Calibrating a wind turbine model using diverse datasets

This paper presents a model calibration investigation using a wide range of available data. The wind turbine under investigation was the V52 research turbine located at Denmark Technical University (DTU) Risø campus. The data included drawings and static and dynamic tests for both the entire wind turbine and the isolated blades. Each set of data was used to calibrate some aspect of the final model. There are three main parts of this paper. First, the different data sources are outlined, including an overview of the experimental procedures and the key results. Second, the model calibration procedure for each set of experimental data is explained. Third, recommendations for the calibration procedure are presented for future researchers and the key outcomes of our calibration investigation are discussed.