Emissions for AR5 (and possibly other efforts)

Jean-François Lamarque

CCSM meeting, June 18, 2008

Requirements

Variable	Units	Spatial scale	
		Concentrations	**Regional and sectoral emissions**
Greenhouse gases			
CO_2 (fossil fuel, industrial, land use change)	ppm and Pg/yr	Global average	Sum
CH_4	ppb and Tg/yr	Global average	Grid[1]
N_2O	ppb and Tg/yr	Global average	Sum
HFCs[2]	ppb and Tg/yr	Global average	Sum
PFCs[2]	ppb and Tg/yr	Global average	Sum
CFCs[2]	ppb and Tg/yr	Global average	Sum
SF_6	ppb and Tg/yr	Global average	Sum
Aerosols[2]			
Sulfur (SO_2)	Tg/yr	Generated by CM community[3]	Grid
Black Carbon (BC)	Tg/yr	Generated by CM community[3]	Grid
Organic Carbon (OC)	Tg/yr	Generated by CM community[3]	Grid
Chemically active gases			
CO	Tg/yr	Generated by CM community[3]	Grid
NO_x	Tg/yr	Generated by CM community[3]	Grid
VOCs[2]	Tg/yr	Generated by CM community[3]	Grid
NH_3	Tg/yr	Generated by CM community[3]	Grid

Grid is 0.5°

Process

- Workshop in May with representatives from global emission inventories and IAMs
- Define method (regional and sectoral analysis of existing inventories, including regional) to select (or build) inventory
- Harmonization (with past and future) emissions will be made with 2000 HTAP dataset

Expected outcome (October 2008)

- Gridded (0.5°) monthly emissions 1850-2300 (every 10 years) for anthropogenic (including ODSs, biomass burning and ships/aircraft) and natural emissions consistent with the scenarios
- VOC speciation will follow the RETRO procedure
- Much larger biomass burning emissions and black carbon emissions late 1800s-early 1900s
- Many of the natural emissions will be kept constant (not biogenic VOCs)

After the emissions are available

- Emissions will be centralized and distributed by GEIA
- Testing of emissions will table place in the latter part of the year to identify major issues
- Simulations will start in 09
- Additional emission datasets will become available from IAMs to study the sensitivity of chemical composition to the trajectory used in the scenario