

# A Benchmark on Lifetime Prediction of Composite Materials under Fatigue

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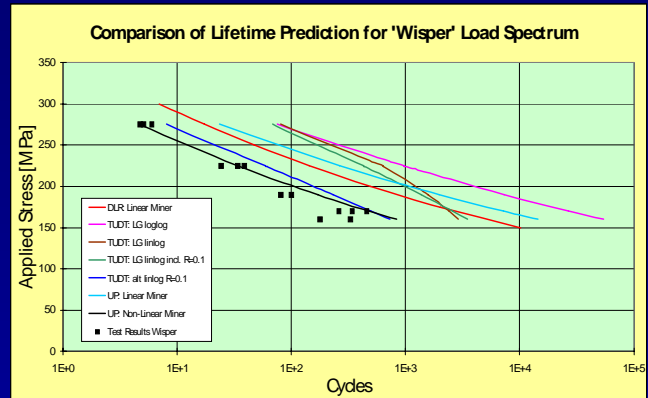
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## Starting point

Lifetime prediction methodologies are an essential tool during design of wind turbine rotor blades. A detailed knowledge about their basics and special features is important to evaluate the results.

Even for similar physical models, the results can show decisive differences.



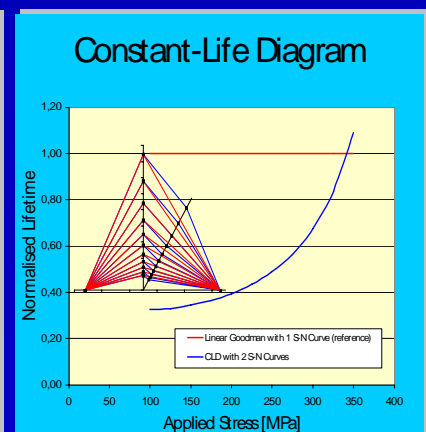
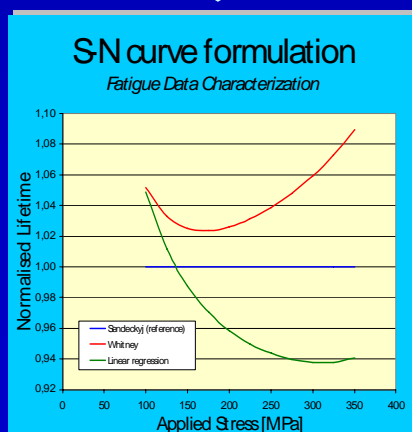
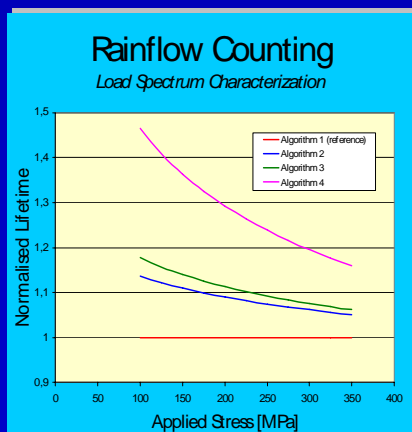
## Objective

To quantify the influence of each step within a lifetime prediction process on the results during a benchmark

## Benchmark

- Comparison of different rainflow counting algorithms
- Comparison of different S-N curve formulations
- Comparison of different constant-life diagrams

Lifetime calculation with linear Palmgren-Miner rule



Benchmark

Unified Basis

Comparison of different models

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