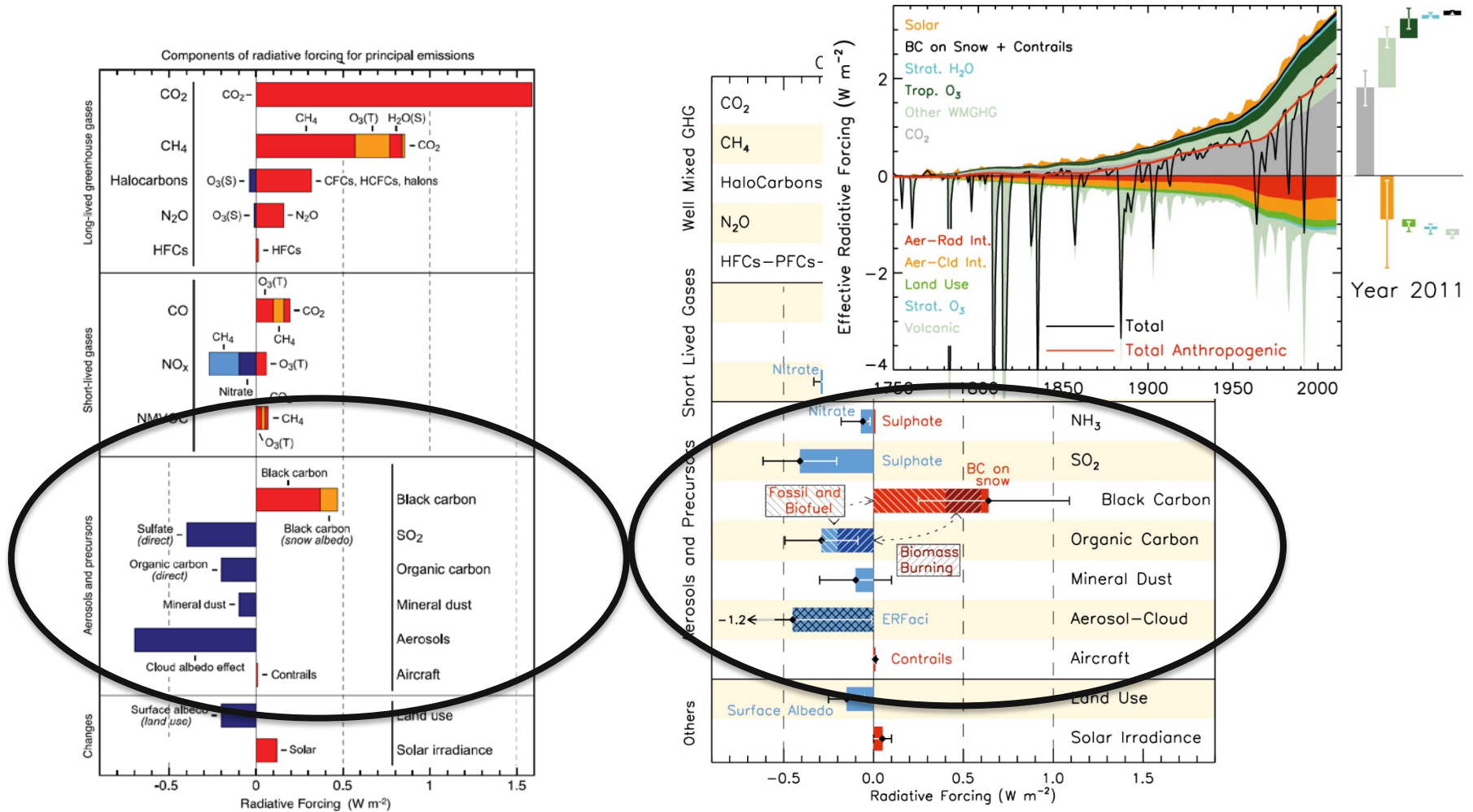


AeroCom historical aerosols



IPCC, AR4, 2007

IPCC, AR5, 2013

“AeroCom historical aerosols”

Coordination Gunnar and Michael

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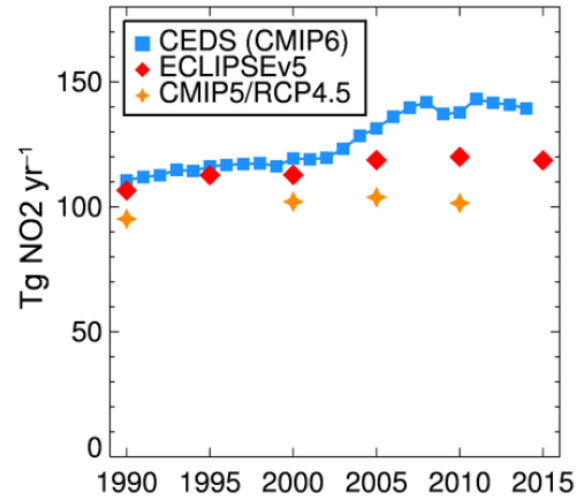
Aerosol-cloud interaction trends - *Johannes/Philip*

