



Aalborg Universitet

AALBORG UNIVERSITY  
DENMARK

## Stochastic Long Term Modelling of a Drainage System with Estimation of Return Period Uncertainty

Thorndahl, Søren Liedtke

*Published in:*

Book of Abstracts : 11 ICUD : 31 August - 5 September 2008

*Publication date:*

2008

*Document Version*

Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

*Citation for published version (APA):*

Thorndahl, S. (2008). Stochastic Long Term Modelling of a Drainage System with Estimation of Return Period Uncertainty. In Book of Abstracts : 11 ICUD : 31 August - 5 September 2008: 11th International Conference on Urban Drainage, Edinburgh International Conference Centre, Scotland (pp. 127)

### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- ? Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- ? You may not further distribute the material or use it for any profit-making activity or commercial gain
- ? You may freely distribute the URL identifying the publication in the public portal ?

### Take down policy

If you believe that this document breaches copyright please contact us at [vbn@aub.aau.dk](mailto:vbn@aub.aau.dk) providing details, and we will remove access to the work immediately and investigate your claim.

**Stochastic long term modelling of a drainage system with estimation of return period uncertainty**

Soren Thorndahl

*Presented by - Soren Thorndahl, DENMARK*

Long term prediction of maximum water levels and combined sewer overflow (CSO) in drainage systems are associated with large uncertainties. Especially on rainfall inputs, parameters, and assessment of return periods. This paper proposes a Monte Carlo based methodology for stochastic prediction of both maximum water levels as well as CSO volumes based on operations of the urban drainage model MOUSE (Lindberg and Joergensen 1986) in a single catchment case study. Results show quite a wide confidence interval of the model predictions especially on the large return periods. Traditionally, return periods of drainage system predictions are based on ranking, but this paper proposes a new methodology for the assessment of return periods. Based on statistics of characteristic rainfall parameters and correlation with drainage system predictions, it is possible to predict return periods more reliably, and with smaller confidence bands compared to the traditional methodology.