U. S. DEPARTMENT OF THE INTERIOR
U. S. GEOLOGICAL SURVEY

MAGNETIC STRATIGRAPHY OF BOREHOLES 6M2MW7 AND 6M36MW8 AT MARCH AIR FORCE BASE, CALIFORNIA

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Abstract

Approximately 320 feet of sand, silt, clay, and gravel caps the granitic basement rocks beneath the developed area of March Air Force Base. Magnetic polarity stratigraphy was determined from two boreholes, 6M2MW7 and 6M36MW8, to aid in the dating and correlation of these sedimentary deposits. The magnetic data and interpretation are intended as supplemental information to the broader geohydrologic and geophysical investigations currently underway at March Air Force Base. The core from 6M2MW7 was complete from 115 feet depth down to the bedrock contact at 323 feet below the surface. The upper part of the core was missing, so we filled in the stratigraphic gap by sampling core 6M36MW8 from the surface down to 175 feet depth. The distance between the two boreholes is approximately 850 feet. Samples for paleomagnetism, taken at about 20 foot intervals down the cores, were treated in alternating fields to remove spurious magnetization. The resultant zones of normal and reversed magnetic polarity, when compared with the geomagnetic polarity timescale, suggest that the near-surface sediment is older than 780,000 years. We propose two alternative correlations of the entire sedimentary stratigraphic section with the timescale: 1)0.8 million years to 2 million years before present, or 2) 3.1 million years to 3.7 million years before present.

Introduction

We report paleomagnetic results from two boreholes drilled in the course of geohydrologic investigations at March Air Force Base near Riverside, California (Figure 1). The overall objective of the paleomagnetic study was to determine magnetic polarity stratigraphy of the sand, clay, and gravel beneath the central part of the Base to aid in the dating and correlation of water-bearing strata. This type of study requires intact cores of sediment from the full length of the borehole, so that the magnetic inclination can be measured and then matched to the standard geomagnetic polarity timescale (Cande and Kent, 1995). The sonic coring program at March Air Force Base offered an opportunity to use magnetic stratigraphy, because the cores were recovered in good condition and the upright orientation, essential for determining magnetic inclination, was marked carefully.

Paleomagnetic studies have shown that the Earth's magnetic field switches between two polarity states through a process in the Earth's liquid-iron core that causes the main dipole field to decay and then regenerate in the opposite sense. Polarity reversals are a global effect that leaves a permanent magnetic signature in cooling lavas and depositing sediments. The polarity changes, which occur irregularly in time, have been dated by geophysical methods, resulting in a calibrated, worldwide polarity timescale (Figure 2). Going back in time through the Pleistocene, the principal polarity transitions occurred at 0.78, 0.99, 1.07, 1.77, and 1.95 million years ago (Cande and Kent, 1995). Our objective in this study was to determine magnetic polarity zones in the March Air Force Base sediments to search for these magnetic time lines and thereby help to date the deposits.

Geologic Setting

March Air Force Base is located in the southwestern part of Moreno Valley, which consists of a broad southward-sloping alluvial plain that connects to the south with Perris Valley and to the east with San Jacinto Valley. Moreno Valley is rimmed to the north and southeast by rugged granitic highlands of the Box Springs Mountains, Reche Canyon, and Mount Russell, and is flanked to the west by low hills of granitic rocks that extend southward from Riverside. The valley floor is underlain by sand, silt, and gravel deposited by small streams that drain the surrounding highlands. Numerous water wells and exploratory boreholes that have been drilled to the base of these alluvial deposits encounter granitic bedrock at depths of less than 100 feet to as much as 800 feet beneath the ground surface. The deeper wells define a network of buried bedrock-floored channels, including a deep southwest-trending channel directly east of the Air Force base and several shallower channels beneath the base itself. The bedrock channels were cut long ago by large streams and their tributaries, and were buried subsequently by alluvium washed in from the nearby hills. The age of the alluvial fill is

uncertain, but it contains oxidized layers and other buried soil features that indicate deposition was prolonged, possibly spanning millions of years. Based on comparison with the geologic history of surrounding regions, the alluvium probably was deposited sometime during the past 6 million years.

Location of Paleomagnetic Study

We selected two boreholes for study, 6M2MW7 and 6M36MW8, which are located in the area of the Air Force Base approximately 1500 feet east of the intersection of Graeber Street and Meyer Drive (Figure 1; northwest corner of Section 24, T. 3 S., R. 4 W.). Tetra Tech Inc. boring logs refer to the 6M2MW7 area as "Location E." The core from 6M2MW7 was complete from 115 feet depth down to the bedrock contact at 323 feet below the surface. The upper part of the core was missing, so we filled in the missing part by obtaining the core from 6M36MW8 down to 175 feet below the surface. The distance between the two boreholes is about 850 feet.

Magnetic Methods

We collected samples for paleomagnetic study at approximately 20-foot intervals down the borehole, or wherever sediments free of coarse sand or gravel were present. We avoided sampling gravelly beds, because such coarse-grained sediment carries less reliable remanent magnetization. The best material for paleomagnetic purposes is siltstone-mudstone. In the laboratory, specimen plugs were either drilled or sawed from the core segments. The vertical orientation of each core segment was marked and preserved in the specimen plugs; no attempt was made to recover the original horizontal azimuths that were of course lost in the sonic coring operation. The specimen plugs ranged in volume from 6.0 cc to 11.0 cc. Several core segments proved to be too coarse-grained and friable to yield satisfactory specimens.

To determine the magnetic inclination, each specimen was given treatments in strong alternating magnetic fields to strip away spurious components due to the recent magnetic field and the coring procedures. The treatment, called alternating field demagnetization, involves a sequence of steps to partially demagnetize the specimen at progressively higher field settings (50 to 1000 Gauss). The demagnetization apparatus consists of a 400 Hertz coil and a reciprocating sample holder that tumbles the specimen in the applied field. The remanent magnetization was measured with a cryogenic magnetometer after each treatment step. All measurements and treatments were performed in a magnetically shielded room that reduces the ambient field to one percent of the Earth's field at Menlo Park. Shielding the experiments reduces spurious magnetization and shortens the measurement time.

Results

In general, the natural remanent magnetizations of these sediments are quite weak, ranging from 10^{-5} to 10^{-7} Gauss/cc (cc = cubic centimeter). The changes in magnetic intensity and direction that resulted from the demagnetization treatments for each specimen are summarized in a series of diagrams in Appendix 1. The diagrams depict: 1, projections of the vertical and horizontal components of magnetization; 2, the decay of magnetic intensity as a function of applied alternating field; 3, stereographic projections of the progressive change in magnetic direction with each treatment step. Most specimens revealed a stable magnetization direction after treatments of 200 Gauss to 400 Gauss, then tended to show scattered directions at higher fields. Some specimens, however, failed to show a consistent magnetic direction during any part of the alternating field treatment. Results from these unstable specimens were inconclusive in so far as determining magnetic polarities.

If a given specimen showed a stable response to the demagnetization treatment, then the inclination for polarity assignment was selected from the highest stable treatment step. Normal polarity, which is the present geomagnetic field state, is defined by inclinations within 30° of +54°. Reversed polarity is defined by inclinations within 30° of -54°. In a few examples, the demagnetization diagrams showed that the magnetic direction was moving toward the reversed polarity position, but stalled at low inclination values before the onset of unstable response, that was caused by high applied fields acting on diminished

magnetization of the specimen. For these cases, the polarity is interpreted as being reversed. Polarity determinations for Cores 6M2MW7 and 6M36MW8 are shown in Table 1. Figure 3 shows inclinations and polarity interpretations for the stratigraphic sections sampled by each borehole. The uppermost specimen at 17 feet depth in Core 6M36MW8 has reversed polarity. The rest of Core 6M36MW8 has normal polarity down to 175 feet depth, except for reverse-heading specimens at 25 feet and 78 feet. Core 6M2MW7 has one normal-polarity specimen at 117.5 feet depth and is consistently of reversed polarity from 148 feet down to the 304 foot level, just 19 feet above the contact with granitic basement rocks. The polarity transition that must occur between 117.5 feet and 148 feet in 6M2MW7 could not be pinpointed because the sediment in the interval tends to be gravelly and unstably magnetized. Reddish clays below 155 feet depth in 6M2MW7 are distinctive both in terms of lithology and having reversed magnetic polarity.

Comparison of magnetic results from the two boreholes indicates that the zone of normal polarity extends downward at least 27 feet in 6M36MW8 relative to the bottom of the normal zone in 6M2MW7, suggesting that the section thickens or dips to the south. The required dip is $\geq 2.2°$ southward, given the 5-foot difference in wellhead elevation and the 850-foot horizontal spacing of the wells. This is quite possible, because the alluvial deposits probably slope southward away from the nearby highlands in the Box Springs Mountains, and alluvial-fan deposits commonly show primary dips of $\leq 6°$. Alternatively, stratigraphic correlations are possibly complicated by faulting or by an erosional unconformity between the two boreholes.

Conclusions

Comparison of the magnetic polarity zonation of the boreholes with the geomagnetic polarity timescale leads to several possible correlations (Figure 4). Given that reversed polarity occurs at 17 feet depth in 6M36MW8, we can conclude that the near-surface sand and gravel at the drill site was deposited before the onset of the current normal polarity state, which is dated at 780,000 years before present. Thus, the age of the near-surface deposits is early Pleistocene or older. Similarly, the sand and gravel below 148 feet depth in 6M2MW7 must be older than 780,000 years. If the two boreholes are sampling a contiguous section that is not disrupted by erosion or faulting between the two sites, then we can propose a "best fit" correlation that is consistent with the combined magnetic stratigraphy of the two cores. This correlation (Figure 4) was selected to match with the younger part of the timescale from 0.8 million years to approximately 2 million years before present (early Pleistocene to late Pliocene). A weakness of the match is the relatively small thickness of the reversed magnetic zone at 70-85 feet depth in 6M36MW8 compared to the greater thickness expected from the 1.07-1.77 million-year reversed zone of the timescale. An alternative fit would be a correlation to an older part of the timescale from approximately 3.1 to 3.7 million years ago, which would imply that the cored deposits are entirely Pliocene in age.

References

Cande, S. C., and Kent, D. V., Revised calibration of the geomagnetic polarity timescale for the Late Cretaceous and Cenozoic: Journal of Geophysical Research, v. 100, p. 6093-6095, 1995.

TABLE 1: Paleomagnetic inclinations and polarity interpretations from drill cores at March Air Force Base

Core 6M2MW7

Depth	Inclination	Polarity	Treatment(Gauss)
117.5'	42.4°	Normal	300
137'		Unstable	
148'	-53.3°	Reversed	300
160'	-43.2°	Reversed	200
200.5'	-15.5°	Reversed*	150
239'	-31.5°	Reversed	150
258'	-53.4°	Reversed	300
284'	-50.7°	Reversed	300
304'	-13.5°	Reversed*	800

Core 6M36MW8

17'	-32.3°	Reversed	400
25'	12.5°	Reversed*	400
50'	65.2°	Normal	400
73'	54.6°	Normal	300
78'	-27.1°	Reversed	300
88'	53.3°	Normal	400
95'	50.1°	Normal	200
109'	72.7°	Normal	200
125'		Unstable	
139'	11.9°	Intermediate	300
148'	52.2°	Normal	300
150'	53.4°	Normal	300
165'	46.5°	Normal	300
172'	52.9°	Normal	300
175'	59.0°	Normal	300

