

1 **Supplement of “Long-term monitoring of atmospheric TGM at a**
2 **remote high altitude site (Nam Co, 4730 m a.s.l.) in the inland**
3 **Tibetan Plateau”**

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Table S1. Atmospheric Hg concentrations at ground-based stations in China

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| No. | Sites | TGM/GEM (ng m ⁻³) | Type | Reference |
|-----|-----------------|-------------------------------|--------|---|
| 1 | Nam Co Station | 1.33 | Remote | this study |
| 2 | Wuzhishan | 1.58 | Remote | Liu et al., 2016 |
| 3 | Mt. Changbai | 1.60 | Remote | Fu et al., 2012b. |
| 4 | Mt. Waliguan | 1.98 | Remote | Fu et al., 2012a. |
| 5 | Mt. Ailao | 2.09 | Remote | Fu et al. 2015. |
| 6 | Chengshantou | 2.31 | Remote | Ci et al., 2011. |
| 7 | Chongming | 2.50 | Remote | Dou et al., 2013. |
| 8 | Shangri-La | 2.55 | Remote | Zhang et al., 2015. |
| 9 | Mt. Leigong | 2.80 | Remote | Fu et al., 2010. |
| 10 | Wangqingsha | 2.94 | Remote | Li et al., 2011. |
| 11 | Miyun | 3.22 | Remote | Zhang et al., 2013. |
| 12 | Mt. Damei | 3.30 | Remote | Yu et al., 2015. |
| 13 | Mt. Gongga | 3.98 | Remote | Fu et al., 2008a; Fu, et al., 2008b. |
| 14 | Mt. Dinghu | 5.07 | Remote | Chen et al., 2013. |
| ※ | EvK2NCR Pyramid | 1.20 | Remote | Gratz et al., 2013. |
| 15 | Shanghai | 2.70 | Urban | Friedli et al., 2011. |
| 16 | Qiangdao | 2.80 | Urban | Zhang et al., 2014. |
| 17 | Xiamen | 3.50 | Urban | Xu et al., 2015. |
| 18 | Ningbo | 3.79 | Urban | Nguyen et al., 2011. |
| 19 | Guangzhou | 4.60 | Urban | Chen et al., 2013. |
| 20 | Jiaying | 5.40 | Urban | Wang et al., 2007. |
| 21 | Chongqing | 6.74 | Urban | Yang et al., 2009. |
| 22 | Nanjing | 7.90 | Urban | Zhu et al., 2012 |
| 23 | Guiyang | 8.40; 9.72; 10.20 | Urban | Feng et al., 2004; Fu et al., 2015; Fu et al, 2011. |
| 24 | Beijing | 10.40 | Urban | Liu et al., 2002. |
| 25 | Wuhan | 14.80 | Urban | Xiang et al., 2008. |
| 26 | Changchun | 18.40 | Urban | Fang et al., 2004. |
| 27 | Lanzhou | 28.60 | Urban | Su et al., 2007. |

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Table S2. The statistics of TGM and meteorological variables based on HYSPLIT clusters during the measurement period at the Nam Co Station.

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| Statistical parameter | Cluster 1 | Cluster 2 | Cluster 3 | Cluster 4 | Cluster 5 | Cluster 6 |
|---------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Ratio (%) | 15.11 | 17.28 | 29.33 | 4.70 | 11.76 | 21.83 |
| Number | 1205 | 1371 | 2327 | 377 | 940 | 1732 |
| TGM (ng m ⁻³) | 1.25 | 1.21 | 1.48 | 1.12 | 1.35 | 1.26 |
| Ozone (ppb) | 50.76 | 47.6 | 46.95 | 42.89 | 51.3 | 46.9 |
| Temperature (°C) | 5 | 3.47 | 8.71 | 2.72 | 6.72 | 5.83 |
| Relative humidity (%) | 46.46 | 45.47 | 63.19 | 38.72 | 56.53 | 48.24 |
| Wind speed (m s ⁻¹) | 3.19 | 3.53 | 3.13 | 3.31 | 2.64 | 3.49 |
| PBLH (m) | 1083.18 | 1188.49 | 839.54 | 1000.02 | 904.61 | 1000.74 |
| SWD | 552.3 | 542.09 | 437.74 | 547.37 | 459.52 | 487.25 |

