

Supporting Information for

Diurnal Cycle in Mars Equatorial Odd Oxygen and Ozone Profile: Chemical Production and Loss Mechanisms

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Tables S1 to S6: model-input and output data presented in the manuscript.

Table S1: Temperature profile as a function of altitude and local time

t	Altitude (km)										
	0.00E+00	1.00E+01	2.00E+01	3.00E+01	4.00E+01	5.00E+01	6.00E+01	7.00E+01	8.00E+01	9.00E+01	1.00E+02
0.00E+00	2.17E+02	2.04E+02	1.82E+02	1.77E+02	1.72E+02	1.63E+02	1.49E+02	1.36E+02	1.35E+02	1.44E+02	1.29E+02
1.00E+00	2.15E+02	2.03E+02	1.85E+02	1.80E+02	1.74E+02	1.62E+02	1.47E+02	1.36E+02	1.37E+02	1.40E+02	1.23E+02
2.00E+00	2.13E+02	2.02E+02	1.87E+02	1.80E+02	1.73E+02	1.59E+02	1.43E+02	1.34E+02	1.38E+02	1.35E+02	1.18E+02
3.00E+00	2.11E+02	2.02E+02	1.89E+02	1.80E+02	1.71E+02	1.56E+02	1.39E+02	1.34E+02	1.39E+02	1.32E+02	1.15E+02
4.00E+00	2.10E+02	2.02E+02	1.90E+02	1.79E+02	1.69E+02	1.52E+02	1.35E+02	1.34E+02	1.41E+02	1.29E+02	1.14E+02
5.00E+00	2.09E+02	2.02E+02	1.90E+02	1.78E+02	1.67E+02	1.49E+02	1.32E+02	1.37E+02	1.43E+02	1.29E+02	1.15E+02
6.00E+00	2.09E+02	2.03E+02	1.91E+02	1.77E+02	1.65E+02	1.47E+02	1.31E+02	1.40E+02	1.46E+02	1.31E+02	1.17E+02
7.00E+00	2.10E+02	2.04E+02	1.91E+02	1.76E+02	1.62E+02	1.44E+02	1.32E+02	1.48E+02	1.52E+02	1.37E+02	1.22E+02
8.00E+00	2.13E+02	2.06E+02	1.91E+02	1.74E+02	1.60E+02	1.42E+02	1.34E+02	1.55E+02	1.54E+02	1.40E+02	1.26E+02
9.00E+00	2.17E+02	2.07E+02	1.90E+02	1.73E+02	1.59E+02	1.42E+02	1.38E+02	1.59E+02	1.53E+02	1.41E+02	1.27E+02
1.00E+01	2.21E+02	2.08E+02	1.89E+02	1.72E+02	1.59E+02	1.43E+02	1.44E+02	1.61E+02	1.52E+02	1.40E+02	1.28E+02
1.10E+01	2.26E+02	2.09E+02	1.88E+02	1.71E+02	1.59E+02	1.45E+02	1.49E+02	1.60E+02	1.50E+02	1.38E+02	1.27E+02
1.20E+01	2.30E+02	2.10E+02	1.87E+02	1.71E+02	1.60E+02	1.47E+02	1.53E+02	1.58E+02	1.46E+02	1.34E+02	1.24E+02
1.30E+01	2.33E+02	2.11E+02	1.87E+02	1.71E+02	1.61E+02	1.50E+02	1.56E+02	1.55E+02	1.42E+02	1.31E+02	1.20E+02
1.40E+01	2.36E+02	2.12E+02	1.86E+02	1.71E+02	1.61E+02	1.52E+02	1.56E+02	1.51E+02	1.37E+02	1.27E+02	1.17E+02
1.50E+01	2.36E+02	2.12E+02	1.86E+02	1.71E+02	1.61E+02	1.53E+02	1.55E+02	1.47E+02	1.33E+02	1.24E+02	1.14E+02
1.60E+01	2.35E+02	2.12E+02	1.85E+02	1.70E+02	1.62E+02	1.54E+02	1.53E+02	1.44E+02	1.29E+02	1.21E+02	1.11E+02
1.70E+01	2.33E+02	2.12E+02	1.84E+02	1.70E+02	1.62E+02	1.55E+02	1.52E+02	1.40E+02	1.25E+02	1.18E+02	1.09E+02
1.80E+01	2.31E+02	2.11E+02	1.83E+02	1.69E+02	1.62E+02	1.56E+02	1.51E+02	1.37E+02	1.21E+02	1.16E+02	1.09E+02
1.90E+01	2.28E+02	2.10E+02	1.82E+02	1.69E+02	1.63E+02	1.56E+02	1.50E+02	1.35E+02	1.19E+02	1.16E+02	1.13E+02
2.00E+01	2.26E+02	2.09E+02	1.81E+02	1.70E+02	1.65E+02	1.58E+02	1.50E+02	1.33E+02	1.18E+02	1.20E+02	1.21E+02
2.10E+01	2.24E+02	2.08E+02	1.81E+02	1.71E+02	1.66E+02	1.59E+02	1.50E+02	1.32E+02	1.20E+02	1.27E+02	1.28E+02
2.20E+01	2.22E+02	2.06E+02	1.80E+02	1.73E+02	1.69E+02	1.61E+02	1.50E+02	1.33E+02	1.26E+02	1.37E+02	1.32E+02
2.30E+01	2.19E+02	2.04E+02	1.81E+02	1.75E+02	1.71E+02	1.62E+02	1.50E+02	1.35E+02	1.32E+02	1.43E+02	1.32E+02

