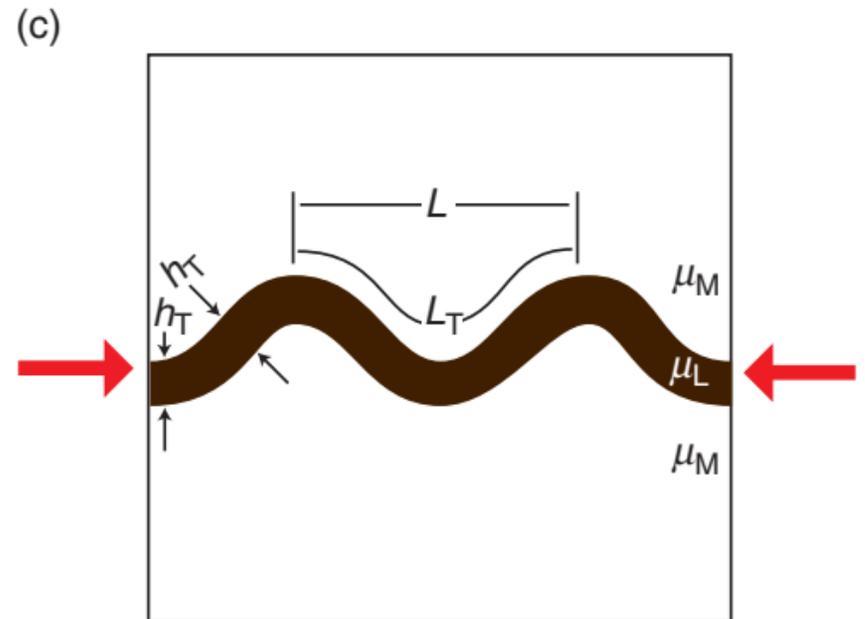
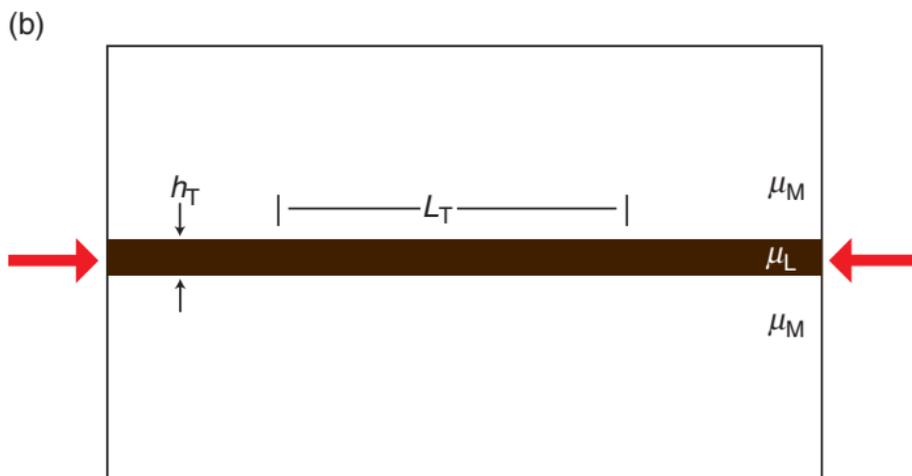
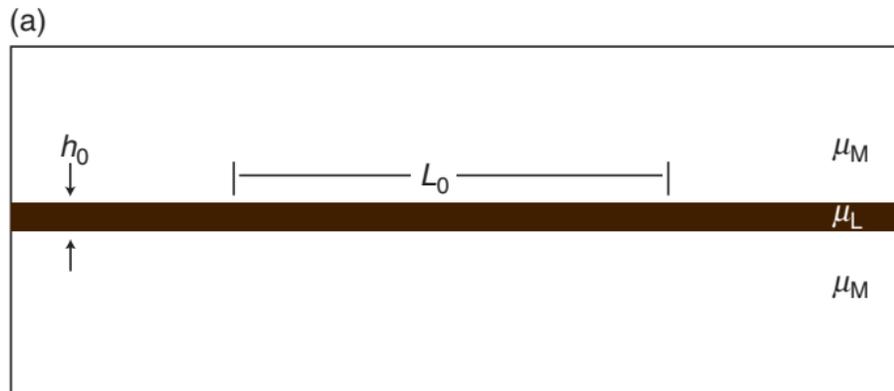


Structural Geology and Structural Analysis

The Earth is a Dynamic Planet.

