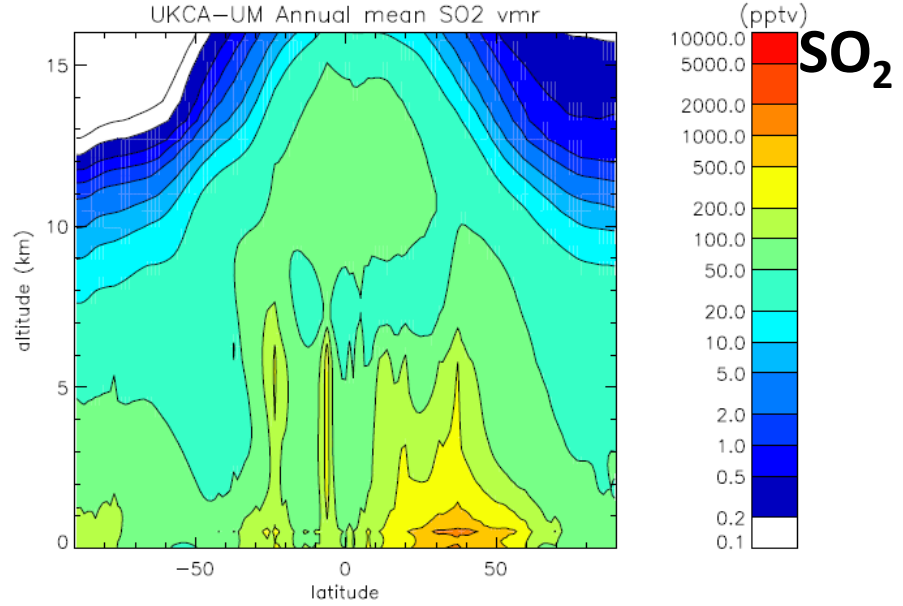
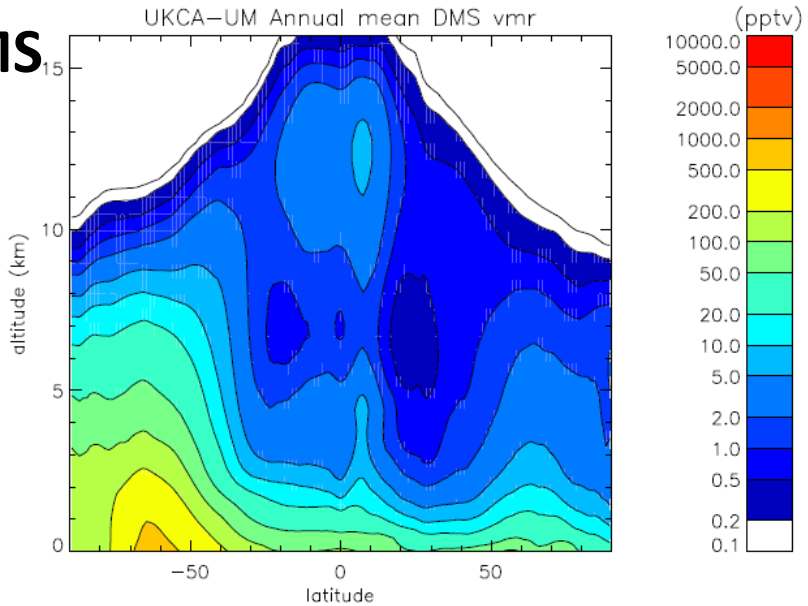
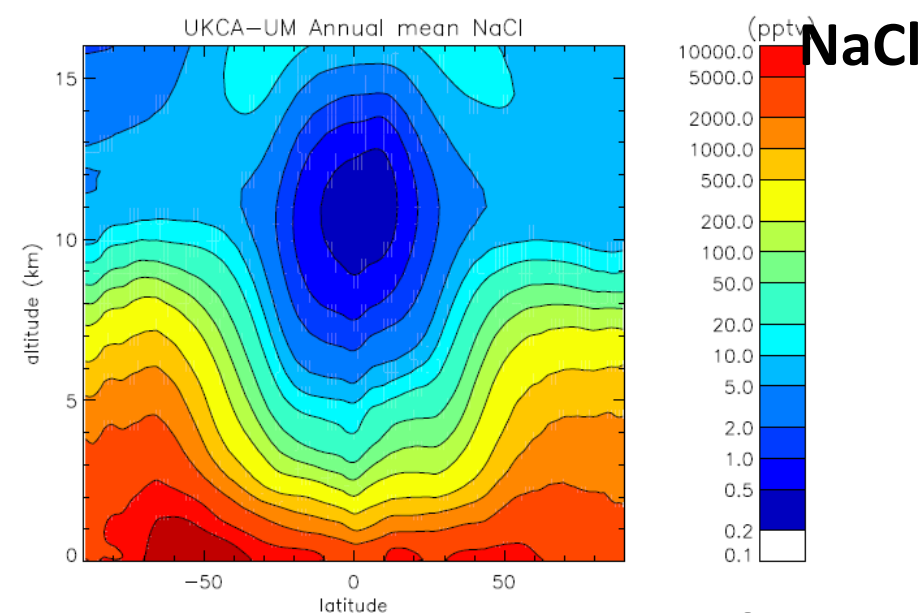
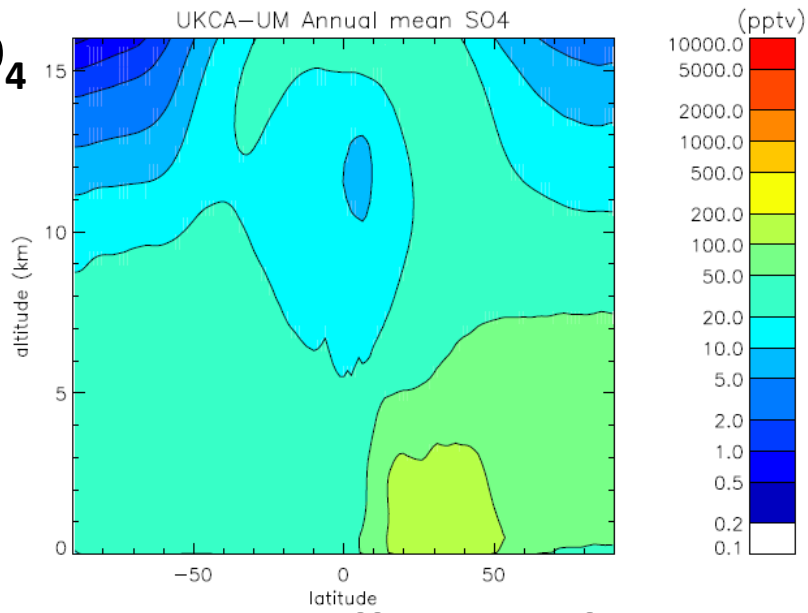


V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

DMS



SO₄



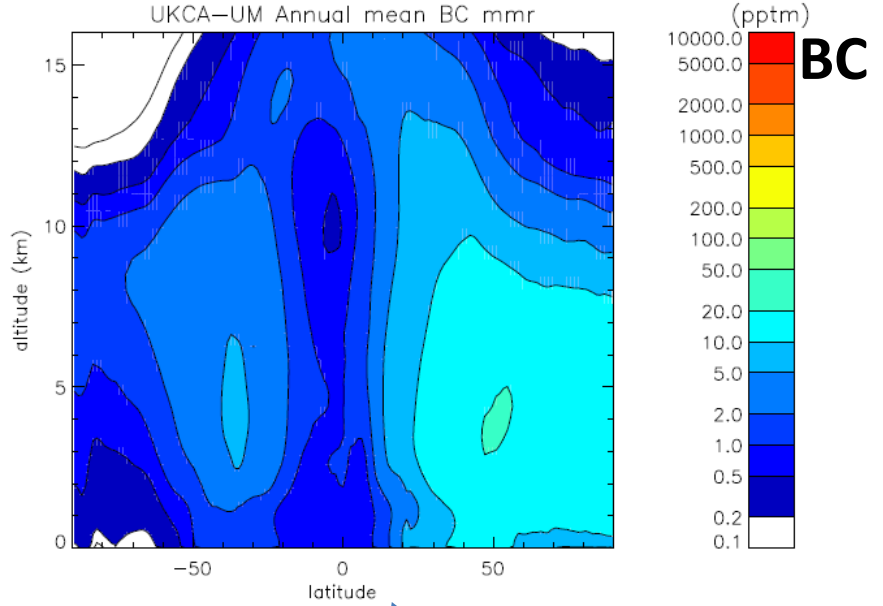
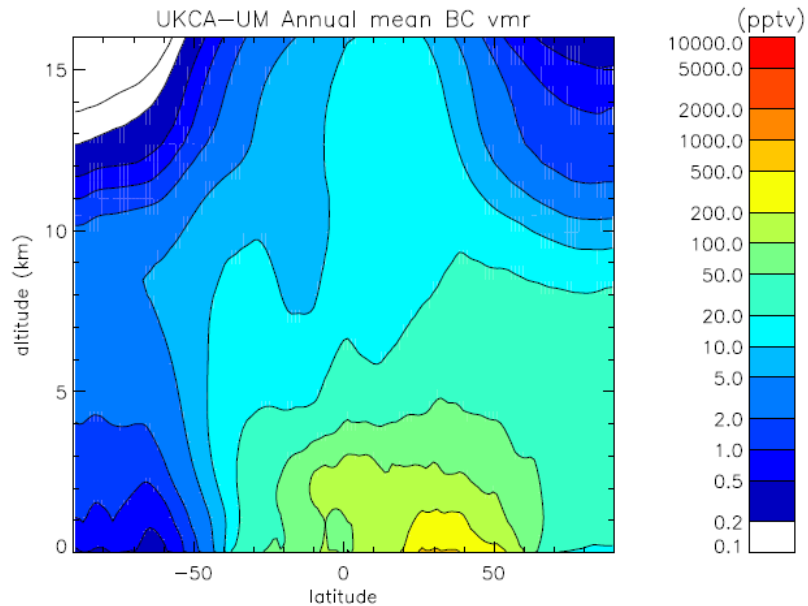
All annual-means

Initialised with xhnap aerosol

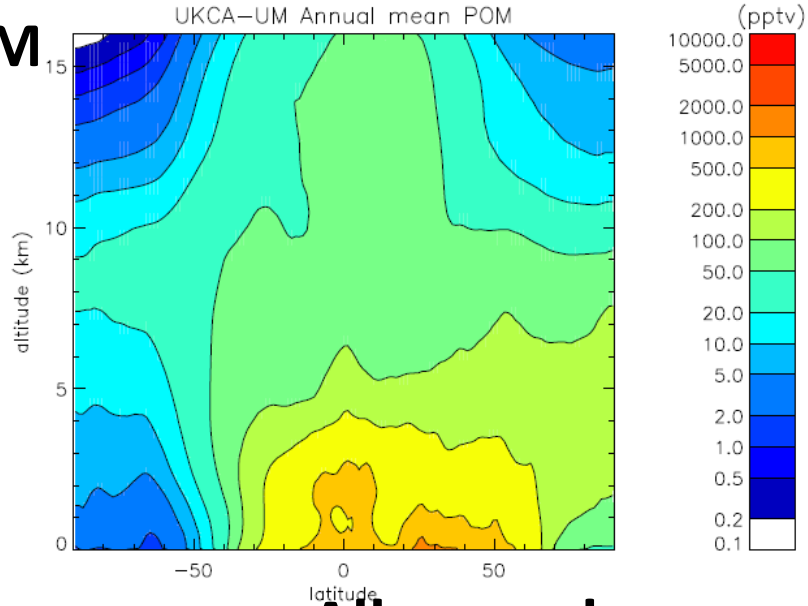
xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

BC



POM



Over longitude range 150W-180W
which is approximately that of HIPPO-1
campaign (Schwartz et al., 2010)

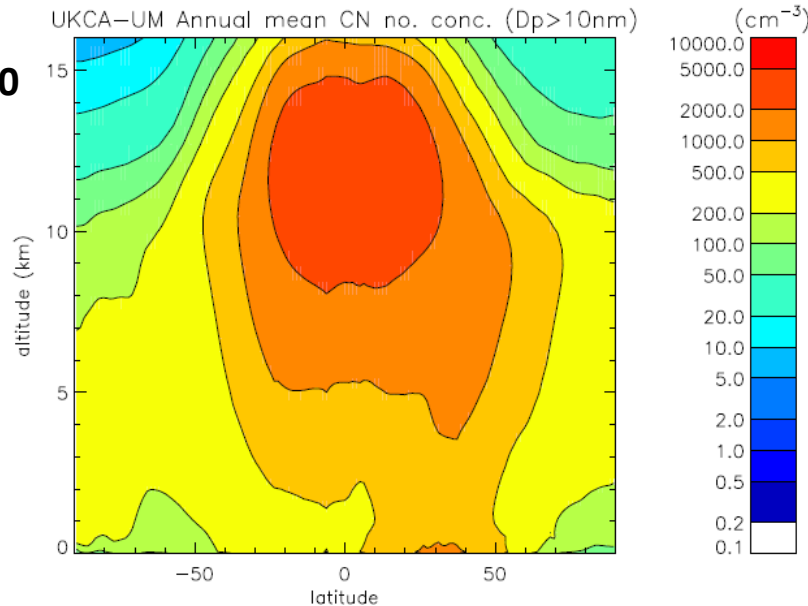
All annual-means

Initialised with xhnap aerosol

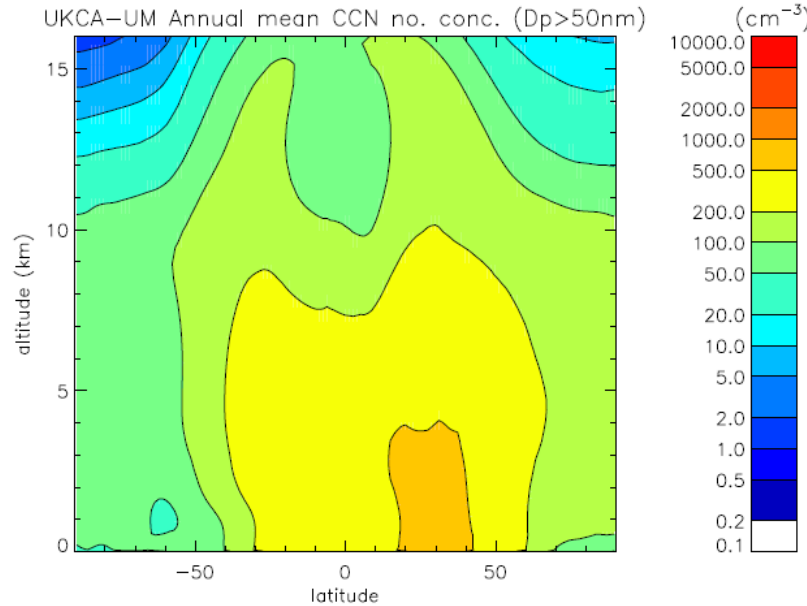
xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

