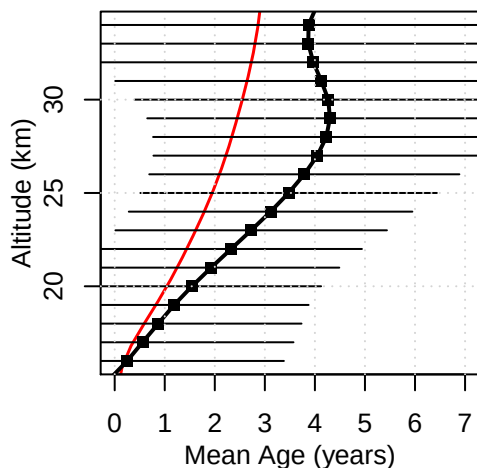
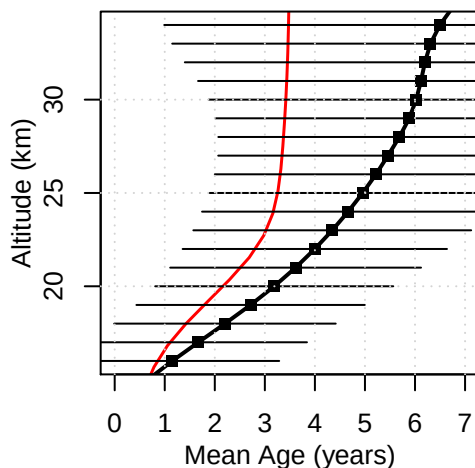


# UKCA xjcir Mean Age of Air

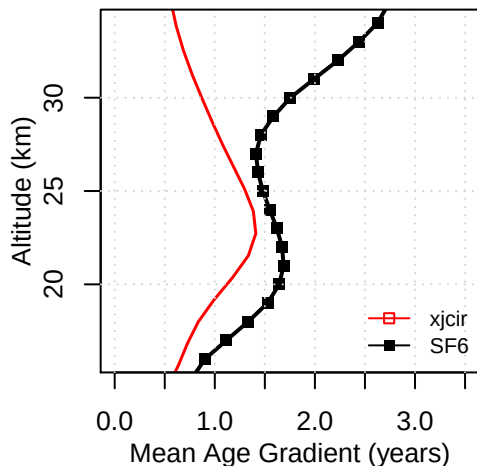
## Tropical Mean Age Profile



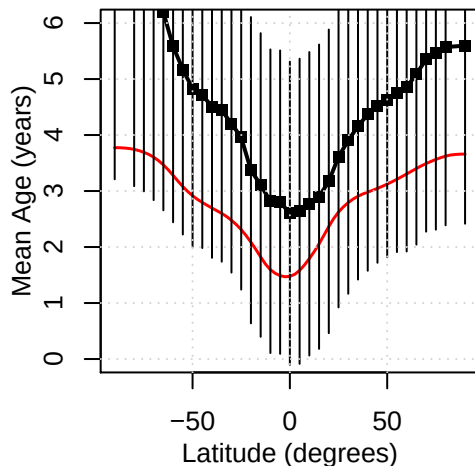
## Midlatitude Mean Age Profile



## Trop-Midlat Mean Age Gradient Prof

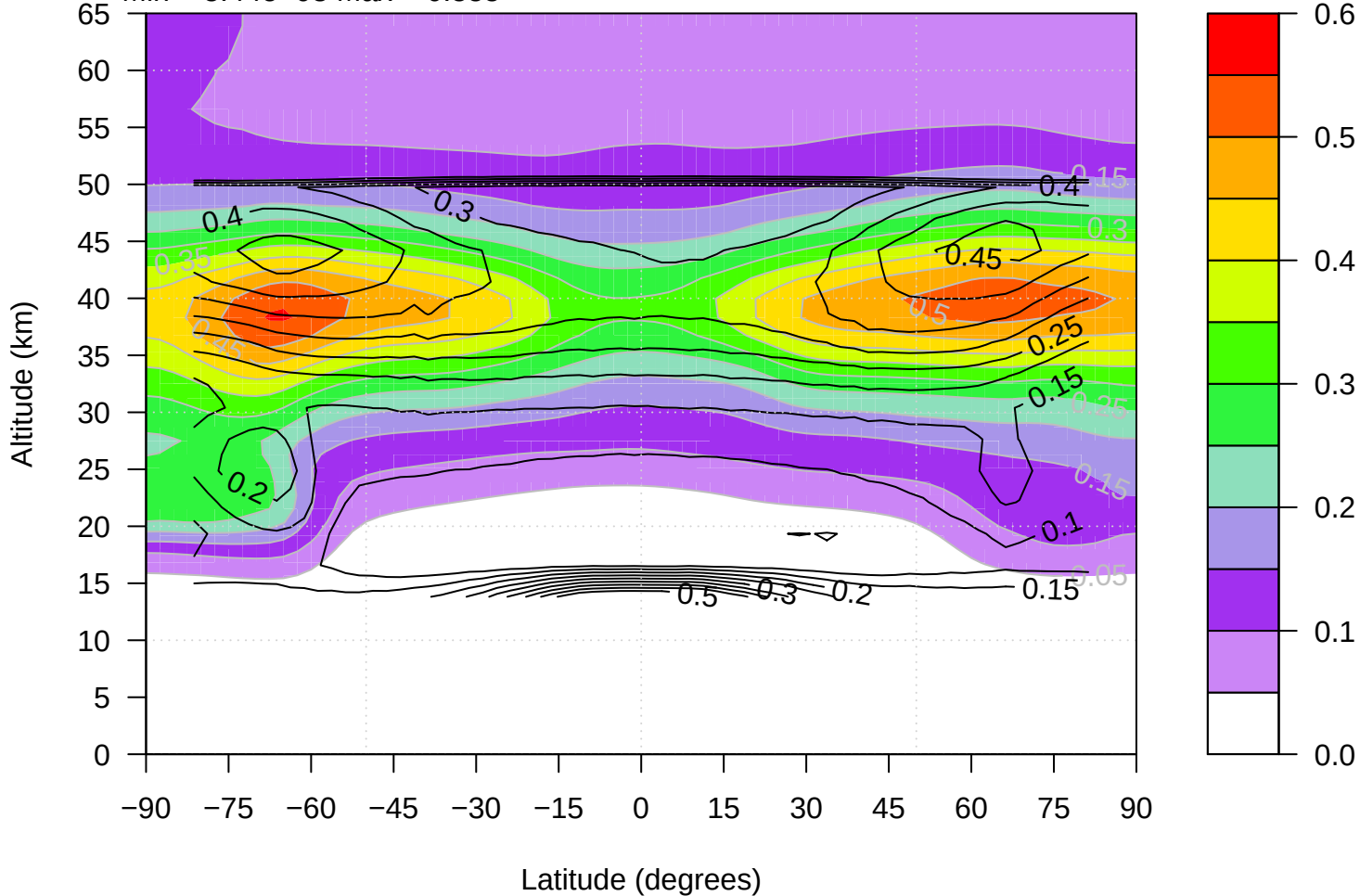


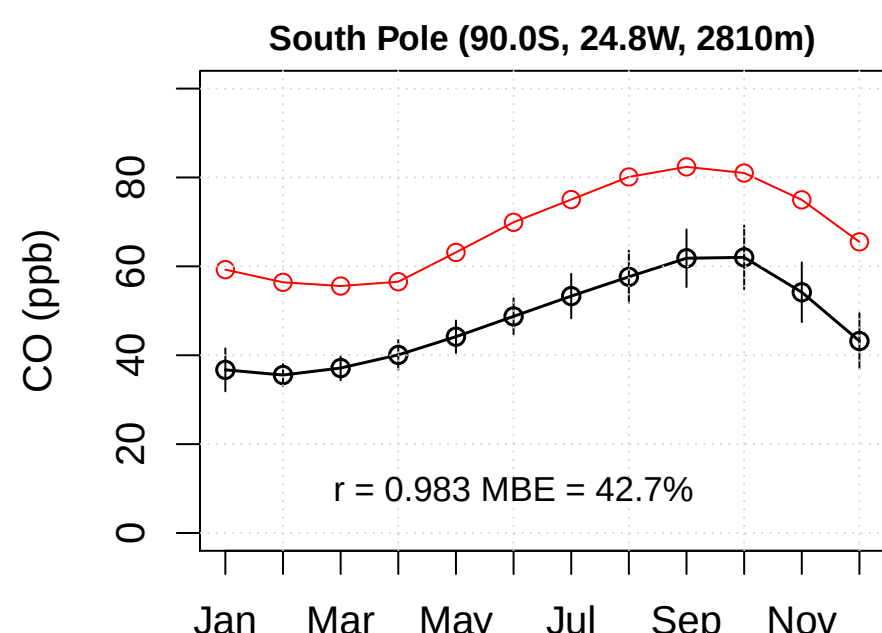
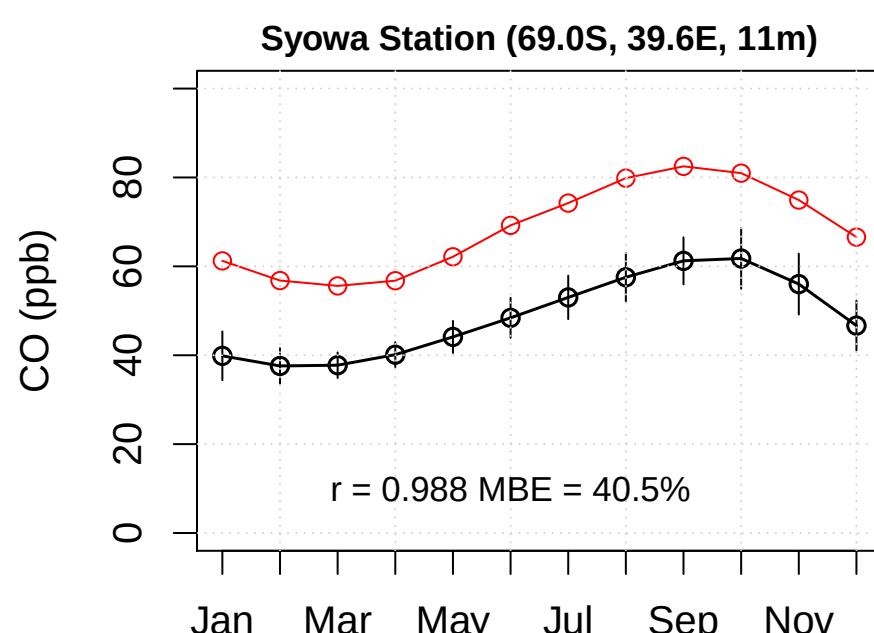
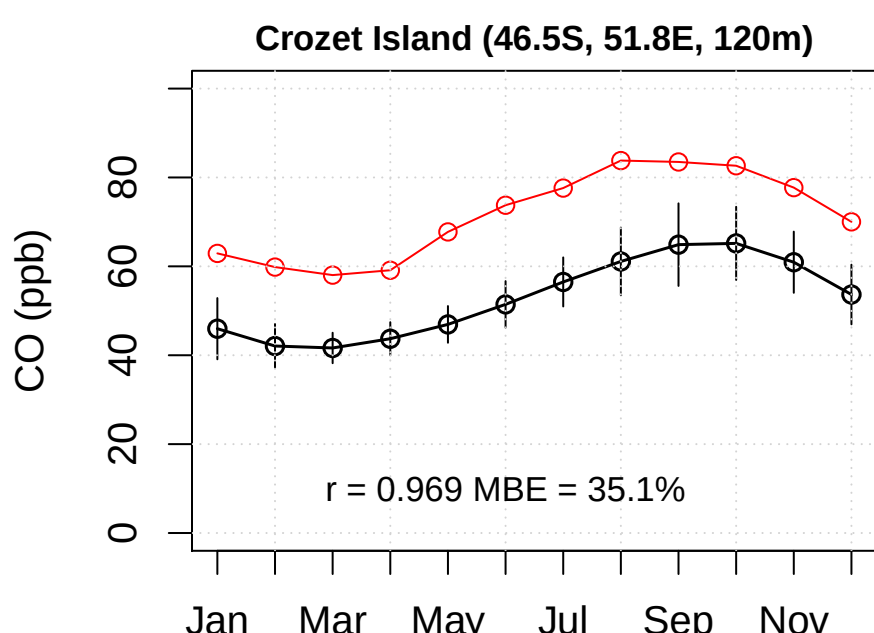
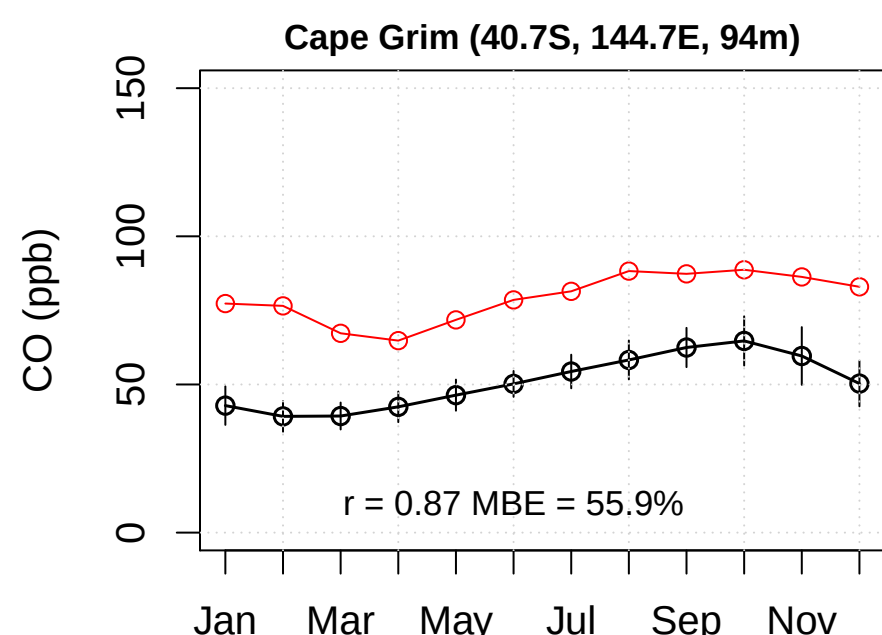
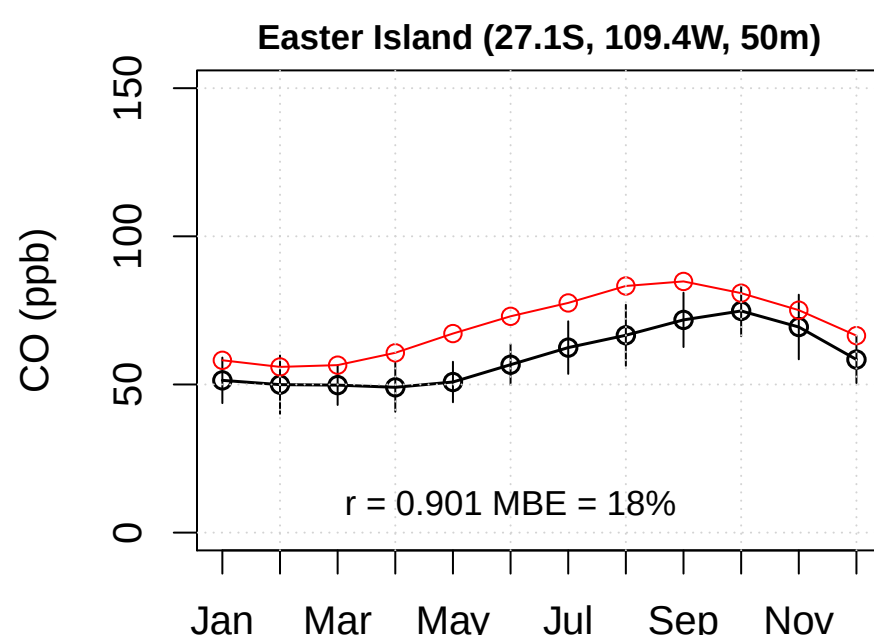
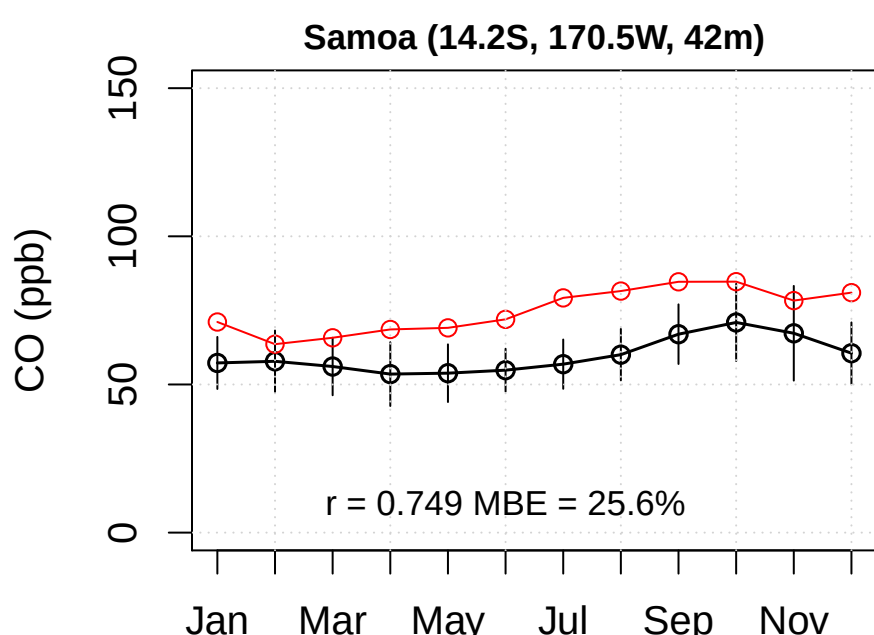
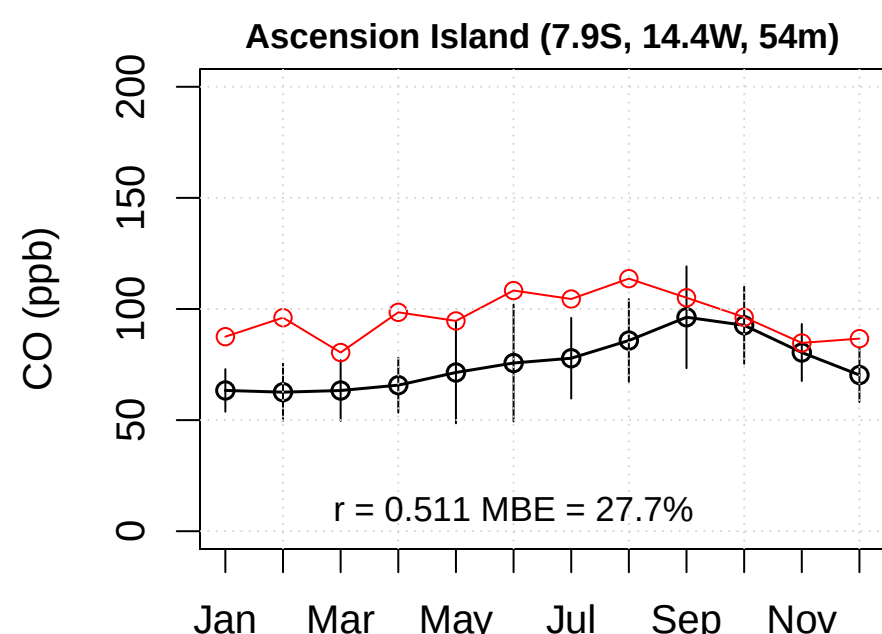
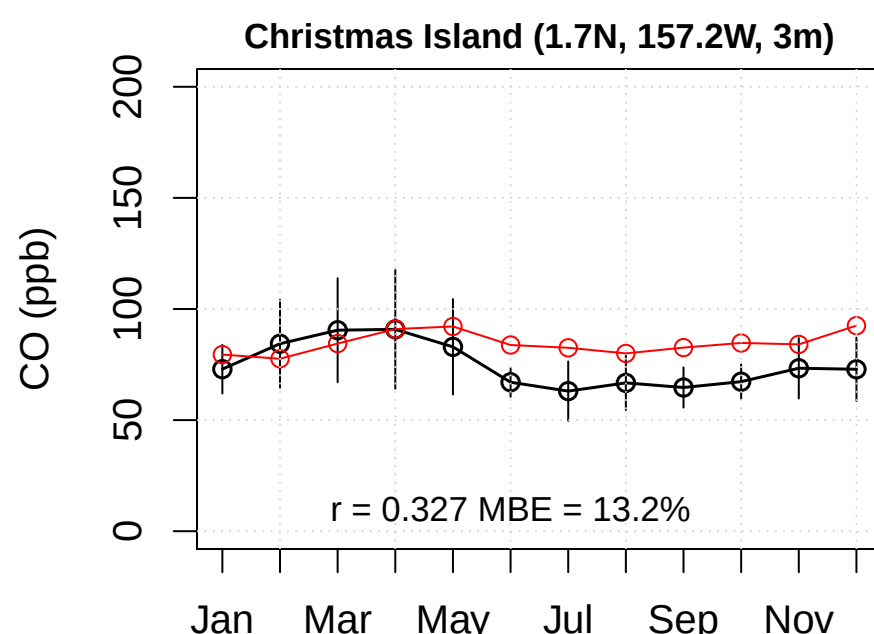
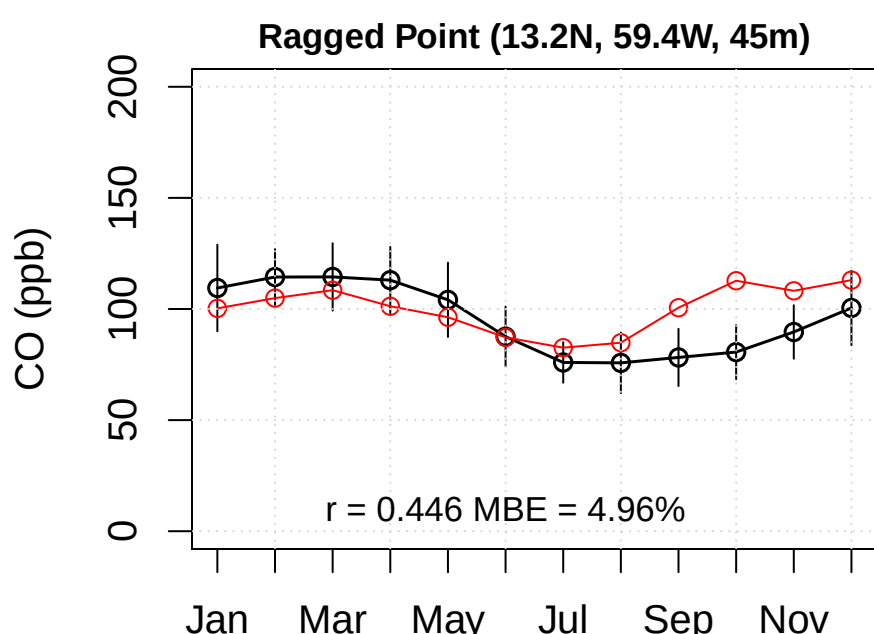
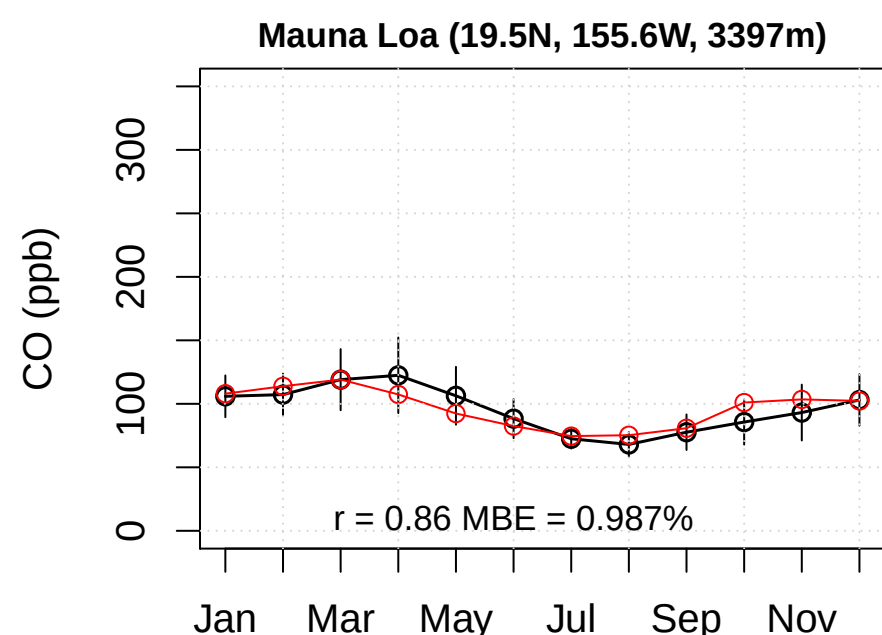
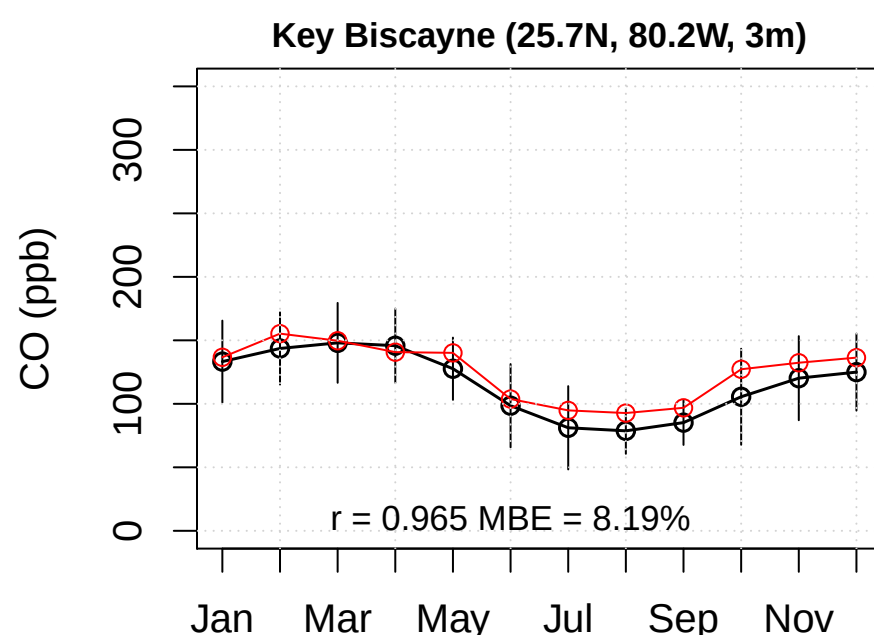
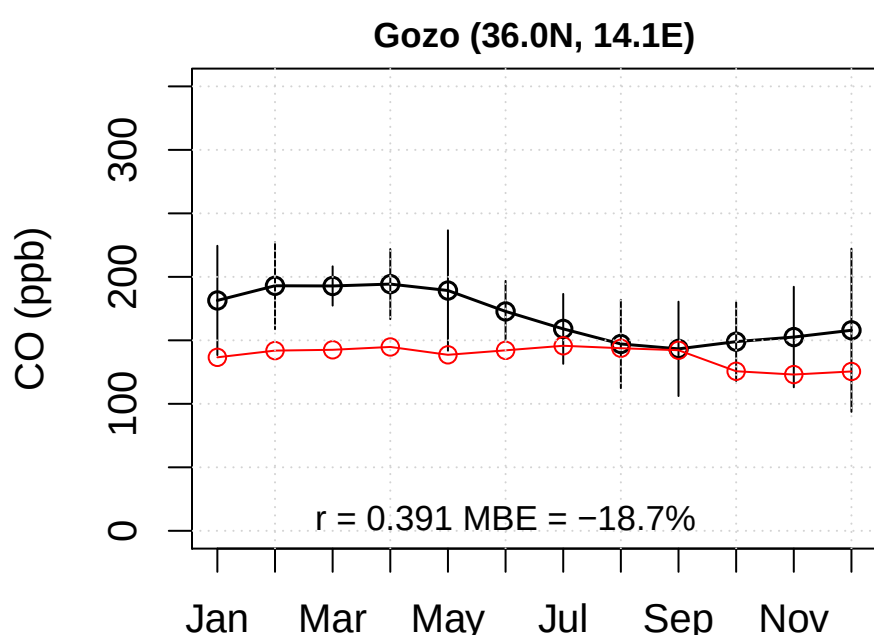
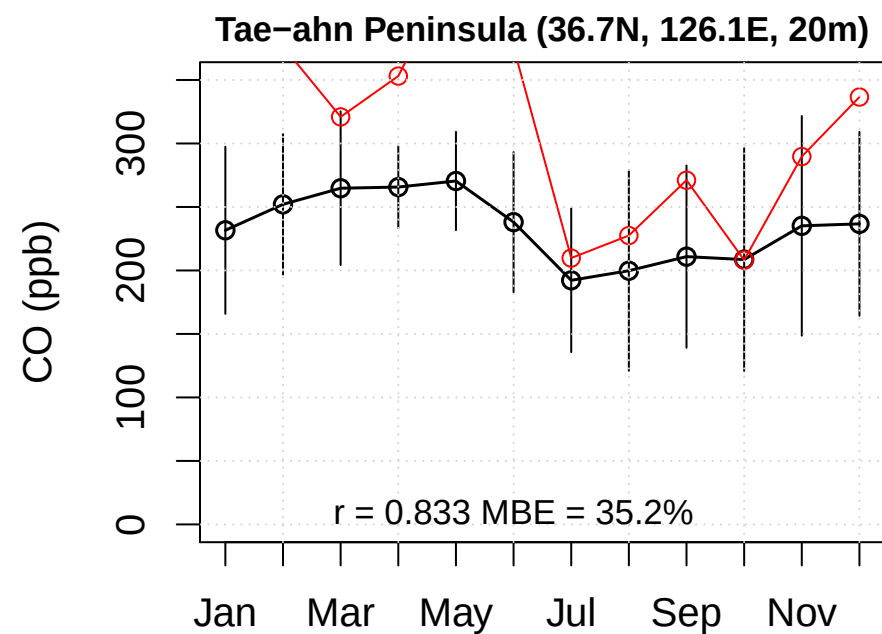
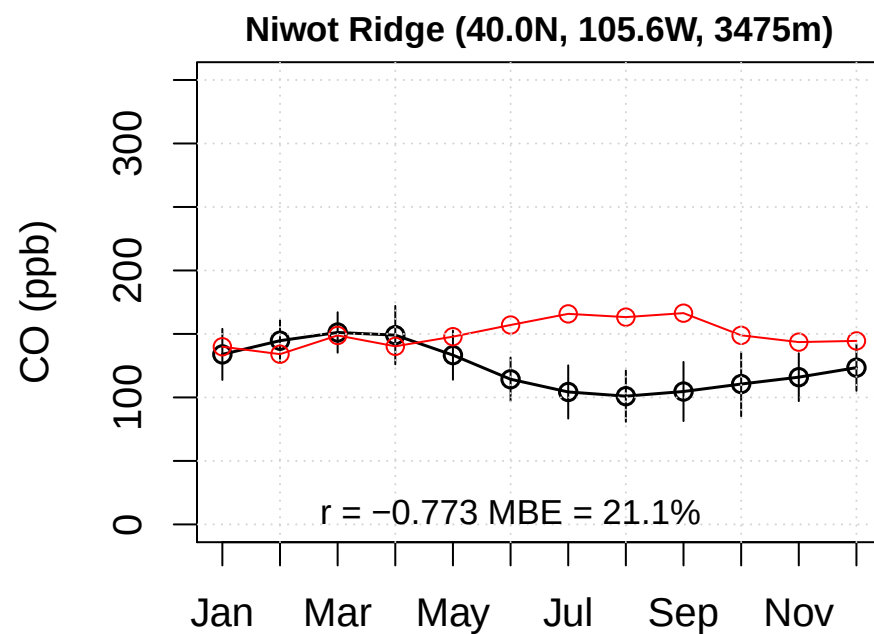
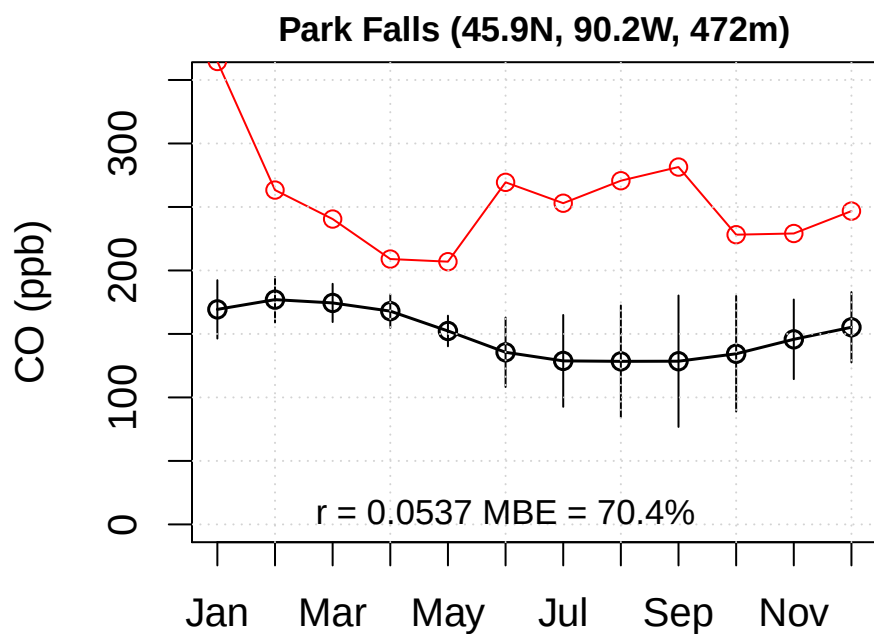
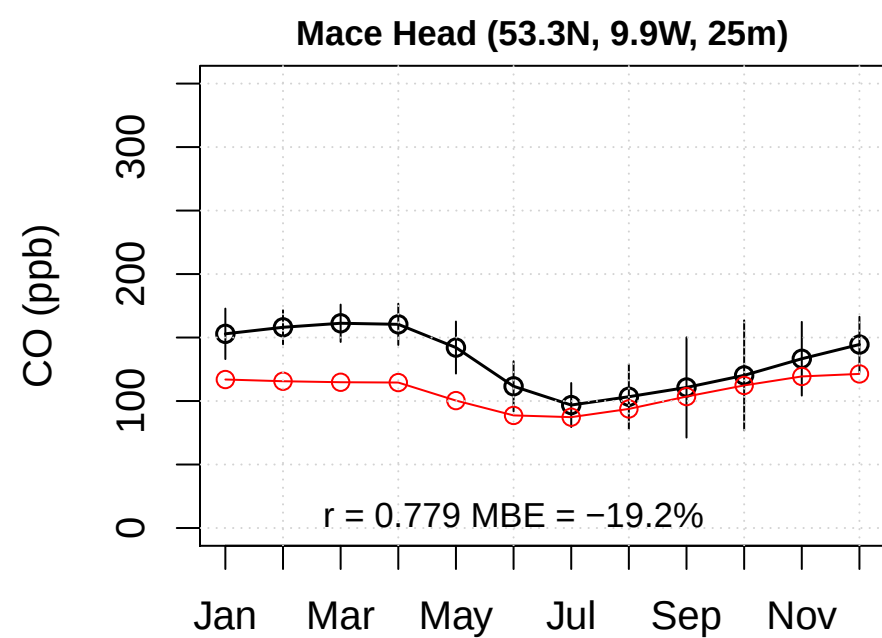
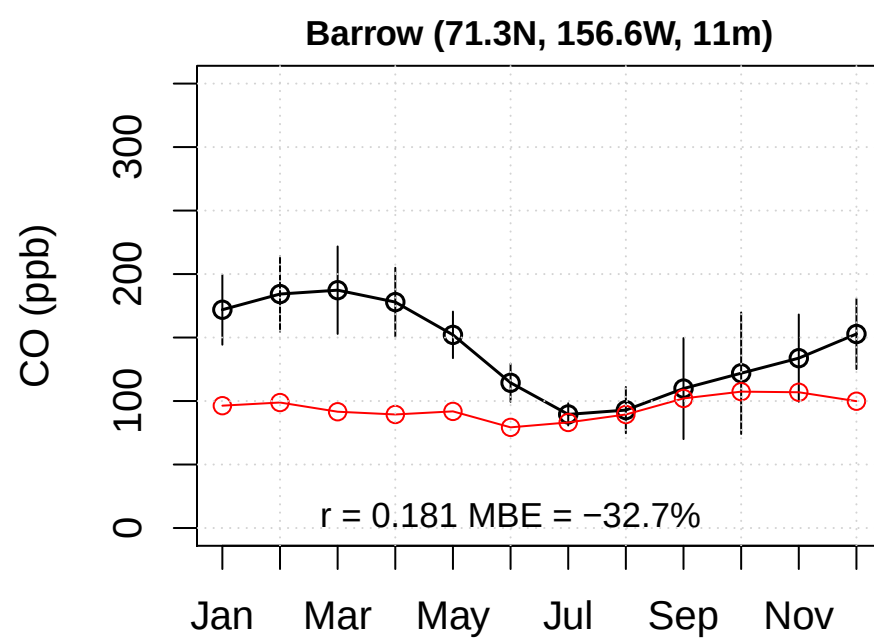
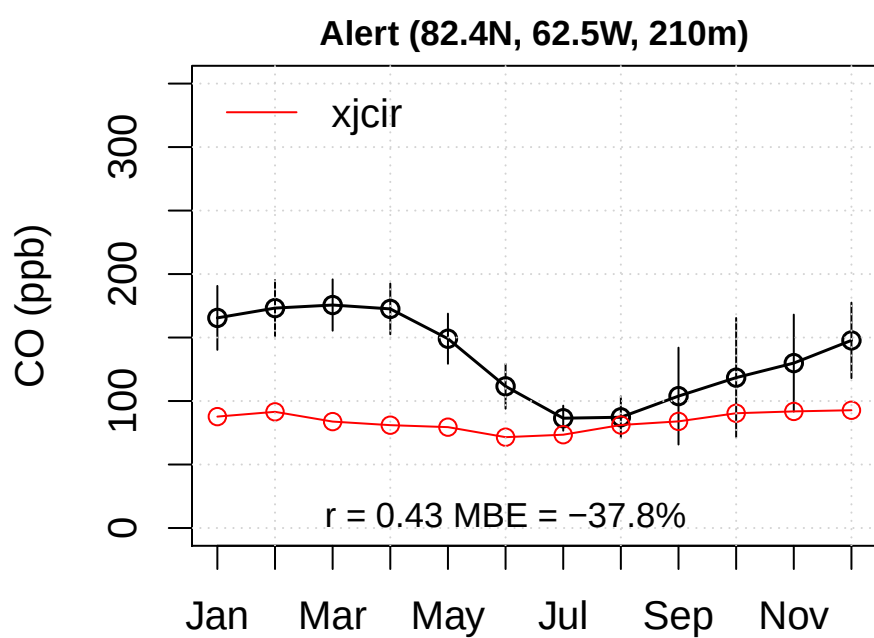
## Mean Age, 23km (~50hPa)



