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UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Audio-magnetotelluric station location map
and data, Belt Basin, Montana

By

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Open-File Report 77-673

**UNIVERSITY OF UTAH
RESEARCH INSTITUTE
EARTH SCIENCE LAB.**

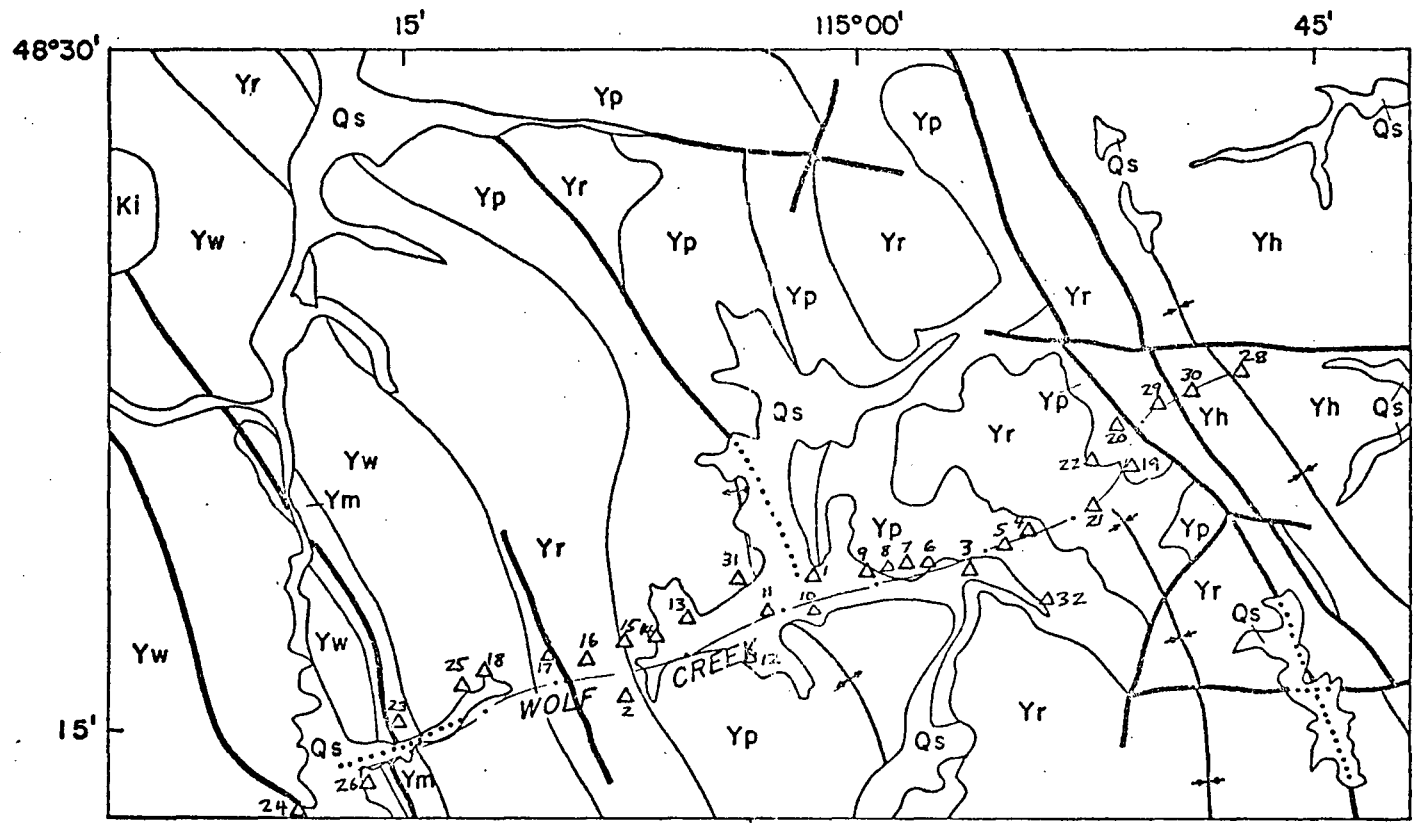
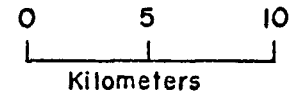


Figure 1: Audio-magnetotelluric station location map, Belt Basin, Montana

EXPLANATION

- Qs Quaternary surficial deposits
- Ki Cretaceous Intrusive
- Belt Supergroup (Precambrian Y):
 - Ym Missoula Group
 - Yh Helena Formation
 - Yw Wallace Formation
 - Yr Ravalli Group
 - Yp Pri chard Formation

- Syncline
- Anticline
- Contact
- Fault
- AMT station
- Location of Gravity Profile