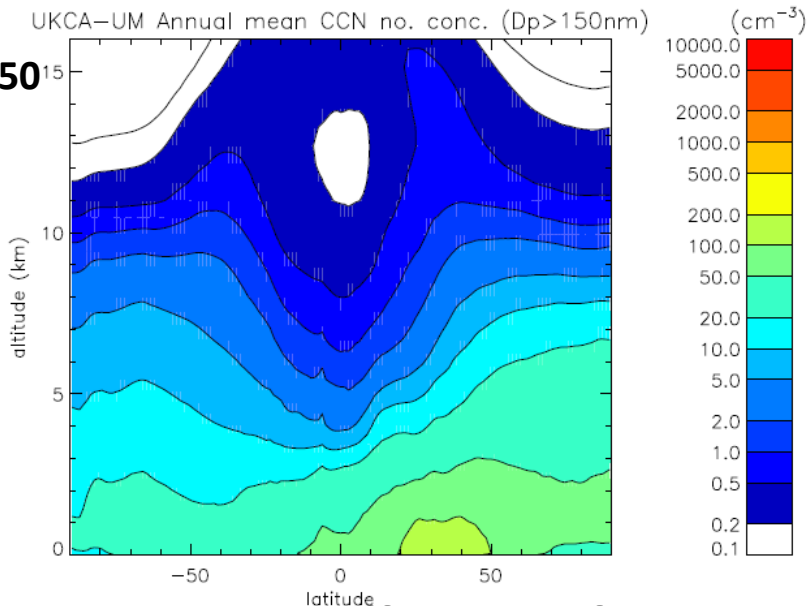
N₁₀



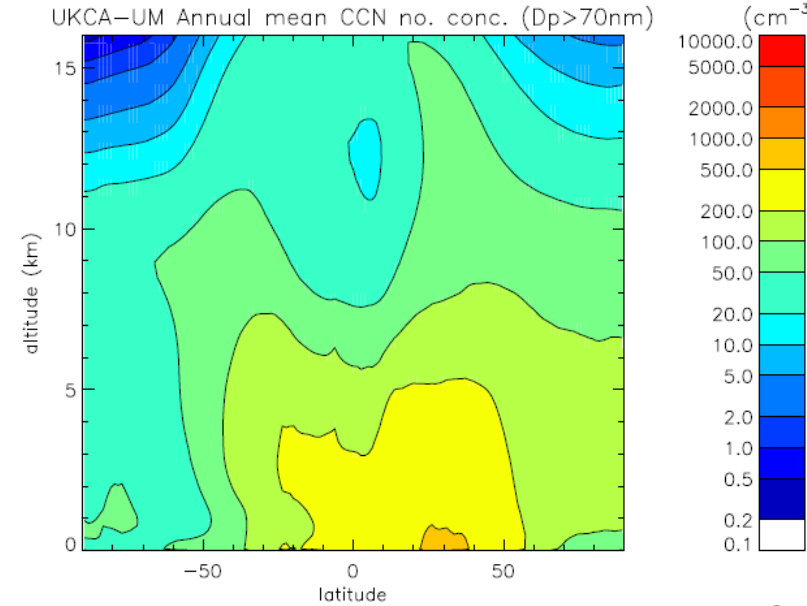
N₅₀



N₁₅₀



N₇₀

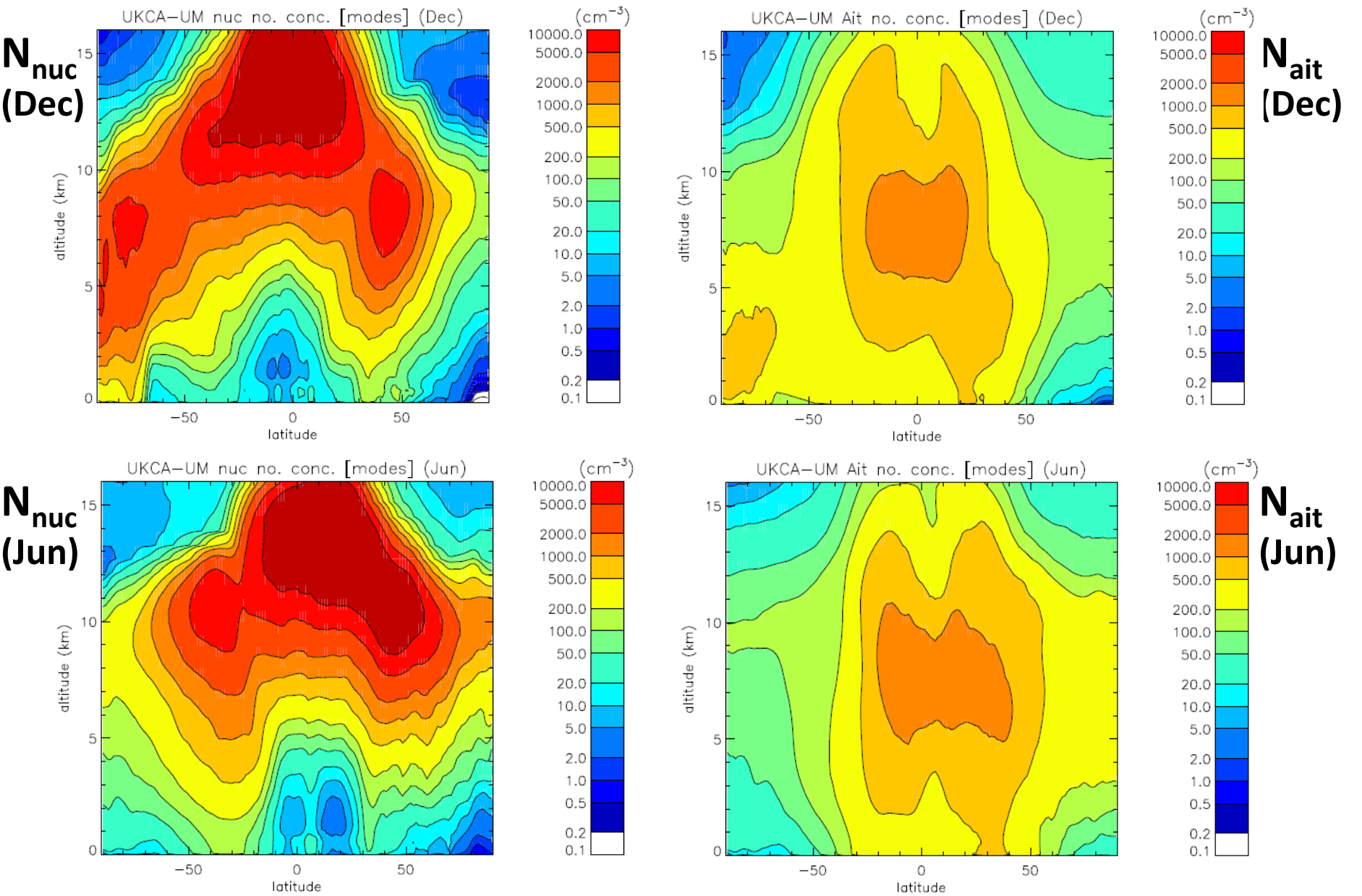


All annual-means

Initialised with xhnapp aerosol

xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

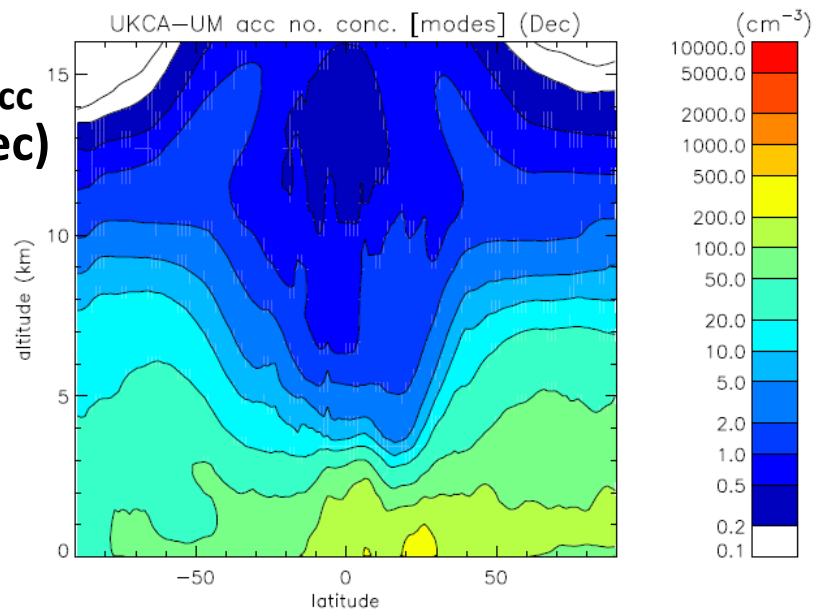


Dec and Jun means Initialised with xhnap aerosol

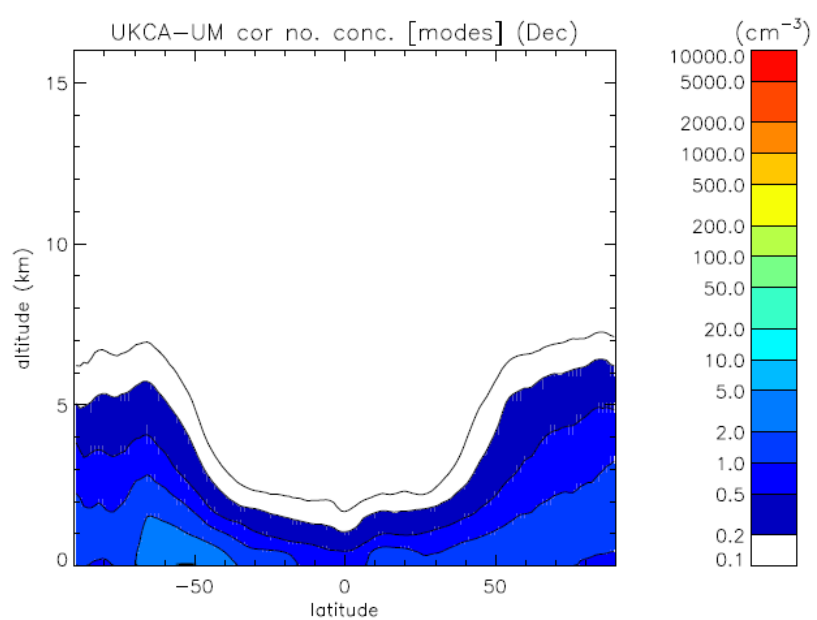
xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

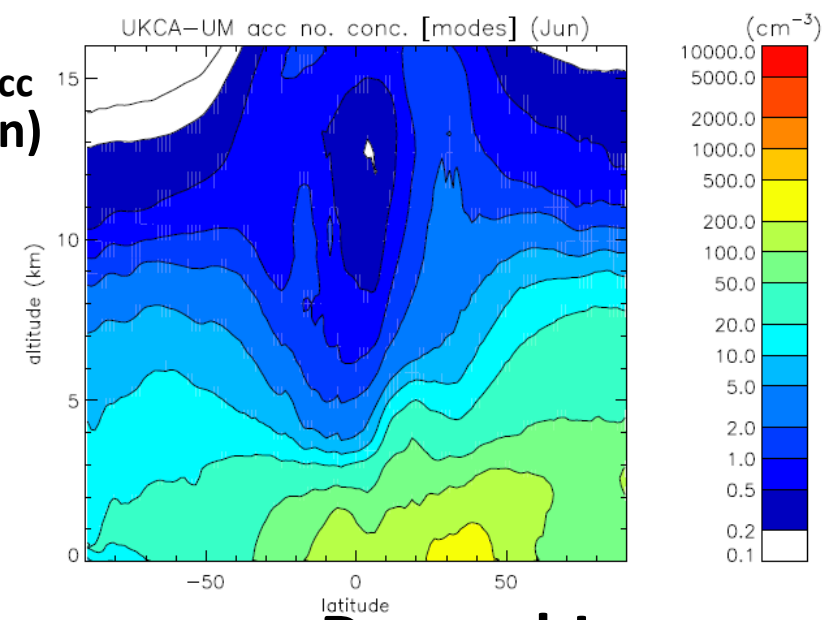
**N_{acc}
(Dec)**



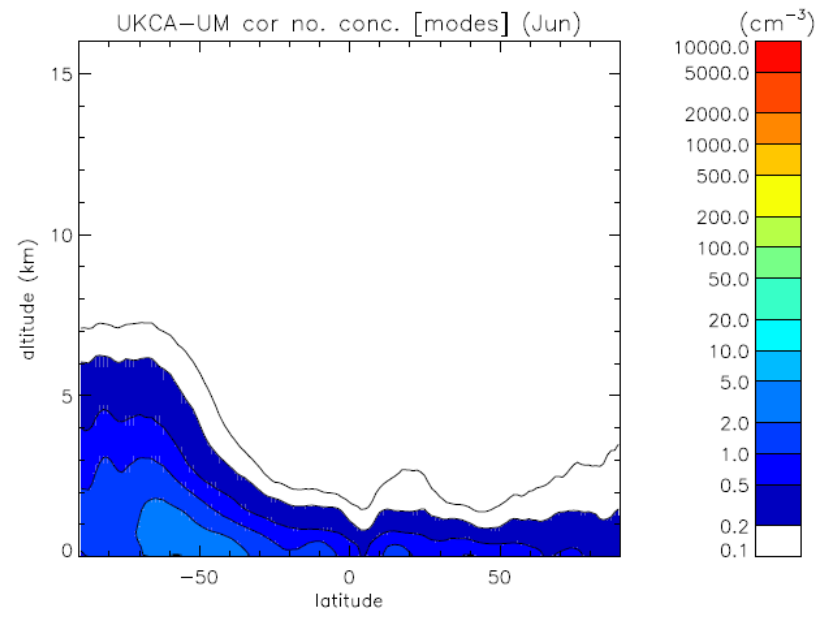
**N_{cor}
(Dec)**



**N_{acc}
(Jun)**



**N_{cor}
(Jun)**

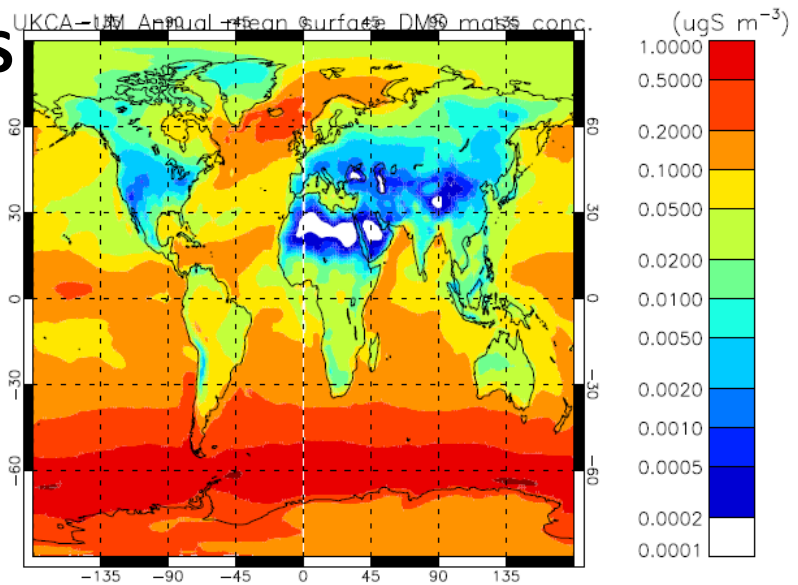


Dec and Jun means Initialised with xhnap aerosol

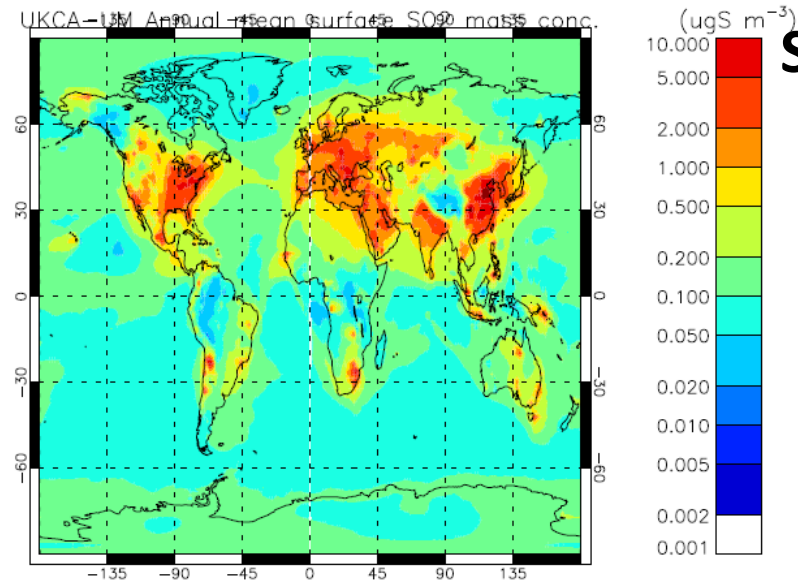
xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

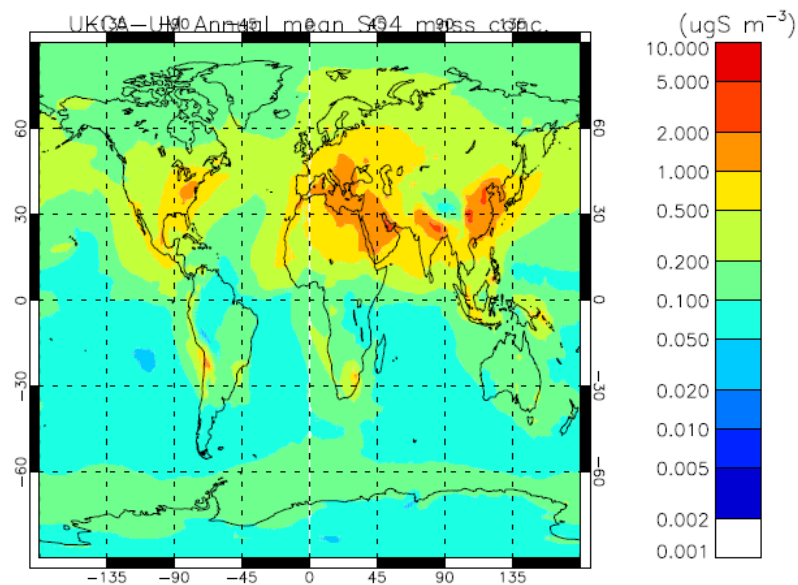
DMS



SO₂



SO₄



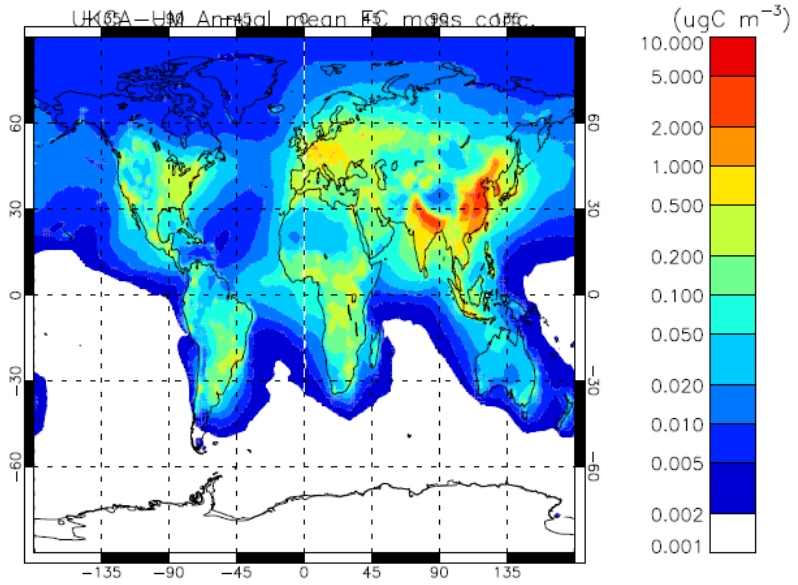
All annual-means

Initialised with xhnap aerosol

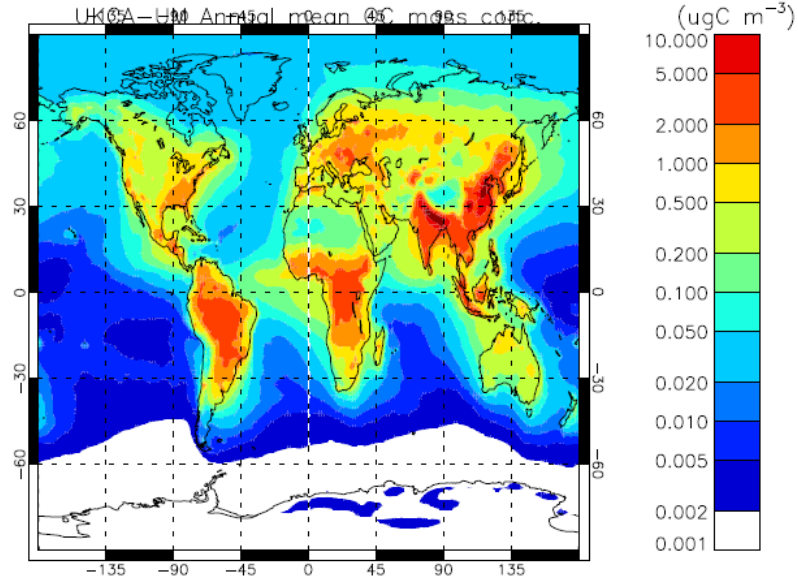
xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

