

Changes in high ambient temperature extreme and heat stress

*Qihong Tang¹, Xingcai Liu¹

1. Institute of Geographic Sciences and Natural Resources Research, CAS

Extreme heat events based on maximum temperature were projected to be more frequent and severe in many regions of the world under a warming climate. However, the concurrence of high temperature and humid weather could be more unbearable and hazardous to human health. In this study, the changes of summer heatwave days (HDs) are assessed based on a heat stress index using the wet-bulb globe temperature (WBGT) which accounts for both changes in temperature and humidity. Projections of temperature and relative humidity derived from five general circulation models (GCMs) outputs are used to estimate the HDs. The projected changes in WBGT-based HDs are compared with those using ambient temperature only. The results show that the difference of changes in occurrence of the extremes appears to be considerable in some regions, suggesting that previous studies using ambient temperature only may underestimate the heat stress risk under a warming climate. This study would be helpful for further assessment of socioeconomic vulnerability and adaptation to climate risk.

Keywords: climate change, heat stress, temperature extreme