U.S. GEOLOGICAL SURVEY A.M.T. DATA LOG

pa = observed apparent resistivity in ohm-metres

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Sta. No.		FREQUENCY											
		7.5	10	14	27	76	285	685	1.2K	3.3K	6.7K	10.2K	18.6K
1NS	pa	269	161	151	141	206	286	445	-	-	-	-	-
	N	8	11	15	14	12	8	2					
	Er	18.1	14.3	18.7	8.4	10.3	22.2	107					
1EW	pa	316	330	271	286	315	320	-	-	-	-	-	
	N	12	14	12	18	12	12						
	Er	22.3	16.9	17.1	12.1	11.9	17.9						
2NS	pa	476	445	419	587	1030	1400	1110	-	-	-	-	
	N	11	8	10	5	7	7	3					
	Er	66.8	78.8	35.2	80.5	125	113	75.4					
2EW	pa	979	900	1020	1080	1130	1230	-	-	-	-	-	
	N	10	10	8	8	7	4						
	Er	89.2	144	148	71.9	52.5	127						
3NS	pa	13.9	41.5	35.8	75.1	280	896	683	-	-	-	-	
	N	6	7	9	10	10	10	8					
	Er	2.35	11.3	6.77	10.7	24.5	80.4	515					
3EW	pa	25.6	42.8	34.3	88.4	241	921	-	-	-	-	-	
	N	9	10	10	10	11	10						
	Er	3.22	5.75	2.22	10.4	12.6	76.3						
4NS	pa	39.7	39.0	92.8	155	448	633	244	-	-	-	-	
	N	10	9	12	10	13	10	3					
	Er	5.6	9.85	21.7	10.1	20.7	23.6	59.2					
4EW	pa	64.2	54.6	84.4	157	427	1050	606	-	-	-	-	
	N	12	10	10	10	13	10	8					
	Er	8.53	7.74	6.1	10.8	15.0	82.9	59.8					

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		7.5	10	14	27	76	285	685	1.2K	3.3K	6.7K	10.2K	18.6K
5NS	pa	25.0	44.4	54.9	92.6	336	630	402	-	-	-	-	-
	N	7	6	9	11	10	9	8					
	Er	2.93	6.75	3.81	5.65	18.8	49.5	38.7					
5EW	pa	14.2	11.6	15.7	30.0	98.7	156	238	-	-	-	-	-
	N	6	8	8	10	11	10	7					
	Er	1.21	1.98	1.00	1.50	3.11	9.74	14.7					
6NS	pa	276	84.3	183	653	34,100	60,300	-	-	-	-	-	-
	N	7	6	7	7	10	11						
	Er	91.4	21.9	7.8	105	428	2430						
6EW	pa	52.9	87.8	129	226	1620	62,200	-	-	-	-	-	-
	N	12	11	13	12	13	15						
	Er	6.8	16.7	37.1	18.1	101	3930						
7NS	pa	17.8	19.6	23.9	42.0	121	133	197	-	-	-	-	-
	N	11	10	10	11	10	14	4					
	Er	1.95	3.92	1.82	2.55	2.98	9.46	31.4					
7EW	pa	93.2	85.7	96.0	203	228	220	183	-	-	-	-	-
	N	10	12	12	10	9	15	7					
	Er	3.22	5.91	4.44	60.6	13.3	7.80	22.6					
8NS	pa	3.7	3.4	6.3	42.2	282	-	-	-	-	-	-	-
	N	9	8	8	11	8							
	Er	0.7	0.37	1.91	6.19	48.1							
8EW	pa	4.0	4.15	5.3	22.9	334	-	-	-	-	-	-	-
	N	12	12	12	11	13							
	Er	0.37	0.41	0.31	0.66	18.3							

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		7.5	10	14	27	76	285	685	1.2K	3.3K	6.7K	10.2K	18.6K
9NS	pa	534	845	452	1050	1130	1140	1560	-	-	-	-	-
	N	6	6	7	10	11	10	11					
	Er	83.2	274	32.4	274	92.4	116	89.4					
9EW	pa	825	633	912	997	1140	1080	816	-	-	-	-	-
	N	9	12	12	11	10	10	6					
	Er	218	52.9	54.3	59.4	471	185	164					
10NS	pa	6.9	18.0	22.4	73.4	757	11,600	-	-	-	-	-	-
	N	9	11	10	9	9	11						
	Er	1.03	3.33	3.1	6.31	38.2	940						
10EW	pa	2.5	4.9	12.1	39.5	4.04	8470	-	-	-	-	-	-
	N	9	6	10	9	10	5						
	Er	0.47	1.42	2.4	3.87	45.5	1050						
11NS	pa	24.6	32.7	44.7	138	972	17100	-	-	-	-	-	-
	N	7	8	9	8	10	11						
	Er	2.57	4.71	5.22	6.78	70.7	1230						
11EW	pa	3.9	5.50	9.06	38.4	316	10400	-	-	-	-	-	-
	N	12	10	12	12	11	12						
	Er	0.34	1.40	0.46	1.69	9.29	1030						
12NS	pa	368	350	479	431	583	524	-	-	-	-	-	-
	N	7	11	10	10	11	10						
	Er	56.8	43.9	62.3	41.9	35.8	35.0						
12EW	pa	222	217	204	175	279	364	-	-	-	-	-	-
	N	8	7	8	9	7	8						
	Er	16.0	23.6	18.7	10.9	16.3	75.5						