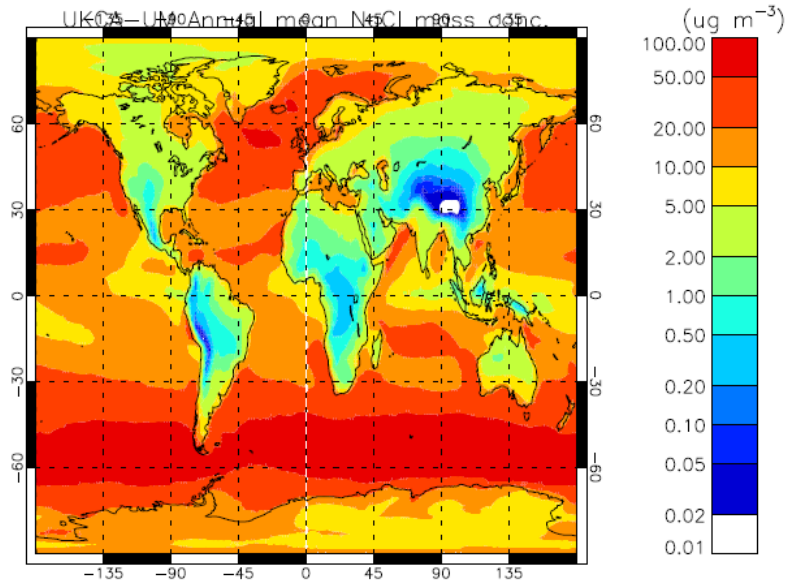
BC



POM



NaCl

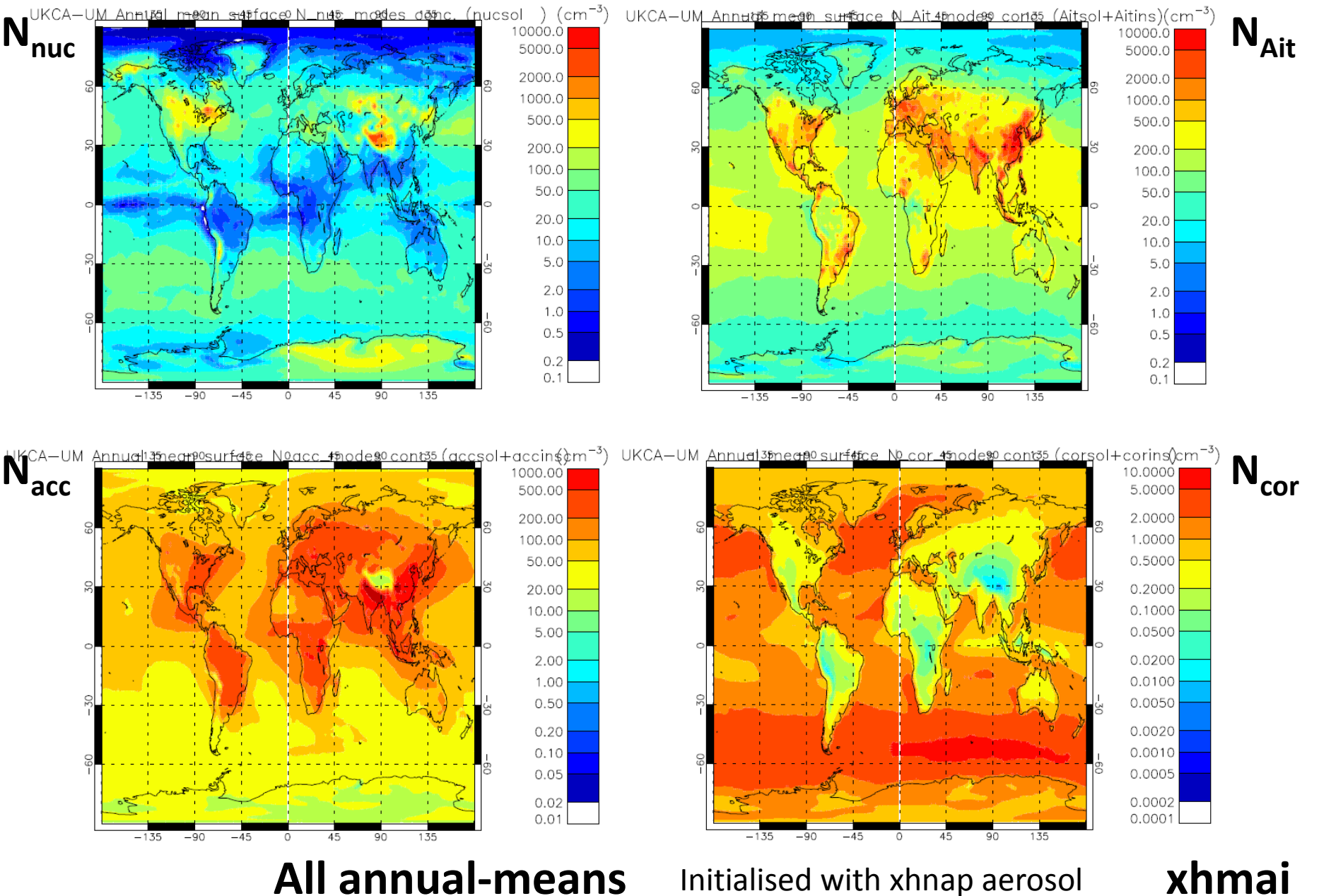


All annual-means

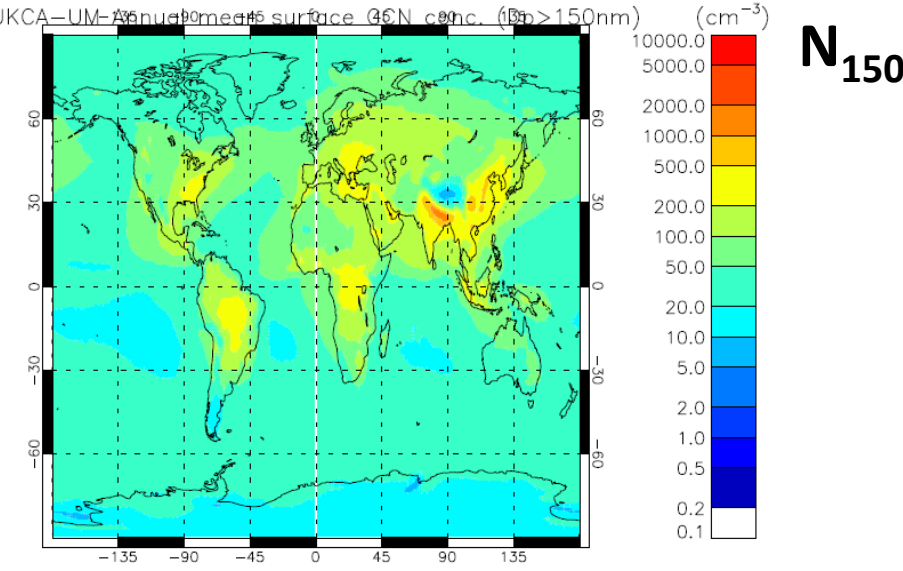
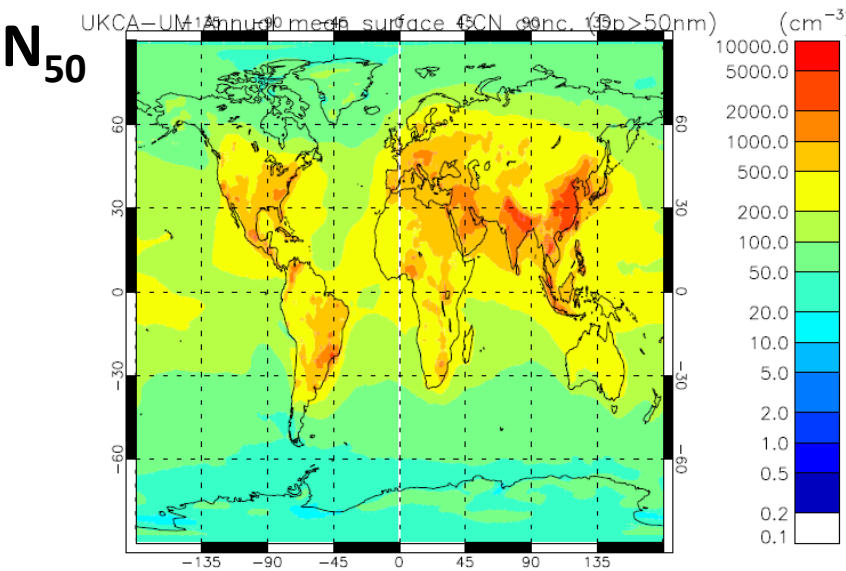
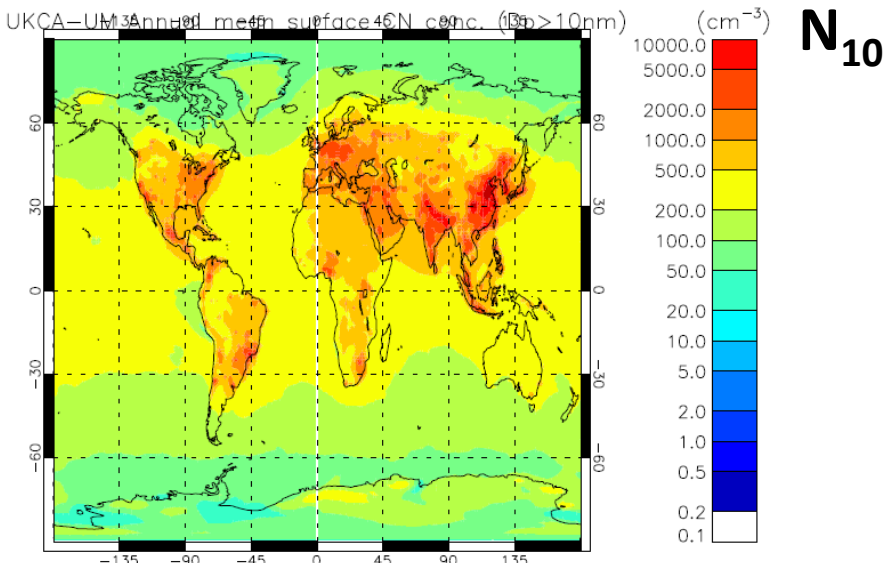
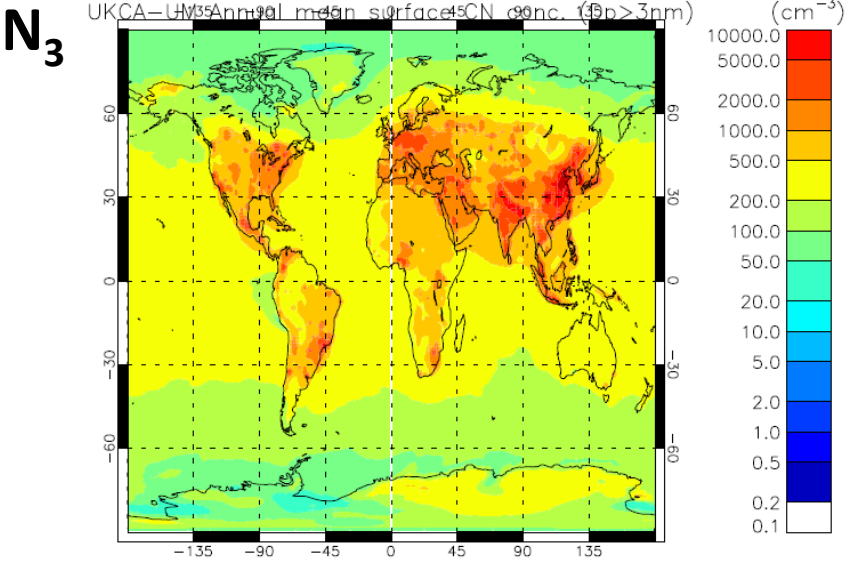
Initialised with xhnap aerosol

xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)



V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)



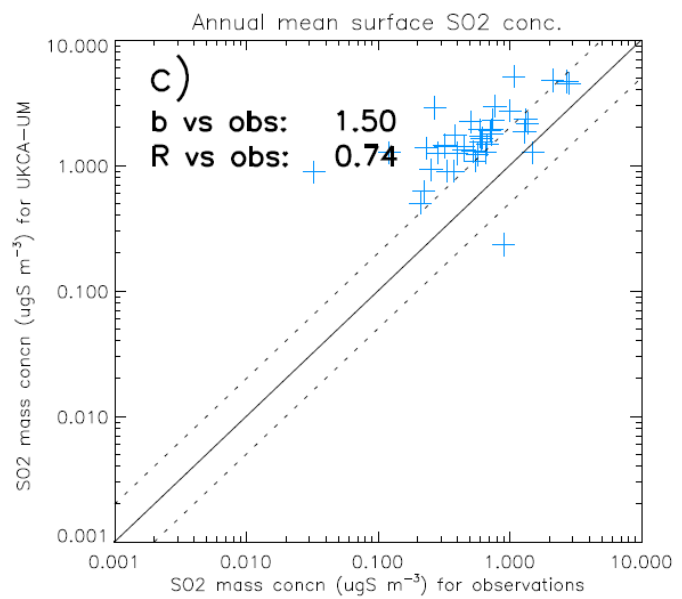
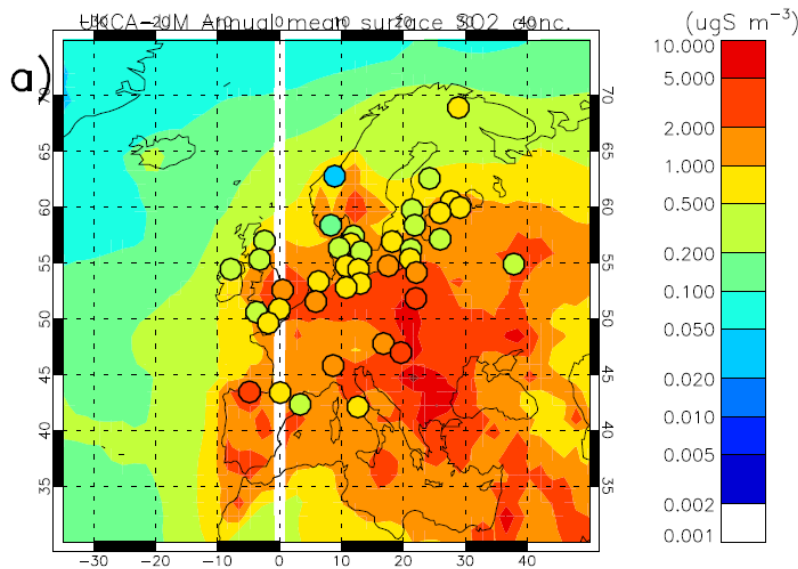
All annual-means

Initialised with xhnap aerosol

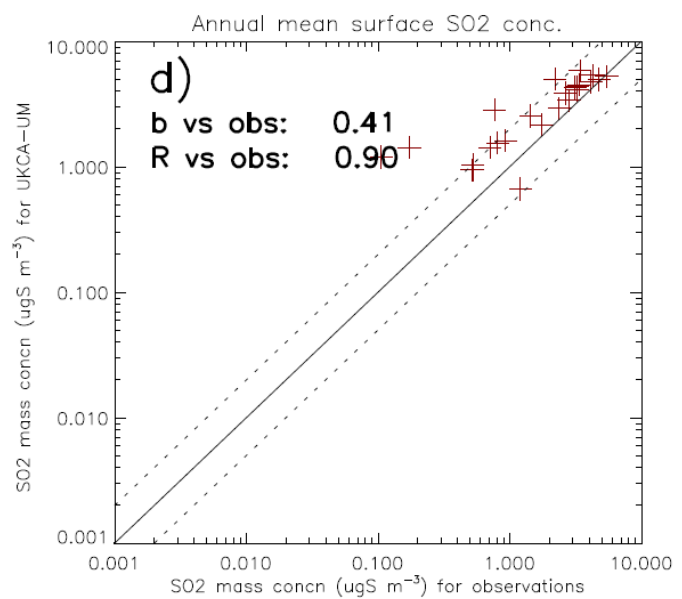
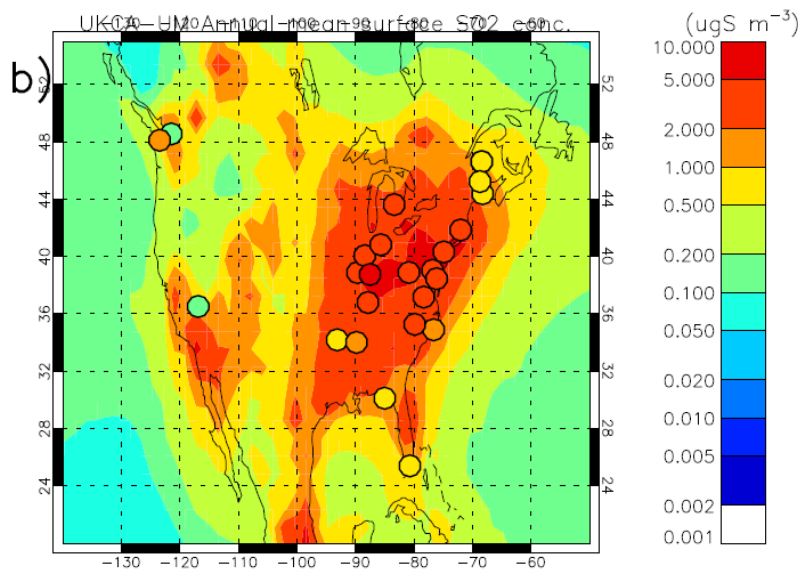
xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

SO₂



SO₂

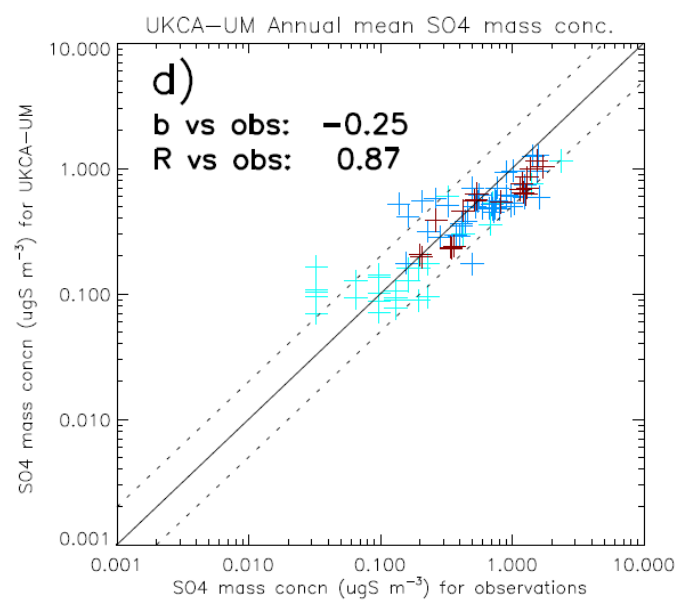
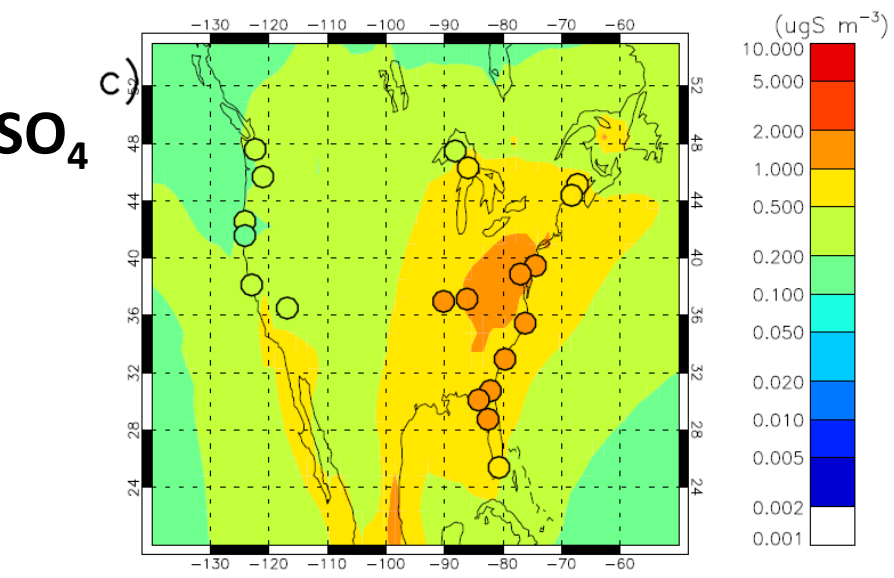
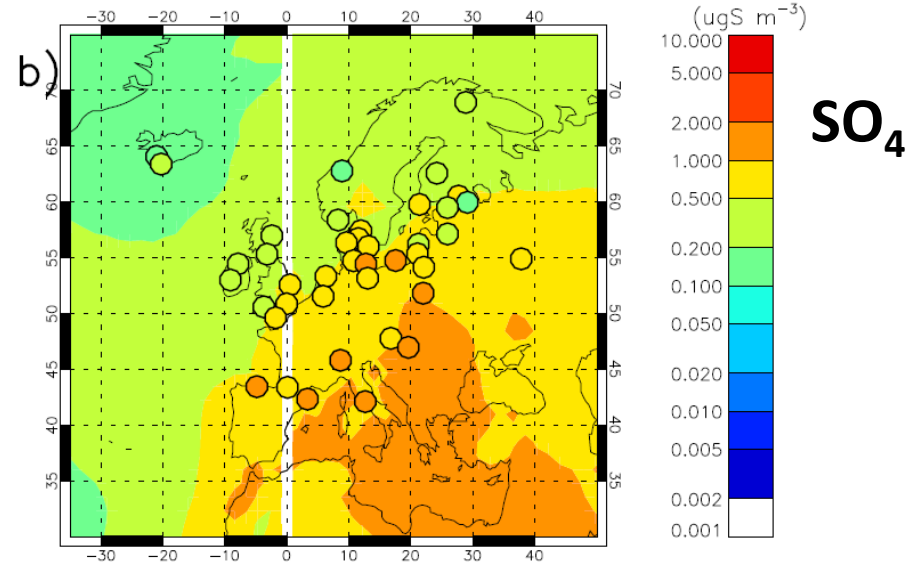
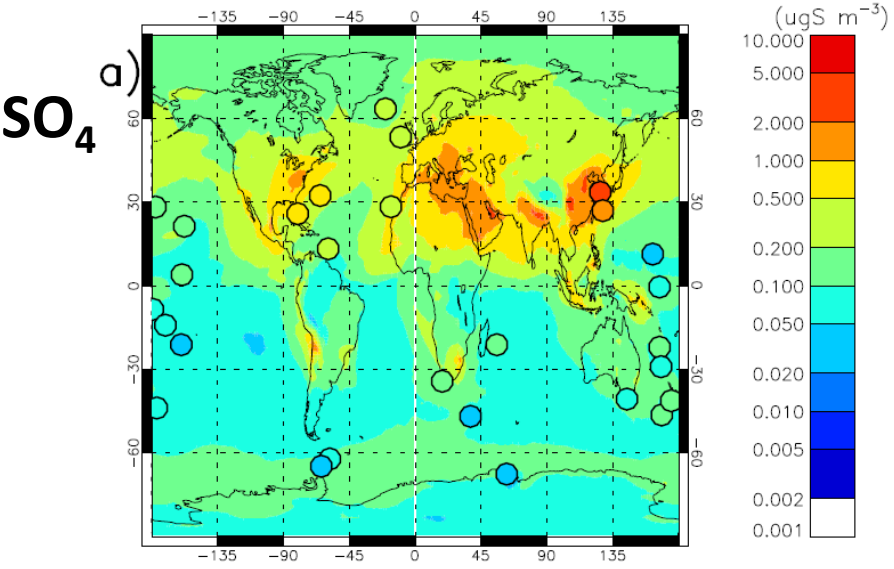


All annual-means

Initialised with xhnap aerosol

xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)



