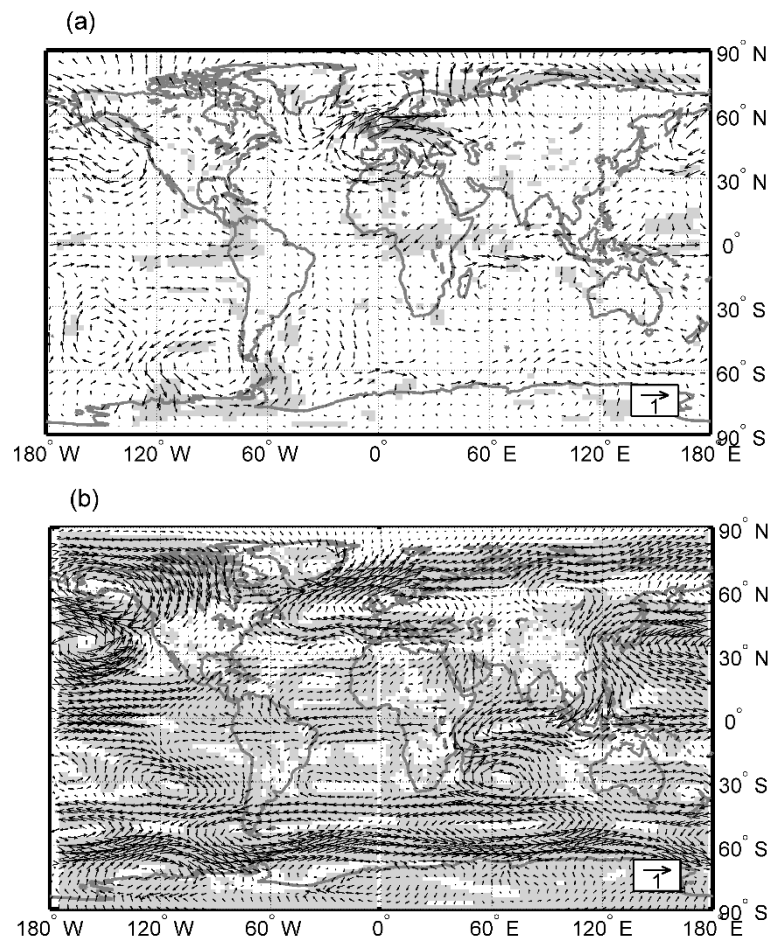
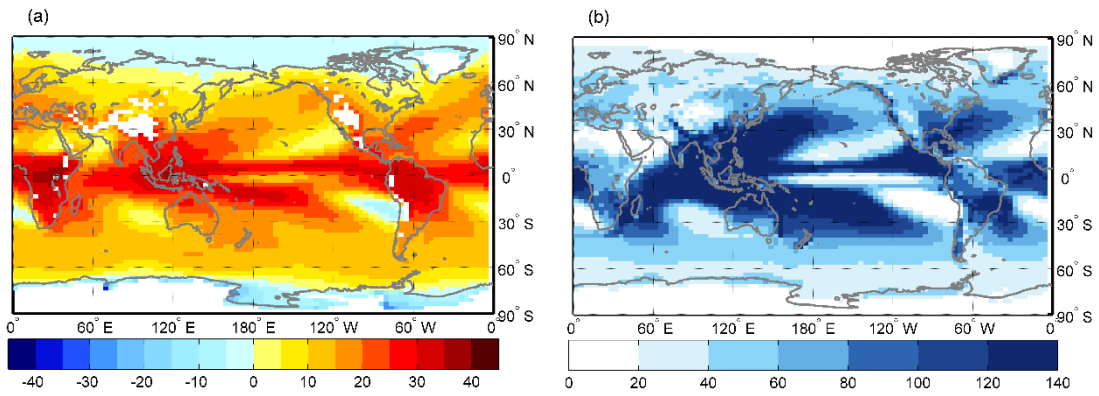


**Citation:** Wang, T., J. P. Miao, H. J. Wang, et al., 2021: Influence of strong tropical volcanic eruptions on daily temperature and precipitation extremes across the globe. *J. Meteor. Res.*, **35**(3), 428–443, doi: 10.1007/s13351-021-0160-9.