Table S2: Water vapor profile as a function of altitude and local time

t	Altitude (km)										
	0.00E+00	1.00E+01	2.00E+01	3.00E+01	4.00E+01	5.00E+01	6.00E+01	7.00E+01	8.00E+01	9.00E+01	1.00E+02
0.00E+00	1.18E-04	1.42E-04	9.18E-05	7.52E-05	5.14E-05	1.87E-05	1.39E-05	1.42E-05	1.37E-05	1.26E-05	1.24E-05
1.00E+00	1.16E-04	1.45E-04	9.86E-05	7.70E-05	5.05E-05	1.89E-05	1.39E-05	1.42E-05	1.36E-05	1.23E-05	1.19E-05
2.00E+00	1.14E-04	1.47E-04	1.03E-04	7.72E-05	5.04E-05	1.99E-05	1.38E-05	1.41E-05	1.35E-05	1.21E-05	1.19E-05
3.00E+00	1.13E-04	1.49E-04	1.05E-04	7.73E-05	5.07E-05	2.08E-05	1.39E-05	1.41E-05	1.33E-05	1.19E-05	1.22E-05
4.00E+00	1.11E-04	1.50E-04	1.05E-04	7.76E-05	5.11E-05	2.16E-05	1.41E-05	1.40E-05	1.30E-05	1.19E-05	1.26E-05
5.00E+00	1.11E-04	1.50E-04	1.05E-04	7.79E-05	4.96E-05	2.07E-05	1.42E-05	1.40E-05	1.28E-05	1.18E-05	1.27E-05
6.00E+00	1.11E-04	1.51E-04	1.06E-04	7.82E-05	4.65E-05	1.86E-05	1.43E-05	1.39E-05	1.26E-05	1.17E-05	1.24E-05
7.00E+00	1.13E-04	1.50E-04	1.06E-04	7.71E-05	3.84E-05	1.40E-05	1.43E-05	1.38E-05	1.23E-05	1.15E-05	1.17E-05
8.00E+00	1.17E-04	1.50E-04	1.08E-04	7.14E-05	2.91E-05	1.08E-05	1.42E-05	1.36E-05	1.23E-05	1.13E-05	1.12E-05
9.00E+00	1.20E-04	1.49E-04	1.10E-04	6.46E-05	2.38E-05	9.19E-06	1.42E-05	1.36E-05	1.24E-05	1.12E-05	1.08E-05
1.00E+01	1.21E-04	1.49E-04	1.12E-04	5.82E-05	2.62E-05	9.29E-06	1.42E-05	1.37E-05	1.26E-05	1.14E-05	1.07E-05
1.10E+01	1.21E-04	1.48E-04	1.14E-04	5.42E-05	3.16E-05	1.04E-05	1.42E-05	1.38E-05	1.29E-05	1.18E-05	1.08E-05
1.20E+01	1.21E-04	1.47E-04	1.15E-04	5.45E-05	3.68E-05	1.24E-05	1.42E-05	1.39E-05	1.31E-05	1.21E-05	1.10E-05
1.30E+01	1.21E-04	1.46E-04	1.16E-04	5.58E-05	4.06E-05	1.46E-05	1.41E-05	1.40E-05	1.33E-05	1.24E-05	1.12E-05
1.40E+01	1.22E-04	1.45E-04	1.15E-04	5.55E-05	4.19E-05	1.63E-05	1.40E-05	1.40E-05	1.35E-05	1.26E-05	1.14E-05
1.50E+01	1.22E-04	1.44E-04	1.14E-04	5.36E-05	4.17E-05	1.74E-05	1.40E-05	1.40E-05	1.35E-05	1.27E-05	1.14E-05
1.60E+01	1.22E-04	1.43E-04	1.12E-04	5.02E-05	4.03E-05	1.78E-05	1.40E-05	1.40E-05	1.36E-05	1.28E-05	1.14E-05
1.70E+01	1.21E-04	1.43E-04	1.08E-04	4.66E-05	3.91E-05	1.78E-05	1.40E-05	1.40E-05	1.36E-05	1.28E-05	1.16E-05
1.80E+01	1.21E-04	1.42E-04	1.03E-04	4.43E-05	3.94E-05	1.78E-05	1.40E-05	1.41E-05	1.37E-05	1.29E-05	1.21E-05
1.90E+01	1.21E-04	1.41E-04	9.81E-05	4.40E-05	4.10E-05	1.78E-05	1.41E-05	1.41E-05	1.37E-05	1.29E-05	1.28E-05
2.00E+01	1.21E-04	1.41E-04	9.31E-05	4.71E-05	4.46E-05	1.84E-05	1.41E-05	1.41E-05	1.38E-05	1.29E-05	1.39E-05
2.10E+01	1.20E-04	1.40E-04	8.91E-05	5.32E-05	4.85E-05	1.90E-05	1.41E-05	1.41E-05	1.38E-05	1.29E-05	1.44E-05
2.20E+01	1.20E-04	1.40E-04	8.70E-05	6.33E-05	5.09E-05	1.90E-05	1.41E-05	1.42E-05	1.38E-05	1.28E-05	1.37E-05
2.30E+01	1.19E-04	1.41E-04	8.78E-05	7.15E-05	5.17E-05	1.88E-05	1.40E-05	1.42E-05	1.37E-05	1.27E-05	1.29E-05

