UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Audio-magnetotelluric survey of Nevada volcanic arc near Reno and Carson City, Nevada: location map and data report

by

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Sixty-one audio-magnetotelluric (AMT) soundings were made in November 1989 and May 1990 as part of a study of the Triassic-Jurassic Magmatic Arc of Western Nevada and Eastern California. The work was done as part of an interdisciplinary investigation to attempt to delineate the distribution and structure of rocks associated with early Mesozoic magmatism in the region and infer possible relationships between these rocks and mineralization.

The areas studied include the Churchill-Ramsey mine district and westward along the Carson River, the Carson Valley including the western flank of the Pine Nut Mountains. Locations of the soundings are shown in figure 1. The sounding curve for each station along with its corresponding data set is shown in Appendix 1.

Electromagnetic induction soundings using distant field sources, mostly of natural sources in the frequency range from 4.5 hertz (Hz) to 27,000 Hz, were made. The data for each station consist of scalar electronic measurements of discrete frequencies for two-orthogonal magnetic and electric field pairs.

The principles of the AMT method correspond to those of the magnetotelluric (MT) method (Cagniard, 1953; Vozoff, 1972; Vozoff and others, 1963), however AMT signals are at higher frequencies and originate mainly from the atmospheric electrical disturbances (spherics) rather than the lower frequencies used in MT (typically in the range of .001 to 1 Hz) which originate from ionospheric or magnetospheric phenomena.

Previous AMT or MT work applied to investigate the structure and lithologic relations in various volcanic areas include that by Hoover and others, 1978; Hermance and others, 1984; Leary and Phinney, 1974; Stanley, 1982; Long, 1985; and Fitterman and others, 1988.

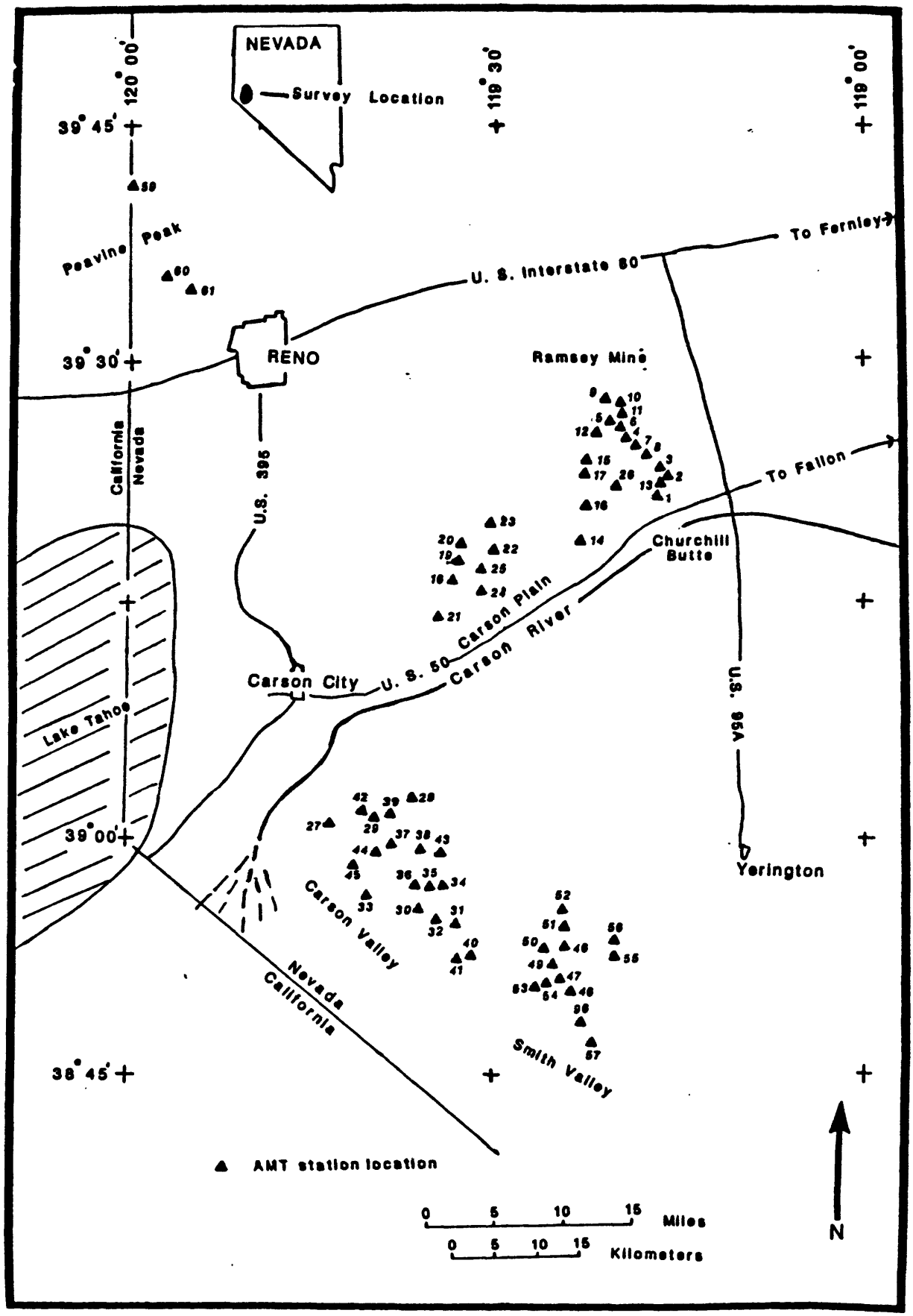

Figure 1 Map showing locations of AMT stations of Nevada volcanic arc study near Reno and Carson City, Nevada

References

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Appendix 1

Sounding curve for every station recorded at Nevada volcanic arc AMT survey near Reno and Carson City, Nevada.

Key to abbreviations:

Sta. ID	Station identification
Freq.	Frequency (Hz)
No Freq	Number of frequencies recorded
Ap Res	Apparent resistivity (ohm-meters)
N Obs	Number of observations taken
Std Err	Standard error (%)
●=NS	North-south E-field measurement
▲=EW	East-west E-field measurement

STA. 1 NS NO FREQ= 6

FREQ	AP-RES	N OBS	STD ERR
7.5	2.72	3	.23
14.0	3.73	4	1.65
450.0	2.31	6	.18
750.0	3.27	2	.24
4500.0	3.86	5	.70
27000.0	4.62	3	.18

EW NO FREQ= 10

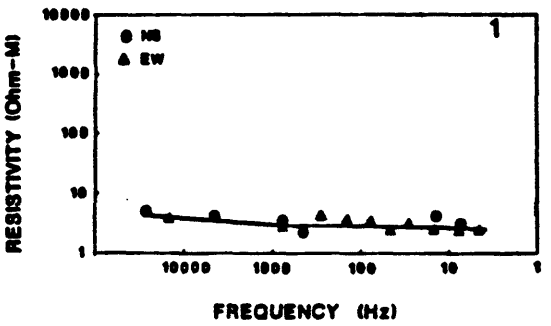
FREQ	AP-RES	N OBS	STD ERR
4.5	2.27	2	1.39
7.5	2.41	3	.98
14.0	2.55	6	.16
27.0	2.97	6	.38
45.0	2.45	7	.28
75.0	3.41	8	.26
140.0	3.34	9	.40
270.0	4.23	9	.30
750.0	3.11	6	.73
14000.0	3.87	3	.06

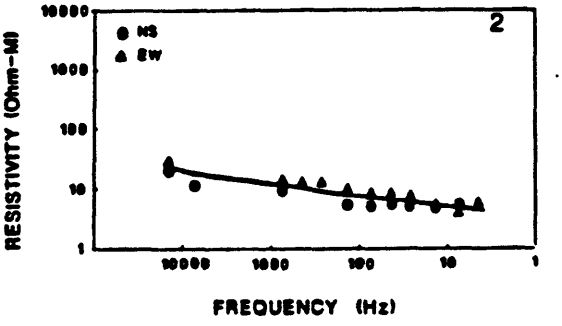
STA. 2 NS NO FREQ= 9

FREQ	AP-RES	N OBS	STD ERR
7.5	4.45	9	.61
14.0	5.18	8	.46
27.0	5.95	6	.37
45.0	5.59	11	.48
75.0	5.20	6	.67
140.0	5.24	6	.29
750.0	9.34	6	1.45
7500.0	11.52	7	.74
14000.0	20.60	3	.75

EW NO FREQ= 11

FREQ	AP-RES	N OBS	STD ERR
4.5	5.12	1	0.00
7.5	4.19	7	.47
14.0	5.37	6	.24
27.0	6.52	8	.39
45.0	7.81	9	.38
75.0	7.80	8	.44
140.0	9.02	7	.40
270.0	11.86	8	.36
450.0	12.15	10	1.23
750.0	13.04	10	1.18
14000.0	30.72	4	2.07



