

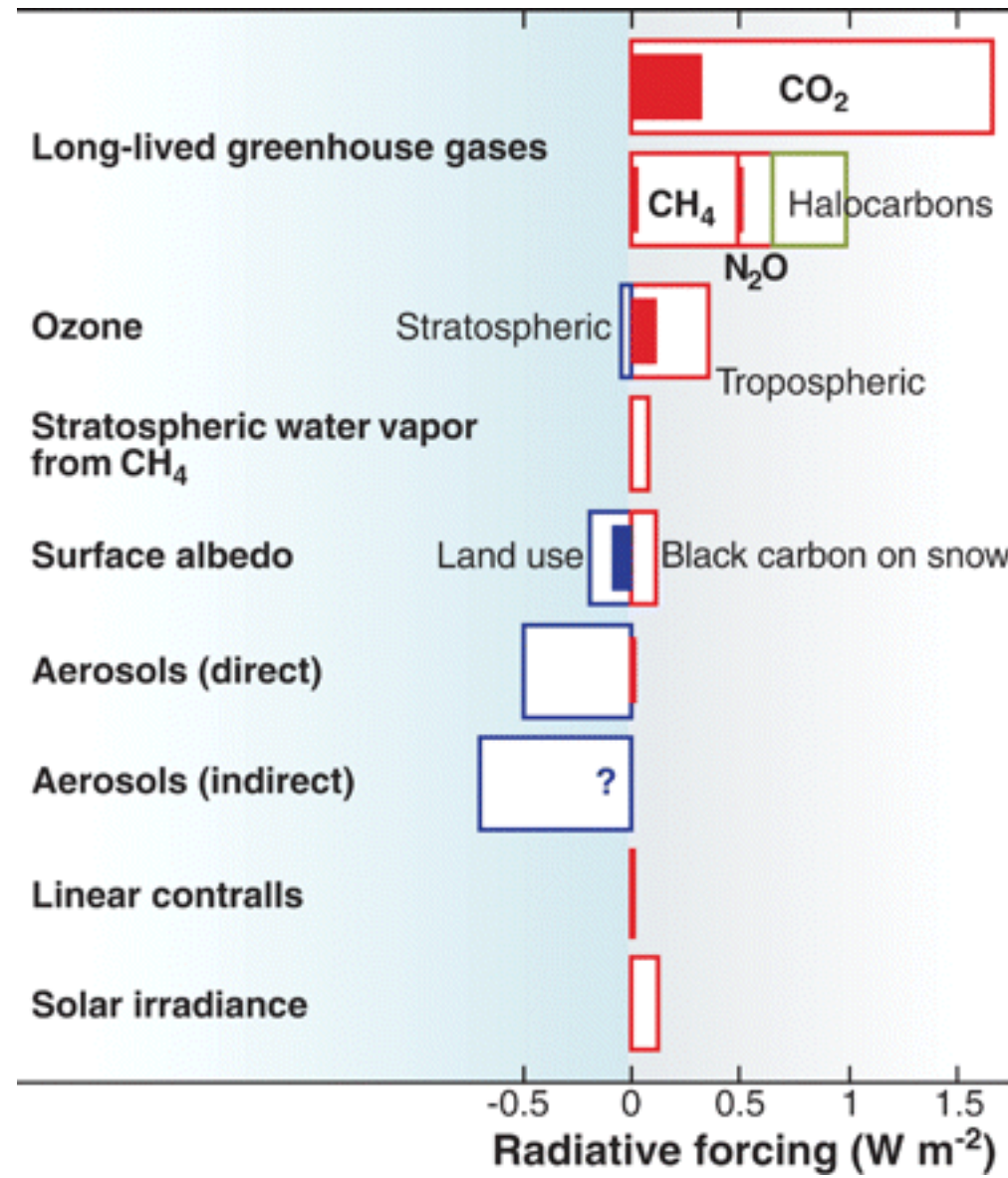
# RECCAP: Fire emissions



