

Hold-ups to the process

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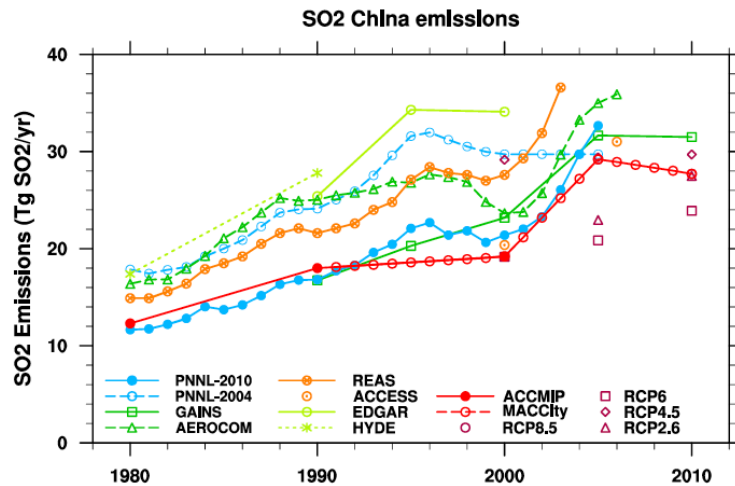
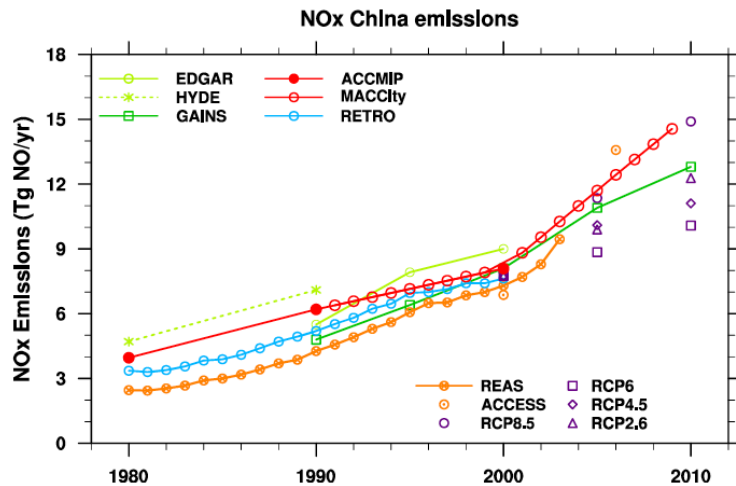
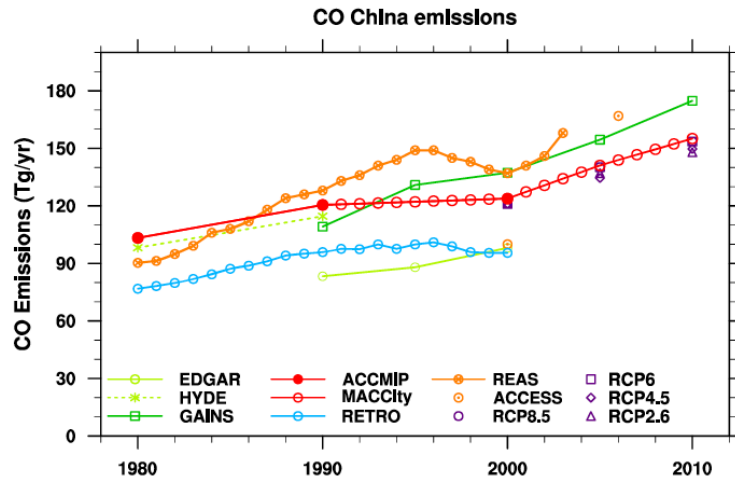
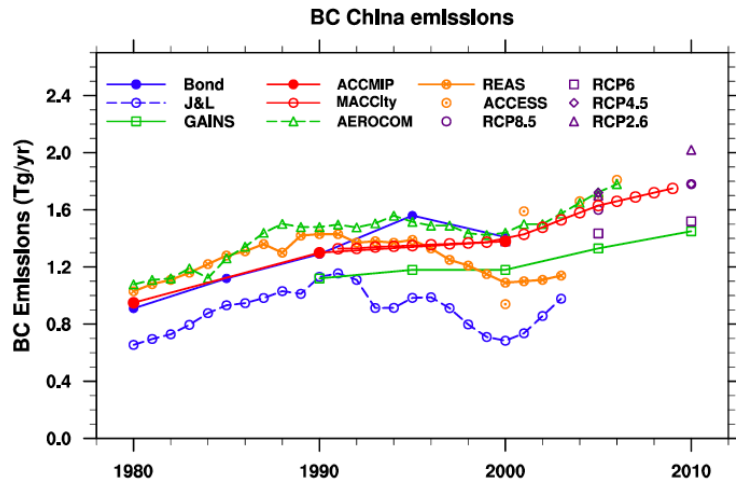
“the process” in CMIP5

1. Defined (by international group of experts) sectoral 0.5° anthropogenic and biomass burning non-CO₂ emissions for year 2000 and use as anchor point for historical (1850-2000) and future (RCPs) emissions
2. Generated emissions every decade + 2005 (SO₂ trend in 4.5). Required 1850-1890 extension and update of EDGAR-HYDE over 1950-2000
3. Provided VOC speciation (for chemistry simulations)
4. Provided concentration (ozone, aerosols) & nitrogen deposition fields