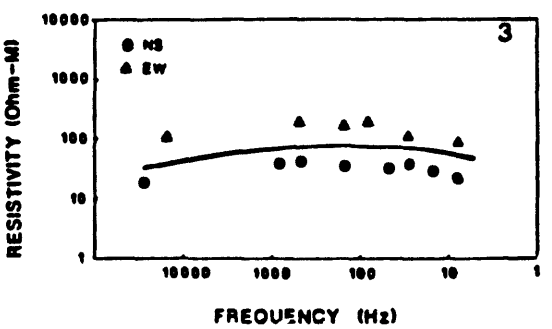


STA. 3 NS NO FREQ= 8

FREQ	AP-RES	N OBS	STD ERR
7.5	20.77	2	2.11
14.0	27.21	7	5.18
27.0	35.71	7	.79
45.0	29.16	10	7.24
140.0	32.79	10	6.73
450.0	39.72	7	10.26
750.0	34.83	1	0.00
27000.0	18.12	3	4.08

EW NO FREQ= 6

FREQ	AP-RES	N OBS	STD ERR
7.5	85.54	4	37.55
27.0	103.38	7	5.17
75.0	184.45	8	25.14
140.0	156.08	9	44.45
450.0	184.02	3	22.76
14000.0	100.52	3	1.40

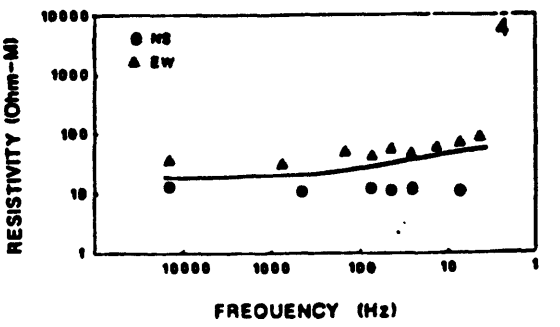


STA. 4 NS NO FREQ= 6

FREQ	AP-RES	N OBS	STD ERR
7.5	11.06	6	1.58
27.0	11.80	6	1.31
45.0	10.96	6	1.56
75.0	12.09	6	1.41
450.0	11.51	3	2.04
14000.0	13.61	3	.66

EW NO FREQ= 9

FREQ	AP-RES	N OBS	STD ERR
4.5	97.07	3	37.19
7.5	75.28	5	6.66
14.0	63.06	7	3.57
27.0	50.51	8	2.82
45.0	61.30	7	4.88
75.0	44.92	13	3.47
140.0	48.29	6	8.56
750.0	31.21	1	0.00
14000.0	37.89	3	.22



STA. 5 NS NO FREQ= 9

FREQ	AP-RES	N OBS	STD ERR
4.5	110.96	2	45.99
7.5	113.49	7	9.36
14.0	122.06	4	27.89
27.0	98.63	8	18.99
45.0	77.00	11	8.88
75.0	70.69	8	8.19
140.0	70.75	4	7.06
456.0	69.91	8	8.52
750.0	63.09	4	25.20

STA. ID_CB05 EW NO FREQ= 6

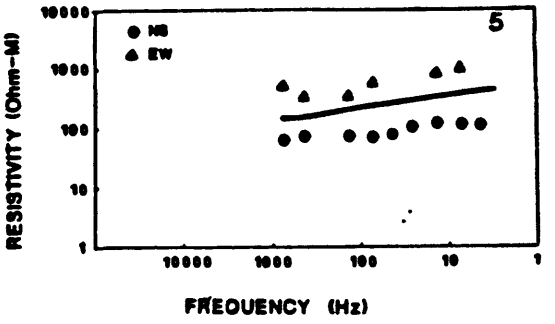
FREQ	AP-RES	N OBS	STD ERR
7.5	1002.90	6	232.53
14.0	825.21	5	167.75
75.0	579.28	5	57.43
140.0	333.82	12	44.19
450.0	331.22	7	72.92
750.0	493.59	3	43.85

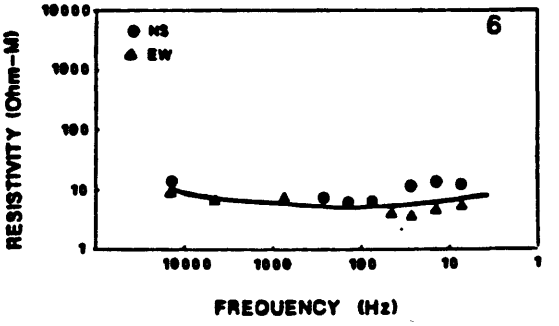
STA. 6 NS NO FREQ= 7

FREQ	AP-RES	N OBS	STD ERR
7.5	12.02	6	1.60
14.0	14.00	6	1.45
27.0	10.81	5	2.36
75.0	6.21	4	1.15
140.0	5.61	8	.85
270.0	6.90	4	1.47
14000.0	11.93	3	.34

STA. ID_CB06 EW NO FREQ= 7

FREQ	AP-RES	N OBS	STD ERR
7.5	6.15	1	0.00
14.0	4.52	5	1.19
27.0	3.49	8	.26
45.0	4.27	8	.26
750.0	6.14	4	1.11
4500.0	6.95	2	.54
14000.0	9.84	3	1.34





STA. 7 NS NO FREQ= 8

FREQ	AP-RES	N OBS	STD ERR
7.5	7.56	10	.73
14.0	8.85	7	1.09
45.0	11.80	5	1.34
75.0	10.24	12	1.21
270.0	8.93	10	1.35
450 0	7.09	6	.86
7500.0	5.26	3	.50
27000.0	3.32	9	.11

EW NO FREQ= 9

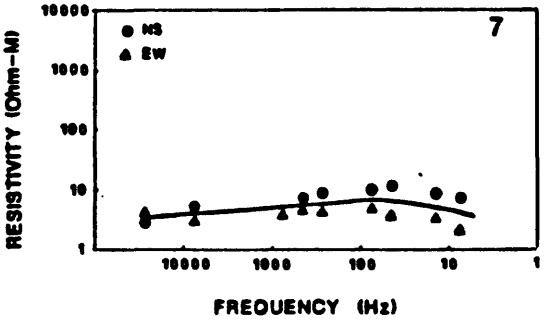
FREQ	AP-RES	N OBS	STD ERR
7.5	2.09	6	.16
14.0	3.40	4	.34
45 0	3.93	9	.14
75.0	4.91	11	.33
270 0	4.32	8	.23
450 0	5.06	8	.33
750 0	4.07	5	.74
7500.0	3.19	12	.33
27000 0	3.62	8	.29

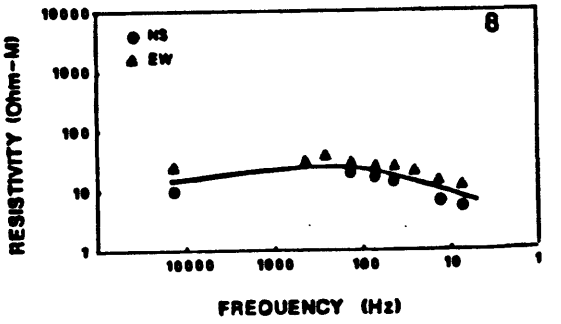
STA. 8 NS NO FREQ= 6

FREQ	AP-RES	N OBS	STD ERR
7.5	5.59	7	2.18
14.0	6.90	8	.92
45.0	15.32	11	1.42
75.0	17.81	10	1.95
140.0	22.25	10	1.16
14000.0	10.07	3	1.47

EW NO FREQ= 9

FREQ	AP-RES	N OBS	STD ERR
7.5	13.00	5	1.69
14.0	14.91	7	.55
27.0	21.03	5	1.49
45.0	25.19	9	1.70
75.0	26.57	8	1.81
140.0	29.49	9	1.84
270 0	37.92	5	22.16
450.0	30.83	11	3.69
14000.0	24.03	4	.59





STA. 9 NS NO FREQ= 9

FREQ	AP-RES	N OBS	STD ERR
7.5	318.05	6	23.94
14.0	201.81	3	60.96
27.0	148.34	6	41.01
45.0	86.74	7	7.94
75.0	84.44	8	8.45
140.0	63.23	5	6.04
270.0	59.32	4	18.27
450.0	51.98	2	20.65
14000.0	156.54	2	35.50

EW NO FREQ= 8

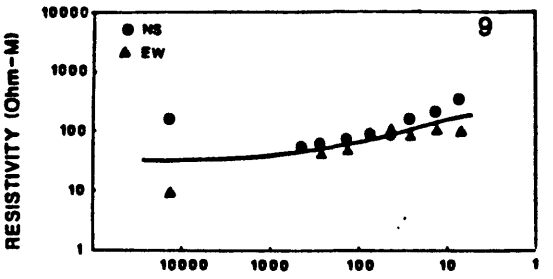
FREQ	AP-RES	N OBS	STD ERR
7.5	94.23	4	10.65
14.0	102.81	3	32.42
27.0	87.61	4	10.43
45.0	93.16	6	5.07
75.0	82.49	5	7.17
140.0	46.52	7	9.44
270.0	46.91	2	13.03
14000.0	8.17	3	.52

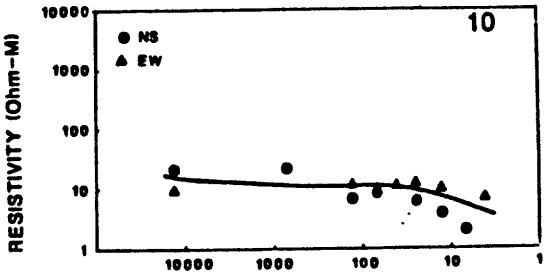
STA. 10 NS NO FREQ= 7

FREQ	AP-RES	N OBS	STD ERR
7.5	2.26	6	.48
14.0	4.21	2	1.41
27.0	6.90	7	2.04
75.0	9.76	5	1.80
140.0	7.94	7	1.33
750.0	26.03	2	23.22
14000.0	21.92	3	.08