Uncertainty in preindustrial aerosol - *Ken*

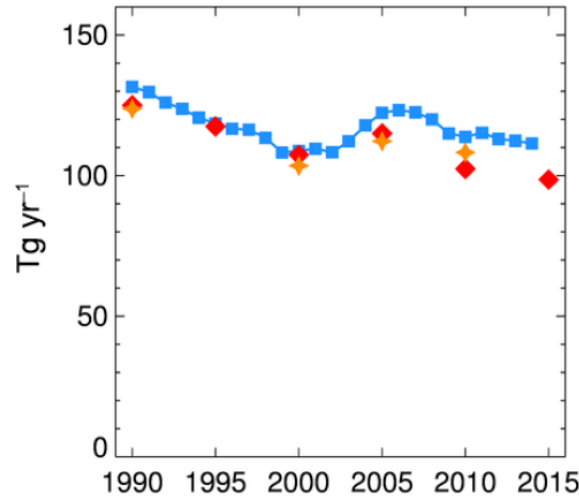
Attribution of aerosol-radiation interactions (ARI) and aerosol-cloud interactions (ACI) on the brightening/dimming trends – *Mian/Huisheng/Martin*

Global emissions

NO_x

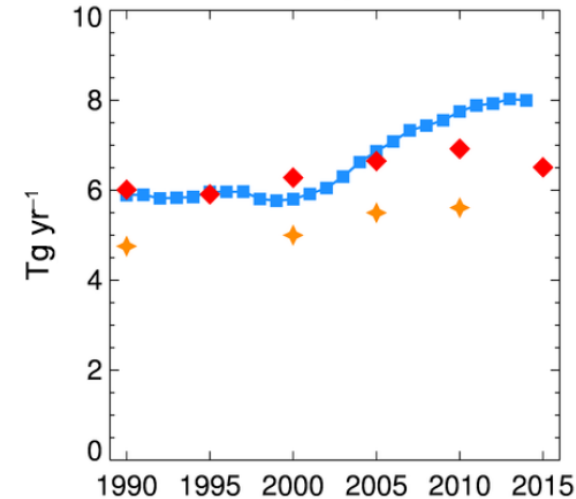


SO₂

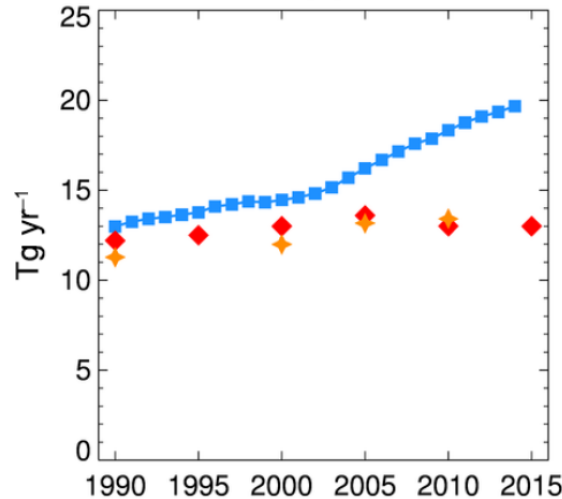


CEDS - Hoesly et al. GMDD, 2017
ECLIPSE – Stohl et al., ACP, 2015
CMIP5 – Lamarque et al., ACP, 2010

