

Interactive comment on “A new approach for highly resolved air temperature measurements in urban areas” by M. Buttstädt et al.

Anonymous Referee #1

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The presented paper is well prepared, clearly organized and there are not significant mistakes or inconsistencies in the text. Text itself is not too long with accurate number of tables and illustrations. Illustrations are clear and in good quality. However, the main problem with this paper is that it does present neither really new methodology of studies on urban climate nor remarkable results. Mobile measurements of temperature have been made by many researchers in different towns. The system including temperature sensor combined with data logger and GPS is also not a new approach. This is why I estimate a scientific significance of the paper on rather low level. On the other hand, it can be motivating for other studies and be useful for preparing a similar one. It can justify publication. In the case of publication I think that it should be published "as it is" because except a general impression expressed above I have no more detailed comments which can improve the paper (as not native speaker I am not able to evaluate

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language correctness, but it seems to be good). Below, there are some comments, but they are rather discussion with authors about their further work, than a way to improve a presented text. The analysis of urban contrasts collected in the “cooling phase” as an example is not very accurate. During these hours temperature file on the urbanized area change very rapidly from almost no urban heat island (UHI) during daytime to the very well developed UHI at midnight. Thus data collected during such non-stationary conditions can be misleading. Moreover, data for different roads were collected in different days, so changes in synoptic conditions can introduce additional errors in temperature differences between urban zones. However, the main goal of the paper is not to get a good maps of temperature distribution on the analyzed urban area, but to preset a new measurement system, so it is not a major fault. Still, one must be careful applying described methodology to study UHI phenomena. A long running time of measurements along a single road and a need of measurements in a few days to get spatial distribution of temperature in the town cause that the presented method allows to study an average (seasonal or annual) UHI over the area of investigation rather than cases of well developed UHI. It is well established that in midlatitude cites average UHI is rather week (in general of the order of 1oC) and such small differences have minor influence on society. On the other hand author stress that results can be useful in many practical application (health problems during heat waves etc.). Such applications need the information on extremely well developed UHI (its spatial distribution and relation to meteorological conditions) rather than estimations of average UHI. Such information can be hardly get with the aid of presented measurement system.

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