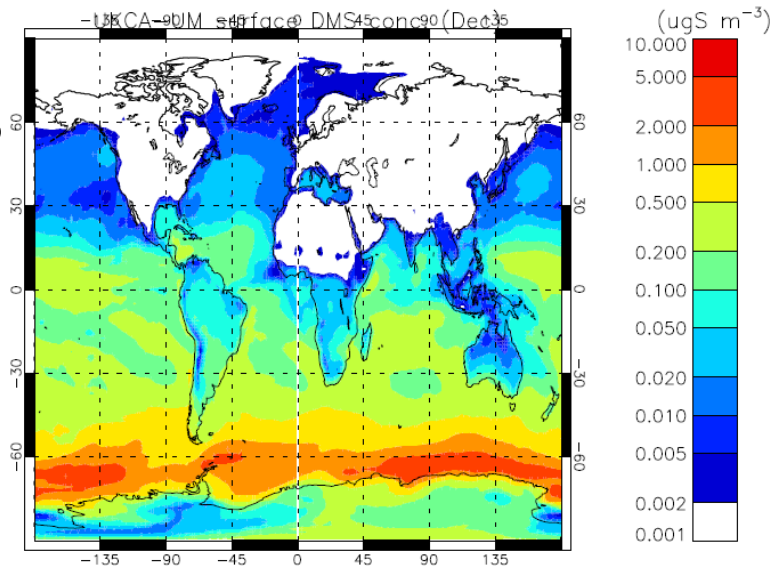
All annual-means

Initialised with xhnap aerosol

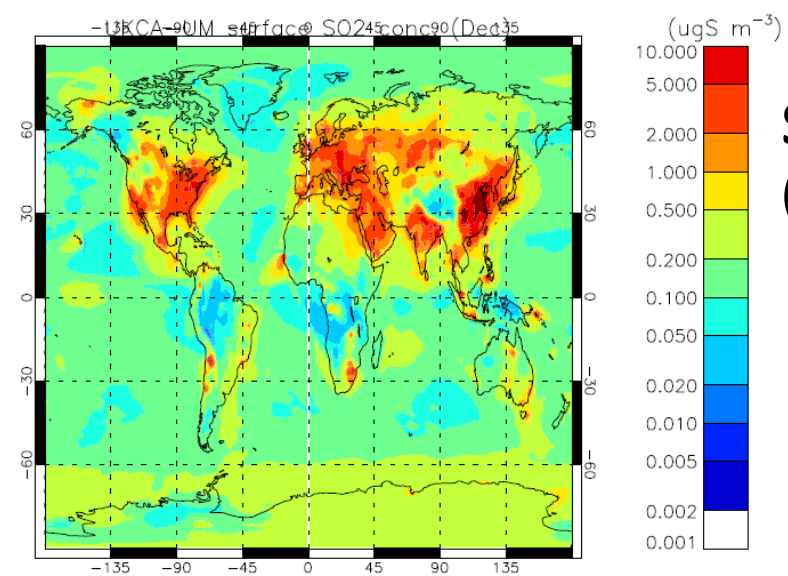
xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

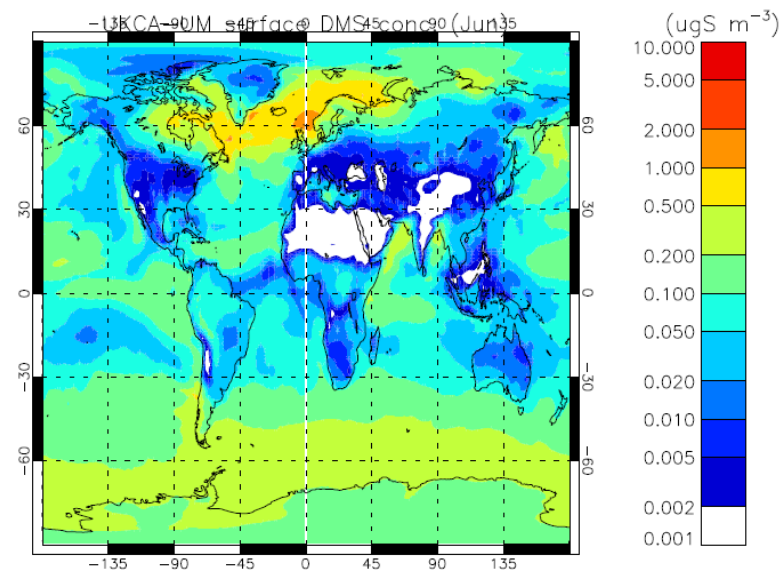
**DMS
(Dec)**



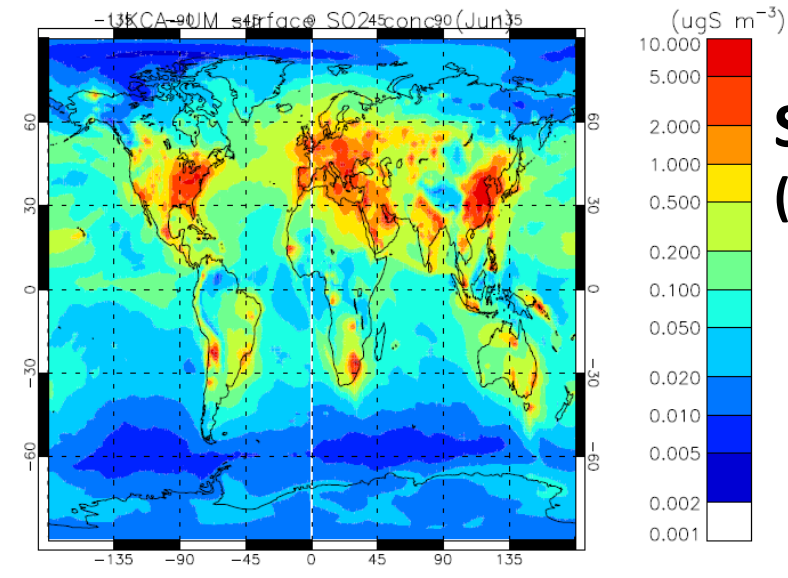
**SO₂
(Dec)**



**DMS
(Jun)**



**SO₂
(Jun)**



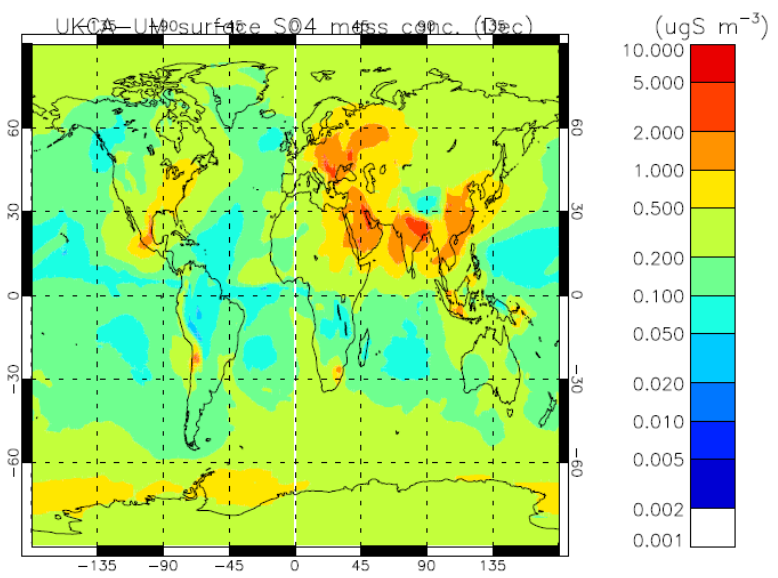
Dec & Jun means

Initialised with xhnap aerosol

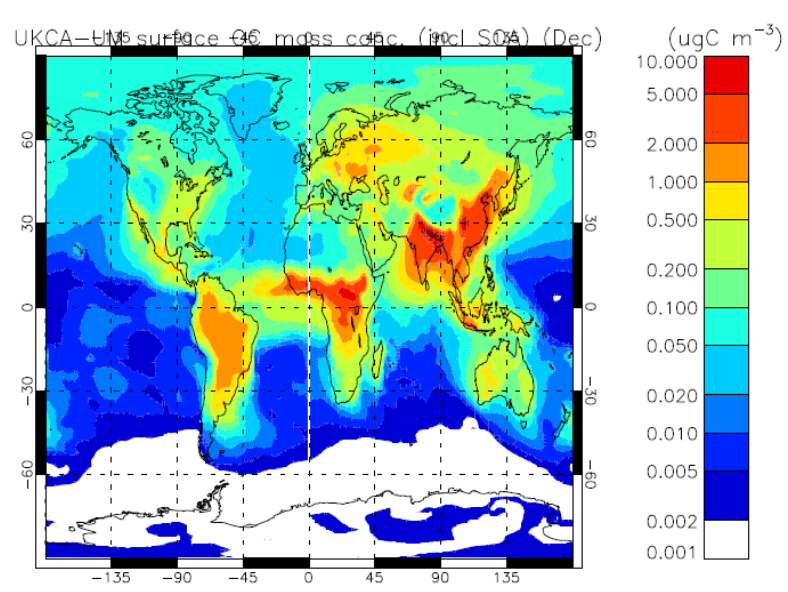
xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

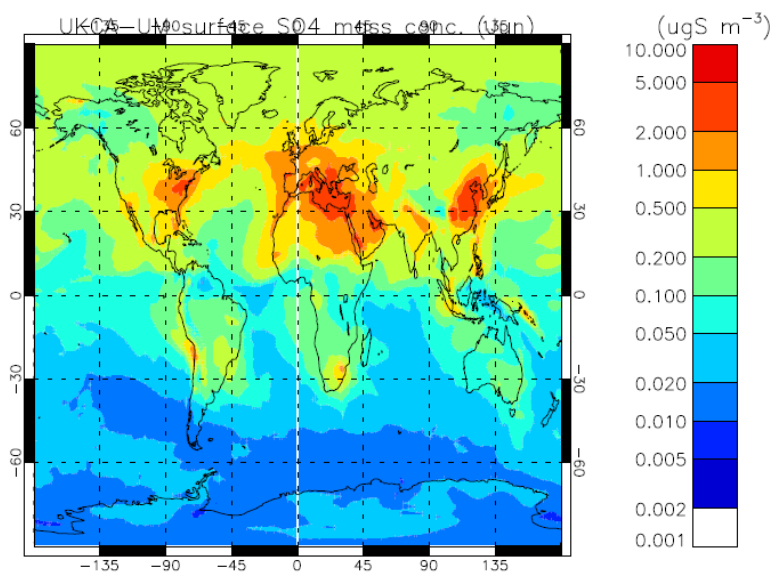
**SO₄
(Dec)**



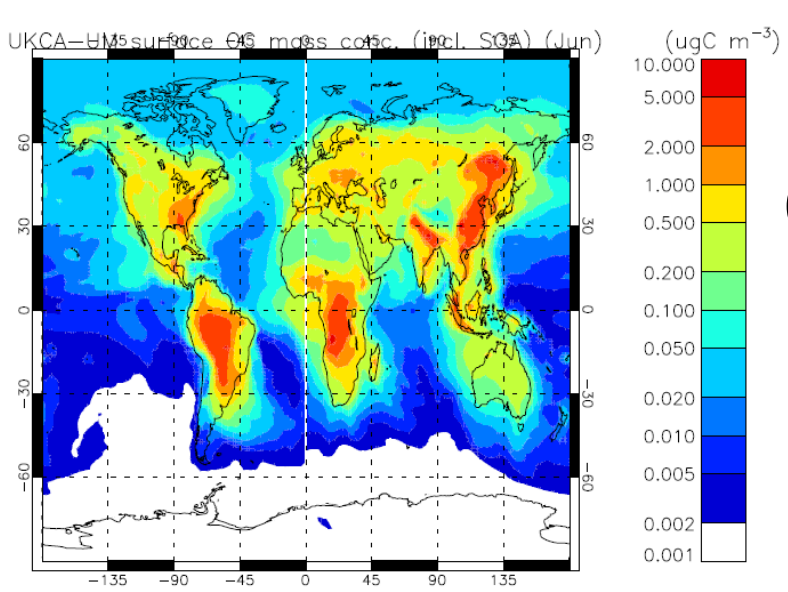
**POM
(Dec)**



**SO₄
(Jun)**



**POM
(Jun)**

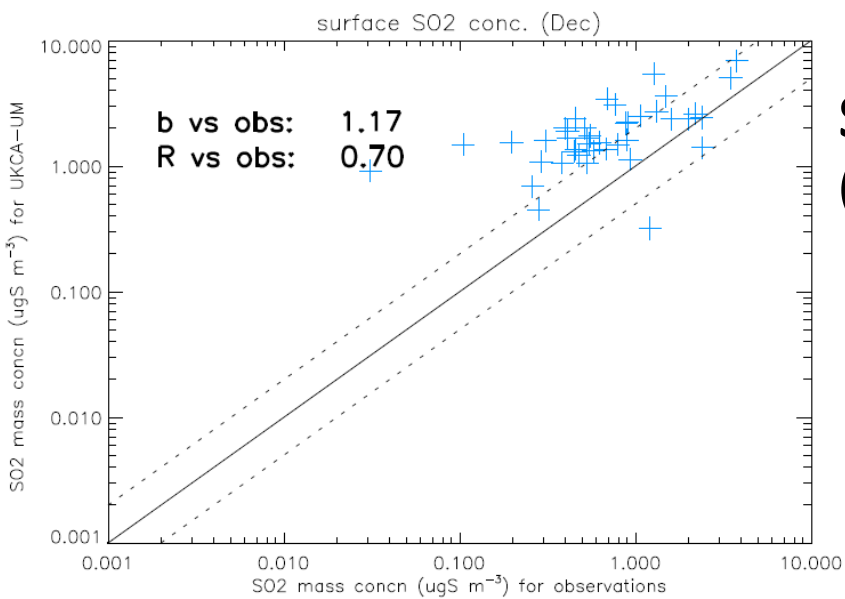
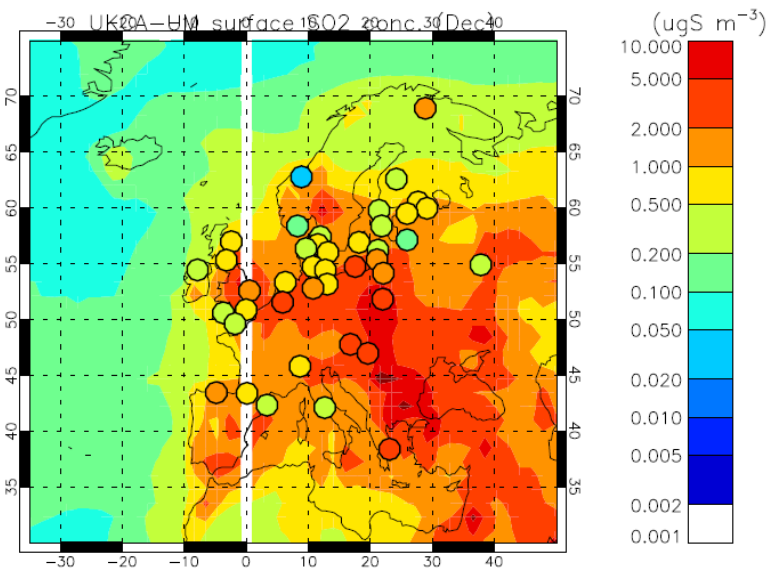


Initialised with xhnap aerosol

xhmai

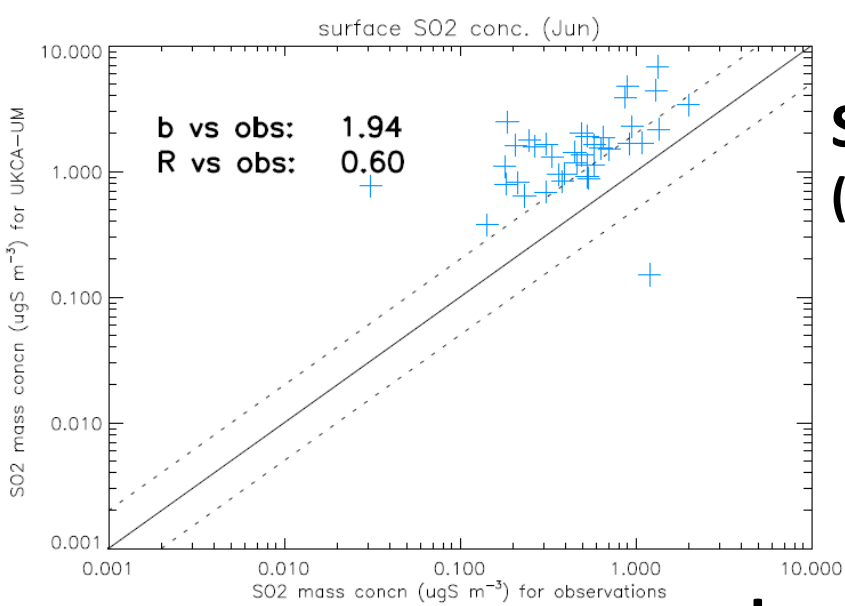
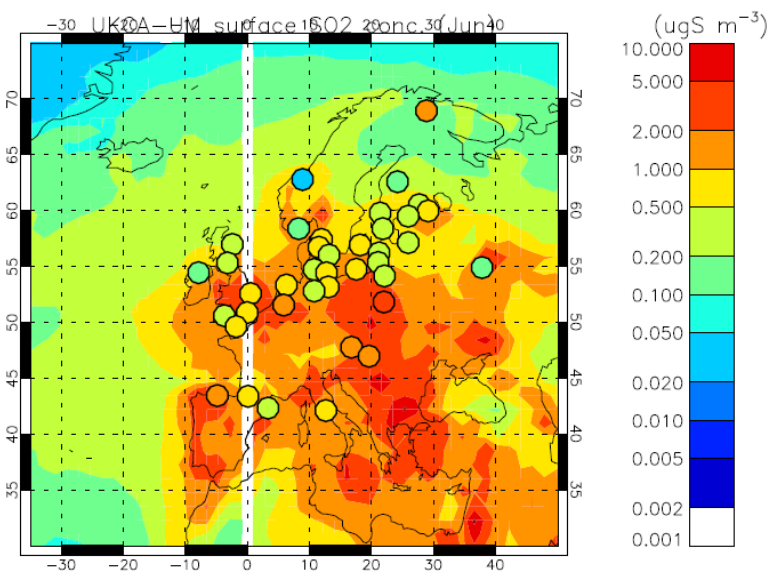
V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

SO₂
(Dec)



SO₂
(Dec)

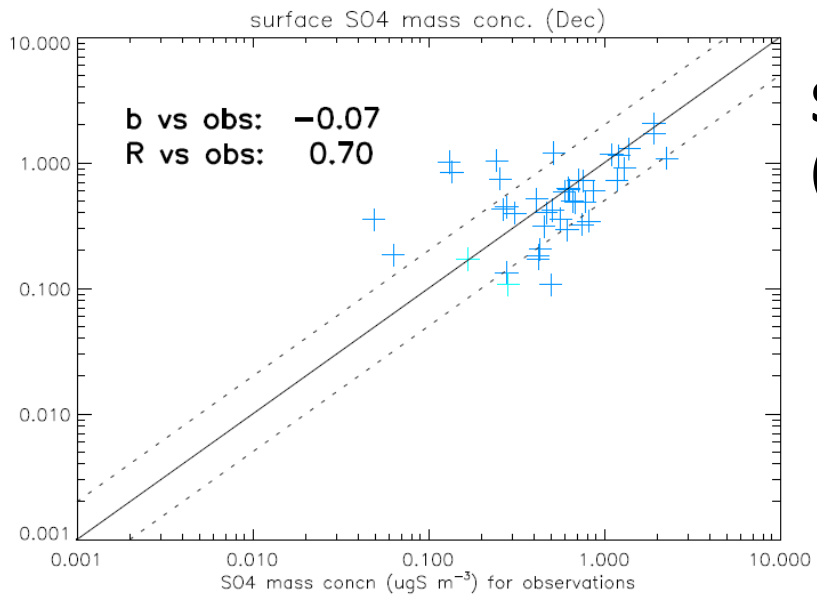
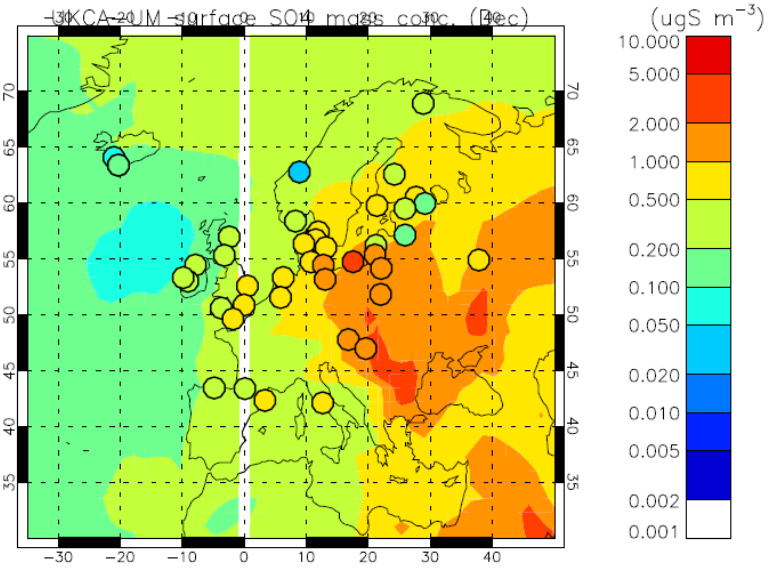
SO₂
(Jun)



