

Groundwater Hydrology

Kyushu University, June 13-15, 2022

Summary of course content

This is an introductory course on groundwater hydrology for students from broad academic backgrounds. Topics include: physical processes of groundwater flow and storage, effects of topography and geology on groundwater flow systems, vadose zone processes, interaction of groundwater with streams and lakes, baseflow analysis, and applications of water balance approaches to sustainable water resource management. Simple computer programs are used to enhance the understanding of hydrological processes. Each student needs to bring a laptop computer for computer exercises. The software will only run on Windows PCs. Familiarity with Microsoft Excel is expected.

Course schedule

Time	Lecture
June 13, 10:30-12:00	<ul style="list-style-type: none">• Orientation and introduction• Darcy's law and hydraulic conductivity
13:00-14:30	<ul style="list-style-type: none">• Aquifer and aquitards• Flownet
14:50-16:20	<ul style="list-style-type: none">• Groundwater flow system• TopoDrive exercise
June 14, 10:30-12:00	<ul style="list-style-type: none">• Heterogeneity and anisotropy of aquifer materials• Groundwater storage processes• Solute transport
13:00-14:30	<ul style="list-style-type: none">• Measurement of hydraulic conductivity• Vadose zone processes
14:50-16:20	<ul style="list-style-type: none">• Vadose zone processes (continued)• Groundwater-surface water interaction
June 15, 10:30-12:00	<ul style="list-style-type: none">• Groundwater-surface water interaction (continued)
13:00-14:30	<ul style="list-style-type: none">• Baseflow analysis• Baseflow separation exercise• Sustainable groundwater management
14:50-16:20	<ul style="list-style-type: none">• Report preparation• Wrap up

Final reports are submitted to the course Moodle site by June 20, 9:00.