1 **Supplementary Materials for**

2 **Impacts of anemometer changes, site relocations and processing methods on**

3 **wind speed trends in China**

4 Yi Liu[1], Lihong Zhou[1], Yingzuo Qin[1], Cesar Azorin-Molina[2], Cheng Shen[3], Rongrong

5 Xu[1*], Zhenzhong Zeng[1*]

6 [1] School of Environmental Science and Engineering, Southern University of Science

7 and Technology, Shenzhen, China

8 [2] Centro de Investigaciones sobre Desertificación, Consejo Superior de Investigaciones

9 Científicas (CIDE, CSIC-UV-Generalitat Valenciana), Climate, Atmosphere and Ocean

10 Laboratory (Climatoc-Lab), Moncada, Valencia, Spain

11 [3] Regional Climate Group, Department of Earth Sciences, University of Gothenburg,

12 Gothenburg, Sweden

13

14 *Correspondence: xurr@sustech.edu.cn (R. X); zengzz@sustech.edu.cn (Z. Zeng)*

15 Manuscript for *Atmospheric Measurement Techniques*

16 March 23, 2023

17

18 **Table S1. Number of stations left after applying each WMO criteria.**

Criteria	Number of stations left
Original	840
a) criteria 3	689
b) criteria 1 and 3	641
c) criteria 1, 2 and 3	601

19 *The three WMO criteria used are: 1) <11 missing daily values in a month; 2) <5

20 consecutive missing daily values in a month; 3) complete monthly values for every

21 month during the study period.

22

23 **Table S2. Relocated stations details.**

Change	Number of stations
Latitude or longitude	311
Altitude	218
Latitude or longitude or altitude	432

24
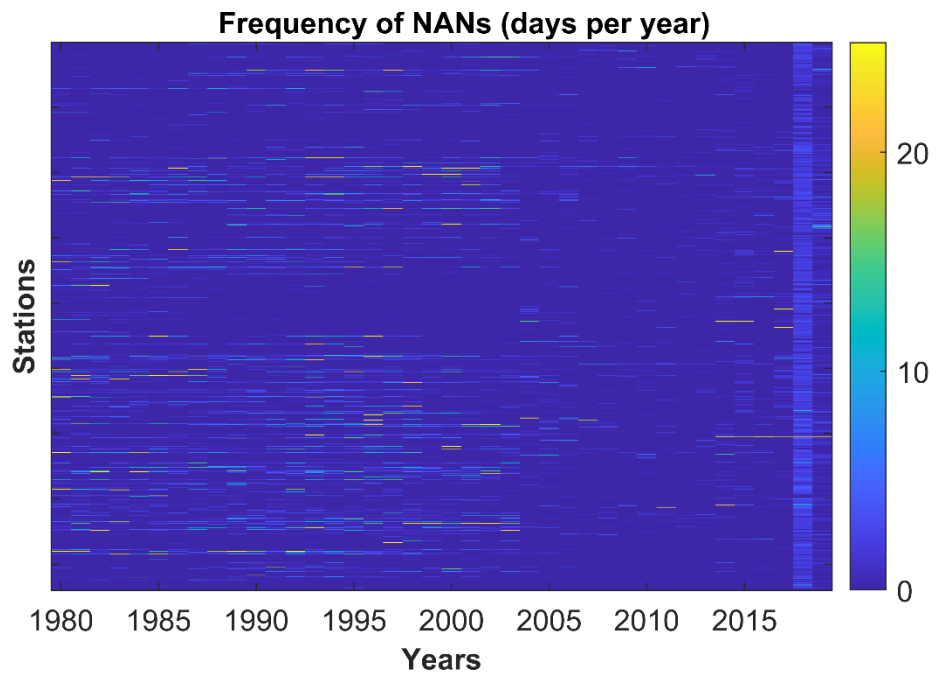
Figure S1. Frequency of NaNs (days per year) for 840 stations in CSD from 1980 until 2019. Each row represents one station.