*Note: Going toward reversed polarity at last stable demagnetization step

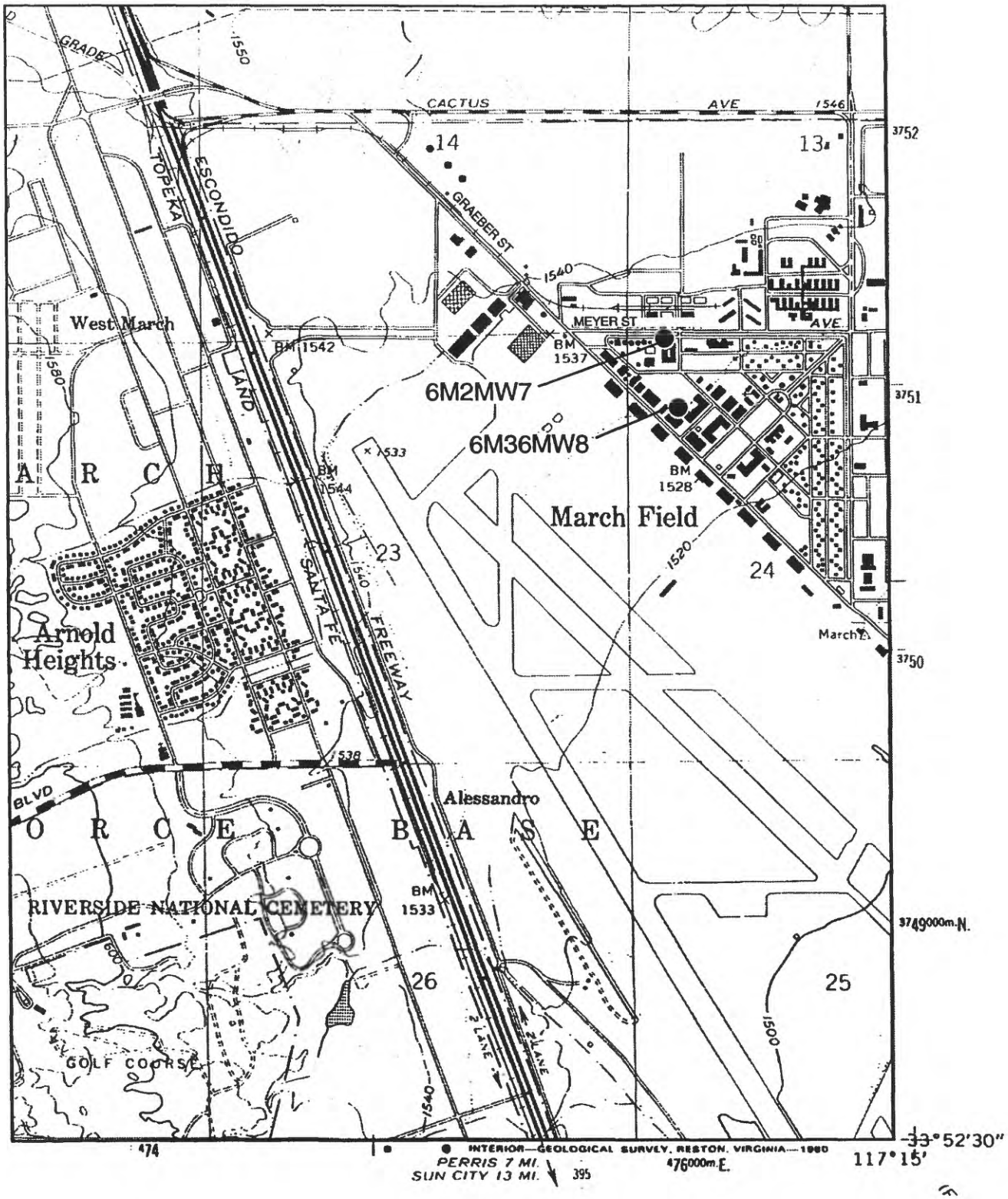


Figure 1. Boreholes sampled for paleomagnetism at March Air Force Base.

Figure 2. Geomagnetic polarity timescale showing ages of normal (black) and reversed (white) polarity intervals. Time calibration of Cande and Kent (1995).

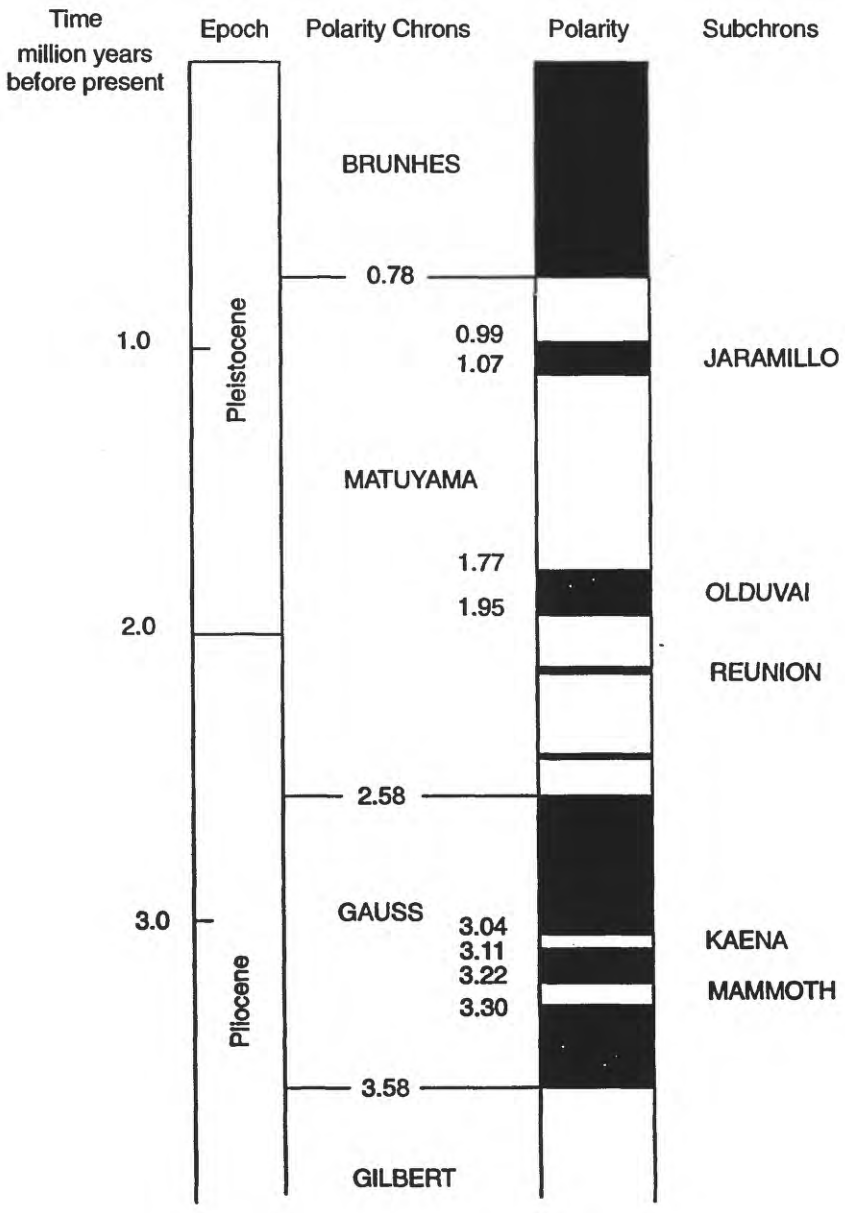
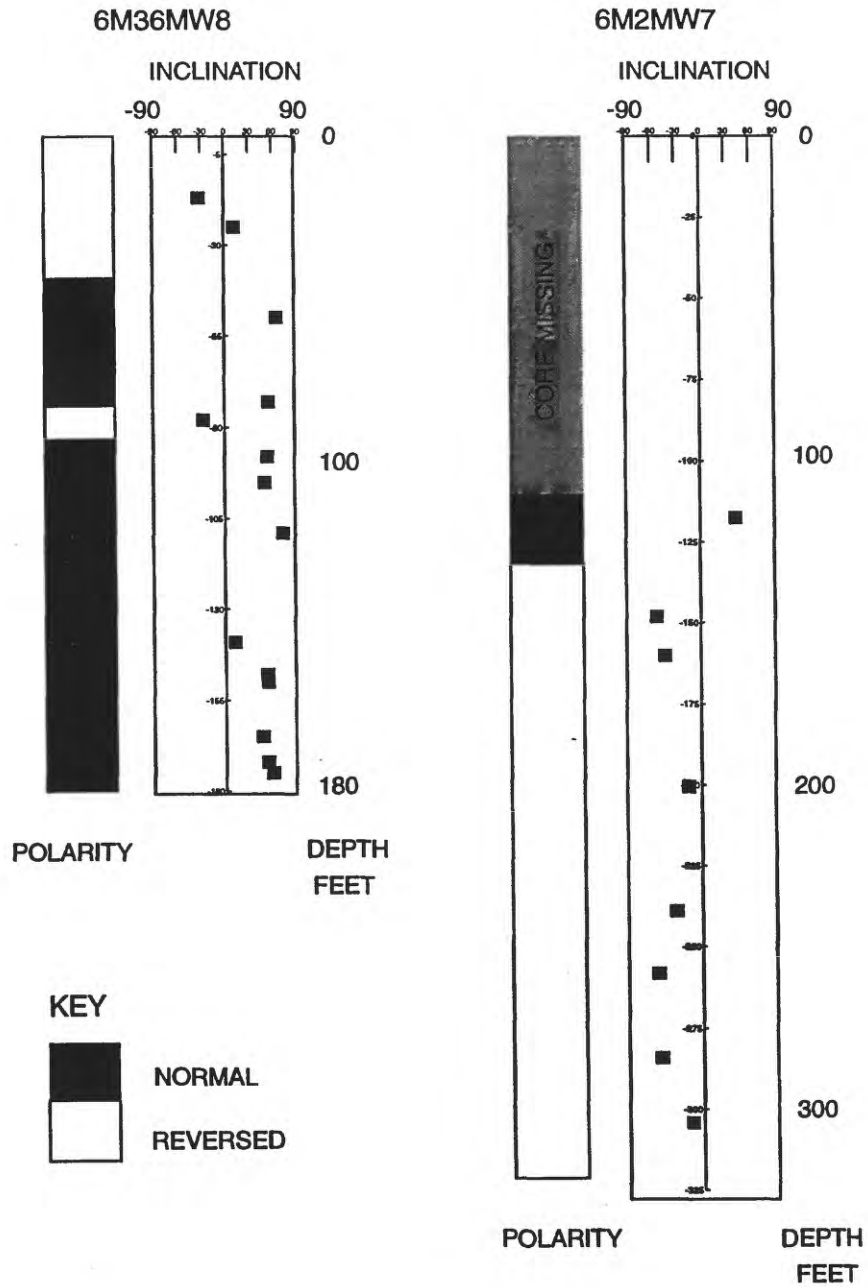


Figure 3. Paleomagnetic inclinations and polarity determinations.



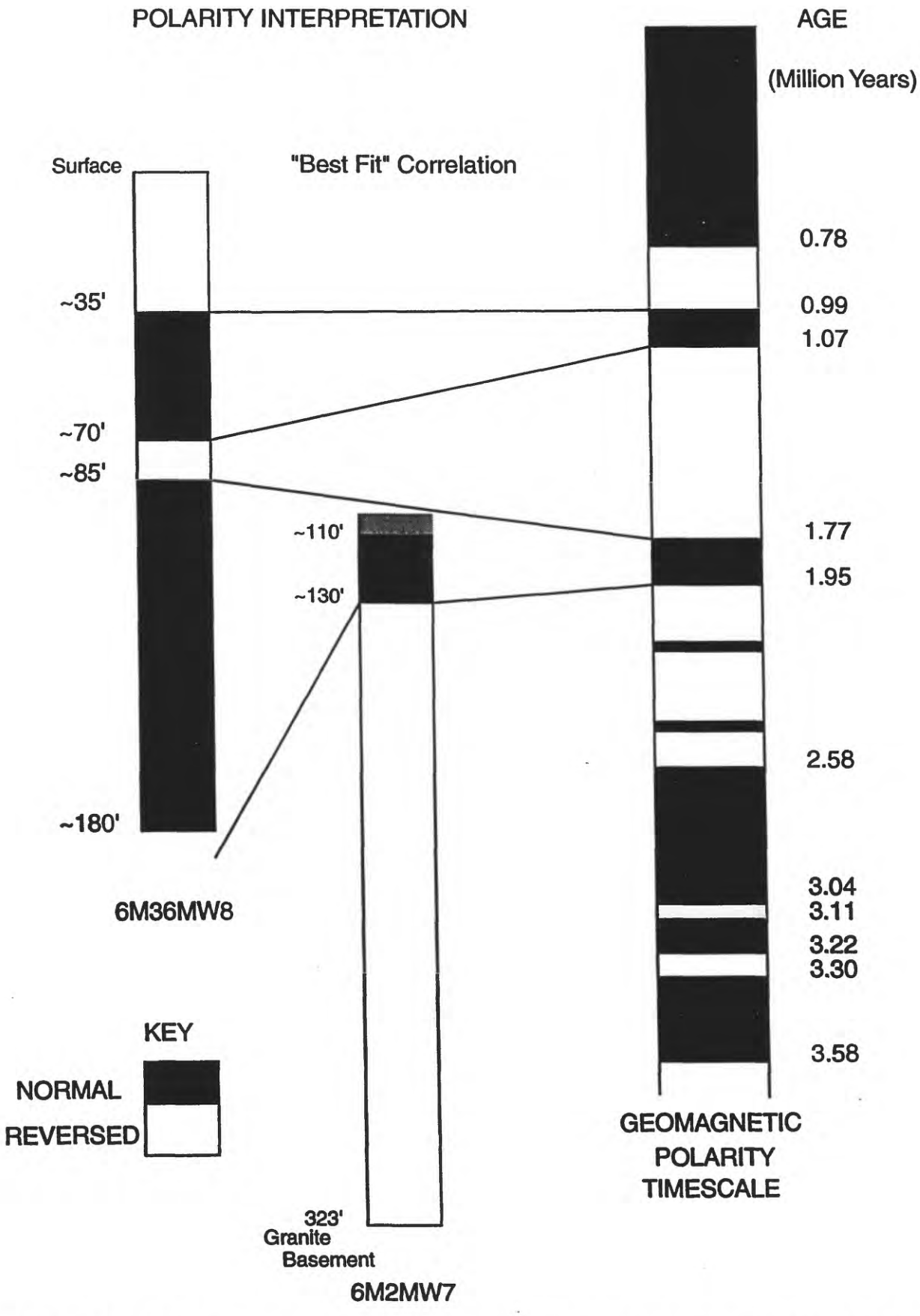


Figure 4. Polarity interpretation and possible correlation with Geomagnetic Polarity Timescale for boreholes 6M36MW8 and 6M2MW7.