Table S3: Mixing ratios of different species under globally-averaged mean conditions, as a function of altitude

Altitude (km)	O3	O	O2	CO	H2O	H2O-sat	H	OH	HO2	H2O2
0.00E+00	1.06E-08	1.92E-10	1.39E-03	1.94E-04	1.33E-04	1.95E-03	8.34E-14	2.02E-13	3.09E-10	4.64E-09
1.00E+01	5.26E-09	6.44E-10	1.39E-03	1.94E-04	1.32E-04	1.39E-03	9.46E-13	1.01E-12	4.95E-10	4.18E-09
2.00E+01	3.05E-09	1.89E-09	1.39E-03	1.96E-04	1.32E-04	2.56E-04	8.99E-12	4.43E-12	7.10E-10	3.76E-09
3.00E+01	2.67E-09	9.15E-09	1.39E-03	1.97E-04	5.92E-05	6.27E-05	1.18E-10	2.38E-11	7.71E-10	2.36E-09
4.00E+01	2.15E-08	4.64E-07	1.39E-03	1.99E-04	1.63E-05	1.27E-05	4.44E-09	2.18E-10	2.12E-10	1.06E-09
5.00E+01	3.38E-08	5.31E-06	1.39E-03	2.05E-04	4.88E-06	3.36E-06	1.72E-08	6.19E-11	2.31E-11	5.49E-10
6.00E+01	1.67E-08	2.29E-05	1.39E-03	2.22E-04	1.57E-06	1.29E-06	4.13E-08	1.25E-11	3.79E-12	2.91E-10
7.00E+01	4.92E-09	7.57E-05	1.39E-03	2.71E-04	1.25E-06	1.16E-06	9.70E-08	3.20E-12	7.31E-13	1.55E-10
8.00E+01	9.21E-10	1.99E-04	1.39E-03	3.88E-04	1.22E-06	3.85E-06	2.09E-07	2.95E-12	1.55E-13	9.00E-11
9.00E+01	1.36E-10	4.13E-04	1.38E-03	5.93E-04	1.20E-06	1.49E-05	4.10E-07	8.78E-12	3.78E-14	6.16E-11
1.00E+02	1.79E-11	7.11E-04	1.38E-03	8.79E-04	1.19E-06	5.70E-05	8.15E-07	2.78E-11	1.14E-14	4.76E-11

Table S4a: Mixing ratios of O₃, O and O(¹D), as a function of time, for two altitudes

