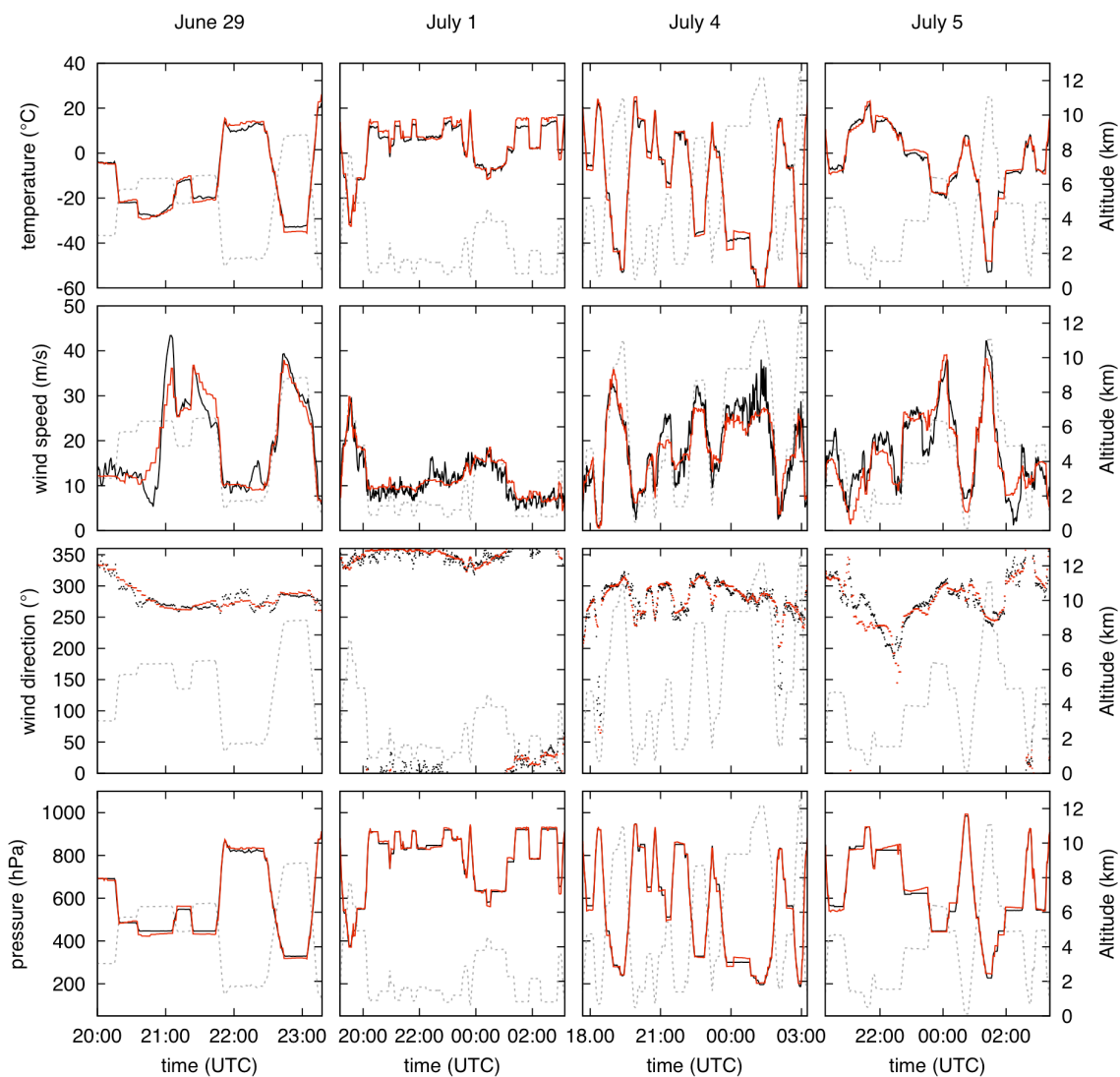
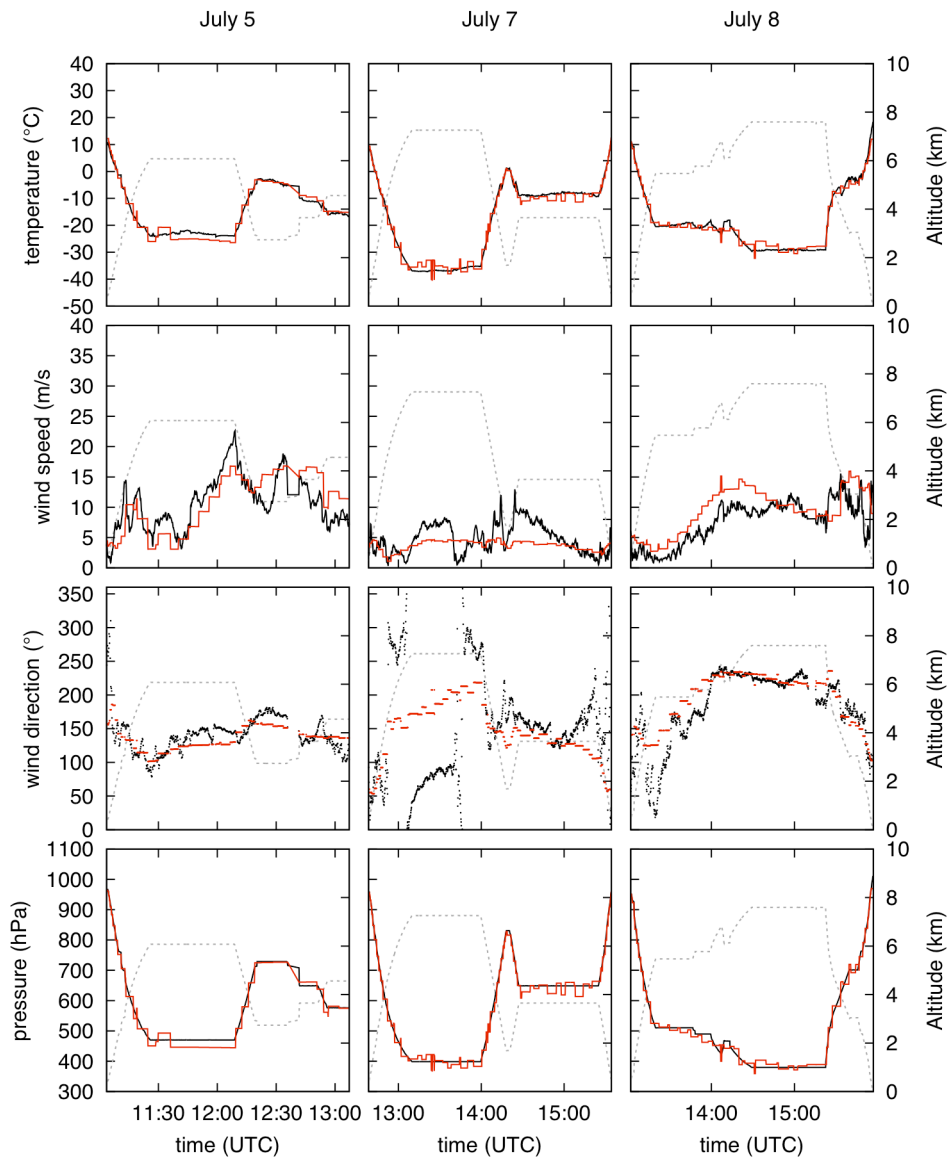


Supplementary Information for: Pollution transport towards the Arctic during summer 2008

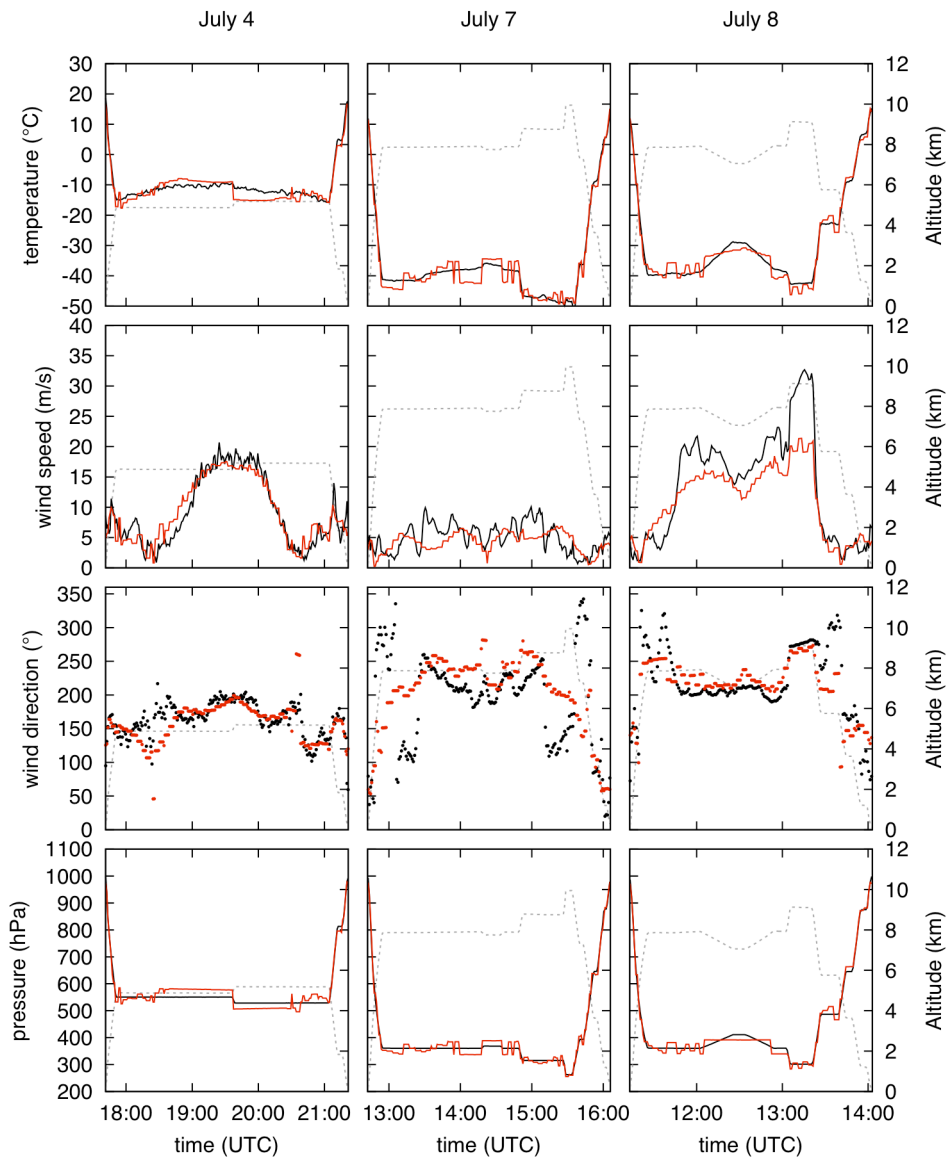
