



Climate warming and the change of sensible heating on the Tibetan Plateau

A. Duan and G. Wu

State Key Laboratory of Numerical Modeling for Atmospheric Sciences and Geophysical Fluid Dynamics (LASG), Institute of Atmospheric Physics (IAP), Chinese Academy of Sciences (CAS), Beijing 100029, China

Based on the historical observations in the period of 1961-2003 including surface air temperature, land surface temperature, wind and other variables at 71 meteorology stations located in central and eastern Tibetan Plateau, the connection between the in situ climate warming and the variation of sensible heating flux has been investigated. It is shown that since there is a diminishment of ground-air temperature difference accompanied by a weakened surface wind speed, the sensible heating flux transfer therefore has been restrained. This phenomenon was especially evident in night and winter, implying that besides the change of cloud and the corresponding radiation budget, the variation of sensible heating flux also contributed to the decreased diurnal and annual surface air temperature range to a certain degree.