Corrigendum to Atmos. Chem. Phys., 15, 3605–3628, 2015
www.atmos-chem-phys.net/15/3605/2015/
doi:10.5194/acp-15-3605-2015-corrigendum

Atmospheric Chemistry and Physics Open Access

Corrigendum to "The effects of springtime mid-latitude storms on trace gas composition determined from the MACC reanalysis" published in Atmos. Chem. Phys., 15, 3605–3628, 2015

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Published: 27 July 2016

An error was discovered in the figure units. The table and figures were presented with units of parts per billion by volume (ppbv or, in its commonly abbreviated form, ppb) when they were actually in parts per billion by mass (ppbm). The corrected figures and table in ppbv are included in this corrigendum. Note, in Figs. 4–6, panels (b) NP CO and (c) NA O_3 have been switched in order to have the NP O_3 and NA O_3 presented side-by-side with the new O_3 colour bar intervals.

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Table 1. Anomalies of aavg-O_3 (top; ppbv) and aavg-CO (bottom; ppbv) of cyclone-centred composite minus background composite at different radii: 6° and 20°. Percent difference relative to the background composite is given in the parentheses.

	O_3 anomalies			
	NP 6°	NA 6°	NP 20°	NA 20°
200 hPa	81.7 (21 %)	65.7 (17 %)	−7.6 (−2.1 %)	−1.1 (−0.3 %)
300 hPa	62.8 (50 %)	48.5 (36 %)	−2.3 (−1.8 %)	0.2 (0.1 %)
500 hPa	6.8 (11 %)	4.8 (7.6 %)	−0.5 (−0.8 %)	−0.7 (−1.1 %)
700 hPa	−1.2 (−2.2 %)	−2.7 (−5.0 %)	−0.5 (−0.9 %)	−1.0 (−1.8 %)
850 hPa	−1.3 (−2.8 %)	−3.3 (−6.9 %)	−0.3 (−0.7 %)	−1.3 (−2.8 %)
1000 hPa	1.4 (3.5 %)	0.7 (1.8 %)	0.3 (0.7 %)	−0.5 (−1.3 %)
	CO anomalies			
	NP 6°	NA 6°	NP 20°	NA 20°
200 hPa	−11.8 (−17 %)	−7.7 (−11 %)	0.4 (0.6 %)	0.6 (0.9 %)
300 hPa	−13.4 (−12 %)	−5.8 (−5.5 %)	0.8 (0.7 %)	0.9 (0.9 %)
500 hPa	−3.5 (−2.4 %)	−0.0 (−0.0 %)	−0.3 (−0.2 %)	2.5 (2.0 %)
700 hPa	0.8 (0.5 %)	−0.5 (−0.4 %)	2.4 (1.6 %)	2.4 (1.8 %)
850 hPa	1.7 (1.1 %)	−2.3 (−1.6 %)	3.9 (2.6 %)	1.8 (1.3 %)
1000 hPa	5.1 (3.3 %)	−3.9 (−2.7 %)	4.6 (3.0 %)	1.2 (0.8 %)

