NORDIC VOLCANOLOGICAL INSTITUTE 8301
UNIVERSITY OF ICELAND

DISTANCE MEASUREMENTS IN THE GJÁSTYKKI - KRAFLA - MÝVATN AREA 1979 - 1982

Progress Report

by

Eysteinn Tryggvason

Reykjavík

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ABSTRACT

The Nordic Volcanological Institute made about 500 geodimeter measurements in the Gjástykki-Krafla-Mývatn area in August 1979 through May 1982. This is a continuation of previous measurements which started in February 1977, but about 570 distance measurements were made prior to August 1979. These measurements show the episodic widening of the Krafla fissure swarm and east-west contraction of the flanks of the fissure swarm. All lines that extend across the fissure swarm have increased in length by more than three meter from early 1978 to early 1982, and the measurements can be analysed to show how much the fissure swarm widened during each rifting event. The main part of this report is tables, giving the calculated distances of the measured geodimeter lines, and the change in calculated distance between bench marks from one measurement to another. These tables include every geodimeter measurement made by the Nordic Volcanological Institute in the Gjástykki-Krafla-Mývatn area within the time frame of this report.

INTRODUCTION

The Nordic Volcanological Institute's program of distance measurements in the Krafla-Gjástykki area was carried out on similar scale in 1979-1982 as in 1977-1979 (Tryggvason, 1978, 1980a). The frequency of repitition of distance observations was somewhat less in 1982 than previously, because of limited funds and lowering of tectonic activity. The network of bench marks was extended somewhat in early 1981, but the eruptions in 1980 and 1981 covered several of the older bench marks by lava and scoria.

Several distance measurements in the Mývatn area were carried out in 1981, but that area had not been measured since 1977 (Tryggvason, 1978). The distance measurements of 1977 through May, 1979, have been reported earlier (Tryggvason, 1978, 1980a), but the measurements after May, 1979 through 1982 are reported here.

The total number of distance measurements in the Krafla-Gjástykki area which are reported here is close to 500, distributed in time as follows:

August 4 - 5, 1979	25	lines measured
August 23 - 25, 1979	25	" "
October 5 - 7, 1979	17	" "
November 19 - 23, 1979	23	" "
March 13 - 16, 1980	21	" "
March 17 - 18, 1980	22	" "
April 11 - 20, 1980	83	" "
September 19 - 26, 1980	39	" "
October 21, 1980	4	" "
November 28, 1980	2	" "
December 7, 1980	2	" "
February 7 - 10, 1981	19	" "
April 1 - 24, 1981	107	" "
July 4 - 17, 1981	42	" "
February 22, 1982	10	" "

April 15 - 20, 1982	43 lines measured
May 13 - 18, 1982	17 " "

All these measurements were made by staff members of the Nordic Volcanological Institute. Gudmundur E. Sigvaldason, Ulf Sundquist and Eysteinn Tryggvason made more than 100 measurements each, and Karl Grönvold and Einar Kjartansson made less than 100 measurements each. Other staff members participated in these measurements as assistants.

The measurements of 15 lines in the Mývatn area in 1981 were made by Ulf Sundquist.

RESULTS

The measured distances of the Krafla-Gjástykki geodimeter network are presented in Table 1, and Table 2 gives the change in distance between bench marks since previous measurement of the same line. Observed differences of elevation of bench marks are also given in Table 1, and change in observed elevation differences in Table 2. Measurements in the Mývatn network in July, 1981 are presented in Table 3.

The significance of the observed changes of distances between permanent bench marks is a matter of importance in interpreting the results of these measurements. We may assume that the observed changes in the distances between bench marks are due to one or more of the following causes:

Observational errors.
Erratic shifts of bench marks, relative to the basement.
Thermal and other local strain.
Regional elastic strain.
Regional non-elastic strain.

The observational errors are partly caused by inaccurate positioning of geodimeter and reflector above the

bench marks. This effect may be significant if measurements are made in unfavourable weather, as strong wind, or if the ground is frosen, but air temperature is above freezing. Then the tripod legg slide slowly as the ground thaws around them.

Another significant source of observational errors is anomalous air temperature along the line of the light ray between geodimeter and reflector. Several of the lines cross over recent lava, which is at higher temperature than the ground outside the lava, and thus warms the air, but how much is not known. Also, as measurements are frequently made during late winter, while the ground outside the recent lava is covered by snow, pools of cold air are likely to form in calm weather. This effect may cause several degrees error in the temperature along the line of measurements, but temperature is only measured at the end points of each line.

Still another source of observational error, in excess of minimum obtainable error, is the great effort to complete many measurements in as short a time as possible, because of the rapid rate of ground deformation, which makes it difficult to compare measurements made several days apart.

Erratic shift of bench marks, relative to the basement rock, is difficult to estimate, but it is believed to be negligible at most or all stations in the Krafla-Gjástykki-Mývatn area.

Local strain is the effect of topography and irregularities in geology on the surface deformation. Several of the permanent bench marks are located on the top of fault scarps or other steep slopes of considerable height. Variations in temperature will certainly cause some anomalous movements of these markers, and regional strain is locally modified in their vicinity. This local strain is here considered as a source of errors in the observed distances. This may be somewhat misleading, but can be justified, as the aim of the observations is to detect and determine regional scale ground deformation.

The regional elastic strain is a process which causes continuous strain or deformation field. The rate of deformation can vary greatly, but the strain rarely exceeds 10^{-4}.

The regional non-elastic strain, as observed in the Krafla-Gjástykki-Mývatn area, is mostly associated with formation of fissures and displacement of faults. This is a rapid process that occurs during the subsidence events of the Krafla volcano (Tryggvason, 1980b). Slow non-elastic strain (creep) has not been positively verified in the Krafla-Gjástykki-Mývatn area.

Figures 1 through 8 illustrate some of the results of the distance measurements.

All lines which have increased in length by more than 3 m (Fig. 3) extend across the entire zone of intense rifting with two exceptions (A010 to A012 and A010 to A009) which extends into the zone of rifting. Lines which have increased in length by 0.9 to 3.0 m all extend into the zone of intense rifting, but do not cross the entire zone of rifting (Fig. 4). Lines which have increased in length by 0.2 to 0.9 m (Fig. 5) either extend into the zone of intense rifting, or cross the central part of the Krafla caldera floor. This seems to indicate that most of the lines which have increased in length by more than 0.2 m from first to latest measurement owe their length increase primarily to non-elastic regional strain in form of widening of fissures within the zone of intense rifting in the central part of the Krafla fissure swarm.

Lines which have decreased in length (Fig. 7) or increased in length by less than 0.2 m (Fig. 6) either lie well outside the zone of intense rifting or else, they are oriented parallel to the zone of rifting. This indicates that most of these lines extend over areas of purely elastic deformation.

The period covered by this report (August 1979 to May 1982) was characterized by numerous lava eruptions

in the Krafla-Gjástykki area. Eruptions occurred on March 16, 1980, July 10-18, 1980, October 18-24, 1980, January 30 - February 4, 1981, and November 18-23, 1981. Each of these 5 eruptions produced more lava than any of the Krafla eruptions of 1975 to 1979. The period covered by the previous reports (Tryggvason, 1978, 1980a) were characterized by large deflation events (Tryggvason, 1980b), but few and small eruptions. Each of the eruptions 1980 to 1981 were associated with widespread rifting within the Krafla fissure swarm, and considerable subsidence of the floor of the Krafla caldera. A few small subisdence events with no eruptions, occurred in 1979 to 1982, most pronounced in early December 1979, mid February, 1980, and late December, 1980. Several more very small subsidence events could be recognized on the continuously recording tiltmeters in the area.

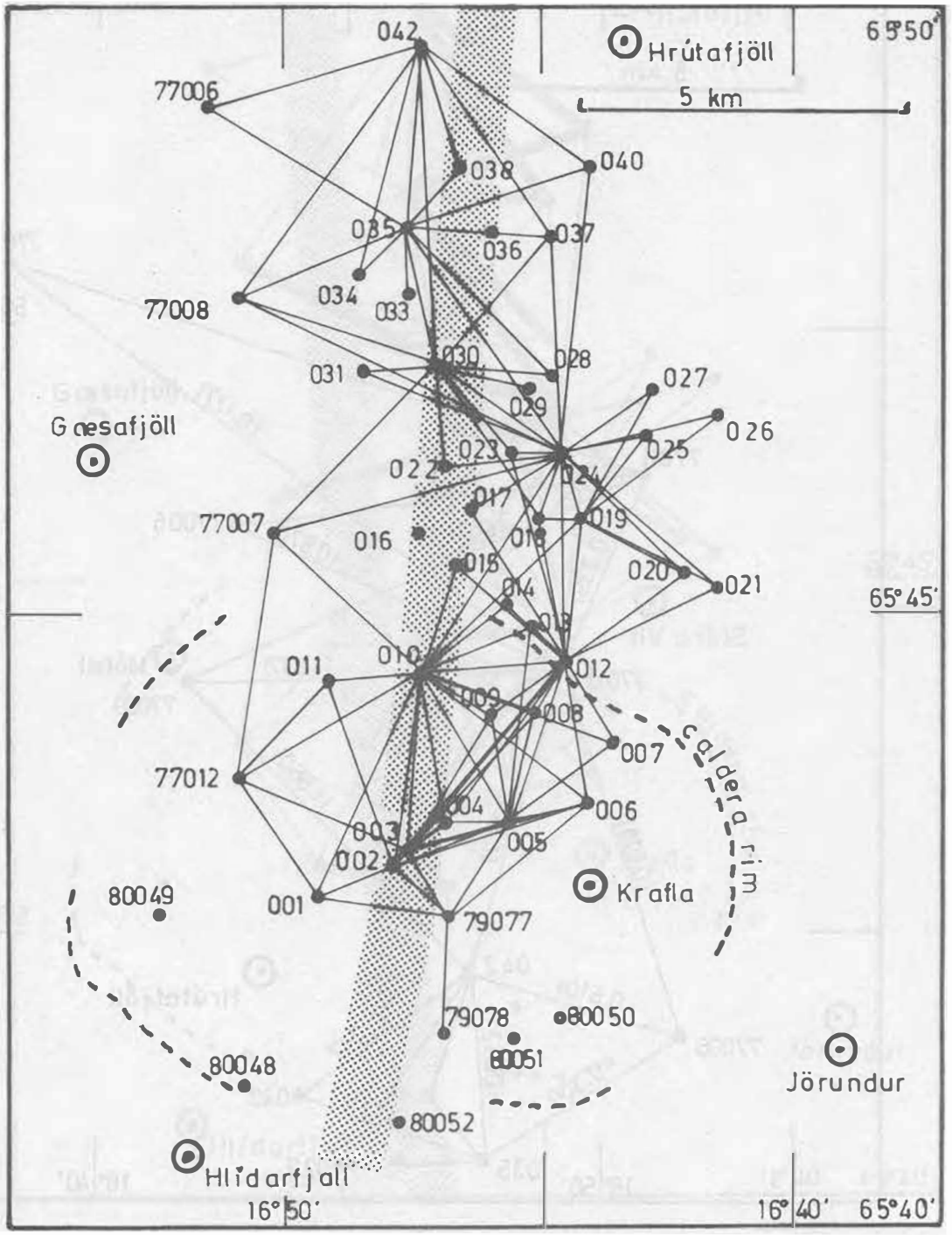

Fig. 1. Location of bench marks in the southern part of the Krafla-Gjástykki geodimeter network. About 110 lines connecting bench marks indicate repeated distance measurements, first measurement usually in 1977 or 1978 and last measurement mostly in 1981 and 1982. Measurements from NE79077 (near bottom) were first made in August 1979. Bench marks with identification numbers NE80048 through NE80052 were first occupied in February 1981. Shaded strip is the central axis of the Krafla fissure swarm. A few prominent mountains are shown as circles around dots. The letters (A or NE) in the station identification numbers are omitted in the Figure.