t	zo			zm		
	O ₃	O	O_1D_	O ₃	O	O_1D_
0.00E+00	5.69E-09	3.78E-17	0.00E+00	4.13E-08	1.06E-05	0.00E+00
1.00E+00	5.67E-09	3.51E-17	0.00E+00	4.66E-08	1.03E-05	0.00E+00
2.00E+00	5.64E-09	3.34E-17	0.00E+00	5.59E-08	9.81E-06	0.00E+00
3.00E+00	5.62E-09	3.21E-17	0.00E+00	6.76E-08	9.32E-06	0.00E+00
4.00E+00	5.61E-09	3.11E-17	0.00E+00	8.18E-08	8.79E-06	0.00E+00
5.00E+00	5.58E-09	3.04E-17	0.00E+00	9.22E-08	8.24E-06	0.00E+00
6.00E+00	5.58E-09	4.23E-12	9.99E-21	2.19E-08	7.87E-06	6.17E-16
7.00E+00	6.38E-09	1.16E-10	3.06E-19	9.61E-09	7.75E-06	3.30E-16
8.00E+00	7.51E-09	2.71E-10	7.26E-19	9.27E-09	7.83E-06	3.19E-16
9.00E+00	8.61E-09	3.79E-10	9.97E-19	8.60E-09	8.14E-06	3.06E-16
1.00E+01	9.47E-09	4.71E-10	1.19E-18	7.55E-09	8.64E-06	2.88E-16
1.10E+01	9.80E-09	5.43E-10	1.29E-18	6.68E-09	9.28E-06	2.73E-16
1.20E+01	9.60E-09	5.91E-10	1.31E-18	6.17E-09	9.98E-06	2.60E-16
1.30E+01	8.97E-09	6.09E-10	1.27E-18	5.96E-09	1.07E-05	2.50E-16
1.40E+01	8.17E-09	5.95E-10	1.17E-18	6.05E-09	1.13E-05	2.47E-16
1.50E+01	7.32E-09	5.44E-10	1.03E-18	6.23E-09	1.19E-05	2.47E-16
1.60E+01	6.54E-09	4.54E-10	8.48E-19	6.36E-09	1.23E-05	2.51E-16
1.70E+01	5.90E-09	3.01E-10	5.64E-19	6.41E-09	1.25E-05	2.58E-16
1.80E+01	5.77E-09	7.06E-11	1.30E-19	6.43E-09	1.25E-05	2.61E-16
1.90E+01	5.86E-09	9.42E-17	0.00E+00	1.44E-08	1.23E-05	1.53E-17
2.00E+01	5.84E-09	4.77E-17	0.00E+00	3.93E-08	1.19E-05	0.00E+00
2.10E+01	5.82E-09	4.45E-17	0.00E+00	4.03E-08	1.15E-05	0.00E+00
2.20E+01	5.80E-09	4.19E-17	0.00E+00	3.99E-08	1.12E-05	0.00E+00
2.30E+01	5.77E-09	3.96E-17	0.00E+00	3.99E-08	1.09E-05	0.00E+00

Table S4b: Mixing ratios of H₂O, HO₂ and OH, as a function of time, for two altitudes

t	zo			zm		
	H2O	HO2	OH	H2O	HO2	OH
0.00E+00	1.20E-04	2.24E-11	1.05E-15	1.37E-05	5.85E-11	2.27E-10
1.00E+00	1.20E-04	1.72E-11	7.71E-16	1.38E-05	6.10E-11	2.40E-10
2.00E+00	1.20E-04	1.33E-11	5.76E-16	1.41E-05	6.19E-11	2.53E-10
3.00E+00	1.20E-04	1.04E-11	4.38E-16	1.45E-05	6.20E-11	2.64E-10
4.00E+00	1.20E-04	8.21E-12	3.37E-16	1.52E-05	6.14E-11	2.74E-10
5.00E+00	1.20E-04	6.51E-12	2.62E-16	1.54E-05	6.09E-11	2.80E-10
6.00E+00	1.20E-04	6.49E-12	1.14E-15	1.51E-05	5.99E-11	1.75E-10
7.00E+00	1.20E-04	1.29E-10	8.15E-14	1.44E-05	5.68E-11	1.51E-10
8.00E+00	1.20E-04	3.22E-10	3.46E-13	1.37E-05	5.40E-11	1.47E-10
9.00E+00	1.21E-04	3.74E-10	5.24E-13	1.32E-05	5.22E-11	1.44E-10
1.00E+01	1.21E-04	3.98E-10	6.60E-13	1.31E-05	5.07E-11	1.41E-10
1.10E+01	1.21E-04	4.16E-10	7.68E-13	1.30E-05	4.98E-11	1.38E-10
1.20E+01	1.21E-04	4.32E-10	8.47E-13	1.29E-05	4.98E-11	1.37E-10
1.30E+01	1.22E-04	4.46E-10	8.83E-13	1.28E-05	5.03E-11	1.37E-10
1.40E+01	1.22E-04	4.54E-10	8.69E-13	1.29E-05	5.10E-11	1.38E-10
1.50E+01	1.22E-04	4.54E-10	7.97E-13	1.31E-05	5.16E-11	1.39E-10
1.60E+01	1.22E-04	4.39E-10	6.57E-13	1.33E-05	5.18E-11	1.38E-10
1.70E+01	1.22E-04	3.94E-10	4.14E-13	1.34E-05	5.17E-11	1.36E-10
1.80E+01	1.21E-04	2.71E-10	9.25E-14	1.35E-05	5.16E-11	1.34E-10
1.90E+01	1.21E-04	1.61E-10	1.49E-14	1.35E-05	5.20E-11	1.51E-10
2.00E+01	1.21E-04	8.89E-11	6.28E-15	1.35E-05	5.33E-11	2.10E-10
2.10E+01	1.21E-04	5.76E-11	3.44E-15	1.36E-05	5.46E-11	2.16E-10
2.20E+01	1.21E-04	4.06E-11	2.18E-15	1.36E-05	5.58E-11	2.19E-10
2.30E+01	1.20E-04	2.98E-11	1.48E-15	1.36E-05	5.71E-11	2.22E-10

