

Supplementary Materials

Table S1. A size-dependent non-seasonal SSA bromine depletion factor (DF) derived from previous work of Yang et al. (2008, 2010) and Breider et al. (2009).

Dry NaCl diameter (μm)	DF
<0.4	0.00
0.64	0.02
0.9	0.20
1.26	0.38
1.78	0.47
2.52	0.50
3.36	0.48
5.0	0.43
7.1	0.38
10.0	0.36
>10	0.00

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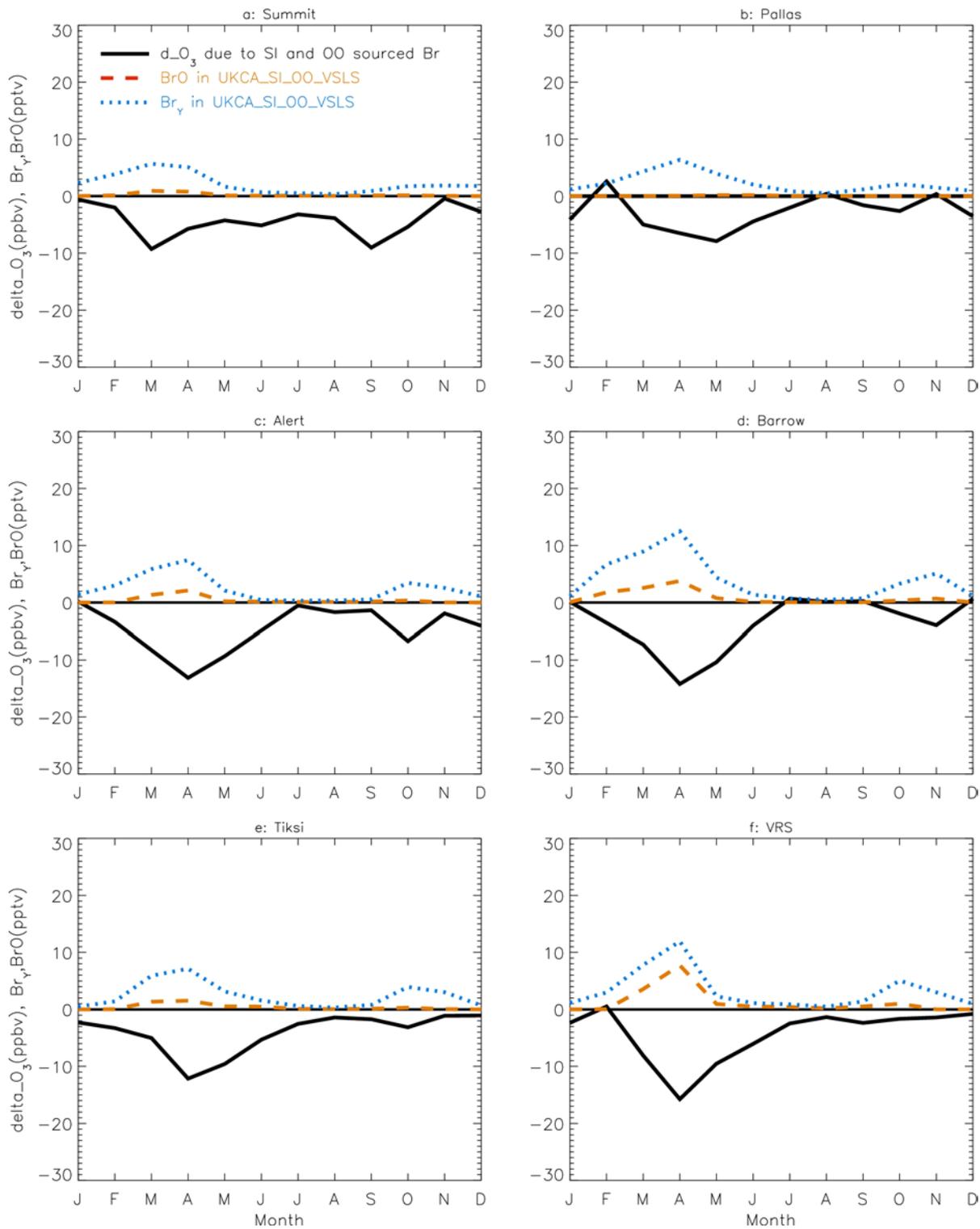


Figure S1: Similar to Fig. 2, using UKCA model results (averaged from an integration of 2006-2008). Solid black line (=UKCA_SI_OO_VSLS -UKCA_VSLS) represents the effect from both SI- and OO-sourced bromine. Total inorganic Br_Y (dotted blue line) and BrO (dash orange line) from UKCA_SI_OO_VSLS are also plotted.

