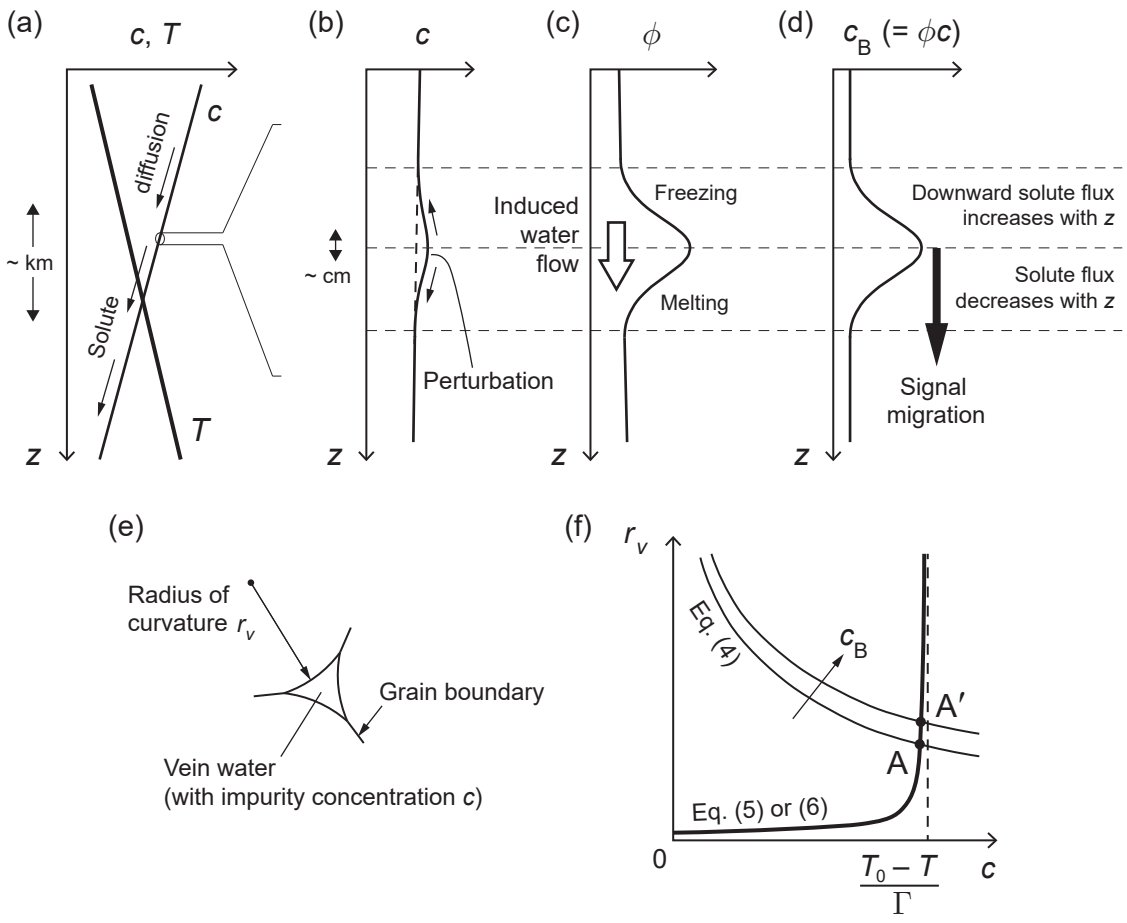
(a)
c, T
c
diffusion
~ km
Solute
T
z
(b)
c
~ cm
Perturbation
z
(c)
ϕ
Induced
water
flow
Freezing
Melting
z
(d)
c_B (= ϕc)
Downward solute flux
increases with z
Solute flux
decreases with z
Signal
migration
z
(e)
Radius of
curvature r_v
Grain boundary
Vein water
(with impurity concentration c)
(f)
r_v
Eq. (4)
c_B
A′
A
Eq. (5) or (6)
0
(T_0 − T)/Γ
c