

## RESPONSE TO REFEREE NOMINATION & REPORT: REFEREE NO. 1

Thank you for responding to the comments and revising the manuscript.

The authors thank Anonymous Referee # 1 for their positive and valuable feedback that contributed to the improvement of the manuscript.

I have only one technical request: Is it possible that Fig. 9a was not updated? The authors response and the new caption suggest that measurements from Montsouris park are shown, but the Figure still shows the measurements from Melun.

In fact, the figure was not updated in the revised manuscript, it was a compilation mistake. The figure and its caption have been updated as follows:

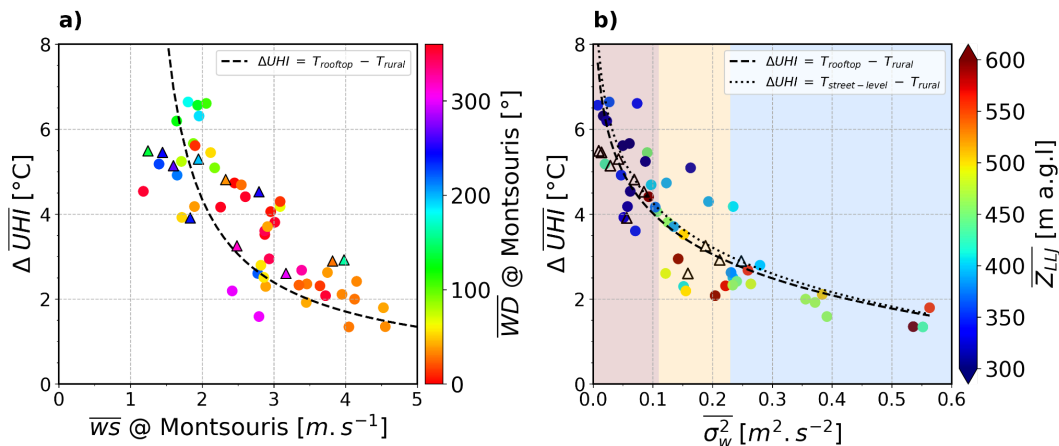


Figure 9. Relations between the nocturnal average of  $\Delta UHI$  intensity for all cloud-free nights in the study period and a) 10 m agl wind speed at Montsouris Park, an urban reference site. The dots are colored by wind direction at Montsouris (10 m agl). The dashed black curve is the best fit to the data:  $y = 4((x-1.1)^{-0.8})$ , and it follows the empirical relationship described by (Oke, 1973), and, b) the vertical velocity variance ( $\sigma_w^2$ ) at 238 m agl. The dots are colored by the LLJ core height above the ground. The curves represent the best non-linear fit ( $y = a \log(x) + b$ ) found using data collected at QUALAIR-SU ( $T_{rooftop}$ ) ( $a = -1.30$ ,  $b = 0.84$ ) and at Boulevard de Capucines ( $T_{street-level}$ ) ( $a = -1.51$ ,  $b = 0.77$ ) observations, respectively (see Section 2.4). The background shading indicates the LLJ classes described in Section 3.2. In all subplots, dots and triangles represent nights with and without LLJ events, respectively.

## RESPONSE TO REFEREE NOMINATION & REPORT: REFEREE NO. 2

The authors have carefully addressed the comments from the two reviewers and as a result the clarity of the manuscript is much improved. I am happy to recommend acceptance subject to a few typographic / language errors which have been introduced with the changes.

The authors express their gratitude to Anonymous Referee #2 for their valuable feedback, which has improved the clarity and overall quality of this manuscript.

L141 - "the common of synoptic conditions" -> "the common synoptic conditions" or perhaps better would be something like "the typical synoptic conditions"

This has been modified in the manuscript following the suggestion of the Referee.

L147-149. "The PANAME initiative is an unprecedented converge

of multidisciplinary scientific investigations that promotes the synergy of numerous research projects that investigate the Paris urban environment in relation to weather, climate, air quality, and impacts on human health." is a bit of a confusing sentence, aside from having a couple of spelling mistakes. Something better might be "The PANAME initiative is an unprecedented programme bringing together a collection of multidisciplinary scientific projects that investigate the Paris urban environment in relation to weather, climate, air quality, and impacts on human health."

This has been modified in the manuscript following the suggestion of the Referee.

L176 - Replace both occurrences of "other" with "another".

This has been modified in the manuscript following the suggestion of the Referee.

L234 - "if lasts at least 2h" -> "if it lasts at least 2h"

This has been modified in the manuscript following the suggestion of the Referee.

L294 - "observations ... is representative" -> "observations ... are representative"

This has been modified in the manuscript following the suggestion of the Referee.

L456 - "conditions are prevail" -> "conditions prevail"

This has been modified in the manuscript following the suggestion of the Referee.

Figure 9 - please check the figures. The caption and text say the figures have been changed to show data from Montsouris, but the figure labels still say Melun.

In fact, the figure was not updated in the revised manuscript, it was a compilation mistake. The figure and its caption have been updated (see figure and caption above).

Figure 9 caption "Both curves represent the equation  $y = -1.39 \log(x) + 0.84$ ". The curves are different so how can they both represent the same equation? There are no free parameters in the equation.

See figure and caption above. In the fitting procedure used by the authors, no free parameters are present in the equation.

Table 2 caption "urban and rural surface wind speed at Melun" - should this be "urban wind speed at Montsouris and rural wind speed at Melun"?

This has been modified in the manuscript following the suggestion of the Referee.

L545 "variability of LLJ" -> "variability of LLJs"

This has been modified in the manuscript following the suggestion of the Referee.