APPENDIX 1

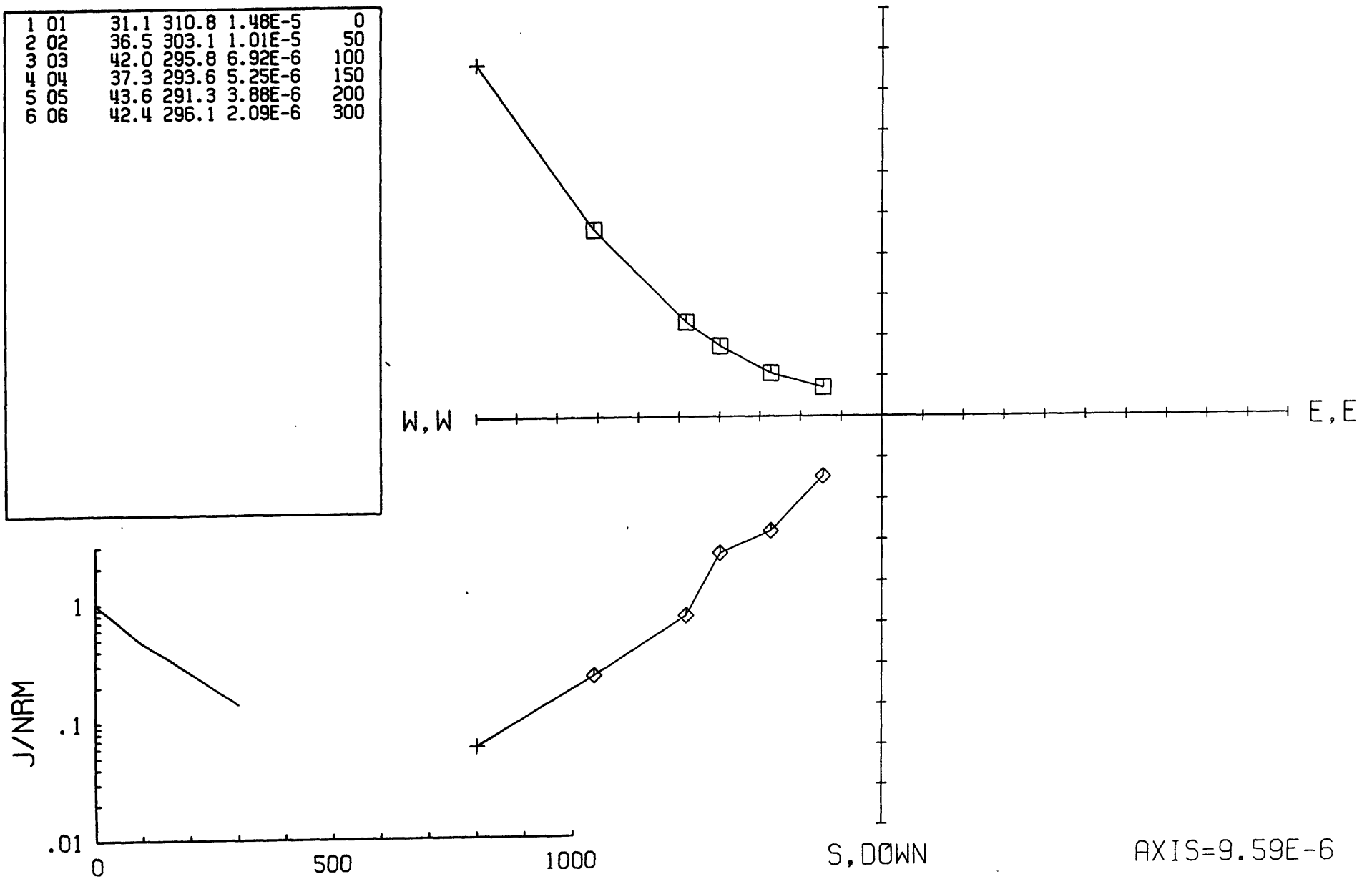
6H102-1 AF DEMAG 6M2MW7 117.5'

Tue Jan 14 14:47:05

6H100.DE

N,UP □: HOR COMP ◇: VER COMP

#	I	D	J	EXP
1 01	31.1	310.8	1.48E-5	0
2 02	36.5	303.1	1.01E-5	50
3 03	42.0	295.8	6.92E-6	100
4 04	37.3	293.6	5.25E-6	150
5 05	43.6	291.3	3.88E-6	200
6 06	42.4	296.1	2.09E-6	300



6H102-1 AF DEMAG 6M2MW7 117.5'

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5 05	43.6	291.3	3.88E-6	200
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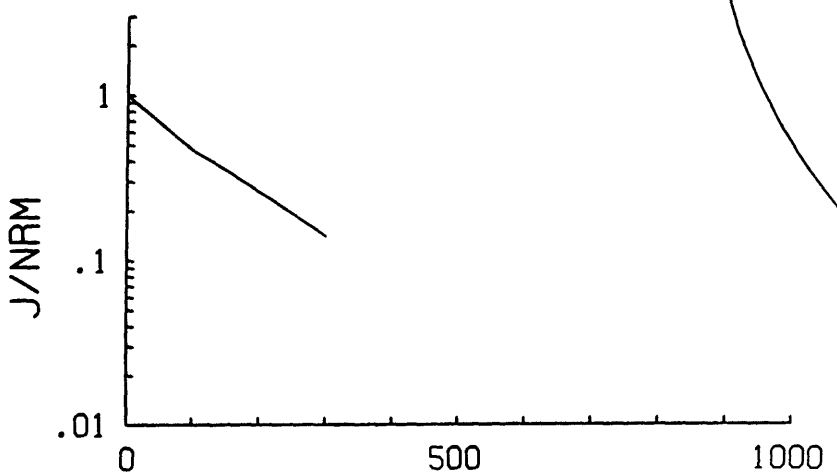

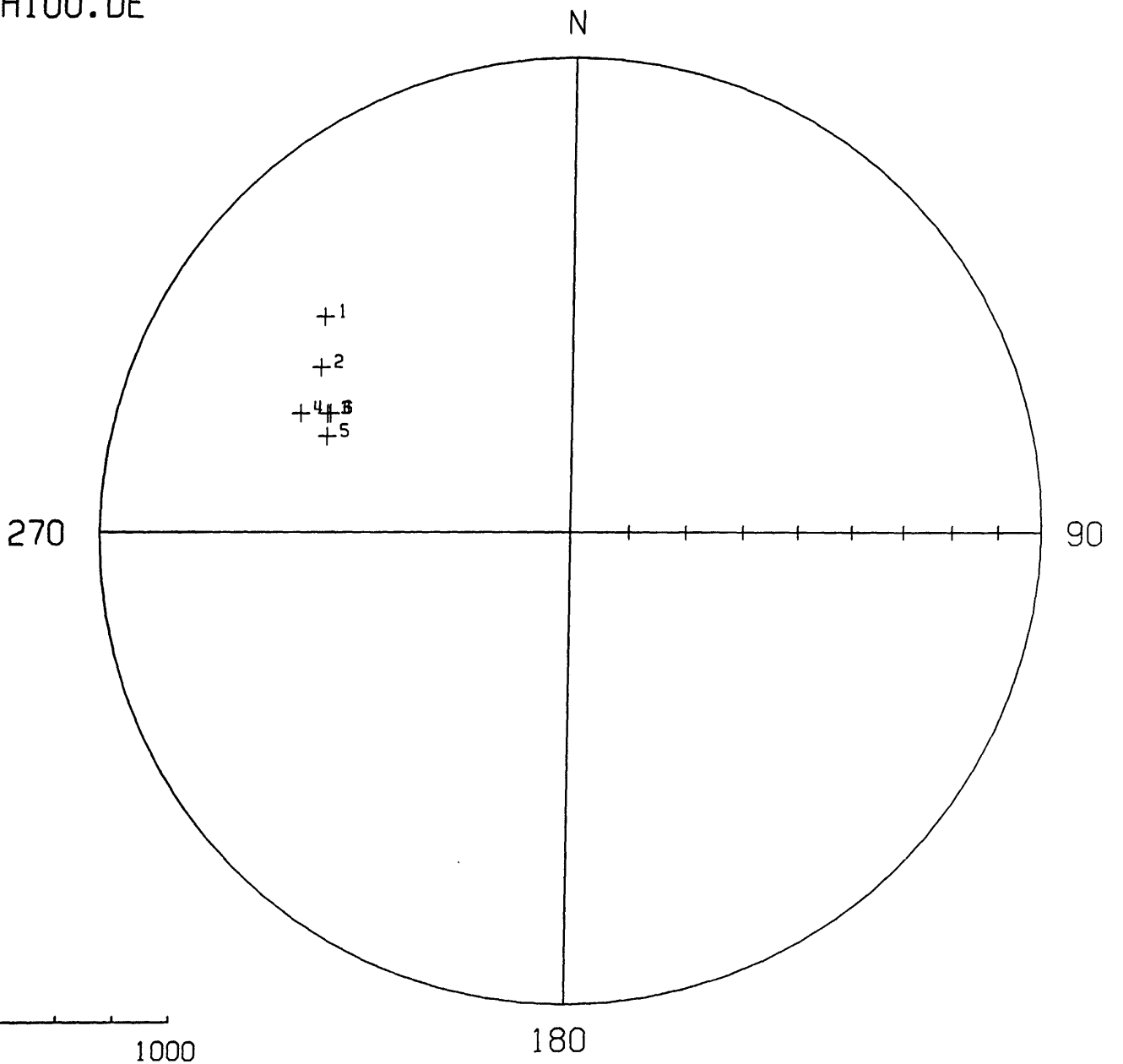

6H104-1 AF DEMAG 6M2MW7 160.0'

