Characterising the Seasonal and Geographical Variability of Tropospheric Ozone, Stratospheric Influence and Recent Changes (Supplementary Material)

DJF	OMI	EMAC-OMI	CMAM-OMI	EMAC-OMI (AK)	CMAM-OMI (AK)	Δ EMAC-OMI	Δ CMAM-OMI
60°N-90°N	26.47	-6.92	-9.92	-3.58	-3.71	3.34	6.21
30°N-60°N	20.78	0.04	-3.24	1.41	-0.09	1.36	3.15
0°N-30°N	16.51	5.32	-0.03	4.55	-0.70	-0.86	-0.68
30°S-0°N	14.13	2.16	-0.76	1.91	-0.82	-0.25	-0.06
60°S-30°S	13.96	-0.51	-2.14	1.45	1.16	1.96	3.31
90°S-60°S	9.60	-2.86	-3.83	-0.46	0.57	2.40	4.40
MAM	OMI	EMAC-OMI	CMAM-OMI	EMAC-OMI (AK)	CMAM-OMI (AK)	Δ EMAC-OMI	Δ CMAM-OMI
60°N-90°N	28.44	-3.65	-8.22	1.07	0.14	4.72	8.36
30°N-60°N	25.03	1.71	-3.37	3.70	0.58	2.00	3.95
0°N-30°N	18.10	5.58	-0.94	4.83	-1.21	-0.75	-0.27
30°S-0°N	13.33	2.48	-0.63	2.29	-0.61	-0.19	0.02
60°S-30°S	14.11	0.55	-0.66	1.90	2.22	1.35	2.88
90°S-60°S	13.06	-2.89	-3.26	-1.18	0.34	1.71	3.59
JJA	OMI	EMAC-OMI	CMAM-OMI	EMAC-OMI (AK)	CMAM-OMI (AK)	Δ EMAC-OMI	Δ CMAM-OMI
60°N-90°N	25.88	-4.93	-7.96	-1.10	-1.22	4.08	6.73
30°N-60°N	24.09	0.29	-3.55	1.36	-1.55	1.32	2.00
0°N-30°N	15.22	3.73	-0.72	3.20	-1.85	-0.64	-1.12
30°S-0°N	16.54	2.76	-0.54	1.97	-1.35	-0.63	-0.81
60°S-30°S	17.07	-0.25	-0.50	1.21	2.78	2.71	3.28
90°S-60°S	16.48	-2.76	-2.42	-1.74	-1.23	1.68	1.19
SON	OMI	EMAC-OMI	CMAM-OMI	EMAC-OMI (AK)	CMAM-OMI (AK)	Δ EMAC-OMI	Δ CMAM-OMI
60°N-90°N	22.99	-4.04	-6.95	-2.17	-2.08	2.44	4.87
30°N-60°N	20.14	1.71	-2.34	2.02	-1.37	0.50	0.97
0°N-30°N	14.83	4.56	-0.85	4.06	-2.09	-0.64	-1.24
30°S-0°N	17.60	2.80	-1.02	2.21	-1.75	-0.60	-0.73
60°S-30°S	17.28	-0.07	-1.61	2.12	2.02	2.19	3.63
90°S-60°S	11.52	-1.93	-2.58	-1.54	-1.87	0.39	0.71

Table S1 – Seasonal mean 1000-450 hPa (0-5.5 km) subcolumn O_3 (DU) for 2005-2010 from OMI and differences with respect to both EMAC and CMAM both with and without AKs, together with the change (Δ) in bias through applying the OMI AKs on a zonal mean 30° latitude band basis.
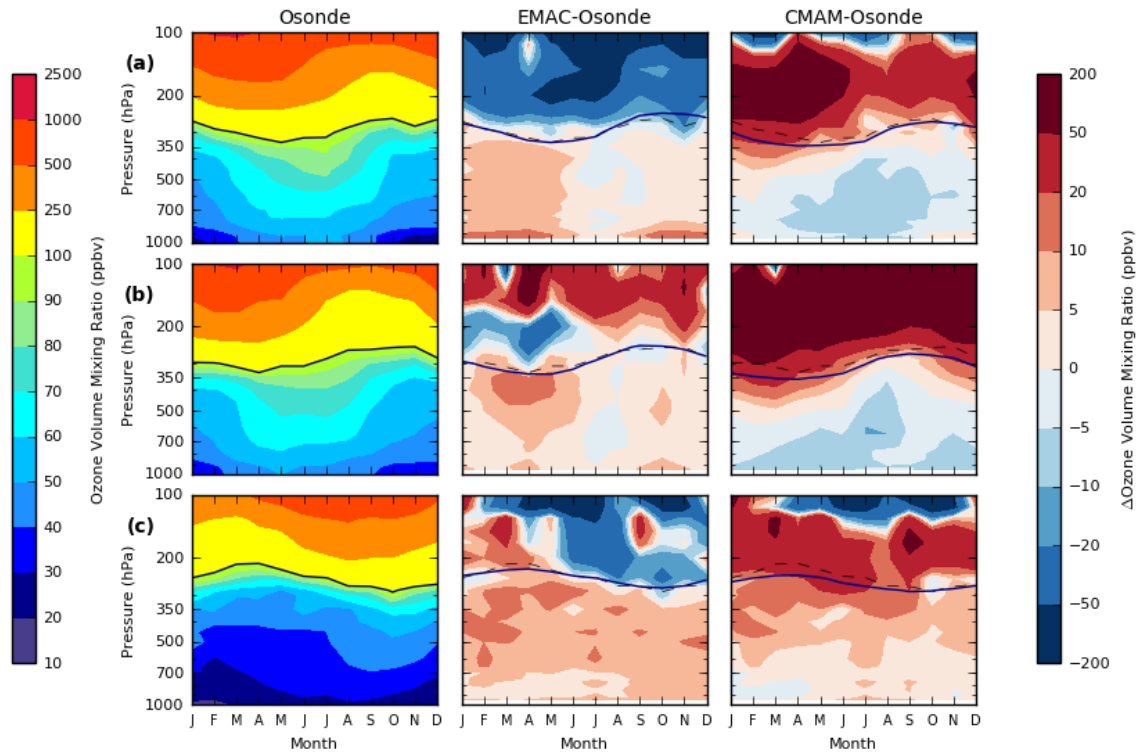
Figure S1 – Monthly evolution of the vertical distribution of mean O₃ volume mixing ratio (VMR) (ppbv) derived from ozonesonde measurements (left column); EMAC minus ozonesonde differences (ppbv) (middle column) and CMAM minus ozonesonde differences (ppbv) (right column) over the period 1980-2010 inclusive for three different world regions: (a) Europe (n = 18), (b) eastern North America (n = 14) and (c) Tasman Sea (n = 6). The ozonesonde/model 100 ppbv contour (the ozone defined extratropical tropopause as identified in Bethan et al. (1996)) is additionally highlighted in bold (ozonesonde 100 ppbv contour indicated again by dashed line – middle and right column).

