Geophysical Research Abstracts
Vol. 18, EGU2016-16541, 2016
EGU General Assembly 2016

Analysis of sub-daily temperature change in China

Yuyu Ren (1), David Parker (2), Guoyu Ren (1), and Robert Dunn (2)

(1) National Climate Center, China Meteorological Administration, Beijing, P. R. China, (2) Met Office Hadley Centre, Exeter, United Kingdom.

In analysis the pattern of diurnal temperature change from 408 stations in China for the period from 1973 to 2011, the authors found that surface air temperature increased more significantly by night between 1973 and 1992, with fastest increase trend at 23 o'clock Beijing Time at a rate of 0.33˚C/decade, but more obviously at daytime between 1992 and 2011, with fastest trend at 11 o'clock at 0.59˚C/decade. And the season with rapid temperature increase also shift from winter (highest increase trend happened at 23 o'clock in January, 0.80 ˚C/decade) to spring (highest increase trend happened at 14 o'clock in March, 0.82 ˚C/decade). They also found the change in the spatial distributions of temperature trends. In 1973-1992, North-eastern China warmed more than elsewhere, but in 1992-2011 it cooled, and South-western China became the focus of warming instead of a region of cooling. A simple analysis of the reason for those phenomenal found that changes of solar radiation, cloud cover, aerosols and development of city area may all play roles, and need further analysis.