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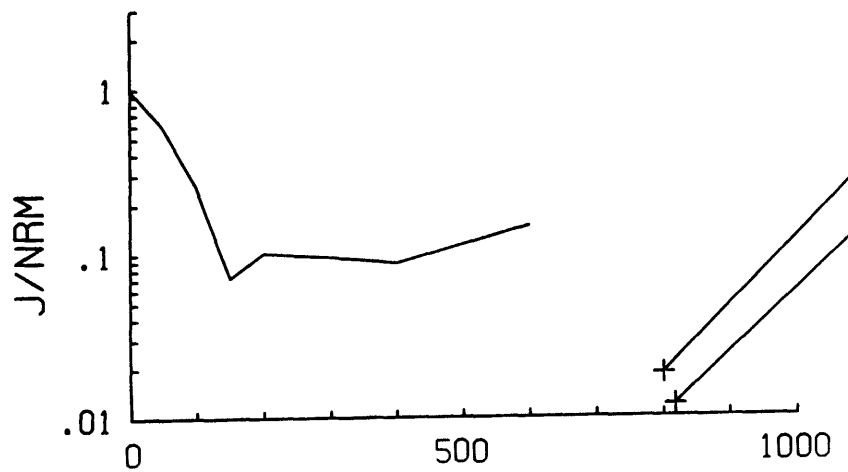
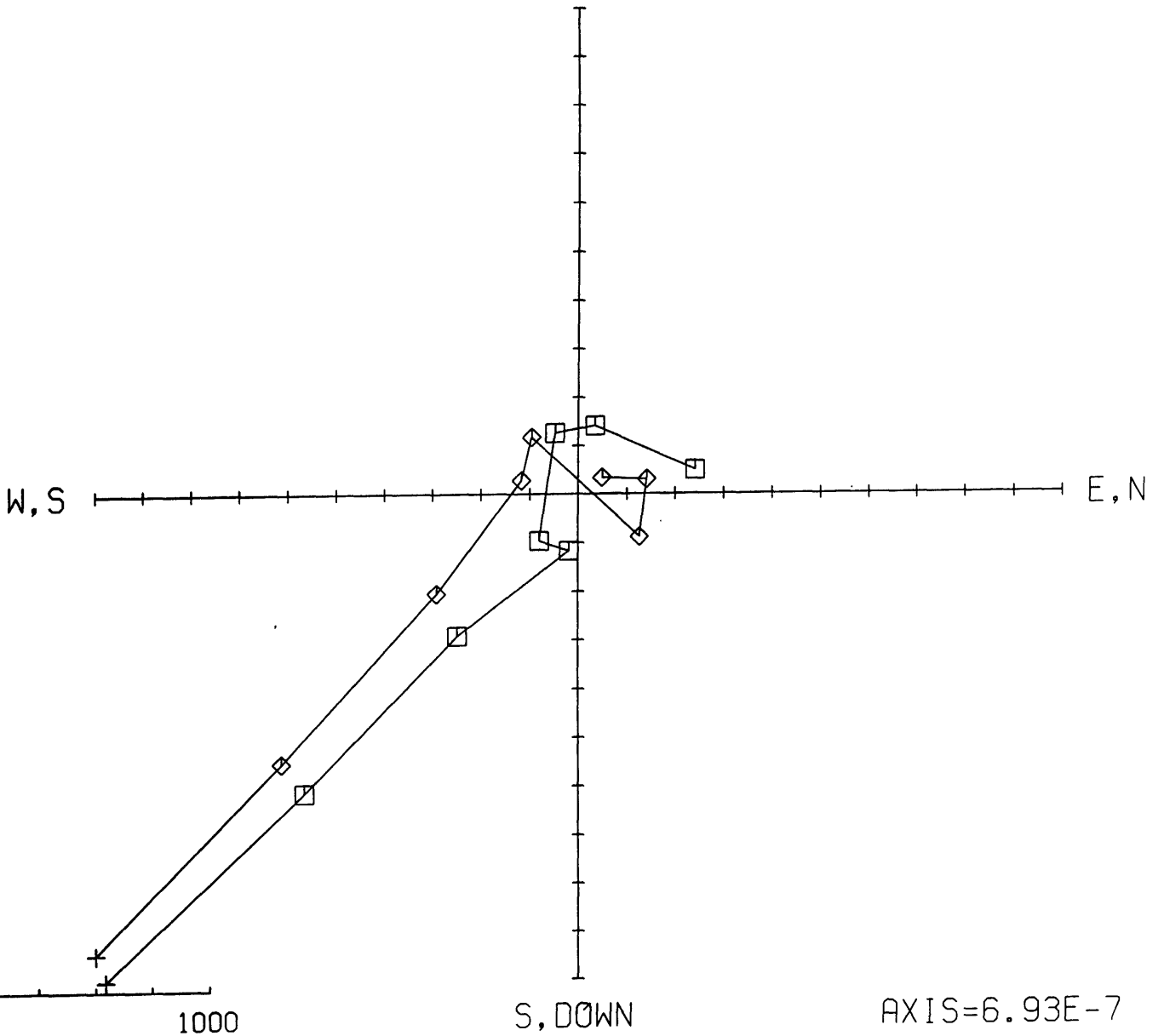
4	04 *	-13.2	189.4	8.42E-8	150
5	05 *	-43.2	219.8	1.19E-7	200
6	06 *	33.1	339.2	1.12E-7	300
7	07 *	-11.7	13.5	1.03E-7	400
8	08 *	-7.8	78.5	1.72E-7	600





6H104-1 AF DEMAG 6M2MW7 160.0'

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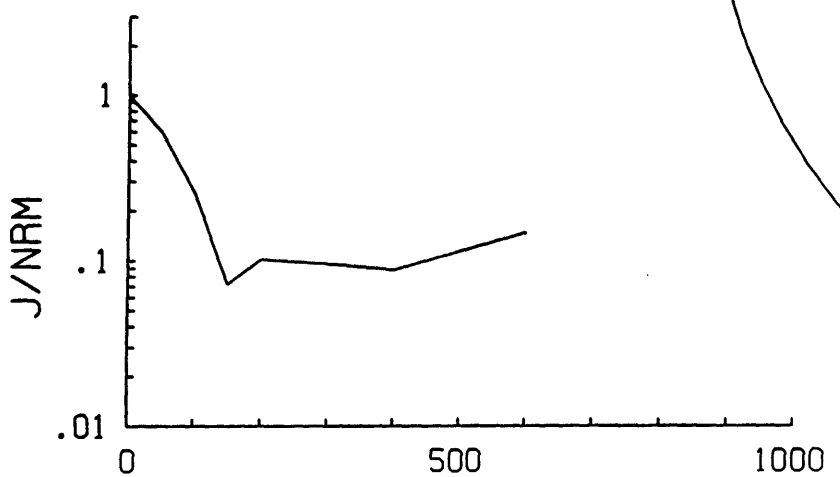
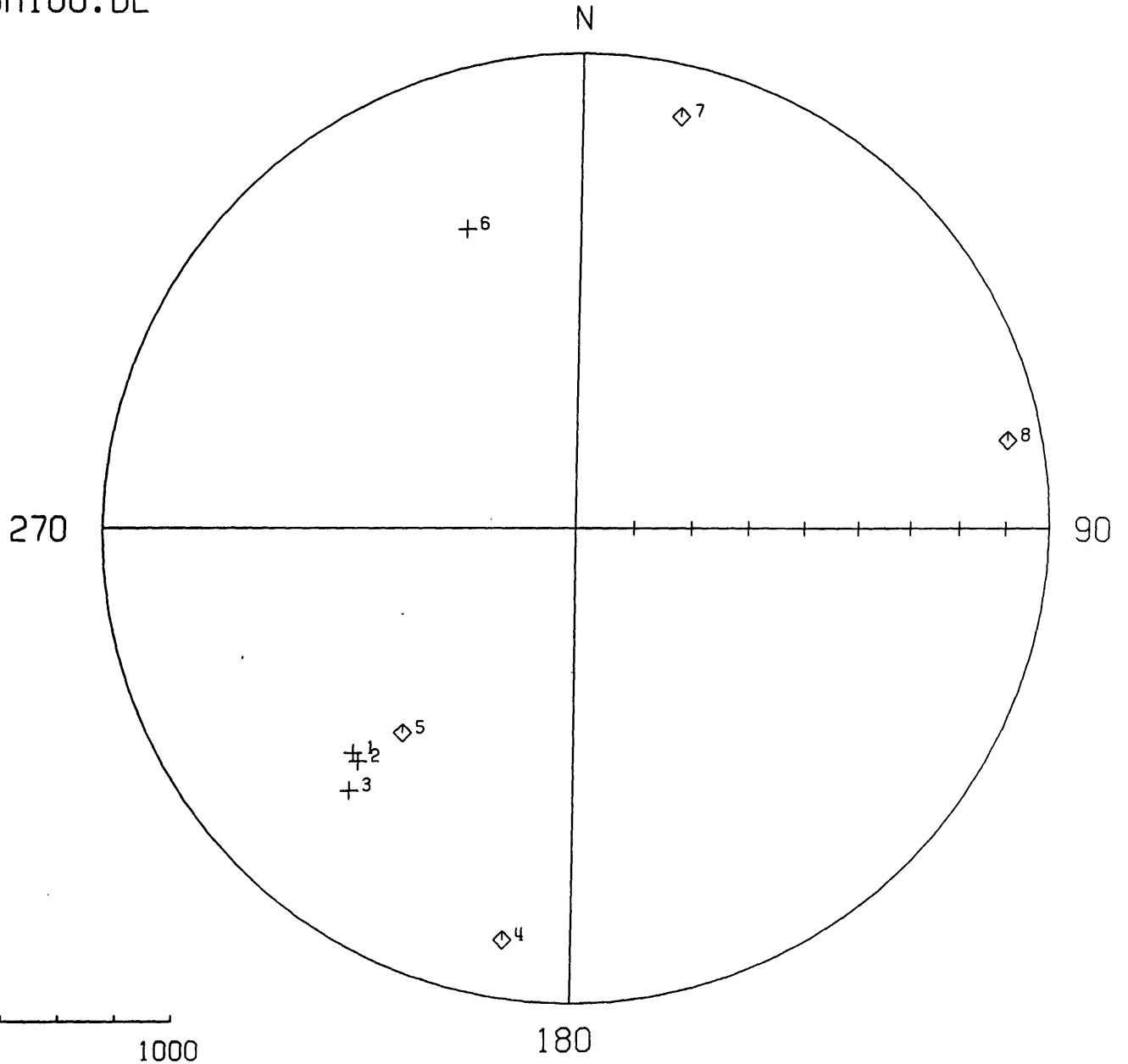
2	02	33.5	222.7	6.94E-7	50
3	03 *	28.1	220.5	3.01E-7	100
4	04 *	-13.2	189.4	8.42E-8	150
5	05 *	-43.2	219.8	1.19E-7	200
6	06 *	33.1	339.2	1.12E-7	300
7	07 *	-11.7	13.5	1.03E-7	400
8	08 *	-7.8	78.5	1.72E-7	600





6H106-1 AF DEMAG 6M2MW7 200.5'

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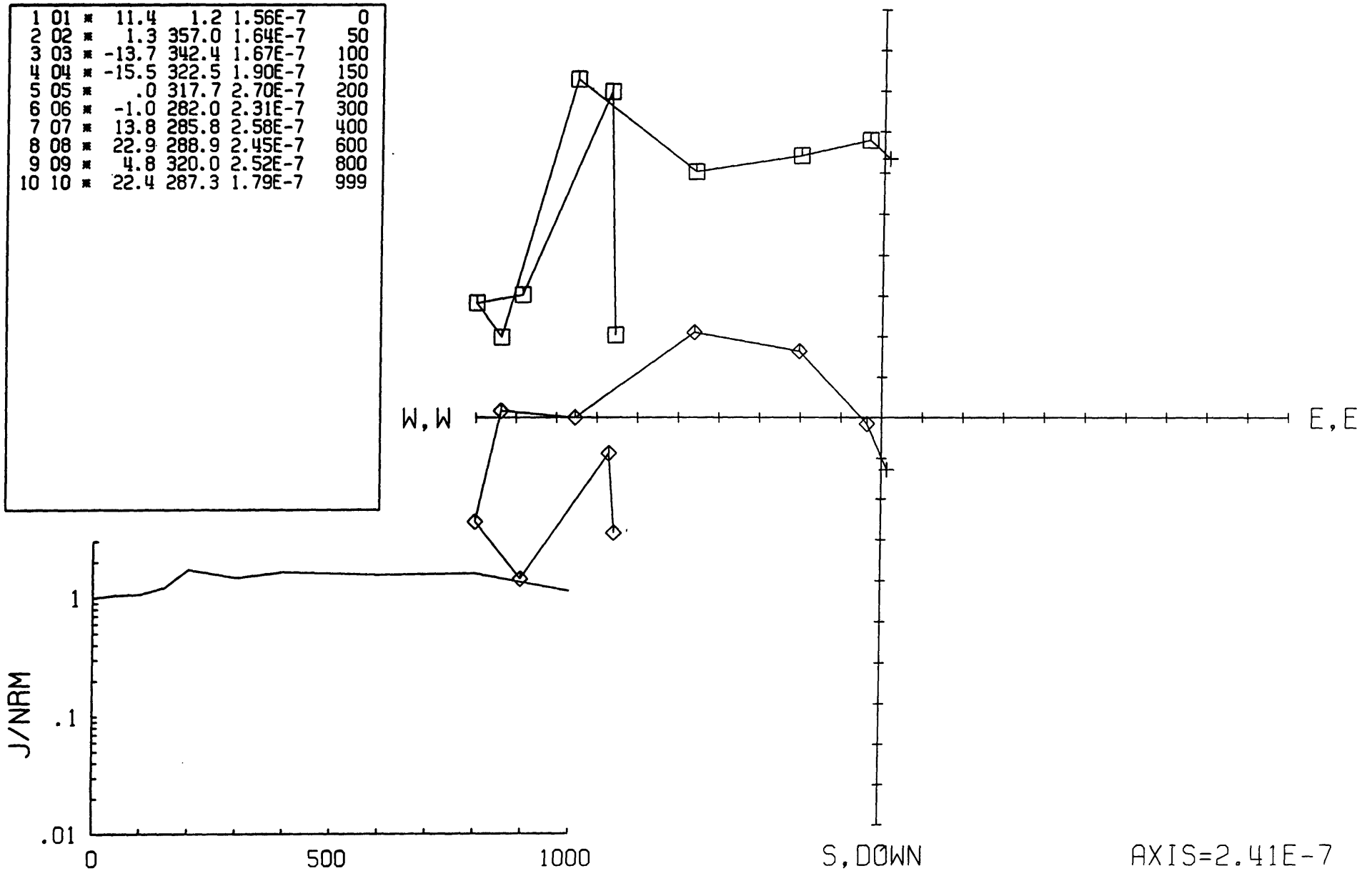
3	03	*	-13.7	342.4	1.67E-7	100
4	04	*	-15.5	322.5	1.90E-7	150
5	05	*	.0	317.7	2.70E-7	200
6	06	*	-1.0	282.0	2.31E-7	300
7	07	*	13.8	285.8	2.58E-7	400
8	08	*	22.9	288.9	2.45E-7	600
9	09	*	4.8	320.0	2.52E-7	800
10	10	*	22.4	287.3	1.79E-7	999