Pressure (hPa)	DJF Osonde (ppbv)	EMAC-Osonde (ppbv)	CMAM-Osonde (ppbv)	MAM Osonde (ppbv)	EMAC-Osonde (ppbv)	CMAM-Osonde (ppbv)
100	958.1	-86.7 (-9.1 %)	-47.6 (-4.9 %)	1009.8	-60.2 (-5.9%)	-28.3 (-2.7 %)
200	591.4	-48.5 (-8.3 %)	+28.6 (+4.9 %)	677.2	-27.3 (-4.0 %)	+48.9 (+7.3 %)
350	62.3	+4.9 (+7.7 %)	+10.8 (+17.1 %)	83.7	+5.8 (+7.1 %)	+11.8 (+14.6 %)
500	51.2	+5.4 (+10.6 %)	+0.8 (+1.5 %)	67.0	+7.1 (+10.5 %)	-1.8 (-2.7 %)
850	45.6	+4.5 (+9.9 %)	-2.3 (-5.0 %)	57.8	+5.9 (+10.2 %)	-6.1 (-10.5 %)
1000	27.4	+12.2 (+45.3 %)	+1.4 (+5.6 %)	44.7	+10.6 (+24.1 %)	-5.2 (-11.5 %)

Pressure (hPa)	JJA Osonde (ppbv)	EMAC-Osonde (ppbv)	CMAM-Osonde (ppbv)	SON Osonde (ppbv)	EMAC-Osonde (ppbv)	CMAM-Osonde (ppbv)
100	738.3	-85.6 (-11.7 %)	-34.6 (-4.7 %)	712.7	-86.7 (-12.1 %)	-6.6 (-0.7 %)
200	453.5	-60.0 (-13.6 %)	+16.2 (+3.3 %)	377.0	-41.5 (-10.8 %)	+30.2 (+8.4 %)
350	88.0	+1.2 (+1.3 %)	+2.0 (+2.3 %)	65.9	+1.6 (+2.6 %)	+0.1 (+0.2 %)
500	75.2	-1.0 (-1.2 %)	-6.8 (-8.9 %)	57.9	+2.0 (+3.7 %)	-5.3 (-8.9 %)
850	59.4	-0.2 (-0.3%)	-8.6 (-14.4 %)	48.2	+3.9 (+8.3 %)	-4.9 (-10.2 %)

Table S2a – Seasonally averaged ozone VMR (ppbv) values for six pressure levels between the surface (1000 hPa) and the lower stratosphere (100 hPa) derived from available ozonesondes measurements across Europe (30° N - 65° N, 15° W - 35° E) (n = 18) over the period 1980-2010 inclusive, together with the differences with respect to both EMAC and CMAM (also expressed in percentage terms).

Pressure (hPa)	DJF Osonde (ppbv)	EMAC-Osonde (ppbv)	CMAM-Osonde (ppbv)	MAM Osonde (ppbv)	EMAC-Osonde (ppbv)	CMAM-Osonde (ppbv)
100	939.5	+35.0 (+3.8 %)	+56.6 (+6.2 %)	906.6	+27.6 (+3.8 %)	+57.9 (+7.6 %)
200	608.0	+16.5 (+2.4 %)	+81.7 (+13.3 %)	615.5	+32.4 (+5.7 %)	+104.1 (+17.7 %)
350	67.1	+4.0 (+6.0 %)	+17.5 (+25.9 %)	80.8	+11.3 (+14.1 %)	+19.7 (+25.0 %)
500	52.9	+3.1 (+5.8 %)	+0.6 (+1.0 %)	65.5	+8.7 (+13.3 %)	+1.3 (+2.2 %)
850	46.6	+2.8 (+6.0 %)	-3.8 (-8.2 %)	58.5	+4.4 (+7.5 %)	-5.8 (-9.9 %)
1000	33.5	+4.6 (+13.6 %)	-7.6 (-22.6 %)	47.0	+4.8 (+10.2 %)	-8.1 (-17.3 %)

Pressure (hPa)	JJA Osonde (ppbv)	EMAC-Osonde (ppbv)	CMAM-Osonde (ppbv)	SON Osonde (ppbv)	EMAC-Osonde (ppbv)	CMAM-Osonde (ppbv)
100	611.1	+23.5 (+3.7 %)	+96.0 (+15.8 %)	581.8	+24.4 (+4.0 %)	+99.4 (+17.2 %)
200	330.5	+34.0 (+10.8 %)	+125.6 (+39.3 %)	299.7	+33.1 (+10.8 %)	+97.2 (+32.4 %)
350	83.5	+2.1 (+2.5 %)	+0.7 (+0.7 %)	63.8	+4.1 (+6.5 %)	+3.5 (+5.8 %)
500	70.4	+1.8 (+2.6 %)	-5.1 (-7.3 %)	54.8	+4.6 (+8.5 %)	-1.9 (-3.5 %)
850	58.4	-1.4 (-2.5 %)	-6.8 (-11.7 %)	49.5	+2.9 (+5.9 %)	-4.8 (-9.8 %)
1000	46.4	+2.1 (+4.4 %)	-4.6 (-9.9 %)	36.2	+6.2 (+17.2 %)	-6.6 (-18.6 %)

Table S2b – Same as for table 2a but for eastern North America (32.5° N - 60° N, 92.5° W - 55° W) (n = 14).

Pressure (hPa)	Osonde (ppbv)	DJF EMAC-Osonde (ppbv)	CMAM-Osonde (ppbv)	Osonde (ppbv)	MAM EMAC-Osonde (ppbv)	CMAM-Osonde (ppbv)
100	485.3	+13.2 (+3.0 %)	+36.5 (+7.9 %)	544.0	-44.7 (-8.1 %)	-13.2 (-2.1 %)
200	294.1	-9.4 (-2.7 %)	+19.4 (+7.2 %)	270.3	+6.3 (+3.4 %)	+41.0 (+16.3 %)
350	52.7	+7.8 (+15.0 %)	+9.3 (+17.9 %)	42.5	+11.1 (+26.5 %)	+10.5 (+25.1 %)
500	40.1	+9.1 (+22.9 %)	+6.6 (+16.6 %)	36.2	+9.6 (+26.6 %)	+5.9 (+16.4 %)
850	26.9	+6.0 (+22.5 %)	+0.5 (+2.1 %)	29.5	+4.9 (+17.6 %)	+1.0 (+3.8 %)
1000	18.6	+6.1 (+32.9 %)	+1.2 (+6.8 %)	22.7	+5.7 (+25.0 %)	+2.0 (+8.5 %)
Pressure (hPa)	Osonde (ppbv)	JJA EMAC-Osonde (ppbv)	CMAM-Osonde (ppbv)	Osonde (ppbv)	SON EMAC-Osonde (ppbv)	CMAM-Osonde (ppbv)
100	807.3	-72.7 (-9.1 %)	-84.7 (-10.5 %)	848.8	-64.9 (-7.6 %)	-83.3 (-9.7 %)
200	486.1	-45.6 (-9.5 %)	-20.0 (-4.1 %)	463.9	-5.8 (-1.2 %)	+5.4 (+1.3 %)
350	50.4	+6.5 (+13.7 %)	+8.9 (+18.5 %)	61.2	+6.1 (+10.2 %)	+7.7 (+12.9 %)
500	40.8	+7.8 (+19.3 %)	+5.0 (+12.2 %)	46.6	+8.8 (+18.9 %)	+5.3 (+11.5 %)
850	36.6	+3.3 (+8.9 %)	+2.2 (+5.9 %)	35.5	+6.7 (+18.8 %)	+2.6 (+7.1 %)
1000	25.8	+8.0 (+31.5 %)	+6.9 (+27.3 %)	26.3	+7.8 (+29.7 %)	+3.1 (+11.3 %)

