



Trends of near surface maximum wind speed in China: under a shifted East Asian monsoon scenario

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The current global climate research has traditionally focused on changes in air temperature and precipitation. As a key climate factor, changes of winds have a very significant impact on the environment, such as soil wind erosion, air pollution diffusion, etc. In particular, changes of extreme wind speed (i.e. maximum wind speed, wind gusts) are poorly analyzed and deserve further investigation. In this study we assess trends in maximum wind speed (MWS) across China for 1975-2016, using observed and reanalyzed daily wind datasets, and also analyze its relationship with the East Asian monsoon. The raw observed wind speed dataset was subject to a quality control and robust homogenization protocol using the Climatol package. Spatially, we found a widespread declining trend of MWS, being statistically significant in North China, East China and coastal areas. In contrast, we found opposite positive trends in the MWS for the southern part of China and Northeast China. Temporally, the MWS declined fastest in spring, followed in ranges of magnitude by winter, summer and autumn. Our preliminary analyses show that this overall declining trend of MWS is related to the weakened East Asian summer monsoon and East winter monsoon.