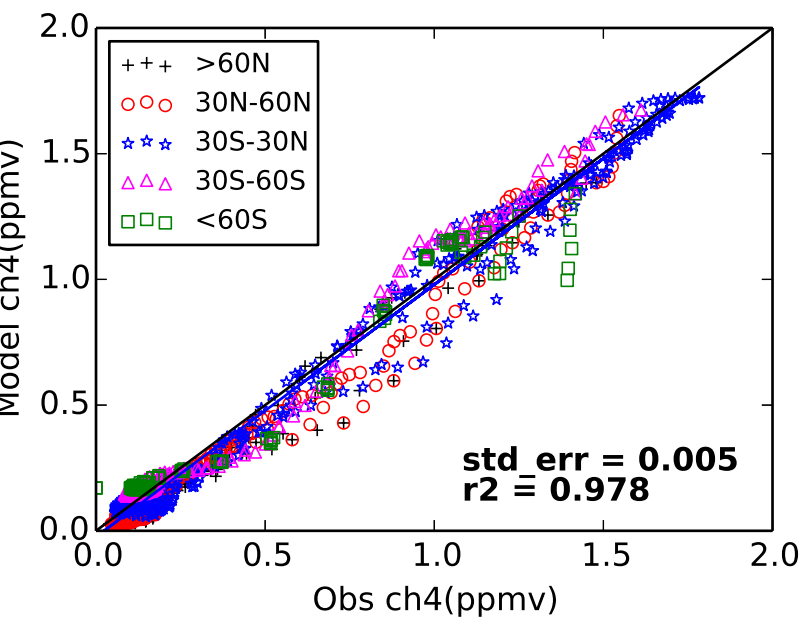
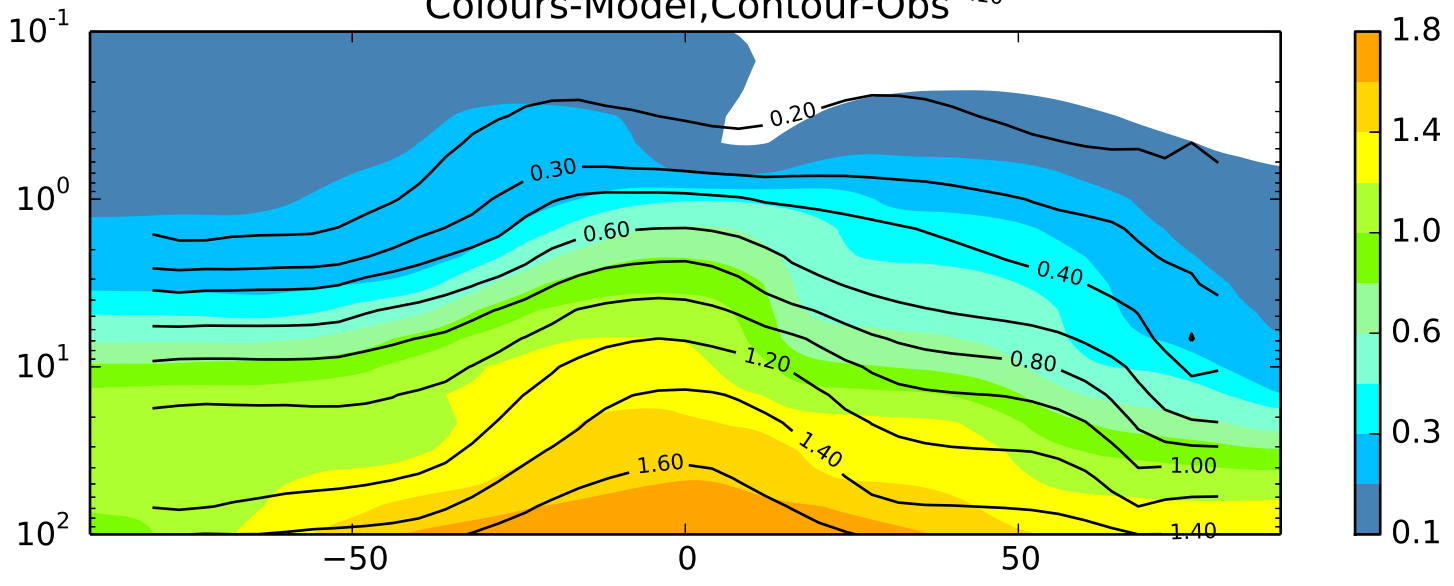
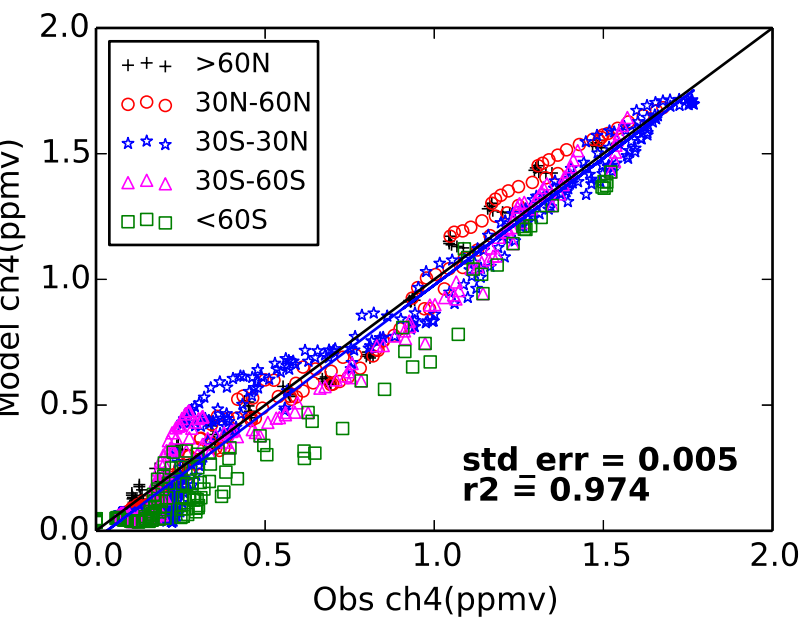
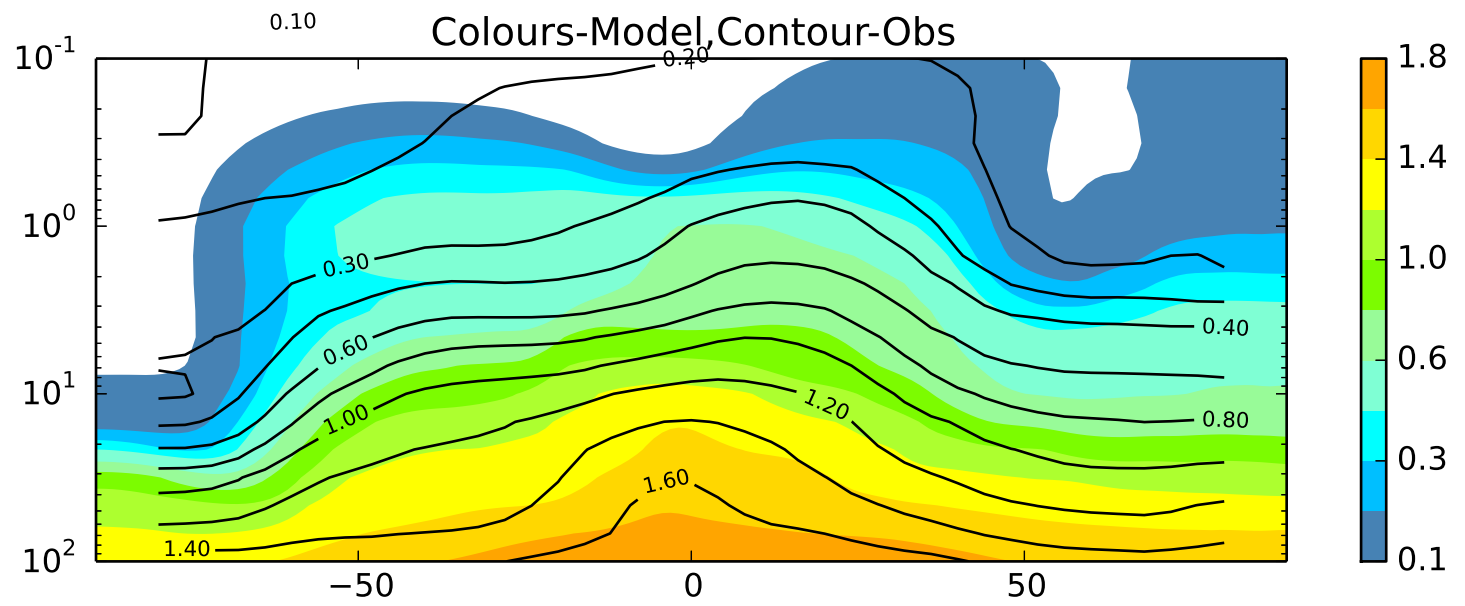


0.2

Colours-Model, Contour-Obs^{0.10}

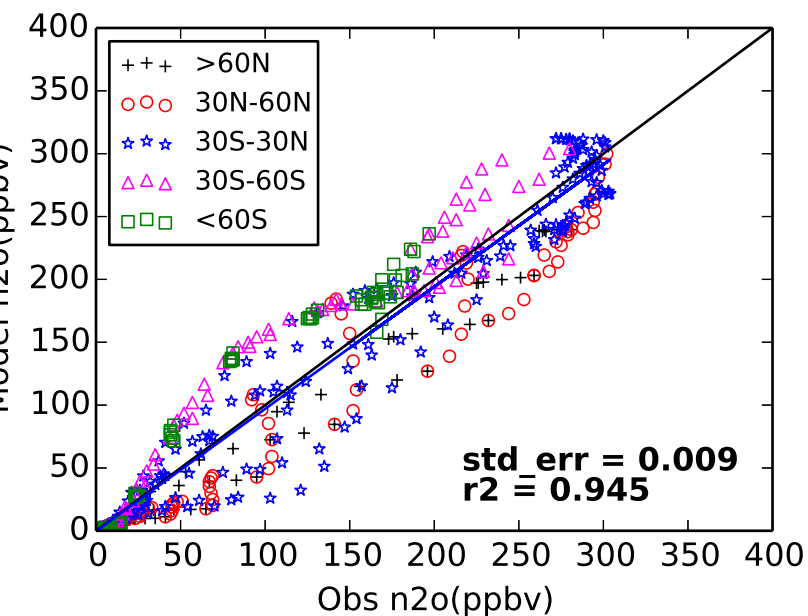
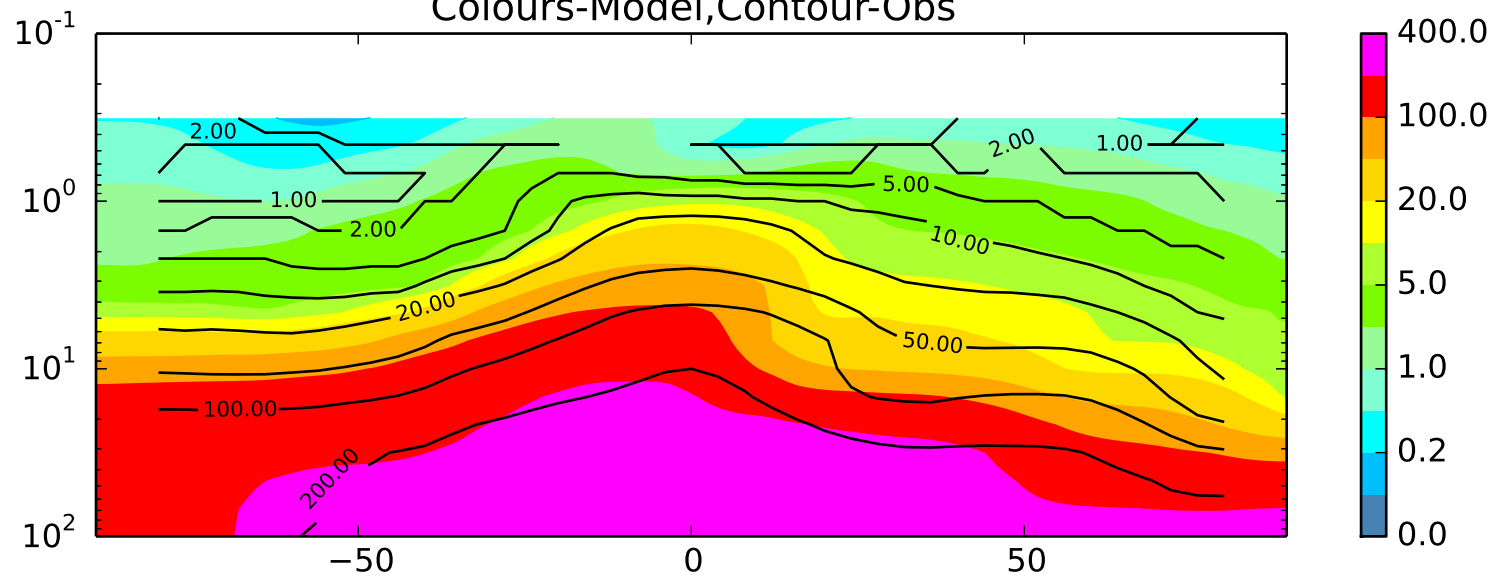


UKCA vs HALOE:
CH4 (ppmv) Jan



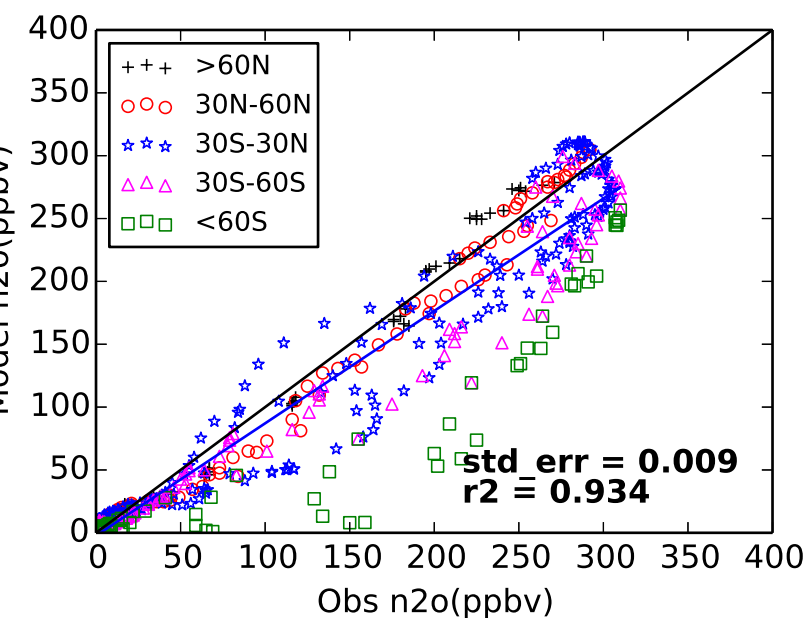
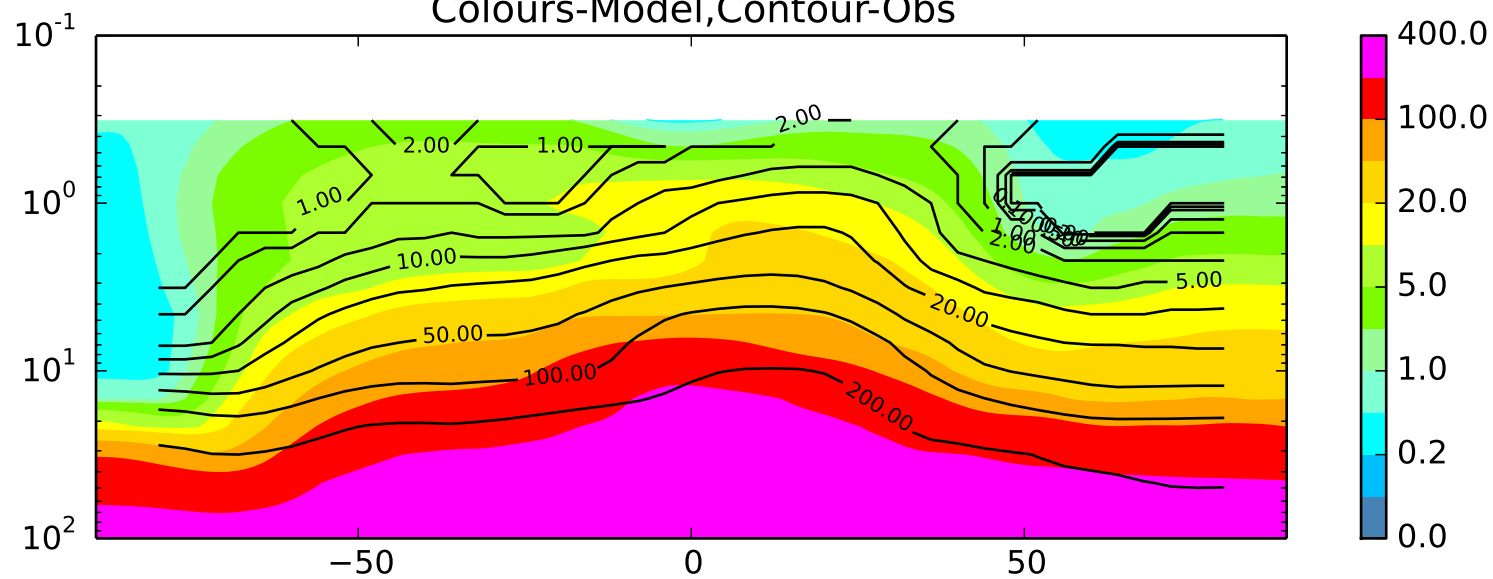
UKCA vs HALOE:
 CH4 (ppmv) Jul

Colours-Model,Contour-Obs

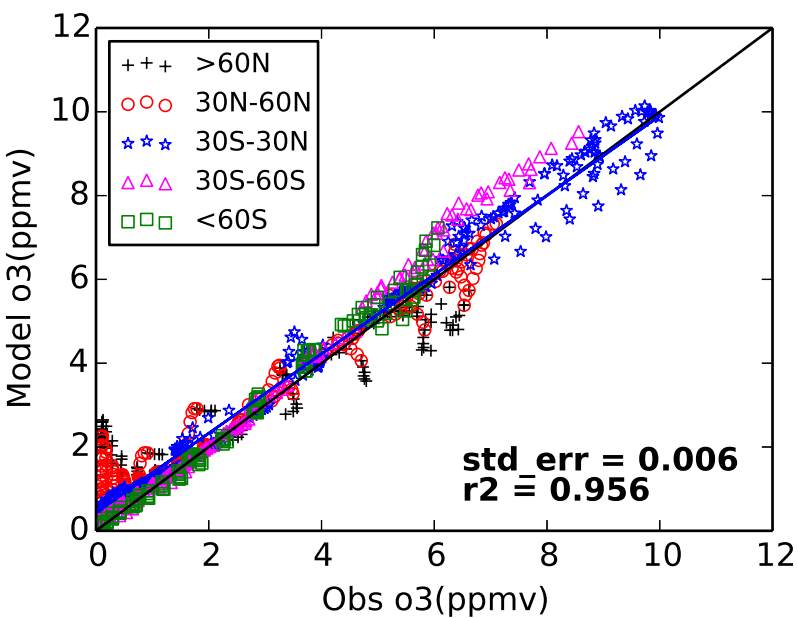
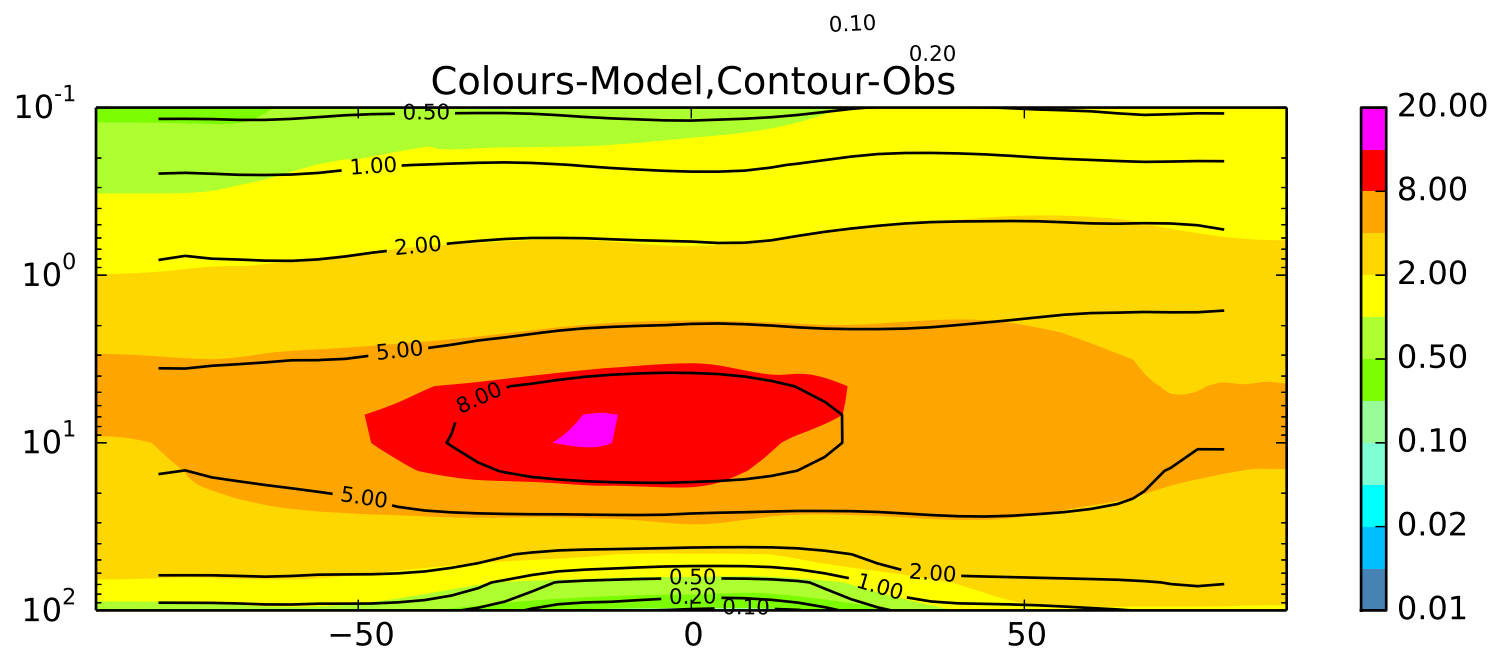


UKCA vs HALOE:
N₂O (ppmv) Jan

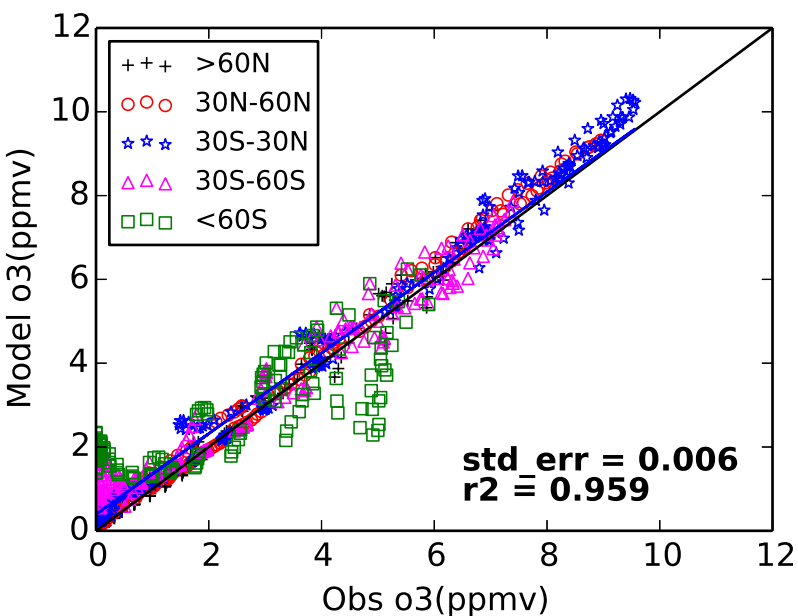
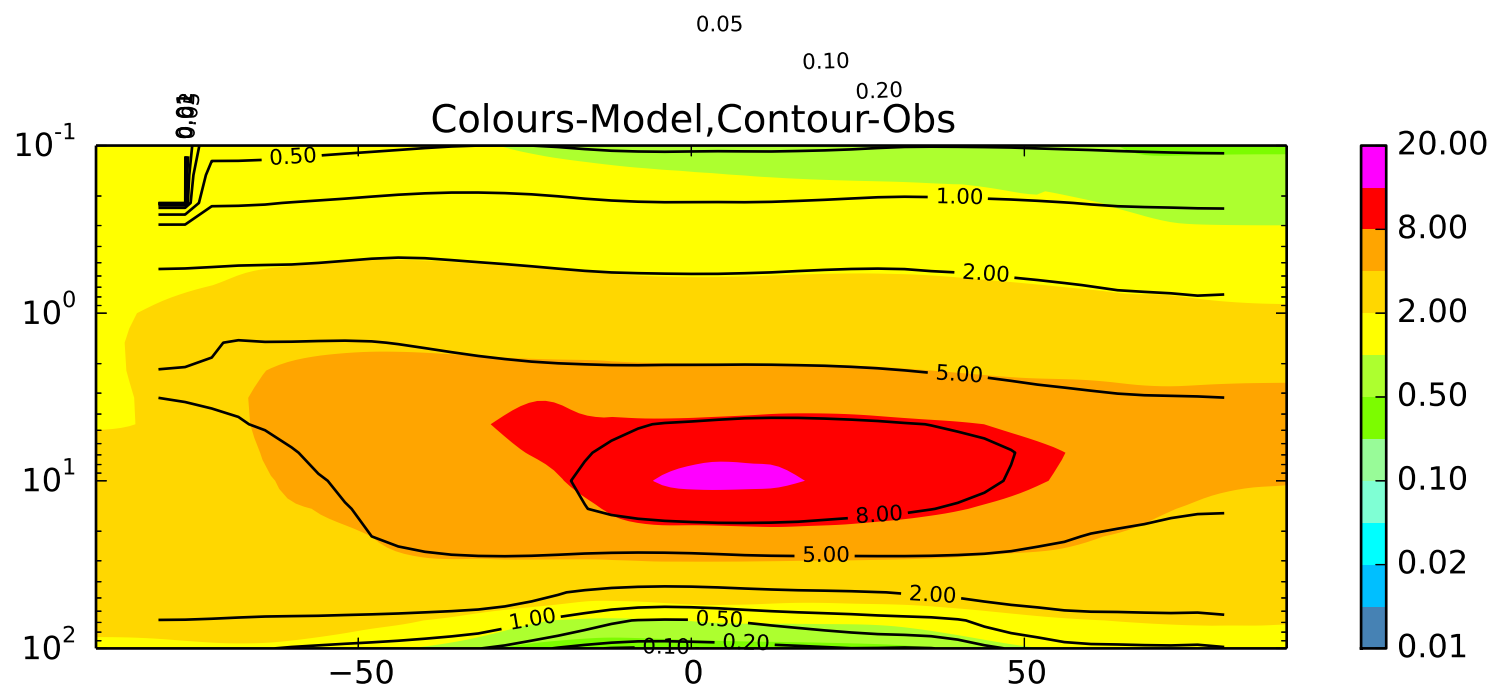
Colours-Model,Contour-Obs



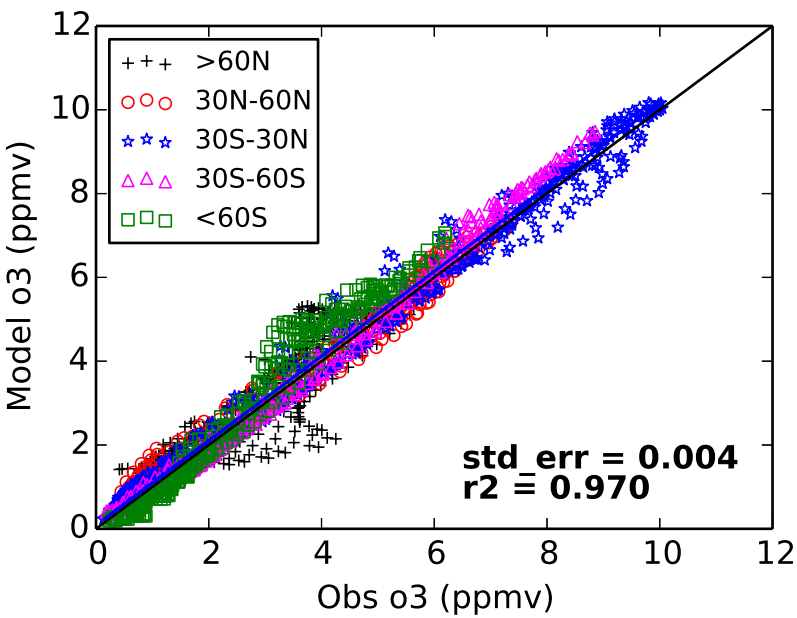
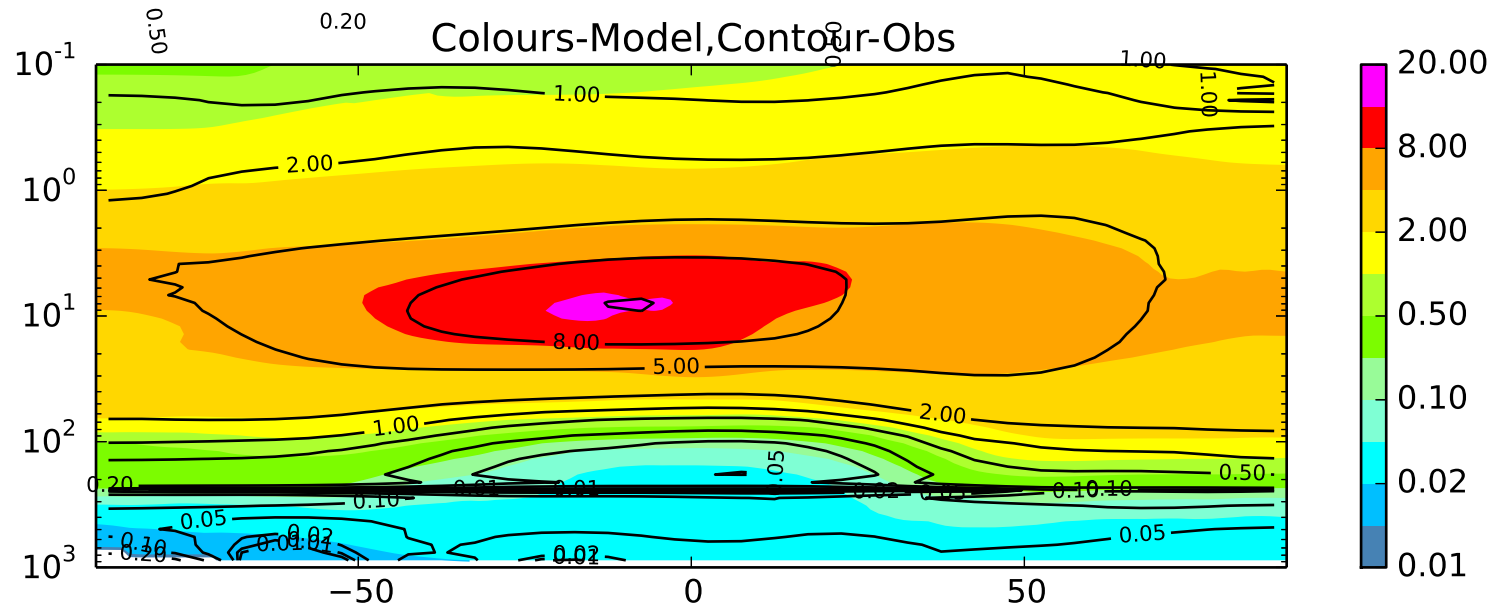
UKCA vs HALOE:
N2O (ppmv) Jul



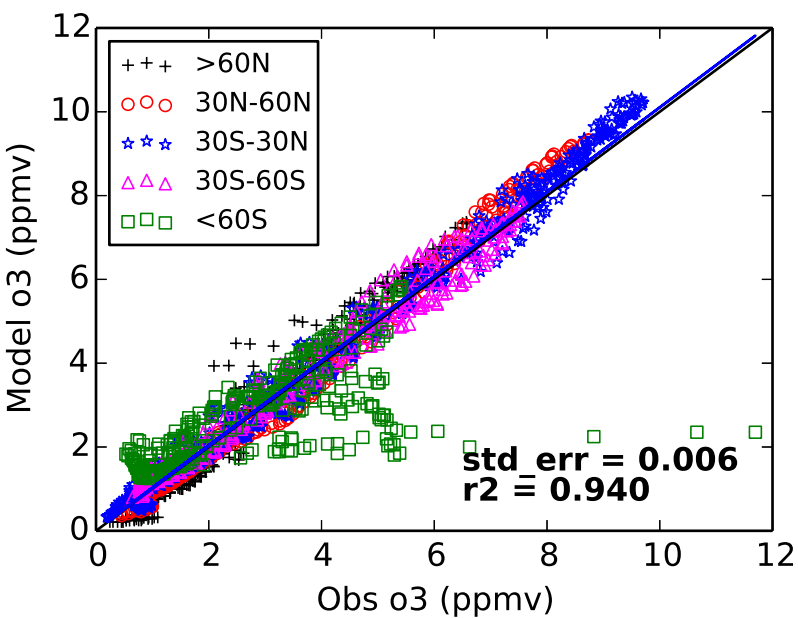
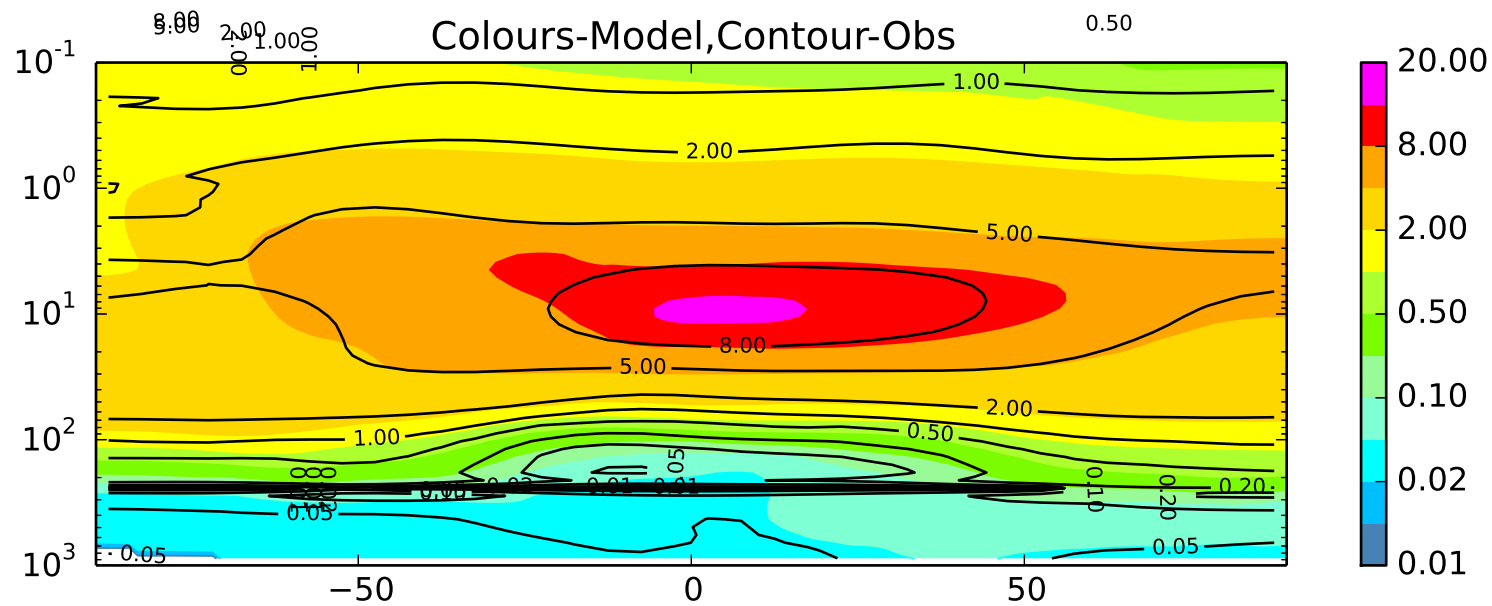
UKCA vs HALOE:
O3 (ppmv) Jan