Table S2c – Same as for table 2a/2b but for the Tasman Sea region (15° S - 55° S, 140° E - 180° E) (n = 6).
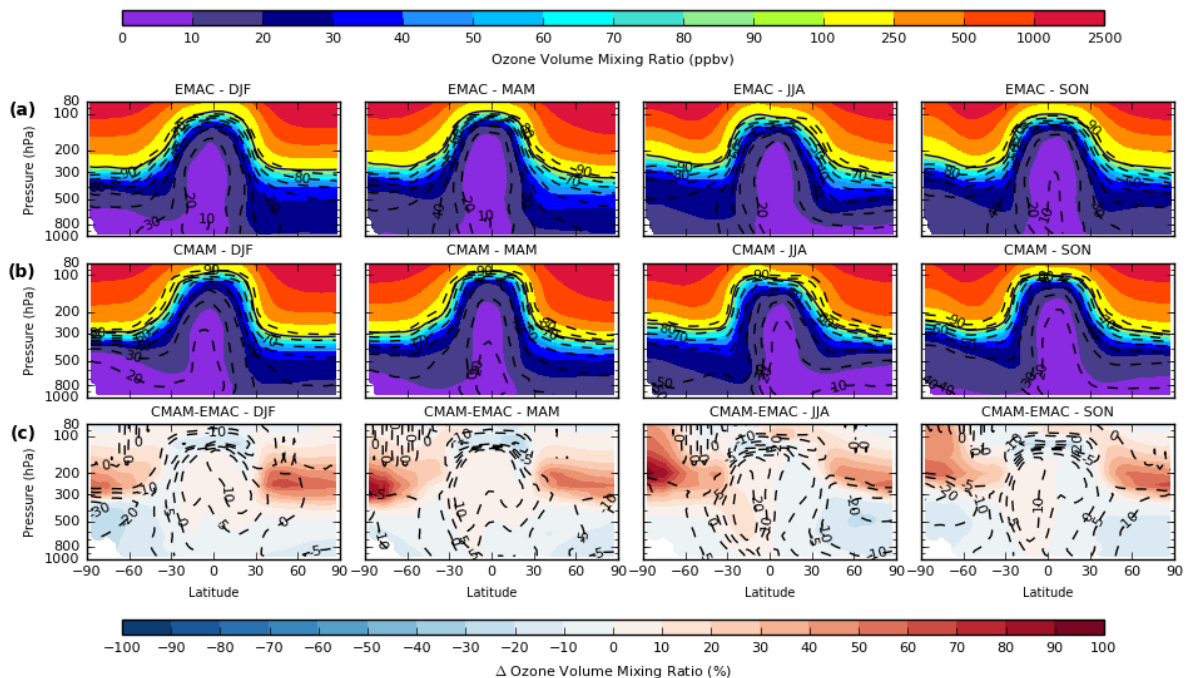
Figure S2 – Zonal mean seasonal composites of monthly mean O₃S concentration (ppbv) for the troposphere and lower stratosphere (1000-80 hPa) from (a) EMAC, (b) CMAM and (c) CMAM and EMAC (CMAM-EMAC) percentage differences over the period 1980-2010. Dashed lines indicate the stratospheric contribution (%) calculated using both ozone tracers in each model: O₃F (%) = (O₃S / O₃) x 100. The 100 ppbv contour (bold line) is included as a reference for the tropopause altitude (top and middle row).
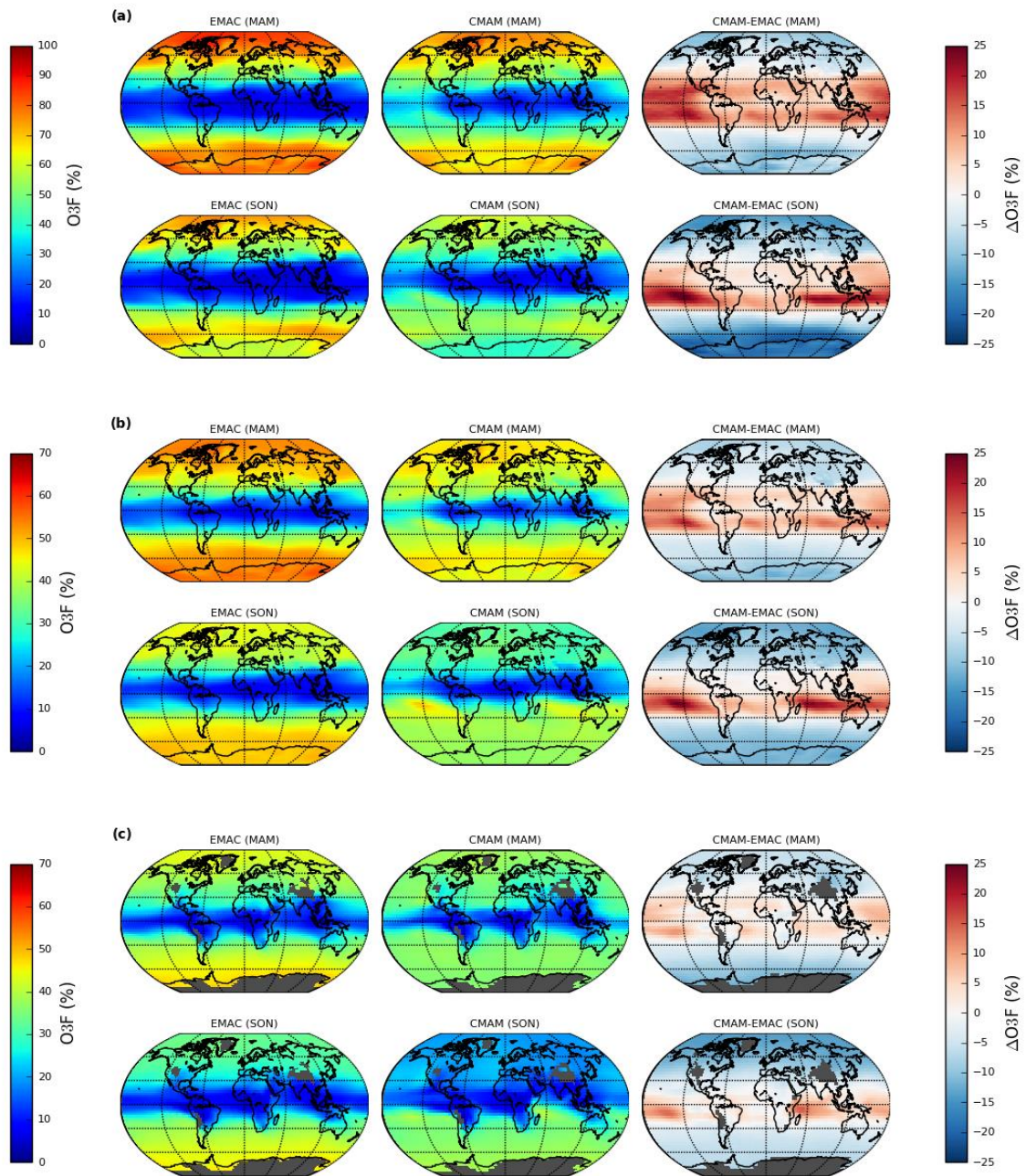
Figure S3 – Seasonal (MAM/SON) composites of (a) 350 hPa, (b) 500 hPa and (c) 850 hPa monthly mean stratospheric ozone fraction (O₃F) for EMAC (left), CMAM (middle) and CMAM-EMAC (right) over the period 1980-2010. Note the scale difference between (a) and (b-c).
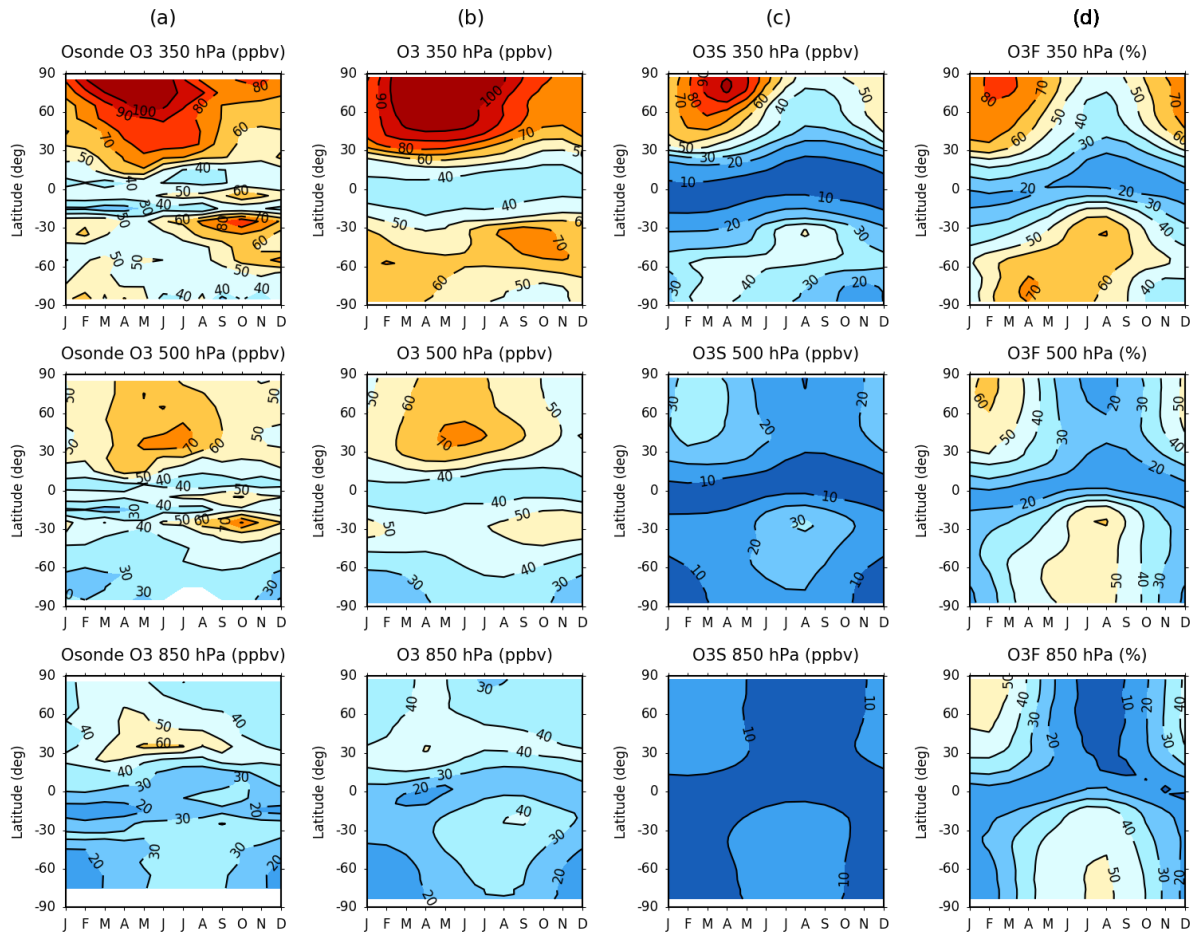
Figure S4 – Zonal-mean monthly mean evolution of O₃ VMR concentration (ppbv) derived from (a) ozonesondes and (b) CMAM O₃ model tracer. The evolution of the (c) CMAN stratospheric O₃S tracer and (d) O₃F stratospheric fraction (%) are additionally included over the period 1980-2010 for 350 hPa (top row), 500 hPa (middle row) and 850 hPa (bottom row).
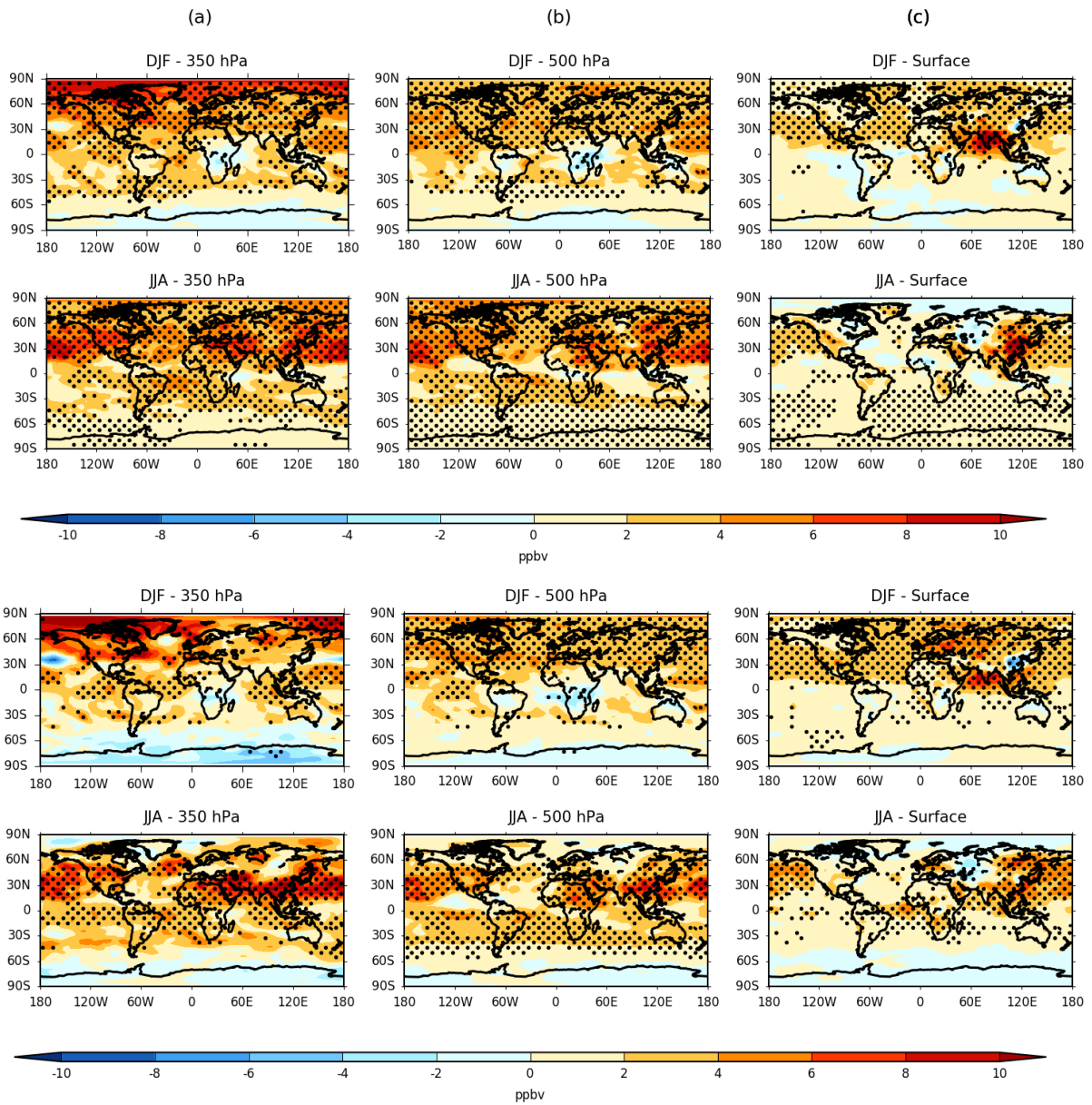
Figure S5 – Seasonal change in EMAC (top) and CMAM (bottom) ozone (O₃) VMR concentration (ppbv) between 1980-89 and 2001-10 for DJF and JJA at (a) 350 hPa, (b) 500 hPa and (c) the surface model level. Stippling denotes regions of statistical significance according to a paired two-sided t-test (p < 0.05).
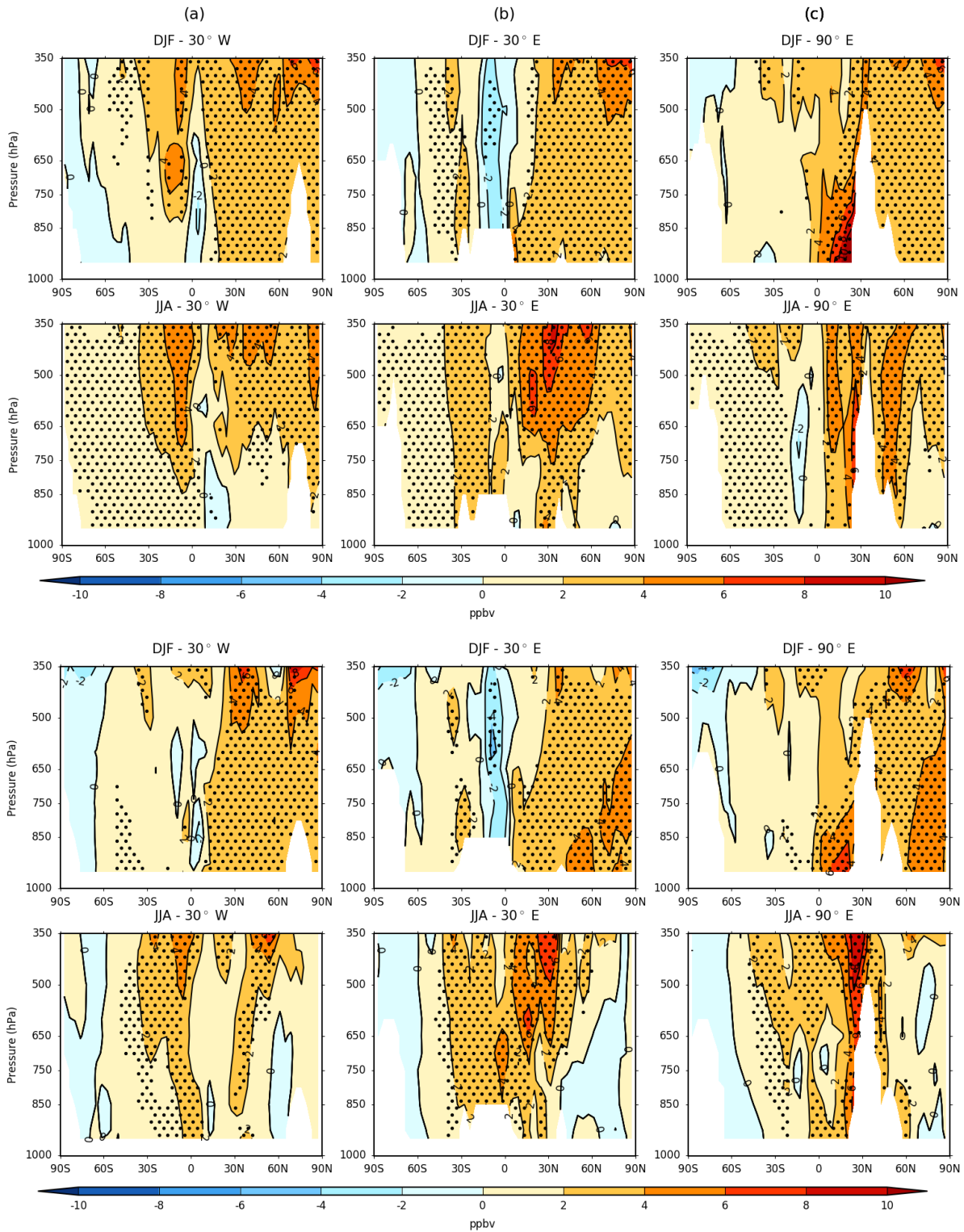
Figure S6 – Longitudinal cross-sections of the seasonal change in the vertical distribution of ozone (O₃) VMR (ppbv) from EMAC (top) and CMAM (bottom) between 1980-89 and 2001-10 for DJF and JJA at (a) 30° W, (b) 30° E and (c) 90° E. Stippling denotes regions of statistical significance according to a paired two-sided t-test (p < 0.05).