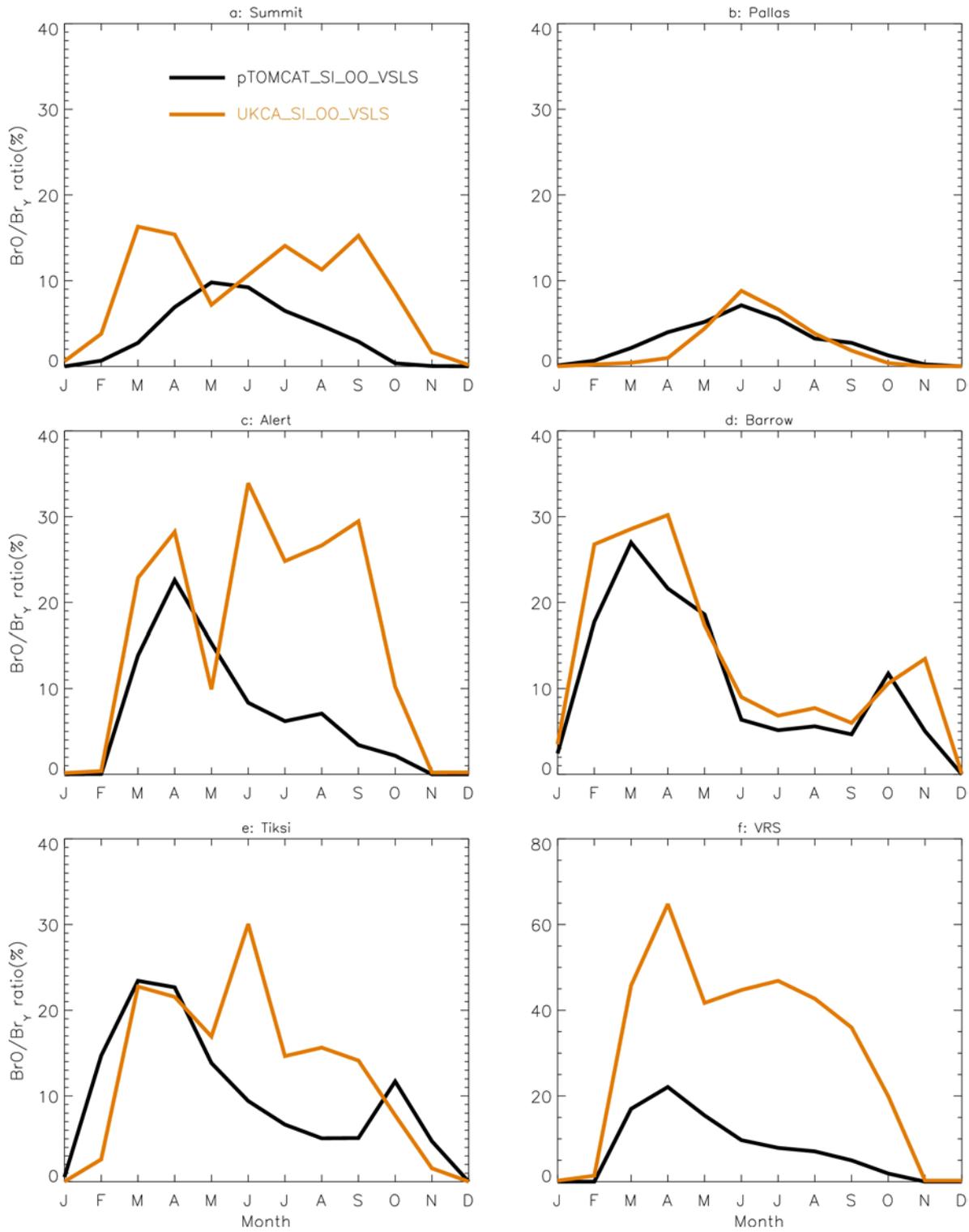


Figure S2: Monthly mean BrO/Br_Y ratio (in percentage) from pTOMCAT_SI_OO_VSLS (black line) and UKCA_SI_OO_VSLS (orange line).