Active folding or buckling

Active folding or buckling is a fold process that can initiate when a layer is shortened parallel to the layering. A contrast in viscosity is required for buckling to occur, with the folding layer being more competent than the host rock.





The relation between wavelength and thickness is given by

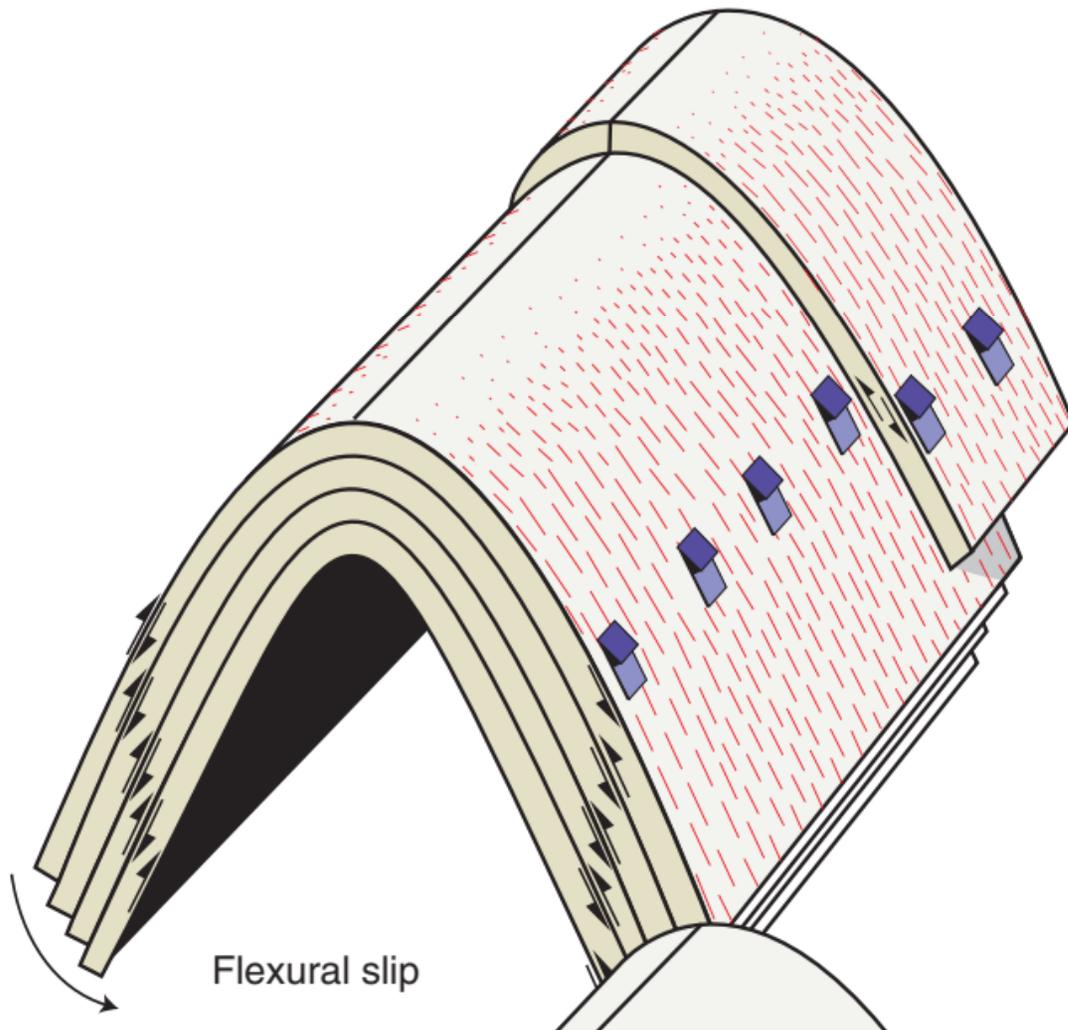
$$L_d/h = 2\pi(\mu_L/6\mu_M)^{1/3}$$

μ_L and μ_M are the viscosities of the competent layer and the matrix, respectively, while L_d is the dominant wavelength and h the layer thickness.