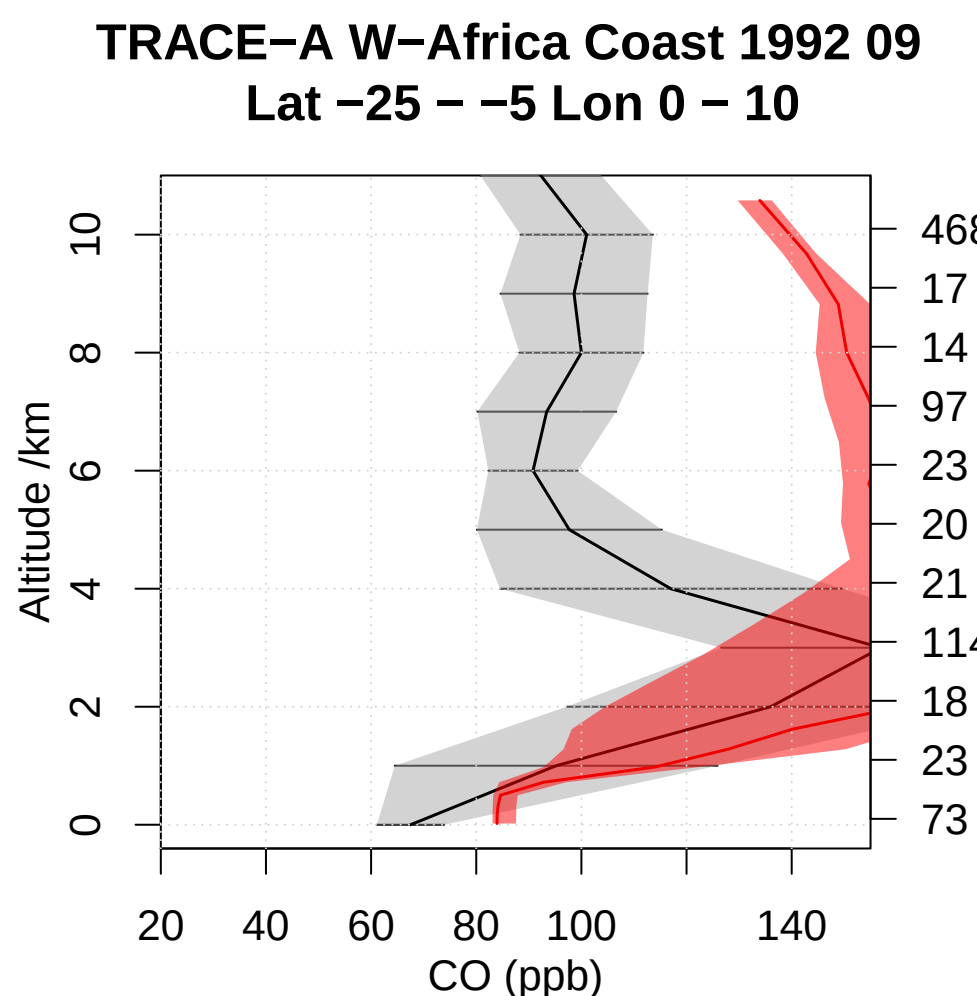
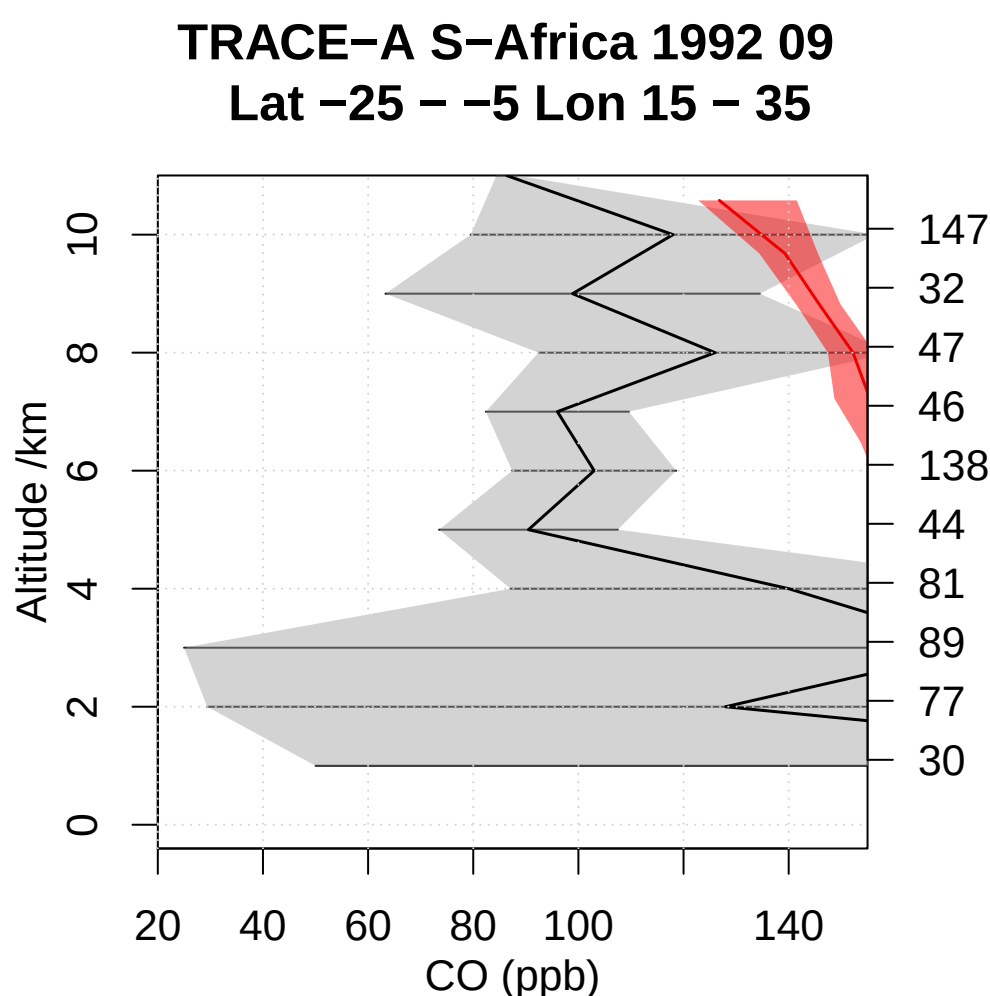
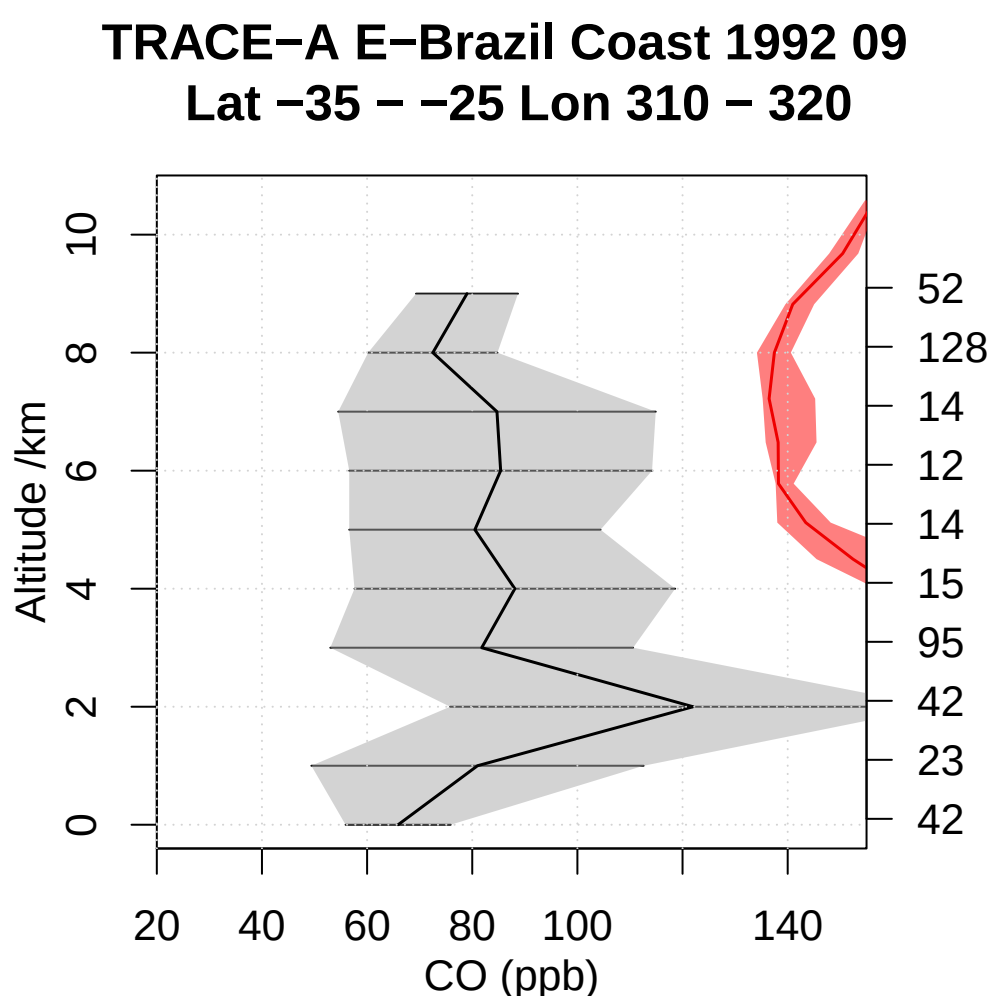
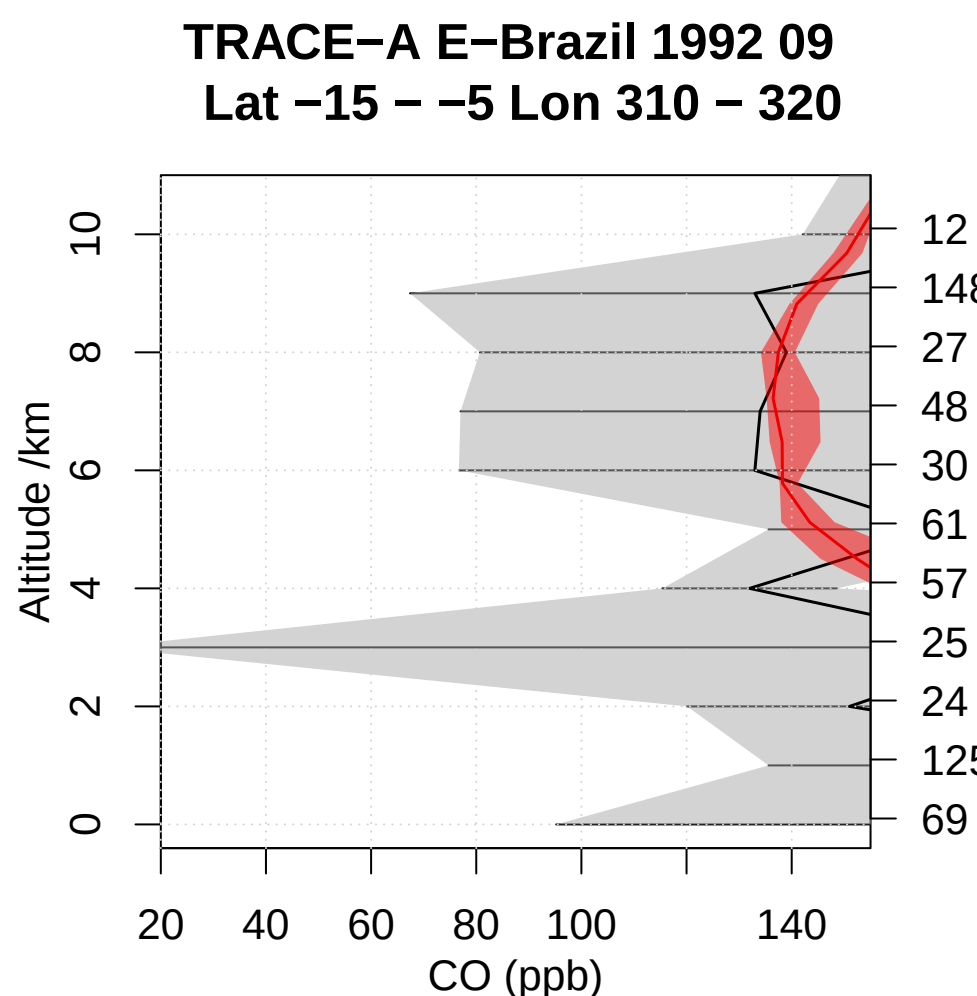
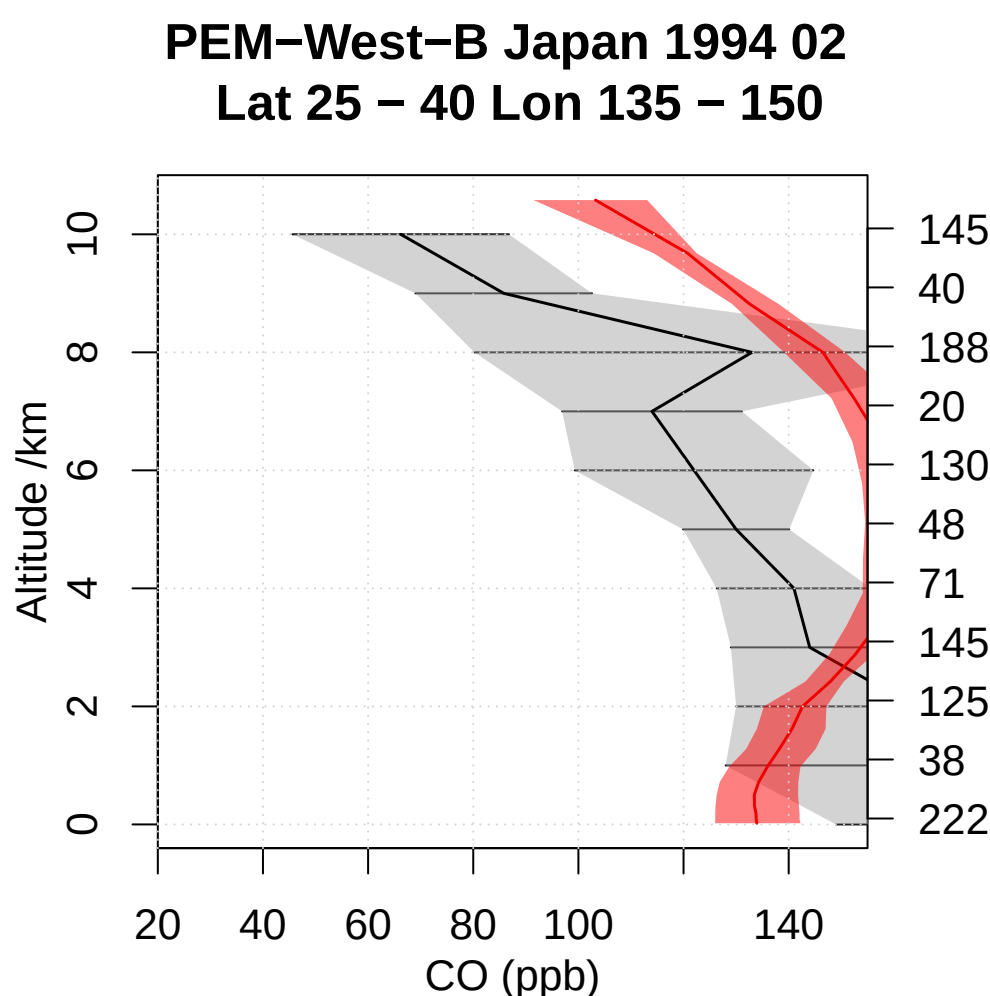
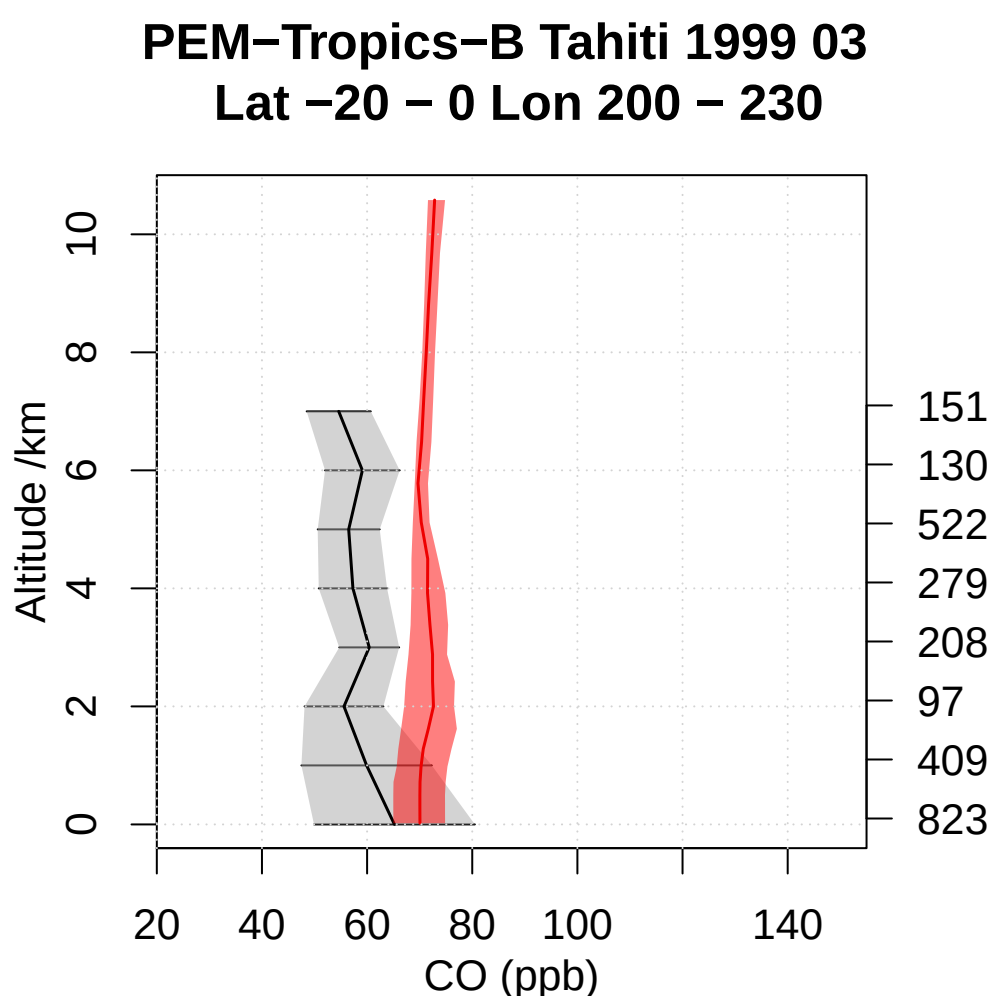
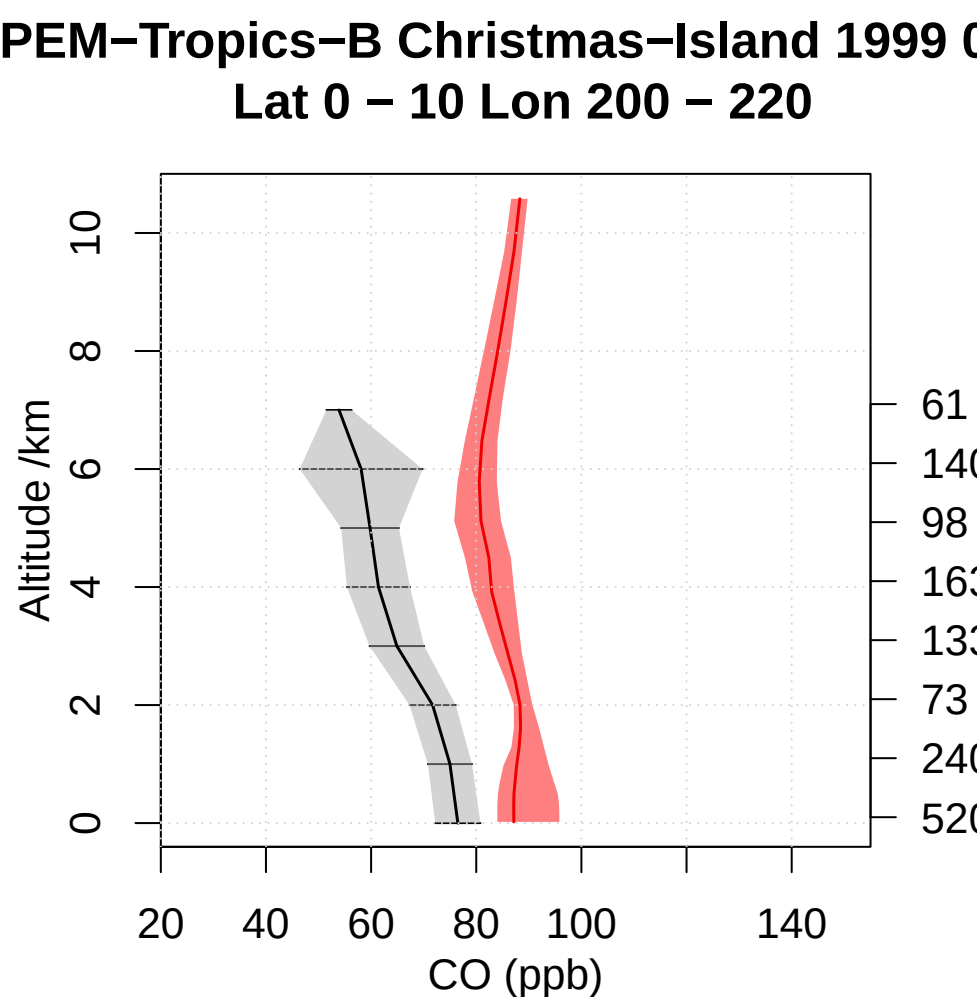
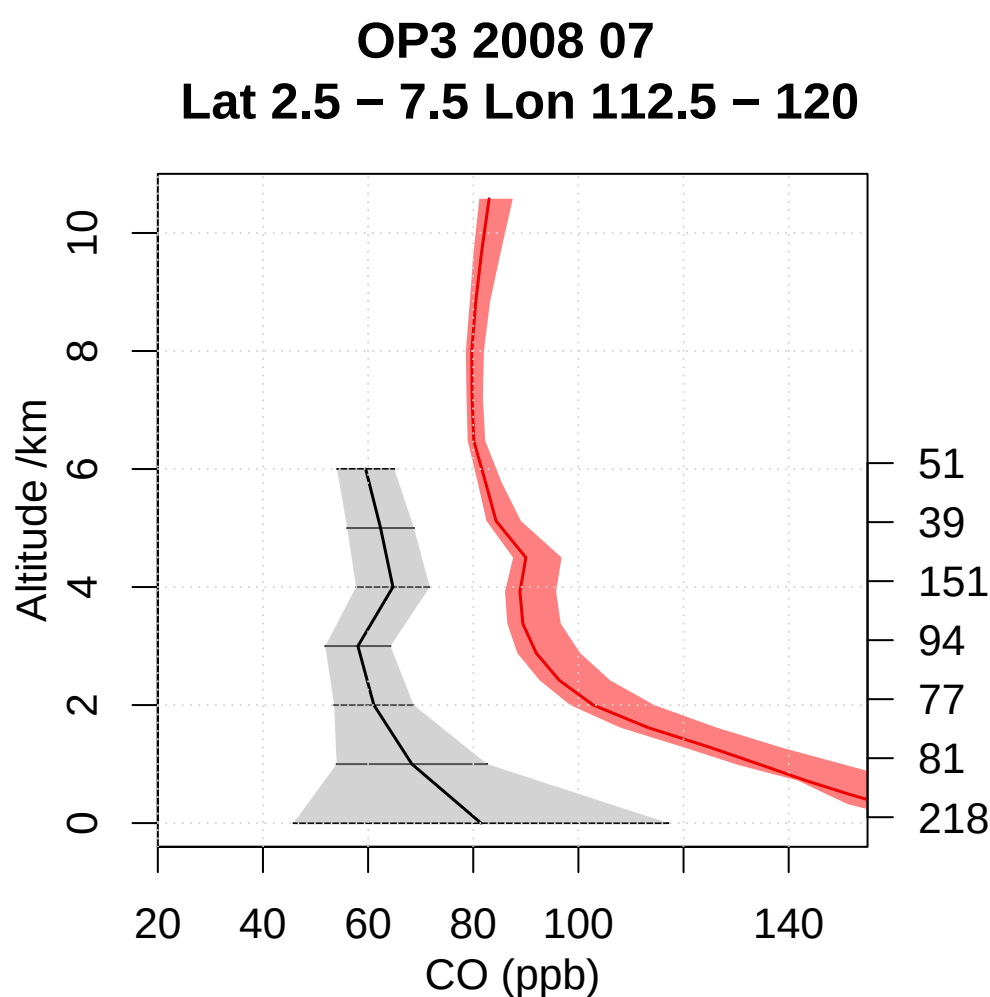
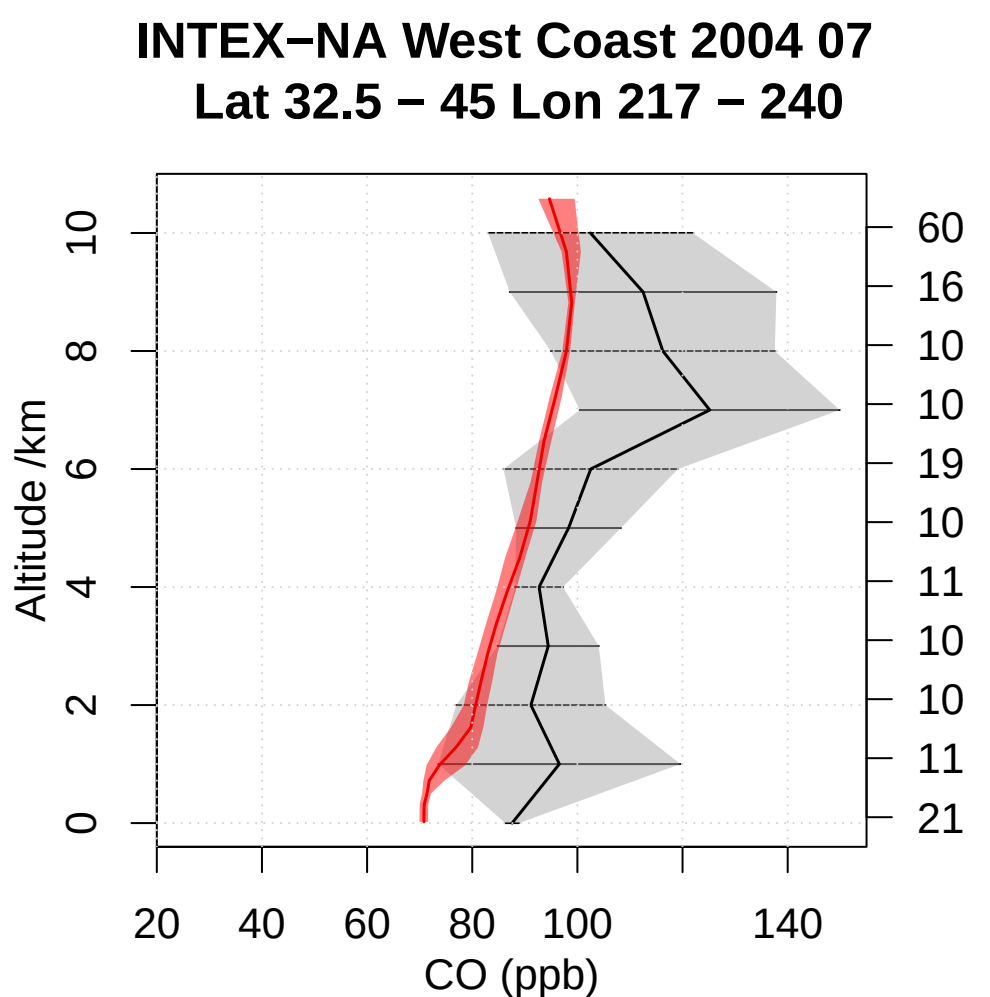
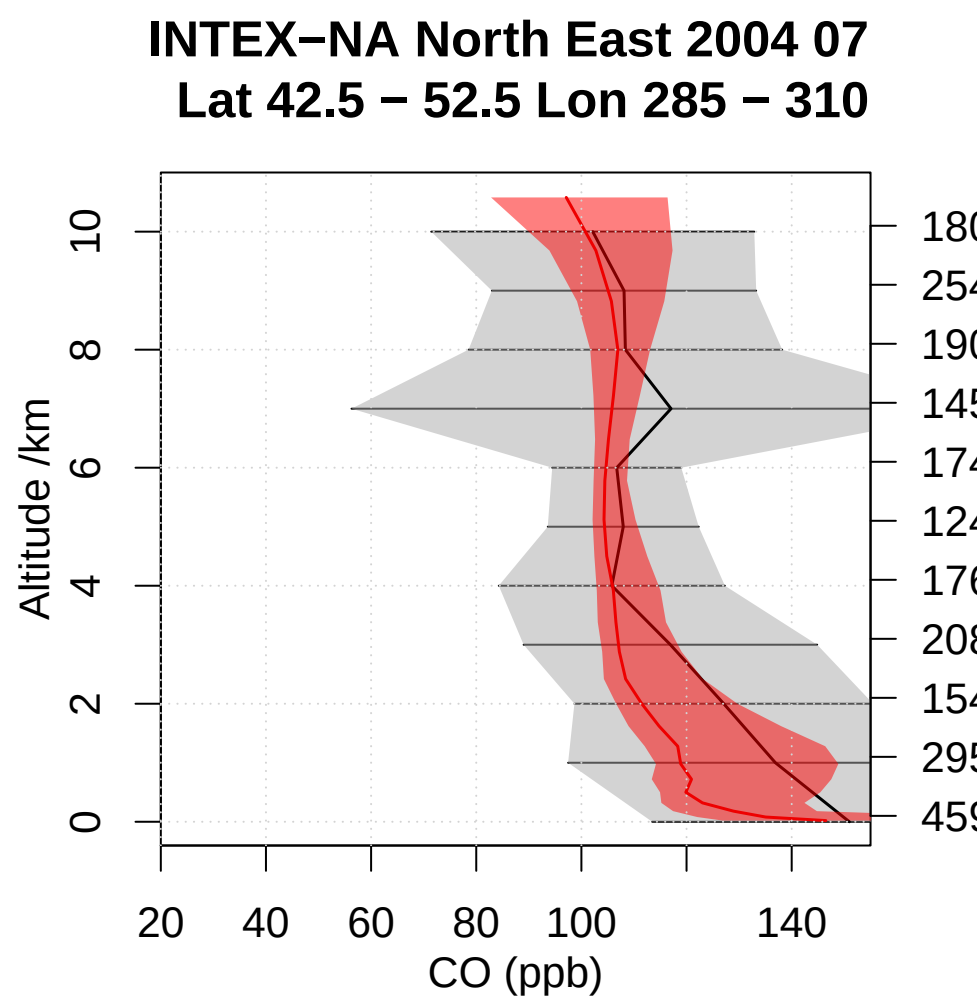
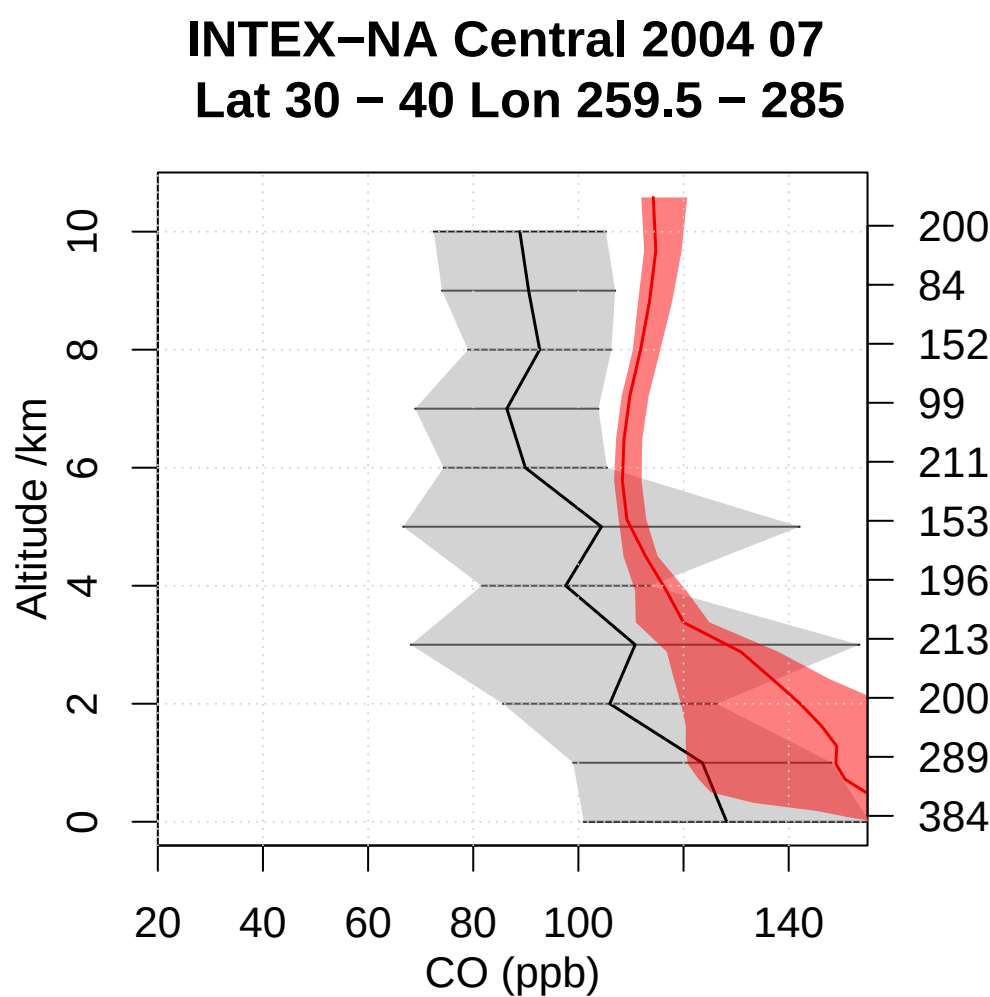
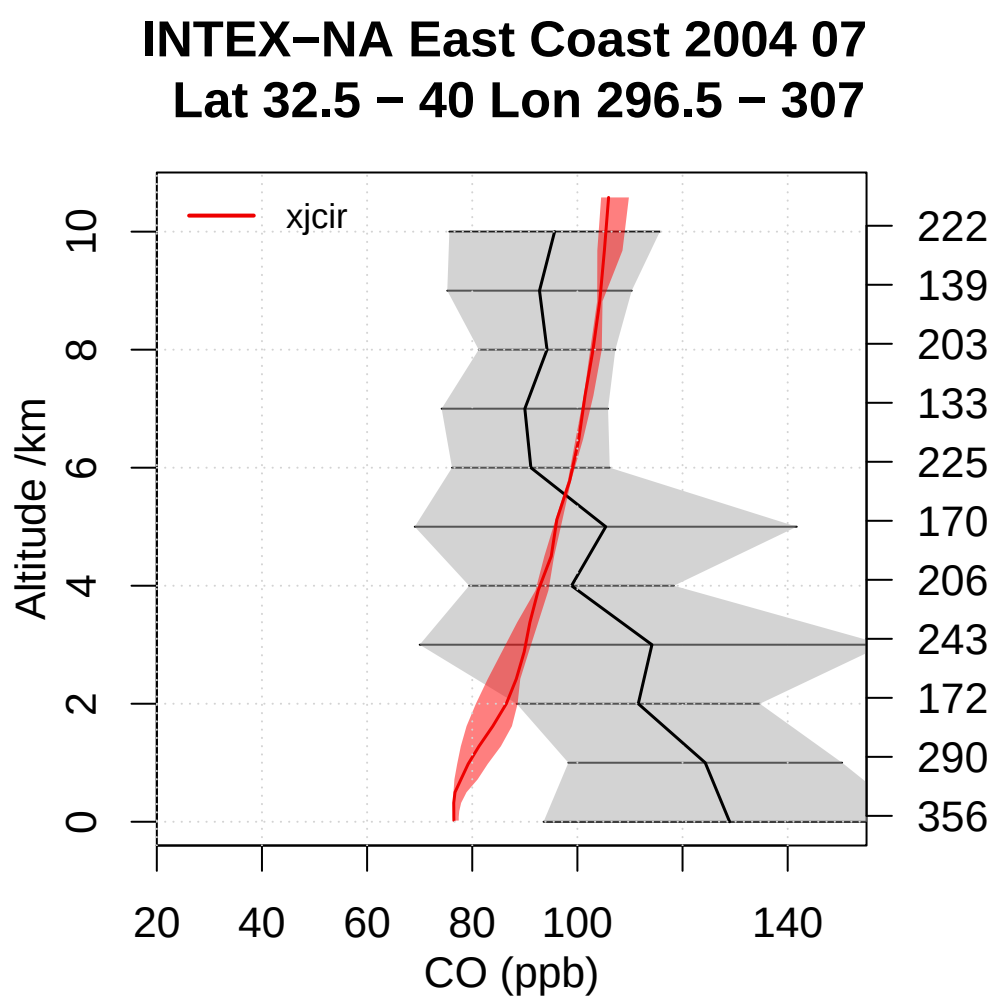
## ppm