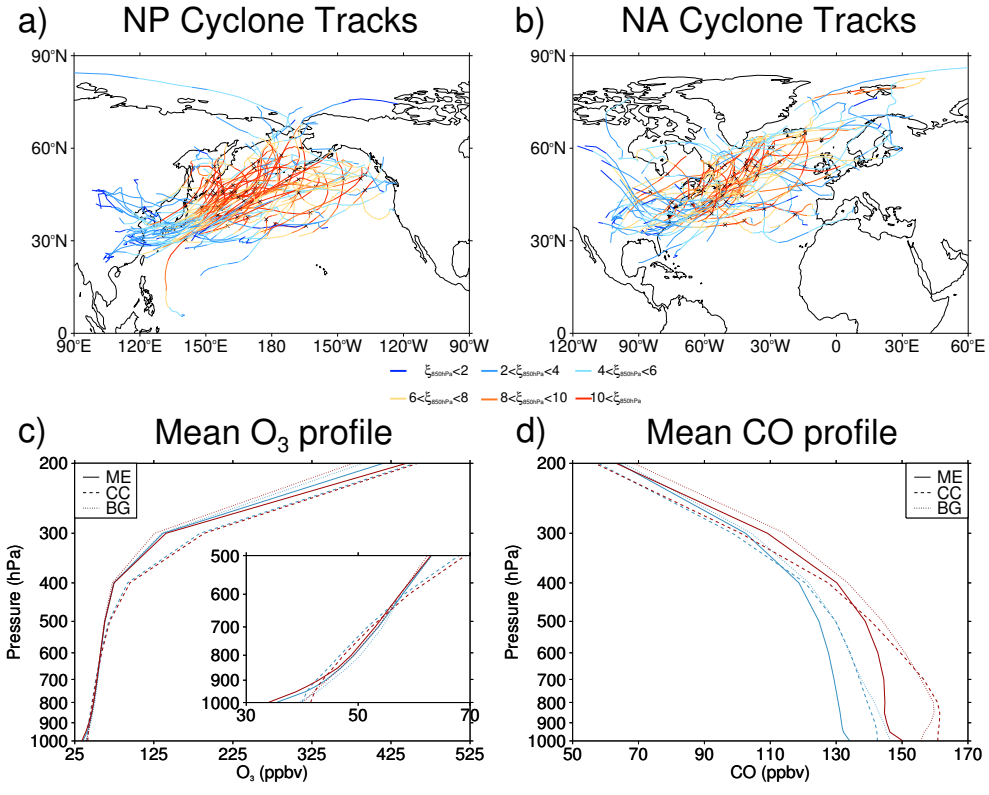

Figure 1. Cyclone tracks with maximum ζ_{850} (10^{-5} s^{-1}) in the 95th percentile for MAM during 2003–2012 for **(a)** NP and **(b)** NA regions. The time step where maximum ζ_{850} occurred is marked by a cross, and the strength of the cyclone indicated by the colour (increasing strength from blue to red). The vertical profiles for **(c)** O_3 and **(d)** CO for NP (red lines) and NA (blue lines) are shown: the MAM 2003–2012 mean (ME) MACC O_3 and CO for the NP and NA regions (solid lines), the cyclone-centred (CC) composite aavg-O_3 and aavg-CO (dashed lines), and the background (BG) composite aavg-O_3 and aavg-CO (dotted lines) at the time of the cyclone-centred composite maximum ζ_{850} (see Figs. 2 and 3).

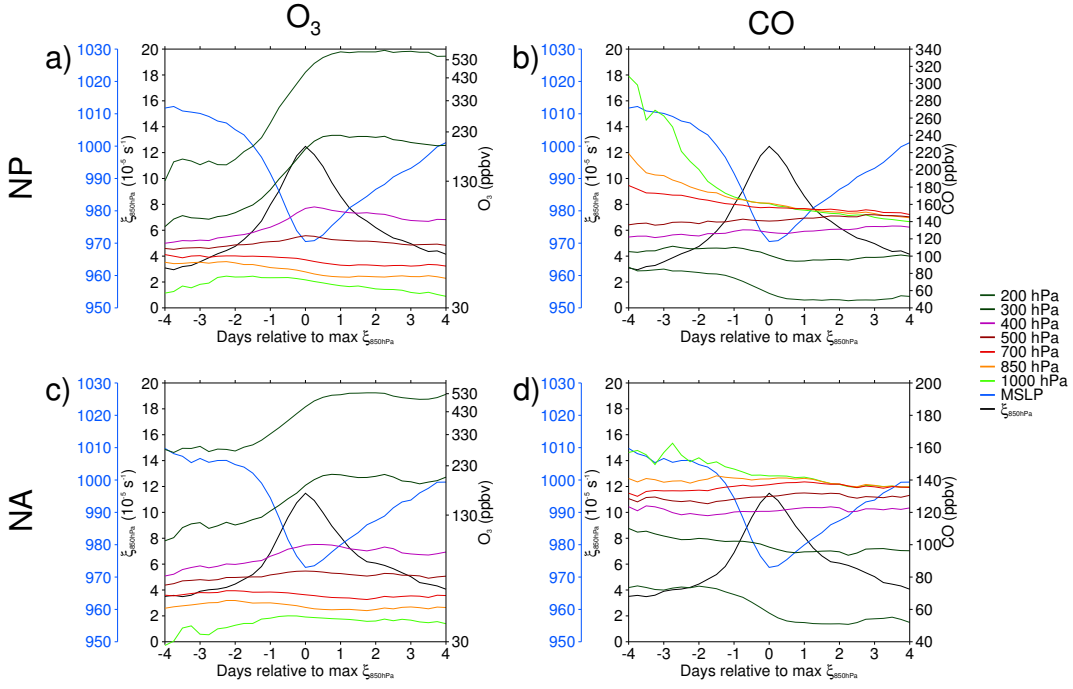

Figure 2. Life cycle of the 95th percentile MAM cyclone tracks during 2003–2012 for **(a, b)** NP and **(c, d)** NA with composite maximum ζ_{850} (black line), cyclone-centred composite MSLP (blue line), and the cyclone-centred composite **(a, c)** aavg-O_3 and **(b, d)** aavg-CO for the seven atmospheric pressure levels (different coloured lines). Time steps are every 6 h.