Flexural Folding

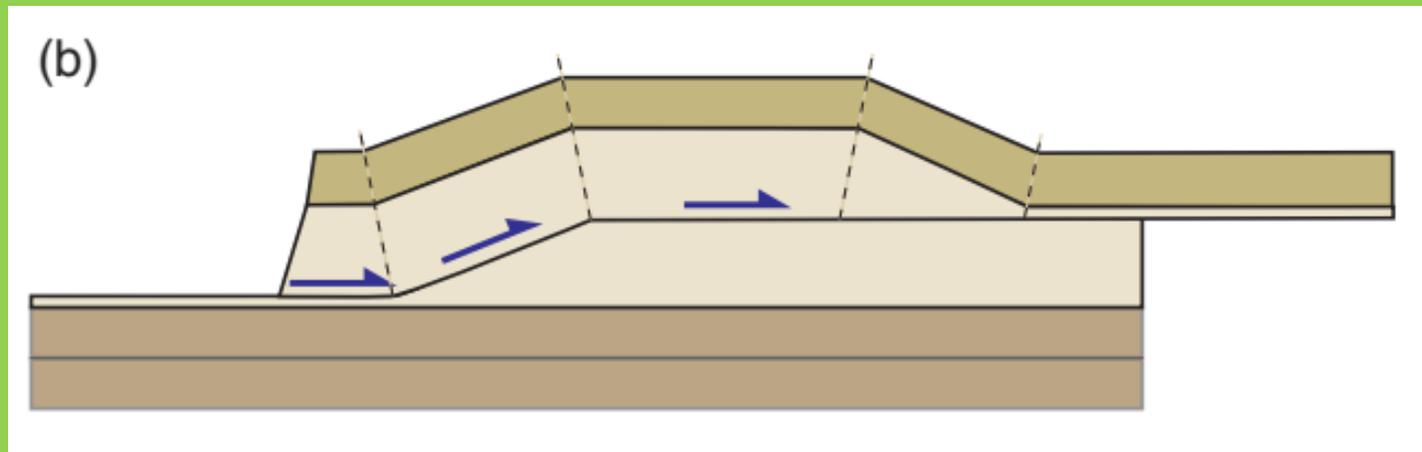
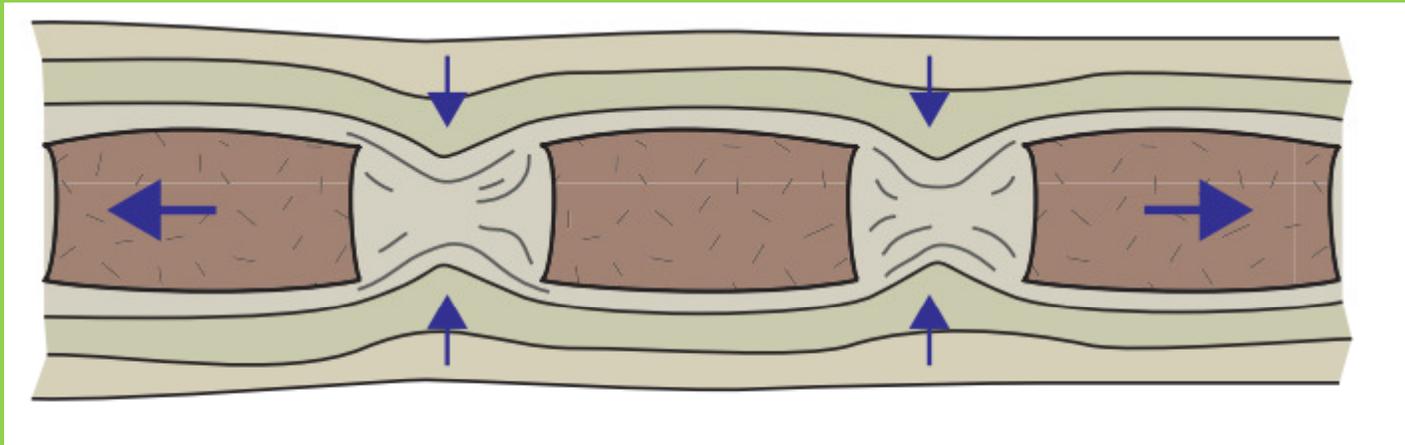
Flexural folding takes place when the mechanical influence of layering in a rock is very strong. The layers actively participate in the folding by bending and flexing. Flexural folding can take place by flexural slip, by flexural flow, or by a combination of these.