0.6

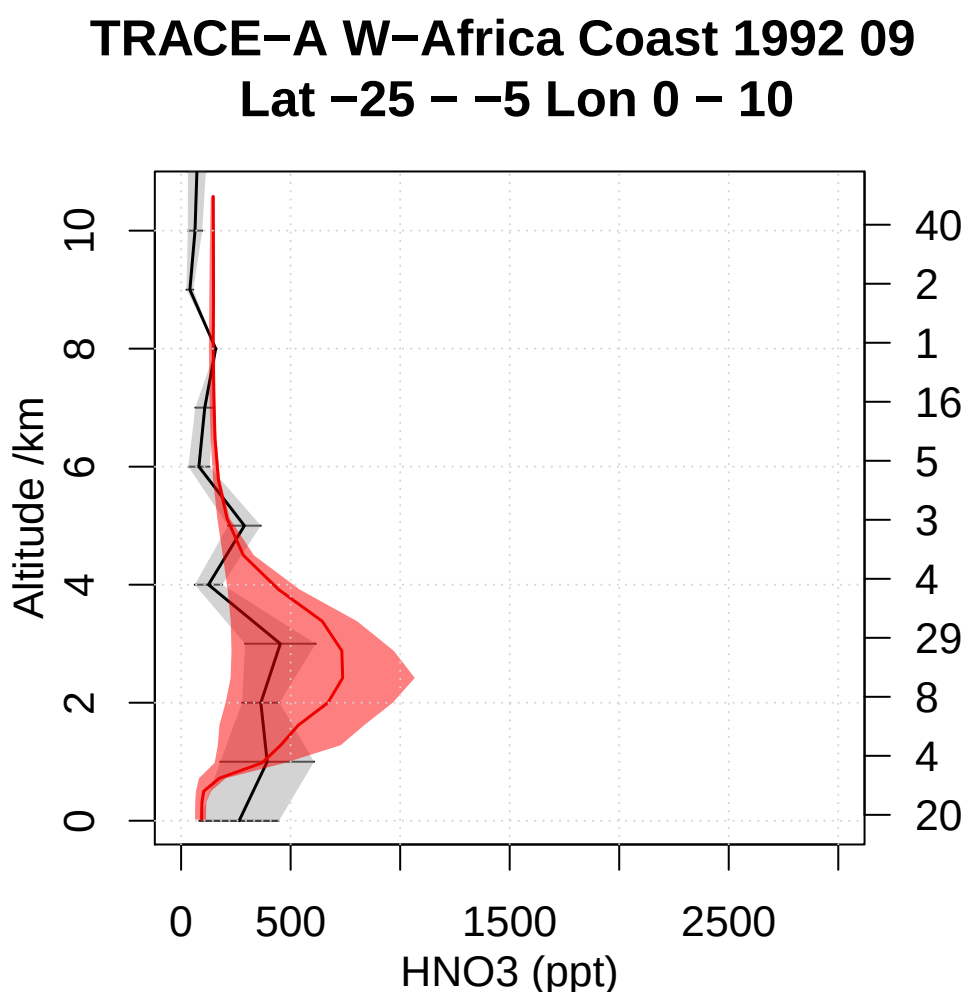
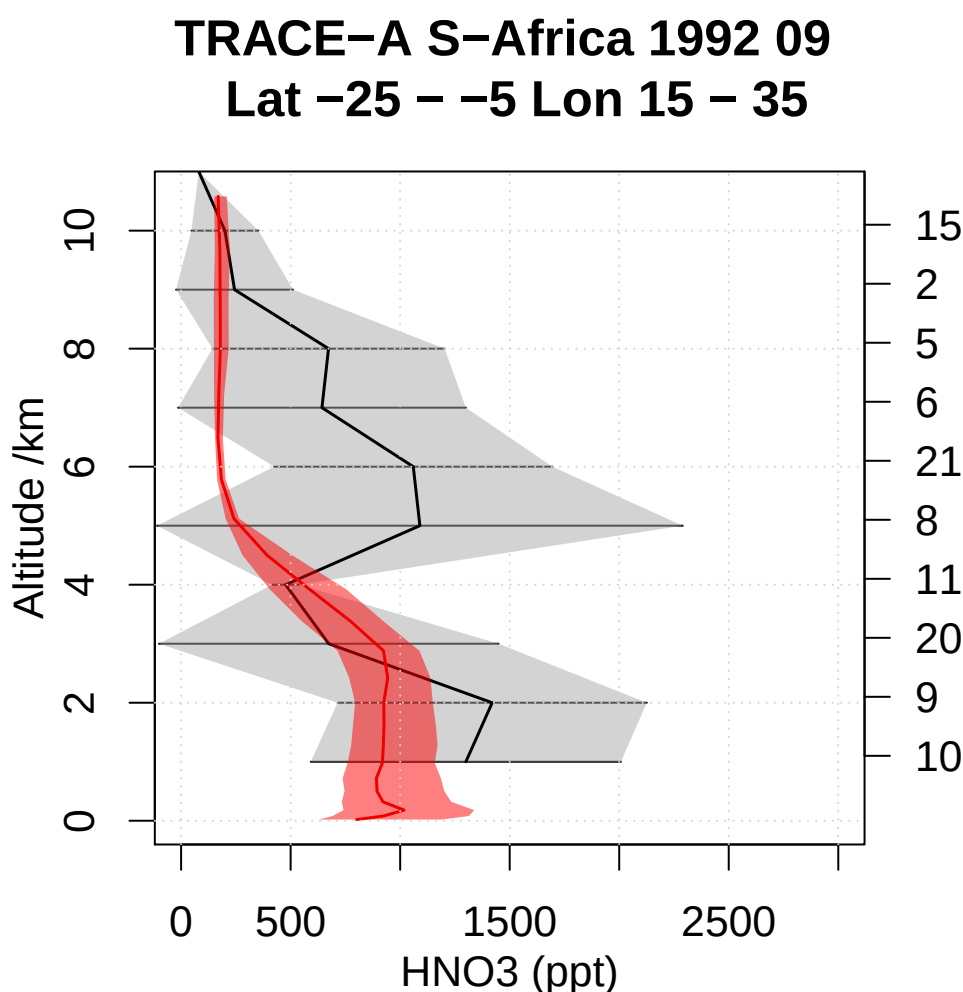
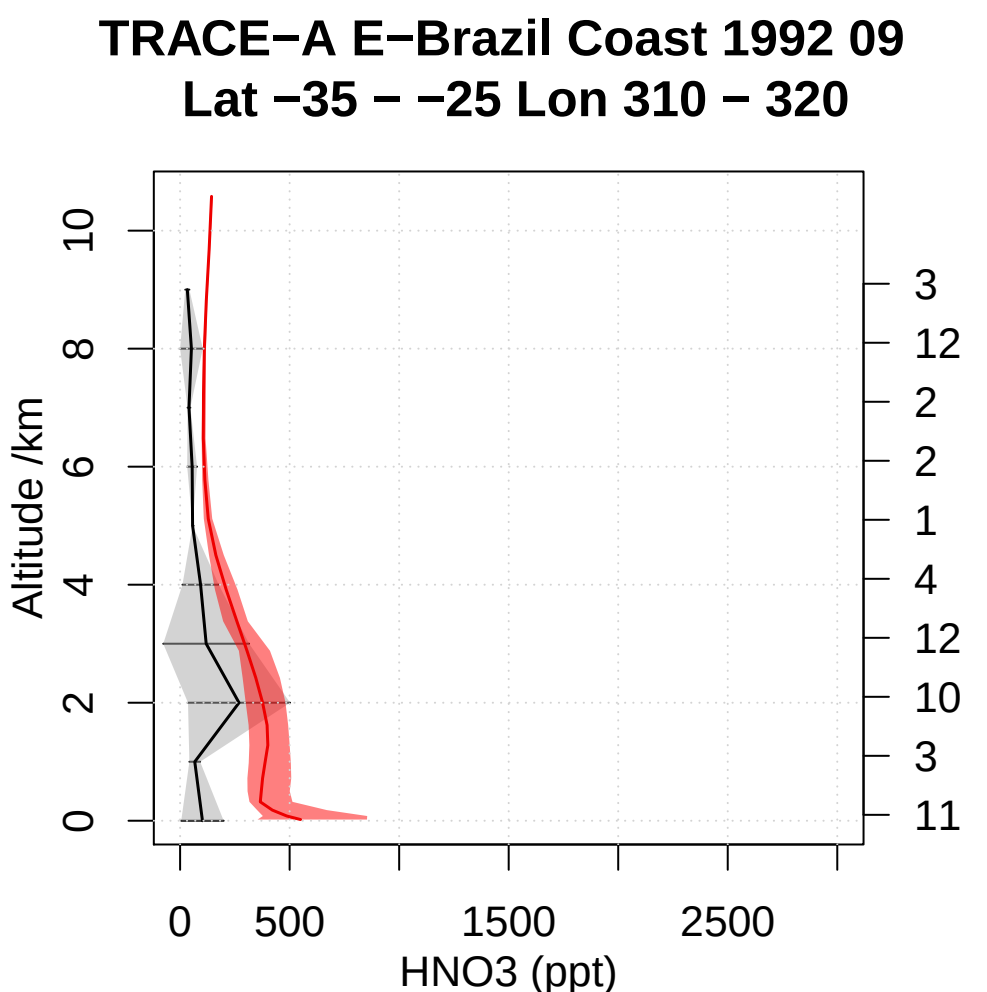
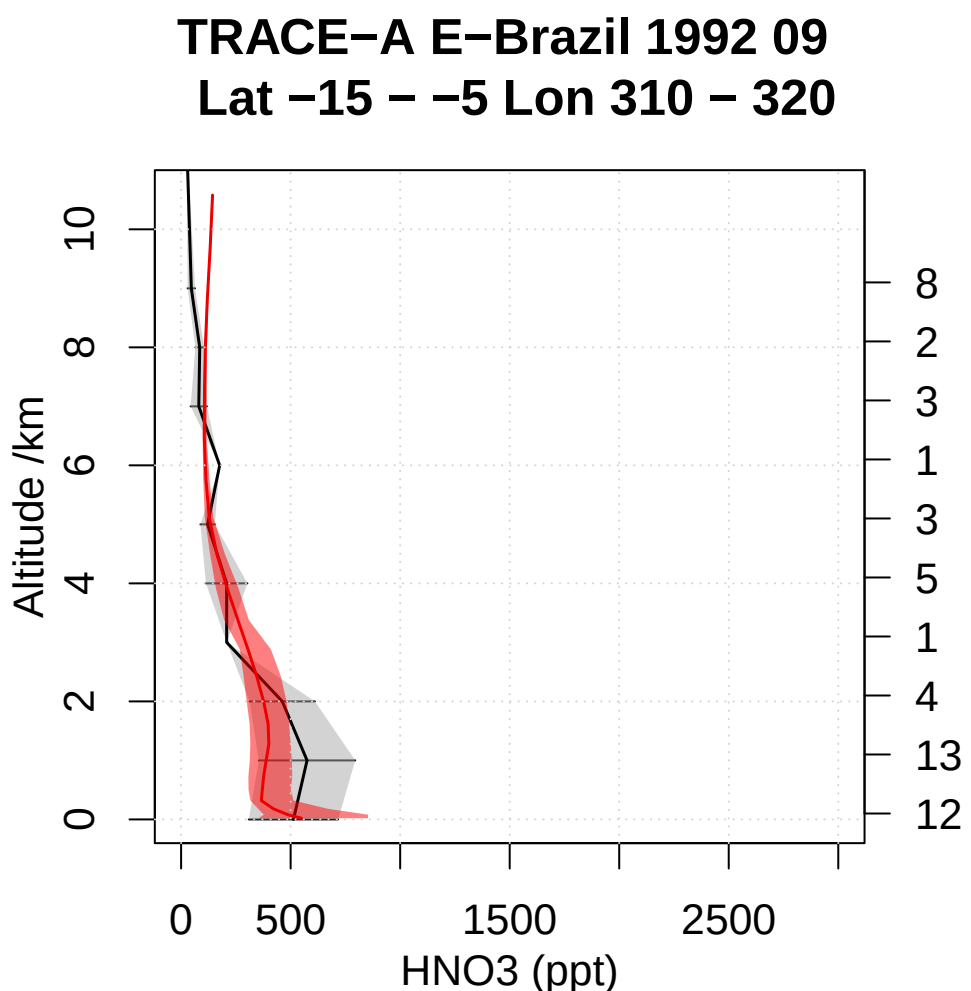
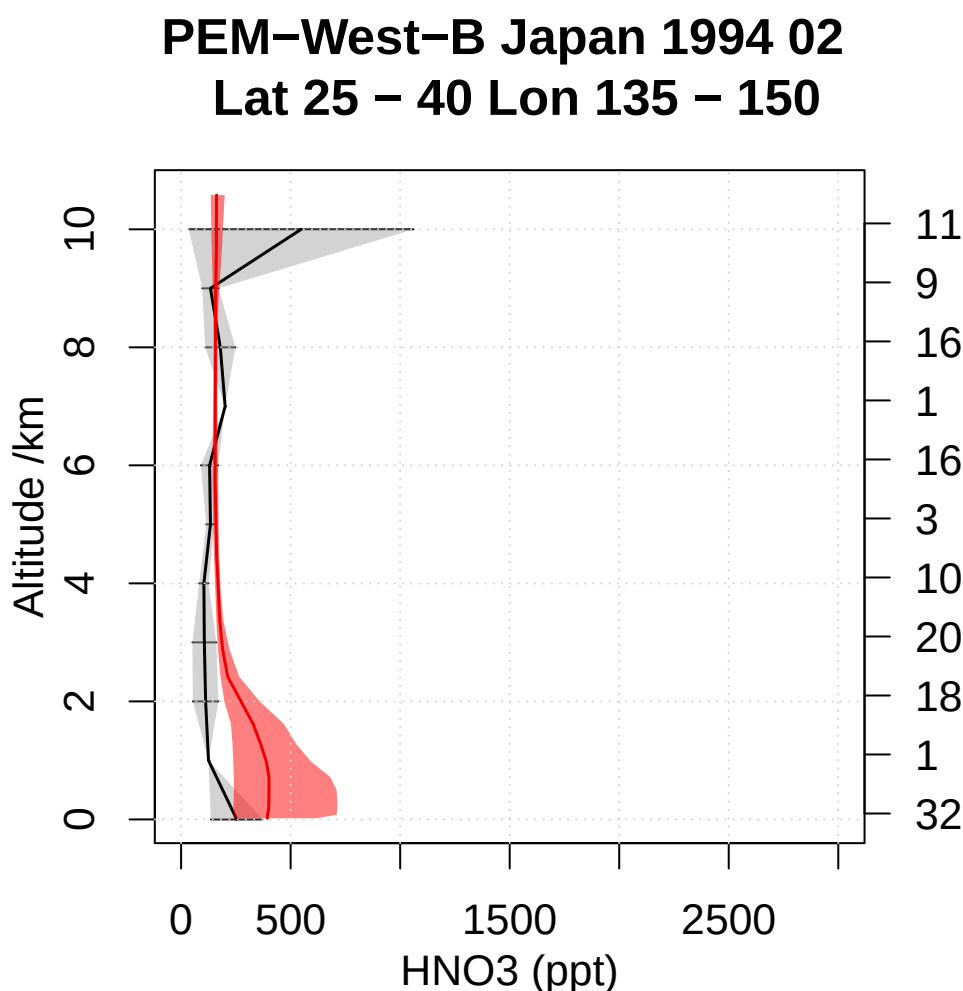
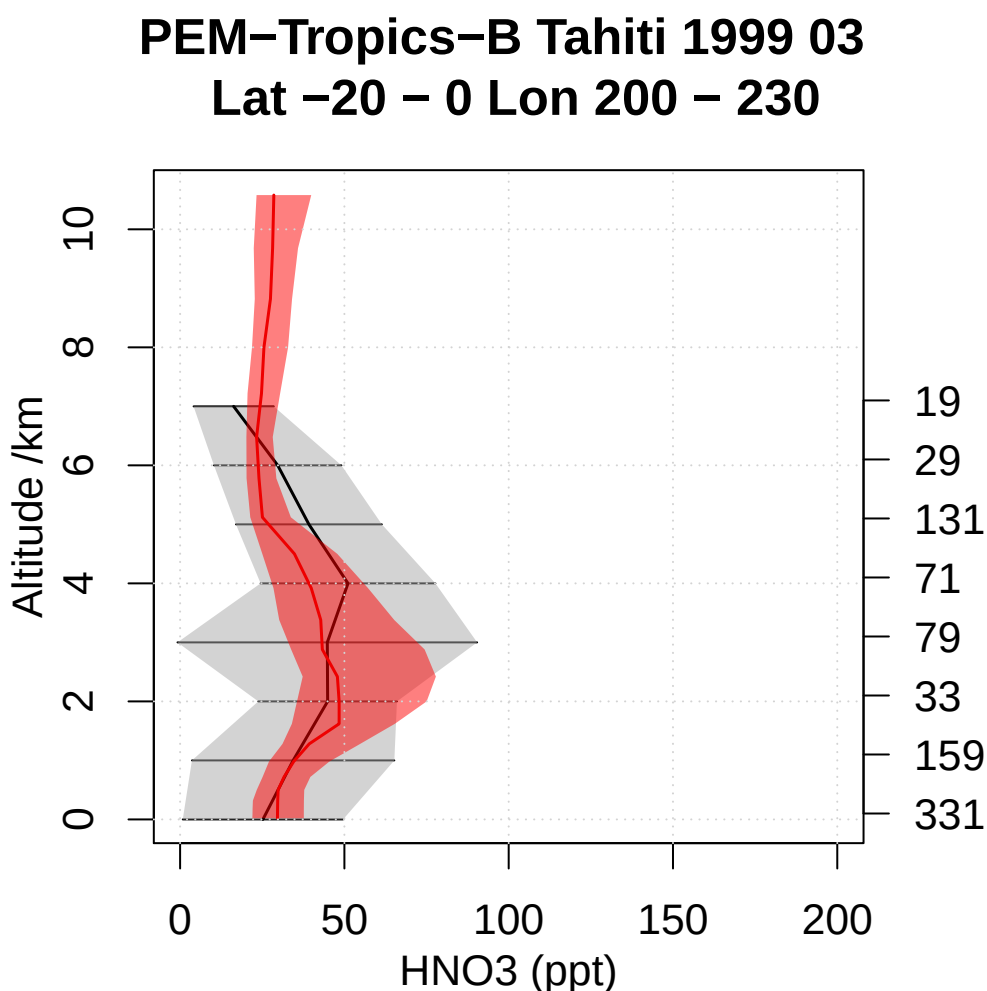
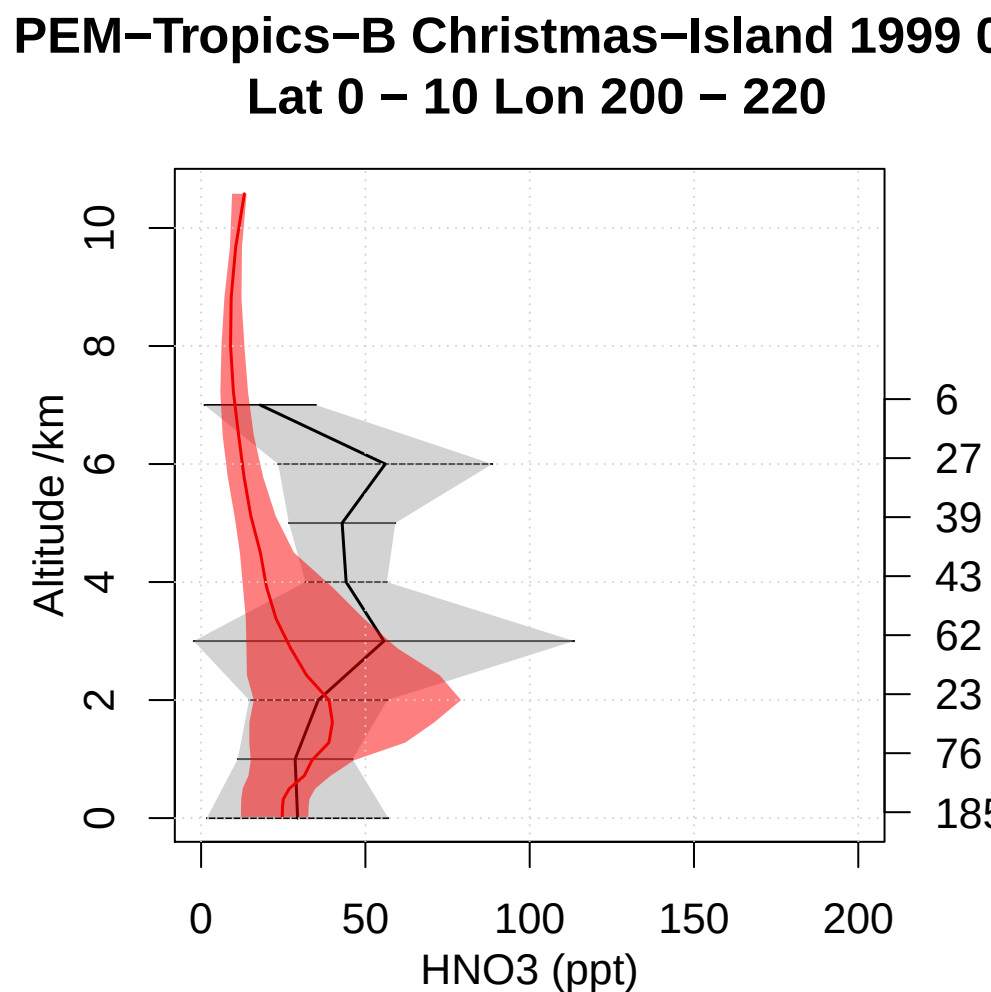
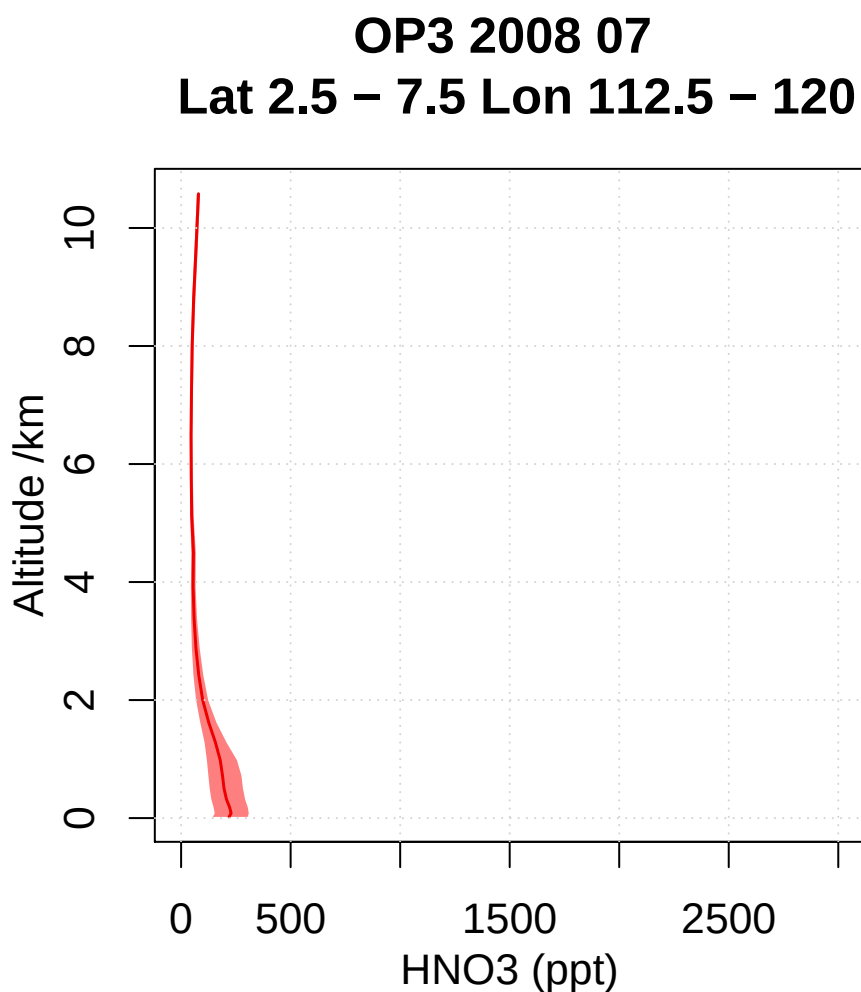
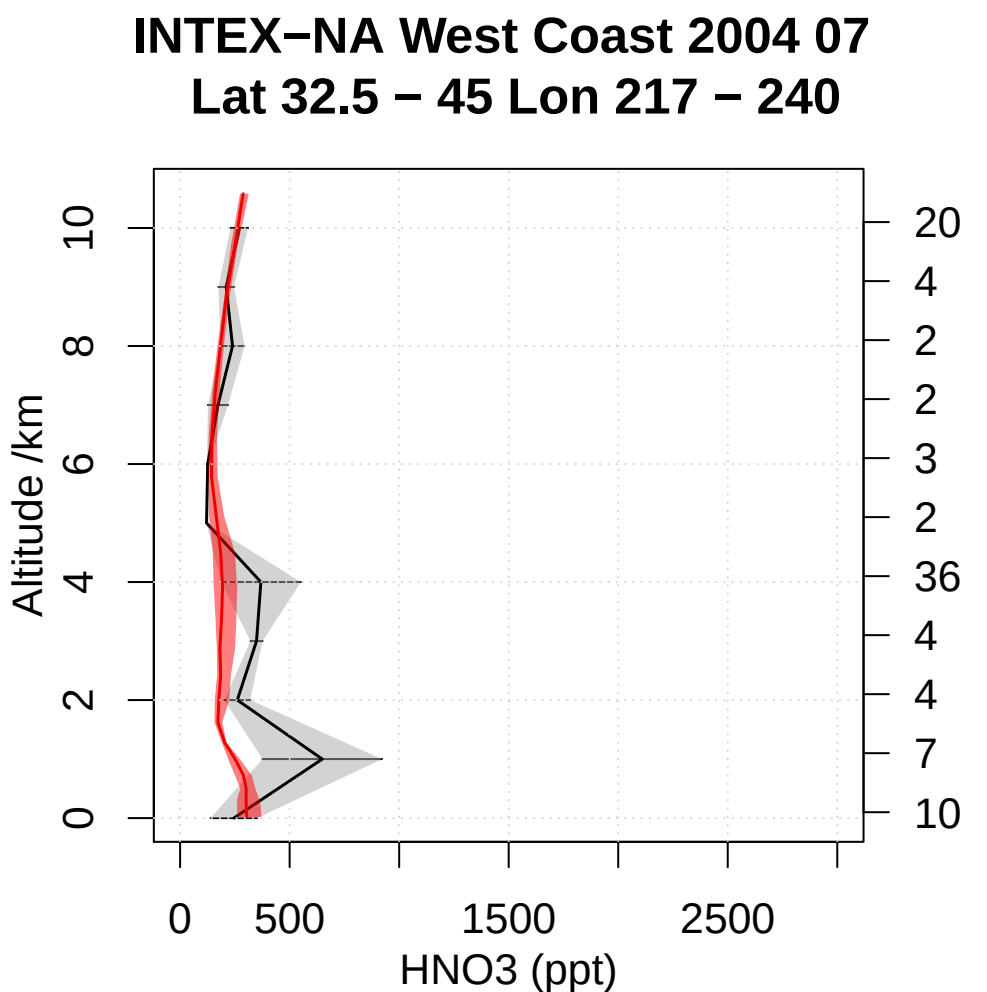
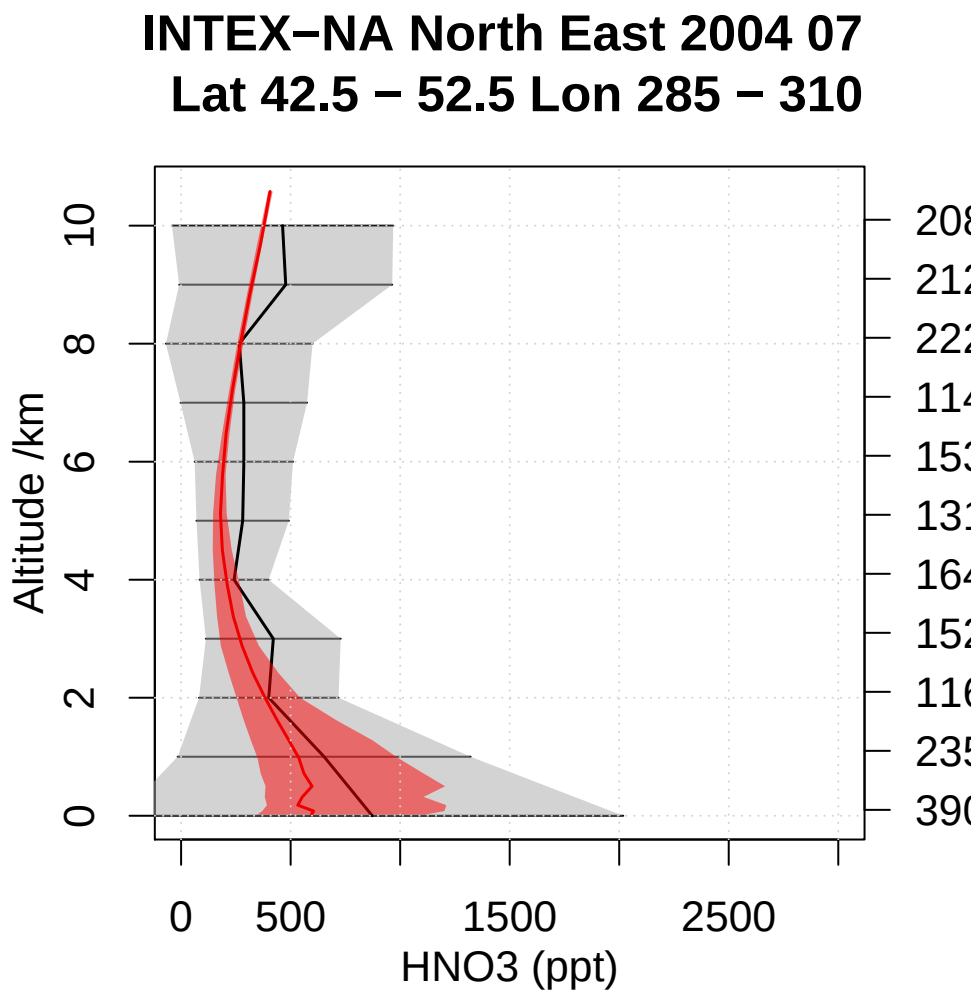
