

**V.A. Riziotis, P.K. Chaviaropoulos and S.G. Voutsinas, “Development of a State-of-the-art Aeroelastic Simulator for Horizontal Axis Wind Turbines. Part 2: Aerodynamic Aspects and Applications”, Journal Wind Engineering, Vol 20, No. 6, pp. 423-439, (1996).**

### **Abstract**

The aerodynamic aspects and application examples of a state-of-the-art aeroelastic code for horizontal axis wind turbine simulations are presented in this, Part 2, paper. The structural aspects of the method are discussed in the companion Part 1 paper. The aerodynamic loads are derived applying unsteady momentum theory at the blade element level. Dynamic inflow and dynamic stall effects have been successfully implemented into the aerodynamic model. Both deterministic and stochastic wind inflow conditions are taken into account by modelling the distribution of the mean and the turbulent part of the wind speed vector over the rotor disc. Application examples of the complete aeroelastic code and comparison of numerical results against measurements are included in the last part of the paper.

### **Keywords**

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