

Hydrol. Earth Syst. Sci. Discuss., referee comment RC1
<https://doi.org/10.5194/hess-2021-412-RC1>, 2021
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Comment on hess-2021-412

Anonymous Referee #1

Referee comment on "The impact of wind on the rainfall–runoff relationship in urban high-rise building areas" by Xichao Gao et al., Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2021-412-RC1>, 2021

Based on CFD simulation and laboratory experiment, this manuscript proposed a framework to evaluate the relation between wind and runoff of high-rise building. Both mathematical and experimental results are well prepared and in good comparison. The topic fits well to the scope of HESS journal, the results are unique and interesting. I recommend minor revision before potential publication in HESS and have the following concerns:

- How high are the buildings to be considered as high-rise?
- Runoff from walls may flow into pervious areas like grass land etc. around the building.
- It is concluded that rainfall with larger droplets is less influenced by the wind, while larger droplets also mean large amount of rain brought by wind, what is the balance here.
- It seems the area of building, or the ratio of building area to the whole area, is associated with the runoff coefficient calculation.
- Based on the results of this study, the impact of wind on runoff coefficient is not that significant, under which circumstance the influence could become more important.
- Figure 6 reveals that... Additional explanation of the differences of rainfall intensity is expected, and should these differences be modified for reaching consistent runoff results? although the intensity values are not used in the runoff coefficient calculation as in Figure 7.

- In Figure 10, diameter 1.5 mm does not match with the values in Table 1