

Saturday, November 4th

from 16.00	Arrival at Monte Verità and registration
17.00	Welcome drink at the “Bar Roccia” at Monte Verità
19.00	Greetings from the organizers
19.15	Dinner
22.30	Music and dance

Sunday, November 5th

Excursion with hike to Monte San Giorgio (<http://whc.unesco.org/en/list/1090>)

8.30	Departure by bus from Monte Verità/Hotel La Perla
9.30	Arrival at Meride
9.45	Hike to Monte San Giorgio (medium hike, <u>hiking shoes recommended</u> , during the hike there is a visit to a cave where <u>a flashlight is needed</u>)
13.00	Return to Meride and visit of the Fossils Museum
13.30	Bus transfer to Tremona, Restaurant “Grotto Grassi”
14.00	Lunch at Grotto Grassi
15.30	Return by bus to Monte Verità
16.45	Arrival at Monte Verità/Hotel La Perla

Excursion without hike

10.30	Departure by bus from Monte Verità/Hotel La Perla
11.30	Arrival at Meride and visit of the Fossils Museum and the village of Meride
13.30	Meeting with participants returning from the hike. Program follows as described above

Monday, November 6th - Morning

Session 1: Field evidence of preferential flow and transport in soil

Chair: Timothy Green

- 8.40 – 9.20 **Brent Clothier**, S. Green and M. Deurer
When does preferential flow and transport matter?
- 9.20 – 9.40 **Coen J. Ritsema**, J. G. Wesseling, L. W. Dekker, K. Oostindie and S. J. Kostka
Preferential flow in sandy soils: the invisible revealed
- 9.40 – 10.00 **Gerrit H. de Rooij**, F. Hogervorst, E. Bloem, F. Stagnitti, O.A. Cirpka, and J. Vanderborght
Water flow and solute transport in heterogeneous soils: recent advances in in situ measurements and data analysis
- 10.00 – 10.20 **Franck A. N. Hogervorst**, E. Bloem and G. H. de Rooij
Unsaturated flux variability measurements in summer rainstorm conditions at high spatial and temporal resolution
- 10.20 – 10.40 **Esther Bloem**, F.A.N. Hogervorst and G.H. de Rooij
A field experiment with a variable-suction multi-compartment sampler to measure the spatio-temporal distribution of solute leaching
- 10.40 – 11.10 Coffee break
- 11.10 – 11.30 **Karin Müller**, C. Duwig, P. Delmas, H. Morin, K. Ren, and B. Prado
Quantifying fluorescent tracer distribution in allophanic soils to image solute transport
- 11.30 – 11.50 **Roy Kasteel**, J. Vanderborght, M. Javaux, M. Burkhardt, P. Klauth and H. Vereecken
Dye Tracing in Soils: From Qualitative Imaging of Preferential Flow to Quantitative Investigation of Transport of Reactive Tracers and Colloids
- 11.50 – 12.10 **Viliam Pichler**, J. Capuliak and J. Gregor
Patterns of preferential flow in a soil under a beech forest subject to various management systems
- 12.10 – 12.30 **Loes van Schaik**
Spatial variability of preferential flow related to site characteristics in a DEHESA catchment
- Lunch

Monday, November 6th - Afternoon

Session 1 (continued)

Chair: Jan Vanderborght

- 14.00 – 14.40 **Markus Flury**
Preferential Flow in the Vadose Zone and Implications for Contaminant Transport
- 14.40 – 15.00 **Kai U. Totsche**, S. Jann and I. Kögel-Knabner
PAH release and transport at a coal tar-contaminated gravelly soil: Effect of mobile particles and Temperature
- 15.00 – 15.20 **Andrey K. Guber**, Y.A. Pachepsky, D.R. Shelton and M.T. van Genuchten
Preferential E. coli transport in Saturated Soil Columns
- 15.20 – 15.40 **Mikhail Mishurov**, A. Yakirevich and N. Weisbrod
Colloidal transport in unsaturated heterogeneous sand: column experiments
- 15.40 – 16.10 Coffee Break
- 16.10 – 16.30 **Majid Afyuni**, M. Yeganeh, K. Abbaspour, A. H. Khoshgoftar and R. Schulin
Transport of cadmium, zinc, copper and nitrate in a heavily sewage sludge amended calcareous soil
- 16.30 – 16.50 **Zisis Vryzas** and E. Papadopoulou-Mourkidou
Four year suction cup data concerning the preferential flow of bromide, brilliant blue and corn applied herbicides with their metabolites, in clayey vadose zone: a field scale experiment in North-East Greece
- 16.50 – 17.10 **Louis W. Dekker**, S. J. Kostka, J. G. Wesseling, D. Moore, C. J. Ritsema and K. Oostindie
Prevention of preferential flow and dry spots in sandy golf courses
- 17.10 – 17.30 H. Stoffregen, **G. Wessolek**, U. Yaramanci, O. Mohnke
Discrimination of flow regions of water repellent soil: conclusions of tracer, TDR and geophysical experiments
- 19.30 Dinner

