Breakout Group Exercise

Imagine yourself in this scenario...

Breakout Session (total 30 minutes, this part <2 minutes)

You will work through parts aspects of Unit 2.2: Change Detection with Kinematic GPS/GNSS.

1. Pick one of the instructor participants to serve as Facilitator. This person should read the questions and help keep the group running on time. If no one volunteers, the person currently located the furthest south should do it.
2. Work through the discussion questions on Slides 4-7. Aim to save 10 minutes for Slide 7.

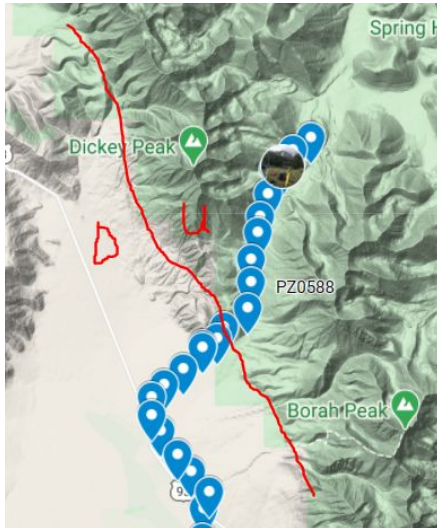
(you may want to jot down some of the group's ideas in your own notes for the future)

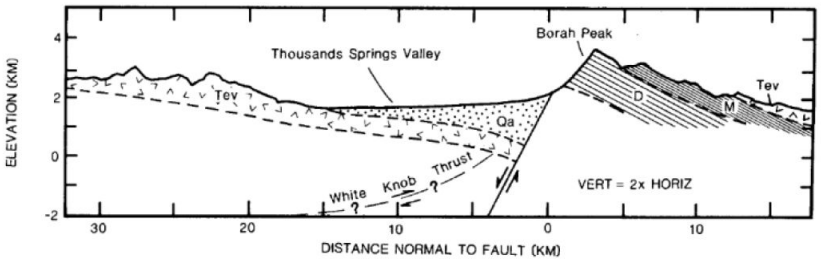
Welcome to Field Camp!

Assume you have already completed the introductory and technique-focused units for GNSS

Your Task (drawn from Unit 2.2: Change Detection)

- In your field area, there is an active normal fault that experienced a ~M7 earthquake in 1983.
  - In 1984, a careful vertical measure of ~40 fixed monuments was made across the fault
  - The monuments are still present today!
  - You will resurvey these monuments in 2020 to assess whether post-seismic, elastic, vertical change has occurred since 1984. There have been no significant earthquakes since 1983.





Discuss in your group (~5 minutes)

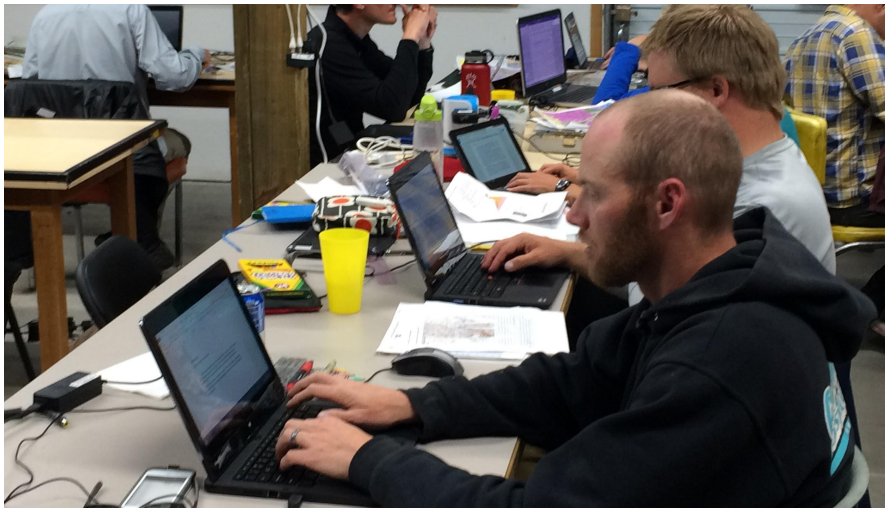
1. Which types of data will you need to collect?
2. Which survey technique would work best?
3. How could you assess whether there has been significant post-seismic change?