DJF	EMAC O3			CMAM O3		
	350 hPa	**500 hPa**	**Surface**	**350 hPa**	**500 hPa**	**Surface**
60°N-90°N	+7.0 (+11.3 %)*	+3.6 (+7.4 %)*	+2.0 (+7.0 %)*	+7.1 (+8.7 %)	+3.6 (+7.5 %)*	+2.7 (+13.3 %)*
30°N-60°N	+4.4 (+6.6 %)*	+3.7 (+6.8 %)*	+2.0 (+5.8 %)*	+3.6 (+4.9 %)	+3.5 (+6.9 %)*	+2.8 (+13.4 %)*
0°N-30°N	+2.7 (+5.4 %)	+2.7 (+5.4 %)	+2.7 (+6.4 %)	+2.5 (+6.4 %)	+2.1 (+5.1 %)	+2.6 (+8.0 %)
30°S-0°N	+1.9 (+3.9 %)	+1.5 (+3.1 %)	+0.7 (+2.7 %)	+1.5 (+4.0 %)	+0.9 (+2.4 %)	+0.8 (+4.0 %)
60°S-30°S	+1.7 (+2.9 %)	+1.3 (+3.0 %)	+0.2 (+1.0 %)	+0.4 (+0.8 %)	+0.9 (+2.0 %)	+0.4 (+2.4 %)
90°S-60°S	-0.4 (-0.9 %)	+0.1 (+0.3 %)	+0.1 (+0.9 %)	-2.3 (-3.5 %)	-0.2 (-0.9 %)	+0.1 (+ 0.7%)
MAM	EMAC O3			CMAM O3		
	350 hPa	**500 hPa**	**Surface**	**350 hPa**	**500 hPa**	**Surface**
60°N-90°N	+3.4 (+3.7 %)	+3.4 (+5.2 %)*	+1.6 (+4.5 %)	+1.6 (+1.4 %)	+3.0 (+4.8 %)	+1.9 (+6.8 %)*
30°N-60°N	+4.8 (+5.4 %)*	+3.7 (+5.2 %)*	+1.8 (+3.6 %)	+5.0 (+5.3 %)	+4.1 (+6.4 %)*	+2.4 (+6.7 %)
0°N-30°N	+3.2 (+5.3 %)	+3.4 (+5.7 %)	+2.1 (+4.8 %)	+2.9 (+6.6 %)	+3.0 (+6.4 %)	+2.7 (+8.7 %)
30°S-0°N	+1.6 (+3.3 %)	+1.3 (+2.8 %)	+1.0 (+3.6 %)	+1.5 (+4.3 %)	+0.9 (+2.7 %)	+0.9 (+4.3 %)
60°S-30°S	+1.2 (+2.4 %)	+1.2 (+2.8 %)	+0.4 (+1.7 %)	-0.6 (-0.9 %)	+0.1 (+0.1 %)	-0.0 (-0.2 %)
90°S-60°S	+1.0 (+2.4 %)	+0.8 (+2.8 %)	+0.5 (+2.4%)	-2.2 (-3.4 %)	-0.5 (-1.4 %)	-0.3 (-1.5 %)
JJA	EMAC O3			CMAM O3		
	350 hPa	**500 hPa**	**Surface**	**350 hPa**	**500 hPa**	**Surface**
60°N-90°N	+4.0 (+4.7 %)*	+3.7 (+6.1 %)*	+0.3 (+0.9 %)	+1.8 (+1.7 %)	+1.1 (+1.9 %)	+0.2 (+0.8 %)
30°N-60°N	+5.4 (+6.5 %)*	+4.5 (+6.5 %)*	+1.8 (+5.0 %)	+4.6 (+5.7 %)	+3.2 (+5.1 %)	+2.0 (+6.6 %)
0°N-30°N	+3.9 (+6.9 %)	+3.5 (+6.5 %)	+1.7 (+5.6 %)	+4.3 (+10.1 %)	+3.2 (+7.9 %)	+2.1 (+8.5 %)
30°S-0°N	+2.3 (+4.2 %)	+2.1 (+4.0 %)	+0.9 (+2.8 %)	+2.5 (+6.7 %)	+2.6 (+6.4 %)	+1.3 (+4.7 %)
60°S-30°S	+1.9 (+3.5 %)	+1.7 (+3.8 %)*	+0.7 (+2.4 %)*	+1.9 (+3.0 %)	+1.5 (+3.4 %)	+0.1 (+0.4 %)
90°S-60°S	+1.0 (+2.4 %)	+1.1 (+3.1 %)*	+0.8 (+3.2 %)*	-0.7 (-1.3 %)	-0.1 (-0.3 %)	-0.2 (-0.9 %)
SON	EMAC O3			CMAM O3		
	350 hPa	**500 hPa**	**Surface**	**350 hPa**	**500 hPa**	**Surface**
60°N-90°N	+4.4 (+7.3 %)*	+3.7 (+7.3 %)*	+2.0 (+7.1 %)*	+4.1 (+5.4 %)	+3.0 (+6.1 %)*	+2.1 (+10.5 %)*
30°N-60°N	+4.5 (+6.9 %)*	+4.4 (+7.7 %)*	+2.1 (+5.7 %)	+5.3 (+8.4 %)*	+4.8 (+9.4 %)*	+2.7 (10.7 %)*
0°N-30°N	+3.4 (+6.7 %)	+3.3 (+6.6 %)	+2.3 (+6.6 %)	+3.8 (+10.2 %)*	+3.2 (+8.9 %)	+2.7 (+10.3 %)*
30°S-0°N	+2.6 (+4.6 %)	+2.3 (+4.2 %)	+0.8 (+2.6 %)	+2.6 (+6.6 %)	+2.3 (+5.5 %)	+1.3 (+5.3 %)
60°S-30°S	+2.0 (+3.1 %)	+1.7 (+3.6 %)	+0.4 (+1.6 %)	+1.7 (+2.4 %)	+1.9 (+4.1 %)*	+0.7 (+2.7 %)*
90°S-60°S	+1.4 (+3.3 %)	+0.9 (+2.6 %)	+0.6 (+2.5 %)	+2.4 (+4.7 %)	+1.3 (+3.8 %)	+0.5 (+2.1 %)

