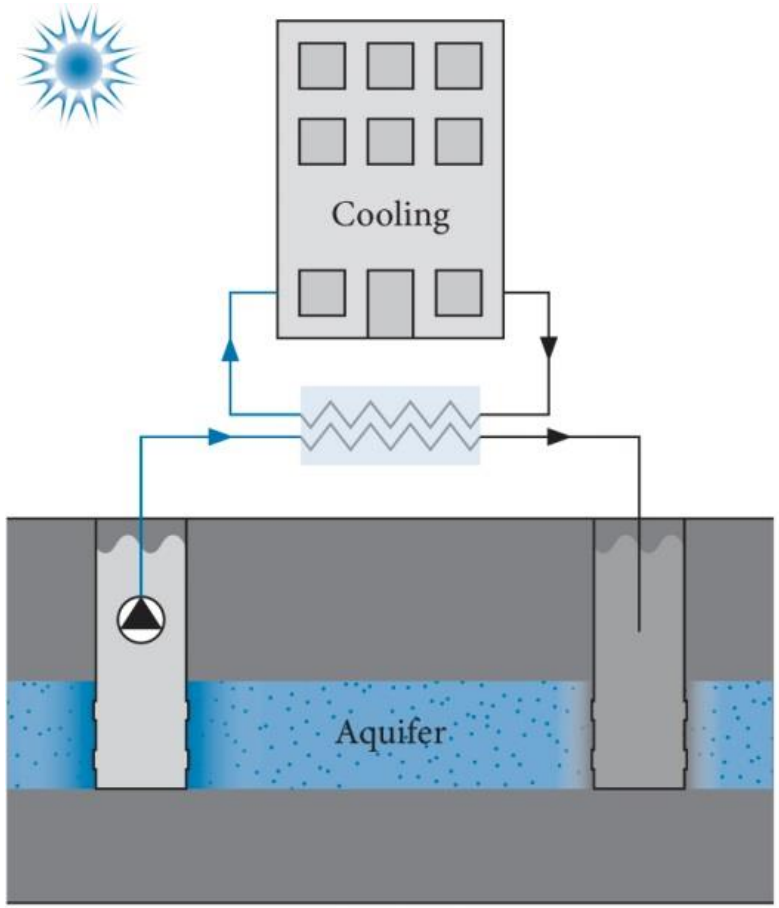
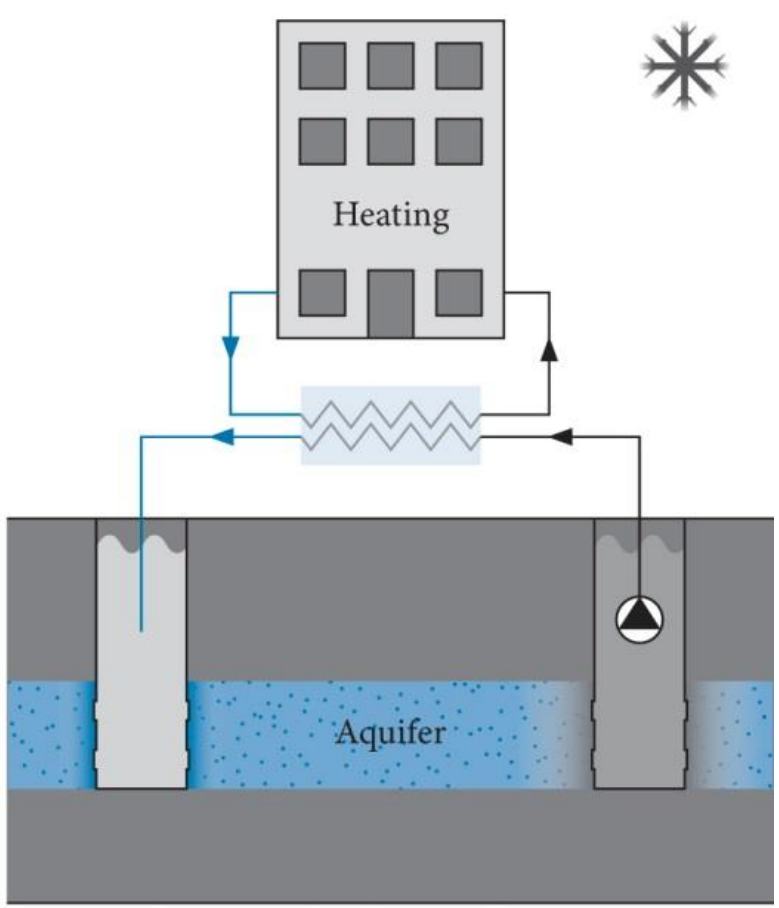
Aquifer thermal energy storage

https://www.youtube.com/user/MartinRHendriks/videos



Summer: cooling of office buildings



Winter: heating of office buildings

Source: IF Technology B.V., Arnhem, The Netherlands

Intrinsic permeability

https://www.youtube.com/user/MartinRHendriks/videos

$$K = 86400 \times \kappa \frac{\rho}{\mu} g$$

K = saturated hydraulic conductivity (m day^{-1})

κ = intrinsic permeability (m^2)