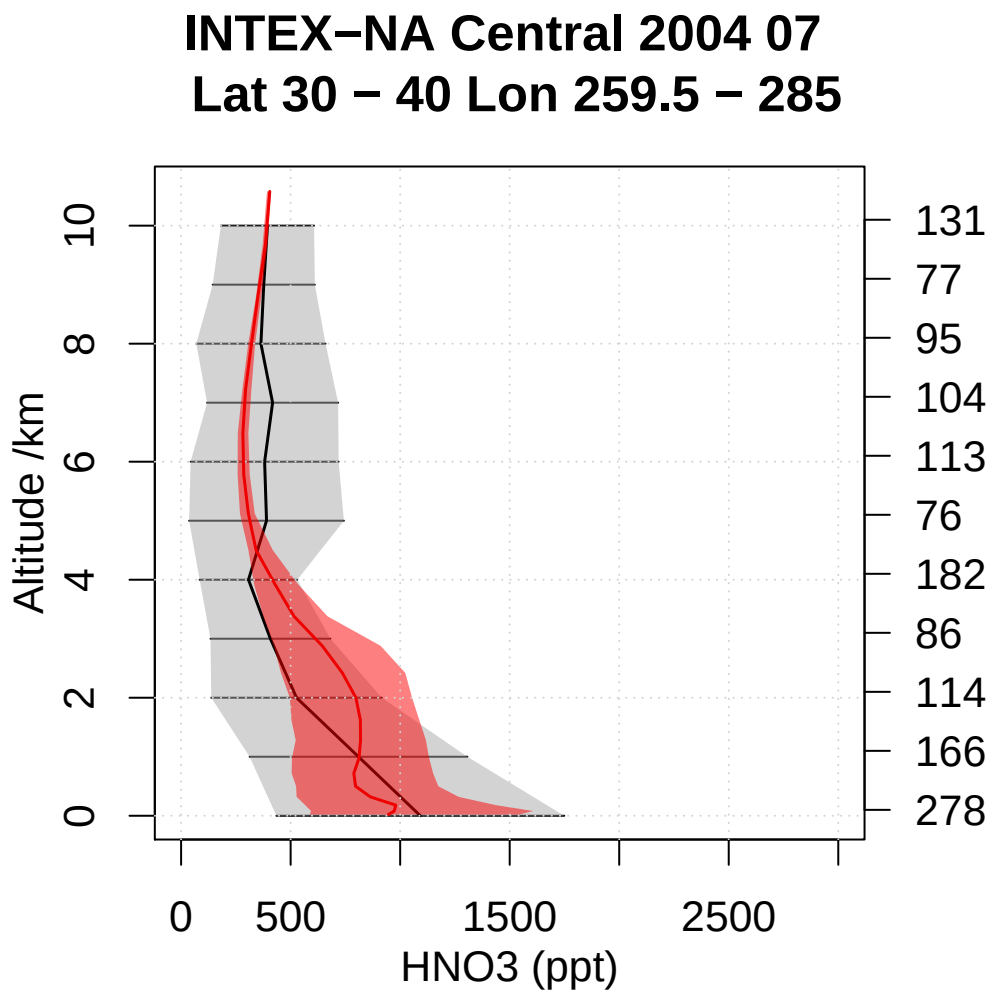
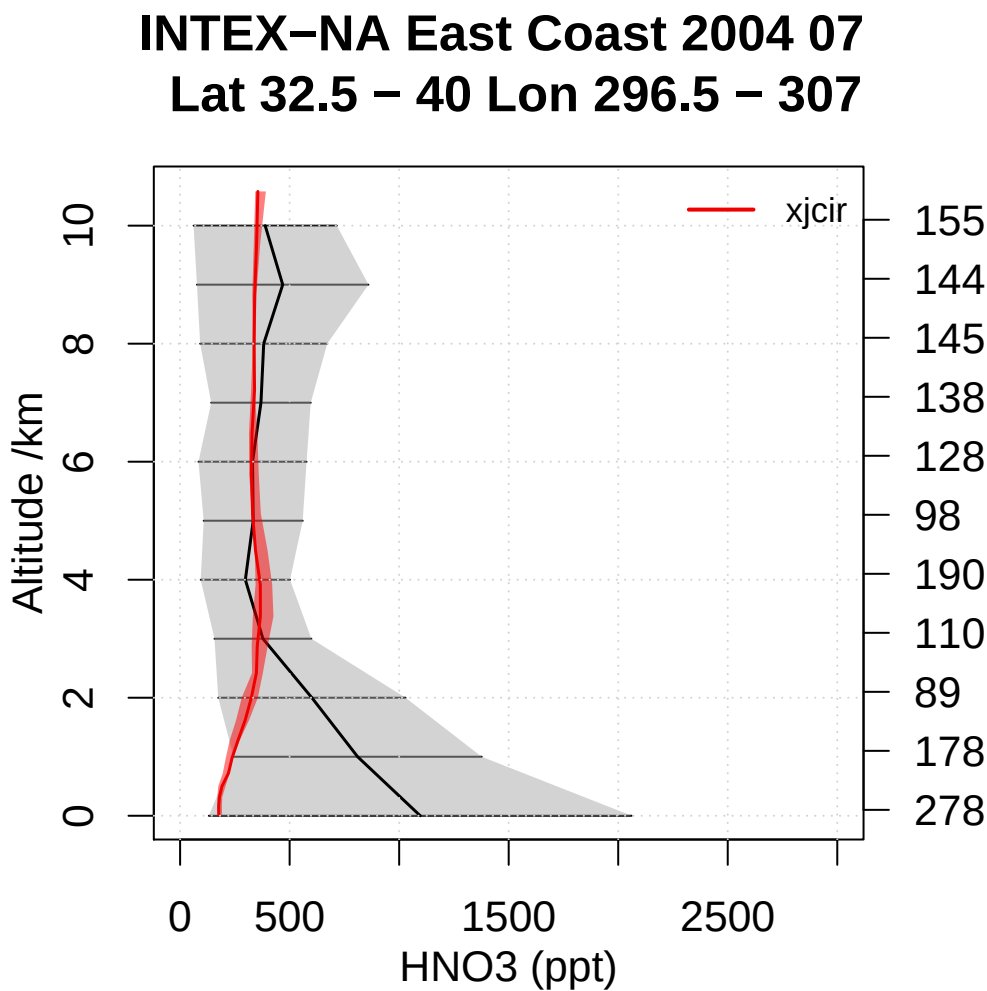




**Emmons CO comparison**



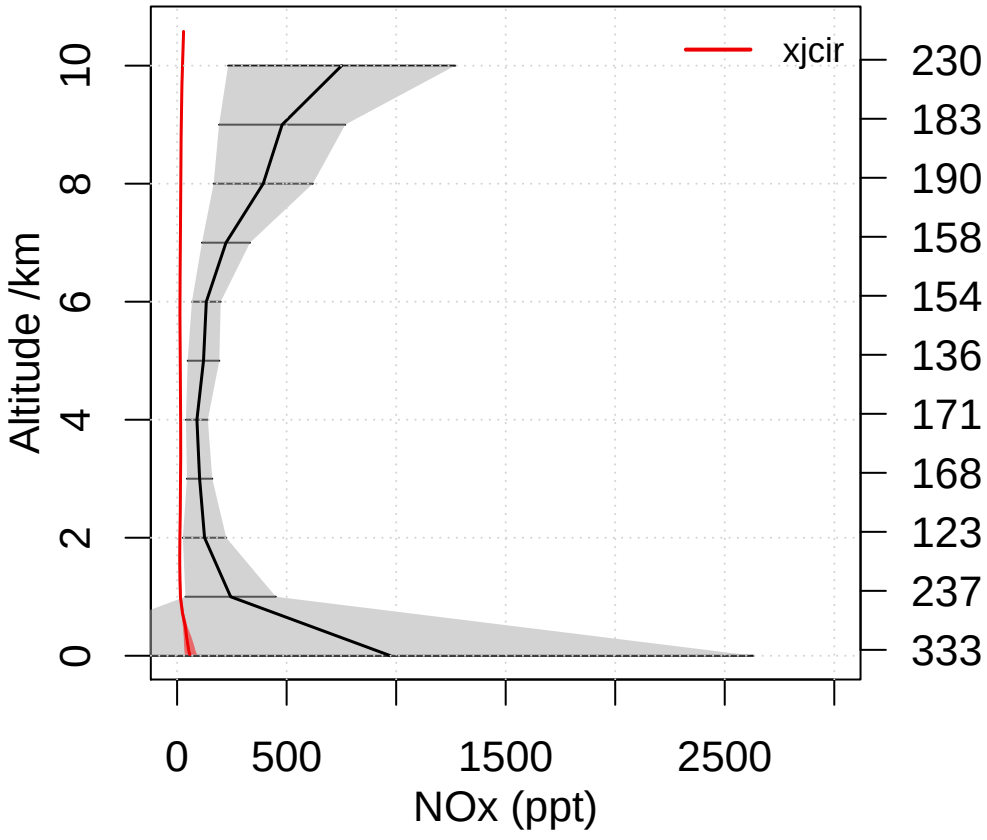
Emmons HNO3 comparison



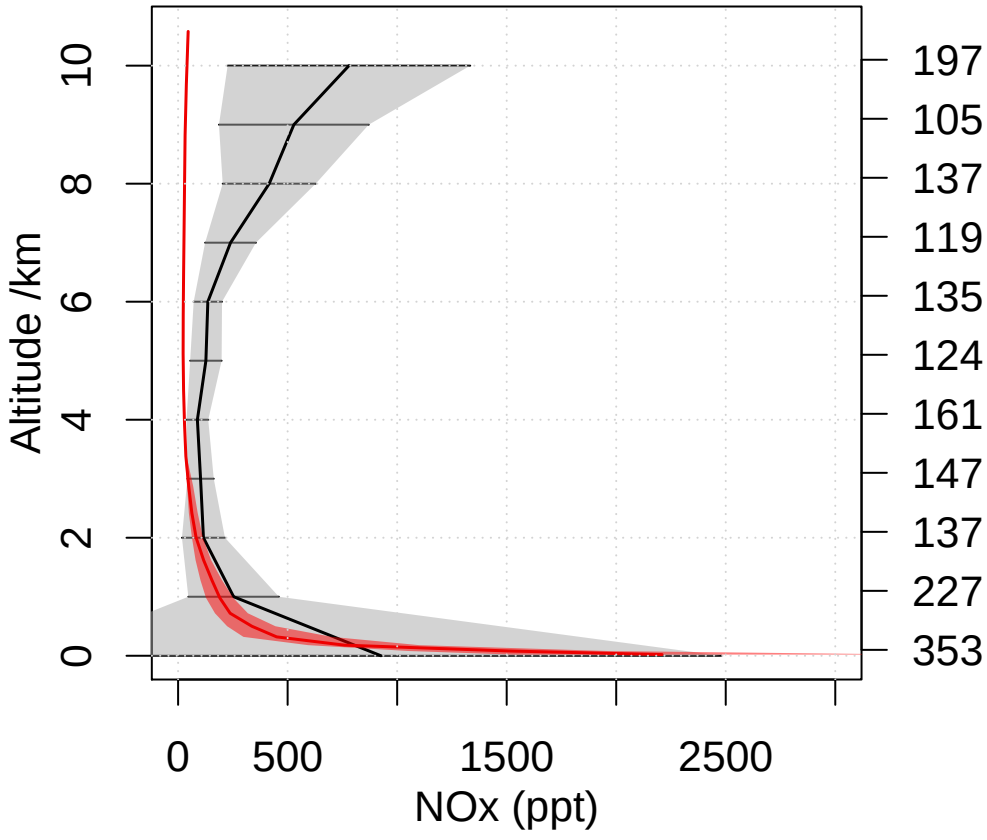


Emmons NOx comparison

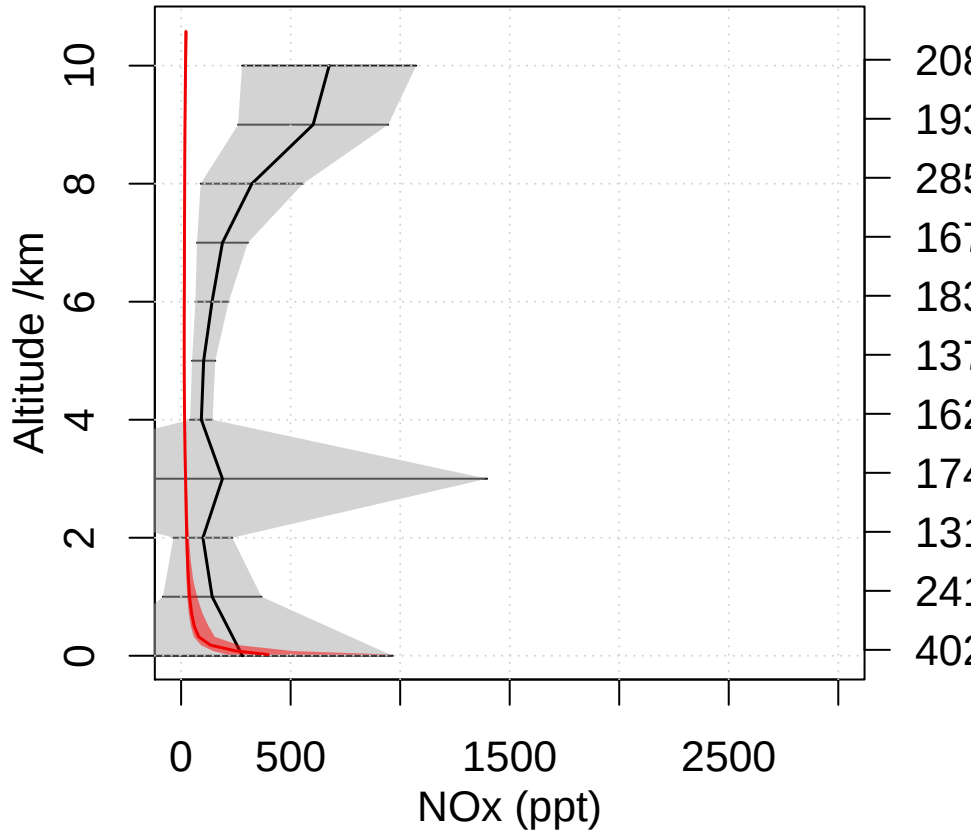
INTEX-NA East Coast 2004 07  
Lat 32.5 – 40 Lon 296.5 – 307



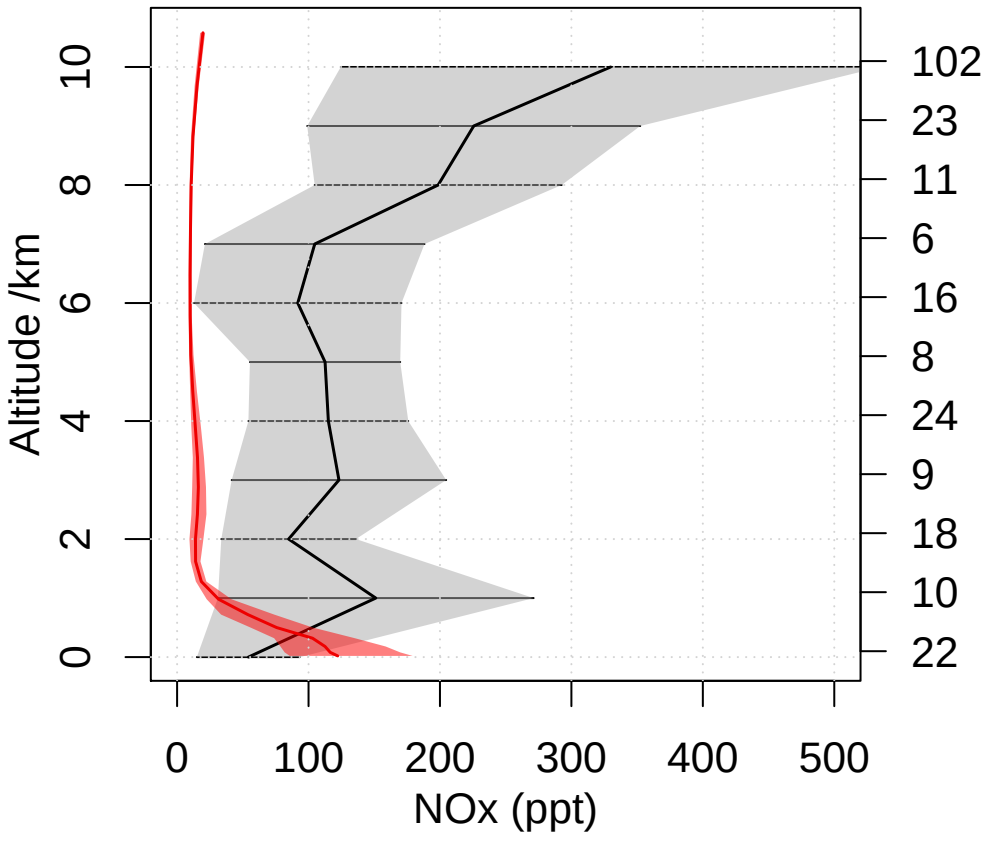
INTEX-NA Central 2004 07  
Lat 30 – 40 Lon 259.5 – 285