Table S3 - 30˙ latitude band changes in seasonal mean ozone (O_3) VMR (ppbv) (also expressed in percentage (%) terms) between 1980-89 and 2001-10 at 350 hPa, 500 hPa and the surface (left to right for each model). Values denoted with an asterisk (*) represent statistical significance at the 95% confidence level ($p < 0.05$) as determined by a two-sided paired t-test.
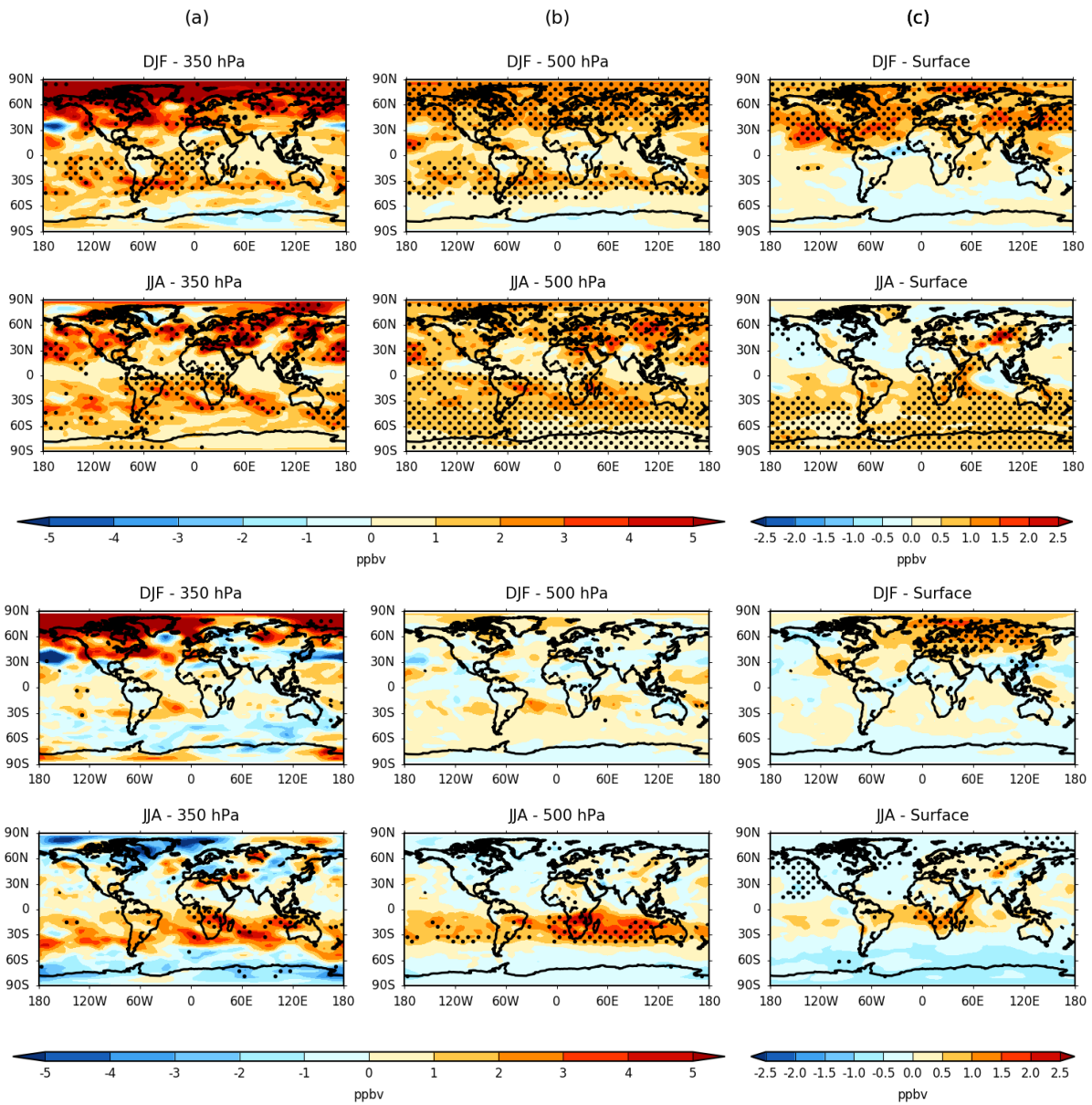
Figure S7 – Seasonal change in EMAC (top) and CMAM (bottom) stratospheric ozone (O₃S) VMR concentration (ppbv) between 1980-89 and 2001-10 for DJF and JJA at (a) 350 hPa, (b) 500 hPa and (c) the surface model level. Stippling denotes regions of statistical significance according to a paired two-sided t-test (p < 0.05). Note the scale difference between (a-b) and (c).
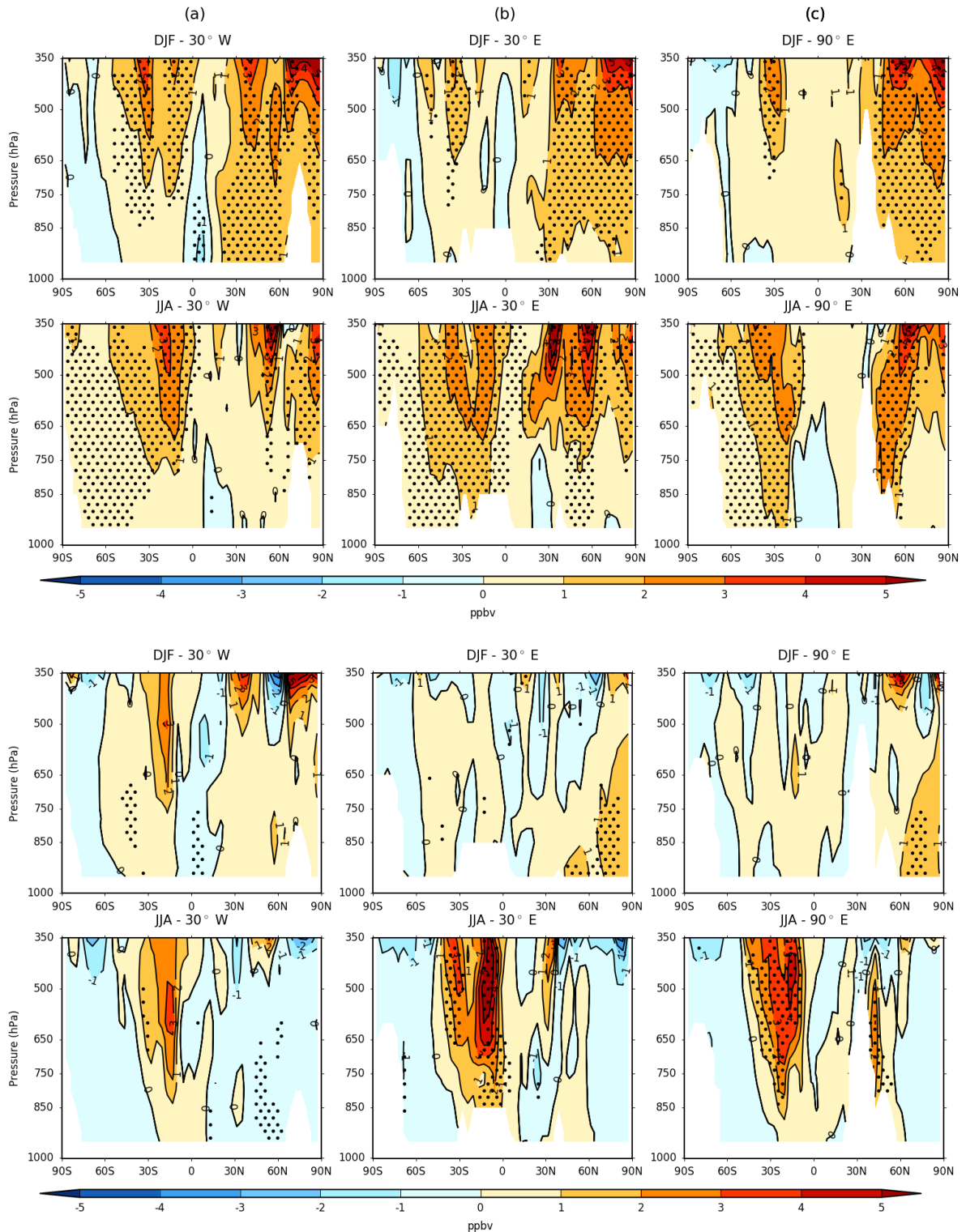
Figure S8 – Longitudinal cross-sections of the seasonal change in the vertical distribution of stratospheric ozone (O₃S)
VMR (ppbv) from EMAC (top) and CMAM (bottom) between 1980-89 and 2001-10 for DJF and JJA at (a) 30° W, (b) 30°
E and (c) 90° E. Stippling denotes regions of statistical significance according to a paired two-sided t-test (p < 0.05).