J. L. Thomas, J.-C. Raut, K. S. Law, L. Marelle, G. Ancellet, F. Ravetta, J. D. Fast, G. Pfister, L. K. Emmons, G. S. Diskin, A. Weinheimer, A. Roiger, H. Schlager



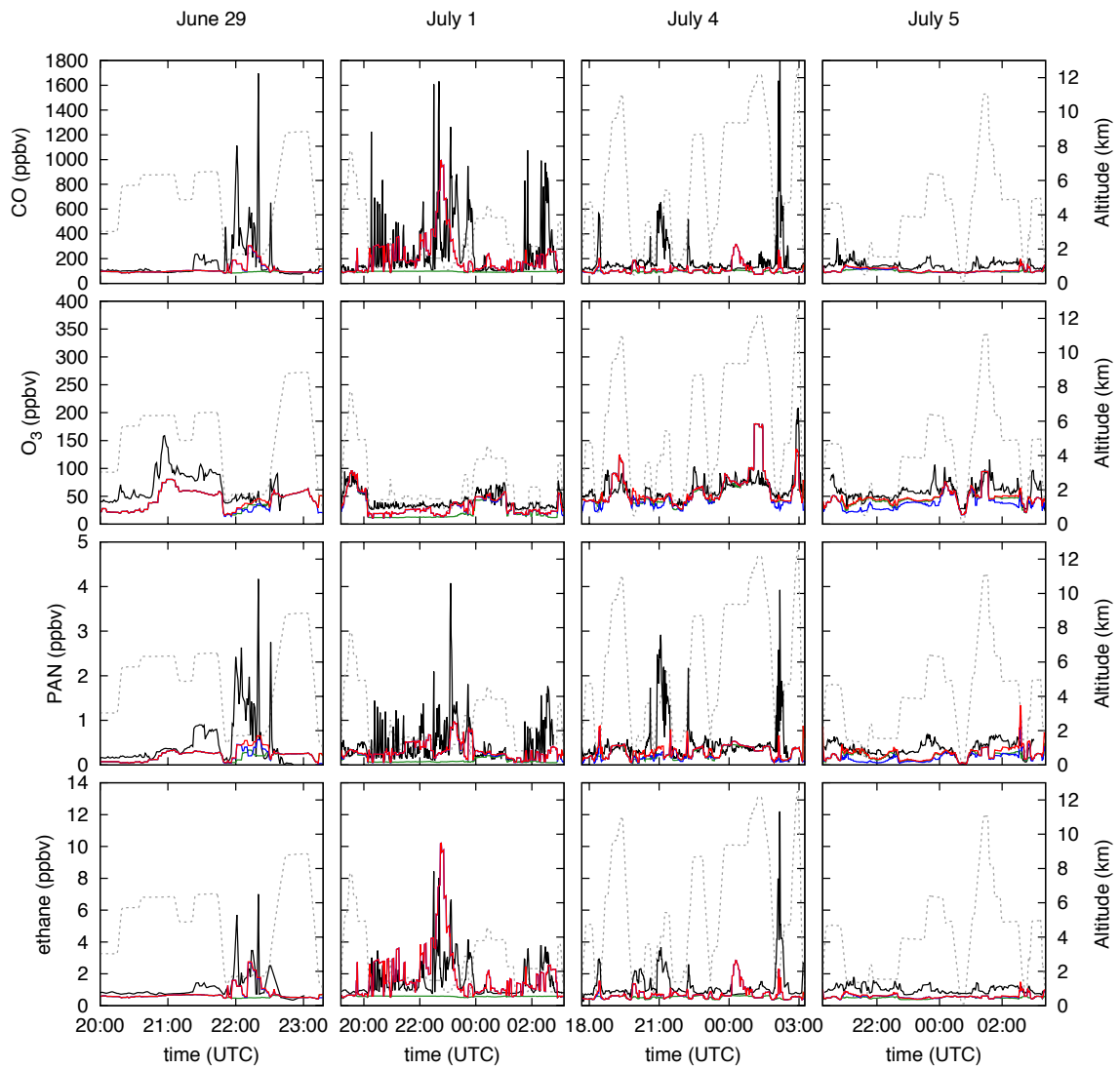
SI – Figure 1. Comparison of WRF-Chem results with meteorological