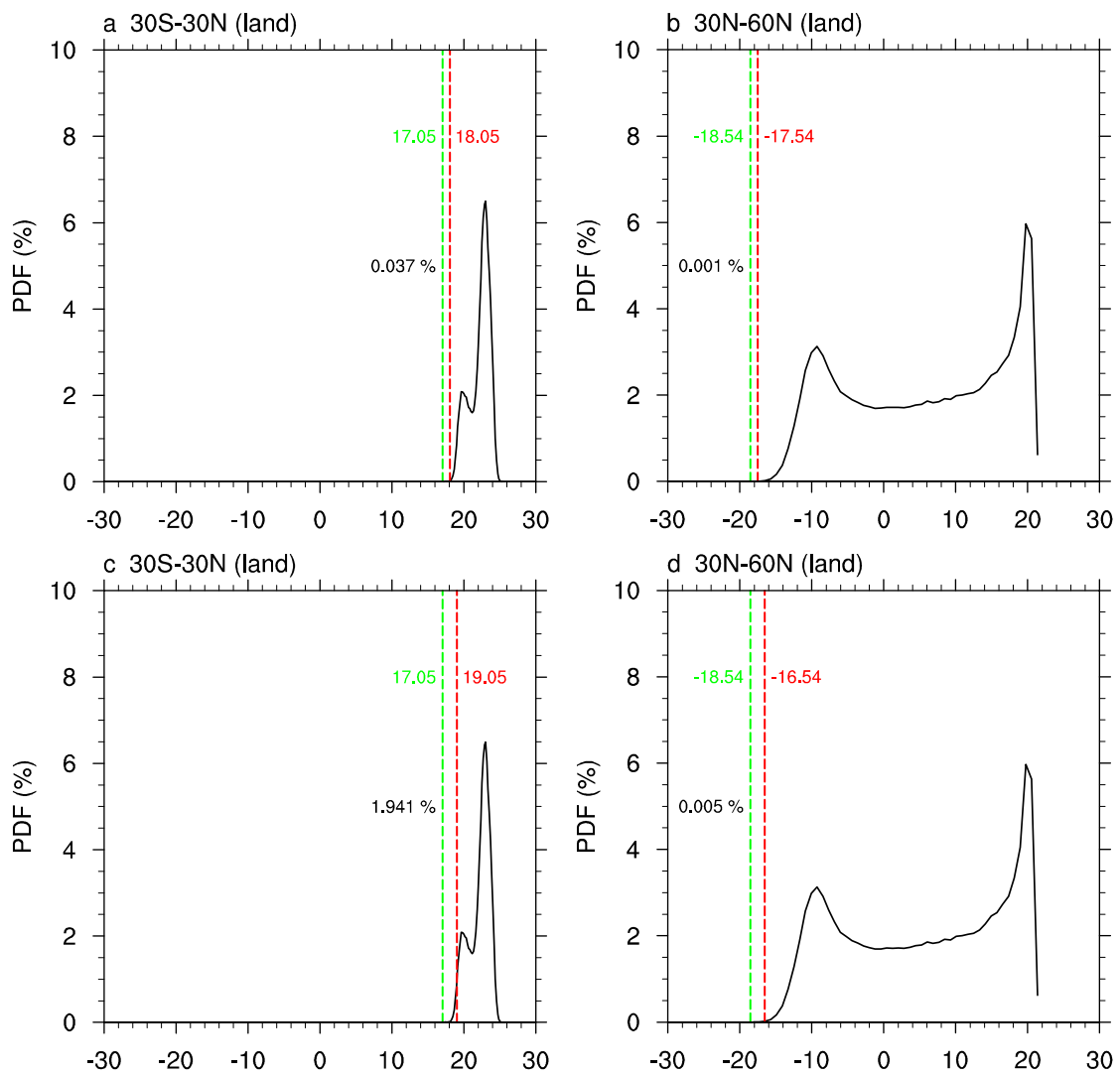
**Supplementary Figures:**



**Figure S1** Simulated global differences in boreal winter wind fields ( $\text{m s}^{-1}$ ) at 850 hPa between the volcanic peak forcing years and years with no volcanic forcing in the (a) HadCM3 and (b) CESM1 simulations. Areas with confidence level exceeding 95% are shaded in gray.