You collect RTK-GNSS data at the monuments

Discuss in your group (~5 minutes)

1. What types of problems might arise during the collection? How would you handle them?
2. What type of notes might you need to take, other than the GNSS position?

You return to camp and process your data

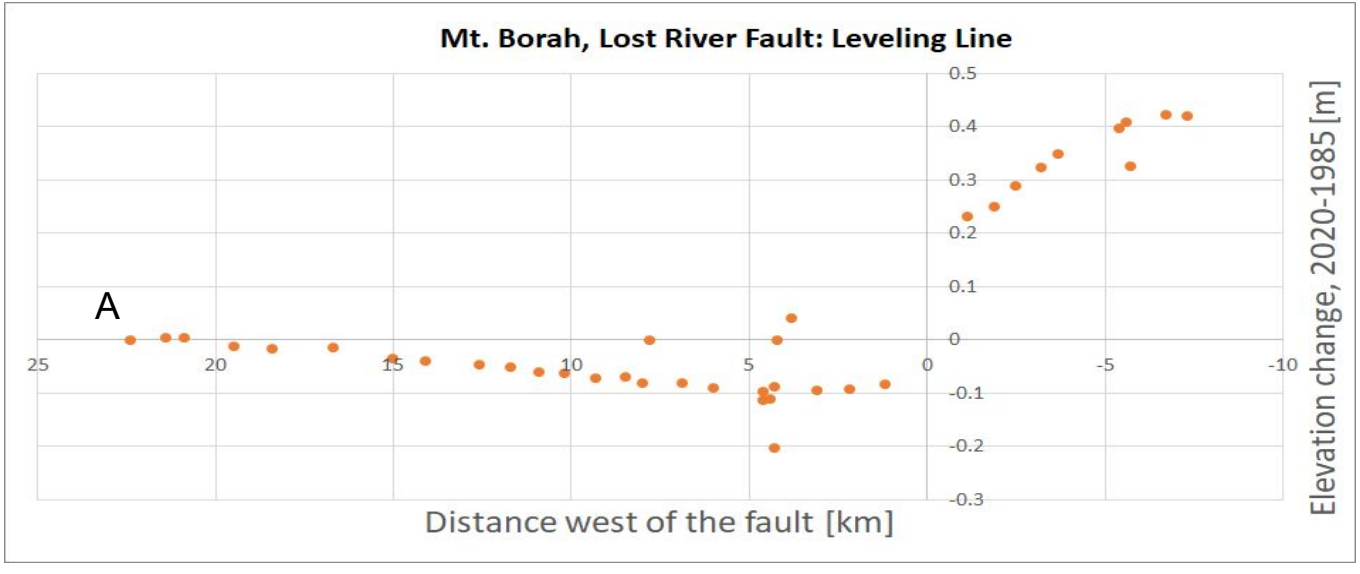


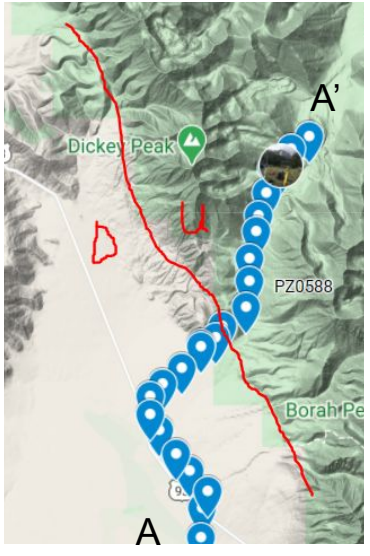
PID	LONG	LAT	Elevation [m,NAVD88]					Change (m) by Year			
			1933	1983	1984	1985	2017	33-83	33-84	83-84	84-85
OZ0057	-114.04	43.9933	2037.81	2037.52	2037.68	2037.68	2037.6773	-0.2874	-0.126	0.16136	-0.00
OZ0804	-114.03	43.9975	2030.26	2029.96	2030.12	2030.12	2030.1248	-0.2977	-0.1362	0.16156	-0.002
OZ0803	-114.02	43.9975		2030	2030.16	2030.16	2030.1615			0.16181	-0.002
QA0037	-114	44.0031	2020.4	2020.07	2020.24	2020.24	2020.2284	-0.3267	-0.1637	0.16302	0.0017
PZ0609	-113.99	44.0075		2006.5	2006.66	2006.67	2006.6513			0.16238	0.0055
PZ0441	-113.97	44.0142	1992.72	1992.31	1992.47	1992.48	1992.4655	-0.4057	-0.2445	0.16128	0.0048
PZ0608	-113.96	44.0183		1995.53	1995.69	1995.69				0.15655	0.0022
PZ0607	-113.95	44.0258		1978.16	1978.32	1978.32	1978.2837			0.15392	0.000
PZ0443	-113.94	44.0325	1971	1970.45	1970.6	1970.6	1970.5599	-0.553	-0.3999	0.1531	-0.000
PZ0606	-113.94	44.0364		1964.99	1965.14	1965.14	1965.0962			0.15398	-0.002
PZ0605	-113.92	44.0394		1959.15	1959.3	1959.3	1959.2527			0.15134	-0.001
PZ0604	-113.91	44.0419		1951.98	1952.12	1952.13	1952.0675			0.14801	0.0036
PZ0603	-113.9	44.0467		1947.14	1947.29	1947.29	1947.2261			0.15053	-0.000
