Scientific Workshop on
Local Environmental Phenomena and Non-Local Mathematical Models

November 20th – December 04th, 2025

For in-person or online participation, kindly contact the organizer in advance.

<u>Organizer</u>
Koichi Unami (Graduate School of Agriculture, Kyoto University): unami.koichi.6v@kyoto-u.ac.jp

Program

Thursday, November 20th
      Field study in Koka City, Shiga Prefecture—
            Motivation for inverse problems in fractional PDEs

Friday, November 21st
      Field study in Nanzenji area, Kyoto—
            Motivation for shallow water equations and ill-posed problems

Saturday, November 22nd through Monday, November 24th
      Graduate School of Agriculture, Kyoto University/Zoom
      <u>Keynote Lectures:</u>
         "Overview of Fourier integral operators and hyperbolic partial differential equations"
         "Gelfand-Shilov Spaces of Roumieu type"
      <u>Working sessions:</u>
- Relevant function spaces and pseudo-differential operators
- Analysis and numerical experiments of mathematical models, such as shallow water equations, porous medium equations, Hamilton-Jacobi(-Bellman) equations, Keller-Segel model, and Fornberg-Whitham equation.
- Academic environment in the MENA Region (online meeting in Arabic)

Tuesday, November 25th, 2025
      <u>10:00-12:00 Core session</u>: Graduate School of Agriculture, Kyoto University/Zoom
         "Uniqueness of inverse source problems for time-fractional diffusion equations with singular functions in time"

Wednesday, November 26th, 2025
      Contingency day

Thursday, November 27th, 2025
      Field study in Koka City, Shiga Prefecture—
            Applicability assessment of non-local models to environmental problems

Friday, November 28th, 2025
        Working sessions on interdisciplinary research (online meeting in Arabic)

Saturday, November 29th, 2025
        Tsukuba International Congress Center
        <u>JSIDRE Applied Hydraulics Division Symposium</u>
                "Applicability of non-local models to soil moisture dynamics in the vadose zone"
                "Monte-Carlo methods for porous medium equations"
                "Ill-posedness of the shallow water equations"

Sunday, November 30th, 2025
        Preparation for the core session on the next day

Monday, December 1st, 2025
        <u>09:00-12:00 Core session</u>: Faculty of Science, Gakushuin University/Zoom
                "Stability of metric viscosity solutions under Hausdorff convergence"
                "Weak periodic solutions and numerical case studies of the Forenberg-Whitham equation"

Tuesday, December 2nd, through Thursday, December 4th,2025
        Preparing final report