measurements made onboard the NASA DC8 on 29 June as well as on 1, 4, & 5 July. Measurements are in black, the model base run is in red. The aircraft altitude is represented by the dashed line.



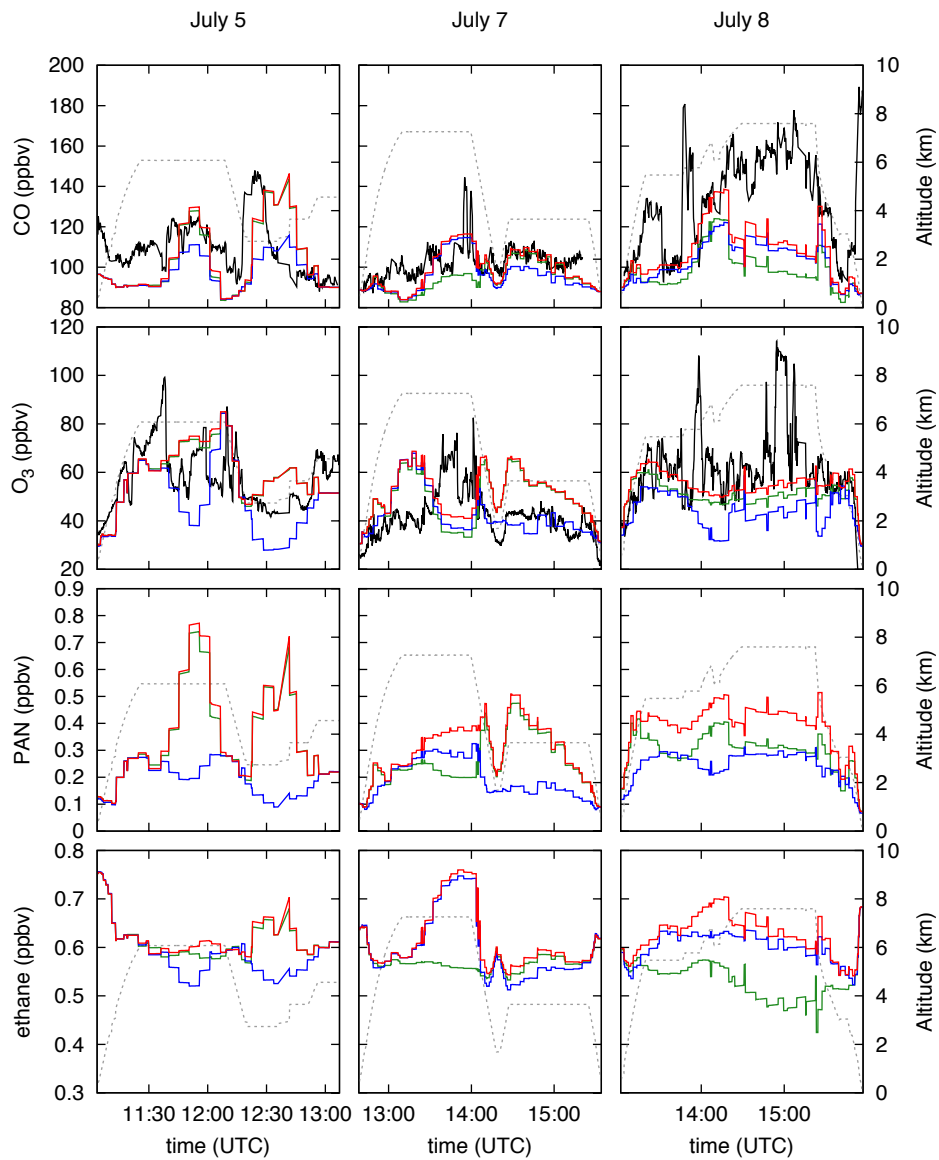
SI – Figure 2. Comparison of WRF-Chem results with meteorological measurements made onboard the ATR-42 aircraft on 5, 7, & 8 July. Measurements are in black, the model base run is in red. The aircraft altitude is represented by the dashed line.