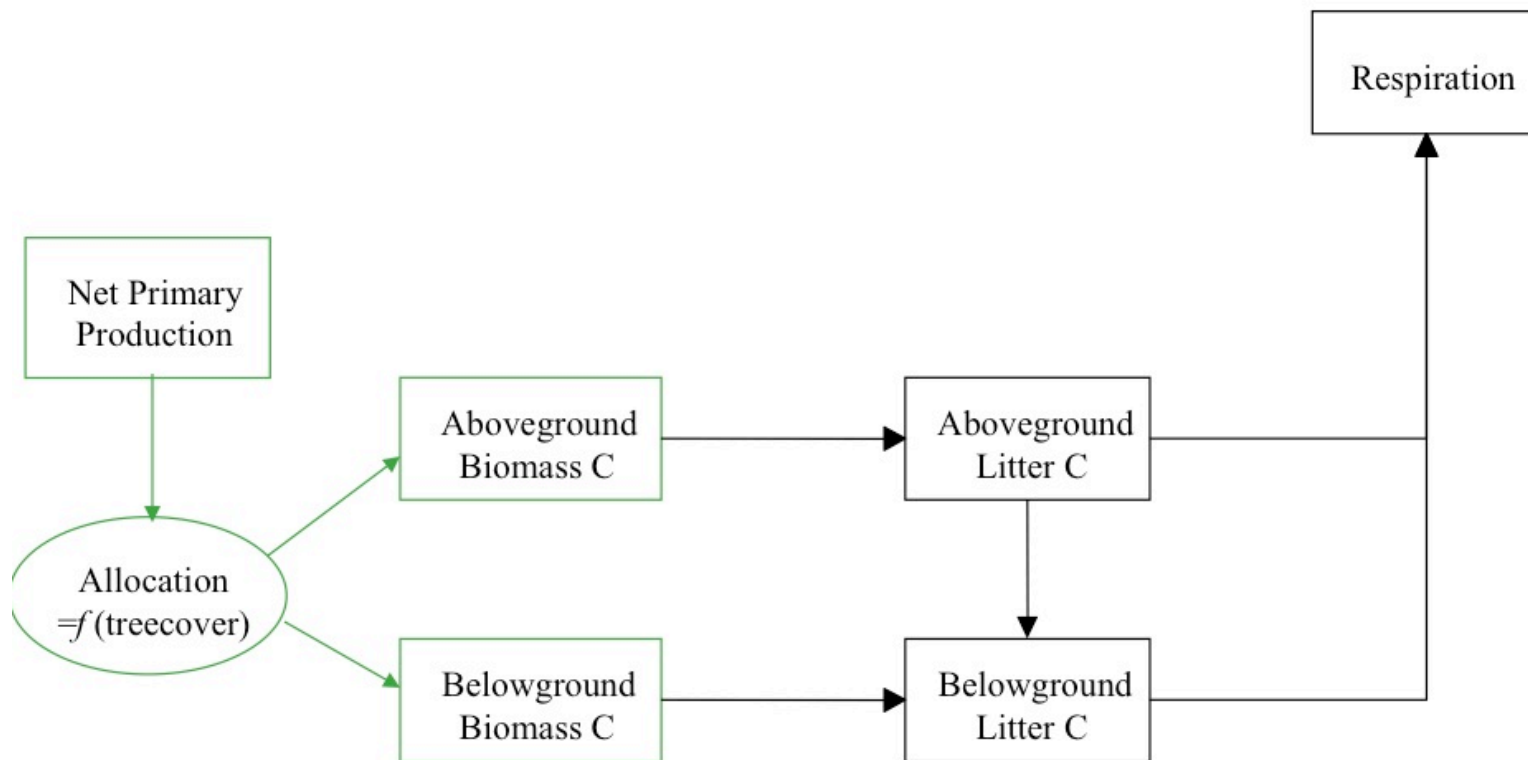
Guido van der Werf (VU University Amsterdam)