Tuesday, November 7th - Morning

Session 2: Pore-scale processes involved in preferential flow and transport in soil

Chair: Peter Lehmann

- 9.00 – 9.40 **Dani Or**
Limits of applicability of the Richards equation from scaling capillary, gravity and viscous forces in unsaturated porous media
- 9.40 – 10.00 **Peter F. Germann**
Preferential flow - from pores to profiles
- 10.00 – 11.00 Coffee Break and Poster Session I (*Chair: Rainer Schulin*)
Posters by: Christina Bogner, Andrea Carminati, Jean-Yves Chapot, Frantisek Dolezal, Sadao Eguchi, Annemieke Gärdenäs, Peter Lehmann, Samer Madjalani, Sybille Schumann, Carolin Von der Heide & Jürgen Böttcher and Catherine Watson.
Some Authors of the lectures will display a poster as well.
- 11.00 – 11.20 **Lifang Luo**, H. Lin and P. Halleck
Quantification of solute transport in a structured intact soil using industrial X-ray CT
- 11.20 – 11.40 **Sacha E. Oswald**, W. Kinzelbach and K. Johannsen
Influence of a high permeability zone and initial conditions on density fingering: Three-dimensional imaging and numerical simulations
- 11.40 – 12.00 **Fereidoun Rezanezhad**, H.-J. Vogel and K. Roth
Unstable gravity-driven fingers development and persistence in unsaturated porous media: Experimental verification
- 12.00 – 12.20 **Brett Robinson**, A. Moradi, H. Conesa, S. Roulier, M. Menon, E. Lehmann and R. Schulin
Preferential flow and the phytomanagement of contaminated sites
- 12.30 Lunch

Tuesday, November 7th - Afternoon

Session 3 Scaling issues and scale-dependence of preferential flow and transport in soil

Chair: Murugesu Sivapalan

- 14.00 – 14.40 **William Jury**
Pore and Darcy Scale Physics of Preferential Flow Arising from Fluid Instability in Homogeneous Soil
- 14.40 – 15.00 **Peter Lehmann**
Effect of connectivity on flow and transport in soils from pore- to hillslope scale
- 15.00 – 16.00 Coffee Break and Poster Session II (*Chair: Rainer Schulin*)
Posters by: Christina Bogner, Andrea Carminati, Jean-Yves Chapot, Frantisek Dolezal, Sadao Eguchi, Annemieke Gärdenäs, Peter Lehmann, Samer Madjalani, Sybille Schumann, Carolin Von der Heide & Jürgen Böttcher and Catherine Watson.
Some Authors of the lectures will display a poster as well.
- 16.00 – 16.40 **Kurt Roth**, H.-J. Vogel and F. Rezanezhad
Scaling of Preferential Flow and Transport Processes in Soils?
- 16.40 – 17.00 **Insa Neuweiler**
Upscaled models and effective parameters for unsaturated flow including connected paths of the soil structure
- 17.00 – 17.20 **Timothy R. Green**, D.L. Freyberg, J.E. Constantz and L.R. Ahuja
Scaling up preferential flow in unsaturated undulating terrain due to anisotropic soil hydraulic conductivity and other potential mechanisms
- 17.20 – 17.40 **Henry Lin**
Preferential Flow at Multiple Spatial and Temporal Scales in the Shale Hills Catchment
- 19.30 Dinner

Wednesday, November 8th - Morning

Session 4: The role of preferential flow and transport in soil in catchment and basin processes