SO₂
(Jun)

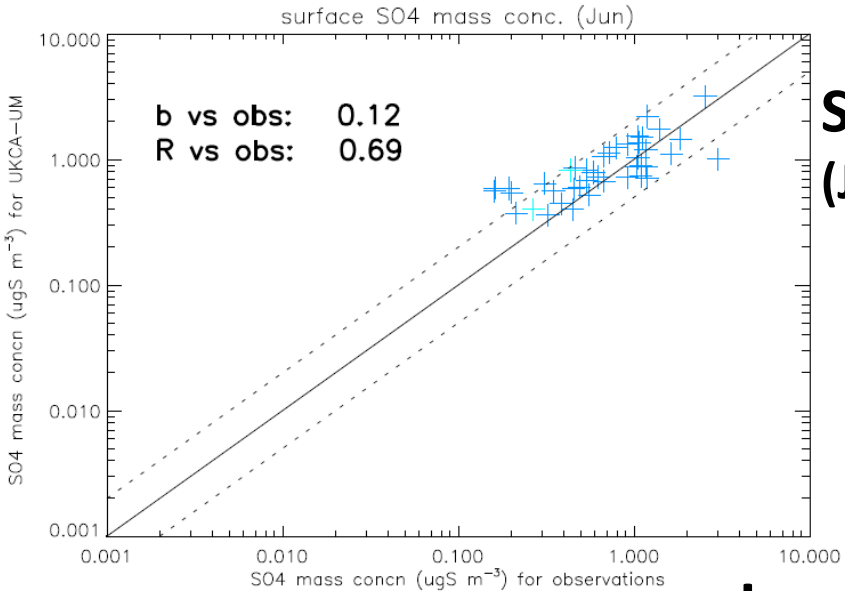
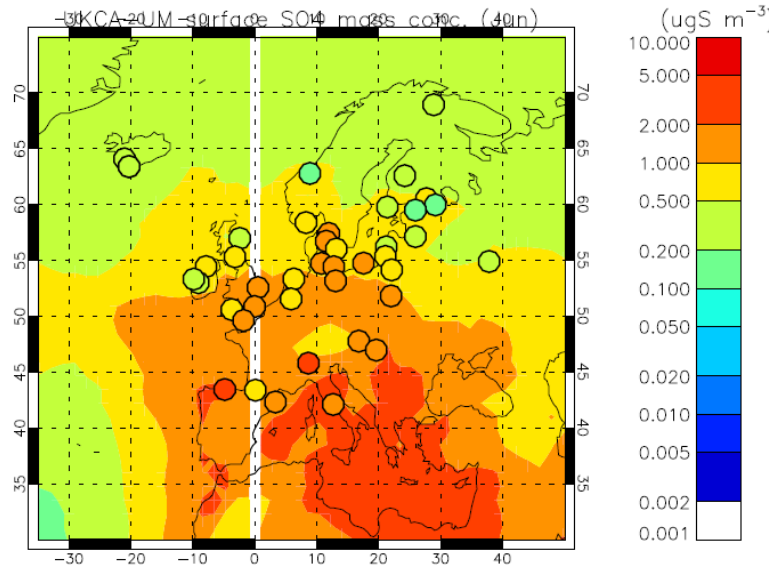
V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

SO₄
(Dec)



SO₄
(Dec)

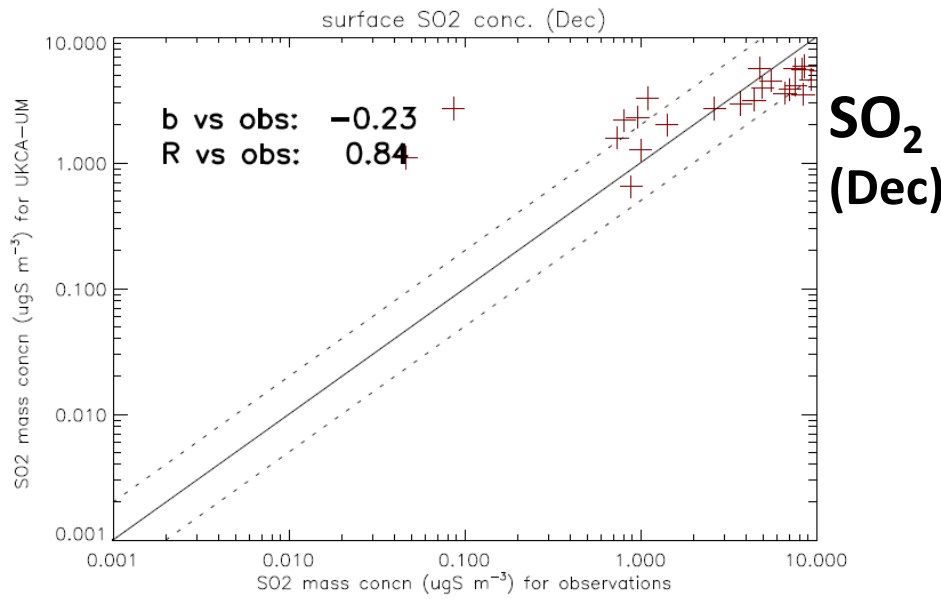
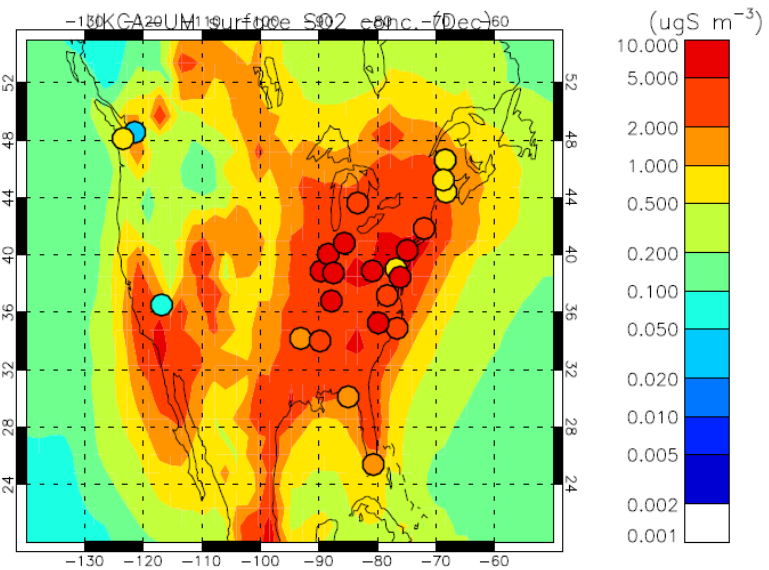
SO₄
(Jun)



SO₄
(Jun)

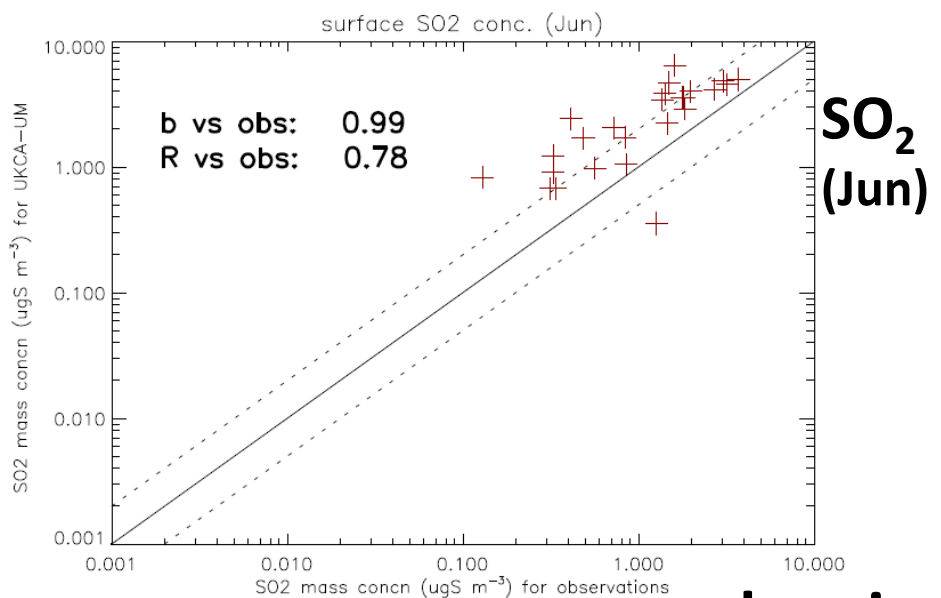
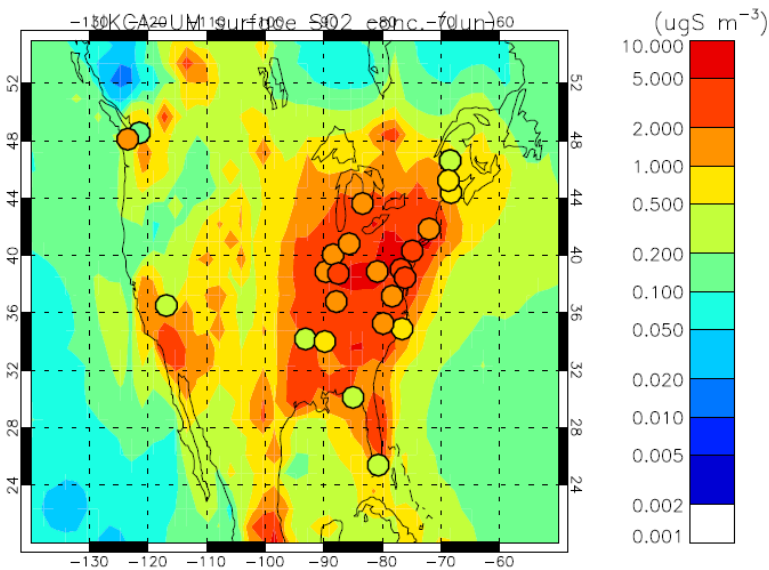
V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

SO₂
(Dec)



SO₂
(Dec)

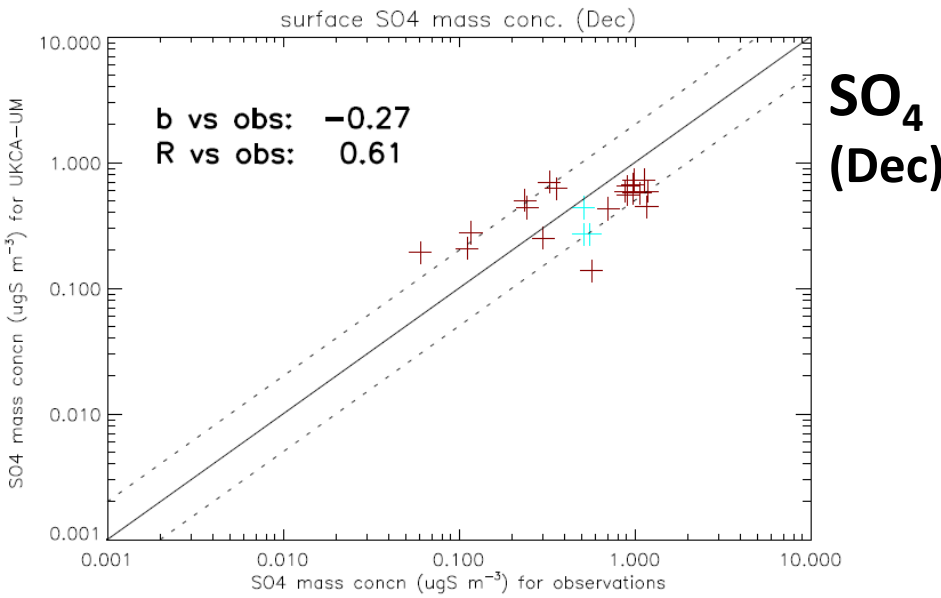
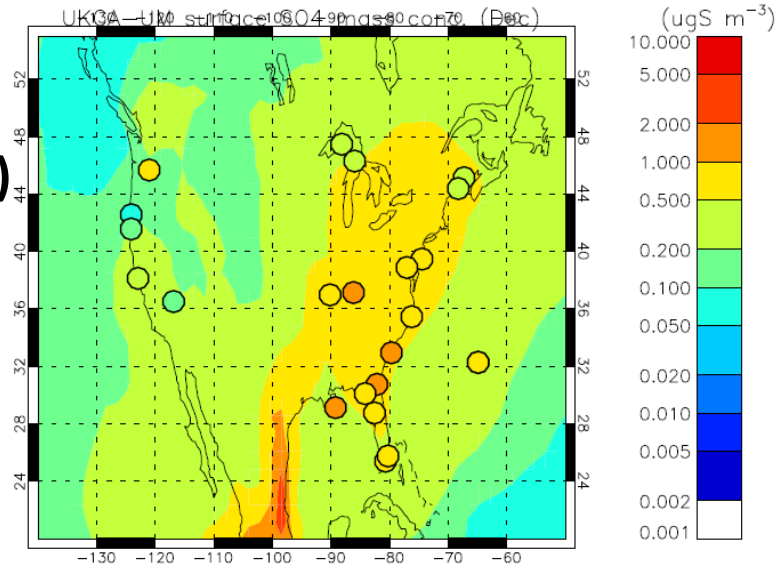
SO₂
(Jun)



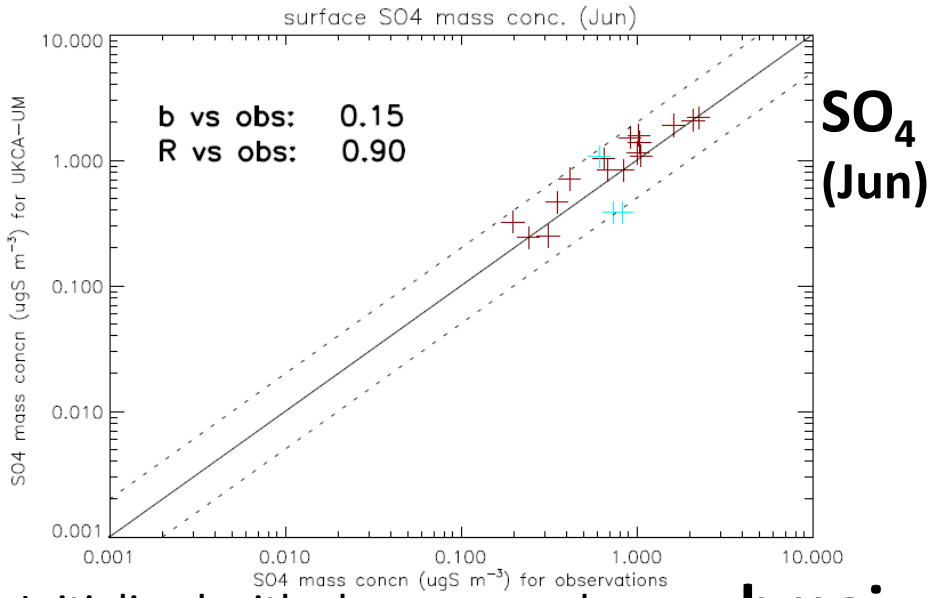
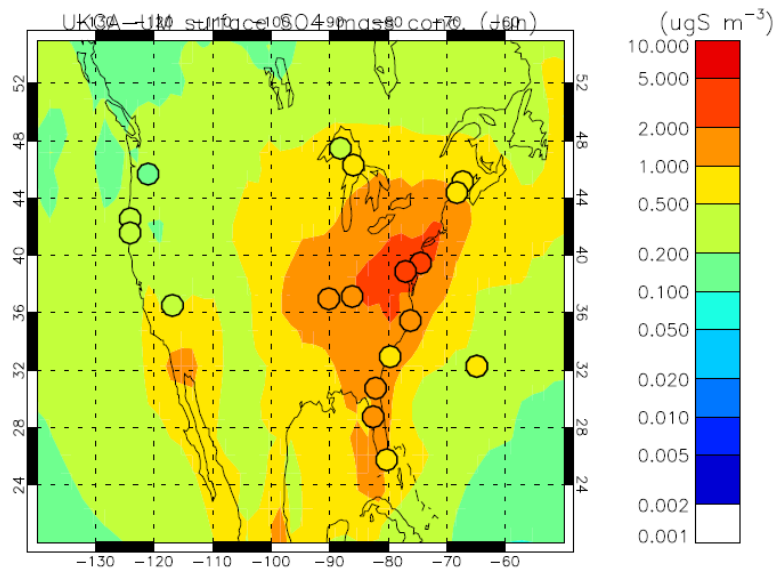
SO₂
(Jun)

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

SO₄
(Dec)

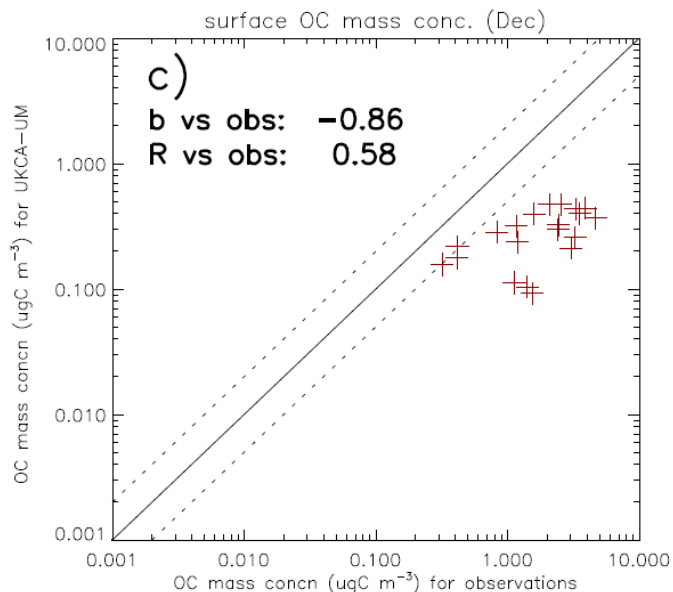
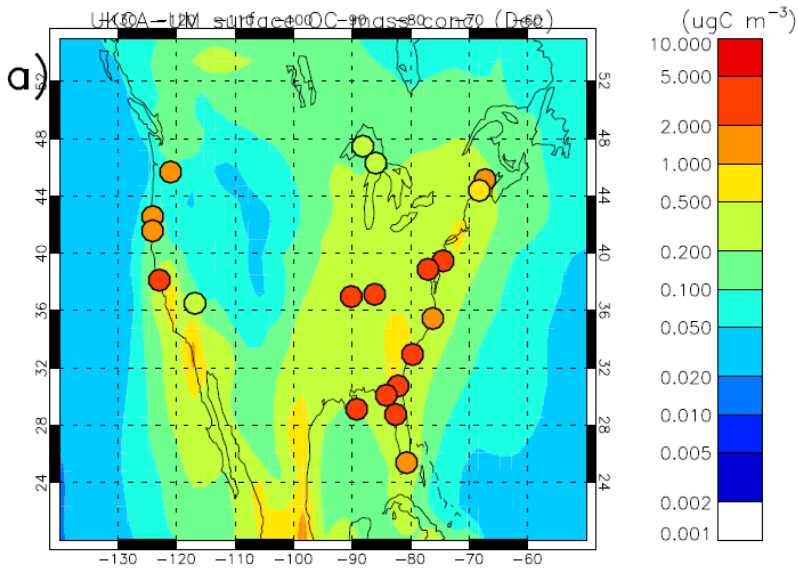


SO₄
(Jun)



