Circulation through oceanic crust

Typically 5 - 50 km

Recharging seamount

Seafloor heat flow

Discharging seamount

Focused discharge

Bottom seawater

Microbial recruitment?

5SL 22KL 9KL 81SL 108SL

Cold oxygenated, NO_3^--rich seawater

oxic sediment

Minimal fluid flow through sediment

suboxic sediment

suboxic / oxic interface

Diffusive exchange

Microbial and abiotic reactions

Warmer, reacted, crustal fluid

Basalt

Flowing water mixes, mines lithospheric heat

Microbial and abiotic reactions

after Fisher and Wheat (2010)