Geophysical Research Abstracts
Vol. 13, EGU2011-2885, 2011
EGU General Assembly 2011

Centennial scale warming over Japan: are the rural stations really rural?

Lalu Das (1), James D. Annan (2), Julia C. Hargreaves (2), and Seita Emori (3)

(1) Department of Agricultural Meteorology and Physics, BCKV, Mohanpur, Nadia 741-252, India., (2) Research Institute for Global Change, JAMSTEC, Yokohama City, Japan (jules@jamstec.go.jp, +81-(0)45-7785707), (3) National Institutes for Environmental Studies, 16-2 Onogawa, Tsukuba, Ibaraki 305-8506, Japan

Previous investigations have found that, even for those stations classified as rural, the historical temperature trend in Japan is much higher than the global mean. In this study we use two novel methods to estimate urban contamination in the Japanese temperature record of the last century. First we tested different criteria for choosing the rural stations, and found little sensitivity to the method, though the presence of a decreasing local population trend appears to be a useful indicator. Secondly, we investigated the relationship between the regional sea surface temperature and surface air temperature over land, and found a very strong relationship across the CMIP3 multi-model ensemble. Applying this relationship to observational sea surface temperature data indicates little or no contamination of the trends from the stations identified as rural. However, there is a strong signal of urban contamination in the non-rural cities.