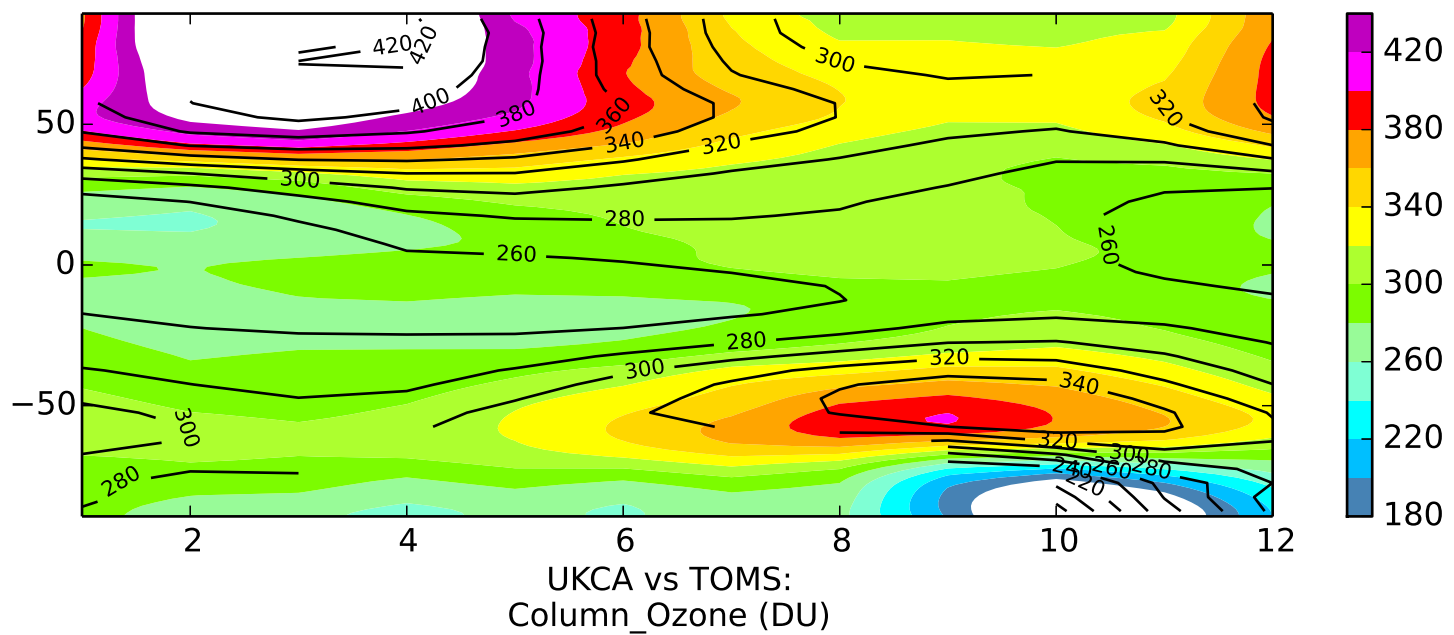
UKCA vs HALOE:
O₃ (ppmv) Jul



UKCA vs NIWA-CCMVal:
O3 (ppmv) Jan

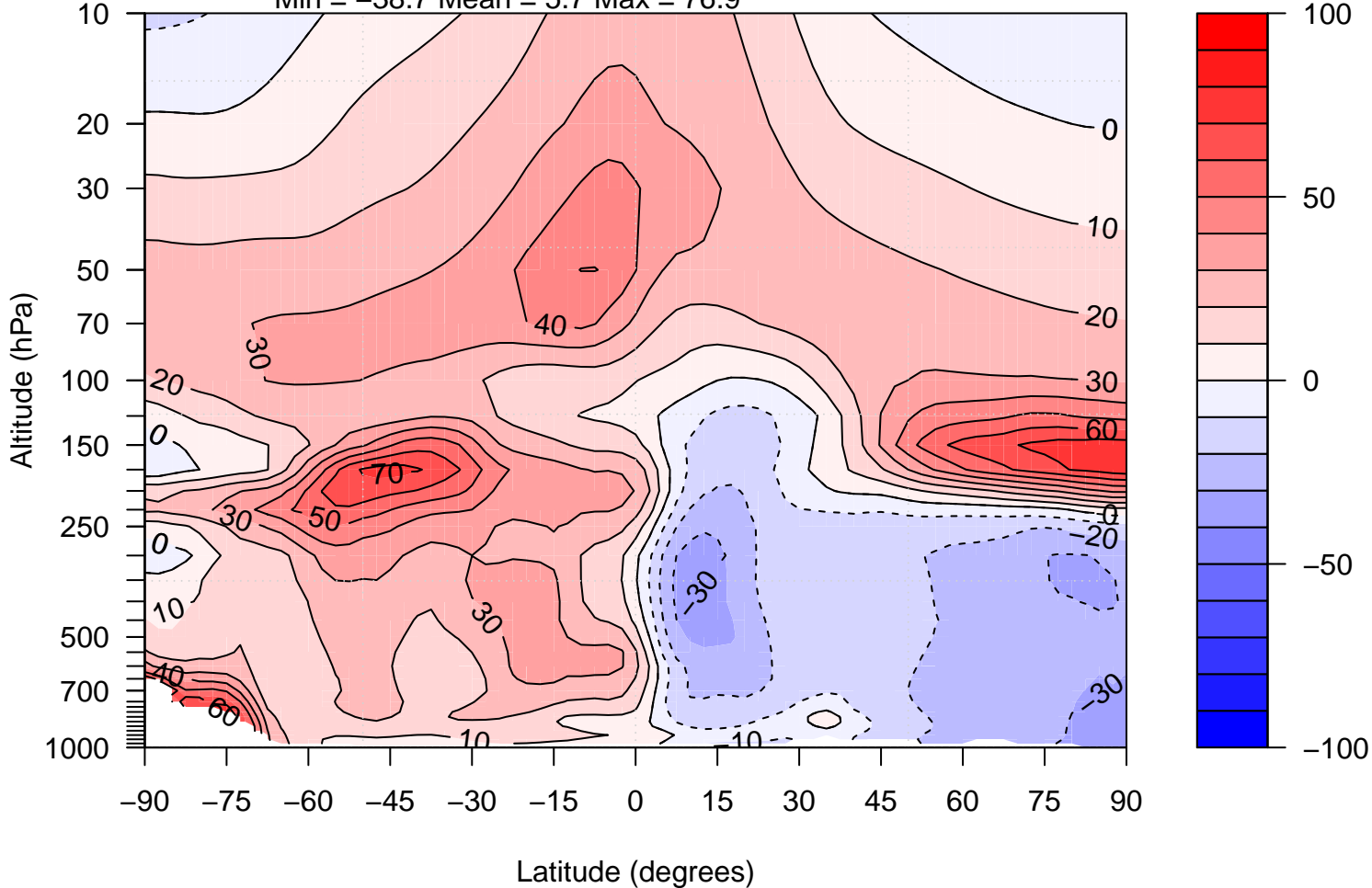


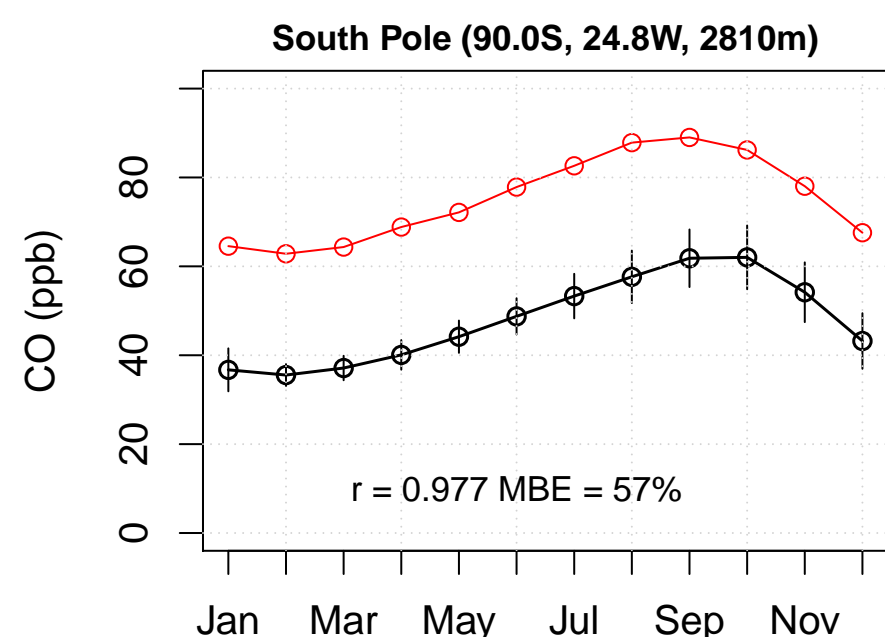
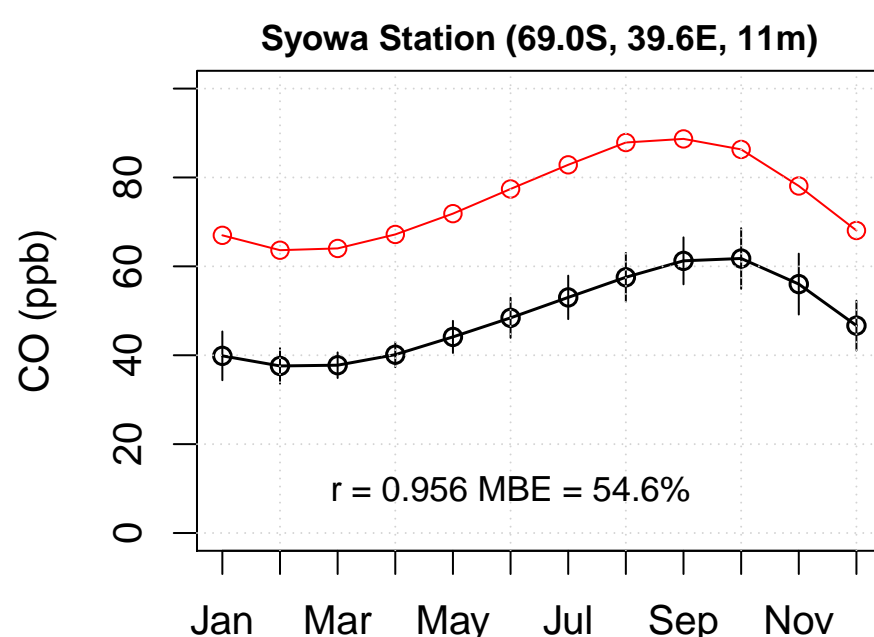
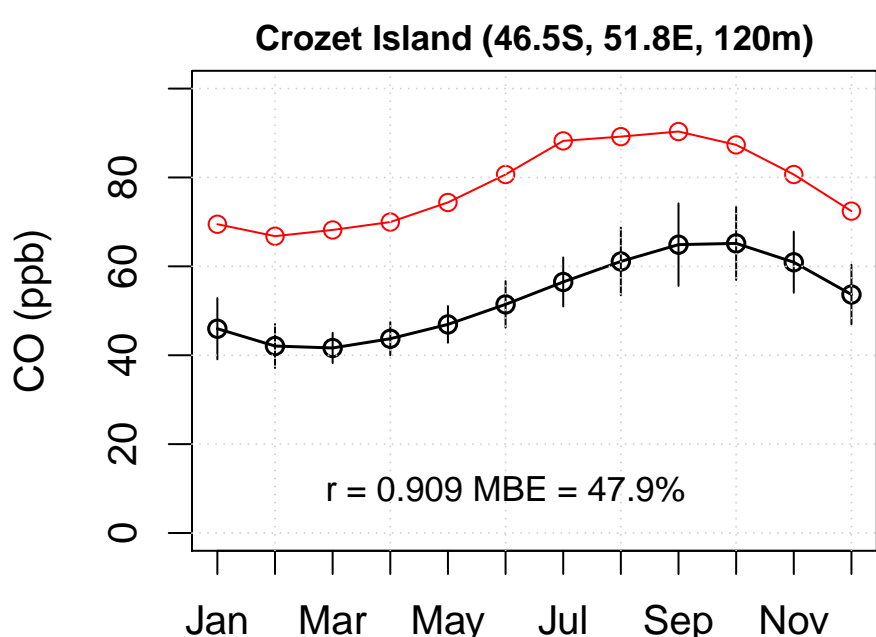
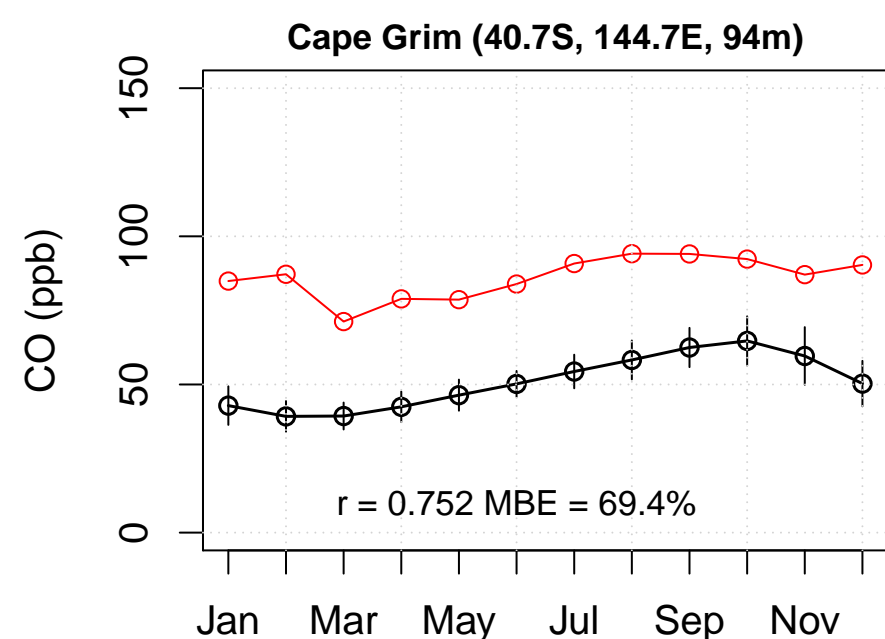
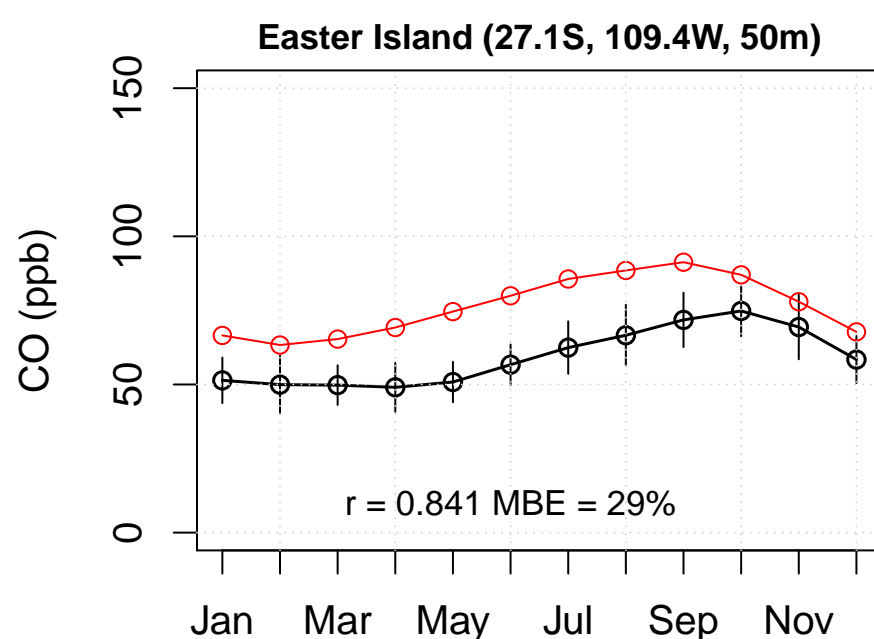
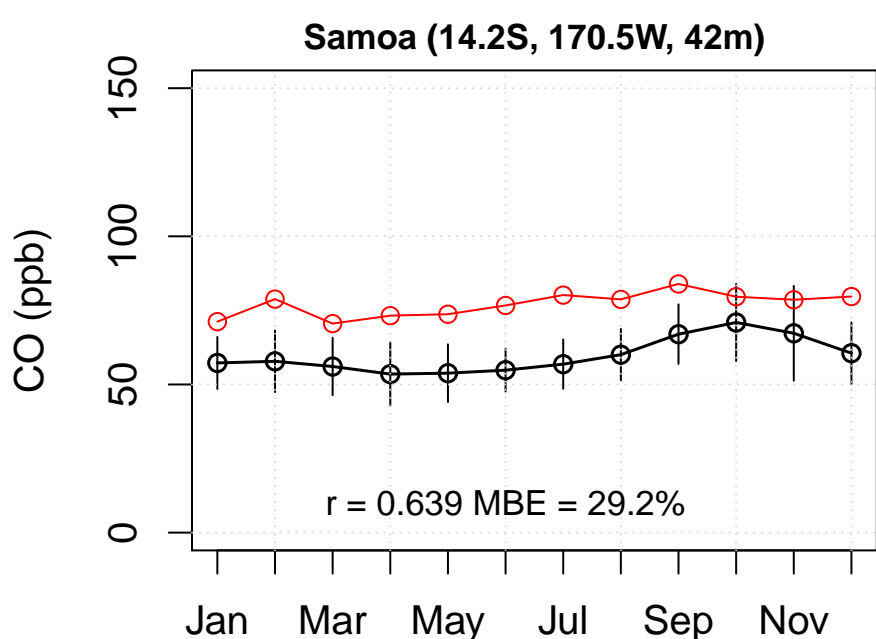
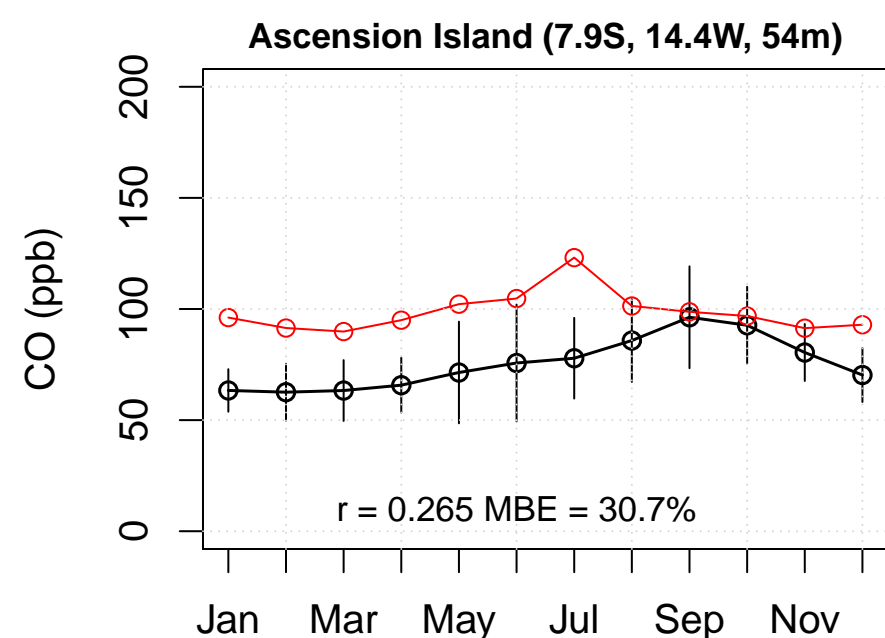
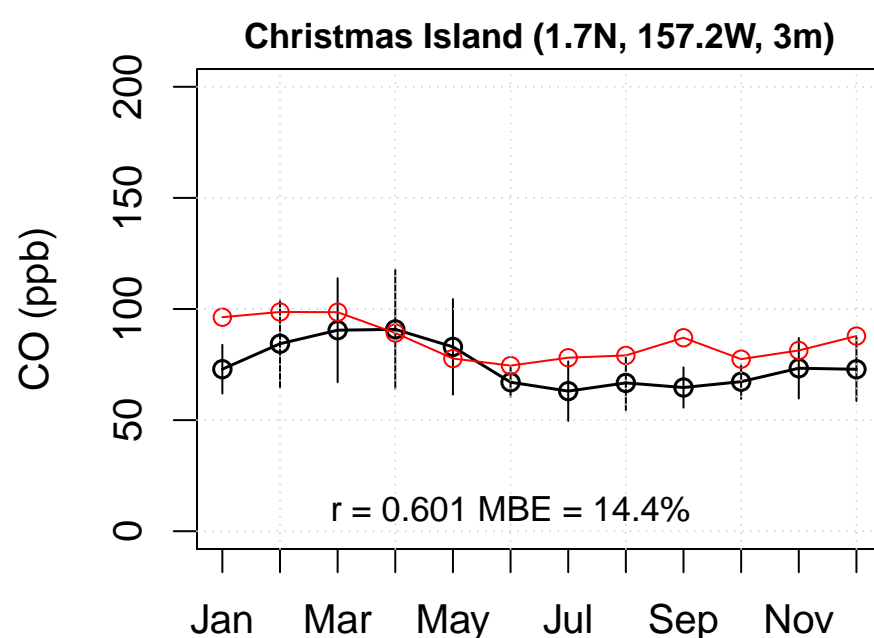
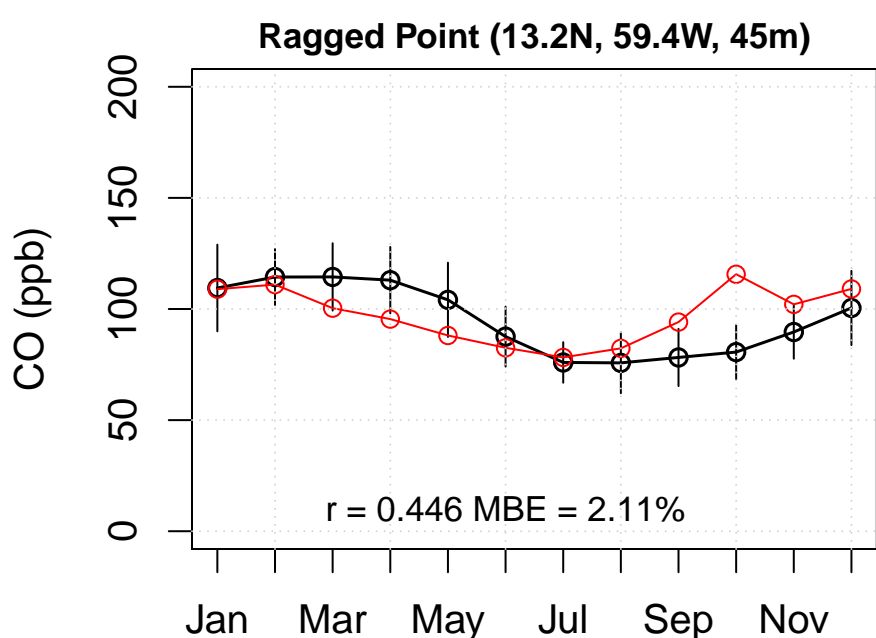
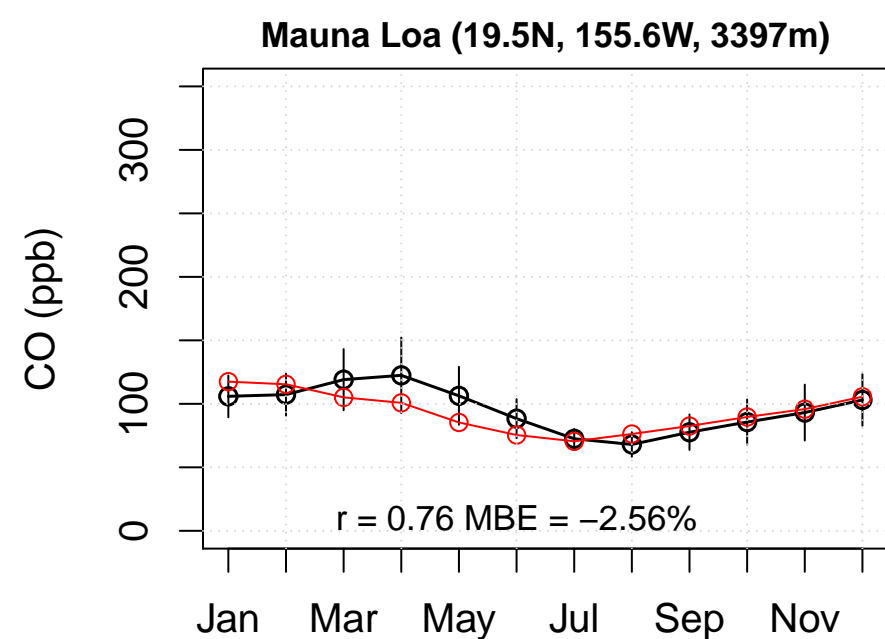
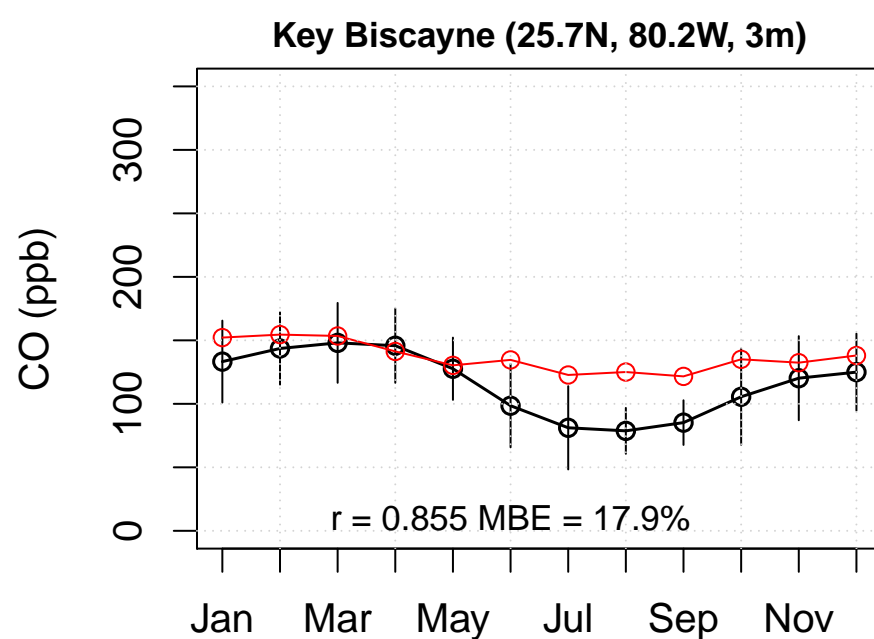
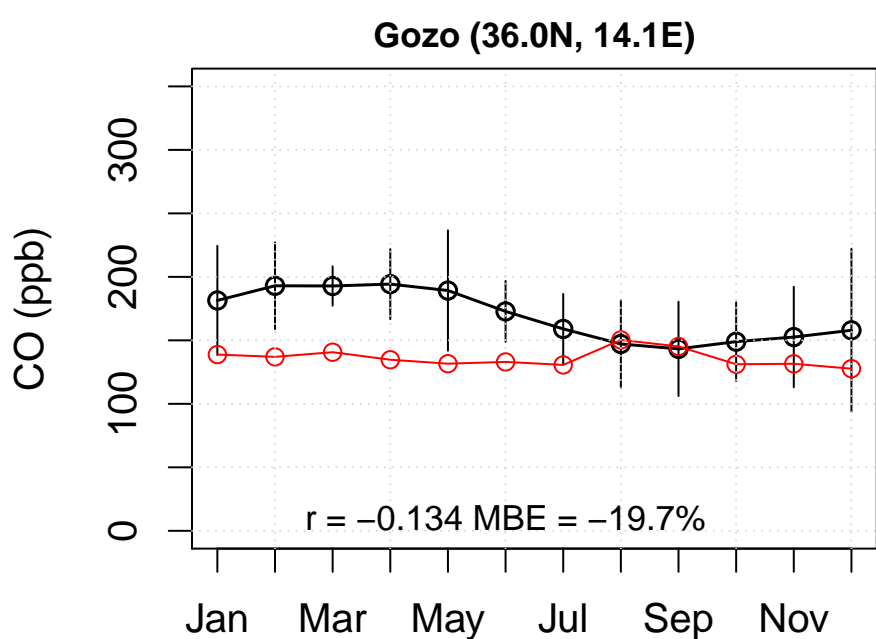
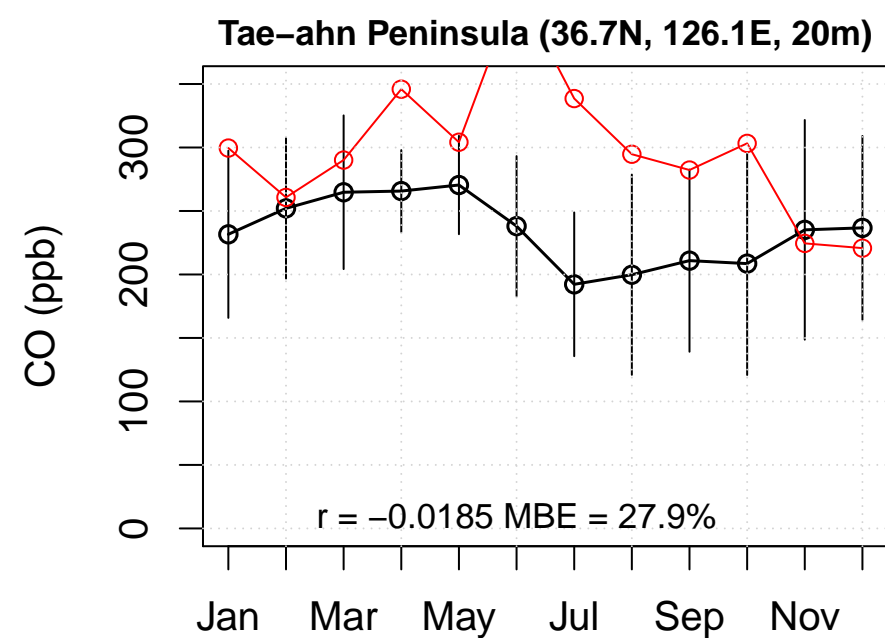
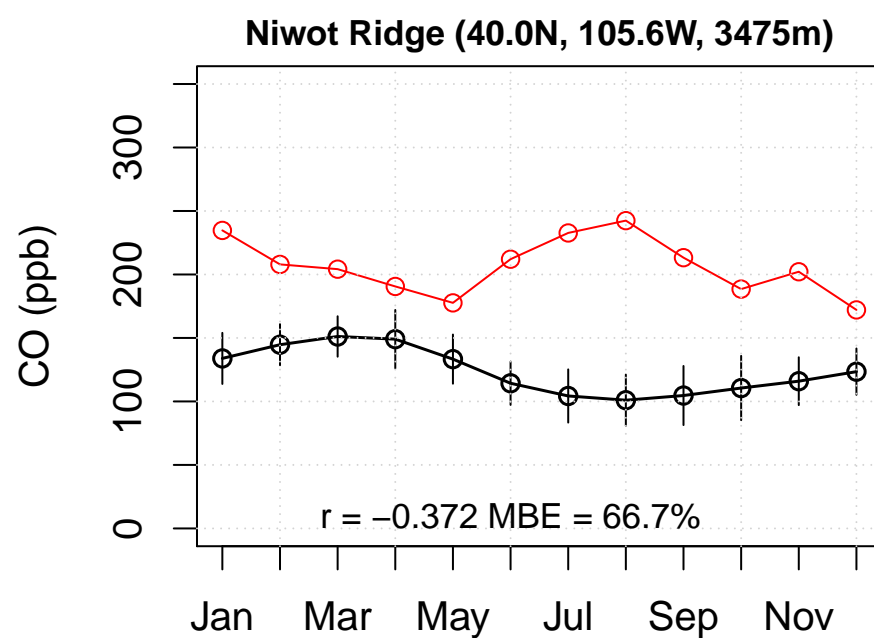
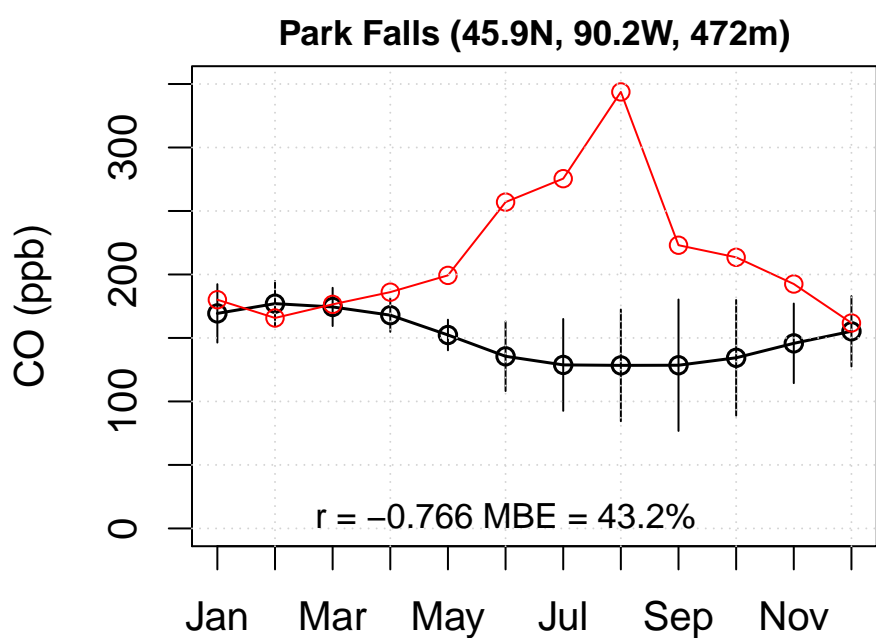
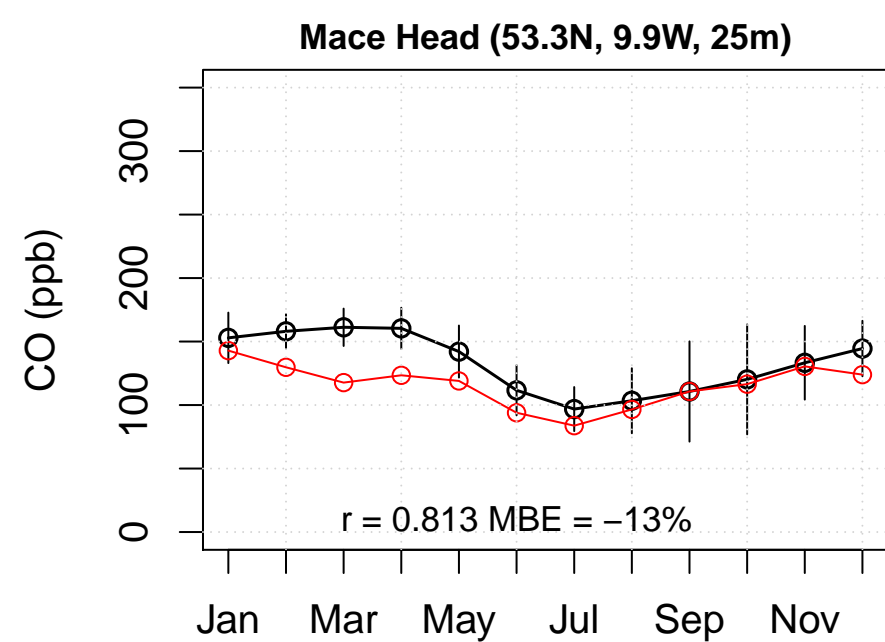
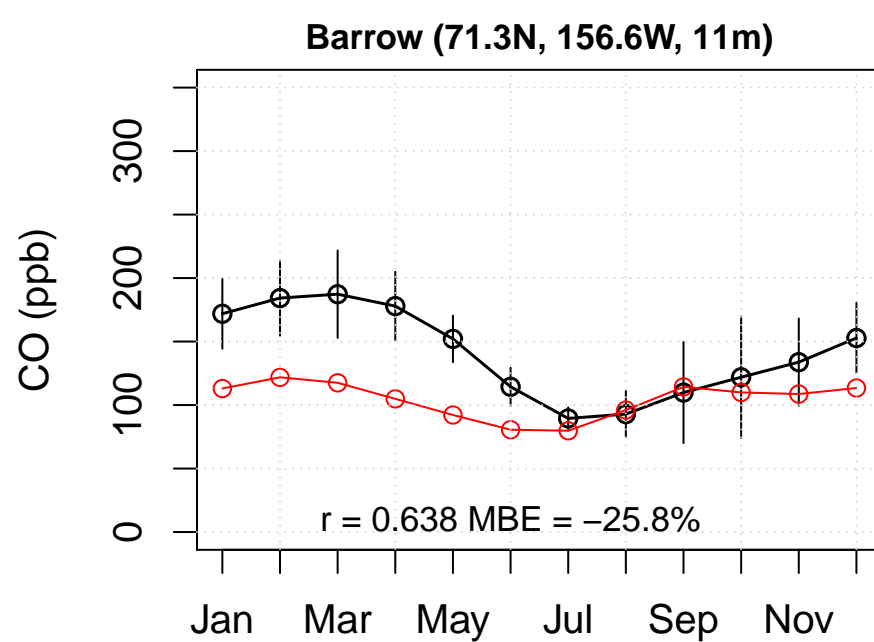
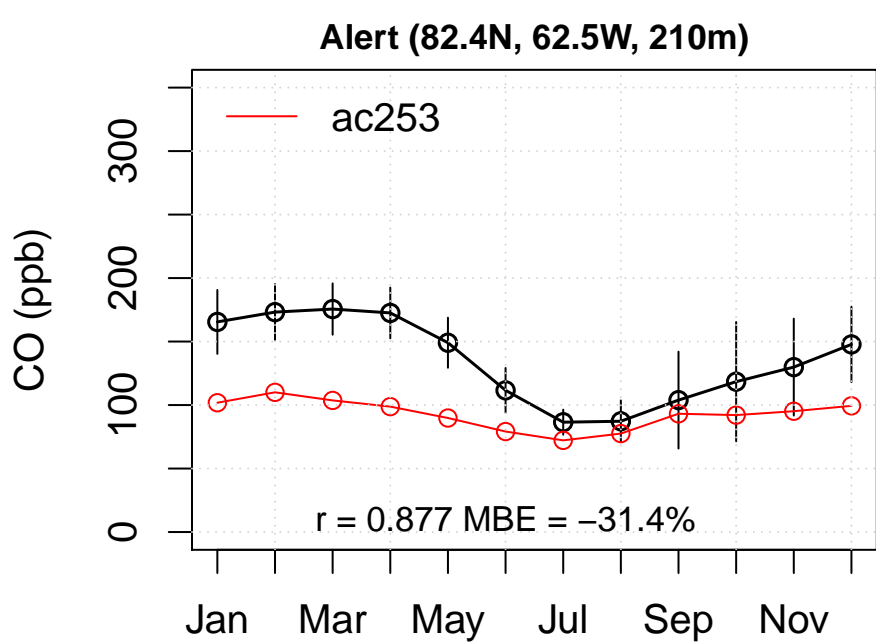
UKCA vs NIWA-CCMVal:
O3 (ppmv) Jul