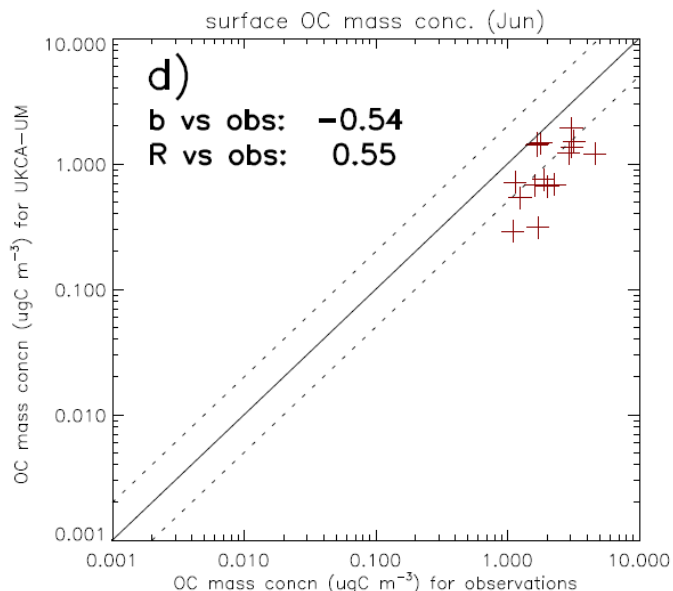
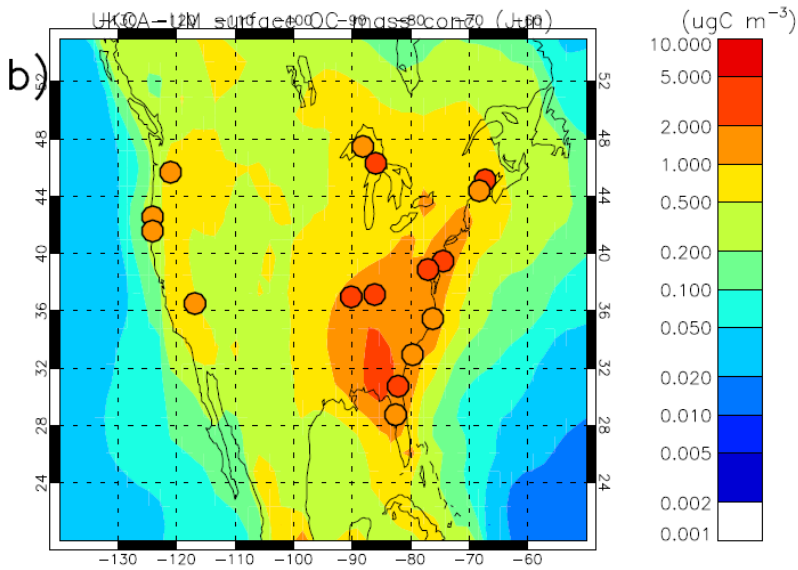
V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

POM
(Dec)



POM
(Dec)

POM
(Jun)



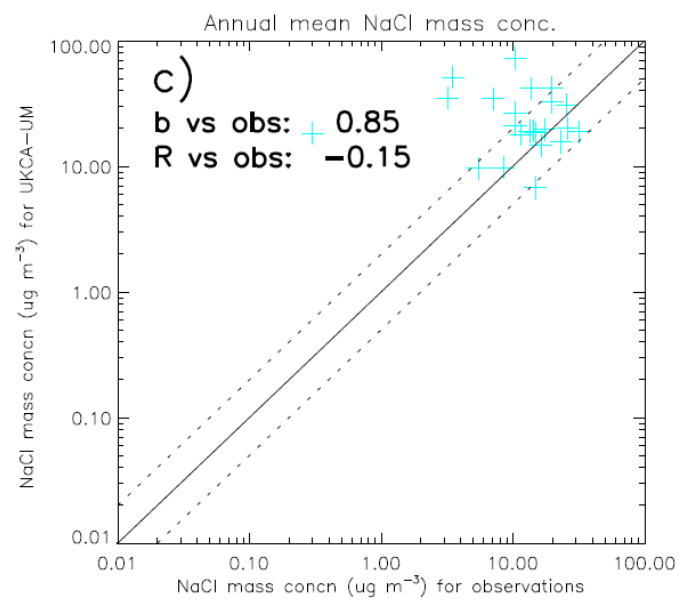
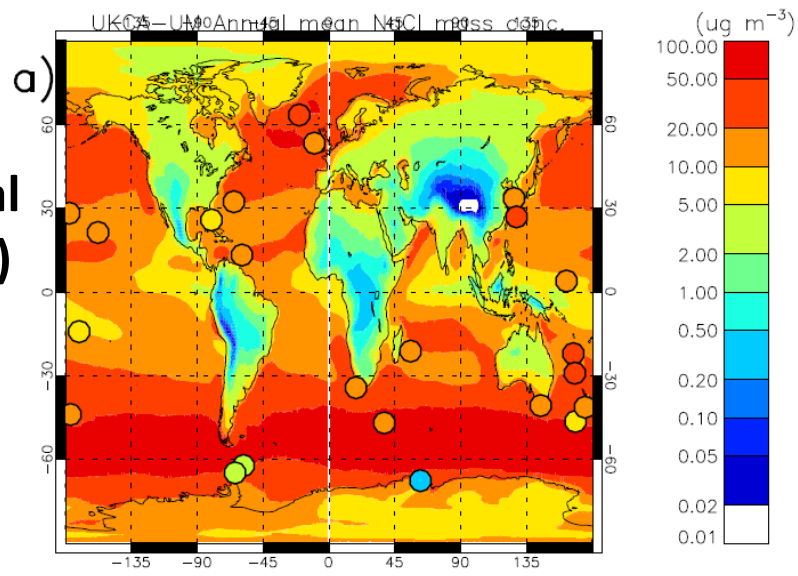
POM
(Jun)

Initialised with xhnap aerosol

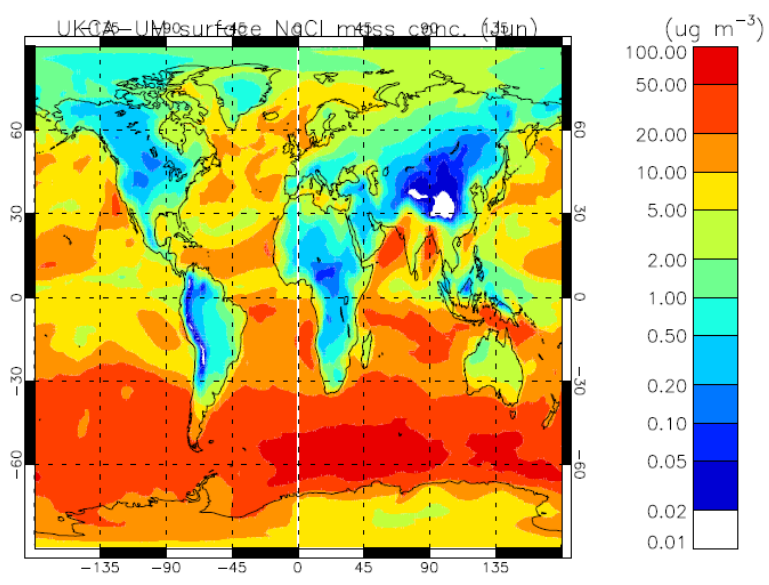
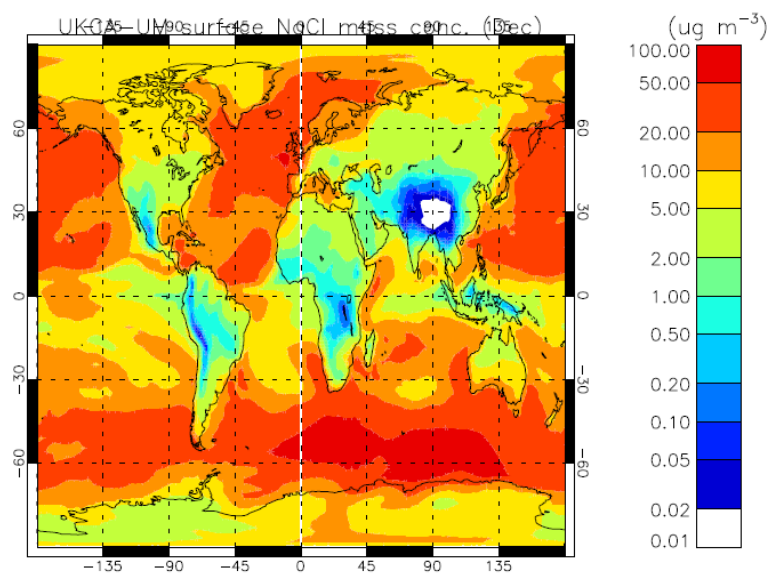
xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

NaCl
(Annual mean)



NaCl
(Dec)

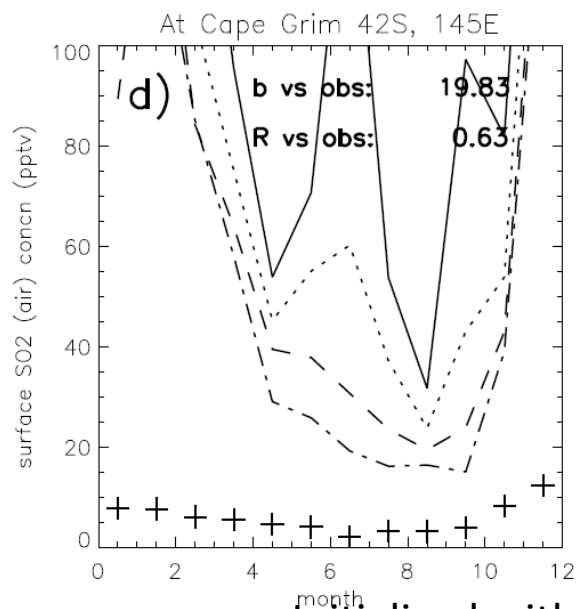
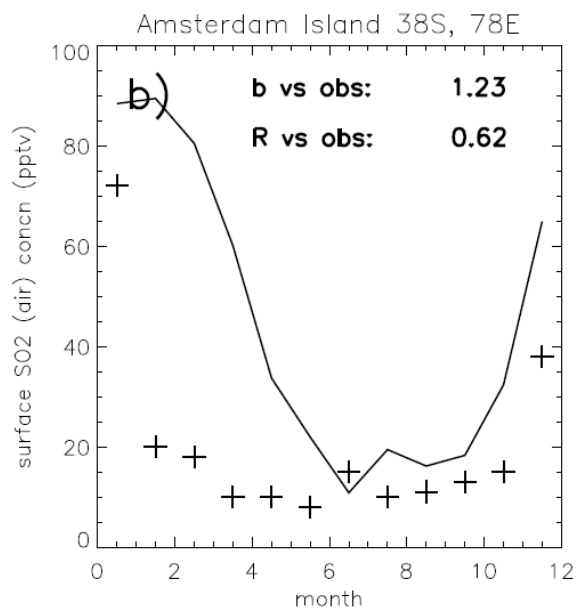
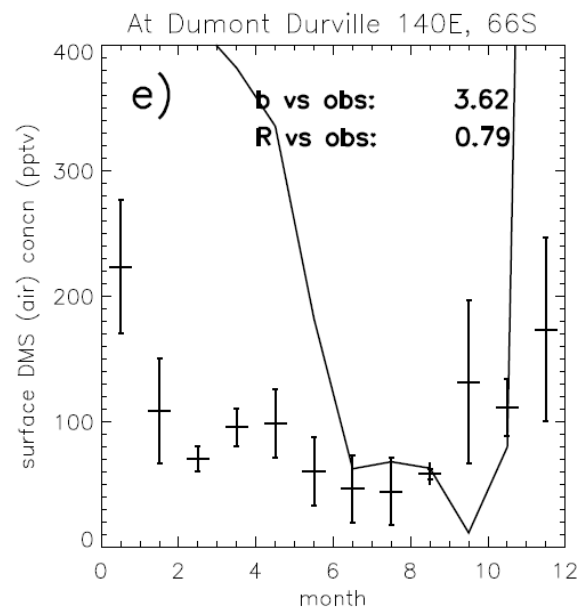
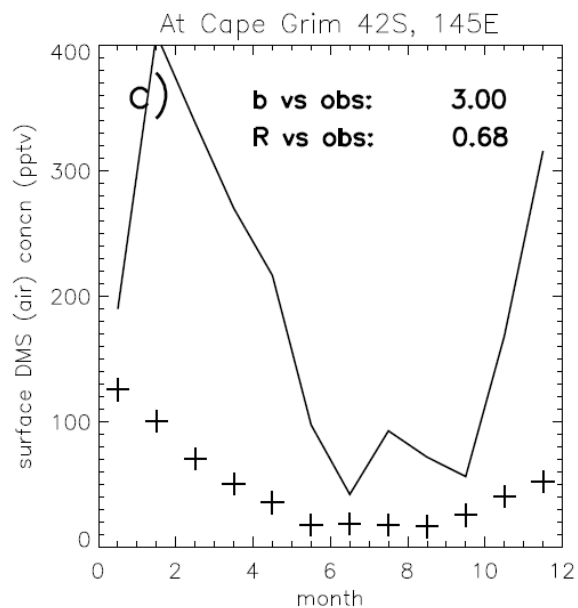
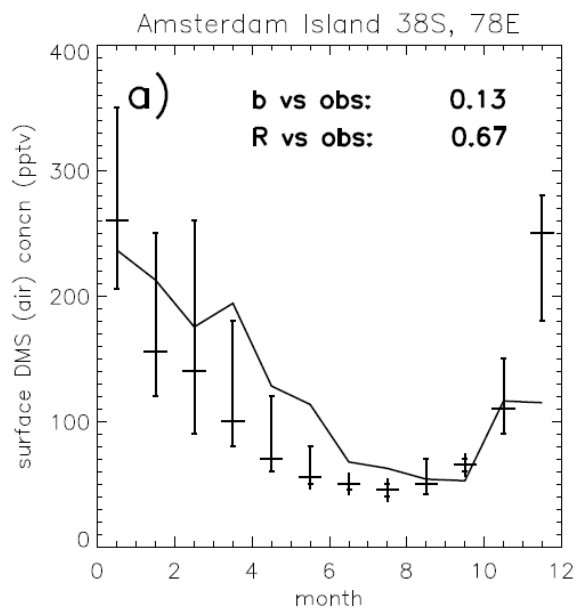


NaCl
(Jun)

Initialised with xhnap aerosol

xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

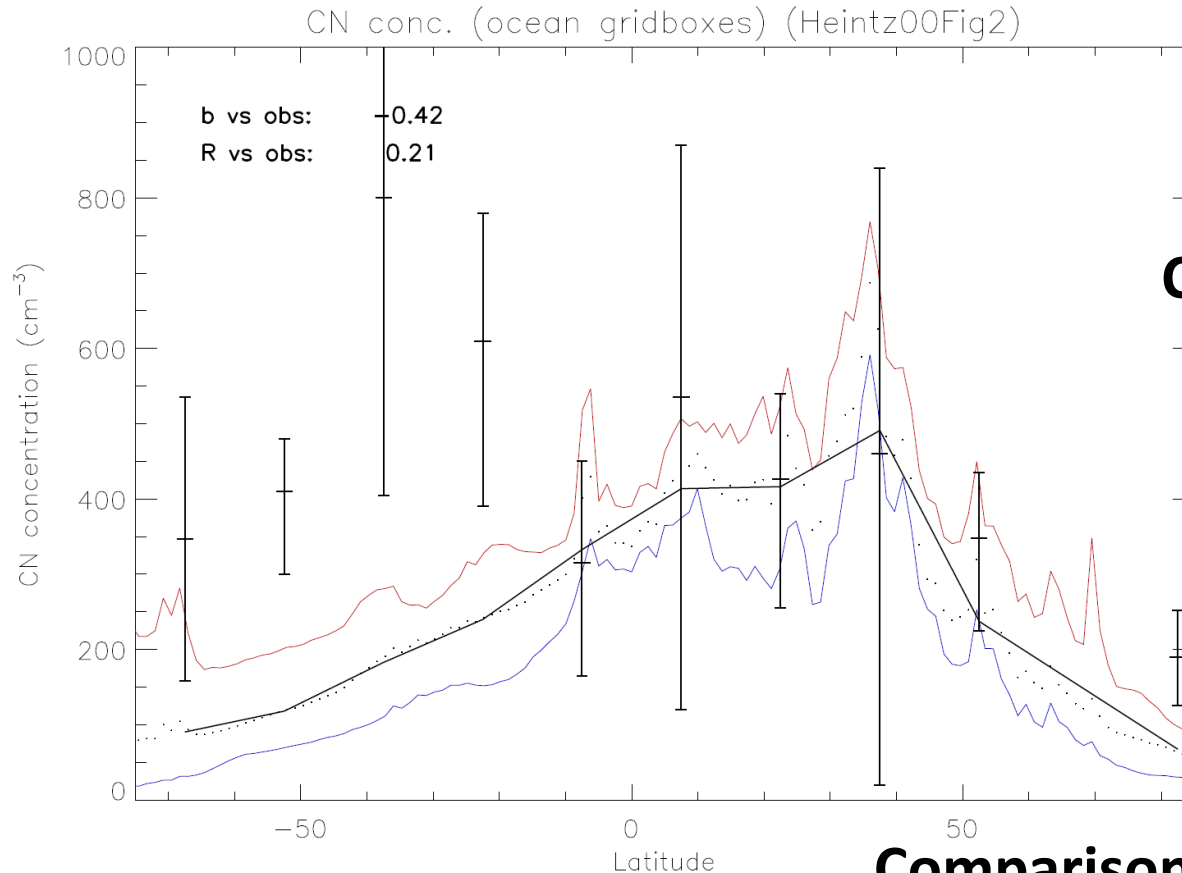


**DMS (a, c, e) and
SO₂ (b, d) at
Southern
Hemisphere sites.**

Initialised with xhnap aerosol

xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)



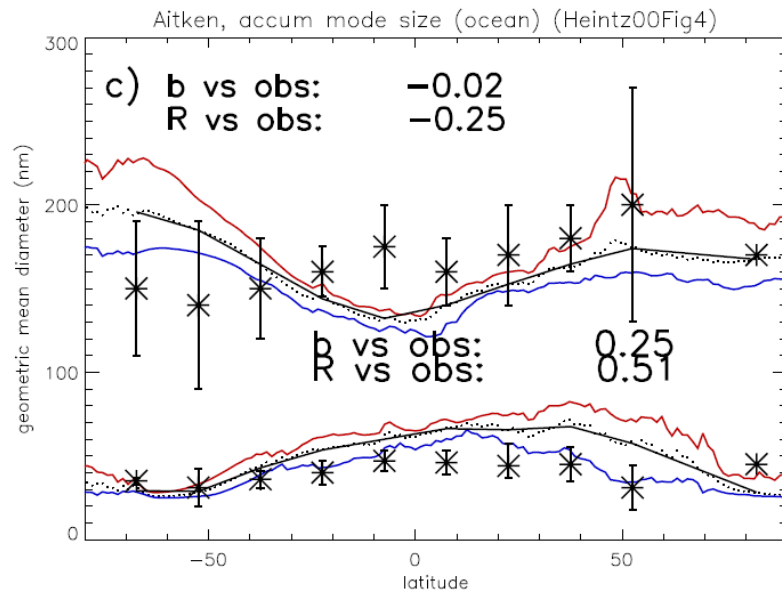
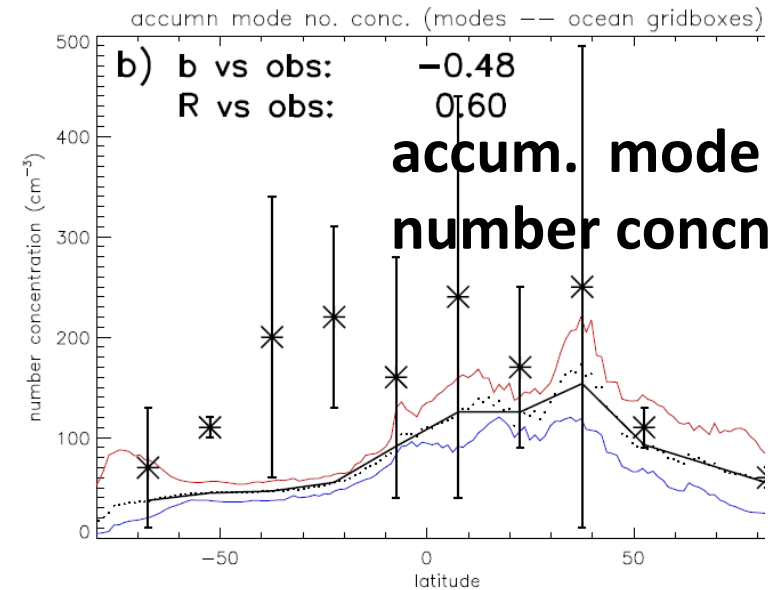
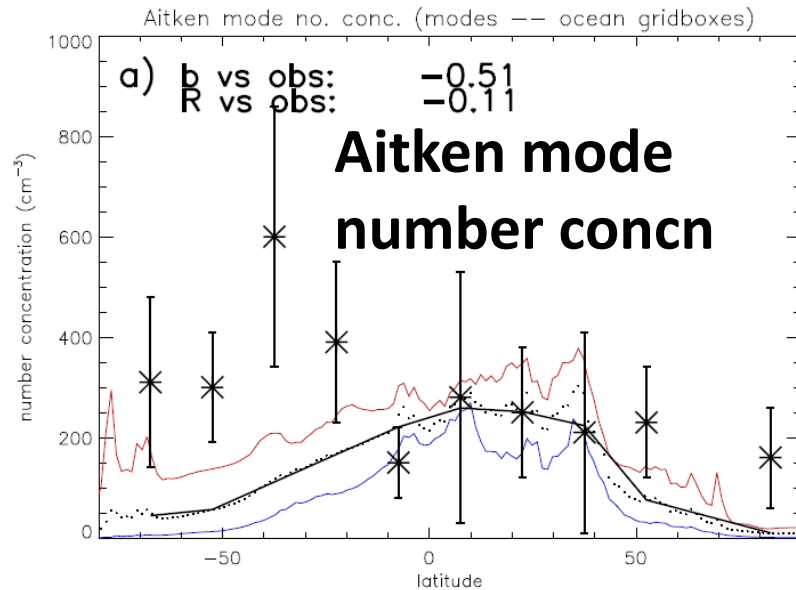
CN ($D_p > 10\text{nm}$)