PZ0602	-113.89	44.0506		1940.57	1940.72	1940.72	1940.6454			0.15024	-0.001
PZ0601	-113.88	44.0521		1933.97	1934.12	1934.12	1934.051			0.15049	-0.001
PZ0447	-113.87	44.0527	1928.27	1927.4	1927.54	1927.54	1927.4599	-0.8702	-0.7235	0.14662	-0.002
PZ0448	-113.88	44.0594	1930.21	1929.28	1929.43	1929.42	1928.8535	-0.93	-0.7805	0.14956	-0.003
PZ0599	-113.88	44.0684		1927.7	1927.84	1927.84	1927.7577			0.14337	-0.003
PZ0450	-113.88	44.0783	1923.63	1922.54	1922.68	1922.68		-1.0942	-0.954	0.1403	0.003
PZ0598	-113.88	44.0811		1920.65	1920.79	1920.8	1920.7062			0.14108	0.0045
PZ0597	-113.88	44.0913		1916.43	1916.57	1916.58				0.14657	0.0049
PZ0451	-113.88	44.1013	1914.45	1913.06	1913.21	1913.21	1913.1145	-1.3817	-1.238	0.14367	0.0035
PZ0596	-113.88	44.1073		1940.21	1940.36	1940.36	1940.2764			0.14474	0.0051
PZ0595	-113.89	44.1141		1940.08	1940.22	1940.23	1940.0227			0.1447	0.0044

Discuss in your group (~5 minutes)

1. How will you share data as a class?
2. How will you compare your class' data to the historic data?
3. How might you visualize your data? If a graph, what is on the axes?

Interpret your data and consider the implications





Discuss in your group

1. What are the tectonic implications of this detected change?
2. What are the societal implication for this detected change?
3. If a utility company wants to run a water/electrical/gas line across this 'inactive' fault, what would you advise them to consider?

4. What steps would you need to take to prepare for teaching an exercise like this?