

1. Explain or define, compare and contrast the following sets of terms:

a. Apparent polar wander versus true polar wander

b. Angular velocity vector versus relative velocity vector

c. Primary versus secondary magnetization

d. Alternating field demagnetization versus thermal demagnetization

2. Plate A is obliquely subducted beneath plate B at 5 mm/year. B moves southwest (225°) relative to A. Plates B and C share a transform margin; B moves SE (135°) at 7mm/year relative to C.

a. Calculate plate A's motion relative to Plate C.

b. What is the nature of the margin between A and C?

3. You are the first paleomagnetist on a recently discovered continent. The center of the continent sits at 0° N, 0° E. After your paleomagnetic, paleontologic and geochronologic field and lab work you have the paleomagnetic data given in the table below (mybp = million years before present; Dec = paleodeclination, Inc= paleoinclination).

a. Accurately sketch the apparent polar wander path for the continent on the spherical projection.

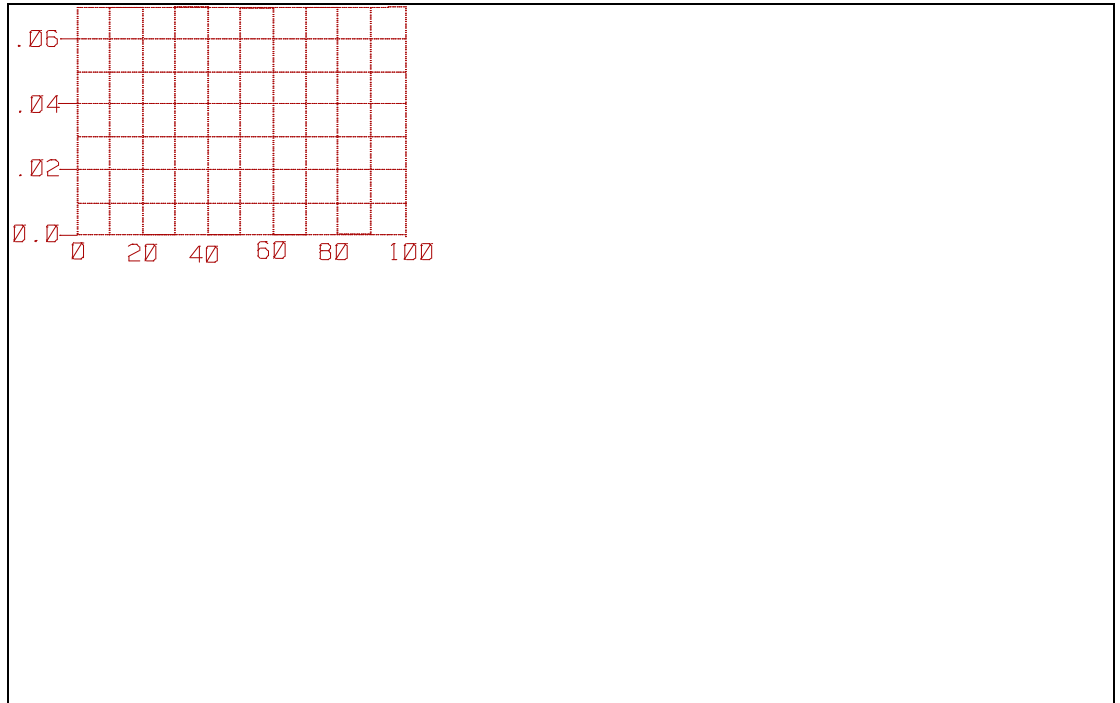
<u>mybp</u>	<u>Dec</u>	<u>Inc</u>
0	0	0
50	30W	0
100	45W	0
150	45W	63
200	0	63
250	45E	63
300	90E	63
350	90E	89

b. Explain the history of the continents motion and explain any assumptions you are making.

4. Here are some seismic refraction data from a one-way survey. Plot them on the graph, and interpret them as best you can (tell me what the geology is). Accurately sketch the expected results from a reversed line.

meters, sec.

0	.0
10	.013
20	.025
30	.038
40	.043
50	.048
60	.053
70	.053
80	.058
90	.063
100	.068



5. Suppose you are requested to collect some seismic refraction data to help a friend determine where to place a water well on her property. A neighbor's well penetrates ground water at about 18 meters deep. The unsaturated material has P-wave velocity of 1,000 meter/sec; the saturated material below water table has a P-wave velocity of 1,900 meter/sec.

a. What do you need to do to determine if the water table is horizontal or dipping? Why?

b. Suppose the water table is horizontal and that you have a seismograph with twelve geophones. What geophone spacings must you use to get 4 points on the direct wave (in t-x space) and 8 points on the refracted wave?

6. For each of the following equations, define the variables and explain the use of the equation:

a.

b.

c.

d.

e.