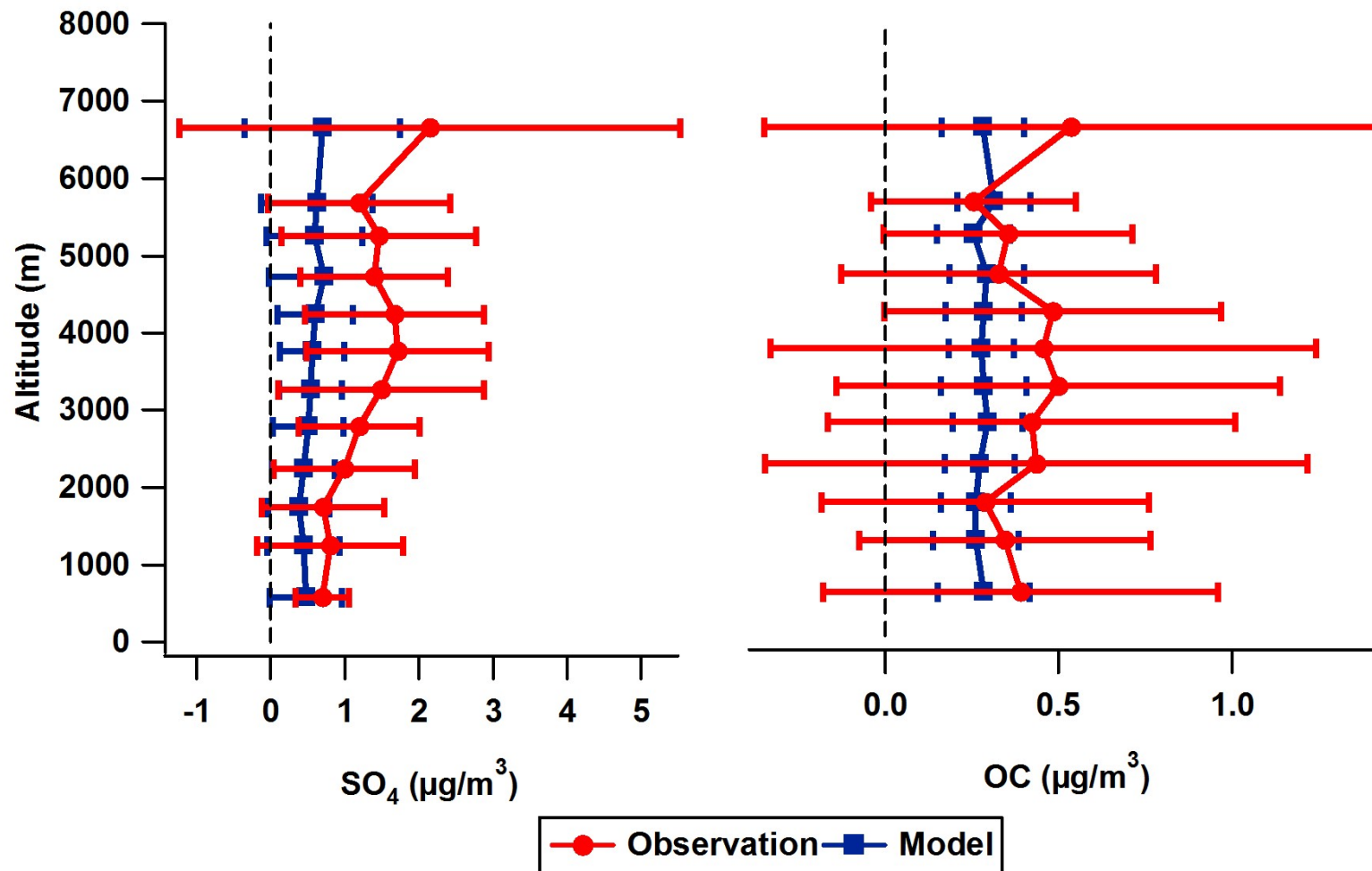
39
 40 Fig. S1. DC-8 and C-130 observed and modeled SO₂ vertical profiles during the INTEX-B study period



41
 42 Fig. S2. Observed and modeled OC vertical profiles for INTEX-B C-130 flights



43
 44 Fig. S3. Observed AMS and modeled SO₄, and OC vertical profiles for INTEX-B C130 flights using criteria similar to Dunlea et al.,
 45 2008 (i.e. Observed AMS SO₄ > 1 µg/m³ and sampled west of 125W degrees longitude)



46
 47 Fig. S4. Observed AMS and modeled SO₄, and OC vertical profiles for INTEX-B C130 flights using criteria similar to Peltier et al.,
 48 2008 (i.e. Modeled CO > 100 ppb and predicted China anthropogenic CO > 50% of the predicted total anthropogenic CO)