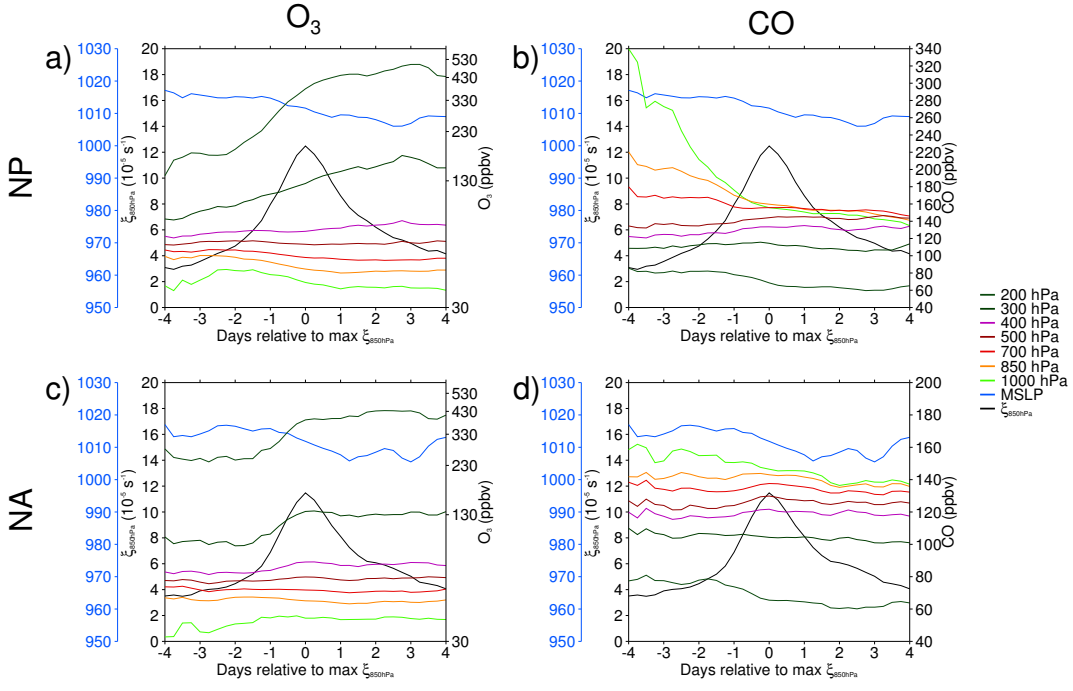

Figure 3. Same as Fig. 2 but for cyclone track locations with the background meteorology and chemistry.

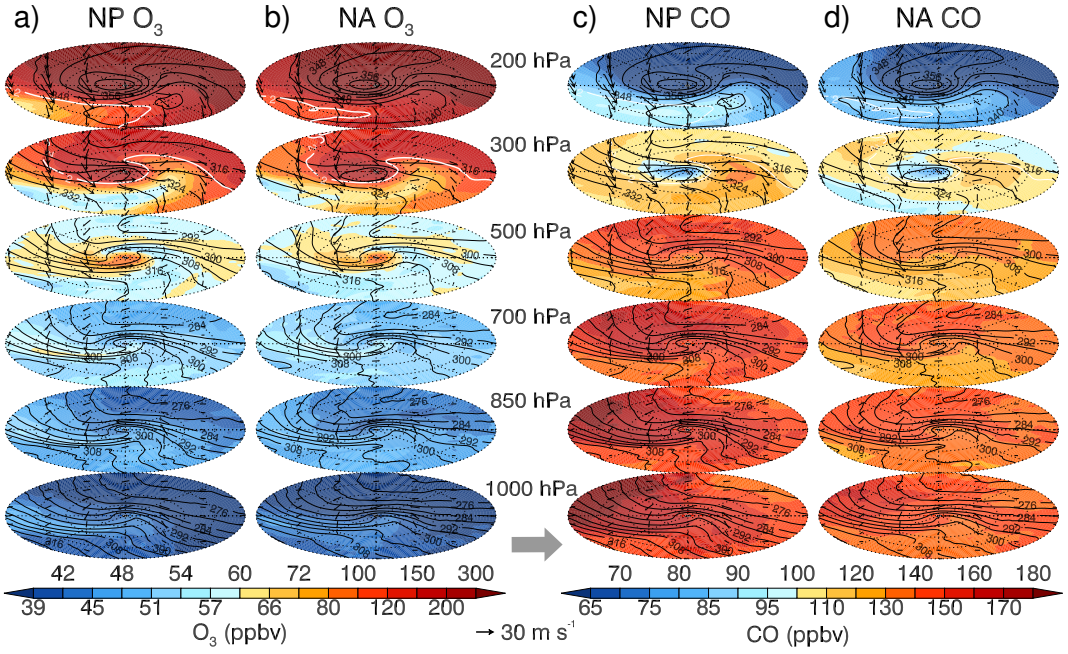

Figure 4. 95th percentile MAM cyclone tracks during 2003–2012 for **(a, c)** NP and **(b, d)** NA cyclone-centred composites of **(a, b)** O_3, **(c, d)** CO (colour; note different colour scales used for O_3 and CO), θ_e (black contour lines; 4 K intervals) and horizontal wind vectors (30 m s^{-1}, reference arrow) on five levels (1000, 850, 700, 500, 300, and 200 hPa) at time of maximum ζ_{850}. Dynamical tropopause estimated by the isosurface of 2 PVU (solid white line). Cyclone propagation is toward the right as indicated by the large grey arrow. Radial dotted lines are plotted every 45° and dotted circles represent 5, 10, 15, and 20° radii from cyclone centre.