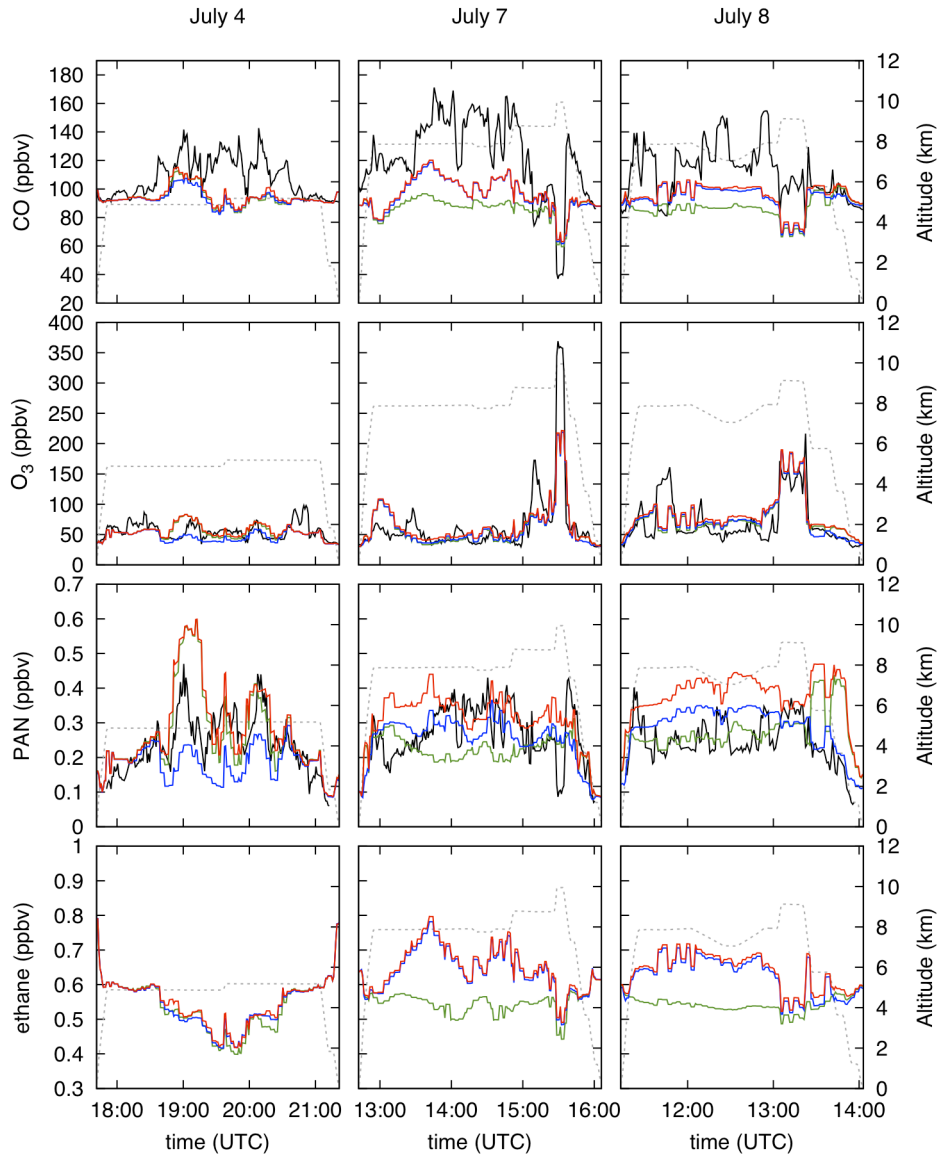
SI – Figure 3. Comparison of WRF-Chem results with meteorological measurements made onboard the Falcon-20 aircraft on 4, 7, & 8 July. Measurements are in black, the model base run is in red. The aircraft altitude is represented by the dashed line.



