



Bergvesenet

Postboks 3021, N-7441 Trondheim

Rapportarkivet

Bergvesenet rapport nr 5957	Intern Journal nr Kasse nr. 142	Internt arkiv nr	Rapport lokalisering	Gradering
Kommer fra ..arkiv Folldal Verk AS	Ekstern rapport nr	Oversendt fra Folldal Verk a.s.	Fortrolig pga	Fortrolig fra dato:
Tittel: RAPPORT VEDRØRENDE AVVIKSMÅLING I BORVIFTE 22 UTFØRT DEN 5.7.1983, FOR FOLLDAL VERK a/s				
Forfatter Ludvigsen, Erik Tokle, Viktor		Dato År nov. 1983	Bedrift (oppdragsgiver og/eller oppdragstaker) Forskningslaboratoriene Institutt for Gruvedrift, NTH	
Kommune Dovre	Fylke Oppland	Bergdistrikt	1: 50 000 kartblad 15193	1: 250 000 kartblad Røros
Fagområde Boring	Dokument type	Forekomster (forekomst, gruvefelt, undersøkelsesfelt) Tverrfjellet		
Råstofgruppe Malm/metall	Råstofftype Cu, Zn, S			

Sammendrag, innholdsfortegnelse eller innholdsbeskrivelse

Rapporten omfatter avviksmåling av hull nr.: BORVIFTE 22 . Det er foretatt måling for hver 5 m langs hullbanen. Data for hvert målepunkt er satt opp i vedlagt en tabell med måleverdier og koordinater for hvert målepunkt. (Vertikalen angis med fall 0). Målepunktene er også plottet i en x-y , x-z og y-z projeksjon.

R A P P O R T

VEDRØRENDE

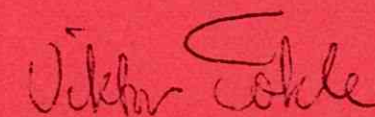
AVVIKSMÅLING I BORVIFTE 22 UTFØRT DEN 5.7.1983

FOR

FOLLDAL VERK A/S



ERIK LUDVIGSEN
DR. ING.



VIKTOR TOKLE
TEKNIKER

TRONDHEIM, NOVEMBER 1983

AVVIKSMÅLING FOR FOLLDAL VERK A/S

MÅLING AV BORVIFTE 22

Avviksmålingene er utført med Eastman Multiple Shot Survey instrument type DT. Med dette instrumentet bestemmes hullets retning i hvert målepunkt ved hjelp av et kompass og fallet ved hjelp av et klinometer.

Det er målt for hver 5. m langs hullbanen.

I tabells form er avviksvinkelen i hvert målepunkt forskjellen mellom avviksvinkelen i to etterfølgende målepunkter, avviket i akseretningene og totalavviket , ført opp. Planlagt retning og fall er også ført opp. Totalavviket er her lengden av vektoren fra hullbunnen slik det er planlagt. En stor del av totalavviket skyldes utsettingsfeil.

Avviket i bunnen av hullene er ført opp i tabell 1.

På grunnlag av en referanse retning, er de målte retningene overført til det aktuelle koordinatsystem.

For å komme over i dette systemet er det innført en addisjonskonstant. (215.600).

I tabells form er for hvert målepunkt, måledataene og de beregnede koordinatene i det aktuelle system oppsatt.

Hullbanen er opptegnet i projeksjonene x-y, x-z, y-z.

Tabell 1. Avviket i bunnen av hullene.

Bh	Dyp	Δx	Δy	Δz	Totalavvik
1	14,5	1,0	-0,1	0,8	1,25
2	13,3	0,8	0,2	0,6	1,05
3	10,1	1,1	0,2	0,5	1,25
4	10,0	1,0	0,1	0,2	1,0
5	10,2	-0,3	1,4	0,4	1,5
6	10,3	-0,4	0,6	0,4	0,9
7	10,5	-0,6	0,3	0,7	1,0
8	10,7	-1,0	-0,7	0,8	1,5
9	10,3	0,0	0,4	-0,2	0,4
10	10,4	0,1	0,6	-0,0	0,6
11	10,7	0,1	0,5	-0,1	0,5
12	10,9	0,0	0,2	-0,1	0,2
13	10,3	-0,6	0,6	0,6	1,1
14	10,0	0,0	0,3	-0,3	0,4

DEVIATION ANGLE (GRD) DEVIATION.