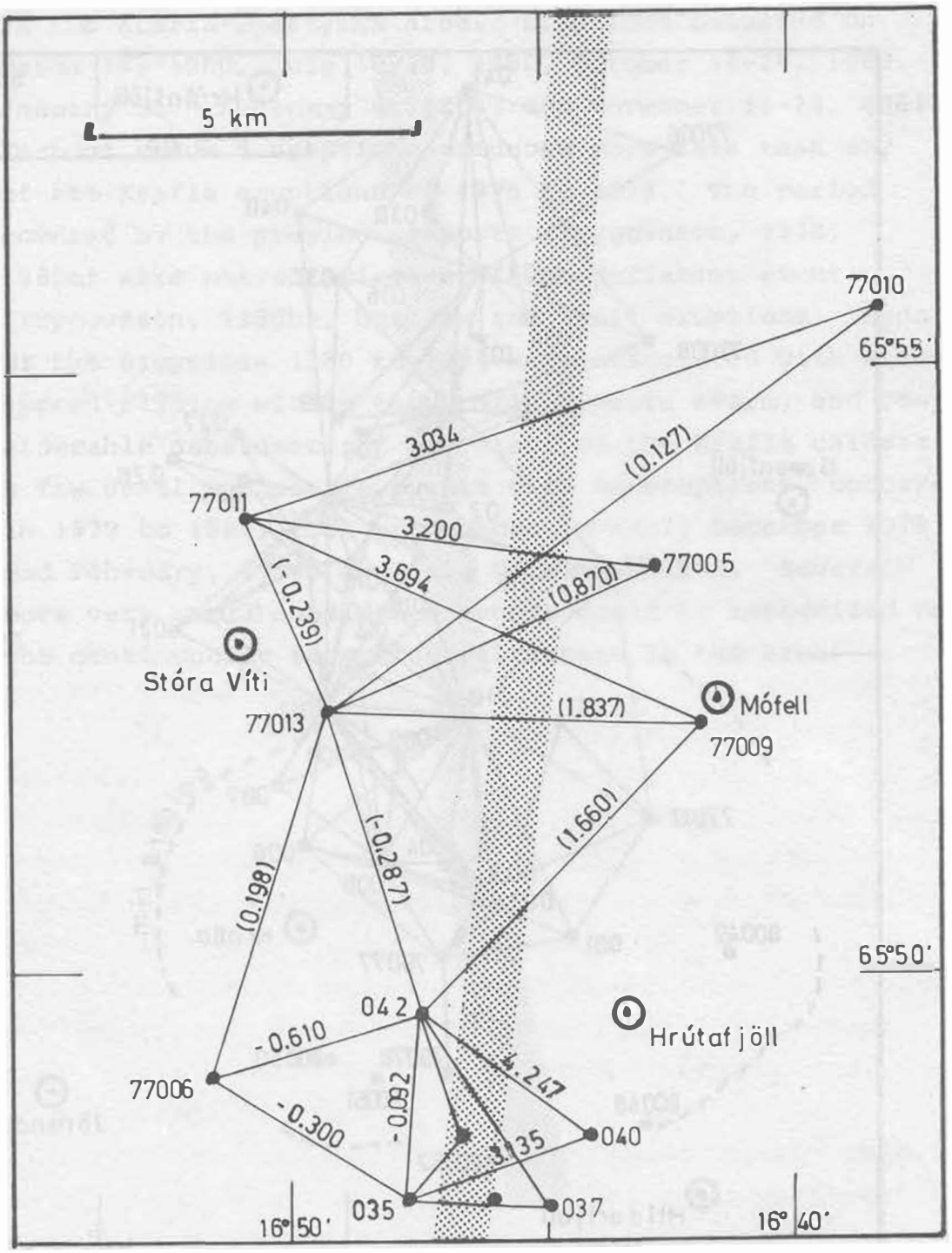

Fig. 2. Bench marks of the northern part of the Krafla-Gjástykki geodimeter network. Shown are changes in distances (in meters) between bench marks from first measurement in early 1978 (or early 1979) to last measurement in early 1982. Axis of the Krafla fissure swarm is shaded. The station NE77013 was first occupied in early May, 1979, but rifting occurred in this region in July, 1978, November, 1978, and May, 1979. All three rifting events are included in measurements from NE77011, but only the last one in measurements from NE77013.

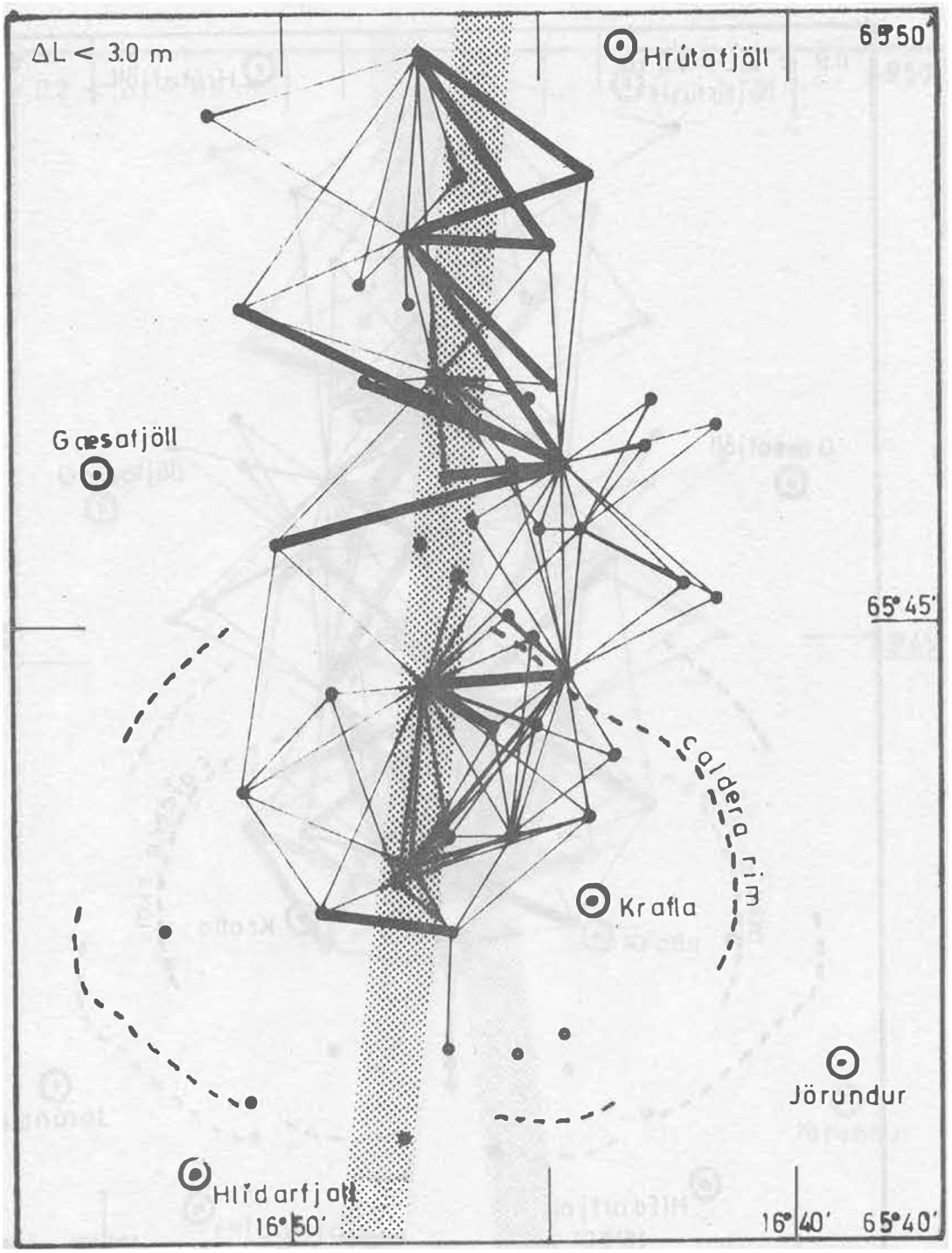

Fig. 3. Map of the same area as Fig. 1, showing (thick lines) the bench mark intervals which have increased in length by more than 3 m from first (1977-1978) to last (1981-1982) measurement. All these lines extend across the active zone of rifting, except two lines from A010 which were first measured in early 1977, but A010 is located within the zone of intense rifting.

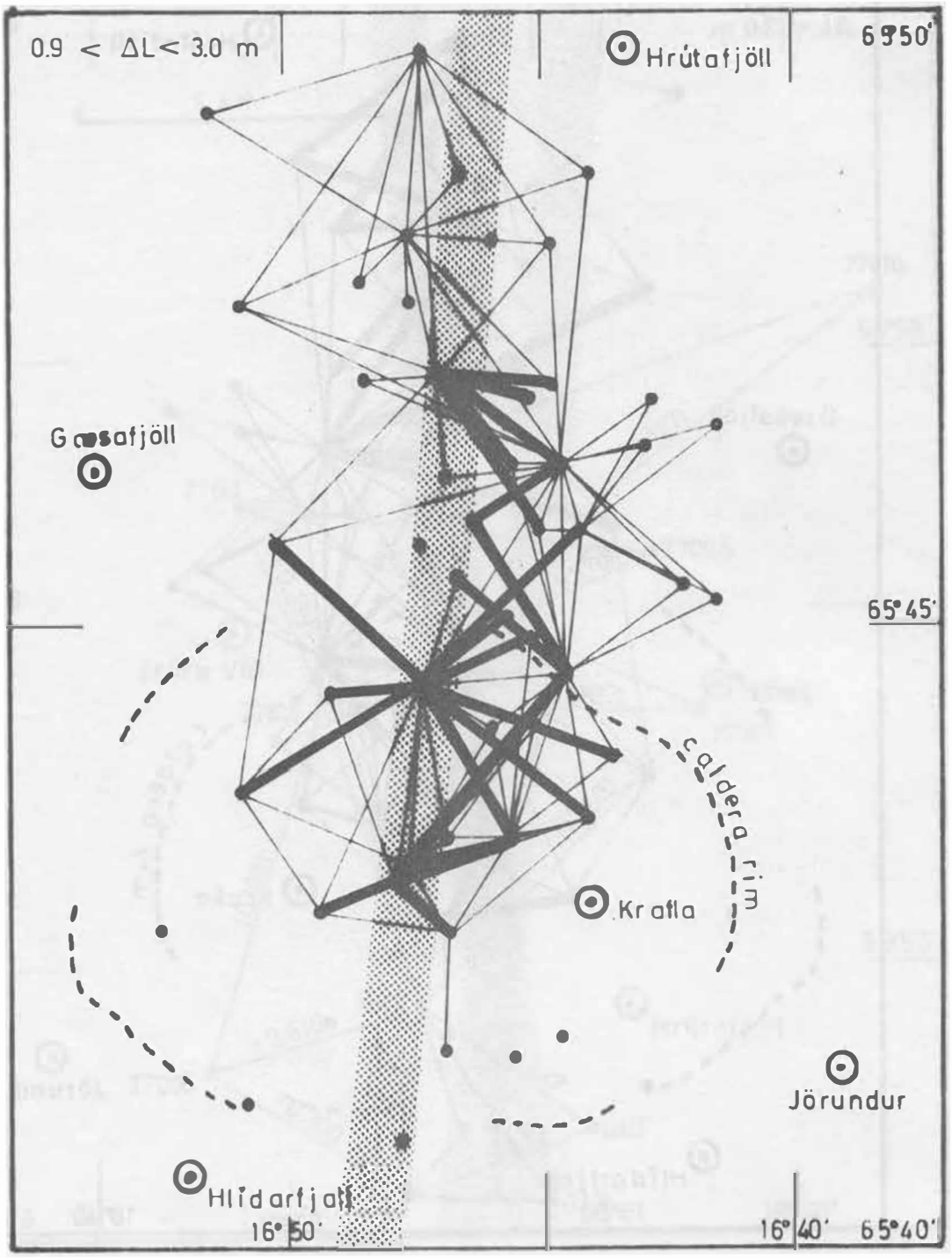

Fig. 4. Same as Fig. 3, but shown are bench mark intervals which have increased in length by 0.9 to 3.0 m from first to last measurement. All the lines extend into the zone of intense rifting, but none extends across this zone.

