



*Supplement of*

## **Retrieval of gridded aerosol direct radiative forcing based on multiplatform datasets**

**Yanyu Wang et al.**

*Correspondence to:* Qianshan He (oxeye75@163.com) and Tiantao Cheng (ttcheng@fudan.edu.cn)

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20 This Supplementary Information (SI) includes 4 figures.

**Supplementary Figures:**

**Figure S1.** Sketch map of aerosol vertical profile.

**Figure S2.** MODIS Terra true color map composed by 1, 4, and 3 channels on October 18, 2014 (<https://worldview.earthdata.nasa.gov/> ).

25 **Figure S3.** The response of downward radiative fluxes at the surface ( $F_d_{sur}$ ), upward radiative fluxes at the surface ( $F_u_{sur}$ ), aerosol direct radiative forcing (ADRF) to different parameters (AOD, SSA, ASY, albedo, columnar water vapor and ozone) in the sensitivity test.

**Figure S4.** The occurrence frequency of annual ADRF for each grid cell in the North and South of East China during 2000-2016.

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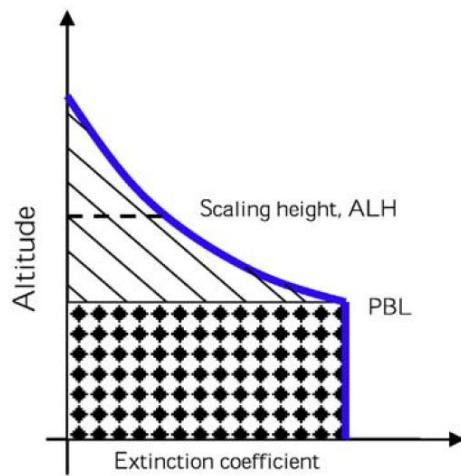
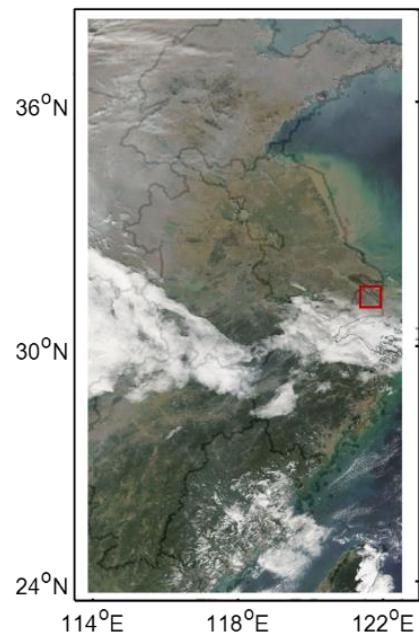
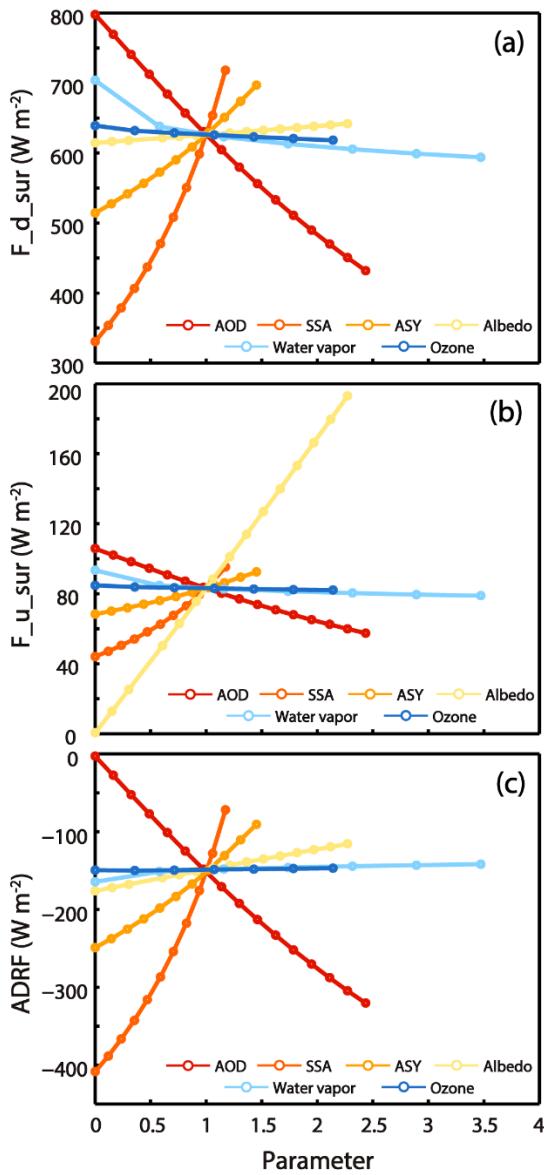