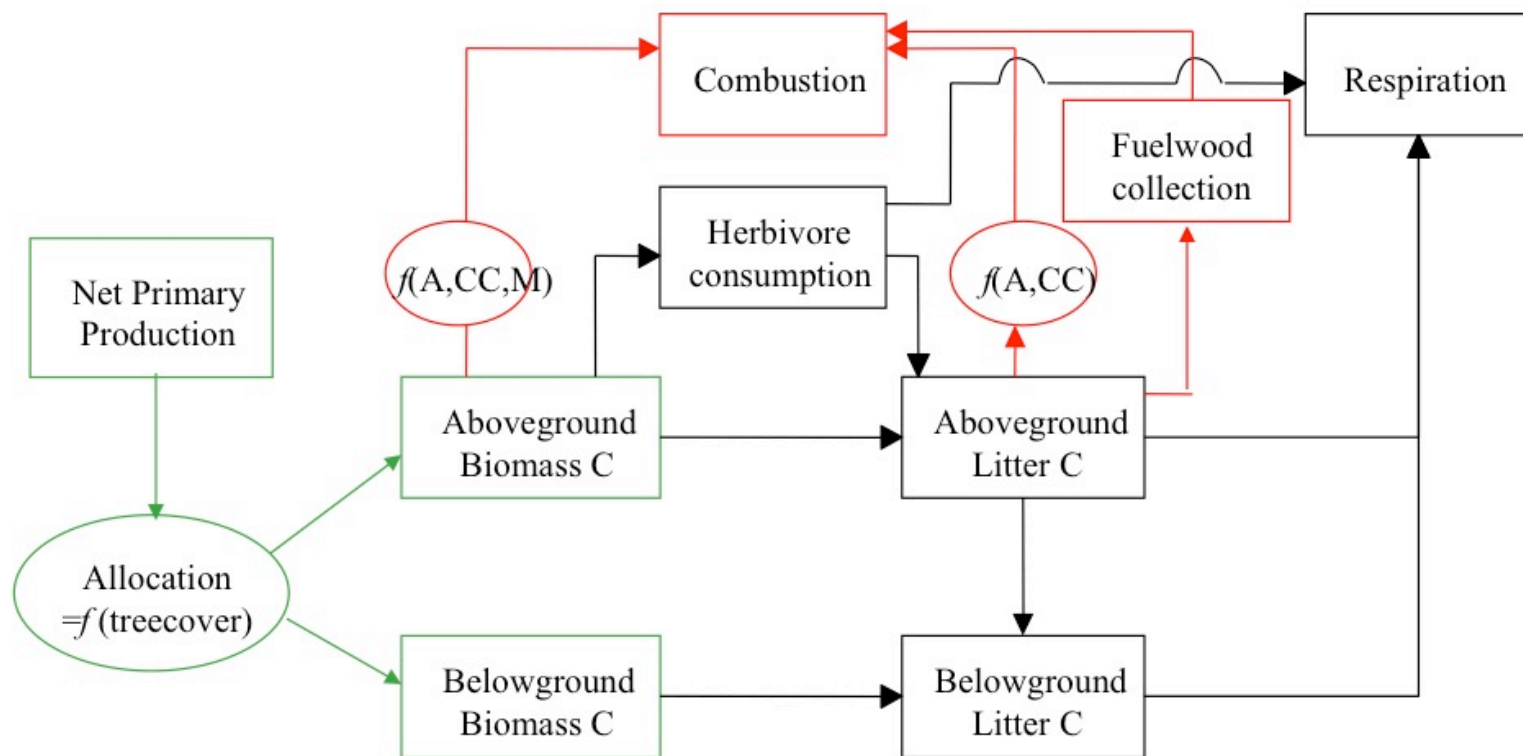
Jim Randerson (University of California, Irvine)

