

Adj. Geospa. Obs. HW6 8 Nov 2017, Wed.

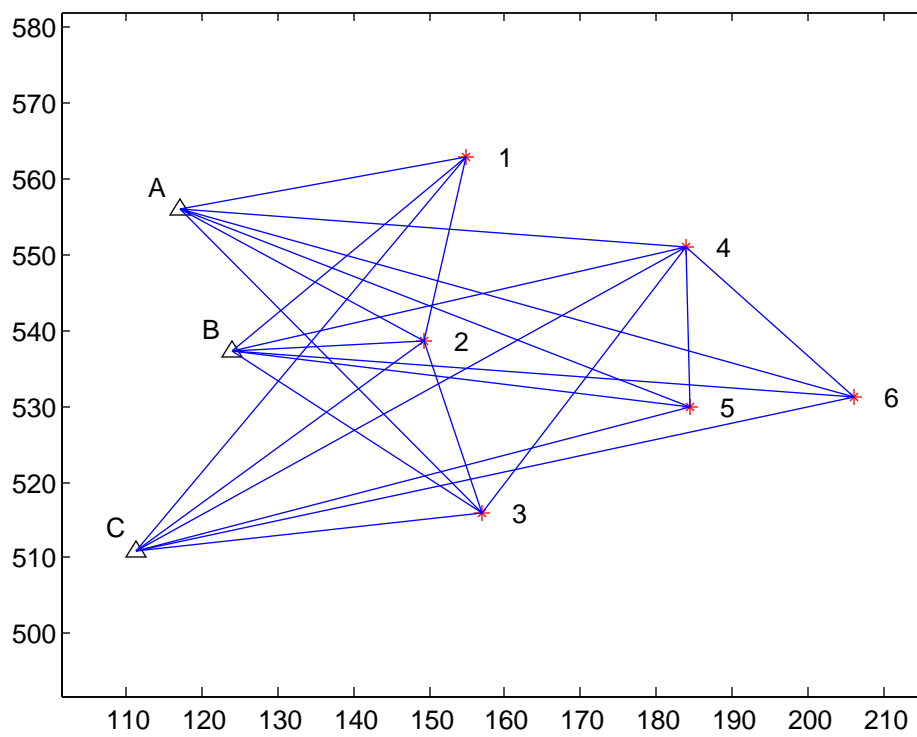
due 1 week

This is an exercise to get you to make a LS adjustment and develop some quantitative statements about uncertainty of the results.

See the accompanying figure showing a 2D, horizontal, trilateration (distance observations) network, with associated listing of observations. There are 2 sets of data, so make the LS adjustment twice, once for each data set. Following the adjustment, in both cases,

1. make the global test on reference variance, 2-sided, $\alpha = .05$
2. based on outcome of (1), make the appropriate 90% confidence interval for X_1 .
3. compute parameters for 90% confidence ellipses for all of the unknown points. Plot them together in a single plot, each one centered at the respective point estimate. Note: in order that the plots are visible, you will have to exaggerate the scale by a large factor. Use the same factor for all figures. Make sure you use the command `AXIS EQUAL` for correct aspect ratio of graphics. details of this task will also depend on outcome of (1)
4. Extra Credit: Locate any blunders/gross errors and re-run adjustment. Don't re-do (2) \neq (3)

HW6 trilateration problem



hw6_data

horizontal distances (m)
sigma = 0.075m

pts	set 1	set 2
A-1	38.669	38.702
A-2	36.652	36.554
A-3	56.570	56.624
A-4	67.095	67.127
A-5	72.312	72.331
A-6	92.296	92.250
B-1	40.009	40.133
B-2	25.185	26.239
B-3	39.360	39.394
B-4	61.425	61.481
B-5	60.802	60.912
B-6	82.256	82.287
C-1	67.767	67.766
C-2	46.847	46.881
C-3	45.827	45.893
C-4	82.879	82.764
C-5	75.465	75.594
C-6	96.758	96.733
1-2	24.710	24.916
2-3	23.961	24.104
3-4	44.212	44.204
4-5	20.833	20.869
4-6	29.474	29.395

Control Point Coordinates

PT-ID	X	Y
A	117.0	556.0
B	124.0	537.3
C	111.4	511.0