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Sta. No.		FREQUENCY											
		7.5	10	14	27	76	285	685	1.2K	3.3K	6.7K	10.2K	18.6K
13NS	pa	290	166	510	438	610	545	-	-	-	-	-	-
	N	7	11	8	11	11	8						
	Er	47.6	19.6	48.4	26.1	19.9	34.8						
13EW	pa	1540	1120	1300	1300	1120	956	2460	-	-	-	-	-
	N	12	8	10	12	11	6	3					
	Er	138	101	76.3	76.1	47.2	54	921					
14NS	pa	409	573	1040	1060	785	161	1380	-	-	-	-	-
	N	10	7	9	11	10	8	1					
	Er	36.8	131.2	256	179	79.7	232						
14EW	pa	1040	1180	1010	896	874	977	750	-	-	-	-	-
	N	6	9	9	11	10	6	3					
	Er	136	151	43.3	79	45.8	31.2	79					
15NS	pa	520	454	325	371	468	477	367	-	-	-	-	-
	N	10	7	9	7	12	9	3					
	Er	56.7	52.6	49.4	83.2	49.8	69.0	41.3					
15EW	pa	489	433	560	785	867	965	236	-	-	-	-	-
	N	8	11	12	10	11	7	3					
	Er	53.0	39.9	35.7	28.8	32.7	57.6	14.0					
16NS	pa	476	569	626	1350	1470	4960	-	-	-	-	-	-
	N	10	7	11	5	7	2						
	Er	51.4	103	88.2	219	389	2520						
16EW	pa	6250	5260	6940	10100	11400	23200	-	-	-	-	-	-
	N	9	13	9	12	11	5						
	Er	626	751	762	983	492	4540						

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Sta. No.		FREQUENCY											
		7.5	10	14	27	76	285	685	1.2K	3.3K	6.7K	10.2K	18.6K
17NS	pa	-	1900	1440	3200	4640	3300	1300	-	-	-	-	-
	N		9	6	6	12	10	10					
	Er		419	200	553	242	112	144					
17EW	pa	500	1370	1510	1750	3170	950	227	-	-	-	-	-
	N	6	8	10	9	11	11	7					
	Er	112	165	136	129	320	70.8	53.0					
18NS	pa	703	930	1410	1810	1970	2990	3330	-	-	-	-	-
	N	6	7	4	6	10	8	7					
	Er	108	146	136	206	82.4	30.9	181					
18EW	pa	239	298	312	428	671	1710	1380	-	-	-	-	-
	N	5	9	7	7	6	4	7					
	Er	64.5	37.9	27	87.7	65.5	31.0	170					
19NS	pa	160	162	290	394	557	426	711	-	-	-	-	-
	N	8	8	10	10	10	9	1					
	Er	30.0	23.3	24.5	13.6	18.1	21.8						
19EW	pa	157	134	199	344	556	595	412	-	-	-	-	-
	N	10	13	12	9	13	9	1					
	Er	19.8	11.4	7.0	14.8	13.7	24.9						
20NS	pa	44.2	81.3	85.8	122	175	70.3	-	-	-	-	-	-
	N	6	6	7	8	6	10						
	Er	9.35	5.99	5.53	5.83	6.73	2.05						
20EW	pa	237	226	286	4.83	771	476	-	-	-	-	-	-
	N	8	12	6	11	9	9						
	Er	37.3	20.4	17.5	16.0	26.4	33.5						