EW NO FREQ= 8

FREQ	AP-RES	N OBS	STD ERR
4.5	7.36	7	.91
14.0	10.72	7	1.33
27.0	13.12	9	1.81
45.0	11.60	8	1.04
75.0	11.44	6	1.10
140.0	12.44	9	.82
750.0	4.37	3	1.53
14000.0	12.43	3	.34





STA. 11 NS NO FREQ= 9

FREQ	AP-RES	N OBS	STD ERR
4.5	34.10	3	5.10
7.5	38.90	9	4.10
27.0	11.20	7	.39
45.0	9.80	10	.39
75.0	6.90	8	.92
140.0	6.88	11	.58
270.0	4.24	5	.43
7500.0	3.02	7	.67
14000.0	1.99	11	.19

EW NO FREQ= 9

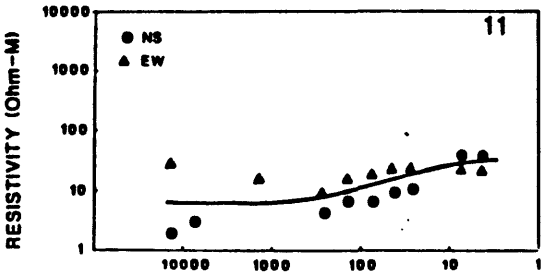
FREQ	AP-RES	N OBS	STD ERR
4.5	22.20	3	3.16
7.5	25.87	7	3.90
27.0	24.20	12	1.18
45.0	23.55	12	1.02
75.0	19.15	9	1.18
140.0	16.40	6	.91
270.0	8.74	7	.92
1400.0	17.15	2	1.73
14000.0	30.37	3	.16

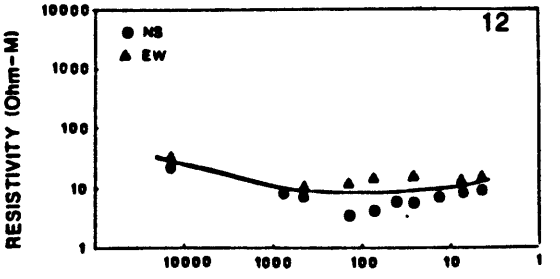
STA. 12 NS NO FREQ= 10

FREQ	AP-RES	N OBS	STD ERR
4.5	9.27	5	2.39
7.5	9.32	5	.62
14.0	7.56	6	.93
27.0	6.87	8	.52
45.0	6.17	7	2.04
75.0	4.12	6	.52
140.0	3.59	8	.95
450.0	7.84	4	.46
750.0	9.27	4	1.57
14000.0	23.30	3	2.24

EW NO FREQ= 7

FREQ	AP-RES	N OBS	STD ERR
4.5	16.49	2	7.61
7.5	11.92	5	3.41
27.0	15.70	7	.92
75.0	14.40	6	2.17
140.0	11.45	8	1.50
450.0	10.85	5	1.10
14000.0	30.76	3	1.00



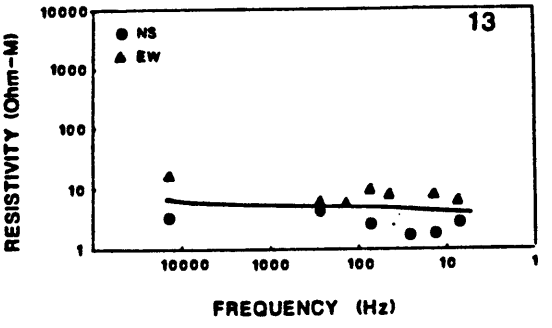


STA. 13 NS NO FREQ= 6

FREQ	AP-RES	N OBS	STD ERR
7.5	2.66	6	.93
14.0	1.73	7	.85
27.0	1.65	12	.45
75.0	2.55	10	.40
270.0	5.15	9	1.06
14000.0	3.40	9	.69

EW NO FREQ= 7

FREQ	AP-RES	N OBS	STD ERR
7.5	6.37	8	3.55
14.0	7.92	9	1.30
45.0	7.77	10	2.05
75.0	9.44	10	2.35
140.0	5.69	13	1.37
270.0	5.12	10	1.60
14000.0	17.09	13	2.99

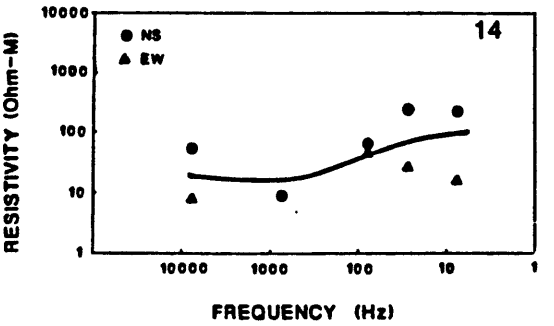


STA. 14 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	73.57	5	7.93
27.0	81.67	8	14.44
75.0	26.27	9	3.08
750.0	5.74	6	.55
7500.0	25.64	6	.93

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	9.15	6	1.45
27.0	14.49	6	2.39
75.0	21.64	6	2.13
750.0	2.34	5	.56
7500.0	5.50	6	.41

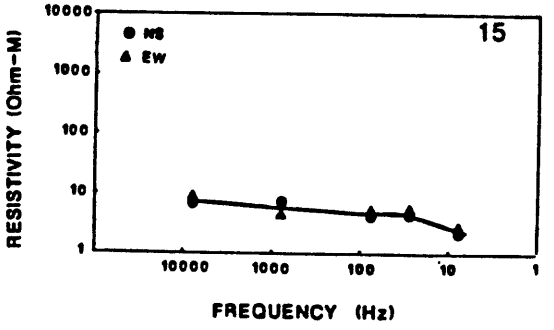


STA. 15 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	3.19	6	.19
27.0	4.13	6	.51
75.0	5.27	6	.44
750.0	7.53	4	2.28
7500.0	7.37	3	1.87

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	3.19	5	.15
27.0	5.79	6	.33
75.0	5.52	6	.70
750.0	5.14	4	1.92
7500.0	9.45	6	.70

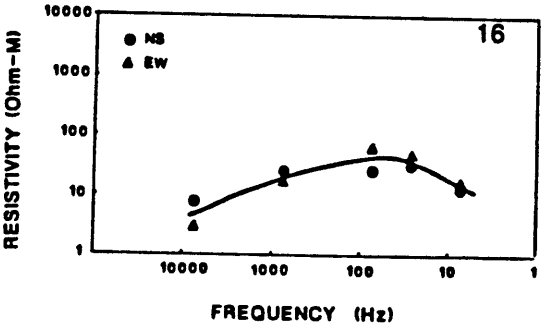


STA. 16 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	15.81	6	.83
27.0	33.57	8	7.17
75.0	26.88	6	3.61
750.0	21.81	6	1.81
7500.0	7.62	6	1.20

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	16.64	6	1.13
27.0	45.77	6	18.90
75.0	60.47	6	9.44
750.0	17.06	5	3.58
7500.0	3.03	6	.72



STA. 17 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	17.47	6	3.99
27.0	15.88	6	.75
75.0	15.14	6	.98
750.0	27.58	6	2.83
7500.0	11.28	5	1.70

EW NO FREQ= 5

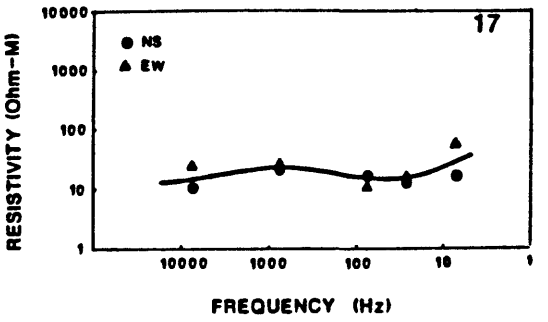
FREQ	AP-RES	N OBS	STD ERR
7.5	60.13	6	6.20
27.0	14.44	6	.78
75.0	12.62	6	.71
750.0	23.98	6	3.96
7500.0	24.70	6	3.44

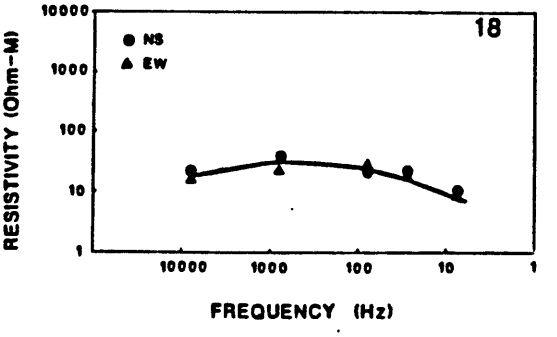
STA. 18 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	8.39	5	1.80
27.0	19.06	6	1.11
75.0	22.85	6	2.64
750.0	38.72	5	4.71
7500.0	21.09	6	5.54

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	9.47	7	1.10
27.0	18.09	6	2.30
75.0	28.76	6	5.47
750.0	23.49	6	2.51
7500.0	18.58	6	2.08





