



Deliverable Summary Report: D2.1 (Version 4)

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Work Package: WP 2 – ‘Parameters to flow models and global case studies’
Deliverable name: D2.1 – ‘Requirements for new inputs to flow models’ - update
Deliverable status: Completed

Deliverable description

T2.1 Requirements analysis: Requirements from the wind flow modeling community will be collected and analyzed. Throughout the project, the requirements will be revisited as intermediate and final project outcomes are released to the modeling community. Expected outcome: Report on requirements for new inputs to flow models (D2.1)

Activities and tasks completed

The fourth version of the user requirements analysis is based on inputs from the first InnoWind user workshop held in Østerild in March 2019. The workshop ended with an open discussion of user requirements.

Deliverables and outcomes

This deliverable concludes the task T2.1 Requirements analysis. The outcome consists of two parts: *A*) a systematic analysis of data requirements for flow modeling in wind energy and *B*) a number of additional requirements gathered from individual project partners and external users of flow modeling tools.

A. Data requirements

Requirements that relate directly to data (i.e. data formats, coverage, spatial and temporal resolution) are summarized in the report [Data Requirements for WAsP, CFD & WRF](#) (Bechmann, 2017). The report is partly based on a survey conducted amongst WAsP and WindPRO users and partly on a literature review. It covers data requirements in the context of mesoscale as well as microscale modelling.

B. Additional requirements

Throughout InnoWind, the project partners have gathered information about end user’s requirements e.g. in connection with the first user workshop in March 2019. The following requirements have been expressed (note that they may not be representative for the user community as a whole):

- Seamless vector data are needed.
- Implementation of input data sets in WAsP or WindPRO is necessary to eliminate data conversion or pre-processing steps for the end users.
- Data sets must have global coverage – alternatively it should be possible to deliver data for any site in the world to end users within 24 hours.

- Free data sets are preferred and there is a lot of data available out there (of variable quality). The industry's willingness to pay for high-quality data processed specifically for wind energy applications remains unclear.
- The industry needs to see firm documentation for the added value of new satellite based data sets. This requires systematic testing over at least 100 sites.
- A transition from GUIs to Python is desired in connection with flow modelling as this allows automated processing with scripts instead of clicking.

References

Bechmann, A. (2017). Data Requirements for WAsP, CFD & WRF. DTU Wind Energy. DTU Wind Energy E, Vol. 155