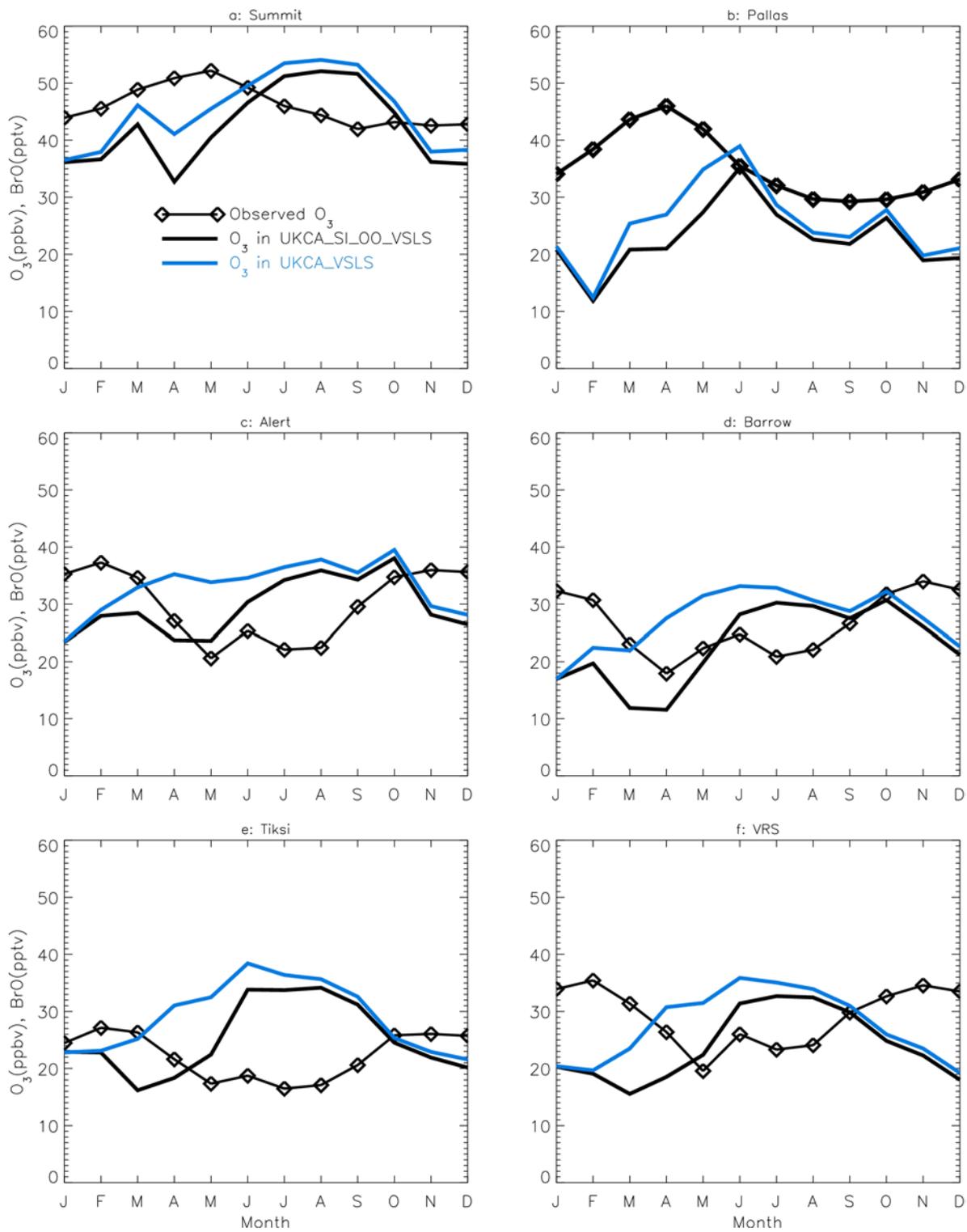


Figure S3: Same as Fig. 2, using model output from UKCA_SI_OO_VSLS (black line) and UKCA_VSLS (blue line).