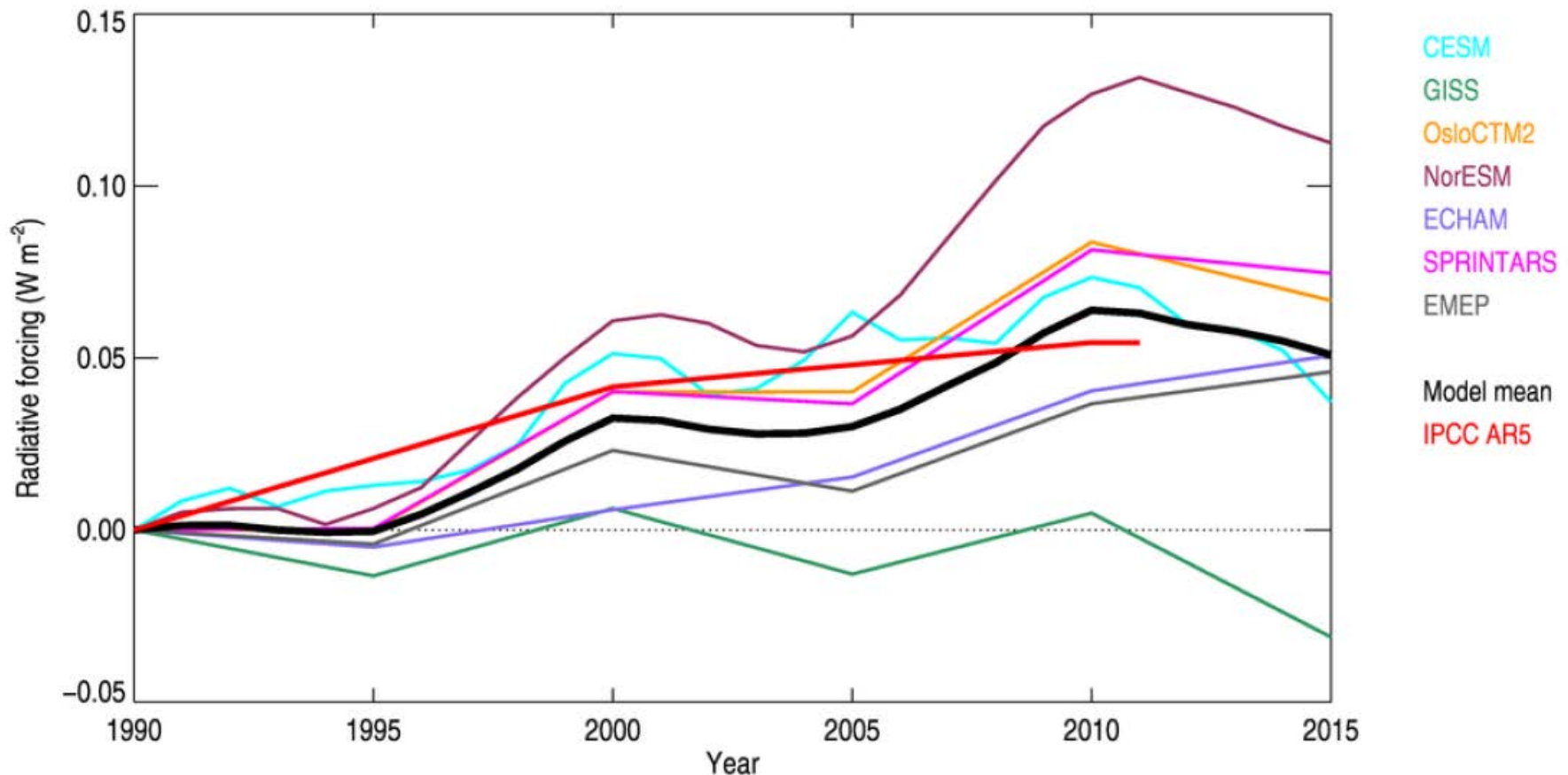
BC



OC



Radiative forcing of direct aerosol effect



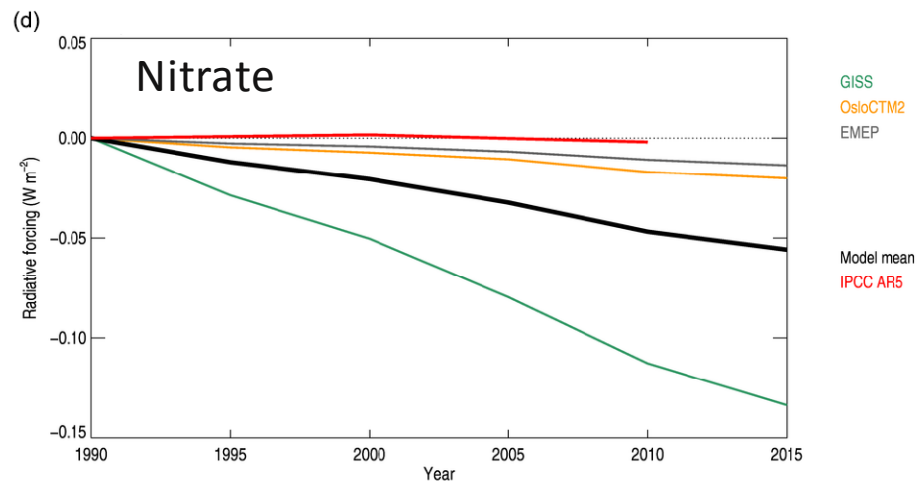
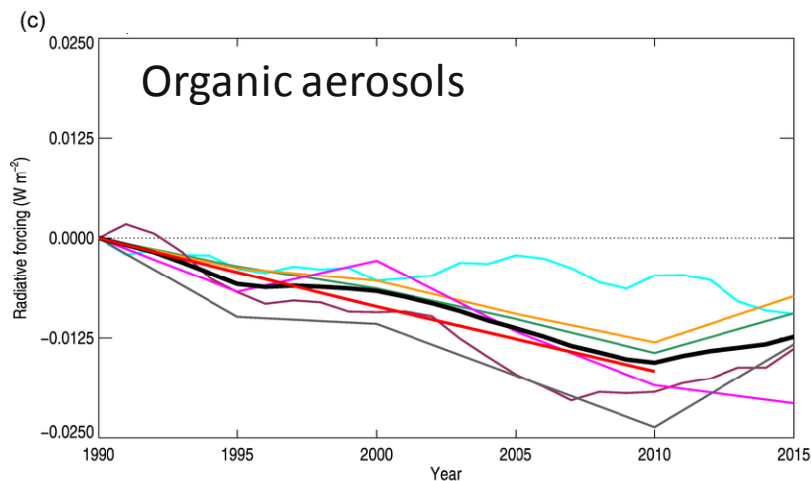
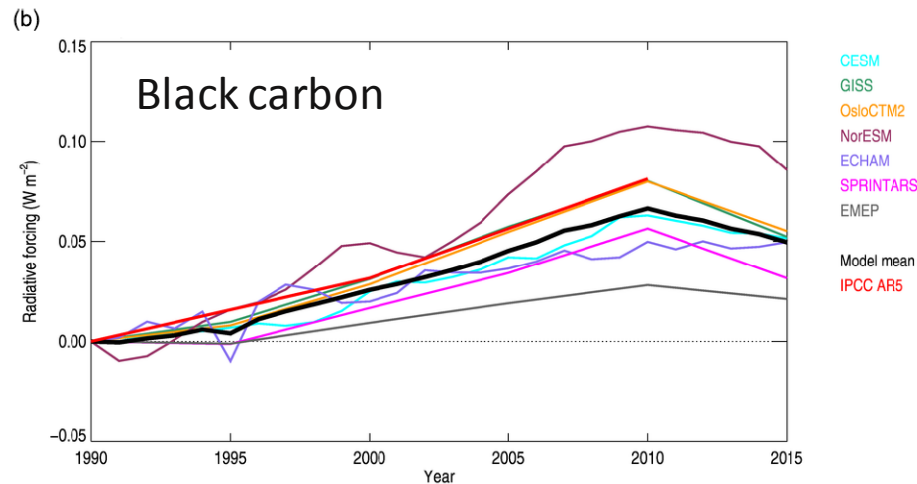
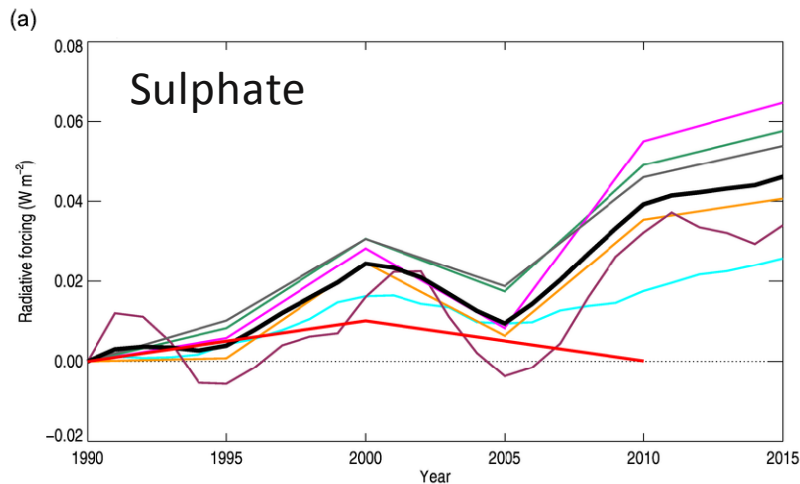
Atmos. Chem. Phys., 17, 2709–2720, 2017
www.atmos-chem-phys.net/17/2709/2017/
doi:10.5194/acp-17-2709-2017
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Multi-model simulations of aerosol and ozone radiative forcing due to anthropogenic emission changes during the period 1990–2015

