

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DATA REPORT FOR THE 1987 SEISMIC REFRACTION SURVEY:
ALASKA RANGE AND FAIRBANKS SOUTH DEPLOYMENTS

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OPEN-FILE REPORT 89-321

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U.S.G.S. Menlo Park, California
1989

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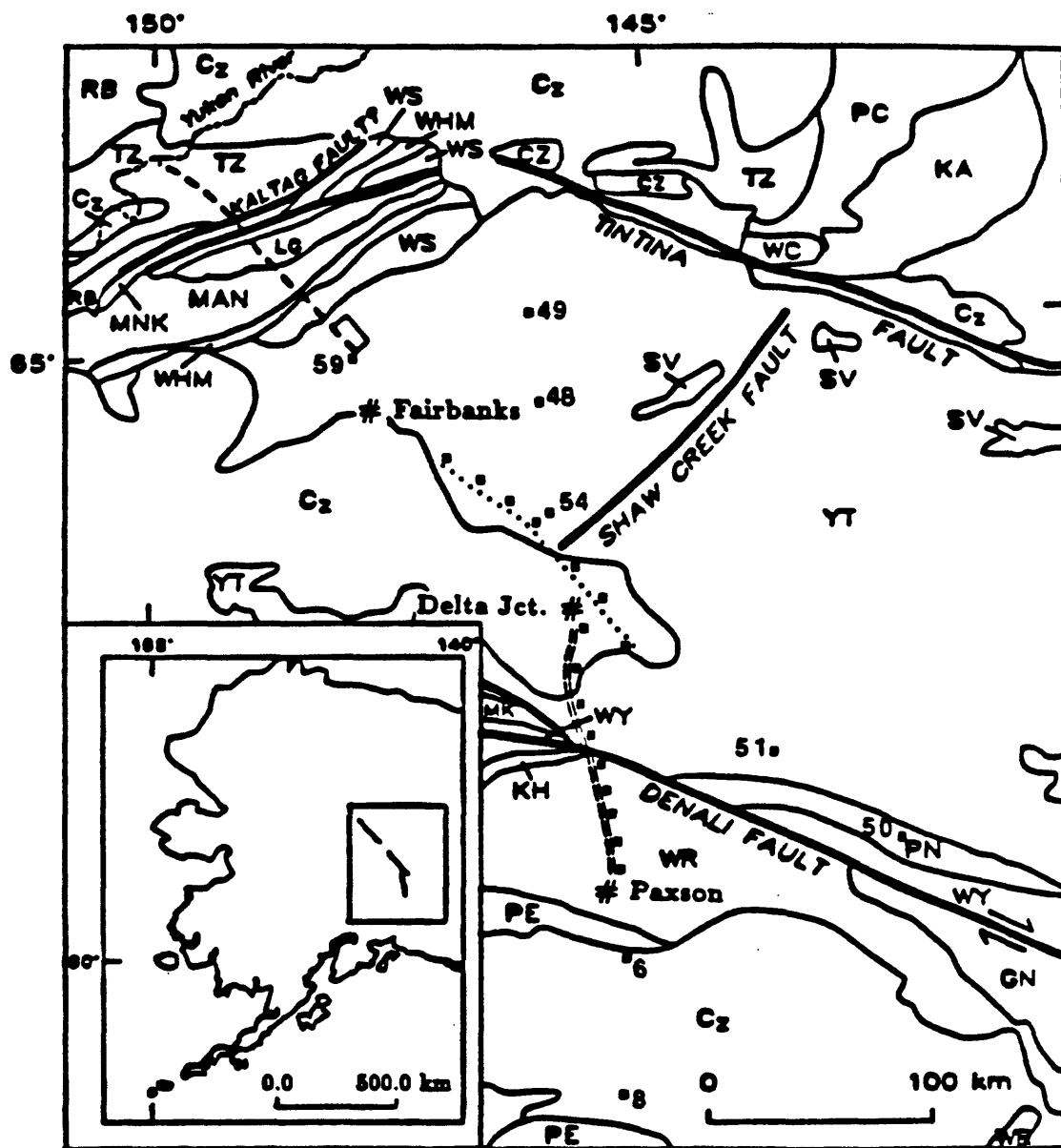
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Introduction

To better understand the crustal structure and tectonic history of central Alaska, the U.S. Geological Survey (USGS), in cooperation with the Geological Survey of Canada (GSC), collected three 130-km-long seismic refraction/wide-angle reflection profiles and a 17-km-long reflection profile (Figure 1). These data, collected in the summer of 1987, are part of the ongoing Trans-Alaska Crustal Transect (TACT), a multidisciplinary investigation of the Alaskan lithosphere from Valdez to Prudhoe Bay (Page and others, 1986). The seismic refraction/wide-angle reflection surveys were recorded using 120 USGS cassette recorders and 12 to 20 GSC PRS-1 digital recorders deployed at pre-surveyed sites with 1 km spacing. The reflection survey was recorded using 120 USGS cassette recorders deployed at 60 m spacing. A total of 48 shots ranging from 227 to 2725 kg of ammonium nitrate were detonated in 30- to 50-m-deep drill holes or shallow lakes (2-15 m) offset 0- to 325-km.

The southernmost refraction profile, the Alaska Range deployment, extends northward from near Paxson to south of Delta Junction (Figure 1 and Figure 2). This profile lies along or near the Richardson Highway crossing the northern part of Wrangellia terrane and southern part of Yukon-Tanana terrane and is centered on the Denali fault.

The central profile, the Fairbanks South deployment, begins approximately 20 km southeast of Delta Junction and extends northwestward to a point 30 km southeast of Fairbanks, following the Trans Alaska Oil Pipeline right-of-way



After Jones, D. C. and others (1987) and
Beikman, H. M. (1980)

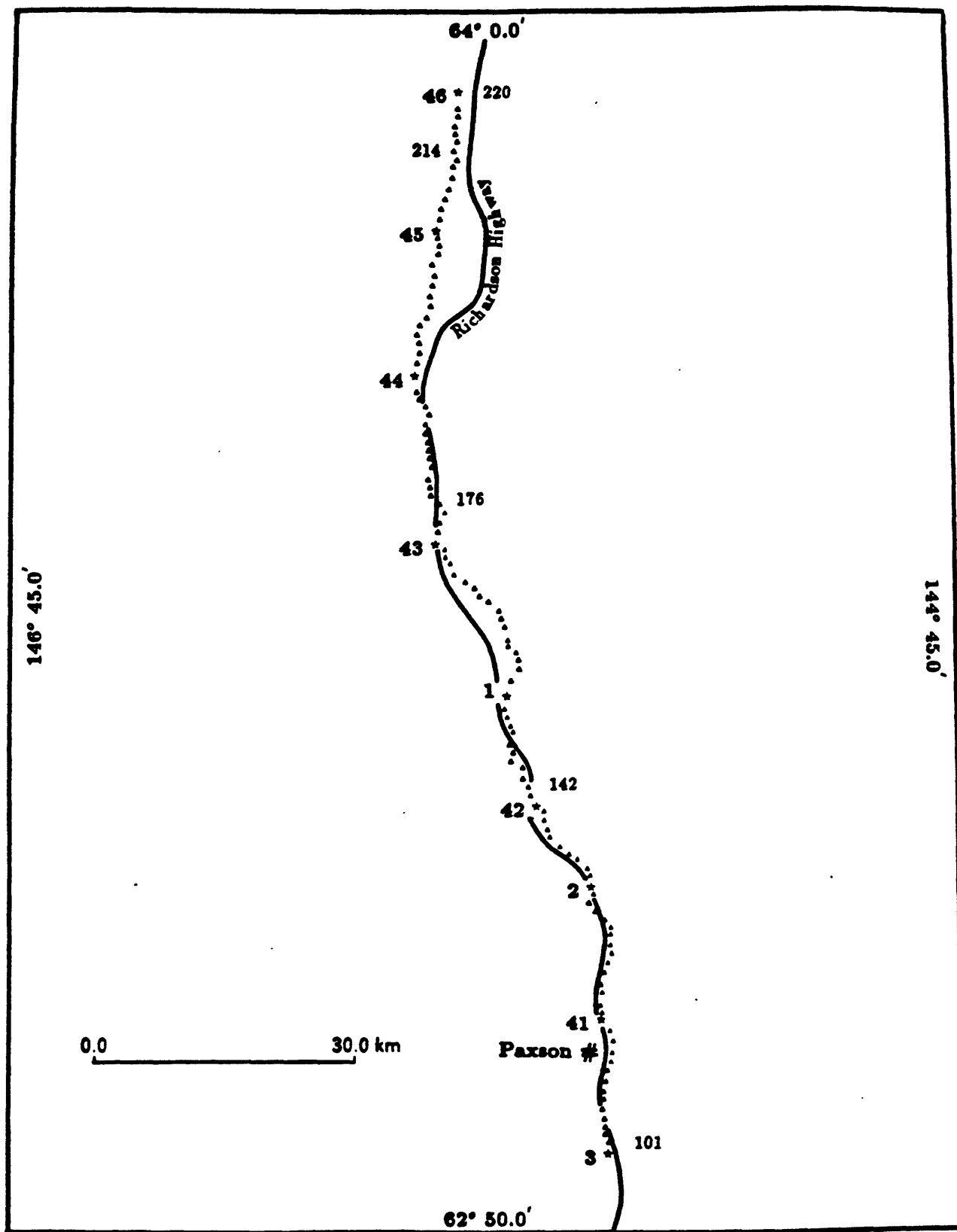
Figure 1. Terraïne map of central Alaska showing location of 1987 TACT refraction/wide-angle reflection profiles. Map key is on the following page.

KEY

• Shotpoint

- ===== Alaska Range Deployment
- Fairbanks South Deployment
- Fairbanks North Deployment
- ↙ Olmes Reflection Profile

Cz	Cenozoic Deposits	PN	Pingston Terrane
CZ	Crazy Mountains Terrane	RB	Ruby Terrane
GN	Gravina--Nutzotin belt	ST	Stikinia Terrane
KA	Kandik River Terrane	SV	Seventymile Terrane
KH	Kahiltna Terrane	TZ	Tozitna Terrane
LG	Livengood Terrane	WC	Woodchopper Canyon Terrane
MAN	Manley Terrane	WHM	White Mountains Terrane
MK	McKinley Terrane	WR	Wrangellia Terrane
MN	Minchumina	WS	Wickersham Terrane
MNK	Minook Terrane	WY	Windy Terrane
PE	Peninsular Terrane	YT	Yukon--Tanana Uplands
PC	Porcupine Terrane		



Lambert Conformal Conic Projection
Standard parallels at 33 and 45 deg.

Figure 2. Alaska Range deployment location map showing instrument (▲) and shotpoint (*) positions.

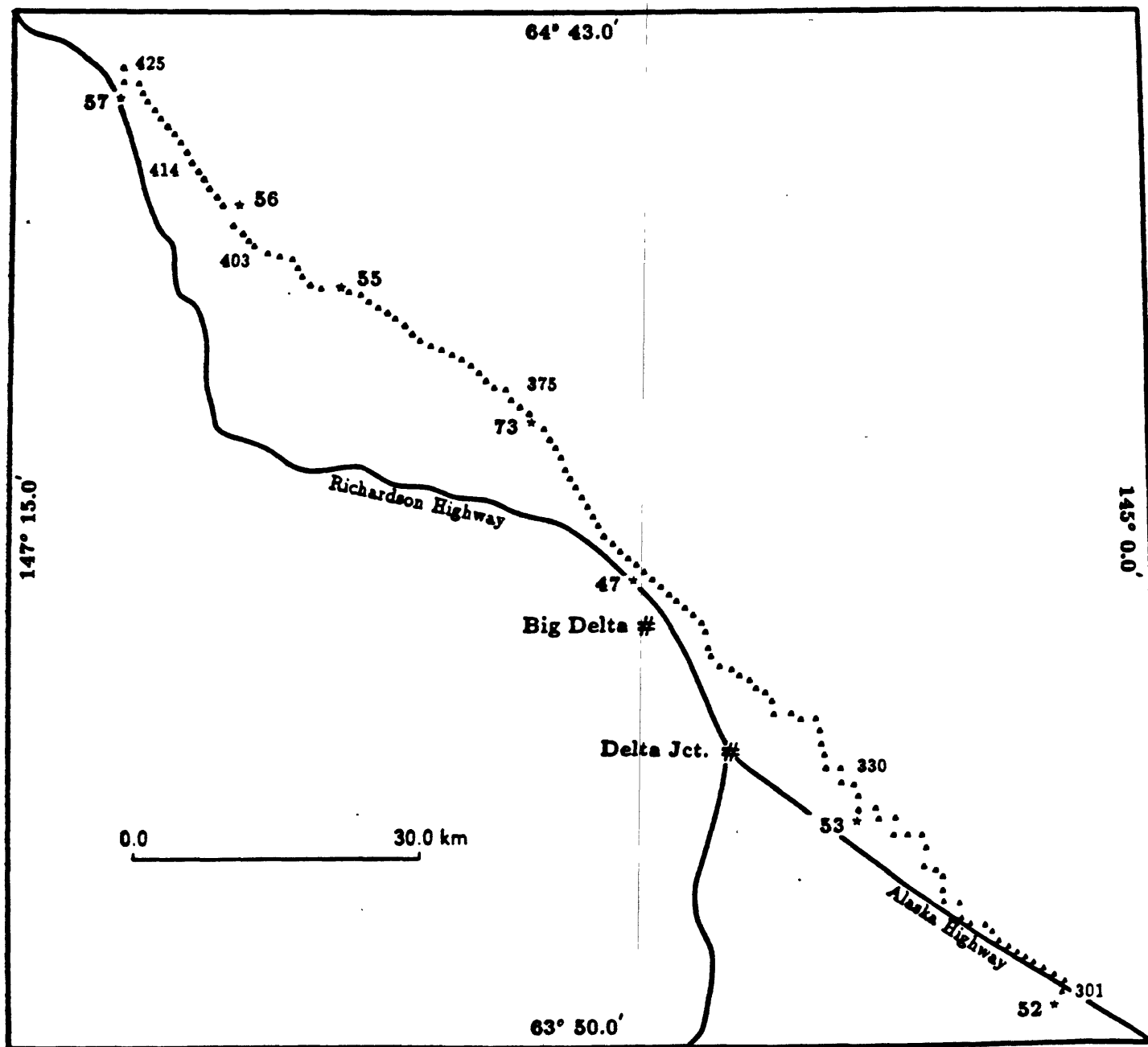


Figure 3. Fairbanks South deployment location map showing instrument (▲) and shotpoint (*) positions.

(Figure 1 and Figure 3). This profile lies within the Yukon-Tanana terrane crossing no major terrane boundaries. The Shaw Creek fault projects across the central part of the deployment.

The northernmost refraction profile, the Fairbanks North deployment begins 30 km northwest of Fairbanks, and follows the Elliot and Dalton highways and the pipeline right-of-way to the Yukon River (Figure 1). This profile crosses the Yukon-Tanana terrane and numerous sliver-like terranes on its northwest end. The 17 km of reflection data collected are coincident with the southernmost end of this deployment (Figure 1).

This report will address the two southern deployments, the Alaska Range deployment and the Fairbanks South deployment. The northern deployments will be presented in a report to follow. A SEG-Y standard format magnetic tape of these data may be obtained by writing or calling:

National Geophysical Data Center
NOAA/EGCI
325 Broadway
Boulder, CO 80303
(303) 497-6123

Geologic Setting

Terranes crossed by the Alaska Range and Fairbanks South deployments include the Wrangellia and Yukon-Tanana terranes. The Wrangellia terrane consists of four major groups of rocks with different origins: (1) the metamorphic complex of Gulkana River, exposed only along its south side (Nokleberg

and others, 1986), (2) a Late Paleozoic submarine volcanic island arc sequence consisting of volcanic and sedimentary rocks, (3) the Triassic Nikolai Greenstone and associated gabbroic dikes and ultra-mafic and cumulate mafic sills, probably emplaced during a rifting episode and (4) Late Jurassic to Early Cretaceous argillite and graywackes deposited in a flysch basin on the (current) north and northeast sides of the terrane (Nokleberg and others, 1985).

Wrangellia is one of the most well dispersed terranes in North America; fragments of it are thought to be as far south as Hells Canyon in eastern Oregon and western Idaho, and have been identified on the northern end of Vancouver Island in the Puget Sound and in Alaska (Jones and others, 1977). Paleomagnetic data suggests Wrangellia could have originated 15 degrees above or below the Triassic equator (Hillhouse and Gromme, 1984). Wrangellia and a closely related terrane, the Peninsular terrane, collided with North America in mid Cretaceous (Csejtey and others, 1982). The Cenozoic Denali Fault, with at least 400-km of right-slip offset, formed as a post accretionary structure (Nokleberg and others, 1985).

The Yukon-Tanana terrane is a composite metamorphic terrane of metasedimentary, metavolcanic and metaplutonic rocks intruded by Mesozoic plutons. Regional metamorphic grade ranges from low greenschist to high amphibolite facies. Major lithologies include: quartzite, augen gneiss and biotite gneiss, semischist, amphibole schist, pelitic schist and quartz-feldspathoid schist (Dusel-Bacon and Aleinikoff, 1985). This terrane extends southward between the

Tintina and Denali faults into the Yukon Territory and British Columbia, Canada. It is considered to be a parautochthonous North American terrane that has moved as much as 900-km northwestward along the Tintina fault (Gabrielse, 1985).

Seismic Recorders

The USGS cassette recorders have been described by Healy and others (1982). The system consists of a Mark Products L4A 2-Hz geophone, a set of three parallel amplifiers with adjustable gain settings, a clock and memory board and a cassette recorder (Figure 4). The use of three parallel amplifiers affords a total dynamic range of 84 dB for this system (Murphy, 1988). The signal from the geophone is passed through a signal splitter, the three amplifiers and recorded as a multiplexed analog signal along with a reference frequency and an internally generated time code (IRIG E). Curves showing displacement and velocity versus frequency for the entire system peak at approximately 26 Hz and 6 Hz respectively (Figure 5).

The PRS-1 system used by the GSC also uses a Mark Products L4A 2 Hz geophone. These digitally recording instruments have a total dynamic range of 126 dB. Curves showing displacement and velocity versus frequency for this system peak at approximately 17 Hz and 5 Hz respectively (Figure 6) (Asudeh, pers. comm. 1988).

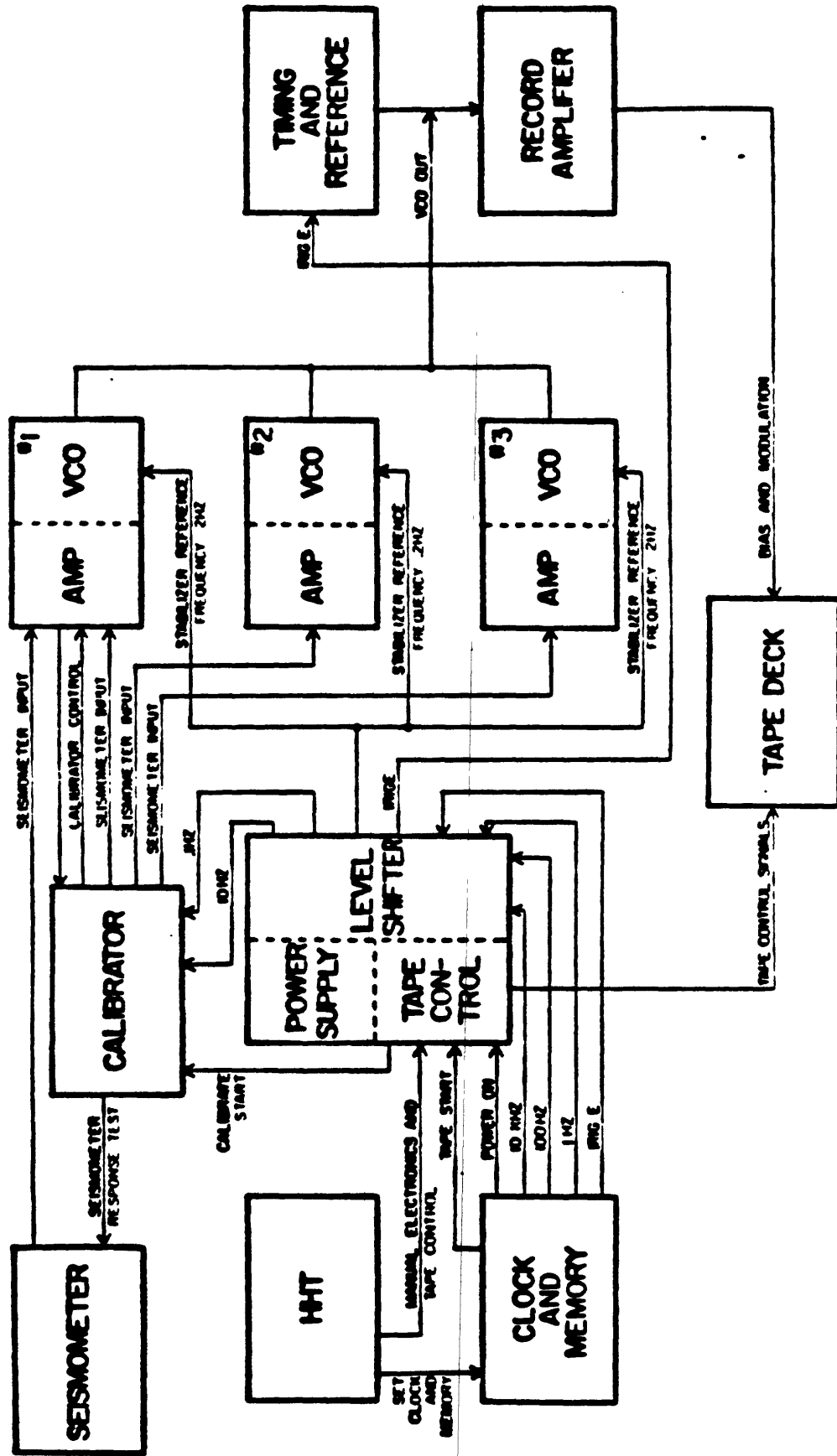


Figure 4. Schematic of U.S.G.S. cassette recorder system.
(from Healy and others, 1982)

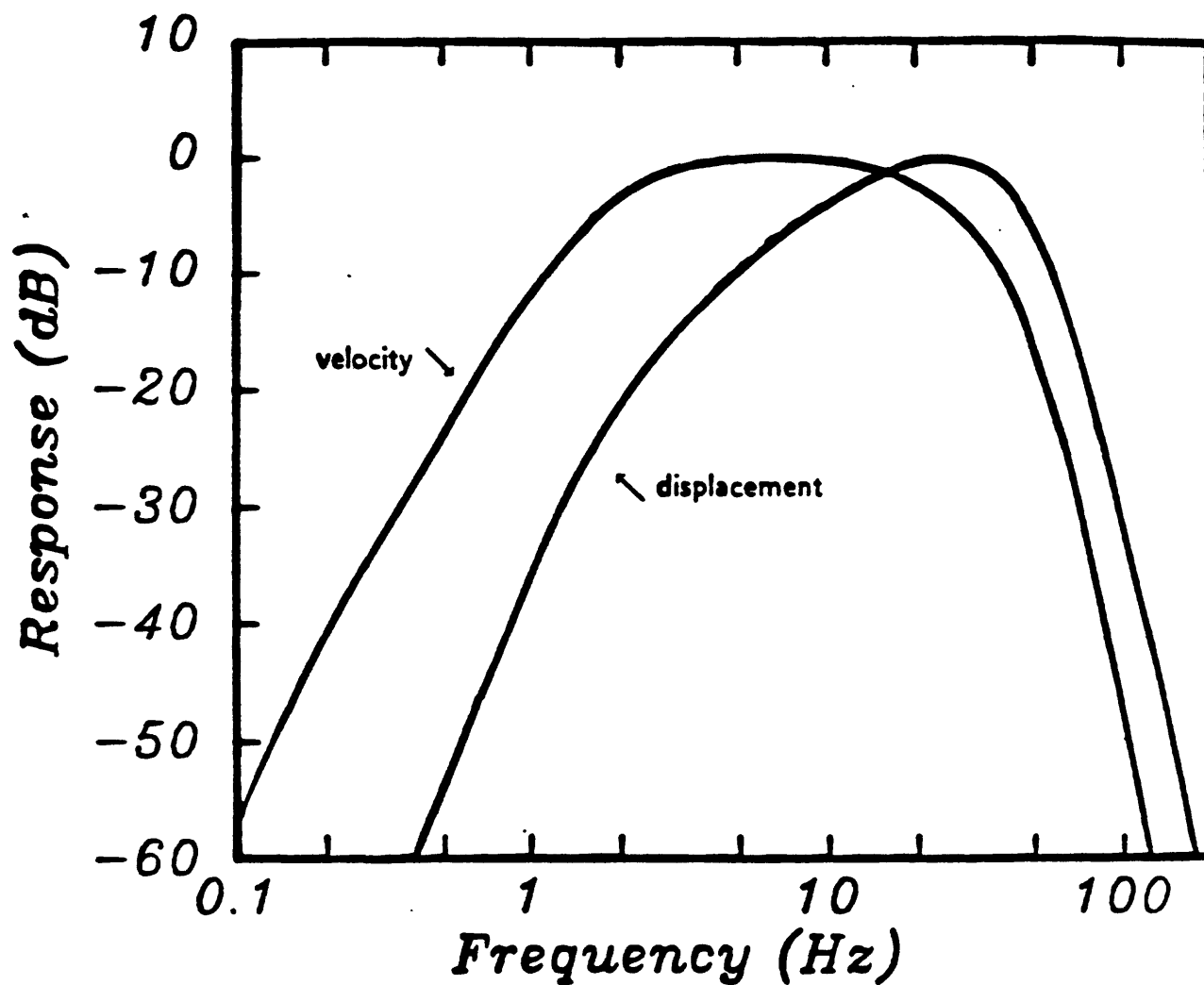


Figure 5. Theoretical velocity and displacement response curves for the U.S.G.S. cassette recorders. Maximum velocity and displacement responses peak at 6 Hz and 26 Hz respectively. (from Healy and others, 1982)

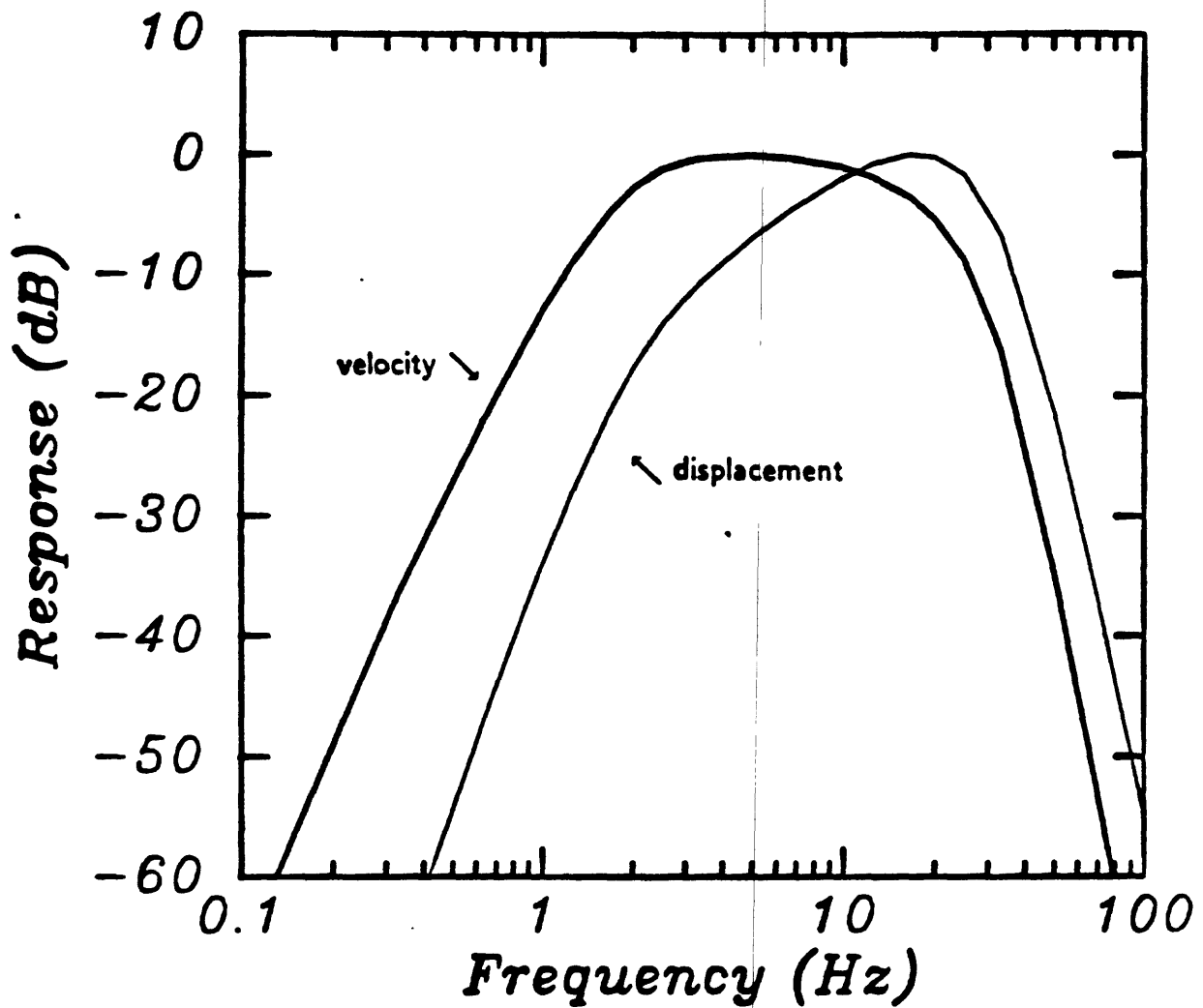


Figure 6. Theoretical velocity and displacement response curves for the EDA digital recorders Maximum velocity and displacement responses peak at 5 Hz and 17 Hz respectively.

Data Reduction

On the Alaska Range deployment, instruments were deployed by van along the Richardson Highway except for a 32 km interval in the Alaska Range (stations # 142-176) and a 6 km interval near Donnelly Dome (stations # 214-220) (Figure 2). In the first interval, instruments were deployed by helicopter on valley walls east of the Richardson Highway to avoid stream and river noise and pipeline noise generated at Pump Station 10, located just north of the Denali fault. In the second interval instruments were deployed along the old, dirt Richardson Highway to avoid a curve in the Richardson Highway around Donnelly Dome. Elevations along the Alaska Range deployment range from 450 to 1290 m.

On the Fairbanks South deployment, instruments were deployed along the Alaska Highway and along farm roads from between the southeast end of the line to Big Delta. Northwest of Big Delta instruments were deployed along the Trans-Alaska Oil Pipeline right-of-way to the northwest end of the line (Figure 3). For an interval of 6 km on either side of shotpoint 56 (stations # 403-414), instruments were deployed as much as 200 m from the pipeline to avoid noise generated from Pump Station 9, located 50 km southeast of Fairbanks. Elevations along the Fairbanks South deployment range from 130 to 580 m.

The instruments were deployed at pre-surveyed sites that were located using orthophotos, infrared photos and topographic maps all at the scale of 1:63,360. Site locations have estimated errors of 50 m laterally and 25 m in elevation.

From these maps latitude, longitude and elevations are obtained for both shot and instrument locations. These data are presented in Appendix A. During deployment and retrieval of the instruments, field technicians record amplifier gain settings and instrument performance. These data along with distance and azimuth from shot are presented in Appendix B.

The analog data recorded on the USGS cassette recorders is converted to digital data using a mini-computer. Twenty seconds of data is digitized for each recorder per given shot at a sampling interval of 5 msec. The digitizing start time is calculated as follows:

$$t_{start} = t_{shot} + t_{cd} + t_{min} + x_{i,j}/v_{red}$$

where: t_{shot} is the shot time

t_{cd} is the recorder clock drift time at shot time

t_{min} is -2 s or -4 s depending of shot-station range

$x_{i,j}$ is the shotpoint(i) to recorder(j) range

v_{red} is the digitizing reducing velocity.

USGS cassette recorders and GSC digital recorders were deployed at coincident sites (120, 140, 160, 180, 200) for the Alaska Range deployment. Coincident siting afforded comparison of wave forms and first break arrival times for the two instruments (Figure 7). Since GSC digital recorders utilized a different timing system, both sets of instruments were related to a common base. The difference

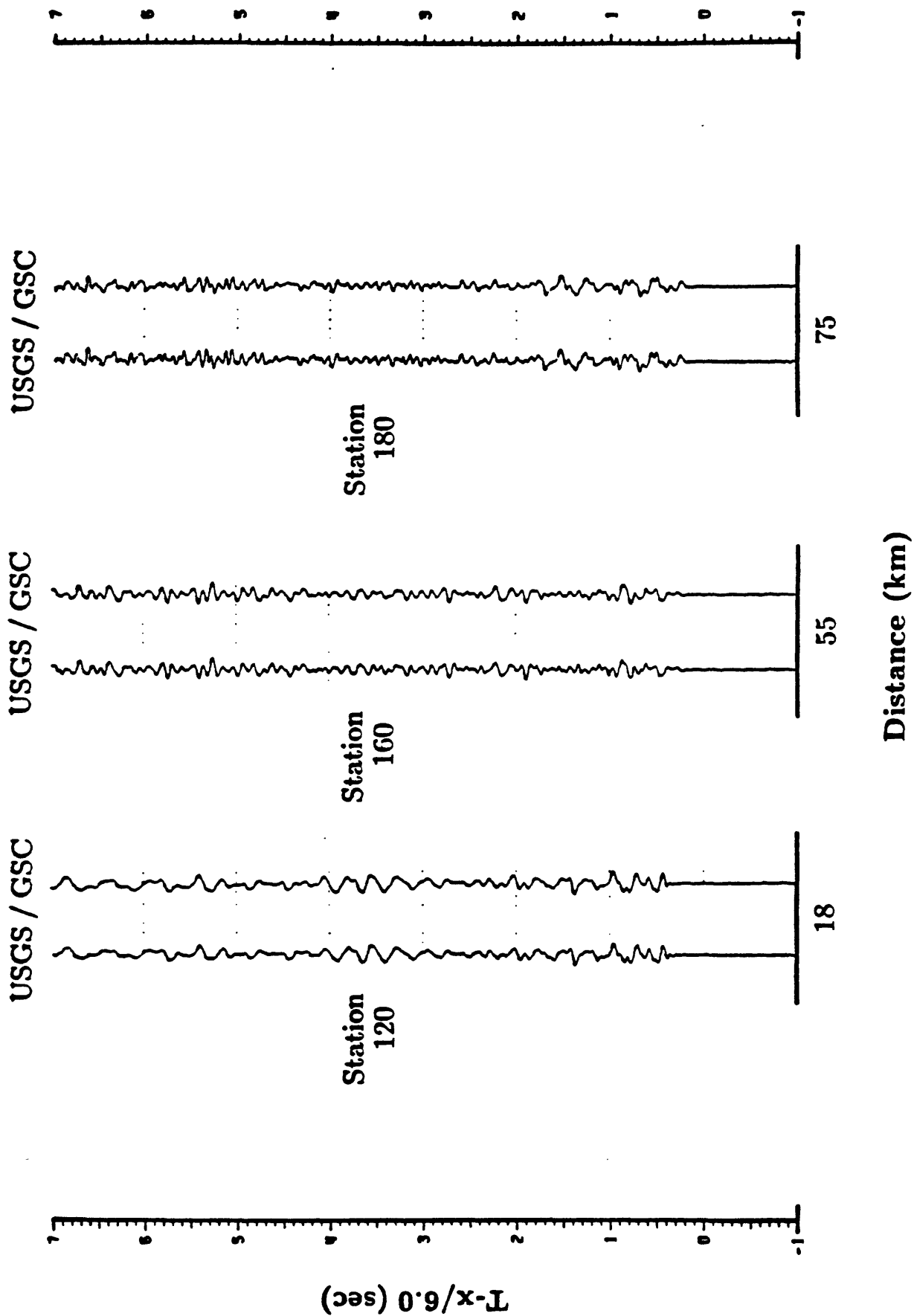


Figure 7. Comparison of trace normalized scismograms from coincidentally sited USGS and GSC instruments for ARD shot # 4, shotpoint # 3.

in timing and data processing systems introduced a timing advance of 31 ± 15 ms for the GSC instruments compared to the USGS cassette recorders. These advances were removed. An empirical scaling factor of 4.7 ± 0.5 was calculated and applied to the GSC records. Ground motion can be calculated from recorded seismograms using the method of Dawson and Stauber (1986).

The GSC digital recorders were deployed at sites 402-414 for the Fairbanks South deployment. The digital recorders, being lighter than the cassette recorders, were deployed at sites off the pipeline near shot point 56. A timing correction of -40 ms was applied to the GSC digital recorder traces.

Record Sections

Figures 8-34 are record sections of the Alaska Range deployment corresponding to shots¹ 1-16. Of these shots, shots 1, 6, and 15 (shotpoints 19, 42, and 54, respectively) were detonated in shallow lakes. Stations for the Alaska Range deployment are numbered 101-228. Figures 35-55 are record sections of the Fairbanks South deployment corresponding to shots 17-28. Of these shots, shots 18, 22, and 28 (shotpoints 51, 55, and 50 respectively) were detonated in shallow lakes. Stations for the Fairbanks South deployment are numbered 301-437.

Each record section is plotted as reduced-time with respect to shot-to-geophone offset. Reduced time is calculated using the formula,

$$T_r = T_a - (x/6.0)$$

¹Shot numbers are assigned in the order shots are detonated. Shotpoint numbers refer to specific locations

where T_r is the reduced time, T_a is the actual recorded time, x is the shot to geophone offset and 6.0 kms^{-1} is the reducing velocity. Location numbers and the channel digitized (attenuation in decibels (dB)) are listed at the top of each trace. The attenuation is subtracted from a total gain of 84 dB.

For each shot normalized record sections are presented. For these plots parameters are set such that the maximum trace amplitude is 0.15-inches. Also presented, for all but shots 1, 7, 13, 14 and 16 of the Alaska Range deployment and all but shot 21 for the Fairbanks South deployment (all of which had low signal-to-noise), are true-amplitude record sections. For these record sections the trace amplitude is proportional to the velocity of ground motion as recorded by the seismometer. Some traces have been edited in the true-amplitude plots for display purposes.

The trace amplitude of true-amplitude record sections is calculated using the following formula:

$$A(t) = A_o(t) f_a f_d f_s$$

where, $f_a = 10^{\alpha/20}$; the instrument amplifier gain factor, where

α is the instrument attenuation setting in decibels

$f_d = (x/100)^{1.5}$ instrument offset factor, where x is offset in km .

f_s is the shot efficiency factor.

The shot efficiency factor is determined empirically for each shot in order to provide the best display of energy on the true-amplitude record sections. The shot efficiency factors used, which are inversely proportional to the shot signal strength, are listed in Table 1.

All record sections have been screened for mislocated stations, timing errors, noisy traces and an attempt was made to recover missing traces.

Acknowledgements

We gratefully acknowledge the assistance in our field work and initial data processing by Elizabeth Ambos, Patricia Berge, Robert Colburn, Charles Colum, George Corbin, Joseph Cotton, Edward Criley, Ernst Flueh, Liz Green, Ronald Kaderabek, William Kohler, Robert Luzitano, Robert McClearn, Walter Mooney, Janice Murphy, Benjamin Page, David Reneau, Scott Schapper, Julie Shemeta, John VanSchaack, Dean Whitman, and Jeffrey Wilson. Edward Criley supervised the field operations. We are indebted to our Canadian colleagues, Timothy Cote, Terry Neufeld, and Carl Spencer, for graciously contributing twenty instruments to our experiments, operating the instruments, and reducing the data.

We wish to thank a number of public and private agencies for their generous cooperation and interest in our study. They include the U.S. Forest Service (Leo Keeler), U.S. Bureau of Land Management (Michael Green, Roy Masinton, Charles Joy, and Boyce Bush), U.S. Fish and Wildlife Service (Elaine Snyder-Conn), U.S. Army (Captain Walters), U.S. Air Force (Captain Heinen), State of Alaska Fish and Game Department (Robert McClean), Ahtna Inc. (Lori Bogdanský), and Alaska Pipeline Service Company (Dennis Prendeville and James Harle). We also wish to thank our colleagues at the University of Alaska at Fairbanks, David Stone, John Davies, and Lorraine Wolf, who kindly allowed us to house our computer at their university.

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Table 1

Shot Number ¹	Shot Point	Shot Size	Efficiency Factor (f_s)
2	44	454kg	0.0090
3	49	2724kg	0.0050
4	3	1362kg	0.0060
5	8	2724kg	0.0080
6	42	227kg	0.0700
8	1	908kg	0.1700
9	45	908kg	0.0600
10	41	454kg	0.0050
11	6	1816kg	0.0130
12	2	908kg	0.0090
15	54	1362kg	0.0060
17	52	1362kg	0.0100
18	51	1816kg	0.0040
20	56	908kg	0.0250
22	55	227kg	0.0200
23	53	908kg	0.0400
24	57	1362kg	0.0030
25	73	318kg	0.0350
26	59	1816kg	0.0130
27	47	908kg	0.0100
28	50	2724kg	0.0040

¹Shot numbers are assigned in the order shots are detonated. Shotpoint numbers refer to specific locations.