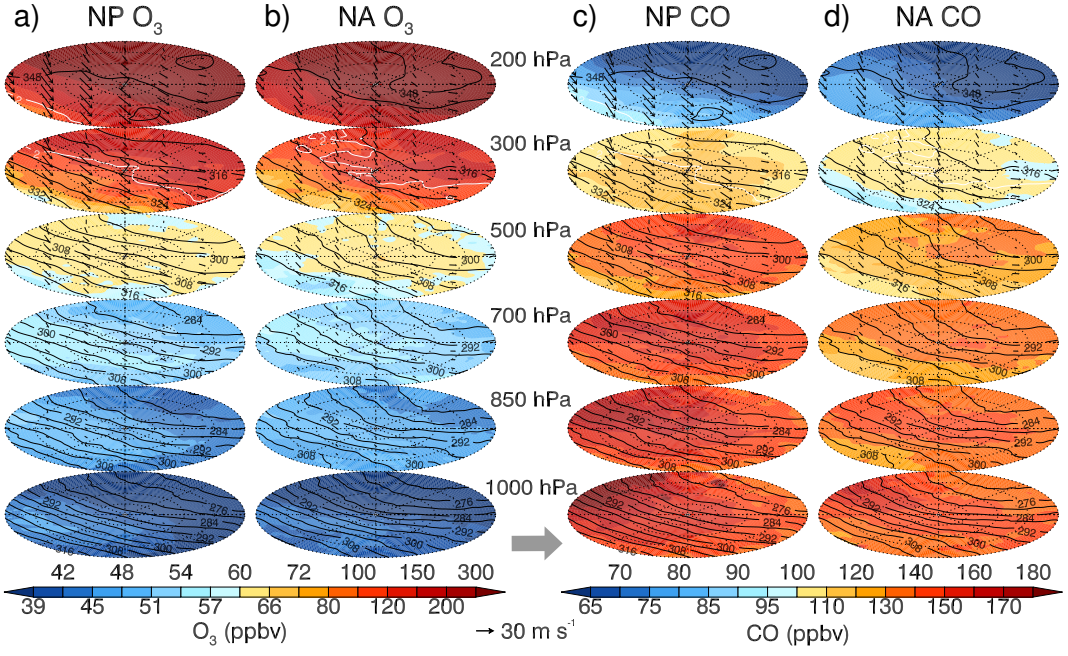

Figure 5. Same as Fig. 4 but for cyclone tracks with the background meteorology and chemistry.

