Historical and recent developments in mathematical modeling of infiltration in hydrology

William L. Hogarth

Faculty of Environmental Sciences, Griffith University, Nathan, Queensland

Calvin W. Rose

Faculty of Environmental Sciences, Griffith University, Nathan, Queensland

Tammo S. Steenhuis¹

Department of Agricultural and Biological Engineering, Cornell University

J.-Yves Parlange

Department of Agricultural and Biological Engineering, Cornell University

Abstract. Mathematical modeling in hydrology in the 20th century has made great strides forward. In this paper, selected techniques to model the infiltration of water in soil and the formation of instabilities at the wetting front are presented. Both analytical and numerical approaches are discussed and simulation results are compared with either laboratory or field data.

Ithaca, NY 14853 Tel: (607)255-2489

e-mail: tss1@cornell.edu

¹ Department of Agricultural and Biological Engineering Cornell University