DEPTH	DEV. ANGLE	DIF.	DX	DY	DZ	TOT. DEV.	POINT
.00	*	*	.00	.00	.00	.00	1
2.50	.01	*	.19	.00	.15	.24	2
10.50	1.11	1.10	.75	-.02	.58	.95	3
14.50	.56	-.56	.99	-.04	.76	1.25	4

PLANED INCLINATION = 136.80
 PLANED AZIMUTH = 226.90

DEVIATION CALCULATION.

---NAME.....: FOLLDAL VERK A/S4
 ---HOLE NO.....: 1
 ---DATE.....: 5.7.83
 ---CALCULATION METHOD: CORD ANGLE

FOLLDAL VERK A/S4 1

MEASURED DATA			COMPUTED DATA		
DEPTH	INCLINATION	AZIMUTH	X-KOORD	Y-KOORD	Z-KOORD
(M)	360 DEG	400 GRD	(M)	(M)	(M)
0.	142.0	230.04	73.10	-374.82	597.20
3.	142.0	230.04	71.73	-375.22	579.17
11.	141.0	230.04	67.29	-377.49	605.43
15.	140.5	230.04	65.04	-378.64	608.53

ERRORS: NONE. TIME: 0.694 SEC. IMAGE COUNT: 110

4. GROVE

DEVIATION.

DEPTH	DEV. ANGLE	DIF.	DX	OY	DZ	TOT. DEV.	POINT
.00	*	*	.00	.00	.00	.00	1
2.30	1.11	*	.17	.06	.12	.22	2
12.30	1.11	.00	.78	.23	.55	.98	3
13.30	.01	-1.10	.83	.24	.58	1.05	4

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PLANED INCLINATION = 143.20
PLANED AZIMUTH      = 230.70

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DEVIATION CALCULATION.

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---NAME.....: EV
---HOLE NO.....: 2
---DATE.....: 5.7.83
---CALCULATION METHOD: CURD ANGLE

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2

MEASURED DATA			COMPUTED DATA		
DEPTH	INCLINATION	AZIMUTH	X-KOORD	Y-KOORD	Z-KOORD
(M)	360 DEG	400 GRD	(M)	(M)	(M)
0.	149.0	232.27	73.10	-374.52	597.20
2.	148.0	232.27	72.05	-375.11	599.16
12.	147.0	232.27	67.35	-377.71	607.59
13.	147.0	232.27	66.88	-377.98	608.43

ERRORS: NONE. TIME: 0.698 SEC. IMAGE COUNT: 110

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DEVIATION ANGLE.(GRD) DEVIATION.

DEPTH	DEV.ANGLE	DIF.	DX	DY	DZ	TOT.DEV.	POINT
.00	*	*	.00	.00	.00	.00	1
2.10	.01	*	.25	.05	.11	.28	2
5.10	.01	.00	.62	.11	.26	.68	3
10.10	2.78	2.77	1.14	.16	.48	1.25	4

PLANNED INCLINATION = 151.10
 PLANNED AZIMUTH = 238.20

DEVIATION CALCULATION.

---NAME.....: FV
 ---HOLE NO.....: 3
 ---DATE.....: 5.7.83
 ---CALCULATION METHOD: CORD ANGLE

FV

3

MEASURED DATA				COMPUTED DATA		
DEPTH	INCLINATION	AZIMUTH	X-KOORD	Y-KOORD	Z-KOORD	
(M)	360 DEG	400 GRD	(M)	(M)	(M)	
0.	158.0	246.71	73.10	-374.52	597.20	
2.	158.0	246.71	72.52	-375.05	599.13	
5.	158.0	246.71	71.68	-375.80	601.93	
10.	155.5	246.71	70.22	-377.12	606.52	

ERRORS: NONE. TIME: 0.696 SEC. IMAGE COUNT: 110

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DEVIATION ANGLE.(GRD)

DEVIATION.

DEPTH	DEV.ANGLE	OIF.	DX	DY	DZ	TOT.DEV.	POINT
0.00	*	*	.00	.00	.00	.00	1
2.00	.01	*	.20	.02	.05	.21	2
6.00	.01	.00	.60	.07	.14	.62	3
10.00	2.25	2.24	.97	.05	.21	1.00	4

PLANNED INCLINATION = 158.90
PLANNED AZIMUTH = 253.30

DEVIATION CALCULATION.