STA. 19 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	8.43	6	.62
27.0	10.81	6	.85
75.0	11.45	6	1.47
750.0	25.23	6	3.13
7500.0	25.51	6	2.79

EW NO FREQ= 5

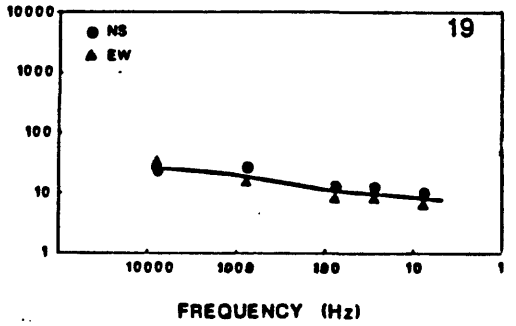
FREQ	AP-RES	N OBS	STD ERR
7.5	6.88	6	.53
27.0	9.42	6	.40
75.0	9.03	6	.76
750.0	16.80	6	1.71
7500.0	29.26	6	1.36

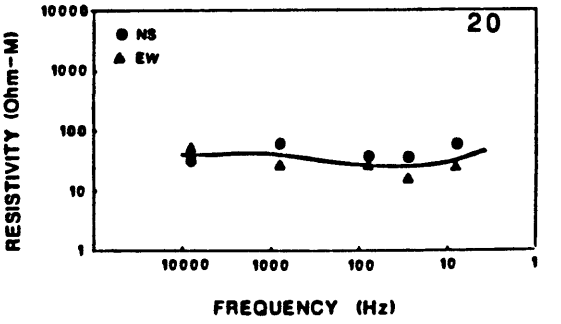
STA. 20 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	56.73	6	9.94
27.0	36.27	6	5.50
75.0	35.43	6	1.46
750.0	58.13	6	6.39
7500.0	30.81	6	4.58

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	25.03	5	3.24
27.0	15.44	6	.60
75.0	25.81	6	3.32
750.0	26.43	6	2.26
7500.0	50.67	6	13.67





STA. 21 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	25.28	6	5.78
27.0	60.47	5	5.55
75.0	36.35	7	6.76
750.0	128.34	5	61.82
7500.0	19.70	5	2.70

EW NO FREQ= 5

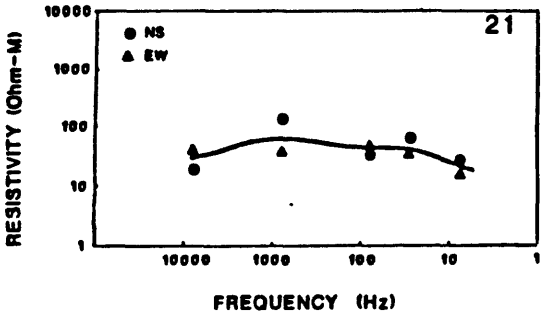
FREQ	AP-RES	N OBS	STD ERR
7.5	15.08	6	1.35
27.0	33.12	7	2.62
75.0	40.40	7	2.84
750.0	37.58	6	2.10
7500.0	38.73	6	1.08

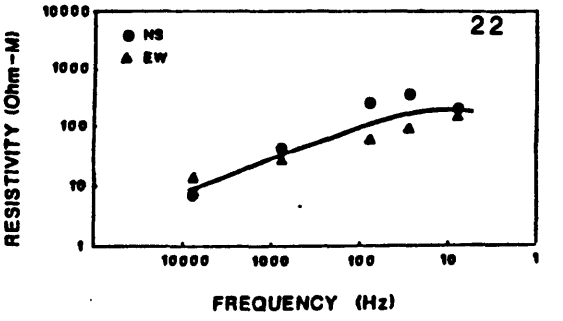
STA. 22 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	187.88	6	26.91
27.0	351.42	6	54.29
75.0	247.50	6	54.72
750.0	40.43	3	9.64
7500.0	7.21	5	.56

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	159.75	6	10.30
27.0	87.41	6	6.06
75.0	56.78	6	7.19
750.0	27.50	6	8.48
7500.0	13.47	6	.58





STA. 23 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	128.67	6	9.92
27.0	187.42	6	13.50
75.0	141.47	6	31.36
750.0	88.84	4	18.10
7500.0	8.19	5	.55

EW NO FREQ= 5

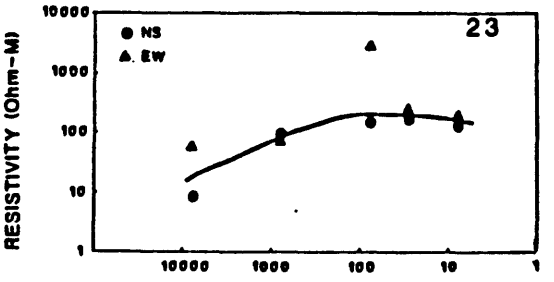
FREQ	AP-RES	N OBS	STD ERR
7.5	192.74	6	35.91
27.0	217.22	6	16.30
75.0	2751.20	6	104.47
750.0	71.89	6	6.86
7500.0	54.65	6	2.42

STA. 24 NS NO FREQ= 5

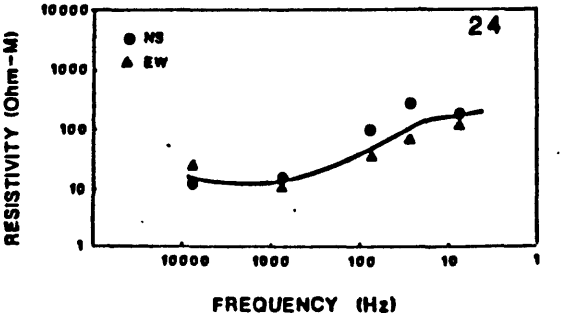
FREQ	AP-RES	N OBS	STD ERR
7.5	189.39	6	26.21
27.0	285.49	6	32.07
75.0	99.63	7	13.54
750.0	15.23	6	2.99
7500.0	12.13	6	.96

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	136.17	6	11.91
27.0	72.57	6	6.01
75.0	37.67	6	3.30
750.0	11.78	6	1.75
7500.0	25.27	7	.62



FREQUENCY (Hz)



STA. 25 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	94.99	6	37.40
27.0	1255.70	6	168.10
75.0	438.69	5	107.99
750.0	19.62	3	6.30
7500.0	4.67	6	.96

EW NO FREQ= 5

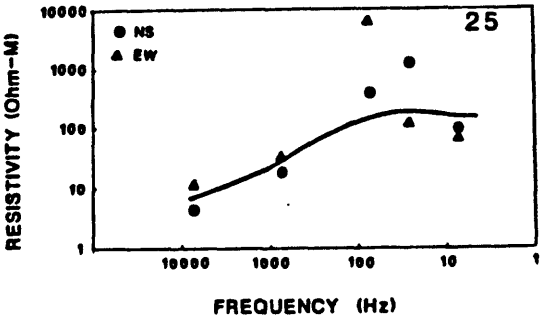
FREQ	AP-RES	N OBS	STD ERR
7.5	74.55	5	18.47
27.0	125.09	5	52.48
75.0	6768.50	4	1316.90
750.0	34.74	7	8.12
7500.0	11.65	6	.92

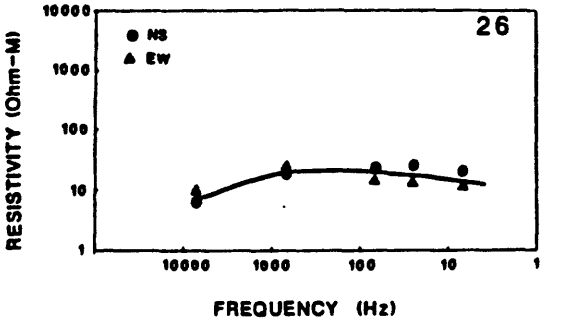
STA. 26 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	94.99	6	37.40
27.0	1255.70	6	168.10
75.0	438.69	5	107.99
750.0	19.62	3	6.30
7500.0	4.67	6	.96

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	74.55	5	18.47
27.0	125.09	5	52.48
75.0	6768.50	4	1316.90
750.0	34.74	7	8.12
7500.0	11.65	6	.92





STA. 27 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	13.70	7	1.70
27.0	26.60	6	3.50
75.0	23.60	6	2.90
750.0	80.46	7	10.66
7500.0	58.60	6	9.00

EW NO FREQ= 5

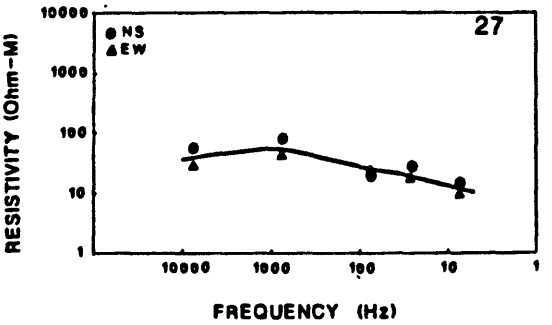
FREQ	AP-RES	N OBS	STD ERR
7.5	9.90	7	.90
27.0	17.50	8	1.30
75.0	23.20	6	1.70
750.0	43.28	6	1.70
7500.0	29.10	6	1.60