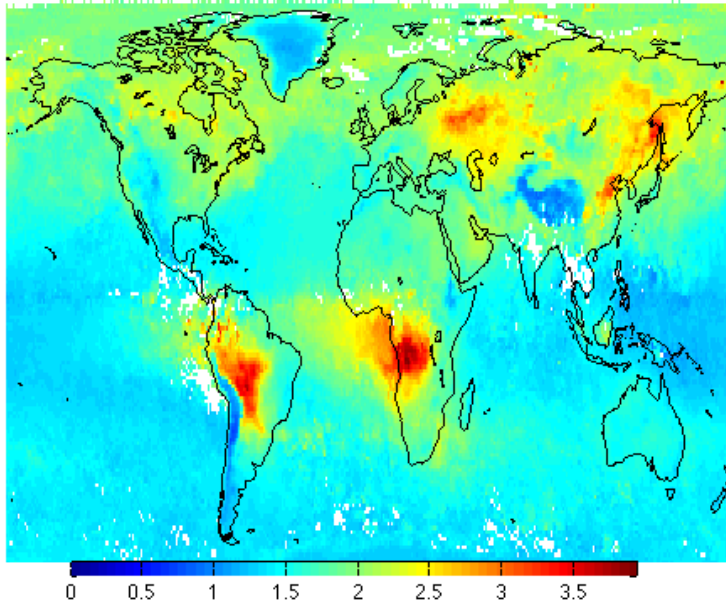
Louis Giglio (NASA GSFC / University of Maryland)