ac253 – ERA Q bias

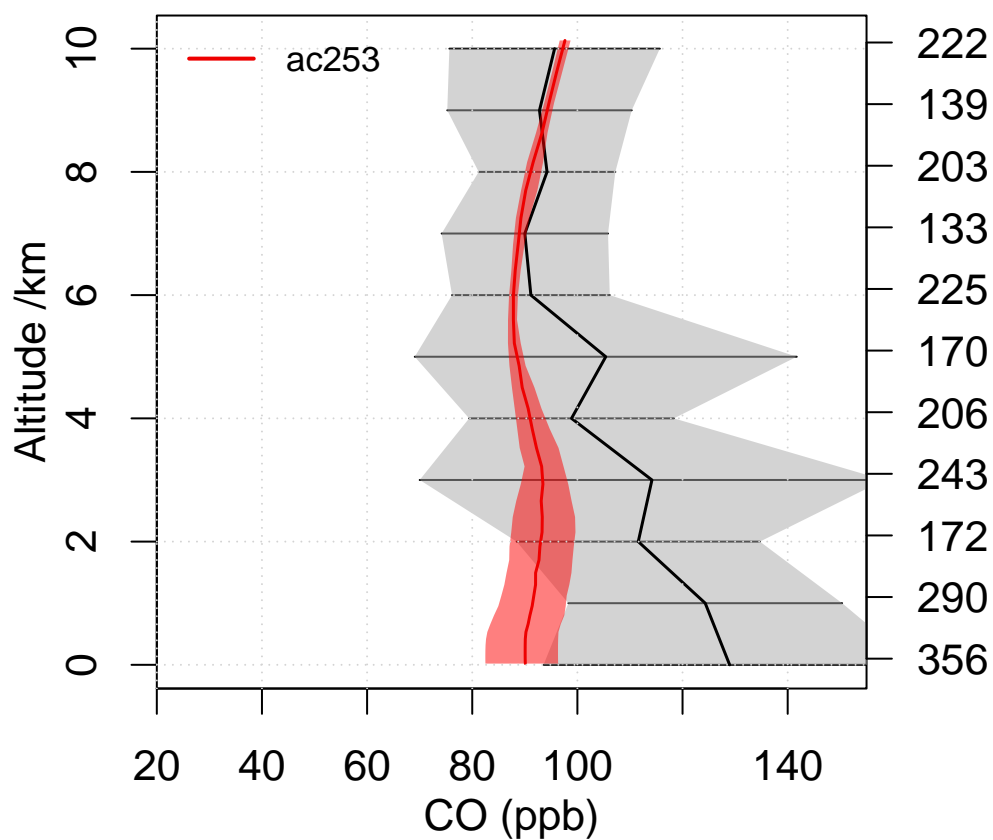
Min = -38.7 Mean = 5.7 Max = 76.9



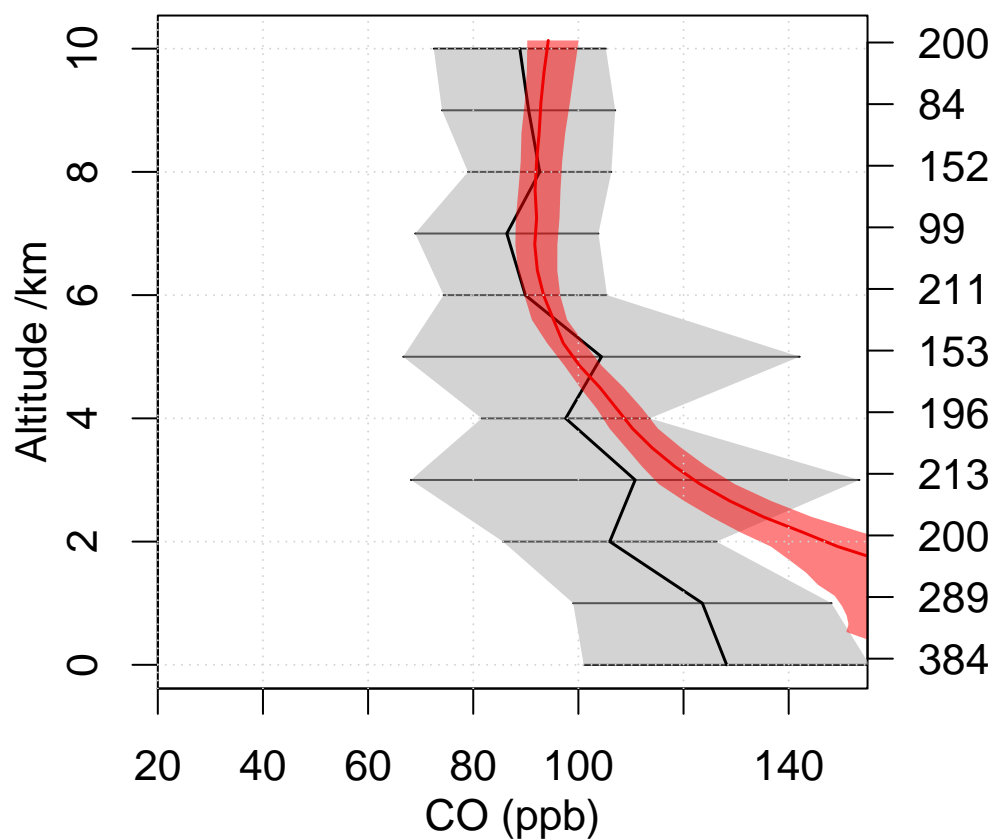


Emmons CO comparison

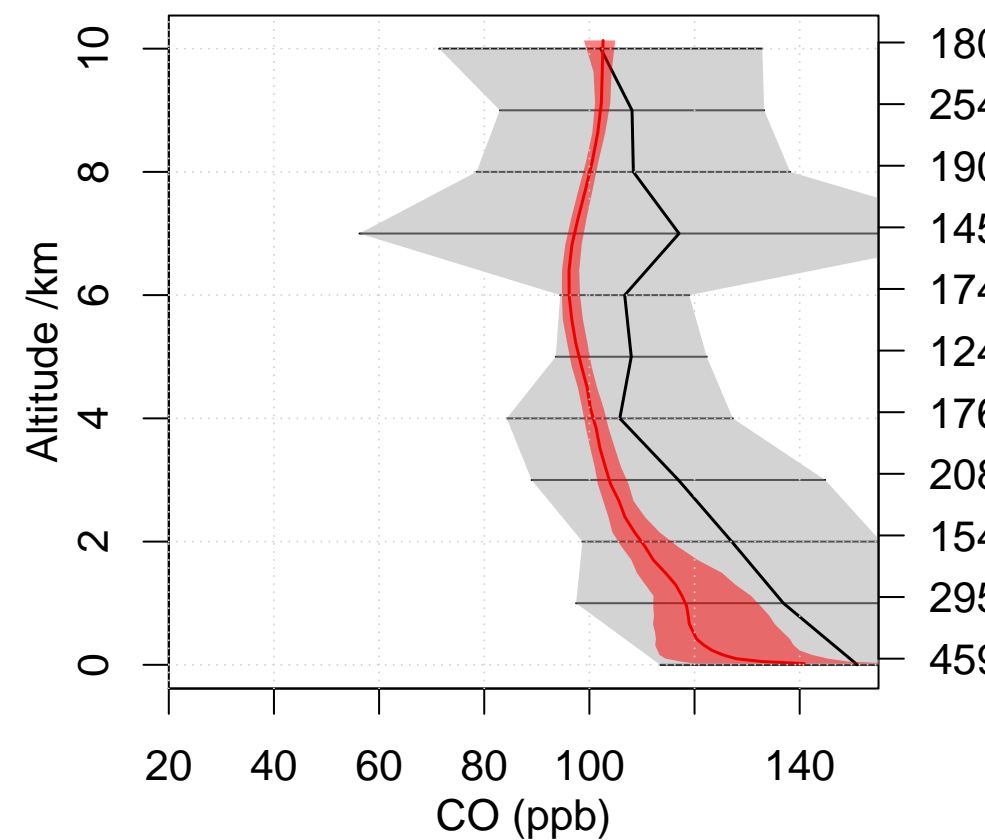
INTEX-NA East Coast 2004 07
Lat 32.5 – 40 Lon 296.5 – 307



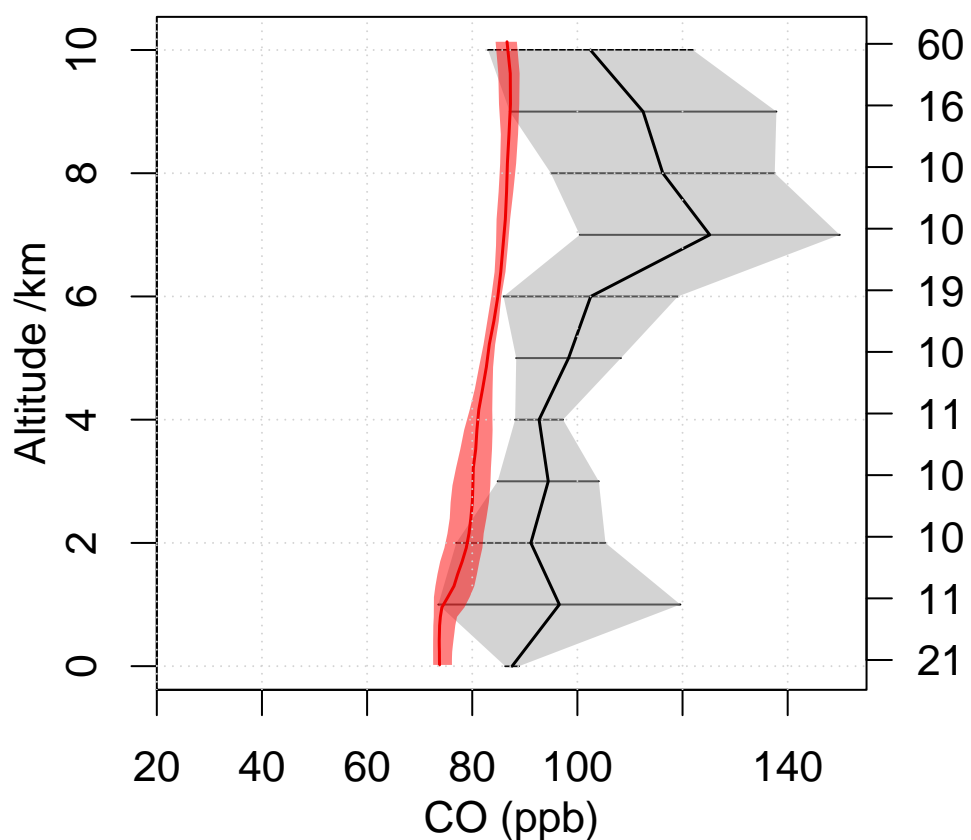
INTEX-NA Central 2004 07
Lat 30 – 40 Lon 259.5 – 285



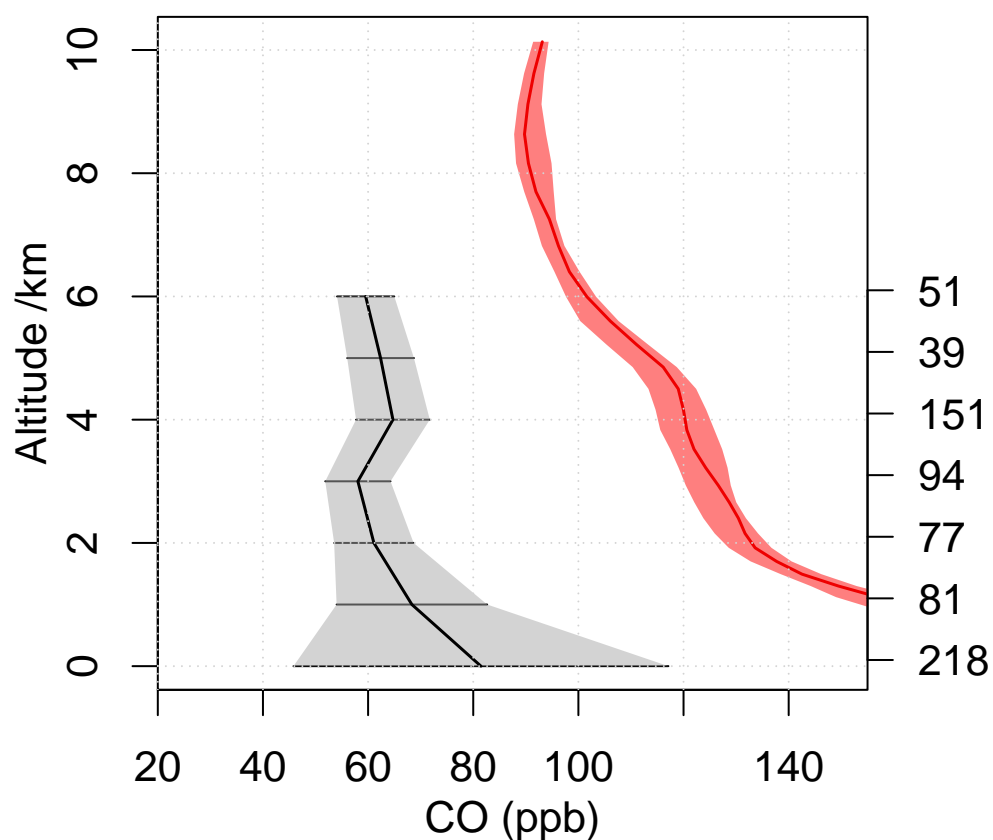
INTEX-NA North East 2004 07
Lat 42.5 – 52.5 Lon 285 – 310



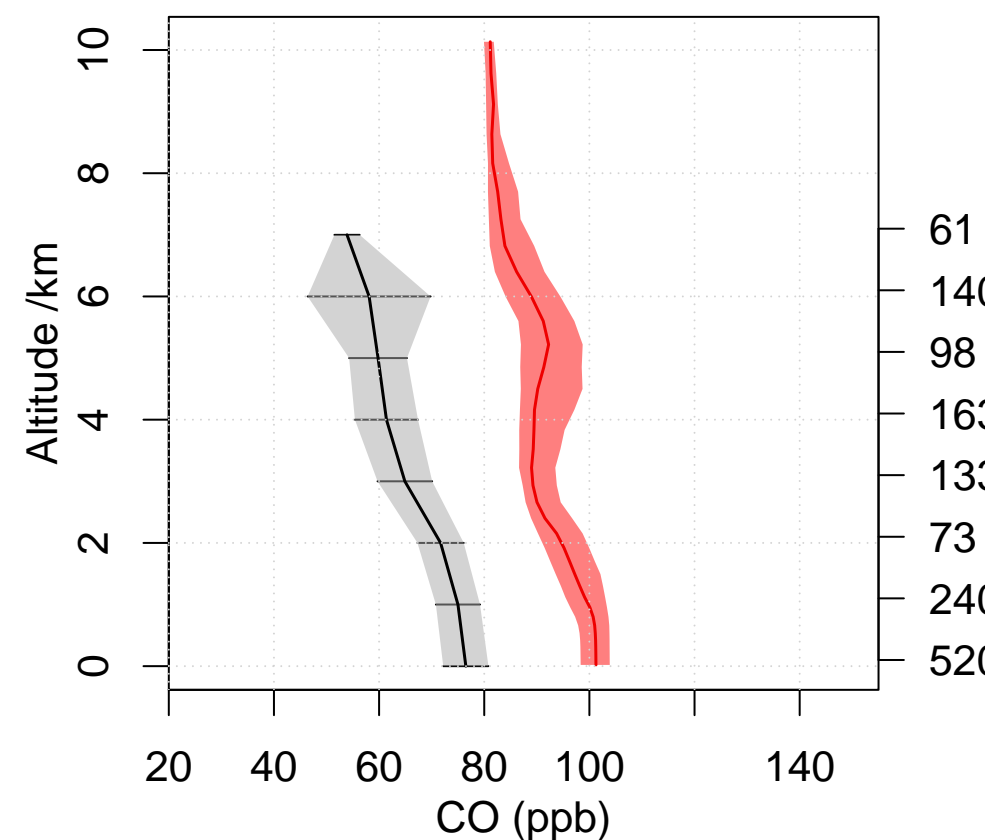
INTEX-NA West Coast 2004 07
Lat 32.5 – 45 Lon 217 – 240



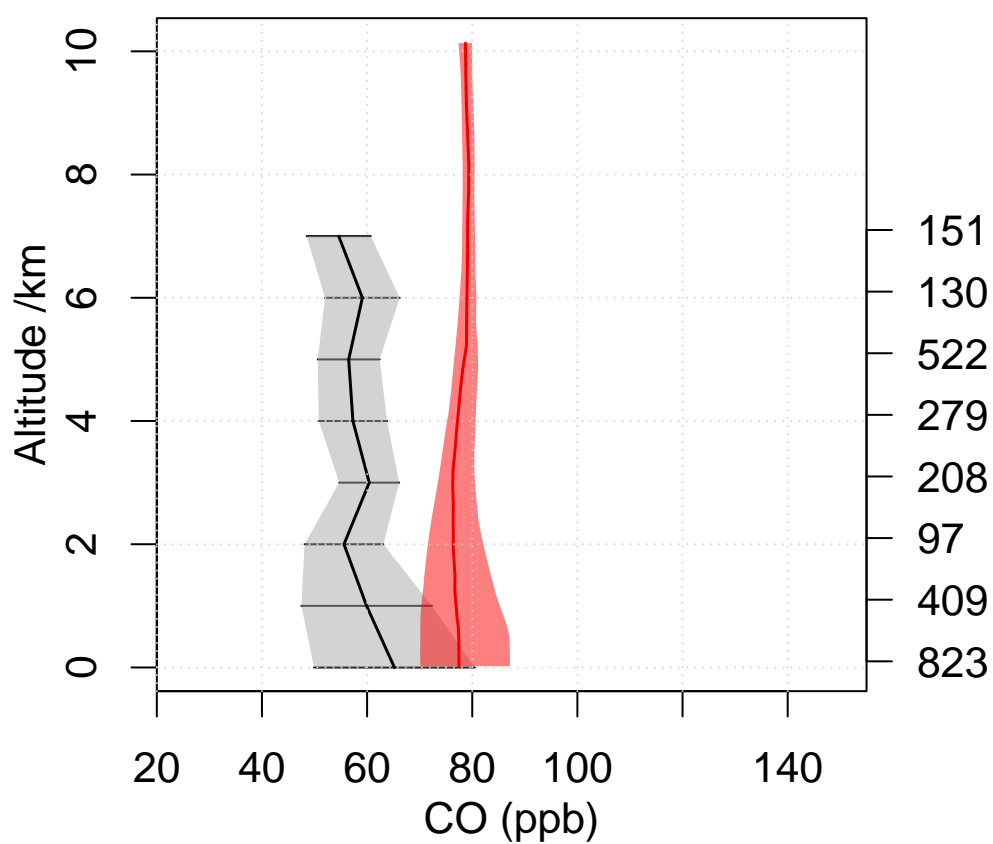
OP3 2008 07
Lat 2.5 – 7.5 Lon 112.5 – 120



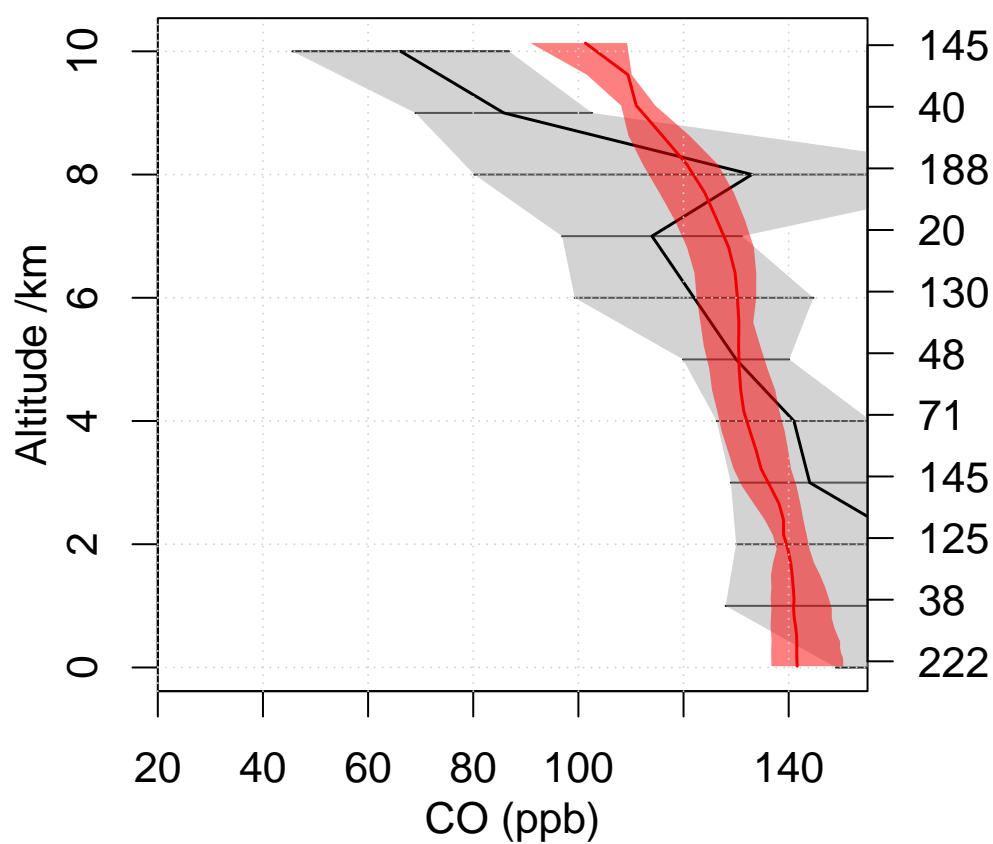
PEM-Tropics-B Christmas-Island 1999 0
Lat 0 – 10 Lon 200 – 220



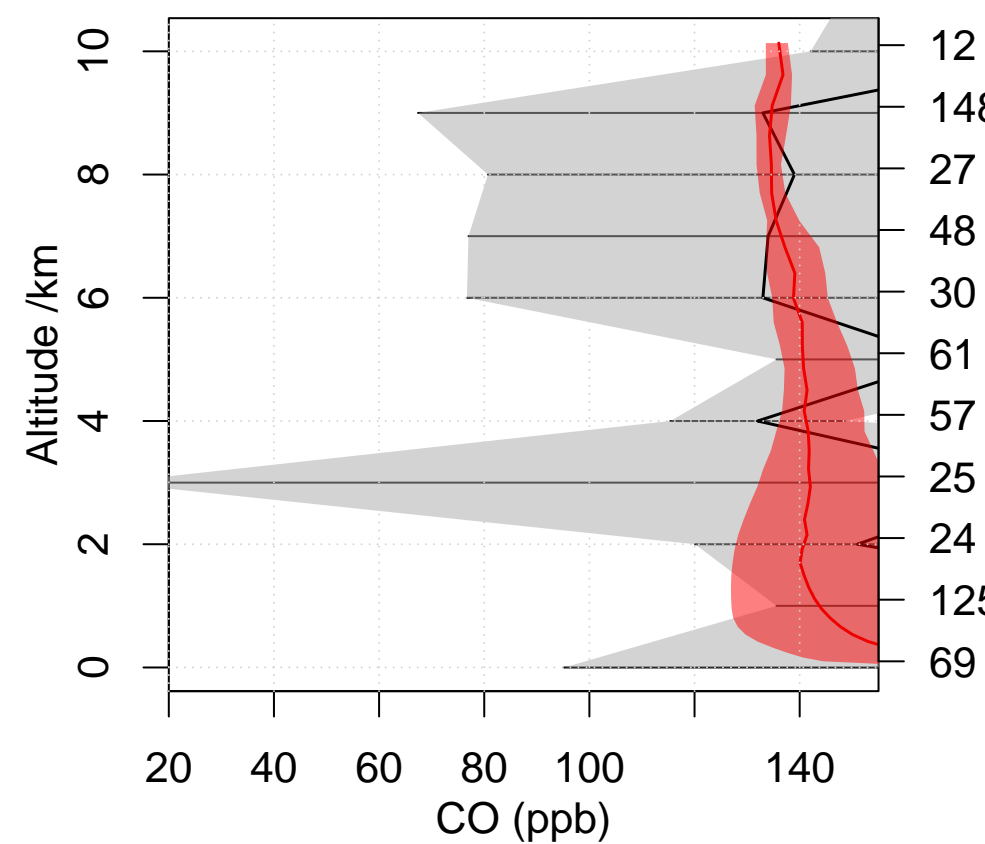
PEM-Tropics-B Tahiti 1999 03
Lat -20 – 0 Lon 200 – 230



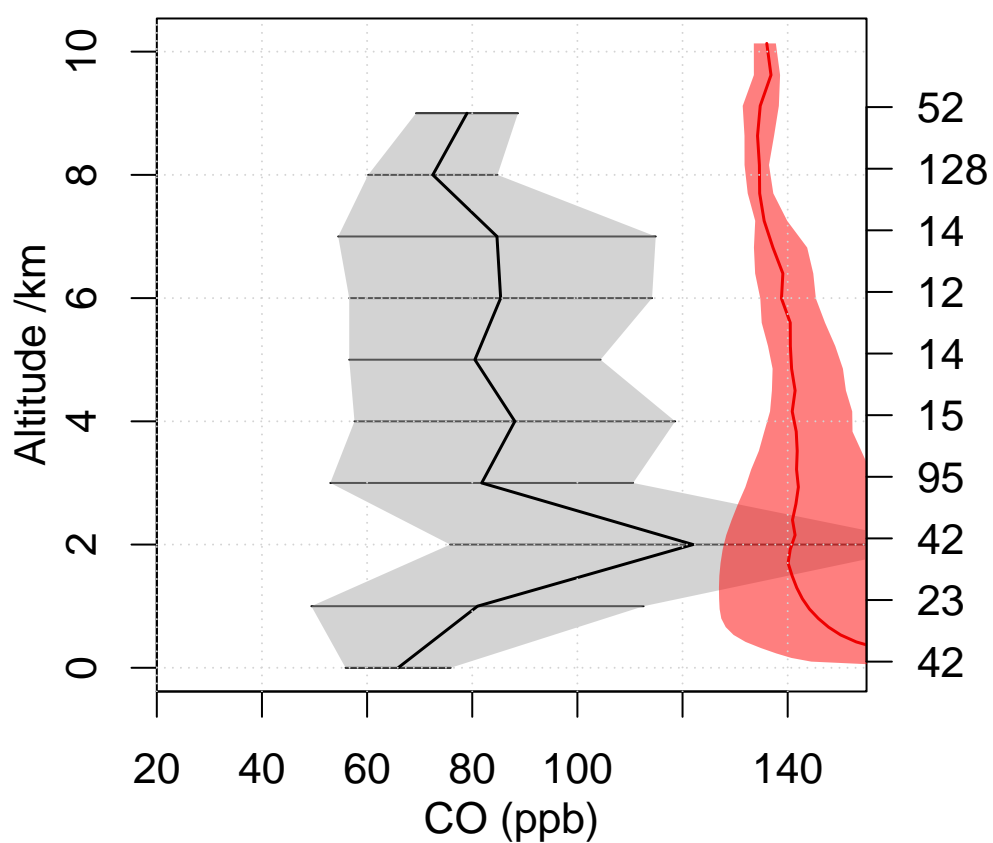
PEM-West-B Japan 1994 02
Lat 25 – 40 Lon 135 – 150



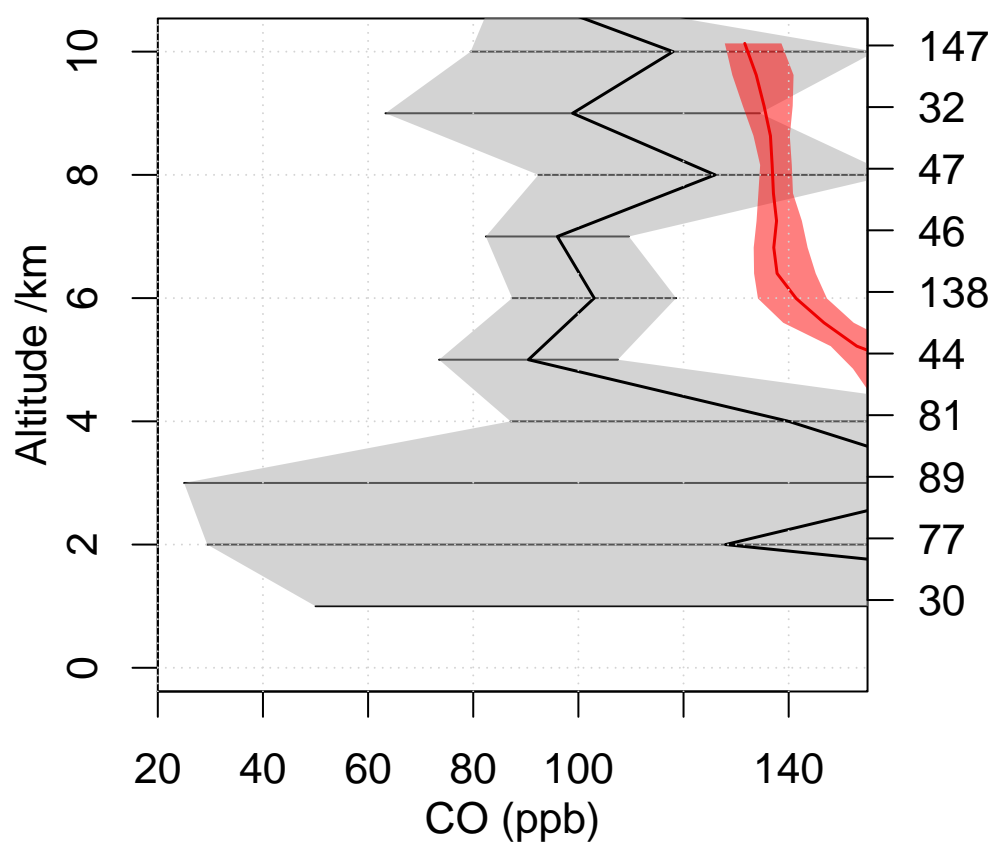
TRACE-A E-Brazil 1992 09
Lat -15 – -5 Lon 310 – 320