(a)

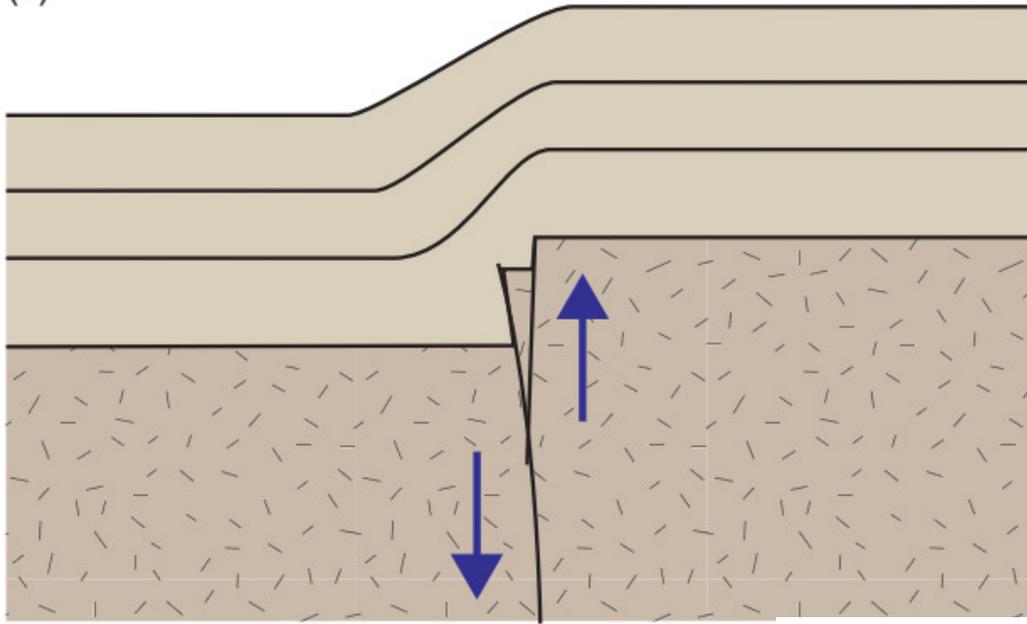


Bending

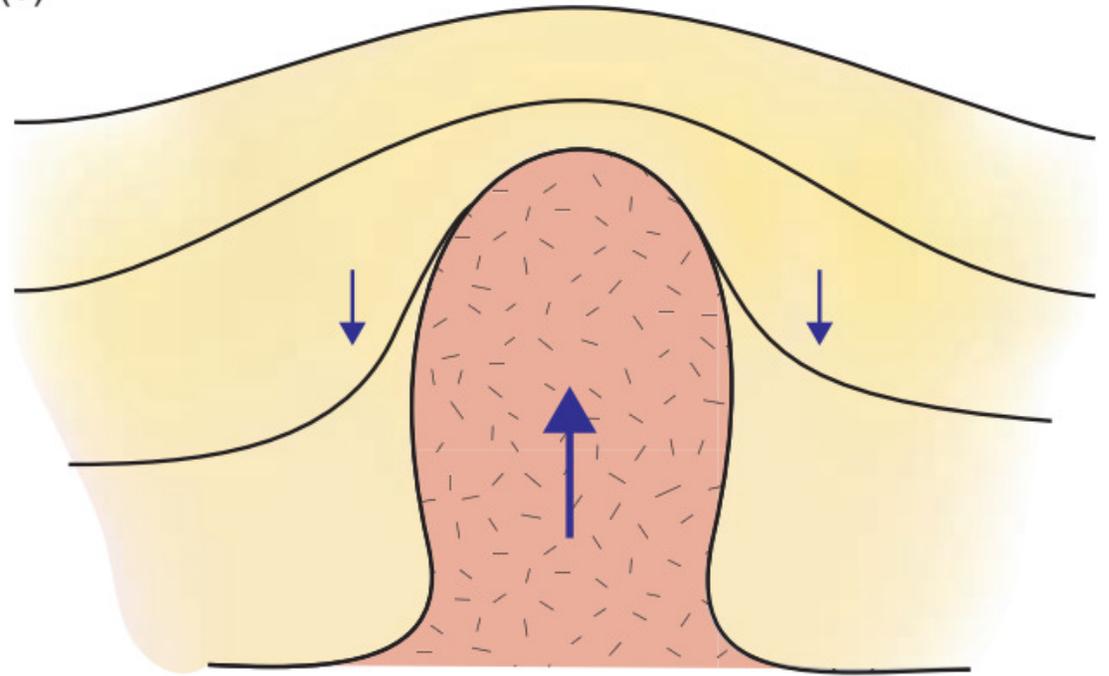
Bending occurs when forces act across layers at a high angle. There are many examples of bending, such as *Boudins*; *Fault-bend folds*, and *salt diapirs*.