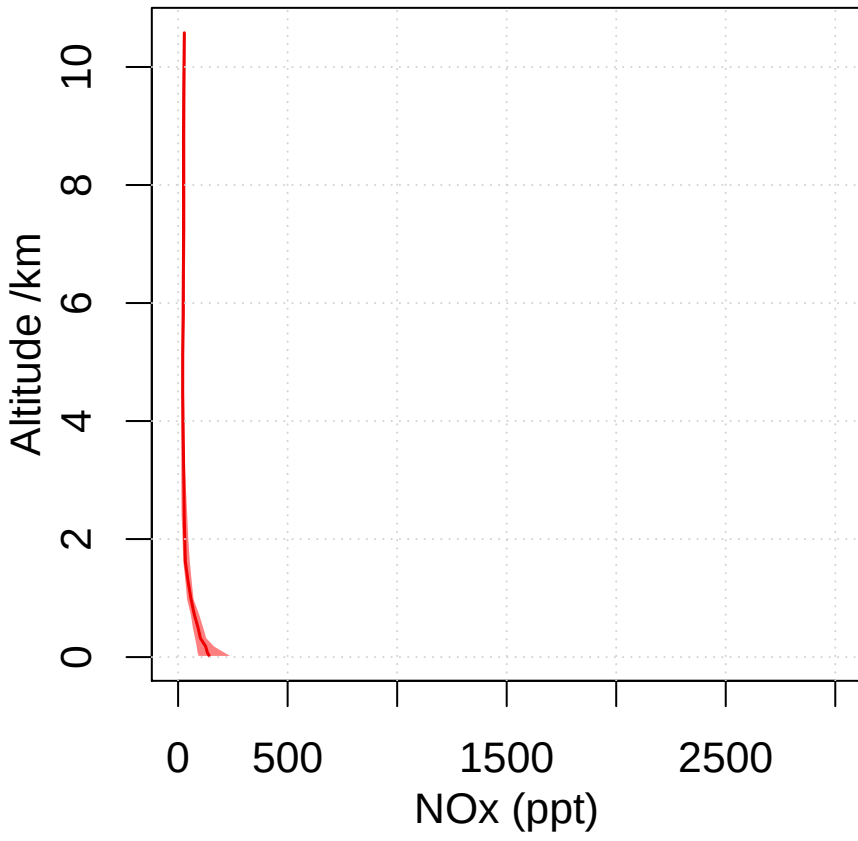
INTEX-NA North East 2004 07  
Lat 42.5 – 52.5 Lon 285 – 310



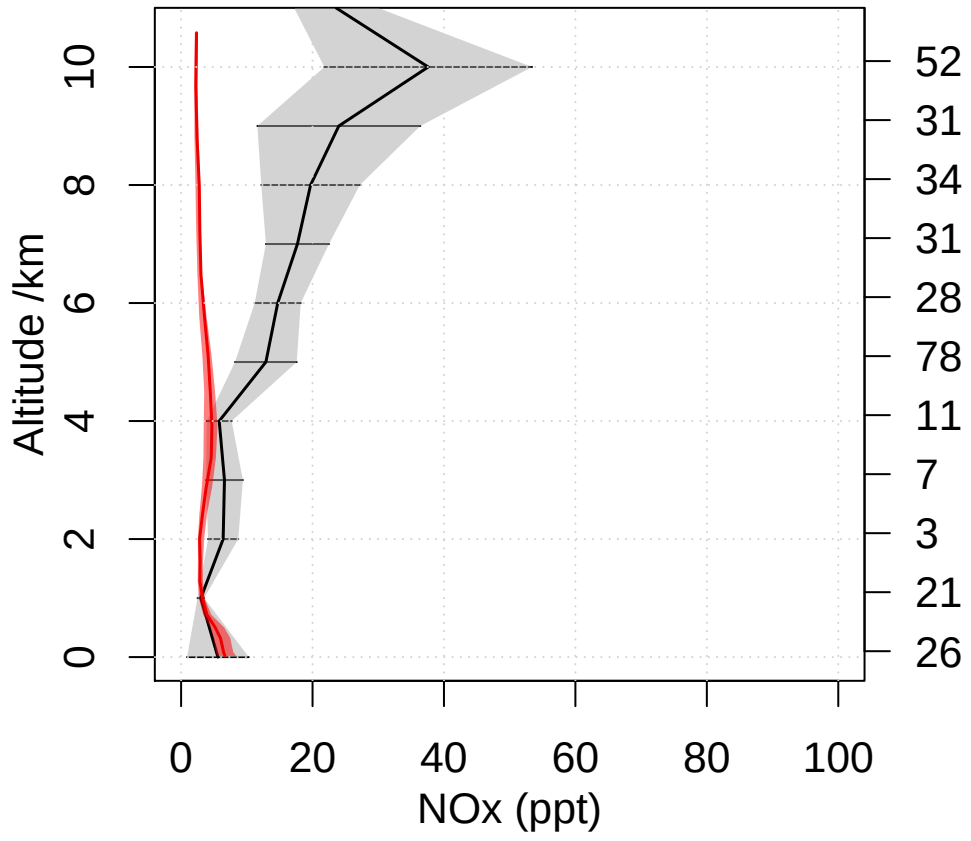
INTEX-NA West Coast 2004 07  
Lat 32.5 – 45 Lon 217 – 240



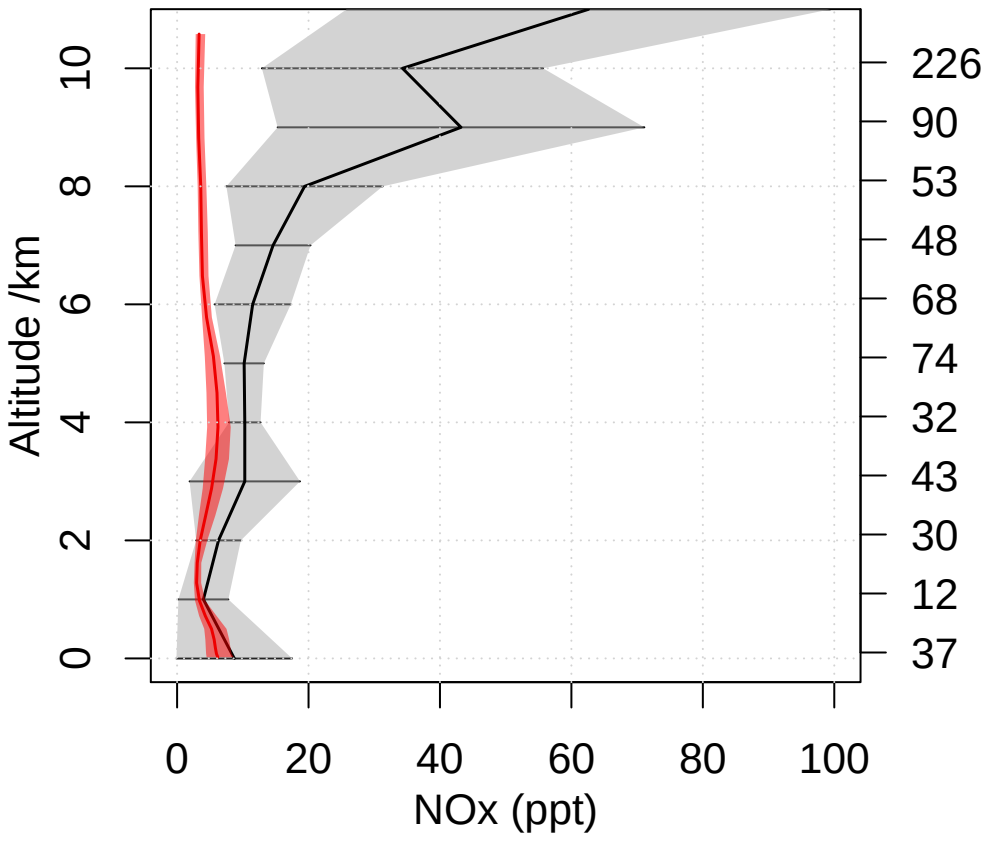
OP3 2008 07  
Lat 2.5 – 7.5 Lon 112.5 – 120



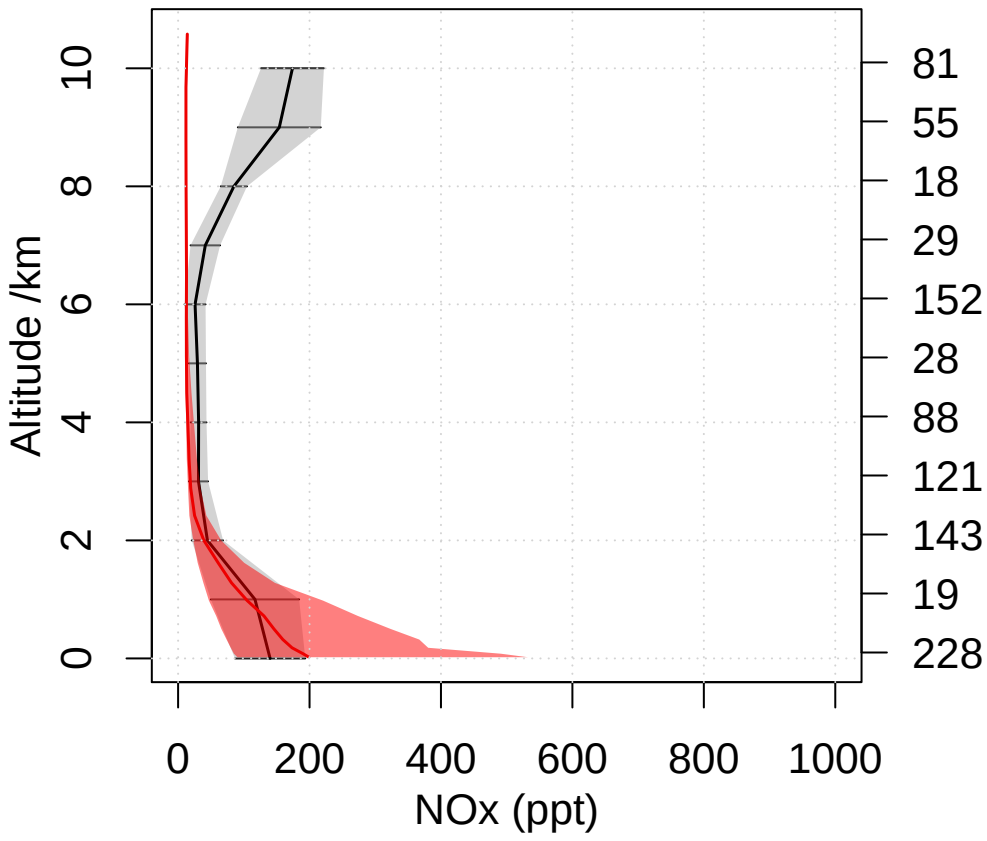
PEM-Tropics-B Christmas-Island 1999 07  
Lat 0 – 10 Lon 200 – 220



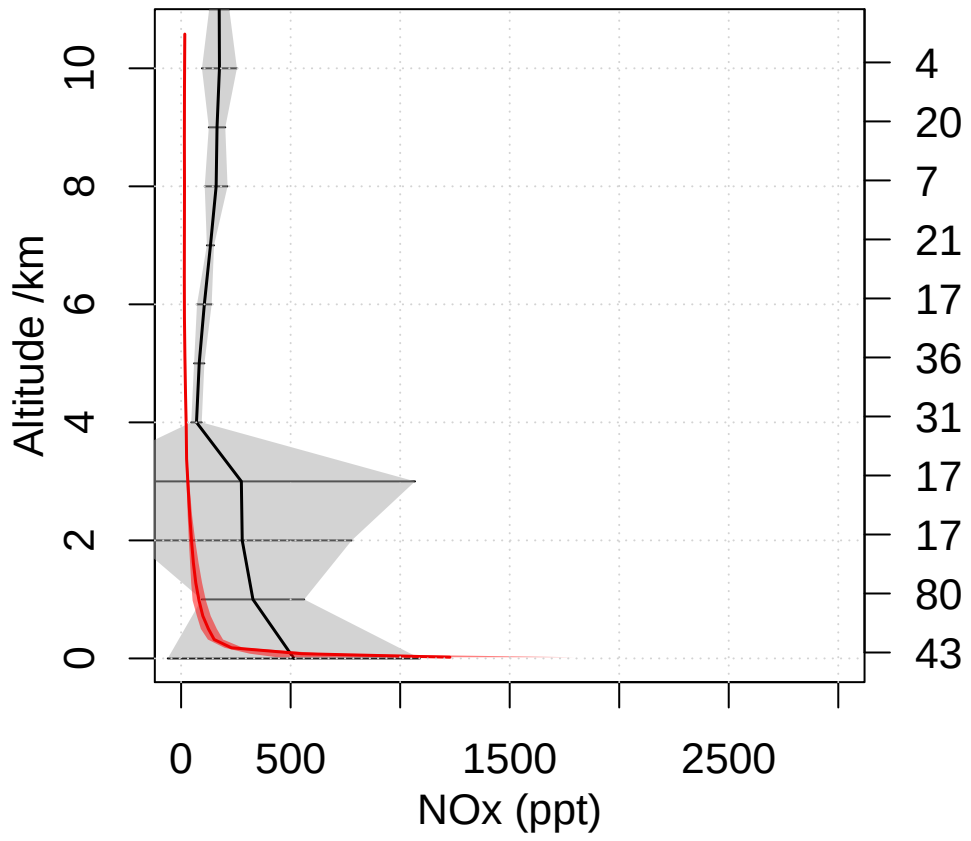
PEM-Tropics-B Tahiti 1999 03  
Lat -20 – 0 Lon 200 – 230



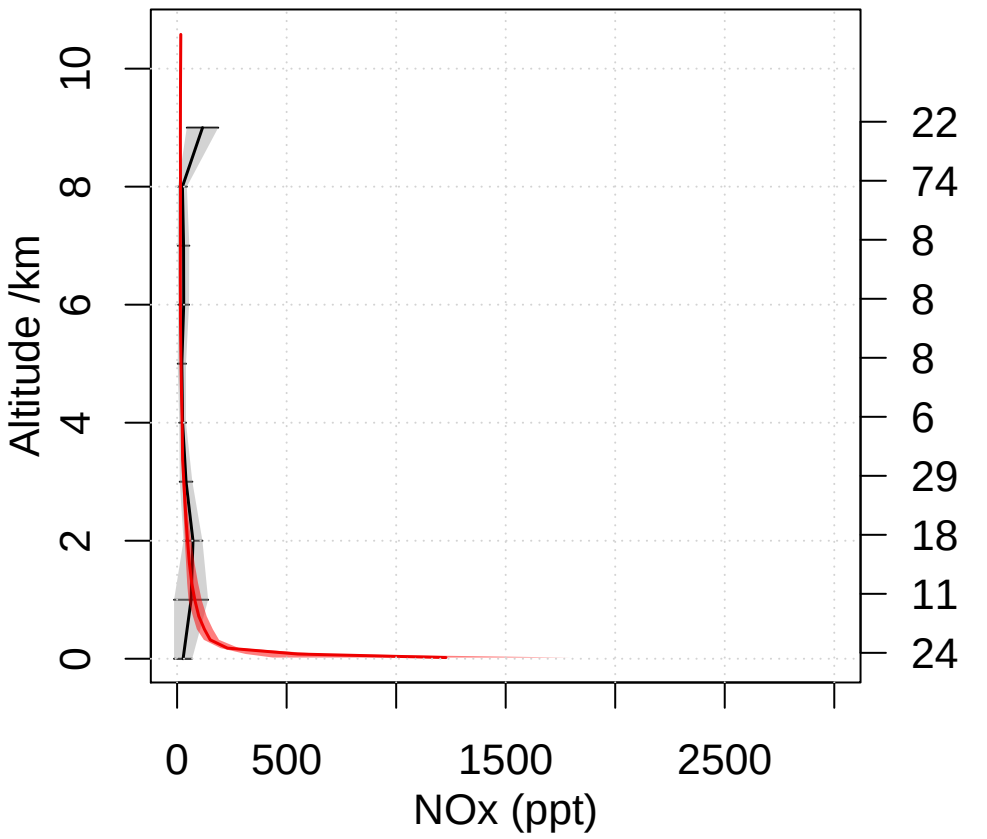
PEM-West-B Japan 1994 02  
Lat 25 – 40 Lon 135 – 150



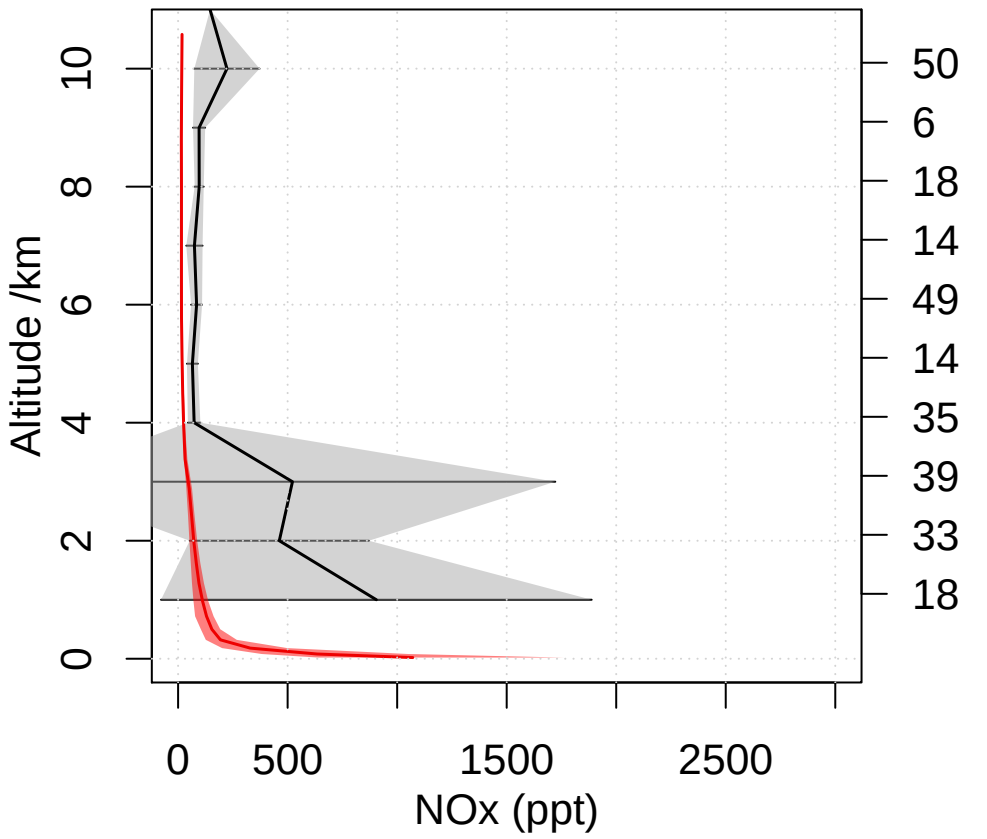
TRACE-A E-Brazil 1992 09  
Lat -15 – -5 Lon 310 – 320



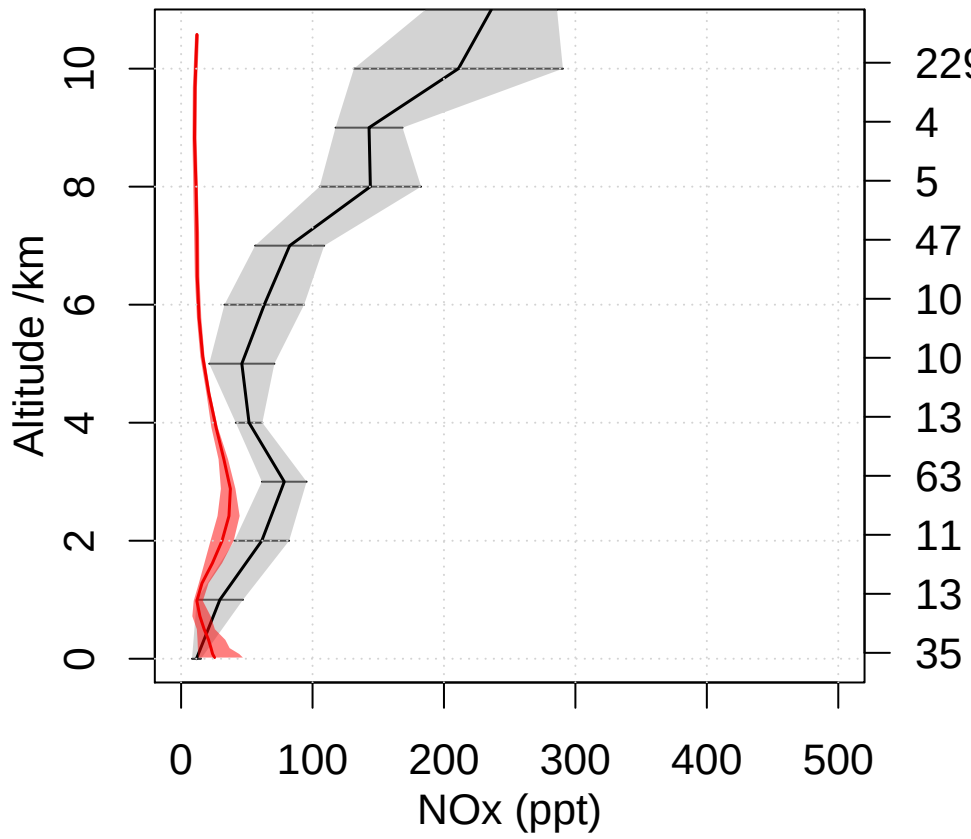
TRACE-A E-Brazil Coast 1992 09  
Lat -35 – -25 Lon 310 – 320



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

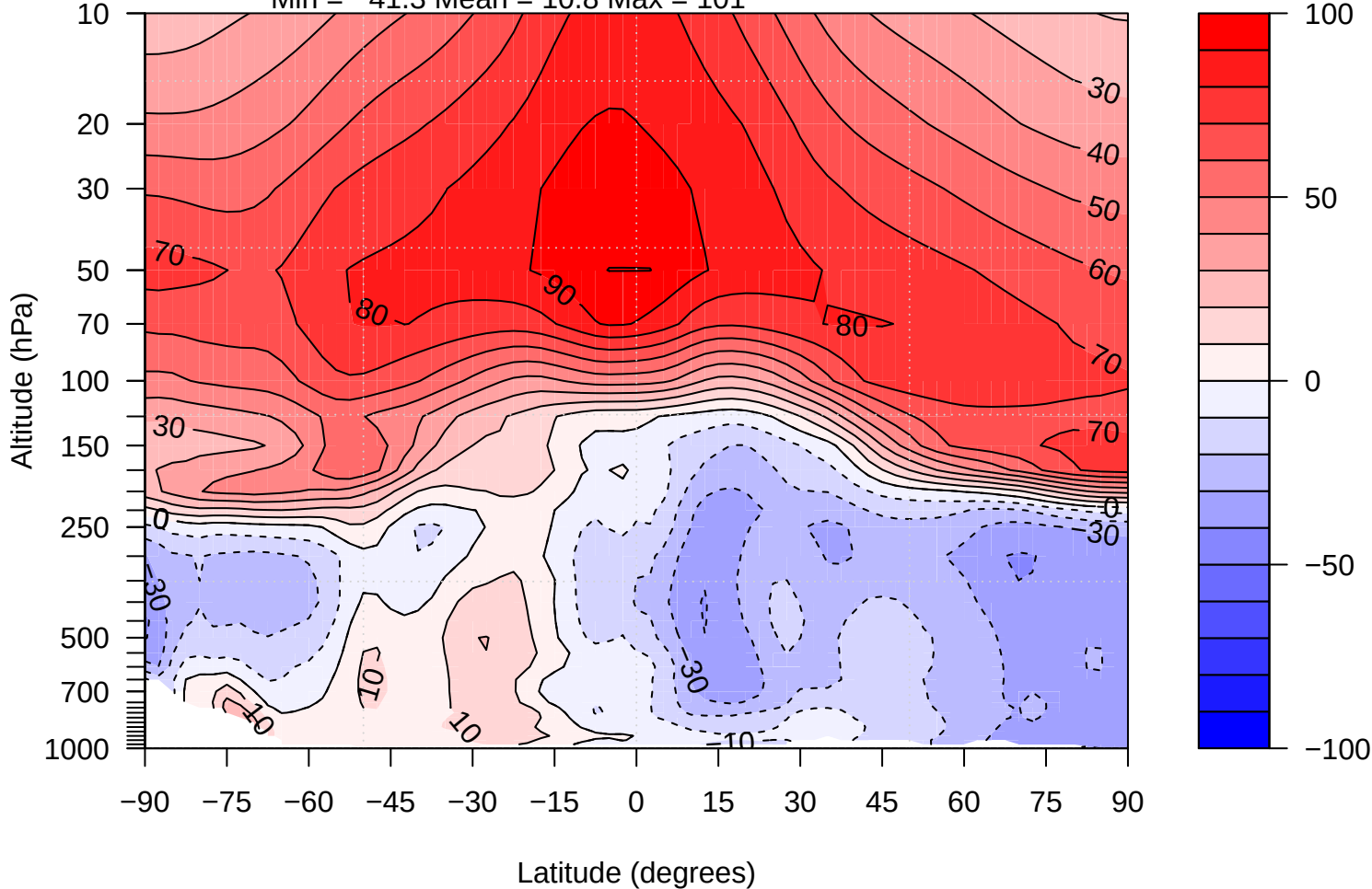


TRACE-A W-Africa Coast 1992 09  
Lat -25 – -5 Lon 0 – 10



# xjcir - ERA Q bias

Min = -41.3 Mean = 10.8 Max = 101



Pressure (hPa)

[OH] Air mass weighted

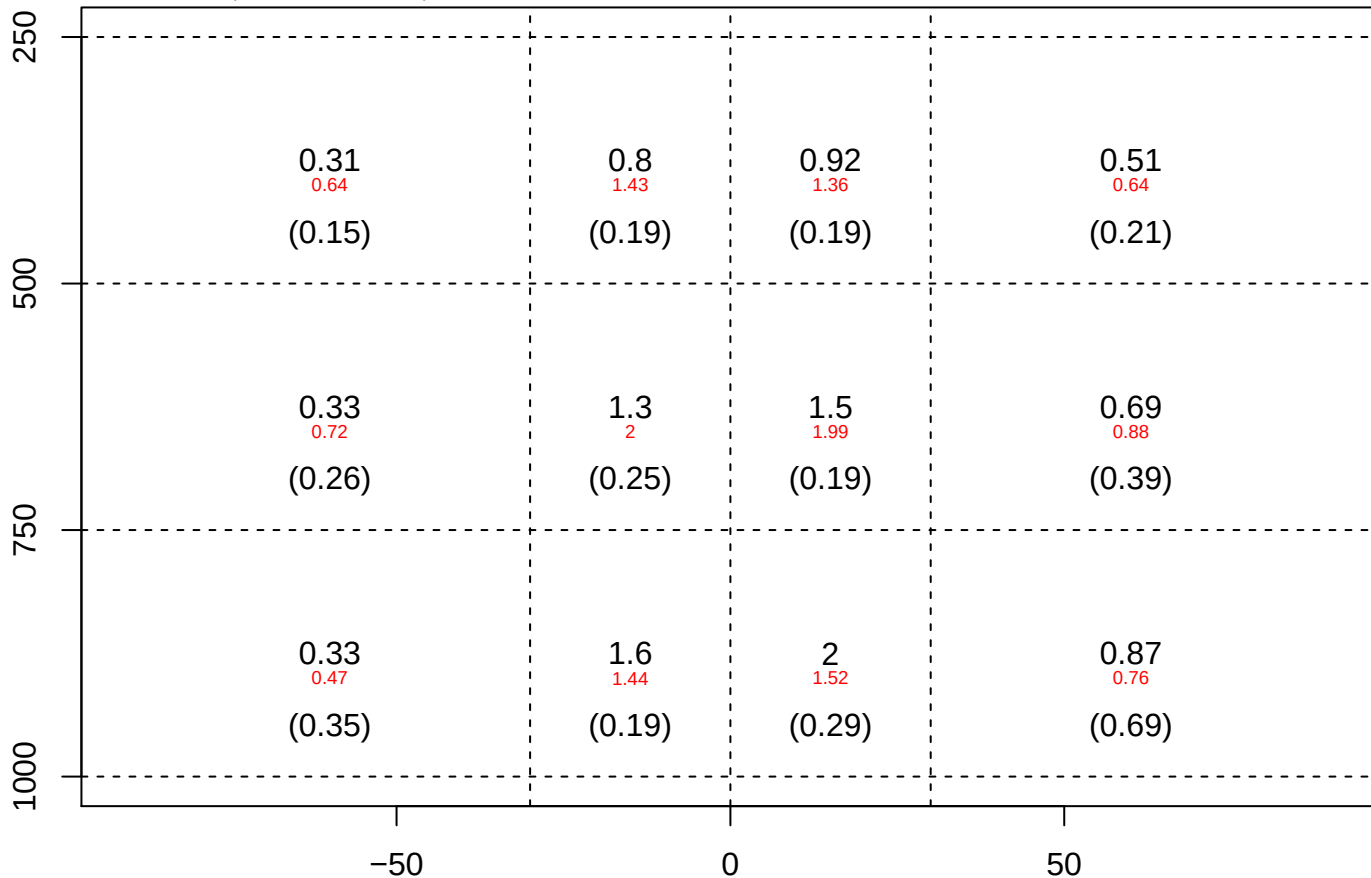
( $10^6$  molecules  $\text{cm}^{-3}$ )