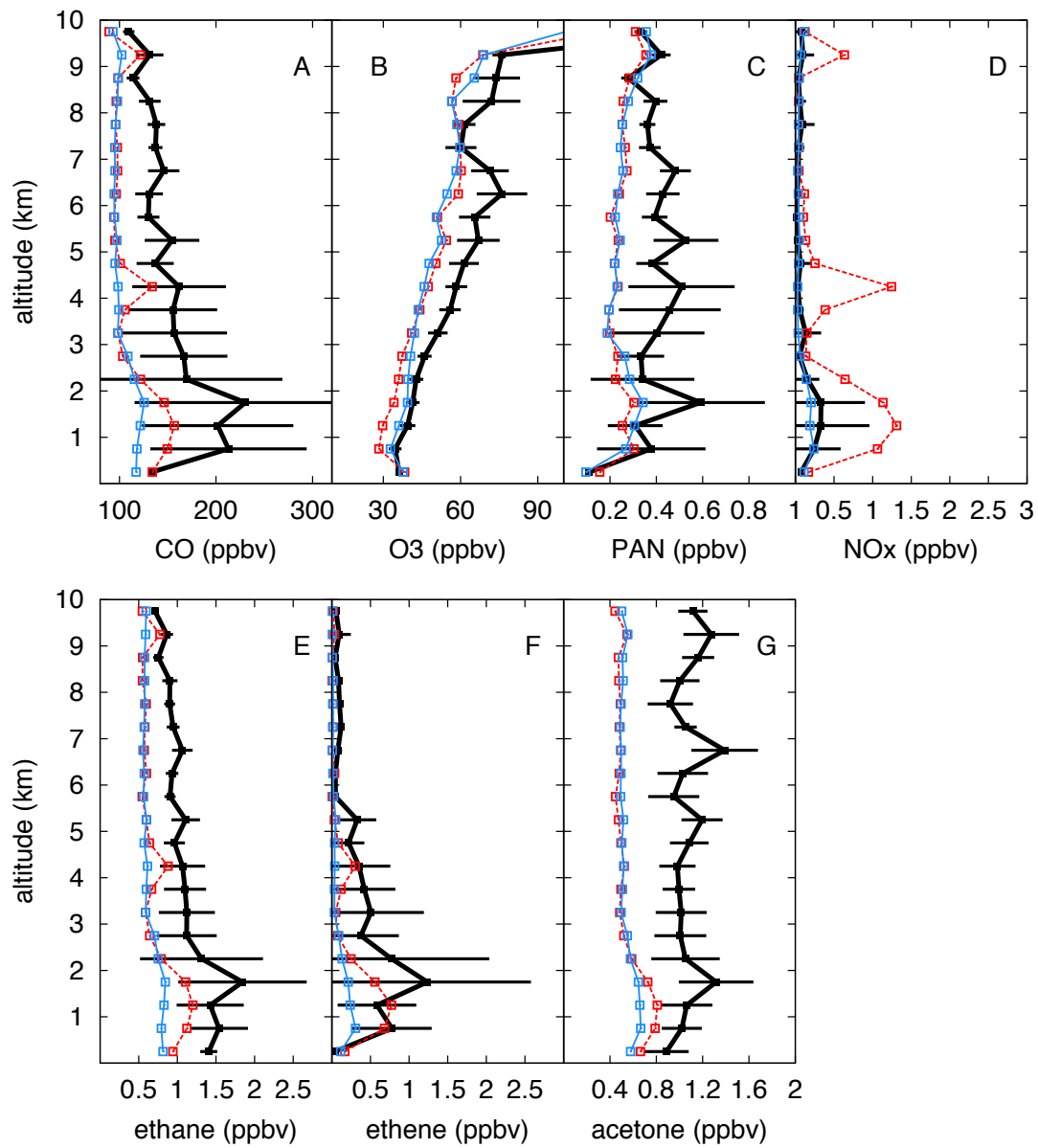
SI - Figure 4. Comparison of WRF-Chem results with measurements made onboard the NASA DC8 on 29 June as well as on 1, 4, & 5 July. Measurements are in black, the model base run is in red, the noFire run is in green, and the noAnthro run is in blue. The aircraft altitude is represented by the dashed line.



