



Introduction to the ISMC actions on PTFs

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ISMC Workshop on PTFs 10th of December 2017

- 9.00-9.10 Introduction
H. Vereecken
- 9.10-9.30 Status Pedotransfer functions in Earth system sciences
K. Van Looy and H. Vereecken
- 9.30-9.45 PTFs for water related processes
M. Schaap
- 9.45-10.00 PTFs for energy related processes
A. Verhoef
- 10.00-10.15 On the role of structure in PTFs
J. Koestel
- Break
- 10.45-11.00 PTFs for Biogeochemical processes:
L. Weihermüller and M. Herbst
- 11.00-11.15 Methodological challenges PTFs in Earth system models
B. Minasny and J. Padarian
- 11.15-11.30 Informing land surface models with observation & geospatial science:
U. Mishra
- 11.30-11.45 Global mapping / modeling possibilities
C. Montzka

Lunch break

Afternoon 13.30-17.00

present new projects and future perspectives

round table discussions

Mission

- bringing together experts in modelling soil processes within all major soil disciplines
- addressing **major scientific gaps** in describing key processes and their long term impacts with respect to the different functions and ecosystem services provided by soil
- promoting **integration of soil modelling expertise** in neighboring disciplines (climate, land surface, eco, hydro, and other models)
- performing soil model **intercomparison studies** at local to global scales
- consolidating **soil and other data platforms** for modeling purposes
- integrating **societal and environmental considerations** into soil and ecosystem functioning



Charrette #1: Integrating observation network data into models - CZO/LTER/NEON/ISMC (08/11/2017)

Interactive Webinar Series „Using Observation Networks to Advance Earth System Understanding: State of the Art, Data-Model Integration, and Frontiers”

1. Integrating Observation Network Data into Models – 8/11/2017

Kris Van Looy – ISMC (FZ Jülich), Roland Baatz – eLTER (FZ Jülich), Samantha Weintraub (NEON)



Mitglied der Helmholtz-Gemeinschaft

- Atmosphere
- Pore scale
- Lab scale
- Lysimeter
- Flux tower
- Field scale
- Landscape scale
- Catchment scale
- Continental scale
- Global scale



Using observation networks to advance Earth system understanding
State of the art, data-model integration, and frontiers

Ongoing activities on PTFs in ISMC

- 1) Functional Sensitivity Study of Pedotransfer Functions for Land Surface Models (L. Weihermüller, M. Herbst, C. Montzka, A. Verhoef, and H. Vereecken)
- 2) A global database on soil infiltration and related soil properties (Rahmati et al.)
- 3) A review on point scale and spatially variable infiltration in land surface models (Vereecken et al.)
- 4) Sensitivity study of PTF for thermal properties in land surface models (Verhoef et al.)
- 5)

A global database on soil infiltration and related soil properties

1. Lack of access to global infiltration data and soil properties
2. Improved parameterization of land surface models
3. Secure data for next generations
4. Testing infiltration models at point and grid scale
5. Intercomparison of methods
6. Better assessing and quantifying various controls on infiltration (e.g. soil structure, land use,)
7. Develop new PTFs for infiltration related processes