29
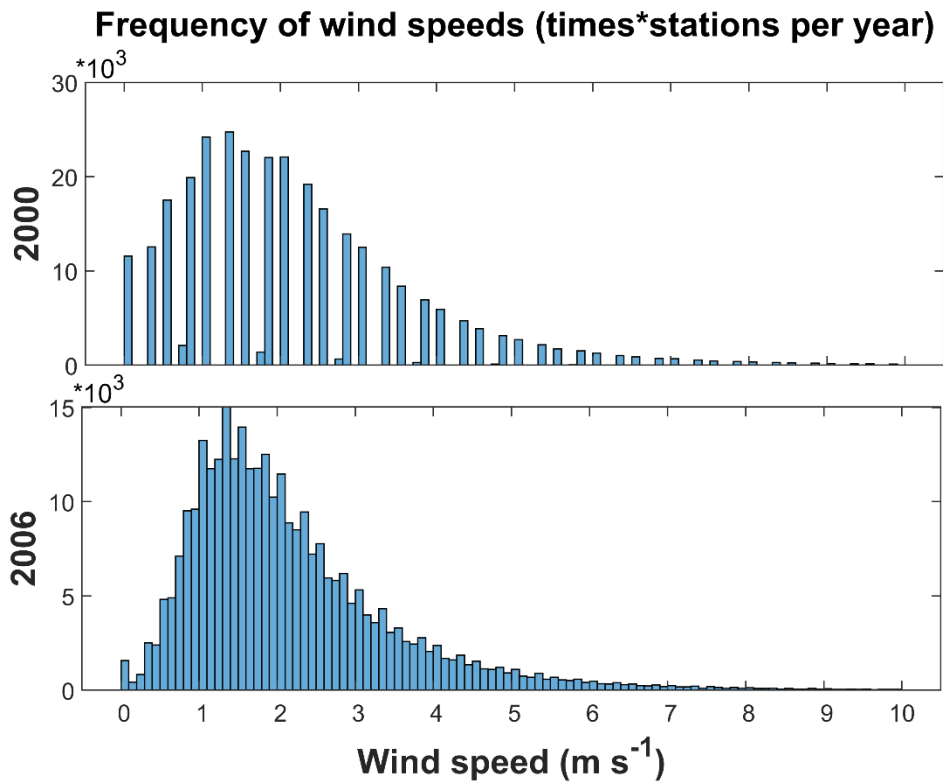
Figure S2. Change in wind speed data caused by updates in anemometer changes and processing methods. Daily wind speed distribution of all stations in 2000 (old system) versus 2006 (new system).

30

31

32

33

34
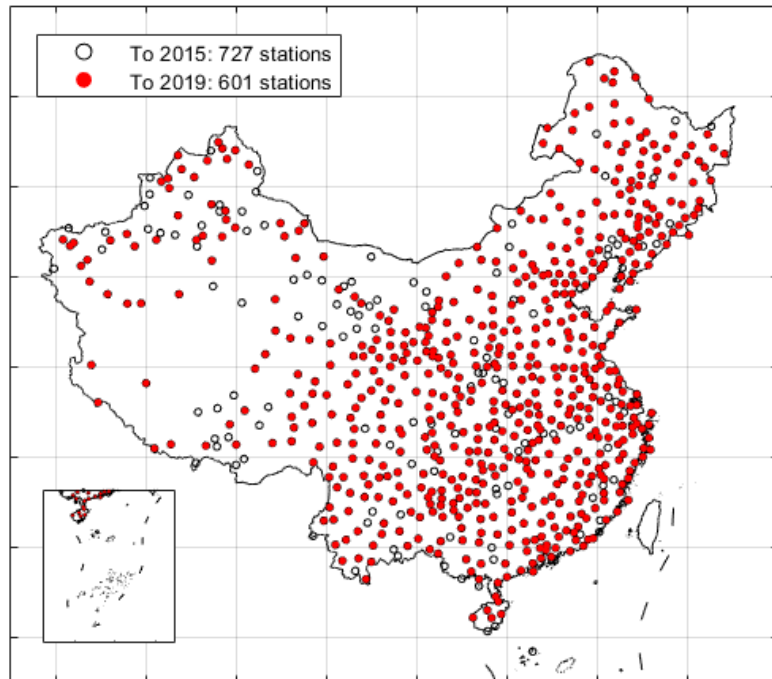
Figure S3. Distribution of stations that passed the WMO criteria. The black hollow

circles are the 727 stations till 2015 and the filled red circles are the 601 stations will

2019. Maps information are from Department of Natural Resources standard map

service system of China.

