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Scaling of hydrologic and erosion parameters derived from rainfall simulation

Gary Sheridan, Patrick Lane, Philip Noske, and Christopher Sherwin
The University of Melbourne, School of Forest and Ecosystem Science, Melbourne, Australia (sheridan@unimelb.edu.au)

Rainfall simulation experiments conducted at the temporal scale of minutes and the spatial scale of meters are often used to derive parameters for erosion and water quality models that operate at much larger temporal and spatial scales. While such parameterization is convenient, there has been little effort to validate this approach via nested experiments across these scales. In this paper we first review the literature relevant to some of these long acknowledged issues. We then present rainfall simulation and erosion plot data from a range of sources, including mining, roading, and forestry, to explore the issues associated with the scaling of parameters such as infiltration properties and erodibility coefficients.