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WORKSHOP CONCLUSIONS

The following general conclusions were jointly proposed by the three working groups:

- The statistical models of single wires, which are not directly transferable to more complex elements, such as bundles and ropes, are indeed useful for determining the qualitative aspects of fatigue.

- Identification of the governing parameters, to be given to the statisticians, as model designers, is a task belonging to materials scientists and laboratory and structural designers.

- Test strategies and randomization of data are needed in order to obtain an optimal test design.

- The assumptions of an underlying Weibull distribution and asymptotic independence are reasonable bases for statistical modelling.

- Recovery length should be used as a basis for modelling and testing of bundles or composed elements.

- A clear definition of the term «failure» is needed so as to be able to predict it statistically. Limit state criteria (for both ultimate and serviceability limit states) and a failure criterion for testing, which may not coincide with the former, should be considered separately.

- There is a big gap between researchers and designers. Therefore, interaction between both, and other groups (statisticians and other developers of probabilistic models, materials scientists and testing and design engineers) is crucial in order to develop suitable models as well as to gain a general insight of fatigue, thus facilitating the design of longitudinal elements, such as ropes and bundles, in real structures.

- Interruption during testing and improvement of «in situ» damage detection is desirable in order to achieve a better contrast of the models used in failure mechanisms.

- Special care should be devoted to anchorages.

- Attention should be paid to fretting, corrosion fatigue, stress corrosion, cracking and hydrogen embrittlement, as candidate mechanisms playing a key role in the length effect.

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