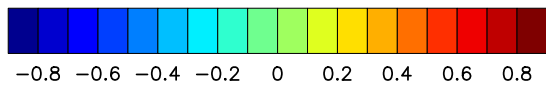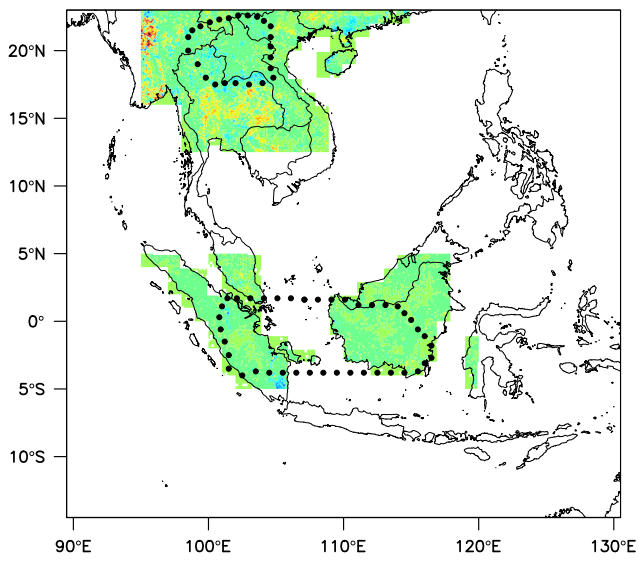Atmospheric
Chemistry
and Physics

Supplement of

Decadal-scale relationship between measurements of aerosols, land-use change, and fire over Southeast Asia
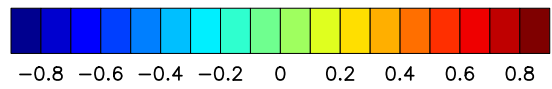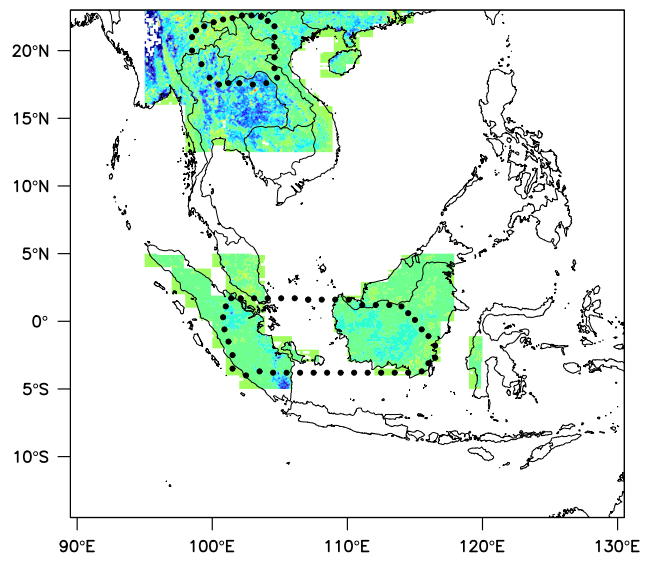
Jason Blake Cohen et al.

Correspondence to: Jason Blake Cohen (jasonbc@alum.mit.edu)