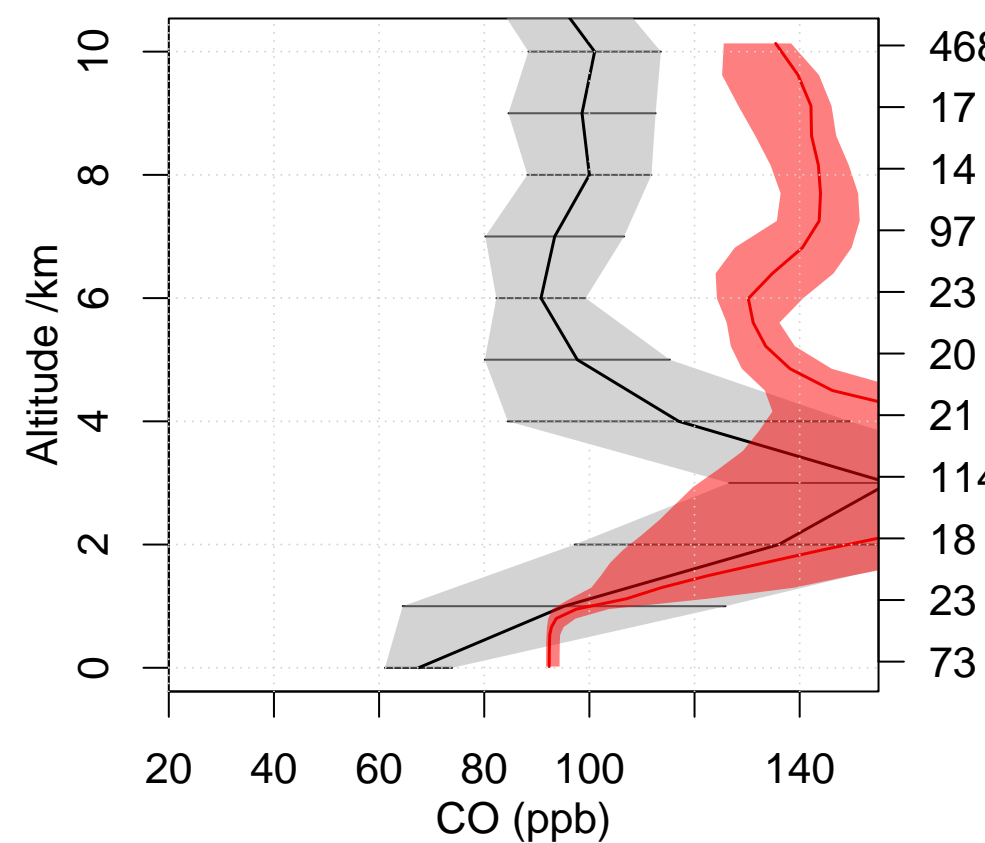
TRACE-A E-Brazil Coast 1992 09
Lat -35 – -25 Lon 310 – 320



TRACE-A S-Africa 1992 09
Lat -25 – -5 Lon 15 – 35

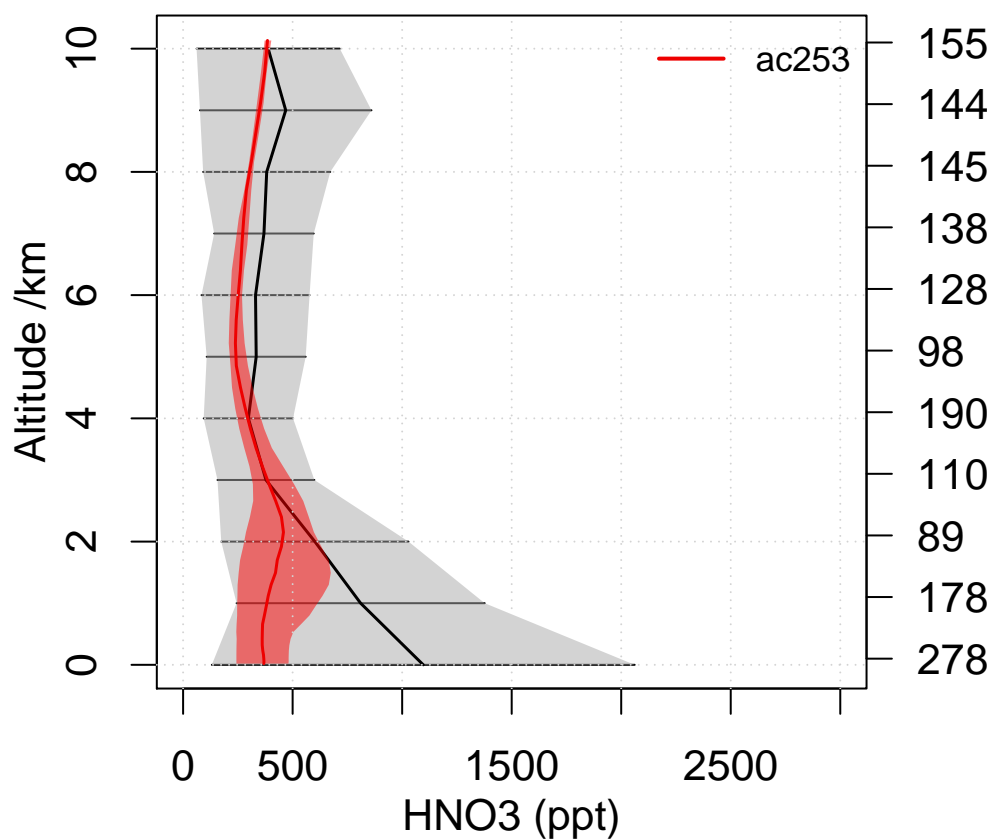


TRACE-A W-Africa Coast 1992 09
Lat -25 – -5 Lon 0 – 10

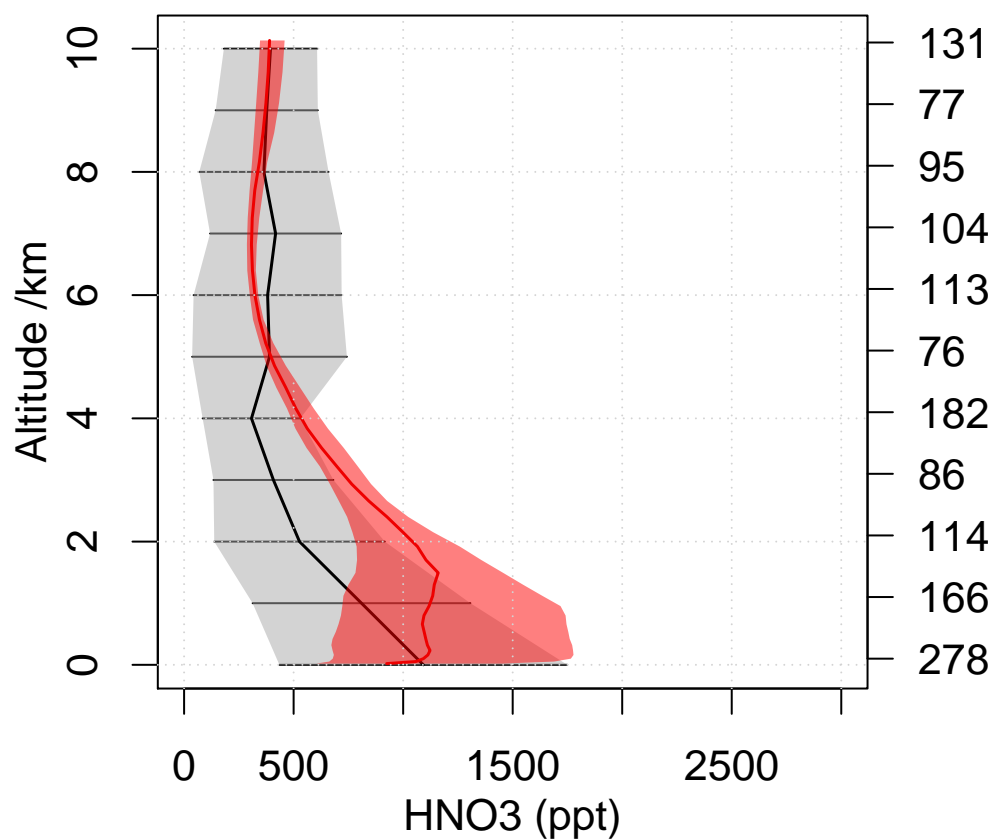


Emmons HNO3 comparison

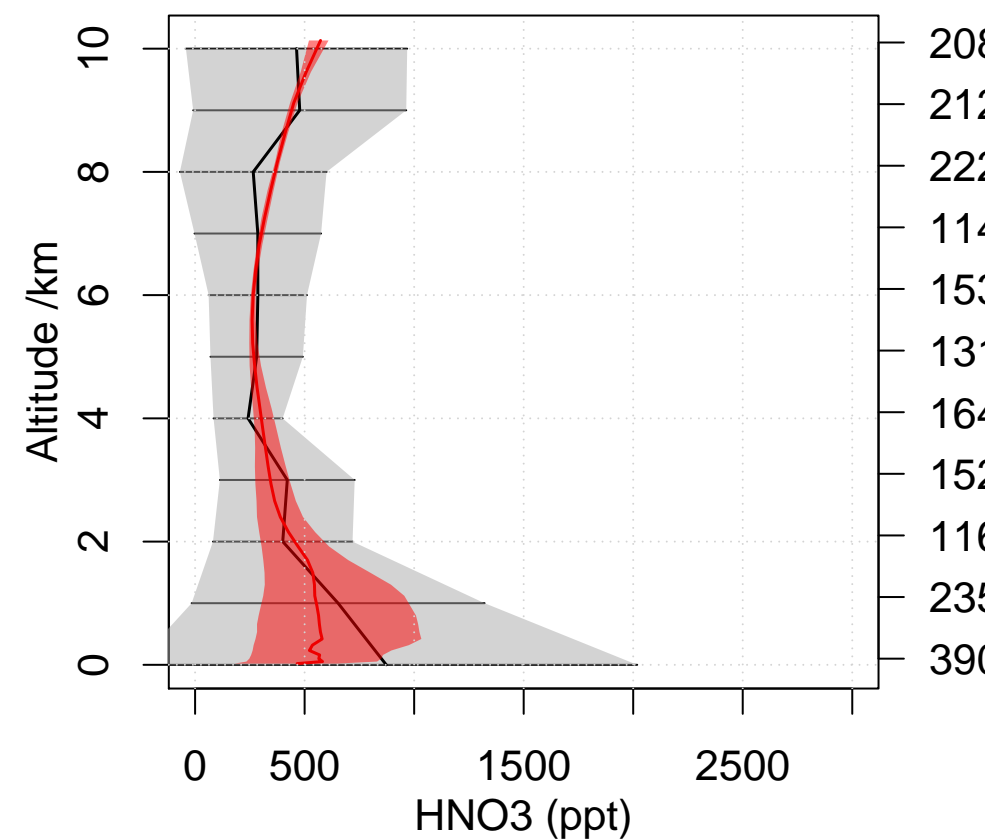
INTEX-NA East Coast 2004 07
Lat 32.5 – 40 Lon 296.5 – 307



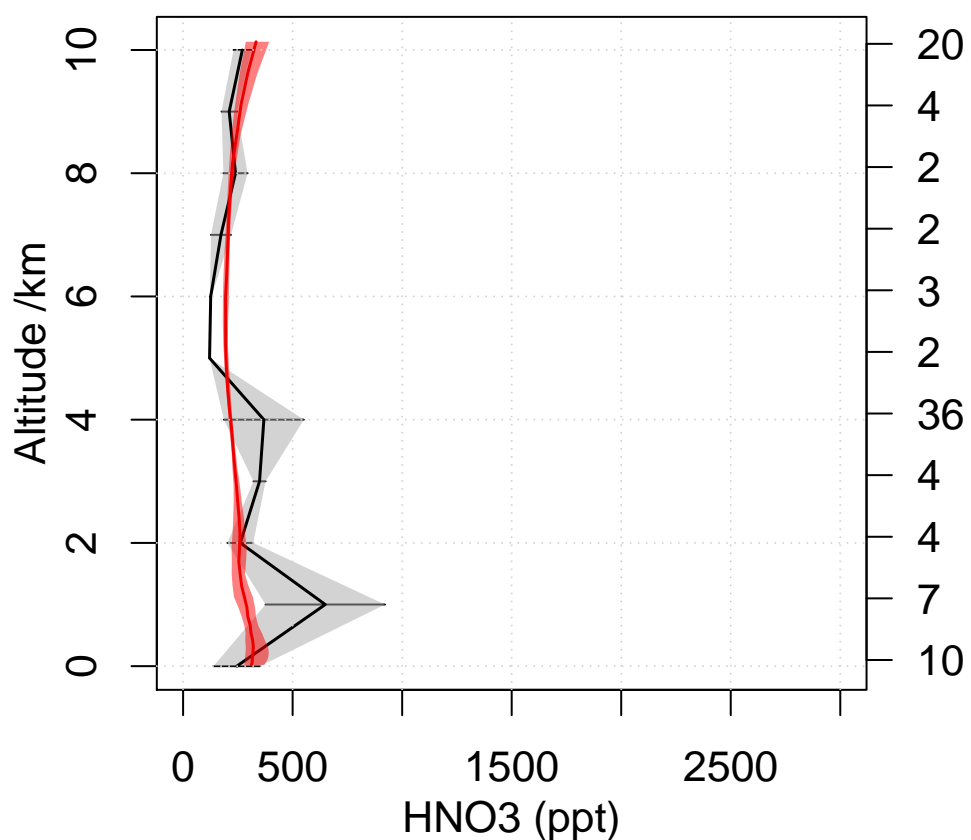
INTEX-NA Central 2004 07
Lat 30 – 40 Lon 259.5 – 285



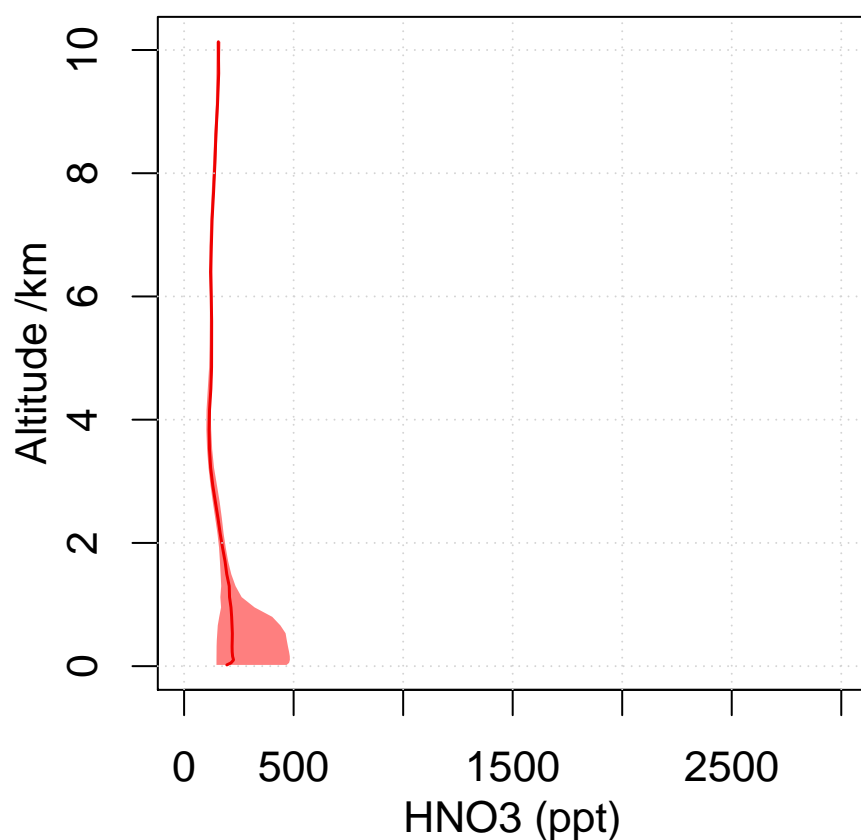
INTEX-NA North East 2004 07
Lat 42.5 – 52.5 Lon 285 – 310



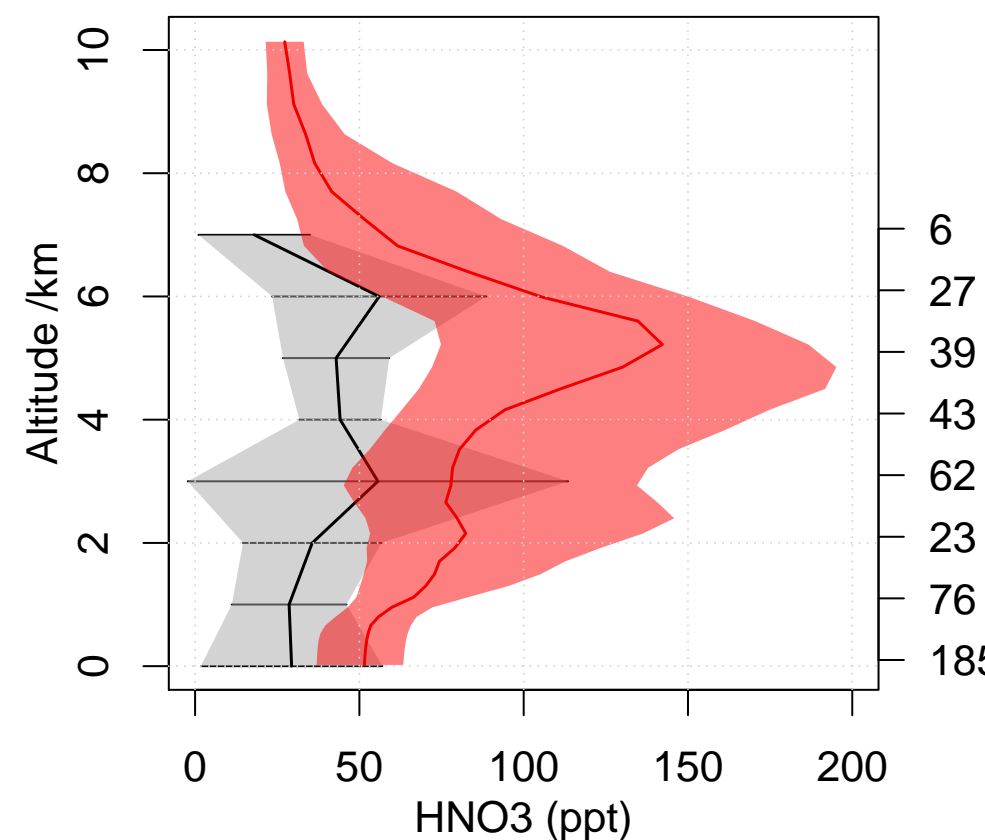
INTEX-NA West Coast 2004 07
Lat 32.5 – 45 Lon 217 – 240



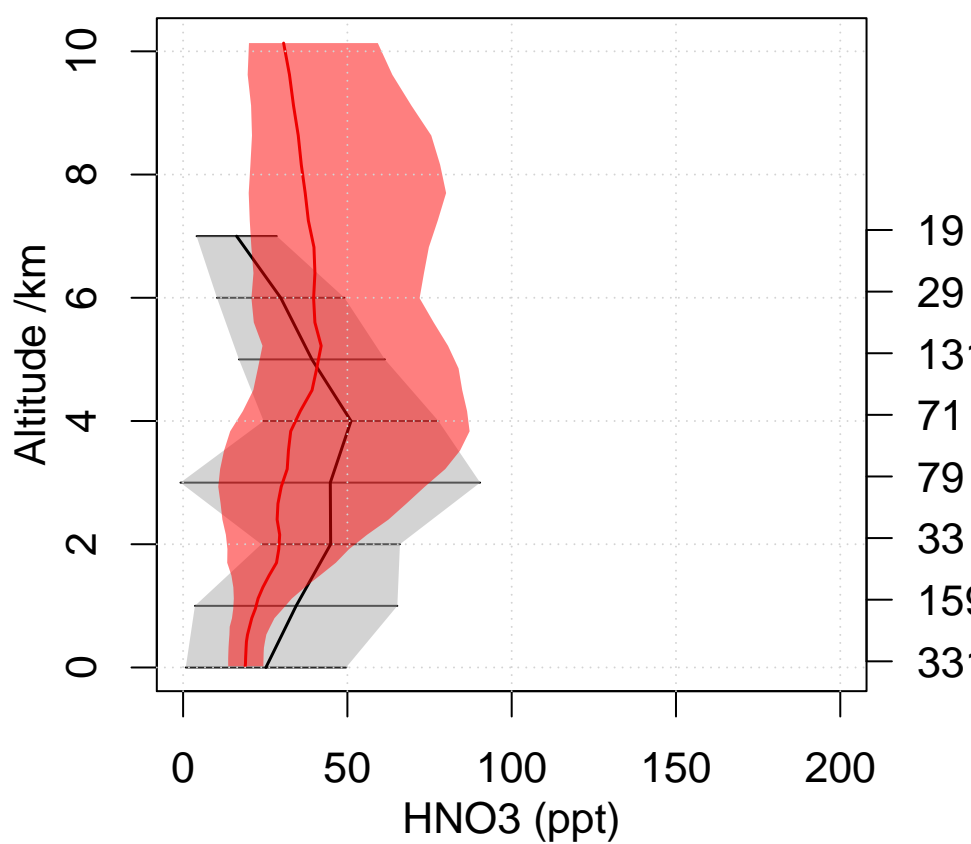
OP3 2008 07
Lat 2.5 – 7.5 Lon 112.5 – 120



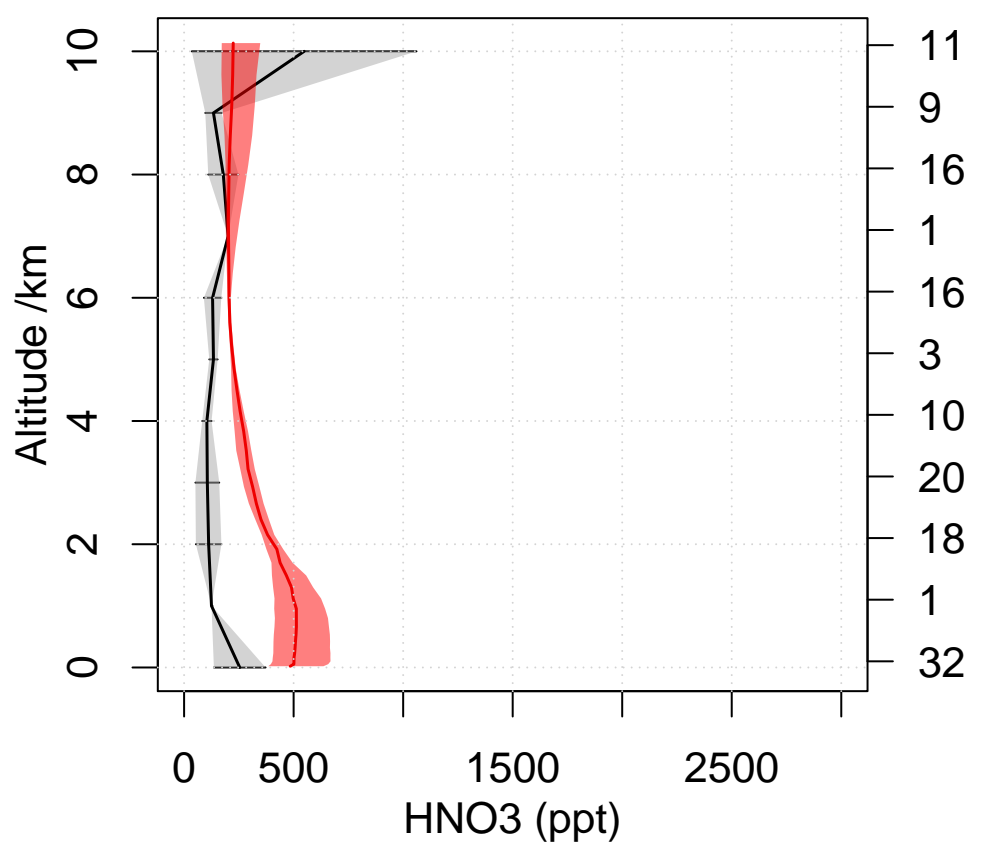
PEM-Tropics-B Christmas-Island 1999 07
Lat 0 – 10 Lon 200 – 220



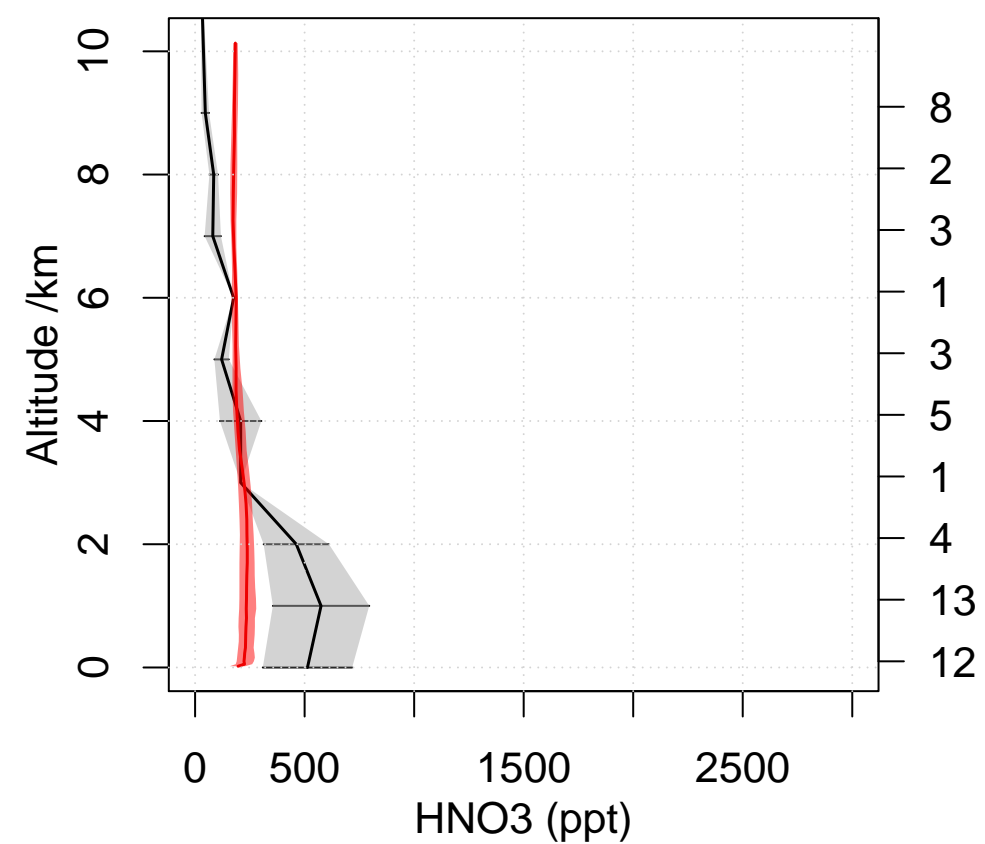
PEM-Tropics-B Tahiti 1999 03
Lat -20 – 0 Lon 200 – 230



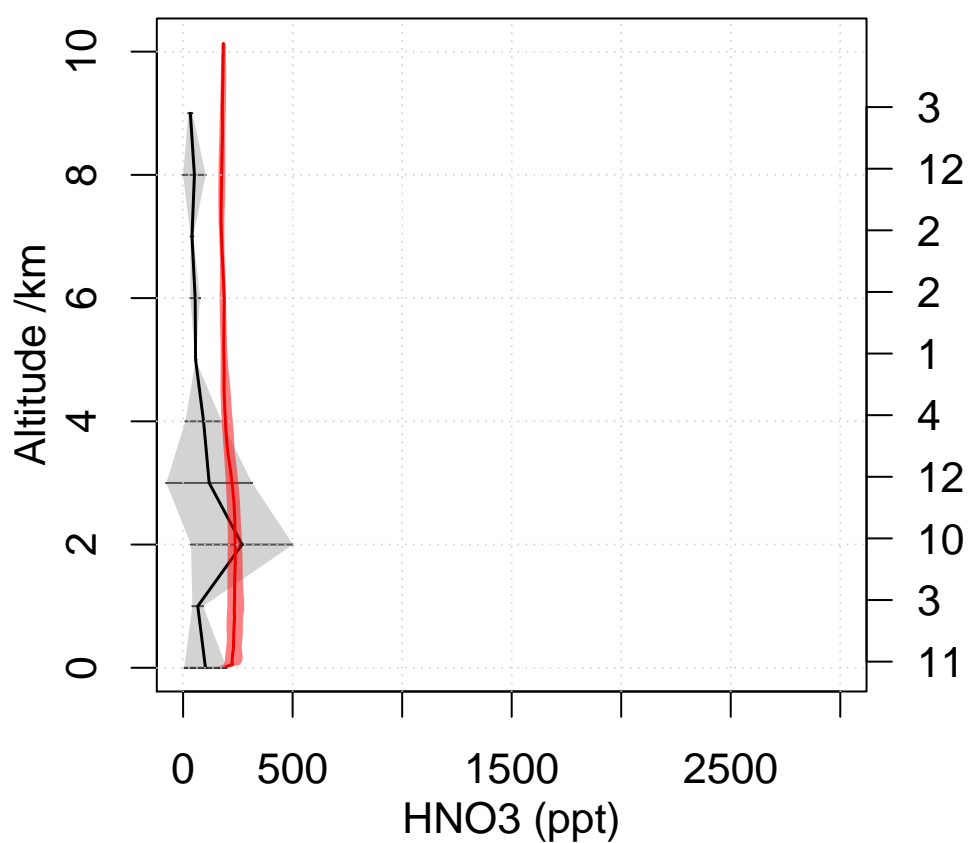
PEM-West-B Japan 1994 02
Lat 25 – 40 Lon 135 – 150



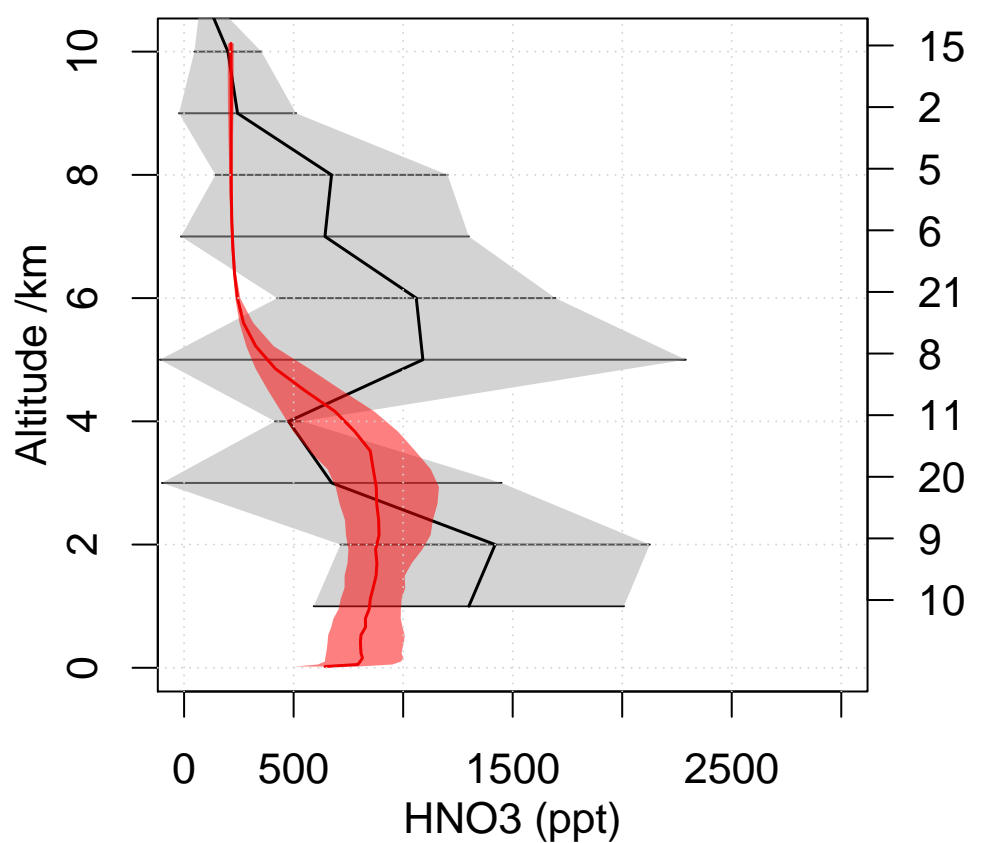
TRACE-A E-Brazil 1992 09
Lat -15 – -5 Lon 310 – 320



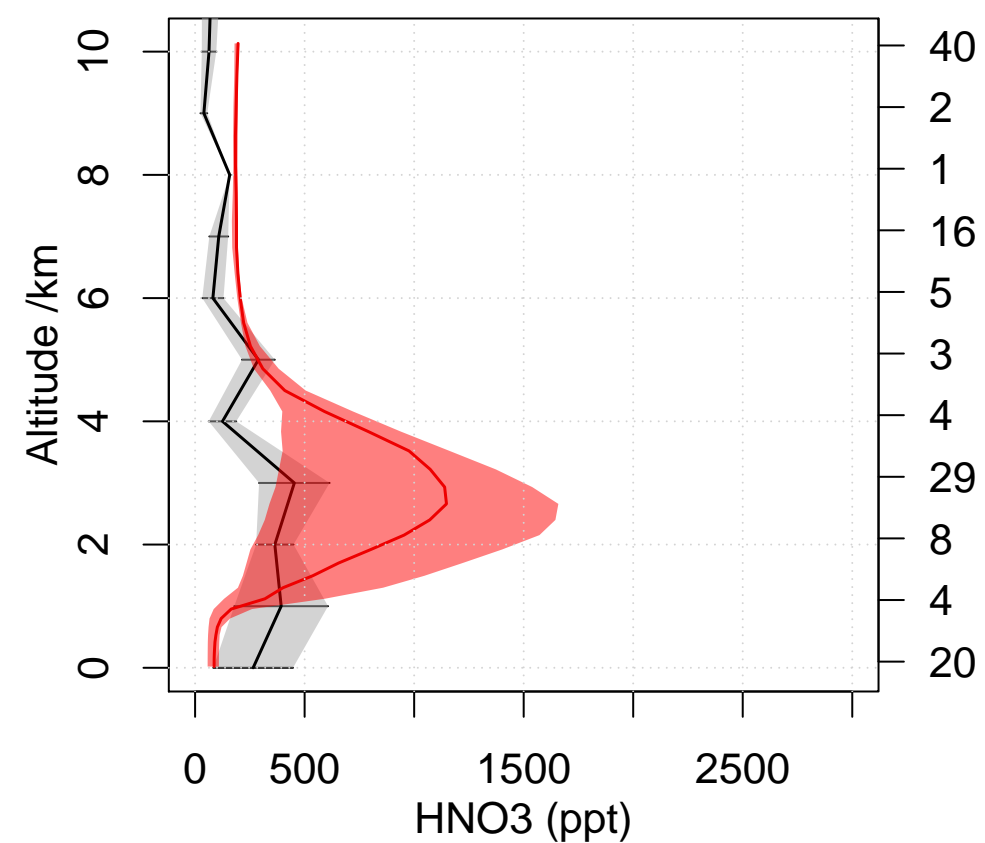
TRACE-A E-Brazil Coast 1992 09
Lat -35 – -25 Lon 310 – 320