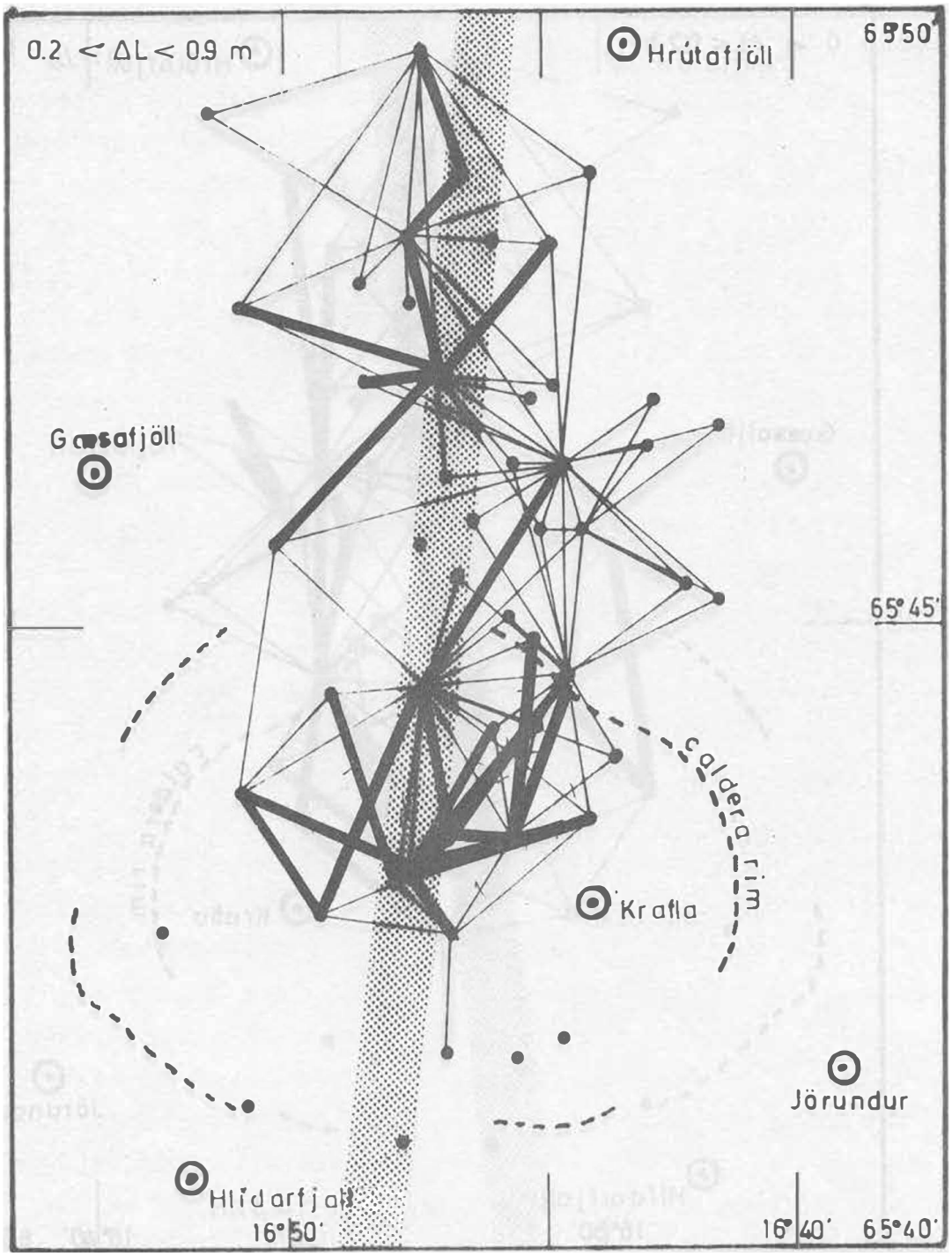

Fig. 5. Same as Fig. 3, but shown are bench mark intervals which have increased in length by 0.2 to 0.9 m from first to last measurement. Most of these lines extend into the zone of intense rifting, but several lie across the floor of the Krafla caldera.

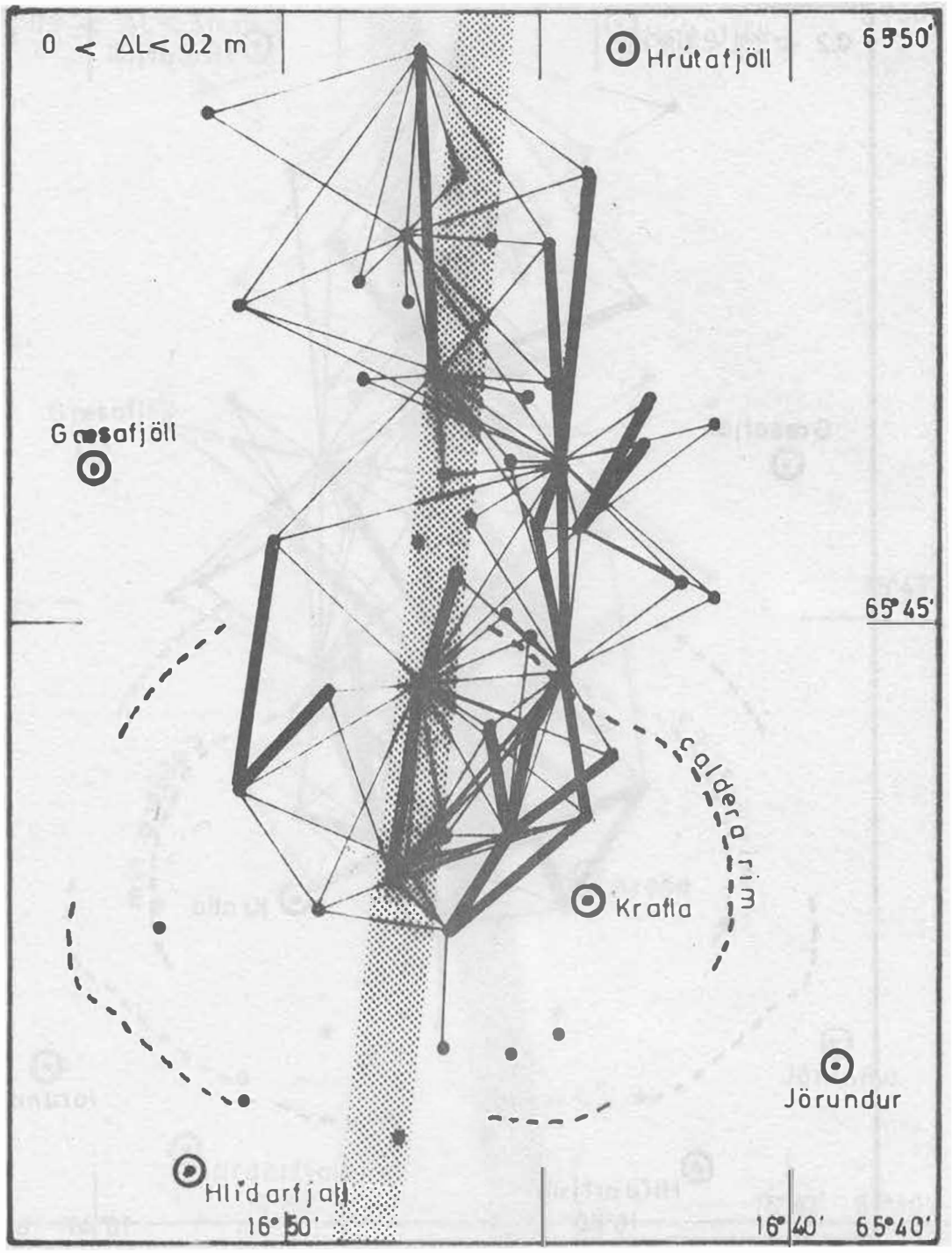

Fig. 6. Same as Fig. 3, but shown are bench mark intervals which have increased in length by 0.0 to 0.2 m from first to last measurement. Most of these lines lie outside the active rifting zone, and are oriented more or less parallel to the fissure swarm.

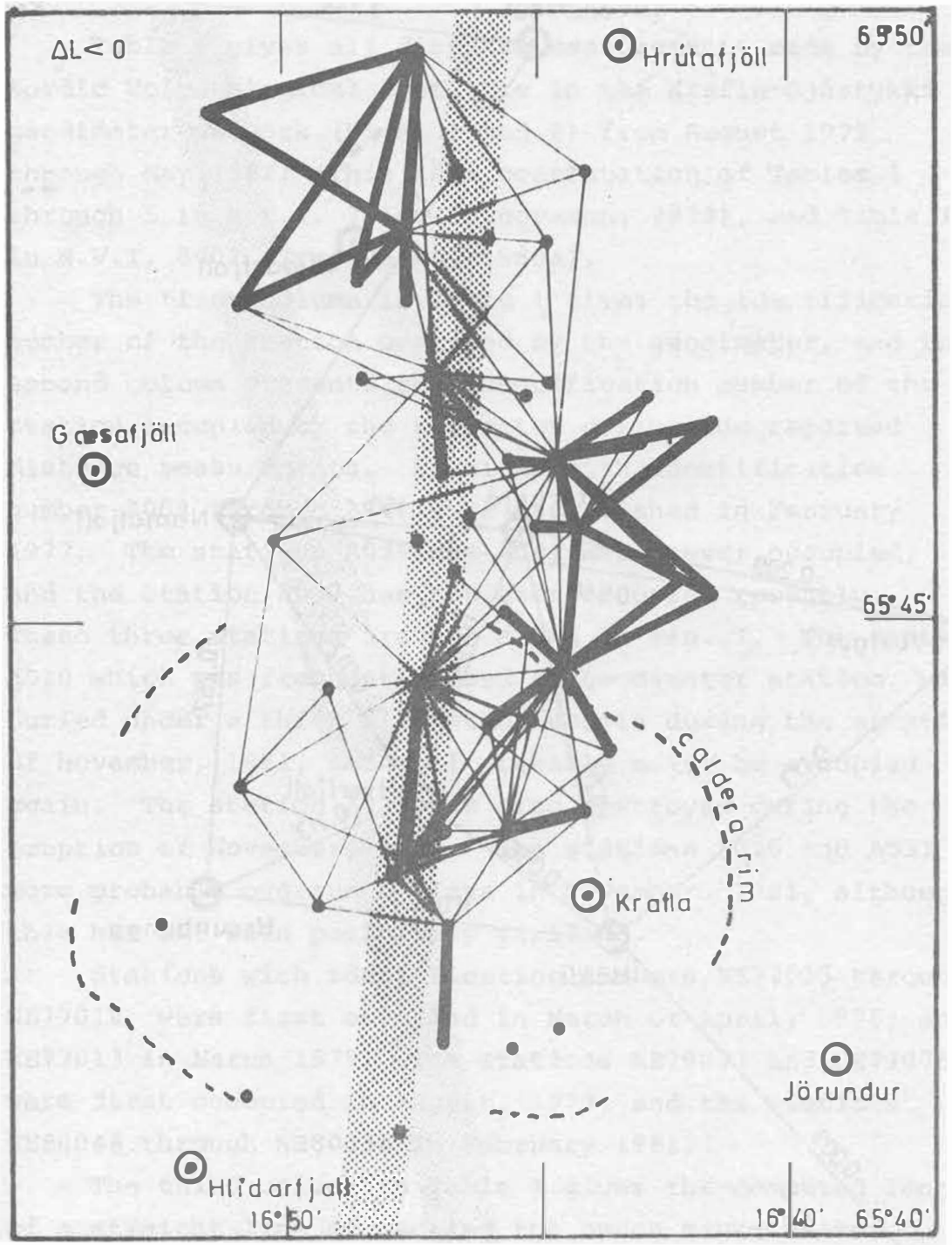

Fig. 7. Same as Fig. 3, but shown are bench mark intervals which have decreased in length from first to last measurement. Most of these lines lie outside the zone of active rifting, and are generally oriented at large angle (near perpendicular) to the fissure swarm. Exceptions are a few lines within, and parallel to the fissure swarm.

