



Urbanization enhances surface warming in Eastern China

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This study aims at observing urban effects on surface warming in eastern China, where many cities have undergone a rapid development of urbanization in the last few decades. Daily mean, maximum and minimum surface air temperature records from 1971-2010 in 277 meteorological stations are used to investigate the effects of urbanization on temperature change. Due to the expansion of cities, the temperature records in some of the stations which were not close to cities in the past are gradually influenced by urbanization. In order to detect the effects of urbanization on surface warming effectively, the stations are classified into 'urban' and 'rural' types dynamically based on the land use data in four periods, 1980, 1990, 2000 and 2010 in this study. By comparing the temperature trend differences between all of the urban and rural stations in eastern China, the results show that annual averaged daily minimum temperature are suffered the strongest effects from urbanization with an increased rate of 0.870°C decade⁻¹ in urban stations, and the contribution of urban effects to its total surface warming is estimated to be 52.8% during 1971-2010.