39

40
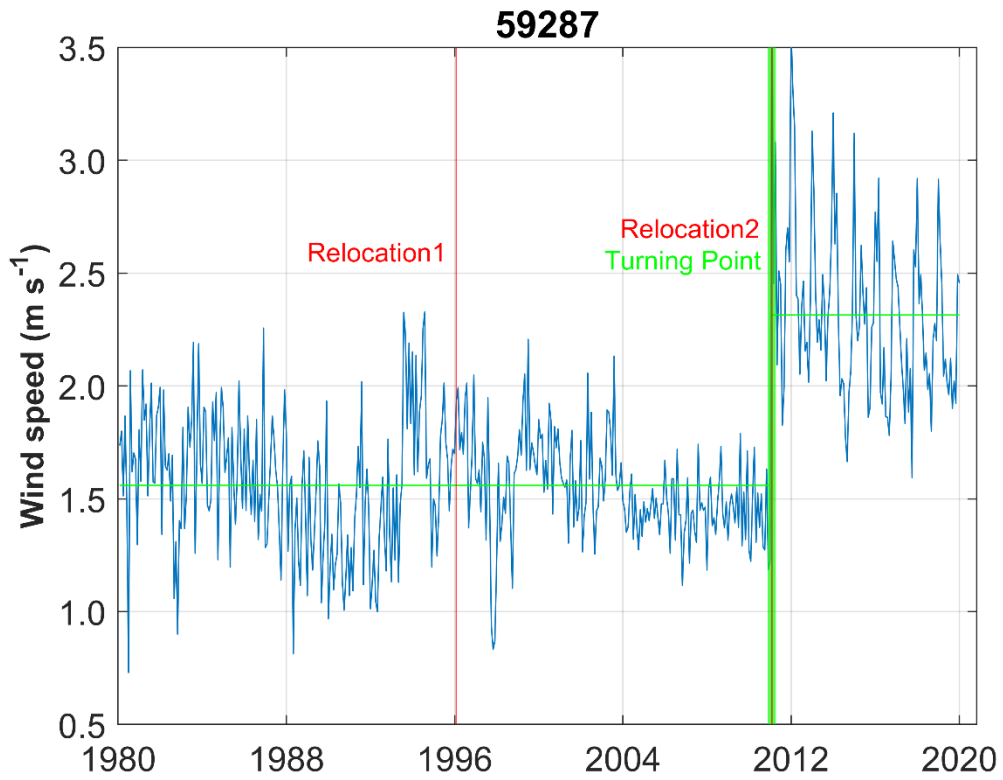
Figure S4. Time series of Station 59287 (Guangzhou) and the two relocations. The

blue line is the monthly wind speed. The two red lines are the relocations and the thick

green line is the detected turning point in 2011.

44
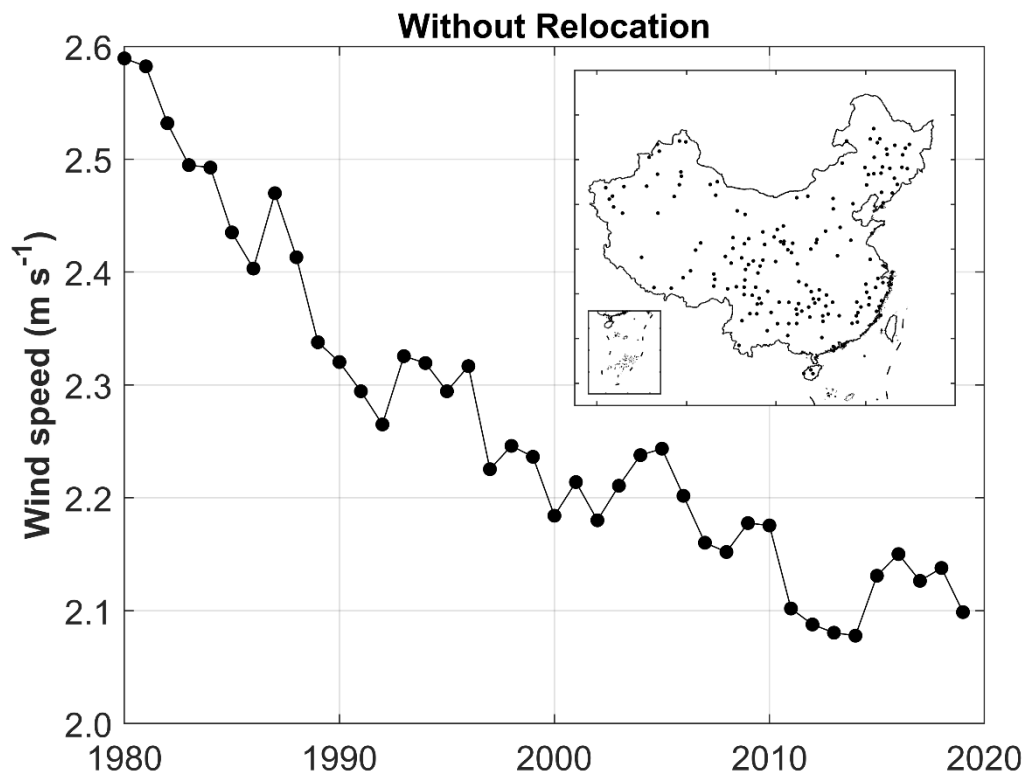
Figure S5. Averaged annual wind speed of 169 stations without relocation. The inset shows the station distribution across China. Maps information are from Department of Natural Resources standard map service system of China.