

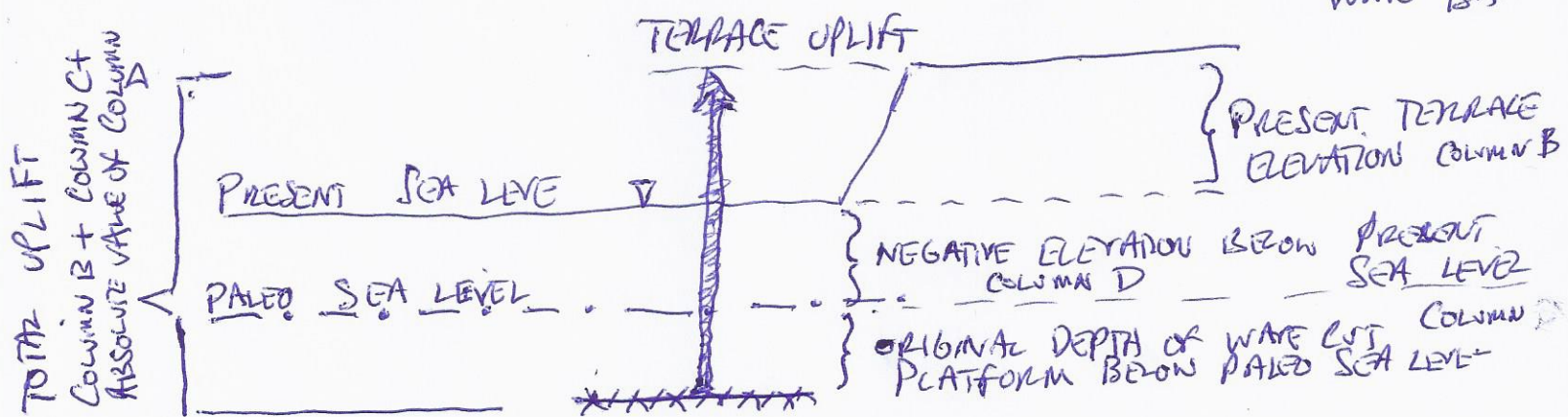
EXPLANATION

LAB EXERCISE 10-3 COAST LAB PART 2

ES 322 TASK 8

Refer to TABLE 5, TERRACE AGE DATA for OREGON COAST.

COLUMN A = TERRACE AGE IN THOUSANDS OF YEARS AGO, WHEN IT WAS ERODED BY WAVE BASE



TO DETERMINE UPLIFT RATE

① ADD THE ABSOLUTE VALUES OF COLUMN B + COLUMN C + COLUMN D = TOTAL UPLIFT

② DIVIDE TOTAL UPLIFT BY AGE IN THOUSANDS OF YEARS

EXAMPLE FOR ROW 1 OF TABLE

WIKIKEY FOR TERRACE	COLUMN A TERRACE AGE	PRES. ELEV	ORIGINAL DEPTH	PALEO SEA LEVEL
	80,000 yrs	17m	14m	-19m

COL. E TOTAL TECTONIC UPLIFT = $17m + 14m + |-19m| = 50m$

COL. G UPLIFT RATE = $(50m) \left(\frac{1000mm}{m} \right) / 80,000 \text{ yrs} = 0.63 \frac{mm}{yr}$

$= \left(0.63 \frac{mm}{yr} \right) \frac{1000yr}{Ka} = \frac{630mm}{Ka} \left(\frac{1m}{1000mm} \right) = 0.63 \frac{m}{Ka}$

Table 5. Worksheet Calculation of Late Quaternary Uplift Rates in the PNW,
as Derived from Marine Terrace Data (data derived from Muhs et al., 1990).

ANSWER KEY

Terrace Name	Location	Terrace Age (ka)	Present Elevation (m)	Original Depth of Wave-Cut Platform (meters)	Paleo-Sea Level (meters)	Total Tectonic Uplift (meters)	Average Uplift Rate (m/kyr)	Average Uplift Rate (mm/yr)
		<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>
Whiskey Run	Coquille Point, OR	80	17	14	-19	50	0.63	0.63
Whiskey Run	Coquille Point, OR	80	17	48	-19	84	1.05	1.05
Whiskey Run	Coquille Point, OR	80	17	14	-5	36	0.45	0.45
Whiskey Run	Coquille Point, OR	80	17	48	-5	70	0.88	0.88
Cape Blanco	Cape Blanco, OR	80	53	10	-19	82	1.03	1.03
Cape Blanco	Cape Blanco, OR	80	53	28	-19	100	1.25	1.25
Cape Blanco	Cape Blanco, OR	80	53	10	-5	68	0.85	0.85
Cape Blanco	Cape Blanco, OR	80	53	28	-5	86	1.08	1.08
Pioneer	Cape Blanco, OR	105	57	26	-9	92	0.88	0.88
Pioneer	Cape Blanco, OR	105	57	90	-9	156	1.49	1.49
Pioneer	Cape Blanco, OR	105	57	26	-2	85	0.81	0.81
Pioneer	Cape Blanco, OR	105	57	90	-2	149	1.42	1.42

Explanation of Data:

Column a: "ka" = kiloans = 1000's of years ago (how long ago the wave-cut platform was formed)
Column b: "present elevation" = present day elevation of coastal terrace above sea level
Column c: "original depth" = original depth of wave-cut platform below sea level, at time of wave erosion
Column d: "paleo-sea level" = level of sea, relative to present, at time wave-cut platform was eroded
Column e: total tectonic uplift of wave-cut platform from time in column a to present.
Column f: tectonic uplift rate of terrace in meters per 1000 yrs
Column g: tectonic uplift rate of terrace in millimeters per yr

c:wou:geomorph:f2000:coastlab:table5key.xls