UKCA xjcir

Mean OH =  $8.68 \times 10^5$

Red: Spivakovsky values

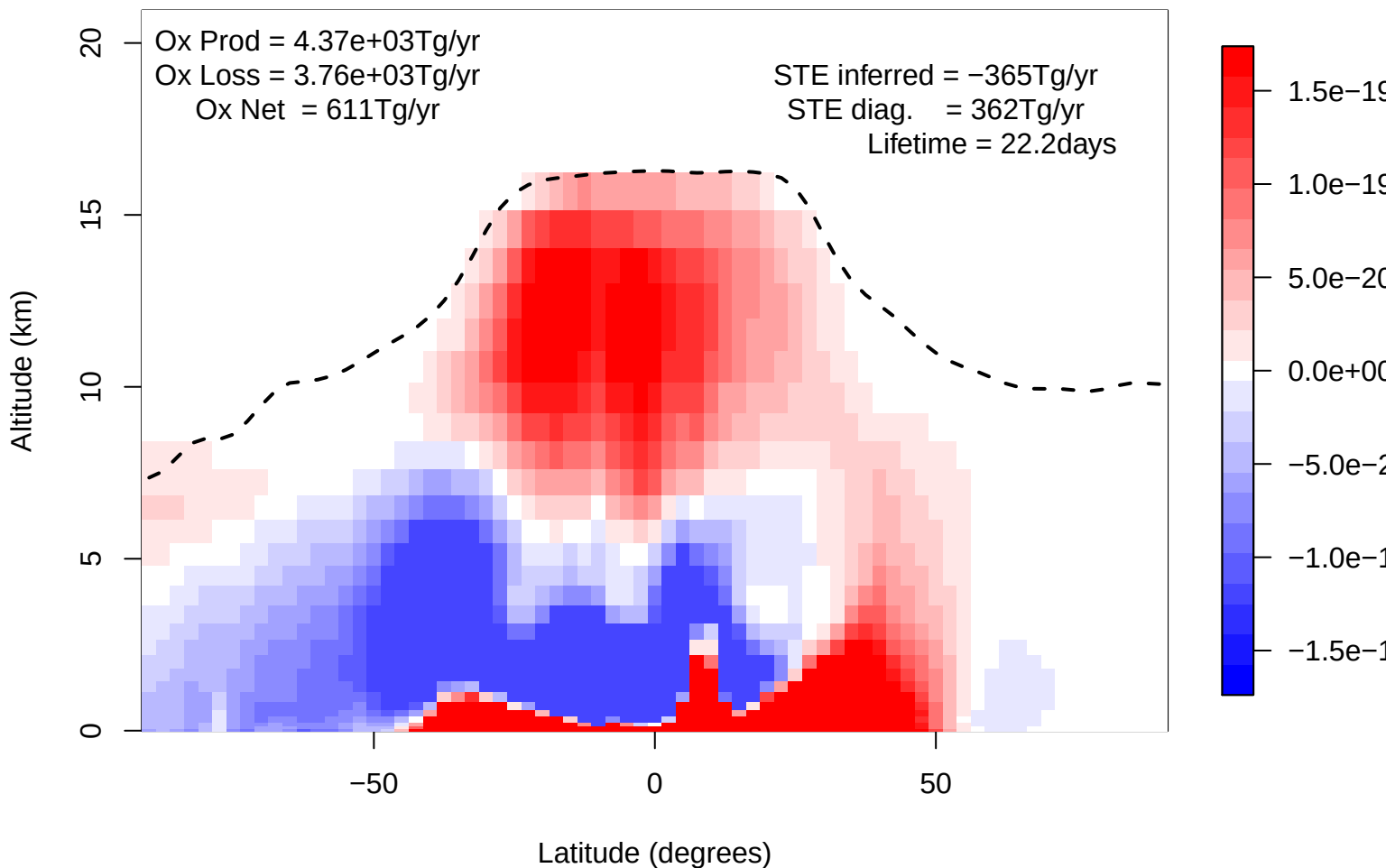
Values in ( ): Std dev



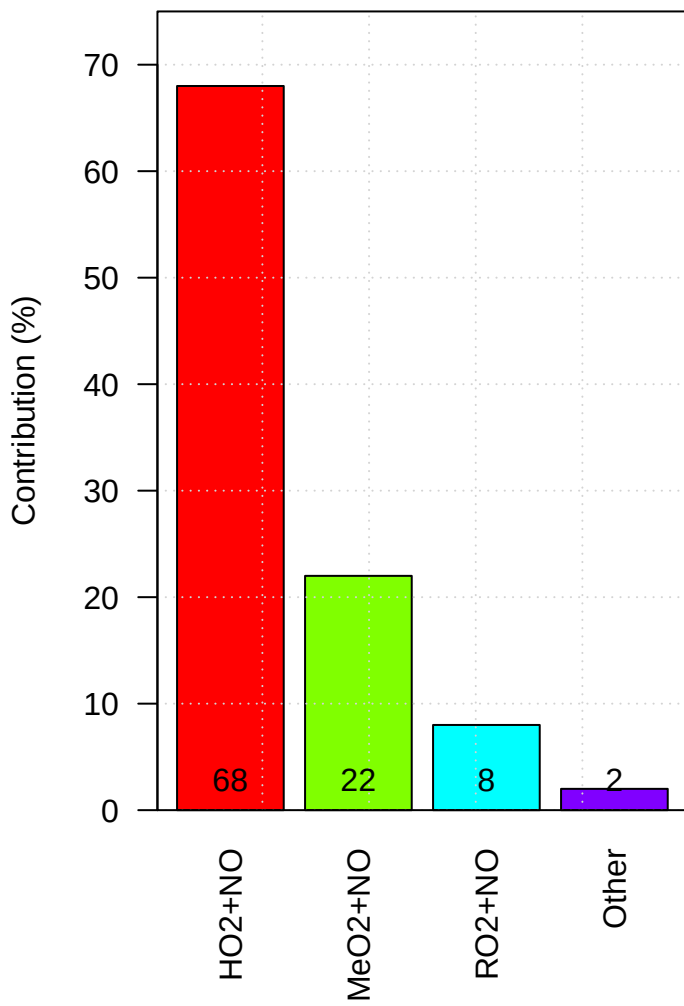
Latitude



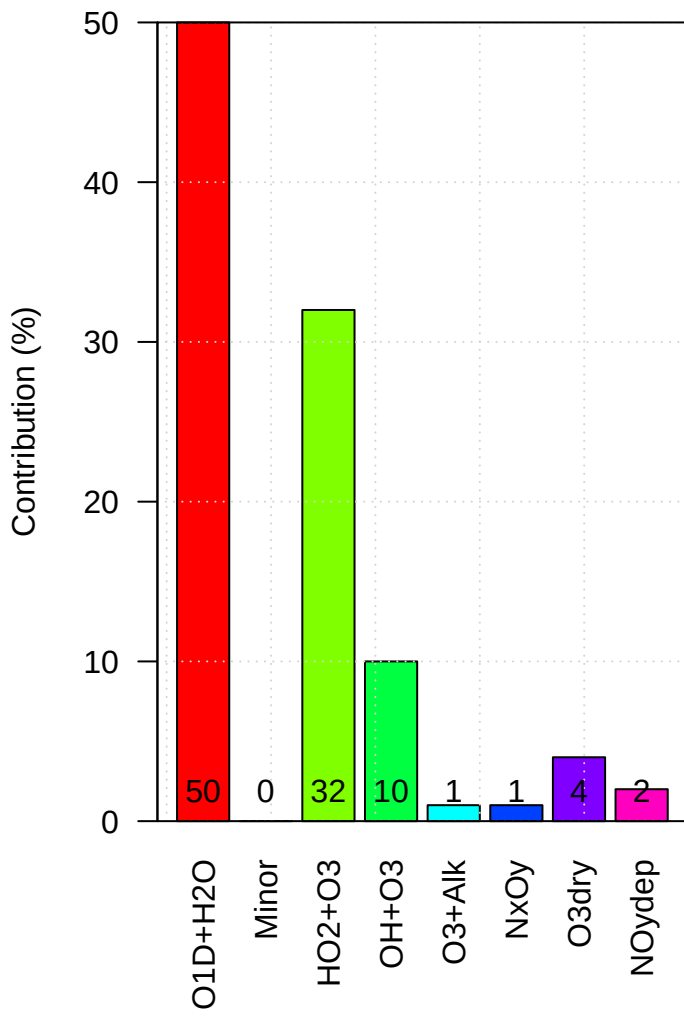
# UKCA xjcir Ox Net Chemical Production



**xjcir Production of Tropospheric Ox**

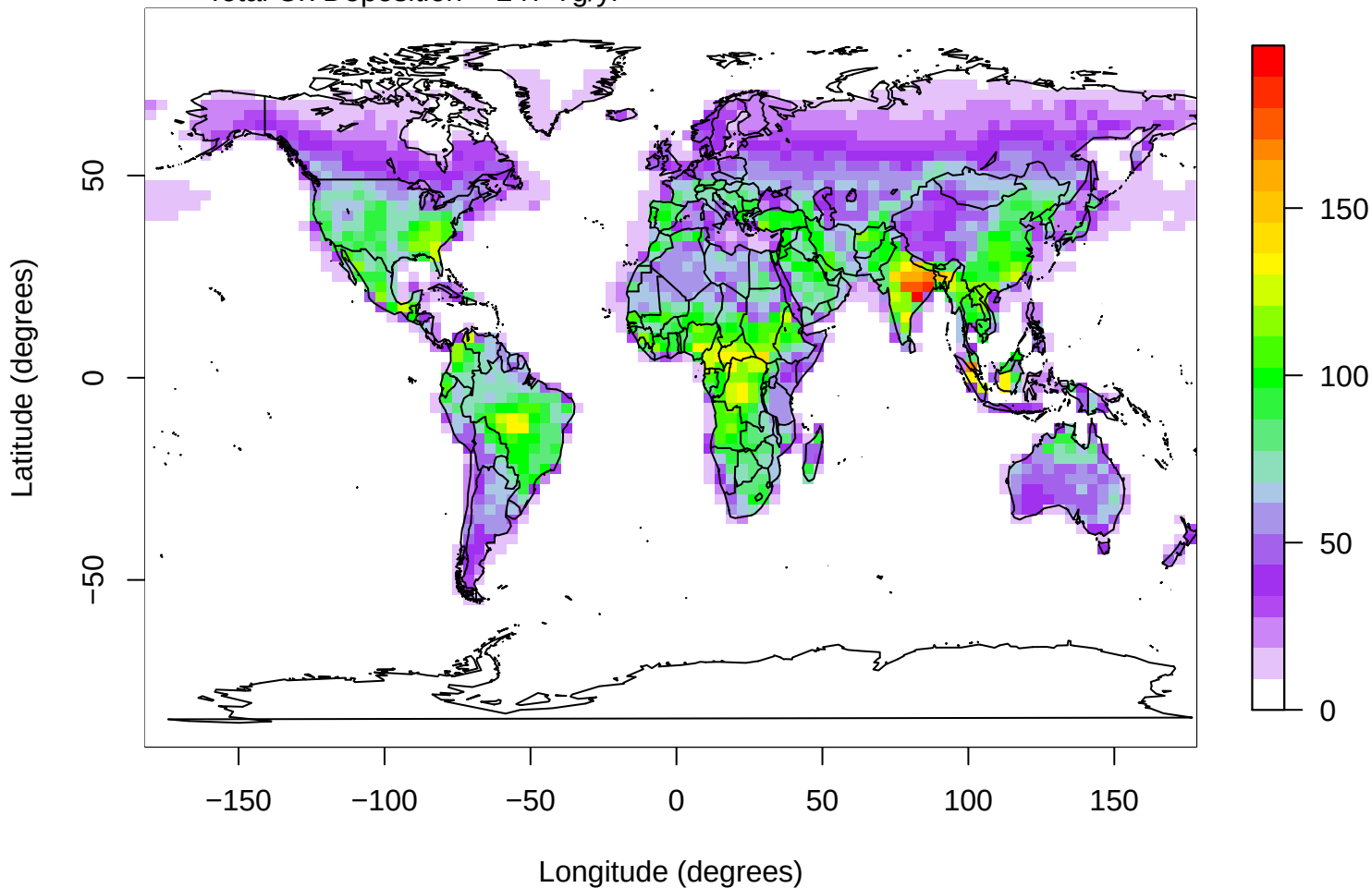


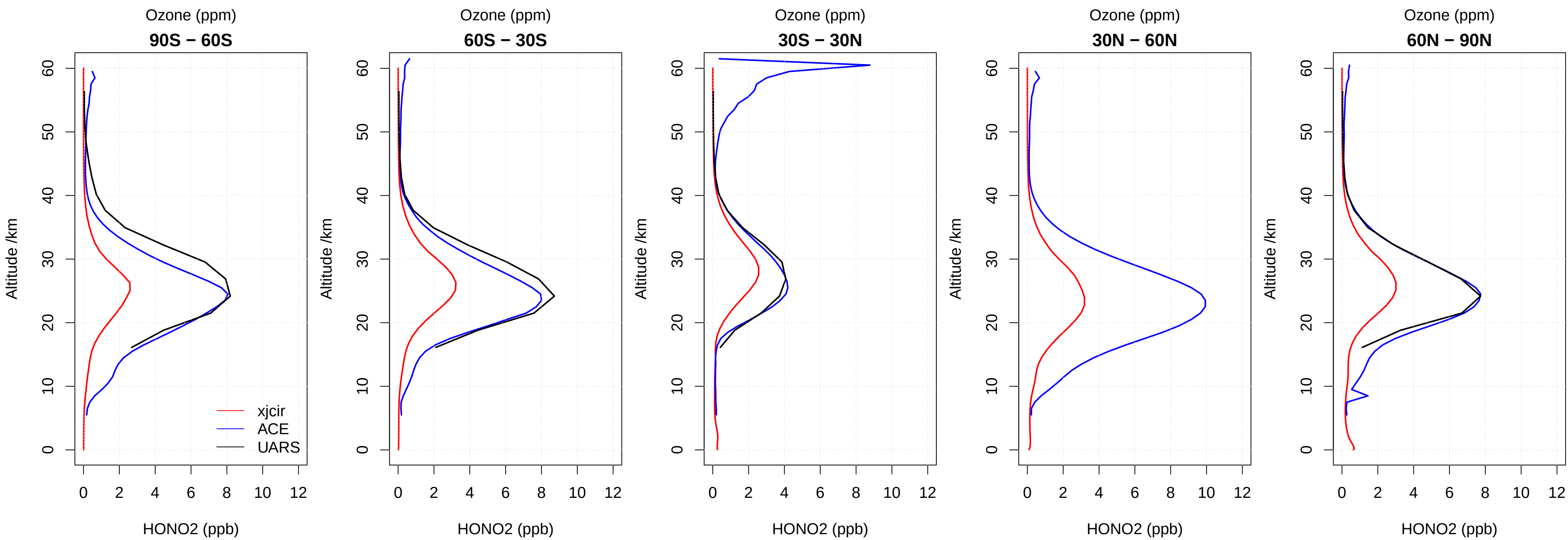
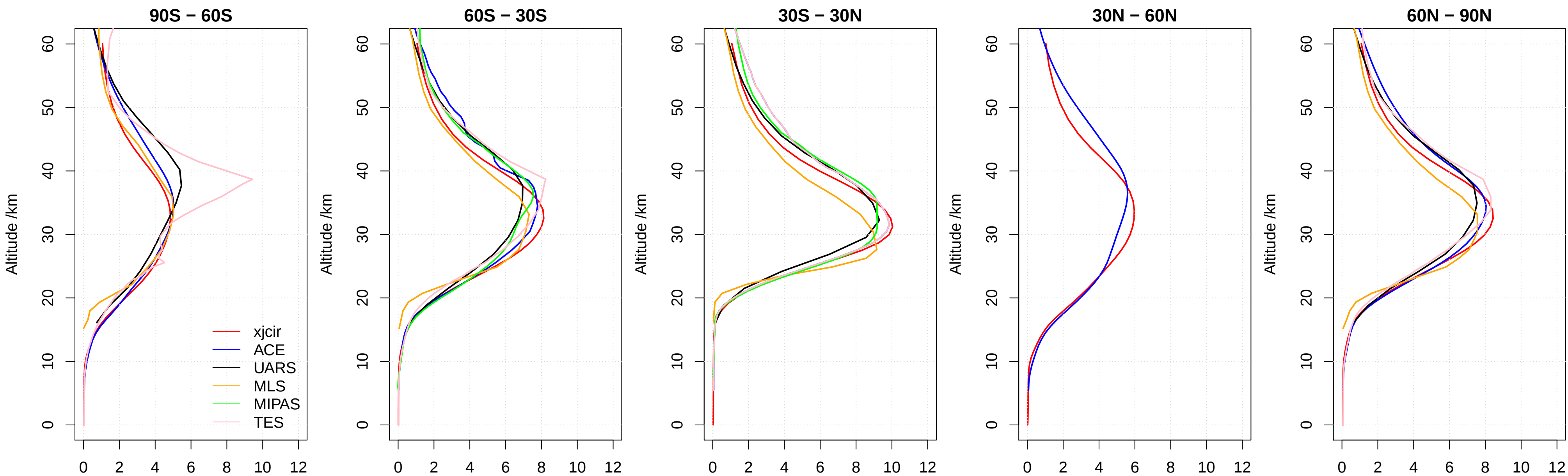
**xjcir Loss of Tropospheric Ox**

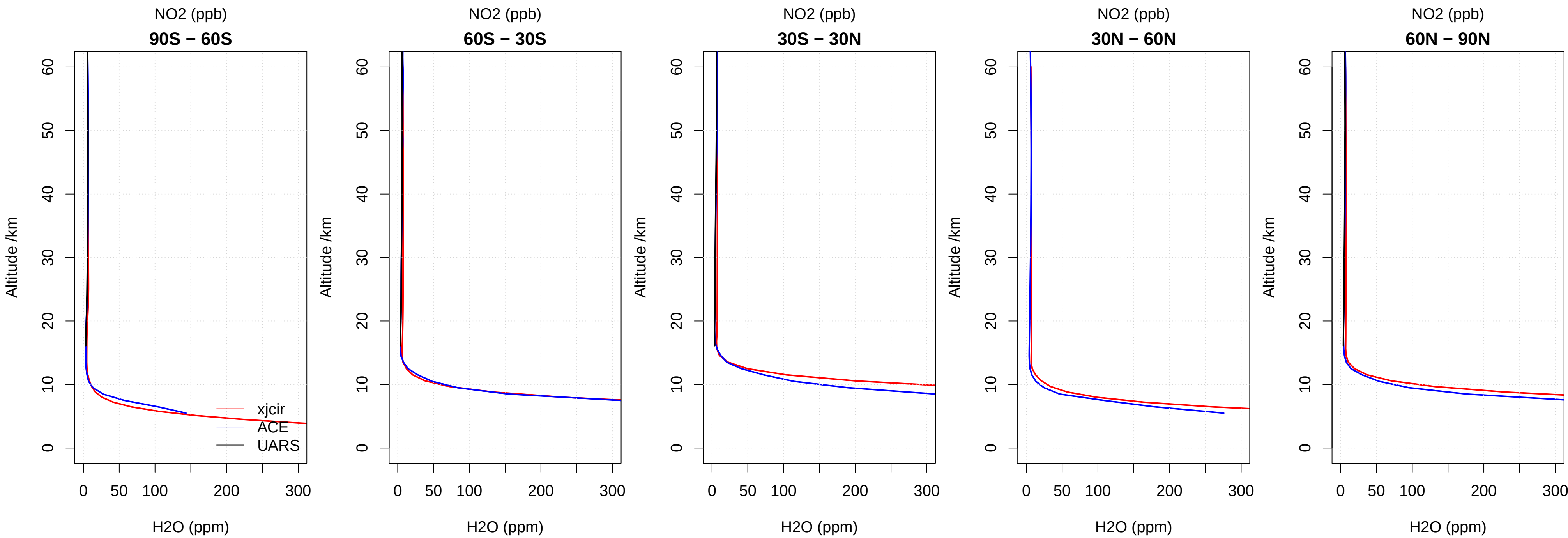
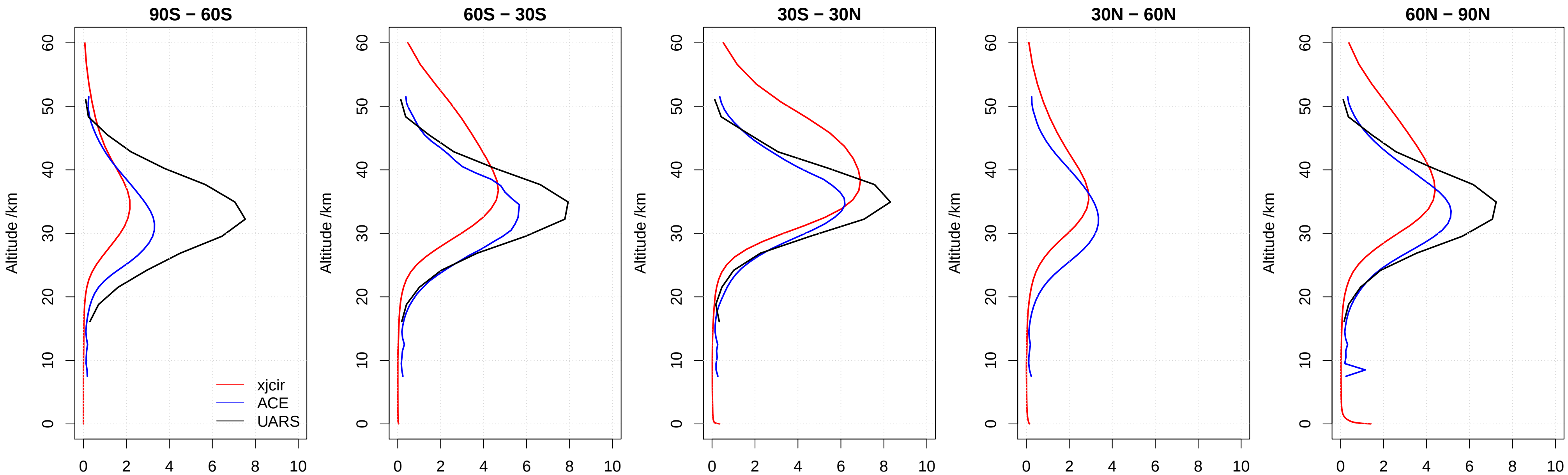


