ZEPHYR

Towards a more efficient exploitation of on-shore and urban wind energy resources

Research and Innovation Action
Call: H2020-ITN-2019-1
Call topic: MSCA-ITN-2019 - Innovative Training Networks
Project start: 1 November 2019 Project duration: 48 months

D5.9: Urban canopy: documented public databases archived on ZENODO (T5.3)

Executive summary
The zEPHYR project is focused on the enhancement of wind turbine performance assessment in complex terrains and urban environments, encompassing extensive research into the real terrain and localized atmospheric effects on aerodynamic efficiency, structural behavior, and noise emission. Social factors are also of paramount importance in these endeavors, especially when implementing the wind turbines in densely populated urban regions. A significant element of this initiative is Deliverable D5.9, a documentation of all the public database on Zenodo related to the benchmark on "Urban Canopy".

Partner in charge: NTU

Project co-funded by the European Commission within Horizon 2020 Dissemination Level		
PU	Public	PU
PP	Restricted to other programme participants (including the Commission Services)	–
RE	Restricted to a group specified by the Consortium (including the Commission Services)	–
CO	Confidential, only for members of the Consortium (including the Commission Services)	–

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Deliverable Information

Document administrative information	
Project acronym:	**ZEPHYR**
Project number:	**860101**
Deliverable number:	**5.9**
Deliverable full title:	**Urban canopy: documented public databases archived on ZENODO**
Deliverable short title:	**Task 5.3 Public Database**
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Lead partner short name:	**NTU**
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Nature:	**Report**
Lead author(s):	**S. Shubham (NTU)**
Co-author(s):	
Status:	**Final version**

The ZEPHYR Consortium partner responsible for this deliverable has addressed all comments received. Changes to this document are detailed in the change log table below.

Change log

Date	Version number	Author/Editor	Summary of changes made
29/08/2023	v1.0	S. Shubham (NTU)	Uploaded public databased on Zenodo
29/08/2023	v1.0	S. Shubham (NTU)	Reviewed report
09/10/2023	v1.0	J. Christophe (VKI)	Final review

1 Public Database

The database is part of the zEPHYR ZENODO community (https://zenodo.org/communities/zephyr/) and is directly accessible from https://doi.org/10.5281/zenodo.8297713 and https://doi.org/10.5281/zenodo.8297571.

For reference, the reader can refer to (Shubham, Naik, Sachar, & Ianakiev, 2023).

- "Clifton Campus Site Plan.dwl" - 2D plan drawings of all buildings in the Clifton campus, Nottingham Trent University
- "Clifton campus CFD" folder - Preliminary CFD results of simulation of urban boundary layer over the Clifton campus buildings and CAD models as .catpart and .catproduct files
- "wind-turbines" folder - Power output of 5 different types of wind turbines, based on wind speeds in the city of Nottingham
- "wind-data" folder - Wind speed data for 4 different locations in the city of Nottingham

2 Acknowledgements

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References

Shubham, S., Naik, K., Sachar, S., & Ianakiev, A. (2023). Performance analysis of low reynolds number vertical axis wind turbines using low-fidelity and mid-fidelity methods and wind conditions in the city of nottingham. *Energy*, *279*, 127904. Retrieved from https://www.sciencedirect.com/science/article/pii/S0360544223012987 doi: https://doi.org/10.1016/j.energy.2023.127904