*Bowman et al. (2009) Science*

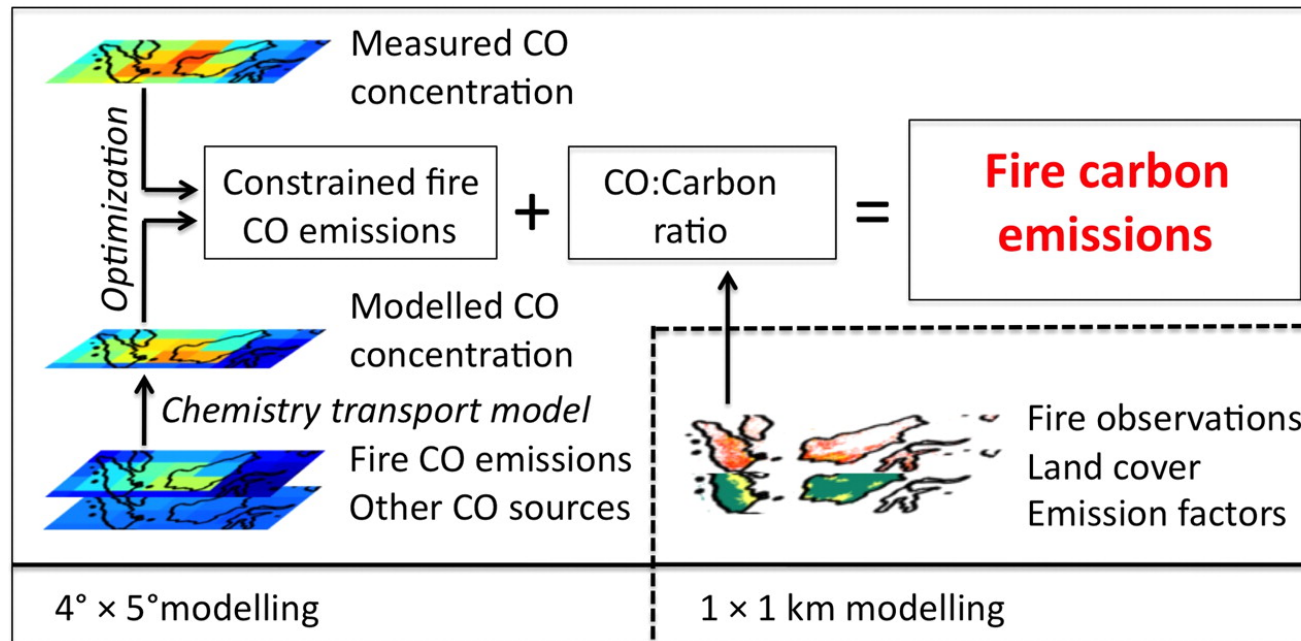




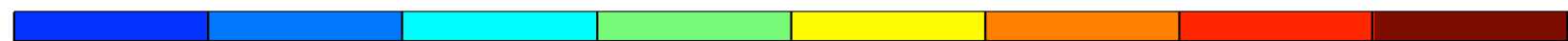
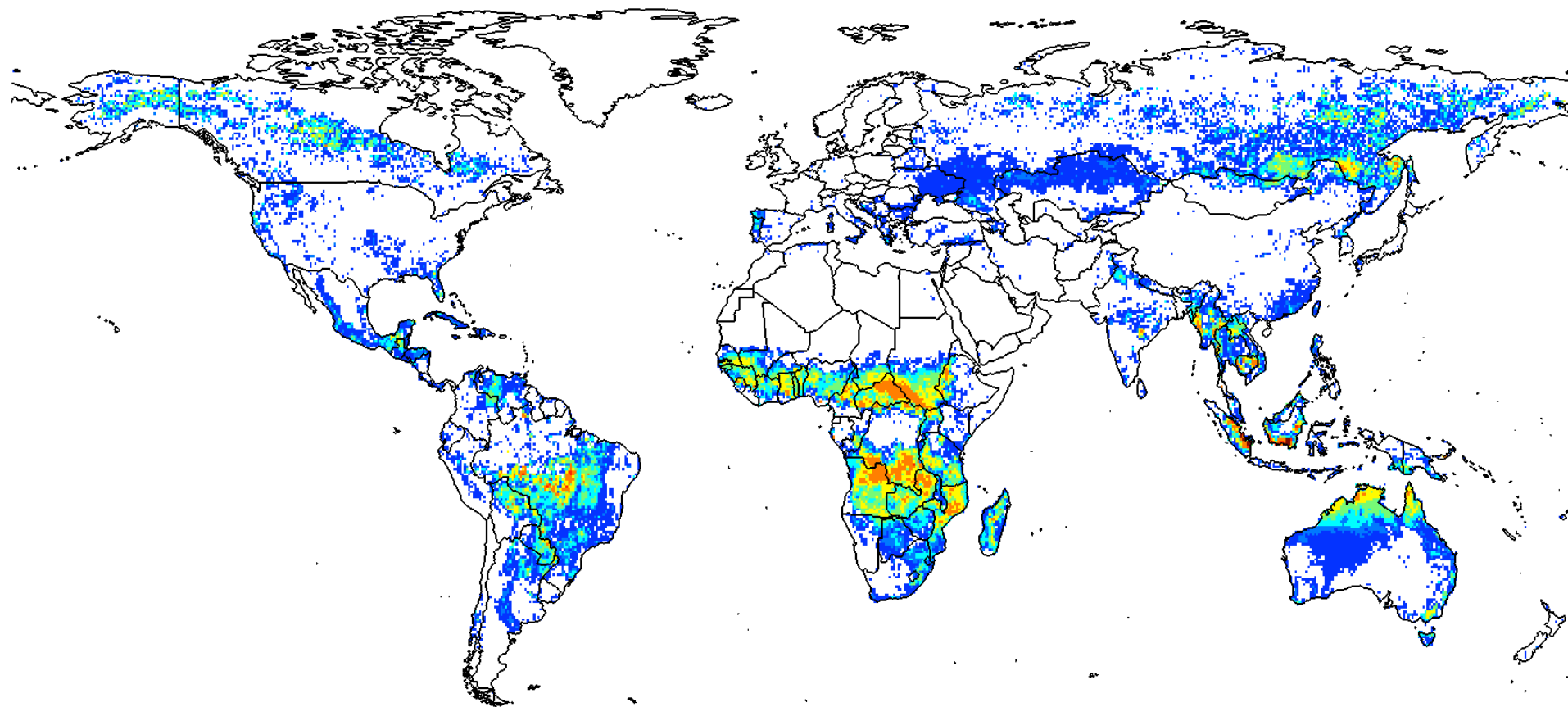