# UKCA Ox deposition xjcir

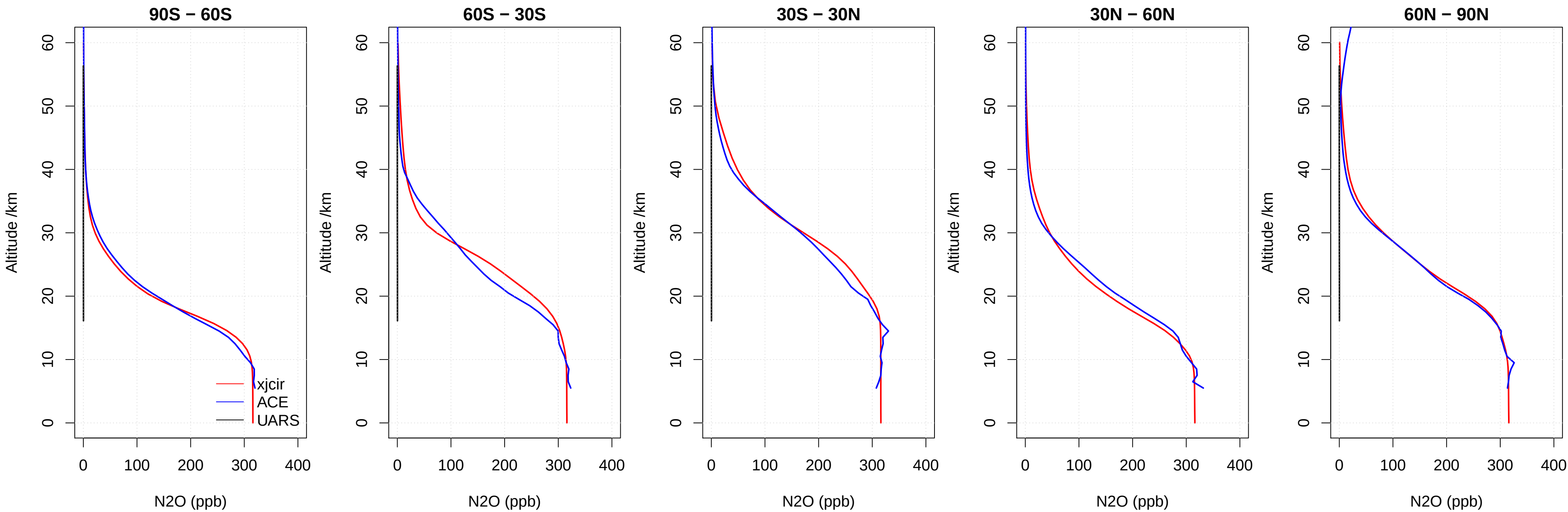
Total Ox Deposition = 247 Tg/yr

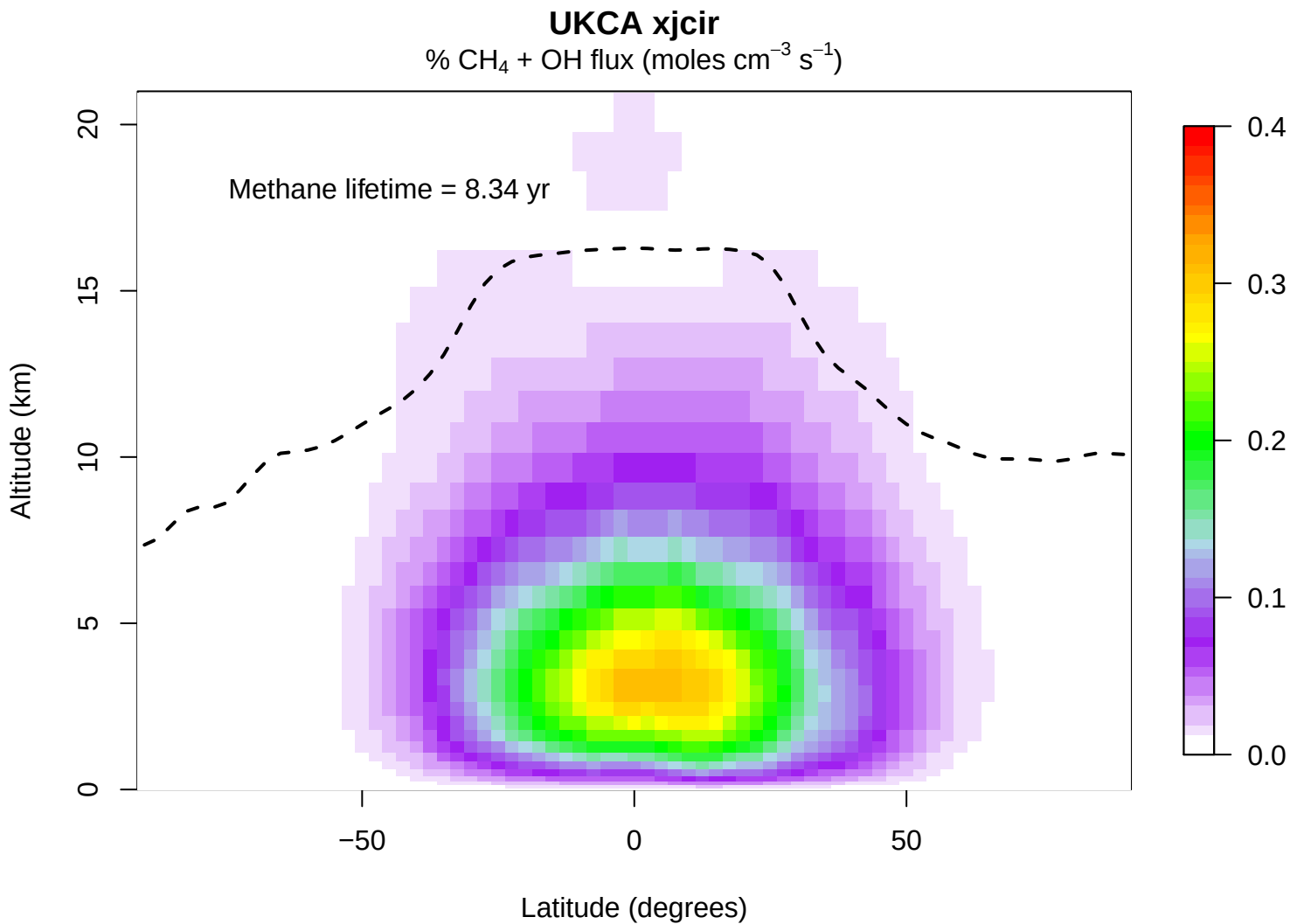




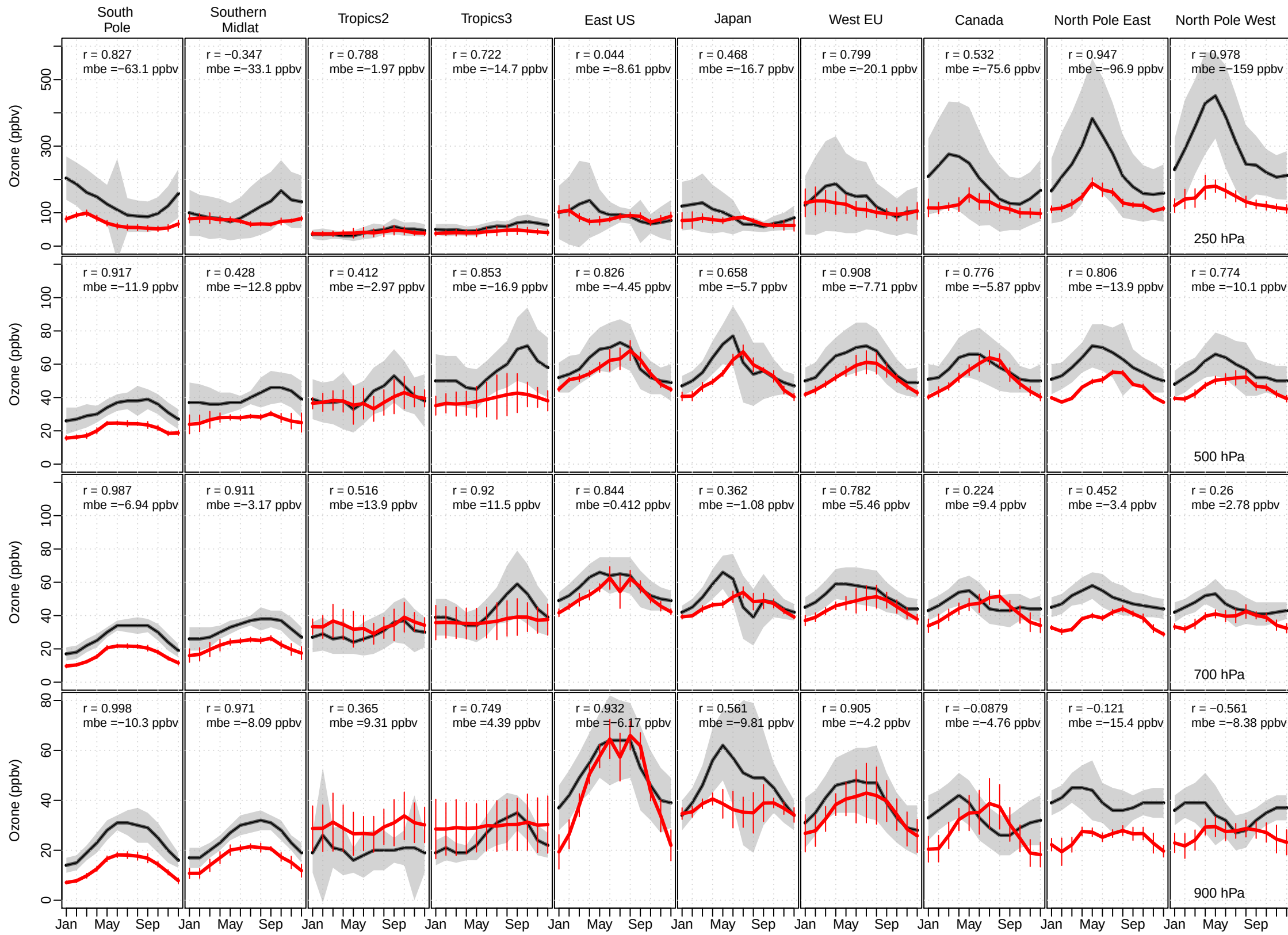


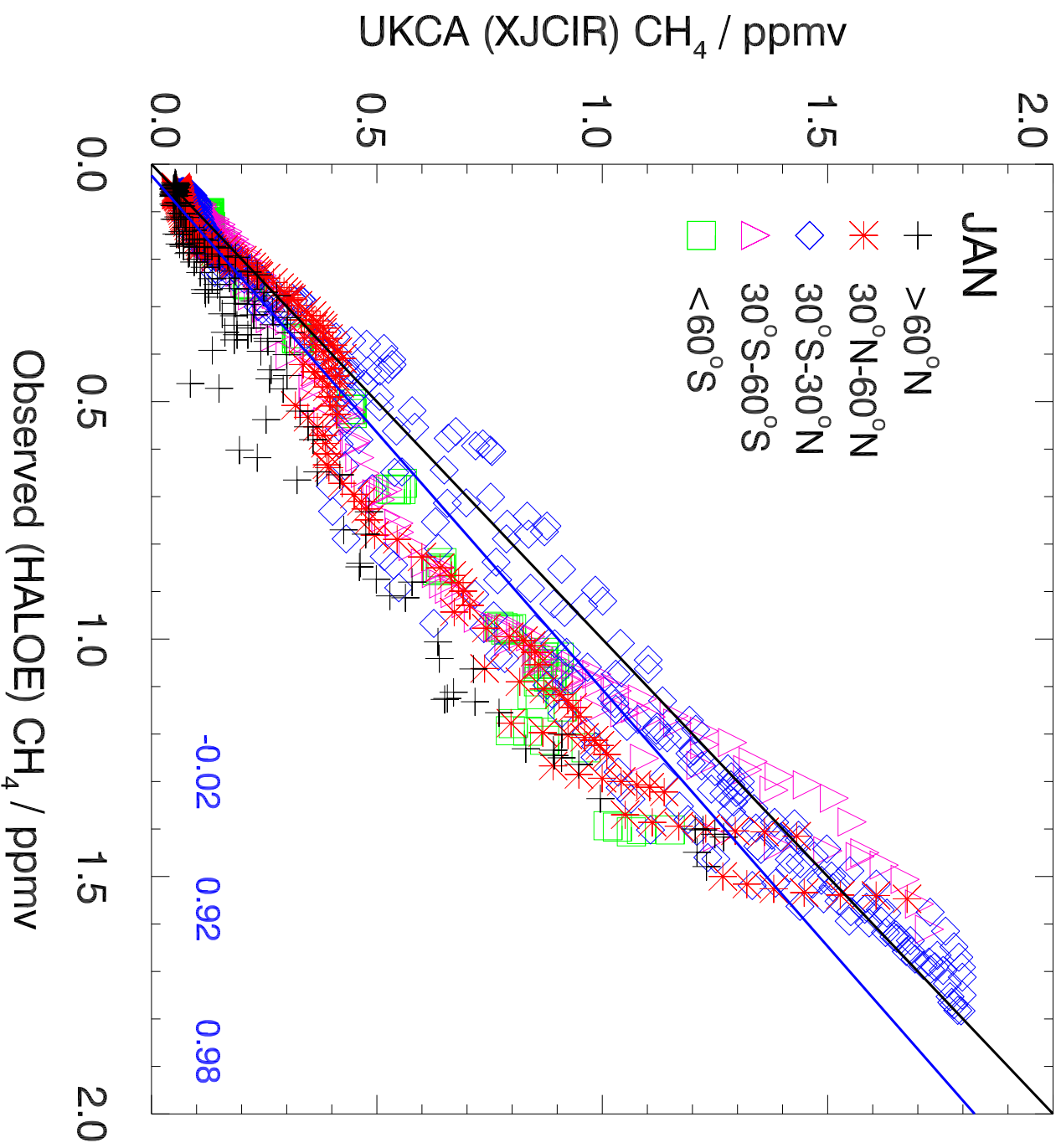


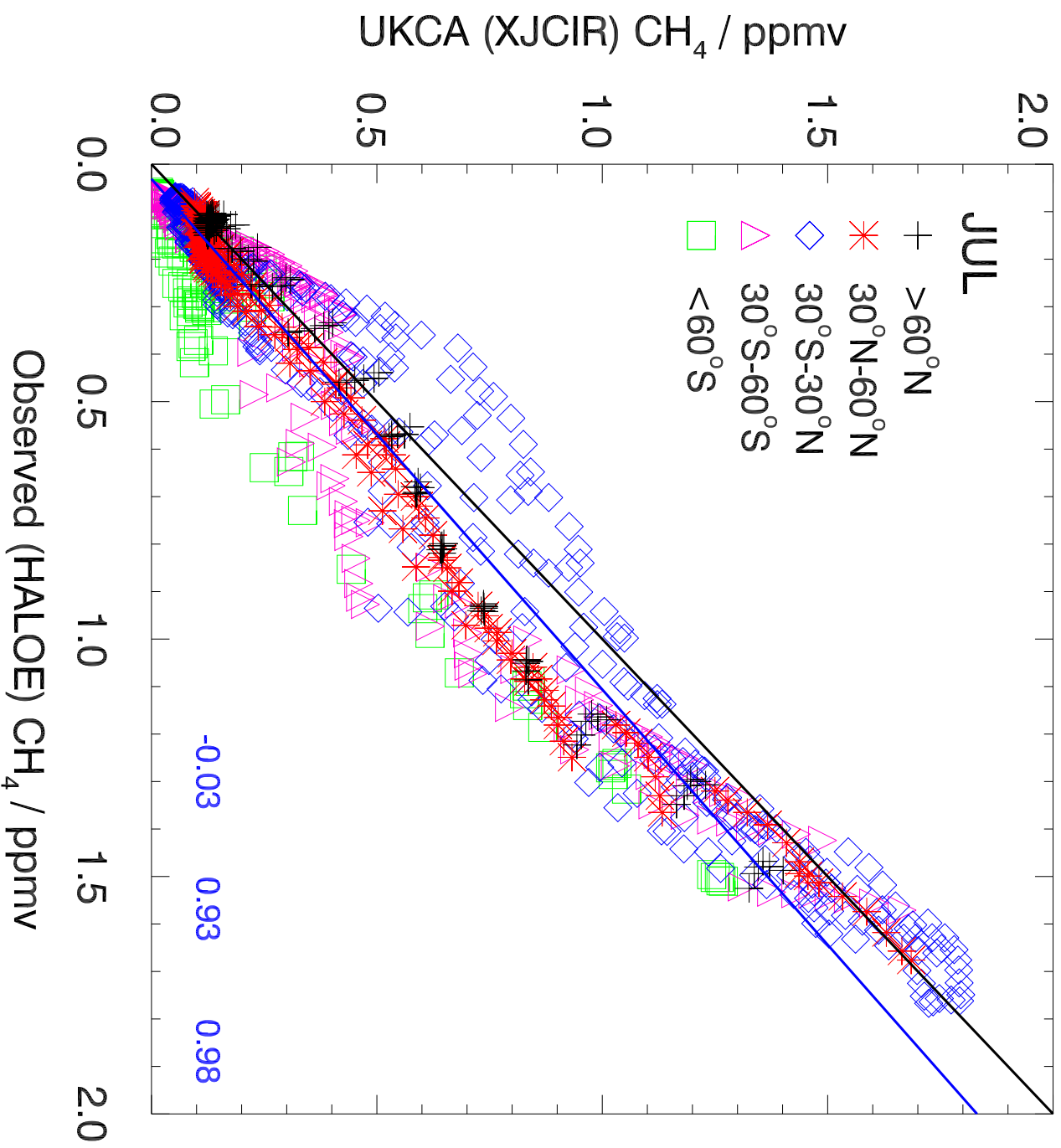


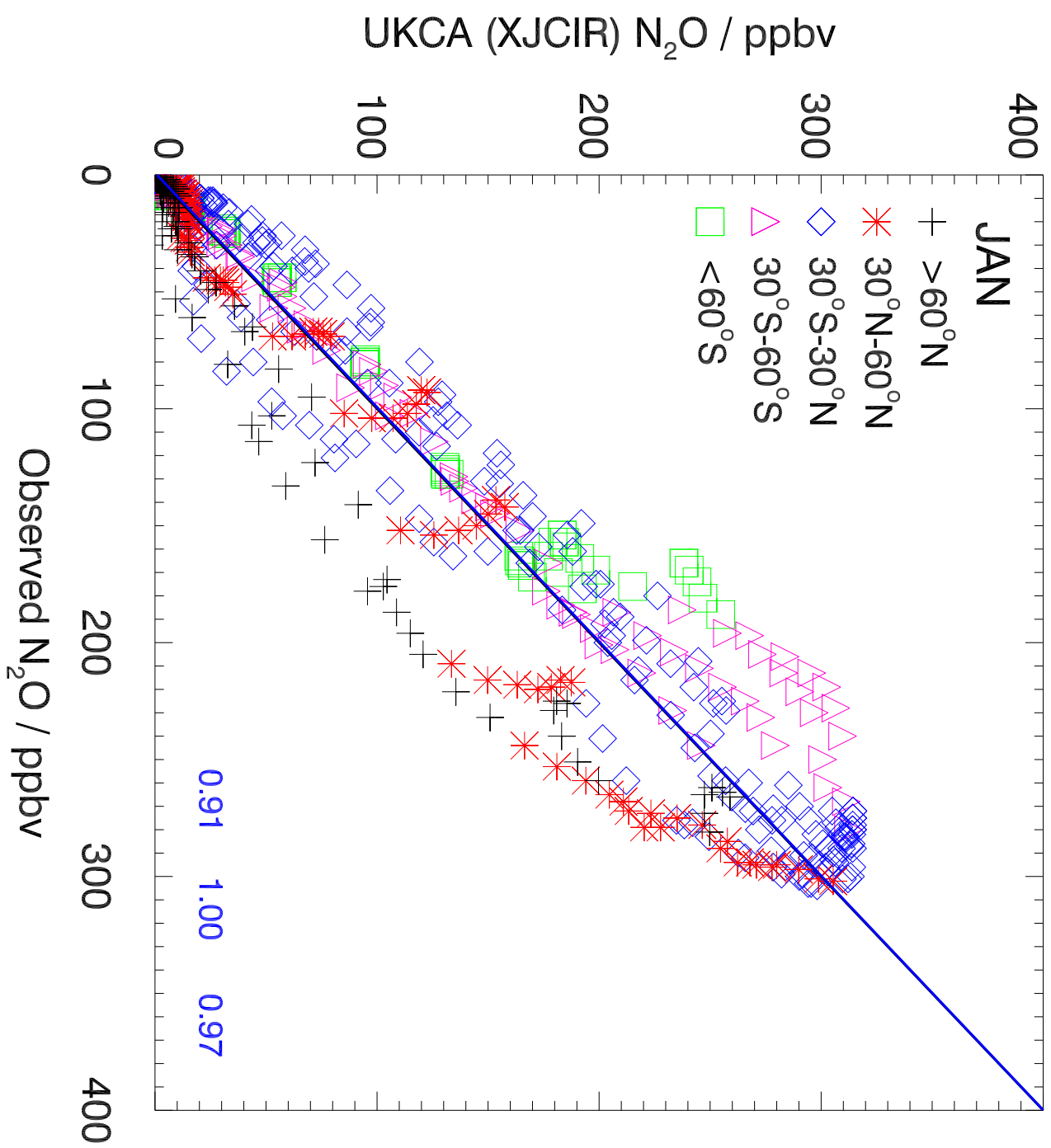


# **xjcir Tilmes ozone sonde comparison**

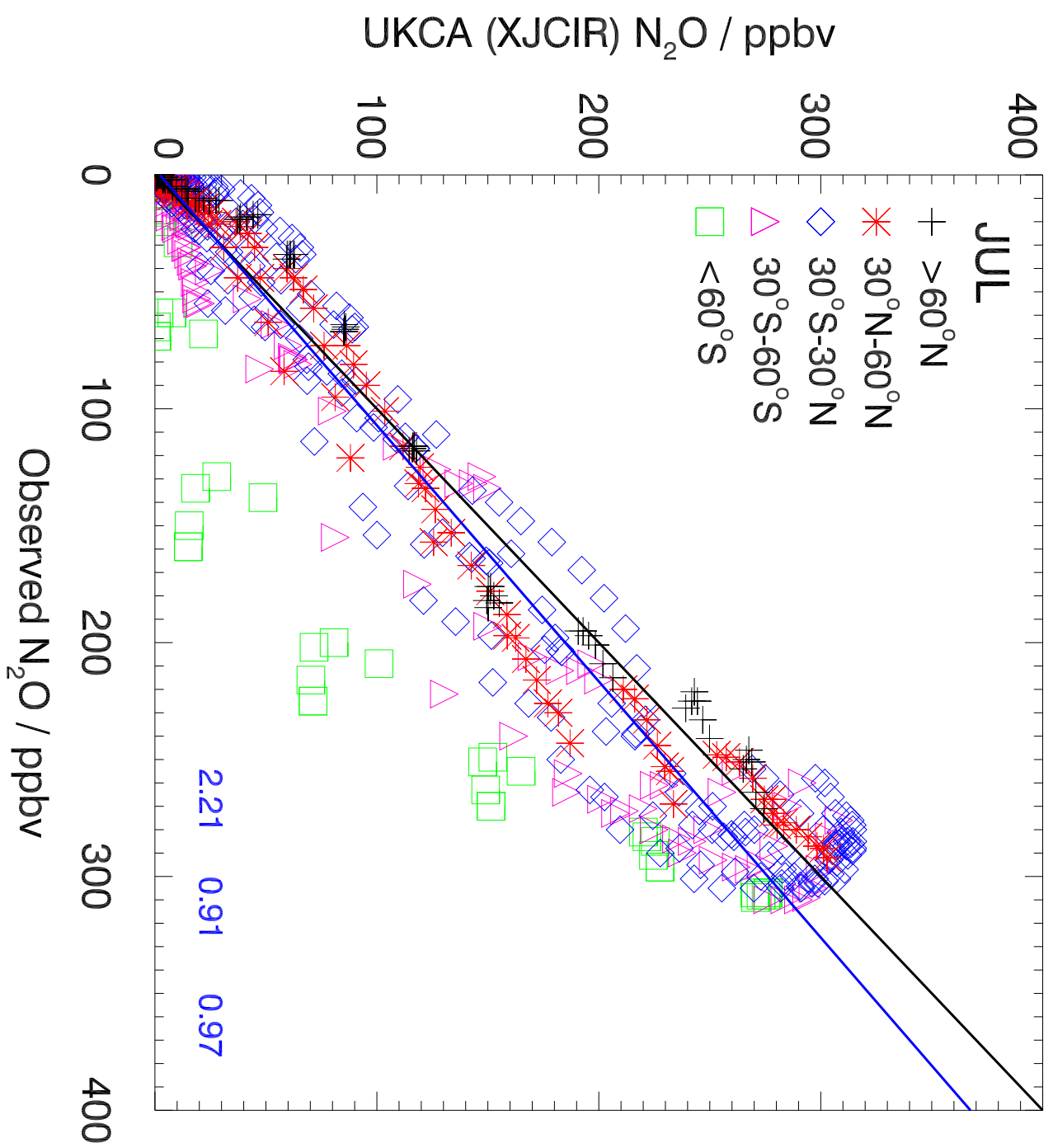


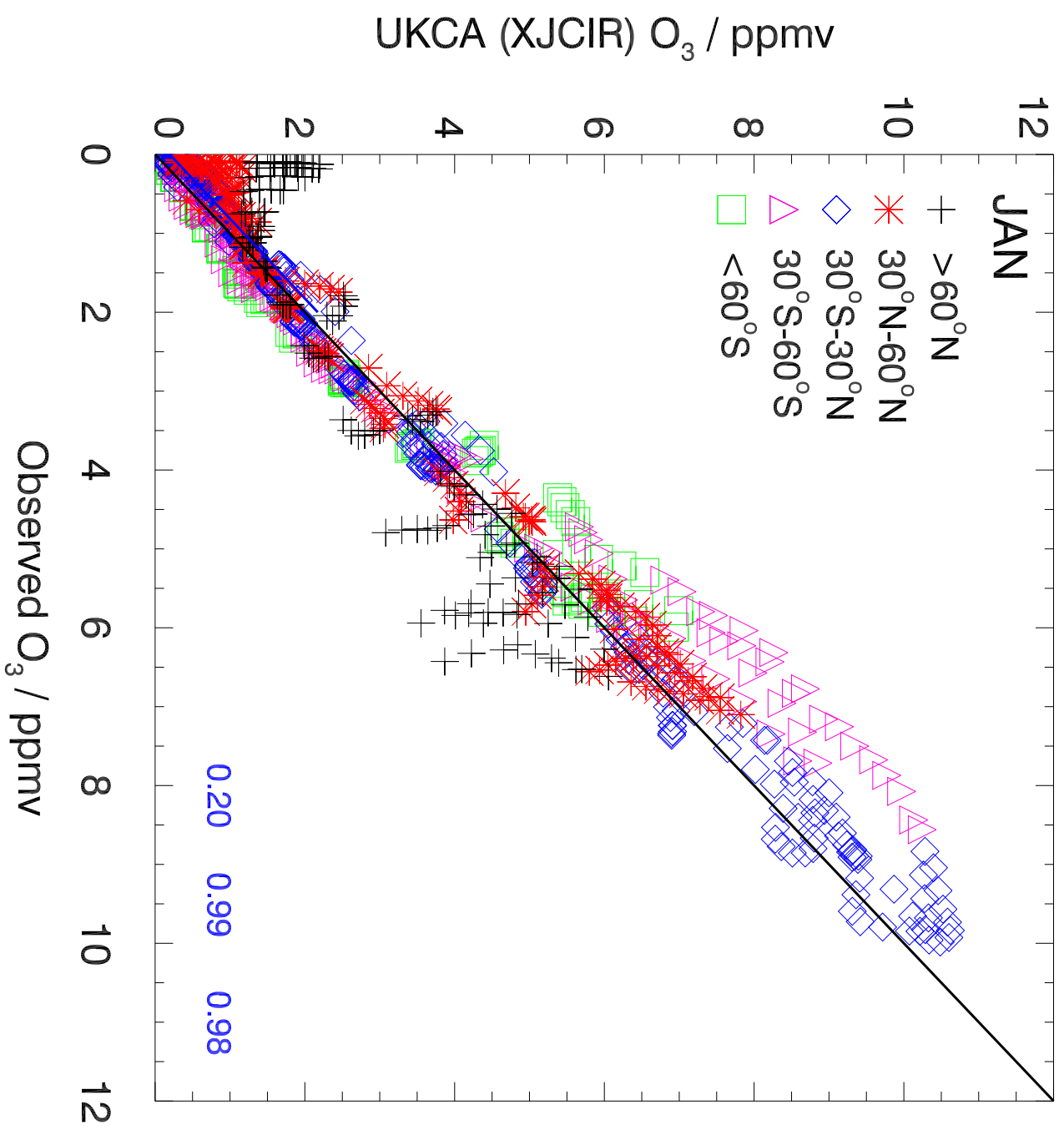


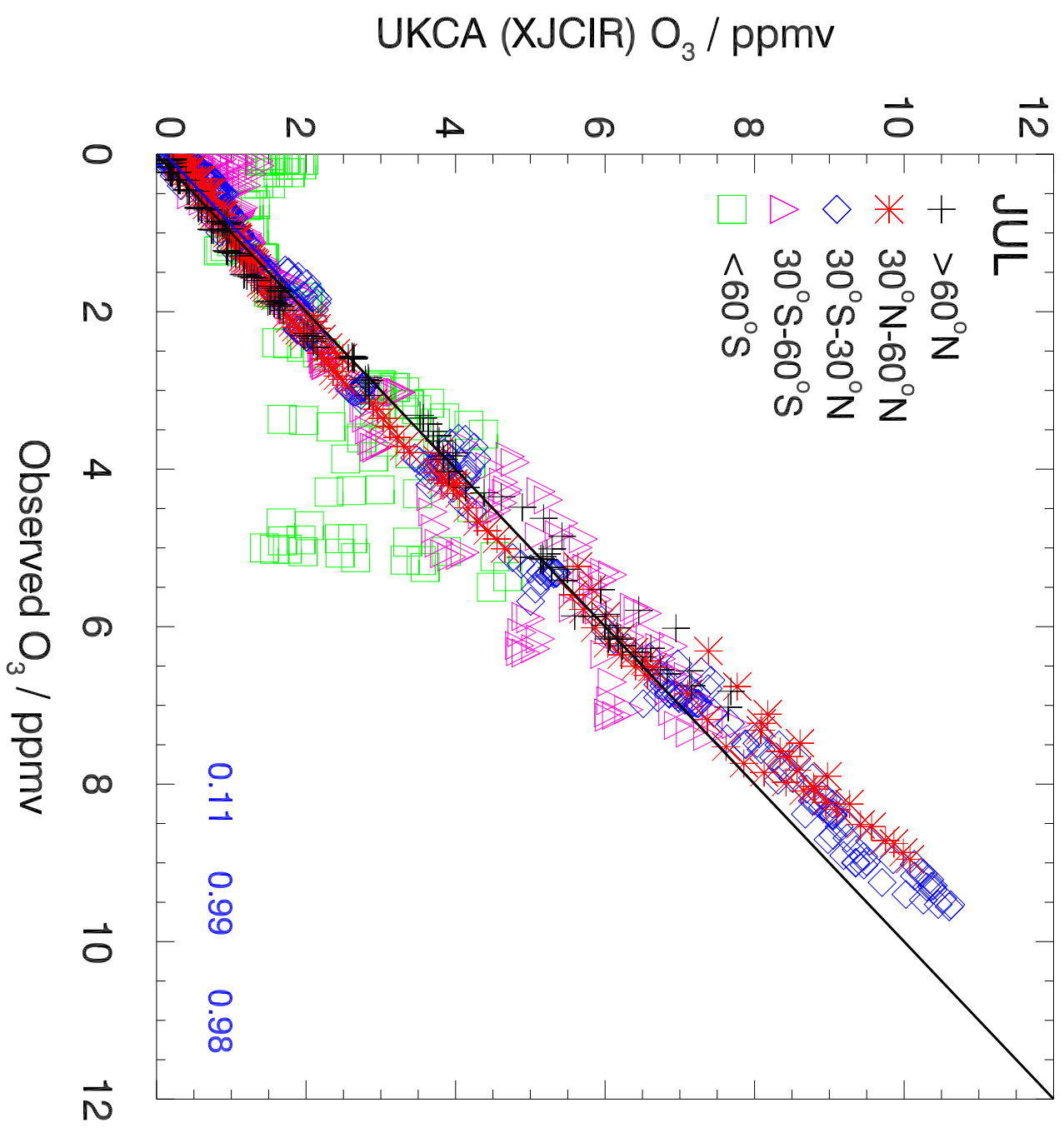


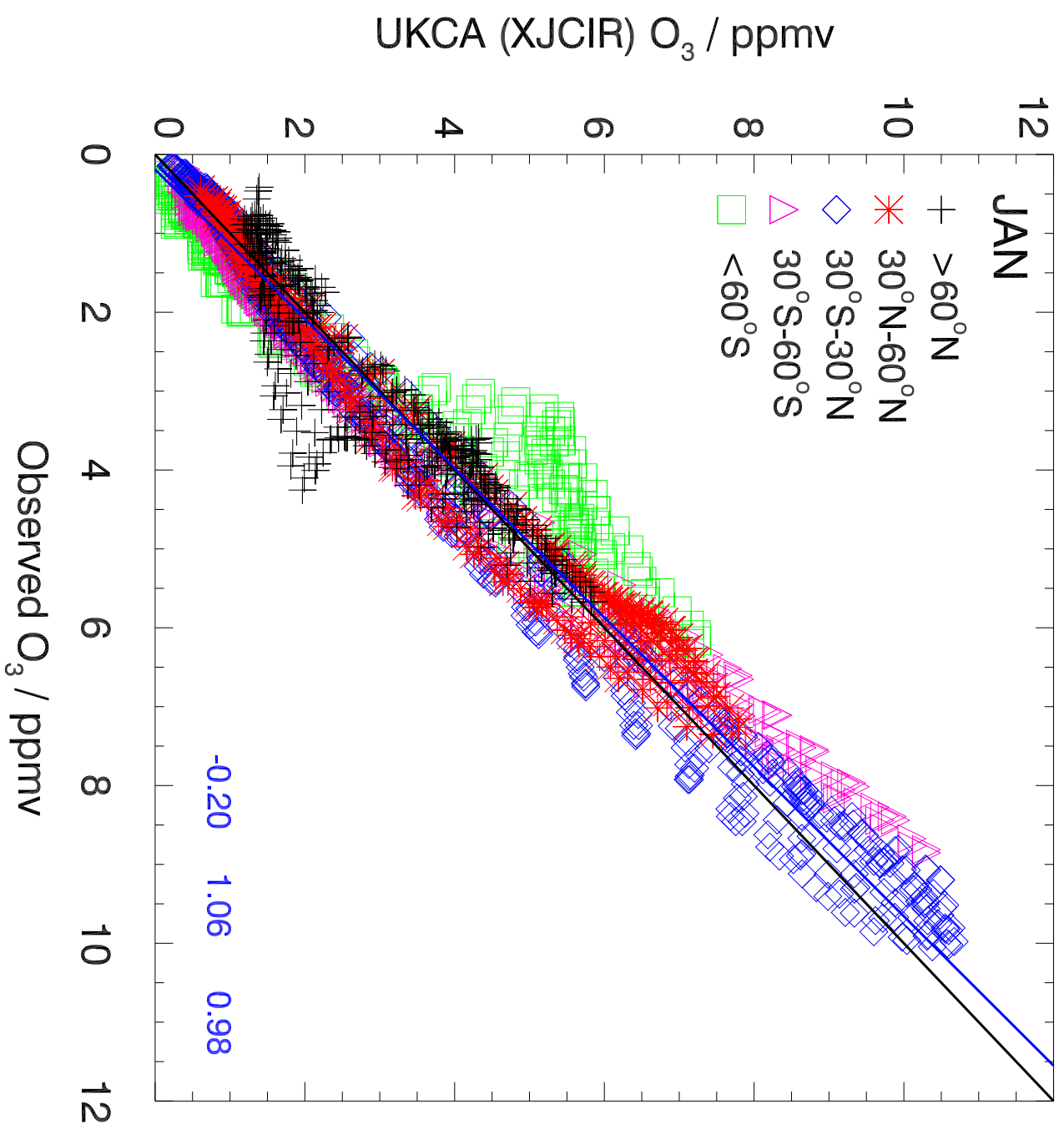


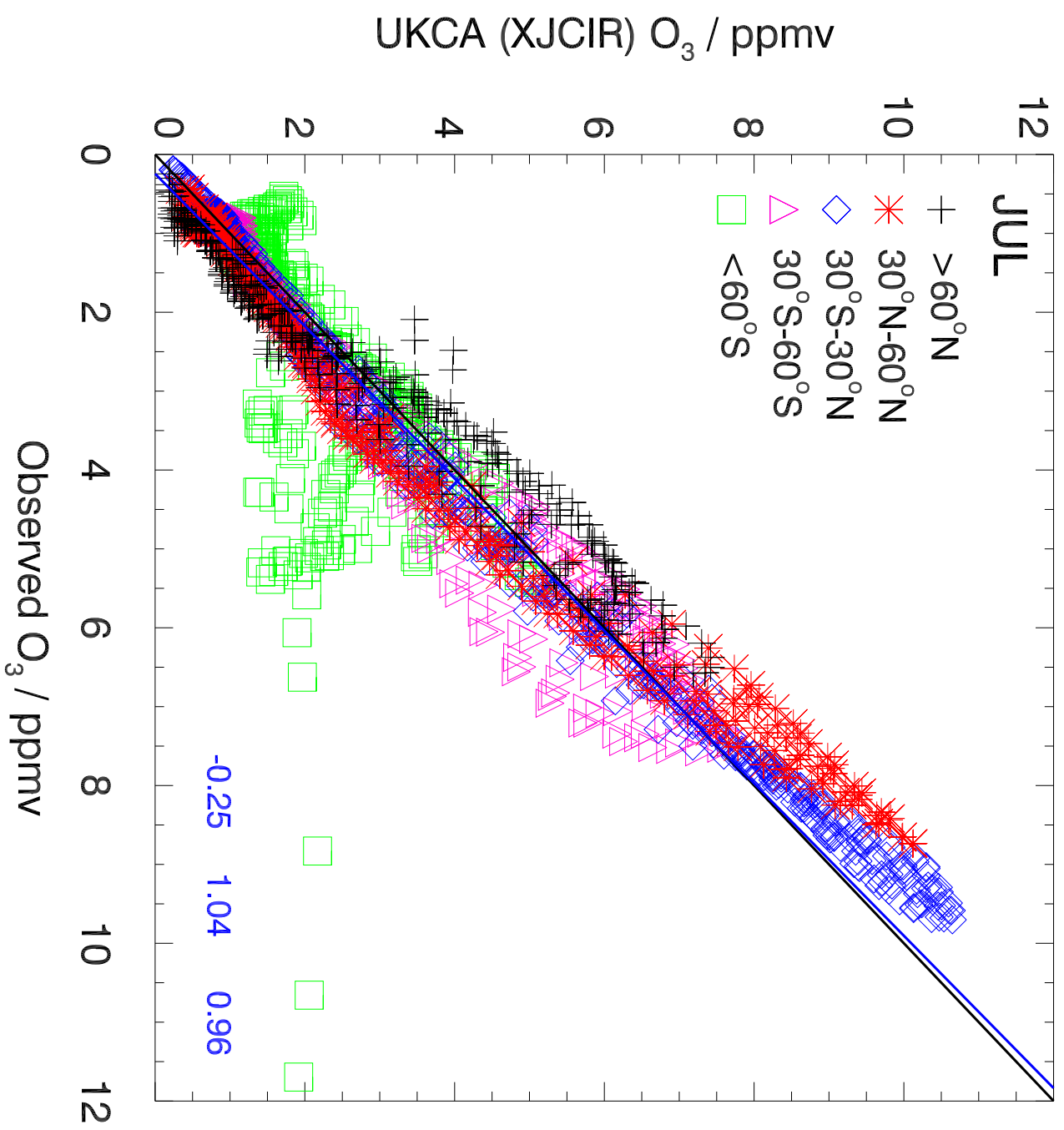




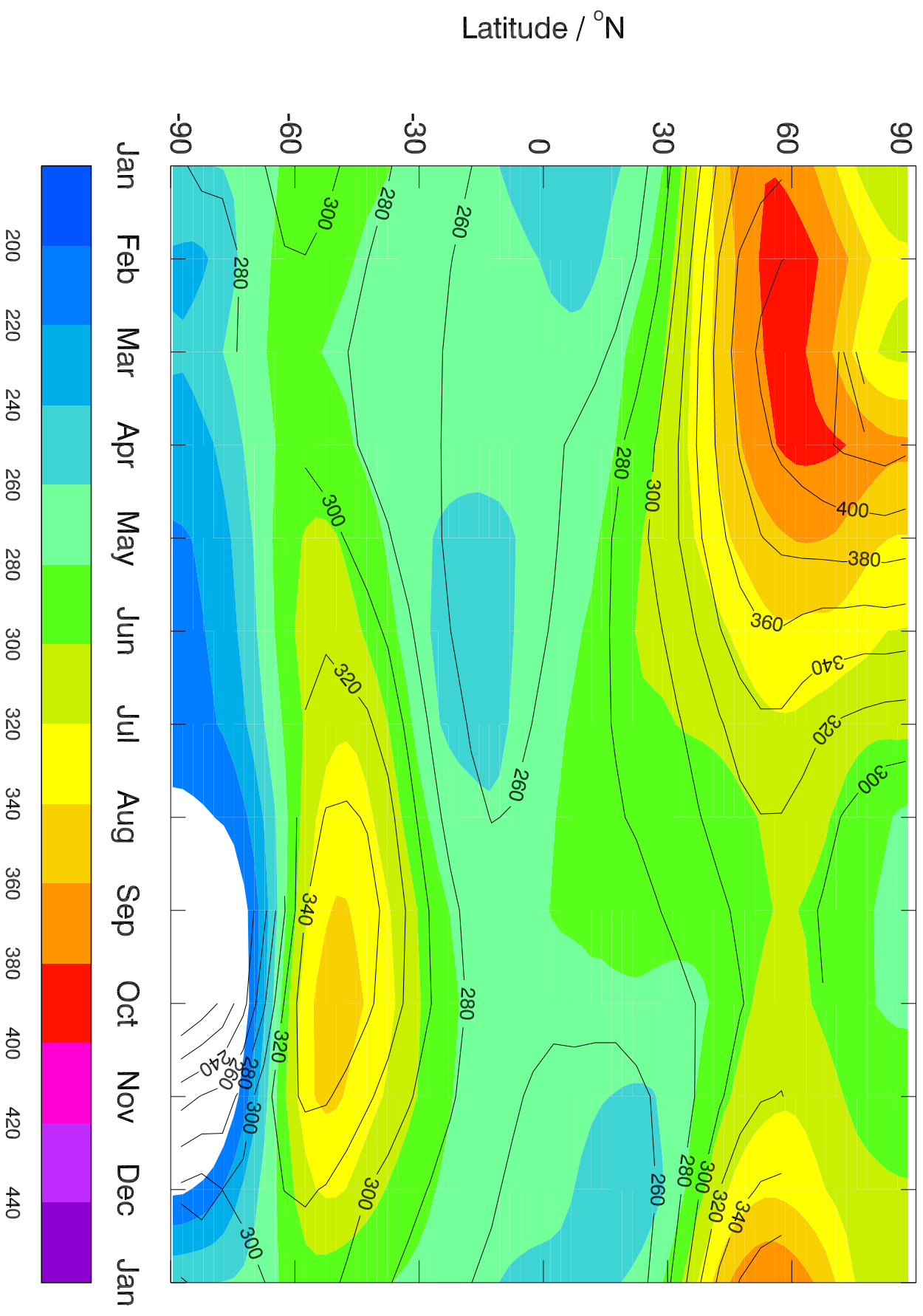




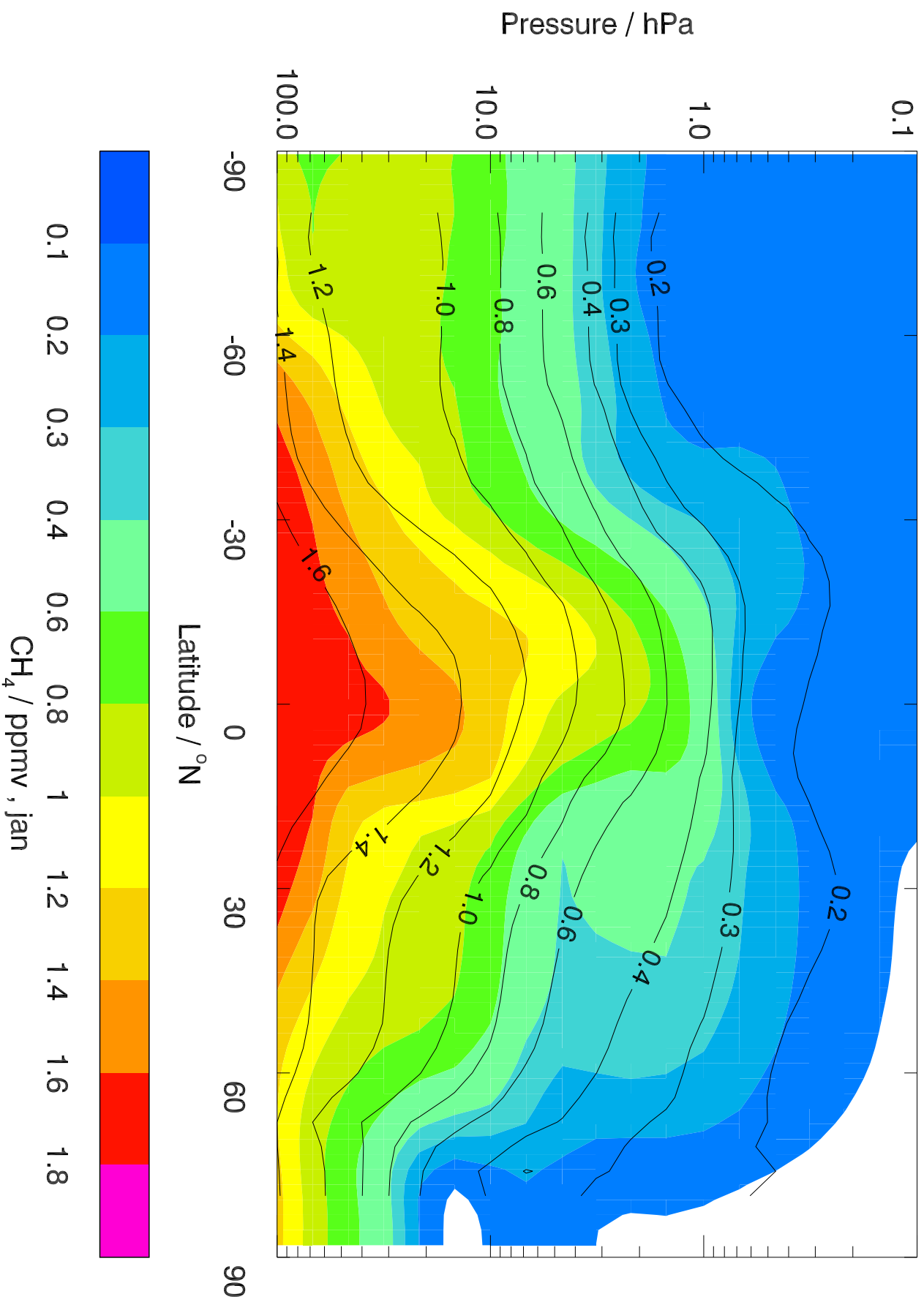