Table S5a: Main O3 rates as a function of time (z0)

t	Production				Loss			
	TOT	R29	R01	R30	TOT	R82	R76	R83
0.00E+00	1.61E+03	NaN	NaN	NaN	8.67E+05	7.76E+00	1.85E-04	1.55E-01
1.00E+00	1.61E+03	NaN	NaN	NaN	7.77E+05	5.76E+00	1.31E-04	1.15E-01
2.00E+00	1.62E+03	NaN	NaN	NaN	7.00E+05	4.34E+00	9.50E-05	8.68E-02
3.00E+00	1.62E+03	NaN	NaN	NaN	6.38E+05	3.32E+00	7.05E-05	6.64E-02
4.00E+00	1.63E+03	NaN	NaN	NaN	5.89E+05	2.57E+00	5.31E-05	5.14E-02
5.00E+00	1.63E+03	NaN	NaN	NaN	5.57E+05	2.01E+00	4.07E-05	4.02E-02
6.00E+00	3.92E+07	NaN	NaN	NaN	6.34E+06	3.29E+05	4.50E+01	6.57E+03
7.00E+00	4.58E+08	1.87E+08	1.58E+08	NaN	1.94E+08	1.55E+08	4.93E+04	3.10E+06
8.00E+00	1.23E+09	7.05E+08	3.49E+08	NaN	9.85E+08	8.96E+08	4.85E+05	1.79E+07
9.00E+00	1.80E+09	1.16E+09	4.30E+08	NaN	1.55E+09	1.43E+09	1.01E+06	2.85E+07
1.00E+01	2.13E+09	1.45E+09	4.61E+08	NaN	1.95E+09	1.80E+09	1.51E+06	3.60E+07
1.10E+01	2.30E+09	1.61E+09	4.69E+08	NaN	2.21E+09	2.04E+09	1.92E+06	4.08E+07
1.20E+01	2.34E+09	1.66E+09	4.65E+08	NaN	2.34E+09	2.17E+09	2.17E+06	4.33E+07
1.30E+01	2.26E+09	1.60E+09	4.52E+08	NaN	2.33E+09	2.16E+09	2.21E+06	4.33E+07
1.40E+01	2.09E+09	1.46E+09	4.31E+08	NaN	2.20E+09	2.04E+09	2.02E+06	4.08E+07
1.50E+01	1.82E+09	1.23E+09	4.00E+08	NaN	1.94E+09	1.80E+09	1.64E+06	3.60E+07
1.60E+01	1.42E+09	8.91E+08	3.50E+08	NaN	1.54E+09	1.43E+09	1.11E+06	2.86E+07
1.70E+01	8.23E+08	4.36E+08	2.43E+08	NaN	9.33E+08	8.57E+08	4.68E+05	1.71E+07
1.80E+01	1.74E+08	6.25E+07	5.45E+07	NaN	1.67E+08	1.42E+08	2.52E+04	2.85E+06
1.90E+01	1.69E+03	NaN	NaN	NaN	2.29E+06	1.17E+02	5.58E-03	2.34E+00
2.00E+01	1.58E+03	NaN	NaN	NaN	1.68E+06	3.40E+01	1.24E-03	6.81E-01
2.10E+01	1.58E+03	NaN	NaN	NaN	1.36E+06	2.14E+01	6.61E-04	4.28E-01
2.20E+01	1.59E+03	NaN	NaN	NaN	1.14E+06	1.47E+01	4.05E-04	2.94E-01
2.30E+01	1.60E+03	NaN	NaN	NaN	9.81E+05	1.05E+01	2.67E-04	2.10E-01

Table S5b: Main O3 rates as a function of time (zt)

