

Interactive comment on “Spatiotemporal Changes of Heat Waves and Extreme Temperatures in Main Cities of China from 1955 to 2014” by Kuo Li and Gyilbag Amatus

Anonymous Referee #1

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The manuscript is interesting, well written, well structured and easily understood by the reader. The authors introduce Heat Wave and Hot Year Indices in order to define and study heat waves in China. The statistical methodology is relatively simple, but useful and leads to interesting conclusions. However, I think that the authors could try to link the trends in heat waves to the corresponding variations/trends in the large-scale temperature and circulation characteristics over the region. For example, they could use grid point temperature, sea-level pressure and/or geopotential height data for the lower troposphere obtained from any of the known worldwide data sets (e.g NCEP/NCAR) in order to further support the justification analysis made in the last paragraph of the discussion section. This would be useful, taking into account that meteorological data

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obtained from surface meteorological stations located in (or near) cities are possibly affected by urbanization. I do not suggest an extensive analysis about this issue, taking into account that this case the manuscript would become huge, but 1-2 figures and a paragraph referring to such comparison could be useful.

Minor comments:

1. Page 5, Data and Methods, lines 112-115: Please explain more analytically the procedure used for the division of China into the 8 climate regions, or alternatively provide appropriate references.
2. Pages 6-8, Data and Methods, lines 143-180: Please provide a simple sensitivity analysis of the defined indices. For example, what are the ranges of the indices' values and how are these values affected by specific changes of CD, AD etc. The authors give some answers about this issue later in the results, but in my opinion the methodology section is the proper section to analyze this.
3. Figs 3 and 6: Please explain either in the caption or in the text what are the lines, boxes, points etc. in the diagram.
4. Lines 111 and 122: The number of the titles are the same (2.2). Please correct.

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