Total Ozone Column (DU). Colours: UKCA (XJClR), Contours: TOMS

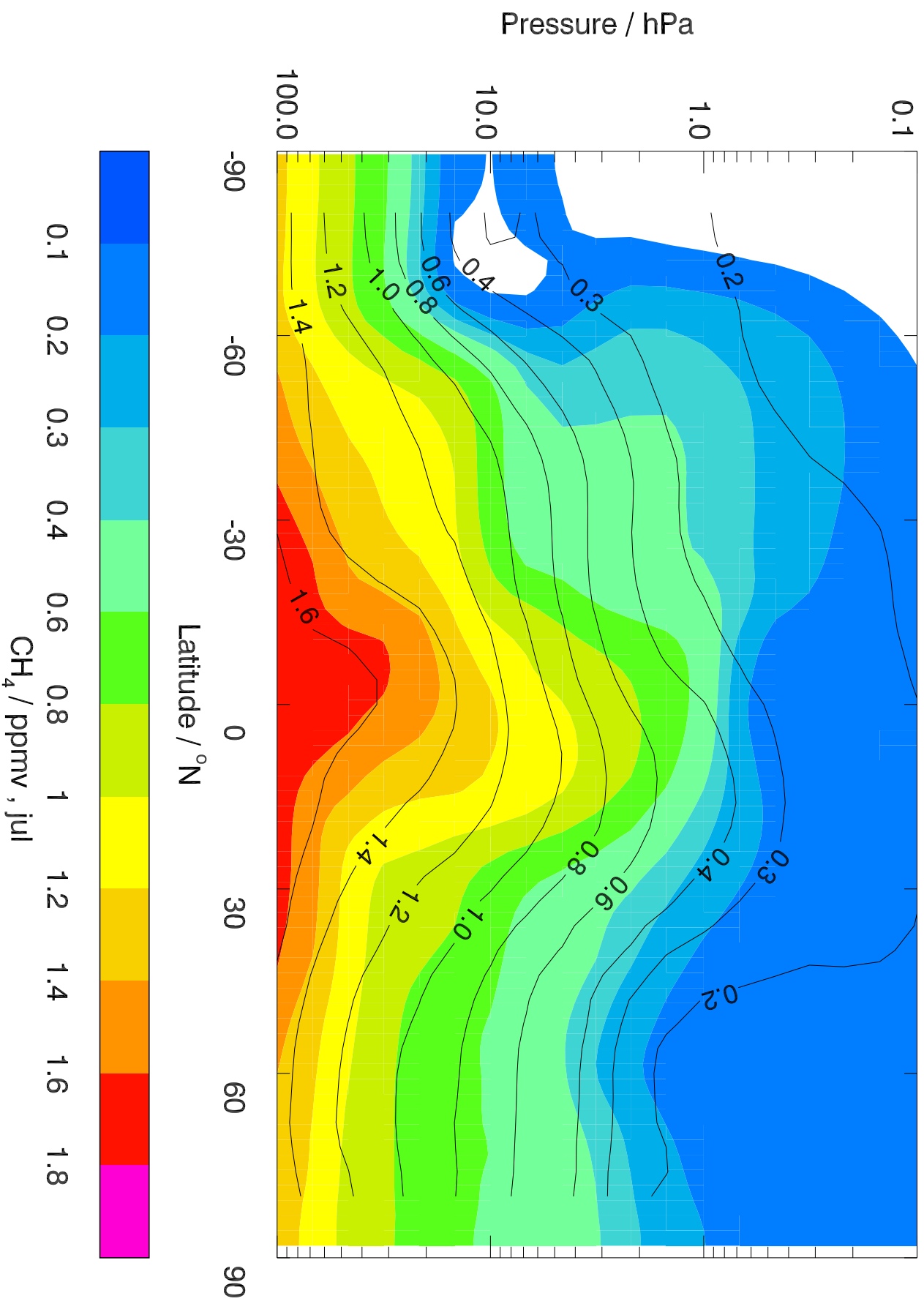


Colours: UKCA (XJGIR), Contours: HALOE

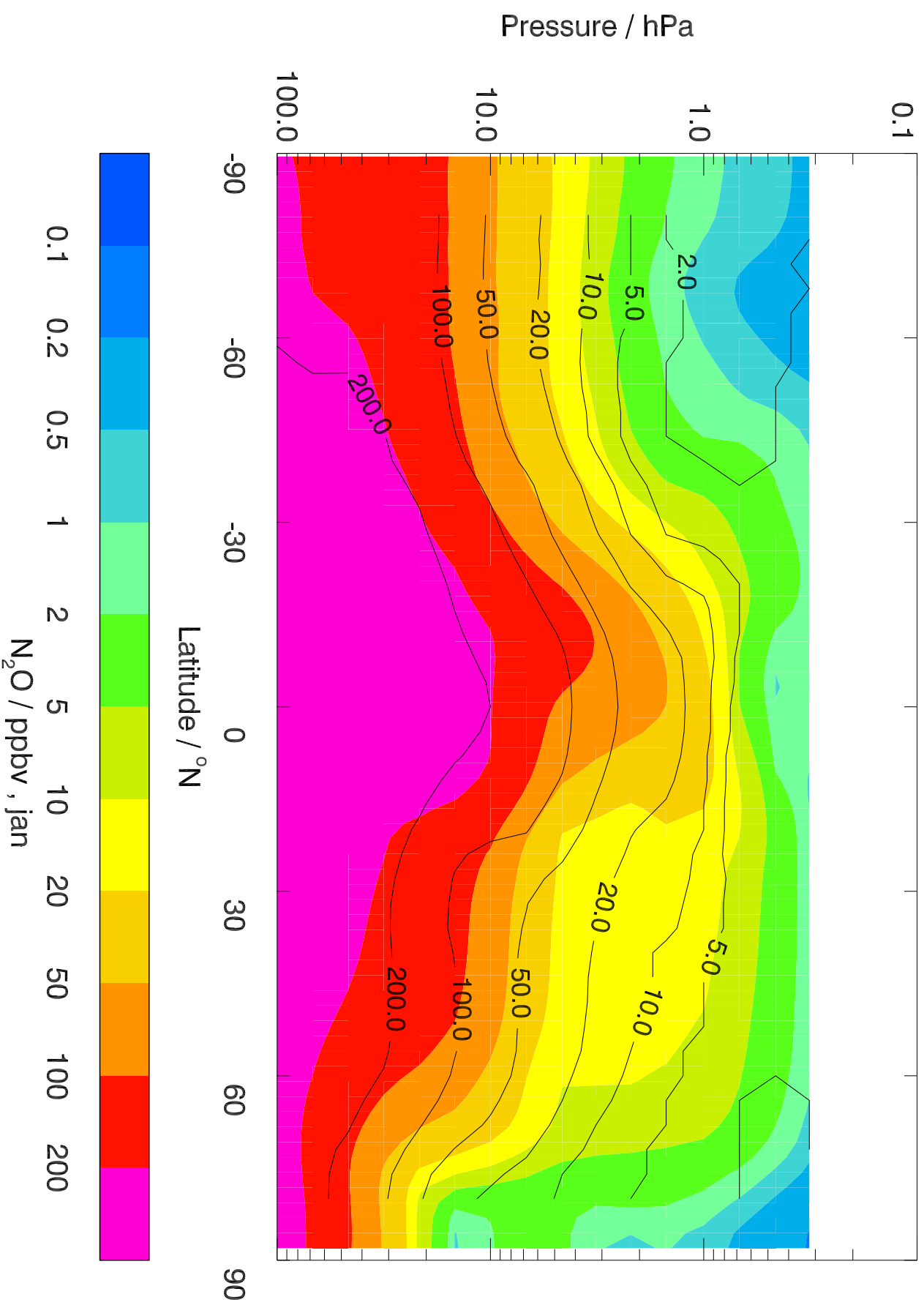




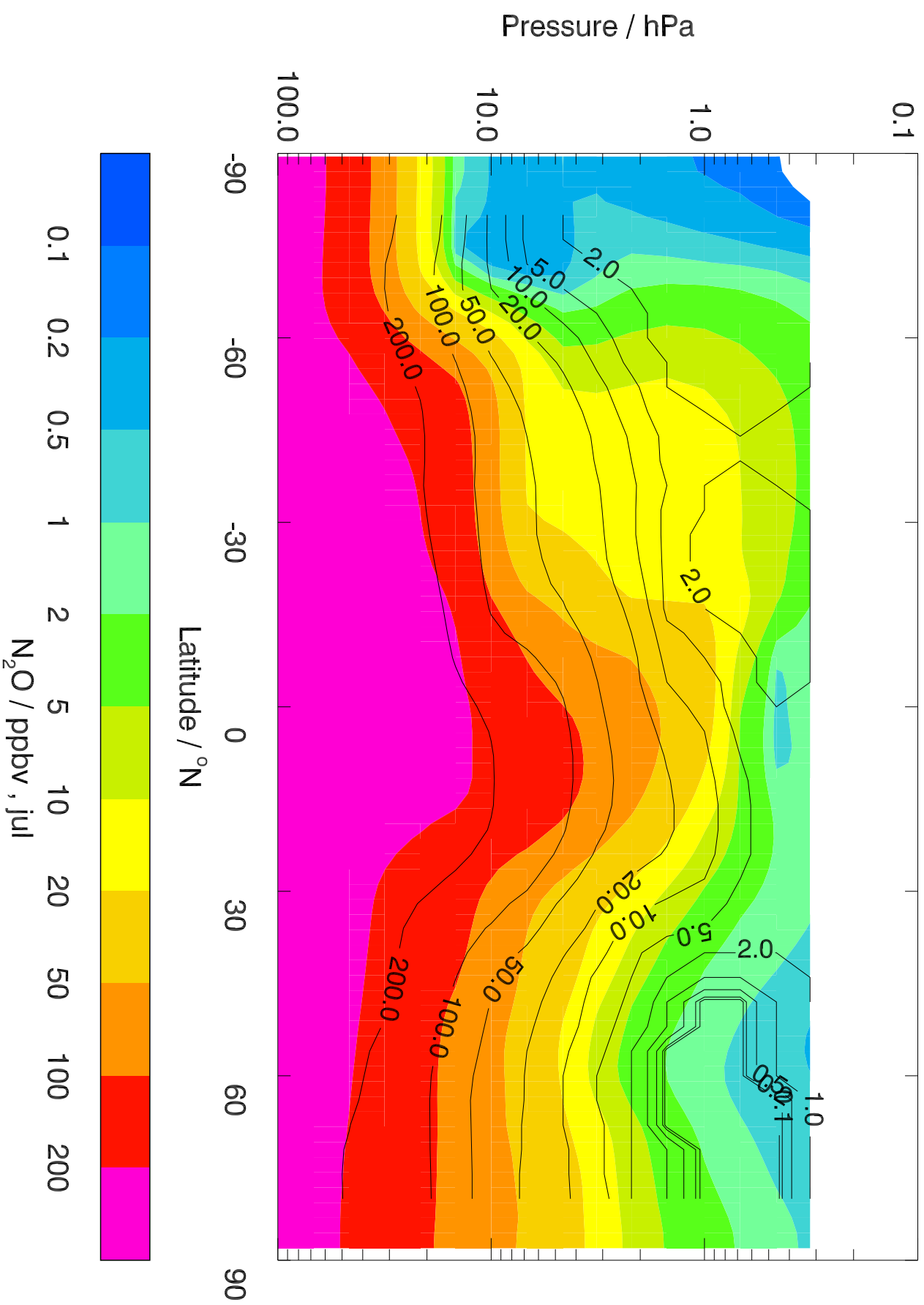
Colours: UKCA (XJGIR), Contours: HALOE



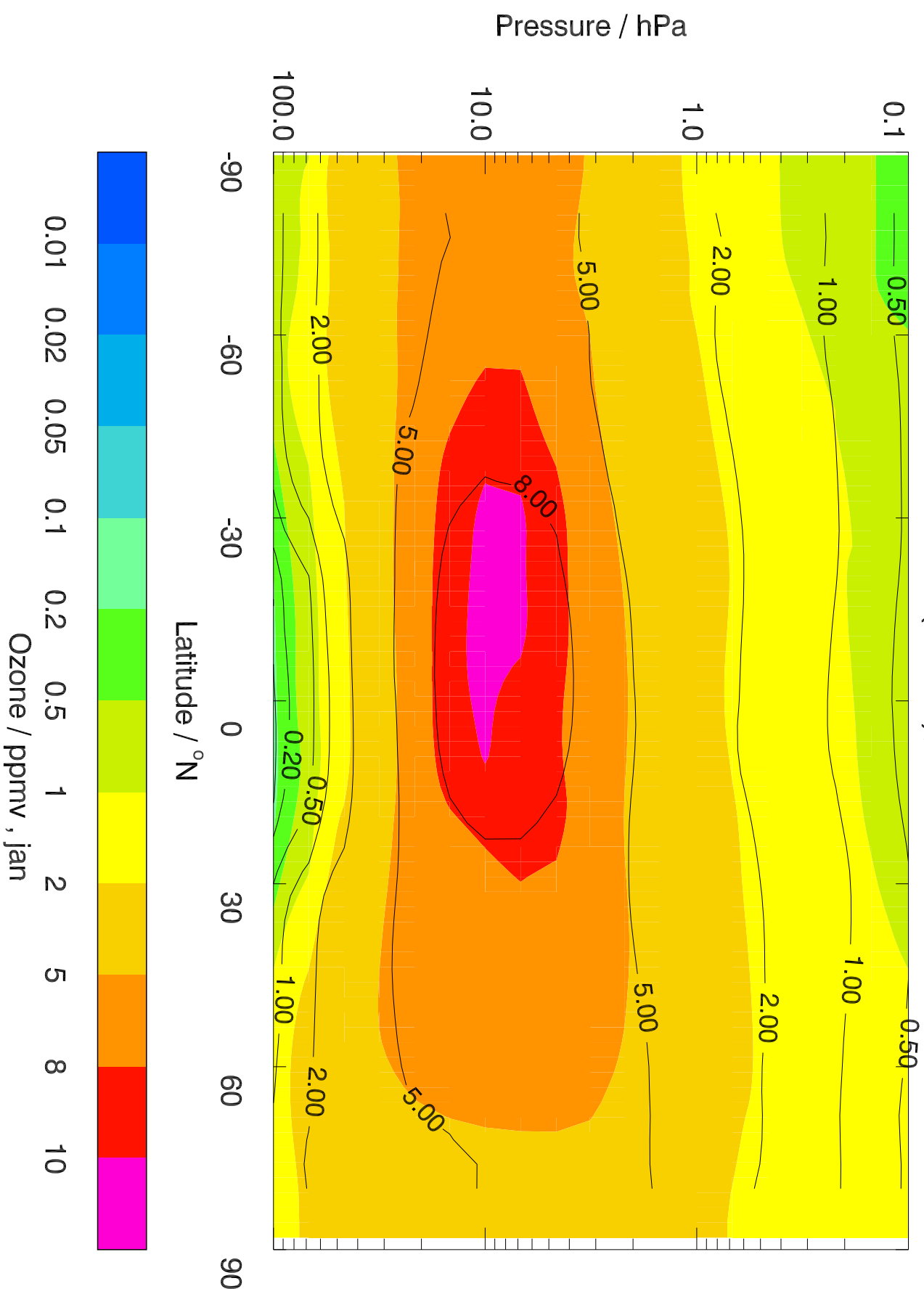
Colours: UKCA (XJClR), Contours: HALOE



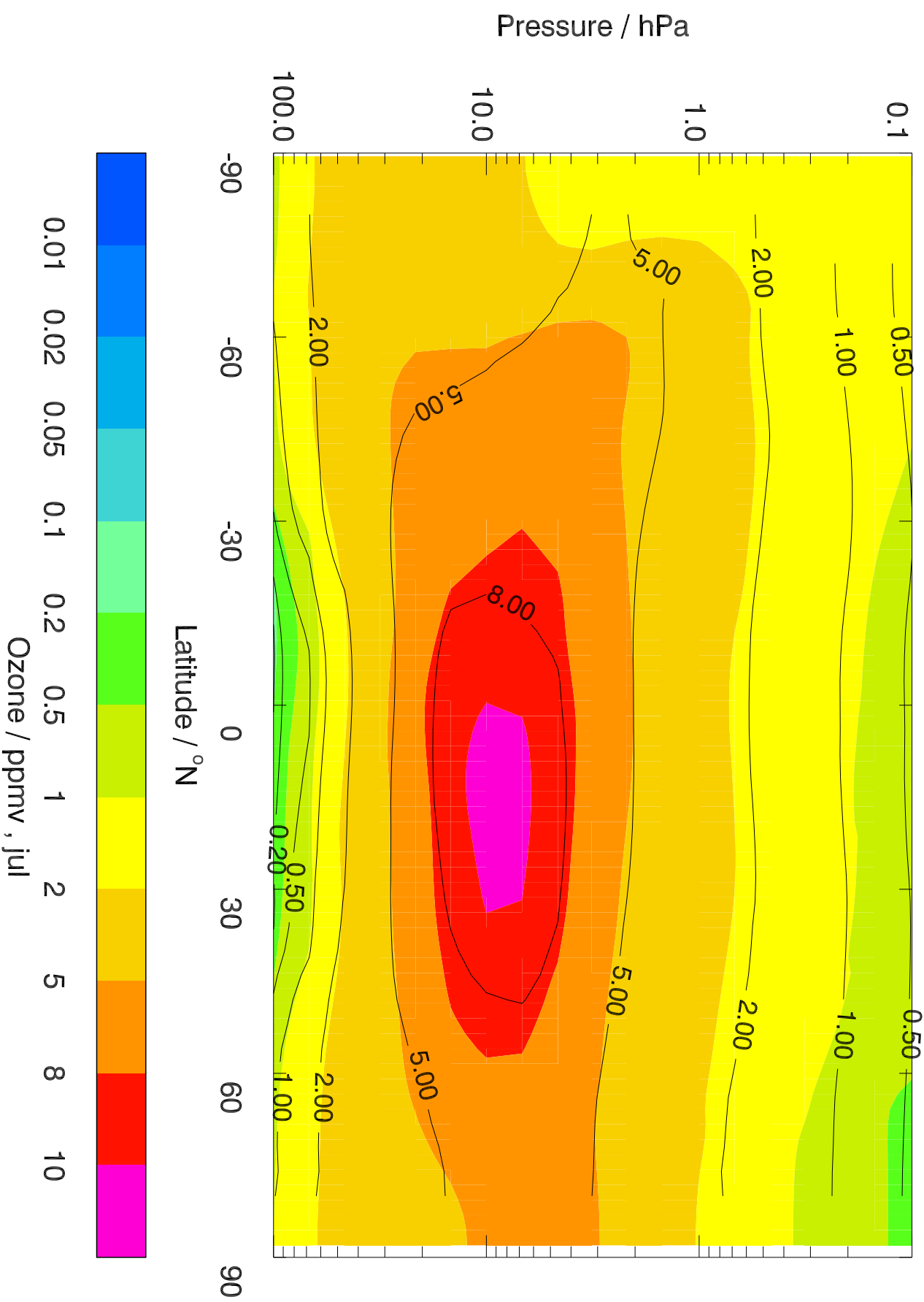
Colours: UKCA (XJGIR), Contours: HALOE



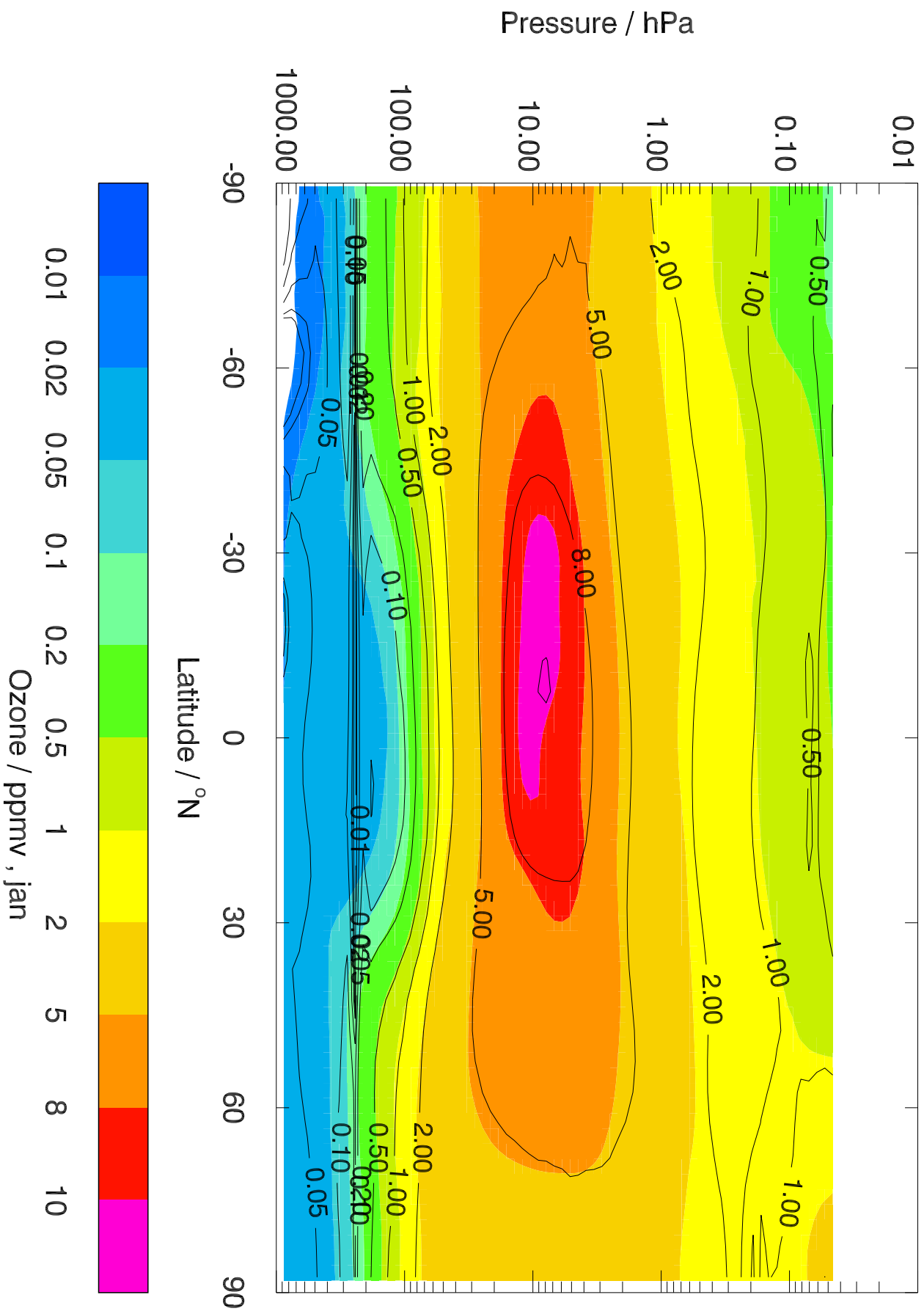
Colours: UKCA (XJClR), Contours: HALOE



Colours: UKCA (XJClR), Contours: HALOE



Colours: UKCA (XJClR), Contours: NIWA-CCMVal



Colours: UKCA (XJGIR), Contours: NIWA-CCMVal

