

EPS 326 Problem set #6 Due November 15

Reading: Taylor Chapters 8, 9

1-10: Problems from Taylor: QC8.1, 8.3, 8.4, 8.7, 8.16, 8.25, QC9.1, QC9.2, QC9.3, 9.10

The table below from a paper by Forsyth & Uyeda (Geophys J., 43, 163-200, 1975) (available on the class website as *forsythuyeda.xls*) lists the major plates, their areas, absolute velocity, and length of plate boundary of various types. It can be used to investigate how plate motions depend on various factors.

11: Plot the total area of each plate versus its absolute velocity and label each point. Fit a least squares line to these data and find the line's parameters, their uncertainties, and the correlation coefficient. Plot the line, label it with the correlation coefficient, and interpret the result.

12. Do the same for the continental area of each plate versus its absolute velocity.

13. Do the same for the percentage of the circumference of each plate that is a trench versus absolute velocity.

Plate	Area x 10 ⁶ km ²	Cont. Area x 10 ⁶ km ²	Aver. Abs. vel. cm/yr	Boundary Length x 10 ² km					
				Circum. x 10 ² km	Ridge	Trench	Suction	Transform	Convergent
NA	60	36	1.1	388	146	12	60	122	102
SA	41	20	1.3	305	87	5	53	107	93
PAC	108		8.0	499	152	124	30	108	167
ANT	59	15	1.7	356	208			131	17
IND	60	15	6.1	420	124	91	30	125	171
AF	79	31	2.1	418	230	10		119	69
EUR	69	51	0.7	421	90		116	56	275
NAZ	15		7.6	187	76	53		48	63
COC	2.9		8.6	88	40	25		16	32
CAR	3.8		2.4	88			37	44	44
PHIL	5.4		6.4	103		41	30	32	71
ARAB	4.9	4.4	4.2	98	30			36	32