TRACE-A S-Africa 1992 09
Lat -25 – -5 Lon 15 – 35

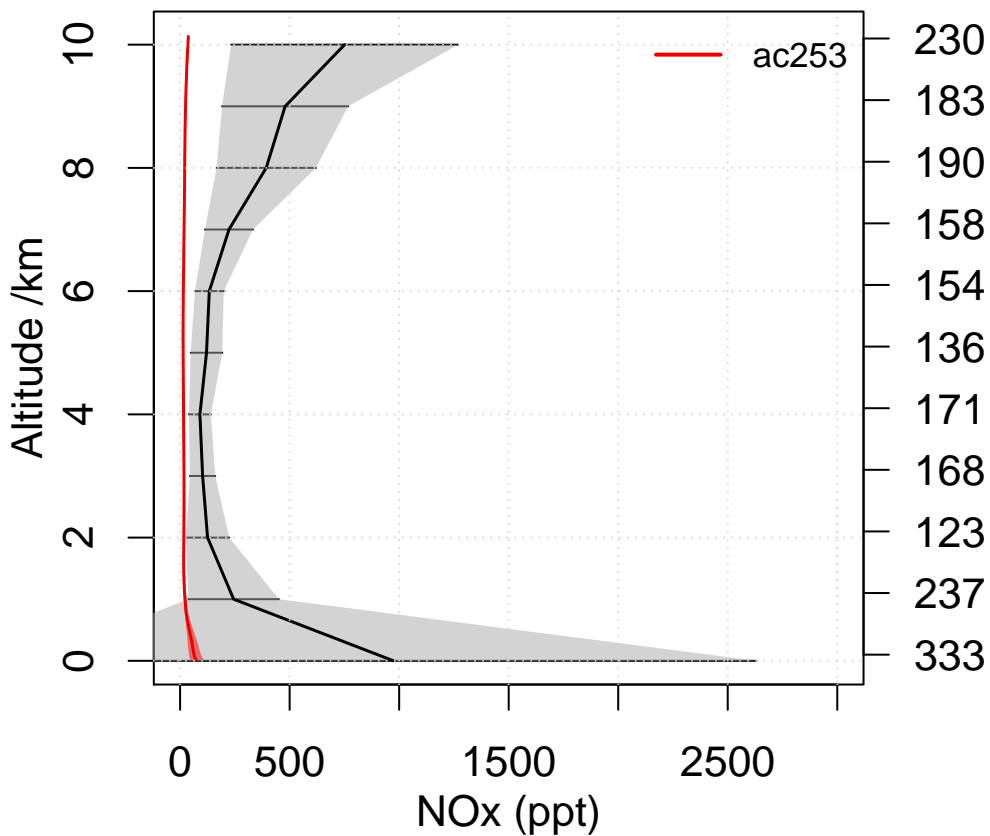


TRACE-A W-Africa Coast 1992 09
Lat -25 – -5 Lon 0 – 10

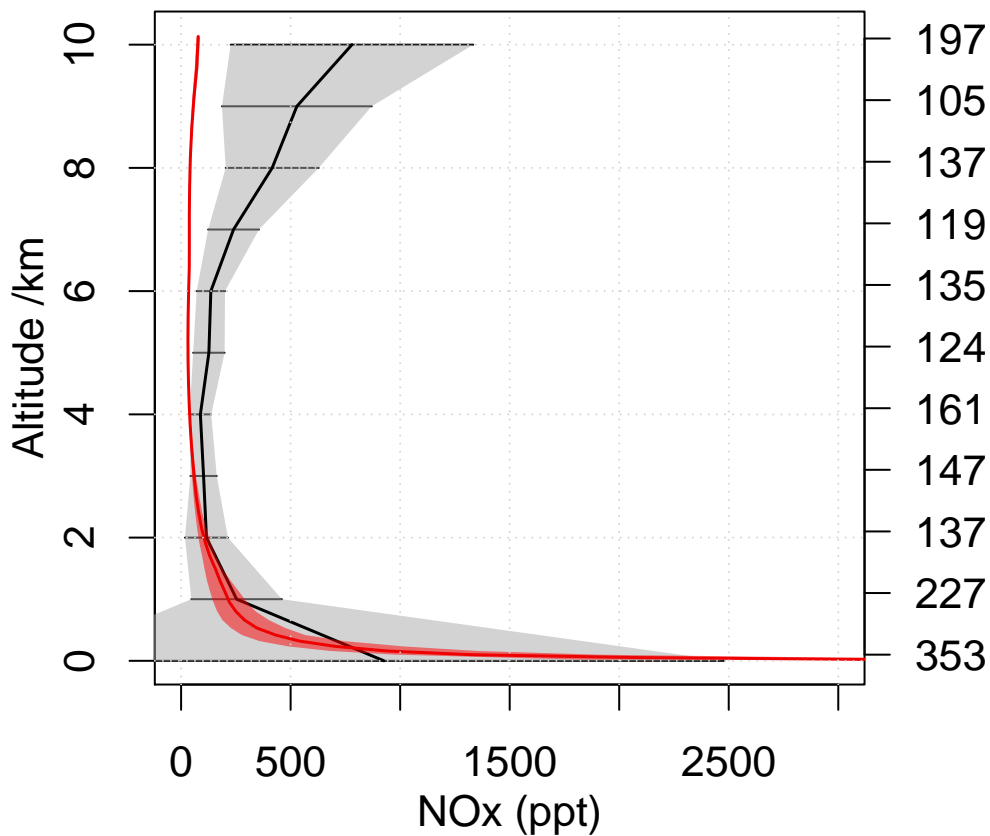


Emmons NOx comparison

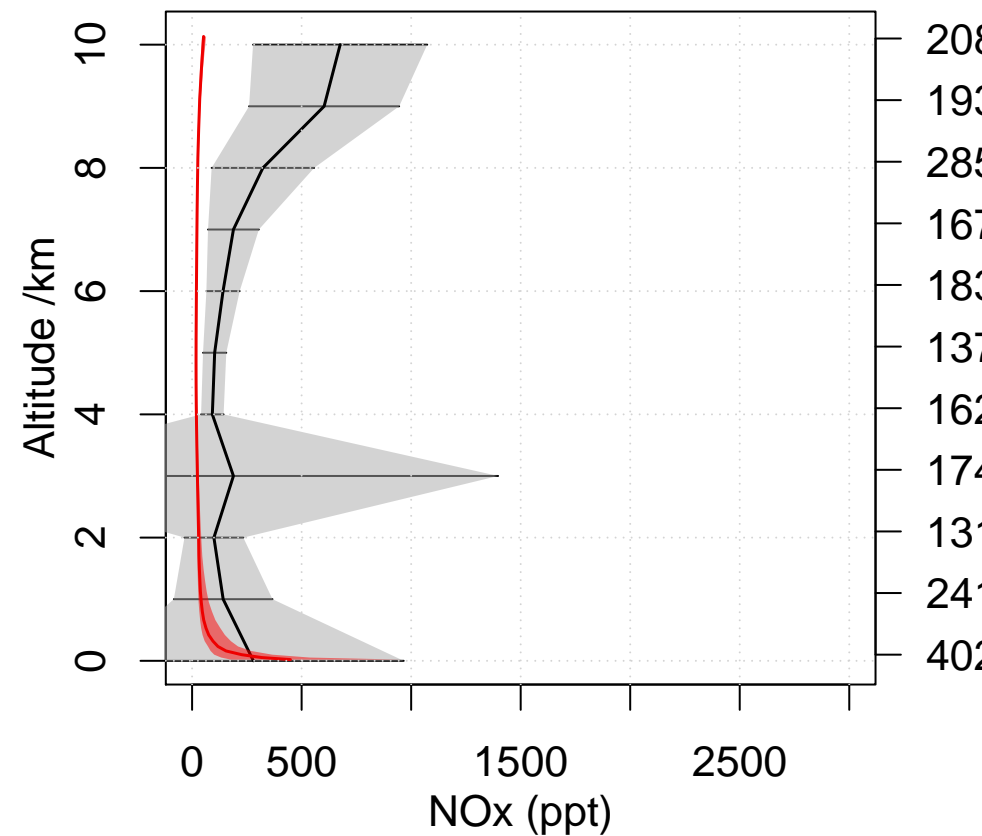
INTEX-NA East Coast 2004 07
Lat 32.5 – 40 Lon 296.5 – 307



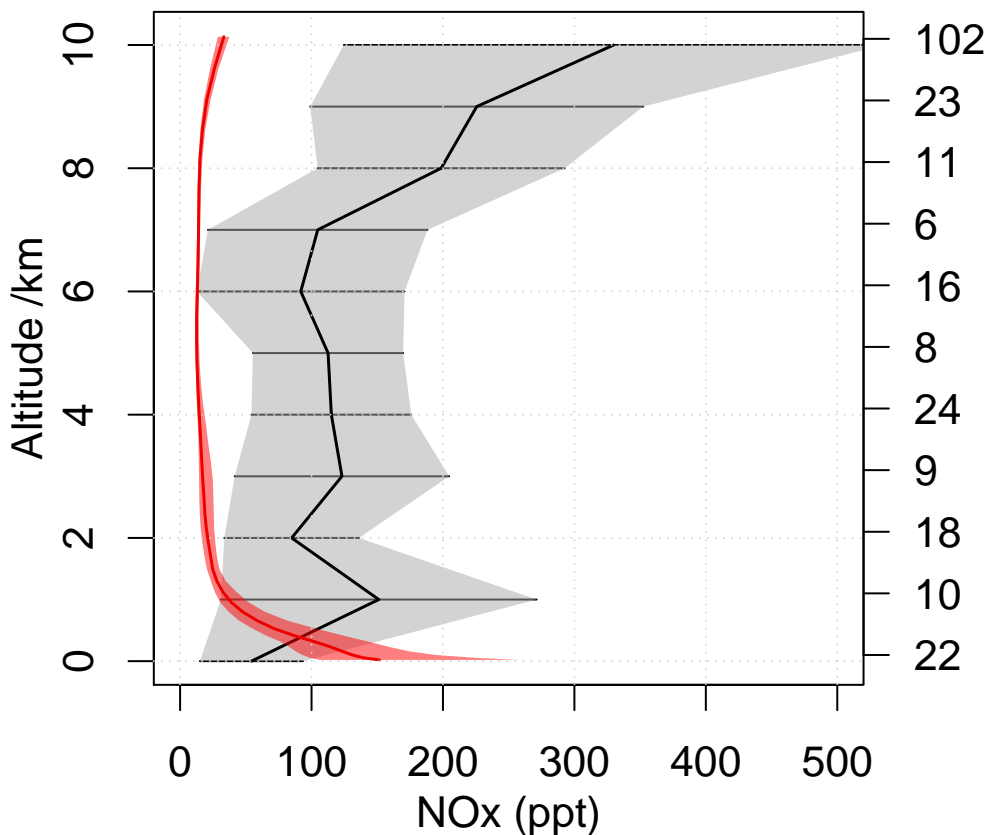
INTEX-NA Central 2004 07
Lat 30 – 40 Lon 259.5 – 285



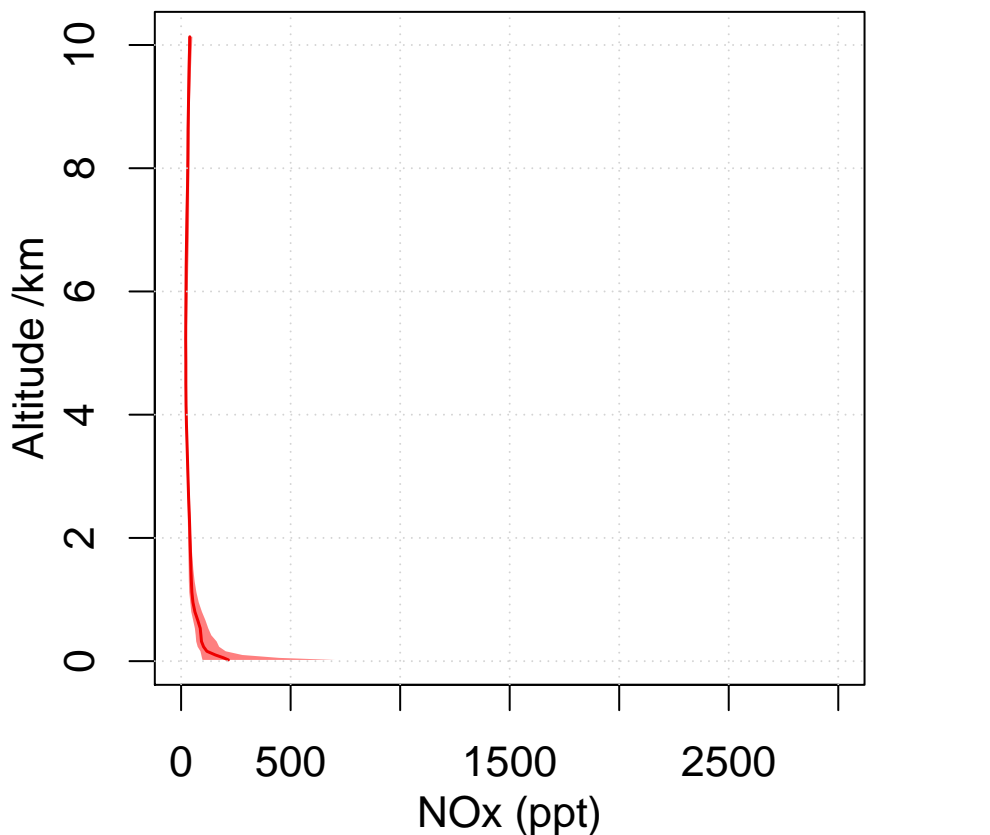
INTEX-NA North East 2004 07
Lat 42.5 – 52.5 Lon 285 – 310



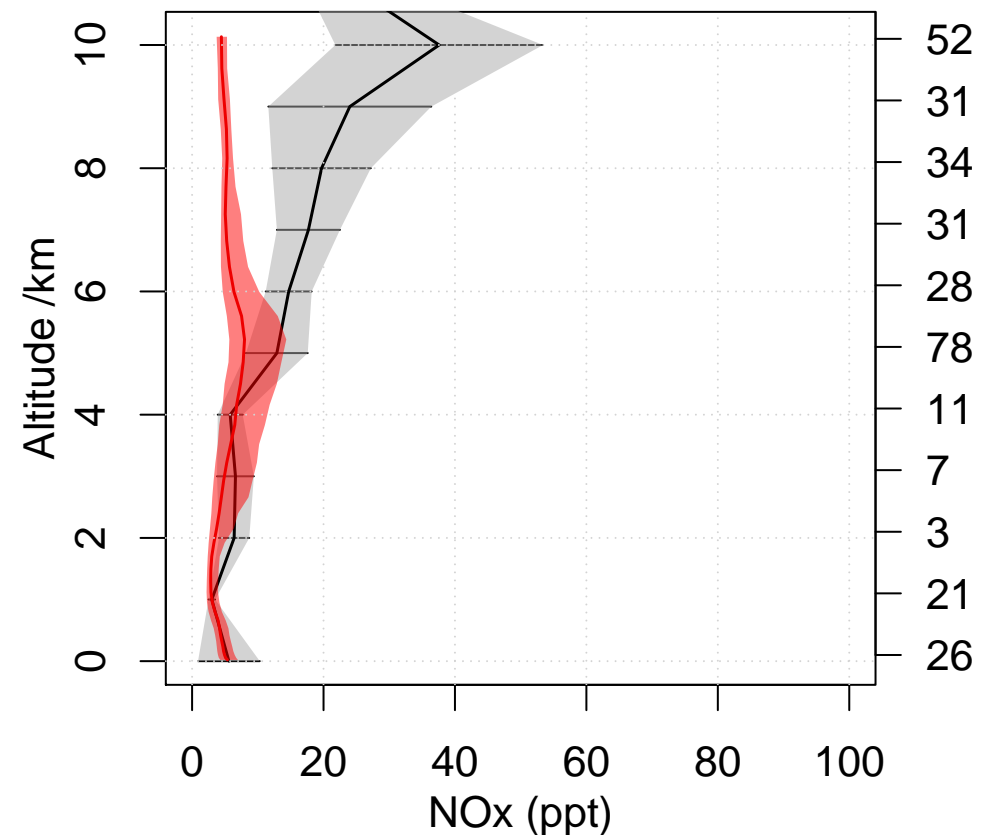
INTEX-NA West Coast 2004 07
Lat 32.5 – 45 Lon 217 – 240



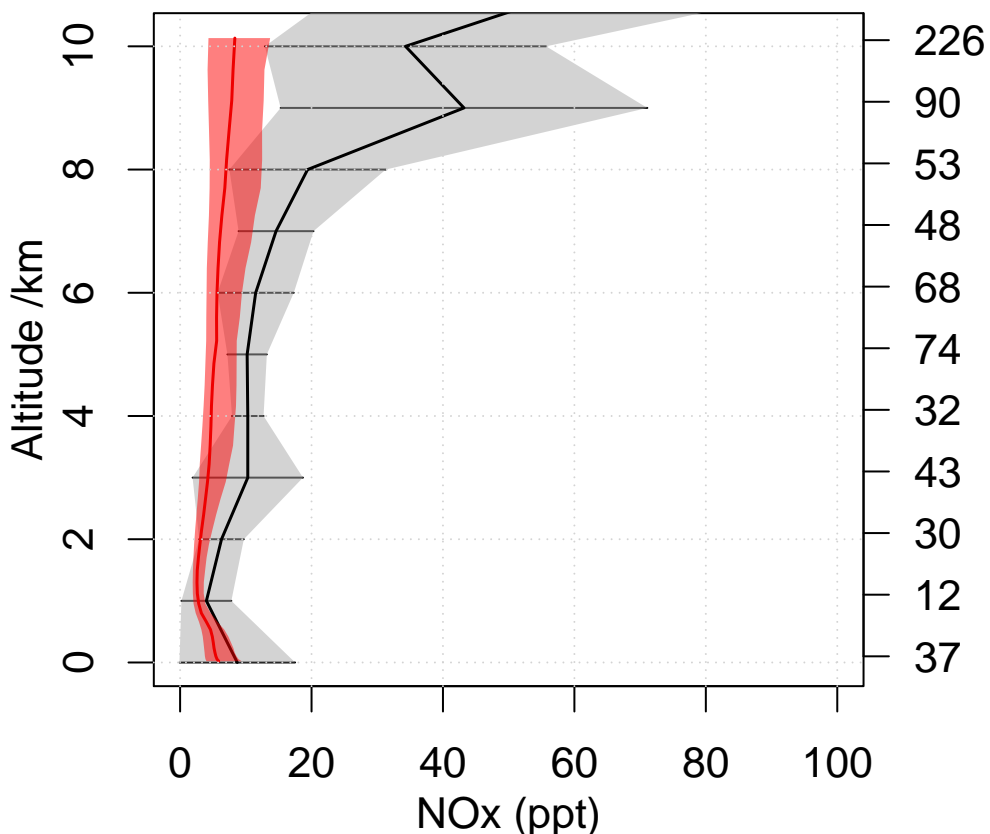
OP3 2008 07
Lat 2.5 – 7.5 Lon 112.5 – 120



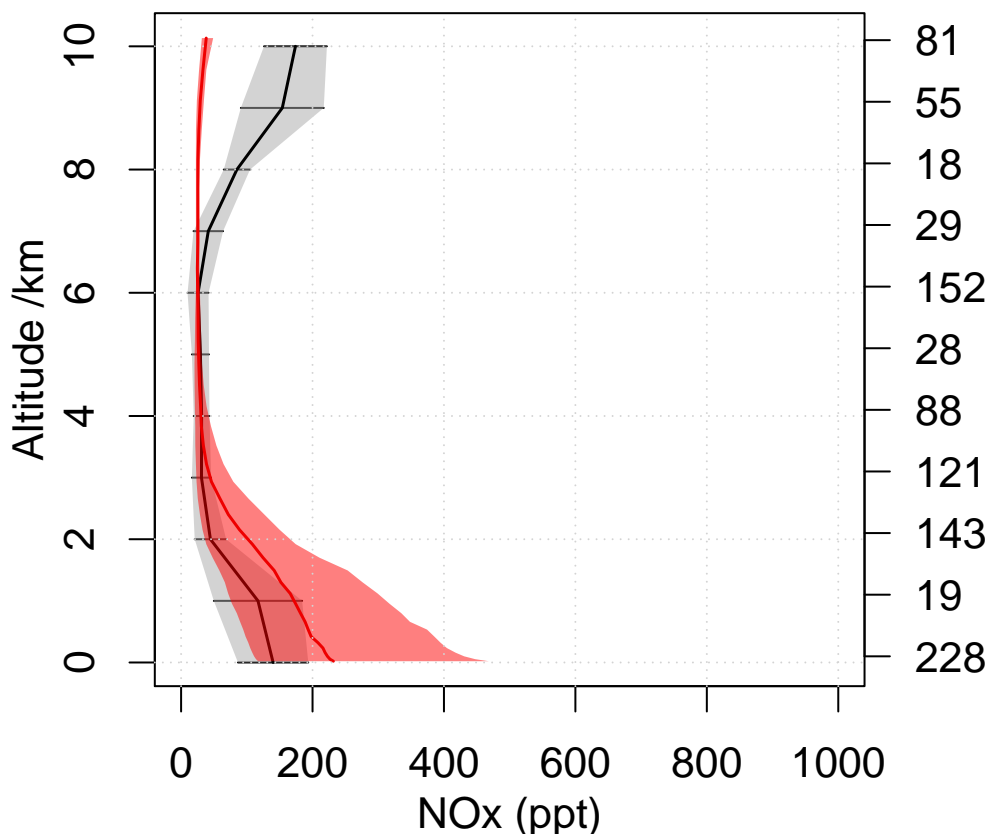
PEM-Tropics-B Christmas-Island 1999 07
Lat 0 – 10 Lon 200 – 220



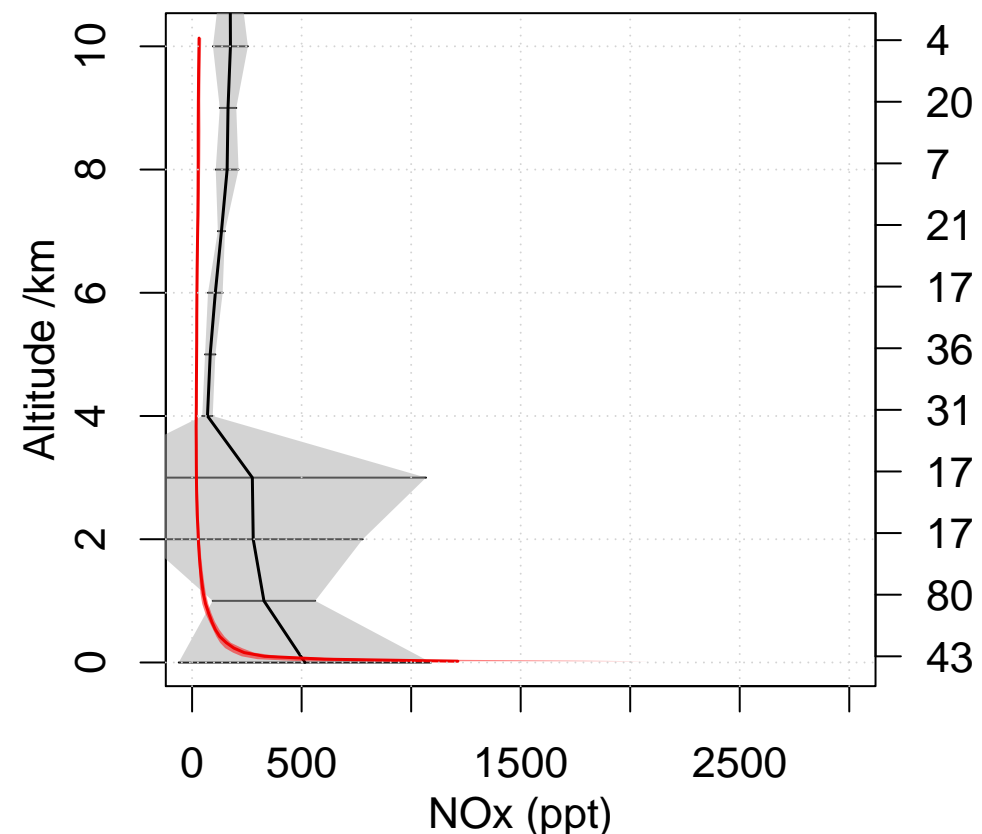
PEM-Tropics-B Tahiti 1999 03
Lat -20 – 0 Lon 200 – 230



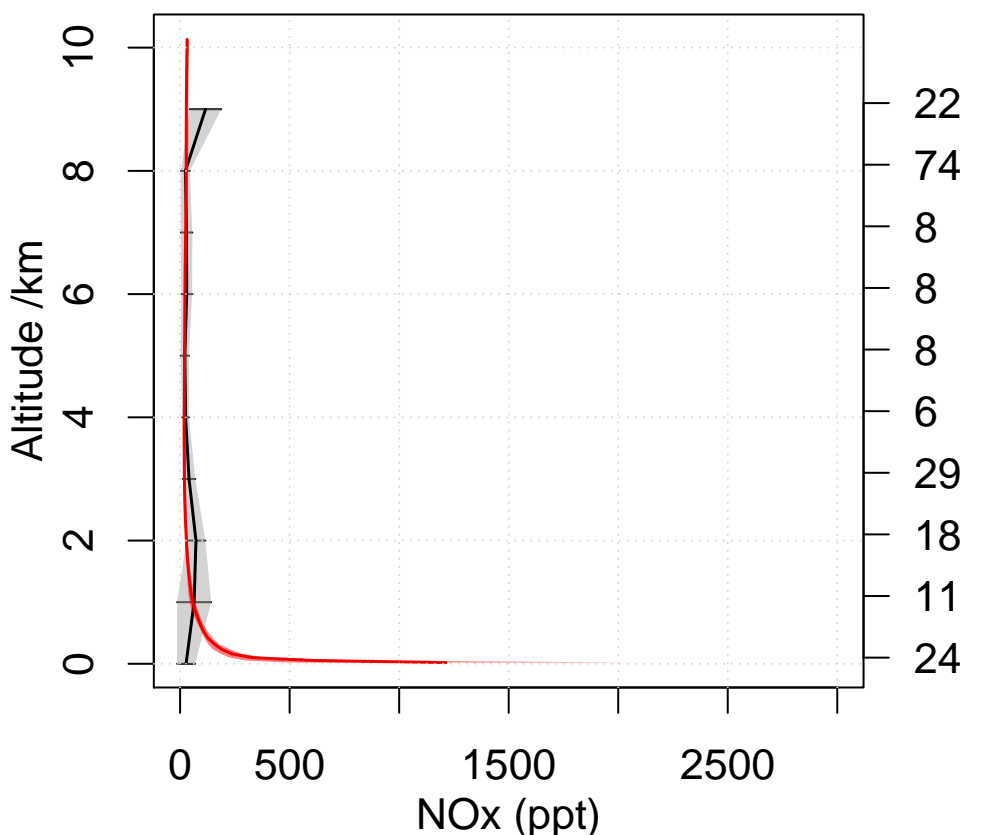
PEM-West-B Japan 1994 02
Lat 25 – 40 Lon 135 – 150



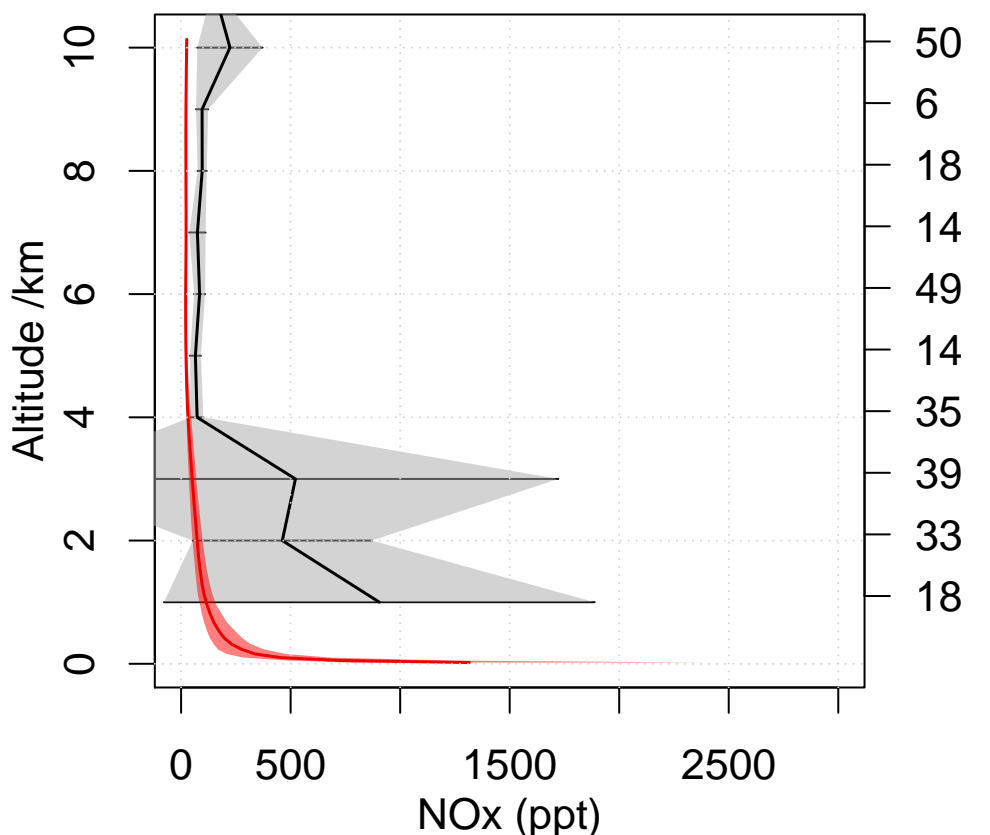
TRACE-A E-Brazil 1992 09
Lat -15 – -5 Lon 310 – 320



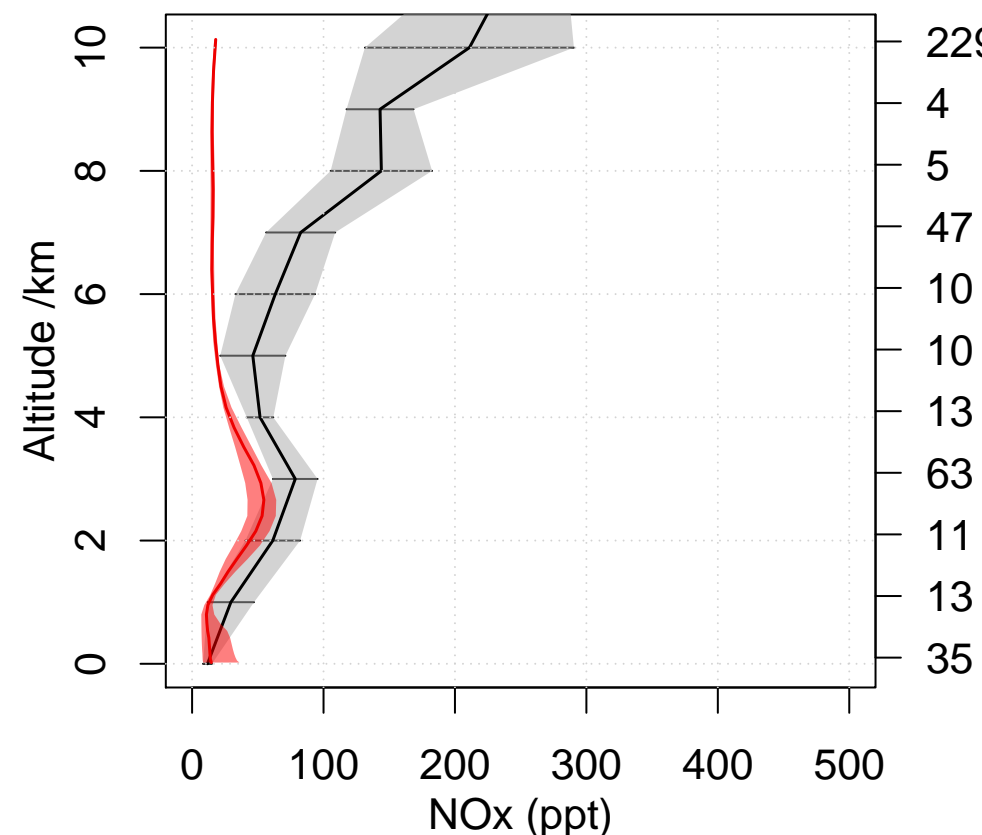
TRACE-A E-Brazil Coast 1992 09
Lat -35 – -25 Lon 310 – 320



TRACE-A S-Africa 1992 09
Lat -25 – -5 Lon 15 – 35



TRACE-A W-Africa Coast 1992 09
Lat -25 – -5 Lon 0 – 10



UKCA ac253

[OH] Air mass weighted (10⁶ molecules cm⁻³)