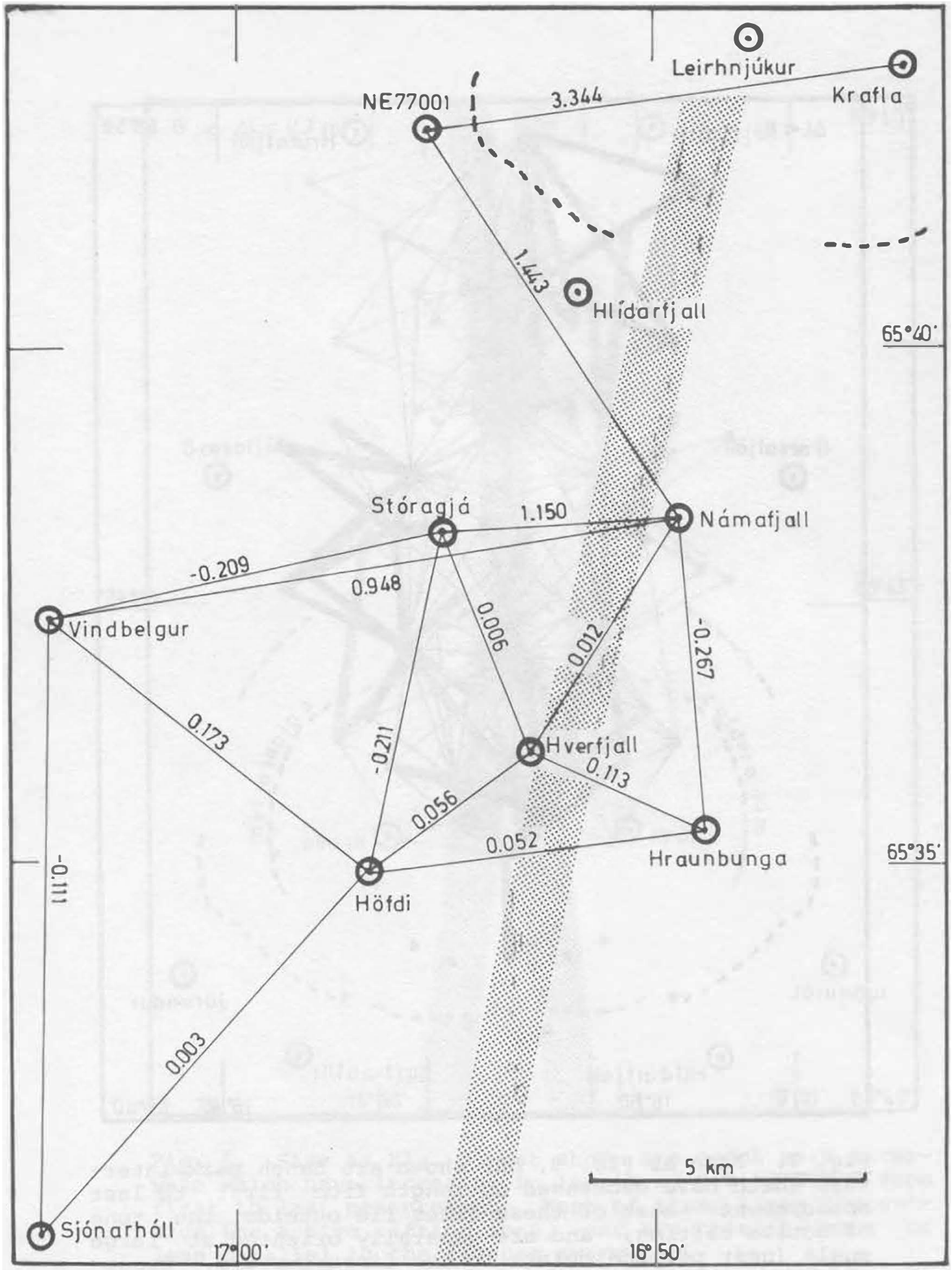

Fig. 8. The part of the Mývatn geodimeter network, which was measured in July, 1981, and length changes (in meters) since first measurements in July or August 1977. Shaded is the approximate axis of the Krafla fissure swarm.

EXPLANATION TO TABLE 1

Table 1 gives all distance measurements made by the Nordic Volcanological Institute in the Krafla-Gjástykki geodimeter network (Figs. 1 and 2) from August 1979 through May 1982. This is a continuation of Tables 1 through 5 in N.V.I. 7810 (Tryggvason, 1978), and Table I in N.V.I. 8002 (Tryggvason, 1980a).

The first column in Table 1 gives the identification number of the station occupied by the geodimeter, and the second column presents the identification number of the station occupied by the reflector during the reported distance measurements. Stations with identification number A001 through A042 were established in February 1977. The stations A039 and A041 were never occupied, and the station A032 has not been occupied recently. These three stations are not shown in Fig. 1. The station A010 which was frequently used as geodimeter station, was buried under a thick blanket of scoria during the eruption of November, 1981, and will probably never be occupied again. The station A022 was also destroyed during the eruption of November, 1981. The stations A016 and A031 were probably overrun by lava in November, 1981, although this has not been positively verified.

Stations with identification numbers NE77005 through NE77012 were first occupied in March or April, 1978, and NE77013 in March 1979. The stations NE79077 and NE79078 were first occupied in August, 1979, and the stations NE80048 through NE80052 in February 1981.

The third column in Table 1 gives the computed length of a straight line connecting the bench marks of the stations of column 1 and 2. The observed distance between geodimeter and reflector is corrected for atmospheric temperature and pressure. The temperature is normally measured at both stations, and the average of these two temperatures is accepted as the average temperature along the line connecting geodimeter and reflector.

Atmospheric pressure is usually measured at the geodimeter station only, and the average pressure along the line connecting the two stations is calculated from the observed pressure, the accepted average temperature, and the elevation difference of the stations. The corrected distance between geodimeter and reflector is then reduced to the bench marks, using the height of geodimeter and reflector above respective bench marks, and the measured slope angle from geodimeter to reflector.

The fourth column of Table 1 gives the calculated elevation difference of the station bench marks. The vertical angle from the geodimeter station to the reflector station is generally measured with a Wild T2 theodolite. The observed vertical angle is corrected for instrument and target heights and distance between stations, and the elevation difference is calculated, assuming average refraction of light in the lower atmosphere. Positive values mean that the reflector stations is at higher elevations than the geodimeter stations.

The last column of Table 1 gives the calculated distance between downward projection of the bench marks to sea level.

EXPLANATION TO TABLE 2

Table 2 gives the change in calculated distances and in calculated elevation differences between bench marks, from one period of observation to the next observational period which includes the same bench mark interval. The first column gives the two observational periods. Second and third column gives the identification number of the stations between which measurements were made at both observation periods of the first column.

The fourth column gives the difference in calculated slope distance (column 3 of Table 1) between the bench marks of column 3 and 4 between observational periods of

column 1. Positive values represent increase in the slope distance from the earlier to the later observational period.

Column 5 gives the change in calculated elevation difference of the stations. Positive values mean that the station of column 3 appears to be a higher elevation at the second observational period than at the first observational period, relative to the bench mark of column 2. Thus the first entry in column 5 in Table 2 is "-6". This tells us that the station A006 appears to have subsided 6 cm relative to the station A002 between late August 1978 and early August 1979.

EXPLANATION TO TABLE 3

Table 3 gives the calculated distances between stations in the Mývatn area, as obtained from measurements in July, 1981. Most of the stations are named after mountains on which they are located, and their locations are shown on Fig. 8. Otherwise, the general explanations to Table 1 will apply to Table 3.

TABLE 1:A
Measured distances in the Krafla-Gjastykki area, August 4-5, 1979

STATIONS		SLOPE DISTANCE M	ELEVATION DIFFERENCE M	SEA LEVEL DISTANCE M
A002	A001	1266.676	-49.15	1265.610
A002	A006	3111.352	89.56	3109.753
A003	A002	292.871	-2.51	292.833
A003	A004	682.153	-44.38	680.648
A003	A006	2831.622	87.07	2830.000
A003	A008	2826.003	-13.35	2825.711
A003	A009	2393.747	-17.72	2393.462
A003	A010	2690.952	5.43	2690.695
A003	A012	3710.455	85.60	3709.096
A003	NE77012	2740.438	-47.88	2739.775
A005	A002	1850.037	28.59	1849.648
A005	A003	1566.161	31.12	1565.710
A005	A004	929.651	-13.23	929.476
A005	A006	1273.570	118.19	1267.950
A005	A007	1927.203	165.25	1919.911
A005	A008	1659.582	17.84	1659.337
A005	A009	1564.072	13.46	1563.875
A005	A010	2557.225	36.61	2556.730
A005	A012	2543.444	116.79	2540.516
NE79077	A001	2060.257		2060.200
NE79077	A002	1247.949	33.55	1247.386
NE79077	A003	1204.519	36.02	1203.872
NE79077	A005	1670.616	4.89	1670.462
NE79077	A006	2677.844	123.11	2674.752
NE79077	NE79078	1819.734	-63.35	1818.381

TABLE 1:B
Measured distances in the Krafla-Gjastykki area, August 23-25,1979

STATIONS		SLOPE DISTANCE M	ELEVATION DIFFERENCE M	SEA LEVEL DISTANCE M
A002	A001	1266.676	-49.13	1265.607
A002	A003	292.882	2.52	292.844
A002	A006	3111.355	89.51	3109.758
A003	A004	682.180	-44.37	680.672
A003	A006	2831.650	87.01	2830.031
A003	A008	2826.022	-13.36	2825.730
A003	A009	2393.763	-17.76	2393.477
A003	A010	2690.971	5.33	2690.714
A003	A012	3710.458	85.62	3709.100
A003	NE77012	2740.488	-47.97	2739.823
A005	A002	1850.054	28.63	1849.664
A005	A003	1566.198	31.23	1565.744
A005	A004	929.607	-13.23	929.432
A005	A006	1273.567	118.15	1267.948
A005	A007	1927.191	165.12	1919.910
A005	A008	1659.598	17.85	1659.353
A005	A009	1564.097	13.37	1563.900
A005	A010	2557.242	36.55	2556.748
A005	A012	2543.424	116.79	2540.493
NE79077	A001	2060.281	-15.76	2060.044
NE79077	A002	1247.974	33.49	1247.419
NE79077	A003	1204.552	36.05	1203.903
NE79077	A005	1670.531	4.88	1670.377
NE79077	A006	2677.864	123.04	2674.776
NE79077	NE79078	1819.654	-63.34	1818.402

TABLE 1:C
Measured distances in the Krafla-Gjastykki area October 5-7, 1979

STATIONS		SLOPE DISTANCE M	ELEVATION DIFFERENCE M	SEA LEVEL DISTANCE M
A002	A001	1266.749		1265.684
A002	A003	292.889		292.850
A005	A002	1850.102	28.61	1849.714
A005	A003	1566.234		1565.779
A005	A004	929.619	-13.09	929.446
A005	A006	1273.565	118.19	1267.960
A005	A007	1927.206	165.18	1919.920
A005	A008	1659.594		1659.350
A005	A009	1564.109	13.34	1563.912
A005	A010	2557.271	36.52	2556.777
A005	A012	2543.426	116.75	2540.498
NE79077	A001	2060.335	-15.67	2060.098
NE79077	A002	1248.023	33.52	1247.462
NE79077	A003	1204.598		1203.947
NE79077	A005	1670.604	4.78	1670.451
NE79077	A006	2677.938	122.93	2674.858
NE79077	NE79078	1819.687		1818.437

TABLE 1:D
Measured distances in the Krafla-Gjastykki area,November 19-23, 1979

STATIONS		SLOPE DISTANCE M	ELEVATION DIFFERENCE M	SEA LEVEL DISTANCE M
A002	A001	1266.766	-49.14	1265.699
A002	A003	292.896	2.55	292.859
A002	A006	3111.442	89.42	3109.846
A003	A004	682.198	-44.36	680.694
A003	A006	2831.686	86.92	2830.068
A003	A008	2826.057	-13.45	2825.765
A003	A009	2393.797	-17.84	2393.511
A003	A010	2690.975	5.38	2690.718
A003	A012	3710.481	85.61	3709.124
A005	A003	1566.241	31.17	1565.789
A005	A004	929.655	-13.18	929.480
A005	A006	1273.562	118.10	1267.947
A005	A007	1927.181	165.03	1919.908
A005	A008	1659.570	17.73	1659.326
A005	A009	1564.089	13.31	1563.892
A005	A010	2557.272	36.65	2556.778
A005	A012	2543.422	116.75	2540.493
NE79077	A001	2060.367	-15.62	2060.130
NE79077	A002	1248.032	33.53	1247.470
NE79077	A003	1204.650	35.99	1204.003
NE79077	A005	1670.636	4.80	1670.482
NE79077	A006	2677.962	122.94	2674.879
NE79077	NE79078	1819.716	-63.48	1818.458