**Comparison to observed
marine boundary layer
size distributions from cruise
measurements compiled in
Heintzenberg et al. (2000).**

Initialised with xhnap aerosol

xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)



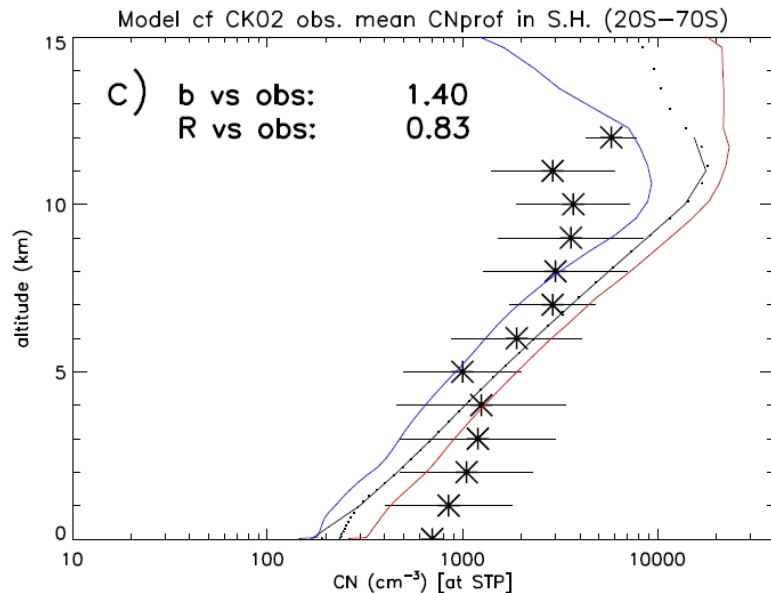
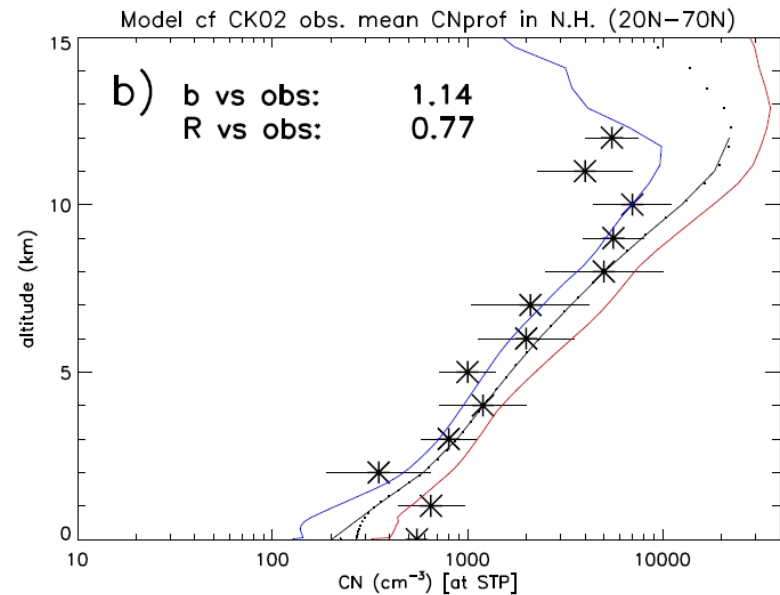
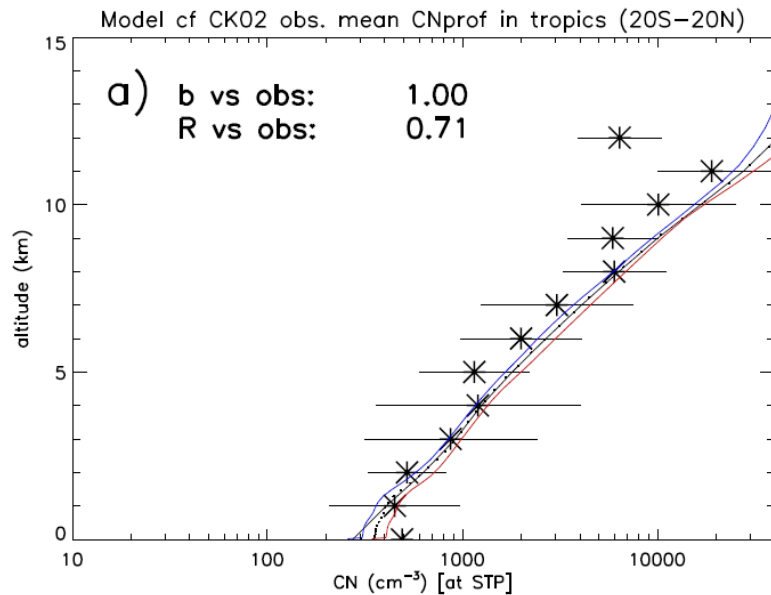
**Mean diameter of
Aitken and accum. modes**

**Comparison to observed
marine boundary layer
size distributions from cruise
measurements compiled in
Heintzenberg et al. (2000).**

Initialised with xhnap aerosol

xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

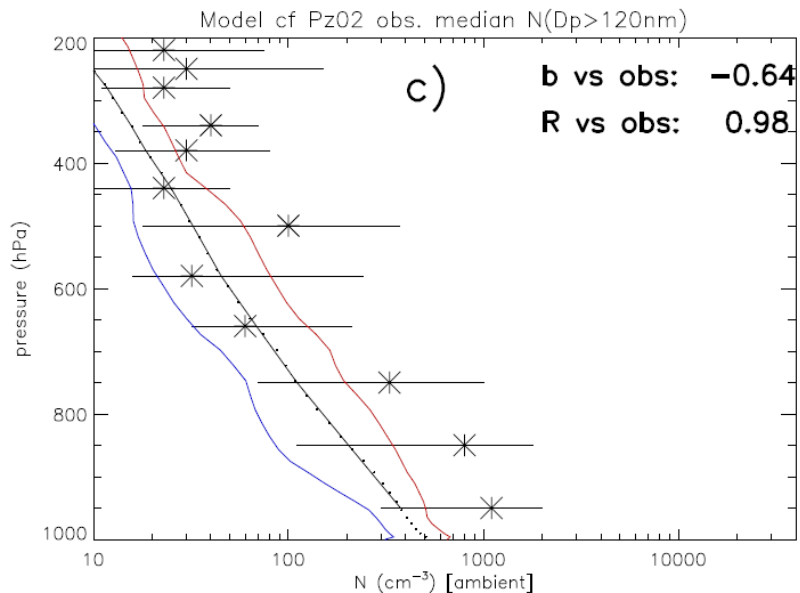
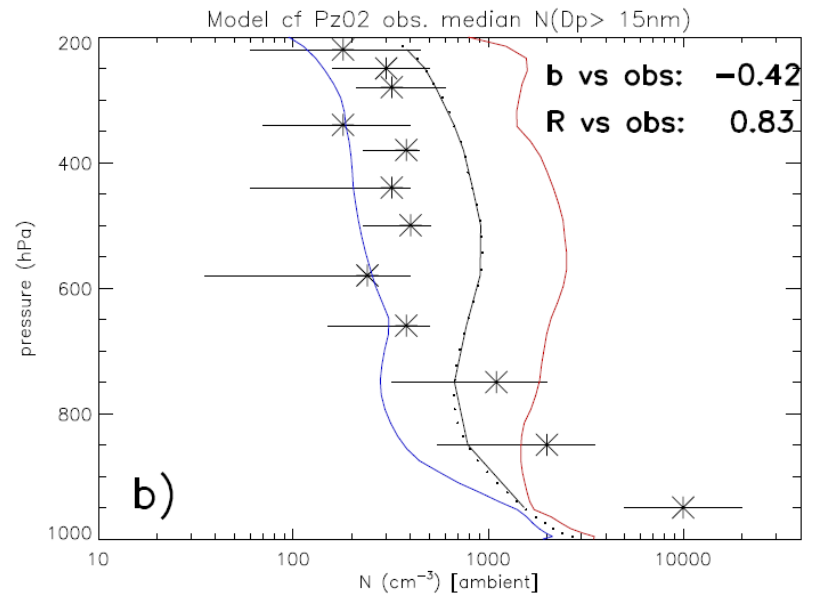
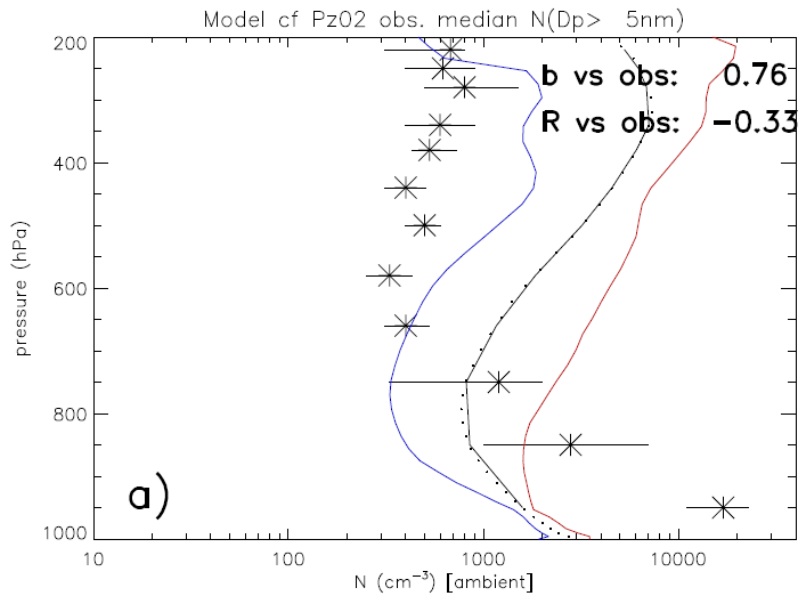


Comparison to observed profiles of CN ($D_p > 3\text{nm}$) over Pacific and S. Ocean. Observations from aircraft measurements compiled in Clarke & Kapustin (2002).

Initialised with xhnap aerosol

xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

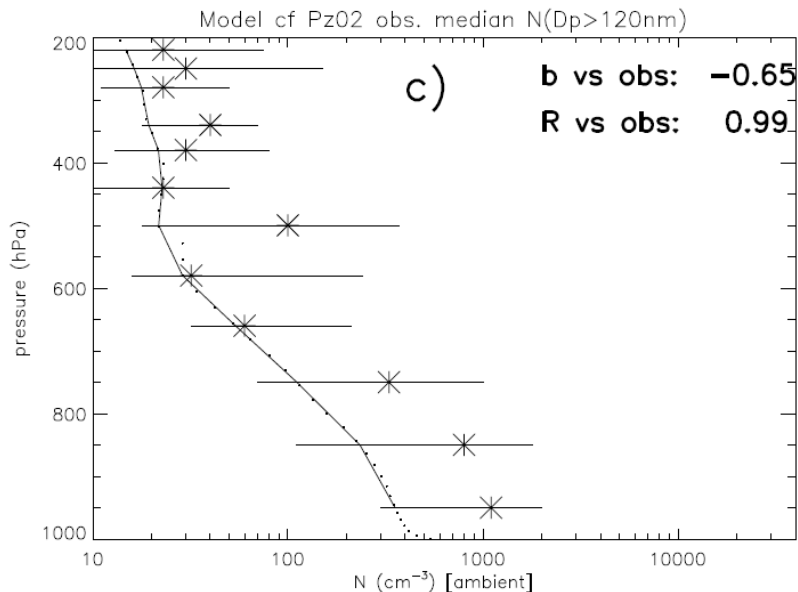
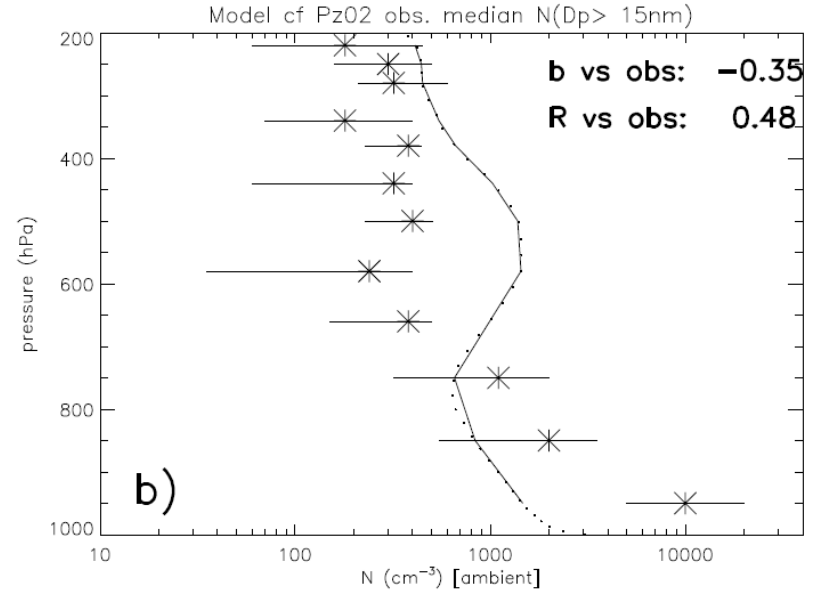
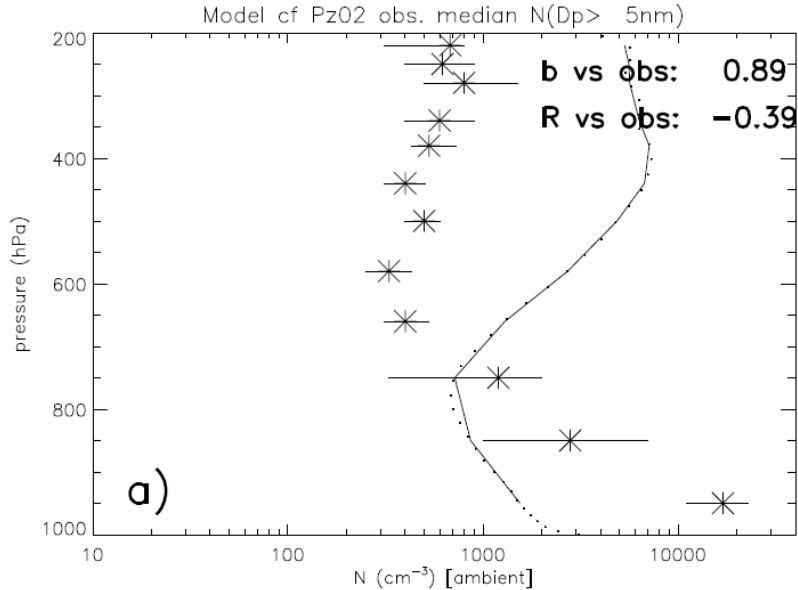


**Comparison to observed
profiles of size-resolved
number concentrations for
 $D_p > 5\text{nm}$, 15nm , 150nm
over Germany from LACE
campaign (Petzold et al. 2002)**

Initialised with xhnap aerosol

xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

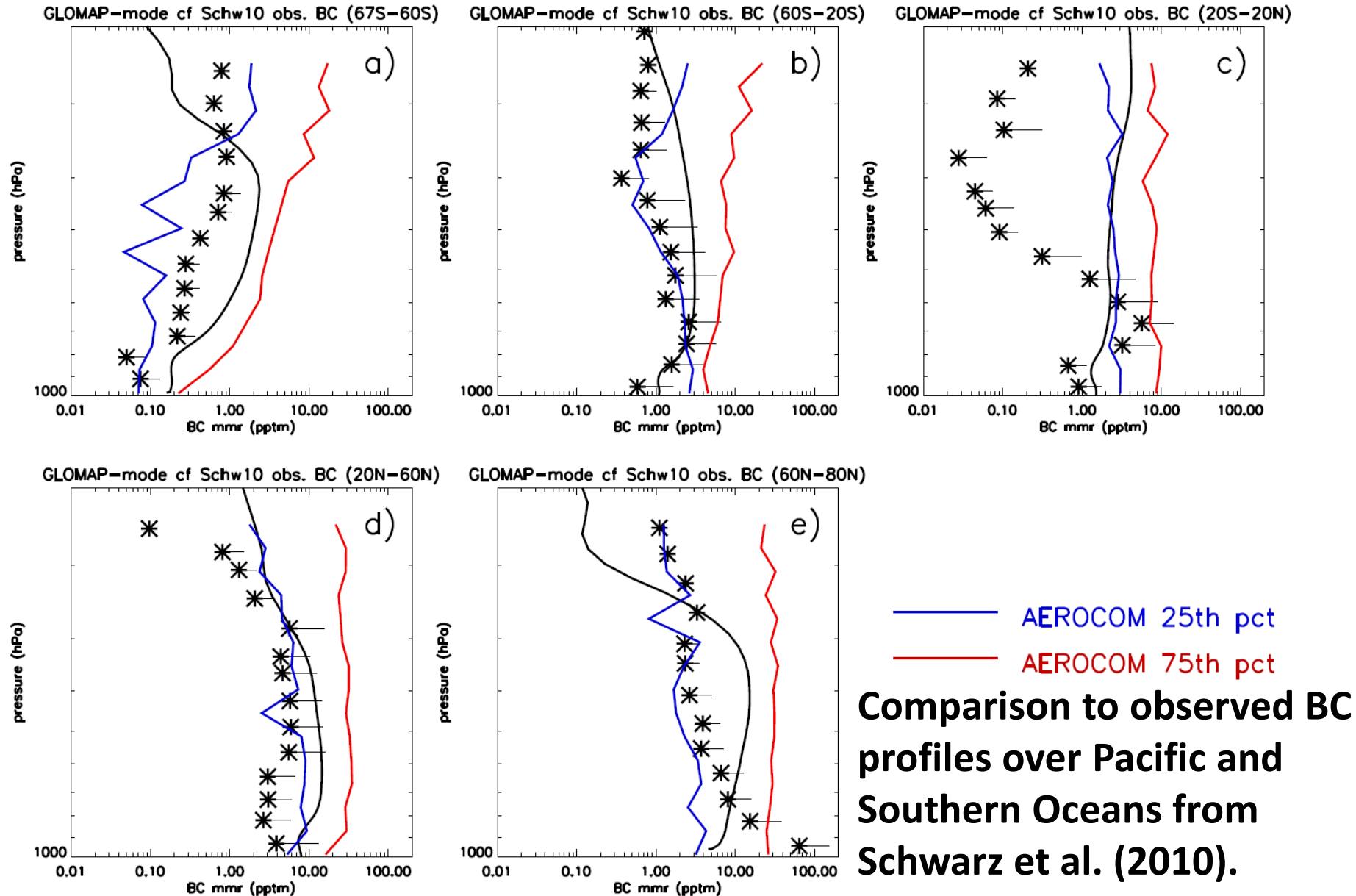


**Comparison to observed
profiles of size-resolved
number concentrations for
 $D_p > 5\text{nm}$, 15nm , 150nm
over Germany from LACE
campaign (Petzold et al. 2002)**