t	Production				Loss			
	TOT	R29	R01	R30	TOT	R82	R76	R83
0.00E+00	2.31E+05	NaN	NaN	NaN	3.94E+08	1.11E+08	1.87E+08	2.22E+06
1.00E+00	2.51E+05	NaN	NaN	NaN	4.38E+08	1.22E+08	2.08E+08	2.44E+06
2.00E+00	2.56E+05	NaN	NaN	NaN	4.54E+08	1.23E+08	2.15E+08	2.46E+06
3.00E+00	2.52E+05	NaN	NaN	NaN	4.50E+08	1.18E+08	2.12E+08	2.37E+06
4.00E+00	2.41E+05	NaN	NaN	NaN	4.26E+08	1.08E+08	2.00E+08	2.17E+06
5.00E+00	2.30E+05	NaN	NaN	NaN	3.95E+08	9.89E+07	1.86E+08	1.98E+06
6.00E+00	3.13E+07	2.68E+07	4.27E+06	NaN	2.33E+08	9.11E+07	1.08E+08	1.82E+06
7.00E+00	1.75E+08	1.47E+08	2.69E+07	NaN	1.89E+08	8.12E+07	8.72E+07	1.62E+06
8.00E+00	3.35E+08	2.79E+08	5.52E+07	1.81E-18	1.72E+08	7.28E+07	8.00E+07	1.46E+06
9.00E+00	4.59E+08	3.82E+08	7.50E+07	1.13E-09	1.60E+08	6.73E+07	7.58E+07	1.35E+06
1.00E+01	5.42E+08	4.50E+08	8.58E+07	6.26E-06	1.52E+08	6.33E+07	7.27E+07	1.27E+06
1.10E+01	5.88E+08	4.89E+08	9.08E+07	2.45E-04	1.50E+08	6.20E+07	7.24E+07	1.24E+06
1.20E+01	6.01E+08	5.00E+08	9.24E+07	5.01E-04	1.56E+08	6.45E+07	7.58E+07	1.29E+06
1.30E+01	5.85E+08	4.86E+08	9.09E+07	1.31E-04	1.68E+08	6.92E+07	8.14E+07	1.38E+06
1.40E+01	5.42E+08	4.51E+08	8.60E+07	4.59E-06	1.82E+08	7.51E+07	8.81E+07	1.50E+06
1.50E+01	4.72E+08	3.92E+08	7.67E+07	7.15E-09	1.96E+08	8.05E+07	9.40E+07	1.61E+06
1.60E+01	3.73E+08	3.11E+08	6.16E+07	2.35E-14	2.03E+08	8.36E+07	9.67E+07	1.67E+06
1.70E+01	2.44E+08	2.05E+08	3.95E+07	NaN	2.06E+08	8.56E+07	9.75E+07	1.71E+06
1.80E+01	1.06E+08	9.06E+07	1.54E+07	NaN	2.09E+08	8.72E+07	9.79E+07	1.74E+06
1.90E+01	2.26E+05	NaN	NaN	NaN	2.40E+08	8.92E+07	1.13E+08	1.79E+06
2.00E+01	1.73E+05	NaN	NaN	NaN	3.31E+08	9.19E+07	1.57E+08	1.84E+06
2.10E+01	1.91E+05	NaN	NaN	NaN	3.44E+08	9.51E+07	1.63E+08	1.90E+06
2.20E+01	2.05E+05	NaN	NaN	NaN	3.54E+08	9.86E+07	1.68E+08	1.97E+06
2.30E+01	2.18E+05	NaN	NaN	NaN	3.68E+08	1.03E+08	1.75E+08	2.07E+06

Table S5c: Main O rates as a function of time (z0)

t	Production				Loss			
	TOT	R44	R29	R03	TOT	R58	R82	R56
0.00E+00	1.61E+03	NaN	NaN	NaN	1.61E+03	1.52E+03	7.76E+00	3.87E+01
1.00E+00	1.61E+03	NaN	NaN	NaN	1.61E+03	1.53E+03	5.76E+00	3.85E+01
2.00E+00	1.62E+03	NaN	NaN	NaN	1.62E+03	1.53E+03	4.34E+00	3.83E+01
3.00E+00	1.62E+03	NaN	NaN	NaN	1.62E+03	1.54E+03	3.32E+00	3.82E+01
4.00E+00	1.63E+03	NaN	NaN	NaN	1.63E+03	1.54E+03	2.57E+00	3.80E+01
5.00E+00	1.63E+03	NaN	NaN	NaN	1.63E+03	1.55E+03	2.01E+00	3.79E+01
6.00E+00	2.34E+08	NaN	NaN	NaN	2.31E+08	2.19E+08	3.29E+05	5.36E+06
7.00E+00	6.50E+09	5.13E+09	1.87E+08	8.72E+08	6.47E+09	6.12E+09	1.55E+08	1.49E+08
8.00E+00	1.54E+10	1.21E+10	7.05E+08	2.00E+09	1.54E+10	1.40E+10	8.96E+08	3.44E+08
9.00E+00	2.08E+10	1.63E+10	1.16E+09	2.66E+09	2.08E+10	1.88E+10	1.43E+09	4.63E+08
1.00E+01	2.38E+10	1.85E+10	1.45E+09	3.02E+09	2.38E+10	2.13E+10	1.80E+09	5.31E+08
1.10E+01	2.47E+10	1.91E+10	1.61E+09	3.11E+09	2.47E+10	2.19E+10	2.04E+09	5.53E+08
1.20E+01	2.38E+10	1.84E+10	1.66E+09	2.98E+09	2.38E+10	2.09E+10	2.17E+09	5.38E+08
1.30E+01	2.18E+10	1.67E+10	1.60E+09	2.72E+09	2.18E+10	1.90E+10	2.16E+09	4.96E+08
1.40E+01	1.93E+10	1.47E+10	1.46E+09	2.40E+09	1.94E+10	1.67E+10	2.04E+09	4.42E+08
1.50E+01	1.65E+10	1.26E+10	1.23E+09	2.05E+09	1.66E+10	1.42E+10	1.80E+09	3.79E+08
1.60E+01	1.34E+10	1.02E+10	8.91E+08	1.67E+09	1.34E+10	1.15E+10	1.43E+09	3.08E+08
1.70E+01	8.83E+09	6.83E+09	4.36E+08	1.13E+09	8.87E+09	7.73E+09	8.57E+08	2.06E+08
1.80E+01	2.08E+09	1.62E+09	6.25E+07	2.79E+08	2.12E+09	1.90E+09	1.42E+08	5.06E+07
1.90E+01	2.84E+03	NaN	NaN	NaN	2.94E+03	2.70E+03	1.17E+02	7.15E+01
2.00E+01	1.58E+03	NaN	NaN	NaN	1.58E+03	1.47E+03	3.40E+01	3.88E+01
2.10E+01	1.58E+03	NaN	NaN	NaN	1.58E+03	1.48E+03	2.14E+01	3.87E+01
2.20E+01	1.59E+03	NaN	NaN	NaN	1.59E+03	1.49E+03	1.47E+01	3.87E+01
2.30E+01	1.60E+03	NaN	NaN	NaN	1.60E+03	1.51E+03	1.05E+01	3.87E+01

