Aerial Imagery

An aerial image is a type of digital photography obtained from a camera located above the Earth using an airplane, air balloon, space satellite, etc. Such an image can be used to better understand relative locations and different local characteristics of geographic object on the surface.

Helper's Guide

Answers to Learning by Doing Activities

1. $$Height = \frac{80/2}{\tan\left(62/2\right)} = \frac{40}{0.6} = \underline{66.7}\ \ ft$$

2. $$\frac{Height_2}{Height_1} = \underline{0.5}$$

$$L_2 = \frac{Height_2}{Height_1} L_1 = \underline{0.5} \cdot \underline{80} = \underline{40}\ \ ft$$

3. $$L_{pixel} = \frac{L_{image}}{N_{pixels}} = \frac{80}{\underline{1000}} = \underline{0.08}\ \ ft = \underline{0.96}\ \ in$$

How to Prepare

If possible have an actual aerial imagery system available and help explorers prove the relationship between height of the camera and size of the image. Make sure to find out FOV of your camera.

Need to Emphasize

- With a constant field of view, the distance between the camera and target and length/width of the targeted area change proportionally.
- Rules of right triangle define the relationship between FOV, height above target and the size of the image.
- More pixels mean higher resolution, which result in a sharper image.

Related Links

- http://www.co.dakota.mn.us/Departments/GIS/Newsletter/Summer2007GIS101.htm
- http://www.colorado.edu/geography/gcraft/notes/remote/remote_f.html

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Last updated: May 12, 2008