Deliverable Summary Report: D3.5

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Work Package: *WP 3 – 'Exploitation and commercialization.'*
Deliverable name: *D3.5 – 'Forest module released as an add-on to flow modelling tools '*
Deliverable Status: *Completed*

Deliverable description

T3.5 Exploitation of WAsP forest module (DTU WE, EMD)

The development of a new forest module for WAsP in Task 2.4 will lead to the release of a new WAsP version by DTU WE. EMD has access to the WAsP calculation engine according to existing legal agreements, and the forest module will thus be implemented in windPRO – a modelling tool distributed by EMD.

Expected outcome:
• Forest module released as an add-on to flow modelling tools (D3.5).

Activities and tasks completed

As part of the business case development, a thorough requirements-analysis for micro-scale users was conducted (Bechmann 2017). The analysis concluded that users are looking for **high-resolution** micro-scale land-cover maps in both **time and space** accessible in a **standard GIS** format and that WAsP is a proper distribution channel.

The requirement-analysis led to the knowledge that many of the new advanced forest models developed in Innowind should be targeted a more advanced user-group than the normal WAsP-user. It was therefore decided in the Fast- and Intermediate exploitation tracks to include updates to WAsP. In contrast, the Long-term track would focus on developing a new software called "PyWAsP" for advanced users that included the most advanced forest models developed in Innowind.

Deliverables and outcomes

Fast Track

- WAsP 12.2 has been developed and commercially released and allow users to import extensive high-resolution Innowind data much faster than previously possible and the data can be imported as GML; a standard GIS format as requested by users (Bechmann 2017)

Intermediate Track

- WAsP 12.4 has also been released and made available to EMD. The new version adds a method to handle several datasets in a single project. This allows WAsP users to control the dynamic roughness layers developed in Task1.2.
- WAsP 12.6 (Q4 2020) will include a much faster way of calculating wind resources using the high-resolution Innowind datasets. WAsP 12.6 will also include a forest module that allows WAsP users to model displacement height.

Long-Term Track

- PyWAsP has been developed with the advanced forest module (also see D2.3) and made ready for full commercial release (Q4 2020)
- PyWAsP is licensed to EMD and three wind energy companies and alpha-testing of the full retail version is planned for May first 2020 (1-month delay due to Corona).

References

Bechmann, Andreas. 2017. Data Requirements for WAsP, CFD & WRF. DTU Wind Energy E 0155. http://orbit.dtu.dk/en/publications/data-requirements-for-wasp-cfd--wrf(740cc6b6-4ed5-4b9b-bac5-4bac4e9bd9ed).html.