---NAME.....: FV
---HOLE NO.....: 4
---DATE.....: 5.7.83
---CALCULATION METHOD: CORD ANGLE

FV

4

MEASURED DATA				COMPUTED DATA		
MEASURED	I	I	I	I	I	I
DEPTH	INCLINATION	AZIMUTH	X-KOORD	Y-KOORD	Z-KOORD	
(M)	360 DEG	400 GRD	(M)	(M)	(M)	
0.	163.0	267.82	73.10	-374.52	597.20	
2.	163.0	267.82	72.82	-375.03	599.11	
6.	163.0	267.82	72.25	-376.06	602.94	
10.	161.0	268.93	71.66	-377.14	606.24	

ERRORS: NONE. TIME: 0.695 SEC. IMAGE COUNT: 110

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DEVIATION CALCULATION.

---NAME.....: FV
 ---HOLE NO.....: 5
 ---DATE.....: 5.7.83

DEVIATION ANGLE.(GRD)

DEVIATION.

DEPTH	DEV.ANGLE	DIF.	DX	DY	DZ	TOT.DEV.	POINT
.00	*	*	.00	.00	.00	.00	1
2.15	.01	*	-.02	.29	.07	.30	2
8.15	2.81	2.81	-.19	1.12	.30	1.17	3
10.15	.01	-2.81	-.29	1.39	.40	1.48	4

PLANED INCLINATION = 151.10

PLANED AZIMUTH = 366.23

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I MEASURED DATA I COMPUTED DATA

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I MEASURED I I I I I

I DEPTH I INCLINATION I AZIMUTH I X-KOORD I Y-KOORD I Z-KOORD

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I (M) I 360 DEG 400 GRD I (M) I (M) I (M)

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0.	155.0	383.38	73.10	-374.52	597.20
2.	155.0	383.38	73.98	-374.76	599.15
8.	157.5	382.27	75.31	-375.40	604.64
10.	157.5	382.27	77.04	-375.61	606.49

DEVIAION ANGLE.(GRD)

DEVIATION.

DEPTH	DEV.ANGLE	DIF.	DX	DY	DZ	TOT.DEV.	POINT
.00	*	*	.00	.00	.00	.00	1
2.30	.01	*	-.05	.15	.08	.19	2
6.30	1.77	1.76	-.20	.44	.24	.53	3
10.30	2.35	.58	-.41	.64	.43	.87	4

PLANED INCLINATION = 143.20
 PLANED AZIMUTH = 373.76

DEVIATION CALCULATION.

---NAME.....: FV
 ---HOLE NO.....: 6
 ---DATE.....: 5.7.83
 ---CALCULATION METHOD: CORD ANGLE

FV

6

MEASURED DATA			COMPUTED DATA		
DEPTH	INCLINATION	AZIMUTH	X-KOORD	Y-KOORD	Z-KOORD
(M)	360 DEG	400 GRD	(M)	(M)	(M)
0.	146.5	380.04	73.10	-374.52	597.20
2.	146.5	380.04	74.31	-374.91	599.12
6.	148.0	378.93	76.36	-375.60	602.48
10.	148.0	374.49	78.34	-376.36	605.87

ORS: NONE. TIME: 0.696 SEC. IMAGE COUNT: 110

GRUVE

DEVIAION ANGLE.(GRD)

DEVIATION.

DEPTH	DEV.ANGLE	DIF.	DX	DY	DZ	TOT.DEV.	POINT
.00	*	*	.00	.00	.00	.00	1
2.50	.01	*	-.11	.03	.12	.18	2
6.50	2.33	2.32	-.34	.21	.36	.54	3
10.50	.01	-2.33	-.63	.34	.65	.97	4
PLANED INCLINATION =			134.90				
PLANED AZIMUTH =			378.40				

DEVIATION CALCULATION.