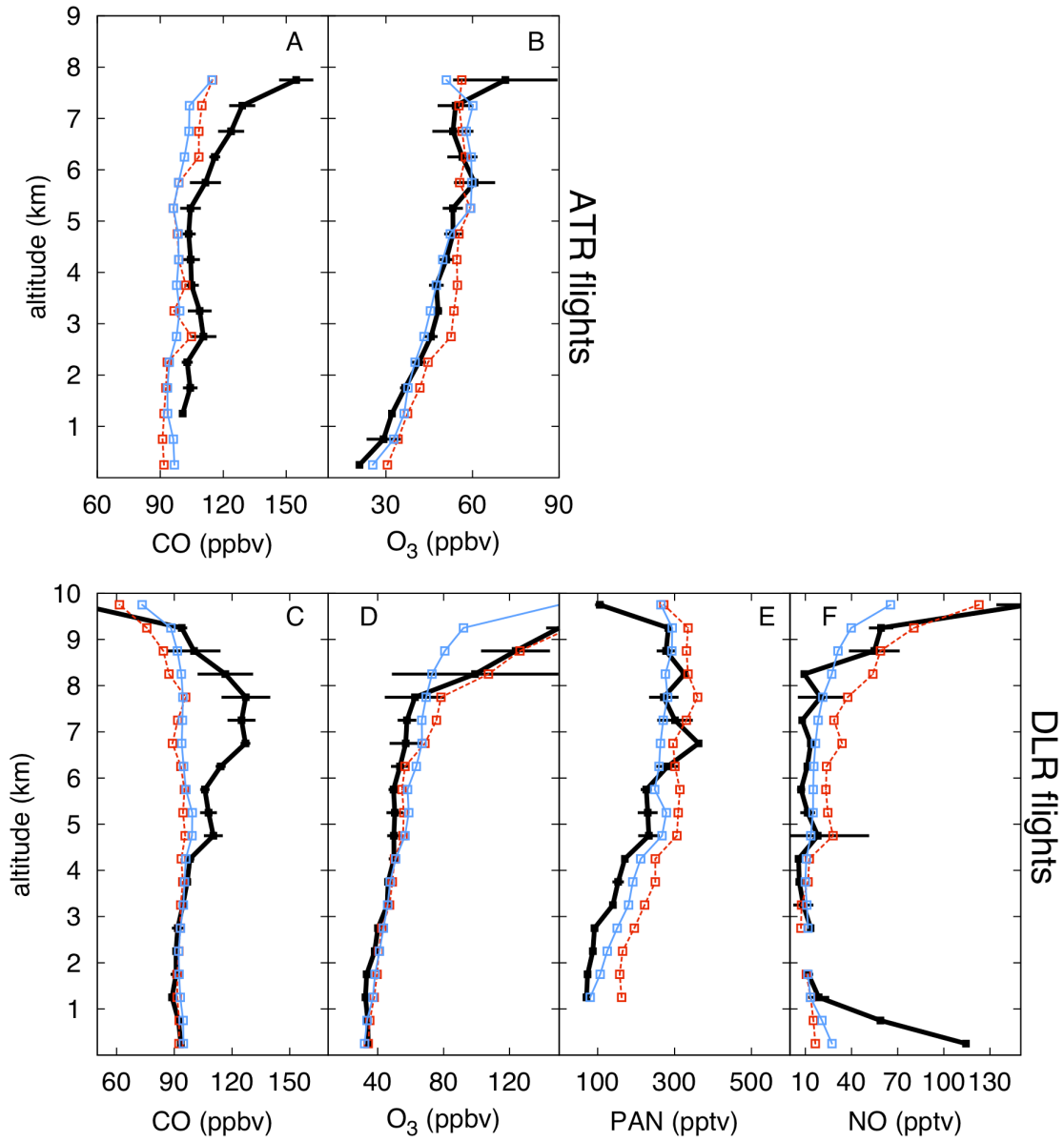
SI – Figure 5. Comparison of WRF-Chem results with measurements made onboard the ATR-42 aircraft on 5, 7, & 8 July. Measurements are in black, the model base run is in red, the noFire run is in green, and the noAnthro run is in blue. The aircraft altitude is represented by the dashed line.