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		7.5	10	14	27	76	285	685	1.2K	3.3K	6.7K	10.2K	18.6K
21NS	pa	23.4	105?	44.4	70.0	185	615	1070	-	-	-	-	-
	N	8	6	10	11	8	13	12					
	Er	1.39	27.3	5.55	3.80	28.0	25.6	753					
21EW	pa	42.5	143	171	333	760	1010	-	-	-	-	-	
	N	9	10	14	8	9	10						
	Er	5.55	12.6	8.70	4.64	17.0	158						
22NS	pa	73.0?	27.0	27.5	37.7	97.8	92.5	353	-	-	-	-	
	N	4	5	4	9	4	10	6					
	Er	11.9	1.81	0.66	1.91	4.5	2.99	19.4					
22EW	pa	155	162	158	328	920	1690	1820	-	-	-	-	
	N	4	5	4	10	5	8	6					
	Er	9.89	16.6	9.16	8.67	53.1	91.9	180					
23NS	pa	161	154	184	201	149	143	72.5	-	-	-	-	
	N	3	5	8	8	5	6	5					
	Er	26.0	35.6	18.1	25.4	16.0	15.5	5.06					
23EW	pa	188	65.4	133	134	180	193	146	-	-	-	-	
	N	4	6	6	9	7	10	4					
	Er	57.5	14.1	18.8	8.2	16.2	12.6	51.0					
24NS	pa	420	171	420	117	402	60.7	81.4	-	-	-	-	
	N	8	10	9	9	10	10	9					
	Er	38.10	32.8	30.3	19.3	35.6	6.79	7.43					
24EW	pa	1680	946	1180	981	679	381	892	-	-	-	-	
	N	9	11	8	10	9	10	9					
	Er	157	105	83.8	77.9	33.2	34.9	6.53					

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Sta. No.		FREQUENCY											
		7.5	10	14	27	76	285	685	1.2K	3.3K	6.7K	10.2K	18.6K
25NS	pa	2580	8000	7090	9580	9680	42500	-	-	-	-	-	-
	N	4	4	4	10	6	9						
	Er	983	1660	2490	629	1390	4210						
25EW	pa	6580	5050	7630	9490	11700	56500	-	-	-	-	-	-
	N	8	4	4	13	5	6						
	Er	1150	896	1810	821	519	2240						
26NS	pa	466	377	688	509	505	146	183	-	-	-	-	-
	N	10	3	8	12	10	10	7					
	Er	52.0	8.1	108	69.2	44.3	12.9	13.6					
26EW	pa	494	342	490	521	456	331	229	-	-	-	-	-
	N	9	3	12	11	13	10	10					
	Er	38.8	29.7	31.0	18.4	23.7	6.44	17.2					
27NS	pa	497	509	1880	2770	6190	3000	-	-	-	-	-	-
	N	5	8	5	7	9	8						
	Er	120	81.1	264	376	931	175						
27EW	pa	436	354	647	1130	2330	1820	-	-	-	-	-	-
	N	7	9	13	12	10	8						
	Er	50.5	46.1	29.7	42.6	46.2	135						
28NS	pa	497	696	1600	287	1970	1440	998	-	-	-	-	-
	N	8	6	11	11	10	7	2					
	Er	53.9	153	212	329	137	315	281					
28EW	pa		529	663	990	1280	442	207	-	-	-	-	-
	N		14	11	10	10	9	4					
	Er		57.7	62.7	132	180	23.3	43.9					

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Sta. No.		FREQUENCY											
		7.5	10	14	27	76	285	685	1.2K	3.3K	6.7K	10.2K	18.6K
29NS	pa	726	533	819	1596	2835	2041	1121	-	-	-	-	-
	N	7	9	6	7	8	10	10					
	Er	133	90.0	149	212	161	183	102					
29EW	pa	1290	1450	1440	2690	5800	5240	1890	-	-	-	-	-
	N	10	8	8	12	8	8	2					
	Er	109	175	143	173	314	545	44.0					
30NS	pa	603	737	1380	2510	4110	1910	1170	-	-	-	-	-
	N	7	11	10	11	9	10	7					
	Er	97.0	76.5	93.3	137	130	112	152					
30EW	pa	730	730	1130	1980	3290	2140	-	-	-	-	-	-
	N	11	10	11	14	11	10						
	Er	42.3	57.9	46.9	68.5	156	68.8						
31NS	pa	119	154	113	250	526	1100	-	-	-	-	-	-
	N	6	6	7	12	6	4						
	Er	22.2	33.6	19.9	27.3	67.2	32.7						
31EW	pa	2670	1900	480?	1640	2850	2390	206	-	-	-	-	-
	N	8	12	9	10	9	10	1					
	Er	299	168	25.8	59.6	199	141						
32NS	pa	10.2	15.7	18.1	44.0	189	172	134	-	-	-	-	-
	N	7	6	9	9	9	11	9					
	Er	0.93	2.7	1.74	4.1	12.5	10.2	13.0					
32EW	pa	30.9	29.7	38.3	75.9	1.97	316	281	-	-	-	-	-
	N	10	10	10	10	10	10	9					
	Er	4.3	4.5	2.9	3.7	15.4	13.9	34.7					