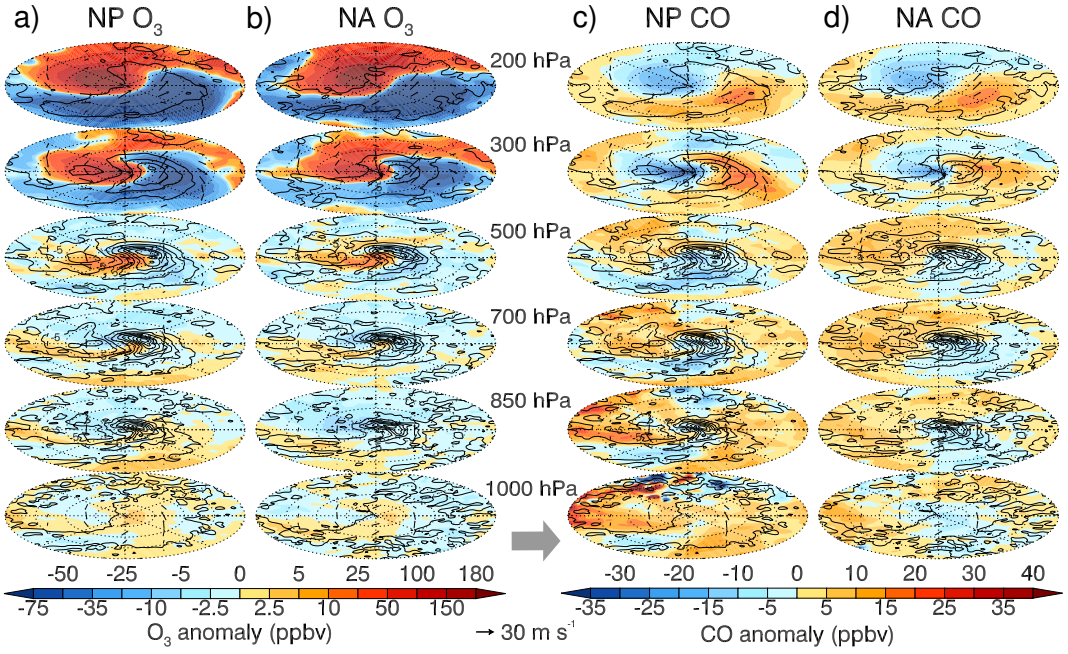

Figure 6. (a, b) O_3 and **(c, d)** CO anomalies (ppbv) of the **(a, c)** NP and **(b, d)** NA cyclone-centred composite (Fig. 4) minus the background composite (Fig. 5) with ω cyclone-centred minus background anomalies (black contour lines; 4 hPa h^{-1} contour intervals).

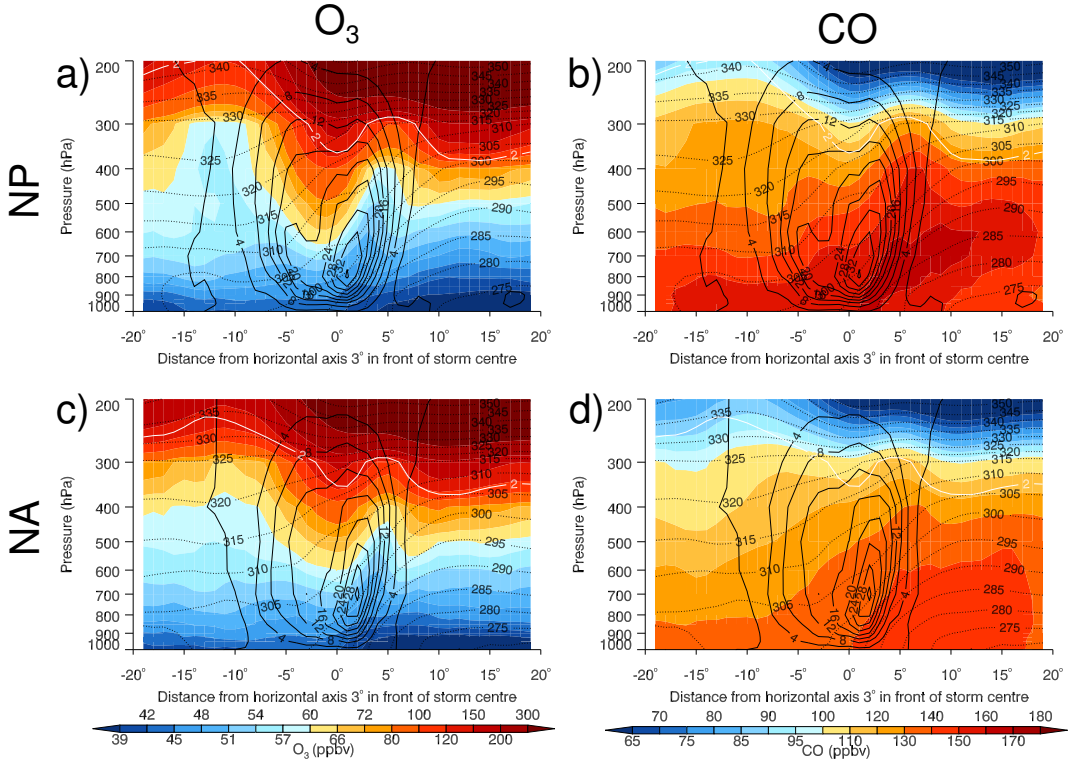

Figure 8. Vertical cross sections of the cyclone-centred composite for **(a, b)** NP and **(c, d)** NA 95th percentile MAM cyclone tracks during 2003–2012 for the WCB, 3° to the right of cyclone centre. **(a, c)** O_3 and **(b, d)** CO (ppbv) with θ_e (dotted contour lines, 5 K intervals), ω (solid contour lines; 4 hPa h^{-1} contour intervals, with positive values indicating ascent), and the isosurface of 2 PVU (solid white line) are shown.