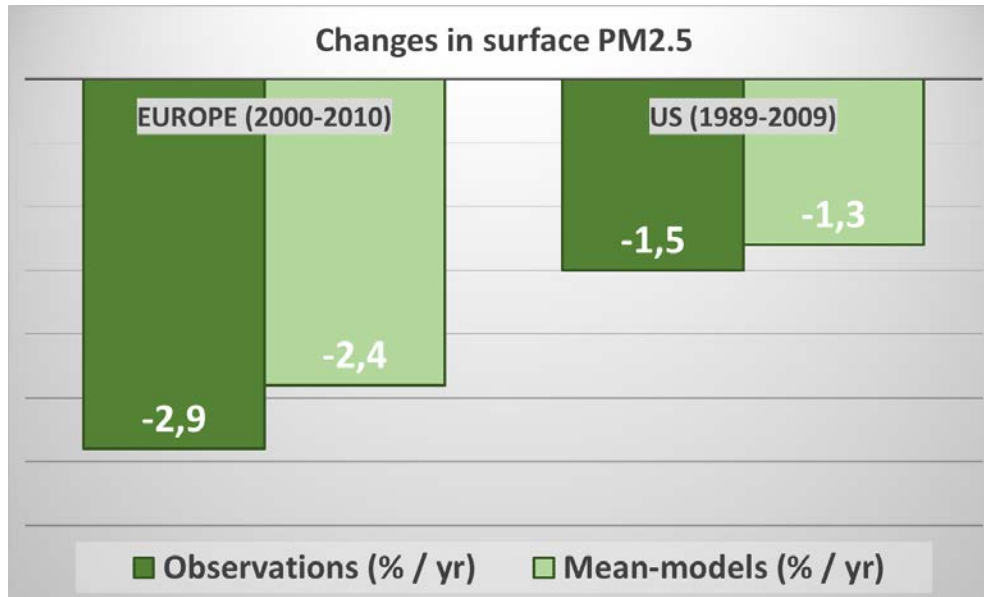
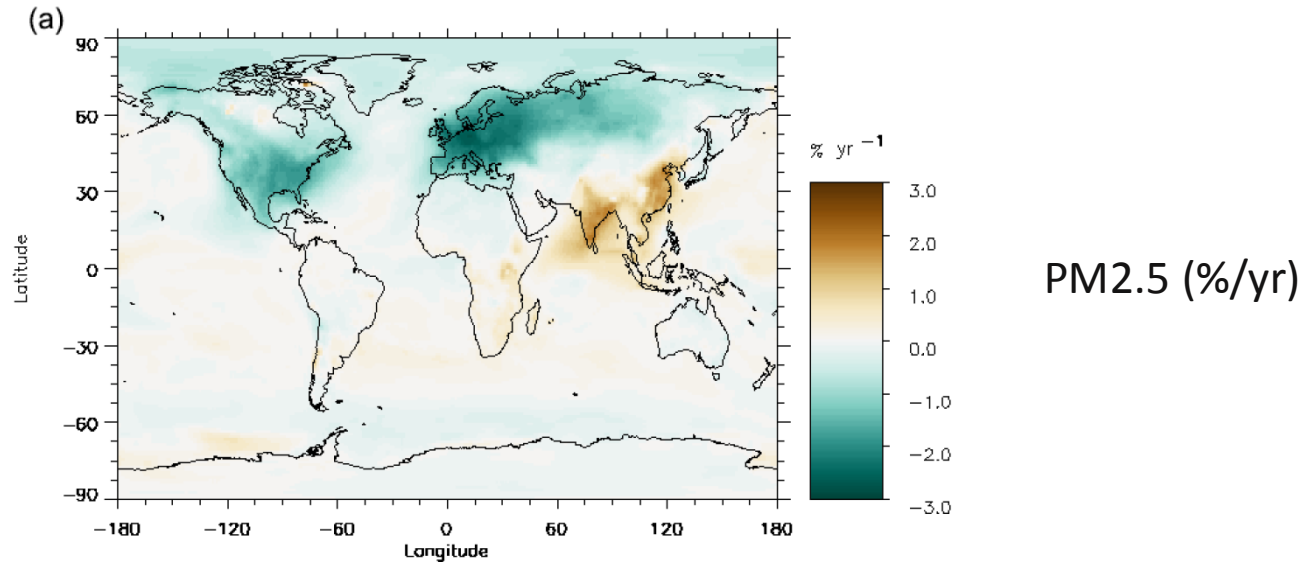
Gunnar Myhre¹, Wenche Aas², Ribu Cherian³, William Collins⁴, Greg Faluvegi⁵, Mark Flanner⁶, Piers Forster⁷, Øivind Hodnebrog¹, Zbigniew Klimont⁸, Marianne T. Lund¹, Johannes Müllerstädt³, Cathrine Lund Myhre², Dirk Olivie⁹, Michael Prather¹⁰, Johannes Quaas³, Bjørn H. Samset¹, Jordan L. Schnell¹⁰, Michael Schulz⁹, Drew Shindell¹¹, Ragnhild B. Skeie¹, Toshihiko Takemura¹², and Svetlana Tsyro⁹