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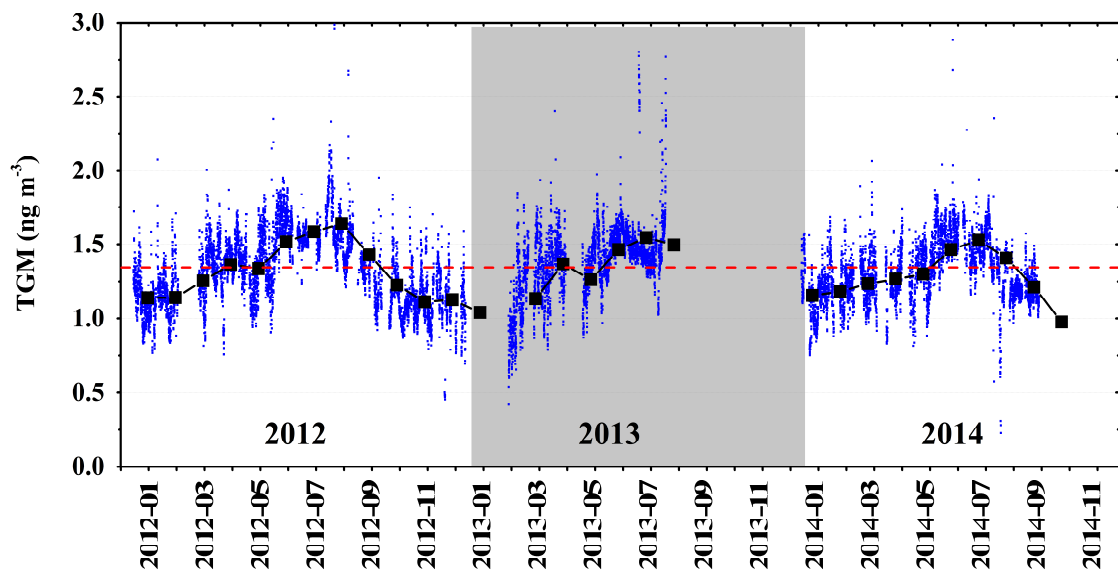
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62 Fig. S1. Variation of TGM at the Nam Co Station from January 2012 to October 2014. Hourly mean concentrations of TGM are in

63 blue dots; monthly mean concentrations of TGM are in black squares; average concentrations of TGM (1.33 ng m⁻³) during whole

64 measurement period in red dash line.

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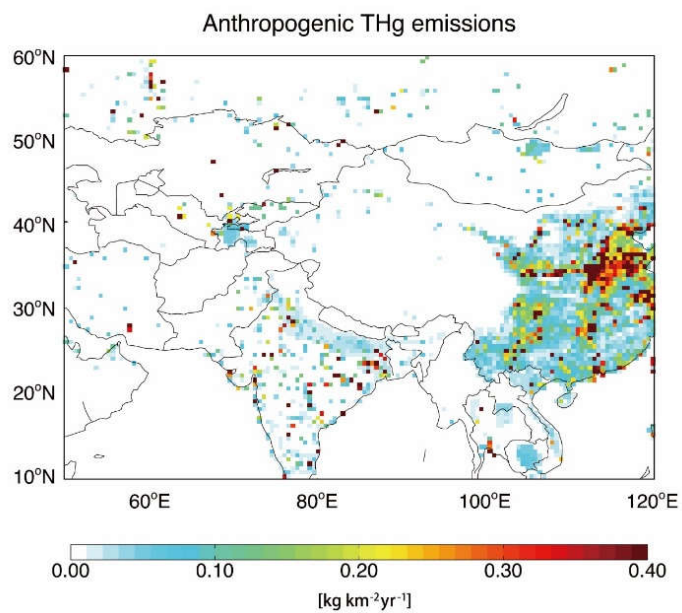
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Fig. S2. Annual anthropogenic mercury emission inventory in China and surrounding countries, see section 2.5 for data sources.