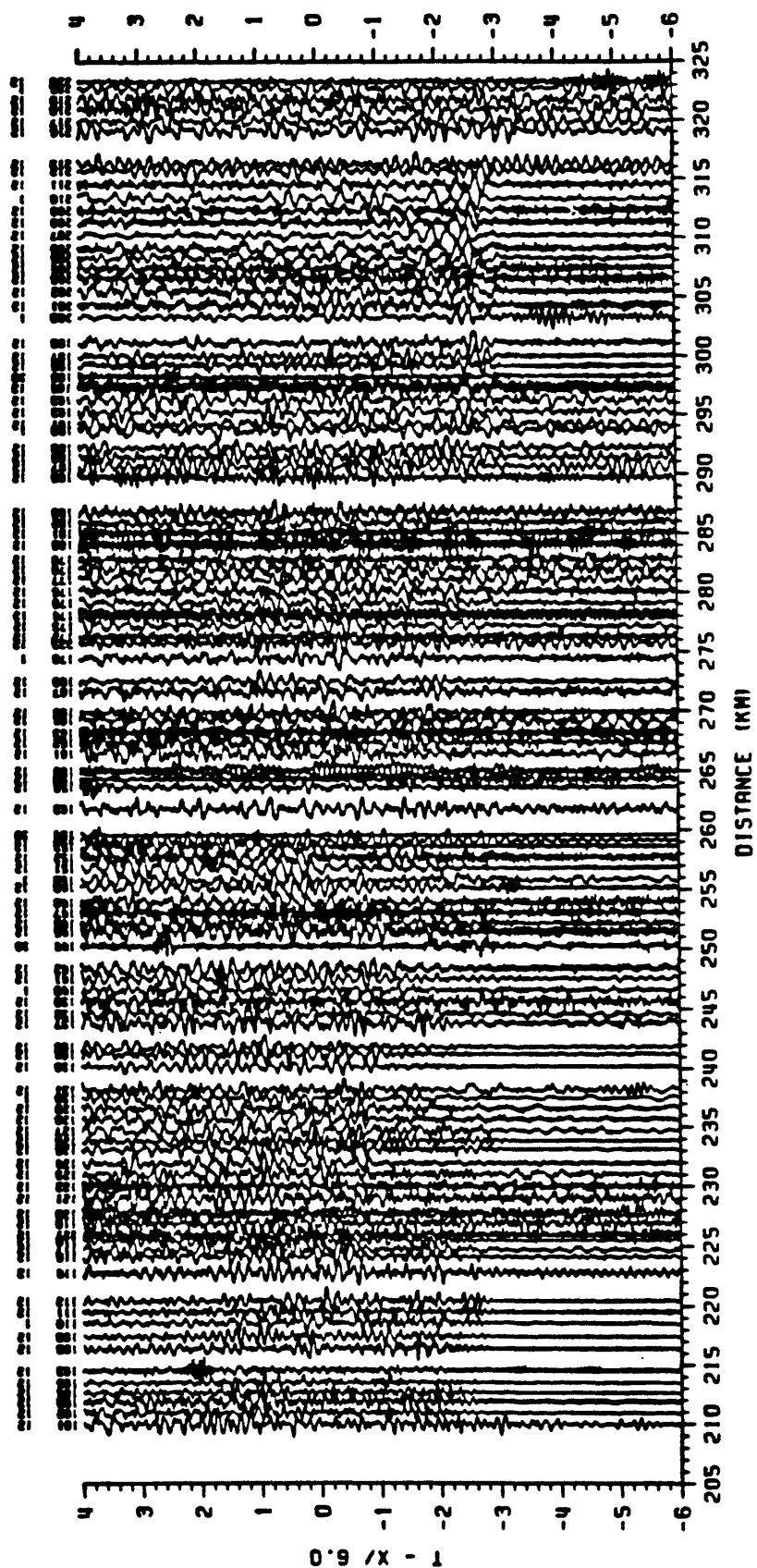


Figure 8: Alaska Range, Shot 1, Shot Point 19, Normalized

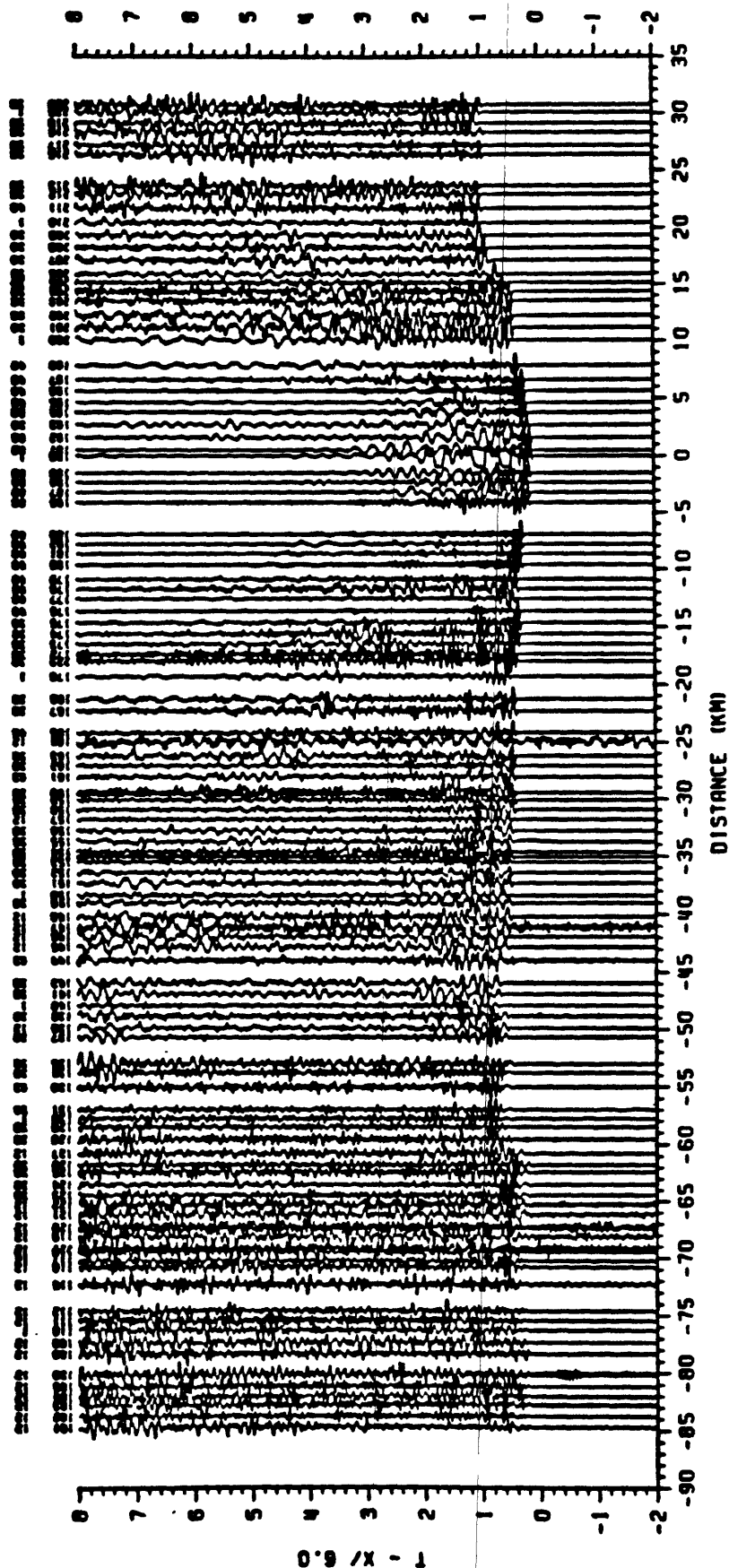


Figure 9: Alaska Range, Shot 2, Shot Point 44, Normalized

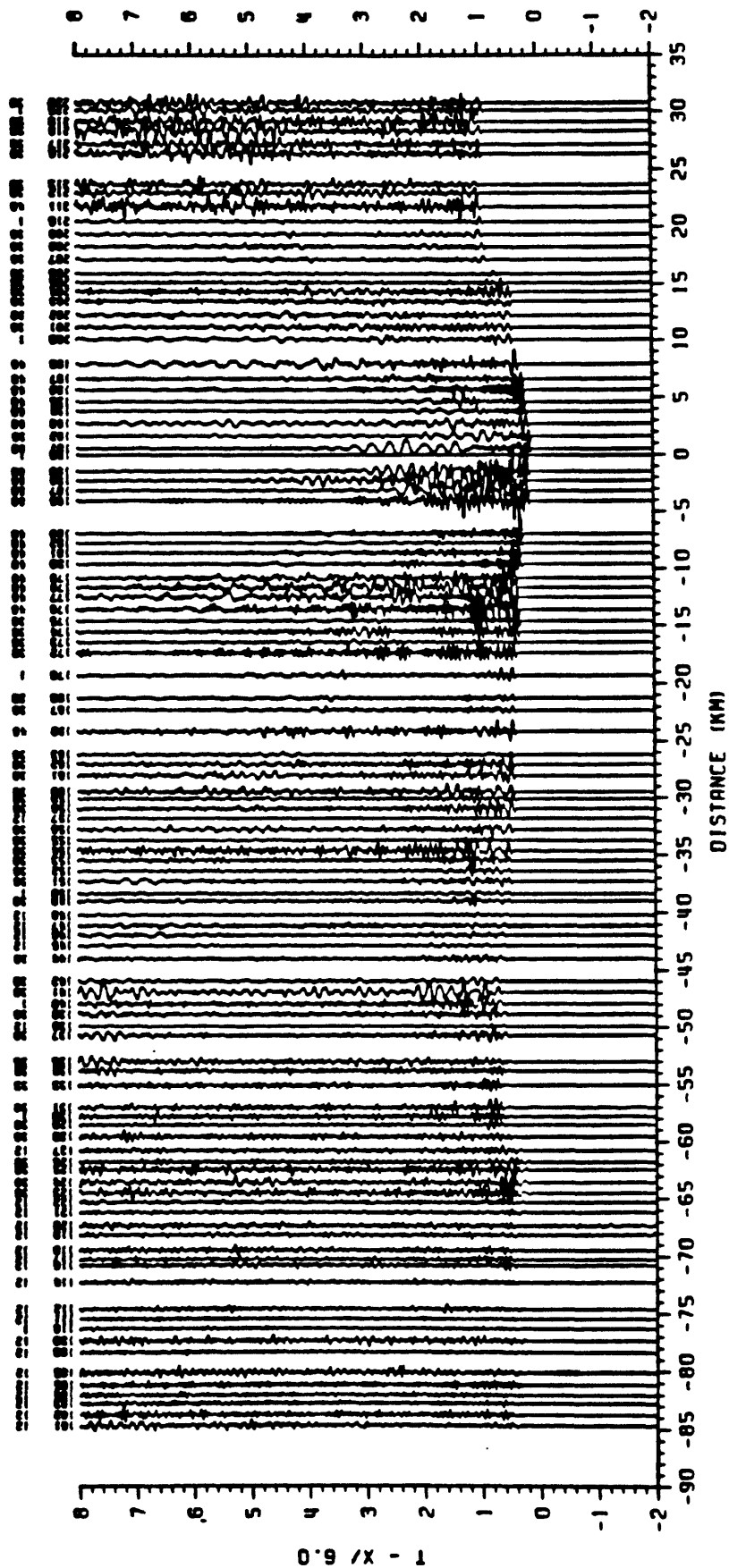


Figure 10: Alaska Range, Shot 2, Shot Point 44, True-Amplitude

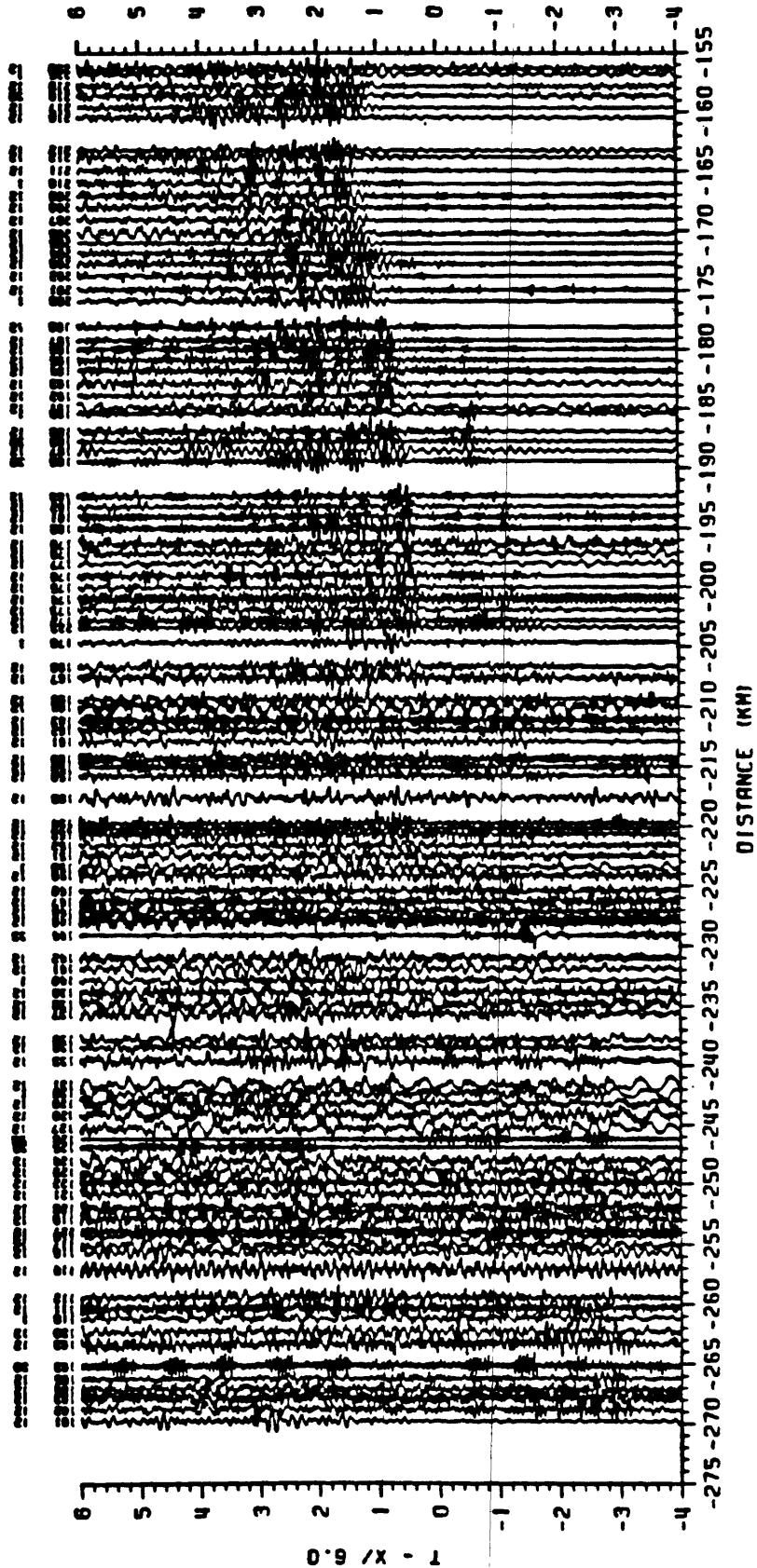


Figure 11: Alaska Range, Shot 3, Shot Point 49, Normalized

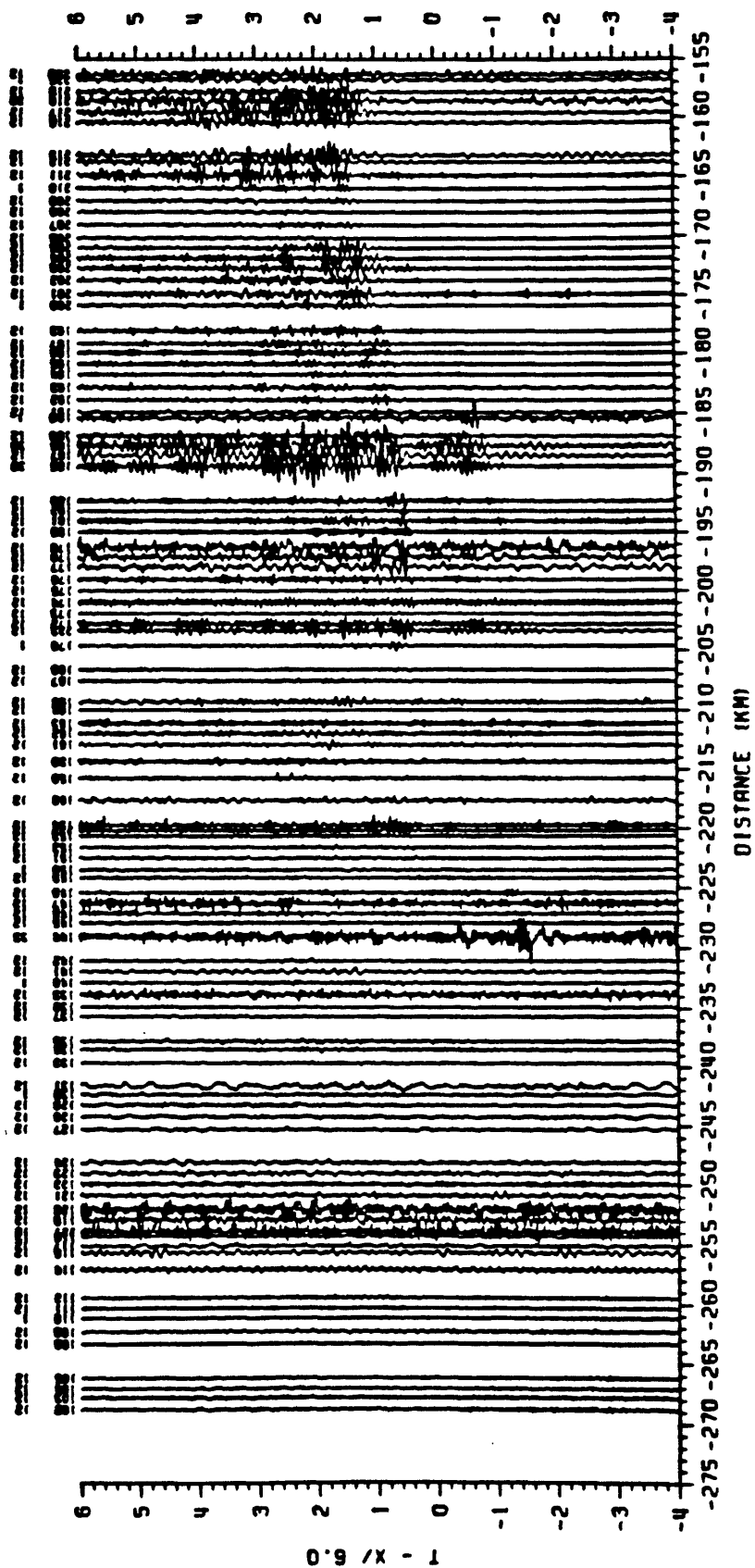


Figure 12: Alaska Range, Shot 3, Shot Point 49, True-Amplitude

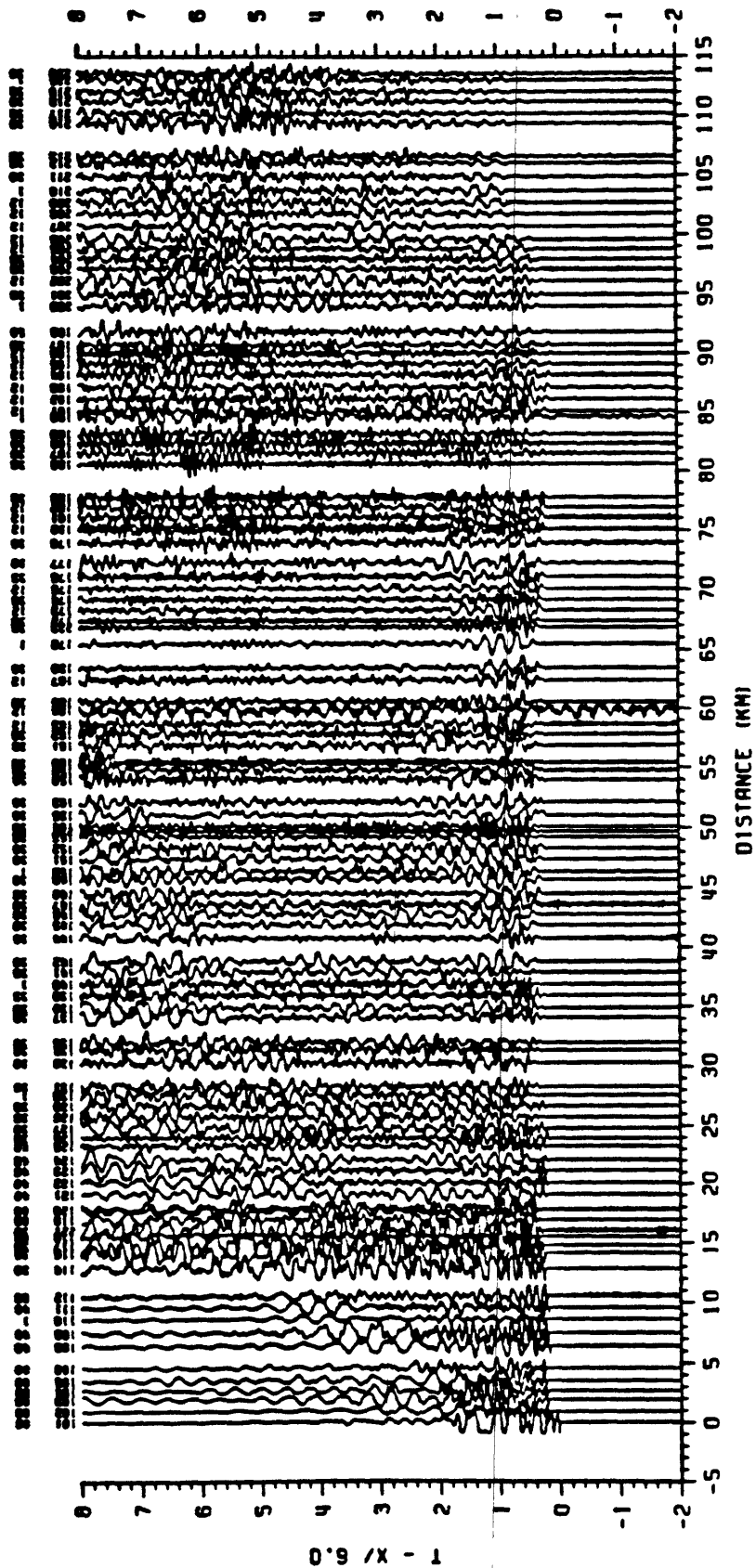


Figure 13: Alaska Range, Shot 4, Shot Point 3, Normalized

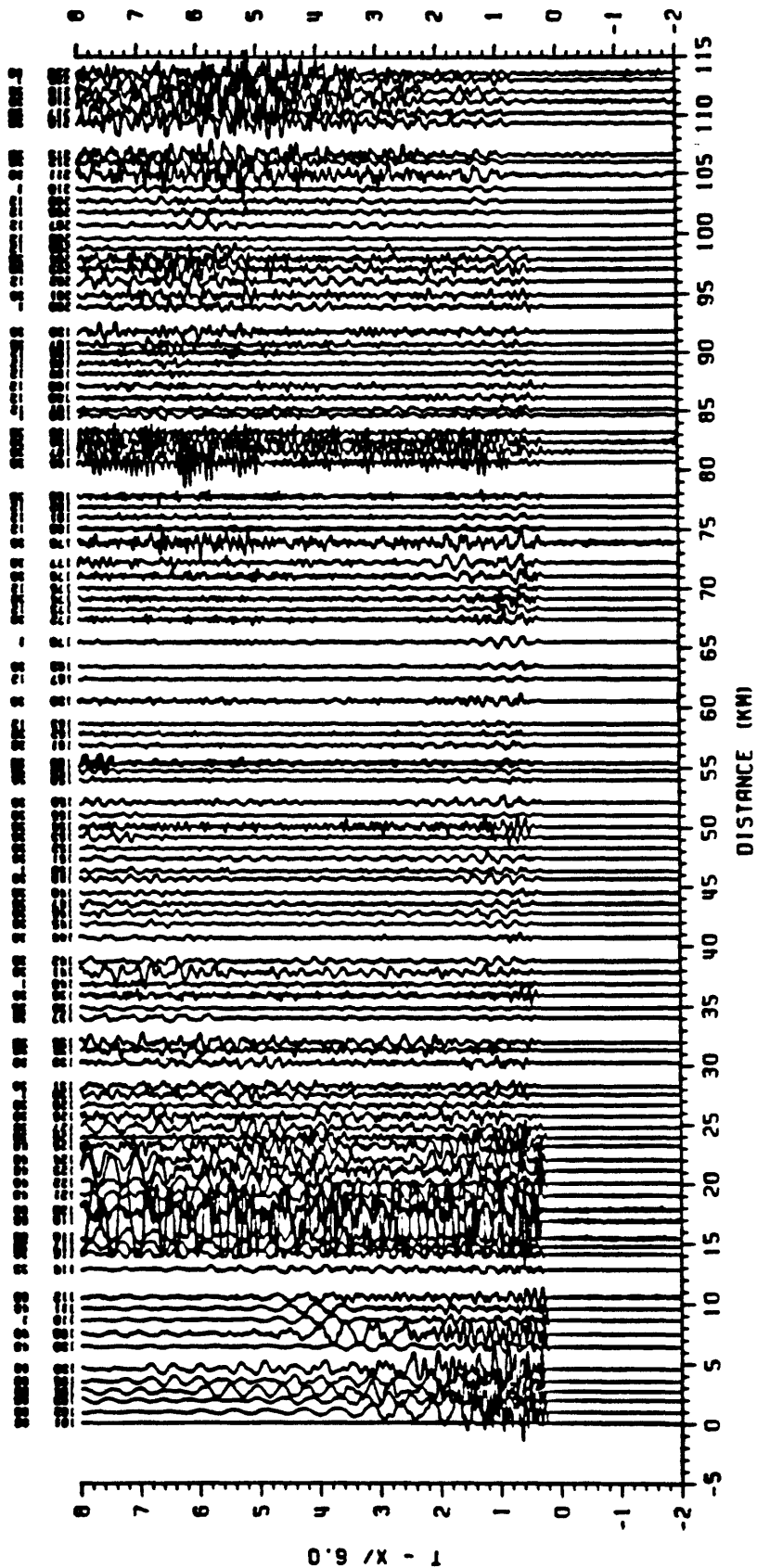


Figure 14: Alaska Range, Shot 4, Shot Point 3, True-Amplitude

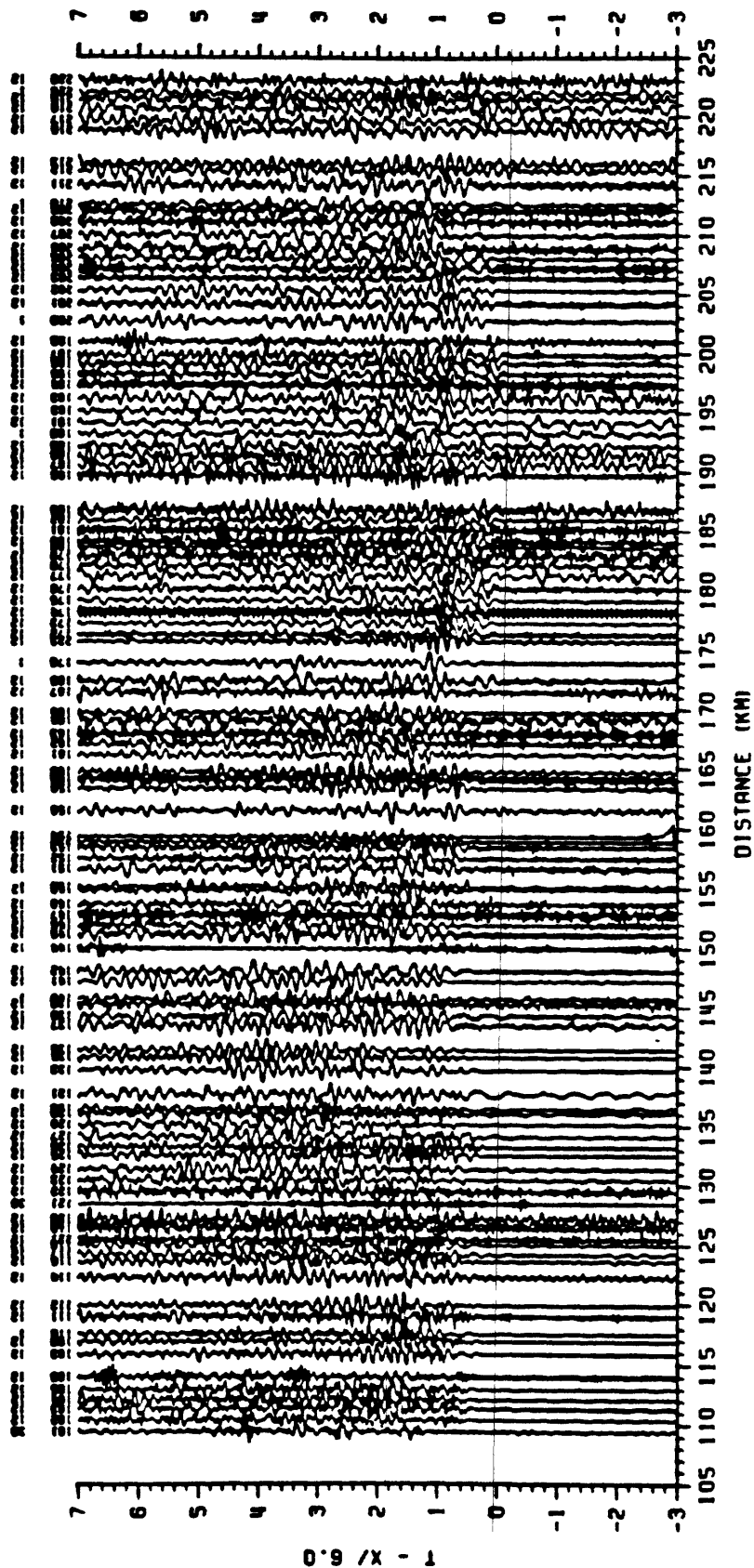


Figure 15: Alaska Range, Shot 5, Shot Point 3, Normalized

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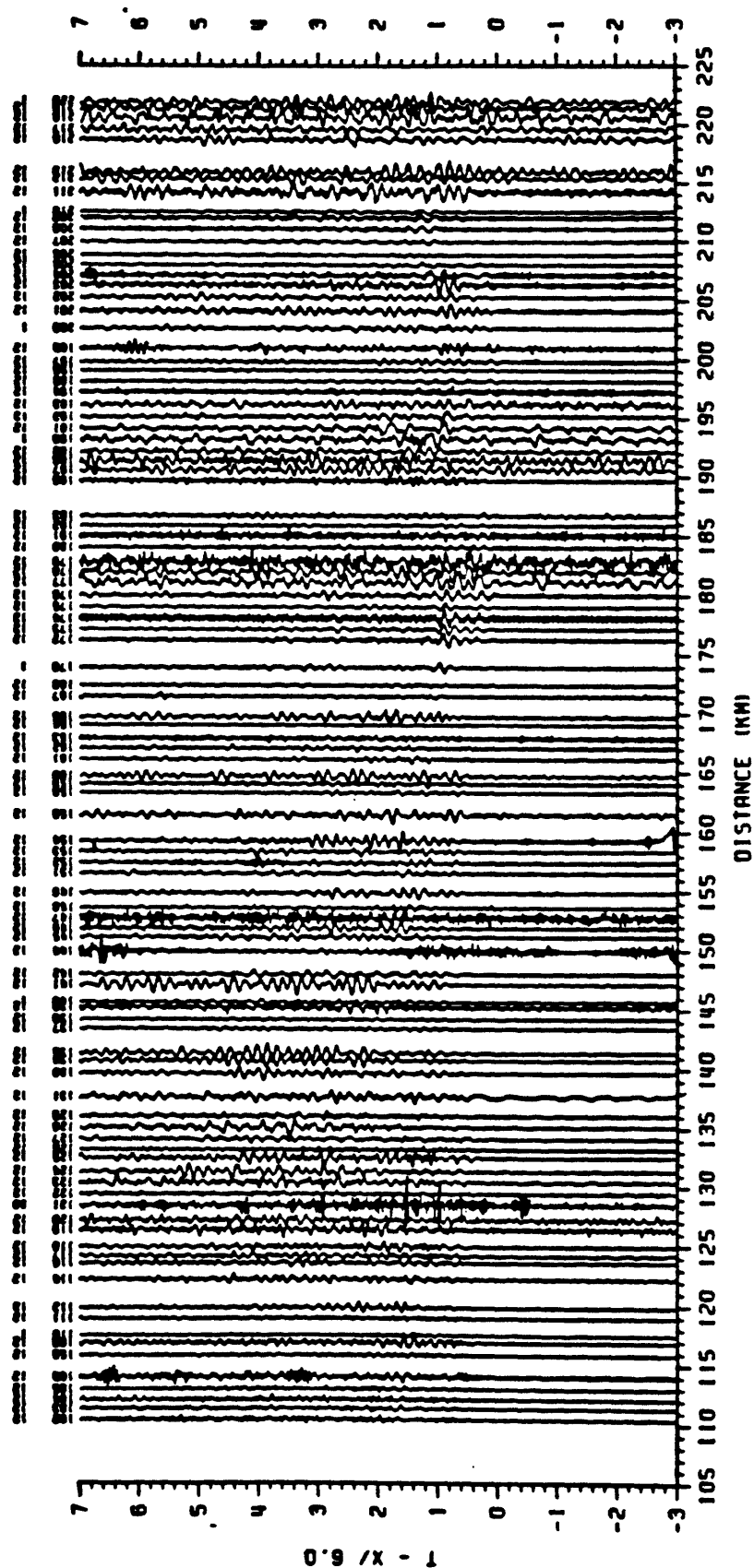


Figure 16: Alaska Range, Shot 5, Shot Point 8, True-Amplitude

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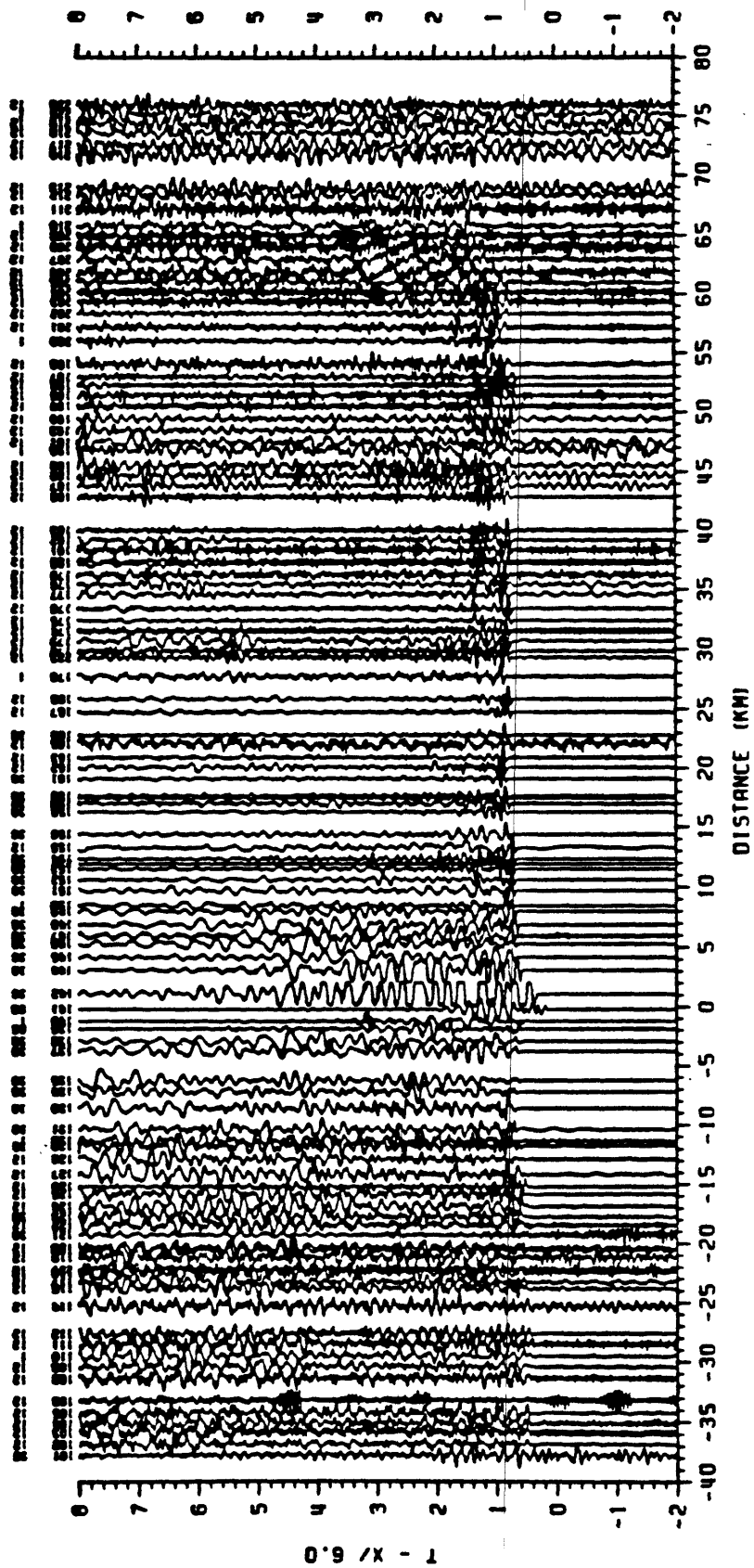