Initialised with xhnap aerosol

xhmai

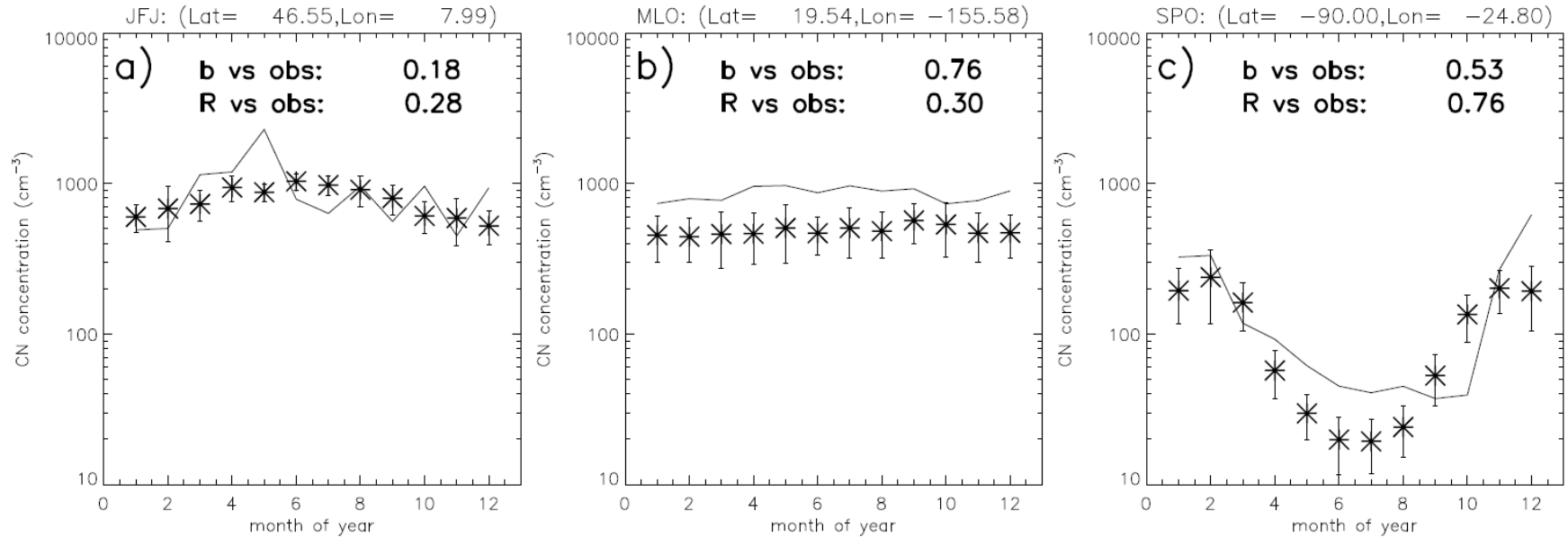
V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)



Initialised with xhnap aerosol

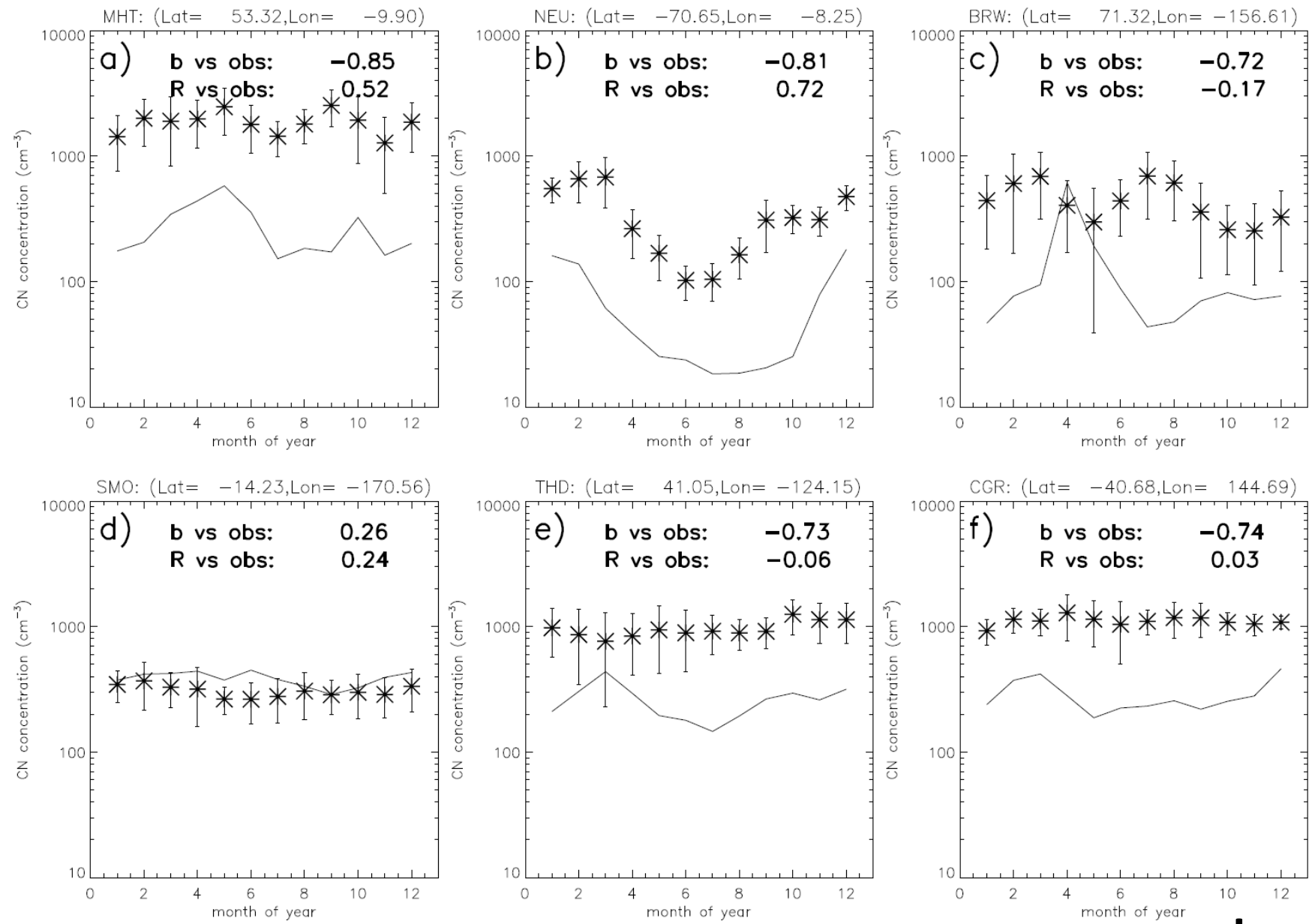
xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

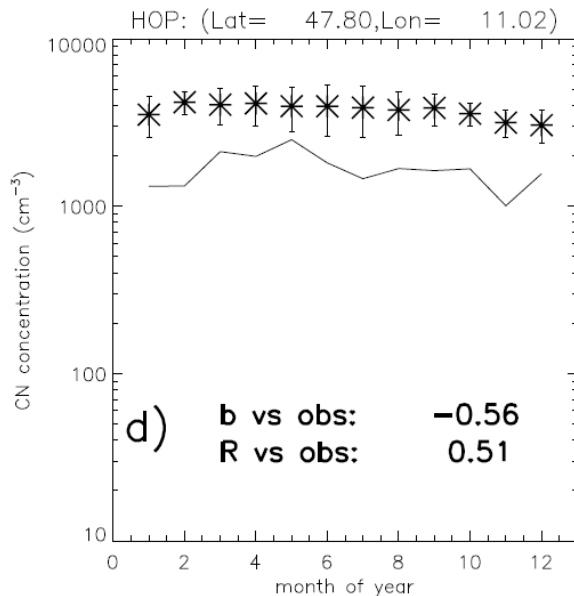
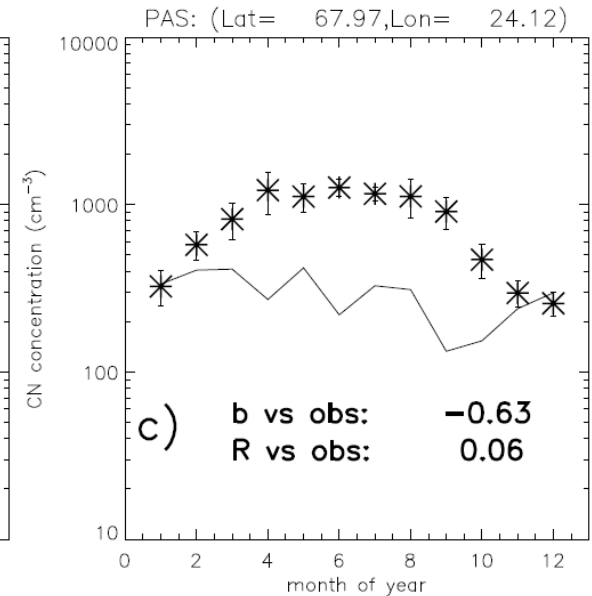
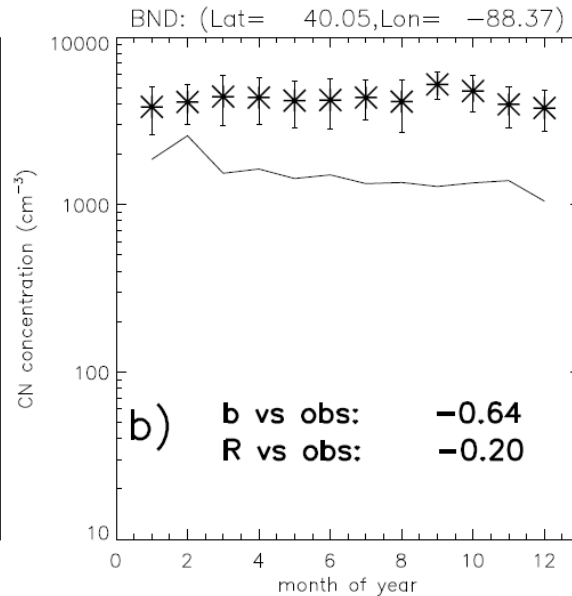
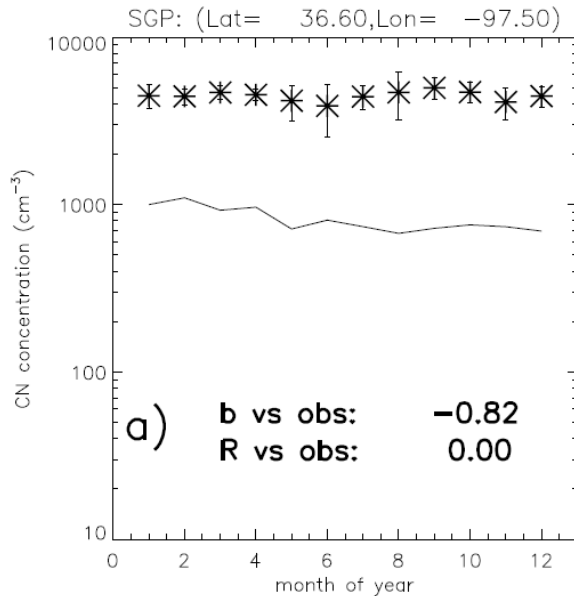


Comparison to observed CN at GAW sites
Here show 3 Free Troposphere sites

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)



V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)

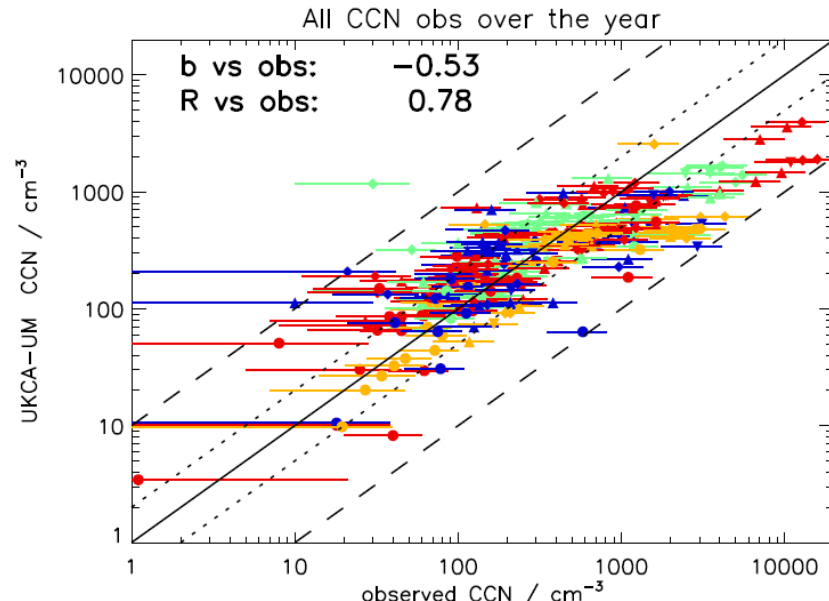


Comparison to observed CN at GAW sites
Here show 4 Continental BL sites

Initialised with xhnap aerosol

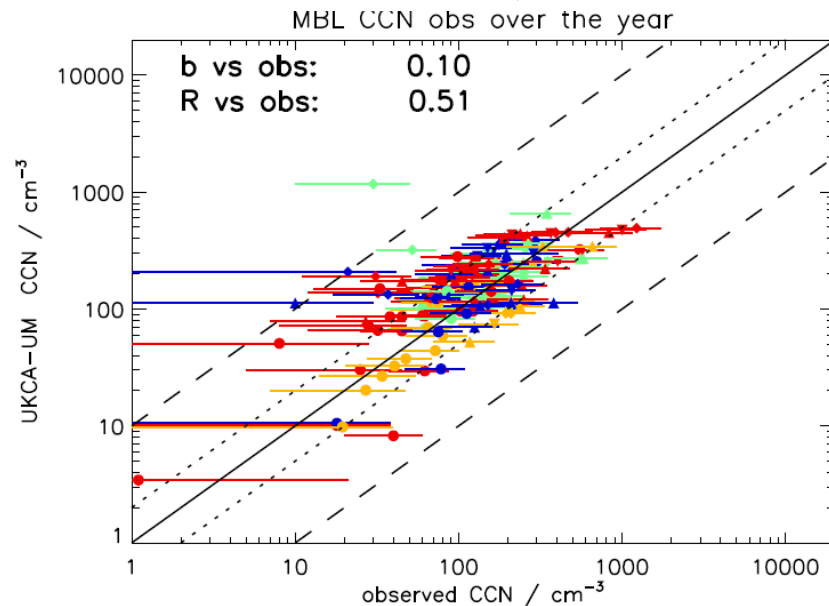
xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)



MAM
JJA
SON
DJF

- SS < 0.25%
- ▲ 0.25 < SS < 0.5%
- ▼ 0.50 < SS < 0.75%
- ◆ SS > 0.75%

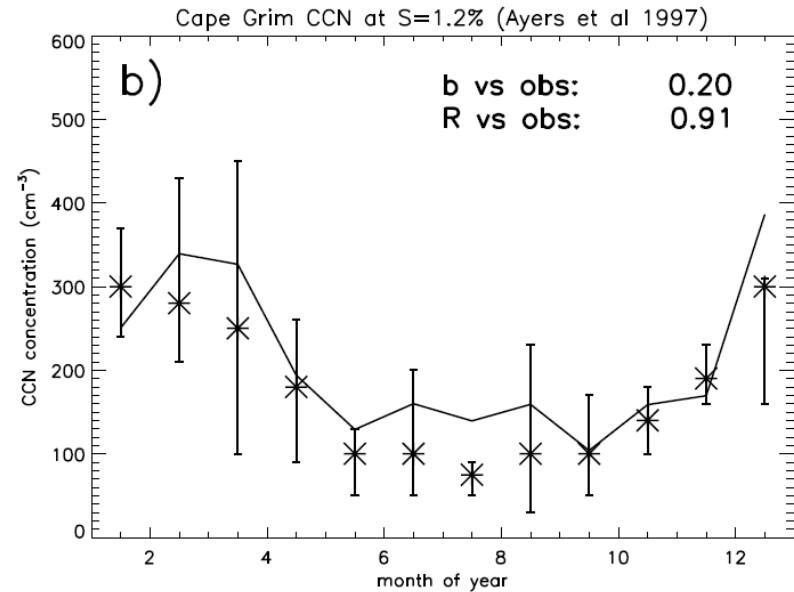
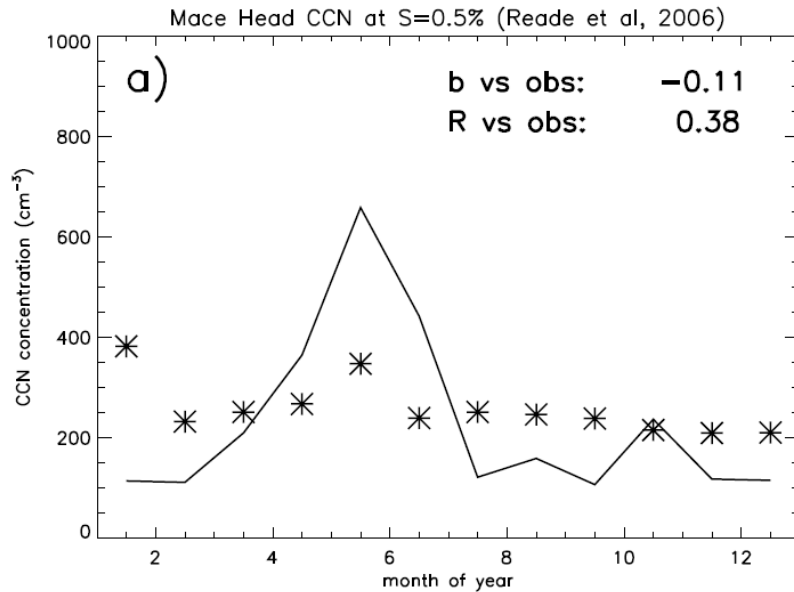


Comparison of CCN at various supersaturations against compilation of observations from Spracklen et al. (2011)

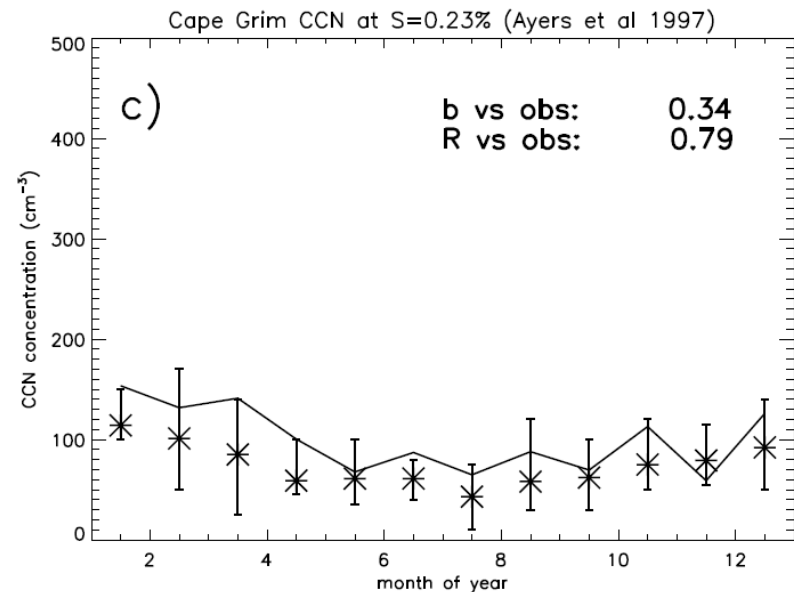
Initialised with xhnap aerosol

xhmai

V8.4 GA4.0 N96L85 CheT+GLOMAP+RADAERv2+ACTIVATE (New Dyn.)



**Mace Head (a) and
Cape Grim (b and c)
CCN seasonal cycle from
compilation of
observations from
Spracklen et al. (2011)**



Initialised with xhnap aerosol

xhmai