

SDWA Weekly Research Team Meeting

Venue: SDWA Office, Block E1-08-25
Date: 11th February 2009, Wed at 1500hrs



singapore-delft water alliance

Part I ***Synthetic time series***

by

Dr Henk van den Boogaard

Abstract

A *synthetic time series* is a numerically constructed function of time that satisfies prescribed constraints. These constraints may consist of physical/statistical properties, and/or observations for times t where these are available. In practice (algorithms and tools for) synthetic time series are relevant for e.g. (i) interpolation of missing values or gaps in observed time series with maximal use of prior physical/process knowledge (statistical downscaling or 'spectral gap modelling), (ii) the generation of a single or an ensemble of realistic realisations of a certain process in absence of observations but in presence of statistical information, (iii) ensemble based risk, sensitivity, or uncertainty assessments.

In the presentation an algorithm for the construction of synthetic time series is described. In this algorithm the constraints are translated into cost functions. For the identification of a synthetic time series the superposition of these cost functions must be minimised. Examples will be shown of synthetically generated time series.

The Speaker

Dr. Henk van den Boogaard is currently a Senior Specialist at the department Strategic Research and Development of Deltares/Delft Hydraulics (The Netherlands). He has worked on developments and applications of a wide variety of methods and techniques, dealing with data analysis, data driven modeling, data assimilation, optimisation, calibration of numerical models, stochastic models, uncertainty analysis, etc. Within the Singapore-Delft Water Alliance programs he participates in the research project "Multi-Objective Multi-Reservoir Management".

Part II

Operational decision-making in forecasting

by

Dr Dirk Schwanenberg

Abstract

Operational forecasting systems fulfill several duties in water resources, in particular for avoiding / reducing flood damage and managing droughts. Operational decision-making on the operation of hydraulic structures may become an essential issue in strongly regulated rivers basins.

In the presentation several aspects of operational decision-making will be discussed based on actual research and consulting projects: rules-based / interactive / optimization-based decision-making, uncertain inputs, institutional aspects etc.

The Speaker

Dr. Dirk Schwanenberg is a senior engineer at the unit Operational Water Management of Deltares/Delft Hydraulics (The Netherlands). He is currently working on forecasting and the integrating of decision-making into operational forecasting, i.e. the optimum control of hydraulic structures such as reservoirs, weirs or polders. Within the Singapore-Delft Water Alliance programs he participates in the research project "Multi-Objective Multi-Reservoir Management".