



Supplement of

Estimation of surface ammonia concentrations and emissions in China from the polar-orbiting Infrared Atmospheric Sounding Interferometer and the FY-4A Geostationary Interferometric Infrared Sounder

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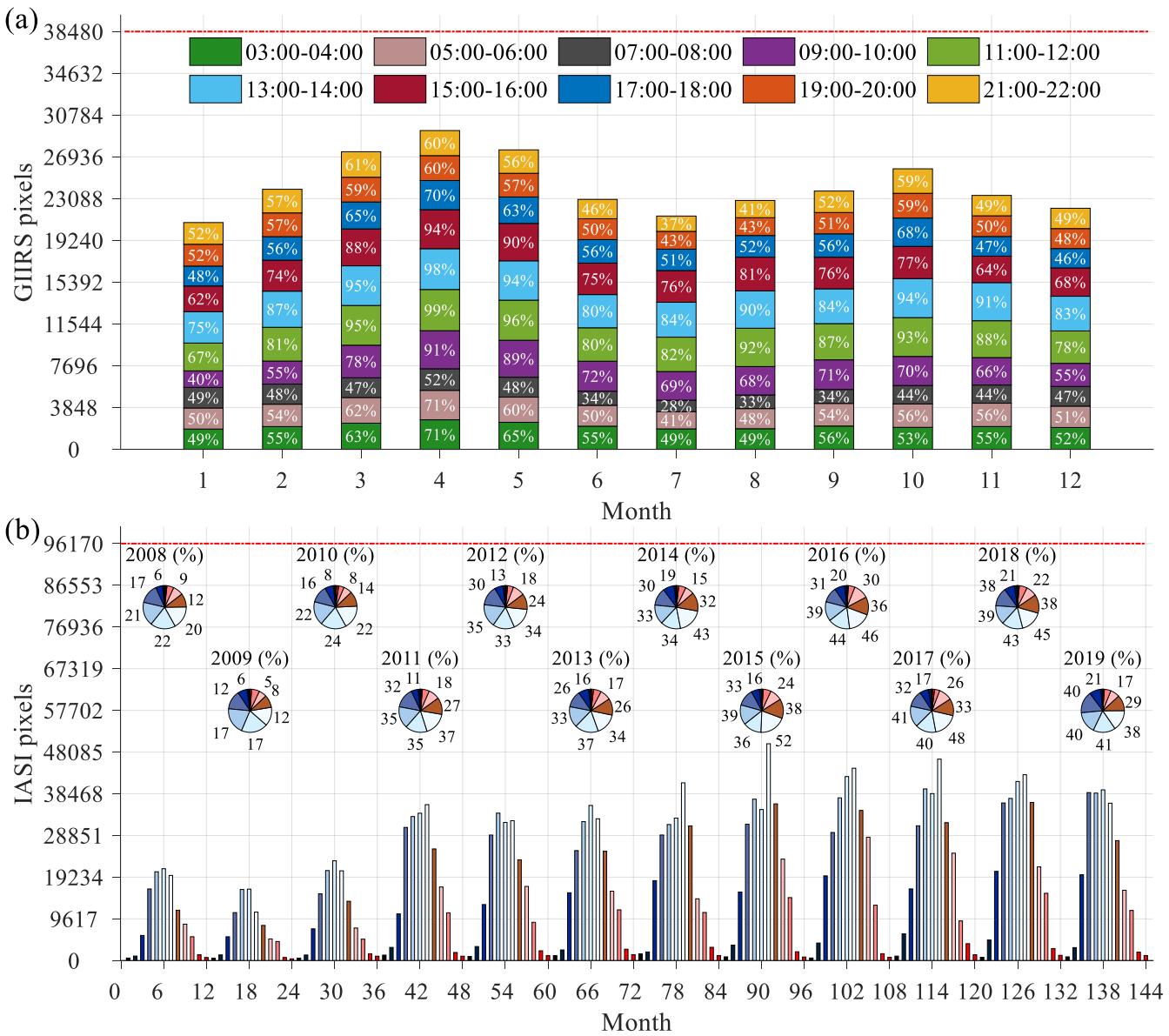
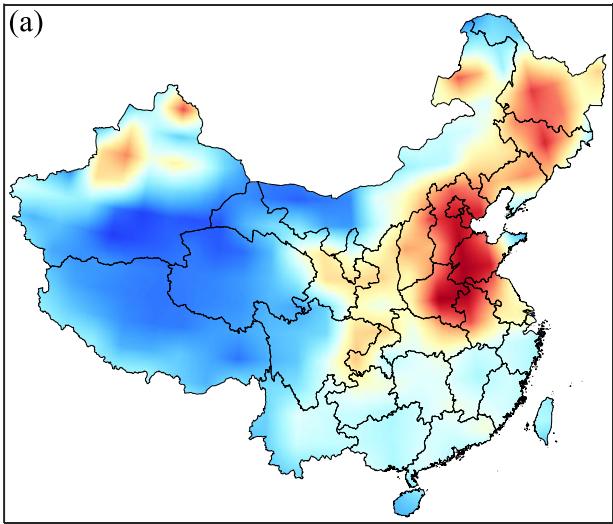
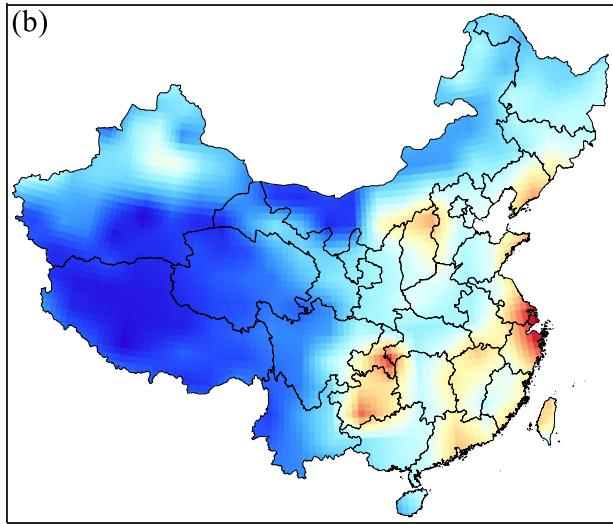