MOPITT carbon monoxide (CO),  
August 2010

<http://mopitt.eos.ucar.edu/Data/index.shtml>



van der Werf et al. (2004) Science; (2008) PNAS

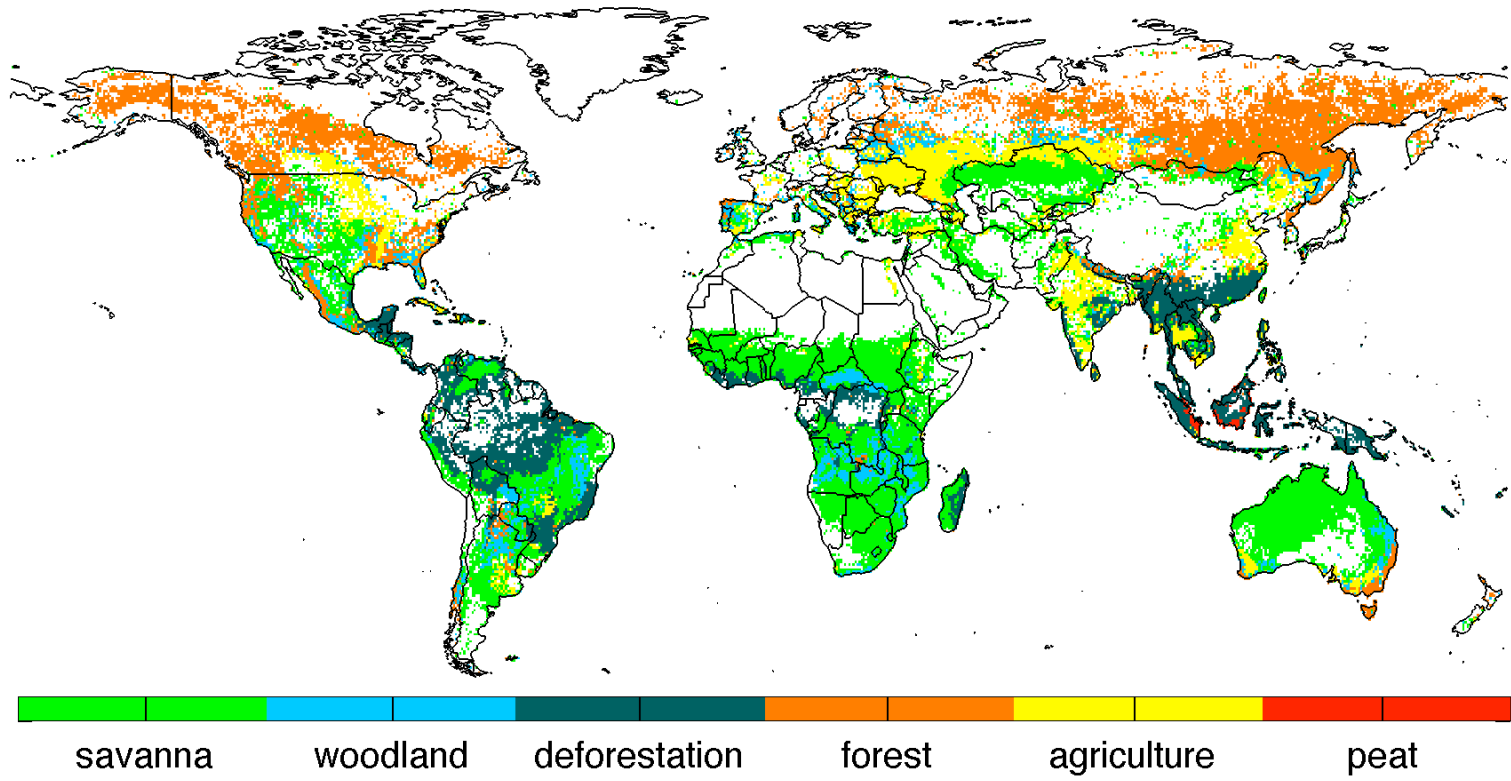
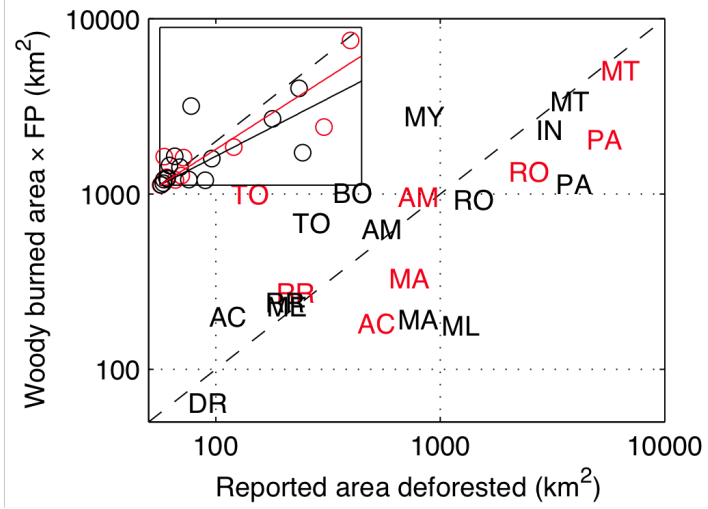