Supplement Figure S1. Regression coefficients associated to LAI for REG1 (a) and REG2 (b).
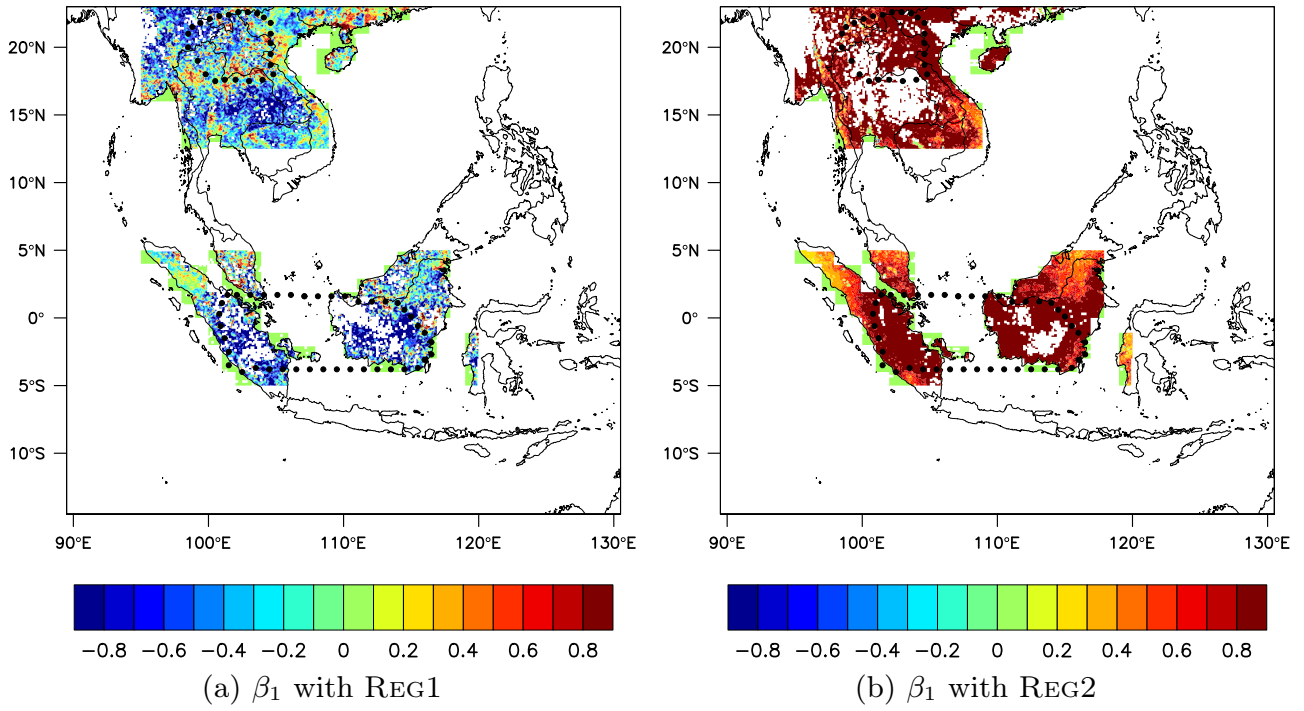

(a) α_1 with REG1

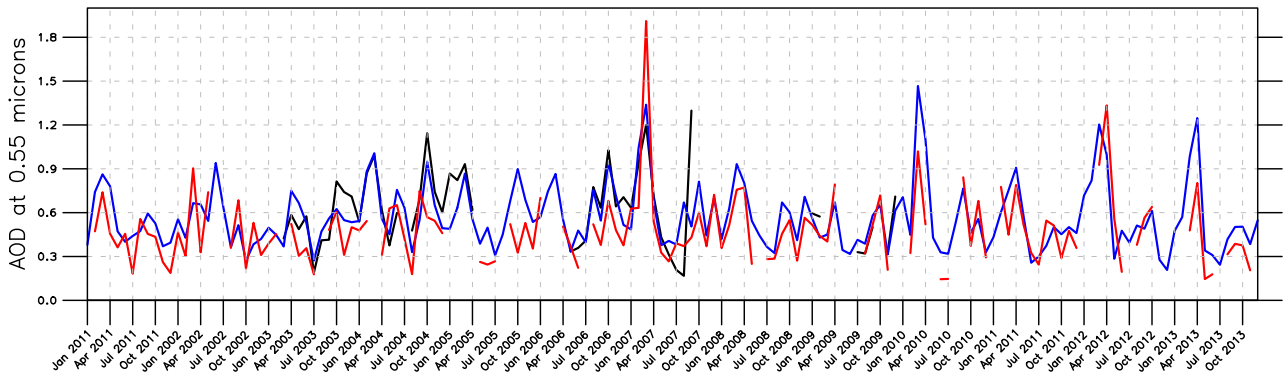(b) α_1 with REG2

Supplement Figure S2. Regression coefficients associated to NDVI for REG1 (a) and REG2 (b).

(a) β_1 with REG1

(b) β_1 with REG2
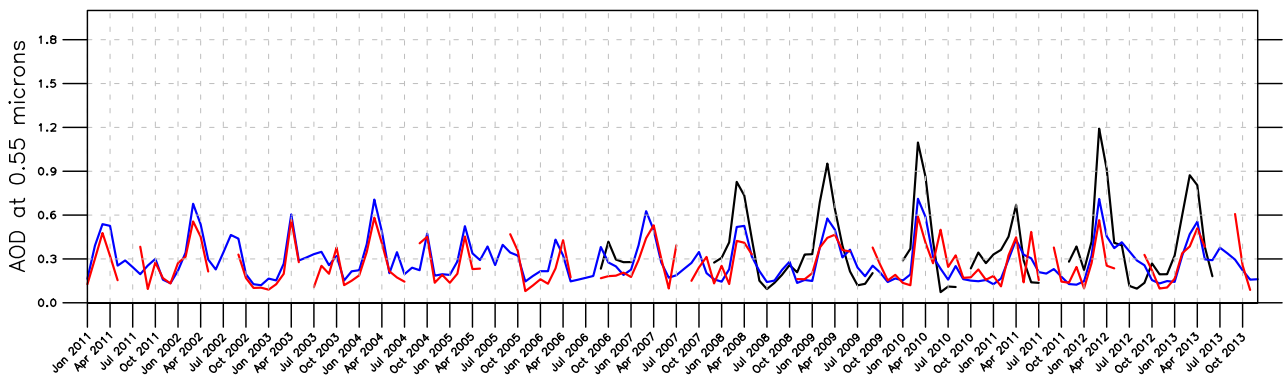
Supplement Figure S3. Temporal series of AERONET AOD (black), AODNorth (blue), and AOD from MISR (red) at four stations of the Northern region (2001-2013).