Table S5d: Main O rates as a function of time (zt)

t	Production				Loss			
	TOT	R44	R29	R03	TOT	R58	R82	R56
0.00E+00	2.31E+05	NaN	NaN	NaN	3.97E+08	8.40E+07	1.11E+08	1.21E+06
1.00E+00	2.51E+05	NaN	NaN	NaN	4.43E+08	9.60E+07	1.22E+08	1.34E+06
2.00E+00	2.56E+05	NaN	NaN	NaN	4.60E+08	1.05E+08	1.23E+08	1.37E+06
3.00E+00	2.53E+05	NaN	NaN	NaN	4.58E+08	1.10E+08	1.18E+08	1.33E+06
4.00E+00	2.41E+05	NaN	NaN	NaN	4.37E+08	1.10E+08	1.08E+08	1.23E+06
5.00E+00	2.30E+05	NaN	NaN	NaN	4.08E+08	1.07E+08	9.89E+07	1.12E+06
6.00E+00	2.13E+08	1.55E+08	2.68E+07	2.54E+07	3.17E+08	1.03E+08	9.11E+07	1.04E+06
7.00E+00	2.66E+08	7.85E+07	1.47E+08	1.27E+07	2.82E+08	9.89E+07	8.12E+07	9.57E+05
8.00E+00	4.18E+08	7.10E+07	2.79E+08	1.14E+07	2.55E+08	8.93E+07	7.28E+07	8.69E+05
9.00E+00	5.32E+08	6.33E+07	3.82E+08	9.98E+06	2.33E+08	7.84E+07	6.73E+07	7.99E+05
1.00E+01	6.03E+08	5.52E+07	4.50E+08	8.39E+06	2.13E+08	6.64E+07	6.33E+07	7.35E+05
1.10E+01	6.41E+08	4.94E+07	4.89E+08	7.25E+06	2.02E+08	5.81E+07	6.20E+07	7.02E+05
1.20E+01	6.50E+08	4.63E+07	5.00E+08	6.69E+06	2.04E+08	5.46E+07	6.45E+07	7.14E+05
1.30E+01	6.33E+08	4.47E+07	4.86E+08	6.53E+06	2.15E+08	5.45E+07	6.92E+07	7.50E+05
1.40E+01	5.91E+08	4.47E+07	4.51E+08	6.73E+06	2.31E+08	5.71E+07	7.51E+07	8.04E+05
1.50E+01	5.23E+08	4.54E+07	3.92E+08	7.06E+06	2.47E+08	6.04E+07	8.05E+07	8.55E+05
1.60E+01	4.27E+08	4.61E+07	3.11E+08	7.36E+06	2.56E+08	6.30E+07	8.36E+07	8.87E+05
1.70E+01	3.00E+08	4.77E+07	2.05E+08	7.70E+06	2.62E+08	6.54E+07	8.56E+07	9.14E+05
1.80E+01	1.64E+08	4.92E+07	9.06E+07	8.00E+06	2.66E+08	6.76E+07	8.72E+07	9.42E+05
1.90E+01	3.80E+06	2.97E+06	NaN	NaN	2.85E+08	6.95E+07	8.92E+07	9.69E+05
2.00E+01	1.73E+05	NaN	NaN	NaN	3.34E+08	7.09E+07	9.19E+07	9.93E+05
2.10E+01	1.91E+05	NaN	NaN	NaN	3.45E+08	7.26E+07	9.51E+07	1.02E+06
2.20E+01	2.05E+05	NaN	NaN	NaN	3.55E+08	7.42E+07	9.86E+07	1.06E+06
2.30E+01	2.18E+05	NaN	NaN	NaN	3.70E+08	7.74E+07	1.03E+08	1.11E+06