(c)



(d)



KINK FOLDING

Strongly foliated rocks like schists and phyllites, and some thin-bedded sedimentary or volcanic rocks, commonly display kink folds.

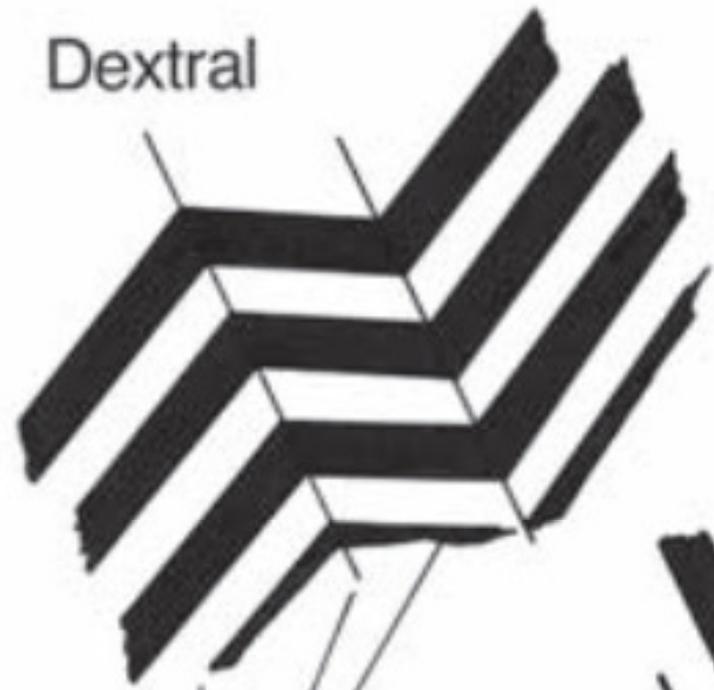
Kink folds are distinguished by sharp hinges, straight limbs, and an asymmetry expressed by a short limb connecting two longer limbs.

Z-shaped kink folds are called dextral, whereas S-shaped kink folds are called sinistral.

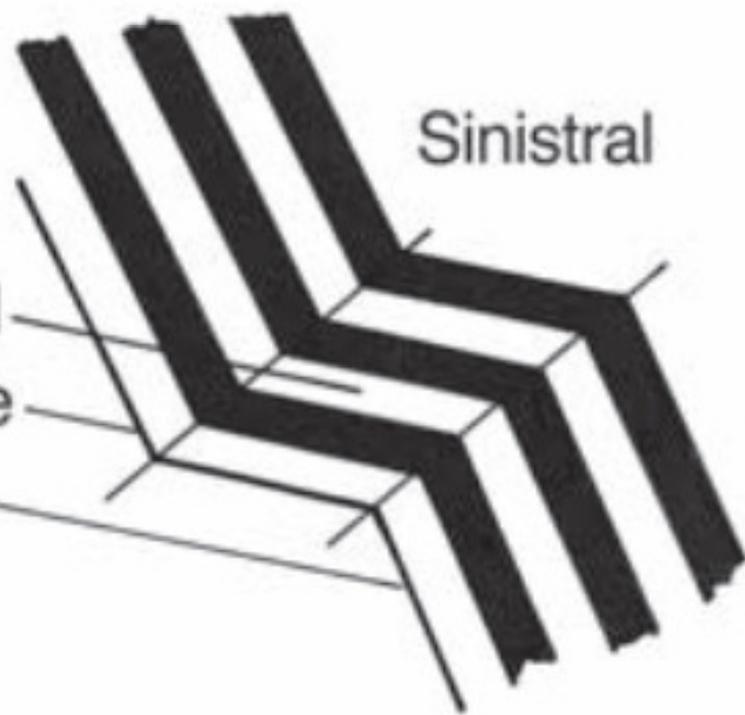
Axial surfaces of kink folds are referred to as kink planes.

The narrow zones where foliation is kinked are called kink bands.

Dextral



Sinistral



Kink Band
Kink Plane
Foliation



Inliers and Outliers

An **inlier** is an area of older rocks surrounded by younger rocks. Inliers are typically formed by the erosion of overlying younger rocks to reveal a limited exposure of the older underlying rocks.

An **outlier** is an area of younger rock completely surrounded by older rocks. An outlier is typically formed when sufficient erosion of surrounding rocks has taken place to sever the younger rock's original continuity with a larger mass of the same younger rocks nearby.

