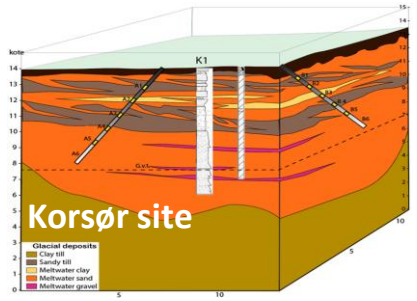
Scenarios Seminar Series

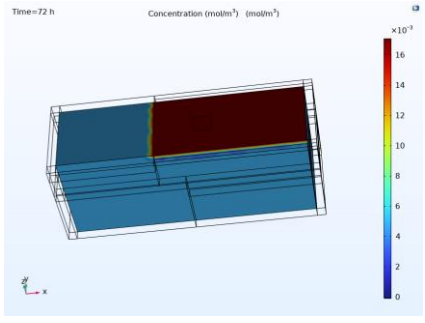
SCENARIOS

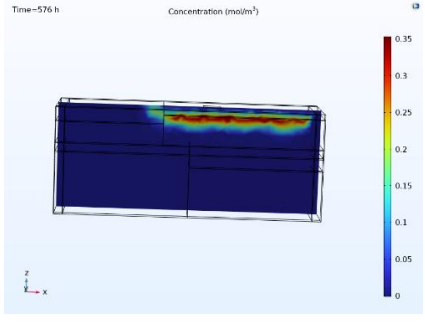
Summer School, 7- 8 July 2025
FORTH/ICE-HT Patras, Greece

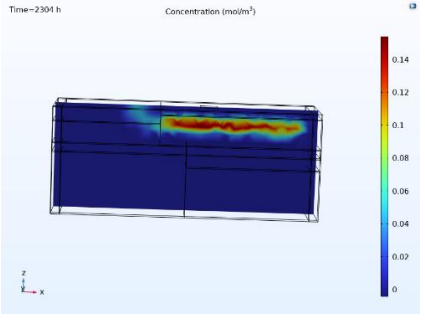
Numerical Modeling of PFAS fate in Subsurface Workshop

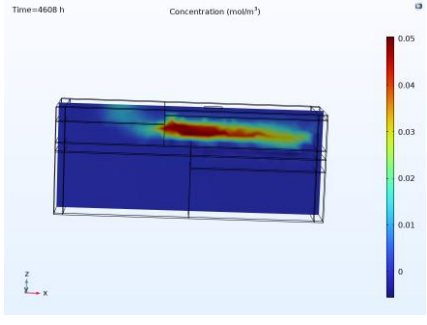
Due to their distinctive chemical properties and environmental stability, per- and polyfluoroalkyl substances (PFAS) are often referred to as "forever chemicals." These substances have now been detected in relatively high levels in surface / ground water and living beings. The widespread groundwater contamination with aqueous film-forming foams (AFFF) in firefighting training sites is a typical example. Field studies have demonstrated that the vadose zone can serve as a source zone of PFAS. Beyond of the PFAS sorption on the soil grains, the air / water interfaces in vadose zone may also adsorb PFAS molecules, with the potential to release them in groundwater at long-term. The numerical simulation of the multiphase flow and transport processes in the subsurface may contribute to the understanding of the mechanisms of PFAS spreading in vadose zone, the quantification of the transient changes of PFAS concentration in solid and aqueous phase, and the calculation of PFAS fluxes toward the underlying aquifers. Case studies of lab-scale and field-scale tests will be presented along with numerical models of PFAS migration in unsaturated and saturated zones. This workshop is intended as a summer school specifically designed to improve the scientific skills and modeling competencies of early-stage researchers (PhD students, recent PostDoc Fellows)

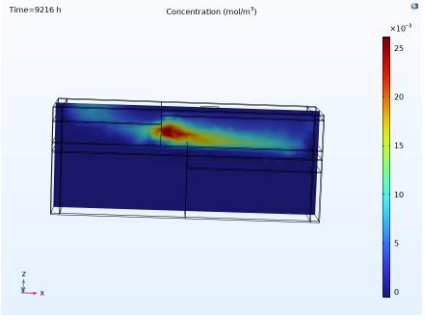












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Workshop Program

7-8 July 2025

Auditorium of FORTH/ICE-HT Conference Center

The Workshop is co-organized by FORTH/ICE-HT (Greece), GEO (Denmark), BGU (Israel), UPO (IT) in collaboration with DTU (Denmark),

within the framework of the Research Project:

«Strategies for health protection, pollution Control and Elimination of Next generAtion Refractlve Organic chemicals from the Soil, vadose zone and water - SCENARIOS»

https://scenarios-project.eu/

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Monday, 7 July 2025 (Open to the public)

9:00-9:30: Registration

9:30-9:45: Welcome

9:45-10:30: Multiscale Geological Modelling of the Korsør site (Dr. K.E. Klint, *GEO, DK*)

10:30-11:15: : Laboratory experiments in large columns and parameter estimation (S. Kolade, *Ben-Gurion University of the Negev, IL*)

11:15-11:30: Coffee break

11:30-12:15: PFAS distribution in soil and water samples of the vadose zone (VMS-approach) and groundwater in Korsør site (Prof. O. Dahan, *Ben-Gurion University of the Negev, IL*)

12:15-13:00: Numerical modeling of PFAS fate in Korsør site (Dr. C. Tsakiroglou, *FORTH/ICE-HT, GR*)

13:00-14:00: Light Lunch break

14:00-15:00: Numerical modeling of PFAS in unsaturated soils (Prof. K. Mosthaf, *Technical University of Denmark, DK*)

15:00-16:00: Parameter estimation and data classification for Korsør site (Dr. C. Tsakiroglou, *FORTH/ICE-HT, GR* & Dr. K. E. Klint, *GEO, DK*)

16:00-16:30: Coffee break

16:30-17:00: Interactive session for early-stage researchers (ESRs): "From data to insight: what did we learn today?" (Prof. F. Dondero, *Università del Piemonte Orientale "Amedeo Avogadro«, IT*)

Tuesday, 8 July 2025 (Restricted to Scenarios members and DTU participants)

9:00-9:30: Welcome

9:30-11:15: Discussions on model calibration for Korsør site

11:15-11:30: Coffee break

11:30-13:30: Discussion on simulations for various case studies

13:30-14:30: Light Lunch break

14:30-17:00: Discussions on the preparation of joint articles

17:00-17:30: Concluding Remarks