Table S6: Ozone profile as a function of altitude and local time

t	Altitude (km)										
	0.00E+00	1.00E+01	2.00E+01	3.00E+01	4.00E+01	5.00E+01	6.00E+01	7.00E+01	8.00E+01	9.00E+01	1.00E+02
0.00E+00	5.72E-09	3.35E-09	2.69E-09	4.56E-09	1.45E-08	3.15E-08	4.38E-08	4.35E-08	2.53E-08	1.39E-08	8.64E-09
1.00E+00	5.70E-09	3.36E-09	2.72E-09	4.95E-09	1.44E-08	3.29E-08	5.07E-08	4.35E-08	2.23E-08	1.34E-08	9.68E-09
2.00E+00	5.67E-09	3.38E-09	2.75E-09	5.29E-09	1.46E-08	3.67E-08	6.19E-08	4.59E-08	2.04E-08	1.30E-08	1.04E-08
3.00E+00	5.65E-09	3.39E-09	2.79E-09	5.60E-09	1.51E-08	4.18E-08	7.51E-08	4.81E-08	1.94E-08	1.29E-08	1.10E-08
4.00E+00	5.63E-09	3.41E-09	2.83E-09	5.88E-09	1.59E-08	4.84E-08	9.00E-08	4.84E-08	1.85E-08	1.30E-08	1.14E-08
5.00E+00	5.61E-09	3.42E-09	2.87E-09	6.15E-09	1.68E-08	5.36E-08	9.98E-08	4.70E-08	1.76E-08	1.29E-08	1.17E-08
6.00E+00	5.60E-09	3.43E-09	2.69E-09	4.59E-09	1.01E-08	2.02E-08	1.74E-08	2.81E-09	3.97E-10	1.20E-10	4.27E-11
7.00E+00	6.41E-09	4.13E-09	2.32E-09	1.25E-09	8.33E-10	6.82E-09	7.36E-09	8.21E-10	1.31E-10	3.57E-11	7.56E-12
8.00E+00	7.55E-09	4.15E-09	2.49E-09	1.70E-09	1.49E-09	7.84E-09	6.23E-09	6.50E-10	1.41E-10	3.96E-11	9.39E-12
9.00E+00	8.52E-09	4.60E-09	2.99E-09	2.29E-09	2.32E-09	8.75E-09	5.23E-09	6.06E-10	1.72E-10	4.99E-11	1.21E-11
1.00E+01	9.12E-09	5.10E-09	3.43E-09	2.82E-09	3.03E-09	9.25E-09	4.31E-09	6.55E-10	2.24E-10	6.69E-11	1.54E-11
1.10E+01	9.23E-09	5.38E-09	3.75E-09	3.20E-09	3.46E-09	9.45E-09	3.74E-09	7.79E-10	3.01E-10	9.11E-11	1.95E-11
1.20E+01	8.94E-09	5.44E-09	3.92E-09	3.35E-09	3.50E-09	9.38E-09	3.57E-09	1.00E-09	4.14E-10	1.22E-10	2.47E-11
1.30E+01	8.35E-09	5.33E-09	3.97E-09	3.31E-09	3.27E-09	9.15E-09	3.61E-09	1.30E-09	5.60E-10	1.56E-10	2.98E-11
1.40E+01	7.66E-09	5.08E-09	3.88E-09	3.19E-09	2.94E-09	8.88E-09	3.88E-09	1.62E-09	7.10E-10	1.80E-10	3.23E-11
1.50E+01	6.95E-09	4.70E-09	3.68E-09	2.99E-09	2.60E-09	8.51E-09	4.25E-09	1.95E-09	8.54E-10	1.93E-10	3.23E-11
1.60E+01	6.34E-09	4.17E-09	3.35E-09	2.70E-09	2.27E-09	8.10E-09	4.59E-09	2.28E-09	9.66E-10	1.93E-10	3.06E-11
1.70E+01	5.87E-09	3.54E-09	2.85E-09	2.20E-09	1.90E-09	7.58E-09	4.84E-09	2.57E-09	1.06E-09	1.83E-10	2.62E-11
1.80E+01	5.83E-09	3.14E-09	2.25E-09	1.53E-09	1.45E-09	7.11E-09	5.06E-09	2.90E-09	1.18E-09	1.73E-10	2.02E-11
1.90E+01	5.92E-09	3.32E-09	2.59E-09	2.63E-09	4.34E-09	1.94E-08	9.87E-09	4.12E-09	1.50E-09	1.84E-10	1.79E-11
2.00E+01	5.89E-09	3.33E-09	2.62E-09	3.15E-09	1.18E-08	3.81E-08	3.54E-08	3.21E-08	1.80E-08	3.50E-09	4.60E-10
2.10E+01	5.87E-09	3.34E-09	2.64E-09	3.35E-09	1.40E-08	3.62E-08	3.86E-08	4.24E-08	2.91E-08	8.92E-09	2.18E-09
2.20E+01	5.84E-09	3.36E-09	2.66E-09	3.71E-09	1.45E-08	3.35E-08	4.00E-08	4.54E-08	3.16E-08	1.29E-08	4.72E-09
2.30E+01	5.81E-09	3.37E-09	2.68E-09	4.13E-09	1.45E-08	3.18E-08	4.13E-08	4.44E-08	2.88E-08	1.42E-08	7.03E-09

