Shelter models and observations

This report documents part of the work performed by work package (WP) 3 of the ‘Online WAsP’ project funded by the Danish Energy Technology and Demonstration Program (EUDP). WP3 initially identified the shortcomings of the current WAsP engine for small and medium wind turbines (Peña et al., 2014b), adapted the WAsP engine to OnlineWAsP (www.wasponline.dk), and made an effort to quantify the error and the uncertainty, first of the obstacle model in WAsP and later of the WAsP model chain. This report documents the work done for the obstacle model. In addition, EUDP supports the IEA task 27 on ‘small wind turbines in high turbulence sites’, which aims at acquiring a better understanding of the wind conditions in which small turbines operate. This support helped us setting up a full-scale field experiment conducted at DTU’s test site at Riso, Roskilde, where we measured the flow characteristics in the wake of a fence. The experiment is the basis of the study of the error and uncertainty of the obstacle models.