1      10      20      50      100      200      500      1000      2000

Mean annual fire carbon emissions, averaged over 1997 – 2009,  $\text{g C m}^{-2} \text{ year}^{-1}$

- Global Fire Emissions Database (GFED), now version 3
- Monthly timestep,  $0.5^\circ \times 0.5^\circ$  spatial resolution

*Van der Werf et al. (2010), Atmospheric Chemistry and Physics (Discussions)*



Region	NPP (Tg C yr <sup>-1</sup> )	Fire (Tg C yr <sup>-1</sup> )	Fire (‰)	Net (%)	IAV (cv,%)
Globe	57473	2014	35	24	19



Region	NPP (Tg C yr <sup>-1</sup> )	Fire (Tg C yr <sup>-1</sup> )	Fire (%)	Net (%)	IAV (cv,%)
Globe	57473	2014	35	24	19
Boreal North America (Canada + AK)	2809	54	19	0	70
Temperate North America (US, no AK)	3203	9	3	2	48
Central America	2196	20	9	51	66
Northern hemisphere South America	3159	22	7	39	66
Southern hemisphere South America	12021	271	23	52	51
Europe	2454	4	2	0	46
Middle East	490	2	4	0	27
Northern hemisphere Africa	5483	481	88	9	14
Southern Hemisphere Africa	6431	557	87	5	9
Boreal Asia	4046	128	32	0	81
Temperate Asia	3958	36	9	7	28
Southeast Asia	4039	103	26	66	47
Equatorial Asia (Indonesia, PNG)	4089	191	47	93	149
Australia & New Zealand	2202	135	61	2	23

- Gridded monthly fire emissions
  - 1997 – 2009, annual updates
  - Monthly time step, 0.5 degree
- Contribution of different sources
  - Savanna
  - Deforestation
  - Forest
  - Agriculture waste burning
  - Peat
- Carbon, CO<sub>2</sub>, CO, CH<sub>4</sub>, aerosols, etc.
- CASA NPP and *R<sub>h</sub>* monthly fields (neutral biosphere)
  
- All data publicly available, in ascii format, from <http://www.falw.vu/~gwerf/GFED/>
  
- Summary tables for 14 basisregions
- Send me a mask and I can extract required data!

Please address questions to [guido.van.der.werf@falw.vu.nl](mailto:guido.van.der.werf@falw.vu.nl)