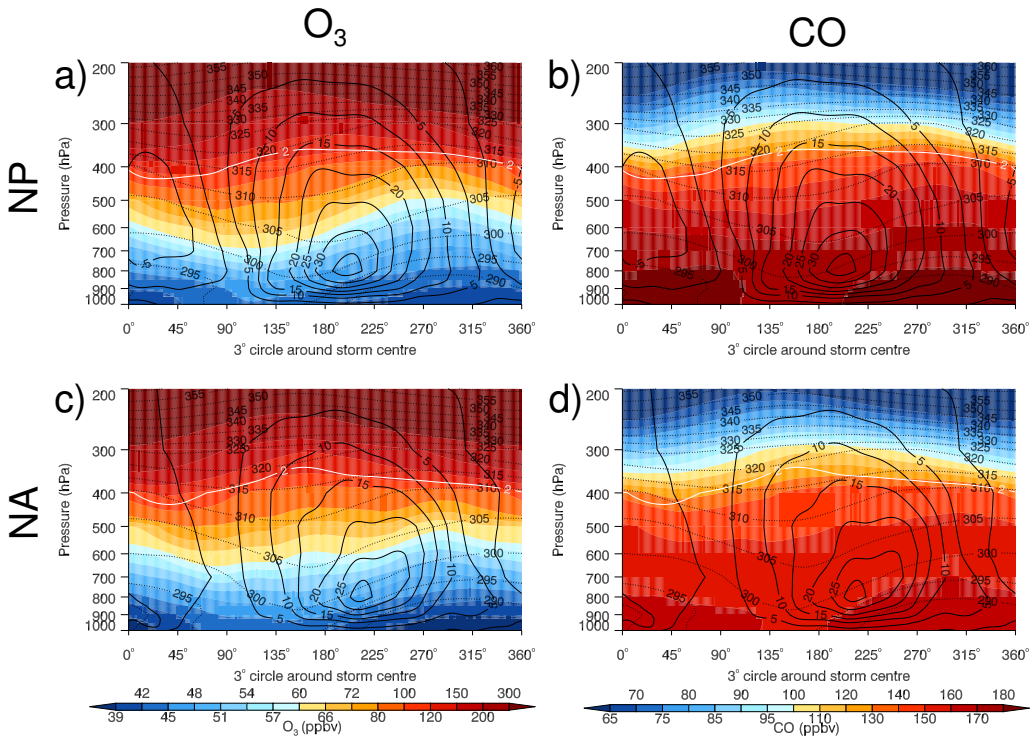

Figure 9. Vertical cylinders at 3° radius (see Fig. 7a for orientation) for the cyclone-centred composite for **(a, b)** NP and **(c, d)** NA 95th percentile MAM cyclone tracks during 2003–2012. **(a, c)** O_3 and **(b, d)** CO (ppbv) with θ_e (dotted contour lines, 5 K intervals), ω (solid contour lines; 5 hPa h^{-1} contour intervals, with positive values indicating ascent), and the isosurface of 2 PVU (solid white line) are shown.

