

# INFLUENCE OF CURING CONDITIONS ON THE MODULUS OF ELASTICITY OF CONCRETE – A STATISTICAL APPROACH

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**Abstract:** The well-know Pauw's formula is often used to predict the elastic modulus of concrete. It is a generic formula derived from empirical data, which does not account for model uncertainties. Curing of concrete at early age plays a significant role in the long-term behavior of concrete, and as a result will influence the strength and modulus of elasticity of concrete. Therefore, the role of curing on the long-term mechanical behavior of concrete cannot be ignored. When applying the Pauw's formula to predict the elastic modulus of concrete, there is no consideration for the curing factor. A framework to construct probabilistic models that expand upon Pauw's formula is used to include the effect of early-age curing in concrete based on observational data. A Bayesian step-wise deletion process is used to identify important explanatory function and construct parsimonious models. Based on a large number of experimental data on fresh concrete curing conditions, this paper aims to evaluate the influence of curing on the elastic moduli of concrete and to develop accurate probabilistic models that can be used in practice to predict the elastic modulus of concrete subjected to different curing conditions.

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