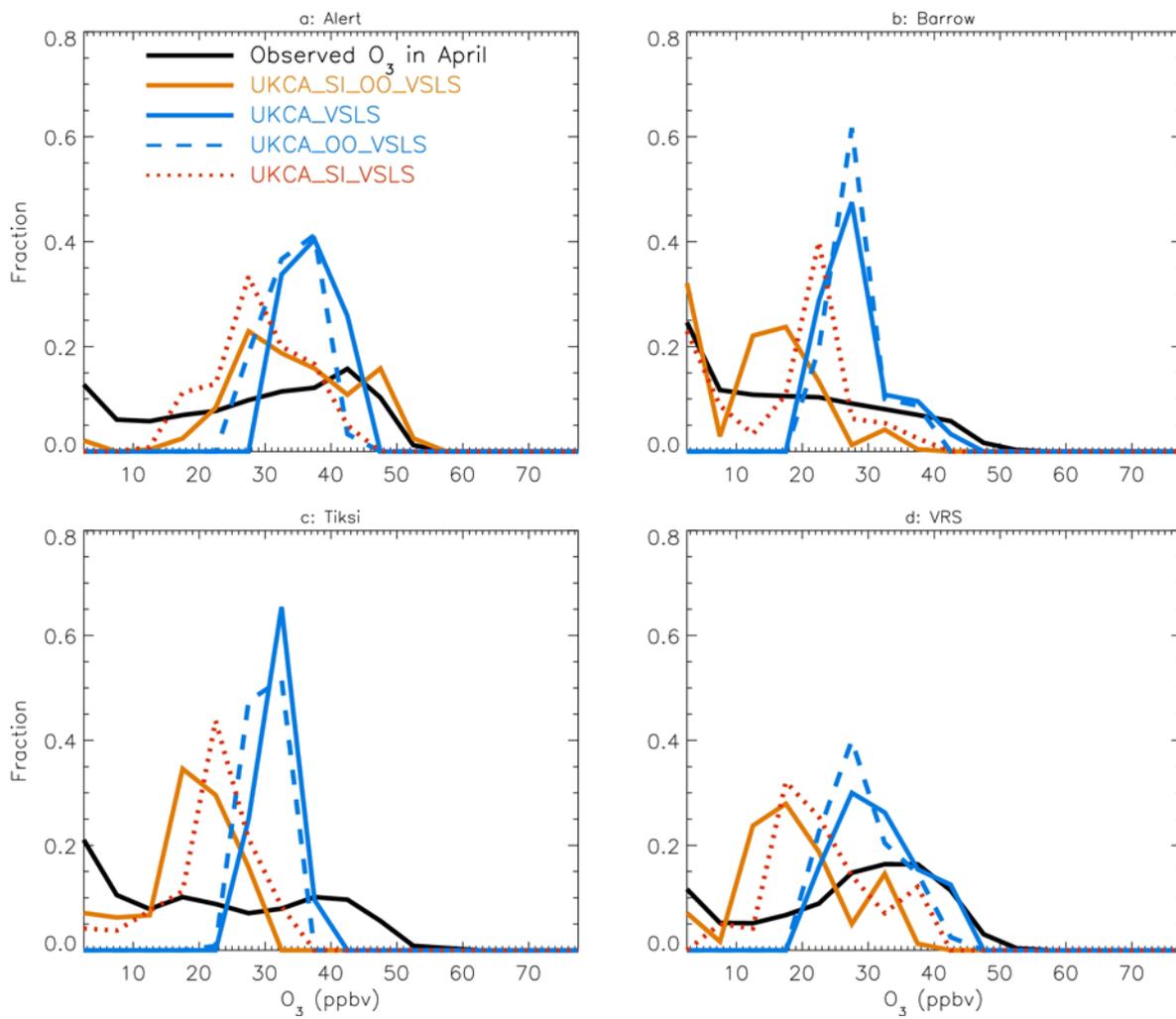
