

### Slope/Area MATLAB script:

```
clear all;clc
load "Your Slope-Area File".mat
M = "Your Data";
load "Your Bin Array".txt
H = "Your Bin Array";
r = size(M,1);
c = size(H,2);
Z = ones(2,c-1);
S = 0;
a = 0;
s = 0;
b = 0;
for D = 1:c-1
    a = H(1,D);
    b = H(1,D+1);
    n = 0;
    s = 0;
    for R = 1:r
        A = M(R,2);
        if A > a && A < b
            s = M(R,1)+ s;
            n=n+1;
        end
    end
    S = s / n;
    Z(1,D)= H(1,D);
    Z(2,D) = S;
    Z(3,D) = n;
end
disp (Z)
```

### Where:

M = Input matrix  
H = Bin matrix  
Z = Output matrix  
R = Row  
C = Column  
S = Slope  
n = divisor for mean slope calculation  
D = Bin division  
a = Lower bin value  
b = Upper bin value  
A = Intermediate area value  
s = Intermediate slope value  
r = Intermediate row value  
c = Intermediate column value

With this script your data needs to be in a two column array with the left column containing slope values and the right column area. You can export the attribute table out of ArcMap as a text file (.txt), then import it into MATLAB and delete the unwanted columns. In MATLAB save it as a .mat file and change the red text in the script "Your slope-Area File" to your file name, deleting the parentheses.

This script also requires a bin array, which should contain one row and as many columns as bins. Rename the red text in the script as before.

### Example arrays:

Data array:	Bin array:
4,3	-1,10,20,30,40,50
6,4	
8,10	
10,10	
12,33	
4,38	

Let me know if you have questions,  
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