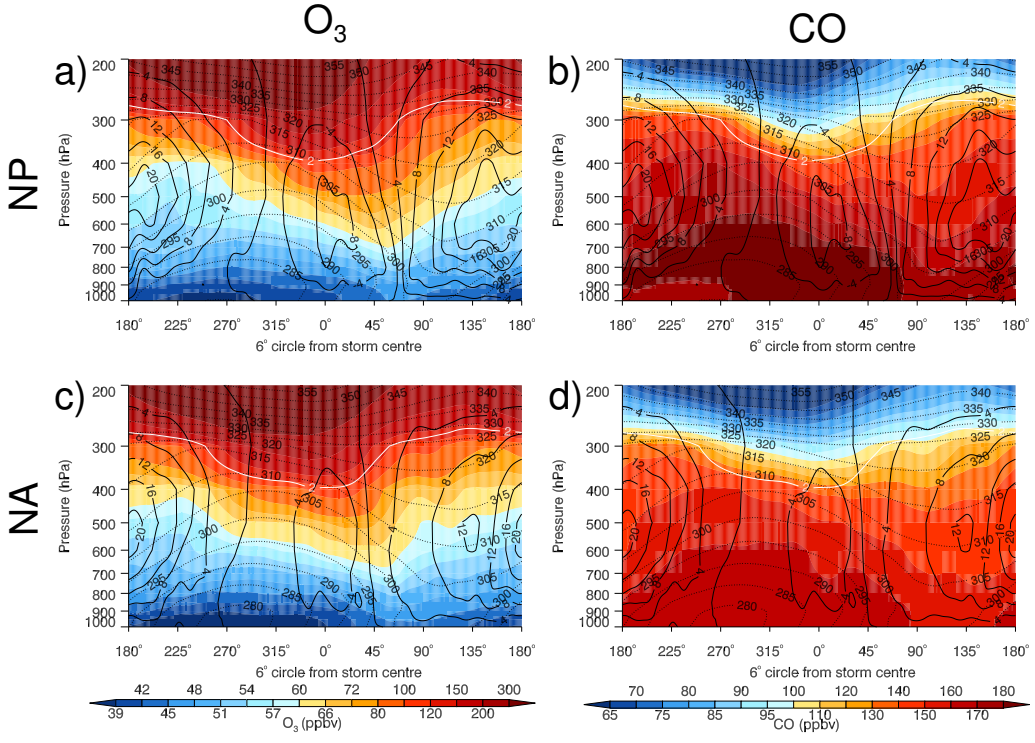

Figure 10. Vertical cylinders at 6° radius (see Fig. 7b for orientation) for horizontal composite for **(a, b)** NP and **(c, d)** NA 95th percentile MAM cyclone tracks during 2003–2012. **(a, c)** O_3 and **(b, d)** CO (ppbv), θ_e (dotted contour lines, 5 K intervals), ω (solid contour lines; 4 hPa h^{-1} contour intervals, with positive values indicating ascent), and the isosurface of 2 PVU (solid white line) are shown.

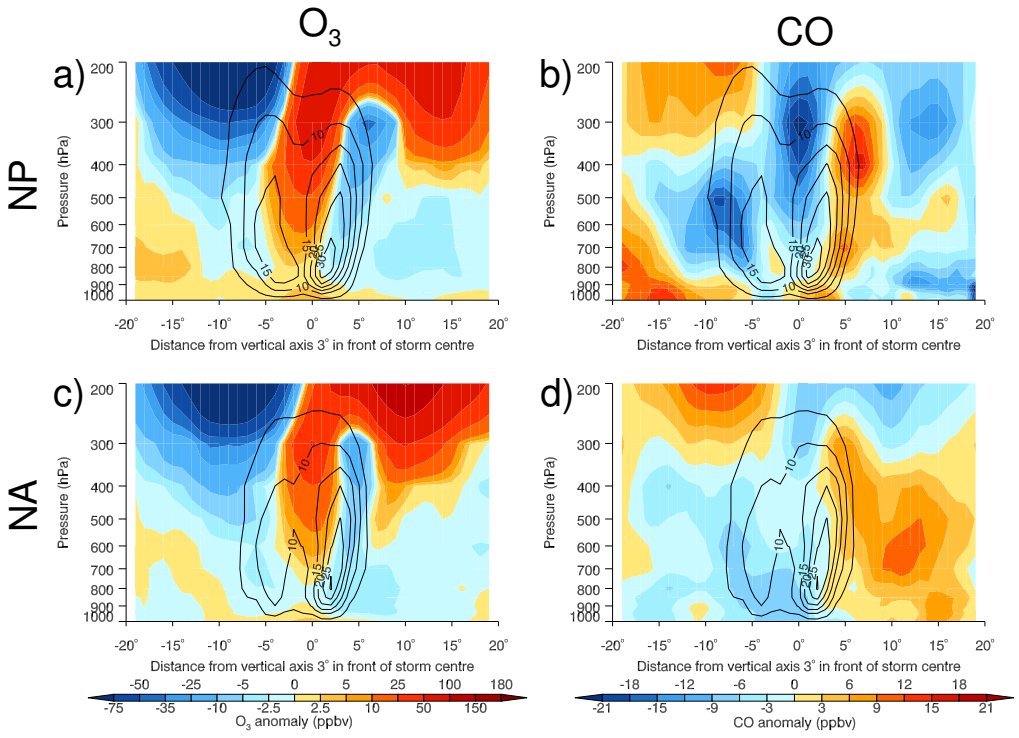

Figure 11. **(a, c)** O_3 and **(b, d)** CO differences (ppbv) for WCB for cyclone-centred composites (Fig. 8) minus background composites for the 95th percentile MAM cyclone tracks during 2003–2012 for **(a, b)** NP and **(c, d)** NA. Solid contours are ω anomalies (5 hPa h^{-1} contour intervals).