DJF	EMAC O3S			CMAM O3S		
	350 hPa	500 hPa	Surface	350 hPa	500 hPa	Surface
60°N-90°N	+6.9 (+14.0 %)	+2.4 (+8.4 %)*	+0.9 (+6.1 %)	+5.3 (+8.1 %)	+0.5 (+1.8 %)	+0.5 (+5.9 %)
30°N-60°N	+2.8 (+6.2 %)	+1.9 (+6.7 %)*	+1.0 (+5.9 %)	+0.7 (+1.5 %)	+0.0 (+0.1 %)	+0.3 (+3.4 %)
0°N-30°N	+0.9 (+8.1 %)	+1.0 (+7.9 %)	+0.5 (+5.1 %)	+0.2 (+2.1 %)	-0.0 (-0.1 %)	-0.1 (-1.3 %)
30°S-0°N	+1.2 (+13.2 %)	+1.1 (+11.6 %)	+0.1 (+4.2 %)	+0.3 (+3.0 %)	+0.3 (+2.7 %)	+0.0 (+0.8 %)
60°S-30°S	+1.2 (+4.4 %)	+0.9 (+5.1 %)	-0.0 (-0.0 %)	-0.5 (-1.4 %)	+0.2 (+2.0 %)	+0.0 (+0.2 %)
90°S-60°S	+0.1 (+0.1 %)	-0.0 (-0.2 %)	+0.0 (-0.4 %)	+0.1 (+0.2 %)	-0.1 (-1.0 %)	-0.1 (-2.9 %)