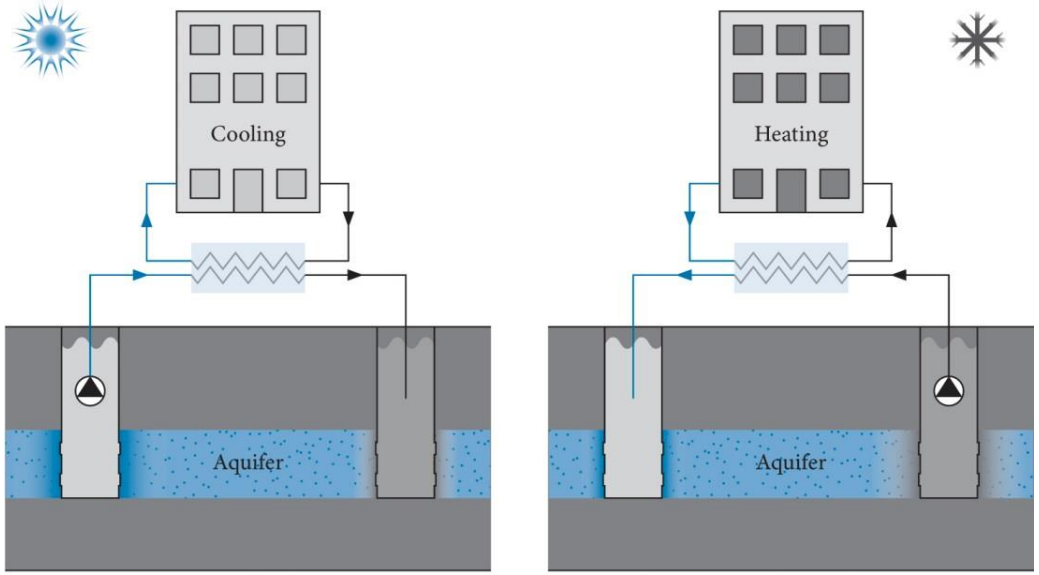
ρ = water density (kg m^{-3})

μ = dynamic viscosity (kg m^{-1} s^{-1})

g = acceleration due to gravity = 9.81 m s^{-2}

86400 s day^{-1}

1 darcy = 9.87 x 10^{-13} m^2



Summer: cooling of office buildings

Winter: heating of office buildings

κ = 16 darcy = 1.5792 x 10^{-11} m^2

$\rho_{25°C}$ = 997 kg m^{-3}

$\mu_{25°C}$ = 0.89 x 10^{-3} kg m^{-1}s^{-1}

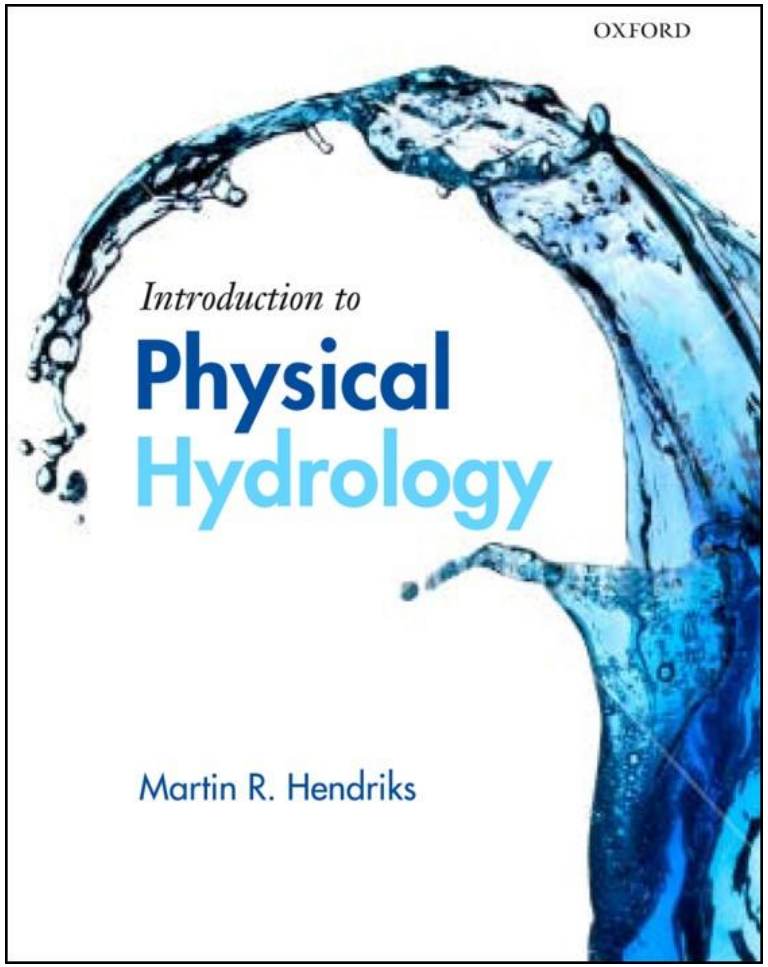
$\rho_{5°C}$ = 1000 kg m^{-3}

$\mu_{5°C}$ = 1.5182 x 10^{-3} kg m^{-1} s^{-1}

$K_{25°C}$ = 15.0 m day^{-1}

$K_{5°C}$ = 8.8 m day^{-1}

Textbook


OXFORD
Introduction to
Physical
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