

Structural Geology Lab 6: Analysis of Folds in Outcrop

I. Lab Exercise on Fold Description and Geometry.

A. Review of Fold Terms

Hinge/ hinge line	inflection point	line of inflection	median surface
crest/trough	crestral /troughal trace	cylindrical	noncylindrical
fold axis	symmetric/ asymmetric	axial surface	axial plane
axial trace	synform/antiform	anticline/syncline	overturned
vertical fold	reclined fold	recumbent fold	interlimb angle
parallel fold	similar folds	dip isogons	Ramsay's Classif.

B. Drawing dip isogons

1. dip isogon: lines connecting points of equal dip between bedding planes in a fold
2. Method 1 using protractor
3. Method 2 using two see-through drawing triangles
 - a. pick point on bedding plane
 - b. use triangle to define line tangent to point
 - c. slide triangle parallel itself til it touches tangent to next bedding plane
 - d. make point on bedding plane 2, connect two points to form dip isogon
 - e. repeat numerous times limb to hinge to limb of fold to derive set of dip isogons
 - f. compare to Ramsay's visual classification system and identify

C. Looking at Folds in Cross-section

1. profile plane: best drawn perpendicular to fold axis, perpendicular to strike of beds... i.e. looking parallel to fold axis
2. Using map patterns to see fold shape in x-sectional view
 - a. using strike and dip symbols, determine the type of fold being examined in map view
 - b. determine if fold is plunging or nonplunging, use law of v's for outcrop pattern
 - (1) determine plunge direction
 - c. Examine fold map pattern with an acute, oblique line of sight, looking in a down plunge direction along the hinge trace of the fold

- (1) in this view, you will have an apparent x-section profile of the fold, i.e. you will see true form of antiforms and synforms

Lab Exercise - Fold problems

1. Read over material in chap. 6 of lab manual, p. 73-90. This is a very succinct review of the lecture material on folds. This will help you review for the upcoming exam.
2. complete the following problems: 6.1, 6.2, 6.3, 6.4, 6.5