(a) Bac Giang

(b) Chiang Mai

(c) Mukdahan

(d) Nghia Do

Supplement Figure S4. Temporal series of AERONET AOD (black), AODNorth (blue), and AOD from MISR (red) at three stations of the Northern region (2001-2013).
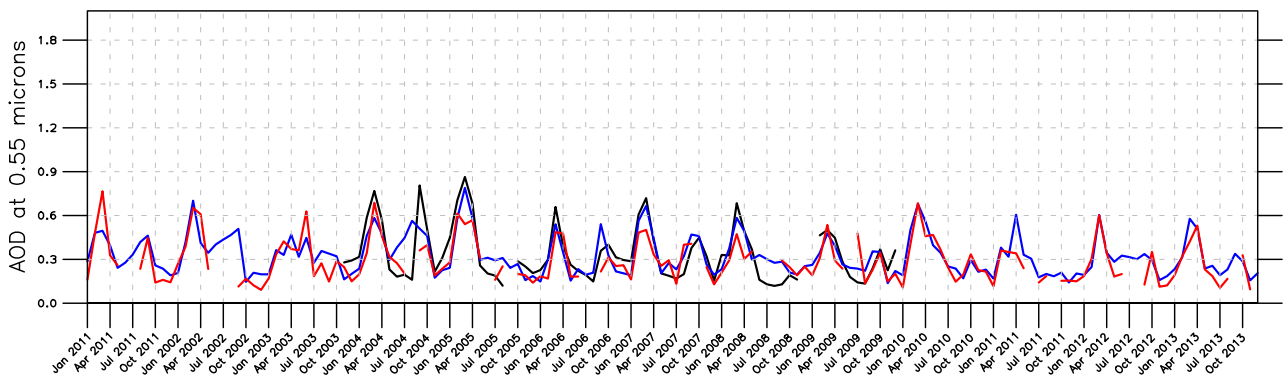