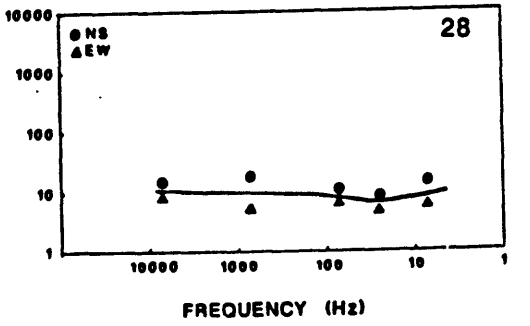
STA. 28 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	15.48	7	2.47
27.0	8.51	7	.65
75.0	11.65	7	1.63
750.0	20.22	8	2.57
7500.0	15.96	6	1.23

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	7.27	9	1.26
27.0	6.15	7	.35
75.0	8.13	7	.45
750.0	5.82	6	1.18
7500.0	8.17	8	.72





STA. 29 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	133.99	6	12.42
27.0	73.81	6	5.68
75.0	88.18	7	5.82
750.0	47.98	7	6.48
7500.0	20.27	6	1.16

EW NO FREQ= 5

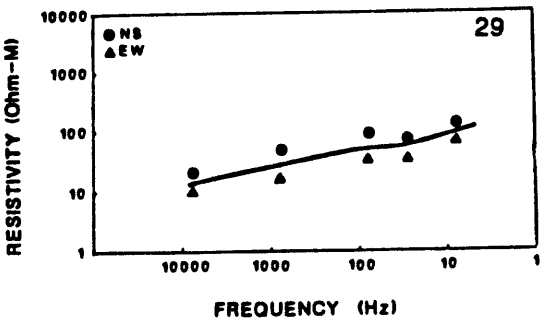
FREQ	AP-RES	N OBS	STD ERR
7.5	79.28	6	8.26
27.0	34.15	7	1.42
75.0	33.81	8	2.28
750.0	17.52	6	3.37
7500.0	10.86	6	.90

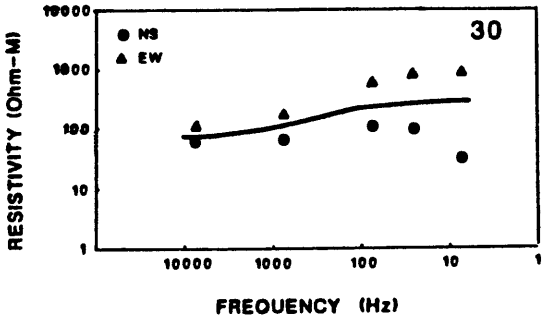
STA. 30 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	31.43	3	7.25
27.0	94.94	5	37.56
75.0	109.85	6	17.51
750.0	67.26	5	36.95
7500.0	58.37	6	1.88

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	921.97	7	88.02
27.0	845.01	7	23.58
75.0	609.01	6	28.10
750.0	193.06	6	28.81
7500.0	113.04	7	2.85





STA. 31 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	14.06	6	.89
27.0	16.10	6	3.05
75.0	22.11	6	2.74
750.0	15.50	4	2.45
7500.0	9.69	5	1.51

EW NO FREQ= 5

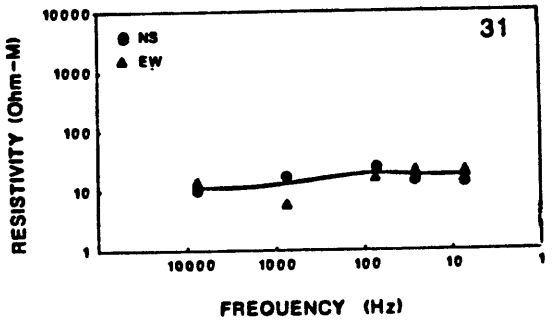
FREQ	AP-RES	N OBS	STD ERR
7.5	21.31	7	2.37
27.0	18.86	7	1.17
75.0	17.56	6	2.32
750.0	5.68	6	1.74
7500.0	11.57	6	1.99

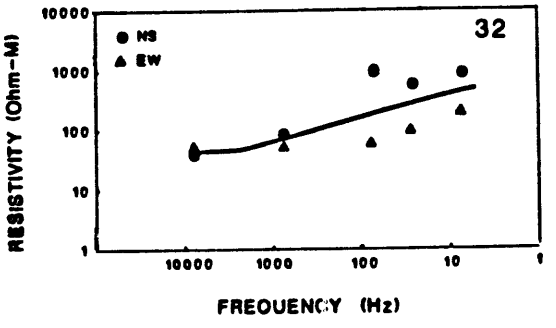
STA. 32 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	814.46	6	91.06
27.0	516.79	6	63.79
75.0	875.64	6	129.92
750.0	70.42	6	13.50
7500.0	45.26	6	4.68

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	188.00	6	26.50
27.0	92.00	7	6.80
75.0	56.70	7	1.50
750.0	52.00	7	4.10
7500.0	43.40	8	1.60





STA. 33 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	13.44	6	3.85
27.0	15.39	6	2.23
75.0	23.83	6	2.59
750.0	25.82	6	5.99
7500.0	27.06	6	2.49

EW NO FREQ= 5

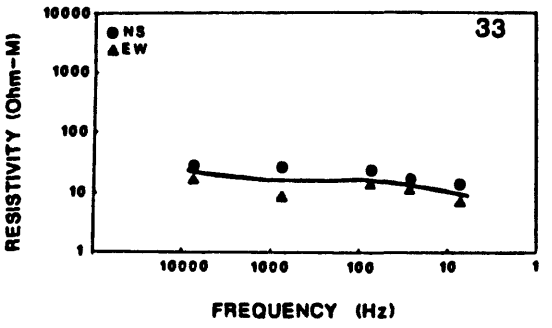
FREQ	AP-RES	N OBS	STD ERR
7.5	7.02	6	.71
27.0	11.36	6	.38
75.0	13.47	6	.64
750.0	8.01	6	3.08
7500.0	16.37	6	.27

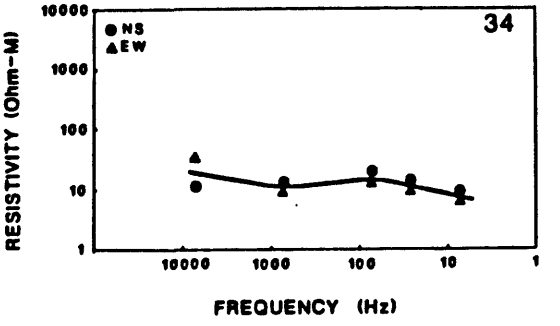
STA. 34 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	8.40	6	2.30
27.0	14.30	6	1.30
75.0	19.40	7	2.90
750.0	13.30	6	6.10
7500.0	11.60	5	6.00

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	7.10	6	.65
27.0	10.10	6	.38
75.0	13.50	6	.70
750.0	11.20	6	1.40
7500.0	34.20	7	1.70





STA. 35 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	15.03	6	2.15
27.0	19.23	7	1.99
75.0	16.89	6	2.15
750.0	27.26	6	11.12
7500.0	5.02	6	1.37

EW NO FREQ= 5

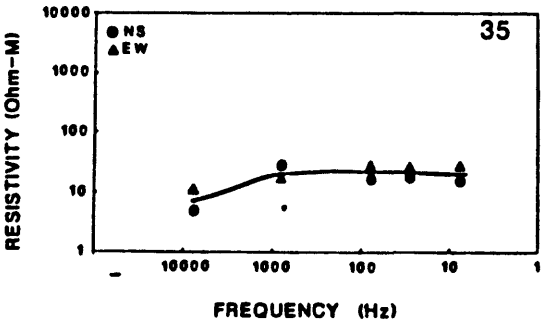
FREQ	AP-RES	N OBS	STD ERR
7.5	28.46	6	2.64
27.0	25.77	6	1.29
75.0	27.37	6	2.63
750.0	17.11	6	3.74
7500.0	10.39	6	.76

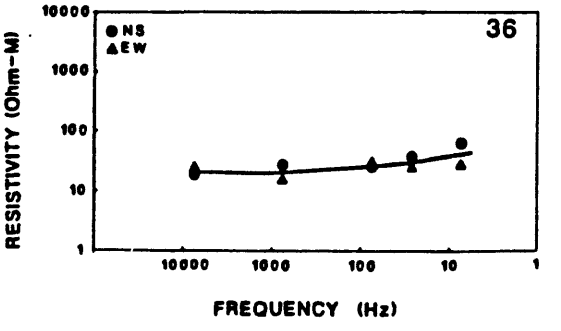
STA. 36 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	62.78	6	10.29
27.0	40.06	6	2.81
75.0	26.43	6	3.44
750.0	27.38	5	4.53
7500.0	21.00	6	1.43

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	28.45	6	1.74
27.0	27.29	6	1.28
75.0	26.04	6	3.28
750.0	16.21	6	1.33
7500.0	23.29	6	1.89



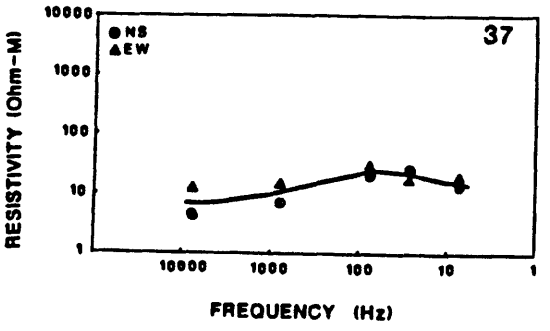


STA. 37 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	13.71	6	.55
27.0	24.81	7	6.60
75.0	20.44	6	1.05
750.0	7.00	6	1.47
7500.0	4.23	6	.40