TABLE 1:E
Measured distances in the Krafla-Gjastykki area, March 13-16, 1980

STATIONS		SLOPE DISTANCE M	ELEVATION DIFFERENCE M	SEA LEVEL DISTANCE M
A002	A001	1266.793	-49.15	1265.732
A002	A003	292.907	2.53	292.869
A002	A011	2842.545	-52.46	2841.810
A005	A002	1850.134	28.73	1849.742
A005	A003	1566.266	31.32	1565.809
A005	A004	929.642	-13.12	929.469
A005	A010	2557.300	36.58	2556.806
A005	NE79077	1670.675	-4.74	1670.522
NE77011	NE77005	6252.170	-159.43	6249.660
NE77011	NE77009	7526.244	-113.78	7524.783
NE77011	NE77010	10175.903	-243.16	10172.296
NE77011	NE77013	3033.978	-24.39	3033.617
NE77012	A001	2139.095	-3.50	2138.910
NE77012	A003	2740.533	48.19	2739.867
NE77012	A010	3207.324	53.26	3206.594
NE77012	A011	2028.441	-6.87	2028.257
NE77012	NE77007	3739.201	-32.97	3738.745
NE77013	A042	4905.909	-51.87	4905.240
NE77013	NE77005	5602.343	-135.07	5600.299
NE77013	NE77009	5831.239	-89.37	5830.100
NE77013	NE77010	10531.391	-217.53	10528.412

TABLE 1:F
Measured distances in the Krafla-Gjastykki area, March 17-18, 1980

STATIONS		SLOPE DISTANCE M	ELEVATION DIFFERENCE M	SEA LEVEL DISTANCE M
A002	A001	1266.987		1265.935
A002	A003	292.896		292.858
A002	A005	1850.404		1850.016
A002	A011	2842.816		2842.092
A005	A003	1566.568	30.54	1566.128
A005	A004	929.666	-13.38	929.488
A005	A006	1273.518	118.28	1267.895
A005	A007	1927.194	165.29	1919.898
A005	A008	1659.580	18.05	1659.333
A005	A009	1564.019	13.58	1563.820
A005	A010	2557.827	36.15	2557.338
A005	A012	2543.510	117.10	2540.566
NE77012	A001	2138.798	-3.78	2138.612
NE77012	A010	3207.239	52.91	3206.514
NE77012	A011	2028.256	-6.87	2028.071
NE77012	NE77007	3739.192	-33.12	3738.736
NE79077	A001	2061.558	-15.40	2061.322
NE79077	A002	1248.306	32.76	1247.764
NE79077	A003	1204.746	35.68	1204.110
NE79077	A005	1670.223	5.08	1670.069
NE79077	A006	2677.586	123.24	2674.486
NE79077	NE79078	1819.472	-63.19	1818.291

TABLE 1:G
Measured distances in the Krafla-Gjastykki area, April 11-20, 1980

STATIONS		SLOPE DISTANCE M	ELEVATION DIFFERENCE M	SEA LEVEL DISTANCE M
A002	A001	1267.115	-48.27	1266.083
A002	A003	292.946	2.90	292.904
A002	A010	2878.405	8.36	2878.125
A002	A011	2842.930	-51.45	2842.213
A005	A002	1850.586	27.78	1850.211
A005	A003	1566.668	30.66	1566.226
A005	A004	929.690	-13.35	929.513
A005	A006	1273.536	118.14	1267.910
A005	A007	1927.192	165.21	1919.901
A005	A008	1659.568	17.95	1659.322
A005	A009	1564.066	13.55	1563.867
A005	A012	2543.503	116.92	2540.570
A005	A013	2934.637	62.73	2933.694
A005	NE79077	1670.406	-4.96	1670.252
A010	A001	3780.936	-56.62	3780.175
A010	A004	2337.479	-49.41	2336.747
A010	A005	2557.921	-36.03	2557.434
A010	A006	3196.048	82.33	3194.670
A010	A007	3038.356	129.22	3035.293
A010	A008	1814.103	-18.11	1813.845
A010	A009	1261.724	-22.55	1261.407
A010	A011	1390.360	-59.80	1388.950
A010	A012	2164.913	80.83	2163.189
A010	A013	1771.170	26.56	1770.780
A010	A014	1605.900	6.35	1605.736
A010	A015	1730.924	-54.75	1729.902
A010	A018	2936.927	9.56	2936.633
A010	A019	3317.740	38.63	3317.194
A010	A022	3147.161	-76.28	3145.961
A010	A023	3574.247	-23.45	3573.841
A010	A024B	3946.343	46.36	3945.684
A010	A030	4685.243	-56.78	4684.479
A010	A031	4600.434	-85.73	4599.233
A010	NE77007	3029.016	-86.02	3027.531
A010	NE77012	3207.347	-53.01	3206.621
A012	A018	2246.511	-71.22	2245.155
A012	A019	2186.140	-42.19	2185.507
A012	A023	3251.679	-104.03	3249.691
A012	A024B	3182.666	-34.21	3182.151

TABLE 1:G, continued

A024B	A017	1567.035	-91.39	1564.220
A024B	A018	1040.165	-36.94	1039.407
A024B	A019	1037.368	-7.95	1037.233
A024B	A020	2622.166	28.84	2621.736
A024B	A021	3094.702	67.76	3093.630
A024B	A022	1756.953	-122.66	1752.501
A024B	A023	750.235	-69.81	746.906
A024B	A031	3166.674	-132.34	3163.621
A030	A018	2755.957	66.35	2754.909
A030	A019	3155.609	95.35	3153.874
A030	A022	1557.469	-19.29	1557.218
A030	A023	1763.707	33.49	1763.235
A030	A024B	2289.925	103.32	2287.380
A030	A025	3342.858	19.32	3342.512
A030	A026	4205.934	99.58	4204.364
A030	A027	3241.604	-9.26	3241.318
A030	A028	1692.855	-14.64	1692.650
A030	A029	1429.545	8.00	1429.400
A030	A031	1090.415	-29.02	1089.940
A030	A032	1043.122		1042.033
A030	A037	2575.244		2574.663
A030	NE77007	3585.323	-29.17	3584.907
A030	NE77008	3145.155	-52.07	3144.468
A035	A024B	4069.501	136.73	4066.837
A035	A030	2049.102	33.40	2048.661
A035	A033	994.056	14.41	993.871
A035	A034	1020.102	3.17	1020.016
A035	A038	1249.433	-24.91	1249.088
A035	A040	2963.886	-21.04	2963.580
A035	A042	2905.783	-20.21	2905.485
A035	NE77006	3529.707	-62.53	3528.888
A035	NE77008	2714.658	-18.88	2714.380
A042	A030	4898.570	53.55	4897.881
A042	A033	3892.512	34.56	3892.050
A042	A034	3729.673	23.34	3729.307
A042	A037	3535.518	9.89	3535.231
A042	A038	2008.394	-4.74	2008.235
A042	A040	3185.547	-0.67	3185.303
A042	NE77006	3336.256	-42.41	3335.742
A042	NE77009	6090.499	-37.67	6089.933
NE79077	A001	2061.707	-15.47	2061.471
NE79077	A002	1248.392	32.75	1247.850
NE79077	A003	1204.867	35.69	1204.230
NE79077	NE79078	1819.576	-63.22	1818.327

TABLE 1:H
Measured distances in the Krafla-Gjastykki area, September 19-26, 1980

STATIONS		SLOPE DISTANCE M	ELEVATION DIFFERENCE M	SEA LEVEL DISTANCE M
A005	A002	1850.700	27.78	1850.324
A005	A003	1566.776	30.74	1566.332
A005	A004	929.765	-13.28	929.590
A005	A006	1273.553	118.08	1267.944
A005	A007	1927.183	165.15	1919.900
A005	A008	1659.580	17.82	1659.335
A005	A009	1564.101	13.45	1563.904
A005	A010	2558.003	35.95	2557.518
A005	A012	2543.442	116.82	2540.510
A005	A013	2934.602	62.64	2933.660
A030	A024B	2290.181	103.25	2287.640
A030	A028	1693.249	-14.49	1693.045
A030	A029	1429.894	8.15	1429.748
A030	A031	1090.879	-29.01	1090.403
A030	A035	2049.307	-33.15	2048.870
A030	NE77008	3145.675	-52.41	3144.984
A035	A024B	4070.239	136.77	4067.572
A035	A028	3062.875	18.73	3062.568
A035	A033	994,046	14.35	993.862
A035	A034	1020.050	3.23	1019.963
A035	A037	2165.372	-10.08	2165.178
A035	A038	1249.468	-25.10	1249.119
A035	A040	2965.153	-20.90	2964.848
A035	A042	2905.809	-19.99	2905.513
A035	NE77006	3529.526	-62.62	3528.706
A035	NE77008	2714.461	-18.87	2714.183
A042	A034	3729.742	23.25	3729.376
A042	A040	3187.090	-0.95	3186.846
A042	NE77006	3335.932	-42.59	3335.416
A042	NE77008	4773.039	1.12	4772.672
A042	NE77009	6091.086	-37.85	6090.519
A042	NE77013	4905.389	51.36	4905.724
A042	NE80013	2577.158	13.05	2576.925
NE79077	A001	2061.803	-15.65	2061.565
NE79077	A002	1248.495	32.71	1247.954
NE79077	A003	1204.980	35.61	1204.345
NE79077	A005	1670.543	4.92	1670.389
NE79077	A006	2677.864	122.97	2674.779
NE79077	NE79078	1819.648	-63.41	1818.393

TABLE 1:I
Measured distances in the Krafla-Gjastykki area, October 21, 1980

STATIONS	SLOPE DISTANCE M	ELEVATION DIFFERENCE M	SEA LEVEL DISTANCE M
NE79077 A001	2062.783	-15.42	2062.547
NE79077 A002	1248.765	32.21	1248.238
NE79077 A003	1205.110	35.53	1204.477
NE79077 A006	2677.758	123.29	2674.659

TABLE 1:J
Measured distances in the Krafla-Gjastykki area, November 28, 1980

STATIONS	SLOPE DISTANCE	ELEVATION DIFFERENCE	SEA LEVEL DISTANCE
NE79077 A001	2062.791		2062.556
NE79077 A005	1670.514		1670.360

TABLE 1:K

Measured distances in the Krafla-Gjastykki area, December 7, 1980

STATIONS	SLOPE DISTANCE M	ELEVATION DIFFERENCE M	SEA LEVEL DISTANCE M
NE79077 A001	2062.810		2062.574
NE79077 A005	1670.553		1670.399

TABLE 1:L
Measured distances in the Krafla-Gjastykki area, February 7-10. 1981

STATIONS		SLOPE DISTANCE M	ELEVATION DIFFERENCE M	SEA LEVEL DISTANCE M
A002	A001	1267.506	-47.74	1266.494
A002	NE79077	1248.797	-32.15	1248.271
A002	NE80048	4015.352	-52.83	4014.649
A002	NE80049	3519.692	-17.58	3519.327
A005	A002	1851.045	27.23	1850.678
A005	A004	929.639	-13.24	929.464
A005	A006	1273.470	118.15	1267.853
A005	A007	1927.193	165.21	1919.904
A005	A012	2543.549	(119.08)	2540.478
A005	NE79077	1670.452	-4.95	1670.298
NE77012	A001	2138.870	-3.68	2138.684
NE77012	NE80048	4607.577	-9.12	4607.176
NE77012	NE80049	2313.782	26.37	2313.429
NE80052	A001	3616.423	26.48	3616.026
NE80052	NE79077	3247.375	42.06	3246.829
NE80052	NE80048	2333.626	21.12	2333.337
NE80052	NE80049	4762.395	56.90	4761.649
NE80052	NE80050	2860.530	105.59	2858.326
NE80052	NE80051	2134.602	36.71	2134.108