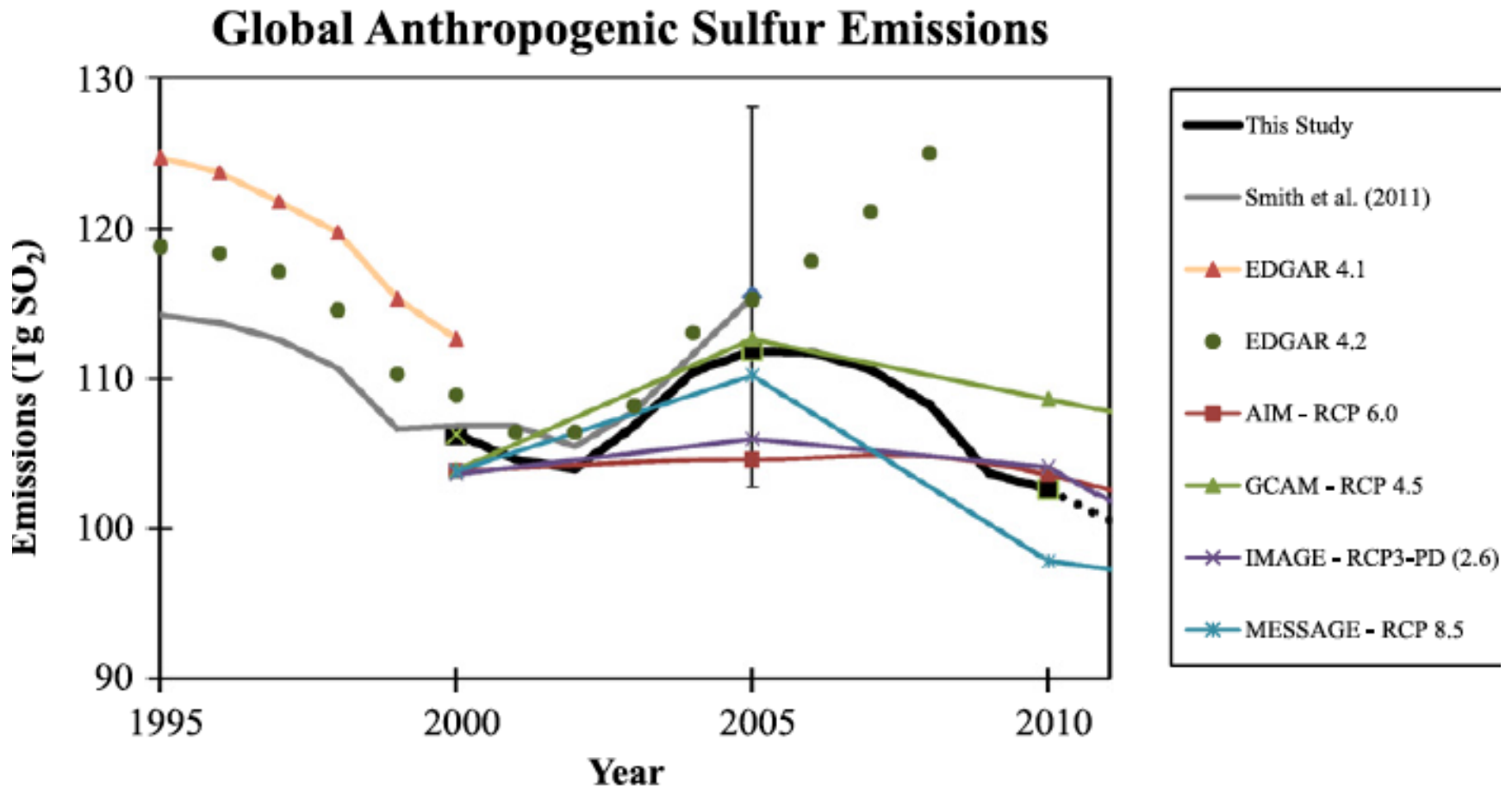
Differences/Issues encountered

- Different PI biomass burning estimate than previous studies
- Multiple data locations, especially in the early stages of the process (centralized IIASA web site crucial)
- Concentrations/deposition from single chemistry-climate model (using TAR SSTs)
- Constant (in time) gridding procedure
- Constant (in time) VOC speciation
- 1850 emissions/concentrations iterated (impacted PI control)

How do those emissions compare to other inventories?



Focus on SO₂ and recent hiatus



Klimont et al., 2013

Questions/Issues for CMIP6

- New harmonization period: 2010(ish) for emissions and 2015(ish) for LLGHG concentrations? GEIA-led workshop in Hamburg, November 2013
- What to do for near-term projections beyond harmonization time?
- Propagation of emission uncertainty?
- Who will redo the historical emissions?
- Do we need higher resolution (possible target: 0.1°)?
- Multi-ESM generation of concentrations (ozone, aerosols, CH_4 ?) & nitrogen deposition data. To 2200-2300? Is it still needed?
- Consistency with LU change & CO_2 for biomass burning?
- Gridding with consideration of projected population changes? Specific regulations (HTAP)?
- **Allow time for early testing and iterations!**