Geoscientific
Model Development

EGU

Open Access

Supplement of

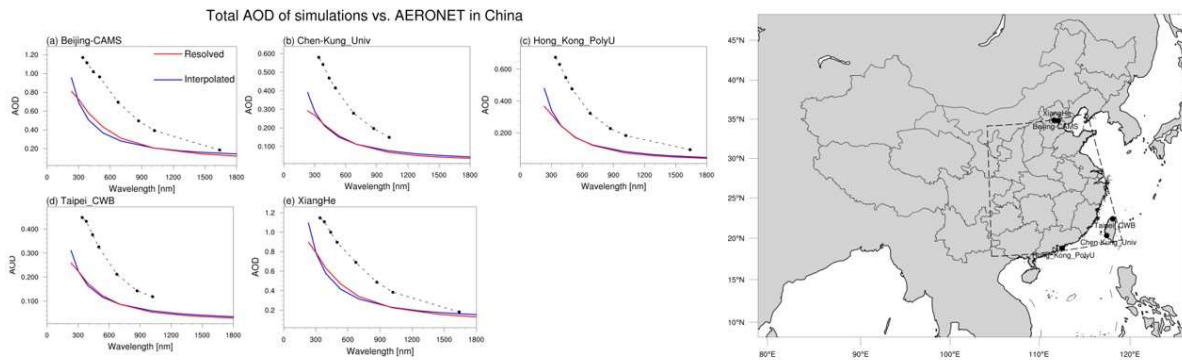# Amending the algorithm of aerosol–radiation interactions in WRF-Chem (v4.4)

Jiawang Feng et al.

Correspondence to: Chun Zhao (chunzhao@ustc.edu.cn)

25

26


27

Figure S1. Left panel: Comparison of total AOD from simulations and AERONET observations in anthro-dominant areas of China. The results are both averaged for January and July 2015. The blue and red line represent the "Interpolated" and the "Resolved" method, respectively. The AERONET AOD values are indicated by black dots in each panel. The simulation results are obtained from the grid box closest to the AERONET stations. **Right panel:** Locations of selected AERONET stations over anthro-dominant areas in China.
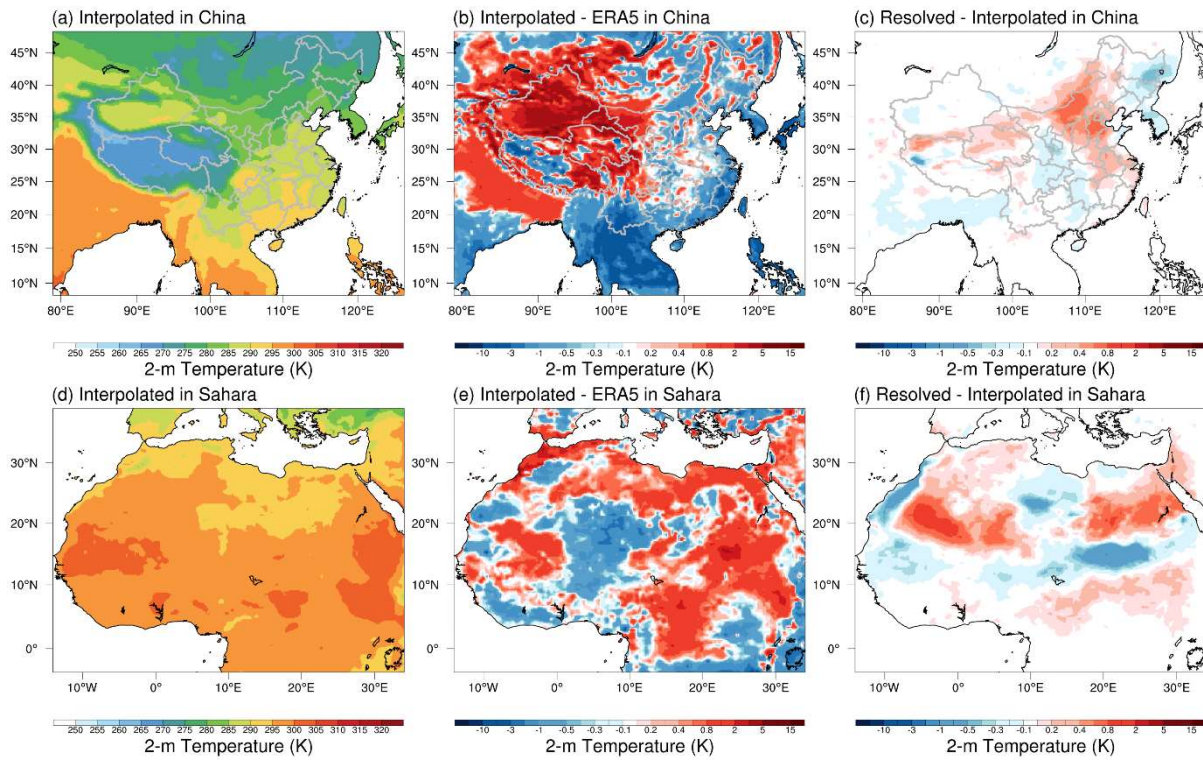
34

