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## **UNCERTAINTY ANALYSIS IN WATER RESOURCES TIME SERIES**

**Marcelo Coelho**<sup>1</sup>

**Cristovão Vicente Scapulatempo Fernandes**<sup>2</sup>

**Daniel Henrique Marco Detzel**<sup>3</sup>

**ABSTRACT:** Although it is clear the need for inclusion of uncertainty analyses in water resources management, the knowledge about how to perform them is still incipient. The application of standard practices, based on probabilities theory, are challenging in environmental sciences, a field in which each event is unique. It implies considerable subjectivity for uncertainty assessment and expression. The impact of uncertainties should be understood in the statistical context, where information for planning is produced. Statistical methods should only be applied in time series compliant with randomness, homogeneity, independence and stationarity (RHIS). Non-compliance can occur when autocorrelation, trends, cycles and/or shifts are present. In this research, an algorithm was developed to generate synthetic time series from uncertainty intervals and verify compliance with RHIS. The method was applied in time series from the Upper Iguassu Basin in southern Brazil. Results revealed that uncertainties related to representativeness are more relevant than measurement uncertainties, and that the inherent subjectivity of uncertainty assessment and expression has little importance to this process. It was concluded that investments in well-developed monitoring strategies can provide higher benefits than more precise methods, techniques and equipments for statistical results.

Key-words: Uncertainty. Water resources management. Time series. Statistical analysis.

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<sup>1</sup> Mestre em Engenharia de Recursos Hídricos e Ambiental, Universidade Federal do Paraná, Curitiba, PR, mcoelho2011@hotmail.com

<sup>2</sup> Doutor em Doutorado em Civil and Environmental Engineering, Universidade Federal do Paraná, Curitiba, PR, cris.dhs@ufpr.br

<sup>3</sup> Doutor em Engenharia de Recursos Hídricos e Ambiental, Universidade Federal do Paraná, Curitiba, PR, daniel@lactec.org.br