



On the estimation of external trends in minimum, maximum and mean temperature records over China

N. Yuan (1,2), A. Bunde (2), and Z. Fu (1)

(1) Peking University, School of Physics, Beijing, China (naimingyuan@hotmail.com), (2) Institute for Theoretical Physics, Justus-Liebig-University Giessen, Giessen, Germany

We consider minimum, maximum, and mean temperature records at 112 station in China and use a recent scaling approach by [Lennartz and Bunde, 2011] to estimate the minimum external trend over the past 50 years, for confidence probabilities 0.95 and 0.99. We find that the minimum temperatures, in contrast to the maximum temperatures, show a significant trend for almost all considered stations. We also study the trend as a function of the population (in 2008) and of the population increase in the past 50 years. We find a significant increase in the trend of the minimum temperature at stations with a large population increase, which suggests that part of the recent warming may be due to urban heat islands.