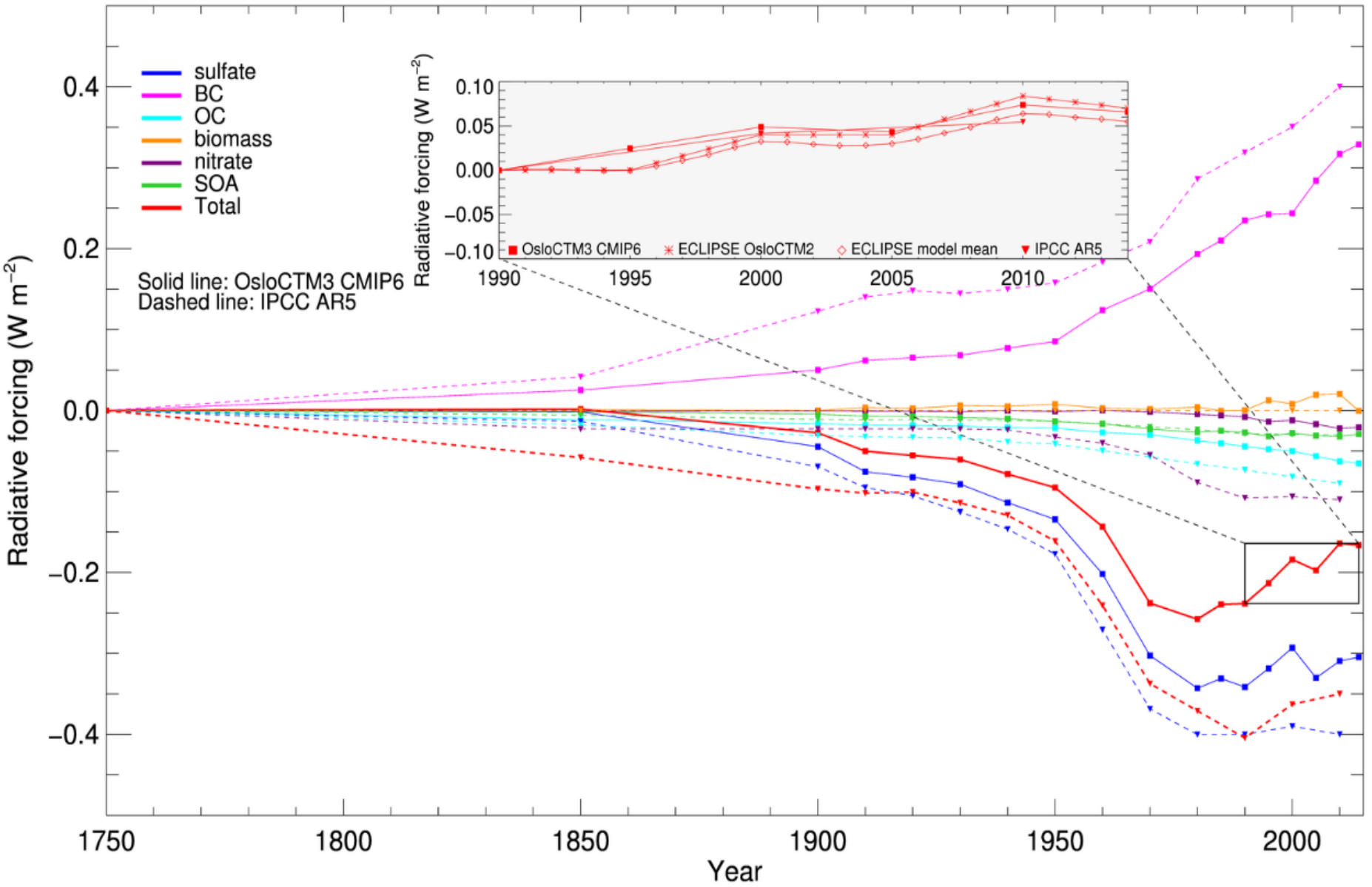
Atmospheric
Chemistry
and Physics
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EGU