---NAME.....: FV
 ---HOLE NO.....: 7
 ---DATE.....: 5.7.83
 ---CALCULATION METHOD: CORD ANGLE

FV

7

MEASURED DATA				COMPUTED DATA		
MEASURED I	I	I	I	I	I	I
DEPTH	INCLINATION	AZIMUTH	X-KOORD	Y-KOORD	Z-KOORD	
(M)	360 DEG	400 GRD	(M)	(M)	(M)	
0.	139.0	380.04	73.10	-374.52	597.20	
3.	139.0	380.04	74.66	-375.03	599.09	
7.	141.0	378.93	77.10	-375.84	602.15	
11.	141.0	378.93	79.48	-376.66	605.26	

RORS: NONE. TIME: 0.676 SEC. IMAGE COUNT: 110

ERUVE

DEVIATION ANGLE.(GRD)

DEVIATION.

DEPTH	DEV.ANGLE	DIF.	DX	DY	DZ	TOT.DEV.	POINT
.00	*	*	.00	.00	.00	.00	1
2.70	.01	*	-.25	-.17	.20	.36	2
6.70	.01	.00	-.61	-.43	.50	.90	3
10.70	1.85	1.84	-1.00	-.65	.84	1.46	4

PLANED INCLINATION = 127.40

PLANED AZIMUTH = 381.10

DEVIATION CALCULATION.

---NAME.....: FV
---HOLE NO.....: 8
---DATE.....: 5.7.83
---CALCULATION METHOD: CURD ANGLE

FV

8

MEASURED DATA				COMPUTED DATA		
DEPTH	INCLINATION	AZIMUTH	X-KOORD	Y-KOORD	Z-KOORD	
(M)	360 DEG	400 GRD	(M)	(M)	(M)	
0.	133.0	373.38	73.10	-374.52	597.20	
3.	133.0	373.38	74.90	-375.32	599.04	
7.	133.0	373.38	77.58	-376.51	601.77	
11.	134.5	374.49	80.23	-377.66	604.54	

RORS: NONE. TIME: 0.695 SEC. IMAGE COUNT: 110

GRUVE

DEVIATION ANGLE.(GRD) DEVIATION.

DEPTH	DEV.ANGLE	DIF.	DX	DY	DZ	TOT.DEV.	POINT
.00	*	*	.00	.00	.00	.00	1
2.25	.01	*	.01	.10	-.04	.11	2
8.25	1.20	1.19	.02	.32	-.18	.36	3
10.25	1.54	.34	.02	.36	-.21	.42	4

PLANED INCLINATION = 74.60
 PLANED AZIMUTH = 384.90

DEVIATION CALCULATION.

---NAME.....: FV
 ---HOLE NO.....: 9
 ---DATE.....: 5.7.873
 ---CALCULATION METHOD: CORD ANGLE

FV

9

MEASURED DATA				COMPUTED DATA		
MEASURED I	I	I	I	I	I	I
DEPTH	INCLINATION	AZIMUTH	X-KOORD	Y-KOORD	Z-KOORD	
(M)	360 DEG	400 GRD	(M)	(M)	(M)	
0.	73.5	387.82	73.10	-374.52	597.20	
2.	73.5	387.82	75.22	-374.93	596.56	
8.	73.0	386.71	80.85	-376.07	594.83	
10.	74.0	385.60	82.72	-376.49	594.26	

ORS: NONE. TIME: 0.697 SEC. IMAGE COUNT: 110

GRUVE

DEVIATION ANGLE.(GRD)

DEVIATION.

DEPTH	DEV.ANGLE	DIF.	DX	DY	DZ	TOT.DEV.	POINT
.00	*	*	.00	.00	.00	.00	1
2.40	.01	*	.01	.13	-.03	.14	2
8.40	1.11	1.10	.07	.47	-.07	.48	3
10.40	2.22	1.11	.11	.57	-.04	.59	4
PLANED INCLINATION = 65.90							
PLANED AZIMUTH = 383.90							

DEVIATION CALCULATION.

NAME.....

:

FV

HOLE NO.....

:

10

DATE.....

:

5.7.83

CALCULATION METHOD:

:

CURD ANGLE

FV

10

MEASURED DATA				COMPUTED DATA			
MEASURED I	I	I	I	I	I	I	I
DEPTH	INCLINATION	AZIMUTH	X-KOORD	Y-KOORD	Z-KOORD		
(M)	360 DEG	400 GRD	(M)	(M)	(M)		
0.	65.0	387.82	73.10	-374.52	597.20		
2.	65.0	387.82	75.24	-374.94	596.17		
8.	66.0	387.82	80.60	-375.97	593.70		
10.	68.0	387.82	82.40	-376.32	592.92		

RORS: NONE.