Figure S1. Sketch map of aerosol vertical profile (He et al., 2008). Two-layer aerosol model is characterized by aerosol well-mixed in the PBL and exponential decay of the aerosol extinction coefficient with altitude above the top of PBL.

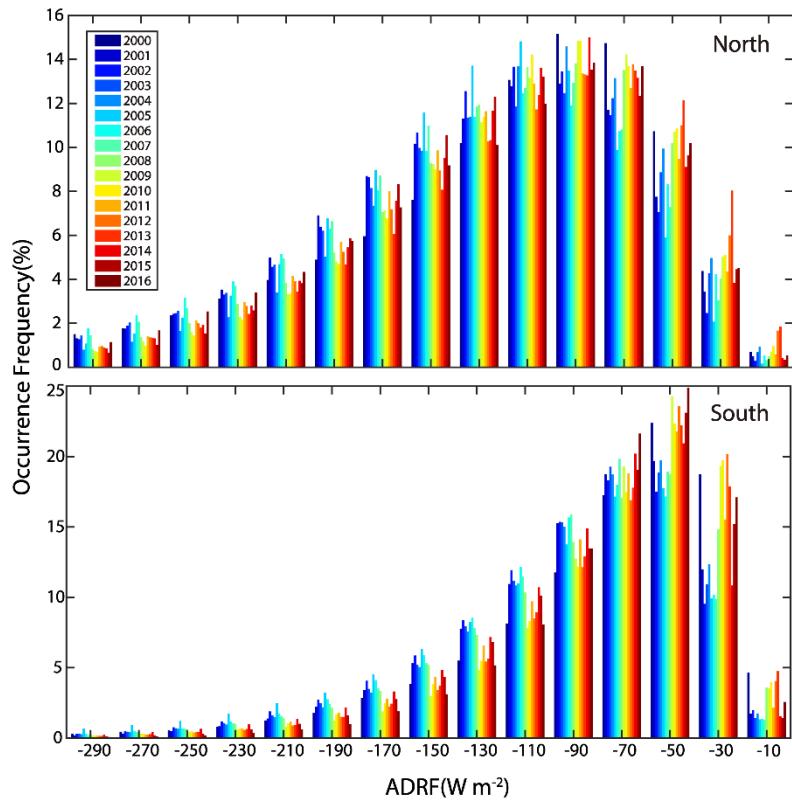
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**Figure S2. MODIS Terra true color map composed by 1, 4, and 3 channels on October 18, 2014**  
40 **(<https://worldview.earthdata.nasa.gov/>).** The red rectangle box (40\*40km) is the MODIS AOD  
average window in Baoshan pyranometers site.



45 **Figure S3. The response of downward radiative fluxes at the surface ( $F_d_{sur}$ ), upward radiative fluxes at the surface ( $F_u_{sur}$ ), aerosol direct radiative forcing (ADRF) to different parameters (AOD, SSA, ASY, albedo, columnar water vapor and ozone) in the sensitivity test. The X-axis value shows the ratio of the input to the actual value to dimensionalize the parameters for comparison.**



50 **Figure S4. The occurrence frequency of annual ADRF for each grid cell in the North and South of East China during 2000-2016.**