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Modeling the global radiative effect of brown carbon: a potentially larger heating source in the tropical free troposphere than black carbon

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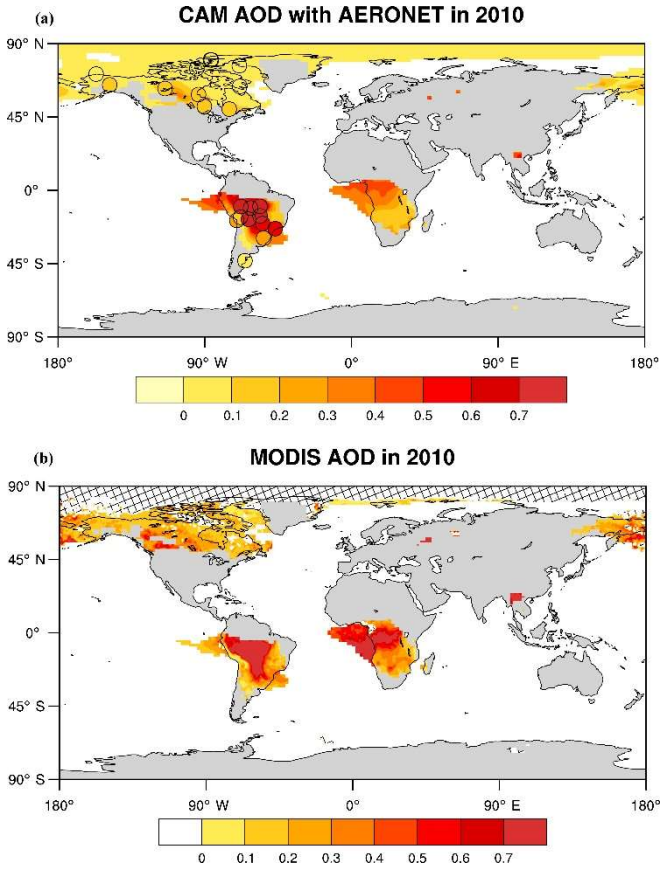

Figure S1. Simulated (a) and MODIS observed (b) 550 nm AOD data averaged for the months and regions in which fire emissions account for < 50% of the total AOD for 2010. AERONET measurements in the corresponding months and regions are shown as color-coded open circles in (a). MODIS data in the shaded Arctic region in (b) are not used due to the uncertainty of MODIS retrieval above bright surface (Remer et al., 2013).

Table S1a. RRTMG wavelength boundaries for shortwave

Band Index	Lower boundary Wavelength (nm)	Upper Boundary Wavelength (nm)
1	3077	3846
2	2500	3077
3	2150	2500
4	1942	2150
5	1626	1942
6	1299	1626
7	1242	1299
8	778	1242
9	625	778
10	442	625
11	345	442
12	263	345
13	200	263

Table S1b. RRTMG wavelength boundaries for longwave

Band Index	Lower boundary Wavelength (μm)	Upper Boundary Wavelength (μm)
1	28.57	1000
2	20	28.57
3	15.87	20
4	14.29	15.87
5	12.2	14.29
6	10.2	12.2
7	9.26	10.2
8	8.47	9.26
9	7.19	8.47
10	6.76	7.19
11	5.56	6.76
12	4.81	5.56
13	4.44	4.81
14	4.2	4.44
15	3.85	4.2
16	3.08	3.85

Reference

45 Remer, L., Mattoo, S., Levy, R., and Munchak, L.: MODIS 3 km aerosol product: algorithm and global perspective, Atmospheric Measurement Techniques, 6, 1829, 2013.