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6H106-1 AF DEMAG 6M2MW7 200.5'

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4	04	*	-15.5	322.5	1.90E-7	150
5	05	*	.0	317.7	2.70E-7	200
6	06	*	-1.0	282.0	2.31E-7	300
7	07	*	13.8	285.8	2.58E-7	400
8	08	*	22.9	288.9	2.45E-7	600
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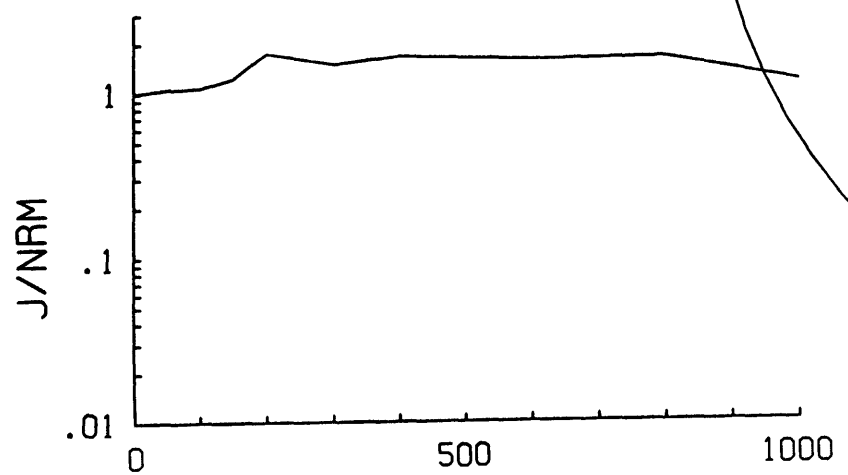
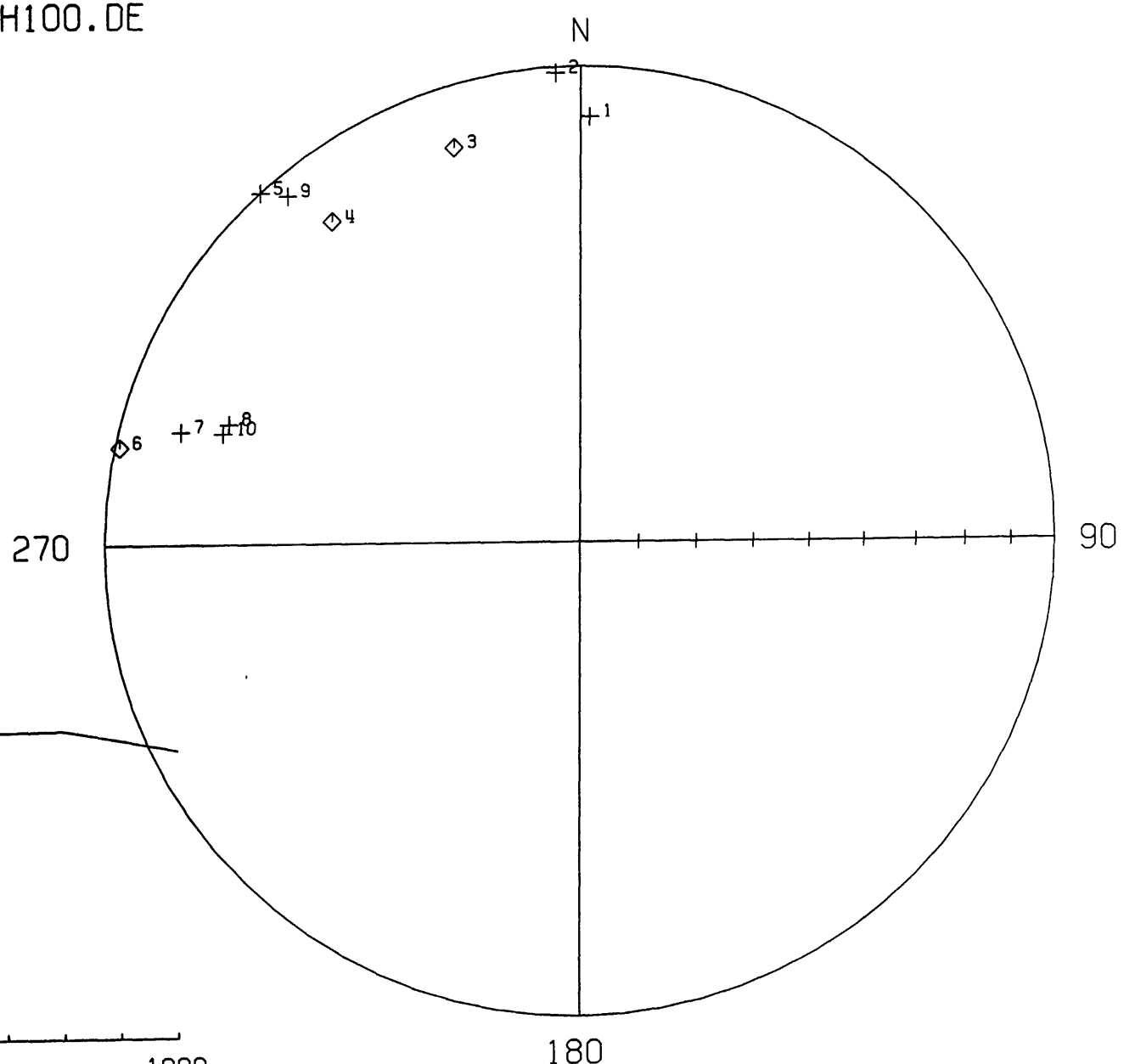
10	10	*	22.4	287.3	1.79E-7	999





6H108-1 AF DEMAG 6M2MW7 239.0'

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5	05	*	-14.1	301.0	5.15E-7	200
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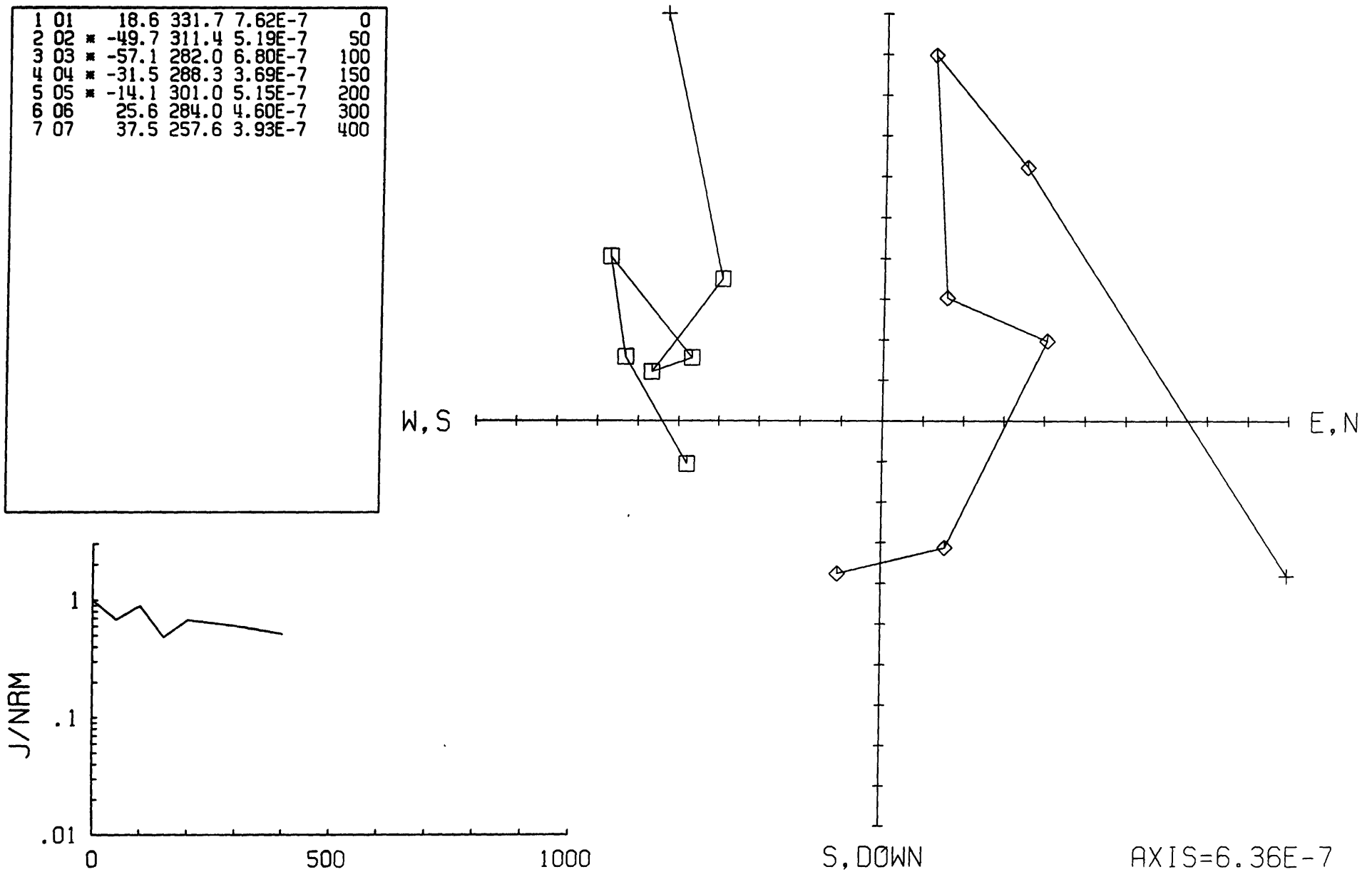

6H108-1 AF DEMAG 6M2MW7 239.0'

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4	04	*	-31.5	288.3	3.69E-7	150
5	05	*	-14.1	301.0	5.15E-7	200
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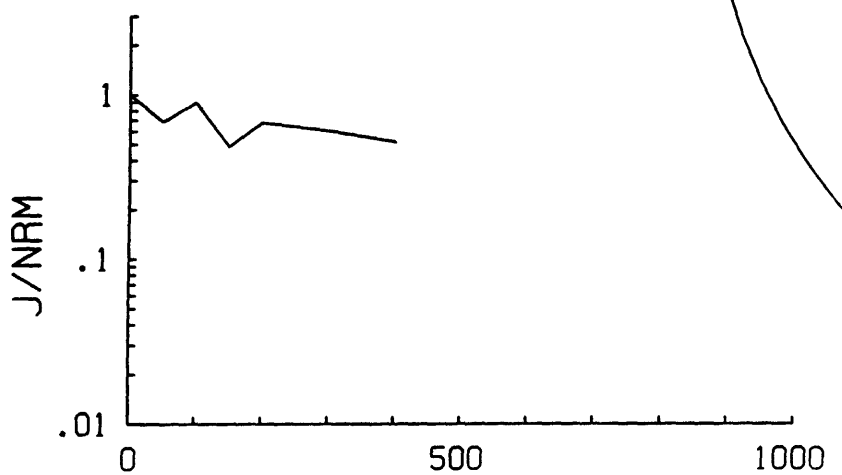