TABLE 1:M
Measured distances in the Krafla-Gjastykki area, April 1-24, 1981

STATIONS		SLOPE DISTANCE M	ELEVATION DIFFERENCE M	SEA LEVEL DISTANCE M
A005	A002	1851.178	27.22	1850.811
A005	A003	1567.069	30.51	1566.630
A005	A004	929.697	-13.18	929.522
A005	A008	1659.643	17.92	1659.397
A005	A009	1564.126	13.55	1563.927
A005	NE79077	1670.602	-4.83	1670.448
A010	A001	3781.316	-56.27	3780.558
A010	A005	2558.400	-35.66	2557.919
A010	A006	3196.692	82.35	3195.310
A010	A007	3039.025		3036.054
A010	A008	1814.826	-17.81	1814.571
A010	A009	1262.458	-22.16	1262.147
A010	A011	1391.119	-59.53	1389.720
A010	A013	1771.787	26.89	1771.413
A010	A014	1606.400	6.67	1606.234
A010	A015	1730.981	-55.08	1729.950
A010	A019	3318.142	38.80	3317.594
A010	A024B	3946.584	46.81	3945.921
A010	NE77007	3029.601	-85.83	3028.121
A012	A002	3991.769	-89.50	3990.368
A012	A003	3711.162	-86.02	3709.794
A012	A004	3068.175	-130.04	3065.122
A012	A005	2543.544	-116.79	2540.614
A012	A006	2162.544	1.26	2162.313
A012	A007	1429.213	48.17	1428.243
A012	A008	906.449	-98.90	900.948
A012	A009	1371.965	-103.28	1367.937
A012	A010	2165.628	-81.11	2163.891
A012	A013	750.110	-54.18	748.074
A012	A014	1191.650	-74.40	1189.205
A012	A015	2218.690	-136.17	2214.294
A012	A017	2749.380	-126.28	2746.213
A012	A018	2246.508	-71.23	2245.152
A012	A019	2186.114	-42.25	2185.480
A012	A020	2285.742	-5.54	2285.492
A012	A021	2511.938	33.26	2511.443
A012	A024B	3182.620	-34.29	3182.104
A019	A018	616.509	-28.98	615.768
A019	A020	1825.276	36.68	1824.719
A019	A021	2307.848	75.49	2306.369
A019	A023	1397.282	-61.63	1395.777
A019	A024B	1037.317	7.94	1037.182
A019	A025	1647.110	-76.13	1645.195
A019	A026	2557.376	0.89	2557.120
A019	A027	2202.400	-104.64	2199.711

TABLE 1:M, continued (1)

A024B	A017	1567.881	-92.00	1565.032
A024B	A018	1040.283	-36.94	1039.524
A024B	A020	2622.025	28.85	2621.819
A024B	A021	3094.548	67.55	3093.481
A024B	A022	1758.641	-122.76	1754.190
A024B	A023	749.793	-69.64	746.480
A024B	A025	1336.528	-84.05	1333.728
A024B	A026	2345.181	-7.06	2344.934
A024B	A027	1631.404	-112.62	1627.362
A024B	A030	2290.900	-103.34	2288.355
A024B	A031	3168.449	-132.42	3165.392
A024B	A037	3294.158	-146.90	3290.586
A024B	A040	4381.931	-157.76	4378.701
A024B	NE77007	4499.883	-132.80	4497.514
A024B	NE77008	5371.668	-156.03	5368.922
A035	A024B	4070.993		4068.328
A035	A033	994.031	14.38	993.846
A035	A034	1020.074	3.13	1019.988
A035	A037	2165.939	-10.20	2165.744
A035	A040	2965.560	-21.01	2965.254
A035	A042	2905.709	-20.41	2905.410
A035	NE77006	3529.349	-62.62	3528.529
A035	NE77008	2714.399	-18.92	2714.121
A042	A034	3729.682	23.35	3729.316
A042	A037	3536.797		3536.370
A042	A040	3187.191	-0.92	3186.946
A042	NE77009	6091.114		6090.552
NE77006	A034	3442.070	65.70	3441.184
NE77006	A042	3335.957	42.46	3335.442
NE77006	NE77008	2957.265	43.64	2956.726
NE77007	A022	2781.948	9.88	2781.705
NE77007	A030	3585.729	29.30	3585.312
NE77007	A031	2816.000	0.13	2815.773
NE77008	A030	3145.864	52.33	3145.052
NE77008	A034	1810.319	22.14	1810.041
NE77011	NE77005	6252.298	-160.09	6249.771
NE77011	NE77009	7526.482	-114.05	7525.010
NE77011	NE77013	3033.871	-24.30	3033.510
NE77012	A001	2138.984	-3.53	2138.798
NE77012	A010	3207.943	52.78	3207.221
NE77012	A011	2028.351	-6.80	2028.167
NE77012	NE77007	3739.246	-33.11	3738.788
NE77012	NE80048	4607.771	-9.13	4607.370
NE77012	NE80049	2313.886	26.34	2313.533

TABLE 1:M, continued (2)

NE77013 A042	4905.368	-51.50	2904.700
NE77013 NE77005	5602.504	-135.00	5600.461
NE77013 NE77006	5842.199	-94.77	5840.977
NE77013 NE77009	5831.560	-88.85	5830.428
NE79077 A001	2062.849	-15.68	2062.611
NE79077 A002	1248.904	32.19	1248.376
NE79077 A003	1205.192	35.44	1204.562
NE79077 NE80050	2216.062	63.42	2214.950
NE79077 NE80051	2048.920	-5.45	2048.734
NE79078 NE79077	1819.631	63.61	1818.369
NE79078 NE80050	1734.305	126.97	1729.499
NE79078 NE80051	1028.128	58.11	1026.400
NE80050 NE80052	2860.634		2858.352
NE80052 A001	3616.558	26.51	3616.161
NE80052 NE79077	3247.470	42.29	3246.921
NE80052 NE79078	1490.380	-21.31	1490.109
NE80052 NE80048	2333.700	21.05	2333.412
NE80052 NE80049	4762.560	56.52	4761.818

TABLE 1:N
Measured distances in the Krafla-Gjastykki area, July 4-17, 1981

STATIONS		SLOPE DISTANCE M	ELEVATION DIFFERENCE M	SEA LEVEL DISTANCE M
A005	A002	1851.226	27.26	1850.859
A005	A003	1567.138	30.42	1566.701
A005	A004	929.726	-13.26	929.551
A005	A008	1659.665	17.83	1659.421
A005	A009	1564.149	13.48	1563.951
A005	A010	2558.424	35.58	2557.944
A010	A001	3781.427	-56.31	3780.670
A010	A006	3196.708	82.37	3195.327
A010	A007	3039.081	129.34	3036.012
A010	A008	1814.837	-17.82	1814.582
A010	A009	1262.472	-22.16	1262.161
A010	A011	1391.169	-59.51	1389.771
A010	A013	1771.791	26.96	1771.416
A010	A014	1606.391	6.74	1606.226
A010	A015	1730.955	-55.05	1729.924
A012	A002	3991.748	-89.58	3990.345
A012	A003	3711.153	-86.30	3709.779
A012	A004	3068.141	-130.01	3065.090
A012	A005	2543.522	-116.77	2540.593
A012	A006	2162.534	1.21	2162.304
A012	A007	1429.230	48.18	1428.261
A012	A008	906.421	-98.91	900.919
A012	A009	1371.947	-103.29	1367.918
A012	A010	2165.620	-81.14	2163.882
A012	A013	750.138	-54.21	748.101
A012	A014	1191.646	-74.47	1189.198
A012	A015	2218.727	-136.17	2214.332
NE79077	A001	2062.878	-15.84	2062.639
NE79077	A002	1248.939	32.13	1248.414
NE79077	A003	1205.284	35.41	1204.655
NE79077	A005	1670.712	5.02	1670.557
NE79077	NE80050	2216.056	63.37	2214.946
NE79077	NE80051	2048.932	-5.49	2048.746
NE79078	NE79077	1819.630	63.62	1818.368
NE79078	NE80050	1734.344	126.95	1729.541
NE79078	NE80051	1028.162	58.13	1026.433
NE80052	A001	3616.543	26.64	3616.145
NE80052	NE79077	3247.480	42.31	3246.931
NE80052	NE79078	1490.360	-21.32	1490.089
NE80052	NE80048	2333.727	21.06	2333.439
NE80052	NE80049	4762.591	56.28	4761.852
NE80052	NE80050	2860.664	105.62	2858.459

TABLE 1:O
Measured distances in the Krafla-Gjastykki area, February 22, 1982

STATIONS	SLOPE DISTANCE M	ELEVATION DIFFERENCE M	SEA LEVEL DISTANCE M
NE79077 A001	2063.372	-15.68	2063.134
NE79077 A002	1249.213	31.97	1248.691
NE79077 A005	1670.793	5.02	1670.638
NE79077 A006	2678.166	123.03	2675.079
NE79077 A012	4201.424	121.71	4199.254
NE79077 NE79078	1819.627	-63.67	1818.363
NE79077 NE80049	4352.168	14.04	4351.760
NE79077 NE80050	2215.978	63.19	2214.873
NE79077 NE80051	2048.815	-5.59	2048.628
NE79077 NE80052	3247.464	-42.46	3246.913

TABLE 1:P
Measured distances in the Krafla-Gjastykki area, April 15-20, 1982

STATIONS		SLOPE DISTANCE M	ELEVATION DIFFERENCE M	SEA LEVEL DISTANCE M
A005	A002	1851.562	26.89	1851.199
A005	A003	1567.273	30.26	1566.839
A005	A004	929.646	-13.22	929.471
A005	A006	1273.491	117.97	1267.892
A005	A007	1927.214	164.90	1919.952
A005	A008	1659.740	17.84	1659.495
A005	A009	1564.146	13.50	1563.948
A005	A012	2543.669	116.73	2540.742
A005	A013	2934.791	62.60	2933.850
A012	A002	3992.083		3990.707
A012	A004	3068.271		3065.246
A012	A009	1371.934	-103.21	1367.912
A012	A013	750.114	-54.17	748.079
A012	NE77007	4773.675	-167.06	4770.305
NE77011	NE77005	6252.332	-159.97	6249.808
NE77011	NE77009	7526.470	-113.61	7525.010
NE77011	NE77010	10176.020	-242.19	10172.425
NE77012	A001	2139.282	-3.59	2139.096
NE77012	A009	3951.286	30.52	3950.820
NE77012	A011	2028.393	-6.80	2028.209
NE77012	A012	5238.084	133.80	5235.871
NE77012	NE77007	3739.356	-33.18	3738.899
NE77012	NE80048	4607.970	-9.41	4607.570
NE77012	NE80049	2313.907	26.21	2313.556
NE77013	NE77005	5602.535	-135.13	5600.489
NE77013	NE77009	5831.629	-89.42	5830.489
NE77013	NE77010	10531.478	-217.88	10528.506
NE77013	NE77011	3033.900	24.37	3033.539
NE79077	A001	2063.399	-15.70	2063.162
NE79077	A002	1249.202	31.94	1248.681
NE79077	A003	1205.344	35.30	1204.719
NE79077	A005	1670.814	5.01	1670.660
NE79077	NE79078	1819.619	-63.74	1818.353
NE79077	NE80049	4352.186	14.06	4351.778
NE79077	NE80050	2215.965	63.18	2214.860
NE79077	NE80051	2048.834	-5.62	2048.648
NE80052	A001	3616.646	26.75	3616.247
NE80052	NE79077	3247.468	42.53	3246.917
NE80052	NE79078	1490.394	-21.49	1490.121
NE80052	NE80048	2333.798	20.99	2333.511
NE80052	NE80049	4762.734	56.45	4761.994
NE80052	NE80050	2860.768	105.67	2858.561
NE80052	NE80051	2134.701	36.81	2134.205

