

Name: _____

Hydrogeology (ERS 580)

The attached data has been collected from wells installed on the UMaine campus. Refer to the first problem set to identify the locations of these wells.

- Calculate the charge-balance errors for each of the samples. What is the range in errors? Are these data 'good'?
- Construct a Piper plot using this data
- Construct stiff diagrams and place these on a map of the campus (available in earlier problem set).
- Speculate on the processes that control the ground-water chemistry, using other textbooks/articles as needed to interpret the water chemistry.
- Create bivariate plots that support your interpretation.

Sample ID units	As nmol/l	Ca μeq/l	Fe nmol/l	K μeq/l	Mg μeq/l	Mn nmol/l	Na μeq/l	Si μmol/l	Cl μeq/l	NO3 μeq/l	SO4 μeq/l	Total N μmol/l	ANC μeq/l	PH sμ	S.Cond μS/cm
Bryand PVC Sh	<2.0	3278.44	<5.0	78.01	1674.21	3750.46	639.41	505.52	269.7	267.4	500	294.79	1950	8.4	289
Bryand Bedrock	31.5	1541.92	6915.85	20.72	1075.28	1363.49	452.37	172.3	448.2	4	460.4	4.28	2310	6.61	585
Farm Bedrock Sh	<2.0	1169.66	<5.0	13.55	388.32	<10	196.17	275.54	276.9	54.3	240.5	56.39	1130	8	140
Farm Bedrock Dee	<2.0	916.17	<5.0	14.32	287.12	<10	267.07	279.1	242.5	84.1	227.9	83.51	1390	6.93	142
Farm Rd. PVC Sh	50.85	1611.78	1586.21	83.38	764.29	3525.66	922.14	148.1	465.1	0	495.1	2.14	2320	7.47	295
Farm Rd. PVC Med	50.05	1140.22	1793.73	75.7	733.03	2142.88	1056.98	123.18	828.9	0	299	5.71	1610	7.76	289
Farm Rd Bedrock	78.08	1015.47	<5.0	53.96	758.54	346.56	569.81	178	335.3	3	214.2	2.86	2140	8.33	220
River Bedrock	<2.0	5034.93	136.79	47.83	2254.22	<10	1622.44	294.05	5283	104.2	495.2	104.21	2870	7.51	866
Stillwater River	<2.0	263.97	2000.36	10.49	88.03	238.26	121.79	44.14	62.1	0	88.8	15.7	455	6.69	53.3
Stewart PVC Sh	35.5	1416.67	<5.0	68.03	468.12	5044.23	250.11	150.23	192.3	0	239.3	0.71	1820	7.46	218
Stewart PVC Med	74.35	658.68	1159.36	118.93	388.32	2690.75	1674.64	108.58	87.2	0	521.4	5.71	2290	8.24	237
Stewart Bedrock	<2.0	276.95	535.72	19.95	91.32	1276.12	2092.21	23.85	46	0	176.6	0.71	2380	9.22	229