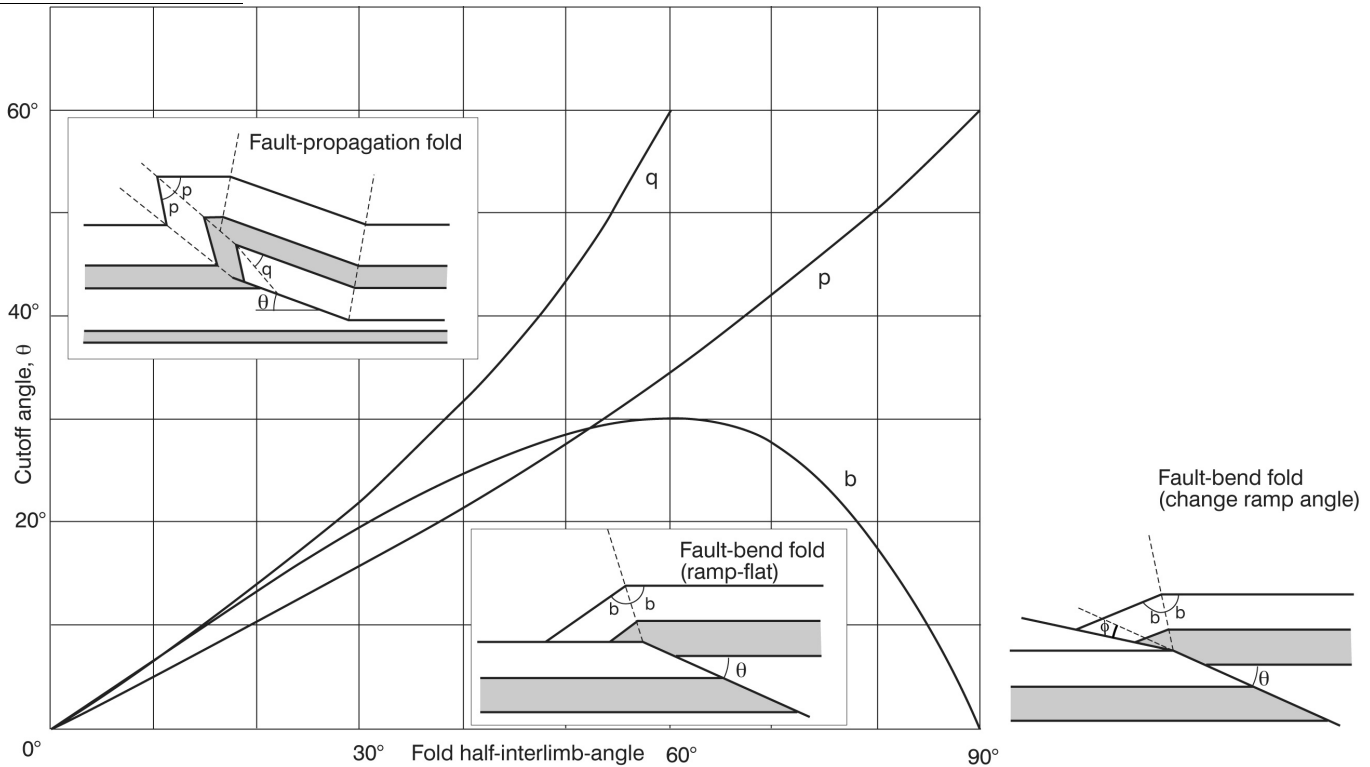


Thrust belts



Shape of fault-bend fold (kink model):

Change in dip ϕ at ramp

$$\phi = \tan^{-1} \left[\frac{-\sin(b - \theta) [\sin(2b - \theta) - \sin \theta]}{\cos(b - \theta) [\sin(2b - \theta) - \sin \theta] - \sin b} \right]$$

where γ is half-interlimb angle of fold at the front of the structure, and θ is the ramp angle

Shape of fault-propagation fold (kink model)

$$2 \sec \theta - \cot \theta = \left[\frac{1 - 2 \cos^2 q}{\sin 2q} \right]$$

where q is half-interlimb angle of fold at the crest of the structure, and θ is the ramp angle.

Above tip of propagating fault, half interlimb angle leading edge of structure: $p = q + \theta/2$

Foreland basin subsidence

Shape of foreland basin:

z = downward deflection

x = horizontal distance

z_{max} maximum downward deflection

$$z = z_{max} e^{-x/\alpha} \cos\left(\frac{x}{\alpha}\right)$$

where α is a constant that depends on the flexural rigidity of the lithosphere D the density contrast $\Delta\rho$ and gravity g

$$\alpha = \sqrt[4]{\frac{4D}{\Delta\rho g}}$$

Coulomb thrust wedges

For surface slope α

and décollement slope β

Internal strength of wedge k

Internal fluid pressure ratio λ_i

Décollement friction μ_b

Décollement fluid pressure ratio λ_b

$$\alpha = \frac{(1 - \lambda_b)\mu_b - (1 - \lambda_i)k\beta}{(1 - \lambda_i)k + 1}$$