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	16.63	6	6.74
27.0	17.17	7	1.52
75.0	25.12	7	2.11
750.0	14.66	6	4.09
7500.0	11.49	5	1.63

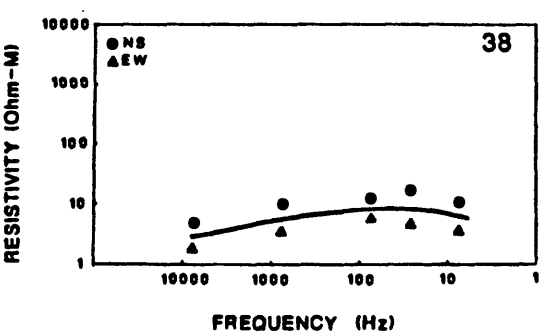


STA. 38 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	10.02	7	1.09
27.0	15.47	6	1.14
75.0	12.05	7	1.55
750.0	9.60	7	1.34
7500.0	4.74	5	.30

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	3.43	6	.13
27.0	4.65	6	.77
75.0	5.52	6	.50
750.0	3.30	8	.31
7500.0	1.83	6	.25

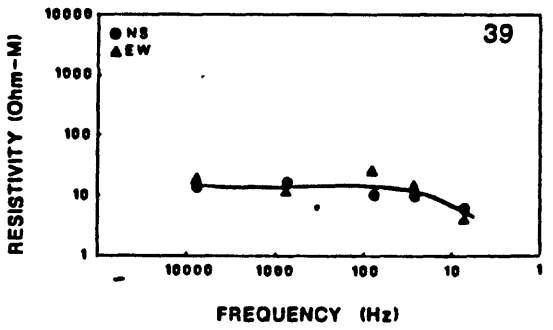


STA. 39 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	5.11	5	2.04
27.0	9.38	7	1.19
75.0	9.80	7	1.57
750.0	13.79	5	4.00
7500.0	13.92	6	.57

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	4.23	6	1.37
27.0	14.20	6	.48
75.0	23.77	6	2.30
750.0	12.72	6	3.78
7500.0	18.05	6	2.60

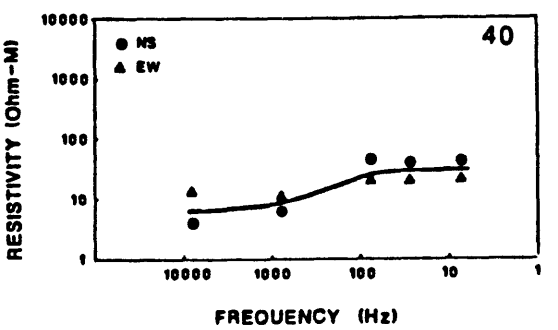


STA. 40 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	41.71	6	6.03
27.0	37.67	6	1.01
75.0	44.43	5	6.00
750.0	6.18	5	4.00
7500.0	4.06	6	1.84

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	21.37	6	1.22
27.0	20.03	7	1.98
75.0	20.47	7	.78
750.0	10.73	6	2.91
7500.0	13.22	8	1.62

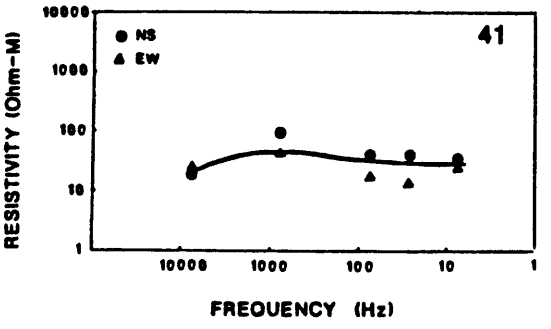


STA. 41 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	32.27	7	5.58
27.0	39.71	6	28.87
75.0	39.30	6	6.17
750.0	89.99	6	5.65
7500.0	20.37	6	4.71

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	25.63	7	2.18
27.0	13.64	7	.78
75.0	17.60	7	1.21
750.0	44.56	7	5.58
7500.0	21.53	7	1 64

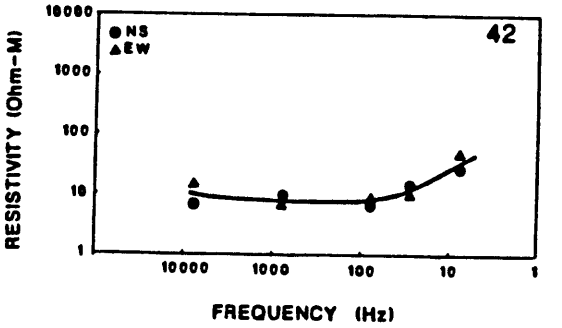


STA. 42 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	28.31	6	6.66
27.0	14.32	7	.87
75.0	7.43	7	.86
750.0	9.55	7	.64
7500.0	6.87	6	.66

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	48.62	7	4.22
27.0	11.11	7	.55
75.0	7.57	6	.57
750.0	7.59	6	1.04
7500.0	15.37	6	1.42

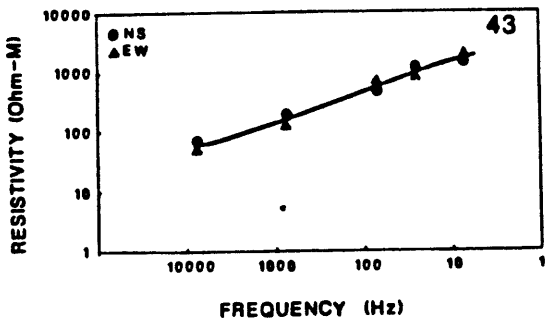


STA. 43 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	1468.60	6	189 81
27.0	1103.40	7	232.71
75.0	441.60	5	221.00
750.0	172.12	7	24.65
7500.0	61.88	6	4.71

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	1772.30	6	116.56
27.0	793.16	6	68.43
75.0	699.74	7	77.82
750.0	115.12	6	24.03
7500.0	44.11	5	2.15

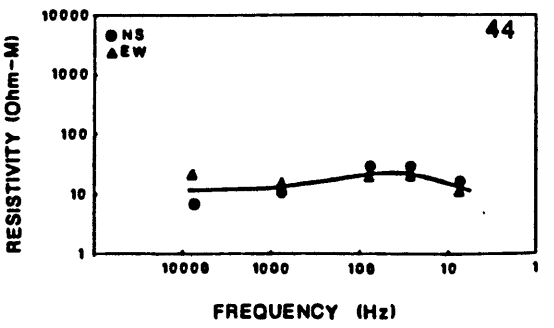


STA. 44 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	16.37	6	3.72
27.0	26.57	5	3.08
75 0	27.43	6	4.40
750.0	11.71	5	2.42
7500.0	6.89	6	1.39

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	11.73	6	1.36
27.0	22.69	6	2.06
75.0	21.02	7	1.31
750.0	14.71	6	1.70
7500.0	21.11	7	1.11

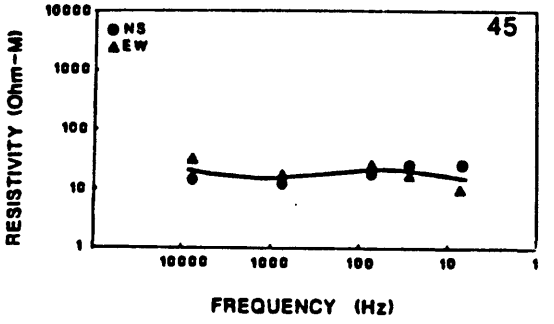


STA. 45 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	24.01	6	4.95
27.0	22.57	6	1.33
75.0	19.02	5	2.12
750.0	13.76	6	2.83
7500.0	15.86	7	4.63

EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
7.5	8.82	6	.95
27.0	17.84	7	.79
75.0	23.04	7	1.21
750.0	15.55	6	1.67
7500.0	31.06	5	.44

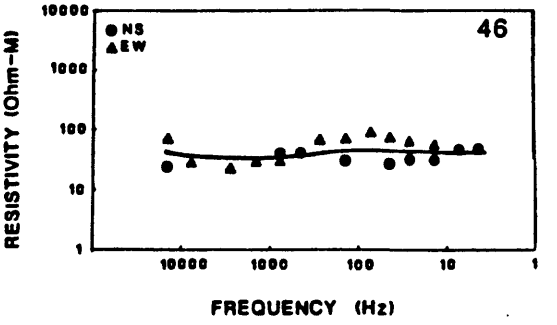


STA. 46 NS NO FREQ= 9

FREQ	AP-RES	N OBS	STD ERR
4.5	52.80	6	29.40
7.5	51.32	5	4.28
14.0	35.68	9	5.52
27.0	35.52	7	14.19
45.0	28.99	7	4.80
140.0	31.93	8	8.60
450.0	40.78	8	38.25
750.0	36.70	3	23.24
14000.0	22.64	9	2.88

EW NO FREQ= 12

FREQ	AP-RES	N OBS	STD ERR
4.5	51.87	5	5.03
14.0	56.15	6	4.75
27.0	66.49	8	4.49
45.0	78.90	8	23.69
75.0	96.83	15	21.79
140.0	70.59	7	3.41
270.0	70.91	9	6.41
750.0	33.34	4	3.74
1400.0	30.78	5	4.32
2700.0	21.13	3	2.75
7500.0	28.52	10	4.00
14000.0	68.30	6	6.50

