

**P. Chaviaropoulos, “Probabilistic Analysis of Extreme Wind Events”, Journal Wind Engineering, Vol.21, No 3, pp. 139-159, (1997).**

### **Abstract**

A vital task in wind engineering and meteorology is to understand measure, analyze and forecast extreme wind conditions, due to their significant effects on human activities and installations like buildings, bridges or wind turbines. The latest version of the IEC standard (1996) pays particular attention to the extreme wind events that have to be taken into account when designing or certifying a wind generator. Actually, the extreme wind events within a 50 year period are those which determine the "static" design of most of the wind turbine components. The extremes which are important for the safety of wind generators are those associated with the so-called "survival wind speed", the extreme operating gusts and the extreme wind direction changes. A probabilistic approach for the analysis of these events is proposed in this paper. Emphasis is put on establishing the relation between extreme values and physically meaningful "site calibration" parameters, like probability distribution of the annual wind speed, turbulence intensity and power spectra properties.

### **Keywords**

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