Chair: Stephanie Roulier

8.40 – 9.20	Murugesu Sivapalan and C. Harman Interactions of spatial heterogeneity in bedrock elevation, soil depth and permeability with climate variability: A regime approach to assessing process complexity at hillslope or catchment scale
9.20 – 9.40	Mohammad A. Hajabbasi Effects of changing pasture to arable land on moisture release curve in soils of southwest Isfahan
9.40 – 10.00	Nadia Ursino Preferential flow and vegetation organization in arid lands
10.00 – 10.20	James W. Kirchner Reflections of preferential flow at the hillslope and catchment scale
10.20 – 10.50	Coffee Break
10.50 – 11.30	Andrea Rinaldo Transport of reactive solutes at large scales
11.30 – 11.50	Christian Stamm Do we need to separate between preferential flow and surface runoff at the catchment scale?
11.50 – 12.10	Christoph Hinz , G. McGrath, A. Hearman and M. Sivapalan Climate controls of preferential flow initiation: Threshold processes and its modeling
12.10 – 12.30	Erwin Zehe , L. Samaniego and A. Bárdossy A novel approach for stochastic modelling of rapid transport at the field and catchment scale
12.30	Lunch

Wednesday, November 8th - Afternoon

Session 5: Conceptualisation and modeling preferential flow and transport in soil

Chair: Milena Cislerova

- 14.00 – 14.40 **Rien van Genuchten**, J. Simunek, H. H. Gerke, A. Boivin, Y. Coquet, A. Gardenas, M Schaap, and S.R. Bradford
Modeling Preferential Flow and Transport at the Plot and Field Scales
- 14.40 – 15.00 **Tomas Vogel**
Modeling preferential flow in a hillslope segment
- 15.00 – 15.20 **Gunnar Kahl**, J. Ingwersen, P. Nutniyom, S. Totrakool, K. Pansombat, P. Thavornytikarn and T. Streck
Lateral transport of pesticides in a sloped soil under litchi in Northern Thailand
- 15.20 – 15.40 **Stephanie Roulier**, B. Robinson, E. Kuster and R. Schulin
Simulation of the effect of vegetation on the preferential transport of Pb in road-side soils
- 15.40 – 16.00 **Mats Larsbo**, K. Abbaspour, K. Fenner, E. Topp, D. Lapen, C. Metcalfe, M. Burkhardt, K. Stoob and C. Stamm
Simulating transport of pharmaceuticals in macroporous soils using field and micro-plot data
- 16.00 – 16.30 Coffee Break
- 16.30 – 17.10 **Nick Jarvis**
Predicting macropore flow at non-investigated sites
- 17.10 – 17.30 **Suzanne Allaire**, E. van Bochove, G. Theriault, F. Dechmi, E. Topp and D. Lapen
Development of a preferential flow component for indicators of risk of water contamination for Canada
- 17.30 – 17.50 **Christina Bogner**, B. Wolf, M. Schlather and B. Huwe
Analysing flow patterns from dye tracer experiments in a forest soil using extreme value statistics
- 17.50 – 18.10 **Thomas Gimmi** and N. Ursino
The concept of dilution and preferential flow and transport in unsaturated media - a critical review of present and past research
- 19.30 Conference Dinner

Thursday, November 9th - Morning

Session 6: Parameterisation of preferential flow and transport in soil models

Chair: Harry Vereecken

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| 9.10 – 9.50 | Wolfgang Durner , U. Jansen, J. Wienhöfer, K. Foit and S. Iden
Hydraulic and transport parameters of non-uniform soils |
| 9.50 – 10.10 | M. Císlerová , T. Vogel, M. Dohnal, M. Šanda, M. Sněhota and J. Dušek
Evaluation of parameters for dual permeability simulation models |
| 10.10 – 10.30 | Hans-Jörg Vogel
Different strategies for considering preferential flow paths in modelling solute transport in soil |
| 10.30 – 11.00 | Coffee Break |

Session 7: Unsolved questions and future challenges in preferential flow and transport in soil research

Chair: Brent Clothier

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| 11.00 – 12.30 | Session 7 will consist on a discussion and final conclusions the outcomes of the workshop |
| 12.30 | Lunch and departure |