(a) Pimai

(b) Ubon Ratchathani
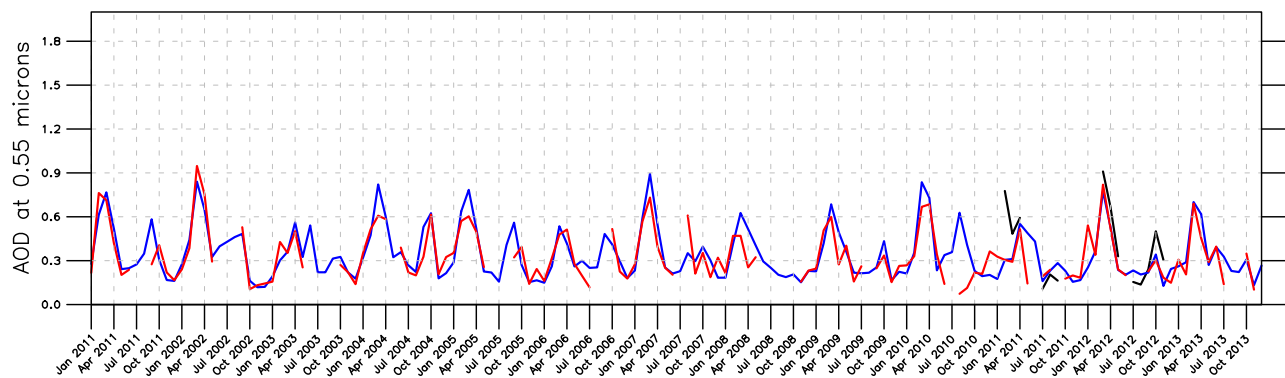
(c) Vientiane

Supplement Figure S5. Temporal series of AERONET AOD (black), AODNorth (blue), and AOD from MISR (red) at two