

Applied Geomorphology

Laboratory 1: Pace Count & Closed Traverse

Problem 1: The class will meet outside the Life Sciences building near the parking lot for orientation. You will determine your pace count (feet per stride) in this lab, along with statistics on accuracy. Next to the LSCB will be several stakes set at 200 feet apart. Using these stakes measure the number of paces between the stakes 20 times. Use the below table to record the data. After recording the data use the worksheet to calculate:

1. Average (mean) pace count (feet/pace)
2. Standard deviation of pace count
3. Percent standard error of pace count

Problem 2: Marked on the property east of the LSCB are 8-9 stations consisting of painted trees (White or Yellow). Using a pocket transit you should locate each station with a closed traverse by pacing the distance between each station and measuring the azimuth direction as you walk from one station to the next. Your instructor will walk you through the entire set of stations before you begin. Make a map of the closed traverse at a scale of 1 inch = 100 feet on unlines 8.5 x 11 inch paper. Plot the original course as a solid line, and the error-adjusted closed traverse as a dashed line on a single page. Use the error adjustment technique described in lecture. Include a north arrow and a scale on your map.

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Pace Count Data Sheet

Column 1: Trial	Column 2: # Paces for trial	Column 3: Distance (feet)	Column 4: Pace Count(feet/pace)	Column 5: Deviation ² = (PC _i -Average) ²
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
			Σ	Σ

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Average (mean) Pace Count Calculation (feet/pace):

$$\frac{\sum_{i=1}^N \text{Pace Count}_i}{N}$$

Standard Deviation Calculation:

$$\sqrt{\frac{\sum_{i=1}^N (\text{Pace Count}_i - \text{Average Pace Count})^2}{N-1}}$$

Percent Standard Error Calculation:

$$\frac{2 \times \text{Standard Deviation} \times 100}{\text{Average}}$$