TIME: 0.895 SEC.

IMAGE COUNT: 110

GRUVE

DEVIATION ANGLE.(GRD)

DEVIATION.

DEPTH	DEV.ANGLE	DIF.	DX	DY	DZ	TOT.DEV.	POINT
.00	*	*	.00	.00	.00	.00	1
2.70	.02	*	.02	.16	-.03	.16	2
8.70	.93	.91	.05	.46	-.10	.48	3
10.70	4.37	3.44	.07	.50	-.08	.51	4

PLANED INCLINATION = 57.30
 PLANED AZIMUTH = 382.30

DEVIATION CALCULATION.

---NAME.....: FV
 ---HOLE NO.....: 11
 ---DATE.....: 5.7.83
 ---CALCULATION METHOD: CORD ANGLE

FV

11

MEASURED DATA				COMPUTED DATA		
MEASURED I	I	I	I	X-KOORD	Y-KOORD	Z-KOORD
DEPTH	INCLINATION	AZIMUTH				
(M)	360 DEG	400 GRD	(M)	(M)	(M)	(M)
0.	56.5	386.71	73.10	-374.52	597.20	
3.	56.5	386.71	73.30	-374.99	595.71	
9.	56.5	385.60	80.19	-376.07	592.40	
11.	59.5	382.27	81.83	-376.49	591.34	

RORS: NONE. TIME: 0.697 SEC. IMAGE COUNT: 110

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DEVIAION ANGLE.(GRD)

DEVIATION.

DEPTH	DEV.ANGLE	DIF.	DX	DY	DZ	TOT.DEV.	POINT
.00	*	*	.00	.00	.00	.00	1
2.90	.01	*	.01	.07	-.01	.07	2
8.90	.73	.72	.04	.25	-.04	.26	3
10.90	7.30	6.57	.00	.22	-.06	.23	4

PLANED INCLINATION = 41.40

PLANED AZIMUTH = 376.60

DEVIATION CALCULATION.

---NAME.....: FV
---HOLE NO.....: 12
---DATE.....: 5.7.83
---CALCULATION METHOD: CORD ANGLE

FV

12

MEASURED DATA				COMPUTED DATA		
MEASURED	INCLINATION	AZIMUTH	X-KOORD	Y-KOORD	Z-KOORD	
DEPTH						
(M)	360 DEG	400 GRD	(M)	(M)	(M)	
0.	41.0	378.93	73.10	-374.52	597.20	
3.	41.0	378.93	74.90	-375.14	595.01	
9.	41.0	380.04	78.63	-376.39	590.48	
11.	40.0	368.93	79.83	-376.89	588.96	

DRS: NONE. TIME: 0.696 SEC. IMAGE COUNT: 110

GRAVE

DEVIAATION ANGLE.(GRD)

DEVIATION.

DEPTH	DEV.ANGLE	DIF.	DX	DY	DZ	TOT.DEV.	POINT N
.00	*	*	.00	.00	.00	.00	1
2.30	.02	*	-.14	.18	.13	.25	2
6.30	2.20	2.18	-.38	.42	.35	.67	3
10.30	2.21	.02	-.62	.55	.64	1.05	4

PLANED INCLINATION = 54.50

PLANED AZIMUTH = 222.60

DEVIATION CALCULATION.

---NAME.....: FV
---HOLE NO.....: 13
---DATE.....: 5.7.83
---CALCULATION METHOD: CORD ANGLE

FV

13

MEASURED DATA				COMPUTED DATA		
MEASURED I	I	I	I	I	I	I
DEPTH	INCLINATION	AZIMUTH	X-KOORD	Y-KOORD	Z-KOORD	
(M)	360 DEG	400 GRD	(N)	(N)	(M)	
0.	53.0	215.60	73.10	-374.52	597.20	
2.	58.0	215.60	71.21	-375.00	595.98	
6.	57.0	217.82	67.91	-375.88	593.39	
10.	60.0	220.04	64.62	-376.89	591.86	

KORS: NONE. TIME: 0.692 SEC. IMAGE COUNT: 110

GRUVE

DEVIATION ANGLE.(GRD)

DEVIATION.