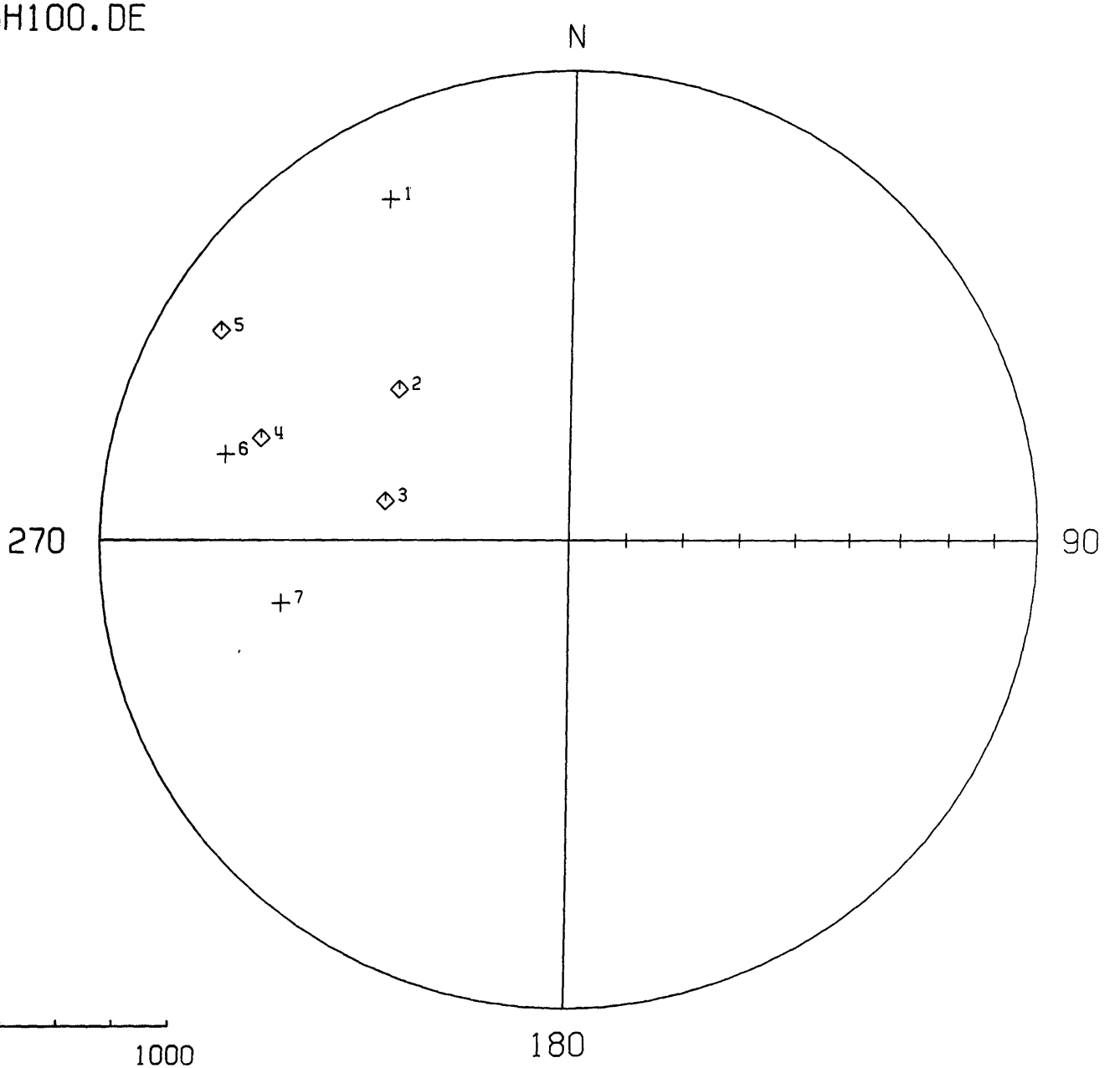

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6H109-1 AF DEMAG 6M2MW7 258.0'

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5	05		-64.1	111.3	1.93E-6	200
6	06		-53.4	107.6	1.39E-6	300
7	07		-49.6	112.3	9.54E-7	400
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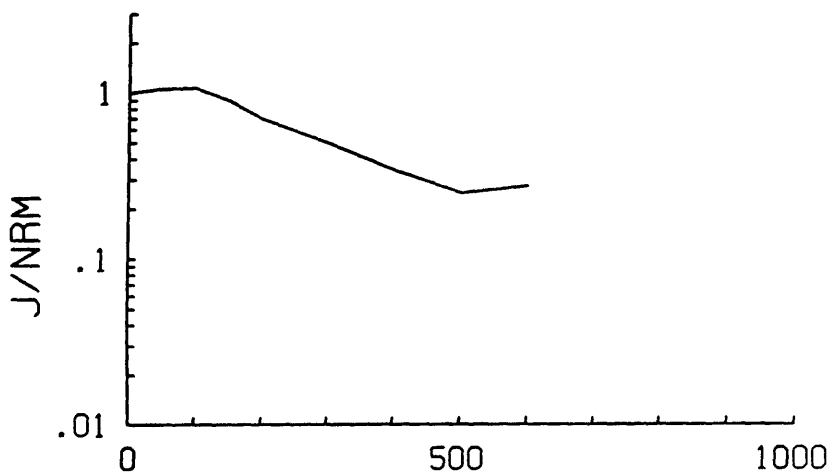

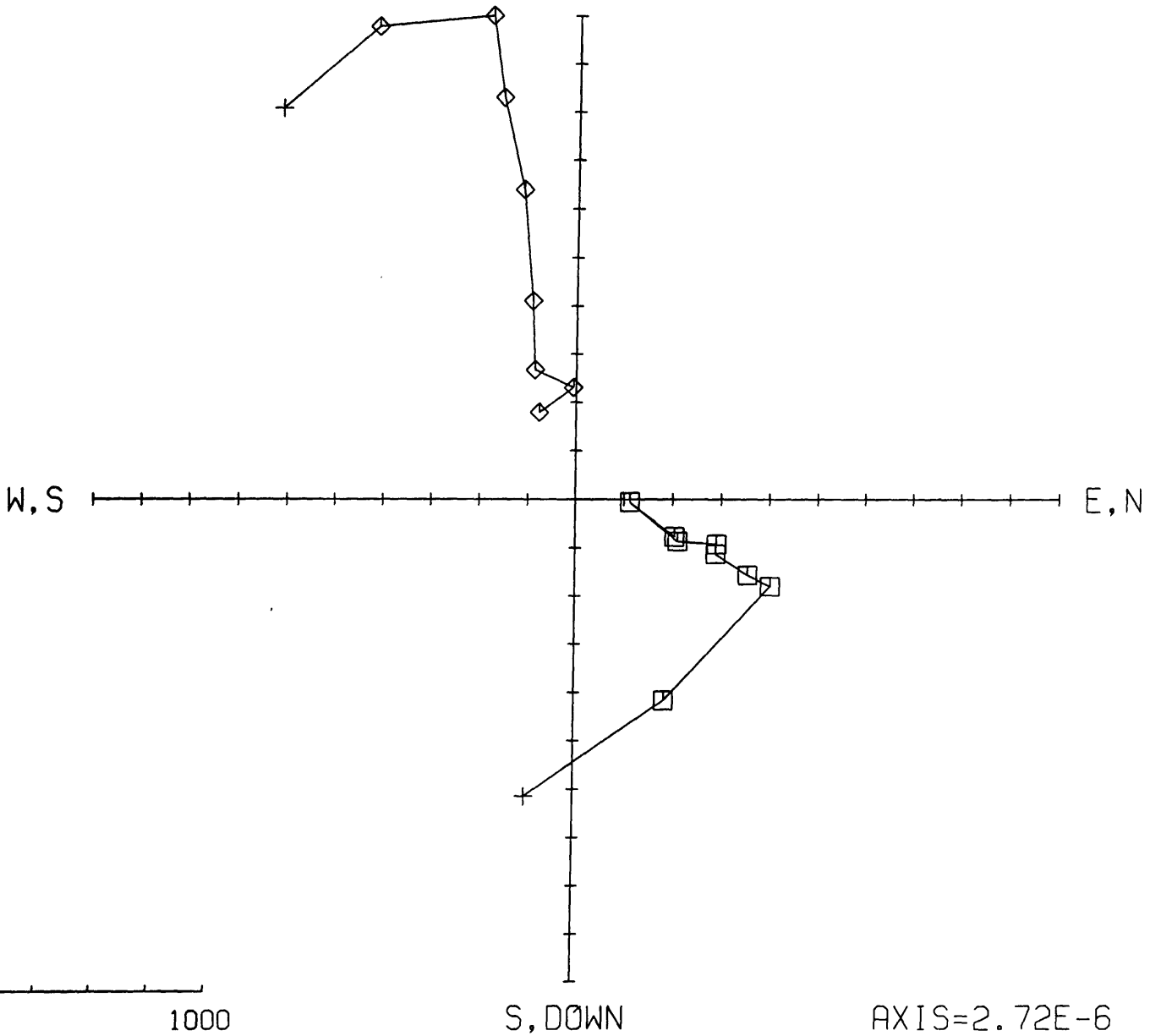

6H109-1 AF DEMAG 6M2MW7 258.0'

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4	04	-64.9	113.8	2.49E-6	150
5	05	-64.1	111.3	1.93E-6	200
6	06	-53.4	107.6	1.39E-6	300
7	07	-49.6	112.3	9.54E-7	400
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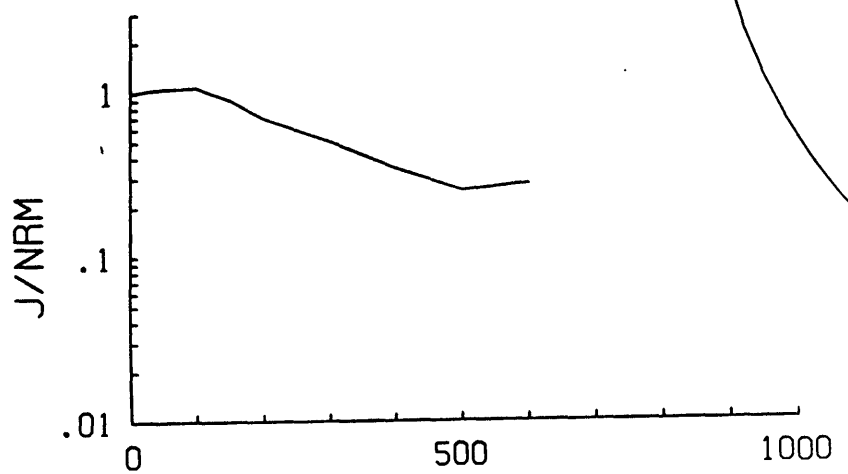
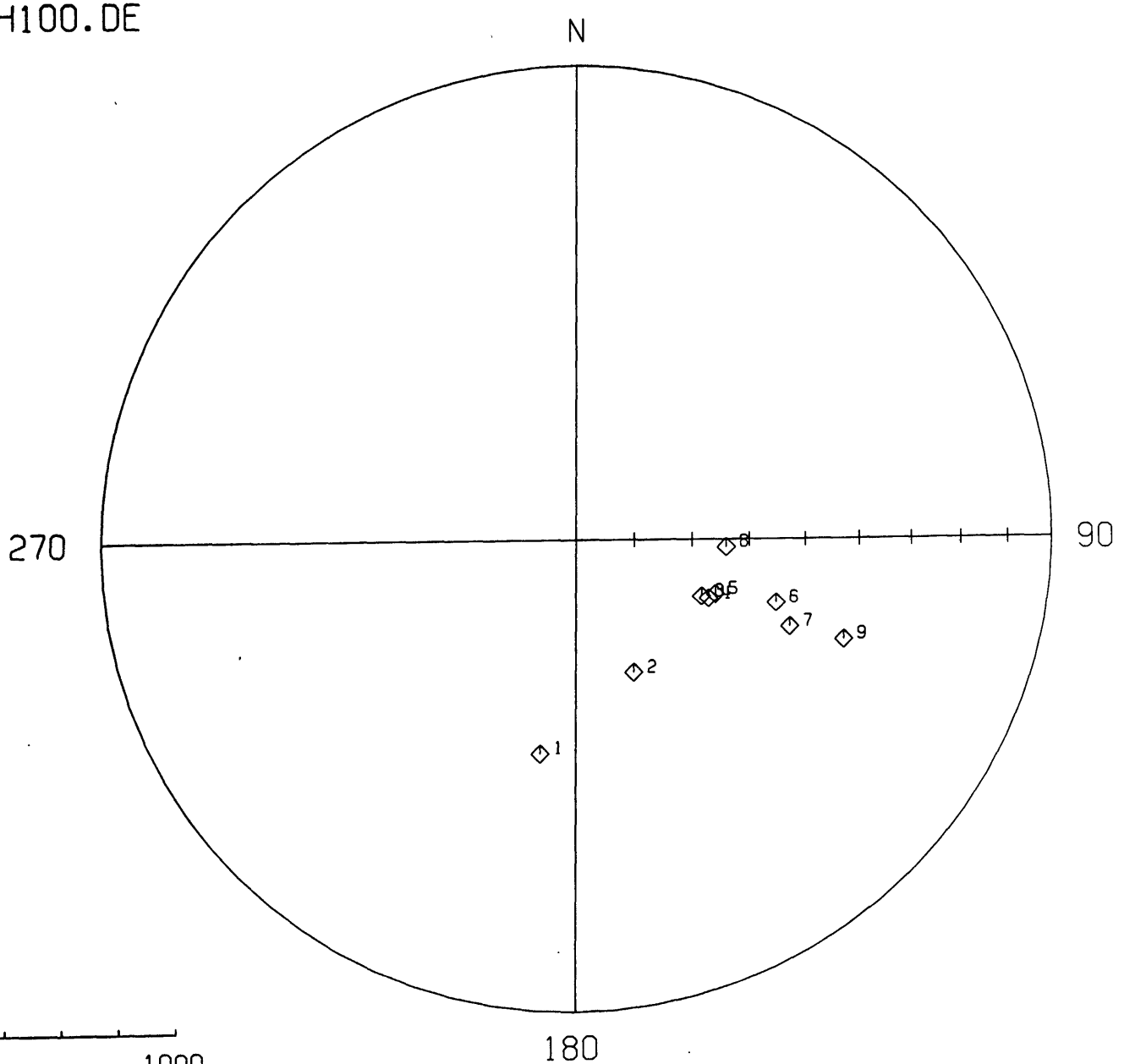
9	09	-39.4	110.6	7.67E-7	600