35

36

37
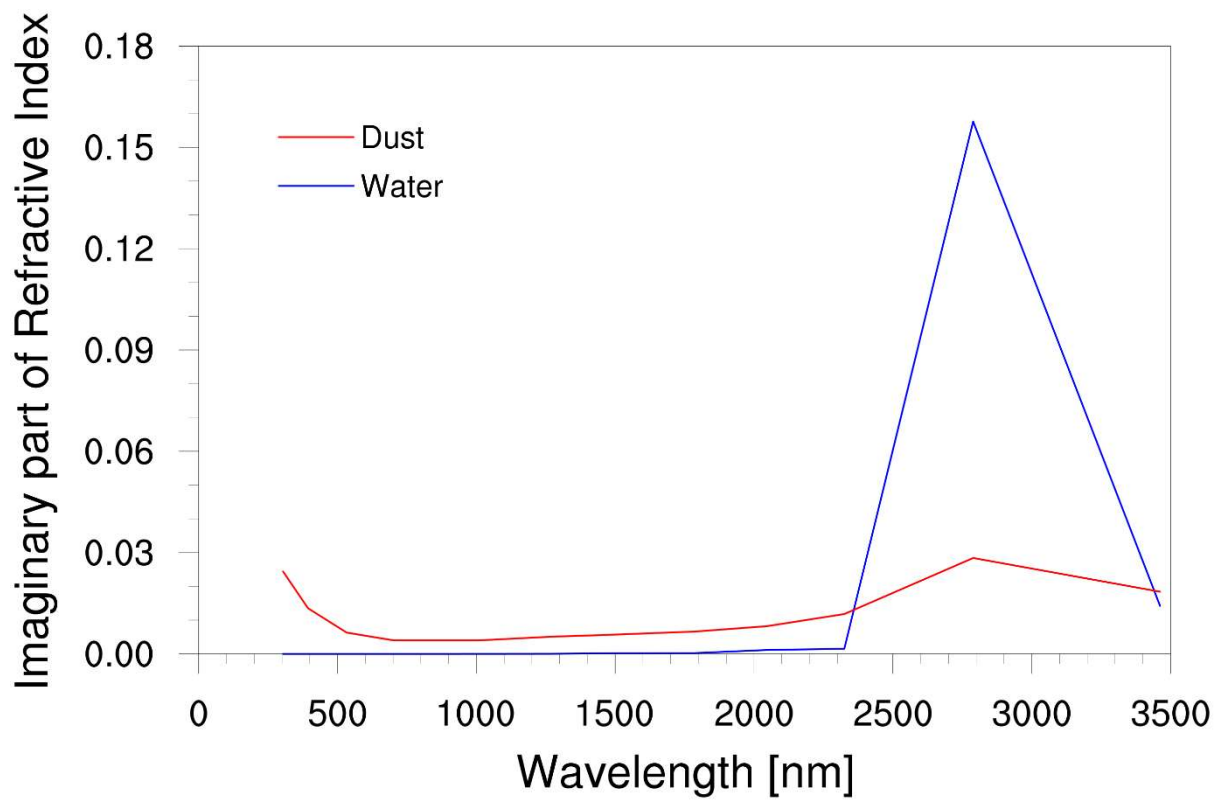
Figure S2. Imaginary part of refractive index used in "Interpolated" method. The blue and

red lines represent water and dust, respectively.