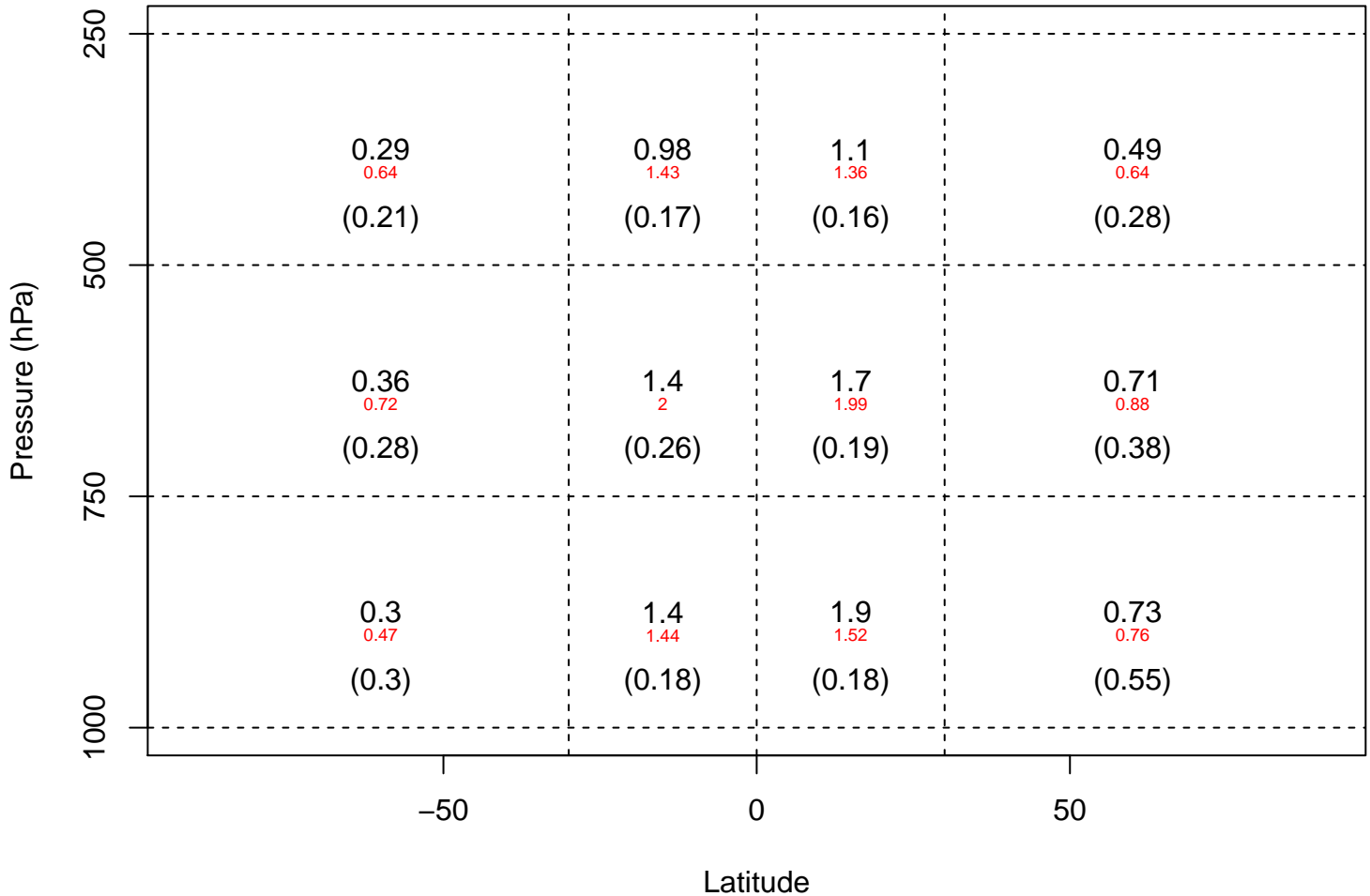
Mean OH= 9.18e+05 molec/cm³

ACCMIP Multi-model Mean= 1.17 (+/- 0.1) e+06 molec/cm³

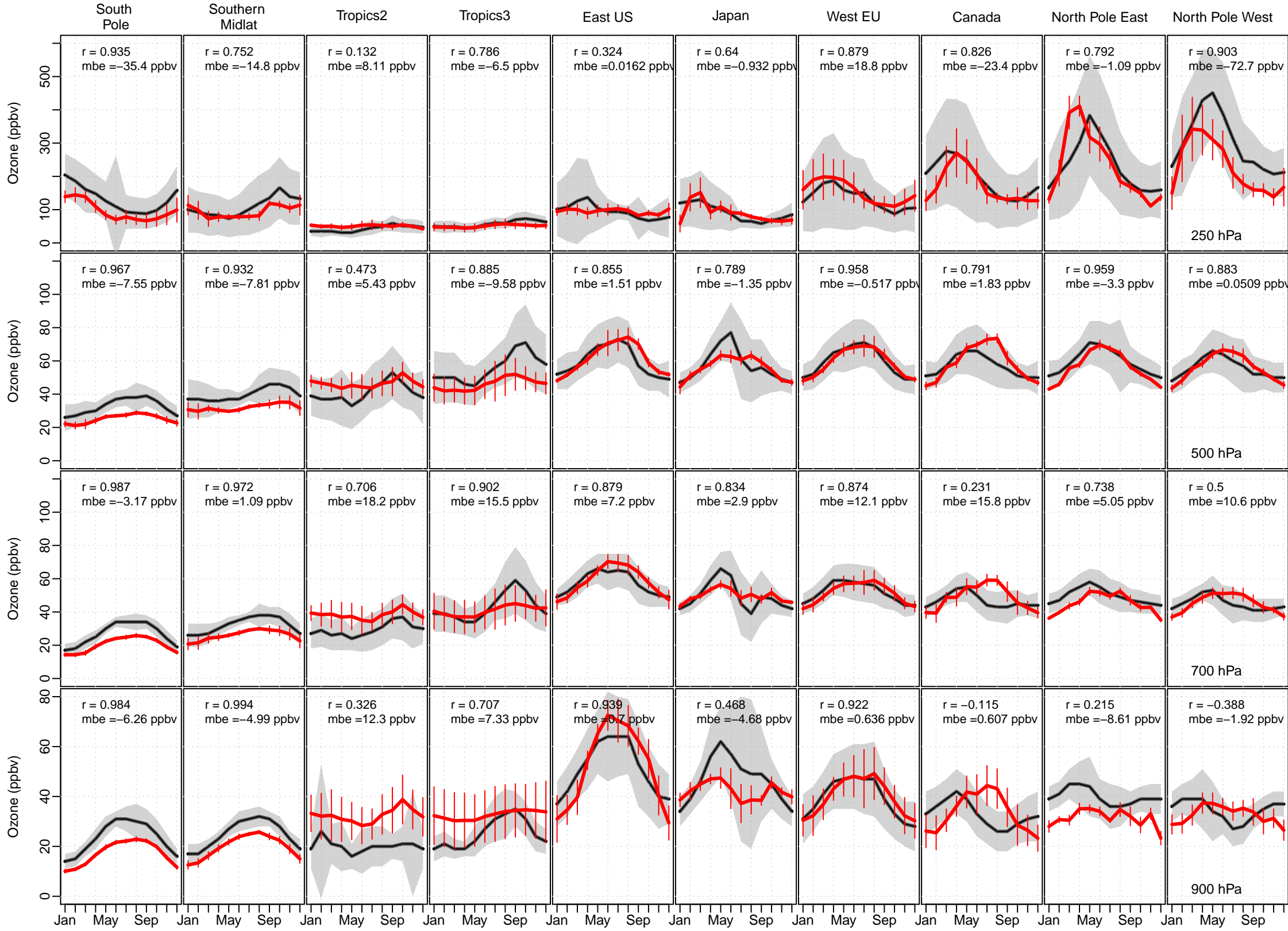
NH:SH ratio= 1.54 Patra et al 2014: 0.97 +/- 0.12

Red: Spivakovsky values

Values in (): Std dev

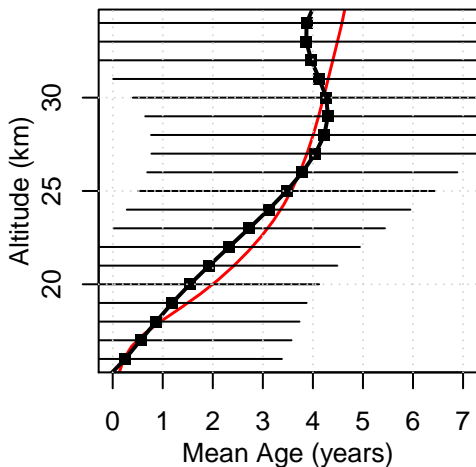


ac253 TiImes ozone sonde comparison

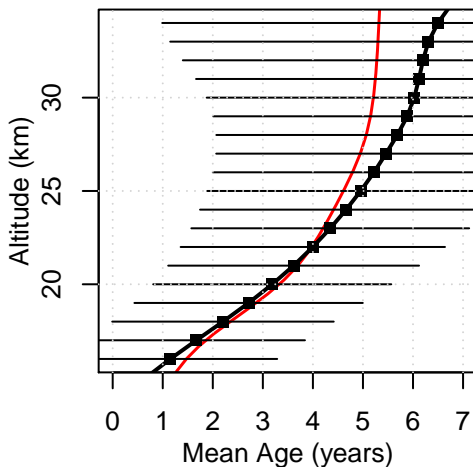


UKCA ac253 Mean Age of Air

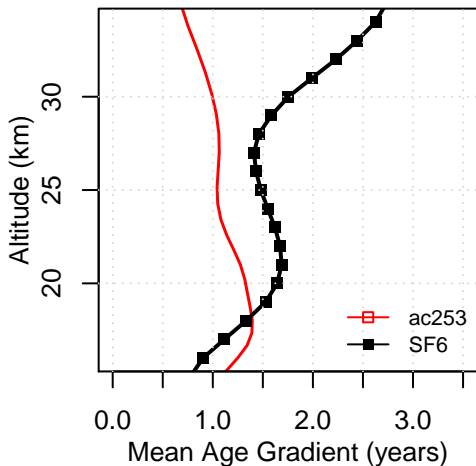
Tropical Mean Age Profile



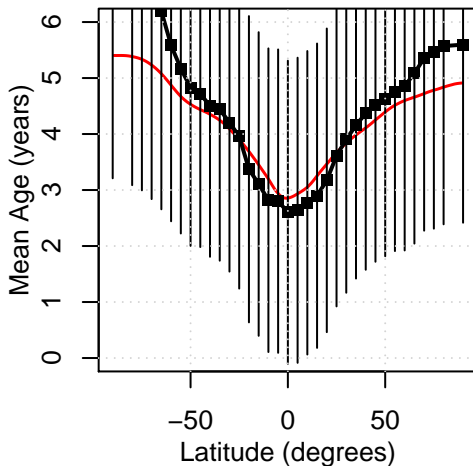
Midlatitude Mean Age Profile



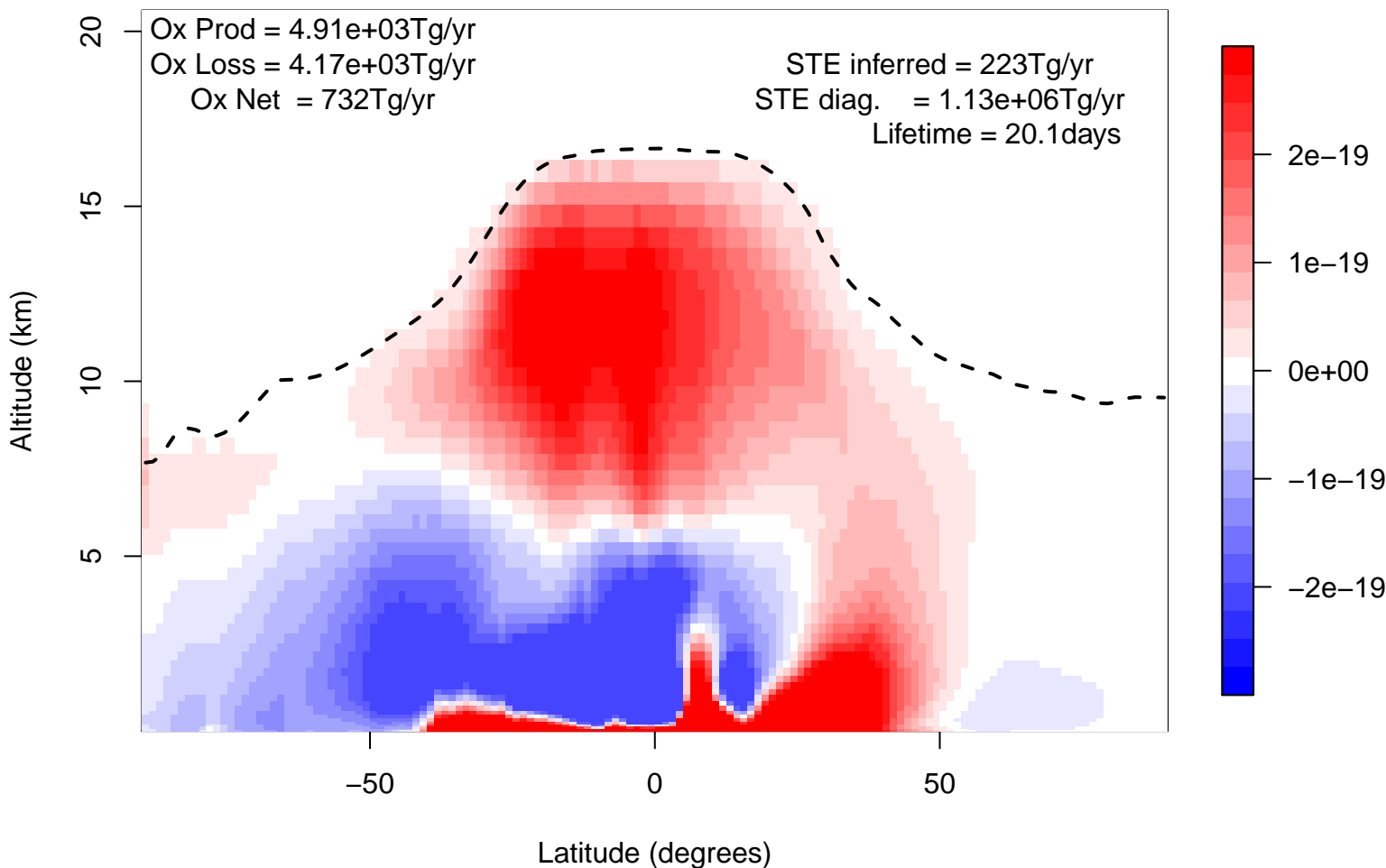
Trop-Midlat Mean Age Gradient Prof



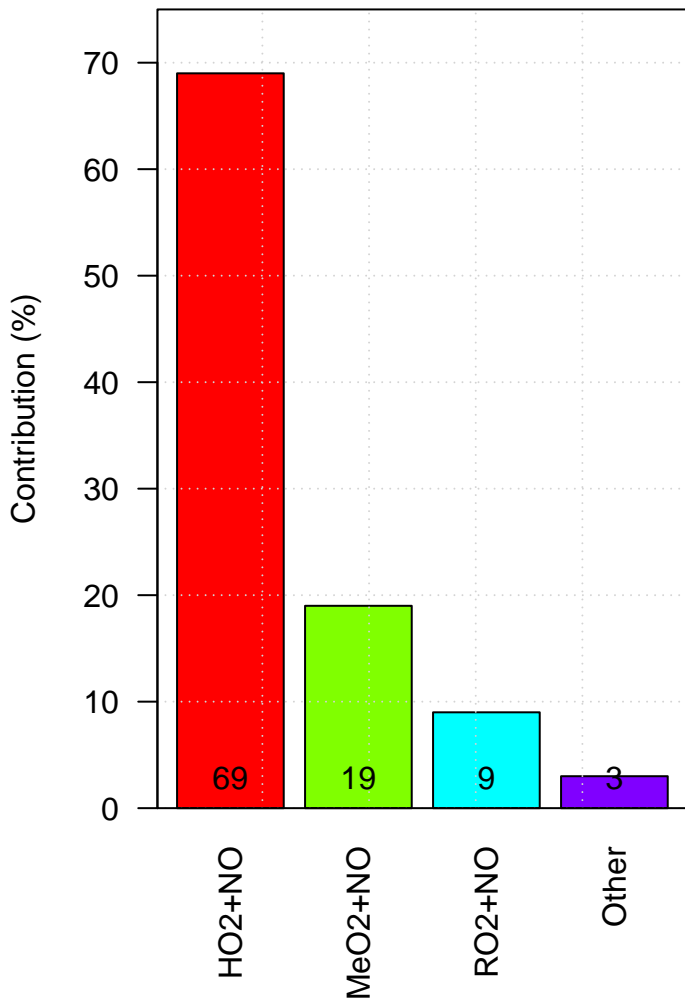
Mean Age, 23km (~50hPa)