MAM	EMAC O3S			CMAM O3S		
	350 hPa	500 hPa	Surface	350 hPa	500 hPa	Surface
60°N-90°N	+1.8 (+2.5 %)	+1.9 (+5.5 %)	+0.8 (+5.1 %)	-2.7 (-2.4 %)	+0.2 (+0.7 %)	+0.7 (+6.7 %)
30°N-60°N	+3.3 (+6.2 %)	+2.1 (+6.4 %)	+0.8 (+4.5 %)	+1.6 (+2.7 %)	+0.8 (+2.9 %)	+0.5 (+5.0 %)
0°N-30°N	+1.6 (+11.7 %)	+1.6 (+12.5 %)	+0.5 (+7.4 %)	+0.4 (+2.1 %)	+0.4 (+1.7 %)	+0.2 (+2.0 %)
30°S-0°N	+1.1 (+13.1 %)	+1.0 (+11.6 %)	+0.3 (+5.0 %)	+0.4 (+4.0 %)	+0.2 (+1.8 %)	+0.0 (+0.2 %)
60°S-30°S	+1.3 (+4.7 %)	+1.1 (+6.2 %)*	+0.4 (+4.0 %)	-0.9 (-2.3 %)	-0.3 (-1.5 %)	-0.2 (-2.5 %)
90°S-60°S	+1.5 (+5.0 %)	+0.9 (+5.9 %)*	+0.5 (+5.5 %)*	-0.9 (-2.0 %)	-0.3 (-1.9 %)	-0.1 (-1.7 %)

