Electronic Supplementary Material (ESI) for Environmental Science: Atmospheres.
This journal is © The Royal Society of Chemistry 2022

Stronger spring winds increase sand-dust storm risk in northern China

Yi Liu[1], Rongrong Xu[1*], Alan D. Ziegler[2], Zhenzhong Zeng[1*]

[1] School of Environmental Science and Engineering, Southern University of Science and Technology, Shenzhen, China

[2] Faculty of Fisheries Technology and Aquatic Resources, Mae Jo University, Chiang Mai, Thailand

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

Manuscript for *Environmental Science: Atmospheres*
September 12th, 2022

Figure S1. Explanation of how overall wind speed decreases sand-dust storm frequency and average wind speed. Bars demonstrate randomly generated instant wind speed. The black line shows the sand-dust storm initiation wind speed (*e.g.*, 12 m s^{-1})[1]. The red dots on the top indicate sand-dust storms. The numbers below the red dots are the recorded wind speed during sand-dust storms. Taking the average of them, we will get the average wind speed during sand-dust storms in that situation. The left and right figures show high and low wind speed (high wind speed distribution minus 5 m s^{-1}) situations respectively.

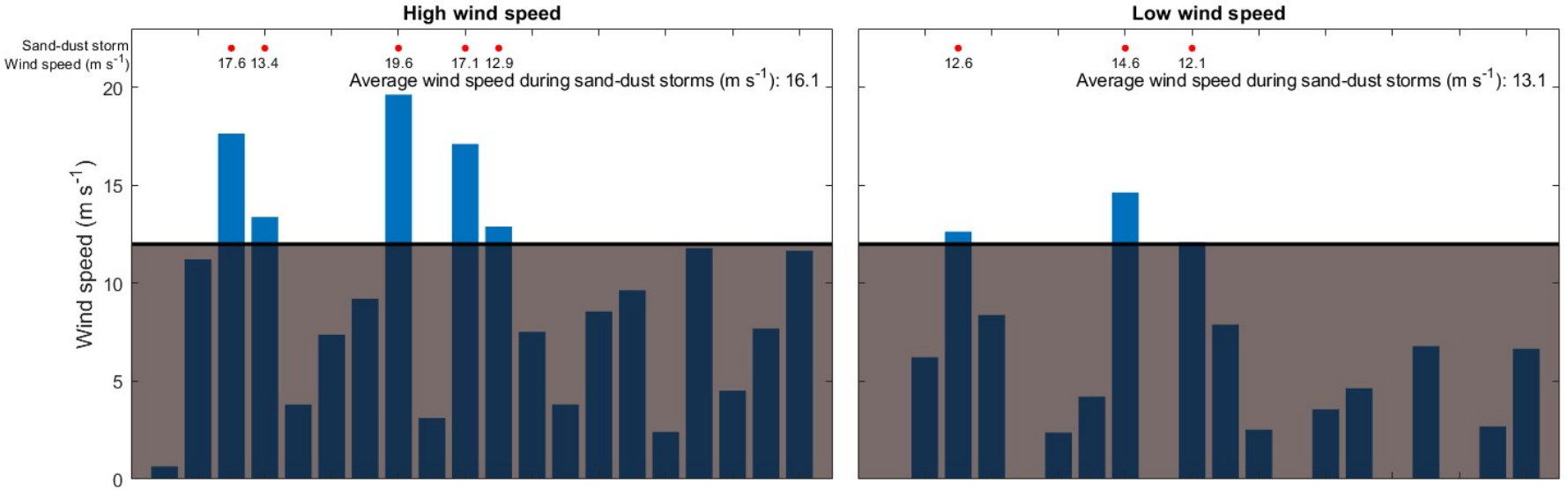


Figure S2. Explanation of how ecological restoration (higher sand-dust storm initiation wind speed) decreases sand-dust storm frequency but increases average sand-dust storm wind speed. Bars demonstrate randomly generated instant wind speed. The red dots on the top indicate sandstorm events. The left and right figures show low sand-dust storm initiation wind speed, *e.g.*, 12 m s^{-1} and high sand-dust storm initiation wind speed, *e.g.*, 15 m s^{-1} respectively[1].