Global spread of collected raw data of infiltration curves

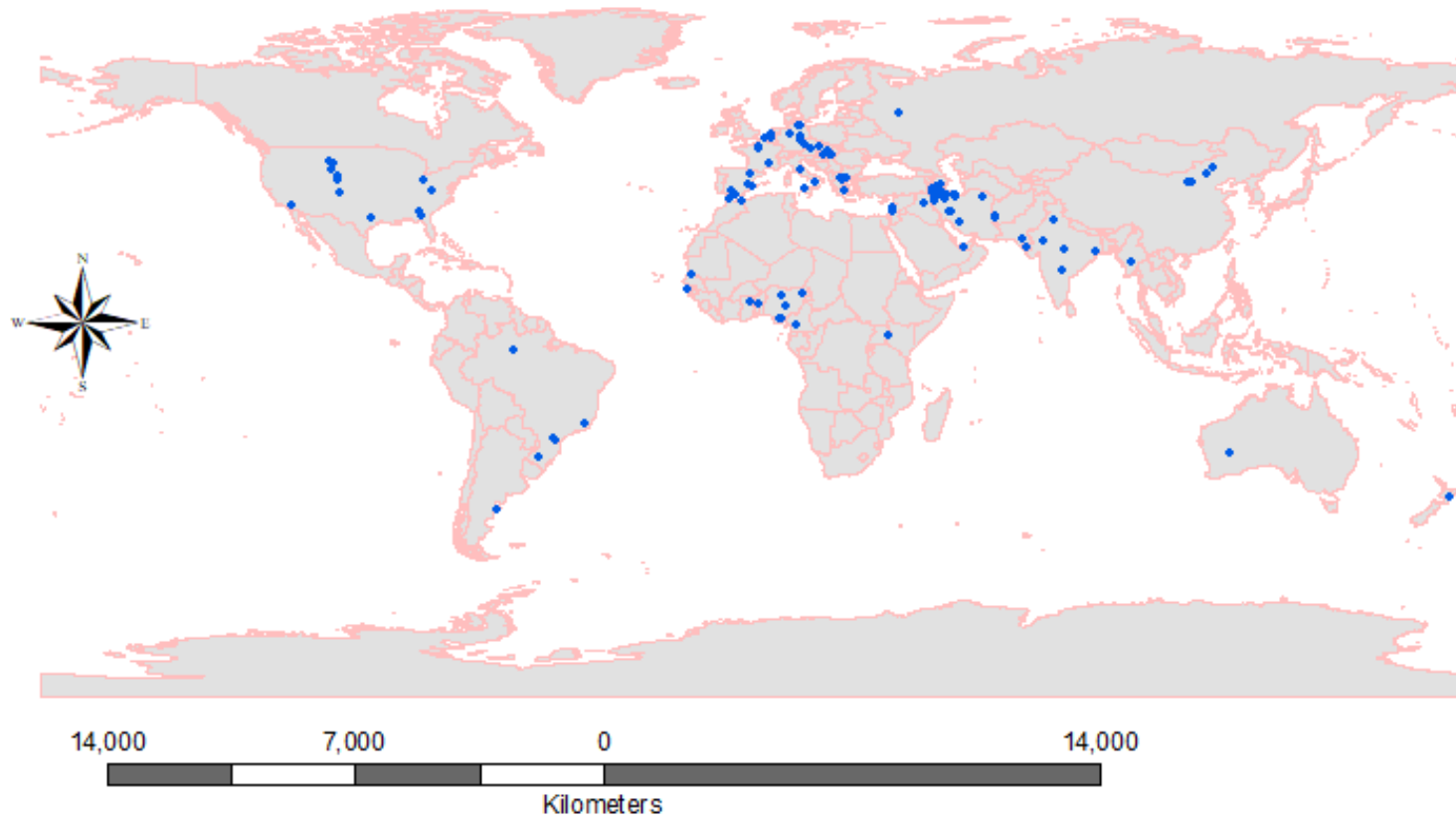
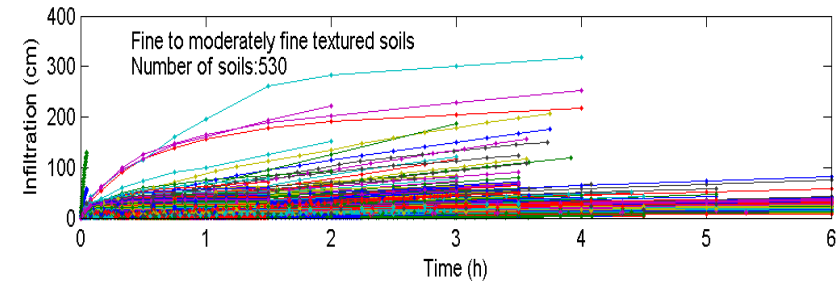
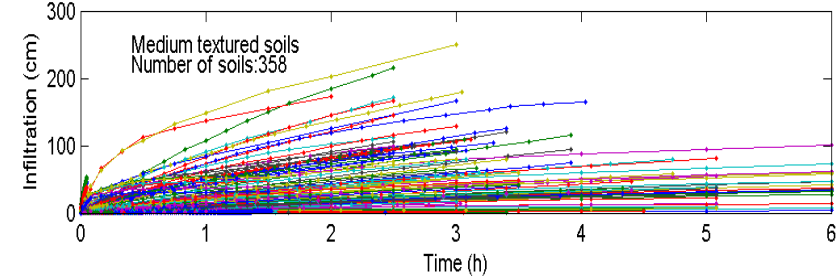
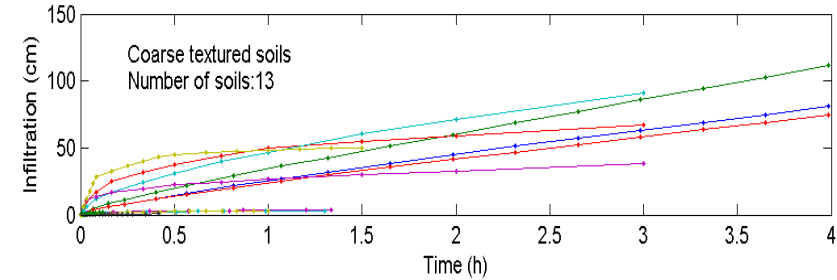
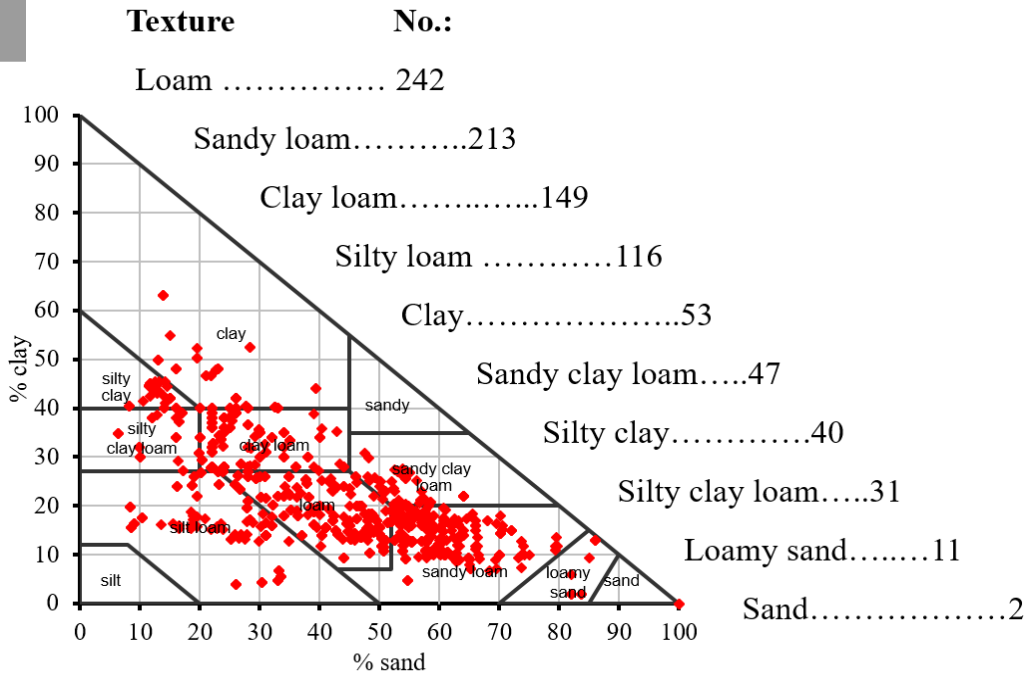


Figure 1- Global distribution of collected database



Achievements

- 1) Collecting more than 4500 infiltration tests data and their relates soil attributes
- 2) Data from all continents and from 33 country
- 3) Contribution from more than 100 persons from all around the world
- 4) Covering nearly all instruments for infiltration measurement
- 5) Data from different soil and land use conditions

November 5-7 2018 ISMC Conference



ISMC
International Soil
Modeling Consortium

New perspectives on soil models

The second ISMC conference will be held at Wageningen University and Research, the Netherlands
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Dr. Kris van Looy, k.van.looy@fz-juelich.de

