Geophysical Research Abstracts, Vol. 9, 01850, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-01850

Time effect on in-situ mobilization of colloids in undisturbed soil columns

S. Majdalani (1), E. Michel (2), R. Angulo-Jaramillo (1,3), L. Di Pietro (2)

(1) Laboratoire d'Etude des Transferts en Hydrologie et Environnement, LTHE (UMR 5564, CNRS, INPG, IRD, UJF), BP 53, 38041 GRENOBLE Cedex 9, France, (2) Institut National de la Recherche Agronomique – Unité Climat, Sol et Environnement, Domaine St Paul, 84914 Avignon Cedex 9, France, (3) Now at the Laboratoire de Sciences de l'Environnement, ENTPE, rue Maurice Audin, 69518 Vaulx-en-Vélin, France (samer.majdalani@hmg.inpg.fr / Fax: (33) 476 82 50 69 / Phone: (33) 476 82 51 01)

Understanding particles movement in soils is a major concern for both geotechnics and soil physics with regards to environmental protection or water resources management. Most of the existing studies deal with particle mobilization *during* the infiltration event itself without focusing on what happens during the pause period between one infiltration event and another. Meanwhile, few studies are concerned with decrease and replenishment of the pool of dispersible particles during and between rainfall events. According to these studies, pool replenishment could be due to freeze-thaw cycles and drying. In this work, a series of infiltration-drainage experiments was carried on to study the *time effect* as a main parameter for in-situ mobilization of colloids in undisturbed soil columns. It shows that, under the same experimental conditions (i.e., same rainfall intensity, ionic strength), the pause period between two rainfall events has a major influence on subsequent particle mobilization: for short pause periods, the quantity of leached particles increases until it reaches a maximum, and then it decreases for larger pause periods. This behaviour shows that particle mobilization is not only controlled by the infiltration event itself, but also by *what happens* between one infiltration event and another. Therefore, the history of the soil column must be taken into account in particle transport modelling.