JJA	EMAC O3S			CMAM O3S		
	350 hPa	500 hPa	Surface	350 hPa	500 hPa	Surface
60°N-90°N	+2.1 (+3.5 %)	+1.8 (+7.3 %)	+0.0 (+0.2 %)	-1.4 (-2.7 %)	-0.5 (-3.9 %)	-0.1 (-6.0 %)
30°N-60°N	+2.5 (+6.3 %)	+1.8 (+6.5 %)	+0.1 (+0.7 %)	-0.2 (-0.3 %)	-0.2 (-1.1 %)	-0.1 (-2.4 %)
0°N-30°N	+1.1 (+9.9 %)	+0.9 (+9.4 %)	+0.1 (+2.9 %)	+0.1 (+1.5 %)	+0.0 (+0.0 %)	+0.0 (-0.6 %)
30°S-0°N	+1.4 (+11.2 %)	+1.5 (+12.3 %)	+0.5 (+4.4 %)	+1.5 (+8.7 %)	+1.8 (+8.9 %)	+0.3 (+3.6 %)
60°S-30°S	+1.7 (+5.0 %)	+1.4 (+6.1 %)*	+0.6 (+3.7 %)*	+1.0 (+2.4 %)	+0.7 (+2.8 %)	-0.4 (-2.5 %)
90°S-60°S	+0.8 (+3.0 %)	+0.9 (+4.2 %)*	+0.6 (+4.3 %)*	-1.5 (-4.2 %)	-0.7 (-3.3 %)	-0.5 (-3.9 %)

SON	EMAC O3S			CMAM O3S		
	350 hPa	500 hPa	Surface	350 hPa	500 hPa	Surface
60°N-90°N	+2.8 (+6.6 %)	+1.5 (+7.0 %)*	+0.5 (+5.9 %)	+0.3 (+0.8 %)	+0.0 (+0.1 %)	+0.2 (+4.9 %)
30°N-60°N	+1.7 (+5.2 %)	+1.5 (+6.8 %)	+0.4 (+4.0 %)	+0.5 (+2.0 %)	+0.3 (+2.3 %)	+0.1 (+1.9 %)
0°N-30°N	+0.7 (+8.9 %)	+0.6 (+8.2 %)	+0.1 (+3.7 %)	+0.1 (+2.4 %)	+0.1 (+1.8 %)	+0.1 (+1.7 %)
30°S-0°N	+1.2 (+11.8 %)	+1.2 (+11.5 %)	+0.1 (+2.4 %)	+1.2 (+9.7 %)	+1.5 (+10.0 %)	+0.3 (+4.2 %)
60°S-30°S	+1.1 (+2.7 %)	+0.8 (+3.5 %)	+0.0 (+0.2 %)	+0.2 (+0.6 %)	+0.6 (+3.1 %)	-0.1 (-0.5 %)
90°S-60°S	+1.2 (+4.3 %)	+0.4 (+2.5 %)	+0.2 (+1.8 %)	+1.2 (+5.2 %)	+0.1 (+1.0 %)	-0.1 (-0.8 %)

Table S4 - 30° latitude band changes in seasonal mean stratospheric ozone (O₃S) VMR (ppbv) (also expressed in percentage (%) terms) between 1980-89 and 2001-10 at 350 hPa, 500 hPa and the surface (left to right for each model). Values denoted with an asterisk (*) represent statistical significance at the 95% confidence level (p < 0.05) as determined by a two-sided paired t-test.