Geophysical Research Abstracts,
Vol. 10, EGU2008-A-01830, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-01830
EGU General Assembly 2008

Uncertainties in canopy and forest floor interception

A.M.J. Gerrits (1,2), L. Pfister (2) and H.H.G. Savenije (1)

(1) Water Resources Section, Faculty of Civil Engineering and Geosciences, Delft University of Technology, The Netherlands, (2) Public Research Center - Gabriel Lippmann, Luxembourg. (a.m.j.gerrits@tudelft.nl / Phone: +31 15 278 2110)

Interception is often neglected in hydrological models, often leading to poor model performance. Interception can be seen as a threshold process: a certain amount of water is needed before a successive process (e.g. infiltration or runoff) is triggered. Generally, a fixed value based on field experiments is chosen for this threshold. However, this value differs per vegetation type and may vary over the season.

In an experimental plot in Luxembourg interception is intensively measured since 2003, while, besides canopy interception, also forest floor interception is investigated. Canopy interception is determined by subtracting throughfall and stemflow from gross precipitation. For measuring forest floor interception a special device has been developed. Two aluminium basins are mounted above each other and placed into the ground. The upper basin is permeable and contains the forest floor. By weighing both basins continuously, evaporation from the forest floor can be determined.

From the observations, we can conclude that the canopy storage capacity has a clear seasonal effect: in summer a high capacity and in winter close to zero. However, this seasonal pattern is not so clear in the forest floor. We found that the storage capacity can easily vary by a few millimetres within a season and that the interception capacity (particularly of the forest floor) depends on rainfall intensity.

Acknowledgements: The authors would like to thank the Ministry of Culture, Higher Education and Research of Luxembourg and Delft Cluster, the Netherlands, for their support of this research.