Figure S1. The variation of valid pixels under quality control. (a) Effective pixels of monthly average NH₃ columns by GIIRS in each overpass period (2-hour interval) during 2019.11-2020.10. (b) Effective pixels of monthly average NH₃ columns by IASI from 2008 to 2019.



0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 >0.8
The ratio of total NH_3 columns and surface concentrations



0 1 2 3 4 5 6 7 8 9 10 11 >12
The ratio of surface NH_3 concentrations and emissions

Figure S2. Conversion ratios from GEOS-Chem simulations. (a) The conversion ratio of total NH_3 columns and surface NH_3 concentrations. (b) The feedback ratio of surface NH_3 concentrations and NH_3 emissions.

Table S1. The information of the collected hourly measured sites.

Name	Class	Lat	Lon	Period	Reference
Xianghe	rural	39.75° N	116.96° E	2017.12-2018.2	(He et al., 2020)
Fudan University	urban	31.30° N	121.50° E	2013.7-2014.9	(Wang et al., 2015)
Dianshan Lake	rural	31.09° N	120.98° E	2013.7-2014.6	(Wang et al., 2015)
Gucheng	urban	39.15° N	115.73° E	2016.3-2017.5	(Kuang et al., 2020)
Jinshan Chemical Industry Park	industrial	30.73° N	121.27° E	2014.1-2014.6	(Wang et al., 2015)

Reference

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- Kuang, Y., Xu, W., Lin, W., Meng, Z., Zhao, H., Ren, S., Zhang, G., Liang, L., and Xu, X.: Explosive morning growth phenomena of NH₃ on the North China Plain: Causes and potential impacts on aerosol formation, *Environ. Pollut.*, 257, 113621, <https://doi.org/10.1016/j.envpol.2019.113621>, 2020.
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