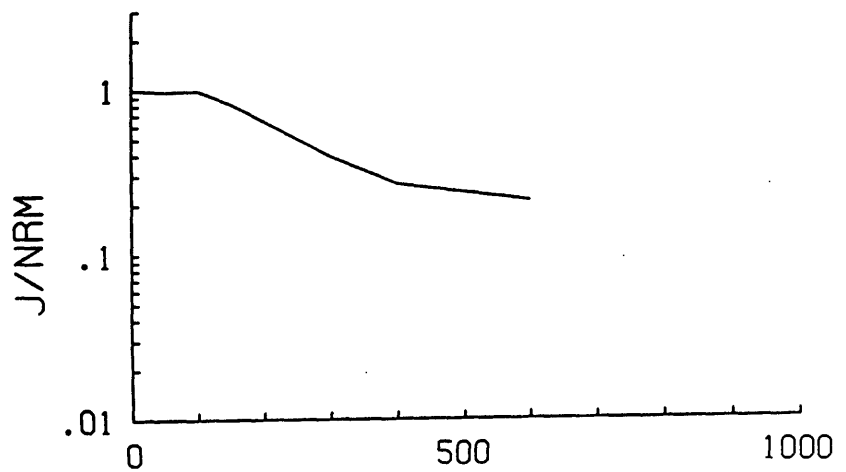


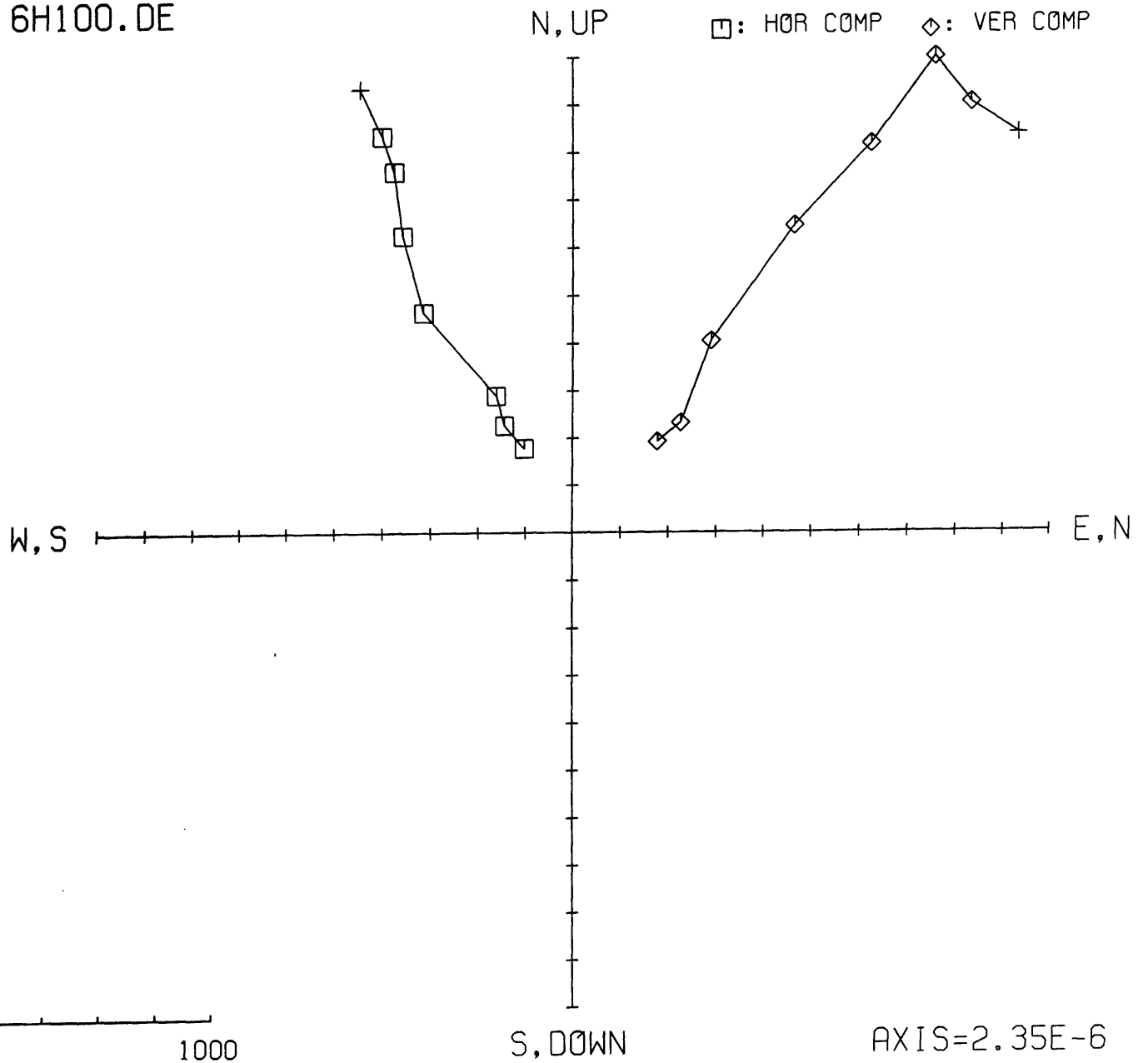
6H110-1 AF DEMAG 6M2MW7 284.0'

6H100.DE

Tue Jan 14 14:47:05

#	I	D	J	EXP
1 01	-39.0	334.5	3.13E-6	0
2 02	-44.3	334.4	3.04E-6	50
3 03	-49.7	333.7	3.08E-6	100
4 04	-48.6	330.2	2.56E-6	150
5 05	-49.0	325.9	2.01E-6	200
6 06	-50.7	330.8	1.23E-6	300
7 07	-40.9	327.5	8.34E-7	400
8 08	-43.2	330.2	6.60E-7	600



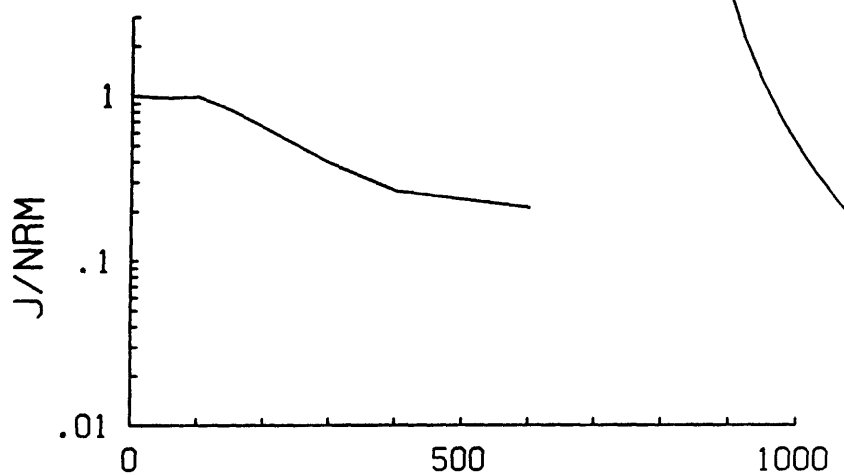


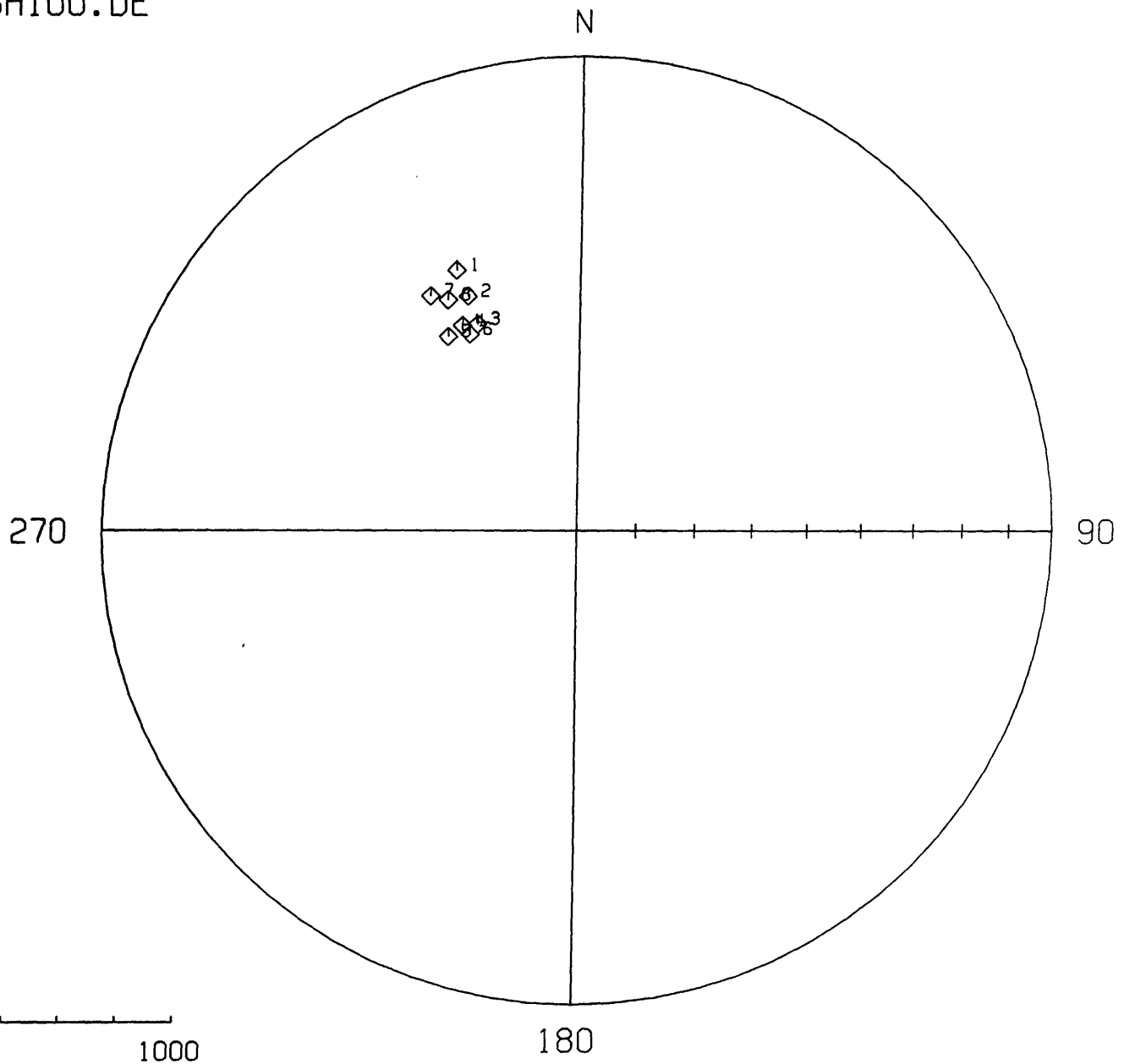
6H110-1 AF DEMAG 6M2MW7 284.0'

