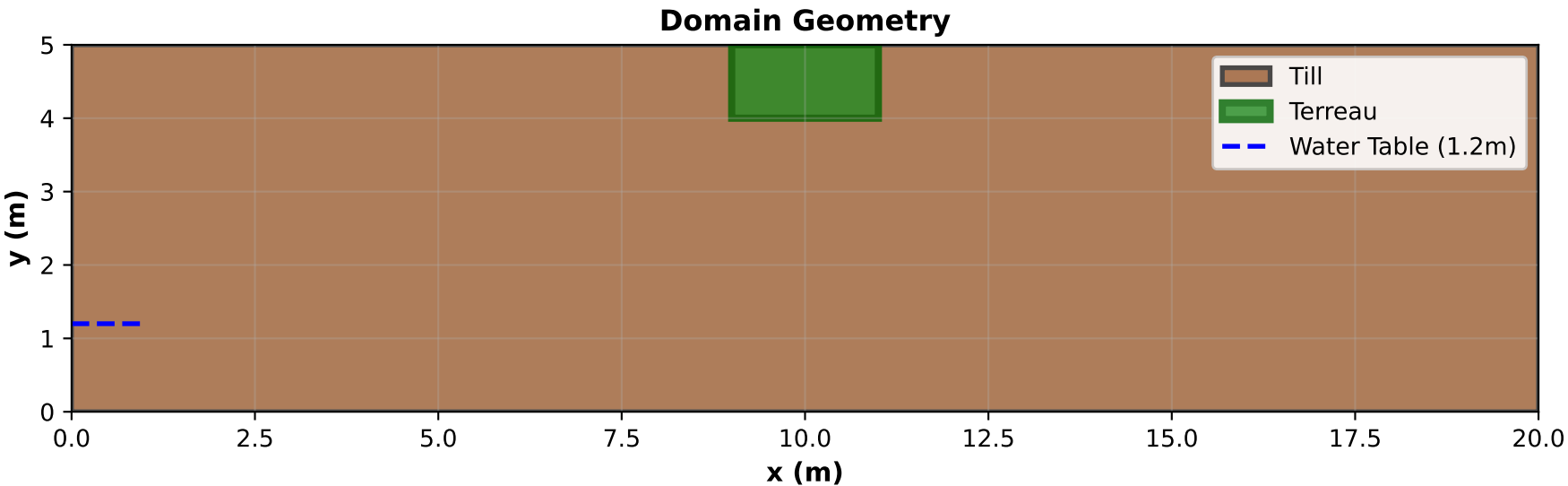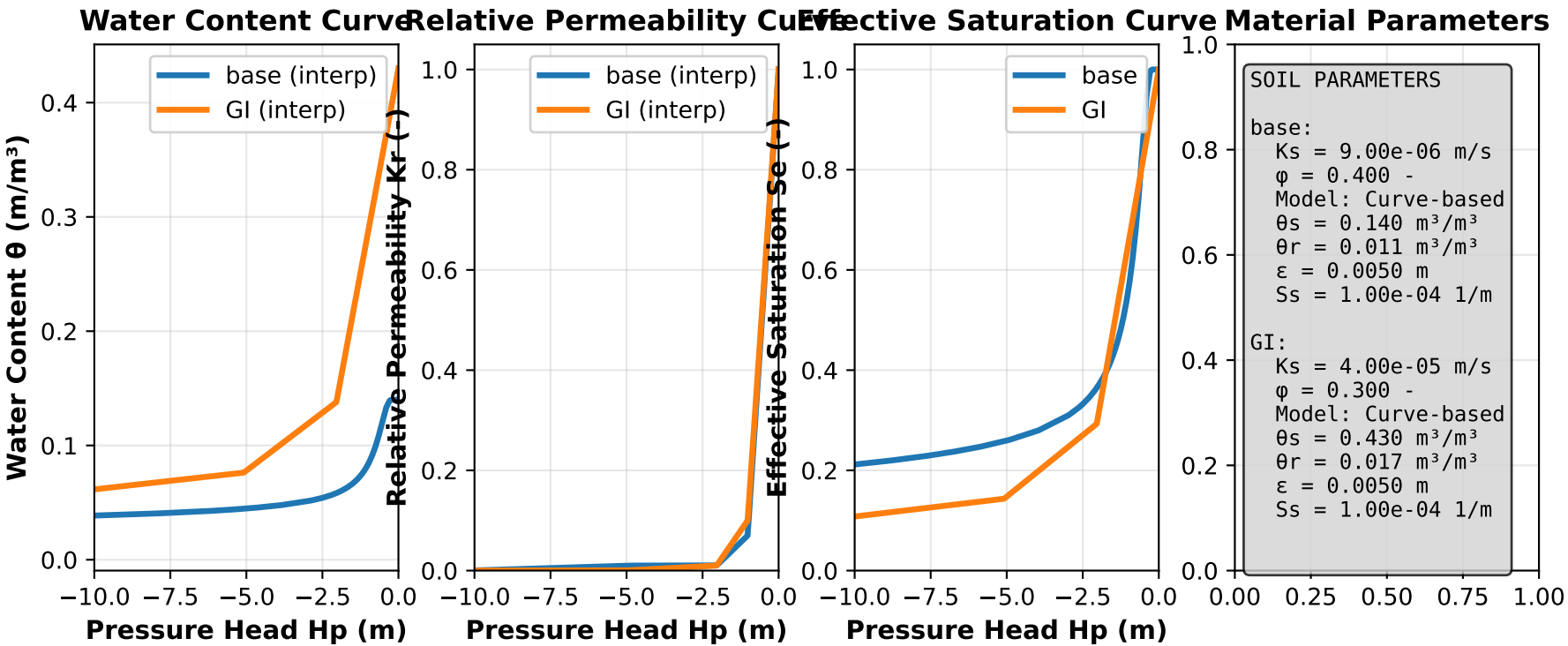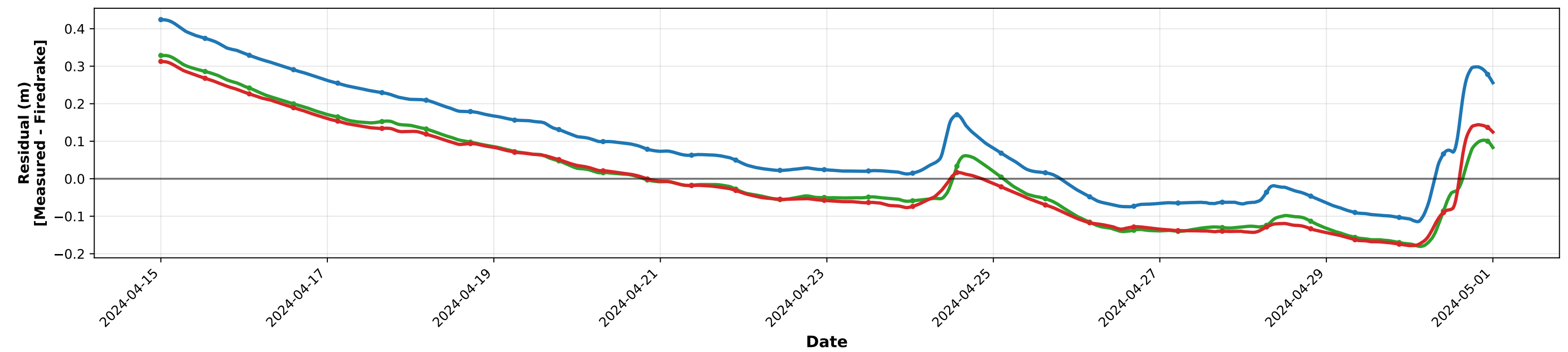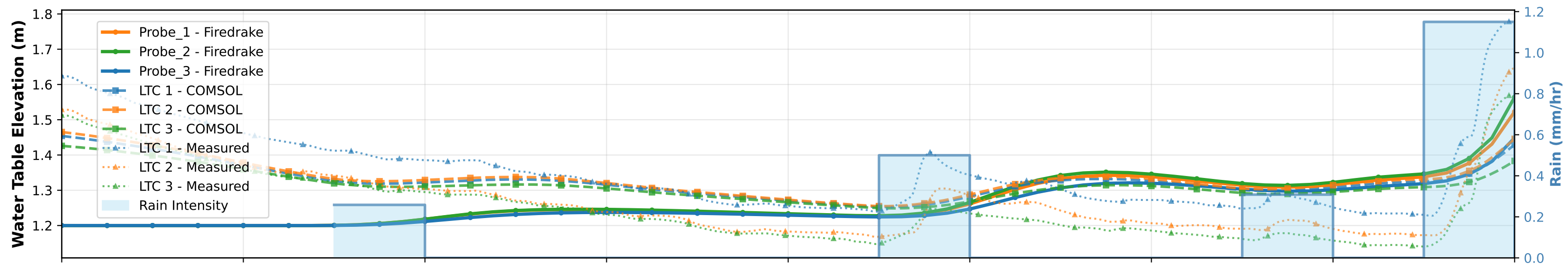# RICHARDS EQUATION SIMULATION - MODEL SETUP

```
SIMULATION CONFIGURATION

Simulation Name: Datetime_Duration
Start: 2024-04-15 00:00
End: 2024-05-01 00:00
Duration: 384.0 hours (16.0 days)
Time Step: 21600.0 seconds

Domain: 20.0 m × 5.0 m | Mesh: 80 × 40
```

