

UNESCO-IHE LECTURE NOTE SERIES

Record-breaking floods in many places in the world in recent years have underlined the need for accurate flood forecasting models. By knowing in advance when, where and at what level a river will crest, appropriate protection works can be planned and damage to life and property can be reduced. This book presents a streamflow model technique, which has been adopted by various hydrological forecasting services. The physics-based structural-stochastic forecasting model is formulated with discrete data, accounts for model uncertainties, is adaptive, and mathematically accessible. The reader is guided gradually through the model building and forecasting process and through the generation of the relevant system matrices with the enclosed MATLAB codes. The many examples and sample inflow and outflow data illustrate real life flow routing problems in Europe and the US and allow, with the adaptable MATLAB codes, the simulation of streamflows and the creation of real-time hydrological forecasts.

This volume was developed as course material for hydroinformatics, surface hydrology and water management courses. It is moreover intended for hydrologists and civil, environmental and agricultural engineers, who are involved with flood forecasting and water resources management. A CD-ROM with MATLAB codes is included.



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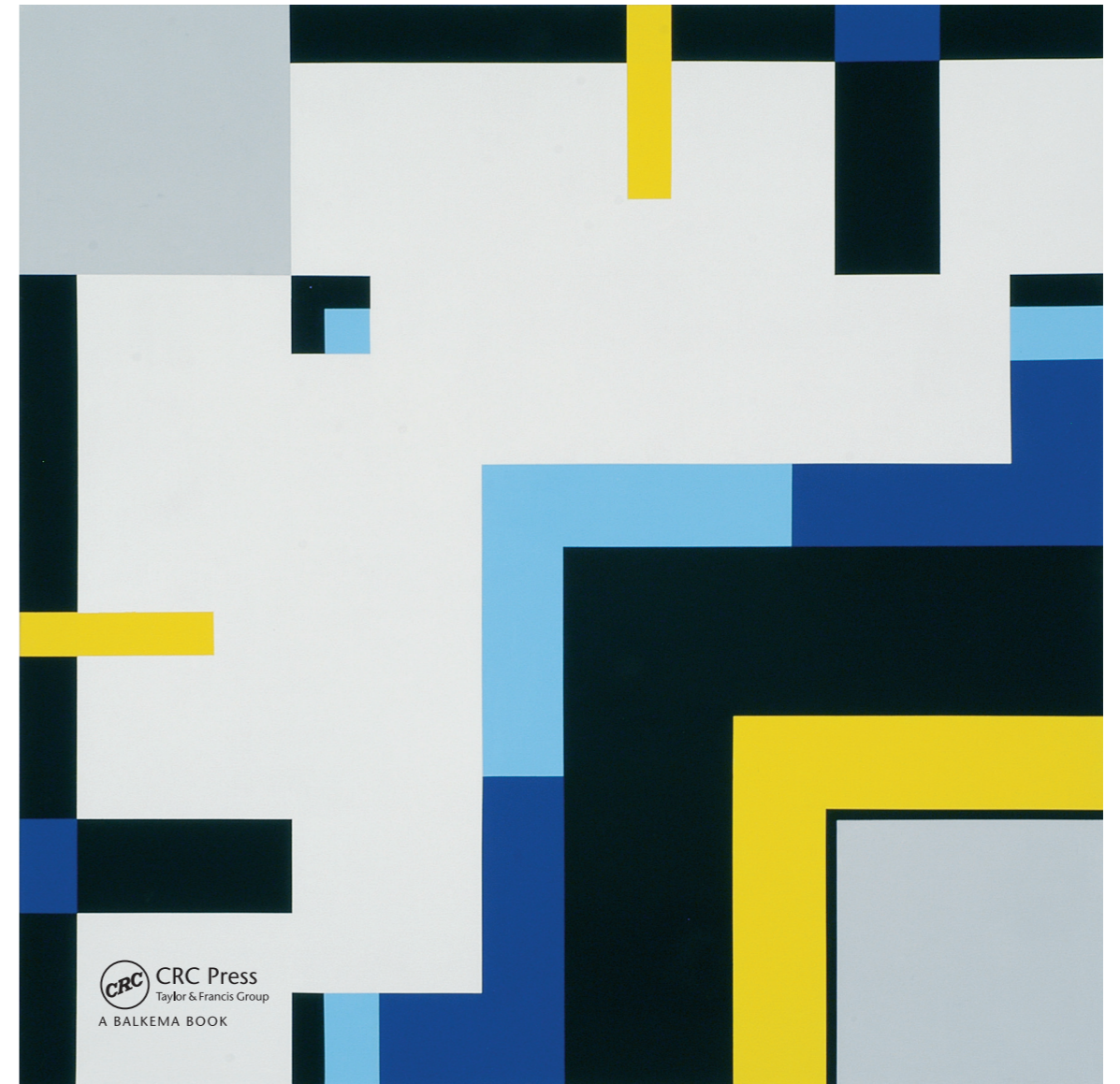
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RECURSIVE STREAMFLOW FORECASTING A STATE-SPACE APPROACH



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