DEPTH	DEV. ANGLE	DIF.	DX	DY	DZ	TOT. DEV.	POINT
.00	*	*	.00	.00	.00	.00	1
2.00	.01	*	-.03	.12	-.02	.13	2
6.00	3.31	3.30	-.04	.28	-.10	.30	3
10.00	2.35	-.97	.01	.29	-.25	.38	4

PLANNED INCLINATION = 70.70
 PLANNED AZIMUTH = 219.90

DEVIATION CALCULATION.

---NAME.....: FV
 ---HOLE NO.....: 14
 ---DATE.....: 5.7.83
 ---CALCULATION METHOD: CORD ANGLE

FV

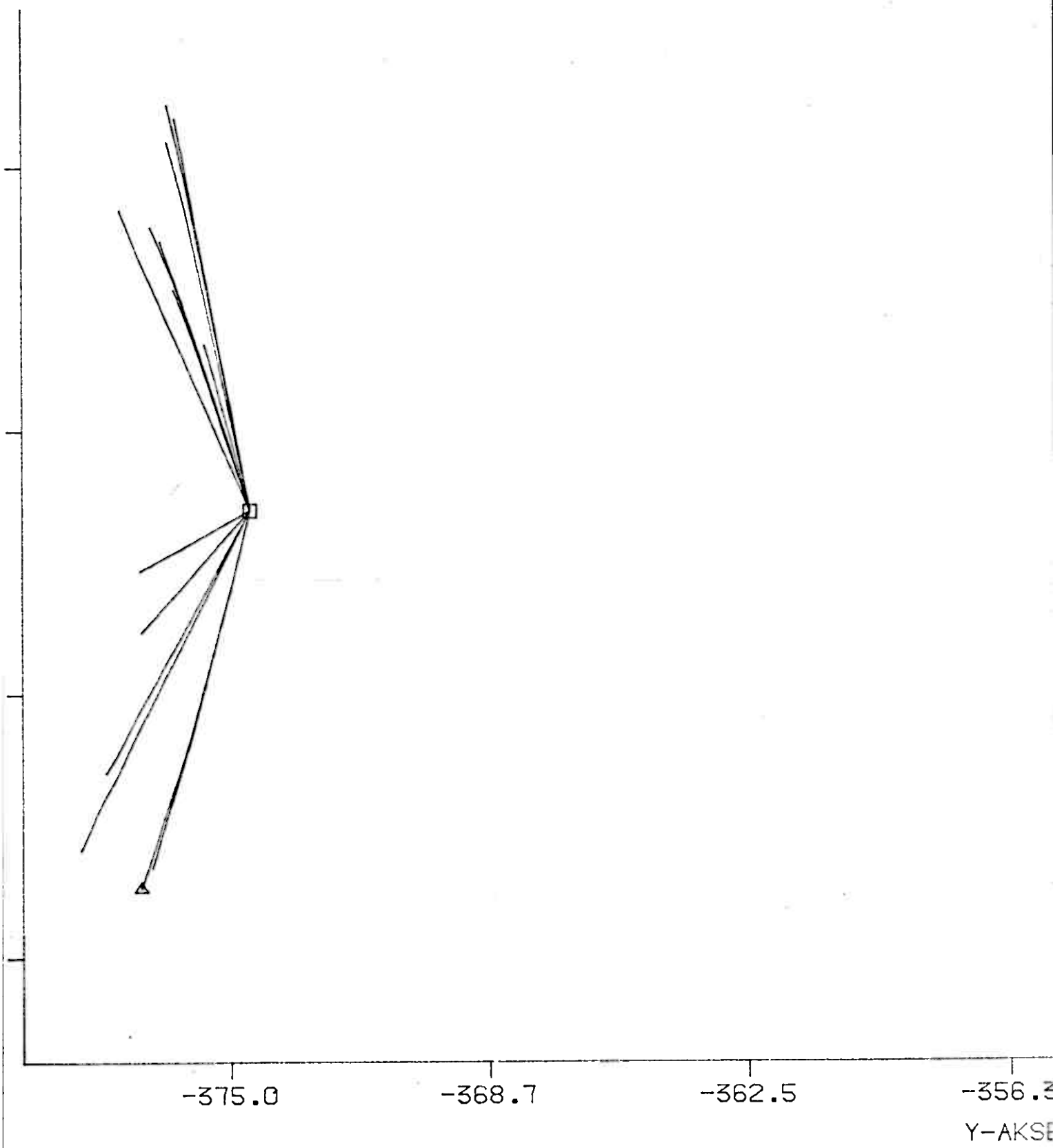
14

MEASURED DATA				COMPUTED DATA		
DEPTH	INCLINATION	AZIMUTH	X-KOORD	Y-KOORD	Z-KOORD	
(M)	360 DEG	400 GRD	(M)	(M)	(M)	
0.	70.0	215.60	73.10	-374.52	597.20	
2.	70.0	215.60	71.28	-374.98	596.52	
6.	69.0	218.93	67.67	-375.98	595.11	
10.	68.0	221.16	64.13	-377.13	593.65	