stations of the Southern region (2001-2013).
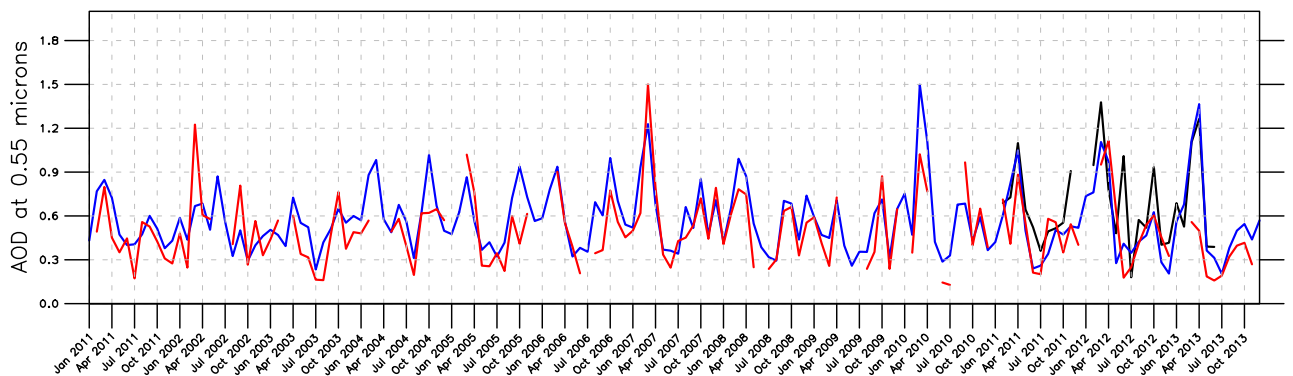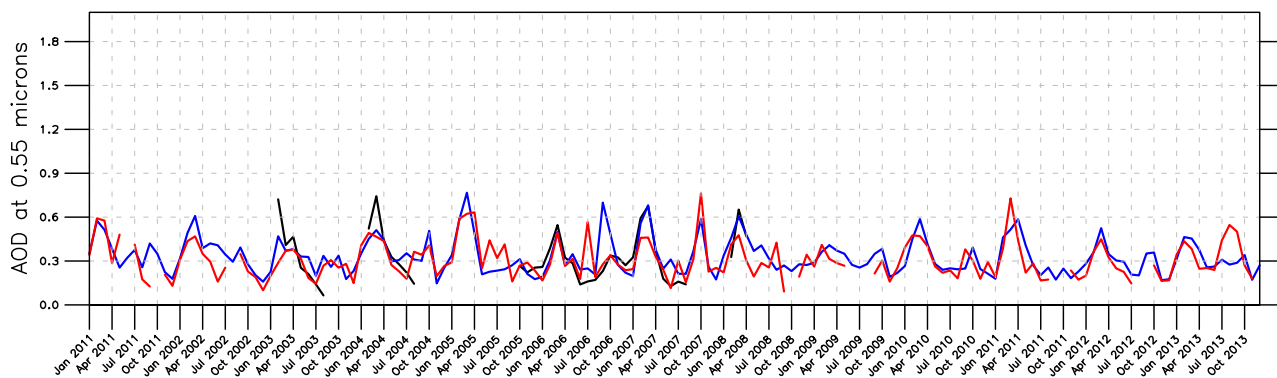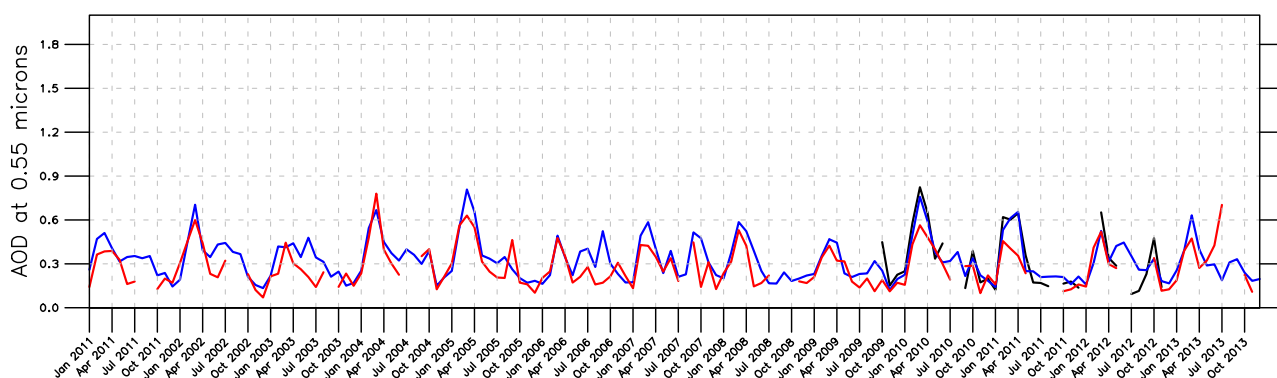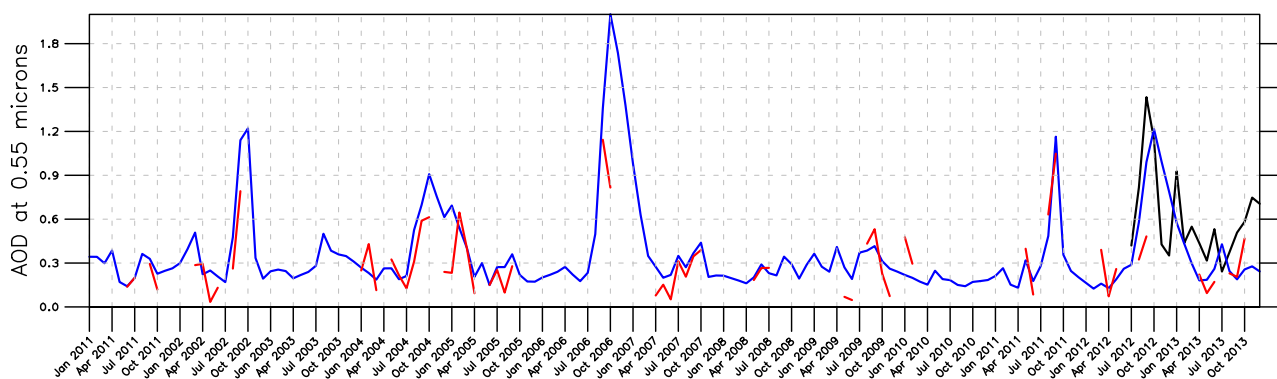