Figure 17: Alaska Range, Shot 6, Shot Point 42, Normalized

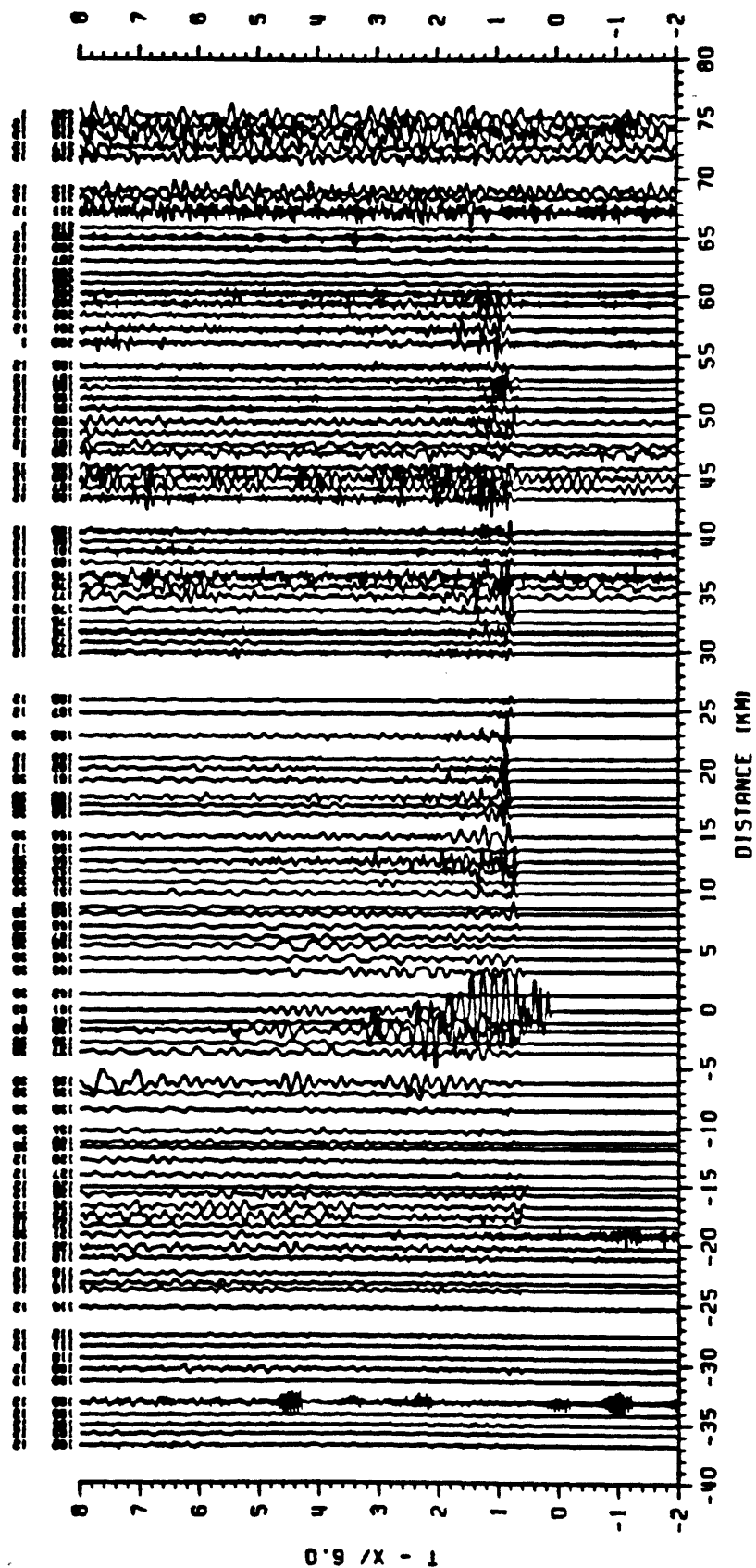


Figure 18: Alaska Range, Shot 6, Shot Point 42, True-Amplitude

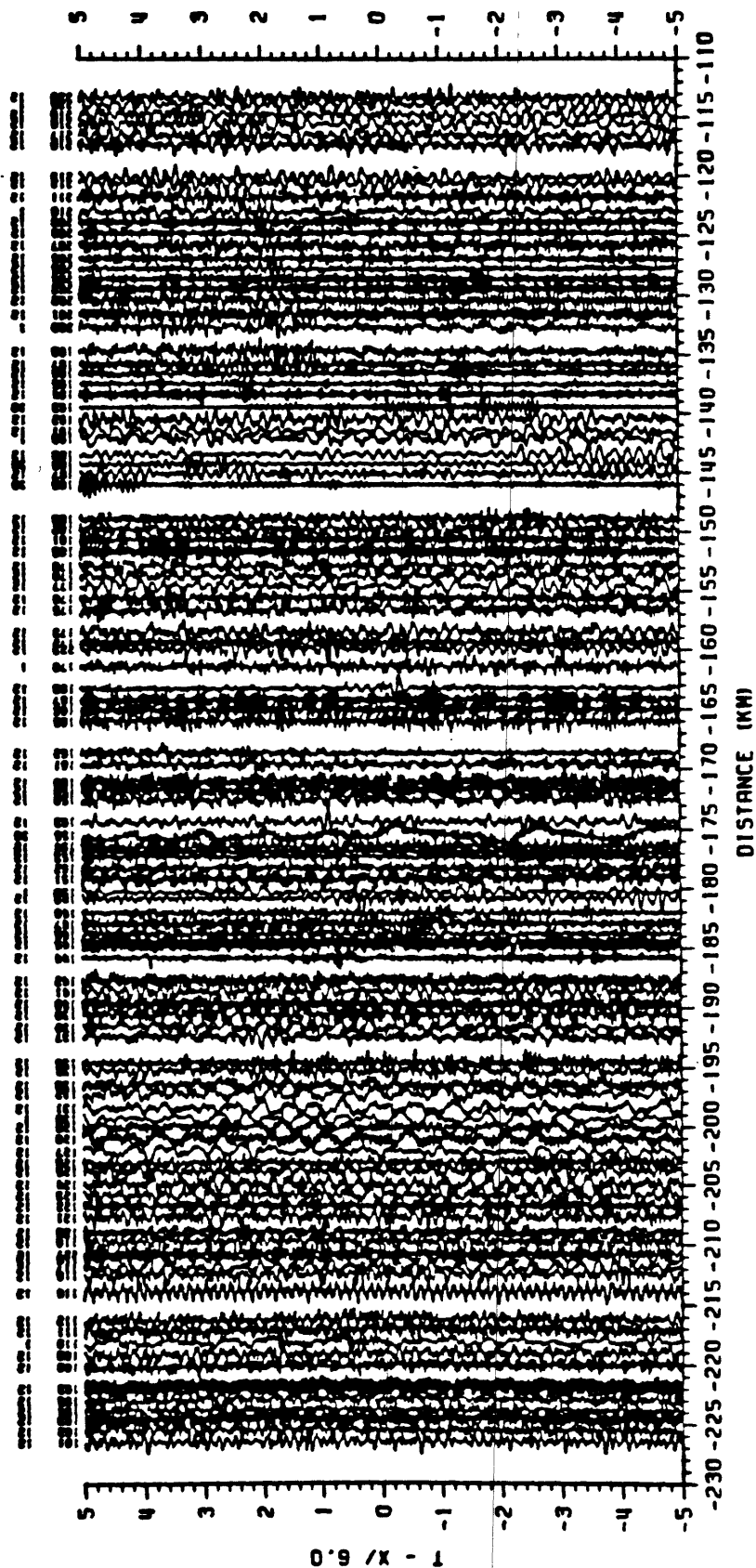


Figure 19: Alaska Range, Shot 7, Shot Point 43, Normalized

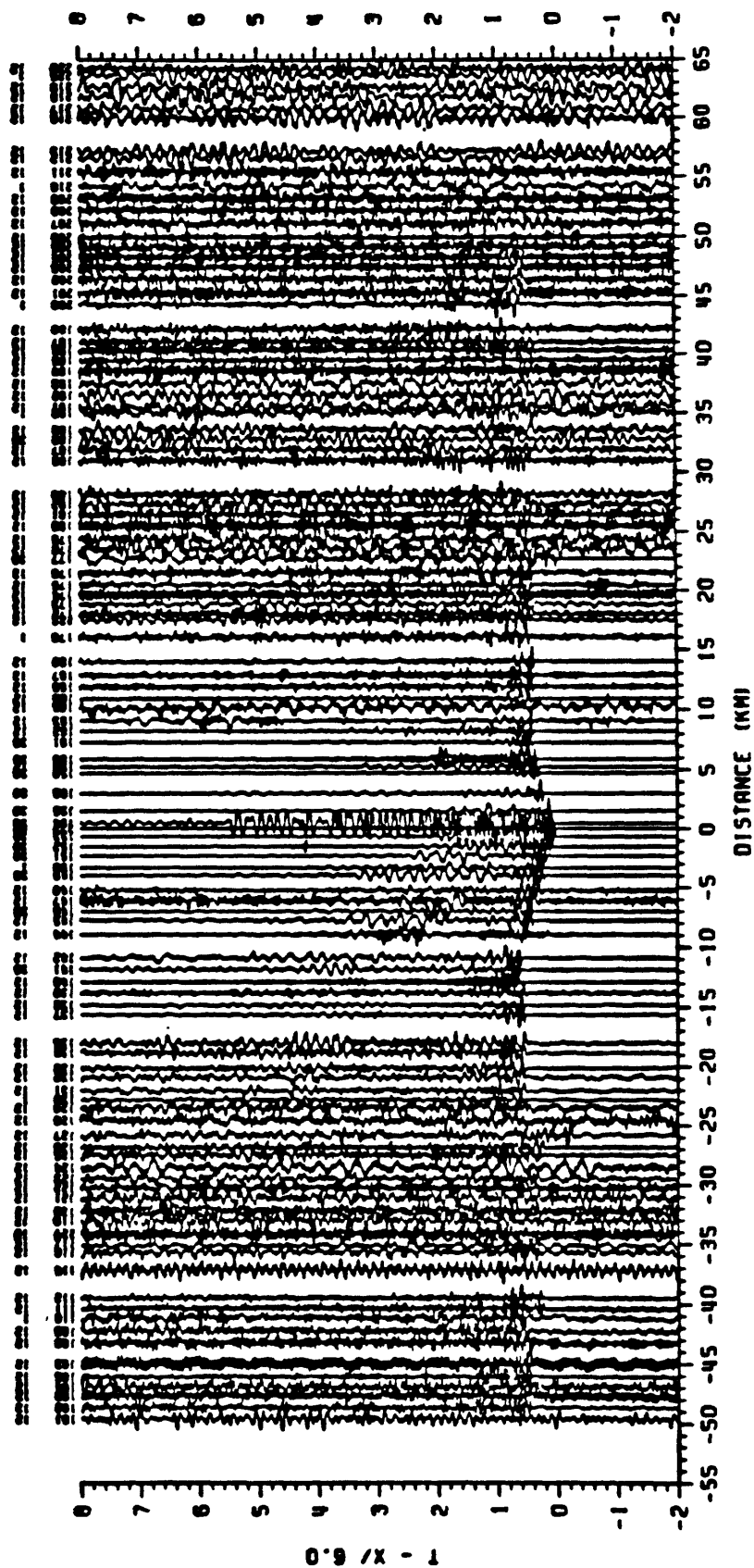


Figure 20: Alaska Range, Shot 8, Shot Point 1, Normalized

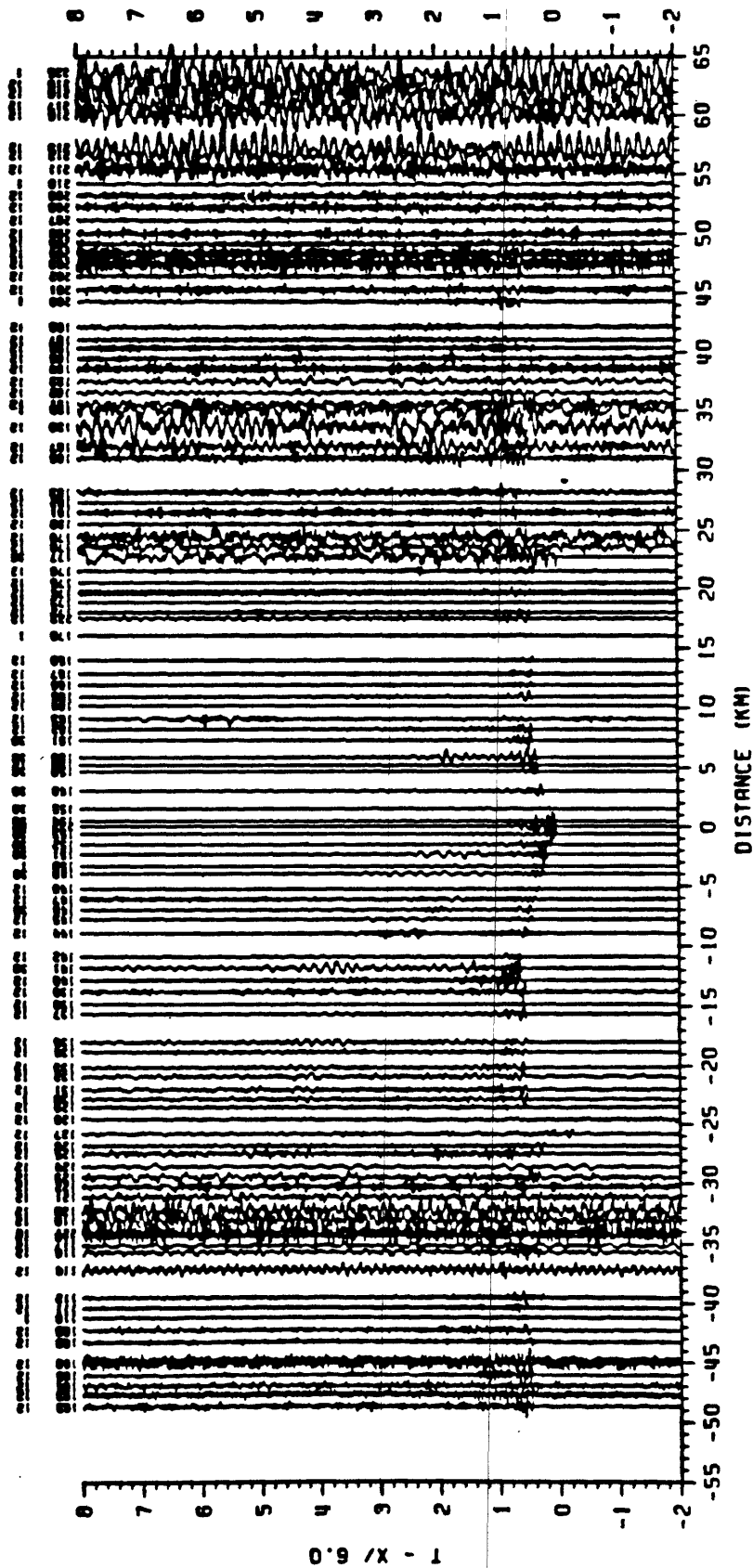


Figure 21: Alaska Range, Shot 8, Shot Point 1, True-Amplitude

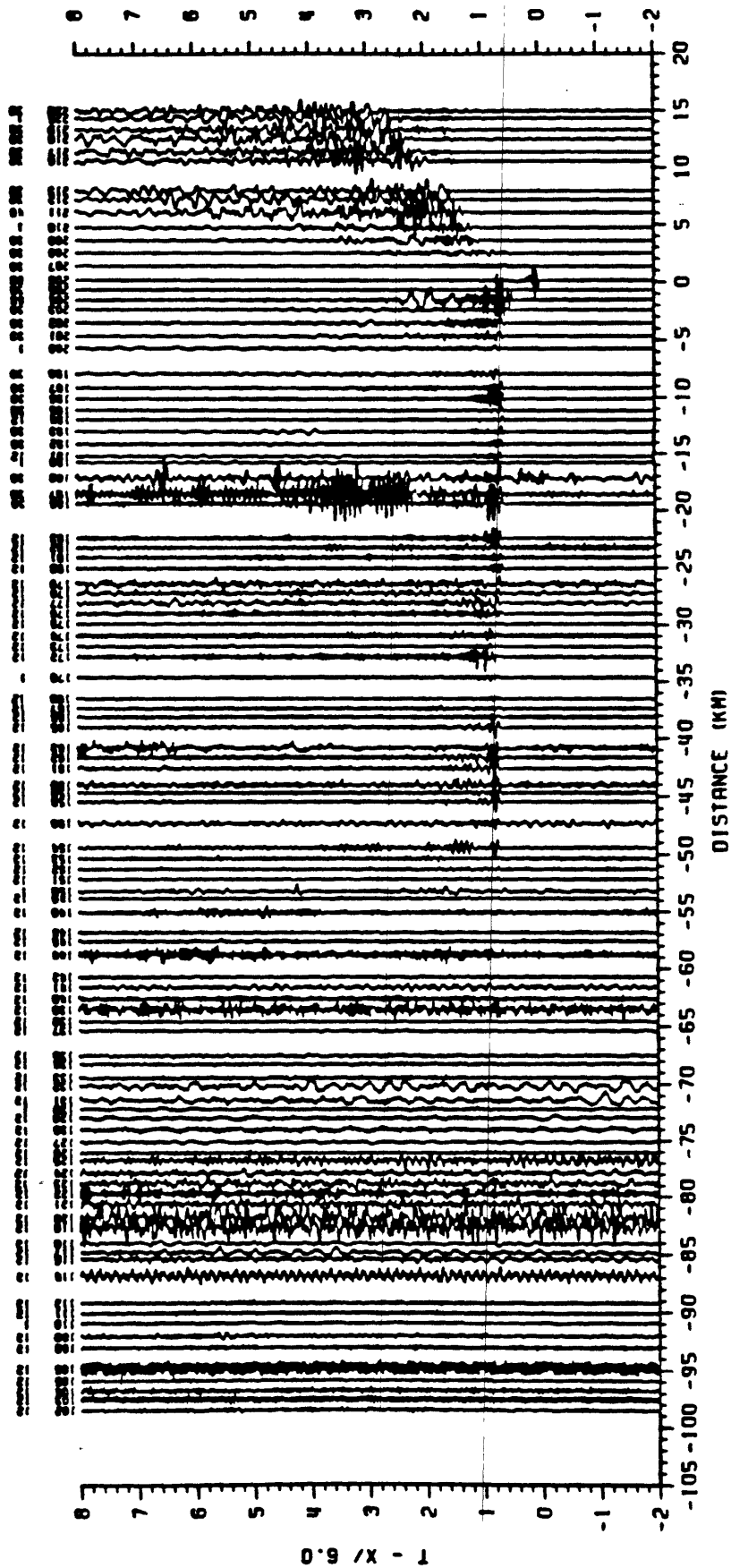


Figure 23: Alaska Range, Shot 9, Shot Point 45, True-Amplitude

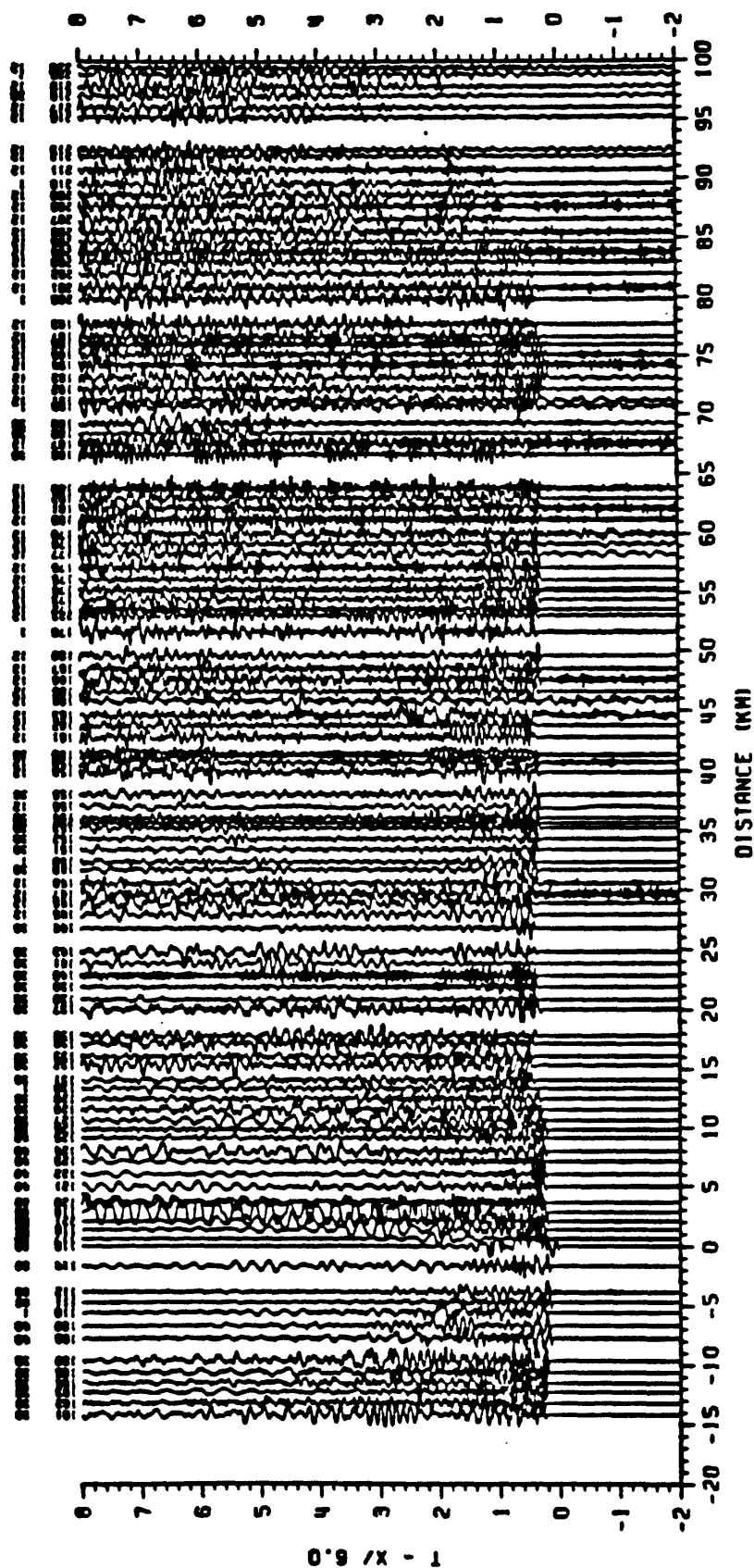


Figure 24: Alaska Range, Shot 10, Shot Point 41, Normalized

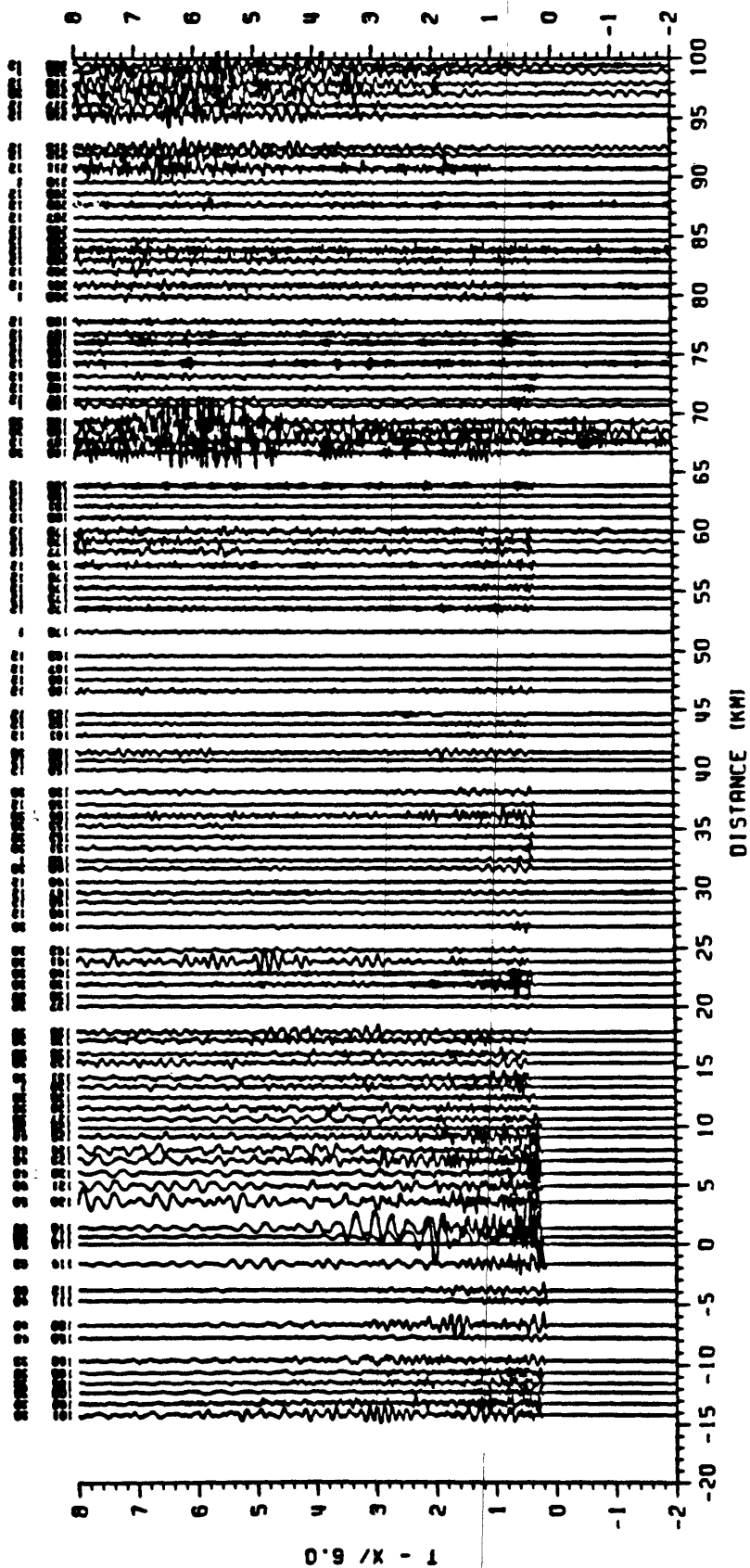


Figure 25: Alaska Range, Shot 10, Shot Point 41, True-Amplitude

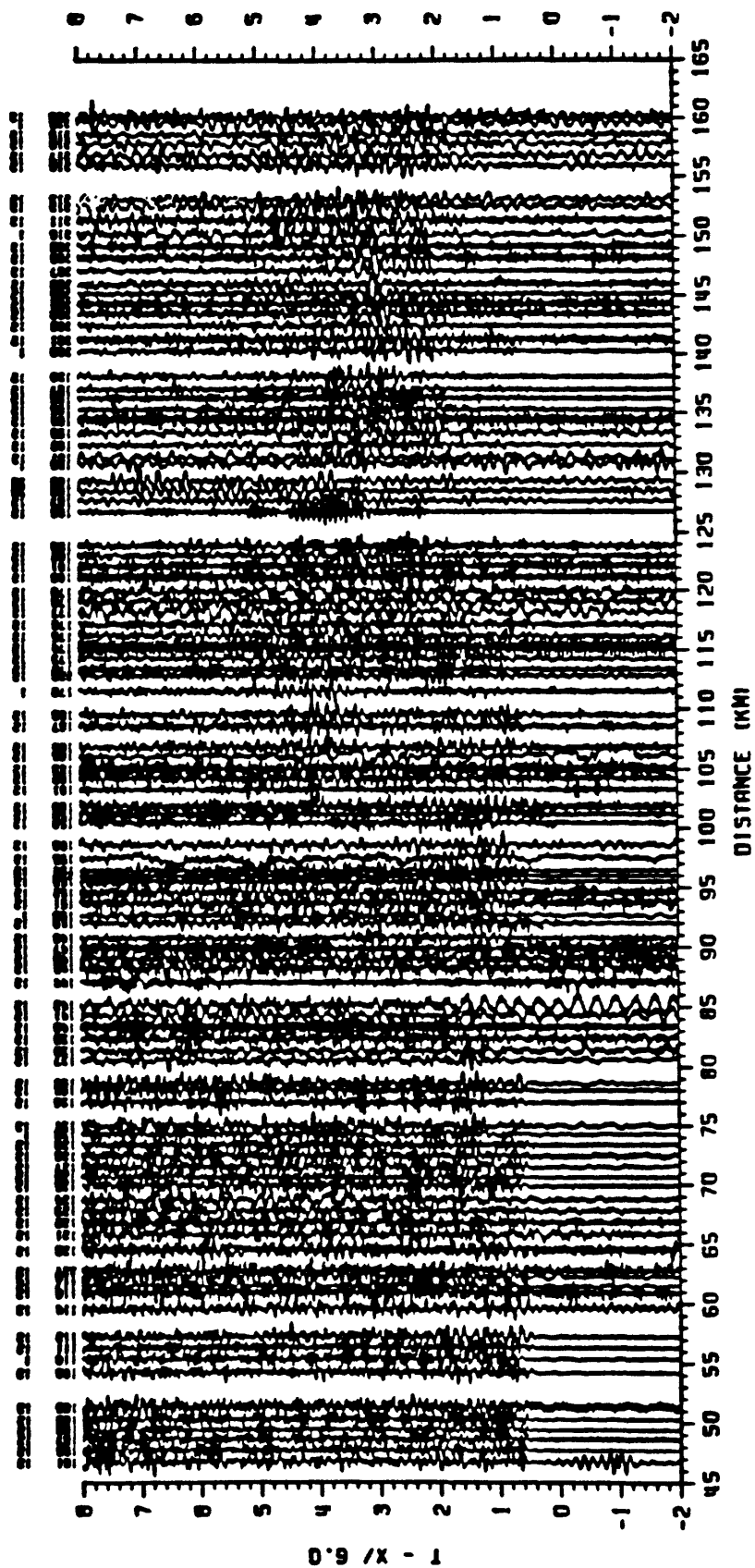


Figure 26: Alaska Range, Shot 11, Shot Point 6, Normalized

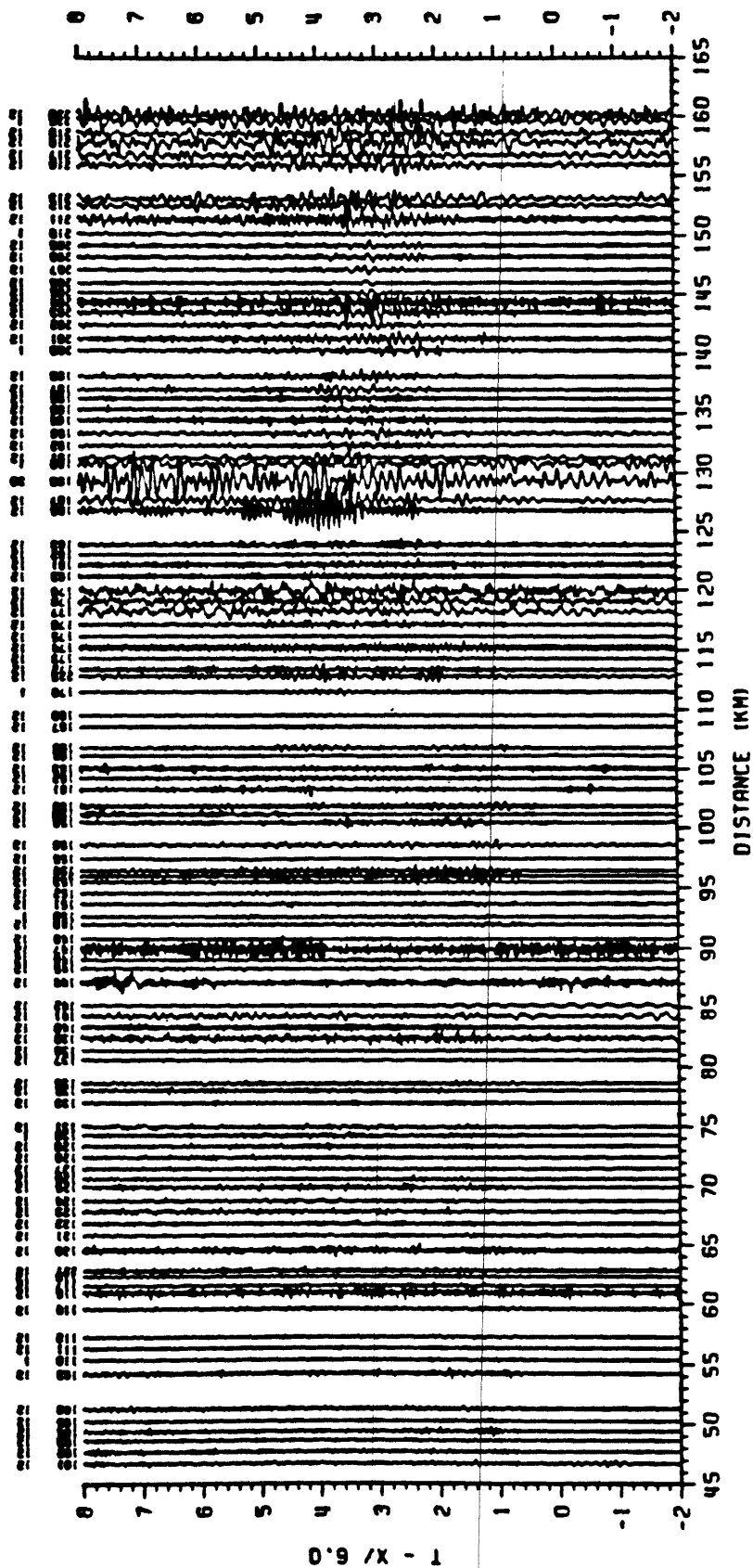


Figure 27: Alaska Range, Shot 11, Shot Point 6, True-Amplitude

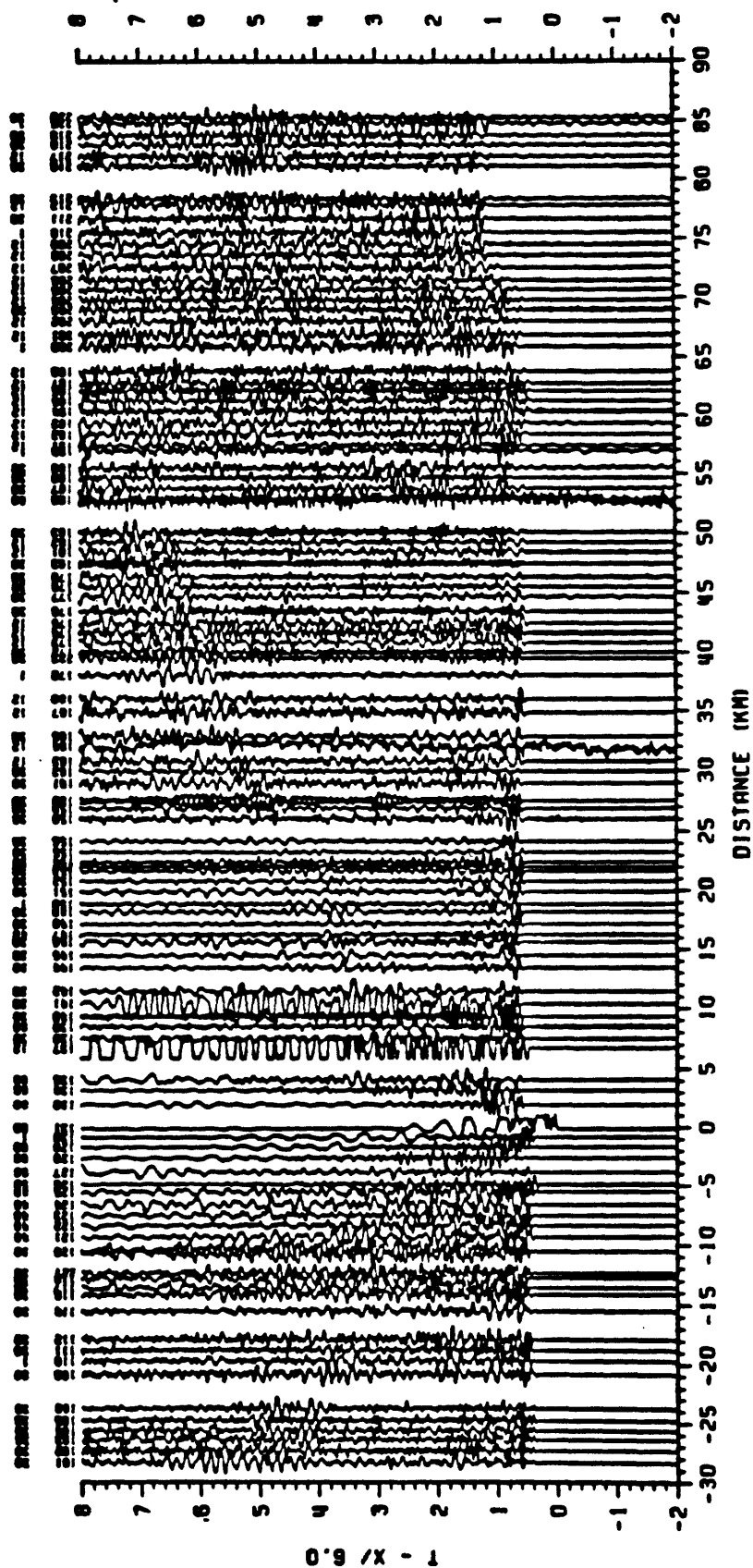


Figure 28: Alaska Range, Shot 12, Shot Point 2, Normalized

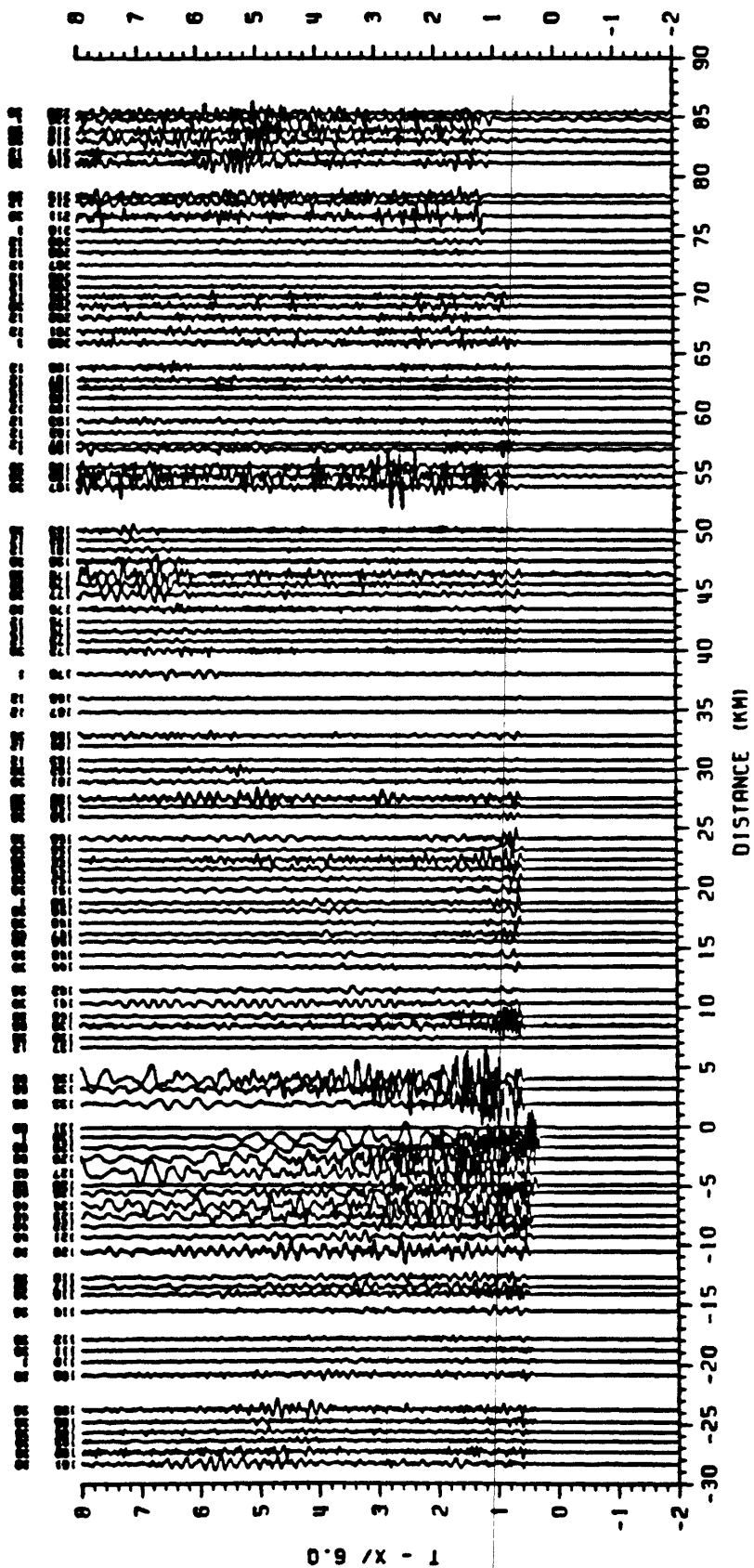


Figure 29: Alaska Range, Shot 12, Shot Point 2, True-Amplitude

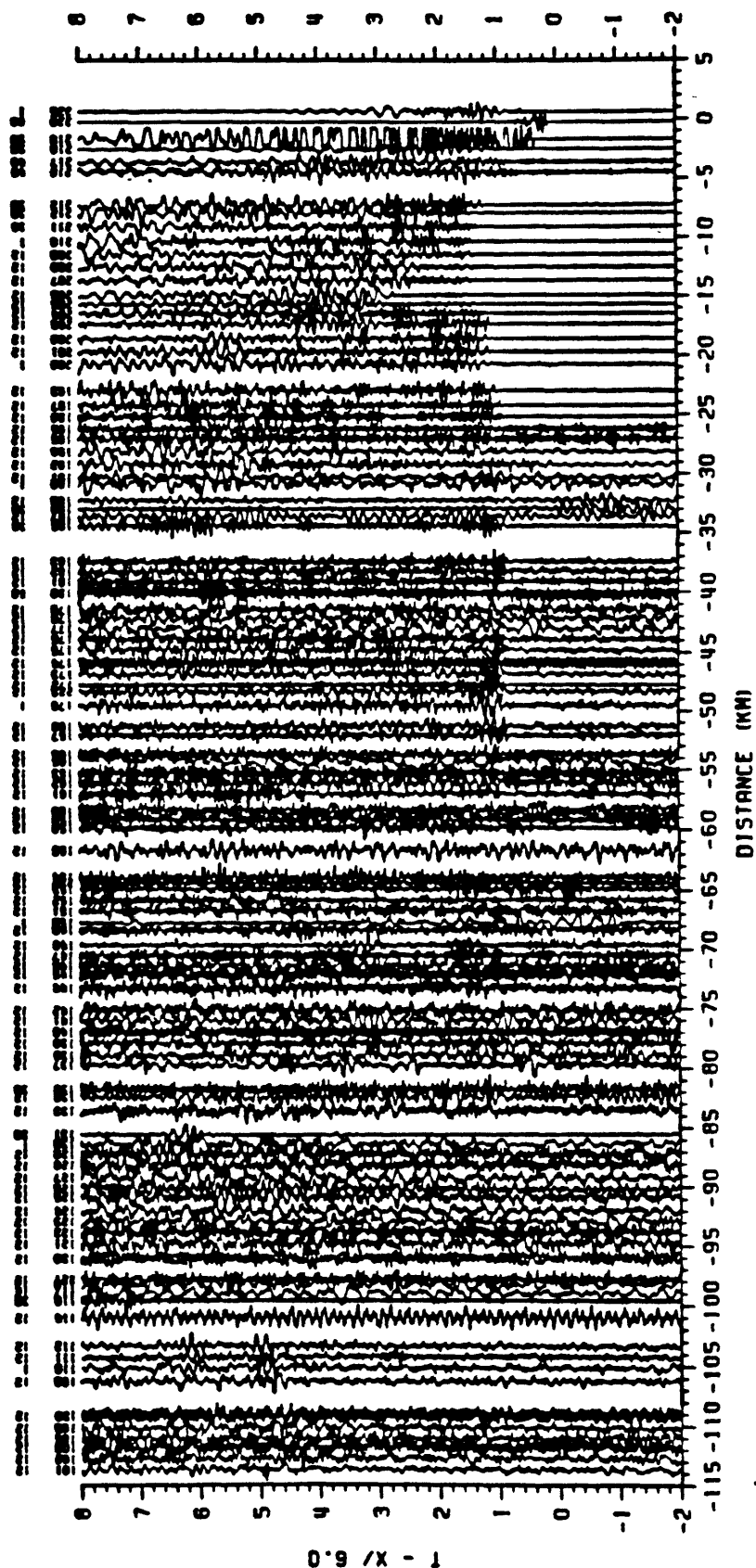


Figure 30: Alaska Range, Shot 13, Shot Point 46, Normalized

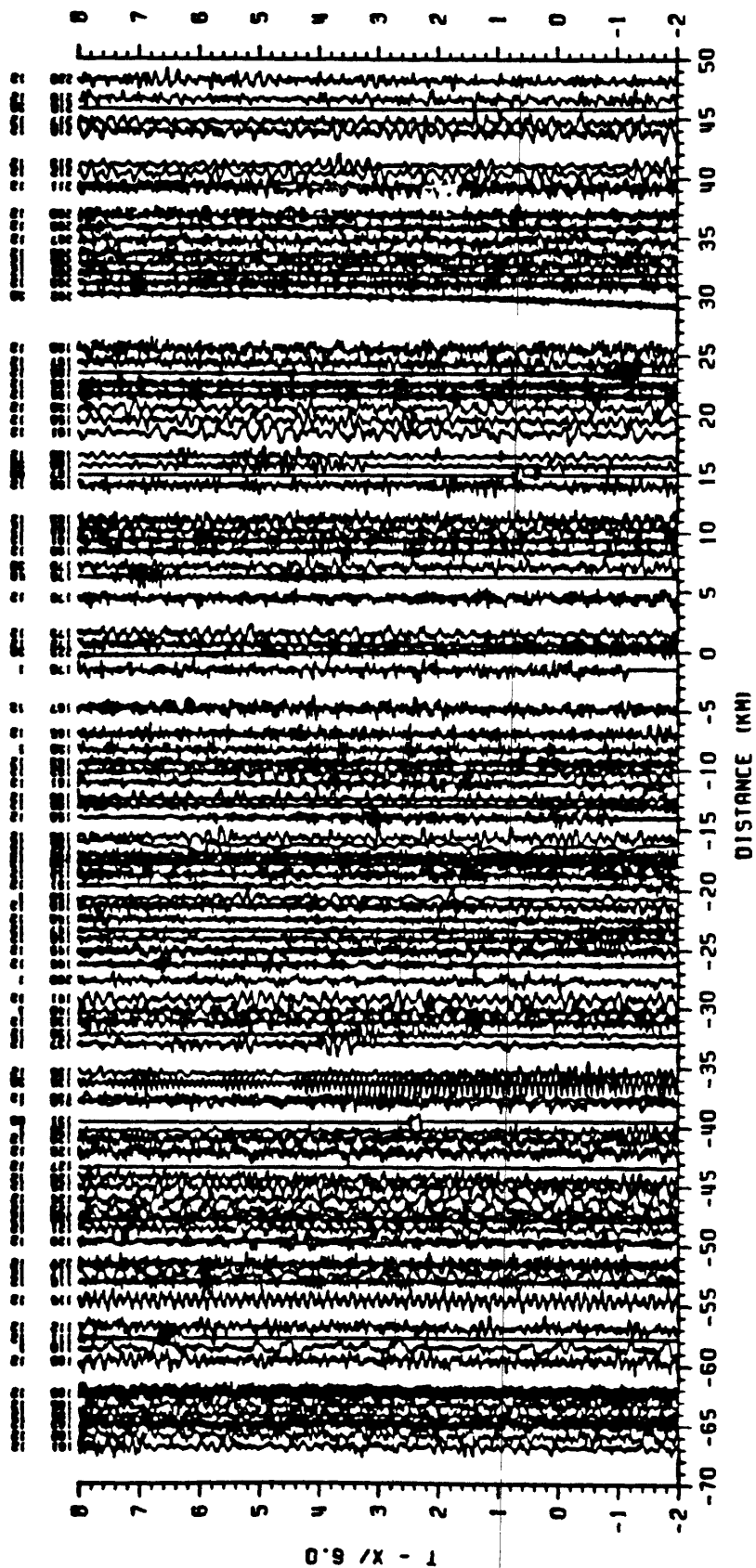


Figure 31: Alaska Range, Shot 14, Shot Point 43, Normalized

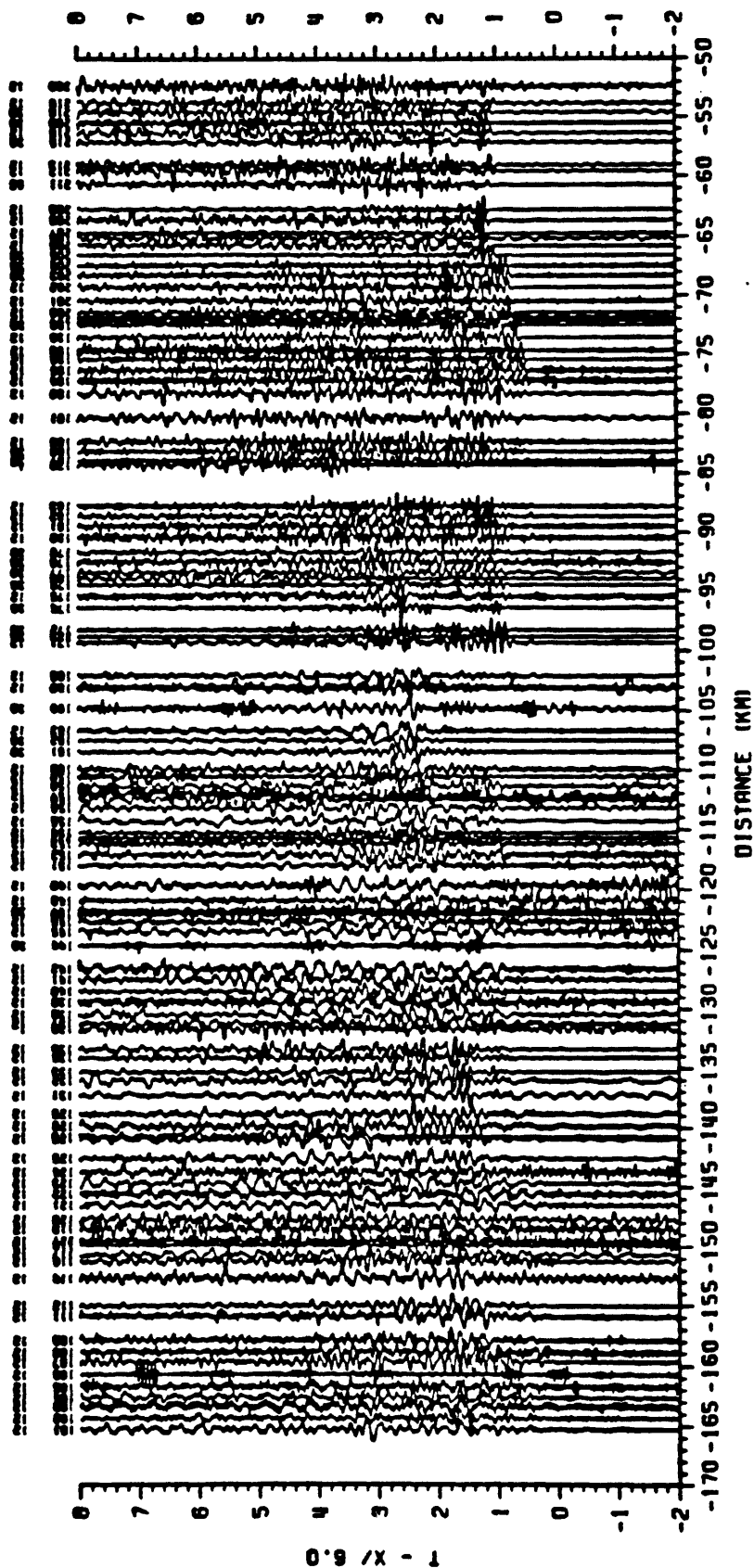


Figure 32: Alaska Range, Shot 15, Shot Point 54, Normalized

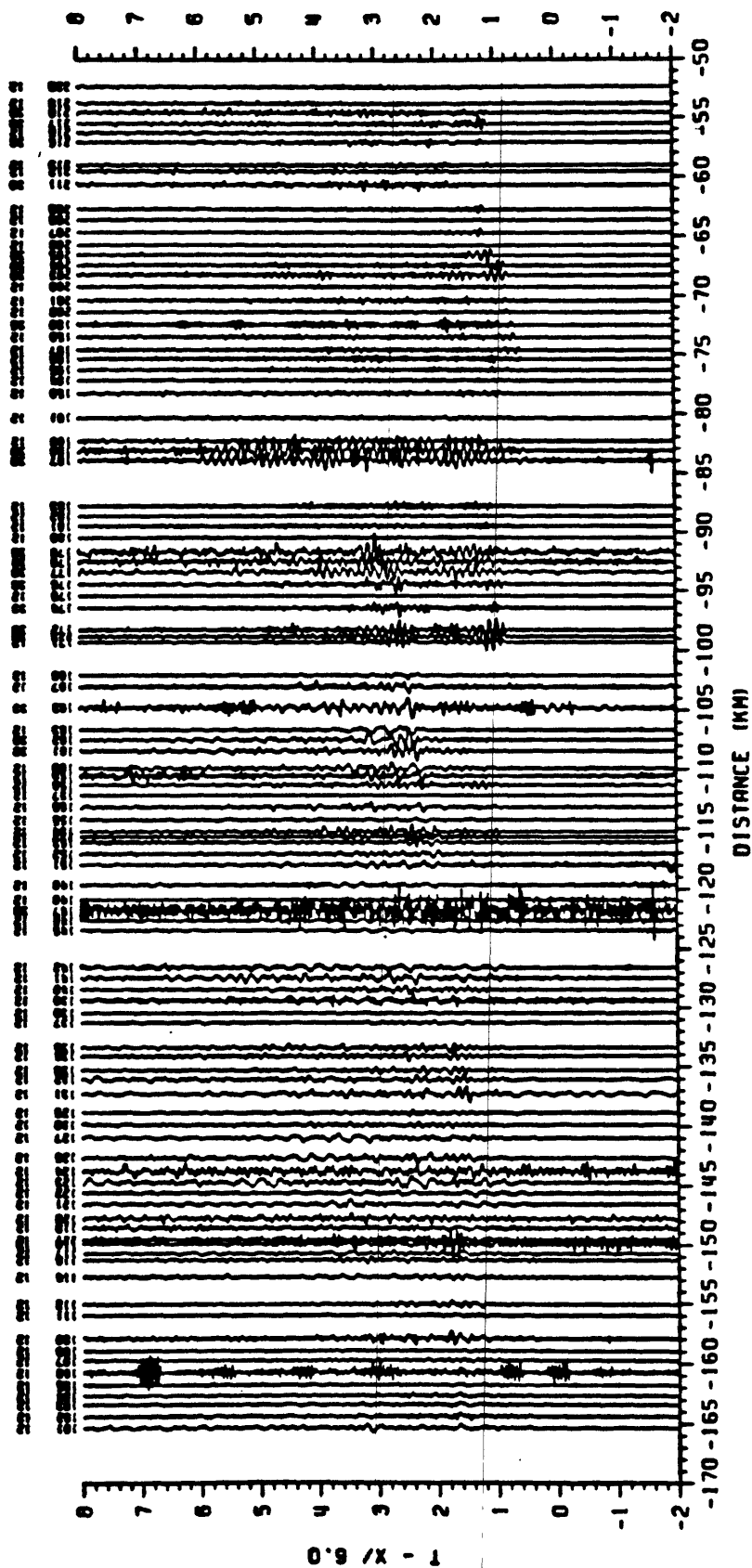


Figure 33: Alaska Range, Shot 16, Shot Point 64, True-Amplitude

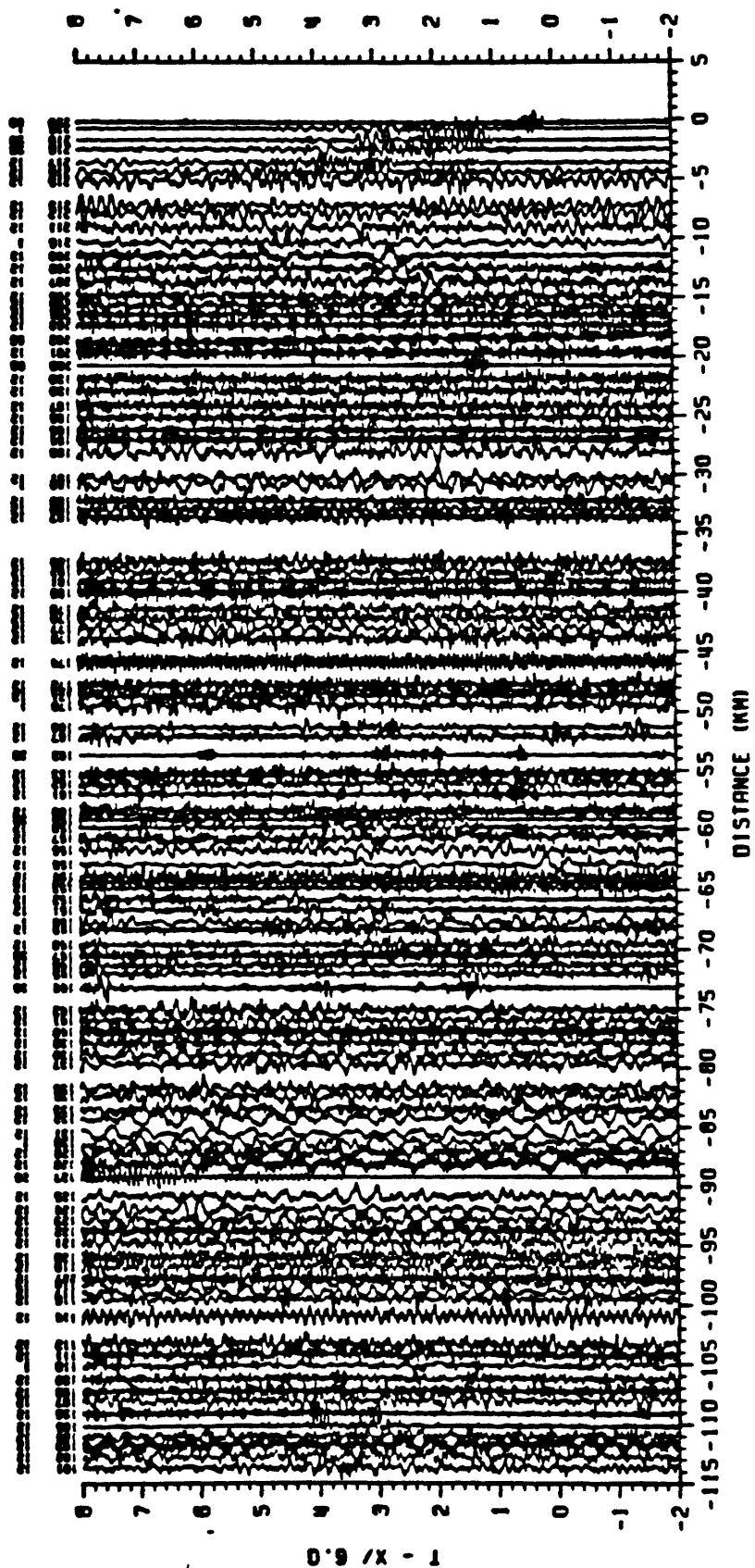


Figure 34: Alaska Range, Shot 16, Shot Point 46, Normalized

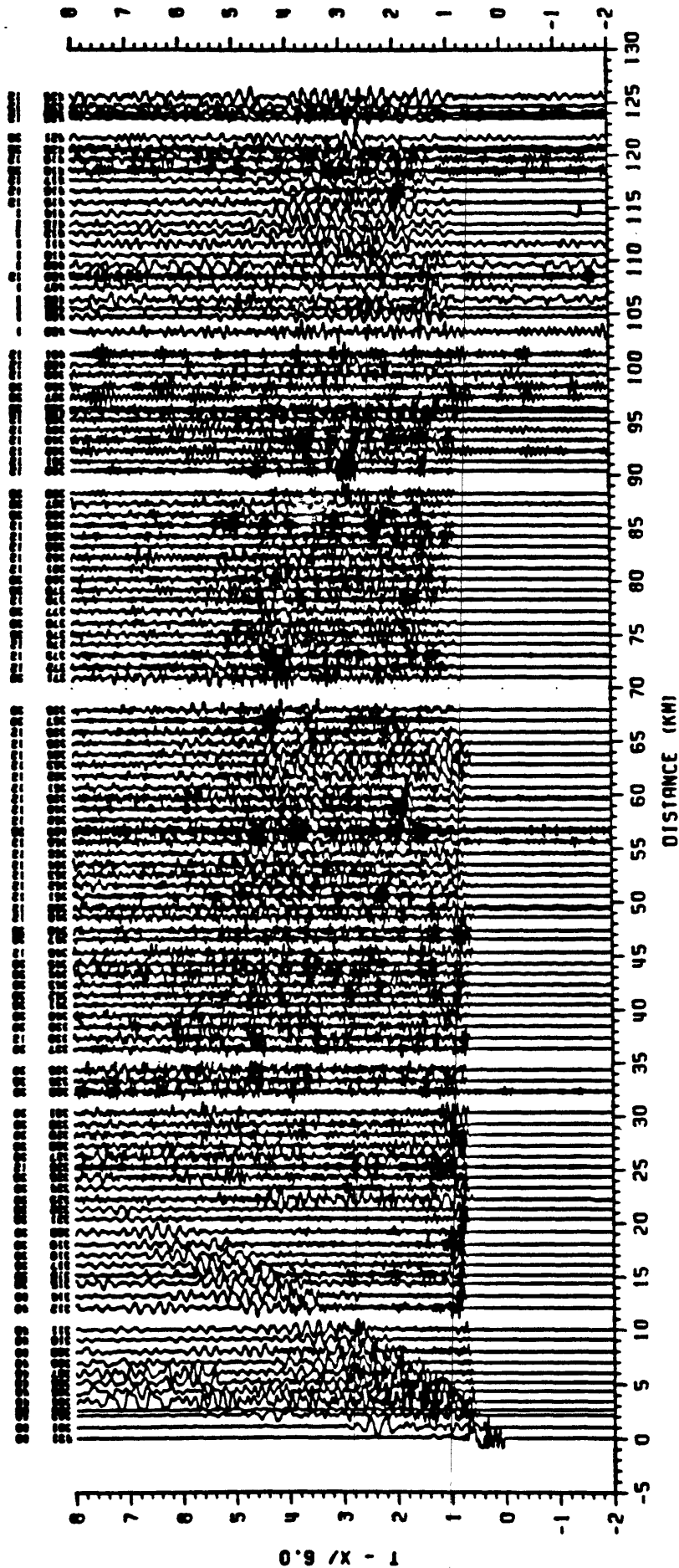


Figure 35: Fairbanks South, Shot 17, Shot Point 52, Normalized

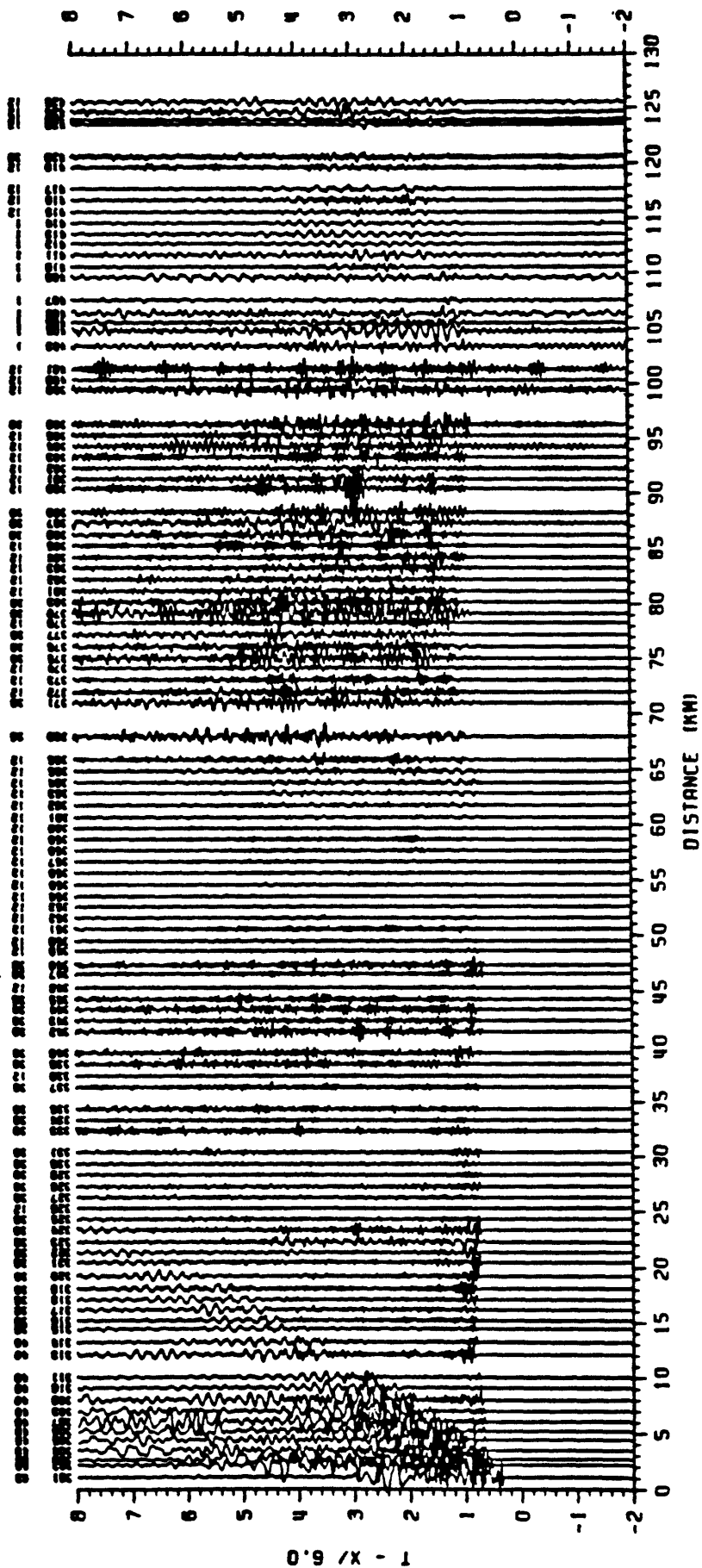


Figure 36: Fairbanks South, Shot 17, Shot Point 52, True-Amplitude

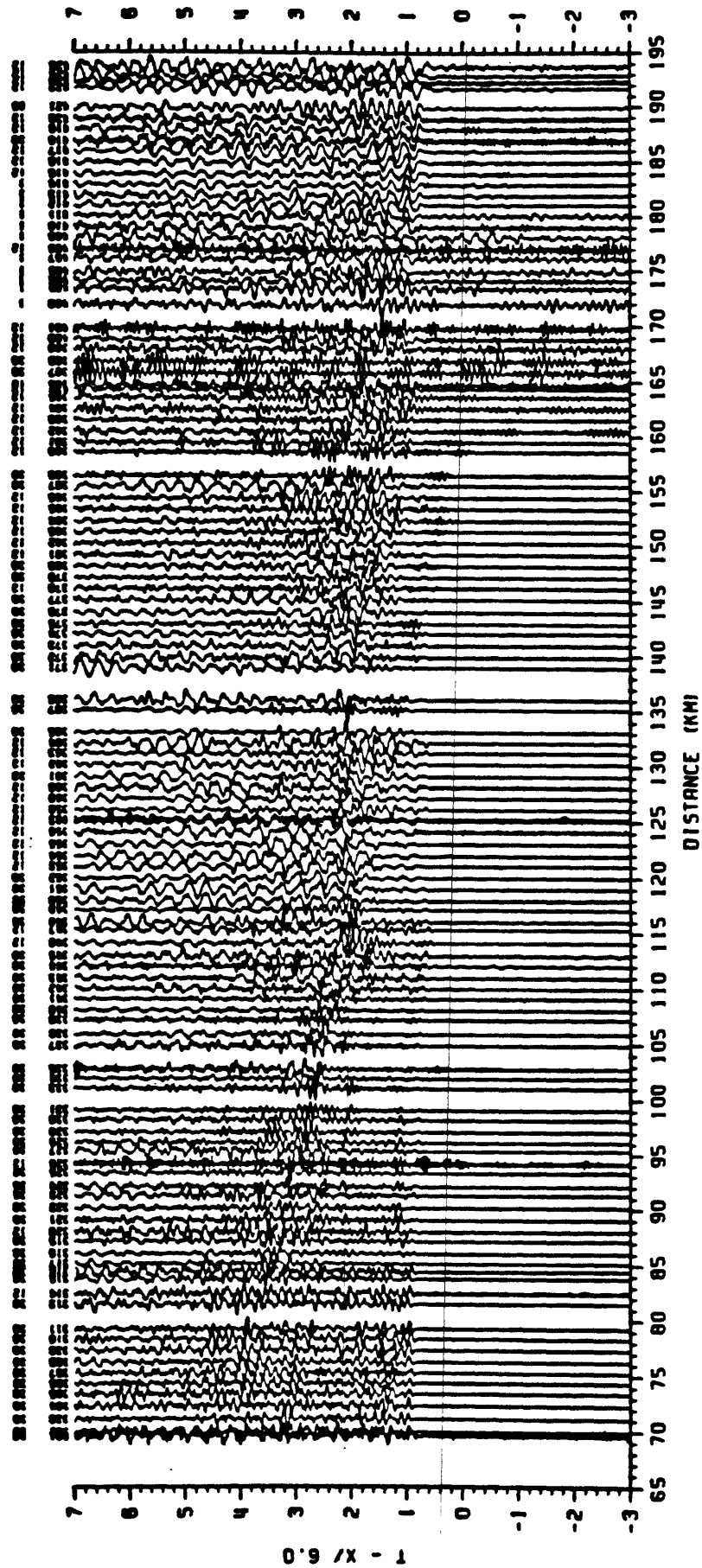


Figure 37: Fairbanks South, Shot 13, Shot Point 51, Normalized

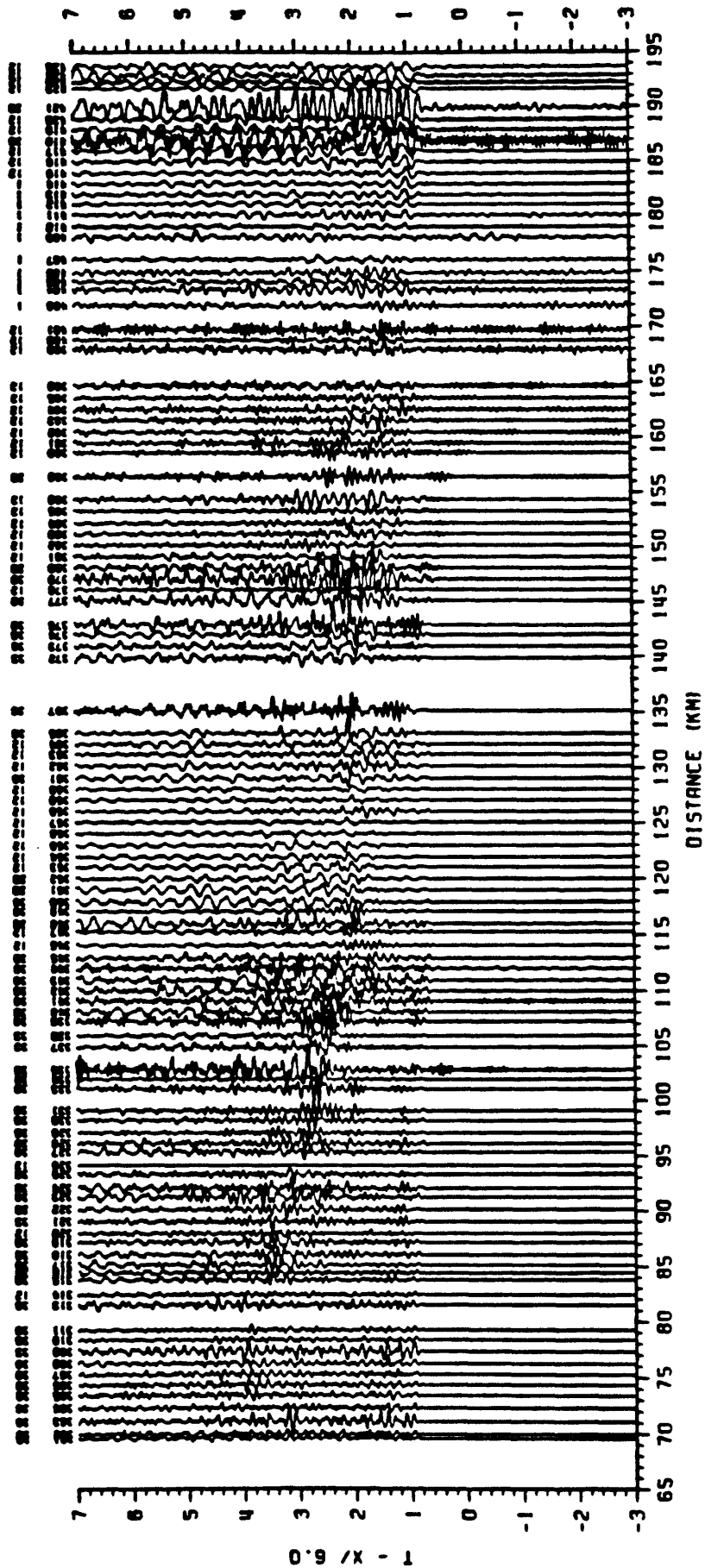


Figure 38: Fairbanks South, Shot 18, Shot Point 51, True-Amplitude

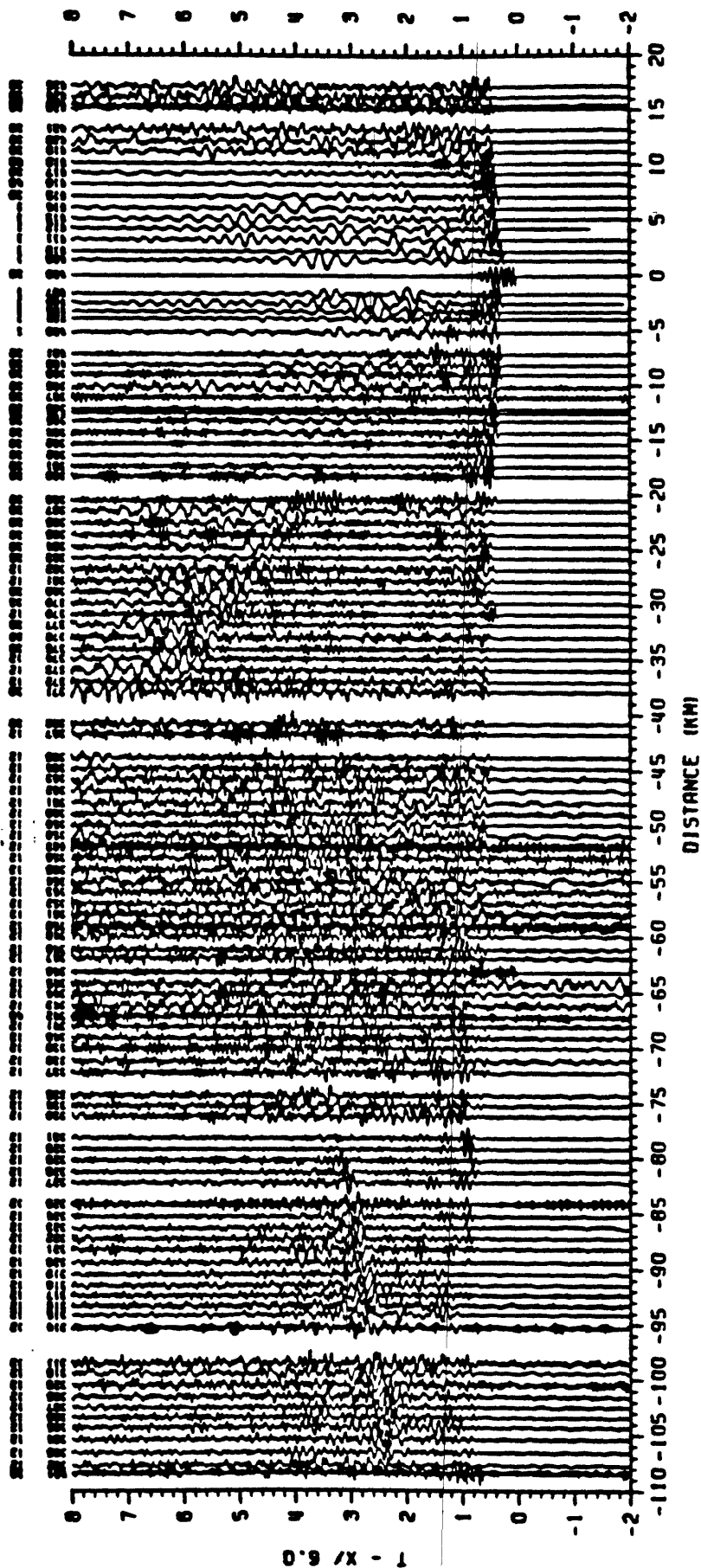


Figure 39: Fairbanks South, Shot 20, Shot Point 56, Normalized

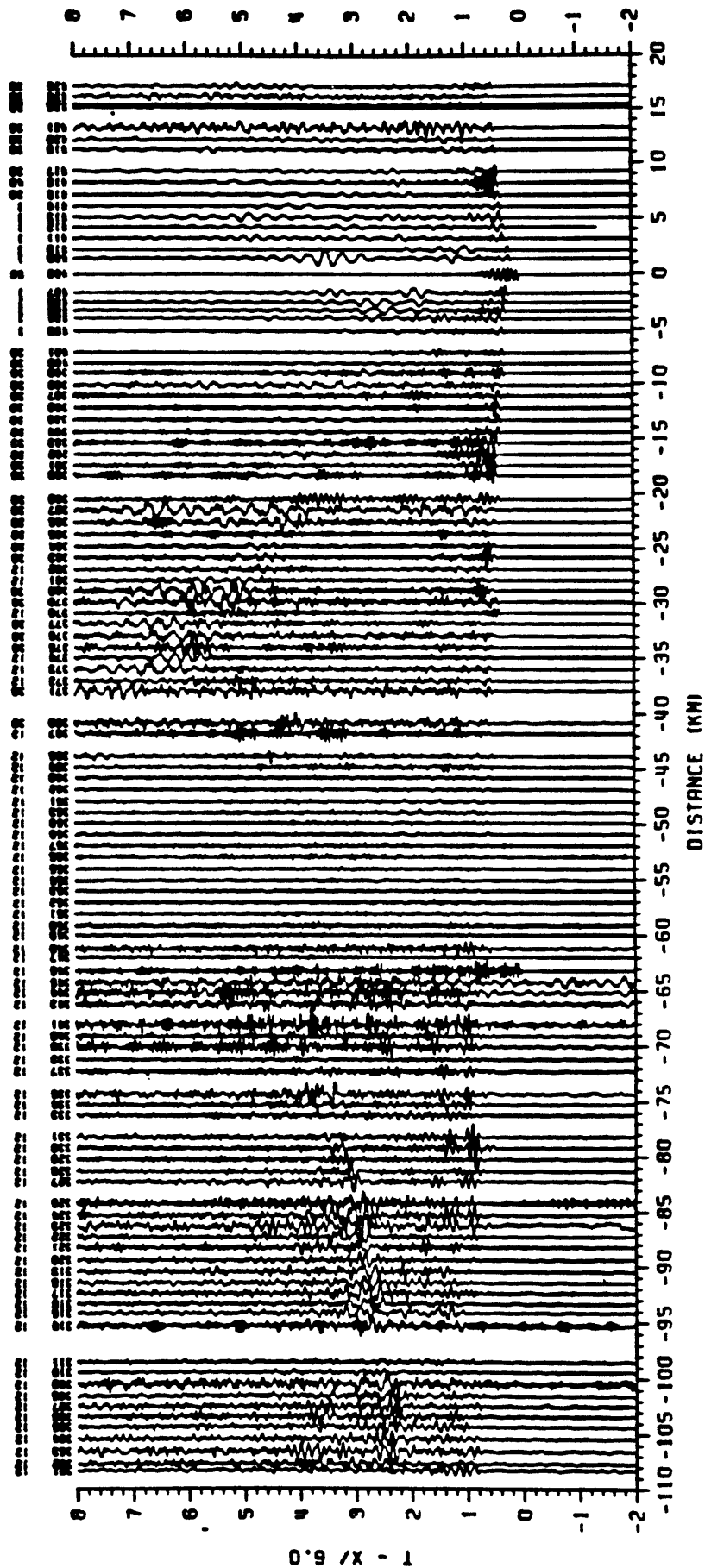


Figure 40: Fairbanks South, Shot 20, Shot Point 56, True-Amplitude

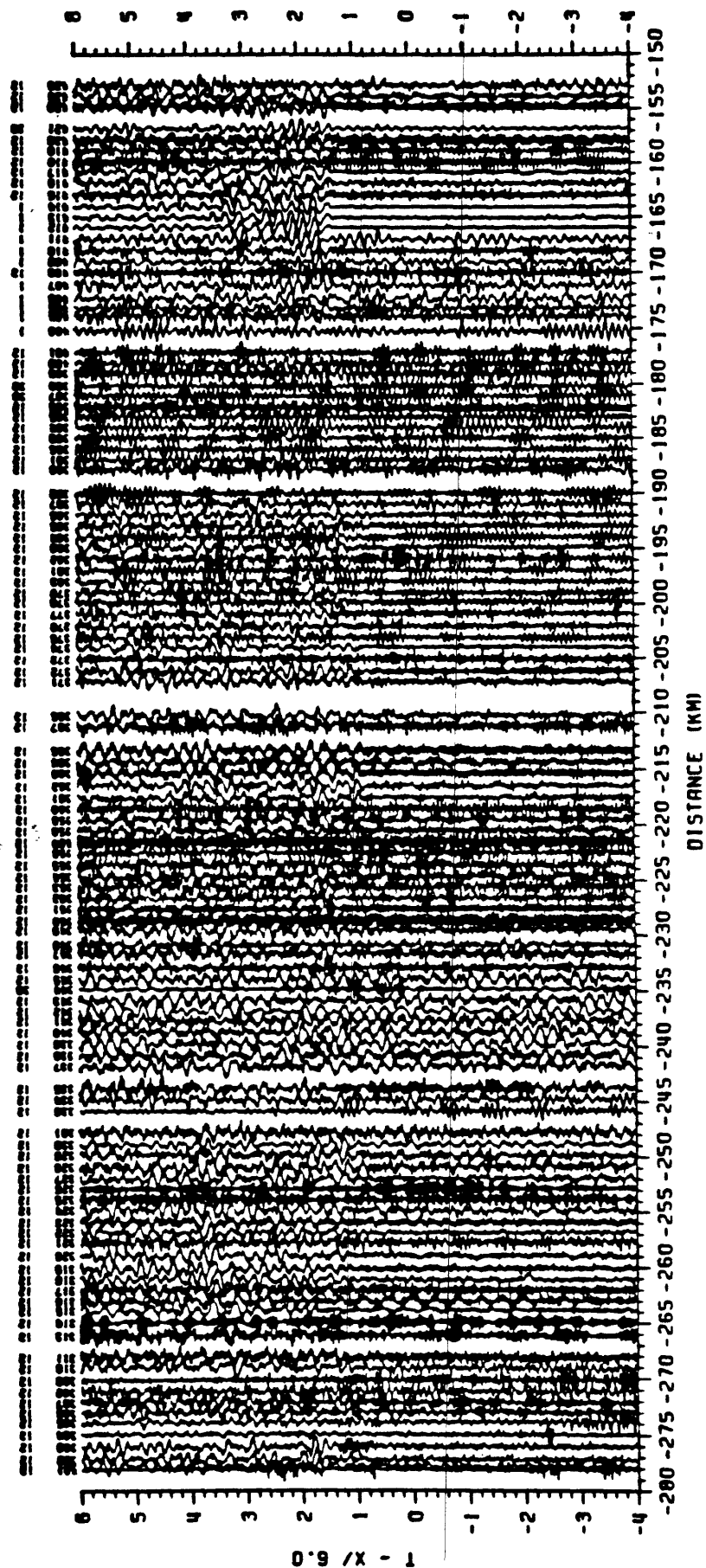


Figure 41: Fairbanks South, Shot 21, Shot Point 66, Normalized

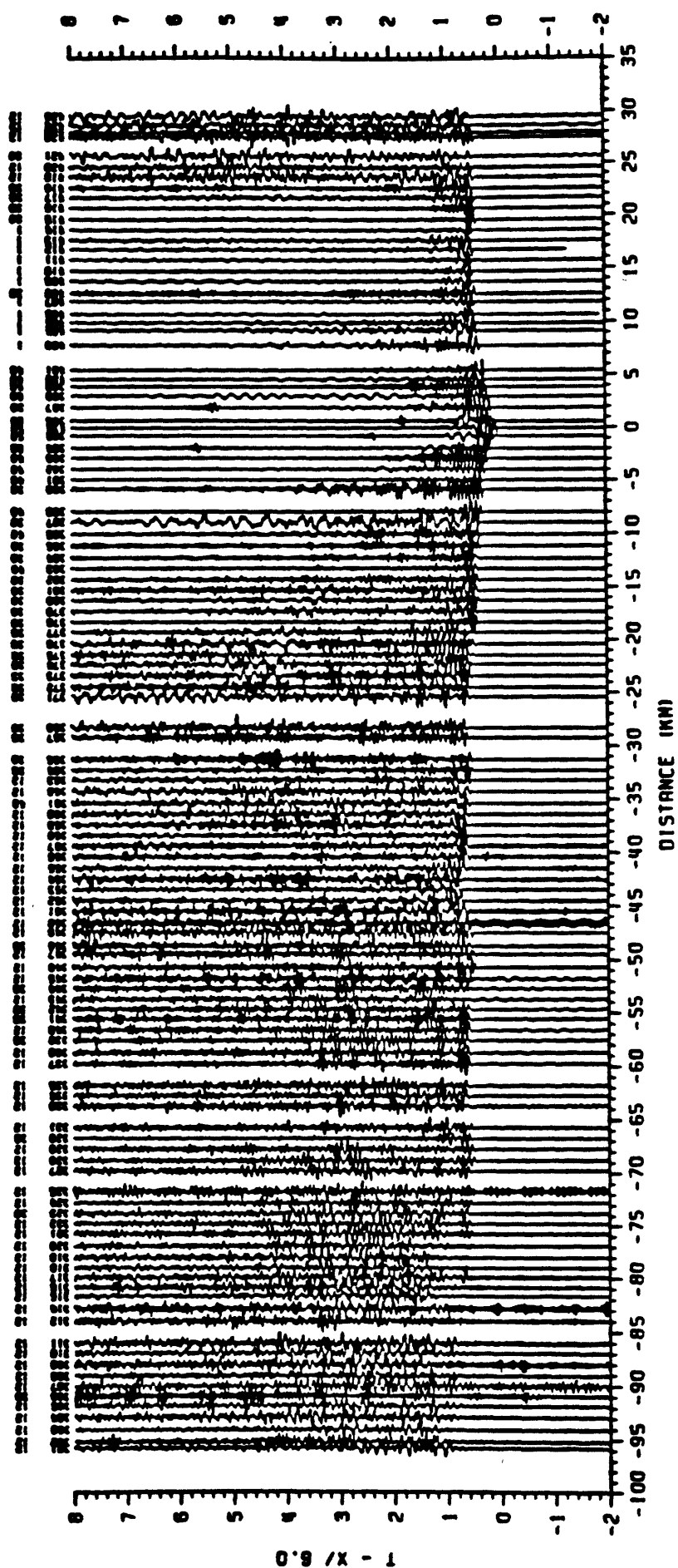


Figure 42: Fairbanks South, Shot 22, Shot Point 55, Normalized

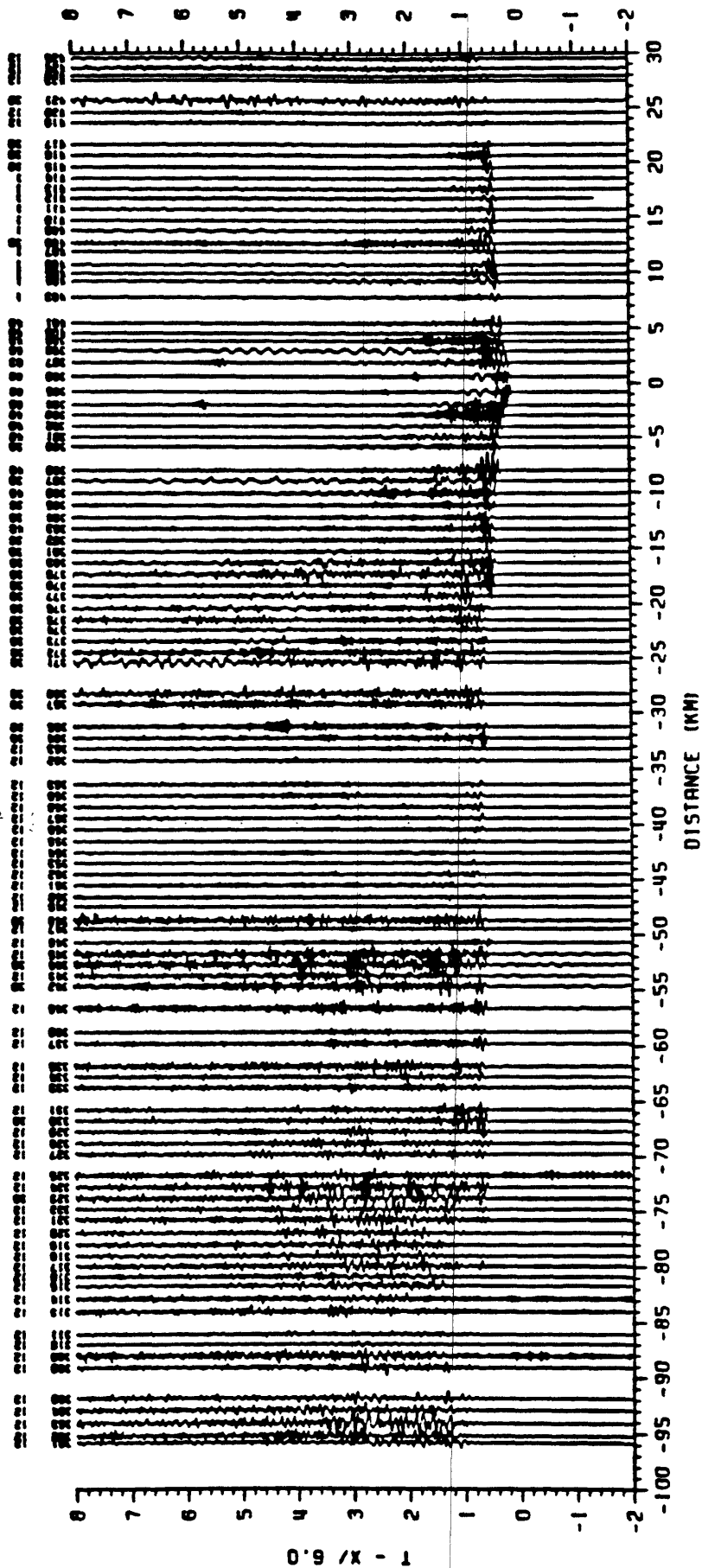


Figure 43: Fairbanks South, Shot 22, Shot Point 55, True-Amplitude

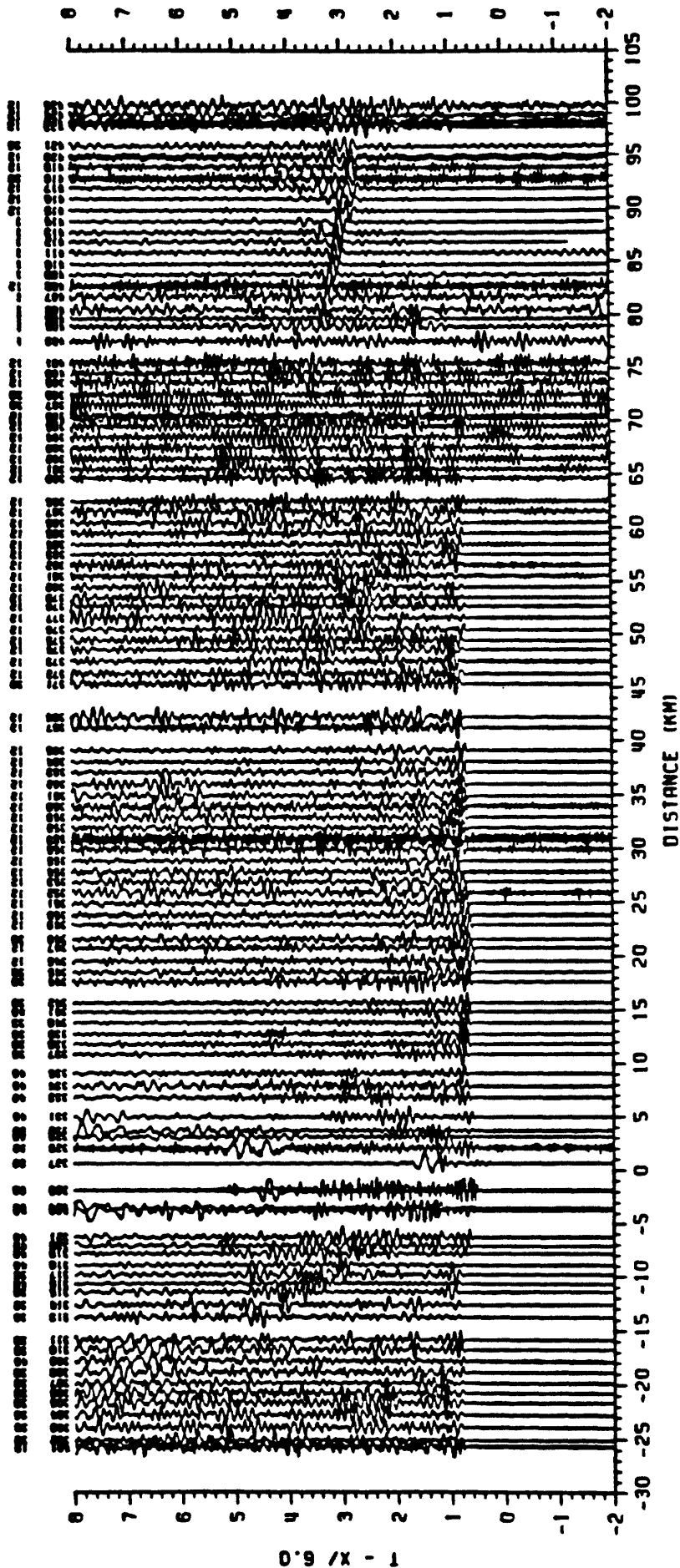


Figure 44: Fairbanks South, Shot 23, Shot Point 53, Normalized

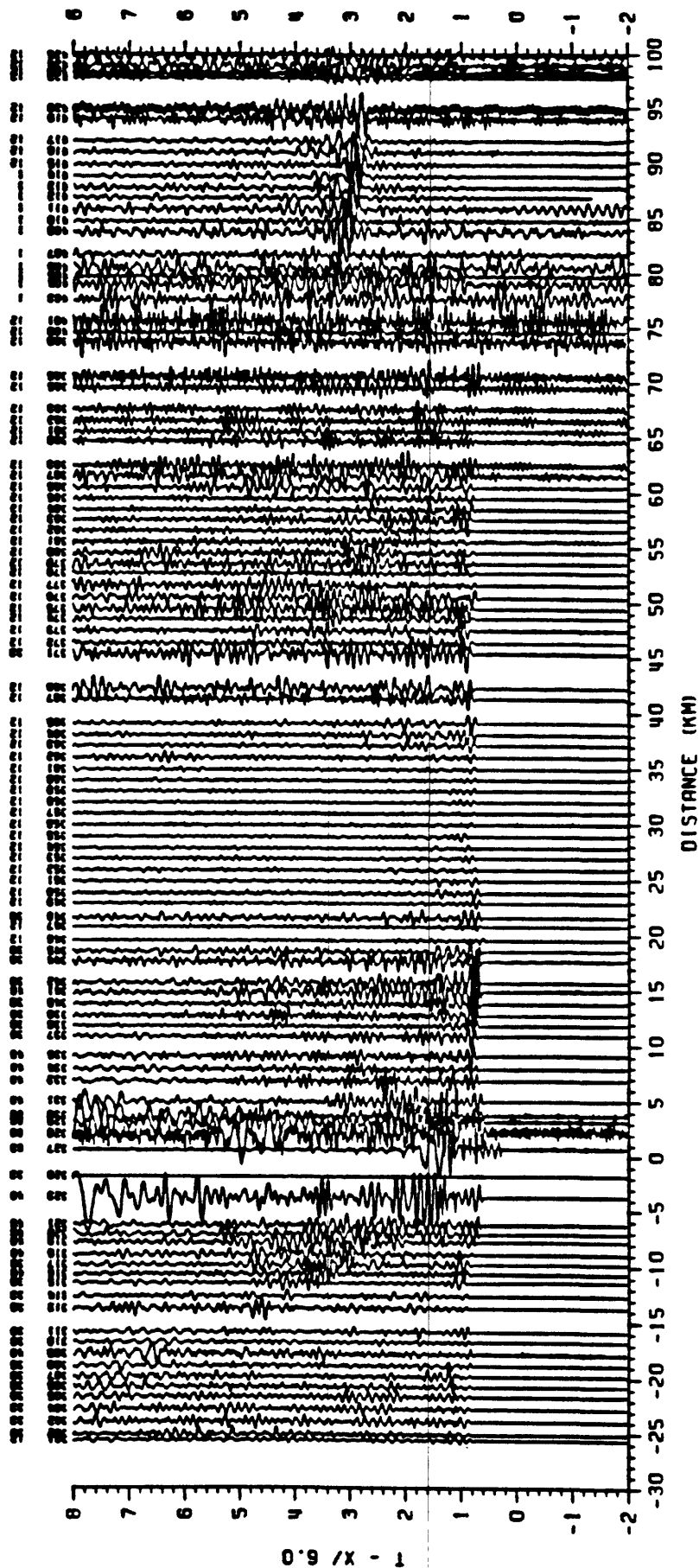


Figure 45: Fairbanks South, Shot 23, Shot Point 53, True-Amplitude

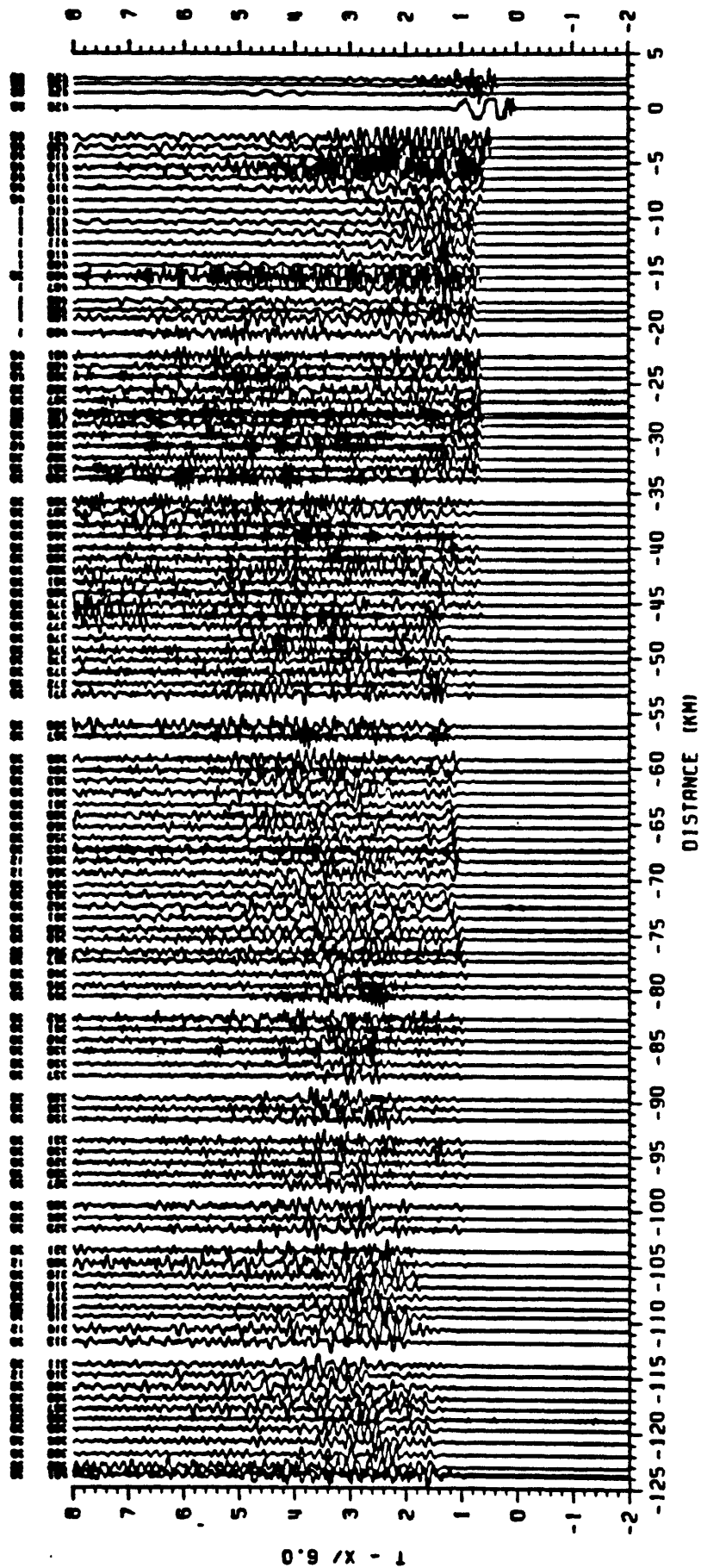


Figure 46: Fairbanks South, Shot 24, Shot Point 67, Normalized

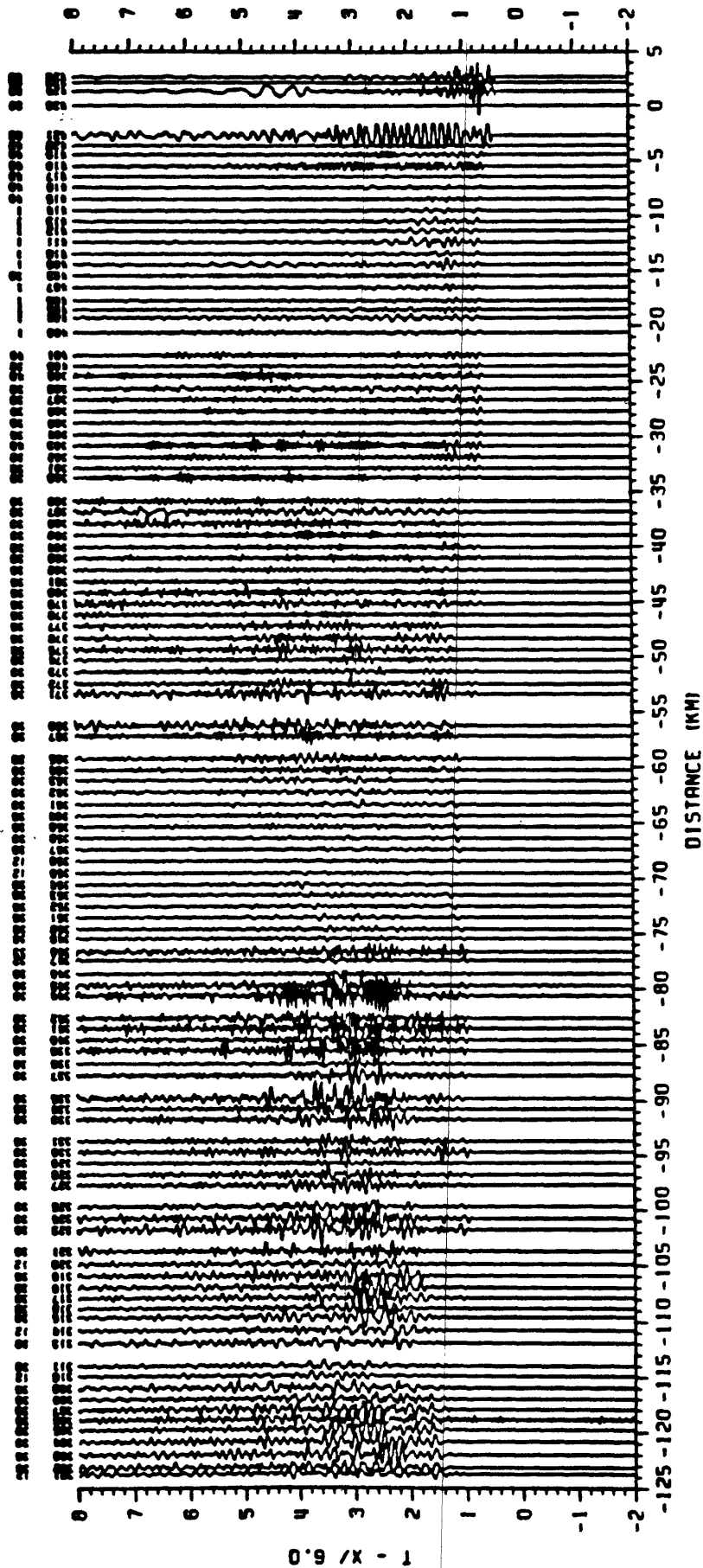


Figure 47: Fairbanks South, Shot 24, Shot Point 57, True-Amplitude

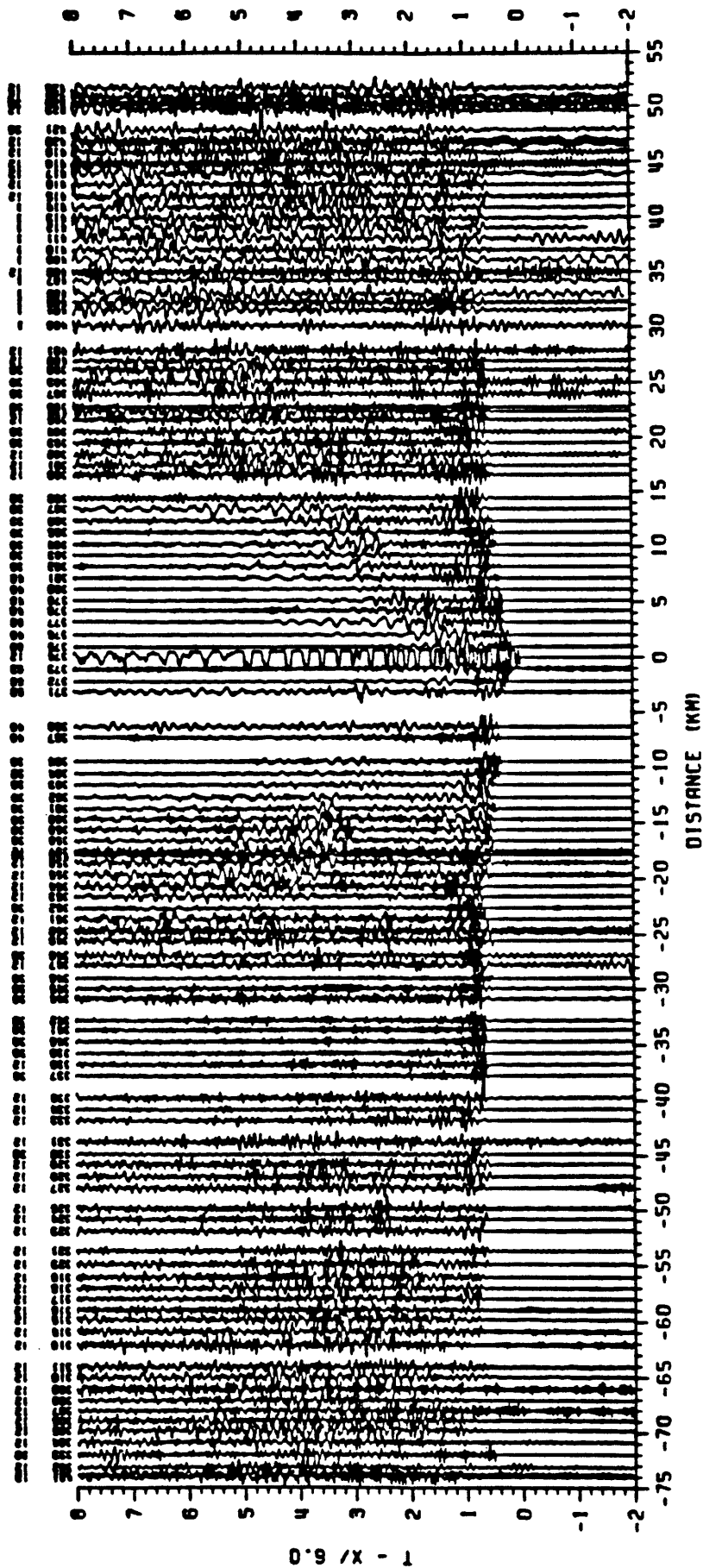


Figure 48: Fairbanks South, Shot 25, Shot Point 73, Normalized

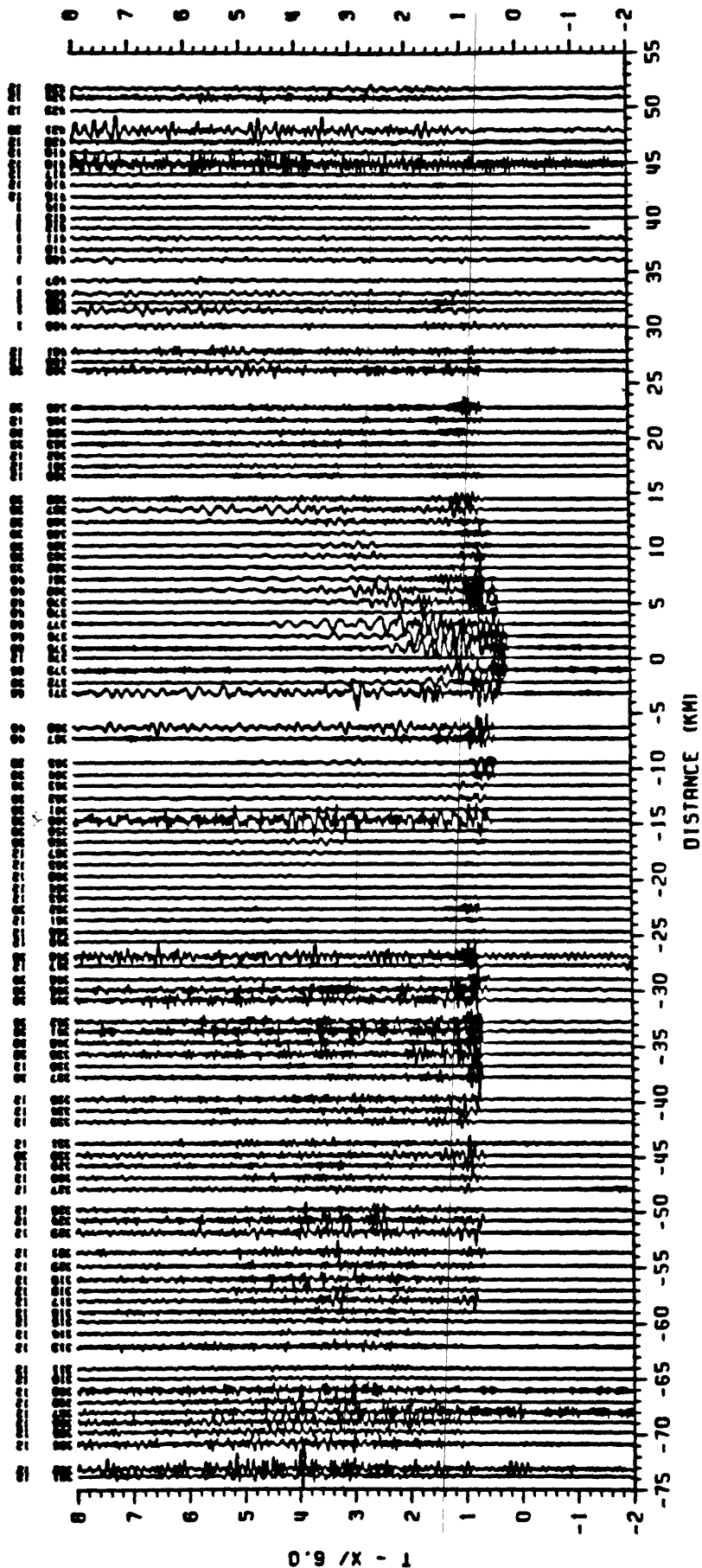


Figure 49: Fairbanks South, Shot 25, Shot Point 73, True-Amplitude

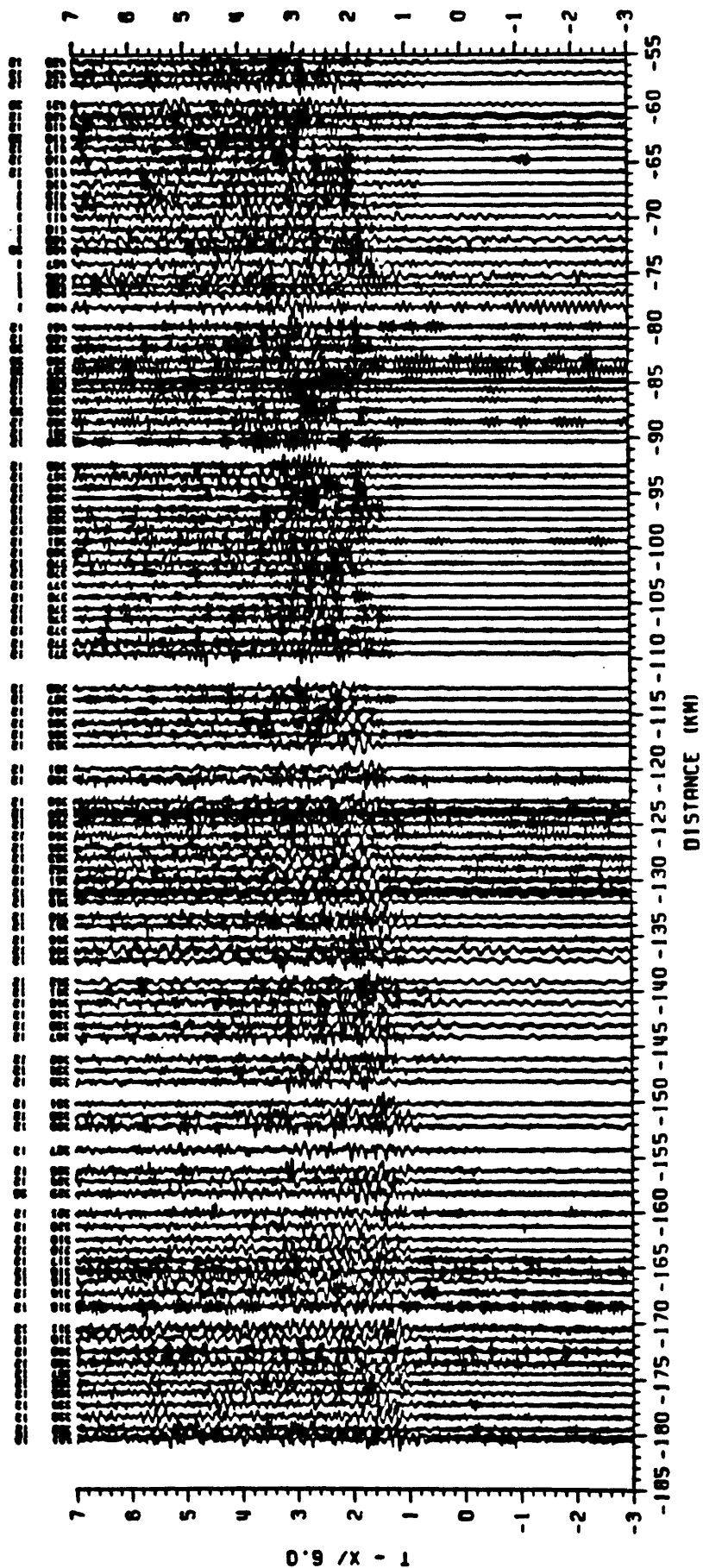


Figure 50: Fairbanks South, Shot 26, Shot Point 59, Normalized

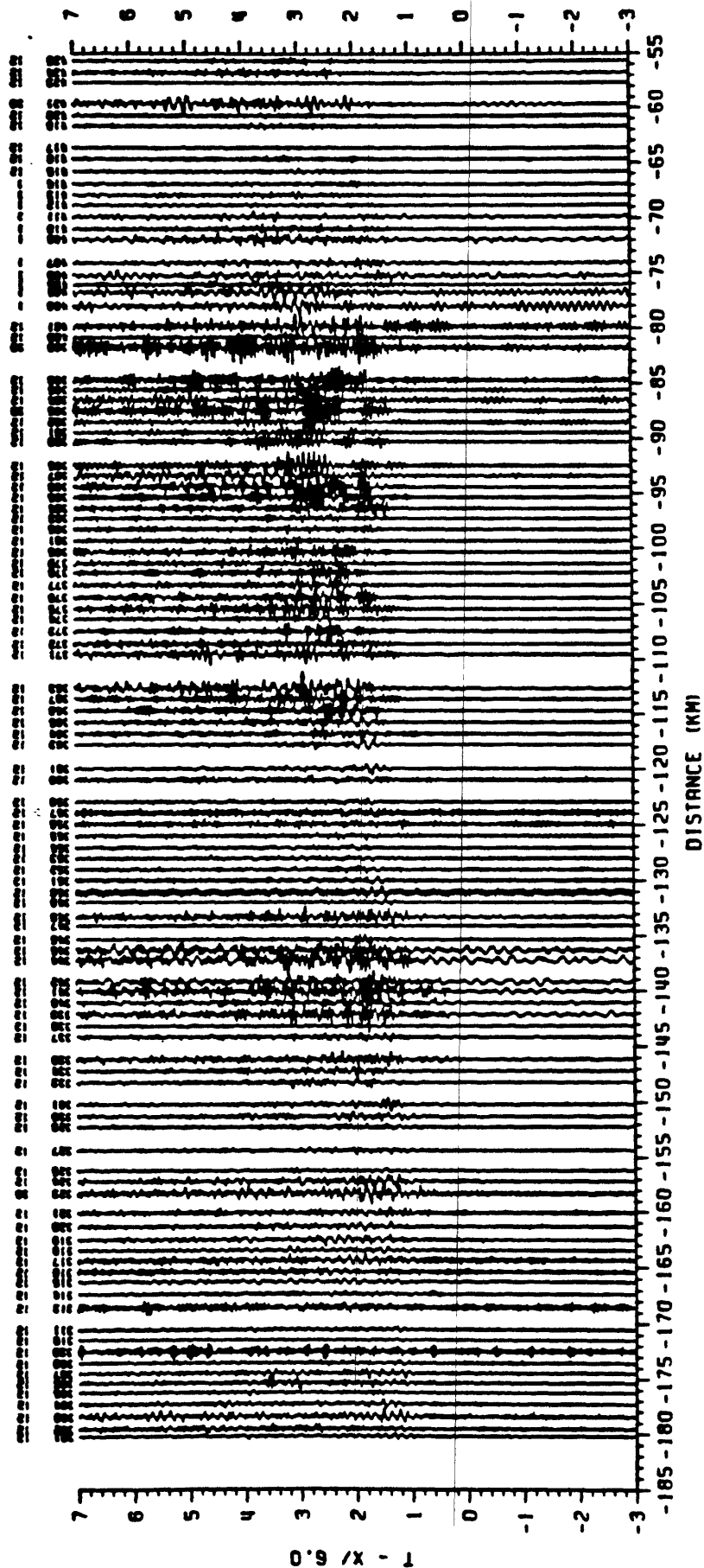


Figure 51: Fairbanks South, Shot 26, Shot Point 59, True-Amplitude

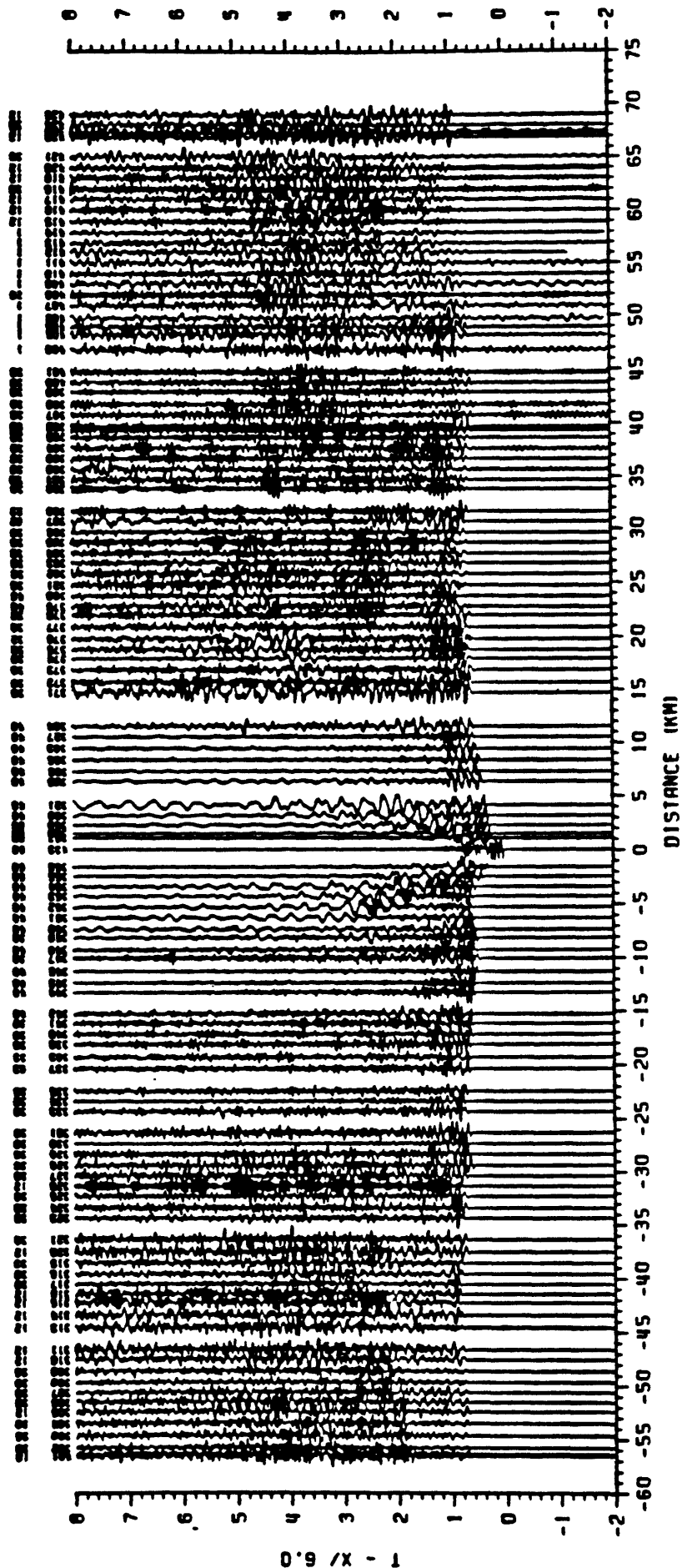


Figure 52: Fairbanks South, Shot 27, Shot Point 47, Normalized

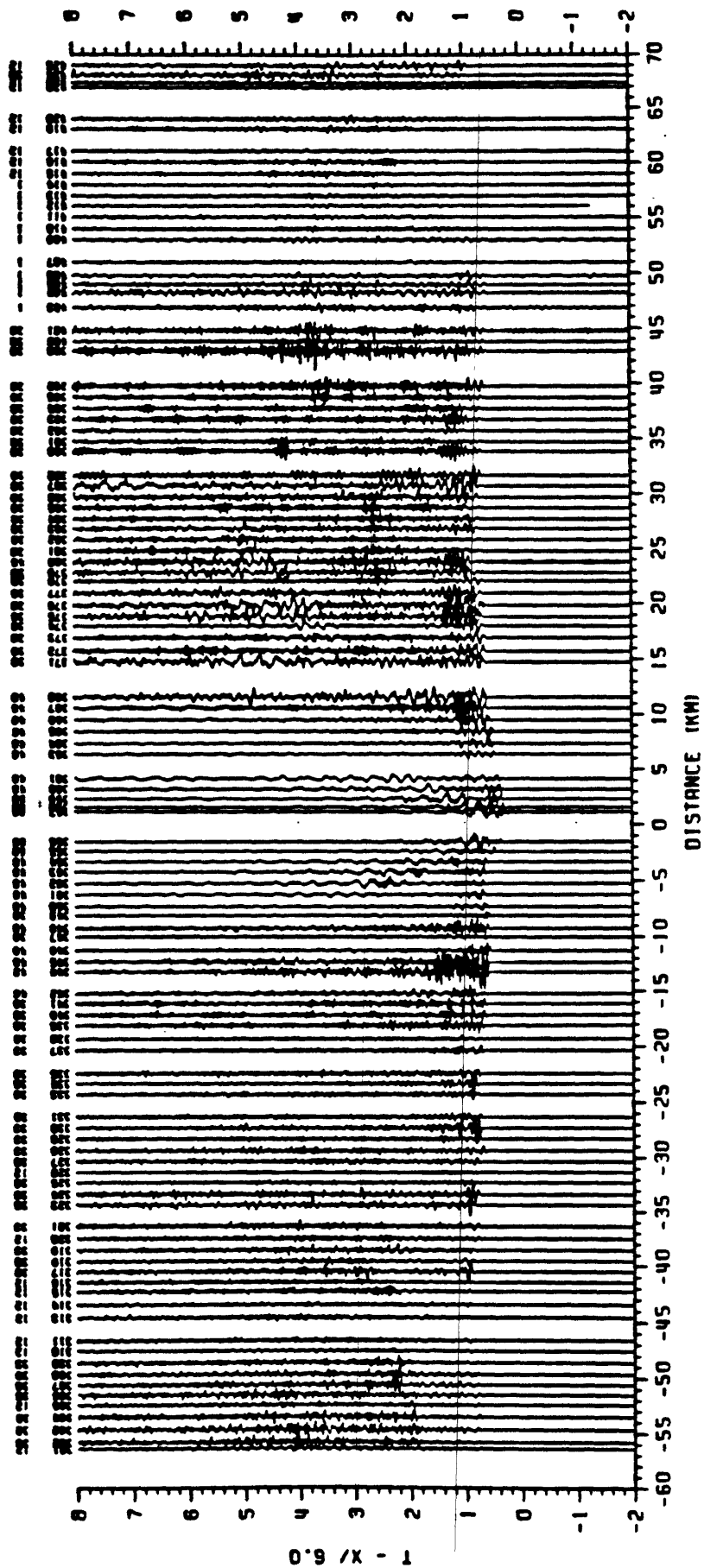


Figure 53: Fairbanks South, Shot 27, Shot Point 47, True-Amplitude

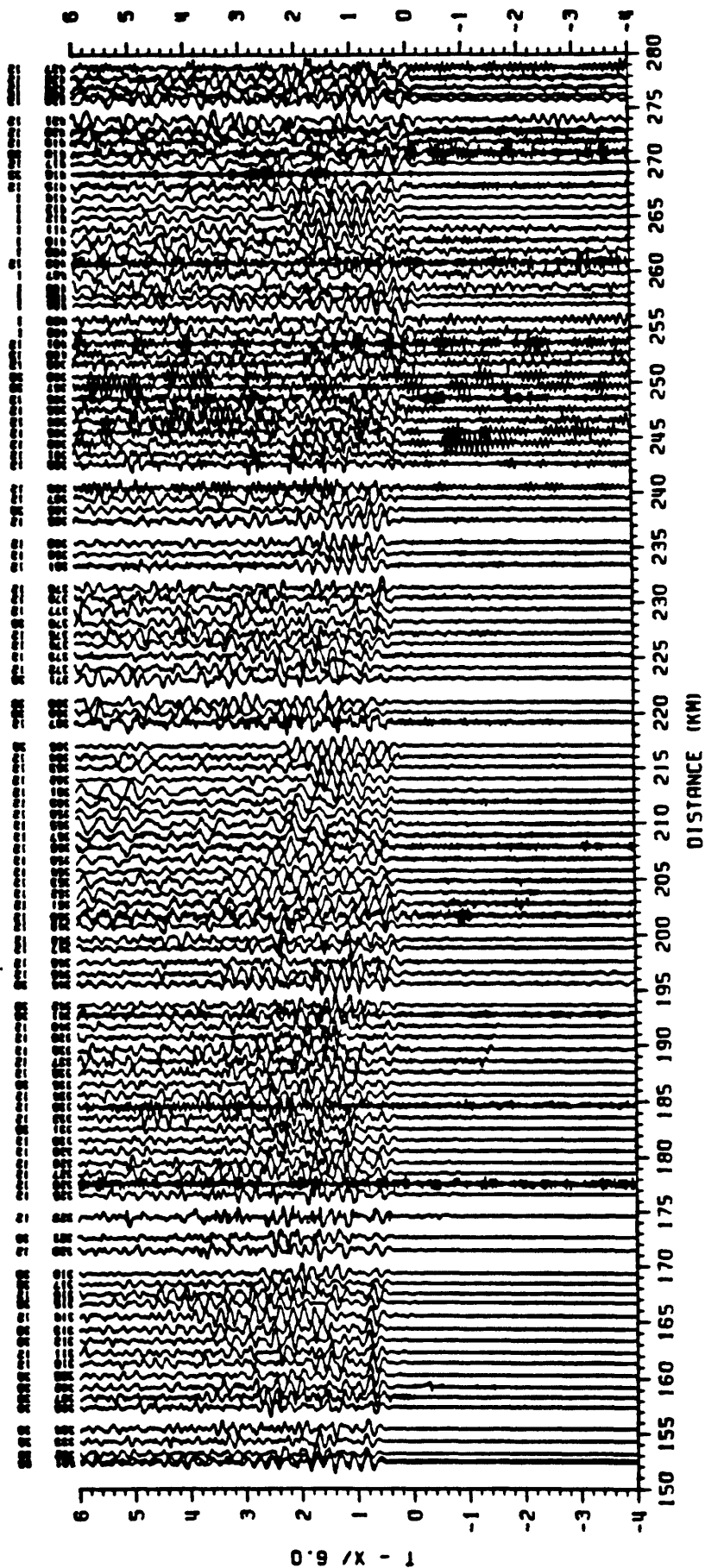


Figure 54: Fairbanks South, Shot 28, Shot Point 50, Normalized

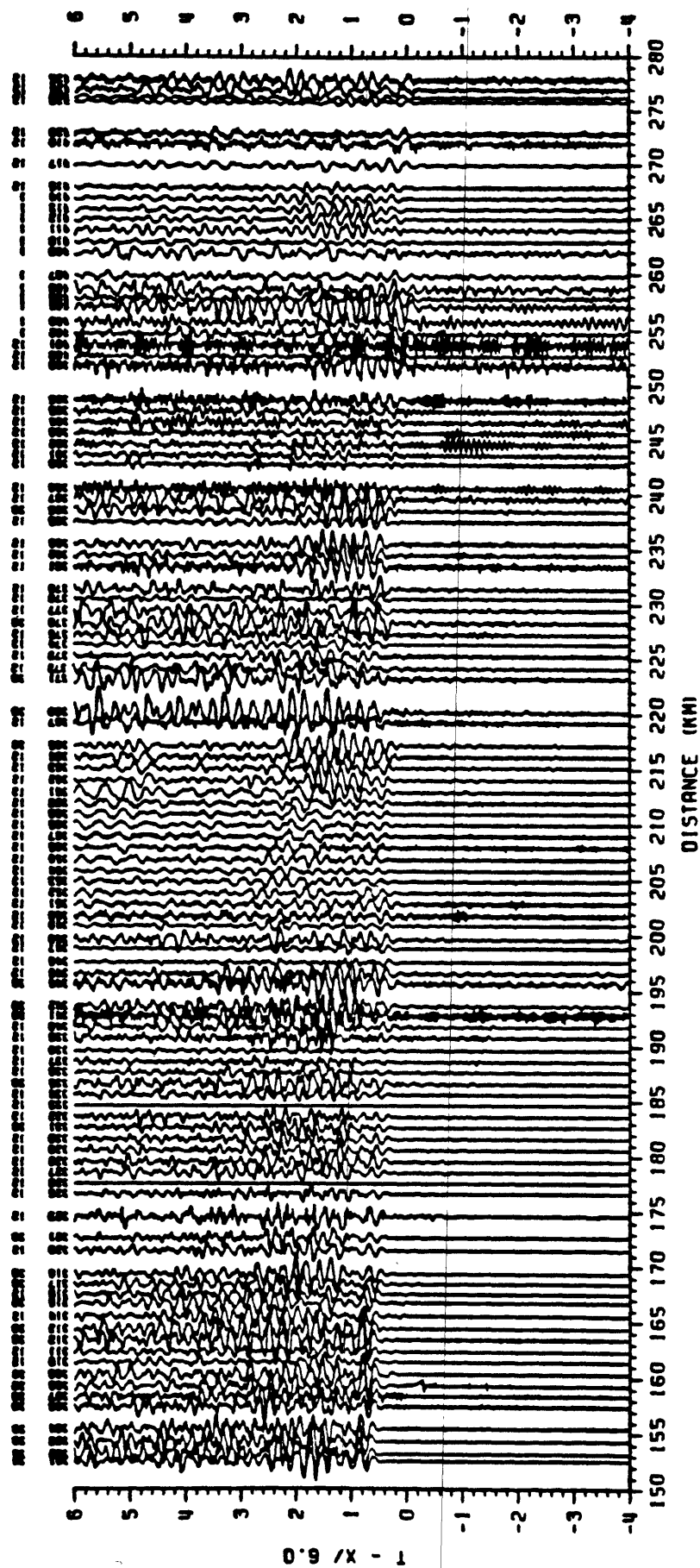


Figure 55: Fairbanks South, Shot 28, Shot Point 50, True-Amplitude

APPENDIX A

SHOTPOINT AND SEISMIC RECORDER LOCATIONS

U.S.G.S. Seismic Station Locations

SHOT POINT LOCATIONS

Location number	Latitude (deg,min)	Longitude (deg,min)	Elev (m)
1	63 20.782	145 42.128	822
2	63 9.866	145 31.997	981
3	62 54.649	145 29.753	795
6	62 29.512	145 28.068	594
8	61 56.019	145 17.538	304
19	61 1.825	145 15.682	152
41	63 2.279	145 30.824	804
42	63 14.590	145 38.517	1082
43	63 29.378	145 50.897	725
44	63 38.958	145 53.594	560
45	63 47.351	145 50.735	835
46	63 55.326	145 47.674	487
47	64 13.862	146 0.806	283
48	64 54.391	146 21.764	259
49	65 17.814	146 25.159	426
50	62 52.796	143 5.989	683
51	63 32.322	144 0.382	557
52	63 52.137	145 12.008	368