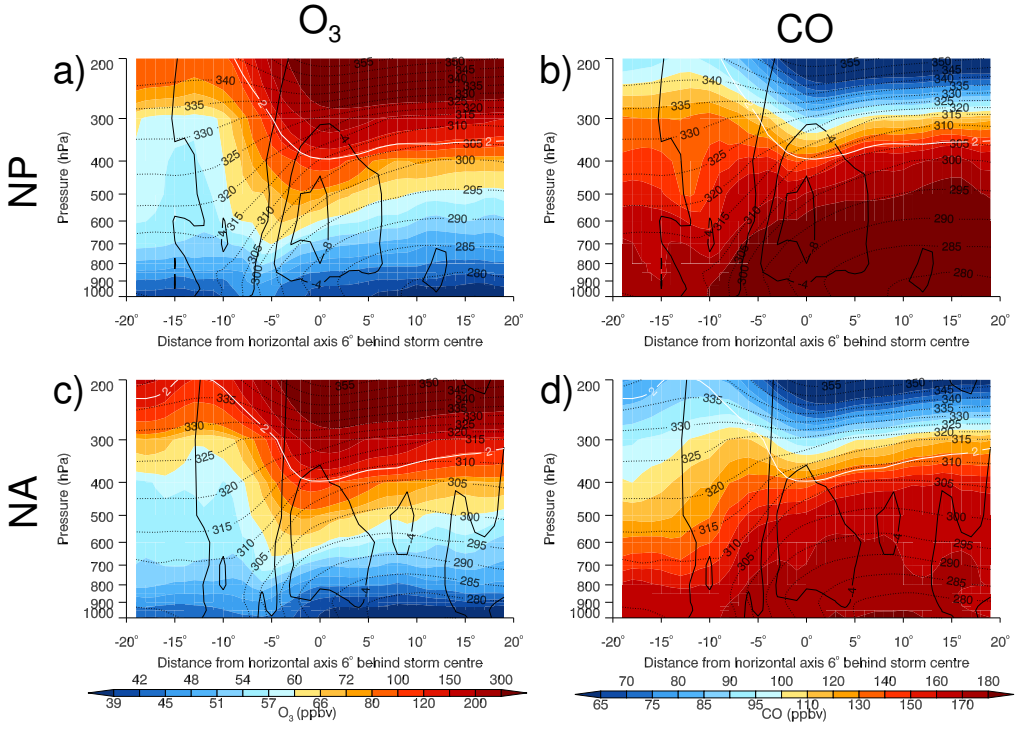

Figure 12. Vertical cross sections of the horizontal composite for **(a, b)** NP and **(c, d)** NA 95th percentile MAM cyclone tracks during 2003–2012 for the DI, 6° to the left of the cyclone centre. **(a, c)** O_3 and **(b, d)** CO (ppbv) with θ_e (dotted contour lines, 5 K intervals), ω (solid contour lines; 4 hPa h^{-1} contour intervals, with positive values indicating ascent), and the isosurface of 2 PVU (solid white line) are shown.

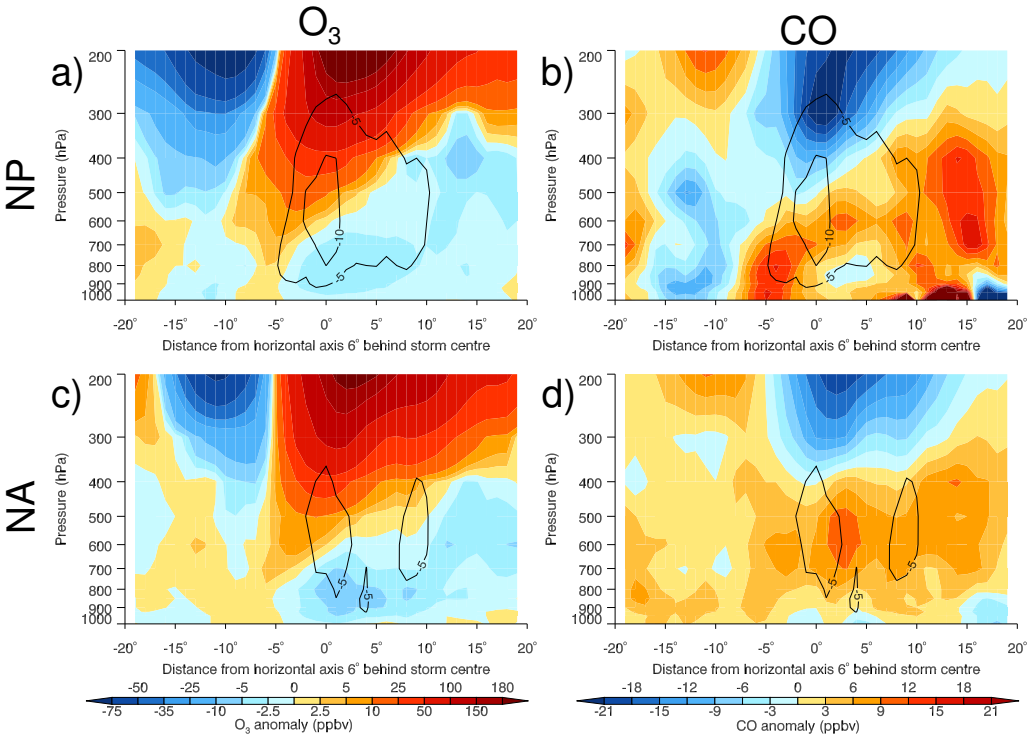

Figure 13. **(a, c)** O_3 and **(b, d)** CO differences (ppbv) for DI for cyclone-centred composites (Fig. 12) minus background composites for the 95th percentile MAM cyclone tracks during 2003–2012 for **(a, b)** NP and **(c, d)** NA. Solid contours are ω anomalies (5 hPa h^{-1} contour intervals, with positive values indicating ascent).