(a) Jambi
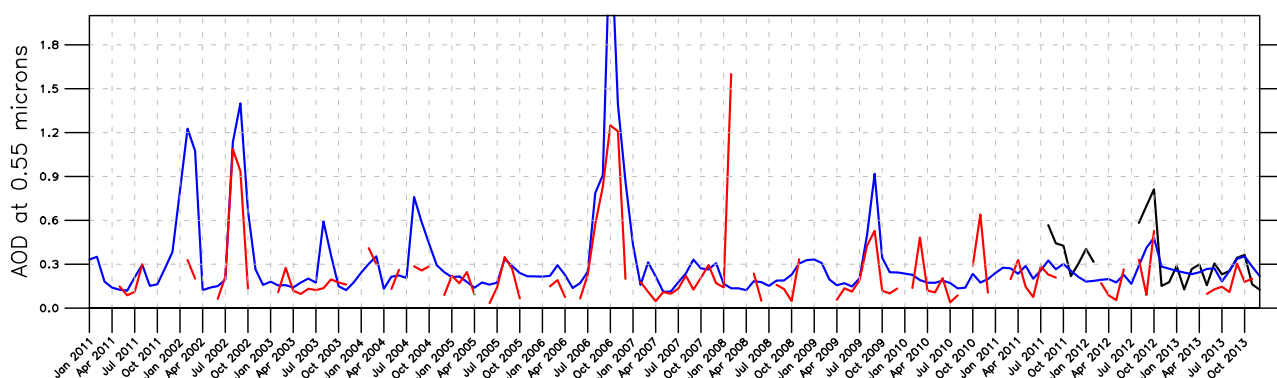
(b) Kuching
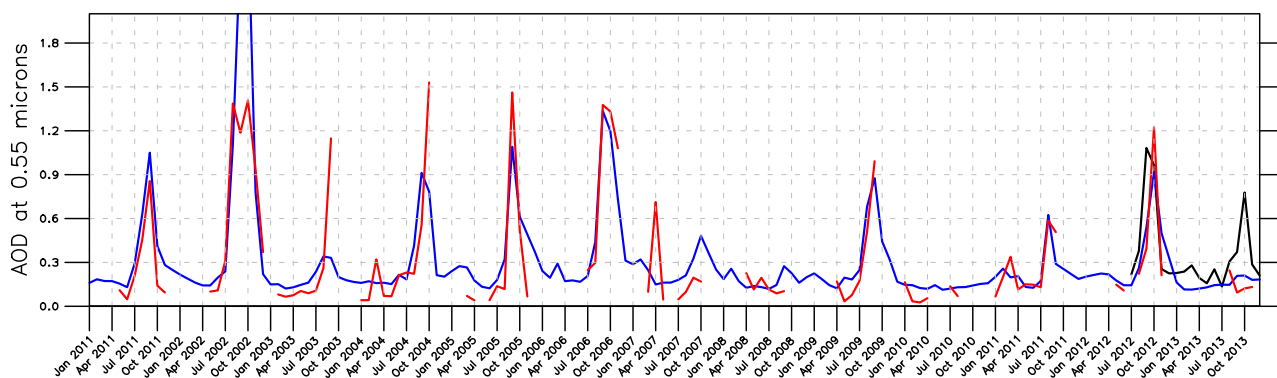
(c) Palangkaraya
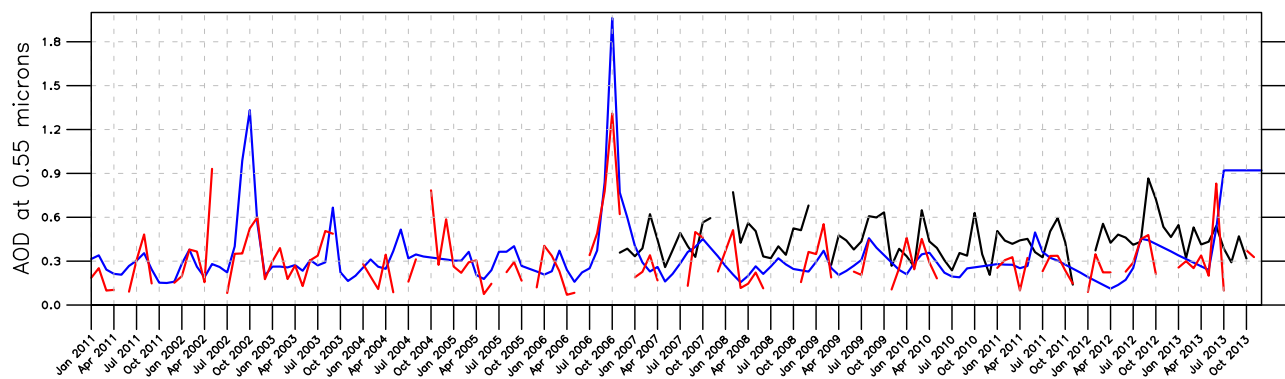
(d) Singapore