53	64 1.722	145 34.918	362
54	64 22.028	146 7.739	454
55	64 28.838	146 35.514	228
56	64 32.959	146 47.945	350
57	64 38.669	147 1.998	170
59	65 4.718	147 41.788	167
60	65 11.926	148 4.763	594
61	65 16.890	148 7.638	213
62	65 19.851	148 18.444	152
63	65 24.347	148 25.137	441
64	65 28.758	148 41.697	152
65	65 34.472	148 56.313	243
66	65 41.688	149 11.319	335

U.S.G.S. Seismic Station Locations

RECORDER LOCATIONS

Location number	Latitude (deg,min)	Longitude (deg,min)	Elev (m)
101	62 54.649	145 29.813	792
102	62 55.170	145 29.817	822
103	62 55.660	145 30.304	810
104	62 56.079	145 30.253	804
105	62 56.548	145 30.352	826
106	62 57.099	145 30.607	786
107	62 57.671	145 30.440	789
108	62 58.100	145 30.472	792
109	62 58.679	145 30.168	792
110	62 59.306	145 29.943	792
111	62 59.821	145 29.484	807
112	63 0.327	145 29.334	798
113	63 1.003	145 29.184	807
114	63 1.563	145 29.613	816
115	63 2.035	145 30.244	822
116	63 2.275	145 30.772	804
117	63 2.605	145 30.563	890
118	63 3.025	145 30.776	920
119	63 3.792	145 30.552	932
120	63 4.231	145 30.676	920
121	63 4.933	145 30.250	978
122	63 5.492	145 29.795	1005
123	63 6.036	145 29.251	987
124	63 6.526	145 29.426	981
125	63 7.153	145 29.393	1005
126	63 7.541	145 29.354	1002
127	63 7.990	145 30.121	1002
128	63 8.483	145 31.289	1021
129	63 8.959	145 32.103	1005
130	63 9.462	145 31.520	1005
131	63 9.838	145 32.005	981
132	63 10.527	145 31.908	984
133	63 10.906	145 32.287	993
134	63 11.438	145 33.492	996
135	63 11.737	145 34.511	999
136	63 12.168	145 35.641	944
137	63 12.714	145 36.880	1069
138	63 13.129	145 37.165	1097
139	63 13.660	145 37.595	941
140	63 14.172	145 37.619	1066
141	63 14.660	145 38.317	1060
142	63 15.080	145 39.275	1066
143	63 15.591	145 39.523	1091
144	63 16.061	145 40.257	868
145	63 16.701	145 40.278	883
146	63 17.033	145 41.735	1005
147	63 17.516	145 41.404	1005
148	63 17.974	145 41.867	975
149	63 18.681	145 41.436	886
150	63 19.010	145 41.757	1042

U.S.G.S. Seismic Station Locations

RECORDER LOCATIONS

Location number	Latitude (deg,min)	Longitude (deg,min)	Elev (m)
151	63 19.546	145 42.144	890
152	63 20.003	145 42.523	838
153	63 20.511	145 42.532	807
154	63 21.044	145 41.968	838
155	63 21.602	145 41.672	905
156	63 22.264	145 40.635	810
157	63 22.836	145 40.673	822
158	63 23.273	145 40.979	947
159	63 23.610	145 42.001	886
160	63 23.965	145 42.042	853
161	63 24.733	145 42.375	1018
162	63 25.221	145 42.833	1164
163	63 25.655	145 43.132	1289
164	63 26.177	145 44.433	1158
165	63 26.472	145 45.530	1011
166	63 26.939	145 46.133	1112
167	63 27.302	145 47.382	922
168	63 27.723	145 48.765	883
169	63 28.357	145 49.216	853
170	63 28.722	145 49.622	822
171	63 29.162	145 49.909	850
172	63 29.661	145 50.750	774
173	63 30.172	145 50.755	810
174	63 30.687	145 50.494	822
175	63 31.263	145 49.896	804
176	63 31.756	145 50.467	743
177	63 32.254	145 51.621	716
178	63 32.710	145 51.718	716
179	63 33.146	145 51.966	713
180	63 33.855	145 51.513	716
181	63 34.366	145 51.761	731
182	63 34.826	145 51.901	633
183	63 35.276	145 52.034	617
184	63 35.810	145 52.259	592
185	63 36.323	145 52.247	591
186	63 36.887	145 51.805	640
187	63 37.342	145 52.282	603
188	63 37.737	145 53.027	595
189	63 38.155	145 53.367	573
190	63 38.938	145 53.603	560
191	63 39.221	145 53.450	556
192	63 39.800	145 53.254	548
193	63 40.384	145 52.950	563
194	63 40.969	145 53.038	563
195	63 41.433	145 53.302	573
196	63 41.967	145 52.831	569
197	63 42.436	145 52.081	637
198	63 43.060	145 51.539	701
199	63 43.652	145 51.596	701
200	63 44.276	145 51.267	637

U.S.G.S. Seismic Station Locations

RECORDER LOCATIONS

Location number	Latitude (deg,min)	Longitude (deg,min)	Elev (m)
201	63 44.838	145 50.973	777
202	63 45.454	145 51.310	862
203	63 46.071	145 50.477	832
204	63 46.537	145 50.344	832
205	63 46.991	145 50.572	856
206	63 47.424	145 50.786	832
207	63 48.066	145 50.283	762
208	63 48.672	145 50.078	722
209	63 49.222	145 49.533	691
210	63 49.796	145 49.074	640
211	63 50.469	145 48.606	609
212	63 51.109	145 48.523	609
213	63 51.456	145 47.967	591
214	63 52.001	145 48.438	579
215	63 52.538	145 47.991	594
216	63 52.953	145 48.180	512
217	63 53.402	145 48.259	502
218	63 53.981	145 47.851	518
219	63 54.421	145 47.838	505
220	63 55.287	145 47.466	480
221	63 3.298	145 29.789	914
222	63 20.793	145 42.196	822
223	63 29.371	145 50.813	728
224	63 36.634	145 53.653	557
225	63 54.967	145 47.879	484
226	63 43.436	145 51.758	694
227	63 43.940	145 51.414	701
228	64 22.125	146 7.792	454
301	63 52.624	145 11.317	371
302	63 53.214	145 11.017	371
303	63 53.550	145 12.227	365
304	63 53.879	145 13.477	361
305	63 54.198	145 14.625	365
306	63 54.462	145 15.583	368
307	63 54.719	145 16.571	368
308	63 55.008	145 17.568	368
309	63 55.305	145 18.688	368
