

Support information:

**Speciated atmospheric mercury at Waliguan Global Atmospheric Watch station
in the northeastern Tibetan Plateau: implication of dust related sources for
particulate bound mercury**

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Table S1: The monthly means of atmospheric mercury species and meteorological parameters at WLG.

Month	AAI	GEM (ng m⁻³)	GOM (pg m⁻³)	PBM (pg m⁻³)	AT(°C)	RH(%)	WS (m s⁻¹)	RF (mm)
January	0.3	1.89	24.8	133.7	-10.8	18.0	3.9	
February	0.4	2.27	18.1	162.0	-7.1	22.4	5.1	3.0
March	0.7	2.36	12.2	156.6	-1.8	34.9	4.6	
April	0.7	2.44	29.3	54.3	0.3	35.3	5.3	1.7
May	0.1	1.77	10.6	14.9	2.2	69.2	4.9	26.7
June	-0.1	1.78	5.7	24.4	6.1	56.0	4.8	35.8
July	-0.4	2.08	2.5	18.6	7.7	71.9	4.4	163.9
August	-0.4	1.86	5.3	20.5	8.1	57.9	4.6	78.8
September	-0.1	2.18	9.1	36.4	4.0	52.3	4.2	41.1
October	0.1	1.37	7.4	21.9	-1.8	30.7	4.3	7.3
November	0.5	1.33	6.1	35.7	-7.5	18.9	6.1	1.6
December	0.5	1.41	21.6	71.4	-11.1	17.6	5.6	
Warm seasons	-0.14	1.95	6.8	22.8	4.40	56.33	4.54	58.94
Cold seasons	0.51	1.84	18.7	102.3	-6.32	24.51	5.09	2.08

Table S2: The statistics of TSP Hg/TSP ($\mu\text{g g}^{-1}$) and the estimates of Hg associated with dust emission from global and China.

Site	TSP Hg/TSP ($\mu\text{g g}^{-1}$)	Dust emission flux (Tg yr^{-1})	Amount of Hg associated with dust (Mg yr^{-1})	References
Yulin	0.51			(Yu et al., 2019)
Duolun	0.48			
Hetian	0.35			
Tazhong	0.14			
Tazhong	0.13			
kashgar	0.84			(Huang et al., 2020)
Minfeng	0.13			
Ruoqiang	0.21			
Taxkorgan	0.20			
Mean	0.33			
Global		1836±903	606±298	(Engelstaedter et al., 2006)
China		242±120	80±40	(Laurent et al., 2006)

Fig. S1: Diurnal variations of GEM, GOM and PBM with AT, RH and WS at WLG.

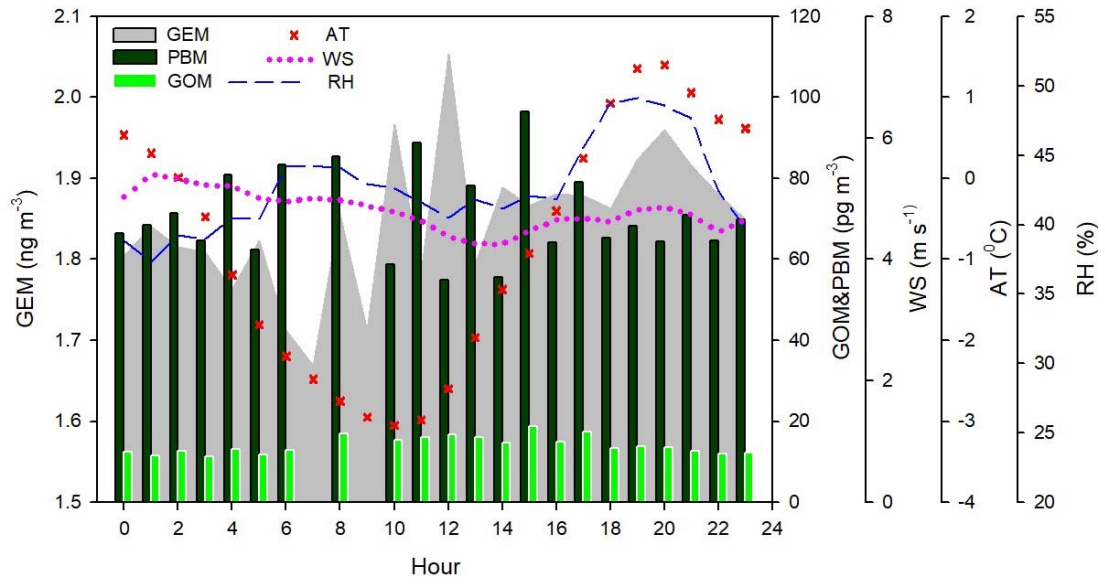
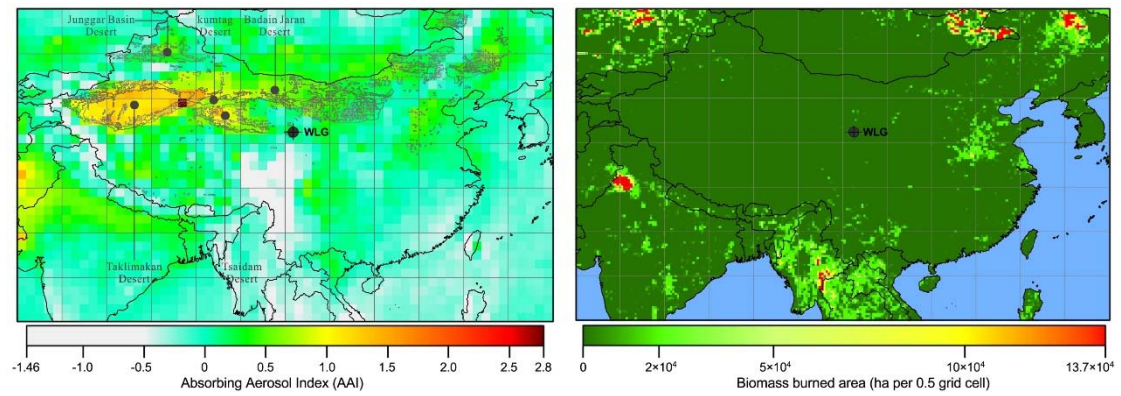


Fig. S2: The distribution of Absorbing Aerosol Index (AAI) and Biomass burned area.



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