Supplement Figure S6. Geospatial aggregate of all fires in January 2013 over Northern Southeast Asia and Southern Southeast Asia respectively.
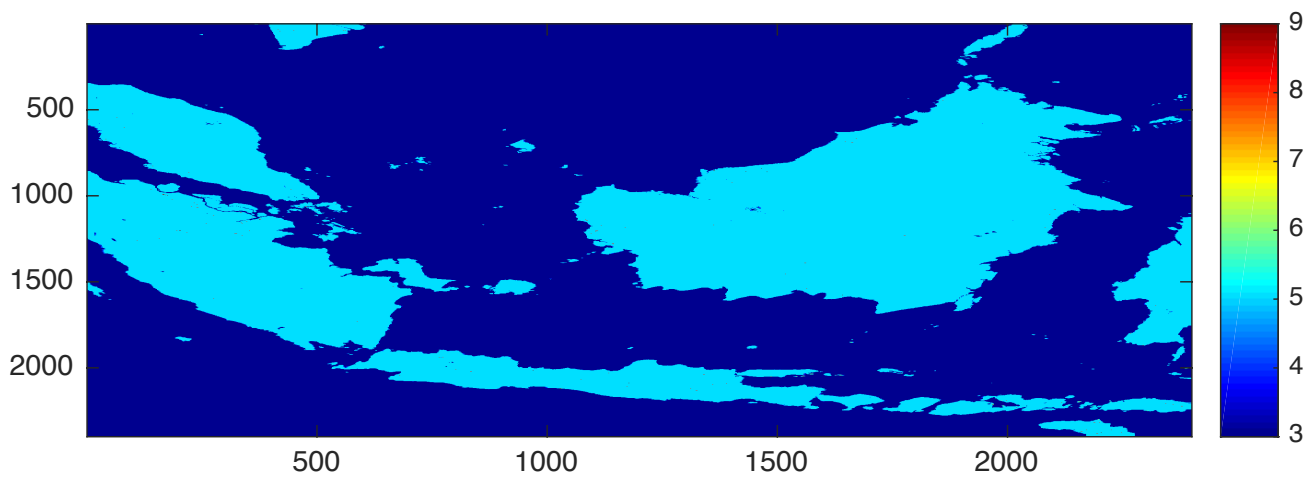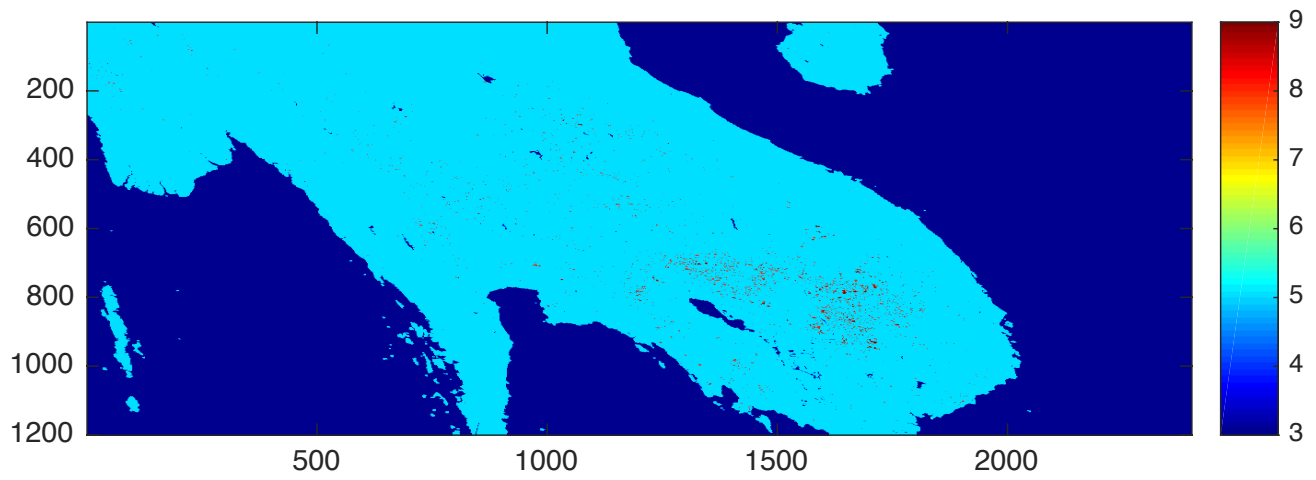
Supplement Figure S7. Geospatial aggregate of all fires in September 2013 over Northern Southeast Asia and Southern Southeast Asia respectively.