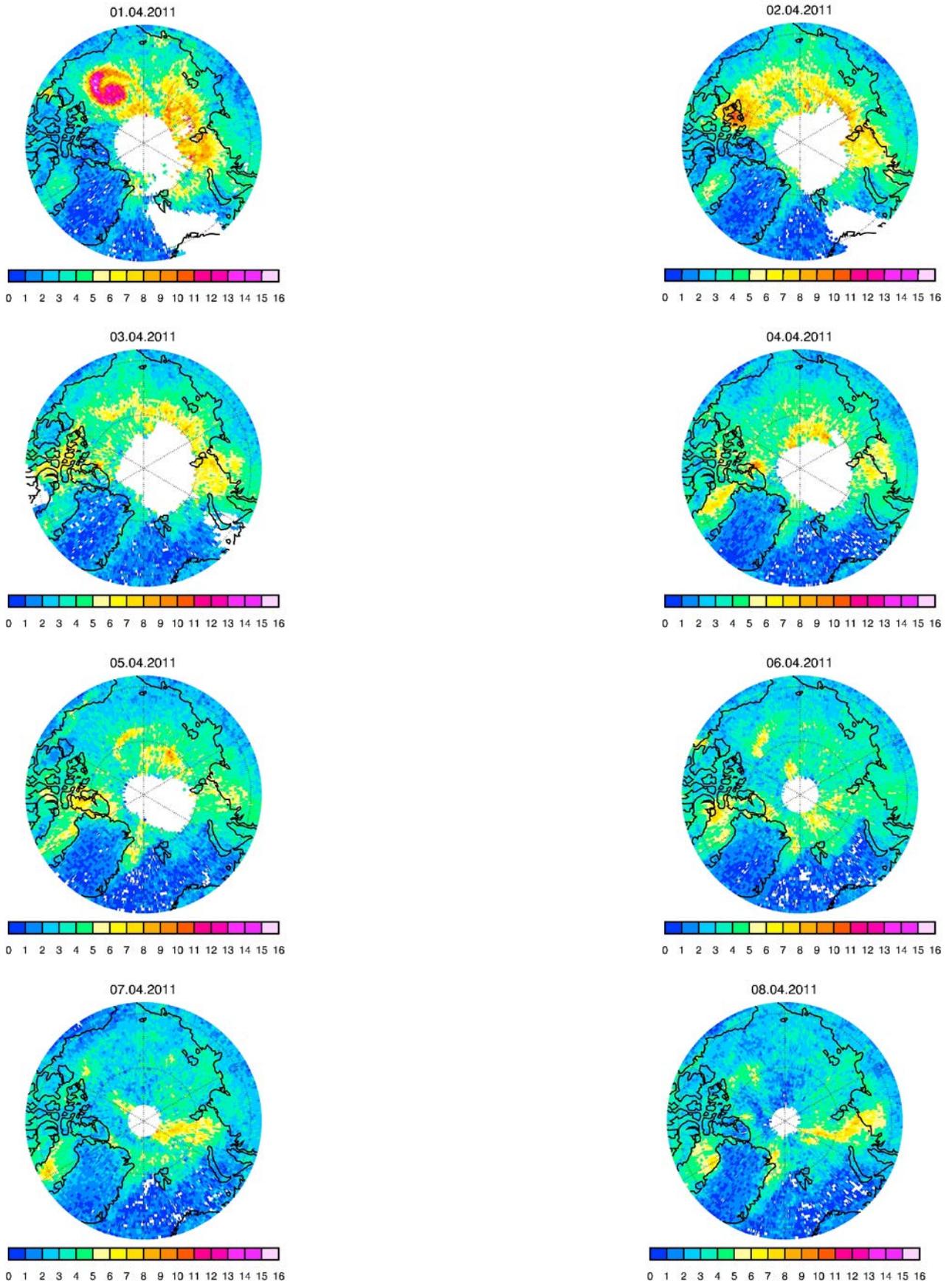