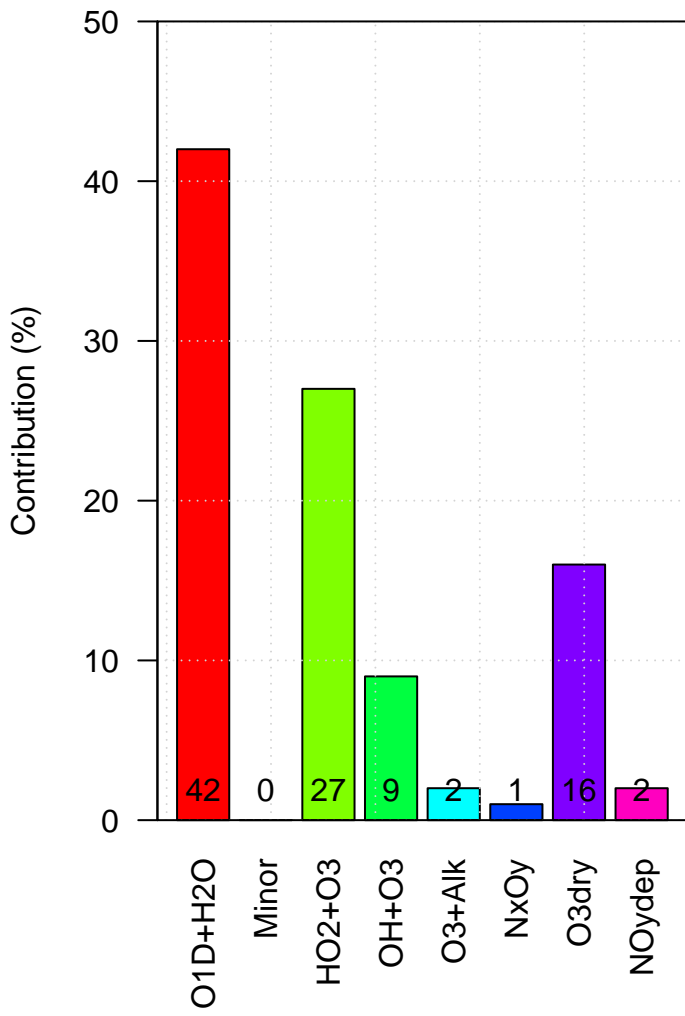
UKCA ac253 Ox Net Chemical Production



ac253 Production of Tropospheric Ox

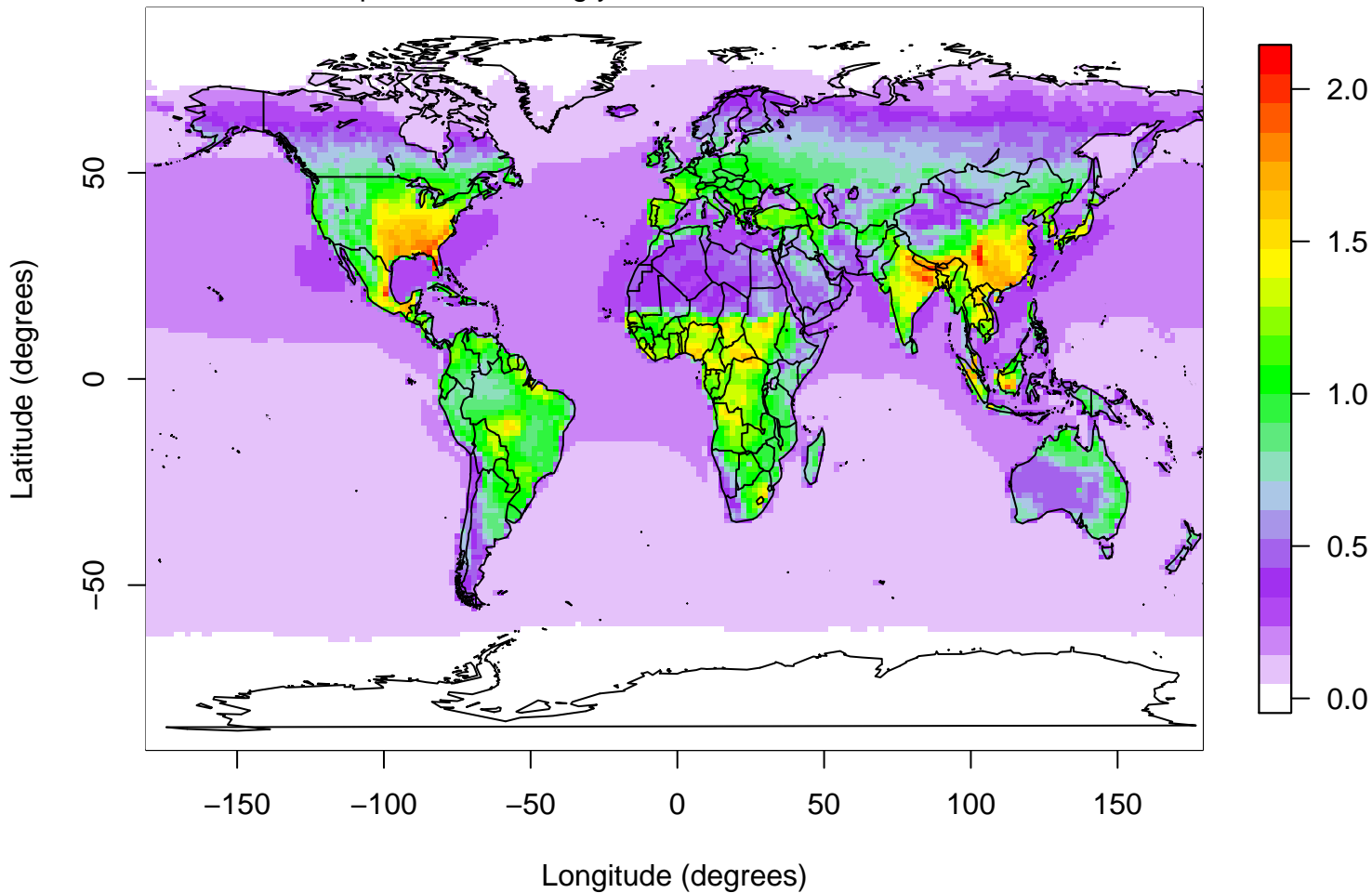


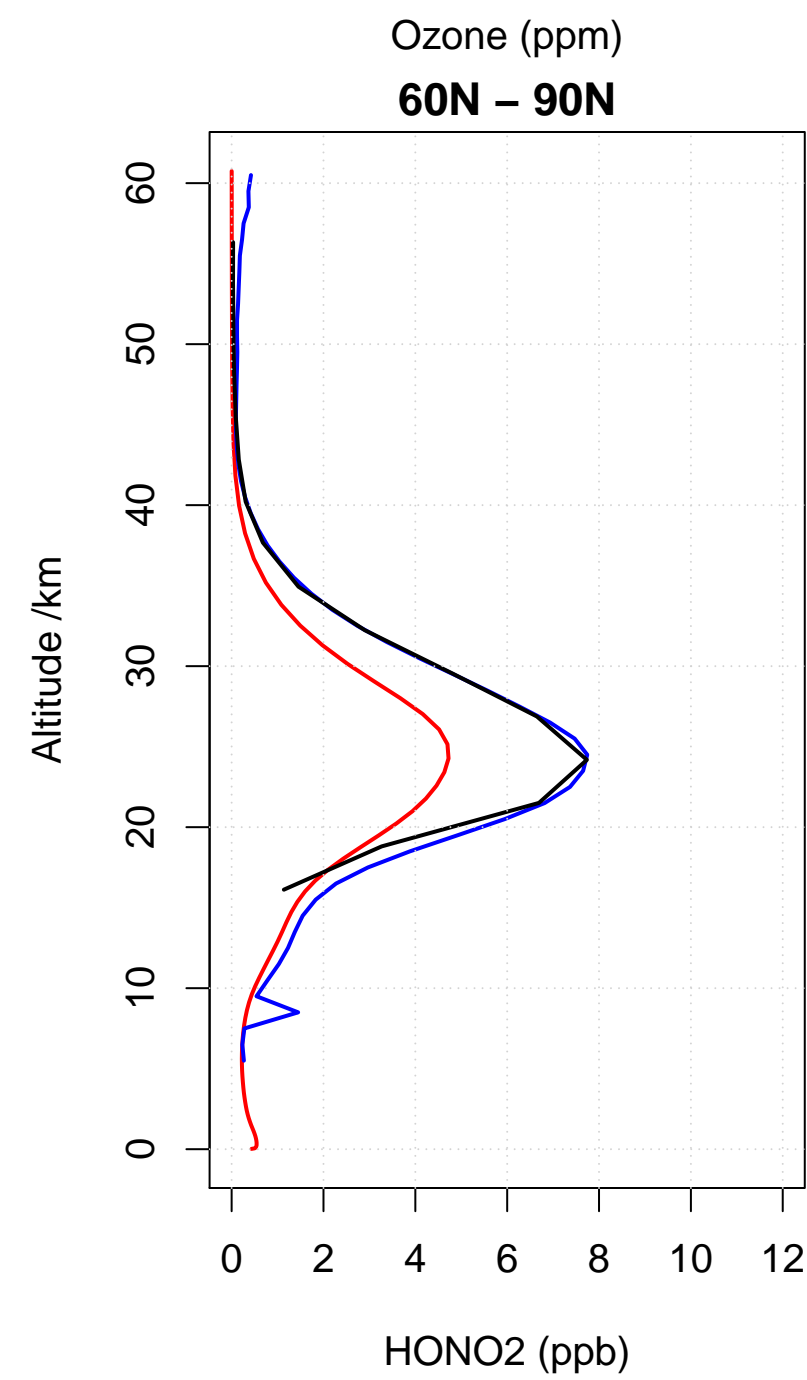
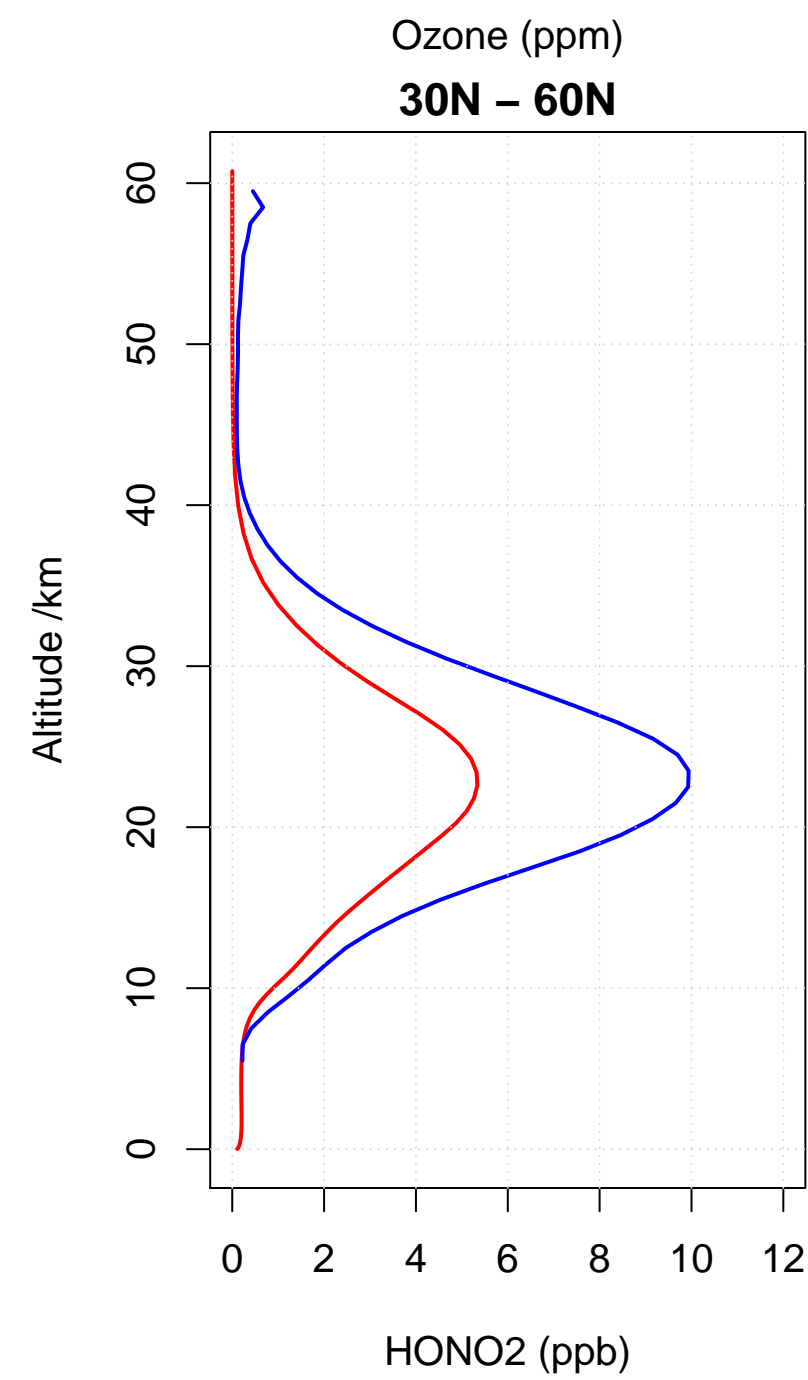
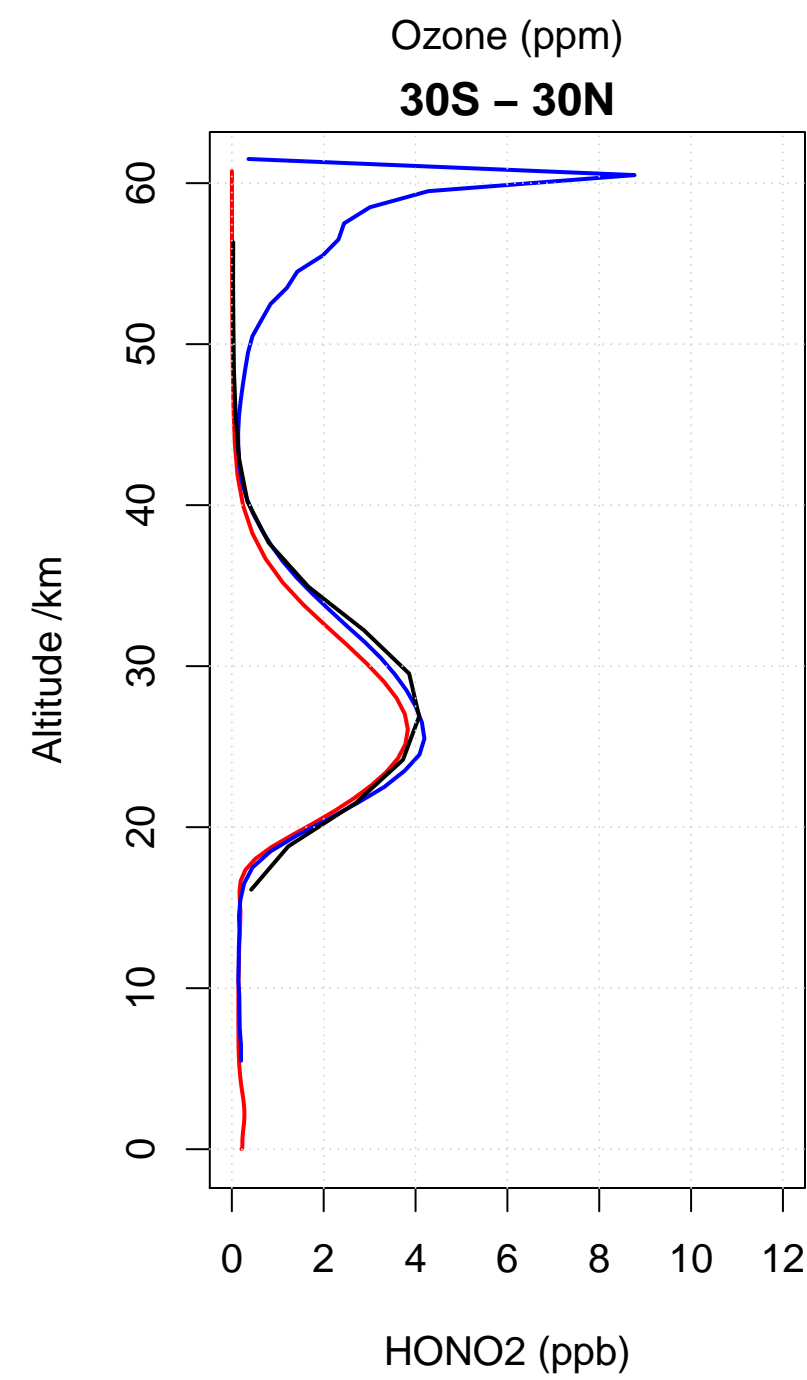
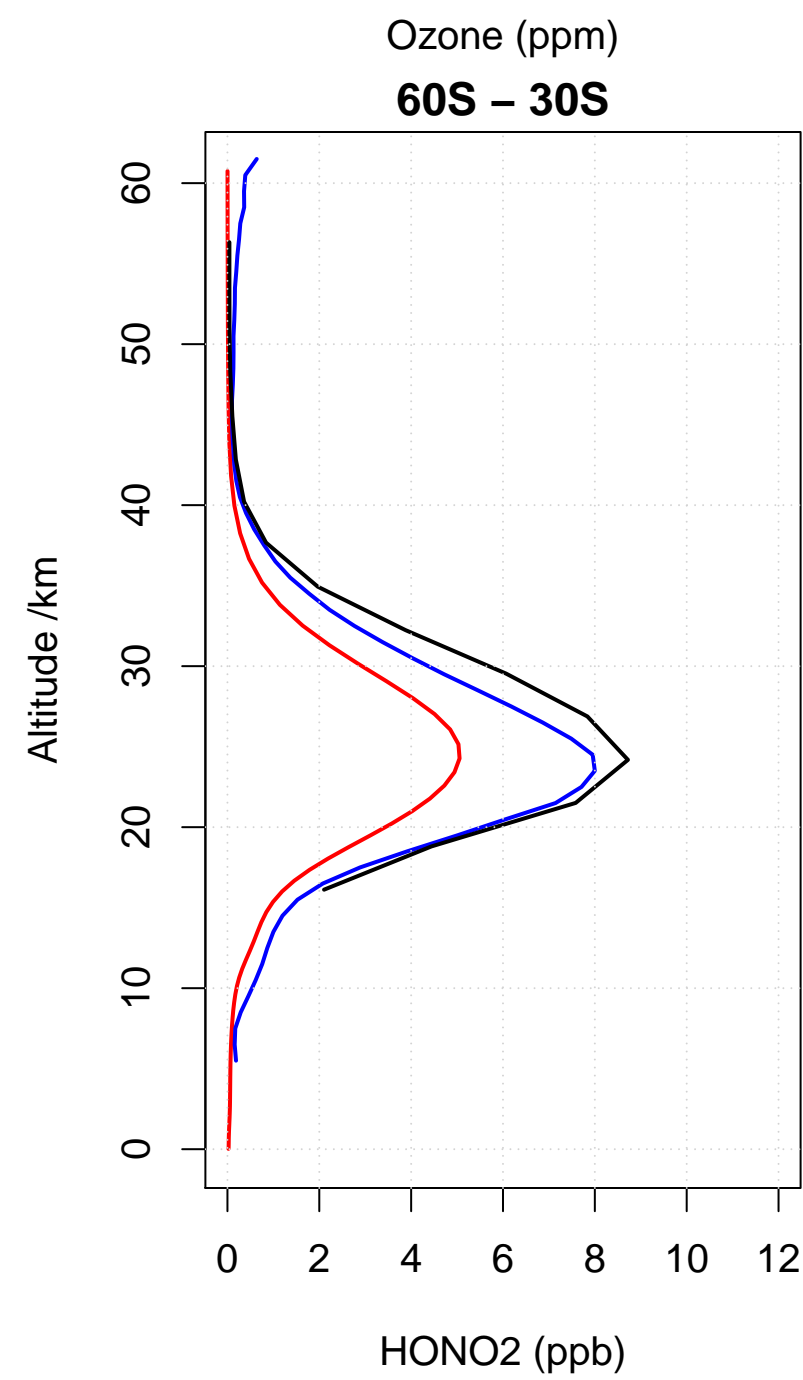
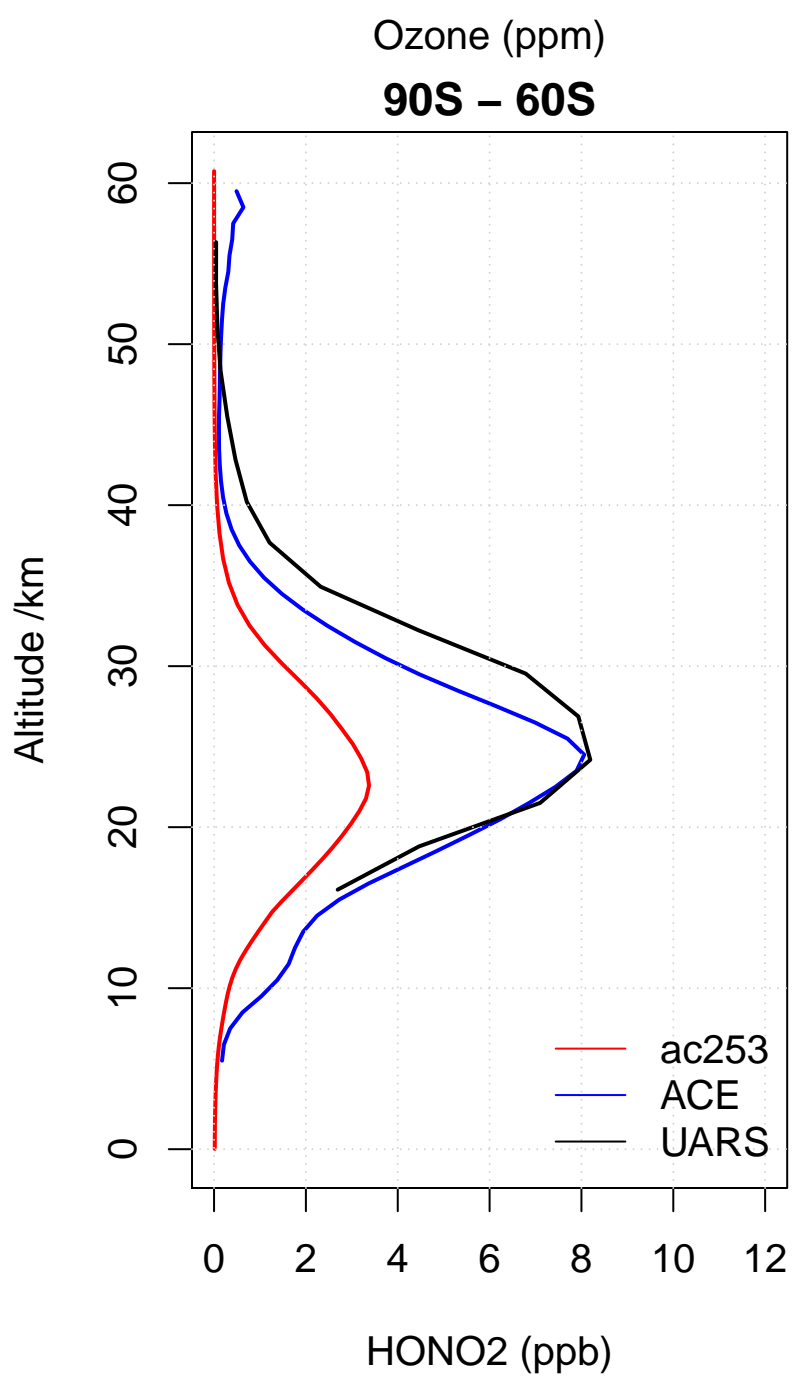
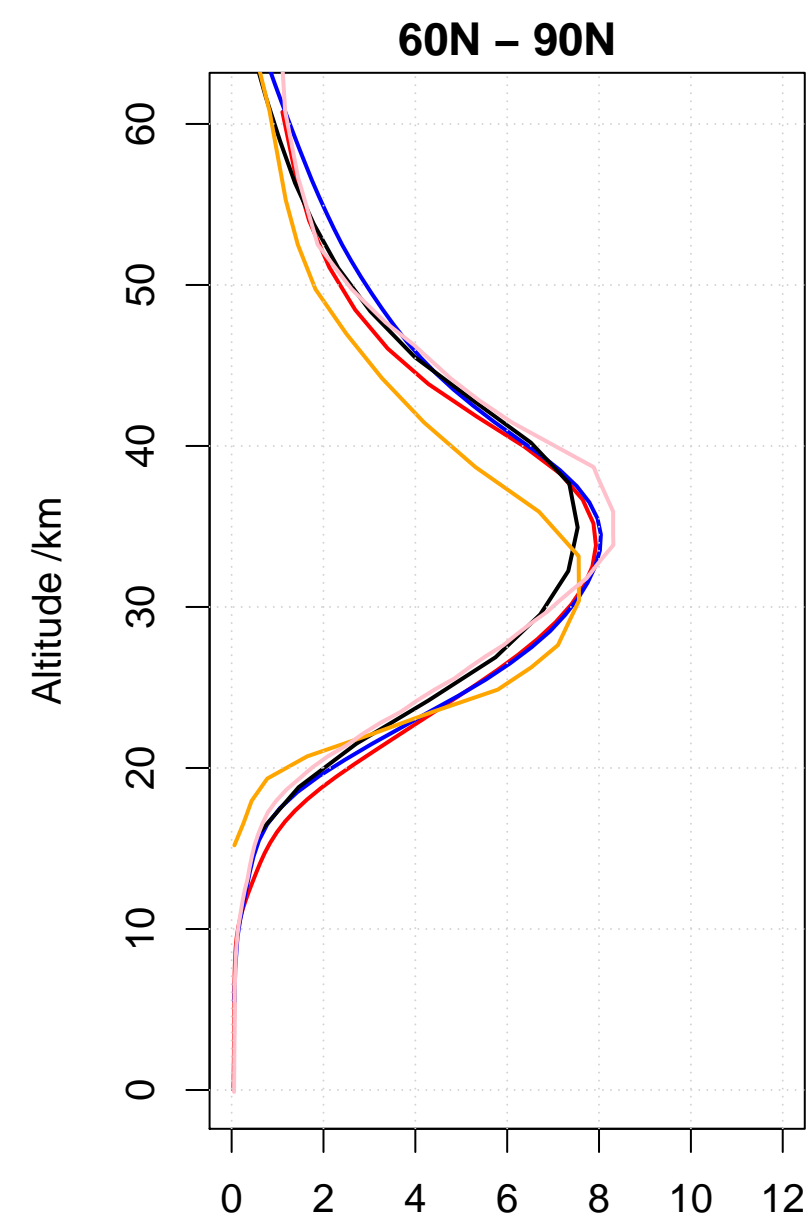
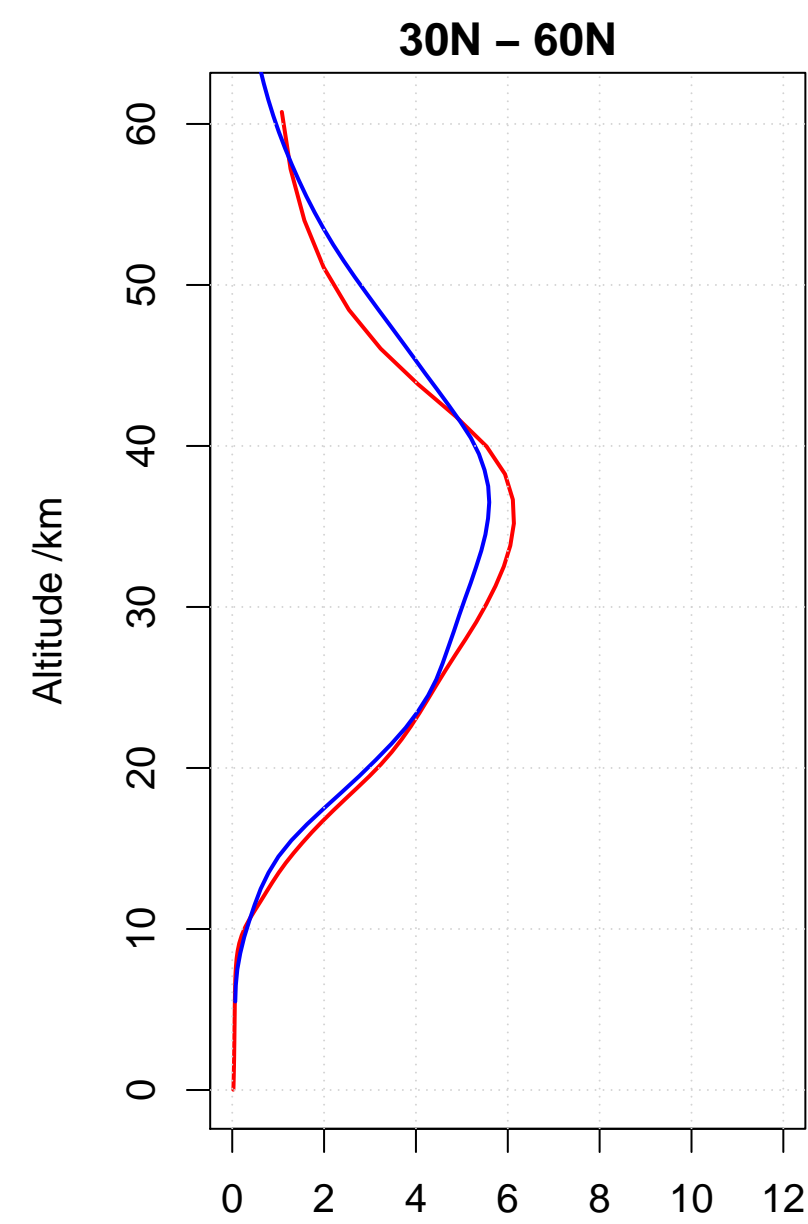
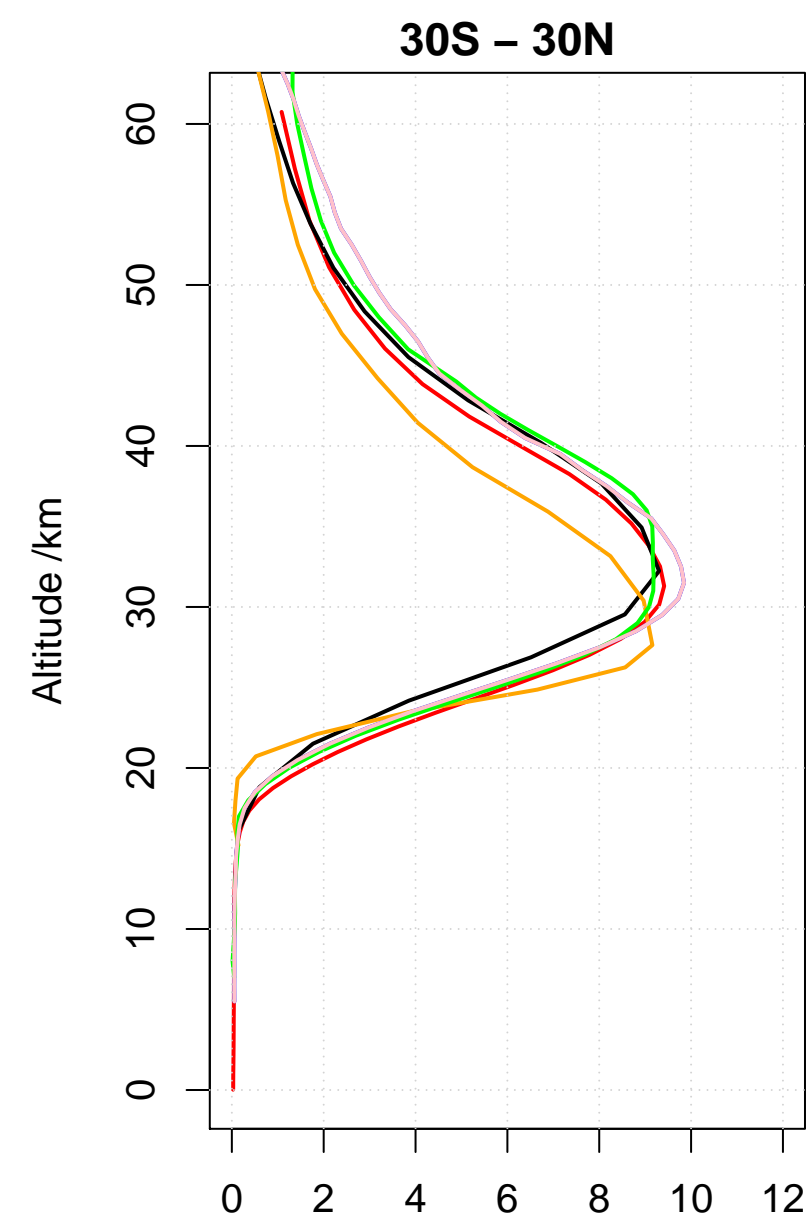
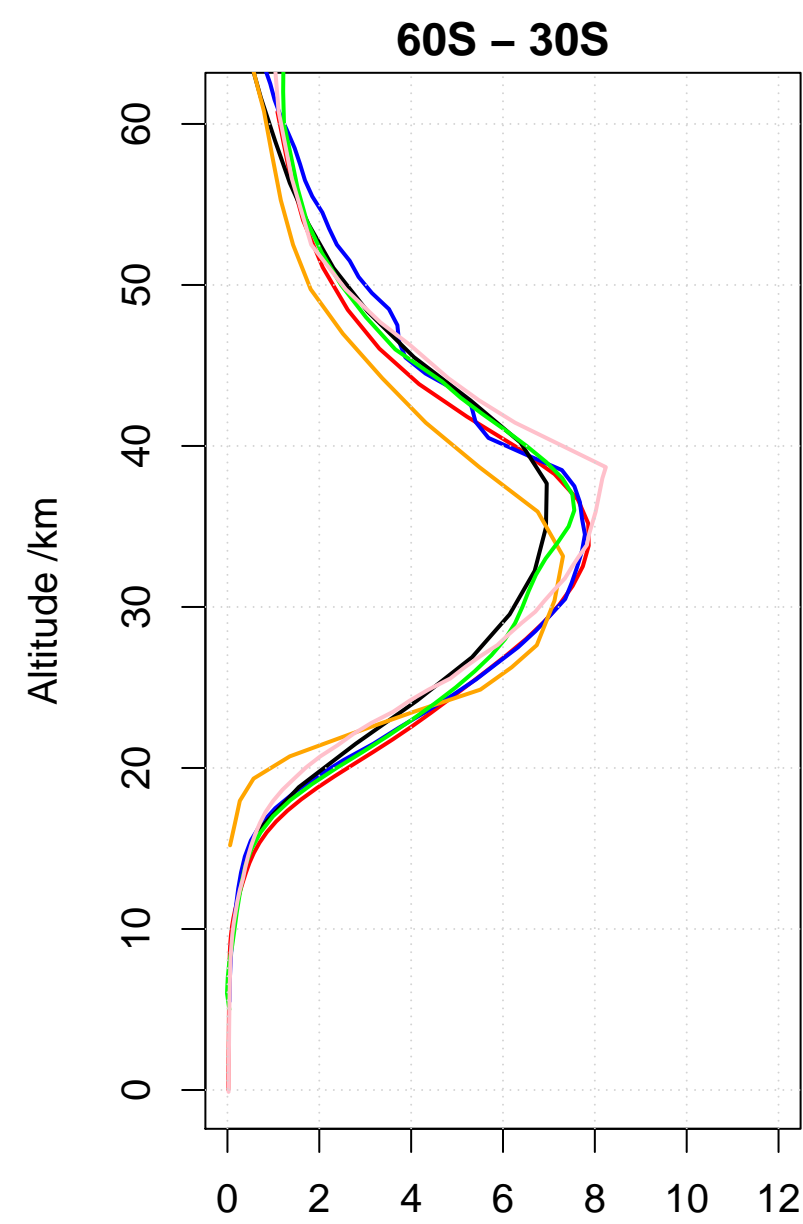
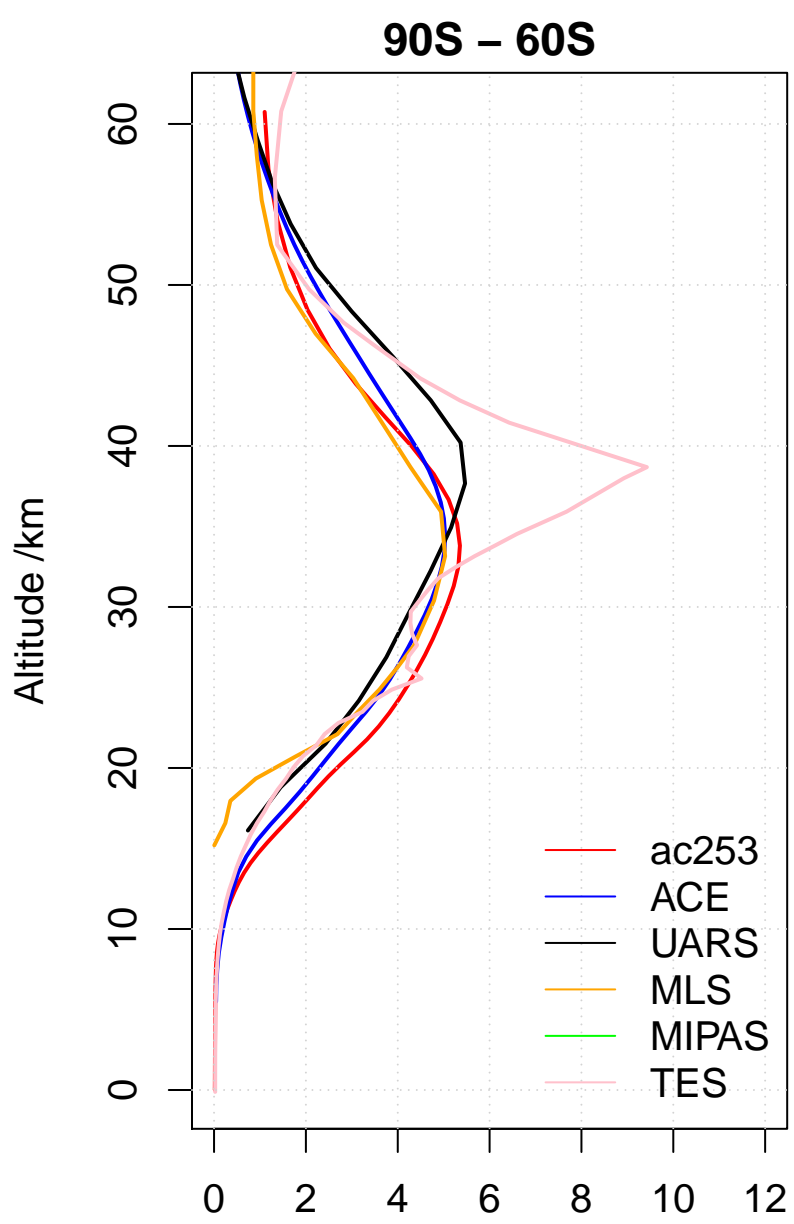
ac253 Loss of Tropospheric Ox

