



Glossary

A

advection

Transport of solutes by flowing groundwater.

anastomosing

Connection of two normally divergent structures.

anisotropy

The condition under which hydraulic conditions of an aquifer (usually hydraulic conductivity) show variations with the direction of measurement in a geologic formation.

aperture

The perpendicular distance in a fracture between adjacent rock walls.

azeotrope

A mixture of two liquids that has a constant boiling point and composition throughout distillation.

asperity

A localized point of contact along a fracture surface.

C

capillary force

The force of molecular attraction between geologic materials and water in the unsaturated zone which draws water upward.

cleavage (mineral, rock)

The tendency of a mineral to break along planes determined by the crystal lattice; also, the tendency of a bedded rock to split along definite, parallel, closely spaced planes.

connectivity (fracture)

The greater the fracture density, the greater the fracture length, the greater the potential for fractures to be connected.

CSM

Conceptual Site Model.

D

Darcy's Law

An empirical equation that defines volumetric discharge through a permeable medium.

diffusion

The process of ionic or molecular constituents moving in the direction of a concentration gradient.

dispersion

The spreading of dissolved substances due to the combined effects of mechanical mixing and diffusion.

dissolution

The process of dissolving.

dual porosity

Rock with two distinctly porosity one in the rock matrix and one in the fractures of the rock.

E

equivalent porous medium

A fractured bedrock system which is treated as a homogeneous porous medium for the purposes of conceptual, analytical and numerical modeling.

F

fractured rock CSM

A representation of a fractured rock hydrogeologic system, which describes and explains key characteristics of groundwater flow, and contaminant transport and storage, in the rock matrix and fractures (including all types of partings and openings).

fabric

When applied to rocks, includes the complete spatial and geometrical configuration of all those components that make up the rock. It covers terms such as texture, structure and preferred orientation and so is an all-encompassing term that describes the shapes and characters of individual parts of a rock mass and the manner in which the parts are distributed and oriented in space. The individual parts are only considered as contributing to a fabric if they occur repeatedly in a reproducible manner from one sample of rock to another. ([Hobbs B. E. 1976](#))

H

heteroazeotrope

An azeotrope where the vapor phase coexists with two liquid phases.

hydraulic conductivity (K)/permeability

The rate that water can move through a saturated porous medium; defined as a proportionality constant (which includes the intrinsic permeability, the fluid density, a gravitational constant and the dynamic viscosity).

I

infilling (fracture)

Debris, weathering products, cementation or biofilm in a fracture or on the fracture wall will affect flow.

intrinsic permeability

The property of geologic material to transmit fluid (not the same as “permeability”).

J

joint

A fracture or break in rock that lacks any visible or measurable movement parallel to fracture surface.

L

laminar flow

Fluid flow which is smooth, straight and parallel to the channel walls.

length (fracture)

The longer the fracture, the further unimpeded flow is likely to occur and the more likely fractures will interconnect.

M

macroscopic flow

Flow occurring at the regional to individual parcel scale, including features that range from approximately 30 meters to tens of kilometers in length.

mesoscopic

Flow occurring at the sitewide scale, or between sites; features are observable in individual boreholes and between boreholes.

microfracture

A bedrock fracture having an aperture of less than one millimeter.

microjoint

A microfracture with no measurable movement parallel to the surface.

microscopic

A scale of features not discernible to the naked eye.

O

orientation

The strike and dip of an inclined plane.

P

permeability

Intrinsic measure of a porous material to allow fluids to pass through it.

planarity

Open flat fractures provide unimpeded flow while wavy fractures may lock open, or may form dead ends where fracture surfaces touch.

plume

An elongated body of groundwater containing contaminants, emanating from a point source and migrating within a hydrogeologic unit(s). The shape and movement of the mass of the contaminated water is affected by the geology, bio/geo chemistry, contaminant(s), and the flow characteristics of the groundwater. Because they often travel through discrete fractures and fracture sets, bedrock plumes are commonly asymmetrical in shape. Therefore, in bedrock, it may be more appropriate to use the terms "contaminant distribution" or "area of impact".

porosity (primary, secondary)

The ratio of the void volume to the total volume in geologic material. For primary porosity the void volume is the intergranular or intercrystalline space. For fracture porosity the void volume is the space within fractures.

precipitation

The process of chemical deposit formation from a solution.

R

roughness

A smoother fracture surface results in less frictional resistance to flow and fewer surfaces for solids or microbes to attach to.

S

significant data gap

Missing or incomplete information, which limits the formulation of a scientifically defensible interpretation of environmental conditions and/or potential risks in a bedrock hydrogeologic system. Significant Data Gaps are likely to exist if more than one Bedrock CSM can be supported by the data.

(http://www.ct.gov/deep/lib/deep/site_clean_up/guidance/Site_Characterization/Final_SCGD.pdf)

solution channel

Tubular or planar channel formed by solution in carbonate-rock terrains, usually along joints and bedding planes.

T

terrane

A fault bounded area or region with a distinctive stratigraphy, structure, and geologic history.

transmissivity (T)

The product of hydraulic conductivity and aquifer saturated thickness. For a discrete fracture the aquifer saturated thickness is the effective aperture.

turbulent Flow

Fluid flow along irregular paths.

V

vuggy

Small Cavity in a rock or vein, usually lined with crystals.