TABLE 1:Q
Measured distances in the Krafla-Gjastykki area, May 13-18, 1982

STATIONS		SLOPE DISTANCE M	ELEVATION DIFFERENCE M	SEA LEVEL DISTANCE M
A012	A007	1429.210	48.21	1428.239
A012	A008	906.484	-98.90	900.984
A012	A014	1191.625	-74.40	1189.180
A012	A015	2219.394	-136.59	2214.975
A012	A017	2749.605	-126.52	2746.427
A012	A018	2246.584	-71.15	2245.231
A012	A019	2186.203	-42.26	2185.569
A012	A020	2285.678	-5.48	2285.429
A012	A021	2511.831	33.22	2511.337
A012	A024B	3182.749	-34.25	3182.235
A037	A024B	3294.178	147.11	3290.596
A037	A035	2166.014	10.10	2165.820
A037	A040	1235.141	-10.79	1234.999
A037	A042	3736.810	-10.55	3736.507
A040	A024B	4381.887	157.76	4378.658
A040	A035	2965.620	20.93	2965.315
A040	A042	3187.196	0.67	3186.952

TABLE 2:A

TIME OF OBSERVATIONS	STATIONS		DL CM	DH CM
AUGUST 29-30, 1978	A002	A006	10.0	-6
AUGUST 3-5, 1979	A003	A004	1.4	-9
	A003	A006	9.6	-3
	A003	A008	2.3	-21
	A003	A009	3.7	-6
	A003	A010	4.6	-13
	A003	A012	1.0	20
FEB 20-MARCH 3, 1979	A002	A001	0.6	3
AUGUST 3-5, 1979	A002	A003	-2.3	1
	A002	A005	-0.1	10
	A003	A005	-1.4	7
	A003	NE77012	-6.2	-8
	A005	A004	6.1	-2
	A005	A006	-1.4	2
	A005	A007	-3.5	7
	A005	A008	0.0	-8
	A005	A009	0.3	0
	A005	A010	1.2	3
	A005	A012	1.2	-1
AUGUST 3-5, 1979	A002	A001	0.0	2
AUGUST 23-25, 1979	A002	A003	1.1	1
	A002	A005	1.7	-4
	A002	A006	0.3	-5
	A002	NE79077	2.6	6
	A003	A004	2.7	1
	A003	A005	3.7	-11
	A003	A006	2.8	-6
	A003	A008	1.9	-1
	A003	A009	1.6	-4
	A003	A010	1.9	-10
	A003	A012	0.3	2
	A003	NE77012	5.0	-9
	A003	NE79077	3.3	-3
	A005	A004	-4.4	0
	A005	A006	-0.3	-4
	A005	A007	1.9	-13
	A005	A008	1.6	1
	A005	A009	2.5	-9
	A005	A010	1.7	-6
	A005	A012	-2.1	0
	A005	NE79077	-8.5	1
	NE79077	A001	-2.5	
	NE79077	A006	2.0	-7
	NE79077	NE79078	2.0	1

TABLE 2:B

TIME OF OBSERVATIONS	STATIONS		DL CM	DH CM
AUGUST 23-25, 1979	A002	A001	7.3	
OCTOBER 5-7, 1979	A002	A003	0.7	
	A002	A005	4.9	4
	A002	NE79077	4.8	-3
	A003	A005	3.6	4
	A003	NE79077	-0.4	
	A005	A004	1.2	27
	A005	A006	-0.2	4
	A005	A007	1.5	6
	A005	A008	-0.4	
	A005	A009	1.2	-3
	A005	A010	2.9	-3
	A005	A012	0.2	-4
	A005	NE79077	7.3	10
	NE79077	A001	5.4	
	NE79077	A006	7.5	-11
	NE79077	NE79078	3.3	
AUGUST 23-25, 1979	A002	A006	8.7	-9
NOVEMBER 19-23, 1979	A003	A004	1.8	1
	A003	A006	3.6	-11
	A003	A008	3.5	-22
	A003	A009	3.4	-22
	A003	A010	0.4	-11
	A003	A012	2.3	-4
OCTOBER 5-7, 1979	A002	A001	1.7	
NOVEMBER 19-23, 1979	A002	A003	0.7	
	A002	NE79077	0.9	8
	A003	A005	0.7	0
	A003	NE79077	10.2	
	A005	A004	3.6	-13
	A005	A006	-0.3	0
	A005	A007	-2.5	-11
	A005	A008	-2.4	
	A005	A009	-2.0	-13
	A005	A010	0.1	14
	A005	A012	-0.4	-2
	A005	NE79077	3.2	-2
	NE79077	A001	3.2	
	NE79077	A006	2.3	
	NE79077	NE79078	2.9	
NOVEMBER 19-23, 1979	A002	A001	2.7	-1
MARCH 13-16, 1980	A002	A003	1.1	-2
	A003	A005	2.5	-13
	A005	A004	-1.3	10
	A005	A010	2.8	-8
	A005	NE79077	3.9	6

TABLE 2:C

TIME OF OBSERVATIONS	STATIONS		DL CM	DH CM
OCTOBER 5-7, 1979 MARCH 13-16, 1980	A002	A005	2.9	-12
AUGUST 23-25, 1979 MARCH 13-16, 1980	A003	NE77012	4.5	-22
MAY 19-28, 1979	NE77011	NE77005	2.0	-13
MARCH 13-16, 1980	NE77011	NE77009	1.8	-29
	NE77011	NE77010	0.8	-145
	NE77011	NE77013	-1.6	-6
	NE77013	A042	-6.3	0
	NE77013	NE77005	-0.6	-22
	NE77013	NE77009	-0.9	-12
	NE77013	NE77010	4.0	9
FEB 20-MARCH 3, 1979	NE77012	A001	8.5	16
MARCH 13-16, 1980	NE77012	A010	11.4	-11
	NE77012	A011	2.8	28
	NE77012	NE77007	-0.4	5
AUGUST 4-8, 1978 MARCH 13-16, 1980	A002	A011	22.1	-14
MARCH 13-16, 1980	A002	A001	19.4	
MARCH 17-18, 1980	A002	A003	-1.1	
	A002	A005	27.0	
	A002	A011	27.1	
	A003	A005	30.2	78
	A005	A004	2.4	-26
	A005	A010	52.7	-43
	A005	NE79077	-45.2	-34
	NE77012	A001	-29.7	-28
	NE77012	A010	-8.5	-35
	NE77012	A011	-18.5	0
	NE77012	NE77007	-0.9	-15
NOVEMBER 19-23, 1979	A005	A006	-4.4	9
MARCH 17-18, 1980	A005	A007	1.3	22
	A005	A008	1.0	37
	A005	A009	-7.0	37
	A005	A012	8.8	37
	NE79077	A001	119.1	22
	NE79077	A002	27.4	-68
	NE79077	A003	9.6	-31
	NE79077	A006	-37.6	31
	NE79077	NE79078	-24.4	28

TABLE 2:D

TIME OF OBSERVATIONS	STATIONS		DL CM	DH CM
MARCH 17-18, 1980	A002	A001	12.8	
APRIL 11-20, 1980	A002	A003	5.0	
	A002	A005	18.2	
	A002	A011	11.4	
	A005	A003	10.0	12
	A005	A004	2.4	3
	A005	A006	1.8	-14
	A005	A007	-0.2	-8
	A005	A008	-1.2	-10
	A005	A009	4.7	-3
	A005	A010	9.4	-12
	A005	A012	-0.7	-18
	A005	NE79077	18.3	12
	A010	NE77012	10.8	-10
	NE79077	A001	14.9	-7
	NE79077	A002	8.6	-1
	NE79077	A003	12.1	1
	NE79077	NE79078	38.4	-3
MAY 19-28, 1979	A010	A024B	-46.1	28
APRIL 11-20, 1980	A012	A024B	-0.1	2
	A024B	A020	-8.6	-28
	A024B	A030	119.4	-12
	A024B	A035	96.2	-9
	A030	A027	121.1	-11
	A030	A028	131.3	10
	A030	A035	0.5	9
	A030	A037	65.1	
	A030	NE77008	-8.3	-31
	A035	A040	130.5	-10
	A035	A042	6.3	-27
	A035	NE77006	-21.0	-30
	A035	NE77008	-12.2	-26
	A042	A037	97.2	20
	A042	A040	118.7	32
	A042	NE77006	-9.0	-7
	A042	NE77009	16.2	-41
FEB 20-MARCH 3, 1979	A005	A013	7.1	20
APRIL 11-20, 1980	A010	A001	-12.1	51
	A010	A004	32.2	43
	A010	A006	94.0	66
	A010	A007	103.0	65
	A010	A008	109.9	67
	A010	A009	100.8	56
	A010	A011	29.7	64
	A010	A012	111.5	56
	A010	A013	99.2	61
	A010	A014	82.2	66
	A010	A015	17.0	-4
	A010	A022	19.5	17
	A010	A030	11.7	10
	A010	NE77007	26.4	60

TABLE 2:E

TIME OF OBSERVATIONS	STATIONS		DL CM	DH CM
FEB 20-MARCH 3, 1979	A030	A018	96.2	4
APRIL 11-20, 1980	A030	A019	105.6	-11
(continued)	A030	A022	-7.4	-17
	A030	A023	107.7	1
	A030	A029	131.1	10
	A030	A031	4.3	-9
	A030	NE77007	4.3	-64
	A035	A034	-0.9	-17
AUGUST 4-10, 1978	A002	A010	21.4	-1
APRIL 11-20, 1980	A012	A019	-1.8	7
	A024B	A017	95.9	-76
	A024B	A018	-2.1	-6
	A024B	A019	1.7	-4
	A024B	A021	-1.6	-8
	A024B	A022	124.0	-36
	A024B	A023	4.6	-12
	A024B	A031	141.2	-14
	A035	A033	-1.9	1
	A035	A038	30.4	-53
	A042	A030	1.0	17
	A042	A033	-9.3	13
	A042	A034	-5.8	-5
	A042	A038	22.1	-42
JULY 20-22, 1978	A012	A018	1.2	7
APRIL 11-20, 1980	A012	A023	2.9	11
APRIL 11-20, 1980	A005	A002	11.4	0
SEPTEMBER 19-26, 1980	A005	A003	10.9	8
	A005	A004	7.5	7
	A005	A006	1.7	-6
	A005	A007	-0.9	-6
	A005	A008	1.2	-13
	A005	A009	3.5	-10
	A005	A010	8.2	-8
	A005	A012	-6.1	-10
	A005	A013	-3.5	-9
	A005	NE79077	13.7	4
	A030	A024B	25.6	-7
	A030	A028	39.4	15
	A030	A029	34.9	15
	A030	A031	46.4	1
	A030	A035	20.5	25
	A030	NE77008	52.0	-34
	A035	A024B	73.8	4
	A035	A033	-1.0	-6
	A035	A034	-5.2	6
	A035	A038	3.5	-19
	A035	A040	126.7	14
	A035	A042	2.6	22
	A035	NE77006	-18.1	-9
	A035	NE77008	-19.7	1

TABLE 2:F

TIME OF OBSERVATIONS	STATIONS		DL CM	DH CM
APRIL 11-20, 1980	A042	A034	6.9	-9
SEPTEMBER 19-26, 1980	A042	A040	154.3	-28
(continued)	A042	NE77006	-32.4	-18
	A042	NE77009	58.7	-18
	NE79077	A001	9.6	-18
	NE79077	A002	10.3	-4
	NE79077	A003	11.3	-8
	NE79077	NE79078	7.2	-19
MARCH 17-18, 1980	NE79077	A006	27.8	-27
SEPTEMBER 19-26, 1980				
MARCH 13-16, 1980	A042	NE77013	-52.0	-51
SEPTEMBER 19-26, 1980				
MAY 19-28, 1979	A035	A028	214.7	-9
SEPTEMBER 19-26, 1980				
AUGUST 4-10, 1978	A035	A037	293.1	24
SEPTEMBER 19-26, 1980	A042	NE77008	-18.6	-15
SEPTEMBER 19-26, 1980	NE79077	A001	98.0	23
OCTOBER 21, 1980	NE79077	A002	27.0	-50
	NE79077	A003	13.0	-8
	NE79077	A006	-10.6	32
OCTOBER 21, 1980	NE79077	A001	0.8	-
NOVEMBER 28, 1980				
SEPTEMBER 19-26, 1980	NE79077	A005	-2.6	-
NOVEMBER 28, 1980				
NOVEMBER 28, 1980	NE79077	A001	1.9	-
DECEMBER 7, 1980	NE79077	A005	3.9	-
DECEMBER 7, 1980	A005	NE79077	-10.1	-
FEBRUARY 7-10, 1981				
OCTOBER 21, 1980	A002	NE79077	3.2	-6
FEBRUARY 7-10, 1981				
SEPTEMBER 19-26, 1980	A005	A002	34.5	-55
FEBRUARY 7-10, 1981	A005	A004	-12.6	4
	A005	A006	-8.3	7
	A005	A007	1.0	6
	A005	A012	10.1	-
MARCH 17-18, 1980	NE77012	A001	7.2	10
FEBRUARY 7-10, 1981				

