Geo380C problem set 5

STRAIN (part II)

Do questions 2.10 and 2.11 in Ramsay & Huber (1983) using the following strained circles.

\[ \gamma = 0.0 \quad \gamma = 0.2 \quad \gamma = 0.4 \]

\[ \gamma = 0.6 \quad \gamma = 0.8 \quad \gamma = 1.2 \]

\[ \gamma = 1.6 \quad \gamma = 2.0 \]
Extra credit question: Assume that the diagenetic stylolites below originally had an orthogonal upright box geometry. The dashes represent a penetrative stylolitic cleavage that produced only a negative dilation (i.e. volume loss). What is the volume loss? (Hint: because the cleavage is non-rotational, lines parallel to the cleavage change neither in orientation nor in length; lines perpendicular to the cleavage do not rotate but are shortened; all other lines will change both in orientation and in length.)

Also do question 3.5 in Ramsay & Huber (1983) and the problem in the spreadsheet Andes_velocity_gradient.xls on the web.