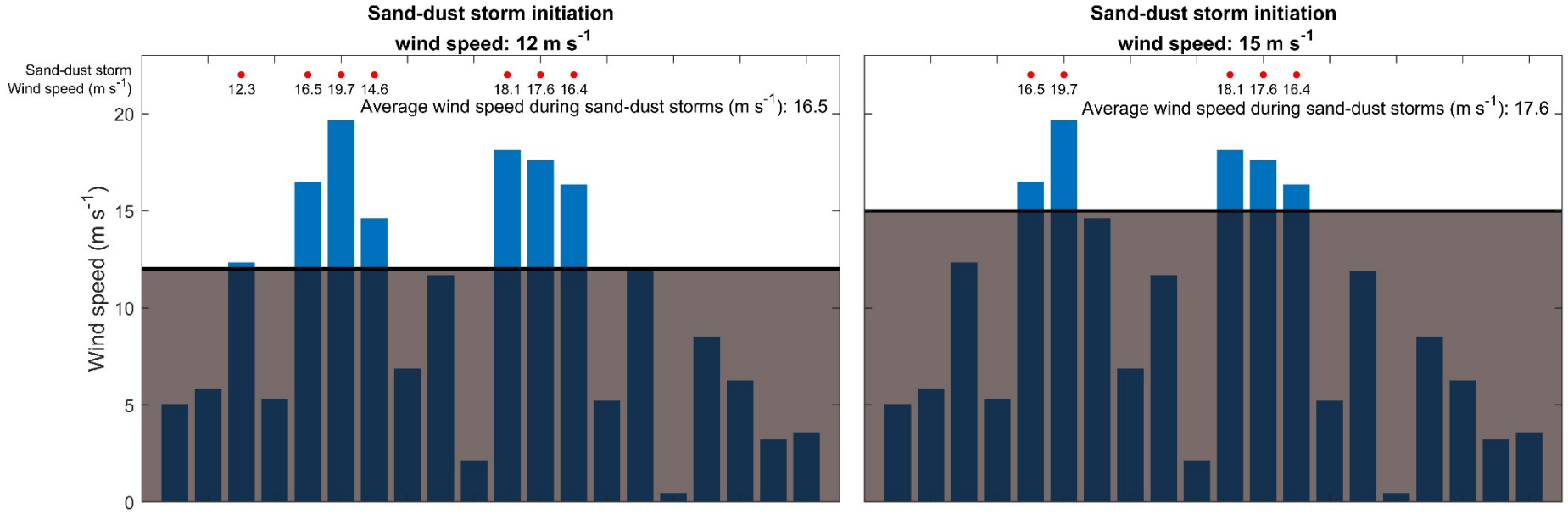
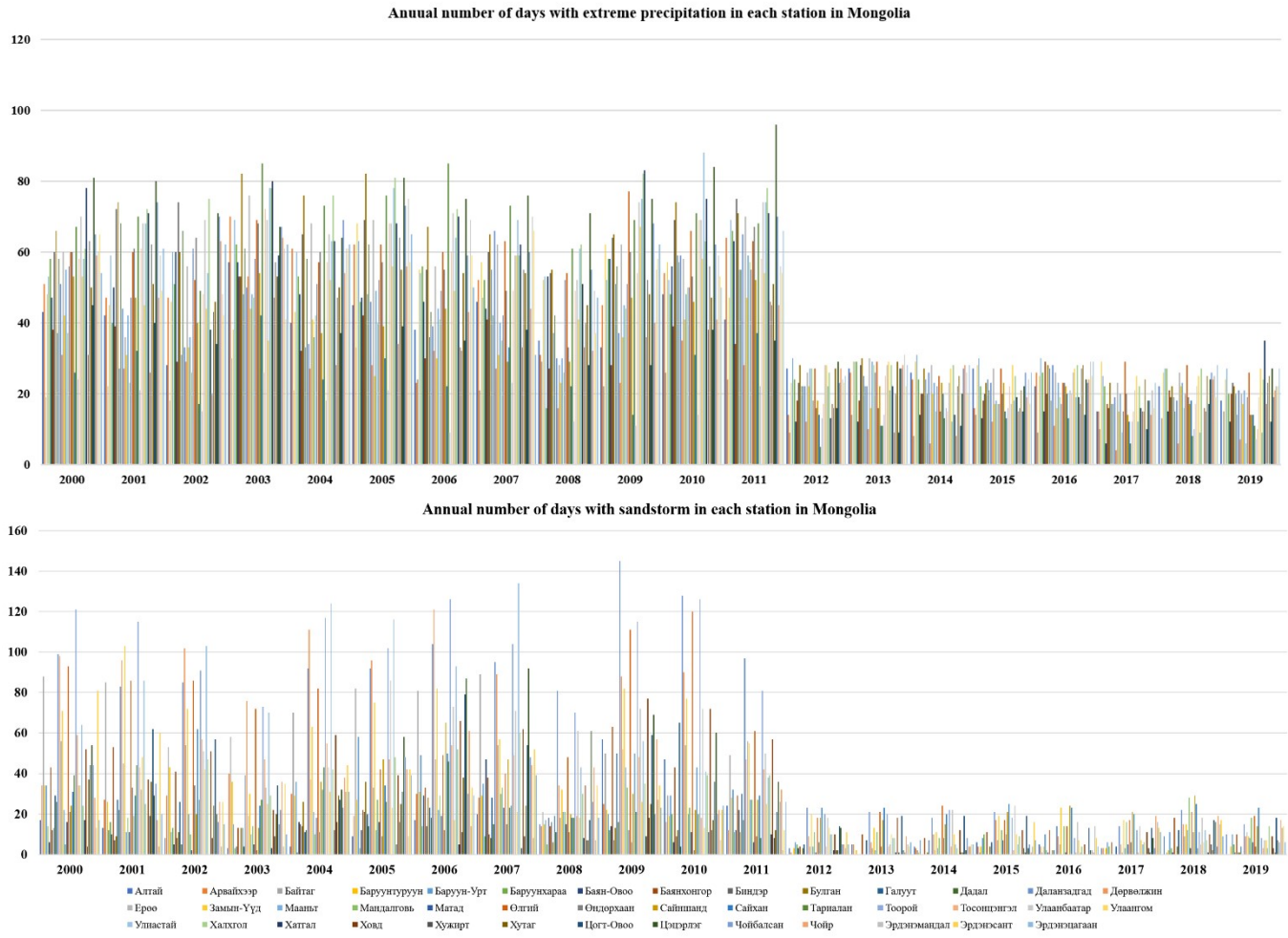


Figure S3. Jump of sand-dust days data and extreme precipitation data in Mongolia.



References.

1. Kurosaki Y, Mikami, M. Threshold wind speed for dust emission in east Asia and its seasonal variations, Journal of Geophysical Research. 2007 September 6; 112:D17202.