310	63 55.791	145 19.454	371
311	63 56.133	145 20.265	371
312	63 56.207	145 21.952	371
313	63 56.499	145 23.009	371
314	63 57.248	145 23.282	368
315	63 57.338	145 25.126	374
316	63 57.911	145 25.207	368
317	63 58.636	145 25.172	358
318	63 58.969	145 25.979	358
319	63 59.159	145 27.352	358
320	64 0.111	145 27.070	347
321	64 0.789	145 27.563	345
322	64 0.782	145 29.224	350

U.S.G.S. Seismic Station Locations

RECORDER LOCATIONS

Location number	Latitude (deg,min)		Longitude (deg,min)		Elev (m)
323	64	0.815	145	30.835	358
324	64	1.674	145	30.635	345
325	64	1.620	145	32.596	348
326	64	2.185	145	32.937	345
327	64	2.072	145	34.923	365
328	64	2.809	145	34.918	353
329	64	3.380	145	35.465	347
330	64	3.500	145	36.925	355
331	64	4.240	145	37.024	344
332	64	4.248	145	38.716	353
333	64	4.950	145	38.869	341
334	64	5.512	145	39.285	327
335	64	6.200	145	39.407	323
336	64	6.803	145	39.878	323
337	64	6.782	145	41.620	320
338	64	7.082	145	42.736	323
339	64	7.070	145	44.736	322
340	64	7.713	145	44.967	323
341	64	8.151	145	45.755	316
342	64	8.376	145	46.791	318
343	64	8.786	145	47.536	312
344	64	9.038	145	48.748	309
345	64	9.345	145	49.645	303
346	64	9.500	145	51.131	304
347	64	10.011	145	52.123	327
348	64	10.459	145	52.444	300
349	64	11.286	145	52.733	304
350	64	11.730	145	53.219	301
351	64	12.138	145	54.186	300
352	64	12.492	145	55.113	297
353	64	12.849	145	56.095	297
354	64	13.183	145	56.944	294
355	64	13.568	145	57.891	294
356	64	13.959	145	58.899	289
357	64	14.316	145	59.860	288
358	64	14.693	146	0.765	284
359	64	15.034	146	1.739	281
360	64	15.388	146	2.655	280
361	64	15.760	146	3.547	281
362	64	16.146	146	4.571	281
363	64	16.679	146	5.245	261
364	64	17.151	146	5.822	286
365	64	17.657	146	6.455	295
366	64	18.157	146	7.104	316
367	64	18.667	146	7.800	350
368	64	19.121	146	8.441	382
369	64	19.562	146	8.996	426
370	64	20.190	146	9.519	457
371	64	20.687	146	10.122	402
372	64	21.109	146	10.800	420

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U.S.G.S. Seismic Station Locations

RECORDER LOCATIONS

Location number	Latitude (deg,min)	Longitude (deg,min)	Elev (m)
373	64 21.650	146 11.521	443
374	64 22.084	146 12.411	579
375	64 22.401	146 13.260	484
376	64 22.736	146 14.329	417
377	64 23.133	146 15.393	373
378	64 23.675	146 16.002	350
379	64 23.777	146 17.348	373
380	64 24.107	146 18.374	434
381	64 24.524	146 19.186	411
382	64 24.912	146 20.140	350
383	64 25.235	146 21.202	368
384	64 25.475	146 22.317	350
385	64 25.728	146 23.590	365
386	64 25.923	146 24.893	359
387	64 26.179	146 26.163	384
388	64 26.498	146 27.105	310
389	64 26.924	146 27.941	277
390	64 27.307	146 29.073	256
391	64 27.574	146 29.984	249
392	64 27.860	146 31.058	246
393	64 28.162	146 32.190	237
394	64 28.498	146 33.167	243
395	64 28.665	146 34.573	233
396	64 28.720	146 36.225	227
397	64 28.812	146 37.653	220
398	64 28.979	146 39.167	216
399	64 29.451	146 40.101	243
400	64 29.903	146 40.621	350
401	64 30.363	146 41.293	373
402	64 30.483	146 42.787	298
403	64 30.647	146 44.228	275
404	64 30.998	146 45.616	266
405	64 31.271	146 46.480	251
406	64 31.602	146 47.169	234
407	64 32.025	146 48.304	244
408	64 32.930	146 48.047	352
409	64 33.054	146 49.588	274
410	64 33.461	146 50.305	271
411	64 33.937	146 51.165	260
412	64 34.404	146 51.898	230
413	64 34.800	146 52.552	221
414	64 35.239	146 53.317	202
415	64 35.773	146 53.919	193
416	64 36.291	146 54.679	191
417	64 36.726	146 55.471	185
418	64 37.079	146 56.262	190
419	64 37.531	146 57.104	198
420	64 37.947	146 57.805	188
421	64 38.395	146 58.682	184
422	64 38.828	146 59.277	175

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U.S.G.S. Seismic Station Locations

RECORDER LOCATIONS

Location number	Latitude (deg,min)	Longitude (deg,min)	Elev (m)
423	64 39.336	146 59.766	182
424	64 39.363	147 1.623	163
425	64 40.089	147 1.593	164
426	64 38.668	147 1.944	169
427	64 40.472	147 2.389	163
430	65 41.689	149 11.189	335
431	63 52.157	145 12.063	371
432	63 32.285	144 0.589	548
433	64 13.879	146 0.736	131
434	64 28.807	146 35.498	228
435	62 52.809	143 5.915	899
436	64 1.746	145 34.887	362
437	65 4.731	147 41.742	167

APPENDIX B

FIELD DATA TABLES

Field data tables include information related to the seismic recorders. Each table contains shot number, shotpoint number and shot time given in Julian day, hour, minutes and seconds. Column headings for the table are explained below:

Loc	-location number from the seismic recorder location (see Appendix A).
Dist	-distance in kilometers from the shotpoint to the recorder.
Azim	-azimuth from the shotpoint to the recorder (degrees clockwise from north).
Db	-attenuation down from a total gain of 84 decibels.
Tape Grade	-number code corresponding to the performance of each recorder.

