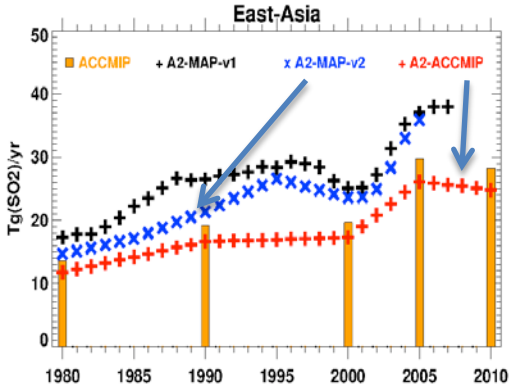
The sensitivity of global/regional aerosol simulations to two AeroCom phase II emission inventories (A2-ACCMIP and A2-MAP-v2)

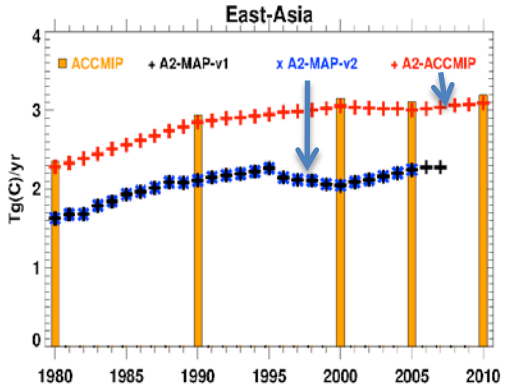
Xiaohua Pan [1,2,*], Mian Chin [2], Thomas Diehl [3,2], Huisheng Bian [4,2] and Peter Colarco [2]

❑Anthropogenic emission dominated region: e.g. **East Asia** (ESA)

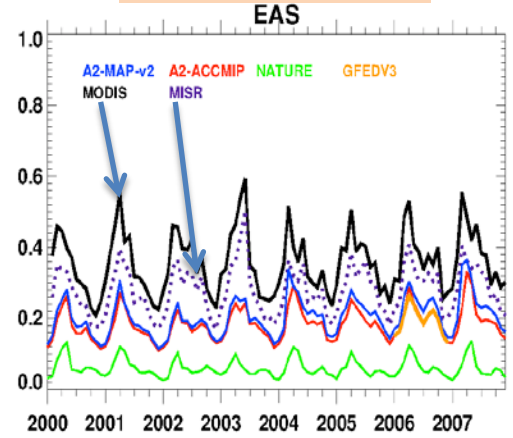
EMI_an (SO2)



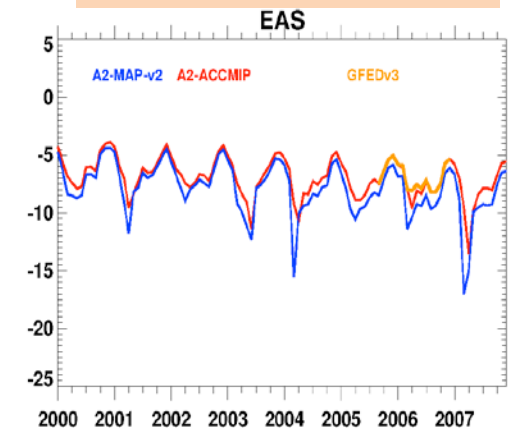
EMI_an (OC)



AOD (550nm)



SW @ sfc clear_sky

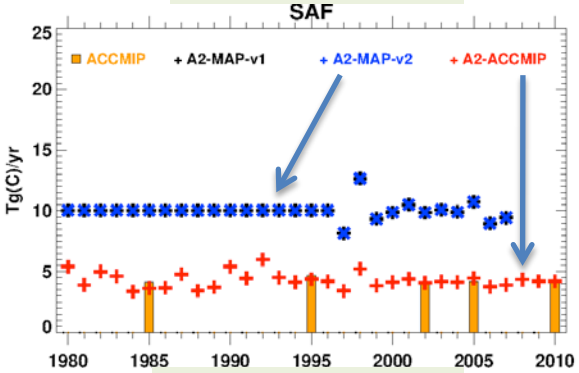


Experiments		A2-ACCMIP	A2-MAP-v2
Anth. Emi.	SO2	different	
	BC/ OC	different	
BB Emi.		different	
Nature Emi.		Same	

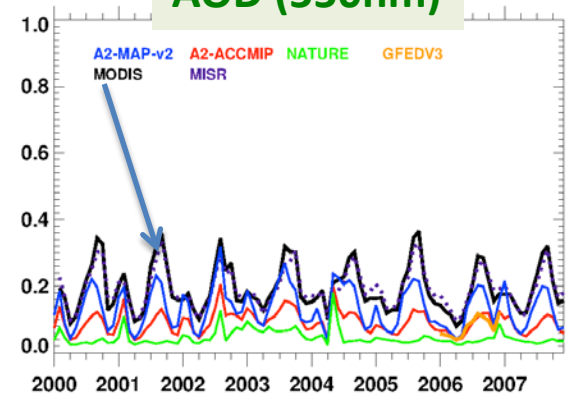
- **EMI_an (SO2):** A2-MAP-v2 > A2-ACCMIP
- **EMI_an (OC):** A2-MAP-v2 < A2-ACCMIP
- **EMI_an (BC):** A2-MAP-v2 ~A2-ACCMIP
- **AOD:** A2-MAP-v2 ~ A2-ACCMIP < MODIS
- **SW cooling:** A2-MAP-v2 ~ A2-ACCMIP

❑Biomass emission dominated region: e.g. **South Africa** (SAF)

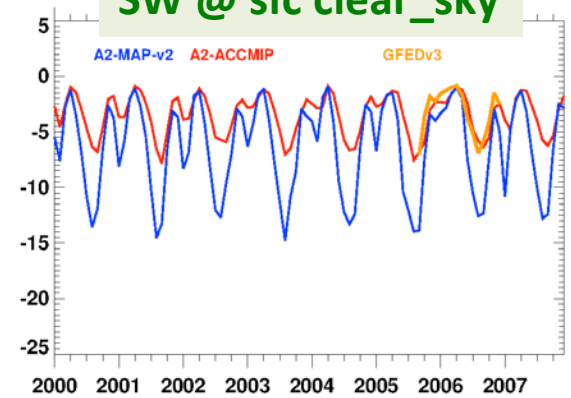
EMI_bb (OC)



AOD (550nm)



SW @ sfc clear_sky



- **EMI (OC):** A2-MAP-v2 >A2-ACCMIP
- **EMI(SO2&BC):** A2-MAP-v2 >A2-ACCMIP
- **AOD:** MODIS>A2-MAP-v2 > A2-ACCMIP
- **SW cooling:** A2-MAP-v2 > A2-ACCMIP

A2-MAP-V2/A2-ACCMIP

Double BB emission,

Double surface cooling

It is **suggested** that the **emissions** of SO2, BC and OC in **A2-ACCMIP/GFEDv2** are **too low** in **Southern Africa, South America**, and **Northern Africa**.