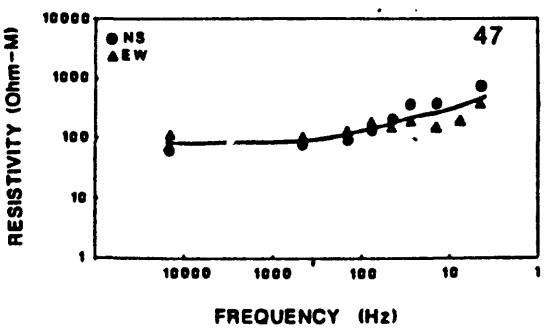


STA. 47 NS NO FREQ= 8

FREQ	AP-RES	N OBS	STD ERR
4.5	724.11	4	299.28
14.0	383.47	11	55.45
27.0	360.61	6	175.53
45.0	207.13	9	52.26
75.0	140.90	5	32.73
140.0	96.70	6	34.84
450.0	87.87	6	18.97
14000.0	61.50	4	2.76

EW NO FREQ= 9

FREQ	AP-RES	N OBS	STD ERR
4.5	346.68	7	148.95
7.5	184.46	10	14.84
14.0	148.02	10	24.97
27.0	165.11	7	22.66
45.0	149.89	7	9.78
75.0	164.20	9	19.15
140.0	127.45	12	13.22
450.0	89.42	6	60.05
14000.0	112.03	6	5.49

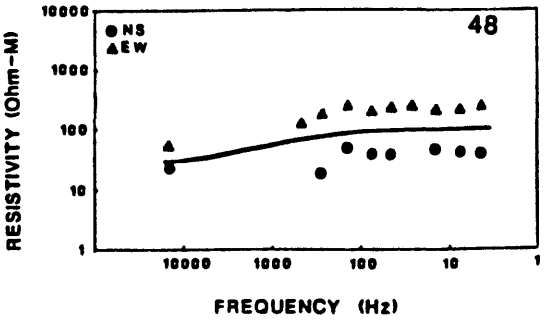


STA. 48 NS NO FREQ= 8

FREQ	AP-RES	N OBS	STD ERR
4.5	39.76	5	28.19
7.5	42.40	9	19.01
14.0	48.79	7	16.16
45.0	39.05	11	6.50
75.0	39.49	9	8.53
140.0	49.44	8	18.77
270.0	19.24	7	15.36
14000.0	23.60	6	2.75

EW NO FREQ= 10

FREQ	AP-RES	N OBS	STD ERR
4.5	264.73	8	53.99
7.5	233.54	14	28.94
14.0	237.83	6	23.69
27.0	270.80	10	19.60
45.0	254.08	8	15.21
75.0	214.24	13	13.34
140.0	265.00	8	18.54
270.0	191.12	5	20.34
450.0	135.39	7	17.58
14000.0	56.56	7	8.53

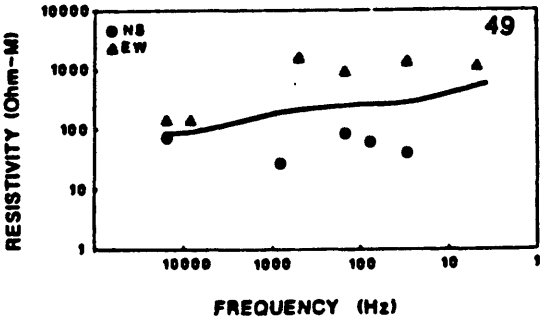


STA. 49 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
27.0	45.60	4	9.56
75.0	68.56	4	27.78
140.0	86.49	3	33.93
750.0	26.55	1	0.00
14000.0	67.05	3	18.17

EW NO FREQ= 6

FREQ	AP-RES	N OBS	STD ERR
4.5	1118.30	4	225.75
27.0	1333.90	3	141.33
140.0	931.42	4	184.24
450.0	1550.00	3	433.92
7500.0	135.28	9	16.79
14000.0	137.35	3	8.11

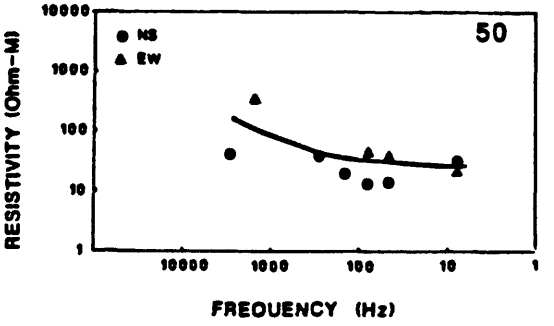


STA. 50 NS NO FREQ= 6

FREQ	AP-RES	N OBS	STD ERR
7.5	28.12	6	11.43
45.0	14.35	7	2.27
75.0	12.83	5	2.01
140.0	19.16	12	8.34
270.0	37.47	9	12.89
2700.0	41.50	4	77.84

EW NO FREQ= 3

FREQ	AP-RES	N OBS	STD ERR
45.0	36.26	6	8.15
75.0	42.92	4	14.17
1400.0	343.98	7	69.01

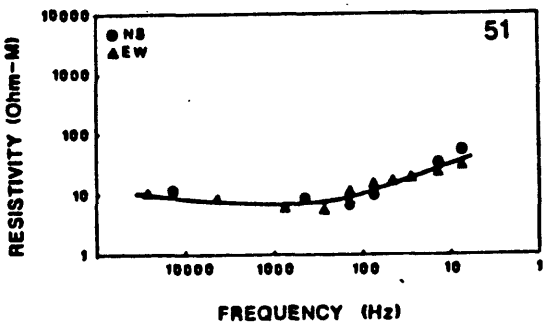


STA. 51 NS NO FREQ= 6

FREQ	AP-RES	N OBS	STD ERR
7.5	56.48	4	17.50
14.0	34.01	5	10.69
75.0	10.62	4	5.31
140.0	7.47	6	1.36
450.0	8.63	4	106.49
14000.0	10.90	7	1.74

EW NO FREQ= 10

FREQ	AP-RES	N OBS	STD ERR
7.5	30.03	5	4.53
14.0	28.46	5	3.92
27.0	18.17	7	3.07
45.0	16.62	10	.85
75.0	15.84	6	.76
140.0	11.05	8	1.42
270.0	5.76	6	1.25
750.0	5.87	3	1.06
4500.0	8.24	2	.19
27000.0	9.79	2	1.76

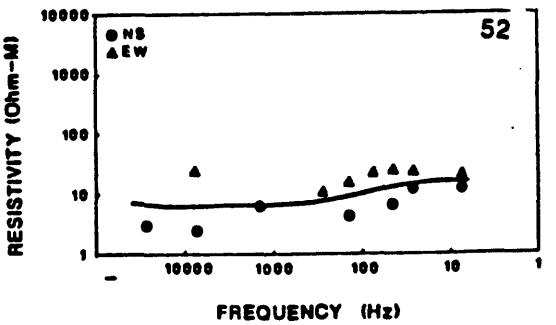


STA. 52 NS NO FREQ= 7

FREQ	AP-RES	N OBS	STD ERR
7.5	12.17	8	1.88
27.0	11.84	8	1.40
45.0	6.26	10	1.54
140.0	4.12	7	1.72
1400.0	6.24	3	2.71
7500.0	2.30	5	.53
27000.0	2.97	3	.28

EW NO FREQ= 7

FREQ	AP-RES	N OBS	STD ERR
7.5	20.19	11	1.42
27.0	22.60	11	1.03
45.0	23.01	10	1.56
75.0	20.89	10	2.03
140.0	14.75	8	1.26
270.0	10.63	5	2.64
7500.0	23.36	12	1.95



STA. 53 NS NO FREQ= 7

FREQ	AP-RES	N OBS	STD ERR
7.5	678.58	4	112.85
14.0	528.80	3	105.68
27.0	290.10	6	16.47
45.0	199.44	7	18.14
75.0	169.60	9	16.05
140.0	129.34	4	20.67
14000.0	101.76	3	8.23

EW NO FREQ= 5

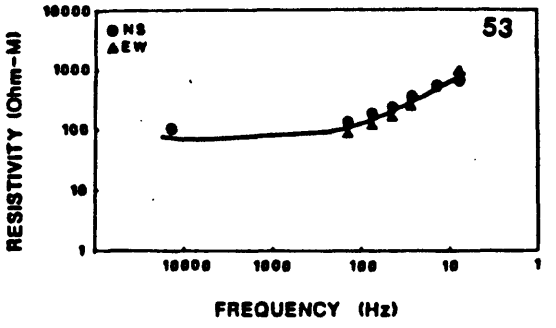
FREQ	AP-RES	N OBS	STD ERR
7.5	857.29	6	62.41
27.0	271.71	5	70.95
45.0	170.48	7	16.49
75.0	118.79	8	5.49
140.0	86.62	6	7.22

