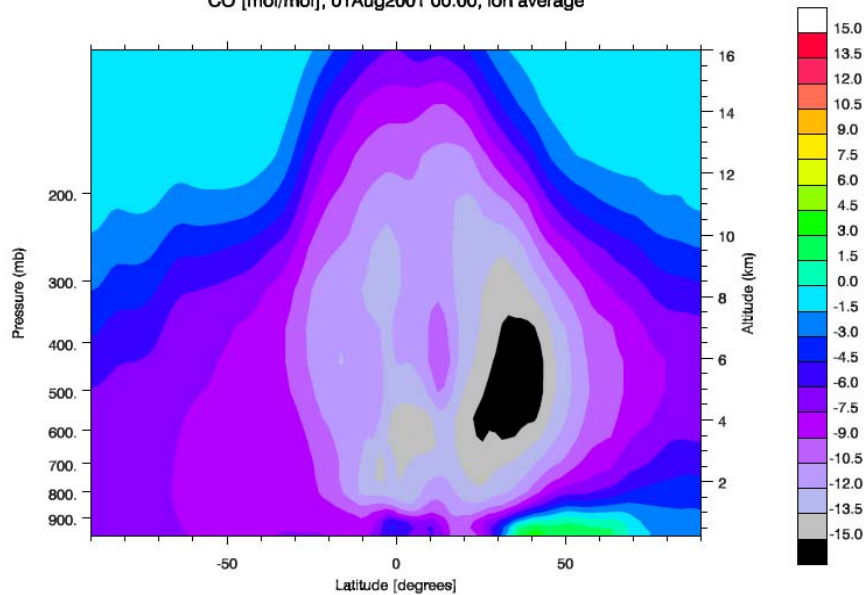


Report from Chemistry-Climate Working Group

Peter Hess, Co-Chair

CO [mol/mol], 01Aug2001 00:00, lon average



idat03hess/cam3/us/cm2/conc_wrtg.nc

hess 15.08.2007 09:41

CO: NR – CAM3
(JJA)
CAM-Offline

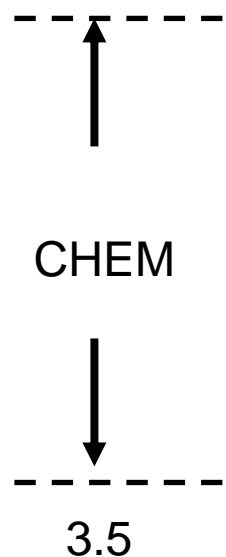
Aerosols

- $\text{SO}_2, \text{DMS} \rightarrow \text{SO}_4$:oxidants; sulfur cycle
- $\text{NH}_3 \rightarrow \text{NH}_4\text{NO}_3$:oxidants; odd nitrogen cycle; sulfur cycle ($\text{NH}_4 > \text{SO}_4$)
- $\text{HC} \rightarrow \text{SOA}$:HC, oxidants

Aerosol Schemes [OC, BC, SO_4 , SS, Dust, (NH_4NO_3 , SOA)]

- 1) Ghan/Liu 4 or 7 modes internally mixed, phobic-phillic timescale calculated, mass and number prognostic (w/wo chemistry)
- 2) Chemistry, externally mixed, NH_4NO_3 , SOA mass prognostic
- 3) Input oxidants, externally mixed, no NH_4NO_3 , no SOA (3.5)
- 4) Prescribed aerosols (CCSM3)

	Online chem	Input chem	100% SO2	50% SO2	NO3 ⁻	CAM SO4	B/R SO4
2.1	X		X		X	X	
2.2	X			X	X	X	
2.3	X			X		X	
2.4	X		X			X	
2.5	X					X	
2.6	X						X
3.0		X					X



2.1 minus 3.5 Δ AO = 0 [-.03 – 0.5]

Δ FSNTOAC= .003 W/M² [-2.6,0.6]

NO3⁻ 2.1 minus 2.4 Δ AO = .004 [0– 0.19]

Δ FSNTOAC= -.07 W/M² [-2.5,0.]

FNO3⁻ 2.2 minus 2.3

Δ FSNTOAC= -.09 W/M² [-2.7,0.]

BRSO4 2.5 minus 2.6 Δ AO = -.004 [-.15 - 0]

Δ FSNTOAC= .12 W/M² [0., 2.0]

In Ox 2.6 minus 3.0 Δ AO = .003 [0– 0.1]

Δ FSNTOAC= -.05 W/M² [-2.,0.]

SOA: 0.51 Tg C[↑] 43% 2100 [.5-.7 Tg S[↓] 50%] Heald et al (submitted)