Direct aerosol effect by component



Changes in PM2.5 and AOD 1990 - 2015





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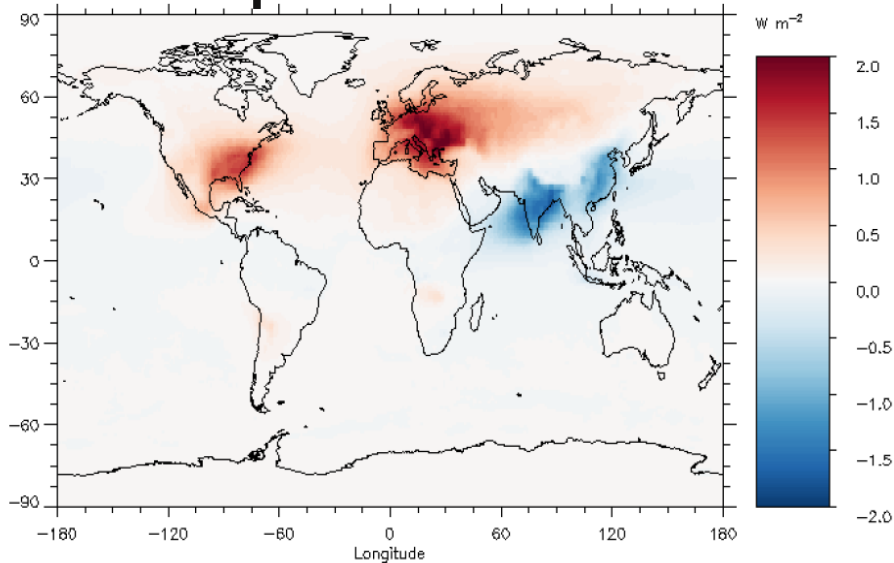
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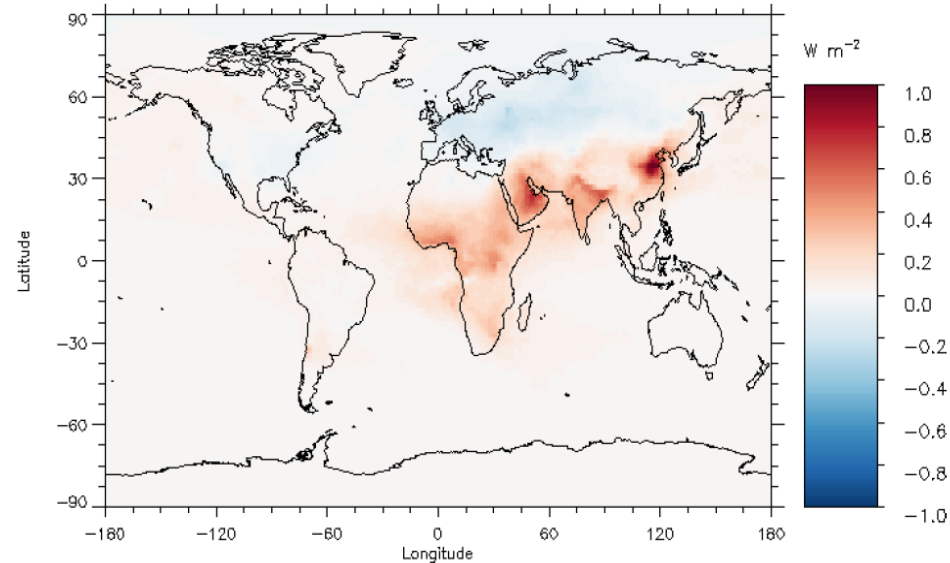
Direct aerosol effect of sulphate and black carbon