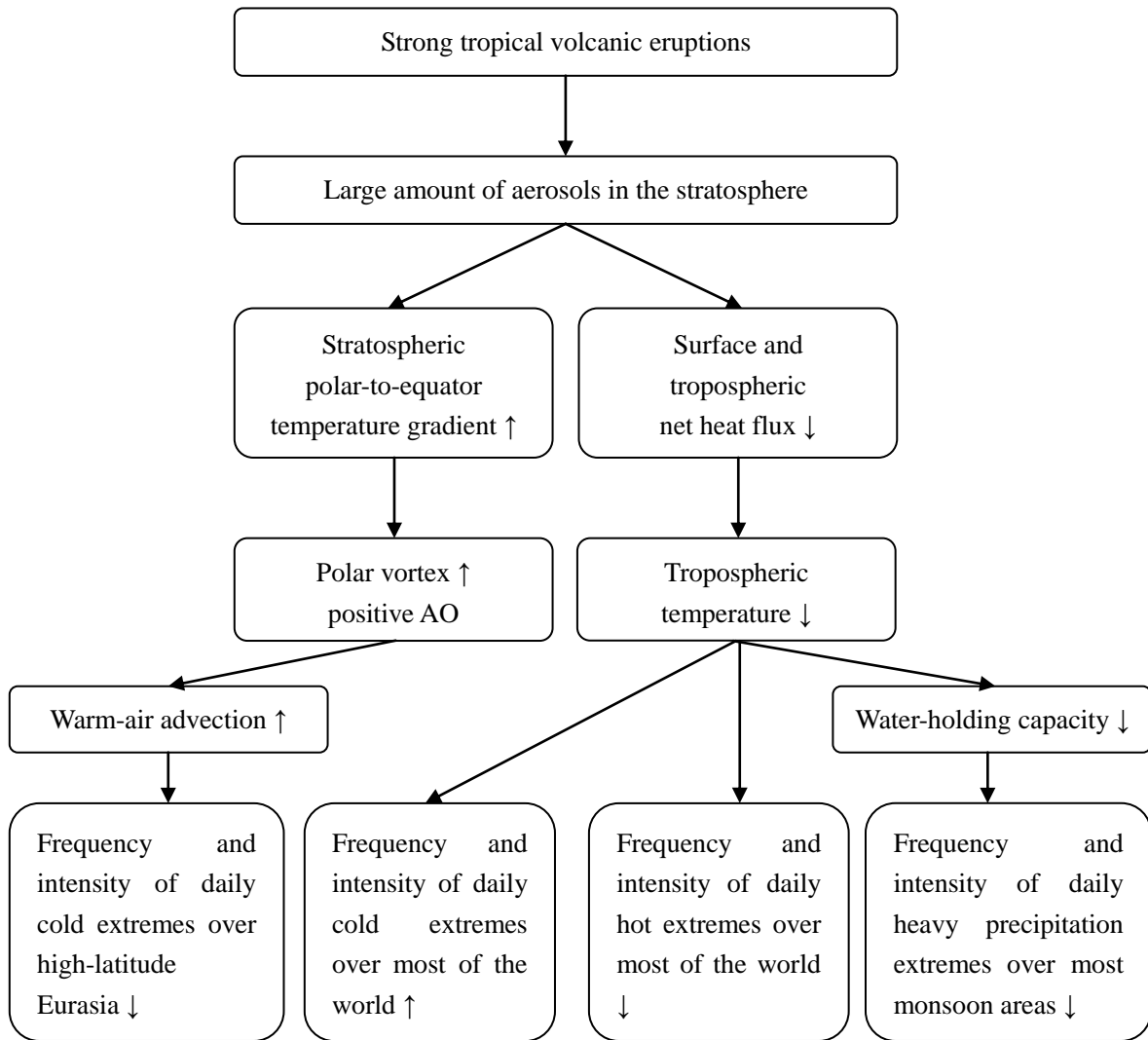


**Figure S2** HadCM3 simulated annual (a) K-index and (b) Rx5day (unit: mm) during the period without volcanic forcing. In (a) the regions with elevations higher than 1500 m are blank.



**Figure S3** Probability distribution functions of the CESM1 simulated (a)/(c) tropical and (b)/(d) Northern mid-latitude regionally-averaged daily SAT. Green value stands for the lowest SAT. Red value stands for the SAT, which is 1/2°C higher than the lowest value. Black value stands for the percentage from green value to red value.

**Graphic abstract:**



**Title and abstract (text and graphic) in Chinese:**

**中文题目：热带强火山喷发对全球极端温度和极端降水影响的数值模拟研究**

**作者：王涛\*， 缪家鹏， 王会军， 孙建奇**

本文利用 HadCM3 和 CESM1 模式单独火山强迫长期数值模拟试验结果，研究了热带强火山喷发（SVEs）对全球极端温度和极端降水的影响。结果表明，在火山强迫峰值年，全球大部分地区极端高温和强降水事件发生概率降低。从全球平均来看，极端高温事件概率降低约 50%。同时，全球大部分地区极端高温强度也显著降低，在陆地中纬度区域和南美热带地区下降最多。相反地，在火山强迫峰值年大部分陆地区域极端低温事件发生更加频繁。总体而言，SVEs 降温效应对全球极端高温和极端低温事件的强度和发生频率变化起主导作用。然而，由于 SVEs 对极涡和北半球高纬度温度平流的调制，欧亚大陆高纬度区域极端低温的发生频率和强度有所降低。降水方面，SVEs 会导致全球大气水汽含量降低，进而使得大部分季风区极端降水频率和强度均减小。

**思维导图：**

