GEOP 320 - SPRING 2018 - QUIZ # 10 and 11
(Take Home) - (Due on 25/4/2018)

In an experiment, we have a source and 10 receivers that gave us the following values for the total statics:

i	T_i (ms)
1	4.2
2	3.8
3	3.9
4	3.5
5	2.7
6	1.9
7	1.5
8	1.2
9	0.7
10	0.4

(1) What are your starting values for *a* and *b*?

(2) Use Gauss-Seidel procedure to find the correct values of *a* and *b* to a precision of 0.1 ms.

(3) How many iterations did it take you to reach this precision?

(4) Find the values of *a* and *b* using a matrix inversion method (e.g., Cramer's rule).

(5) Knowing that the correct values of *a* and *b* are 5.0 ms and -0.5 ms, respectively; what could be the reasons for the error in calculating *a* and *b* using the above two methods?

(6) Draw the weathering-layer model under the source and all receivers assuming the following:

a. The total residual static shift is due to only changes in the weathering-layer thickness.

b. The velocity of the weathering layer is constant at 1,000 m/s.

c. The elevation static correction has been applied.

d. The surface-consistent assumption applies.