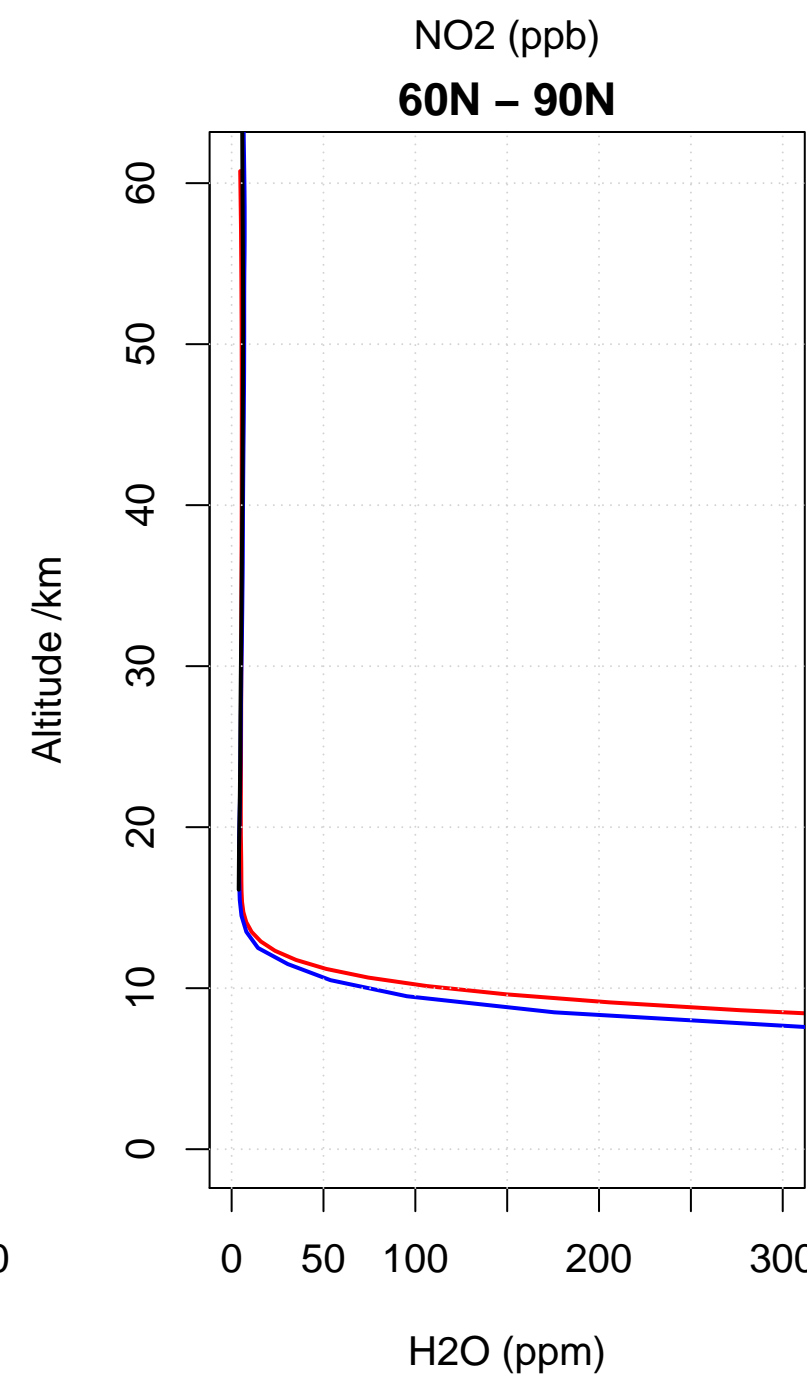
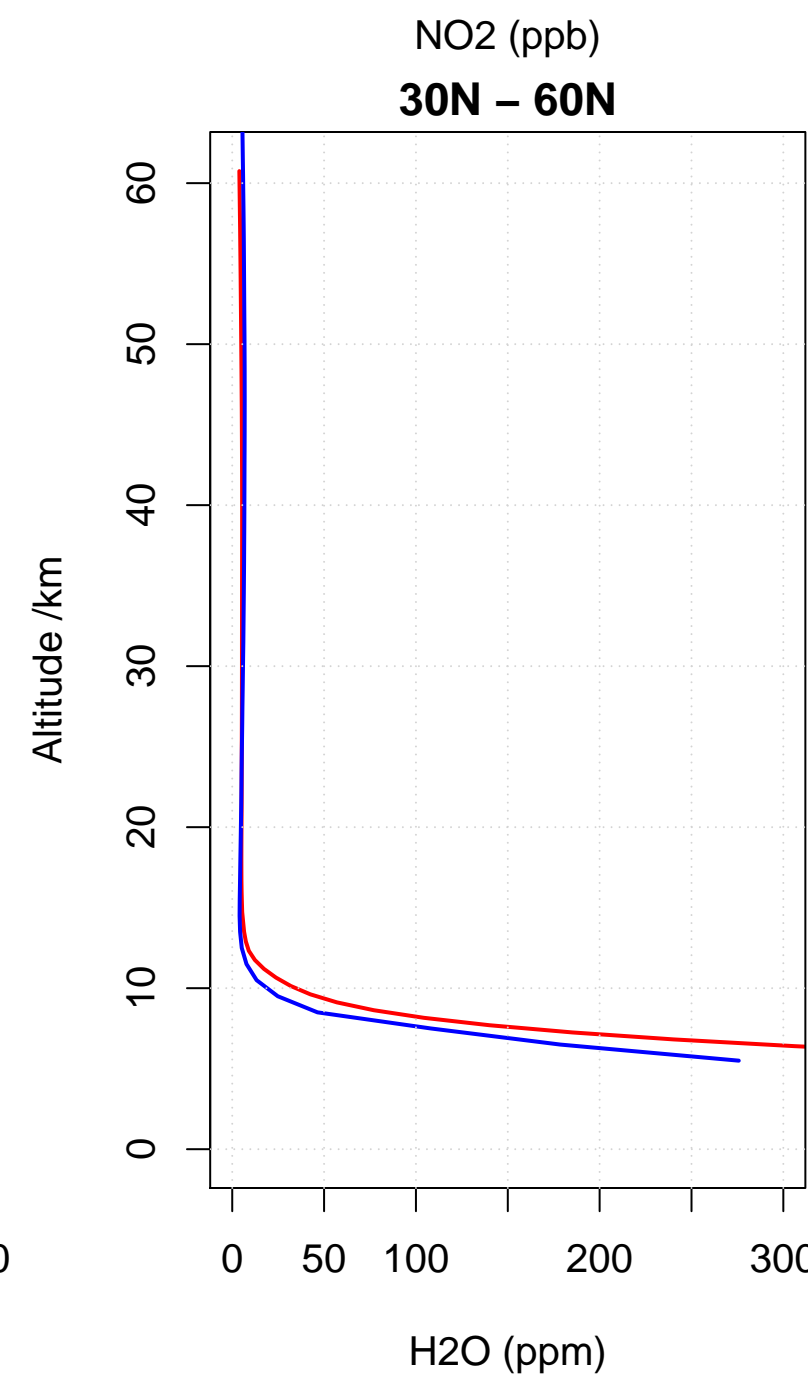
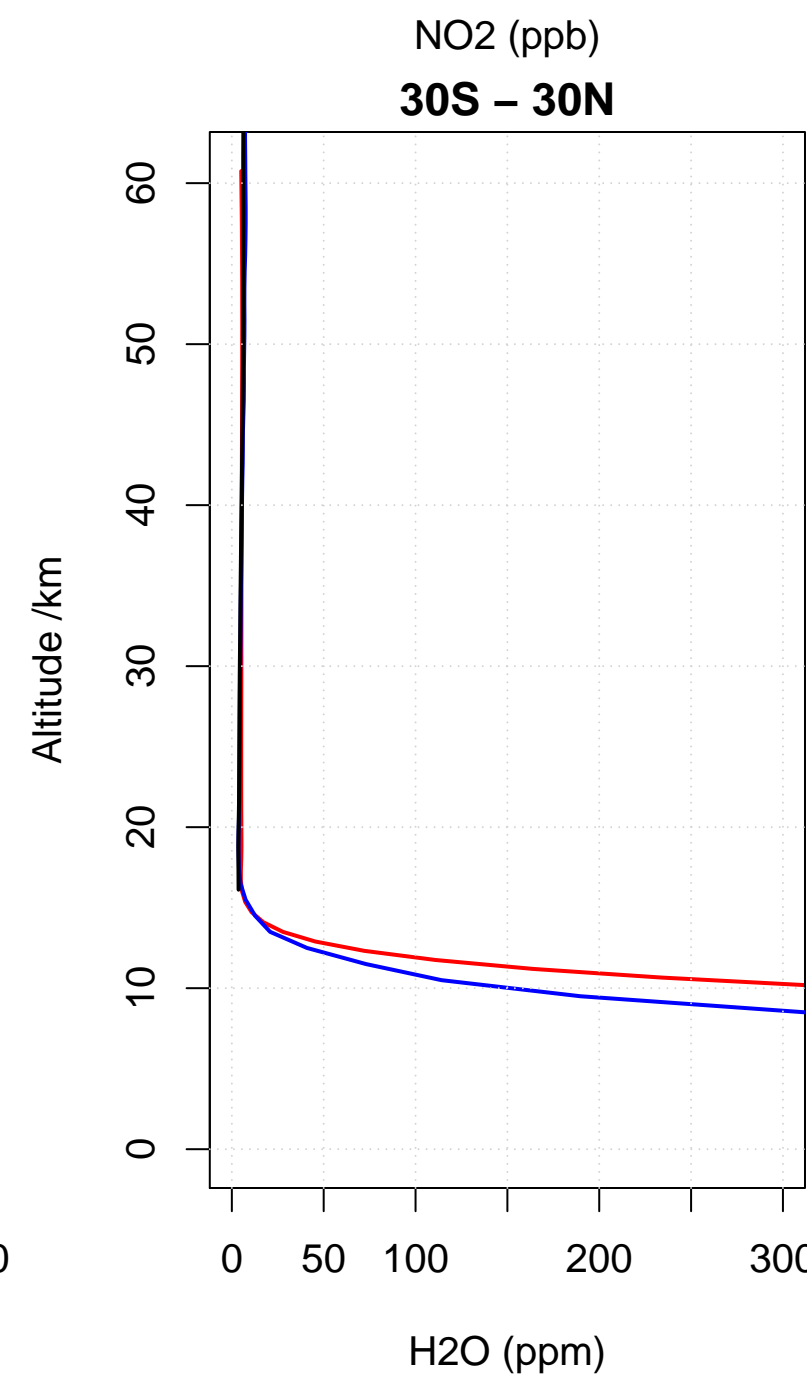
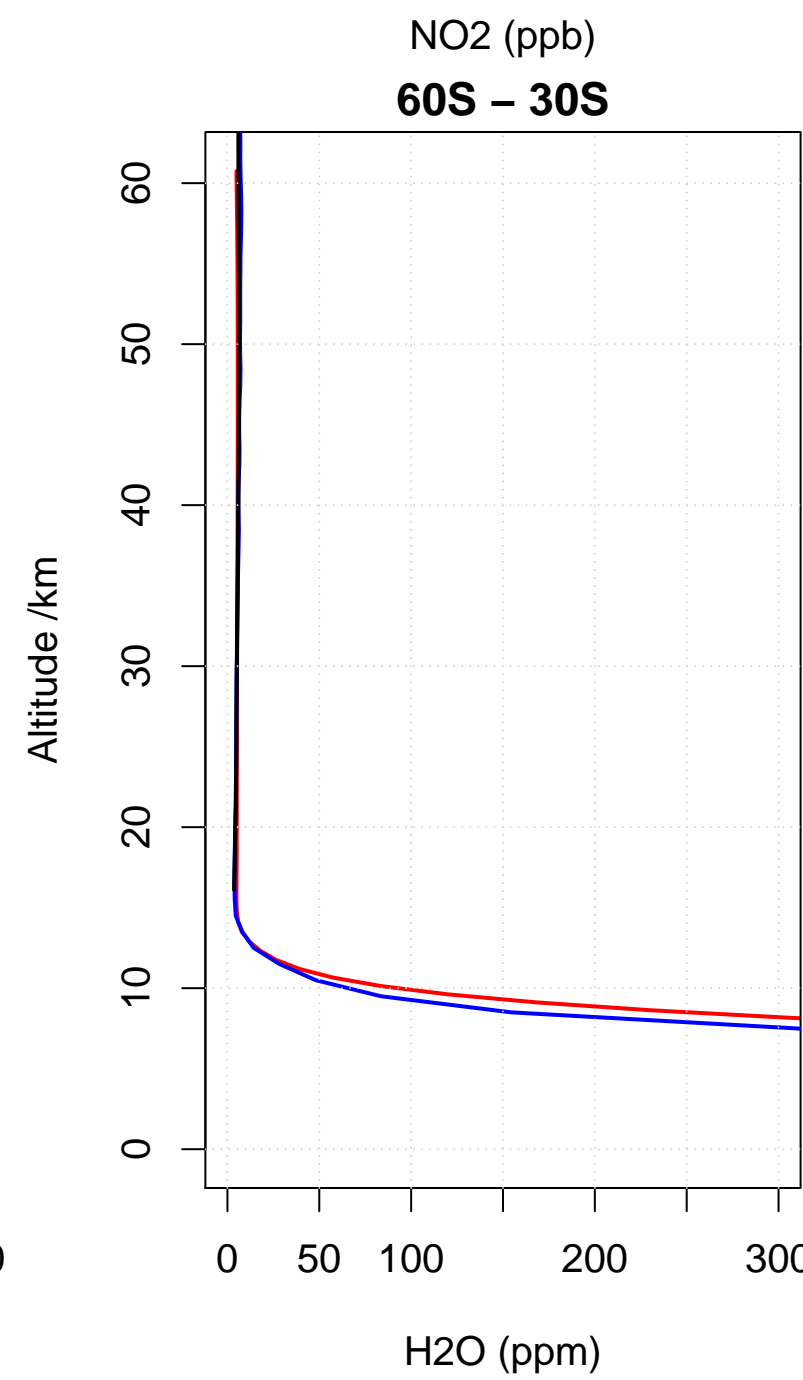
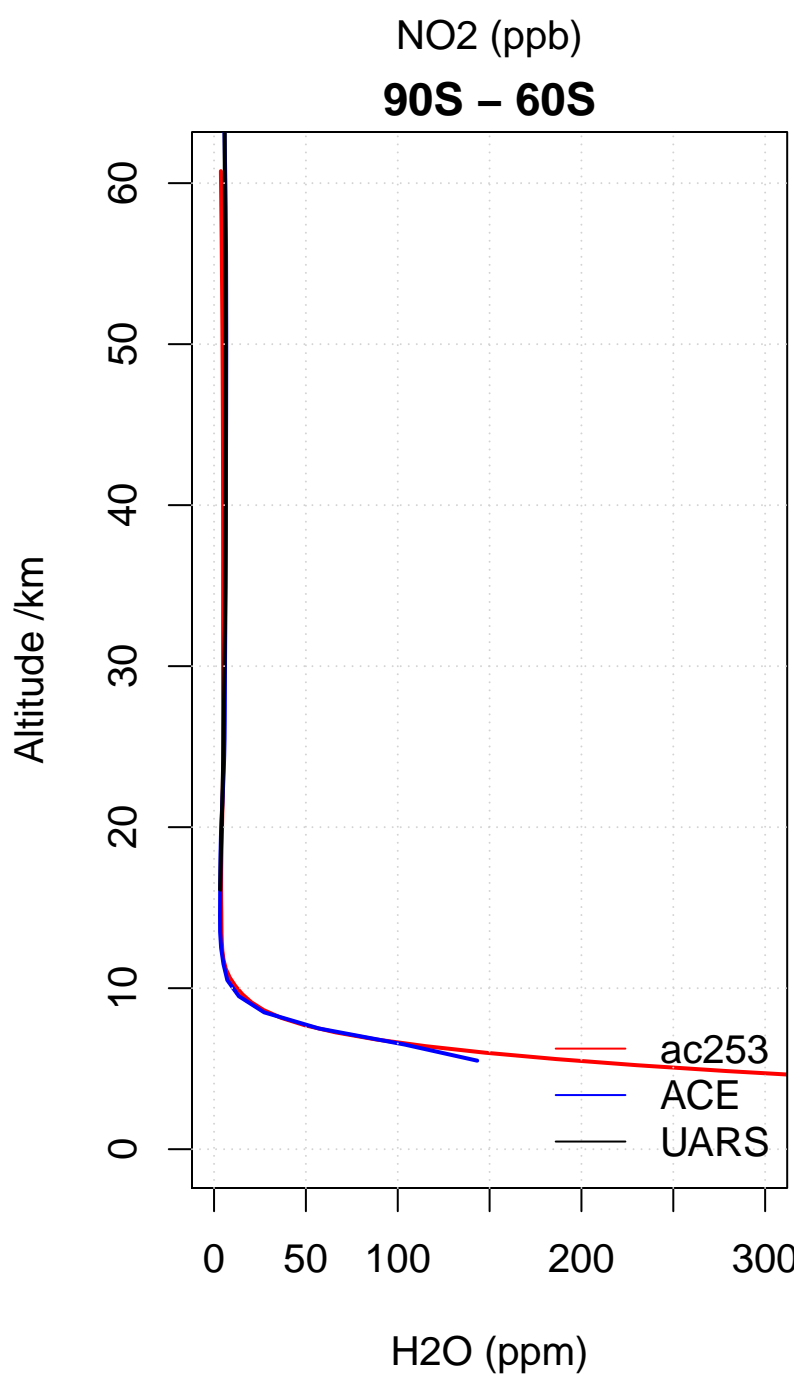
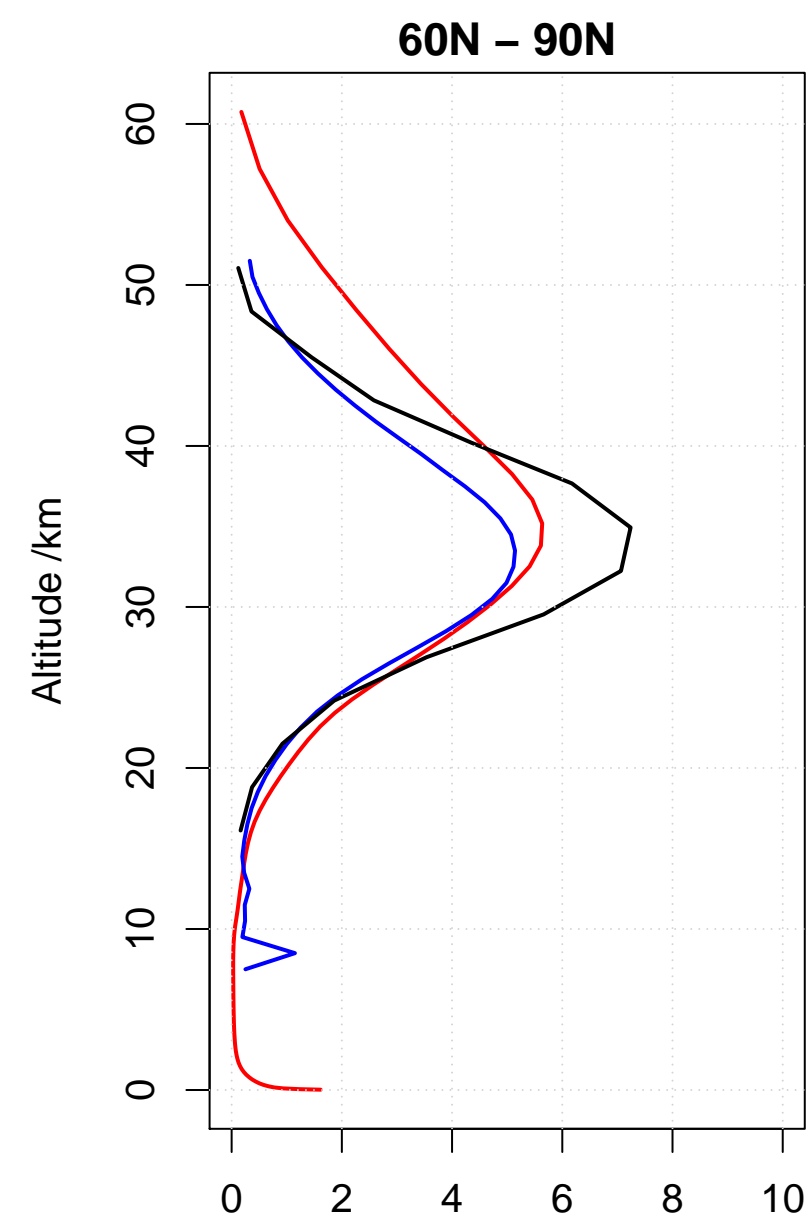
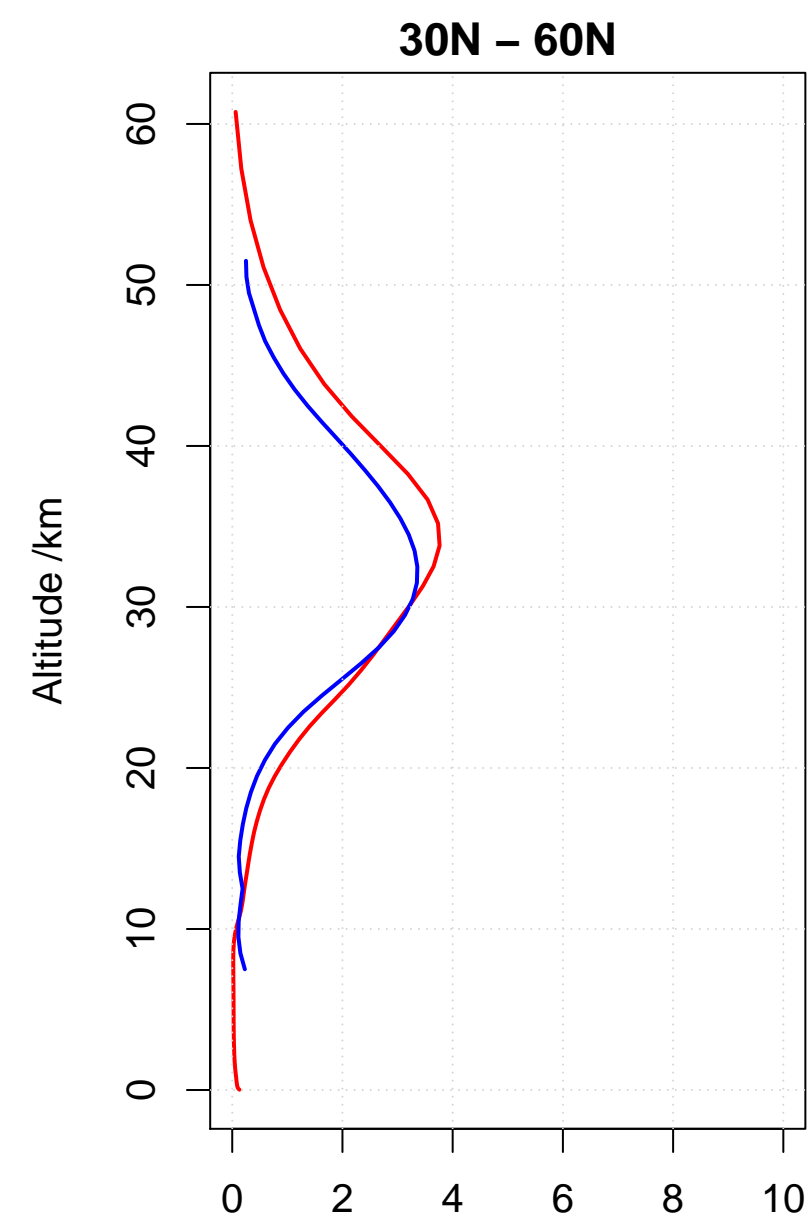
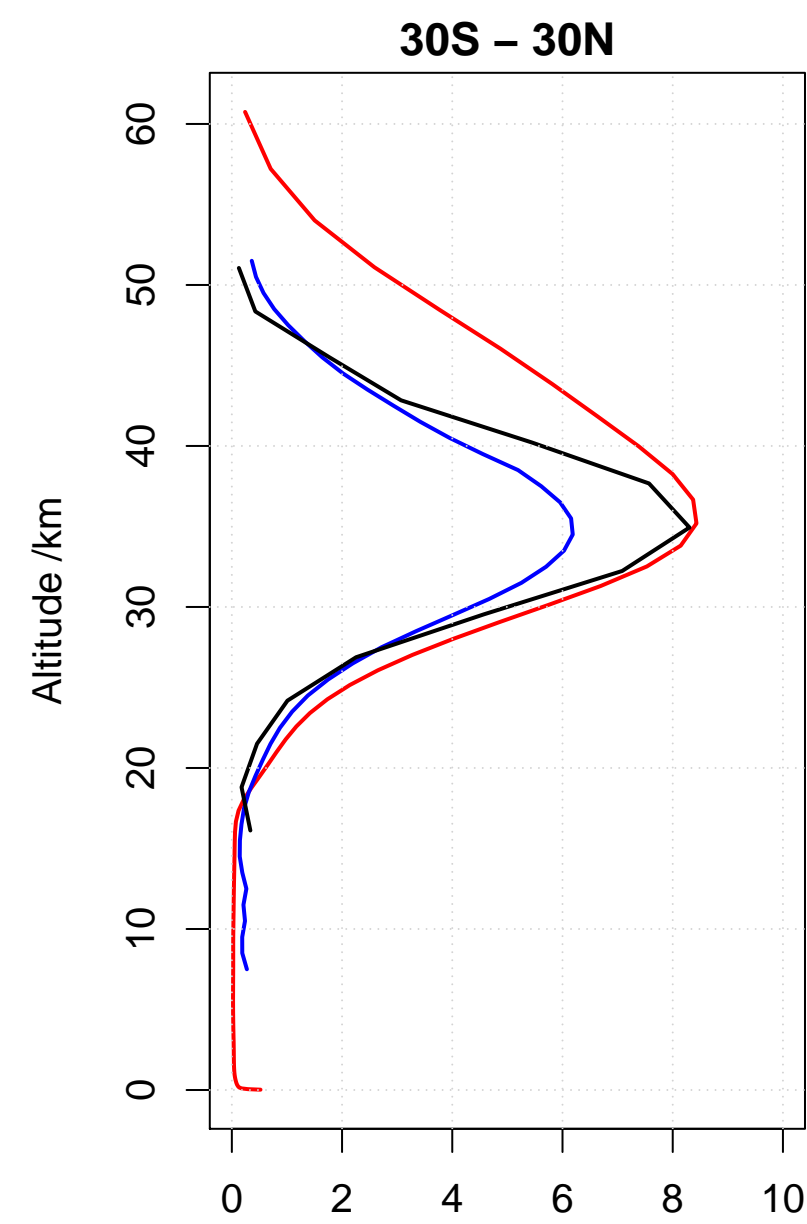
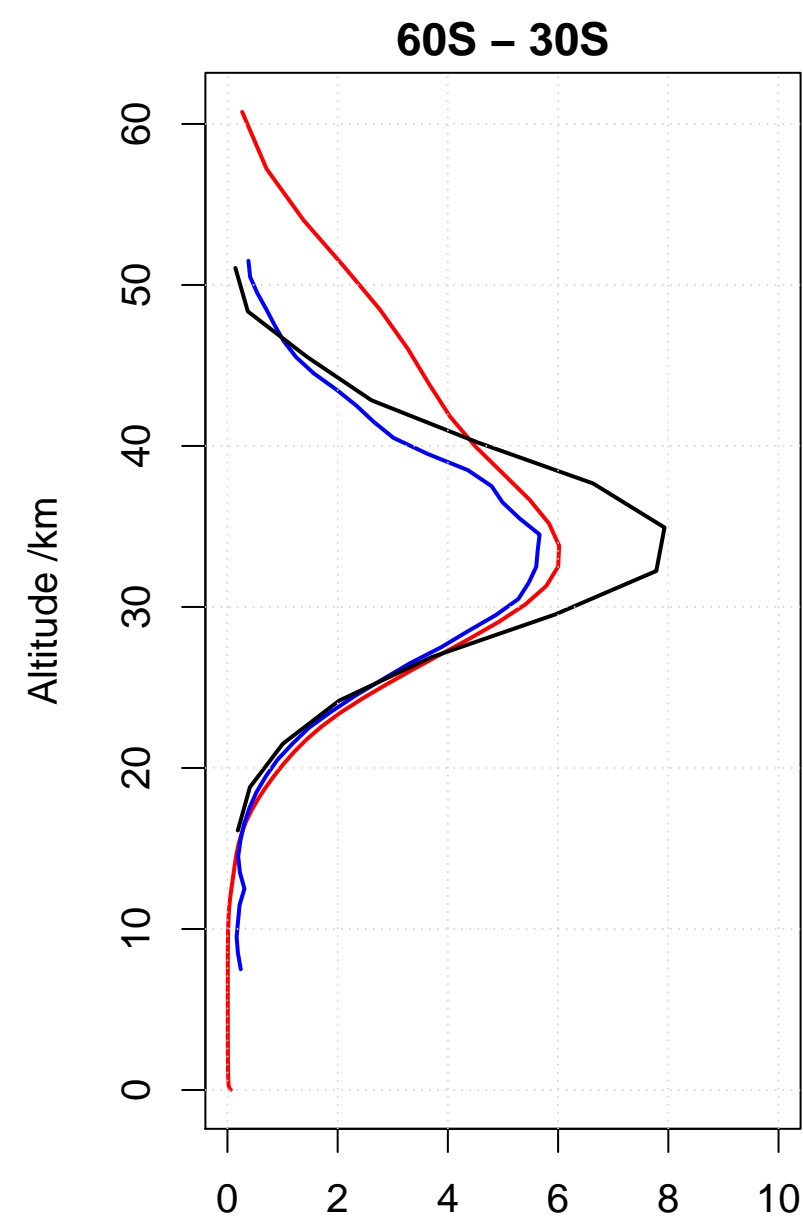
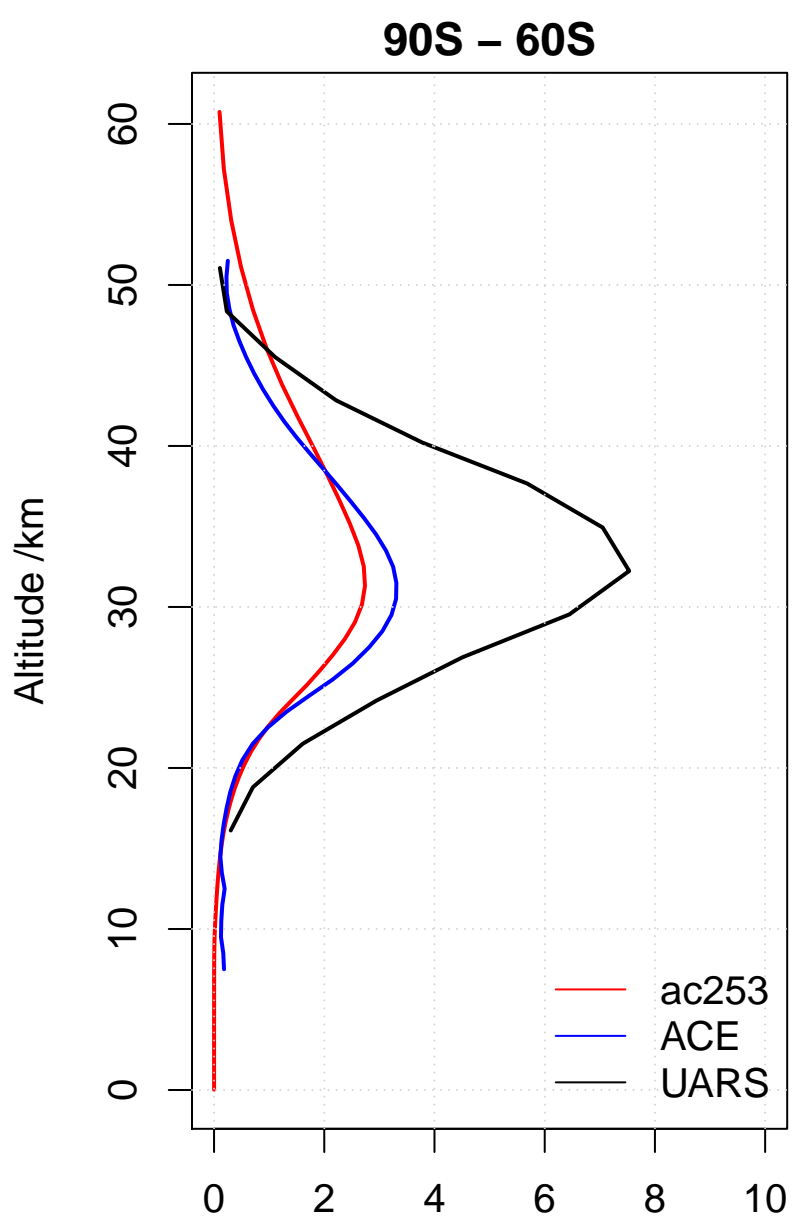


UKCA Ox deposition ac253

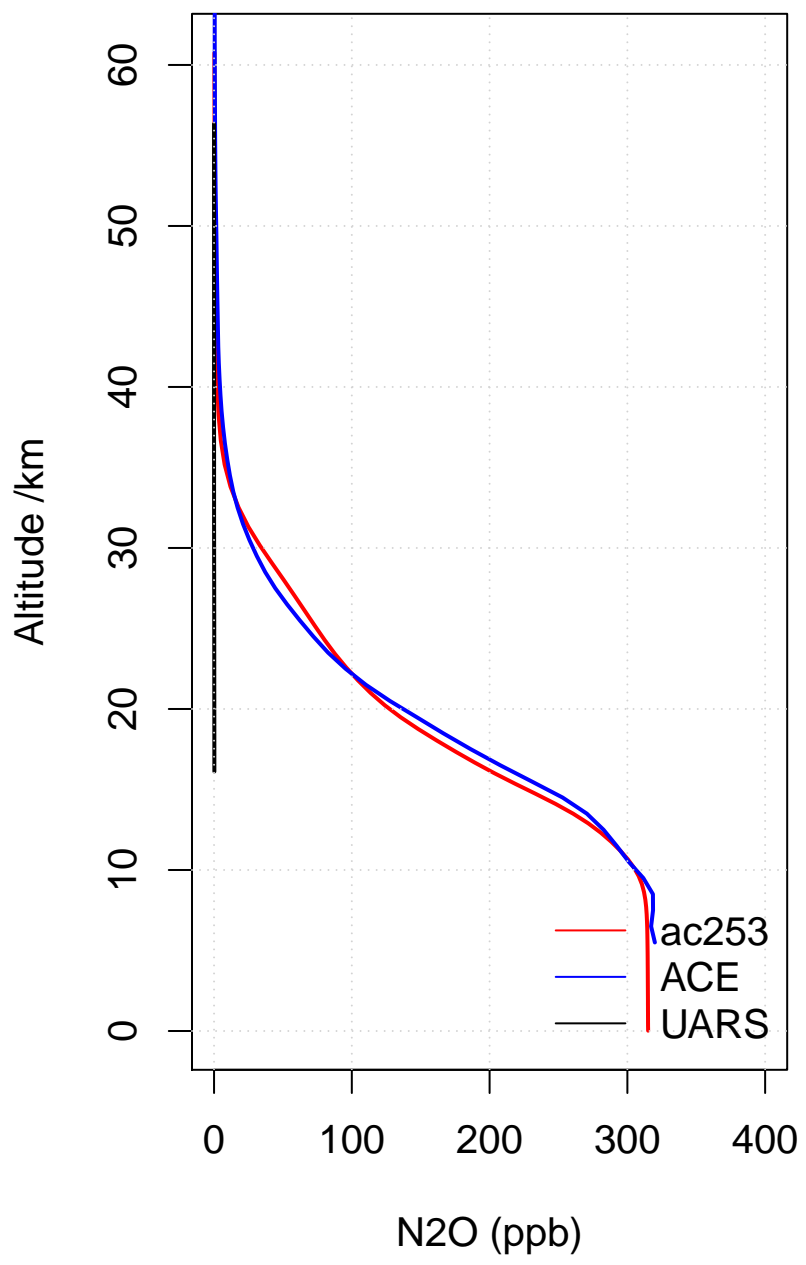
Total Ox Deposition = 955 Tg/yr



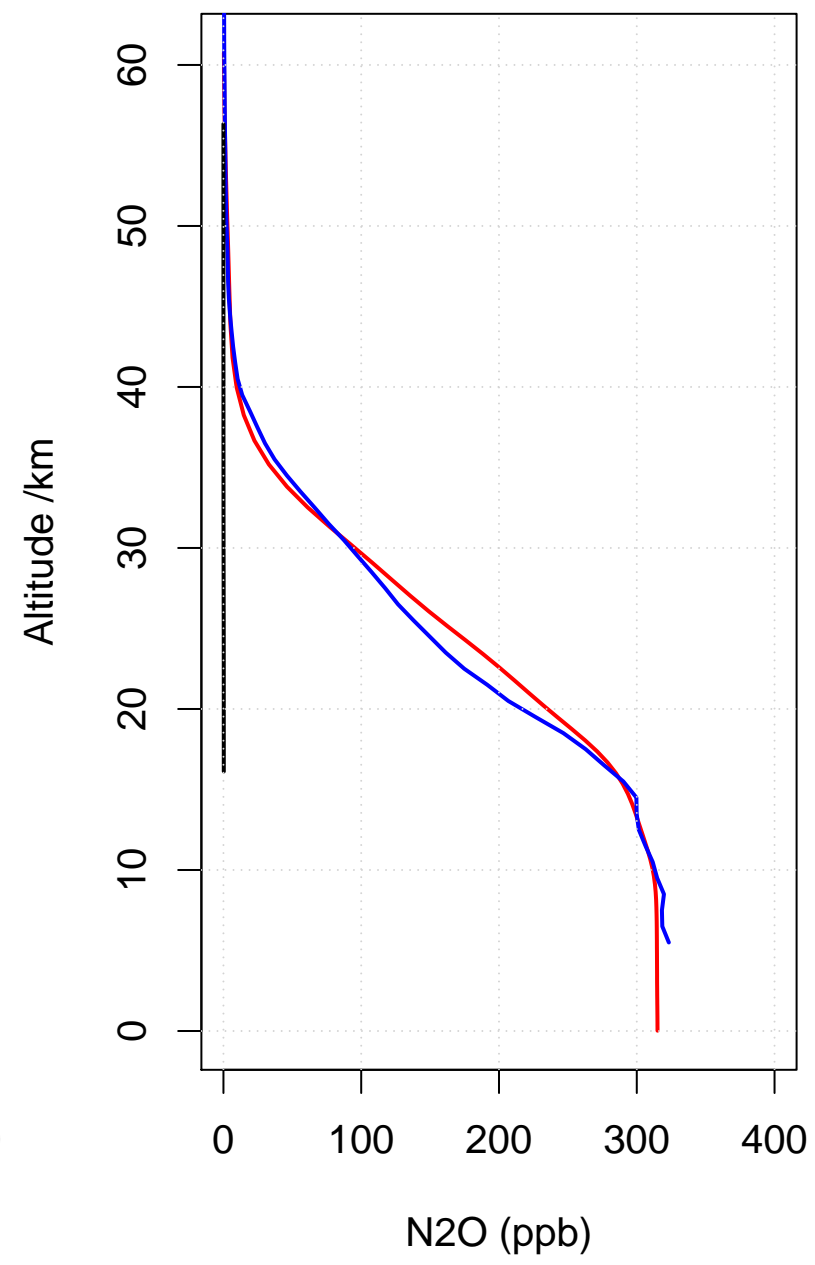




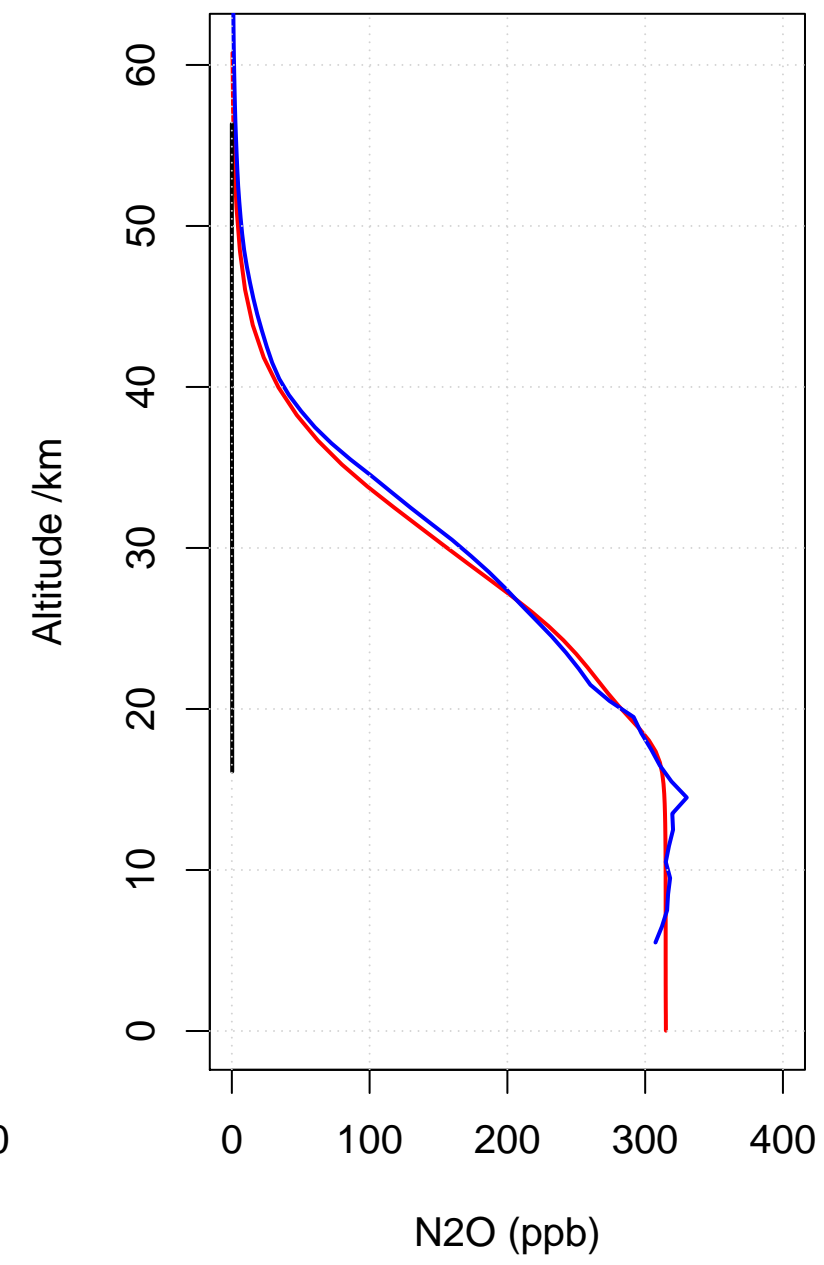
90S – 60S



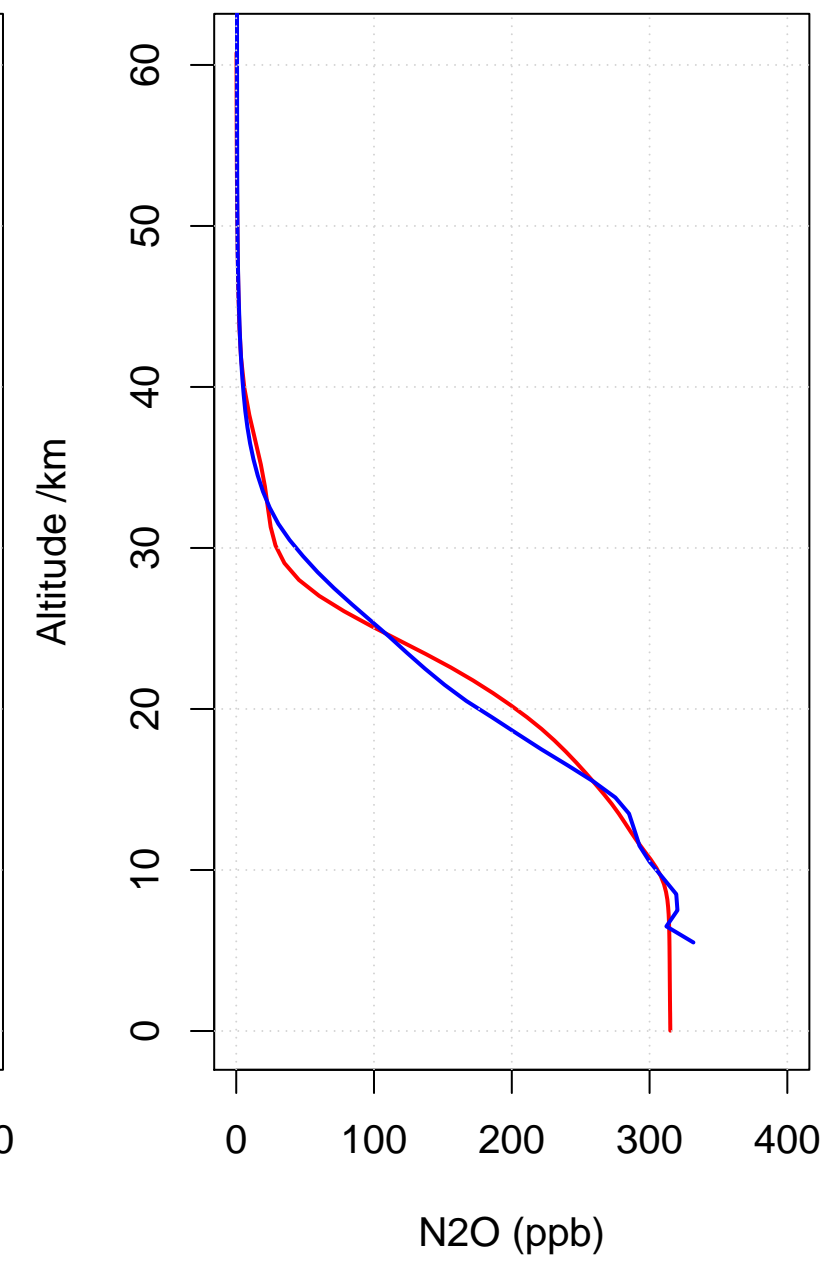
60S – 30S



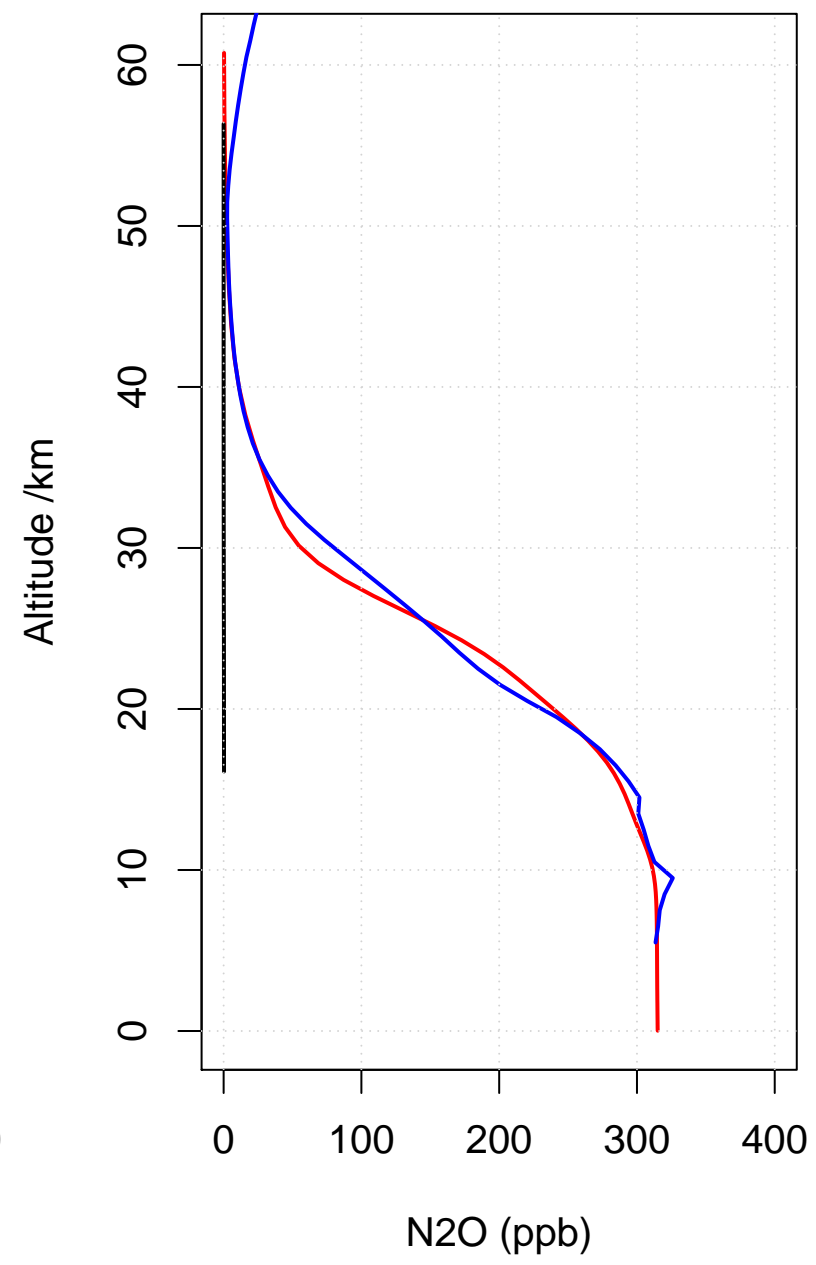
30S – 30N



30N – 60N



60N – 90N



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% CH₄ + OH flux (moles cm⁻³ s⁻¹)