Changes 1990-2015

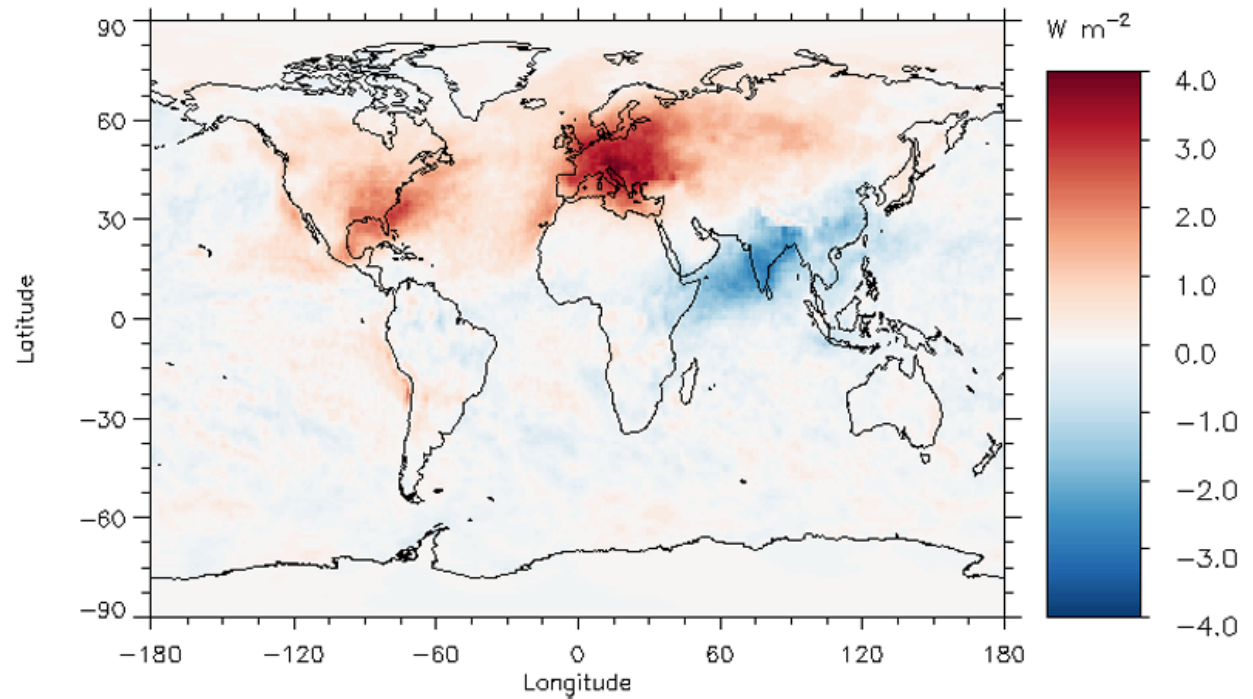
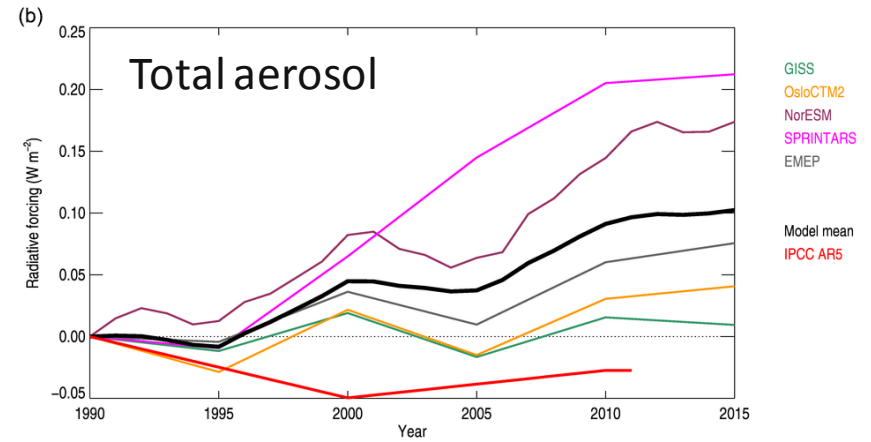
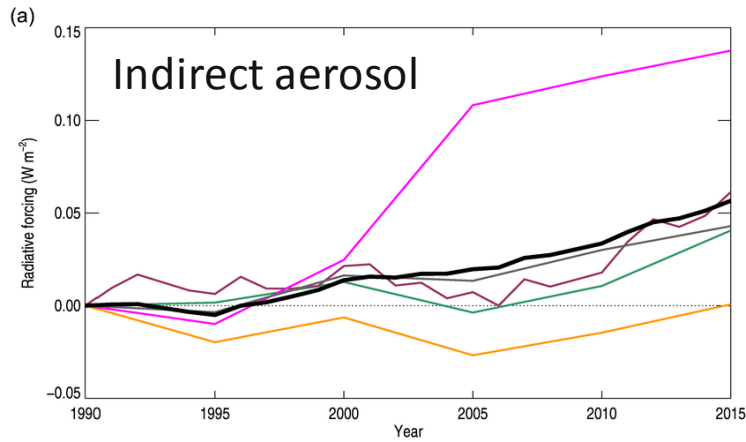
Sulphate



Black carbon



Indirect aerosol effect and total aerosol effect



Simulations

- Requirement: Use CMIP6 CEDS emissions
- Output: Every 10th year until 1980 / Every 5th year 1980-2015 (preference yearly)
- Historic& AMIP SST (GCMs) or reanalysis for specified years (CTMs)
- Diagnostics => Aerocom control
- (needs to be checked, AerChemMIP overlap, possibly less output 1980-2015
Split of FF,BF,BB, 3D extinction fields, cloud properties, mostly monthly mean output)