

CE 597 (29) Adj. of Geospa. Obs.

Homework # 4 assigned Thurs, 30 Oct 2008

due Tues, 11 Nov

1. write a function to evaluate distance condition equation with syntax:

$$\text{result} = \text{distance2d}(d, i, j, X, Y)$$

$$\text{result} : [F_d \quad \frac{\partial F}{\partial x_i} \quad \frac{\partial F}{\partial y_i} \quad \frac{\partial F}{\partial x_j} \quad \frac{\partial F}{\partial y_j}]$$

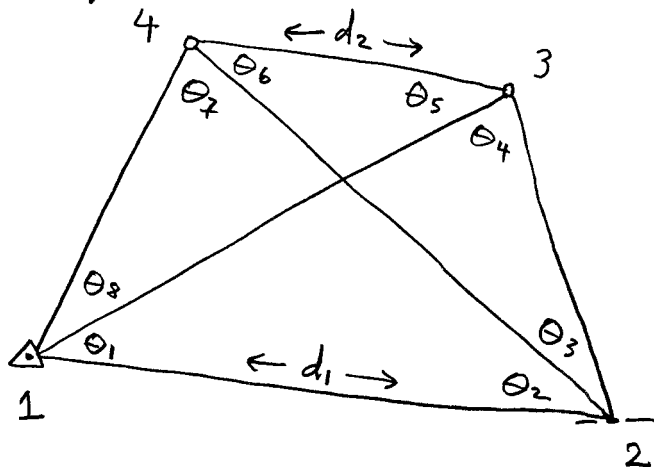
2. write a function to evaluate angle condition equations:

$$\text{result} = \text{angle2d}(a, i, j, k, X, Y)$$

$$\text{result} : [F_a \quad \frac{\partial F}{\partial x_i} \quad \frac{\partial F}{\partial y_i} \quad \frac{\partial F}{\partial x_j} \quad \frac{\partial F}{\partial y_j} \quad \frac{\partial F}{\partial x_k} \quad \frac{\partial F}{\partial y_k}]$$

3. Using these adjust the braced quadrilateral with

$(X_1, Y_1) = (362.0, 415.0)$  a full control point, and  $Y_2 = 129.0$  a partial control point.



obs	value	$\sigma$	obs	value	$\sigma$
$d_1$	1161.80	0.1	$\theta_5$	35-54-30	10"
$d_2$	660.69	0.1	$\theta_6$	40-36-14	10"
$\theta_1$	44°-56'-50"	10"	$\theta_7$	67-26-31	10"
$\theta_2$	31-33-42	10"	$\theta_8$	36-02-50	16"
$\theta_3$	30-07-48	10"			
$\theta_4$	73-21-19	10"			

4. make the global test at  $\alpha = .05$  level of significance

note: make 2-sided test.

5. compute 50% confidence interval for  $x_2$

6. compute 50% confidence ellipse for points 3 and 4.

7. compute the 50% circular error for points 3 and 4.

8. plot the network and error figures at appropriate scales. Give a scale indication on the plot

9. Summarize your results, turn in graphics, and your code.