40

41

42

Figure S3. (a,d) Spatial distribution of skin temperature in China and Sahara, respectively;
(b,e) The difference in skin temperature between "Interpolated" method and ERA5 results in
China and Sahara, respectively. **(c,f)** The difference in skin temperature between "Resolved"
and "Interpolated" method in China and Sahara, respectively.

47
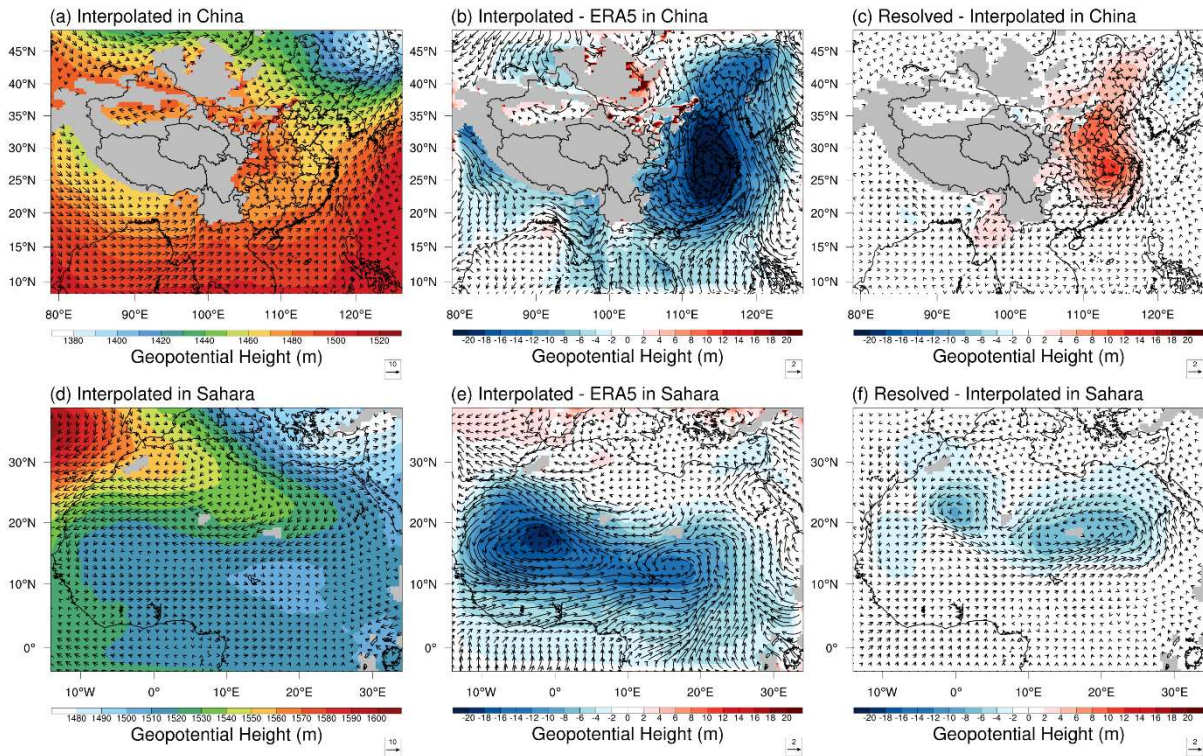
Figure S4. (a,d) Spatial distribution of geopotential height and wind field in China and Sahara, respectively; **(b,e)** The difference between "Interpolated" method and ERA5 results in China and Sahara, respectively. **(c,f)** The difference between "Resolved" and "Interpolated" method in China and Sahara, respectively.