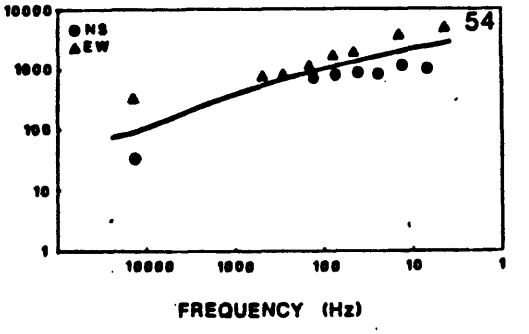
STA. 54 NS NO FREQ= 7

FREQ	AP-RES	N OBS	STD ERR
7.5	1166.70	7	154.14
14.0	1335.20	7	102.86
27.0	972.29	8	79.19
45.0	1014.90	9	154.63
75.0	885.28	9	109.48
140.0	732.59	10	138.79
14000.0	35.26	10	3.84

EW NO FREQ= 8

FREQ	AP-RES	N OBS	STD ERR
4.5	5390.30	4	2375.90
14.0	4084.40	6	166.71
45.0	1980.40	6	138.14
75.0	1747.50	5	128.87
140.0	1192.30	5	380.32
270.0	828.92	5	287.21
450.0	818.12	4	604.38
14000.0	350.17	6	45.30





STA. 55 NS NO FREQ= 4

FREQ	AP-RES	N OBS	STD ERR
7.5	15.14	3	45.03
14.0	17.84	5	13.07
45.0	13.79	8	7.02
270.0	8.18	6	4.31

EW NO FREQ= 4

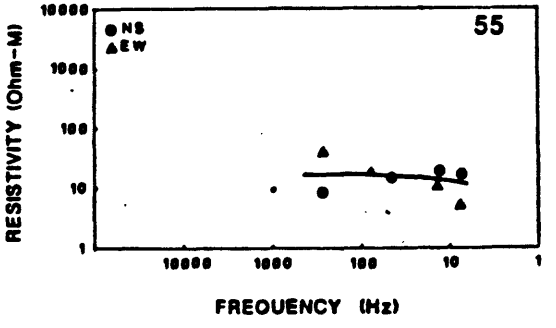
FREQ	AP-RES	N OBS	STD ERR
7.5	4.69	2	.40
14.0	9.85	4	4.52
75.0	15.58	5	8.25
270.0	37.30	4	10.69

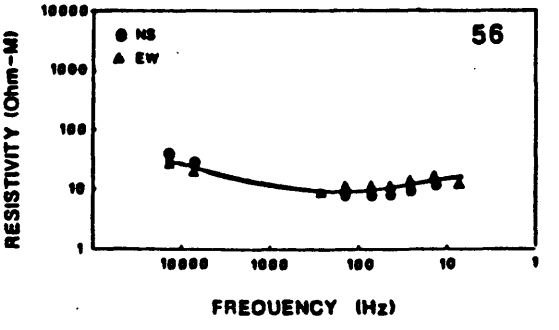
STA. 56 NS NO FREQ= 6

FREQ	AP-RES	N OBS	STD ERR
14.0	12.10	9	1.71
27.0	10.24	8	.87
45.0	8.23	6	.70
75.0	7.65	8	.77
140.0	8.68	10	1.00
14000.0	32.06	7	5.70

EW NO FREQ= 9

FREQ	AP-RES	N OBS	STD ERR
7.5	9.72	9	1.45
14.0	13.19	8	1.06
27.0	11.86	11	4.62
45.0	9.13	9	.58
75.0	10.02	9	.56
140.0	9.04	10	.83
270.0	8.02	8	1.27
7500.0	18.73	8	1.68
14000.0	29.76	8	1.19



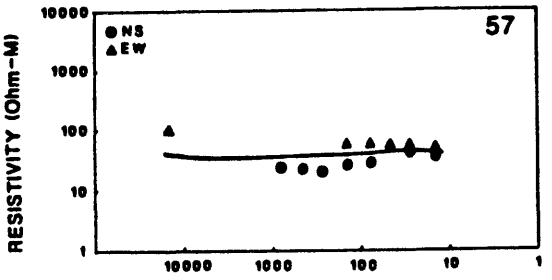


STA. 57 NS NO FREQ= 8

FREQ	AP-RES	N OBS	STD ERR
14.0	35.54	9	9.51
27.0	42.05	10	6.65
75.0	27.65	8	3.74
140.0	26.43	10	1.85
270.0	21.03	8	3.90
450.0	23.15	10	3.50
750.0	23.66	7	5.44
14000.0	83.19	7	25.42

EW NO FREQ= 6

FREQ	AP-RES	N OBS	STD ERR
14.0	47.05	12	9.64
27.0	53.19	11	1.70
45.0	54.98	9	3.29
75.0	58.65	11	4.45
140.0	59.59	13	2.72
14000.0	96.93	9	5.31

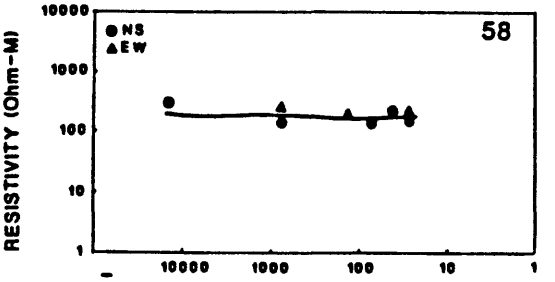


STA. 58 NS NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
27.0	153.61	9	30.75
45.0	203.27	7	42.78
75.0	135.16	11	13.68
750.0	130.31	5	19.16
14000.0	288.60	6	34.99

EW NO FREQ= 3

FREQ	AP-RES	N OBS	STD ERR
27.0	212.47	5	53.87
140.0	181.69	7	59.85
750.0	250.79	5	19.38

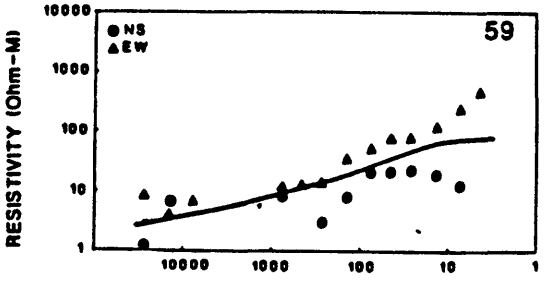


STA. 59 NS NO FREQ= 6

FREQ	AP-RES	N OBS	STD ERR
7.5	12.65	5	1.91
14.0	17.92	10	1.95
27.0	22.44	7	2.53
45.0	20.41	7	5.39
75.0	22.13	6	3.99
14000.0	6.12	3	.17

EW NO FREQ= 10

FREQ	AP-RES	N OBS	STD ERR
7.5	234.53	10	8.84
14.0	114.50	10	14.10
27.0	75.58	10	5.26
45.0	72.46	8	5.29
75.0	51.54	15	2.82
140.0	33.71	11	4.13
450.0	11.85	10	1.87
750.0	11.56	6	1.21
7500.0	6.62	10	.45
14000.0	3.94	4	.20

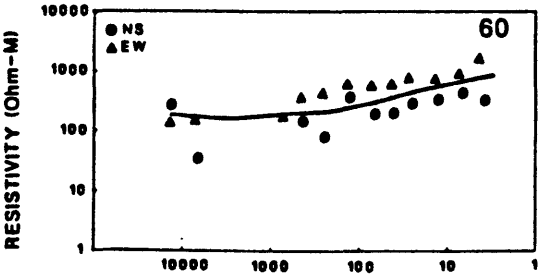


STA. 60 NS NO FREQ= 7

FREQ	AP-RES	N OBS	STD ERR
4.5	291.93	4	66.98
14.0	274.59	10	14.32
27.0	266.90	7	22.44
45.0	191.99	11	28.63
75.0	203.14	9	30.72
450.0	154.49	7	33.29
14000.0	280.73	3	17.28

EW NO FREQ= 10

FREQ	AP-RES	N OBS	STD ERR
7.5	791.65	6	35.62
14.0	662.76	8	45.83
27.0	718.82	8	65.01
45.0	551.82	9	53.91
75.0	517.29	8	75.38
140.0	545.44	9	29.35
270.0	417.29	10	15.96
450.0	334.32	6	87.31
7500.0	150.16	5	8.26
14000.0	127.67	3	2.56

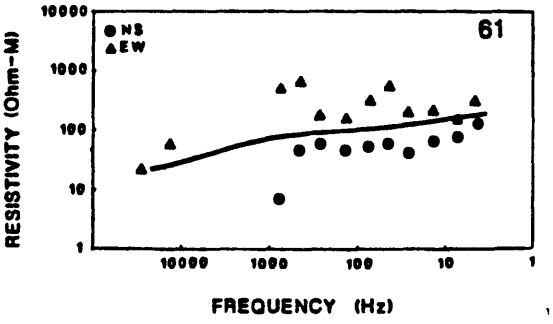


STA. 61 NS NO FREQ= 7

FREQ	AP-RES	N OBS	STD ERR
7.5	78.80	9	7.55
14.0	66.62	8	7.63
45.0	62.08	8	4.58
75.0	61.49	9	10.13
140.0	48.09	9	5.29
270.0	65.25	7	7.27
450.0	48.37	6	4.74

STA. ID_PM03 EW NO FREQ= 5

FREQ	AP-RES	N OBS	STD ERR
14.0	216.46	8	26.12
27.0	202.84	8	9.92
140.0	158.64	6	7.27
270.0	180.33	2	60.66
14000.0	57.43	3	.91



End of Appendix 1