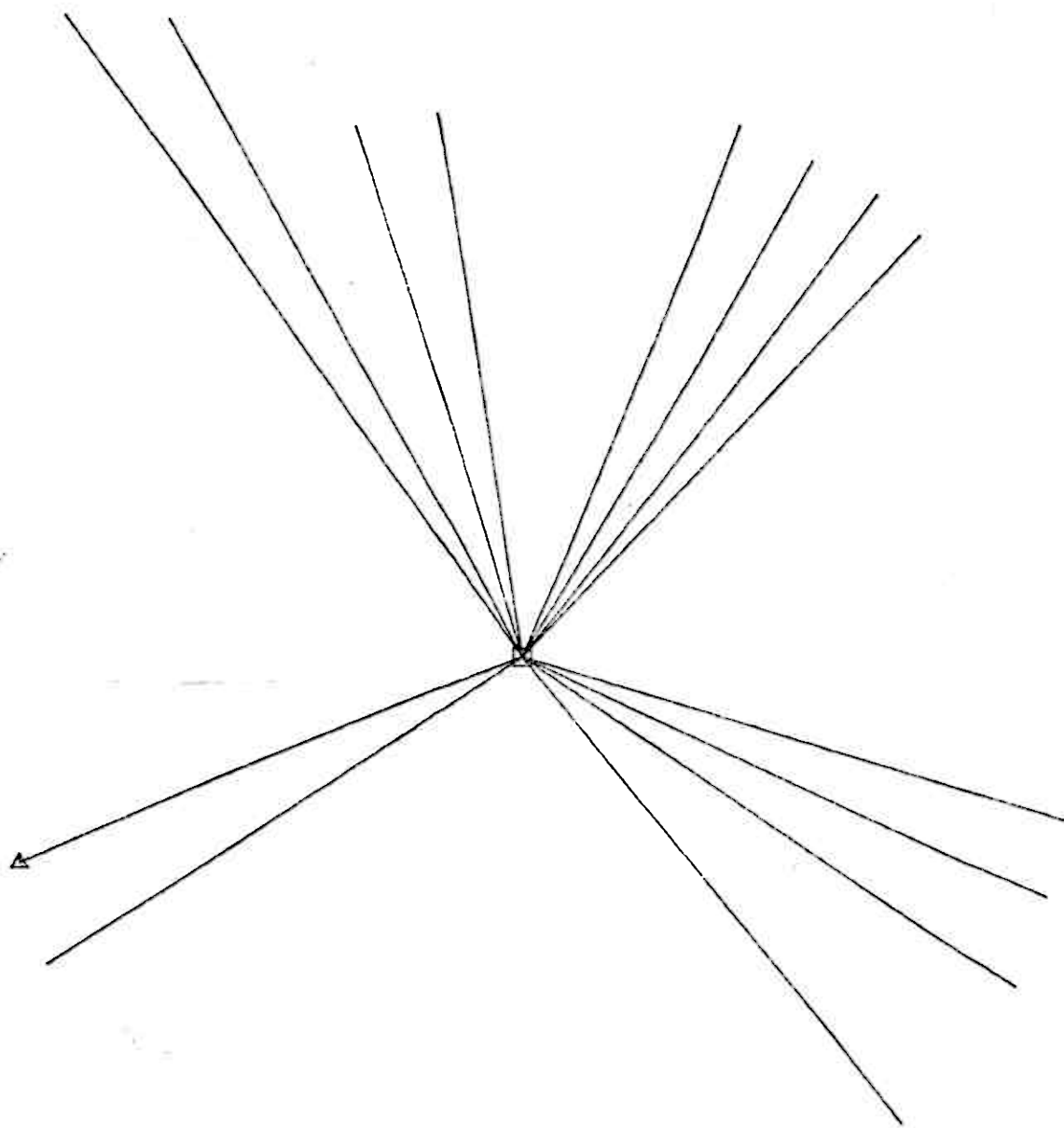
RS: NONE. TIME: 0.695 SEC. IMAGE COUNT: 110