Figure S4: Same as Fig. 5 using UKCA model results. The UKCA_SI_OO_VLSL result is in solid orange line, the UKCA_VLSL in solid blue, the UKCA_OO_VLSL in dashed blue and the UKCA_SI_VLSL in dashed orange line.



5 Figure S5: GOME-2 tropospheric vertical column densities of BrO ($\times 10^{13}$ molecules cm^{-2}) during the time period of 1-8 April 2011.

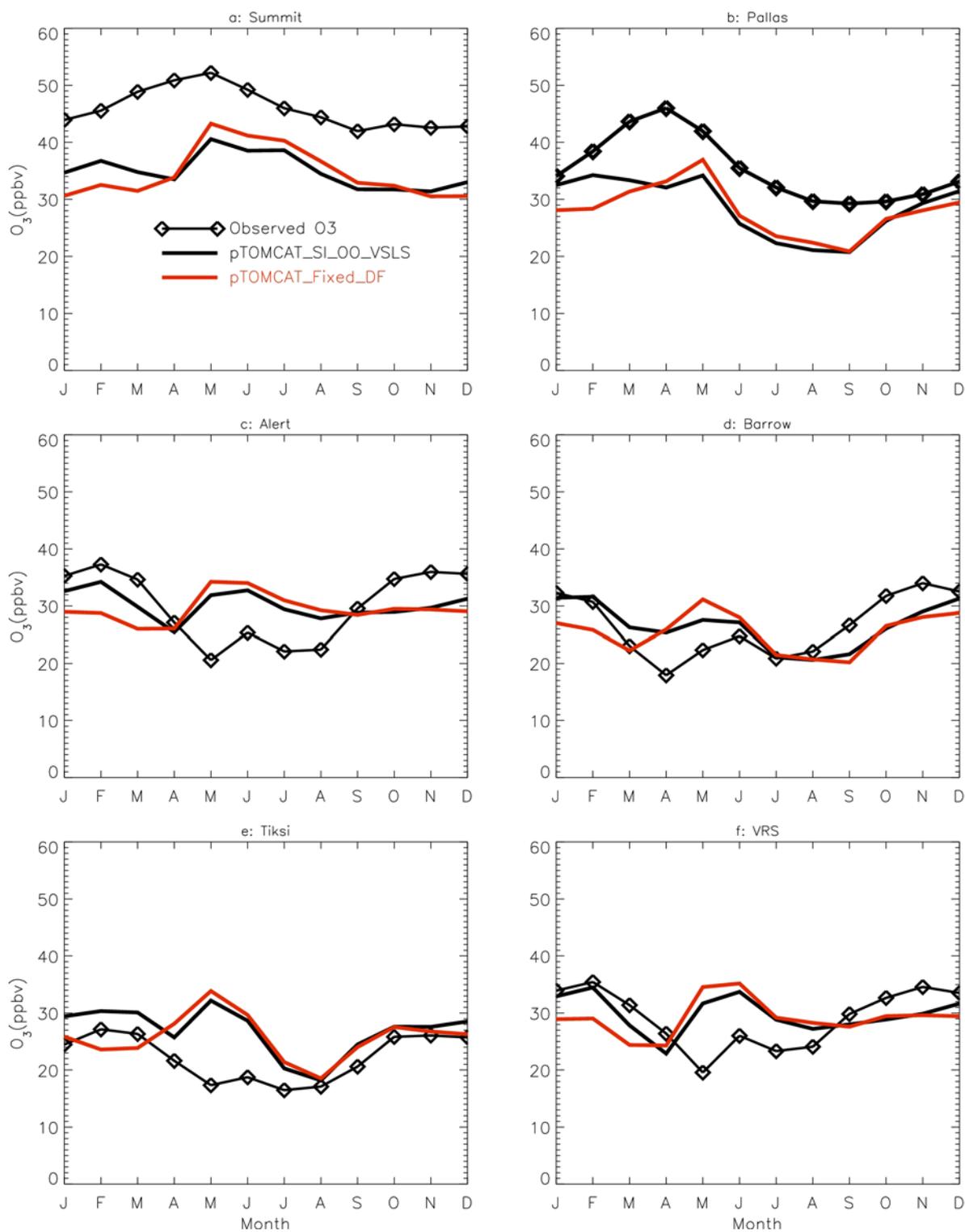


Figure S6: Same as Fig. 2, using model ozone from pTOMCAT_Fixed_DF run (red line). pTOMCAT_SI_OO_VSLS result is shown in black.

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