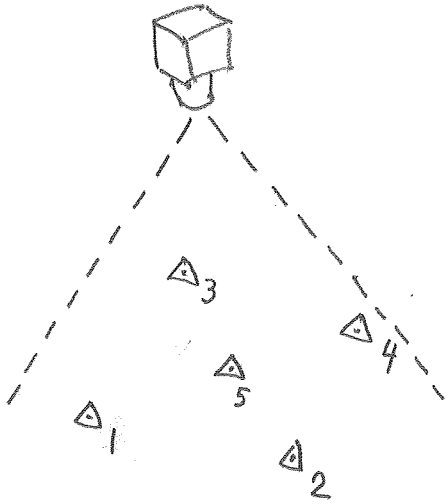


HW5 - photogrammetry resection & GLS line fit
 assigned 24-nov-2014, due 8-dec-2014 (Mon.)



1. (a) low altitude $\sigma_x = \sigma_y = .005$

| | x | y |
|---|---------|---------|
| 1 | -75.470 | 28.384 |
| 2 | -45.835 | -70.253 |
| 3 | 23.798 | 53.490 |
| 4 | 47.678 | -38.524 |
| 5 | -14.913 | -11.750 |

$x_0 = .030$ $w, c_f \approx 0$
 $y_0 = .008$ height above terrain $\approx 100m$
 foc = 50.067 centered over control

control points (m)

| | 1 | 2 | 3 | 4 | 5 |
|---|--------|--------|--------|--------|--------|
| X | 503.8 | 697.3 | 497.1 | 700.8 | 604.7 |
| Y | 2001.4 | 2003.7 | 2196.5 | 2205.2 | 2088.0 |
| Z | 48.0 | 54.6 | 52.3 | 51.9 | 51.4 |

(b) high altitude σ_x, σ_y same

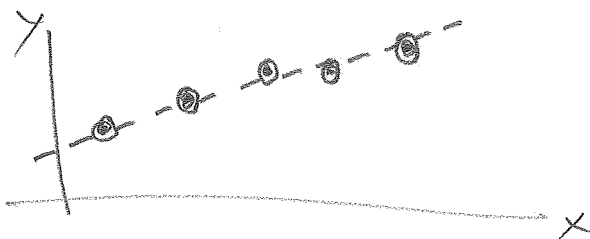
| | x | y |
|---|---------|---------|
| 1 | -7.066 | -65.846 |
| 2 | 80.491 | -22.065 |
| 3 | -54.029 | 16.549 |
| 4 | 32.096 | 69.344 |
| 5 | 16.833 | -5.598 |

$x_0 = -.018$
 $y_0 = .042$
 foc = 151.227
 $w, c_f \approx 0$
 height above terrain $\approx 300m$
 centered over control

for (a) & (b) make 90% conf. ellipse for x_L & z_L

for (b) make 90% conf. circle

2. GLS line fit, x & y observed



$\sigma_x = \sigma_y = 0.025$

| x | y |
|------|------|
| 1.08 | 2.79 |
| 1.98 | 3.19 |
| 2.95 | 3.41 |
| 3.99 | 3.83 |
| 4.92 | 4.16 |

make 50% conf. ellipse for m & b

