

Geomorphology In-Class Exercise Spatial Scales and Digital Image Resolution

(c:wou:geomorph:f2001:spatial_resolution.doc)

In remote sensing, a given “scene” is a particular portion of the Earth’s surface that is captured in an aerial photograph or satellite image. The digital resolution of the “scene” is the amount of land area that is covered in 1 pixel of the image. Each pixel is assigned a digital color code or shade. When all pixels are combined together a resultant digital image is produced. The resulting image is arranged in a series of columns and rows of pixel boxes.

Problems:

- (1) Given a scale of 1:24,000 on a topographic map, a square plot of land covers 8 inches by 8 inches in map units.

Determine side distances of the plot in meters.

Determine the area of the plot in square kilometers.

- (2) Determine the number of rows and columns in an image of the plot with the following spatial resolutions:

	No. Rows	No. Columns
1 – meter resolution		
10-meter resolution		
30-meter resolution		
100-meter resolution		

- (3) If you had an image of the plot that was comprised of 1500 rows and columns, what is the resulting spatial resolution?