TABLE 2:G

TIME OF OBSERVATIONS	STATIONS		DL CM	DH CM
FEBRUARY 7-10, 1981	A005	A002	13.3	-1
APRIL 1-24, 1981	A005	A004	5.8	6
	A005	A012	-0.5	-
	A005	NE79077	15.0	12
	NE77012	A001	11.4	15
	NE77012	NE80048	19.4	-1
	NE77012	NE80049	10.4	-3
	NE80052	A001	13.5	-7
	NE80052	NE79077	9.5	23
	NE80052	NE80048	7.4	-7
	NE80052	NE80049	16.5	-38
	NE80052	NE80050	10.4	-
DECEMBER 7, 1980	NE79077	A001	3.9	-
APRIL 1-24, 1981				
OCTOBER 21, 1980	NE79077	A002	13.9	-2
APRIL 1-24, 1981	NE79077	A003	8.2	-9
SEPTEMBER 19-21, 1980	A005	A003	29.3	-23
APRIL 1-24, 1981	A005	A008	6.3	10
	A005	A009	2.5	10
	A005	A010	40.7	-29
	A024B	A030	71.9	-9
	A035	A024B	75.4	-
	A035	A033	-1.5	3
	A035	A034	2.4	-10
	A035	A037	56.7	-12
	A035	A040	40.7	-11
	A035	A042	-10.0	-42
	A035	NE77006	-17.7	0
	A035	NE77008	-6.2	-5
	A042	A034	-6.0	10
	A042	A040	10.1	3
	A042	NE77006	2.5	13
	A042	NE77009	2.8	-
	A042	NE77013	-2.1	14
	NE77008	A030	18.9	-8
	NE79077	NE79078	-1.7	-20
APRIL 11-20, 1980	A010	A001	38.0	35
APRIL 1-24, 1981	A010	A005	48.9	37
	A010	A006	64.4	2
	A010	A007	66.9	15
	A010	A008	72.3	30
	A010	A009	73.4	39
	A010	A011	75.9	27
	A010	A012	71.5	28
	A010	A013	61.7	33
	A010	A014	50.0	32
	A010	A015	5.7	-33
	A010	A019	40.2	17
	A010	A024B	24.1	45

TABLE 2:H

TIME OF OBSERVATIONS	STATIONS		DL CM	DH CM
APRIL 11-20, 1980	A012	A018	-0.3	-1
APRIL 1-24, 1981	A012	A019	-2.6	-6
(CONTINUED)	A012	A024B	-4.6	-8
	A024B	A017	84.6	-61
	A024B	A018	11.8	0
	A024B	A019	-5.1	1
	A024B	A020	-14.1	1
	A024B	A021	-15.4	21
	A024B	A022	168.8	-10
	A024B	A023	-44.2	17
	A024B	A031	177.5	-8
	A042	A037	127.9	6
	NE77007	A030	40.6	13
	NE77012	A010	59.6	-23
MARCH 17-18, 1980	NE77012	A011	9.5	7
APRIL 1-24, 1981	NE77012	NE77007	5.4	1
MARCH 13-16, 1980	NE77011	NE77005	12.8	-66
APRIL 1-24, 1981	NE77011	NE77009	23.8	-27
	NE77011	NE77013	-10.7	9
	NE77013	NE77005	16.1	7
	NE77013	NE77009	32.1	52
NOVEMBER 19-23, 1979	A003	A012	68.1	(44)
APRIL 1-24, 1981				
MAY 19-28, 1979	A024B	A027	-9.4	-18
APRIL 1-24, 1981	A024B	NE77007	277.3	-28
	NE77013	NE77006	0.4	-71
FEB 20-MARCH 3, 1979	A010	NE77007	84.9	79
APRIL 1-24, 1981				
AUGUST 29-30, 1978	A012	A002	99.1	-111
APRIL 1-24, 1981	A012	A004	14.6	-1
	A012	A006	6.1	10
	A012	A007	-4.4	-22
	A012	A008	-1.0	8
	A012	A009	-3.8	15
AUGUST 4-10, 1978	A019	A018	-4.0	9
APRIL 1-24, 1981	A019	A020	-11.8	-13
	A019	A021	-15.9	-19
	A019	A025	-3.7	-9
	A019	A026	-7.0	-20
	A019	A027	-2.1	-5
	A024B	A025	-8.7	-19
	A024B	A026	-17.2	-19

TABLE 2:I

TIME OF OBSERVATIONS	STATIONS		DL CM	DH CM
JULY 20-22, 1978	A012	A013	-0.8	7
APRIL 1-24, 1981	A012	A014	2.0	17
	A012	A015	149.0	-127
	A012	A017	149.5	-136
	A012	A020	-11.0	-19
	A012	A021	-16.4	-24
APRIL 16-19, 1978	A024B	A037	4.4	17
APRIL 1-24, 1981	A024B	A040	7.6	82
MARCH 10-18, 1978	A024B	NE77008	369.4	(119)
APRIL 1-24, 1981				
APRIL 1-24, 1981	A005	A002	4.8	0
JULY 4-14, 1981	A005	A003	6.9	-9
	A005	A004	2.9	-8
	A005	A008	2.2	-9
	A005	A009	2.3	-7
	A005	A010	1.4	-8
	A010	A001	11.1	-4
	A010	A006	1.6	2
	A010	A007	5.6	-3
	A010	A008	1.1	-1
	A010	A009	1.4	0
	A010	A011	5.0	2
	A010	A013	0.4	7
	A010	A014	-0.9	7
	A010	A015	-2.6	3
	A012	A002	-2.1	-8
	A012	A003	-0.9	(-28)
	A012	A004	-3.4	3
	A012	A005	-2.2	2
	A012	A006	-1.0	-5
	A012	A007	1.7	1
	A012	A008	-2.8	-1
	A012	A009	-1.8	-1
	A012	A010	-0.8	-3
	A012	A013	2.8	-3
	A012	A014	-0.4	-7
	A012	A015	3.7	0
	NE79077	A001	2.9	-16
	NE79077	A002	3.5	-6
	NE79077	A003	9.2	-3
	NE79077	A005	11.0	19
	NE79077	NE80050	-0.6	-5
	NE79077	NE80051	1.2	-4
	NE79078	NE79077	-0.1	1
	NE79078	NE80050	3.9	-2
	NE79078	NE80051	3.4	2
	NE80052	A001	-1.5	13
	NE80052	NE79077	1.0	2
	NE80052	NE79078	-2.0	-1
	NE80052	NE80048	2.7	1
	NE80052	NE80049	3.1	-24
	NE80052	NE80050	3.0	

TABLE 2:J

TIME OF OBSERVATIONS	STATIONS	DL CM	DH CM
JULY 4-14, 1981 FEBRUARY 22, 1982	NE79077 A001	49.4	16
	NE79077 A002	27.4	-16
	NE79077 A005	8.1	0
	NE79077 NE79078	-0.3	-5
	NE79077 NE80050	-7.8	-18
	NE79077 NE80051	-11.7	-10
	NE79077 NE80052	-1.6	-15
OCTOBER 21, 1980 FEBRUARY 22, 1982	NE79077 A006	40.8	-26
FEBRUARY 22, 1982 APRIL 15-20, 1982	NE79077 A001	2.7	-2
	NE79077 A002	-1.1	-3
	NE79077 A005	2.1	-1
	NE79077 NE79078	-0.8	-7
	NE79077 NE80049	1.8	2
	NE79077 NE80050	-1.3	-1
	NE79077 NE80051	1.9	-3
	NE79077 NE80052	0.4	-7
JULY 4-14, 1981 APRIL 15-20, 1982	A005 A002	33.6	-33
	A005 A003	13.5	-16
	A005 A004	-8.0	4
	A005 A008	7.5	1
	A005 A009	-0.3	2
	A005 A012	14.7	-4
	A012 A002	33.5	-
	A012 A004	13.0	-
	A012 A009	-1.3	8
	A012 A013	-2.4	4
	NE79077 A003	6.0	-11
	NE80052 A001	10.3	11
	NE80052 NE79078	3.4	-17
	NE80052 NE80048	7.1	-7
	NE80052 NE80049	14.3	17
	NE80052 NE80050	10.4	5
APRIL 1-24, 1981 APRIL 15-20, 1982	NE77011 NE77005	3.4	12
	NE77011 NE77009	-1.2	44
	NE77012 A001	29.8	-6
	NE77012 A011	4.2	0
	NE77012 NE77007	11.0	-7
	NE77012 NE80048	19.9	-28
	NE77012 NE80049	2.1	-13
	NE77013 NE77005	3.1	-13
	NE77013 NE77009	6.9	-57
	NE77013 NE77011	2.9	7

TABLE 2:K

TIME OF OBSERVATIONS	STATIONS		DL CM	DH CM
FEBRUARY 7-10, 1981	A005	A006	2.1	-18
APRIL 15-20, 1982	A005	A007	2.1	-31
	NE80052	NE80051	10.9	10
SEPTEMBER 19-26, 1980	A005	A013	18.9	-4
APRIL 15-20, 1982				
MARCH 13-16, 1980	NE77011	NE77010	11.7	97
APRIL 15-20, 1982	NE77013	NE77010	8.7	-35
JULY 4-14, 1981	A012	A007	-2.0	3
MAY 13-18, 1982	A012	A008	6.3	1
	A012	A014	-2.1	7
	A012	A015	66.7	-42
APRIL 1-24, 1981	A012	A017	22.5	-24
MAY 13-18, 1982	A012	A018	7.6	8
	A012	A019	8.9	-1
	A012	A020	-6.4	6
	A012	A021	-10.7	-4
	A012	A024B	12.9	4
	A037	A024B	2.0	21
	A037	A035	7.5	-10
	A037	A042	1.3	-60
	A040	A024B	-4.4	0
	A040	A035	6.0	-8
	A040	A042	0.5	-25

TABLE 3
Measured distances in the Myvatn area, July 1-24, 1981

STATIONS		SLOPE DISTANCE M	ELEVATION DIFFERENCE M	SEA LEVEL DISTANCE M
Namafjall	Storagja	4350.338	-178.62	4346.402
Namafjall	Hraunbunga	5733.326	-	5732.874
Namafjall	Hverfjall	5095.266	-38.22	5094.753
Namafjall	NE77001	8410.155	-	8408.838
NE77001	Krafla	8767.676	-	8763.652
Hofdi	Hverfjall	3630.001	135.86	3627.244
Hofdi	Storagja	6296.229	-	6295.925
Hofdi	Vindbelgur	7391.753	220.21	7387.987
Hofdi	Hraunbunga	6235.589	-	6232.407
Hofdi	Sjonarholl	9011.859	-	9011.385
Vindbelgur	Sjonarholl	11364.370	-202.79	11361.796
Vindbelgur	Namafjall	11563.881	-	11562.869
Vindbelgur	Storagja	7249.451	-224.58	7245.498
Hverfjall	Storagja	4322.395	-	4319.868
Hverfjall	Hraunbunga	3555.025	-	3554.405

REFERENCES

Tryggvason, E., Distance measurements in 1977 in the Krafla-Mývatn area and observed ground movements, Nordic Volcanological Institute 7810, 1-47, 1978.

Tryggvason, E., Distance measurements in the Krafla-Gjástykki geodimeter network, March 1978 to May 1979, Nordic Volcanological Institute 8002, 1-42, 1980a.

Tryggvason, E., Subsidence events in the Krafla area, North Iceland, 1975-1979, J. Geophys. 47, 141-153, 1980b.