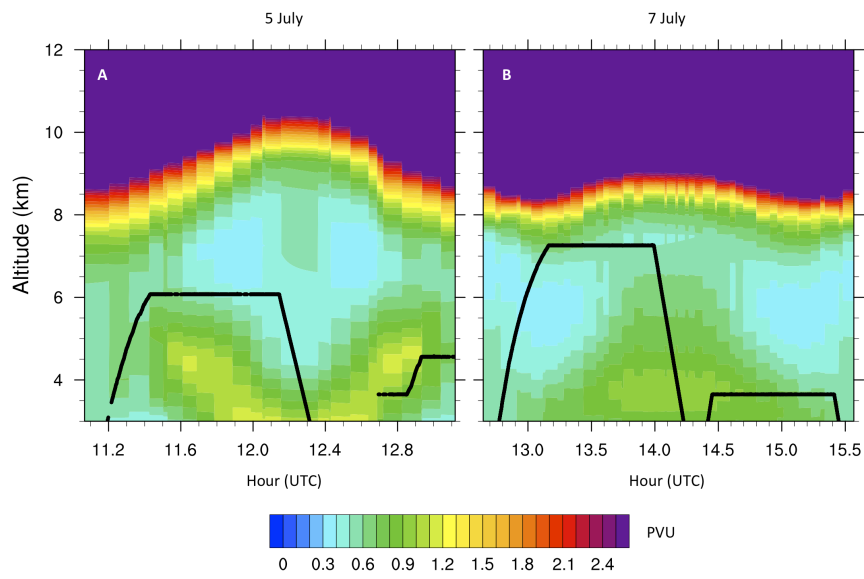
SI – Figure 6. Comparison of WRF-Chem results with measurements made onboard the Falcon-20 aircraft on 4, 7, & 8 July. Measurements are in black, the model base run is in red, the noFire run is in green, and the noAnthro run is in blue. The aircraft altitude is represented by the dashed line.



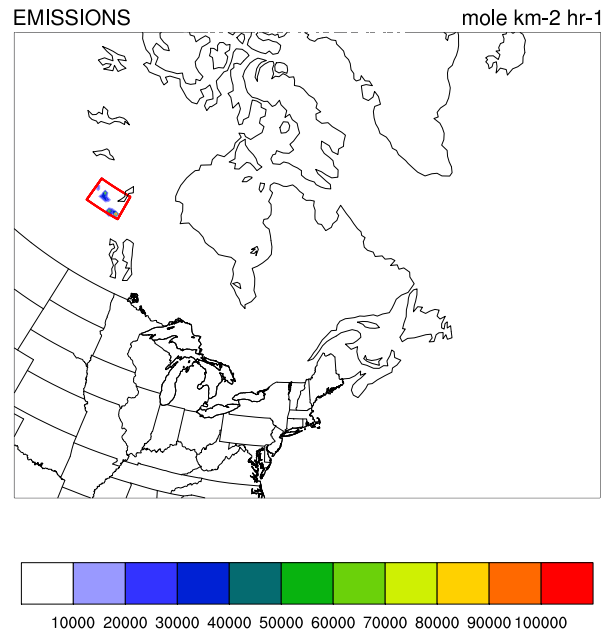
SI – Figure 7. WRF-Chem (red) and MOZART-4 (light blue) results compared to the DC8 measurements (black).



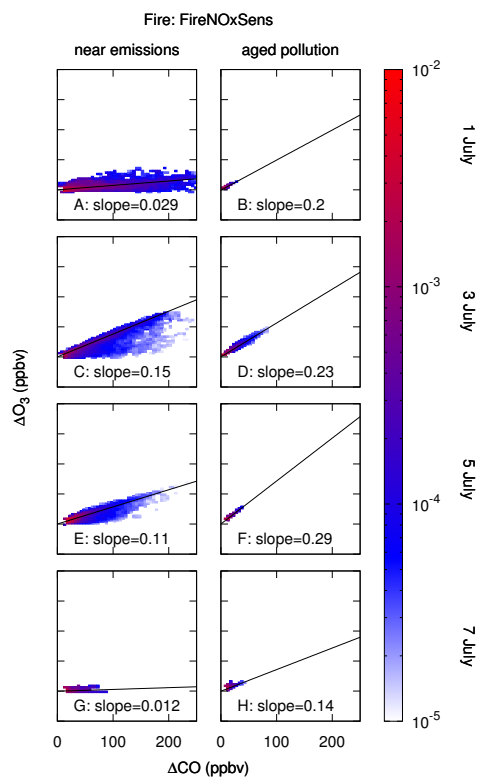
SI – Figure 8. WRF-Chem (red) and MOZART-4 (light blue) results compared to the ATR and DLR Falcon measurements (black).



SI – Figure 9. Potential vorticity (PV) calculated from WRF-Chem for the ATR-42 flights on 5 July (ATR 74) and 7 July (ATR 75). Elevated PV indicates stratospheric airmasses.



SI - Figure 10. Example of lat/lon region (in red box) used for analysis of "fresh" plumes 1 July 2008 overlaid on fire emissions CO at 22:00 UTC on the same day.



SI – Figure 11. ΔO_3 as a function of ΔCO for the FireNOxSens run, with reduced NO_x emissions from boreal fires.