A comparison study of the two-bladed partial pitch turbine during normal operation and an extreme gust conditions - DTU Orbit (14/04/2019)

This paper shows the load comparisons between the numerical simulation and the full-scale load measurement data. First part of this paper includes the comparisons of statistic load in terms of maximum, mean, and minimum values for the selected normal operation cases. The blade root bending moments and tower top bending moments are compared. Second part of this paper introduces the dynamic response comparisons during an extreme wind gust condition where the wind speed changed approximately 10 m/s during three seconds. The rotor speed and blade root flapwise and edgewise bending moment are compared. The nonlinear aeroelastic simulation code HAWC2 is used for the simulations. A very fine agreement between the simulated and the full-scale measured loads is seen for the both comparisons.

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