RUVE

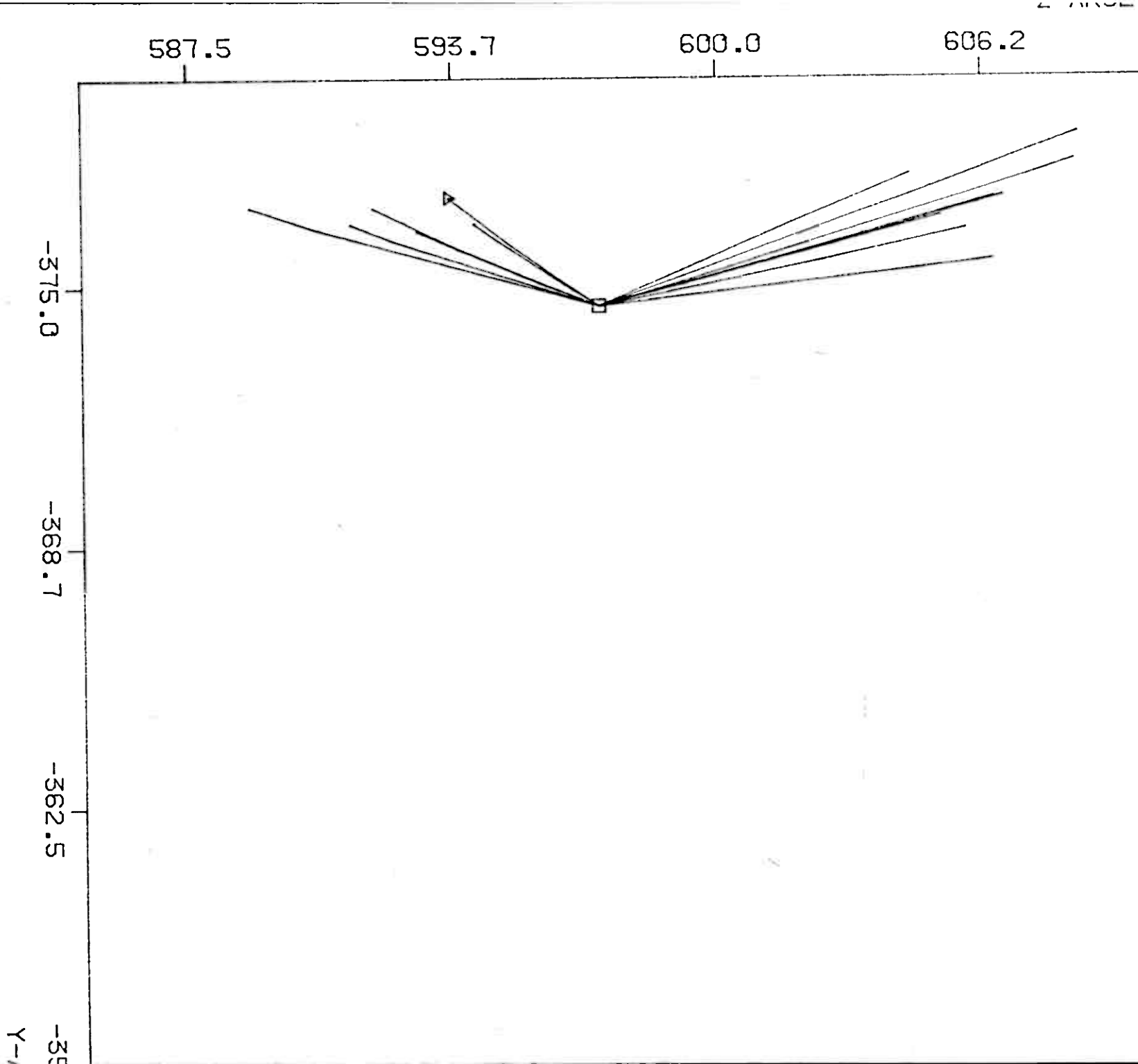
$x-y$



$\chi - z$



X-AKSE



Y-2