Water Content Curve

Relative Permeability Curve

Effective Saturation Curve

Material Parameters

```
SOIL PARAMETERS

base:
  Ks = 9.00e-06 m/s
  φ = 0.400 -
  Model: Curve-based
  θs = 0.140 m³/m³
  θr = 0.011 m³/m³
  ε = 0.0050 m
  Ss = 1.00e-04 1/m

GI:
  Ks = 4.00e-05 m/s
  φ = 0.300 -
  Model: Curve-based
  θs = 0.430 m³/m³
  θr = 0.017 m³/m³
  ε = 0.0050 m
  Ss = 1.00e-04 1/m
```

Domain Geometry

Legend: Till | Terreau | Water Table (1.2m)

GI

WATER TABLE ELEVATION - TIME SERIES

Legend:
- Probe_1 - Firedrake
- Probe_2 - Firedrake
- Probe_3 - Firedrake
- LTC 1 - COMSOL
- LTC 2 - COMSOL
- LTC 3 - COMSOL
- LTC 1 - Measured
- LTC 2 - Measured
- LTC 3 - Measured
- Rain Intensity

Y-axis (top): Water Table Elevation (m)
Secondary Y-axis (top): Rain (mm/hr)
Y-axis (middle): Residual (m) [COMSOL - Firedrake]
Y-axis (bottom): Residual (m) [Measured - Firedrake]
X-axis: Date

SOIL SATURATION - SPATIAL DISTRIBUTION