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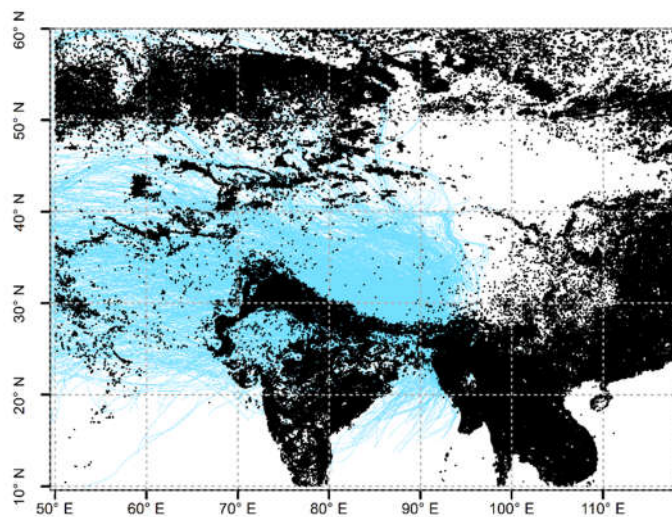
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107 **Fig. S3. The distribution of MODIS fire hot spots (black dots) and HYSPLIT backward trajectories (blue lines) during**
108 **measurement at the Nam Co Station.**
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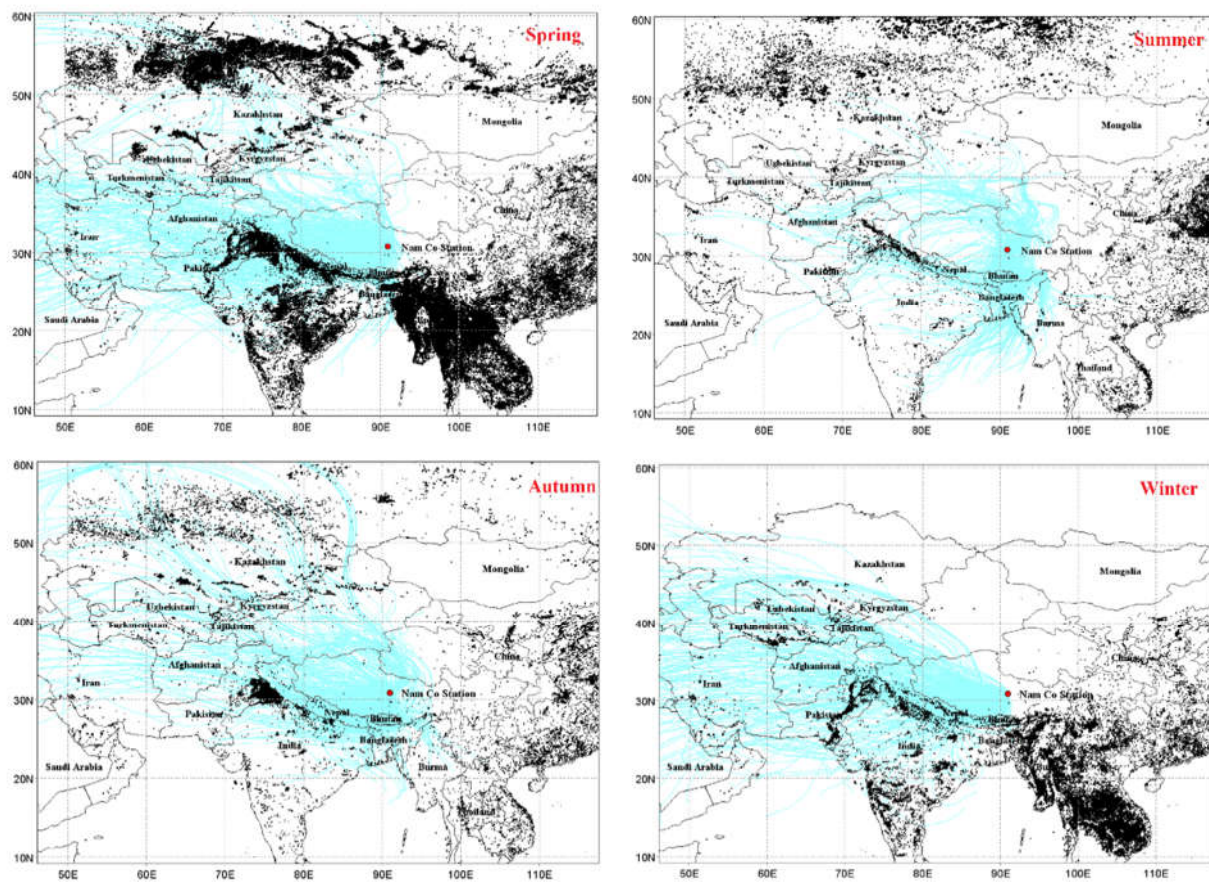
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132 **Fig. S4. The distribution of MODIS fire hot spots (black dots) and HYSPLIT backward trajectories (blue lines) during the**
 133 **measurement period at the Nam Co Station by season.**

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