Tape Grade Codes

0	=Good Tape
1	=No run
2	=Tape ran; no signal or digital counts are less than 100
3	=Bad time code
4	=Skipped record time or partial run
5	=Not deployed
6	=Clipped trace; digital counts greater than 1600
7	=High noise; trace deleted
8	=Timing error; trace must be shifted
9	=Partial record; less than 20 seconds digitized
10	=Low record level; data not retrievable
11	=Station location unavailable

ALASKA RANGE DEPLOYMENT
Shot Number 1 Shot Point 19
Shot Time (Julian day, hr, min, sec): 205:08:00:00.016

Loc	Dist (km)	Azim (deg)	Tape Db Grade		Loc	Dist (km)	Azim (deg)	Tape Db Grade		Loc	Dist (km)	Azim (deg)	Tape Db Grade	
6	163.23	356.3	30	0	142	248.36	355.4	12	0	184	287.77	354.0		3
49	479.10	353.5	12	0	143	249.31	355.4		3	185	288.72	354.0		3
101	209.92	356.7	12	0	144	250.25	355.3	30	0	186	289.71	354.1	12	0
102	210.89	356.7	12	0	145	251.44	355.3	12	0	187	290.60	354.0	12	0
103	211.82	356.6	12	0	146	252.16	355.0	12	0	188	291.39	353.9	12	0
104	212.60	356.7	12	0	147	253.03	355.1	12	0	189	292.20	353.9	12	0
105	213.47	356.7	12	0	148	253.91	355.1	12	0	190	293.67	353.9		3
106	214.51	356.6	12	0	149	255.19	355.2	12	0	191	294.17	353.9	12	0
107	215.56	356.7		3	151	256.84	355.1	12	0	192	295.22	354.0	12	0
108	216.36	356.7	12	0	152	257.72	355.0	12	0	193	296.27	354.0	12	0
109	217.42	356.8	12	0	153	258.66	355.0	12	0	194	297.36	354.1	12	0
111	219.50	357.0	12	0	154	259.60	355.1	30	0	195	298.25	354.0	30	0
112	220.43	357.0	12	0	155	260.61	355.2	12	0	196	299.19	354.1	12	0
113	221.68	357.1		3	156	261.79	355.4	12	0	197	299.96	354.3	12	0
114	222.77	357.0	12	0	157	262.82	355.5		1	198	301.12	354.4	12	0
116	224.11	356.7	12	0	158	263.65	355.4	12	0	199	302.19	354.4		1
117	224.72	356.8	12	0	159	264.35	355.2	12	0	200	303.31	354.5		1
118	225.50	356.8	12	0	160	265.01	355.2	12	0	201	304.32	354.5	12	0
119	226.91	356.8	12	0	161	266.45	355.2	12	0	202	305.49	354.5	12	0
120	227.74	356.8	12	0	162	267.39	355.2	12	0	203	306.56	354.6	12	0
121	229.02	356.9	12	0	163	268.22	355.1	12	0	204	307.41	354.7	12	0
122	230.03	357.0	12	0	164	269.29	354.9	12	2	205	308.27	354.7	12	0
123	231.02	357.2	12	0	165	269.92	354.7	12	0	206	309.08	354.6	12	2
124	231.93	357.1	12	0	166	270.83	354.6		4	207	310.23	354.7	12	0
125	233.09	357.2	12	0	167	271.61	354.4	12	0	208	311.33	354.8	12	0
126	233.81	357.2	12	0	168	272.51	354.2	12	0	209	312.31	354.9	12	0
127	234.68	357.0	12	0	169	273.72	354.2		1	211	314.54	355.1	12	0
128	235.65	356.8	12	0	171	275.27	354.1		1	212	315.72	355.1	12	0
129	236.58	356.7	12	0	172	276.31	353.9	12	0	213	316.32	355.2	12	0
131	236.20	356.7	12	0	173	277.22	354.0	12	0	214	317.36	355.1		3
132	239.47	356.7		4	174	278.14	354.0	12	0	215	318.32	355.2		3
133	240.20	356.7	12	0	175	279.15	354.2	12	0	216	319.10	355.2	12	0
134	241.25	356.4	12	0	176	280.11	354.1	12	0	217	319.94	355.2	12	0
135	241.86	356.3	12	0	177	281.14	353.9	12	0	218	320.96	355.3	12	0
136	242.73	356.0		3	178	281.99	353.9	12	0	219	321.79	355.3	12	0
137	243.82	355.8	12	0	179	282.82	353.9	12	0	220	323.37	355.4	12	0
138	244.61	355.8	12	2	180	284.09	354.0	12	0	221	225.96	357.0	12	0
139	245.62	355.7	12	0	181	285.05	354.0	12	0	222	259.15	355.1	86	0
140	246.57	355.7		4	182	285.92	354.0	12	0	223	275.75	353.9	12	0
141	247.52	355.6	12	0	183	286.76	354.0	12	0					

ALASKA RANGE DEPLOYMENT
Shot Number 2 Shot Point 44
Shot Time (Julian day, hr, min, sec): 205:08:02:00.012

Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade
6	130.79	170.3	12 0	142	45.93	164.9	30 0	184	5.95	169.3	3
49	185.41	352.4	12 0	143	44.98	164.8	3	185	5.01	167.2	3
101	84.69	166.2	12 0	144	43.96	165.3	30 0	186	4.12	159.0	68 0
102	83.74	166.1	12 0	145	42.80	164.9	12 0	187	3.19	160.1	68 0
103	82.76	166.2	12 0	146	41.91	166.3	12 0	188	2.32	168.3	68 6
104	82.02	166.1	12 0	147	41.10	165.6	12 0	189	1.50	172.8	68 6
105	81.15	166.0	12 0	148	40.18	165.9	12 0	190	0.04	198.1	3
106	80.10	166.0	12 0	149	39.00	164.9	30 0	191	0.50	13.7	88 0
107	79.11	165.7	3	151	37.30	165.1	30 0	192	1.59	10.2	68 0
108	78.33	165.5	12 0	152	36.40	165.3	30 0	193	2.70	11.4	68 0
109	77.35	165.2	12 0	153	35.48	164.9	30 0	194	3.76	7.0	68 0
111	75.45	164.3	12 0	154	34.65	163.8	30 0	195	4.61	3.0	48 6
112	74.57	164.1	12 0	155	33.73	162.9	30 0	196	5.62	5.9	48 6
113	73.40	163.7	3	156	32.79	160.8	30 0	197	6.58	10.9	48 0
114	72.26	163.7	12 0	157	31.81	160.2	12 0	198	7.84	12.5	48 0
116	70.76	164.2	12 0	158	30.96	160.2	30 0	199	8.87	10.7	1
117	70.22	163.9	12 0	159	30.09	161.3	30 0	200	10.06	11.0	1
118	69.42	163.9	12 0	160	29.46	160.9	30 0	201	11.14	11.2	30 6
119	68.10	163.4	12 0	161	28.02	160.5	30 0	202	12.21	8.9	30 6
120	67.29	163.3	12 0	162	27.04	160.6	30 0	203	13.46	11.0	30 6
121	66.14	162.7	12 0	163	26.19	160.6	30 0	204	14.33	10.7	30 6
122	65.26	162.1	12 0	164	24.93	162.2	12 2	205	15.13	9.5	30 0
123	64.44	161.5	30 0	165	24.14	163.9	48 0	206	15.90	8.3	30 0
124	63.53	161.3	30 0	166	23.17	164.5	4	207	17.14	9.1	30 0
125	62.44	161.0	30 0	167	22.26	166.6	30 0	208	18.28	9.1	30 0
126	61.76	160.7	30 0	168	21.25	169.1	30 0	209	19.36	9.9	30 0
127	60.77	161.1	12 0	169	20.03	169.5	1	211	21.78	10.8	48 0
128	59.59	161.7	30 0	171	18.45	170.5	1	212	22.96	10.4	30 0
129	58.54	162.0	30 0	172	17.40	172.2	30 6	213	23.68	11.2	30 0
131	57.01	161.5	30 0	173	16.49	171.8	30 0	214	24.60	9.9	3
132	55.82	161.0	4	174	15.58	170.5	30 6	215	25.65	10.3	3
133	55.05	161.0	30 0	175	14.62	167.9	30 6	216	26.38	9.7	30 0
134	53.80	161.7	30 0	176	13.63	169.0	48 6	217	27.19	9.2	30 0
135	53.01	162.4	30 0	177	12.56	172.5	48 6	218	28.31	9.6	30 0
136	51.97	163.2	3	178	11.71	172.4	48 0	219	29.11	9.3	30 0
137	50.70	164.0	30 0	179	10.88	172.9	48 0	220	30.75	9.4	30 0
138	49.89	164.0	12 0	180	9.64	169.7	48 0	221	69.16	163.1	12 0
139	48.85	164.1	30 0	181	8.67	169.9	48 0	222	35.05	164.3	30 0
140	47.93	163.8	4	182	7.80	169.7	48 0	223	17.96	172.6	30 6
141	46.90	164.2	30 0	183	6.96	169.3	48 6				

ALASKA RANGE DEPLOYMENT
Shot Number 3 Shot Point 49
Shot Time (Julian day, hr, min, sec): 205:08:04:00.007

Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade
6	316.15	171.1	12 0	142	231.03	170.4	12 0	184	191.36	171.8	3
49	0.00	0.0	88 6	143	230.08	170.4	3	185	190.40	171.8	3
101	269.77	170.0	12 0	144	229.10	170.6	30 0	186	189.43	171.6	30 0
102	268.81	170.0	12 0	145	227.92	170.5	12 0	187	188.54	171.7	12 0
103	267.84	170.0	12 0	146	227.13	170.8	12 0	188	187.73	171.9	30 0
104	267.08	170.0	12 0	147	226.29	170.7	12 0	189	186.92	171.9	12 0
105	266.21	170.0	12 0	148	225.38	170.8	12 0	190	185.45	171.9	3
106	265.16	170.0	30 0	149	224.14	170.6	12 0	191	184.95	171.9	12 0
107	264.14	169.9	3	151	222.46	170.7	12 0	192	183.90	171.8	12 0
108	263.35	169.9	12 0	152	221.58	170.8	12 0	193	182.86	171.6	12 0
109	262.33	169.8	12 0	153	220.64	170.7	12 0	194	181.78	171.6	12 0
111	260.33	169.6	12 0	154	219.73	170.6	12 0	195	180.88	171.6	12 0
112	259.42	169.5	12 0	155	218.75	170.5	12 0	196	179.95	171.5	12 0
113	258.21	169.5	3	156	217.63	170.2	12 0	197	179.19	171.2	12 0
114	257.09	169.5	12 0	157	216.61	170.1	1	198	178.07	171.1	12 0
116	255.65	169.7	12 0	158	215.77	170.2	12 0	199	177.01	171.0	1
117	255.08	169.6	12 0	159	215.02	170.4	12 0	200	175.90	170.9	1
118	254.28	169.6	12 0	160	214.36	170.4	12 0	201	174.91	170.7	12 0
119	252.91	169.5	12 0	161	212.91	170.4	12 0	202	173.74	170.8	12 0
120	252.08	169.5	12 0	162	211.95	170.4	12 0	203	172.71	170.5	12 0
121	250.86	169.4	12 0	163	211.12	170.5	12 0	204	171.87	170.4	12 0
122	249.90	169.2	12 0	164	210.00	170.7	12 2	205	171.01	170.4	12 0
123	248.99	169.1	12 0	165	209.32	170.9	12 2	206	170.19	170.4	12 0
124	248.07	169.1	12 0	166	208.39	171.0	4	207	169.07	170.2	12 0
125	246.92	169.0	30 0	167	207.57	171.3	12 0	208	167.99	170.1	12 0
126	246.22	169.0	30 0	168	206.64	171.6	12 0	209	167.05	169.9	12 0
127	245.29	169.1	12 0	169	205.42	171.6	1	211	164.90	169.5	12 0
128	244.21	169.3	12 0	171	203.86	171.7	1	212	163.74	169.4	12 0
129	243.22	169.4	12 0	172	202.81	171.9	12 0	213	163.18	169.2	12 0
131	241.63	169.4	12 0	173	201.90	171.9	12 0	214	162.12	169.3	3
132	240.38	169.3	4	174	200.99	171.8	12 0	215	161.21	169.1	3
133	239.63	169.3	12 0	175	199.99	171.6	12 0	216	160.42	169.1	12 0
134	238.49	169.5	12 0	176	199.02	171.7	12 0	217	159.59	169.1	12 0
135	237.80	169.7	12 0	177	197.98	171.9	12 0	218	158.59	168.9	30 0
136	236.85	169.9	3	178	197.13	171.9	12 0	219	157.79	168.8	12 0
137	235.68	170.1	12 0	179	196.30	171.9	12 0	220	156.26	168.6	12 0
138	234.88	170.1	12 2	180	195.04	171.8	12 0	221	253.92	169.4	12 0
139	233.85	170.2	12 0	181	194.07	171.8	12 0	222	220.17	170.6	12 0
140	232.91	170.2	4	182	193.21	171.8	12 0	223	203.37	171.9	12 0
141	231.92	170.3	12 0	183	192.37	171.8	12 0				

ALASKA RANGE DEPLOYMENT
Shot Number 4 Shot Point 3
Shot Time (Julian day, hr, min, sec): 205:08:06:00.010

Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade
6	46.72	178.2	30 0	142	38.79	348.1	30 0	184	78.75	346.3	3
49	269.77	350.8	12 0	143	39.75	348.1	3	185	79.69	346.5	3
101	0.05	268.3	88 6	144	40.75	347.5	30 0	186	80.61	346.9	30 0
102	0.97	356.8	88 0	145	41.91	347.9	30 0	187	81.52	346.8	30 0
103	1.94	346.1	68 0	146	42.79	346.5	30 0	188	82.38	346.5	30 0
104	2.69	350.9	68 6	147	43.60	347.1	30 0	189	83.20	346.4	30 0
105	3.57	351.8	68 0	148	44.51	346.9	30 0	190	84.66	346.5	3
106	4.61	351.0	68 0	149	45.71	347.7	30 0	191	85.14	346.7	12 0
107	5.64	354.1	3	151	47.41	347.4	30 0	192	86.15	347.0	12 0
108	6.44	354.6	48 0	152	48.31	347.2	30 0	193	87.15	347.3	12 0
109	7.50	357.3	48 0	153	49.23	347.5	30 0	194	88.23	347.4	12 0
111	9.61	1.4	48 0	154	50.10	348.2	30 0	195	89.12	347.4	12 0
112	10.55	1.9	68 0	155	51.06	348.8	30 0	196	90.01	347.8	12 0
113	11.81	2.3	3	156	52.15	350.0	30 0	197	90.72	348.3	30 0
114	12.88	0.5	30 6	157	53.16	350.1	1	198	91.80	348.7	30 0
116	14.19	356.5	30 6	158	54.01	350.0	30 0	199	92.85	348.8	1
117	14.80	357.4	30 6	159	54.78	349.3	30 0	200	93.93	349.1	1
118	15.58	356.8	68 0	160	55.43	349.4	30 0	201	94.91	349.4	30 0
119	17.00	357.7	68 0	161	56.88	349.4	30 0	202	96.08	349.4	12 0
120	17.82	357.5	68 0	162	57.85	349.2	30 0	203	97.08	349.9	30 0
121	19.11	358.7	48 0	163	58.69	349.1	12 0	204	97.92	350.0	30 0
122	20.14	359.9	48 0	164	59.85	348.2	12 2	205	98.78	350.0	12 0
123	21.16	1.1	48 0	165	60.58	347.5	30 0	206	99.60	350.0	12 0
124	22.06	0.7	48 0	166	61.54	347.2	4	207	100.70	350.4	12 0
125	23.23	0.7	48 0	167	62.44	346.4	12 0	208	101.78	350.6	12 0
126	23.95	0.8	30 6	168	63.48	345.6	30 0	209	102.72	350.9	12 0
127	24.78	359.3	30 6	169	64.72	345.5	1	211	104.89	351.5	30 0
128	25.73	357.1	30 6	171	66.31	345.4	1	212	106.05	351.7	30 0
129	26.66	355.8	30 0	172	67.42	345.0	30 0	213	106.63	352.0	30 0
131	28.28	356.2	30 6	173	68.30	345.2	12 0	214	107.68	351.8	3
132	29.55	356.5	4	174	69.17	345.6	30 0	215	108.61	352.1	3
133	30.28	356.0	30 0	175	70.09	346.2	12 6	216	109.40	352.1	30 0
134	31.35	354.3	30 0	176	71.09	346.0	30 0	217	110.23	352.1	30 0
135	32.00	352.8	30 0	177	72.22	345.5	30 0	218	111.25	352.3	30 0
136	32.92	351.4	3	178	73.06	345.6	30 6	219	112.06	352.4	30 0
137	34.09	349.9	30 0	179	73.90	345.6	30 0	220	113.61	352.7	30 0
138	34.90	349.7	30 0	180	75.08	346.1	12 0	221	16.07	359.9	30 6
139	35.93	349.5	30 0	181	76.05	346.1	12 0	222	49.68	347.9	30 0
140	36.87	349.7	4	182	76.91	346.2	12 0	223	66.88	344.8	30 0
141	37.87	349.1	30 0	183	77.75	346.3	30 0				

ALASKA RANGE DEPLOYMENT
Shot Number 5 Shot Point 8
Shot Time (Julian day, hr, min, sec): 205:00:00.008

Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade
6	62.88	351.7	12 0	141	147.16	353.2	12 0	183	186.70	351.2	12 0
8	0.00	0.0	88 6	142	148.04	352.9	12 0	184	187.71	351.2	3
49	379.03	352.0	30 0	143	148.99	352.9	3	185	188.66	351.2	3
101	109.42	354.5	30 0	144	149.95	352.7	12 0	186	189.63	351.4	12 0
102	110.38	354.6	12 0	145	151.13	352.8	12 0	187	190.53	351.3	12 0
103	111.33	354.4	12 0	146	151.91	352.3	12 0	188	191.35	351.2	12 0
104	112.10	354.5	12 0	147	152.76	352.5	12 0	189	192.16	351.1	12 0
105	112.98	354.5	12 0	148	153.65	352.4	12 0	190	193.63	351.2	3
106	114.02	354.4	12 0	149	154.91	352.6	12 0	191	194.13	351.2	12 0
107	115.06	354.6	3	151	156.58	352.5	12 0	192	195.16	351.3	12 0
108	115.85	354.6	12 0	152	157.46	352.4	12 0	193	196.19	351.4	12 0
109	116.90	354.8	12 0	153	158.40	352.4	12 8	194	197.28	351.5	12 0
111	118.96	355.1	12 0	154	159.32	352.6	12 0	195	198.17	351.4	12 0
112	119.89	355.2	12 0	155	160.31	352.8	12 0	196	199.09	351.6	12 0
113	121.13	355.3	3	156	161.46	353.1	12 0	197	199.85	351.8	12 0
114	122.23	355.2	12 0	157	162.48	353.2	1	198	200.97	352.0	12 0
116	123.60	354.8	12 0	158	163.32	353.1	12 0	199	202.02	352.0	1
117	124.19	354.9	12 0	159	164.05	352.9	12 0	200	203.13	352.1	1
118	124.99	354.9	12 0	160	164.70	352.9	12 0	201	204.13	352.3	12 0
119	126.39	355.0	12 0	161	166.15	352.8	12 0	202	205.30	352.2	12 0
120	127.21	355.0	12 0	162	167.10	352.8	12 0	203	206.34	352.5	12 0
121	128.48	355.2	30 0	163	167.94	352.7	12 0	204	207.18	352.5	12 0
122	129.48	355.4	12 0	164	169.04	352.4	12 2	205	208.04	352.5	12 0
123	130.45	355.7	12 0	165	169.72	352.1	12 0	206	208.86	352.5	12 2
124	131.37	355.6	12 0	166	170.65	352.0	4	207	209.99	352.6	12 0
125	132.53	355.7	12 0	167	171.47	351.7	12 0	208	211.08	352.7	12 0
126	133.24	355.7	12 0	168	172.42	351.3	12 0	209	212.03	352.9	12 0
127	134.12	355.5	12 0	169	173.64	351.3	1	211	214.23	353.2	12 0
128	135.12	355.1	12 0	171	175.21	351.2	1	212	215.40	353.2	12 0
129	136.07	354.8	12 0	172	176.28	351.0	12 0	213	215.99	353.4	12 0
131	137.68	354.9	12 0	173	177.18	351.0	12 0	214	217.04	353.3	3
132	138.95	355.0	4	174	178.09	351.2	12 0	215	217.98	353.4	3
133	139.68	354.9	12 0	175	179.06	351.4	12 0	216	218.77	353.4	12 0
134	140.76	354.5	12 0	176	180.04	351.3	12 0	217	219.60	353.4	12 0
135	141.40	354.2	12 0	177	181.11	351.0	12 0	218	220.63	353.5	12 0
136	142.30	353.9	3	178	181.96	351.0	12 0	219	221.44	353.6	12 0
137	143.43	353.5	12 0	179	182.79	351.0	12 0	220	223.00	353.7	12 0
138	144.22	353.4	12 0	180	184.03	351.2	12 0	221	125.42	355.3	12 0
139	145.24	353.4	12 0	181	185.00	351.2	12 0	222	158.88	352.6	12 0
140	146.19	353.4	4	182	185.86	351.2	12 0	223	175.72	351.0	12 0

ALASKA RANGE DEPLOYMENT
Shot Number 6 Shot Point 42
Shot Time (Julian day, hr, min, sec): 205:08:10:00.005

Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade
6	84.21	173.9	12 0	142	1.11	325.0	30 6	184	41.05	343.9	3
49	232.03	351.0	12 0	143	2.02	335.4	3	185	41.97	344.3	3
101	37.77	168.7	30 0	144	3.10	331.9	30 6	186	42.87	345.2	12 0
102	36.81	168.5	12 0	145	4.19	339.4	30 0	187	43.79	344.9	12 0
103	35.84	168.8	12 0	146	5.28	329.3	30 0	188	44.66	344.4	12 0
104	35.09	168.5	12 0	147	5.95	336.0	30 0	189	45.49	344.4	12 0
105	34.21	168.3	12 0	148	6.88	336.0	30 0	190	46.94	344.6	3
106	33.17	168.4	12 0	149	7.98	342.2	30 0	191	47.41	344.9	12 0
107	32.16	167.7	3	151	9.69	341.8	30 0	192	48.41	345.4	12 0
108	31.37	167.5	12 0	152	10.60	341.6	30 0	193	49.40	346.1	12 0
109	30.38	166.6	12 0	153	11.50	343.1	30 0	194	50.47	346.3	12 0
111	28.47	164.5	12 0	154	12.34	346.4	30 0	195	51.37	346.3	12 0
112	27.60	163.7	12 0	155	13.29	348.6	12 0	196	52.25	346.9	12 0
113	26.43	162.7	3	156	14.40	353.0	30 0	197	52.94	347.8	12 0
114	25.30	162.7	12 0	157	15.42	353.3	1	198	54.02	348.5	12 0
116	23.79	164.1	12 0	158	16.26	352.8	30 0	199	55.07	348.7	1
117	23.25	163.2	12 0	159	17.01	350.2	30 0	200	56.16	349.2	1
118	22.45	163.1	12 0	160	17.66	350.4	30 0	201	57.14	349.7	12 0
119	21.15	161.5	12 0	161	19.12	350.3	30 0	202	58.31	349.6	12 0
120	20.34	161.0	12 0	162	20.08	349.7	12 0	203	59.32	350.5	12 0
121	19.24	158.8	30 0	163	20.91	349.4	12 6	204	60.16	350.7	12 0
122	18.42	156.5	12 0	164	22.09	347.1	12 2	205	61.02	350.7	12 2
123	17.69	153.9	30 0	165	22.84	345.2	30 0	206	61.84	350.6	12 2
124	16.81	152.9	12 0	166	23.81	344.6	4	207	62.95	351.2	12 0
125	15.80	150.9	12 0	167	24.75	342.7	12 0	208	64.04	351.5	12 2
126	15.19	149.5	12 0	168	25.85	340.8	12 0	209	64.98	352.0	12 0
127	14.14	150.1	12 0	169	27.09	340.8	1	211	67.18	352.9	12 0
128	12.86	151.8	12 0	171	28.69	340.7	1	212	68.35	353.1	12 0
129	11.76	152.7	30 0	172	29.83	340.1	12 0	213	68.94	353.5	12 0
131	10.36	148.2	30 0	173	30.69	340.7	12 0	214	69.99	353.3	3
132	9.37	143.7	4	174	31.53	341.6	12 0	215	70.94	353.7	3
133	8.61	142.6	30 0	175	32.39	343.1	12 0	216	71.72	353.7	12 0
134	7.21	144.2	30 0	176	33.41	342.7	12 0	217	72.56	353.7	12 0
135	6.27	147.6	30 6	177	34.58	341.7	12 0	218	73.59	354.0	12 0
136	5.11	151.8	3	178	35.41	342.0	12 0	219	74.40	354.1	12 0
137	3.75	158.5	30 6	179	36.25	342.1	12 0	220	75.97	354.5	12 0
138	2.93	157.7	30 0	180	37.39	343.3	12 0	221	22.22	160.7	12 0
139	1.89	155.9	68 0	181	38.36	343.4	12 0	222	11.93	345.1	30 6
140	1.08	136.0	4	182	39.21	343.6	12 0	223	29.31	339.6	12 0
141	0.21	52.2	88 0	183	40.04	343.8	12 0				

ALASKA RANGE DEPLOYMENT
Shot Number 7 Shot Point 48
Shot Time (Julian day, hr, min, sec): 205:10:00:00.007

Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade
6	272.77	170.3	30 0	142	187.72	169.1	12 2	184	147.94	170.5	3
48	0.00	0.0	88 0	143	186.77	169.1	3	185	146.99	170.4	3
101	226.49	168.8	12 0	144	185.78	169.2	12 0	186	146.02	170.2	30 6
102	225.54	168.8	12 2	145	184.61	169.2	12 2	187	145.13	170.3	12 0
103	224.57	168.8	12 2	146	183.79	169.5	12 0	188	144.30	170.5	30 0
104	223.81	168.8	12 2	147	182.95	169.4	12 0	189	143.49	170.6	12 0
105	222.94	168.7	12 2	148	182.05	169.4	12 0	190	142.03	170.6	3
106	221.89	168.8	12 0	149	180.82	169.3	12 0	191	141.53	170.5	12 0
107	220.87	168.7	3	151	179.13	169.4	12 2	192	140.49	170.4	12 0
108	220.09	168.6	12 0	152	178.24	169.4	12 0	193	139.46	170.2	30 0
109	219.08	168.5	12 2	153	177.31	169.4	12 0	194	138.38	170.1	12 0
111	217.10	168.3	12 2	154	176.42	169.2	12 2	195	137.48	170.2	12 0
112	216.20	168.2	12 2	155	175.44	169.0	30 0	196	136.57	170.0	12 2
113	215.00	168.1	3	156	174.36	168.7	12 0	197	135.82	169.6	12 2
114	213.87	168.1	12 0	157	173.34	168.6	1	198	134.72	169.3	12 2
116	212.42	168.3	12 0	158	172.50	168.6	12 2	199	133.67	169.3	1
117	211.85	168.2	12 0	159	171.72	168.9	12 2	200	132.58	169.1	1
118	211.05	168.2	12 2	160	171.07	168.8	12 0	201	131.59	168.9	12 0
119	209.69	168.1	12 0	161	169.62	168.9	12 0	202	130.42	168.9	12 2
120	208.87	168.1	12 0	162	168.65	168.9	12 0	203	129.42	168.5	12 0
121	207.66	167.9	12 0	163	167.82	169.0	12 7	204	128.59	168.4	12 0
122	206.72	167.8	12 0	164	166.67	169.3	12 2	205	127.73	168.4	12 0
123	205.82	167.6	12 0	165	165.97	169.5	12 0	206	126.90	168.4	12 0
124	204.90	167.6	12 0	166	165.03	169.7	12 0	207	125.81	168.1	12 2
125	203.76	167.5	12 2	167	164.19	170.0	12 0	208	124.75	168.0	12 0
126	203.06	167.5	12 2	168	163.23	170.3	12 0	209	123.83	167.7	12 0
127	202.12	167.6	12 2	169	162.01	170.4	1	211	121.73	167.1	12 0
128	201.02	167.8	12 2	171	160.44	170.5	1	212	120.58	166.9	12 0
129	200.02	168.0	12 0	172	159.38	170.7	12 0	213	120.05	166.7	12 0
131	198.43	167.8	12 0	173	158.48	170.7	12 2	214	118.98	166.7	3
132	197.20	167.7	12 0	174	157.57	170.5	12 0	215	118.09	166.5	3
133	196.44	167.8	12 2	175	156.59	170.3	12 2	216	117.31	166.4	12 0
134	195.28	168.0	12 2	176	155.61	170.4	12 0	217	116.48	166.4	12 0
135	194.56	168.2	12 0	177	154.55	170.7	12 0	218	115.51	166.1	12 0
136	193.60	168.5	12 3	178	153.70	170.7	12 0	219	114.71	166.0	12 0
137	192.41	168.7	12 2	179	152.87	170.7	12 0	220	113.22	165.7	12 0
138	191.60	168.8	12 2	180	151.62	170.5	12 0	221	210.71	168.0	12 0
139	190.57	168.8	12 0	181	150.65	170.5	12 0	222	176.84	169.2	12 0
140	189.63	168.8	12 2	182	149.79	170.5	12 0	223	159.94	170.8	12 0
141	188.63	168.9	12 0	183	148.95	170.5	12 0				

ALASKA RANGE DEPLOYMENT
Shot Number 8 Shot Point 1
Shot Time (Julian day, hr, min, sec): 205:10:02:00.005

Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade
6	95.98	172.8	12 0	142	10.86	167.3	12 0	184	29.16	343.3	3
48	176.87	349.8	12 0	143	9.90	167.3	3	185	30.08	343.8	3
101	49.64	167.9	12 0	144	8.91	169.9	12 0	186	30.98	345.0	12 0
102	48.69	167.6	12 0	145	7.74	168.5	12 0	187	31.90	344.7	12 0
103	47.72	167.9	12 0	146	6.97	177.3	30 0	188	32.77	344.0	30 0
104	46.97	167.6	12 0	147	6.10	174.3	12 0	189	33.60	344.0	12 0
105	46.09	167.5	12 0	148	5.22	177.6	12 0	190	35.05	344.3	3
106	45.05	167.5	12 0	149	3.95	171.6	30 0	191	35.52	344.7	12 0
107	44.04	167.0	3	151	2.30	180.3	30 6	192	36.52	345.4	12 0
108	43.26	166.8	12 2	152	1.49	192.9	30 0	193	37.51	346.2	12 0
109	42.27	166.2	12 0	153	0.61	213.8	30 6	194	38.58	346.5	12 0
111	40.36	164.7	12 0	154	0.50	13.5	30 6	195	39.48	346.5	12 0
112	39.49	164.1	12 0	155	1.57	14.0	30 0	196	40.36	347.3	12 0
113	38.32	163.4	3	156	3.05	24.1	30 0	197	41.07	348.5	12 0
114	37.18	163.5	12 0	157	4.00	17.6	1	198	42.15	349.4	12 0
116	35.68	164.4	12 0	158	4.73	11.7	30 0	199	43.21	349.6	1
117	35.13	163.9	12 0	159	5.25	1.2	12 0	200	44.30	350.2	1
118	34.34	163.8	12 0	160	5.91	0.7	30 0	201	45.29	350.8	12 0
119	33.02	162.8	12 0	161	7.34	358.4	30 0	202	46.46	350.6	12 2
120	32.21	162.6	12 0	162	8.27	355.9	12 0	203	47.49	351.7	12 0
121	31.08	161.2	12 0	163	9.09	354.7	12 0	204	48.33	352.0	12 0
122	30.23	159.9	12 0	164	10.21	349.2	12 2	205	49.19	351.9	12 2
123	29.44	158.4	12 0	165	10.94	345.0	12 0	206	50.01	351.8	12 0
124	28.54	158.0	12 0	166	11.92	343.8	12 0	207	51.14	352.5	12 2
125	27.48	157.1	12 0	167	12.88	340.2	12 0	208	52.23	352.8	12 0
126	26.83	156.4	12 0	168	14.03	336.8	12 0	209	53.19	353.4	12 0
127	25.81	157.0	12 0	169	15.26	337.3	1	211	55.41	354.5	12 0
128	24.59	158.3	12 0	171	16.86	337.5	1	212	56.59	354.7	12 0
129	23.51	159.0	12 0	172	18.02	336.6	12 0	213	57.20	355.2	12 0
131	22.03	157.3	12 0	173	18.86	337.7	12 0	214	58.23	354.9	3
132	20.88	155.7	12 0	174	19.67	339.3	12 0	215	59.20	355.3	3
133	20.11	155.8	12 0	175	20.52	341.7	12 0	216	59.98	355.3	12 0
134	18.80	157.3	12 0	176	21.53	341.3	12 0	217	60.81	355.3	12 0
135	17.97	159.2	12 0	177	22.73	339.7	30 0	218	61.86	355.7	12 0
136	16.90	161.2	3	178	23.55	340.3	12 0	219	62.67	355.7	12 0
137	15.62	163.6	12 0	179	24.38	340.5	12 0	220	64.26	356.1	12 0
138	14.81	163.8	12 0	180	25.51	342.3	12 0	221	34.09	162.2	12 0
139	13.76	164.0	12 0	181	26.48	342.5	12 0	222	0.06	289.0	88 0
140	12.85	162.9	12 0	182	27.33	342.8	12 2	223	17.52	335.7	12 0
141	11.81	164.3	30 0	183	28.16	343.1	12 0				

ALASKA RANGE DEPLOYMENT
Shot Number 9 Shot Point 45
Shot Time (Julian day, hr, min, sec): 205:10:04:00.012

Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade
6	145.85	172.3	12 0	142	60.70	170.9	12 2	184	21.48	183.4	3
48	127.04	348.9	12 0	143	59.75	171.0	3	185	20.52	183.5	3
101	99.45	169.7	30 0	144	58.78	171.4	12 0	186	19.46	182.6	30 0
102	98.50	169.6	12 2	145	57.60	171.3	12 2	187	18.64	183.9	30 0
103	97.53	169.8	12 0	146	56.82	172.4	12 0	188	17.96	186.1	30 0
104	96.77	169.7	12 0	147	55.97	172.0	30 0	189	17.22	187.3	30 0
105	95.90	169.6	12 2	148	55.07	172.3	12 0	190	15.81	188.6	3
106	94.85	169.7	12 0	149	53.82	171.7	12 0	191	15.27	188.4	12 0
107	93.83	169.5	3	151	52.15	172.1	12 0	192	14.18	188.4	30 0
108	93.04	169.4	12 2	152	51.26	172.3	12 0	193	13.07	188.0	30 0
109	92.03	169.1	12 2	153	50.32	172.2	12 0	194	12.01	189.1	12 0
111	90.06	168.5	12 2	154	49.41	171.5	12 0	195	11.19	190.9	30 0
112	89.16	168.3	12 2	155	48.42	171.0	12 0	196	10.16	190.1	30 0
113	87.96	168.1	3	156	47.32	169.7	12 0	197	9.20	186.9	30 0
114	86.83	168.2	12 0	157	46.30	169.6	1	198	7.96	184.8	30 0
116	85.38	168.6	12 0	158	45.45	169.7	12 0	199	6.91	185.9	1
117	84.81	168.4	12 0	159	44.70	170.6	12 0	200	5.73	184.4	1
118	84.01	168.4	12 2	160	44.04	170.5	12 0	201	4.67	182.4	30 0
119	82.65	168.1	12 0	161	42.59	170.6	12 0	202	3.56	187.6	30 6
120	81.83	168.1	12 0	162	41.63	170.9	12 0	203	2.39	174.9	30 6
121	80.63	167.6	12 0	163	40.80	171.1	12 0	204	1.55	168.0	68 0
122	79.69	167.2	12 0	164	39.68	172.4	12 2	205	0.68	168.7	30 6
123	78.81	166.7	12 0	165	39.03	173.6	12 0	206	0.14	342.5	88 0
124	77.89	166.7	12 0	166	38.11	174.2	12 0	207	1.38	15.6	30 6
125	76.76	166.5	12 0	167	37.35	175.7	12 0	208	2.51	12.4	30 6
126	76.06	166.3	12 0	168	36.50	177.4	12 0	209	3.61	15.8	30 6
127	75.11	166.7	12 2	169	35.31	178.0	1	211	6.05	16.8	48 0
128	74.00	167.2	12 0	171	33.80	178.8	1	212	7.21	14.6	30 0
129	72.99	167.6	12 2	172	32.83	180.0	12 0	213	7.96	16.6	30 0
131	71.41	167.3	12 0	173	31.92	180.0	12 0	214	8.84	12.3	3
132	70.18	167.0	12 0	174	30.96	179.6	12 0	215	9.89	13.1	3
133	69.42	167.1	12 2	175	29.90	178.7	12 0	216	10.62	11.4	30 0
134	68.24	167.8	12 2	176	28.98	179.6	12 0	217	11.42	10.2	30 0
135	67.52	168.4	12 2	177	28.06	181.5	12 0	218	12.54	10.8	30 0
136	66.55	169.0	3	178	27.21	181.7	12 0	219	13.35	10.2	30 0
137	65.37	169.8	12 2	179	26.41	182.2	12 0	220	14.96	10.3	30 0
138	64.57	169.9	12 2	180	25.08	181.5	12 0	221	83.68	167.8	12 0
139	63.54	170.0	12 0	181	24.14	182.0	12 0	222	49.85	171.8	12 0
140	62.60	169.9	12 0	182	23.29	182.4	12 0	223	33.41	180.1	12 0
141	61.60	170.3	12 0	183	22.46	182.7	12 0				

ALASKA RANGE DEPLOYMENT
Shot Number 10 Shot Point 41
Shot Time (Julian day, hr, min, sec): 205:10:06:00.010

Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade
6	60.91	177.8	12 0	142	24.82	343.4	30 0	184	64.82	344.1	3
48	212.40	349.1	12 0	143	25.77	343.6	3	185	65.74	344.4	3
101	14.20	176.5	30 6	144	26.80	342.9	30 0	186	66.64	344.9	30 0
102	13.23	176.3	30 6	145	27.94	343.6	12 0	187	67.56	344.8	12 0
103	12.30	177.9	30 6	146	28.90	341.6	12 0	188	68.43	344.4	30 0
104	11.53	177.6	30 6	147	29.67	342.7	12 0	189	69.26	344.4	30 0
105	10.65	177.8	30 6	148	30.60	342.4	12 0	190	70.71	344.6	3
106	9.62	178.9	30 6	149	31.75	343.8	30 0	191	71.18	344.8	12 0
107	8.57	177.8	3	151	33.45	343.6	30 0	192	72.17	345.1	12 0
108	7.77	177.8	48 0	152	34.36	343.5	30 0	193	73.16	345.6	12 0
109	6.71	175.3	48 0	153	35.27	343.9	30 0	194	74.23	345.7	12 0
111	4.70	166.1	48 0	154	36.10	345.0	30 0	195	75.13	345.7	12 0
112	3.84	160.9	68 0	155	37.03	345.9	12 0	196	75.99	346.2	12 0
113	2.74	149.7	3	156	38.06	347.6	30 0	197	76.68	346.8	12 0
114	1.65	141.7	68 0	157	39.07	347.9	1	198	77.74	347.3	12 0
116	0.04	99.9	88 6	158	39.92	347.8	12 0	199	78.79	347.5	1
117	0.65	20.0	88 0	159	40.72	346.8	12 0	200	79.86	347.8	1
118	1.39	1.7	68 6	160	41.37	346.9	30 0	201	80.83	348.2	12 0
119	2.82	4.7	68 6	161	42.82	347.0	12 0	202	82.00	348.1	12 0
120	3.63	2.0	68 0	162	43.79	346.8	12 0	203	82.99	348.8	12 0
121	4.95	5.6	48 6	163	44.63	346.7	12 0	204	83.81	349.0	12 0
122	6.03	8.3	48 0	164	45.84	345.7	12 2	205	84.68	349.0	12 0
123	7.10	10.7	48 6	165	46.60	344.8	12 0	206	85.50	348.9	12 0
124	7.98	8.5	48 0	166	47.57	344.5	12 0	207	86.59	349.4	12 0
125	9.13	7.6	48 0	167	48.51	343.5	12 0	208	87.66	349.6	12 0
126	9.85	7.2	30 6	168	49.60	342.5	12 0	209	88.59	350.0	12 0
127	10.62	3.2	30 6	169	50.83	342.5	1	211	90.74	350.8	12 0
128	11.53	358.1	30 6	171	52.43	342.4	1	212	91.90	350.9	12 0
129	12.46	355.1	30 0	172	53.57	342.0	12 0	213	92.47	351.3	12 0
131	14.08	356.0	30 6	173	54.44	342.3	12 0	214	93.53	351.1	3
132	15.35	356.6	30 0	174	55.28	342.8	12 0	215	94.45	351.4	3
133	16.07	355.6	30 0	175	56.16	343.6	12 0	216	95.24	351.4	12 0
134	17.16	352.5	30 0	176	57.17	343.4	12 0	217	96.08	351.5	12 0
135	17.84	350.0	30 0	177	58.34	342.8	12 0	218	97.09	351.7	30 0
136	18.81	347.6	3	178	59.17	343.0	12 0	219	97.90	351.8	12 0
137	20.04	345.3	30 0	179	60.00	343.0	12 0	220	99.44	352.1	12 0
138	20.85	345.2	30 0	180	61.16	343.7	12 0	221	2.08	24.7	68 0
139	21.90	345.0	30 0	181	62.12	343.8	12 0	222	35.69	344.6	30 0
140	22.82	345.6	30 0	182	62.98	343.9	12 0	223	53.04	341.8	12 0
141	23.85	344.7	30 0	183	63.81	344.0	12 0				

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ALASKA RANGE DEPLOYMENT
Shot Number 11 Shot Point 6
Shot Time (Julian day, hr, min, sec): 205:12:00:00.076

Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade
6	0.00	0.0	88 6	141	84.32	354.2	12 0	183	123.83	350.8	12 0
6	0.00	0.0	5	142	85.18	353.7	12 0	184	124.84	350.8	3
54	211.62	351.3	12 0	143	86.13	353.6	3	185	125.79	350.9	3
101	46.72	358.2	12 0	144	87.08	353.3	12 0	186	126.75	351.1	12 0
102	47.69	358.2	12 0	145	88.27	353.4	12 0	187	127.65	351.0	12 0
103	48.61	357.8	12 0	146	89.03	352.6	12 0	188	128.47	350.8	30 0
104	49.38	357.9	12 0	147	89.89	352.9	12 0	189	129.29	350.7	30 0
105	50.26	357.8	12 0	148	90.78	352.7	12 0	190	130.75	350.7	3
106	51.29	357.6	12 0	149	92.04	353.0	12 0	191	131.25	350.8	12 0
107	52.35	357.8	3	151	93.71	352.8	12 0	192	132.28	351.0	12 0
108	53.14	357.8	4	152	94.59	352.7	12 0	193	133.31	351.1	12 0
109	54.21	358.1	12 0	153	95.53	352.7	12 0	194	134.40	351.2	12 0
111	56.31	358.8	12 0	154	96.45	353.1	12 0	195	135.30	351.2	12 0
112	57.25	358.9	12 0	155	97.45	353.3	12 0	196	136.21	351.4	12 0
113	58.50	359.1	3	156	98.61	353.9	12 0	197	136.97	351.7	12 0
114	59.59	358.7	12 0	157	99.63	353.9	1	198	138.09	352.0	12 0
116	60.90	357.9	12 0	158	100.47	353.9	12 0	199	139.14	352.0	1
117	61.51	358.0	12 0	159	101.19	353.4	12 0	200	140.25	352.2	1
118	62.30	357.9	12 0	160	101.84	353.4	12 0	201	141.25	352.3	12 0
119	63.71	358.1	1	161	103.29	353.4	12 0	202	142.42	352.3	12 0
120	64.53	358.0	12 0	162	104.24	353.2	12 0	203	143.47	352.6	12 0
121	65.82	358.4	12 0	163	105.07	353.1	12 0	204	144.31	352.7	12 0
122	66.85	358.8	12 0	164	106.17	352.6	12 2	205	145.17	352.7	12 0
123	67.85	359.2	12 0	165	106.84	352.2	12 0	206	145.99	352.7	12 0
124	68.77	359.0	12 0	166	107.77	352.0	4	207	147.12	352.9	12 0
125	69.93	359.1	12 0	167	108.59	351.5	12 0	208	148.21	353.0	12 0
126	70.65	359.1	12 0	168	109.54	351.0	12 0	209	149.17	353.2	12 0
127	71.50	358.6	12 0	169	110.77	350.9	1	211	151.38	353.6	12 0
128	72.44	357.9	12 0	171	112.34	350.7	1	212	152.55	353.7	12 0
129	73.36	357.4	12 0	172	113.40	350.4	12 0	213	153.15	353.9	12 0
131	74.99	357.5	12 0	173	114.30	350.5	12 0	214	154.19	353.8	3
132	76.26	357.6	3	174	115.21	350.7	12 0	215	155.14	354.0	3
133	76.98	357.4	12 0	175	116.18	351.0	12 0	216	155.93	353.9	12 0
134	78.02	356.7	12 0	176	117.16	350.9	12 0	217	156.76	353.9	12 0
135	78.63	356.1	12 0	177	118.24	350.5	12 0	218	157.80	354.1	12 0
136	79.50	355.4	3	178	119.09	350.5	12 0	219	158.61	354.1	12 0
137	80.60	354.7	12 0	179	119.92	350.5	12 0	220	160.17	354.3	12 0
138	81.39	354.6	12 0	180	121.16	350.8	12 0	221	62.78	358.7	12 0
139	82.41	354.4	12 0	181	122.12	350.8	12 0	222	96.01	352.9	12 0
140	83.36	354.5	12 0	182	122.99	350.8	12 0	223	112.85	350.4	12 0

ALASKA RANGE DEPLOYMENT
Shot Number 12 Shot Point 2
Shot Time (Julian day, hr, min, sec): 205:12:02:00.010

Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade
6	75.04	177.4	30 0	142	11.45	327.8	30 6	184	51.07	340.8	3
54	137.25	347.9	30 0	143	12.35	329.3	3	185	51.98	341.2	3
101	28.33	176.3	30 0	144	13.43	329.0	30 6	186	52.85	341.9	68 0
102	27.36	176.1	30 0	145	14.47	331.4	30 6	187	53.77	341.8	30 0
103	26.43	176.9	30 0	146	15.62	328.6	30 0	188	54.66	341.5	30 0
104	25.65	176.7	30 0	147	16.25	331.1	48 0	189	55.49	341.4	30 0
105	24.78	176.8	30 0	148	17.19	331.3	30 0	190	56.93	341.7	3
106	23.74	177.2	30 0	149	18.19	334.3	30 0	191	57.39	342.0	12 0
107	22.69	176.7	3	151	19.89	334.8	30 0	192	58.36	342.5	12 0
108	21.89	176.6	4	152	20.79	335.0	30 0	193	59.32	343.1	12 0
109	20.84	175.7	30 0	153	21.66	336.0	30 0	194	60.38	343.3	12 0
111	18.78	173.5	30 0	154	22.39	338.1	30 6	195	61.28	343.3	12 0
112	17.86	172.8	30 0	155	23.26	339.7	30 0	196	62.12	343.9	12 0
113	16.63	171.8	3	156	24.18	342.7	30 6	197	62.77	344.7	12 0
114	15.52	172.6	30 0	157	25.17	343.3	1	198	63.81	345.4	12 0
116	14.14	175.8	30 6	158	26.02	343.3	30 0	199	64.85	345.6	1
117	13.54	174.9	30 6	159	26.87	341.9	30 0	200	65.91	346.1	1
118	12.75	175.4	30 6	160	27.51	342.3	30 0	201	66.86	346.5	12 0
119	11.35	173.8	1	161	28.95	342.6	30 0	202	68.04	346.5	12 0
120	10.52	173.9	30 6	162	29.93	342.5	30 0	203	68.99	347.3	30 0
121	9.28	170.9	48 0	163	30.78	342.5	12 0	204	69.82	347.5	12 0
122	8.33	167.1	48 0	164	32.04	341.2	12 2	205	70.68	347.5	12 0
123	7.48	162.0	48 6	165	32.86	340.0	30 0	206	71.50	347.5	12 0
124	6.57	160.8	48 6	166	33.85	339.7	4	207	72.58	348.1	12 0
125	5.49	156.5	48 6	167	34.85	338.5	12 0	208	73.64	348.4	12 0
126	4.85	152.8	68 0	168	36.01	337.2	12 0	209	74.55	348.9	12 0
127	3.82	155.7	68 0	169	37.24	337.4	1	211	76.68	349.8	30 0
128	2.64	167.0	68 6	171	38.85	337.5	1	212	77.84	350.0	12 0
129	1.69	183.0	68 6	172	40.01	337.1	30 0	213	78.40	350.4	30 0
131	0.05	187.9	86 6	173	40.85	337.6	12 0	214	79.46	350.2	3
132	1.23	3.5	3	174	41.65	338.4	12 0	215	80.38	350.6	3
133	1.95	352.8	68 6	175	42.47	339.5	12 0	216	81.17	350.6	30 0
134	3.18	336.7	68 0	176	43.49	339.4	30 0	217	82.00	350.7	12 0
135	4.07	328.8	68 0	177	44.70	338.7	30 0	218	83.01	351.0	30 0
136	5.26	324.5	3	178	45.52	339.0	30 0	219	83.81	351.1	30 0
137	6.69	322.3	12 6	179	46.35	339.1	30 0	220	85.35	351.5	30 0
138	7.46	324.4	30 6	180	47.45	340.1	30 0	221	12.34	171.3	30 6
139	8.47	326.4	68 0	181	48.41	340.2	12 0	222	22.02	337.3	30 6
140	9.29	329.5	30 6	182	49.25	340.5	12 0	223	39.50	336.7	30 0
141	10.37	329.3	30 6	183	50.08	340.7	30 0				

ALASKA RANGE DEPLOYMENT
Shot Number 13 Shot Point 46
Shot Time (Julian day, hr, min, sec): 205:12:06:00.012

Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade
6	160.27	174.0	30 0	142	75.09	174.6	12 2	184	36.46	186.0	3
54	52.21	342.0	12 0	143	74.15	174.7	3	185	35.50	186.1	3
101	113.70	172.4	12 0	144	73.21	175.1	12 0	186	34.43	185.7	30 0
102	112.74	172.3	12 0	145	72.02	175.1	12 0	187	33.63	186.5	12 0
103	111.79	172.4	12 0	146	71.31	176.0	12 0	188	32.98	187.7	30 0
104	111.02	172.4	12 0	147	70.44	175.7	12 0	189	32.24	188.4	12 0
105	110.14	172.4	12 2	148	69.56	176.0	12 0	190	30.84	189.1	3
106	109.10	172.4	12 8	149	68.28	175.6	12 0	191	30.30	189.1	12 0
107	108.07	172.2	3	151	66.63	176.0	12 0	192	29.21	189.1	12 0
108	107.27	172.2	4	152	65.76	176.3	12 0	193	28.10	188.9	12 0
109	106.24	172.0	12 0	153	64.82	176.2	12 0	194	27.04	189.4	12 0
111	104.22	171.5	12 0	154	63.86	175.7	12 0	195	26.21	190.2	12 0
112	103.31	171.4	12 0	155	62.85	175.4	30 0	196	25.19	189.8	12 0
113	102.09	171.2	3	156	61.66	174.5	12 0	197	24.22	188.6	12 0
114	100.97	171.3	12 0	157	60.64	174.5	1	198	22.97	188.0	12 0
116	99.55	171.8	30 0	158	59.81	174.6	12 0	199	21.93	188.5	1
117	98.97	171.6	12 0	159	59.11	175.4	12 0	200	20.74	188.2	1
118	98.18	171.7	12 0	160	58.45	175.4	12 0	201	19.67	187.9	12 0
119	96.79	171.4	1	161	57.01	175.6	12 0	202	18.59	189.3	12 0
120	95.97	171.4	12 0	162	56.07	175.9	12 0	203	17.35	187.6	12 0
121	94.73	171.1	12 0	163	55.25	176.1	12 0	204	16.48	187.7	12 0
122	93.77	170.8	12 0	164	54.22	177.1	12 2	205	15.67	188.7	12 0
123	92.84	170.4	12 0	165	53.64	178.1	12 0	206	14.90	189.9	12 0
124	91.92	170.4	12 0	166	52.76	178.6	4	207	13.66	189.0	12 0
125	90.76	170.2	12 0	167	52.07	179.7	12 0	208	12.52	189.1	12 0
126	90.07	170.2	12 2	168	51.29	181.0	12 2	209	11.44	187.7	12 0
127	89.14	170.5	12 0	169	50.12	181.5	1	211	9.06	184.8	30 0
128	88.08	171.0	12 0	171	48.65	182.2	1	212	7.87	185.1	30 0
129	87.10	171.4	12 2	172	47.71	183.1	12 0	213	7.19	181.9	30 0
131	85.50	171.1	30 6	173	46.80	183.1	12 0	214	6.21	185.8	3
132	84.25	171.0	3	174	45.84	182.9	12 0	215	5.19	182.9	3
133	83.51	171.1	12 2	175	44.74	182.4	12 2	216	4.43	185.4	68 2
134	82.38	171.7	12 0	176	43.85	183.0	12 0	217	3.61	187.6	68 0
135	81.71	172.2	30 0	177	42.99	184.4	12 0	218	2.50	183.3	68 0
136	80.80	172.8	3	178	42.15	184.6	12 0	219	1.69	184.6	30 2
137	79.67	173.5	12 0	179	41.36	184.9	12 0	220	0.18	113.5	88 0
138	78.88	173.6	12 0	180	40.82	184.6	48 0	221	97.79	171.1	12 0
139	77.86	173.8	12 0	181	39.09	185.0	12 0	222	64.32	175.9	12 0
140	76.91	173.7	12 0	182	38.25	185.2	12 2	223	48.29	183.1	12 0
141	75.95	174.1	12 0	183	37.43	185.5	12 0				

ALASKA RANGE DEPLOYMENT
Shot Number 14 Shot Point 43
Shot Time (Julian day, hr, min, sec): 205:12:07:30.005

Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade
6	112.87	170.0	12 0	142	28.28	159.9	4	184	12.00	354.6	3
34	98.78	352.1	4	143	27.33	159.6	3	185	12.96	355.1	3
101	66.90	164.5	12 9	144	26.28	160.2	12 0	186	13.97	356.9	12 0
102	65.96	164.3	12 0	145	25.16	159.3	12 0	187	14.84	355.6	68 9
103	64.98	164.4	12 2	146	24.17	161.5	12 0	188	15.63	353.5	30 0
104	64.24	164.2	12 0	147	23.42	160.2	12 0	189	16.43	352.9	12 0
105	63.37	164.1	12 9	148	22.48	160.4	12 0	190	17.90	352.8	3
106	62.33	164.0	12 0	149	21.38	158.3	12 2	191	18.41	353.4	12 0
107	61.35	163.6	3	151	19.67	158.2	12 0	192	19.46	354.3	12 0
108	60.58	163.4	4	152	18.76	158.1	12 0	193	20.52	355.3	12 0
109	59.62	162.9	12 2	153	17.88	157.0	12 0	194	21.61	355.3	12 0
111	57.77	161.8	12 0	154	17.17	154.3	12 9	195	22.49	354.9	12 0
112	56.91	161.3	12 2	155	16.36	151.9	12 0	196	23.45	356.0	12 0
113	55.76	160.8	3	156	15.71	147.0	12 0	197	24.28	357.7	12 2
114	54.63	160.8	12 0	157	14.84	144.9	1	198	25.46	358.8	12 0
116	53.09	161.4	12 0	158	14.03	143.9	12 0	199	26.52	358.8	1
117	52.57	161.0	12 0	159	13.02	145.3	12 0	200	27.68	359.4	1
118	51.77	160.9	12 2	160	12.47	143.7	12 9	201	28.72	359.9	4
119	50.49	160.1	1	161	11.17	140.6	12 0	202	29.87	359.3	30 2
120	49.68	159.9	12 0	162	10.23	139.0	12 0	203	31.01	0.6	12 0
121	48.59	159.0	12 0	163	9.46	136.9	12 0	204	31.88	0.8	12 2
122	47.76	158.2	12 0	164	8.01	137.9	10	205	32.72	0.5	12 2
123	46.99	157.2	12 0	165	7.00	140.4	12 0	206	33.53	0.2	12 0
124	46.09	156.9	12 0	166	6.02	138.8	4	207	34.72	0.8	12 2
125	45.03	156.3	12 2	167	4.84	142.8	12 0	208	35.85	1.1	12 0
126	44.38	155.9	12 2	168	3.55	150.0	10	209	36.88	1.7	12 2
127	43.36	156.2	12 9	169	2.36	143.6	1	211	39.23	2.7	12 0
128	42.13	157.0	12 2	171	0.91	116.1	1	212	40.42	2.8	12 0
129	41.06	157.4	12 2	172	0.57	12.3	12 0	213	41.09	3.3	12 0
131	39.58	156.4	88 0	173	1.48	4.6	12 2	214	42.08	2.7	3
132	38.44	155.5	3	174	2.45	7.8	12 2	215	43.09	3.2	3
133	37.67	155.5	12 0	175	3.60	13.3	10	216	43.85	2.9	12 0
134	36.36	156.3	30 6	176	4.43	4.6	12 0	217	44.69	2.8	12 0
135	35.51	157.2	12 0	177	5.38	353.6	4	218	45.78	3.1	30 0
136	34.42	158.2	3	178	6.23	353.7	48 0	219	46.59	3.1	12 0
137	33.10	159.2	12 0	179	7.05	352.8	30 0	220	48.22	3.3	12 0
138	32.28	159.1	12 0	180	8.33	356.5	12 0	221	51.57	159.8	12 0
139	31.24	159.1	12 0	181	9.29	355.6	12 0	222	17.52	155.5	12 0
140	30.34	158.5	3	182	10.15	355.3	12 2	223	0.07	101.9	30 0
141	29.29	158.9	12 0	183	11.00	355.1	12 0				

ALASKA RANGE DEPLOYMENT
Shot Number 15 Shot Point 54
Shot Time (Julian day, hr, min, sec): 206:10:00:00.008

Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade
0			5	142	126.56	169.1	12 0	185	85.84	171.4	3
54	0.00	0.0	88 6	143	125.61	169.2	3	186	84.87	171.1	30 4
101	165.33	168.8	12 0	144	124.62	169.4	30 0	187	83.98	171.2	30 0
102	164.38	168.7	12 0	145	123.45	169.3	12 0	188	83.16	171.6	30 0
103	163.41	168.8	12 0	146	122.63	169.8	12 0	189	82.35	171.7	12 0
104	162.65	168.7	12 0	147	121.79	169.6	30 0	190	80.89	171.7	3
105	161.78	168.7	12 0	148	120.88	169.7	12 0	191	80.38	171.6	12 0
106	160.73	168.7	12 0	149	119.65	169.4	12 0	192	79.34	171.3	3
107	159.72	168.6	12 0	151	117.97	169.6	12 0	193	78.31	171.0	12 0
108	158.93	168.6	12 0	152	117.08	169.6	12 0	194	77.22	171.0	12 0
109	157.92	168.4	12 0	153	116.15	169.6	12 0	195	76.33	171.0	12 0
111	155.95	168.0	12 0	154	115.25	169.3	12 0	196	75.41	170.7	12 0
112	155.06	167.9	12 0	155	114.28	169.0	12 0	197	74.66	170.0	12 0
113	153.85	167.8	3	156	113.20	168.5	12 0	198	73.56	169.5	12 0
114	152.73	167.8	12 0	157	112.19	168.4	12 2	199	72.50	169.4	30 0
116	151.27	168.1	12 0	158	111.34	168.4	12 0	200	71.41	169.1	12 0
117	150.70	168.0	12 0	159	110.56	168.8	12 0	201	70.43	168.7	12 0
118	149.90	168.0	12 0	160	109.91	168.8	12 0	202	69.26	168.7	12 0
119	148.55	167.8	12 0	161	108.46	168.8	30 0	203	68.27	168.0	30 0
120	147.73	167.8	12 0	162	107.49	168.9	30 0	204	67.44	167.8	30 0
121	146.52	167.6	12 0	163	106.66	168.9	12 0	205	66.58	167.8	30 0
122	145.59	167.3	12 0	165	104.81	169.8	30 0	206	65.76	167.8	12 0
123	144.70	167.1	12 0	166	103.87	170.0	1	207	64.68	167.2	12 0
124	143.78	167.0	12 0	167	103.03	170.5	12 0	208	63.62	166.8	12 0
125	142.65	166.9	12 0	168	102.08	171.1	12 0	209	62.72	166.2	12 0
126	141.95	166.9	4	169	100.86	171.2	1	211	60.66	165.0	30 0
127	140.99	167.0	12 0	171	99.30	171.4	12 0	212	59.53	164.7	12 0
128	139.89	167.3	12 0	172	98.24	171.7	30 0	213	59.03	164.1	12 0
129	138.88	167.5	12 0	173	97.34	171.7	1	214	57.95	164.2	3
131	137.30	167.4	12 0	174	96.42	171.5	30 0	215	57.09	163.5	30 0
132	136.07	167.2	12 0	175	95.44	171.1	12 2	216	56.31	163.5	12 0
133	135.31	167.3	12 0	176	94.46	171.3	30 0	217	55.49	163.3	30 0
134	134.14	167.6	12 0	177	93.41	171.8	30 0	218	54.55	162.6	30 0
135	133.42	167.9	12 0	178	92.56	171.8	30 0	219	53.78	162.4	12 0
136	132.45	168.3	3	179	91.73	171.8	30 0	220	52.34	161.5	12 0
137	131.25	168.6	12 0	180	90.48	171.5	12 0	221	149.58	167.6	12 0
138	130.45	168.7	12 0	181	89.51	171.5	12 0	222	115.68	169.4	12 0
139	129.41	168.7	12 0	182	88.65	171.5	12 0	223	98.81	171.8	30 0
140	128.48	168.7	12 0	183	87.81	171.5	12 0	227	72.00	169.2	12 0
141	127.47	168.9	12 0	184	86.80	171.5	3				

ALASKA RANGE DEPLOYMENT
Shot Number 16 Shot Point 46
Shot Time (Julian day, hr, min, sec): 206:10:02:00.010

Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade
0			5	142	75.09	174.6	12 0	185	35.50	186.1	3
54	52.21	342.0	12 0	143	74.15	174.7	3	186	34.43	185.7	3
101	113.70	172.4	12 0	144	73.21	175.1	30 0	187	33.63	186.5	12 0
102	112.74	172.3	12 2	145	72.02	175.1	12 0	188	32.98	187.7	12 0
103	111.79	172.4	12 2	146	71.31	176.0	12 0	189	32.24	188.4	12 0
104	111.02	172.4	12 0	147	70.44	175.7	30 0	190	30.84	189.1	3
105	110.14	172.4	12 0	148	69.56	176.0	12 0	191	30.30	189.1	12 0
106	109.10	172.4	12 0	149	68.28	175.6	12 0	192	29.21	189.1	3
107	108.07	172.2	12 2	151	66.63	176.0	12 0	193	28.10	188.9	12 0
108	107.27	172.2	12 0	152	65.76	176.3	12 0	194	27.04	189.4	12 0
109	106.24	172.0	12 0	153	64.82	176.2	12 0	195	26.21	190.2	12 0
111	104.22	171.5	12 0	154	63.86	175.7	12 0	196	25.19	189.8	12 0
112	103.31	171.4	12 2	155	62.85	175.4	12 0	197	24.22	188.6	12 0
113	102.09	171.2	3	156	61.66	174.5	12 0	198	22.97	188.0	12 0
114	100.97	171.3	12 0	157	60.64	174.5	12 2	199	21.93	188.5	12 0
116	99.55	171.8	12 0	158	59.81	174.6	12 0	200	20.74	188.2	48 0
117	98.97	171.6	12 0	159	59.11	175.4	30 0	201	19.67	187.9	12 0
118	98.18	171.7	12 0	160	58.45	175.4	12 0	202	18.59	189.3	30 2
119	96.79	171.4	12 0	161	57.01	175.6	12 0	203	17.35	187.6	12 0
120	95.97	171.4	12 0	162	56.07	175.9	12 2	204	16.48	187.7	12 0
121	94.73	171.1	12 0	163	55.25	176.1	12 0	205	15.67	188.7	12 2
122	93.77	170.8	12 0	165	53.64	178.1	30 0	206	14.90	189.9	12 2
123	92.84	170.4	12 0	166	52.76	178.6	1	207	13.66	189.0	12 2
124	91.92	170.4	12 0	167	52.07	179.7	12 0	208	12.52	189.1	12 2
125	90.78	170.2	12 0	168	51.29	181.0	12 0	209	11.44	187.7	12 0
126	90.07	170.2	4	169	50.12	181.5	1	211	9.06	184.8	12 0
127	89.14	170.5	30 0	171	48.65	182.2	12 0	212	7.87	185.1	12 0
128	88.08	171.0	12 0	172	47.71	183.1	12 0	213	7.19	181.9	12 0
129	87.10	171.4	12 0	173	46.80	183.1	1	214	6.21	185.8	3
131	85.50	171.1	12 0	174	45.84	182.9	12 0	215	5.19	182.9	12 0
132	84.25	171.0	12 0	175	44.74	182.4	10	216	4.43	185.4	12 0
133	83.51	171.1	12 2	176	43.85	183.0	12 0	217	3.61	187.6	12 0
134	82.38	171.7	12 2	177	42.99	184.4	12 0	218	2.50	183.3	30 0
135	81.71	172.2	12 0	178	42.15	184.6	12 0	219	1.69	184.6	30 0
136	80.80	172.8	3	179	41.36	184.9	12 0	220	0.18	113.5	88 2
137	79.67	173.5	12 2	180	40.02	184.6	12 0	221	97.79	171.1	12 0
138	78.88	173.6	12 2	181	39.09	185.0	12 0	222	64.32	175.9	12 0
139	77.86	173.8	12 0	182	38.25	185.2	12 2	223	48.29	183.1	12 0
140	76.91	173.7	12 0	183	37.43	185.5	12 0	227	21.38	188.3	12 2
141	75.95	174.1	12 0	184	36.46	186.0	3				

ALASKA RANGE DEPLOYMENT (CANADIAN)

Shot Number 1 Shot Point 19
Shot Time (Julian day, hr, min, sec): 205:08:00:00.016

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
110	218.57	356.8	150	255.82	355.1	190	293.67	353.9
120	227.74	356.8	160	265.01	355.2	200	303.32	354.5
130	237.48	356.8	170	274.46	354.1	210	313.34	355.0
140	246.57	355.7	180	284.09	354.0	225	322.81	355.3

Shot Number 2 Shot Point 44
Shot Time (Julian day, hr, min, sec): 205:08:02:00.012

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
110	76.27	164.8	150	38.34	165.1	190	0.04	198.6
120	67.29	163.3	160	29.46	160.9	200	10.06	11.0
130	57.80	161.3	170	19.27	170.6	210	20.48	10.4
140	47.93	163.8	180	9.64	169.7	225	30.11	8.9

Shot Number 3 Shot Point 49
Shot Time (Julian day, hr, min, sec): 205:08:04:00.007

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
110	261.16	169.8	150	223.45	170.7	190	185.41	172.0
120	252.04	169.6	160	214.32	170.4	200	175.86	170.9
130	242.34	169.3	170	204.64	171.8	210	166.01	169.8
140	232.87	170.2	180	195.00	171.9	225	156.73	168.9

Shot Number 4 Shot Point 3
Shot Time (Julian day, hr, min, sec): 205:08:06:00.010

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
110	8.65	358.9	150	46.37	347.5	190	84.66	346.5
120	17.82	357.5	160	55.43	349.4	200	93.93	349.1
130	27.56	356.9	170	65.50	345.3	210	103.71	351.2
140	36.87	349.7	180	75.08	346.1	225	113.07	352.5

Shot Number 5 Shot Point 8
Shot Time (Julian day, hr, min, sec): 205:08:08:00.008

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
110	117.53	354.6	150	155.07	352.3	190	193.17	350.9
120	126.70	354.7	160	164.22	352.6	200	202.66	351.9
130	136.44	354.8	170	173.93	350.9	210	212.56	352.8
140	145.70	353.1	180	183.57	351.0	225	221.96	353.4

**ALASKA RANGE DEPLOYMENT
(CANADIAN)**

Shot Number 6 Shot Point 42
Shot Time (Julian day, hr, min, sec): 205:08:10:00.005

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
---	---	---	---	---	---	---	---	---
110	29.49	165.8	150	8.46	341.3	190	46.75	344.5
120	20.52	161.3	160	17.47	350.3	200	55.97	349.2
130	11.35	148.9	170	27.71	340.2	210	65.80	352.4
140	1.22	142.8	180	37.21	343.2	225	75.22	354.1

Shot Number 7 Shot Point 48
Shot Time (Julian day, hr, min, sec): 205:10:00:00.007

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
---	---	---	---	---	---	---	---	---
110	218.08	168.4	150	180.28	169.3	190	142.14	170.6
120	208.98	168.1	160	171.18	168.9	200	132.69	169.1
130	199.31	167.8	170	161.38	170.6	210	122.98	167.4
140	189.75	168.8	180	151.74	170.5	225	113.83	165.9

Shot Number 8 Shot Point 1
Shot Time (Julian day, hr, min, sec): 205:10:02:00.005

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
---	---	---	---	---	---	---	---	---
110	41.19	165.5	150	3.31	174.6	190	35.05	344.3
120	32.21	162.6	160	5.91	0.7	200	44.30	350.2
130	22.83	157.0	170	16.08	336.6	210	54.21	354.0
140	12.85	162.9	180	25.51	342.3	225	63.69	355.8

Shot Number 9 Shot Point 45
Shot Time (Julian day, hr, min, sec): 205:10:04:00.012

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
---	---	---	---	---	---	---	---	---
110	90.93	168.9	150	53.18	171.9	190	15.81	188.6
120	81.83	168.1	160	44.04	170.5	200	5.73	184.4
130	72.18	167.1	170	34.62	178.7	210	4.74	16.7
140	62.60	169.9	180	25.08	181.5	225	14.34	9.4

Shot Number 10 Shot Point 41
Shot Time (Julian day, hr, min, sec): 205:10:06:00.010

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
---	---	---	---	---	---	---	---	---
110	5.57	172.3	150	32.41	343.6	190	70.71	344.6
120	3.63	2.0	160	41.37	346.9	200	79.86	347.8
130	13.36	357.5	170	51.64	342.2	210	89.58	350.4
140	22.82	345.6	180	61.16	343.7	225	98.91	351.9

ALASKA RANGE DEPLOYMENT (CANADIAN)

Shot Number 11 Shot Point 6
Shot Time (Julian day, hr, min, sec): 205:12:00:00.760

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
110	55.37	358.4	150	92.68	352.9	190	130.76	350.7
120	64.54	358.0	160	101.85	353.4	200	140.26	352.2
130	74.27	357.8	170	111.52	350.7	210	150.19	353.4
140	83.36	354.5	180	121.16	350.8	225	159.62	354.2

Shot Number 12 Shot Point 2
Shot Time (Julian day, hr, min, sec): 205:12:02:00.010

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
110	19.69	174.9	150	18.85	334.4	190	56.93	341.7
120	10.52	173.9	160	27.51	342.3	200	65.91	346.1
130	0.85	151.9	170	38.06	337.1	210	75.53	349.3
140	9.29	329.5	180	47.45	340.1	225	84.82	351.2

Shot Number 13 Shot Point 46
Shot Time (Julian day, hr, min, sec): 205:12:06:00.012

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
110	105.12	171.8	150	67.65	175.8	190	30.84	189.1
120	95.97	171.4	160	58.45	175.4	200	20.74	188.2
130	86.26	170.9	170	49.46	182.1	210	10.34	186.4
140	76.91	173.7	180	40.02	184.6	225	0.69	194.1

Shot Number 14 Shot Point 43
Shot Time (Julian day, hr, min, sec): 205:12:07:30.005

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
110	58.56	162.4	150	20.71	158.4	190	17.90	352.8
120	49.68	159.9	160	12.47	143.7	200	27.68	359.4
130	40.38	156.2	170	1.51	143.8	210	37.97	2.3
140	30.34	158.5	180	8.33	356.5	225	47.61	3.0

Shot Number 15 Shot Point 54
Shot Time (Julian day, hr, min, sec): 206:10:00:00.008

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
110	140.79	169.3	150	103.04	171.1	190	65.10	174.8
120	131.67	168.9	160	93.91	170.4	200	55.46	171.9
130	122.00	168.4	170	84.29	173.8	210	45.66	167.9
140	112.47	170.1	180	74.66	174.1	225	36.58	163.3

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**ALASKA RANGE DEPLOYMENT
(CANADIAN)**

**Shot Number 16 Shot Point 46
Shot Time (Julian day, hr, min, sec): 206:10:02:00.010**

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
110	105.12	171.8	150	67.65	175.8	190	30.84	189.1
120	95.97	171.4	160	58.45	175.4	200	20.74	188.2
130	86.26	170.9	170	49.46	182.1	210	10.34	186.4
140	76.91	173.7	180	40.02	184.6	225	0.69	194.1

FAIRBANKS SOUTH DEPLOYMENT
Shot Number 17 Shot Point 52
Shot Time (Julian day, hr, min, sec): 229:08:02:00.014

Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade
301	1.07	32.0	88 0	341	40.53	317.5	30 0	381	81.19	318.3	12 0
302	2.16	22.1	68 0	342	41.41	317.0	30 0	382	82.24	318.3	12 0
303	2.63	356.1	68 6	343	42.38	317.1	30 0	383	83.26	318.1	12 0
304	3.45	339.6	48 6	344	43.39	316.6	30 0	384	84.20	317.9	12 0
305	4.39	330.8	48 6	345	44.31	316.5	30 0	385	85.24	317.6	12 0
306	5.22	325.9	48 6	346	45.36	315.6	12 0	386	86.23	317.3	30 0
307	6.08	322.1	48 6	347	46.60	315.7	30 0	387	87.28	317.0	30 0
308	7.01	319.6	48 0	348	47.38	316.2	30 0	388	88.23	316.9	30 0
309	8.03	317.2	48 0	349	48.65	317.3	12 0	389	89.27	317.0	1
310	9.12	318.1	48 0	350	49.52	317.6	12 0	390	90.41	316.9	12 0
311	10.04	317.8	48 0	351	50.61	317.6	12 0	391	91.27	316.7	12 0
312	11.11	313.0	1	352	51.60	317.5	12 0	392	92.26	316.6	12 0
313	12.11	312.1	48 0	353	52.63	317.3	12 0	393	93.30	316.4	12 0
314	13.24	315.9	48 0	354	53.55	317.2	12 0	394	94.29	316.4	12 0
315	14.44	312.1	30 0	355	54.60	317.2	12 0	395	95.31	316.0	12 0
316	15.22	314.9	30 0	356	55.68	317.1	12 0	396	96.32	315.5	30 0
317	16.18	318.4	30 0	357	56.70	317.0	12 0	397	97.38	315.0	30 0
318	17.10	318.2	30 0	358	57.71	316.9	12 0	398	98.36	314.8	30 0
319	18.10	316.2	30 0	359	58.72	316.8	12 0	399	99.50	314.8	12 0
320	19.26	320.4	30 0	360	59.70	316.7	12 0	400	100.38	315.0	12 0
321	20.49	321.8	30 0	361	60.70	316.7	12 0	401	101.36	315.1	12 0
322	21.35	318.9	30 0	362	61.79	316.6	12 0	408	108.57	315.0	12 0
323	22.29	316.5	30 0	363	62.88	316.9	12 0	415	115.61	315.3	12 0
324	23.36	319.5	30 6	364	63.84	317.1	12 0	416	116.71	315.4	12 0
325	24.36	316.5	30 0	365	64.87	317.4	12 0	417	117.73	315.5	12 0
326	25.31	317.7	12 0	366	65.91	317.6	12 0	418	118.64	315.5	30 0
327	26.29	314.8	30 0	367	66.96	317.8	30 0	419	119.70	315.6	12 0
328	27.26	316.8	30 0	368	67.95	318.0	30 0	420	120.64	315.7	30 2
329	28.34	317.7	30 0	369	68.86	318.2	1	421	121.72	315.7	30 0
330	29.32	316.2	30 0	370	70.00	318.6	10	422	122.62	315.8	1
331	30.38	317.9	30 0	371	71.01	318.8	30 0	423	123.56	316.0	12 0
332	31.33	316.1	1	372	71.96	318.9	12 0	424	124.69	315.6	12 0
333	32.36	317.6	30 0	373	73.10	319.0	12 0	425	125.58	316.0	12 0
334	33.36	318.4	30 0	374	74.17	319.1	12 0	426	123.95	315.0	12 0
335	34.39	319.7	30 0	375	75.07	319.0	30 0	430	278.08	318.8	12 2
336	35.49	320.4	3	376	76.11	318.8	30 0	431	0.06	309.7	88 0
337	36.39	318.6	30 0	377	77.23	318.7	30 0	432	69.46	121.5	30 0
338	37.41	318.2	12 0	378	78.30	318.9	12 0	433	56.62	315.9	30 0
339	38.50	316.3	30 0	379	79.17	318.4	30 0	434	96.02	315.8	12 0
340	39.50	317.4	30 0	380	80.18	318.3	30 0	435	152.30	135.4	12 0

FAIRBANKS SOUTH DEPLOYMENT

Shot Number 18 Shot Point 51

Shot Time (Julian day, hr, min, sec): 229:08:04:00.008

Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade
301	69.56	303.4	30 0	341	109.09	308.4	30 0	381	149.13	311.6	12 20
302	69.95	304.2	30 0	342	110.01	308.3	30 0	382	150.18	311.6	12 0
303	71.12	304.2	30 0	343	110.95	308.4	30 0	383	151.22	311.6	12 0
304	72.31	304.2	30 0	344	112.02	308.3	30 0	384	152.20	311.5	12 0
305	73.42	304.2	30 0	345	112.95	308.3	30 0	385	153.28	311.4	12 0
306	74.35	304.2	30 0	346	114.09	308.1	12 0	386	154.32	311.3	12 0
307	75.29	304.1	30 0	347	115.30	308.2	12 0	387	155.42	311.2	30 0
308	76.26	304.1	30 0	348	116.00	308.5	30 0	388	156.38	311.2	30 0
309	77.33	304.1	30 0	349	117.12	309.0	30 0	389	157.40	311.2	1
310	78.35	304.4	30 0	350	117.93	309.2	30 0	390	158.55	311.2	12 0
311	79.25	304.5	30 0	351	119.01	309.3	30 0	391	159.43	311.2	12 0
312	80.48	304.1	1	352	120.01	309.3	30 0	392	160.43	311.1	12 0
313	81.50	304.1	30 0	353	121.04	309.3	12 0	393	161.50	311.1	12 0
314	82.45	304.8	12 0	354	121.97	309.4	12 0	394	162.49	311.1	12 0
315	83.80	304.3	30 0	355	123.01	309.4	12 0	395	163.57	310.9	12 0
316	84.44	304.9	30 0	356	124.10	309.4	12 0	396	164.67	310.7	12 0
317	85.17	305.7	30 0	357	125.12	309.5	12 0	397	165.80	310.4	30 0
318	86.09	305.8	30 0	358	126.13	309.5	12 0	398	166.82	310.3	30 0
319	87.19	305.5	30 0	359	127.14	309.5	12 0	399	167.95	310.4	12 0
320	88.01	306.6	12 0	360	128.13	309.6	12 0	400	168.80	310.5	12 0
321	89.07	307.1	30 0	361	129.12	309.6	30 0	401	169.75	310.6	12 0
322	90.16	306.6	30 0	362	130.21	309.6	12 0	408	176.94	310.8	12 0
323	91.27	306.1	30 0	363	131.25	309.8	12 0	415	183.90	311.2	12 0
324	92.06	307.0	30 0	364	132.16	310.0	12 0	416	184.98	311.3	12 0
325	93.31	306.4	30 0	365	133.14	310.2	30 0	417	185.97	311.3	12 0
326	94.14	306.8	12 0	366	134.13	310.4	4	418	186.88	311.4	30 0
327	95.34	306.1	30 0	367	135.16	310.5	30 0	419	187.93	311.5	12 0
328	96.12	306.8	30 0	368	136.09	310.7	30 0	420	188.85	311.5	12 0
329	97.10	307.2	30 0	369	136.95	310.8	1	421	189.91	311.6	30 0
330	98.20	306.9	30 0	370	138.01	311.1	10	422	190.79	311.7	1
331	99.07	307.5	30 0	371	138.97	311.2	30 0	423	191.69	311.8	12 0
332	100.19	307.0	1	372	139.89	311.4	30 0	424	192.89	311.6	12 0
333	101.06	307.6	30 0	373	140.98	311.5	30 0	425	193.70	311.9	12 0
334	101.95	308.0	30 0	374	142.04	311.6	30 0	426	192.26	311.2	12 0
335	102.79	308.5	30 0	375	142.95	311.6	30 0	430	245.09	316.4	12 2
336	103.77	308.9	3	376	144.01	311.6	30 0	431	69.63	302.5	30 0
337	104.88	308.4	30 0	377	145.13	311.6	30 0	432	0.19	248.1	30 6
338	105.94	308.3	30 0	378	146.15	311.8	12 0	433	125.19	309.0	12 0
339	107.23	307.8	30 0	379	147.11	311.5	30 0	434	164.31	310.8	12 0
340	108.09	308.2	30 0	380	148.14	311.5	30 0	435	86.45	147.7	12 6

FAIRBANKS SOUTH DEPLOYMENT
Shot Number 20 Shot Point 56
Shot Time (Julian day, hr, min, sec): 229:08:06:00.012

Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade
301	108.31	133.1	12 0	341	68.08	132.2	12 0	381	27.87	124.0	12 0
302	107.72	132.5	12 0	342	67.18	132.4	48 6	382	26.84	123.7	12 0
303	106.57	132.7	12 0	343	66.21	132.3	12 0	383	25.79	123.6	30 0
304	105.41	132.8	12 0	344	65.18	132.5	12 0	384	24.80	123.9	30 0
305	104.33	133.0	12 0	345	64.26	132.6	12 0	385	23.69	124.4	30 0
306	103.42	133.1	12 0	346	63.19	133.2	12 0	386	22.63	125.1	30 0
307	102.51	133.2	12 0	347	61.95	133.1	12 0	387	21.52	125.7	30 0
308	101.56	133.3	12 0	348	61.18	132.7	12 0	388	20.56	125.6	30 0
309	100.52	133.4	12 0	349	59.96	131.8	12 0	389	19.56	124.8	1
310	99.44	133.3	12 0	350	59.12	131.4	12 0	390	18.40	124.7	30 0
311	98.52	133.3	12 0	351	58.03	131.4	12 0	391	17.52	124.7	30 0
312	97.44	133.8	1	352	57.03	131.4	12 0	392	16.51	124.9	30 0
313	96.45	134.0	30 0	353	56.00	131.5	12 0	393	15.45	125.1	30 0
314	95.31	133.5	12 0	354	55.07	131.5	12 0	394	14.45	124.9	30 0
315	94.13	134.1	12 0	355	54.02	131.5	12 0	395	13.35	126.6	30 0
316	93.32	133.6	12 0	356	52.93	131.5	12 0	396	12.25	129.9	30 0
317	92.40	133.0	12 0	357	51.91	131.5	12 0	397	11.17	133.6	30 0
318	91.47	133.0	12 0	358	50.90	131.5	12 0	398	10.20	136.4	30 0
319	90.45	133.4	12 0	359	49.89	131.5	12 0	399	9.05	136.0	30 0
320	89.38	132.5	12 0	360	48.90	131.5	12 0	400	8.16	134.0	30 0
321	88.22	132.0	12 0	361	47.90	131.5	12 0	401	7.18	132.1	30 0
322	87.25	132.7	12 0	362	46.81	131.5	12 0	408	0.10	236.3	88 0
323	86.27	133.2	12 0	363	45.74	131.1	12 0	415	7.08	317.7	30 0
324	85.28	132.4	12 0	364	44.81	130.6	12 0	416	8.20	319.1	48 0
325	84.19	133.2	12 0	365	43.81	130.2	12 0	417	9.22	319.4	30 0
326	83.26	132.8	12 0	366	42.80	129.7	4	418	10.14	319.1	48 0
327	82.26	133.7	12 0	367	41.77	129.2	12 0	419	11.21	319.4	30 0
328	81.30	133.0	12 0	368	40.83	128.7	30 0	420	12.16	319.7	30 0
329	80.24	132.7	12 0	369	39.97	128.2	1	421	13.25	319.8	30 0
330	79.23	133.2	12 0	370	38.91	127.3	10	422	14.17	320.4	1
331	78.22	132.5	12 0	371	37.96	126.6	30 0	423	15.15	321.6	30 0
332	77.22	133.2	1	372	37.05	126.2	12 0	424	16.18	317.7	30 0
333	76.23	132.5	12 0	373	35.99	125.4	12 0	425	17.15	320.7	30 0
334	75.26	132.1	12 0	374	34.94	125.1	12 0	426	15.41	313.6	30 0
335	74.32	131.5	12 0	375	34.04	124.9	30 0	430	169.92	319.6	12 2
336	73.28	131.0	3	376	32.98	124.9	30 0	431	108.49	133.6	30 0
337	72.26	131.8	12 0	377	31.85	124.7	30 0	432	176.83	128.3	12 0
338	71.22	132.0	12 0	378	30.88	123.7	12 0	433	51.94	132.7	12 0
339	70.06	132.9	12 0	379	29.88	124.6	30 0	434	12.60	127.7	30 0
340	69.10	132.3	12 0	380	28.85	124.5	30 0	435	260.84	133.8	12 0

FAIRBANKS SOUTH DEPLOYMENT
Shot Number 21 Shot Point 66
Shot Time (Julian day, hr, min, sec): 229:08:08:00.008

Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade
301	277.84	135.0	12 0	341	237.63	135.4	12 0	381	196.96	135.4	12 0
302	277.18	134.8	12 0	342	236.76	135.5	12 0	382	195.91	135.4	12 0
303	276.06	134.9	12 0	343	235.79	135.5	12 0	383	194.89	135.5	12 2
304	274.92	134.9	12 0	344	234.79	135.6	30 0	384	193.96	135.6	12 0
305	273.86	135.0	12 0	345	233.88	135.6	12 0	385	192.93	135.7	12 0
306	272.97	135.1	12 0	346	232.87	135.8	12 2	386	191.97	135.9	12 0
307	272.08	135.1	12 0	347	231.63	135.8	12 2	387	190.93	136.0	12 0
308	271.13	135.2	12 0	348	230.83	135.7	12 0	388	189.99	136.1	12 0
309	270.12	135.3	12 0	349	229.52	135.5	12 2	389	188.95	136.1	1
310	269.02	135.2	12 0	350	228.64	135.5	12 0	390	187.82	136.1	12 0
311	268.11	135.2	12 0	351	227.55	135.5	12 0	391	186.96	136.2	12 0
312	267.10	135.4	1	352	226.56	135.5	12 0	392	185.99	136.3	12 0
313	266.12	135.5	12 0	353	225.54	135.6	12 0	393	184.97	136.4	12 0
314	264.93	135.3	12 0	354	224.62	135.6	12 2	394	183.99	136.5	12 0
315	263.81	135.6	12 0	355	223.58	135.6	12 0	395	183.01	136.7	12 0
316	262.96	135.4	12 0	356	222.49	135.6	12 0	396	182.07	136.9	12 0
317	261.97	135.2	12 0	357	221.48	135.7	12 0	397	181.09	137.2	30 0
318	261.04	135.2	12 0	358	220.47	135.7	12 0	398	180.17	137.4	30 0
319	260.07	135.4	12 0	359	219.48	135.7	12 2	399	179.02	137.4	12 0
320	258.89	135.1	12 0	360	218.49	135.8	12 0	400	178.11	137.3	12 0
321	257.68	135.0	12 0	361	217.50	135.8	12 0	401	177.11	137.3	12 0
322	256.79	135.2	12 2	362	216.41	135.8	12 0	408	169.98	137.6	12 0
323	255.88	135.4	12 0	363	215.31	135.8	12 0	415	162.91	137.7	12 0
324	254.79	135.1	12 0	364	214.34	135.7	12 0	416	161.79	137.6	12 0
325	253.81	135.4	12 0	365	213.30	135.6	12 0	417	160.76	137.6	12 0
326	252.84	135.3	12 0	366	212.26	135.6	4	418	159.85	137.6	12 0
327	251.93	135.6	12 2	367	211.18	135.5	12 0	419	158.78	137.6	12 0
328	250.90	135.4	12 2	368	210.21	135.5	12 0	420	157.83	137.6	12 0
329	249.81	135.3	12 2	369	209.30	135.4	1	421	156.74	137.6	30 0
330	248.86	135.5	12 0	370	208.15	135.3	10	422	155.82	137.5	1
331	247.77	135.3	12 0	371	207.14	135.2	12 0	423	154.85	137.4	12 0
332	246.85	135.5	1	372	206.19	135.2	12 0	424	153.82	137.8	12 0
333	245.79	135.4	12 0	373	205.05	135.1	12 0	425	152.84	137.5	12 0
334	244.79	135.3	12 0	374	203.97	135.1	12 0	426	154.68	138.2	12 0
335	243.76	135.1	12 0	375	203.08	135.1	12 0	430	0.10	89.6	88 0
336	242.67	135.0	3	376	202.04	135.2	12 0	431	278.09	135.2	12 0
337	241.76	135.2	12 2	377	200.92	135.2	12 0	432	345.09	131.8	12 0
338	240.74	135.3	12 2	378	199.84	135.2	12 0	433	221.62	136.0	12 0
339	239.68	135.6	12 0	379	198.98	135.4	12 0	434	182.33	136.8	12 0
340	238.66	135.4	12 0	380	197.97	135.4	12 0	435	430.27	134.0	12 2

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FAIRBANKS SOUTH DEPLOYMENT
Shot Number 22 Shot Point 55
Shot Time (Julian day, hr, min, sec): 229:08:10:00.014

Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade
301	95.82	134.0	12 0	341	55.57	133.4	30 0	381	15.36	121.3	30 0
302	95.22	133.4	12 0	342	54.67	133.7	30 0	382	14.33	120.5	30 0
303	94.07	133.6	12 0	343	53.71	133.6	12 0	383	13.29	120.1	48 0
304	92.92	133.7	12 0	344	52.69	133.9	30 0	384	12.29	120.4	30 0
305	91.84	133.9	12 0	345	51.76	134.1	12 0	385	11.18	121.0	30 0
306	90.93	134.0	30 6	346	50.71	134.8	12 0	386	10.10	122.4	48 0
307	90.03	134.2	12 0	347	49.47	134.7	12 0	387	8.98	123.3	30 0
308	89.07	134.3	12 0	348	48.69	134.2	30 0	388	8.02	122.7	48 0
309	88.04	134.5	12 0	349	47.45	133.1	12 0	389	7.04	120.3	1
310	86.95	134.3	12 0	350	46.60	132.7	12 0	390	5.90	118.8	30 6
311	86.04	134.4	12 0	351	45.51	132.7	12 0	391	5.02	117.9	48 0
312	84.97	135.0	1	352	44.51	132.7	12 0	392	4.01	116.9	48 0
313	83.98	135.1	12 0	353	43.48	132.8	12 0	393	2.94	115.2	48 6
314	82.83	134.6	12 0	354	42.55	132.8	12 0	394	1.98	108.6	68 0
315	81.66	135.3	12 0	355	41.50	132.8	12 0	395	0.82	113.1	68 0
316	80.85	134.8	12 0	356	40.41	132.9	12 0	396	0.61	249.0	88 0
317	79.91	134.1	12 0	357	39.39	133.0	12 0	397	1.88	268.6	68 0
318	78.98	134.1	12 0	358	38.38	133.0	12 0	398	2.94	275.2	68 0
319	77.97	134.5	12 0	359	37.37	133.1	12 0	399	3.85	287.2	48 0
320	76.88	133.5	12 0	360	36.38	133.1	12 0	400	4.55	295.8	48 0
321	75.71	133.0	12 0	361	35.38	133.1	12 0	401	5.43	301.5	48 0
322	74.75	133.7	12 0	362	34.29	133.2	12 0	408	12.59	307.3	30 6
323	73.78	134.4	30 0	363	33.21	132.6	12 0	415	19.57	311.3	30 0
324	72.77	133.4	12 0	364	32.28	132.1	30 0	416	20.66	312.2	30 0
325	71.71	134.4	12 0	365	31.27	131.4	30 0	417	21.67	312.7	30 0
326	70.77	133.9	12 0	366	30.26	130.8	4	418	22.58	312.9	30 0
327	69.78	135.0	12 0	367	29.22	130.1	30 0	419	23.64	313.3	12 0
328	68.81	134.2	12 0	368	28.26	129.5	30 0	420	24.57	313.7	12 0
329	67.75	133.8	12 0	369	27.41	128.8	1	421	25.65	314.0	30 0
330	66.75	134.4	30 0	370	26.35	127.4	10	422	26.56	314.5	1
331	65.72	133.6	12 0	371	25.41	126.4	30 0	423	27.50	315.4	12 0
332	64.74	134.5	1	372	24.50	125.7	30 0	424	28.62	313.4	12 0
333	63.73	133.7	12 0	373	23.45	124.5	30 0	425	29.51	315.3	12 0
334	62.75	133.3	12 0	374	22.40	123.9	30 0	426	27.92	311.1	12 0
335	61.80	132.5	12 0	375	21.50	123.6	30 0	431	96.01	134.6	30 0
336	60.76	131.9	3	376	20.44	123.5	30 0	432	164.27	128.6	12 0
337	59.75	132.9	12 0	377	19.32	123.1	30 0	433	39.45	134.5	30 0
338	58.71	133.1	12 0	378	18.37	121.3	30 0	434	0.06	167.8	88 6
339	57.57	134.3	30 0	379	17.35	122.7	30 0	435	248.37	134.3	12 0
340	56.59	133.5	12 0	380	16.32	122.5	30 0	437	84.88	322.3	12 2

FAIRBANKS SOUTH DEPLOYMENT
Shot Number 23 Shot Point 53
Shot Time (Julian day, hr, min, sec): 229:10:00:00.012

Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade
301	25.64	131.1	12 0	341	14.84	323.7	48 0	381	55.48	320.1	12 0
302	25.12	128.8	30 0	342	15.69	322.1	30 0	382	56.52	320.0	12 0
303	23.96	129.2	30 0	343	16.66	322.1		383	57.54	319.7	12 0
304	22.78	129.6	30 0	344	17.64	320.5	30 0	384	58.46	319.4	12 0
305	21.68	130.0	30 0	345	18.54	319.9	30 0	385	59.49	318.9	12 0
306	20.76	130.4	30 0	346	19.56	317.8	12 0	386	60.46	318.4	12 0
307	19.84	130.8	30 0	347	20.80	317.9	12 0	387	61.50	318.0	12 0
308	18.87	131.2	30 0	348	21.60	318.9	30 0	388	62.45	317.9	12 0
309	17.82	131.9	48 0	349	22.92	321.0	12 0	389	63.49	317.9	1
310	16.75	131.0	30 0	350	23.81	321.5	12 0	390	64.63	317.8	12 0
311	15.84	130.9	30 0	351	24.89	321.2	12 0	391	65.49	317.6	12 0
312	14.73	134.0	1	352	25.87	320.8	12 0	392	66.46	317.4	12 0
313	13.73	134.9	30 0	353	26.89	320.4	12 0	393	67.50	317.1	12 0
314	12.62	131.1	30 0	354	27.81	320.1	12 0	394	68.49	317.0	12 0
315	11.41	135.5	30 0	355	28.85	319.9	12 0	395	69.50	316.5	12 0
316	10.62	131.7	48 0	356	29.93	319.6	12 0	396	70.50	315.8	12 0
317	9.80	125.7	30 0	357	30.94	319.3	12 0	397	71.55	315.2	30 0
318	8.88	124.8	48 0	358	31.95	319.2	12 0	398	72.53	314.8	30 0
319	7.79	127.6	48 0	359	32.95	318.9	12 0	399	73.67	314.9	12 0
320	7.06	115.0	48 0	360	33.93	318.7	12 0	400	74.56	315.1	12 0
321	6.24	106.1	48 0	361	34.93	318.5	12 0	401	75.54	315.3	12 0
322	4.96	110.6	3	362	36.01	318.3	12 0	408	82.74	315.0	12 0
323	3.73	116.8	48 6	363	37.11	318.7	12 0	415	89.78	315.4	12 0
324	3.49	91.4	68 0	364	38.08	319.1	12 0	416	90.89	315.6	12 0
325	1.90	95.7	68 6	365	39.12	319.4	12 0	417	91.90	315.6	12 0
326	1.83	61.9	30 6	366	40.17	319.7	4	418	92.82	315.7	30 0
327	0.65	359.7	88 0	367	41.25	320.0	12 0	419	93.88	315.7	12 0
328	2.02	180.0	88 2	368	42.23	320.2	12 0	420	94.82	315.8	12 0
329	3.11	351.8	66 0	369	43.14	320.5	1	421	95.90	315.9	30 0
330	3.69	333.7	68 0	370	44.31	321.0	10	422	96.81	316.0	1
331	4.98	339.9	48 0	371	45.33	321.3	30 0	423	97.75	316.3	12 0
332	5.62	326.7	1	372	46.28	321.4	12 0	424	98.87	315.7	12 0
333	6.81	331.8	48 0	373	47.43	321.6	12 0	425	99.77	316.3	12 0
334	7.89	333.3	48 0	374	48.51	321.5	12 0	426	98.12	315.0	12 0
335	9.09	336.3	48 0	375	49.40	321.4	12 0	431	25.78	133.4	12 1
336	10.27	336.9	4	376	50.42	321.0	12 0	432	94.87	124.5	12 0
337	10.87	329.9	30 0	377	51.54	320.8	12 0	433	30.81	317.3	12 0
338	11.82	327.5	30 0	378	52.62	321.1	12 0	434	70.21	316.2	12 0
339	12.75	321.3	30 0	379	53.47	320.4	12 0	435	178.13	134.6	12 0
340	13.81	323.8	30 0	380	54.47	320.1	12 0	437	154.85	320.1	1

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FAIRBANKS SOUTH DEPLOYMENT
Shot Number 24 Shot Point 57
Shot Time (Julian day, hr, min, sec): 229:10:02:00.012

Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade	Loc	Dist (km)	Azim (deg)	Tape Db Grade
301	123.75	132.9	12 0	341	83.51	132.2	30 0	381	43.17	127.2	30 0
302	123.16	132.5	30 0	342	82.61	132.4	30 0	382	42.13	127.0	30 0
303	122.01	132.6	30 0	343	81.65	132.3	1	383	41.09	127.1	30 0
304	120.85	132.7	30 0	344	80.61	132.5	30 0	384	40.10	127.4	30 0
305	119.77	132.8	30 0	345	79.69	132.6	30 0	385	39.01	127.8	30 0
306	118.86	132.9	30 0	346	78.62	133.0	30 0	386	37.97	128.3	30 0
307	117.95	133.0	30 0	347	77.39	133.0	30 0	387	36.88	128.7	30 0
308	116.99	133.1	30 0	348	76.62	132.6	30 0	388	35.91	128.8	30 0
309	115.95	133.2	30 0	349	75.40	131.9	30 0	389	34.90	128.5	1
310	114.87	133.1	12 1	350	74.55	131.7	30 0	390	33.74	128.5	30 0
311	113.96	133.1	30 0	351	73.46	131.6	30 0	391	32.86	128.6	30 0
312	112.88	133.6	1	352	72.46	131.7	30 0	392	31.86	128.8	30 0
313	111.89	133.7	30 0	353	71.43	131.7	30 0	393	30.80	129.1	48 0
314	110.75	133.3	12 0	354	70.50	131.7	30 0	394	29.80	129.1	30 0
315	109.56	133.8	30 0	355	69.45	131.7	12 0	395	28.74	130.1	30 0
316	108.76	133.4	30 0	356	68.36	131.7	12 0	396	27.67	131.7	30 0
317	107.84	132.9	30 0	357	67.34	131.7	30 0	397	26.60	133.3	30 6
318	106.91	132.9	30 0	358	66.33	131.7	30 0	398	25.63	134.4	30 6
319	105.89	133.2	30 0	359	65.32	131.8	30 0	399	24.48	134.2	48 0
320	104.82	132.4	12 0	360	64.33	131.8	30 0	400	23.60	133.5	30 0
321	103.66	132.1	30 0	361	63.33	131.8	30 0	401	22.62	132.9	48 0
322	102.69	132.6	3	362	62.24	131.8	30 0	402	15.42	133.7	30 6
323	101.70	133.1	30 0	363	61.17	131.5	30 0	415	8.39	129.8	48 0
324	100.71	132.4	30 0	364	60.23	131.2	30 0	416	7.32	127.1	48 0
325	99.63	133.0	30 0	365	59.22	130.8	30 0	417	6.33	124.7	48 0
326	98.70	132.7	12 0	366	58.22	130.5	4	418	5.44	122.8	48 6
327	97.69	133.5	30 0	367	57.17	130.1	30 0	419	4.43	118.4	48 6
328	96.74	132.9	30 0	368	56.23	129.8	30 0	420	3.60	111.8	48 6
329	95.68	132.6	30 0	369	55.36	129.5	1	421	2.69	100.9	68 6
330	94.67	133.0	30 0	370	54.28	128.8	10	422	2.19	82.2	1
331	93.66	132.4	30 0	371	53.32	128.4	30 0	423	2.17	55.0	68 0
332	92.66	133.0	1	372	52.40	128.1	30 0	424	1.36	12.5	88 0
333	91.66	132.5	30 0	373	51.32	127.7	30 0	425	2.66	7.0	68 6
334	90.70	132.2	30 0	374	50.26	127.4	30 0	426	0.04	92.3	88 6
335	89.75	131.6	30 0	375	49.36	127.4	30 0	431	123.92	133.4	30 0
336	88.71	131.2	4	376	48.30	127.4	30 0	432	192.21	128.5	12 0
337	87.70	131.9	30 0	377	47.17	127.4	30 0	433	67.38	132.7	30 0
338	86.65	132.0	30 0	378	46.17	126.8	30 0	434	28.00	130.7	30 0
339	85.49	132.8	30 0	379	45.19	127.4	30 0	435	276.28	133.6	12 0
340	84.53	132.3	30 0	380	44.17	127.5	30 0	437	57.72	327.3	1

FAIRBANKS SOUTH DEPLOYMENT
Shot Number 25 Shot Point 73
Shot Time (Julian day, hr, min, sec): 229:10:04:00.013

Loc	Dist (km)	Azim (deg)	Tape		Loc	Dist (km)	Azim (deg)	Tape		Loc	Dist (km)	Azim (deg)	Tape	
			Db	Grade				Db	Grade				Db	Grade
301	73.80	137.3	12	0	341	33.61	139.9	30	0	381	7.15	310.7	48	0
302	73.15	136.6	12	0	342	32.75	140.5	30	0	382	8.20	311.0	30	0
303	72.02	136.8	30	0	343	31.78	140.5		1	383	9.23	310.4	30	0
304	70.88	137.1	12	0	344	30.80	141.4	30	0	384	10.21	309.1	30	0
305	69.81	137.3	12	0	345	29.90	141.8	30	0	385	11.30	307.7	30	0
306	68.93	137.5	12	0	346	28.94	143.3	30	0	386	12.36	306.0	30	0
307	68.03	137.8	12	0	347	27.70	143.5	12	0	387	13.47	305.1	30	0
308	67.09	138.0	12	0	348	26.87	142.9	30	0	388	14.43	305.3	30	0
309	66.07	138.3	12	0	349	25.51	141.3	12	0	389	15.43	306.3		1
310	64.98	138.2	12	0	350	24.63	140.8	12	0	390	16.58	306.5	12	0
311	64.07	138.3	12	0	351	23.54	141.1	12	0	391	17.47	306.4	12	0
312	63.06	139.1		1	352	22.56	141.6	30	0	392	18.48	306.1	12	0
313	62.09	139.4	12	0	353	21.55	142.1	12	0	393	19.54	305.9	30	0
314	60.89	138.7	12	0	354	20.64	142.6	12	0	394	20.54	306.0	30	0
315	59.79	139.7	12	0	355	19.61	143.1	12	0	395	21.64	305.0	12	0
316	58.93	139.1	12	0	356	18.54	143.8	12	0	396	22.80	303.3	30	0
317	57.93	138.2	12	0	357	17.55	144.6	12	0	397	23.99	301.9	30	0
318	57.00	138.3	12	0	358	16.56	145.2	30	0	398	25.06	301.3	30	0
319	56.03	139.0	12	0	359	15.59	146.3	30	0	399	26.15	302.1	30	0
320	54.85	137.6	12	0	360	14.63	147.3	12	0	400	26.95	303.1	12	0
321	53.64	137.0	12	0	361	13.66	148.3	30	0	401	27.87	304.0	12	0
322	52.75	138.1		3	362	12.62	149.7	30	0	408	35.02	305.6	12	0
323	51.85	139.1	12	0	363	11.49	149.6	30	0	415	41.93	307.9	12	0
324	50.75	137.8	12	0	364	10.50	149.4	30	0	416	42.99	308.4	12	0
325	49.78	139.3	12	0	365	9.43	149.2	30	0	417	43.99	308.7	12	0
326	48.80	138.7	12	0	366	8.37	149.0		4	418	44.89	308.9	12	0
327	47.92	140.4	12	0	367	7.27	149.0	48	0	419	45.94	309.2	12	0
328	46.87	139.3	12	0	368	6.28	149.0	48	0	420	46.86	309.5	12	0
329	45.77	138.9	12	0	369	5.34	148.6		1	421	47.92	309.8	30	0
330	44.84	139.9	30	0	370	4.13	145.2		10	422	48.80	310.1		1
331	43.73	138.8	12	0	371	3.10	142.9	68	0	423	49.71	310.7	12	0
332	42.84	140.2		1	372	2.15	141.9	68	0	424	50.91	309.7	12	0
333	41.76	139.2	12	0	373	1.01	132.7	88	0	425	51.72	310.9	12	0
334	40.74	138.6	12	0	374	0.12	12.9	12	0	426	50.28	308.3	30	0
335	39.72	137.5	12	0	375	0.97	317.3	88	0	431	74.04	138.1	12	0
336	38.63	136.8		4	376	2.02	311.4	68	0	432	141.91	129.6	12	2
337	37.72	138.4	30	0	377	3.15	311.1	68	0	433	17.83	147.9	30	0
338	36.70	138.9	12	0	378	4.20	317.1	48	0	434	22.40	304.4	12	0
339	35.68	140.9	30	0	379	5.12	309.7	48	0	435	226.30	135.7	12	0
340	34.64	139.9	30	0	380	6.15	309.2	48	0	437	106.44	318.9		1

FAIRBANKS SOUTH DEPLOYMENT
Shot Number 26 Shot Point 59
Shot Time (Julian day, hr, min, sec): 229:12:00:00.009

Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade
301	180.22	136.9	12 0	341	140.04	137.8	12 0	381	99.37	138.1	12 0
302	179.56	136.6	12 0	342	139.18	137.9	12 0	382	98.33	138.2	12 0
303	178.44	136.7	12 0	343	138.21	137.9	1	383	97.32	138.3	12 0
304	177.30	136.8	12 0	344	137.21	138.1	12 0	384	96.40	138.5	12 0
305	176.24	136.9	12 0	345	136.31	138.2	12 0	385	95.38	138.8	12 0
306	175.36	137.0	12 0	346	135.31	138.5	12 0	386	94.43	139.2	12 0
307	174.47	137.1	12 0	347	134.07	138.5	12 2	387	93.41	139.5	12 0
308	173.53	137.2	12 0	348	133.26	138.3	12 0	388	92.48	139.6	12 0
309	172.51	137.3	12 0	349	131.94	138.0	12 0	389	91.44	139.6	1
310	171.42	137.3	12 0	350	131.06	137.9	12 0	390	90.31	139.8	12 0
311	170.51	137.3	12 0	351	129.97	137.9	12 0	391	89.47	139.9	12 0
312	169.50	137.6	1	352	128.98	138.0	12 0	392	88.51	140.1	12 0
313	168.53	137.7	12 0	353	127.96	138.1	12 0	393	87.51	140.4	30 0
314	167.33	137.5	12 0	354	127.04	138.1	12 0	394	86.53	140.5	12 0
315	166.23	137.8	12 0	355	126.00	138.2	12 0	395	85.59	141.0	12 0
316	165.37	137.6	12 0	356	124.92	138.2	12 0	396	84.70	141.7	12 0
317	164.37	137.3	12 0	357	123.91	138.3	12 0	397	83.78	142.3	30 0
318	163.44	137.3	12 0	358	122.91	138.4	12 0	398	82.90	142.7	30 0
319	162.47	137.5	12 0	359	121.92	138.5	3	399	81.75	142.8	30 0
320	161.28	137.1	12 0	360	120.94	138.5	12 0	400	80.83	142.7	12 0
321	160.06	136.9	12 0	361	119.94	138.6	12 0	401	79.82	142.6	12 0
322	159.19	137.3	3	362	118.86	138.7	1	408	72.79	143.8	30 0
323	158.29	137.6	30 2	363	117.75	138.6	12 0	415	65.77	144.5	12 0
324	157.18	137.2	12 0	364	116.78	138.5	12 0	416	64.63	144.4	12 0
325	156.22	137.6	12 0	365	115.73	138.3	12 0	417	63.61	144.5	12 0
326	155.24	137.5	12 2	366	114.69	138.2	12 0	418	62.71	144.6	30 0
327	154.35	138.0	12 0	367	113.60	138.2	12 0	419	61.64	144.7	12 0
328	153.31	137.6	12 0	368	112.62	138.1	12 0	420	60.68	144.7	12 0
329	152.21	137.5	12 0	369	111.71	138.0	1	421	59.60	144.8	30 0
330	151.27	137.8	12 0	370	110.55	137.7	10	422	58.67	144.7	1
331	150.17	137.5	12 0	371	109.54	137.6	12 0	423	57.67	144.5	12 0
332	149.27	137.9	1	372	108.59	137.6	12 0	424	56.76	145.7	12 0
333	148.20	137.6	12 0	373	107.45	137.4	12 0	425	55.70	144.9	12 0
334	147.18	137.4	12 0	374	106.37	137.5	12 0	426	57.74	146.6	12 0
335	146.15	137.1	12 0	375	105.48	137.5	12 0	431	180.48	137.2	12 0
336	145.06	137.0	4	376	104.44	137.7	12 0	432	247.56	132.2	12 2
337	144.16	137.4	12 0	377	103.32	137.7	12 0	433	124.08	138.8	12 0
338	143.14	137.5	12 0	378	102.24	137.6	12 0	434	84.93	141.3	12 0
339	142.11	136.0	12 0	379	101.39	138.0	12 0	435	332.63	135.3	12 2
340	141.07	137.8	12 0	380	100.39	138.1	12 0	437	0.05	48.3	30 6

FAIRBANKS SOUTH DEPLOYMENT

Shot Number 27 Shot Point 47

Shot Time (Julian day, hr, min, sec): 229:12:02:00.010

Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade
301	56.39	134.0	12 0	341	16.17	130.9	30 0	381	24.74	323.3	30 0
302	55.80	133.1	30 0	342	15.26	131.8	48 0	382	25.78	322.9	30 0
303	54.65	133.3	30 0	343	14.30	131.2	1	383	26.77	322.3	30 0
304	53.49	133.6	30 0	344	13.26	132.5	48 0	384	27.68	321.4	30 0
305	52.41	133.9	12 0	345	12.33	132.8	48 0	385	28.69	320.4	30 0
306	51.50	134.1	30 0	346	11.27	135.9	48 0	386	29.65	319.3	30 0
307	50.59	134.3	30 0	347	10.03	135.4	30 0	387	30.68	318.4	30 0
308	49.64	134.6	30 0	348	9.26	133.0	48 0	388	31.63	318.1	30 0
309	48.60	134.9	30 0	349	8.10	126.2	30 0	389	32.66	318.2	1
310	47.52	134.6	12 0	350	7.31	122.8	48 0	390	33.80	317.9	30 0
311	46.60	134.7	12 0	351	6.24	120.8	48 0	391	34.66	317.5	30 0
312	45.54	135.8	1	352	5.26	118.9	48 0	392	35.64	317.1	30 0
313	44.55	136.1	12 0	353	4.25	116.2	48 0	393	36.67	316.7	30 0
314	43.39	135.1	12 0	354	3.37	111.9	48 0	394	37.66	316.5	30 0
315	42.23	136.4	12 0	355	2.42	103.0	68 0	395	38.67	315.6	30 0
316	41.41	135.4	12 0	356	1.55	83.3	68 0	396	39.69	314.3	30 0
317	40.48	134.1	30 0	357	1.14	42.1	88 0	397	40.76	313.2	30 0
318	39.55	134.1	30 0	358	1.54	1.2	68 0	398	41.75	312.6	30 0
319	38.53	134.9	30 0	359	2.31	340.9	68 0	399	42.89	312.8	30 0
320	37.46	132.7	12 0	360	3.21	332.2	48 0	400	43.76	313.2	30 0
321	36.31	131.7	30 0	361	4.17	327.9	48 0	401	44.74	313.6	30 0
322	35.33	133.2	3	362	5.22	324.4	1	408	51.95	313.4	30 0
323	34.35	134.7	30 0	363	6.35	325.6	48 0	415	58.98	314.1	12 0
324	33.36	132.5	30 0	364	7.33	326.5	48 0	416	60.08	314.3	12 0
325	32.28	134.6	30 0	365	8.40	327.1	48 0	417	61.09	314.5	12 0
326	31.34	133.6	12 0	366	9.46	327.5	48 0	418	62.01	314.5	30 0
327	30.35	136.0	30 0	367	10.56	327.7	48 0	419	63.07	314.6	12 0
328	29.38	134.2	30 0	368	11.55	327.8	48 0	420	64.01	314.8	12 0
329	28.32	133.3	30 0	369	12.49	328.1	1	421	65.09	314.9	30 0
330	27.31	134.6	30 6	370	13.70	329.2	10	422	65.99	315.1	1
331	26.30	132.6	30 0	371	14.74	329.4	30 0	423	66.93	315.5	12 0
332	25.30	134.7	1	372	15.70	329.2	30 0	424	68.05	314.6	30 0
333	24.30	132.8	30 0	373	16.86	329.2	30 0	425	68.95	315.4	12 0
334	23.35	131.5	30 0	374	17.92	328.6	30 0	426	67.33	313.7	12 0
335	22.44	129.2	30 0	375	18.78	327.7	30 0	431	56.57	135.1	12 0
336	21.44	127.6	4	376	19.77	326.6	30 0	432	125.12	127.2	12 0
337	20.37	130.1	30 0	377	20.86	325.8	30 0	433	0.06	59.6	88 6
338	19.32	130.6	30 0	378	21.97	326.2	30 0	434	39.39	315.1	30 0
339	18.13	134.0	30 0	379	22.75	324.2	48 0	435	208.93	134.8	12 0
340	17.18	131.6	30 0	380	23.73	323.5	48 0	437	124.07	320.4	30 6

FAIRBANKS SOUTH DEPLOYMENT

Shot Number 28 Shot Point 50

Shot Time (Julian day, hr, min, sec): 232:08:00:00.016

Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade	Loc	Dist (km)	Azin (deg)	Tape Db Grade
301	152.52	317.7	30 0	341	192.78	317.7	30 0	380	232.39	318.3	1
302	153.14	318.1	30 0	342	193.67	317.7	30 0	381	233.40	318.3	12 0
303	154.28	318.0	30 0	343	194.64	317.7	1	382	234.45	318.3	12 0
304	155.43	317.8	30 0	344	195.66	317.6	30 0	383	235.48	318.3	12 0
305	156.51	317.7	1	345	196.58	317.5	12 0	384	236.43	318.2	1
306	157.41	317.7	30 0	346	197.64	317.4	12 0	385	237.48	318.1	12 0
307	158.32	317.6	30 0	347	198.87	317.4	12 0	386	238.47	318.0	30 0
308	159.27	317.5	30 0	348	199.65	317.5	12 0	387	239.53	317.9	12 0
309	160.30	317.4	30 0	349	200.90	317.8	12 0	388	240.49	317.9	12 0
310	161.39	317.5	12 0	350	201.76	317.9	12 0	389	241.52	317.9	1
311	162.30	317.5	12 0	351	202.85	317.8	12 0	390	242.67	317.8	12 0
312	163.37	317.1	30 0	352	203.85	317.8	12 0	391	243.53	317.8	12 0
313	164.37	317.1	30 0	353	204.88	317.8	12 0	392	244.52	317.8	12 0
314	165.51	317.4	12 0	354	205.81	317.8	12 0	393	245.56	317.7	12 0
315	166.69	317.0	30 0	355	206.85	317.8	12 0	394	246.55	317.7	12 0
316	167.49	317.3	12 0	356	207.94	317.8	12 0	395	247.58	317.5	12 0
317	168.43	317.6	30 0	357	208.96	317.7	12 0	396	248.60	317.3	12 0
318	169.36	317.6	30 0	358	209.97	317.7	12 0	397	249.65	317.2	30 0
319	170.37	317.4	1	359	210.98	317.7	12 0	398	250.63	317.0	30 0
320	171.47	317.9	12 0	360	211.97	317.7	12 0	399	251.77	317.1	12 0
321	172.66	318.1	30 0	361	212.97	317.7	12 0	400	252.66	317.1	12 0
322	173.59	317.7	3	362	214.06	317.7	12 0	401	253.64	317.2	12 0
323	174.56	317.4	12 6	363	215.14	317.7	12 0	408	260.84	317.1	12 0
324	175.58	317.9	1	364	216.09	317.8	12 0	415	267.88	317.3	12 0
325	176.63	317.5	12 0	365	217.12	317.9	30 0	416	268.98	317.3	30 0
326	177.57	317.6	12 0	366	218.15	318.0	4	417	270.00	317.3	12 0
327	178.56	317.2	12 0	367	219.22	318.0	12 0	418	270.91	317.3	30 0
328	179.53	317.5	12 0	368	220.18	318.1	30 0	419	271.98	317.4	12 0
329	180.60	317.7	12 0	369	221.08	318.2	30 0	420	272.91	317.4	12 0
330	181.59	317.4	12 0	369	221.08	318.2	30 0	421	273.99	317.4	12 0
331	182.63	317.7	30 0	370	222.20	318.3	10	422	274.90	317.5	1
332	183.61	317.4	12 0	371	223.20	318.4	30 0	423	275.83	317.6	12 0
333	184.62	317.7	12 2	372	224.15	318.4	12 0	424	276.96	317.4	12 0
334	185.60	317.8	12 0	373	225.27	318.5	12 0	425	277.85	317.6	12 0
335	186.59	318.1	30 0	374	226.35	318.5	12 0	426	276.22	317.1	12 0
336	187.66	318.2	12 0	375	227.25	318.5	12 0	427	276.80	317.6	12 0
337	188.62	317.9	12 0	376	228.29	318.4	30 0	431	152.33	317.3	30 0
338	189.65	317.9	12 0	377	229.42	318.4	12 0	432	86.47	328.4	1
339	190.77	317.5	12 0	378	230.48	318.5	12 0	434	248.29	317.5	1
340	191.75	317.7	12 0	379	231.38	318.3	12 0	435	0.07	68.9	12 6

**FAIRBANKS SOUTH DEPLOYMENT
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Shot Number 17 Shot Point 52
Shot Time (Julian day, hr, min, sec): 229:08:02:00.014

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
---	---	---	---	---	---	---	---	---
403	103.43	314.5	407	107.57	314.3	412	112.69	314.9
404	104.81	314.2	409	109.62	314.6	413	113.57	315.0
405	105.55	314.3	410	110.58	314.7	414	114.58	315.1
406	106.37	314.3	411	111.67	314.8			

Shot Number 18 Shot Point 51
Shot Time (Julian day, hr, min, sec): 229:08:04:00.008

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
---	---	---	---	---	---	---	---	---
403	171.93	310.3	407	176.08	310.3	412	181.06	310.8
404	173.34	310.2	409	178.06	310.6	413	181.93	310.9
405	174.07	310.2	410	179.00	310.7	414	182.91	311.0
406	174.88	310.3	411	180.07	310.7			

Shot Number 20 Shot Point 56
Shot Time (Julian day, hr, min, sec): 229:08:06:00.012

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
---	---	---	---	---	---	---	---	---
403	5.22	145.3	407	1.76	189.4	412	4.15	310.4
404	4.02	154.9	409	1.33	277.6	413	5.03	312.9
405	3.35	159.5	410	2.12	297.3	414	6.03	314.7
406	2.60	166.2	411	3.15	305.3			

Shot Number 21 Shot Point 66
Shot Time (Julian day, hr, min, sec): 229:08:08:00.008

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
---	---	---	---	---	---	---	---	---
403	175.20	137.8	407	171.14	138.1	412	165.90	137.8
404	173.88	138.0	409	169.01	137.9	413	165.00	137.8
405	173.15	138.0	410	168.04	137.9	414	163.99	137.8
406	172.32	138.0	411	166.95	137.9			

Shot Number 22 Shot Point 55
Shot Time (Julian day, hr, min, sec): 229:08:10:00.014

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
---	---	---	---	---	---	---	---	---
403	7.75	295.8	407	11.83	300.1	412	16.70	308.4
404	9.18	296.0	409	13.72	304.9	413	17.57	309.2
405	9.88	297.3	410	14.65	306.2	414	18.55	310.0
406	10.65	298.9	411	15.70	307.2			

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Shot Number 23 Shot Point 53
Shot Time (Julian day, hr, min, sec): 229:10:00:00.012

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
---	---	---	---	---	---	---	---	---
403	77.60	314.4	407	81.73	314.1	412	86.86	314.9
404	78.98	314.1	409	83.79	314.6	413	87.74	315.0
405	79.71	314.1	410	84.75	314.7	414	88.75	315.2
406	80.53	314.1	411	85.83	314.8			

Shot Number 24 Shot Point 57
Shot Time (Julian day, hr, min, sec): 229:10:02:00.012

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
---	---	---	---	---	---	---	---	---
403	20.58	136.3	407	16.49	138.4	412	11.30	134.4
404	19.24	137.7	409	14.39	136.4	413	10.41	133.6
405	18.50	137.8	410	13.41	135.8	414	9.41	132.6
406	17.68	137.8	411	12.33	135.4			

Shot Number 25 Shot Point 73
Shot Time (Julian day, hr, min, sec): 229:10:04:00.013

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
---	---	---	---	---	---	---	---	---
403	30.13	302.4	407	34.26	303.1	412	39.12	306.3
404	31.56	302.2	409	36.17	304.8	413	39.97	306.8
405	32.28	302.4	410	37.09	305.3	414	40.95	307.2
406	33.07	302.8	411	38.14	305.8			

Shot Number 26 Shot Point 59
Shot Time (Julian day, hr, min, sec): 229:12:00:00.009

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
---	---	---	---	---	---	---	---	---
403	78.02	143.8	407	74.05	144.7	412	68.78	144.6
404	76.75	144.3	409	71.89	144.5	413	67.88	144.6
405	76.03	144.4	410	70.91	144.5	414	66.86	144.7
406	75.21	144.5	411	69.83	144.6			

Shot Number 27 Shot Point 47
Shot Time (Julian day, hr, min, sec): 229:12:02:00.010

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
---	---	---	---	---	---	---	---	---
403	46.84	312.1	407	50.98	311.8	412	56.07	313.3
404	48.22	311.7	409	53.01	312.6	413	56.95	313.5
405	48.96	311.7	410	53.97	312.9	414	57.95	313.7
406	49.78	311.8	411	55.05	313.0			

**FAIRBANKS SOUTH DEPLOYMENT
(CANADIAN)**

Shot Number 28 Shot Point 50
Shot Time (Julian day, hr, min, sec): 232:08:00:00.016

Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)	Loc	Dist (km)	Azim (deg)
402	254.66	317.0	406	258.63	316.8	411	263.94	317.0
403	255.71	316.9	407	259.83	316.8	412	264.96	317.1
404	257.08	316.8	409	261.90	317.0	413	265.85	317.1
405	257.81	316.8	410	262.86	317.0	414	266.85	317.2

APPENDIX C

ARCHIVE TAPE FORMAT

Archive data tapes are written in SEG Y standard format (Barry and others, 1975). Recording density is 1600 bpi, phase encoded (PE). In order to accomodate seismic refraction data, some minor changes have been made to the tape header fields. A complete list of header fields is provided in the card image portion of the reel identification header, shown below:

C 1	REEL IDENTIFICATION HEADER BYTES:	
C 2	3217-3218	sampling interval (microsecs)
C 3	3221-3222	number of samples per trace
C 4	3225-3226	data sample format code
C 5	3255-3256	measurement system (1 = meters; 2 = feet)
C 6		
C 7		
C 8	TRACE IDENTIFICATION HEADER BYTES:	
C 9	1 - 4	trace sequence number within reel
C10	5 - 8	trace sequence number within reel
C11	9 - 12	station location number
C12	29 - 30	trace ID code (1 = seismic data)
C13	37 - 40	shotpoint-receiver distance (M)
C14	41 - 44	station elevation (M)
C15	45 - 48	shotpoint elevation (M)
C16	49 - 52	source depth (M)
C17	69 - 70	scalar to be applied to all elevations
C18	71 - 72	scalar to be applied to all coordinates
C19	73 - 76	shotpoint coordinate, X
C20	77 - 80	shotpoint coordinate, Y
C21	81 - 84	receiver coordinate, X
C22	85 - 88	receiver coordinate, Y
C23	89 - 90	coordinate units (1 = meters; 2 = seconds of arc)
C24	115 - 116	number of samples in this trace
C25	117 - 118	sample interval in microseconds for this trace
C26	121 - 122	instrument attenuation in db
C27	157 - 158	shot time - year
C28	159 - 160	shot time - day of year
C29	161 - 162	shot time - hour of day (24 hour clock)
C30	163 - 164	shot time - minute of hour
C31	165 - 166	shot time - second of minute
C32	167 - 168	time basis code (2 = GMT)
C33	181 - 182	shot time milliseconds
C34	183 - 184	shotpoint location number
C35	185 - 186	recording instrument unit number
C36	191 - 192	distance weighting exponent (hundredths)
C37	193 - 194	shot sequence number (shot number)
C38	195 - 196	shot size (kg)
C39	197 - 200	shot point - station azimuth (seconds of arc)
C40	201 - 204	time of first point minus shot time (msec)

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The data point is "32 bit floating point", and the appropriate bytes (3225-3226) of the binary reel id header contain a value of 1. The trace amplitudes have not been adjusted for instrument gain, but the gain correction factor can be estimated from the instrument attenuation value (att) specified in bytes 121-122. To correct for gain, the data should be demeaned and then multiplied by:

$$10^{(att/20)}$$

The measurement system (bytes 3255-3256 of the binary reel header) is set to 1, meters.

Shotpoint an receiver coordinates are in seconds of arc (byte field 89-90). The coordinate scalar multiplier (bytes 71-72) is set to -100, so the coordinates (bytes 73-88) are in hundredths of a second of arc.

Bytes 157-166 and bytes 181-182 refer to the shot detonation time. The time of the first data sample is found by adding the shot detonation time to the time specified in bytes 201-204.

Since there is no weighting of amplitudes with distance for archive tapes, the distance weighting exponent (bytes 191-192) is not used.

Shot sequence number (bytes 193-194) refers to the order in which shots were fired during the field campaign.