Supplement Table S1. Complementary information on AERONET stations: geographical location, data availability, average (μ) and standard deviation (σ) values for AOD, LAI, and NDVI from MODIS, and environment description.

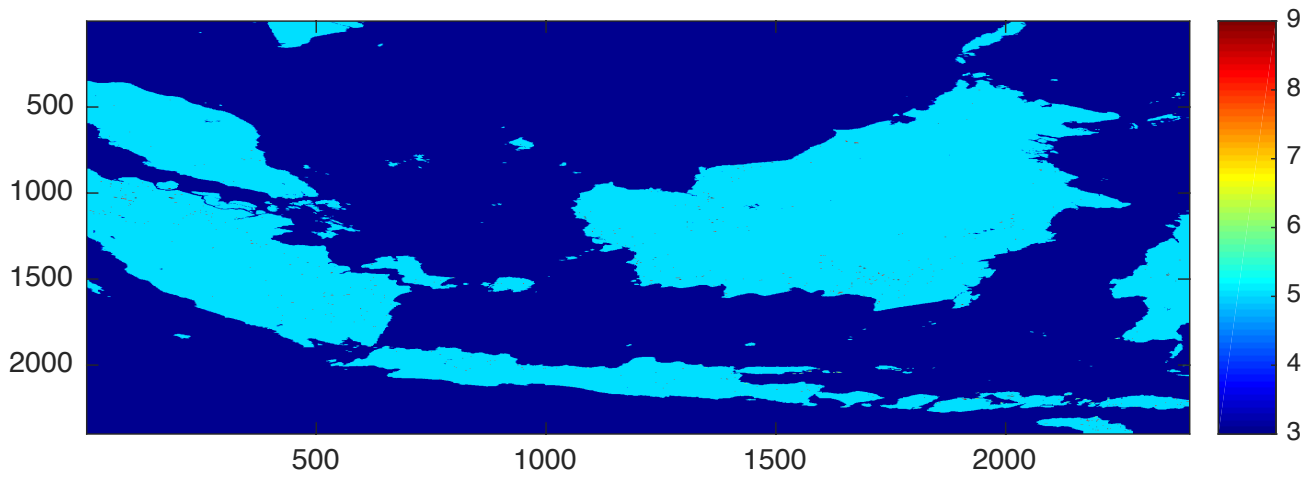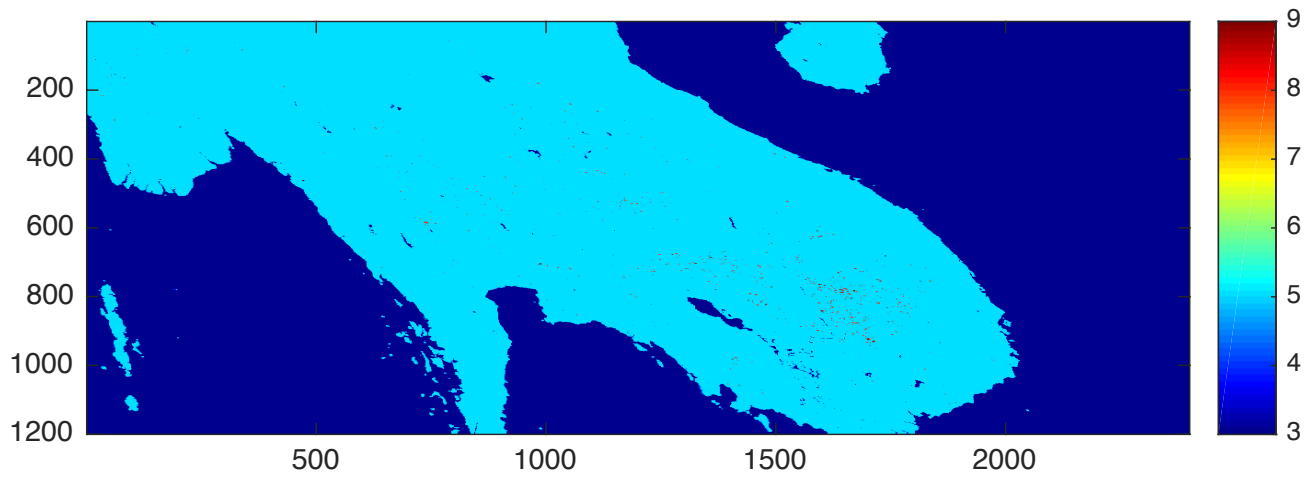| Stations	Availability	AOD	LAI	NDVI	Other information
Bac Giang, VN (North)	2003-2009	m=0.57, r=0.28	m=0.68, r=0.43	m=0.45, r=0.15	Rural, surrounded by crops and industrial parks
Chiang Mai, TH (North)	2006-2013	m=0.29, r=0.17	m=2.19, r=0.77	m=0.61, r=0.07	Urban, surrounded by agricultural fields
Mukdahan, TH (North)	2003-2009	m=0.32, r=0.16	m=1.13, r=0.37	m=0.55, r=0.09	Rural, surrounded by agricultural fields
Nghia Do, VN (North)	2010-2013	m=0.57, r=0.29	m=0.92, r=0.59	m=0.42, r=0.15	Urban
Pimai, TH (North)	2003-2007	m=0.33, r=0.17	m=0.72, r=0.27	m=0.49, r=0.1	Rural, surrounded by agricultural fields
Ubon Ratchathani, Th (North)	2009-2012	m=0.33, r=0.17	m=1.03, r=0.33	m=0.52, r=0.07	Semi-urban, surrounded by agricultural fields
Vientiane, LA (North)	2011-2012	m=0.35, r=0.21	m=2.03, r=0.45	m=0.55, r=0.08	Semi-urban, surrounded by agricultural fields
Jambi, ID (South)	2012-2013	m=0.36, r=0.31	m=2.72, r=1.48	m=0.66, r=0.11	Rural, surrounded by jungle
Kuching, MY (South)	2011-2013	m=0.31, r=0.32	m=3.75, r=1.65	m=0.7, r=0.1	Rural, surrounded by jungle
Palangkaraya, ID (South)	2012-2013	m=0.3, r=0.37	m=3.21, r=1.43	m=0.69, r=0.11	Rural, surrounded by jungle
Singapore, SG (South)	2006-2013	m=0.34, r=0.25	m=2.38, r=1.29	m=0.42, r=0.06	Urban

Supplement Table S2. Error and correlation between the reconstructed AOD versus AERONET and MISR on a monthly basis over the Northern region for the whole 2001-2013 period. Overlapped periods between AODNorth, AODSouth, and AERONET, on one hand, and between AODNorth, AODSouth, and MISR on the other hand, are stated in parenthesis.

Stations	AERONET	MISR
	Err/Corr(%)	Err/Corr(%)
Chiang Mai (65/156) – (129/156)	-0.09/82	0.02/77
Bac Giang (49/156) – (127/156)	-0.03/73	0.1/72
Mukdahan (72/156) – (135/156)	0.0/78	0.04/79
Nghia Do (28/156) – (133/156)	-0.12/83	0.07/71
Pimai (41/156) – (145/156)	0.02/70	0.03/66
Ubon Ratchathani (32/156) – (136/156)	0.0/90	0.05/74
Vientiane (15/156) – (127/156)	-0.01/76	0.02/81
Jambi (18/156) – (79/156)	-0.14/57	0.06/69
Kuching (25/156) – (114/156)	-0.06/71	0.1/64
Palangkaraya (18/156) – (102/156)	-0.11/73	0.04/79
Singapore (78/156) – (122/156)	-0.11/-2*	0.04/57

∗   not statistically significant at the p = 0.05 level.