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A Study of Exponential-Arrhenius Model

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Abstract

In this paper, a complete study of Exponential-Arrhenius model for constant accelerated stress is investigated. The maximum likelihood and Bayesian estimators are dealt with and compared. A Monte Carlo simulation has been performed to examine the asymptotic behavior of these different estimators. An example shows the interest to use the Bayesian approach in integrating available knowledge in model parameters and the asymptotic behavior of Bayesian estimators. It is important to mention that the Arrhenius model is used when the damaging mechanism is temperature sensitive.

Keywords: Accelerated stress, Exponential-Arrhenius model, Monte Carlo simulation, Bayesian approach

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