Tue Jan 14 14:47:05

6H100.DE

#		I	D	J	EXP
1	01	-39.0	334.5	3.13E-6	0
2	02	-44.3	334.4	3.04E-6	50
3	03	-49.7	333.7	3.08E-6	100
4	04	-48.6	330.2	2.56E-6	150
5	05	-49.0	325.9	2.01E-6	200
6	06	-50.7	330.8	1.23E-6	300
7	07	-40.9	327.5	8.34E-7	400
8	08	-43.2	330.2	6.60E-7	600



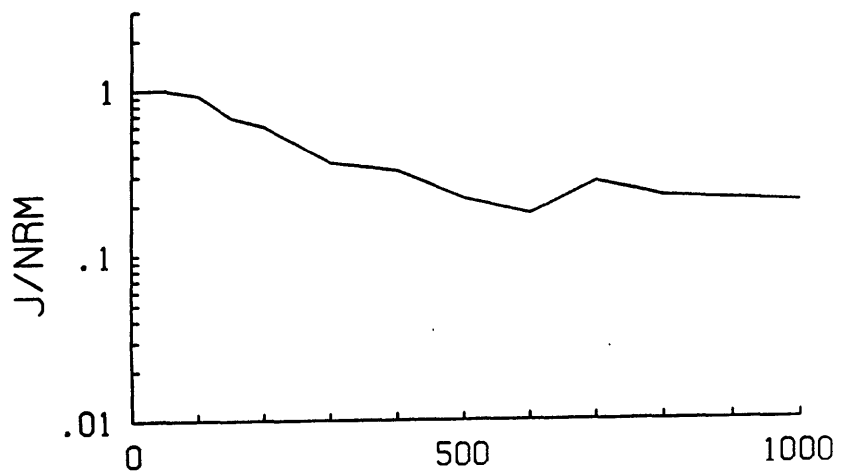


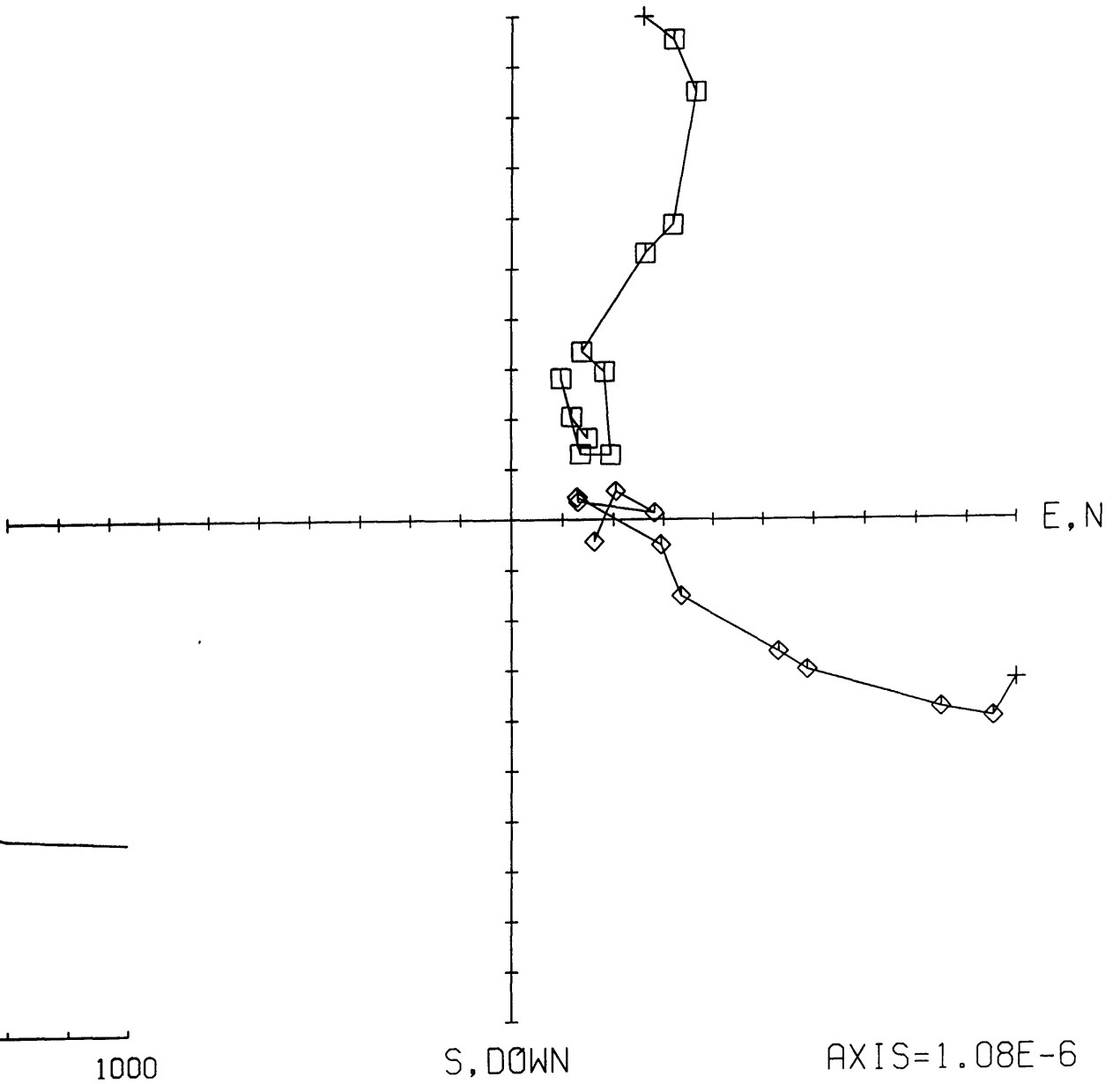
6H111-1 AF DEMAG 6M2MW7 304.0'

6H100.DE

Tue Jan 14 14:47:05

#		I	D	J	EXP
1	01	17.1	14.5	1.17E-6	0
2	02	21.4	18.5	1.17E-6	50
3	03	22.1	23.2	1.08E-6	100
4	04	24.1	28.4	7.92E-7	150
5	05	23.9	26.3	7.01E-7	200
6	06 *	22.7	22.3	4.25E-7	300
7	07 *	8.2	31.7	3.79E-7	400
8	08 *	-10.8	56.5	2.57E-7	500
9	09 *	-10.7	46.0	2.07E-7	600
10	10 *	-2.5	19.0	3.23E-7	700
11	11 *	-13.5	29.9	2.63E-7	800
12	12 *	11.1	42.4	2.42E-7	999



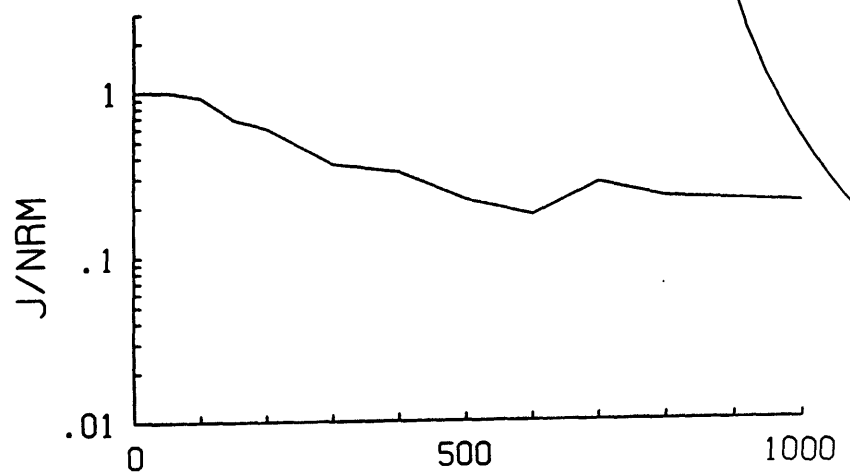


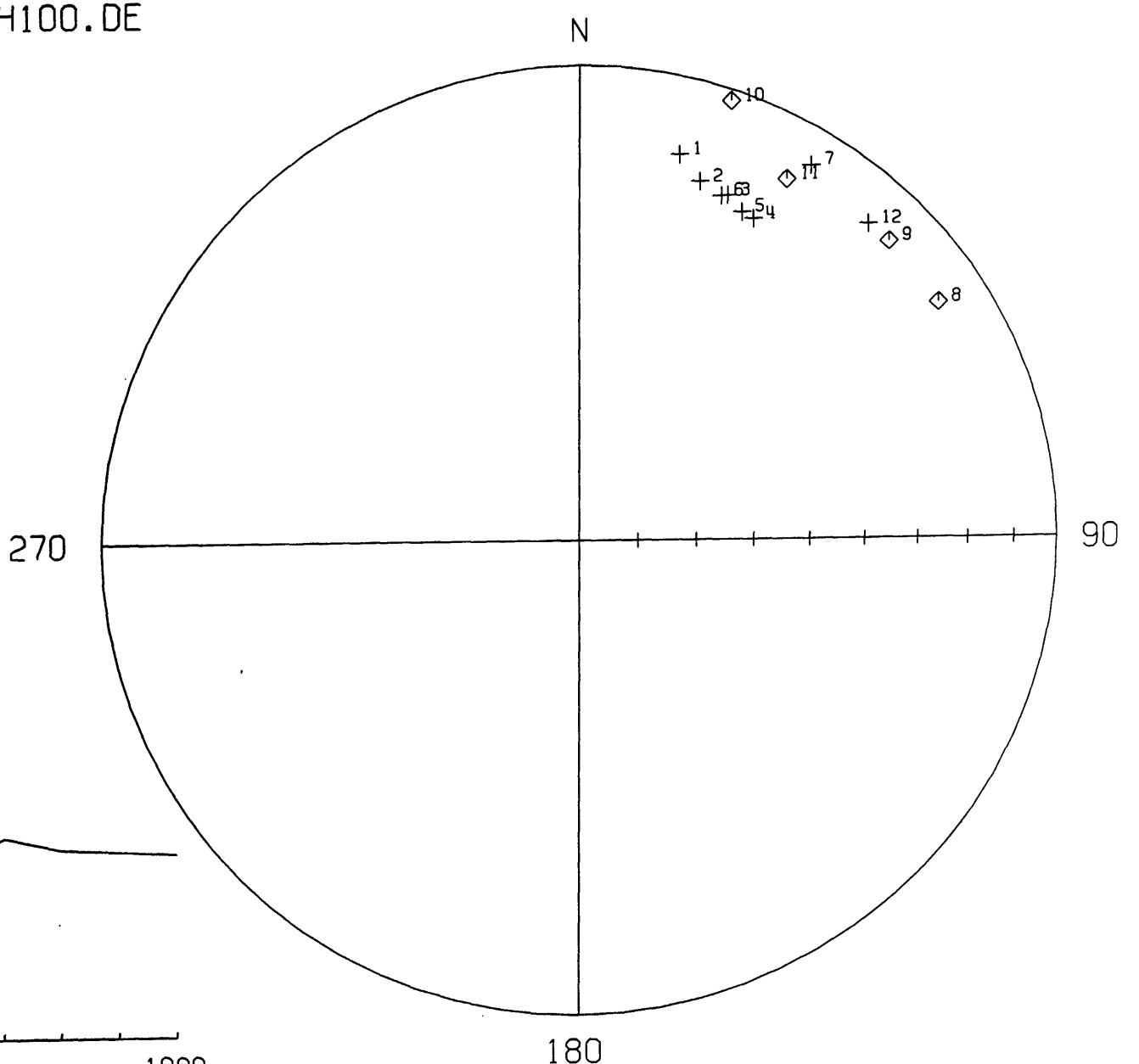
6H111-1 AF DEMAG 6M2MW7 304.0'

Tue Jan 14 14:47:05

6H100.DE

#		I	D	J	EXP
1	01	17.1	14.5	1.17E-6	0
2	02	21.4	18.5	1.17E-6	50
3	03	22.1	23.2	1.08E-6	100
4	04	24.1	28.4	7.92E-7	150
5	05	23.9	26.3	7.01E-7	200
6	06 *	22.7	22.3	4.25E-7	300
7	07 *	8.2	31.7	3.79E-7	400
8	08 *	-10.8	56.5	2.57E-7	500
9	09 *	-10.7	46.0	2.07E-7	600
10	10 *	-2.5	19.0	3.23E-7	700
11	11 *	-13.5	29.9	2.63E-7	800
12	12 *	11.1	42.4	2.42E-7	999



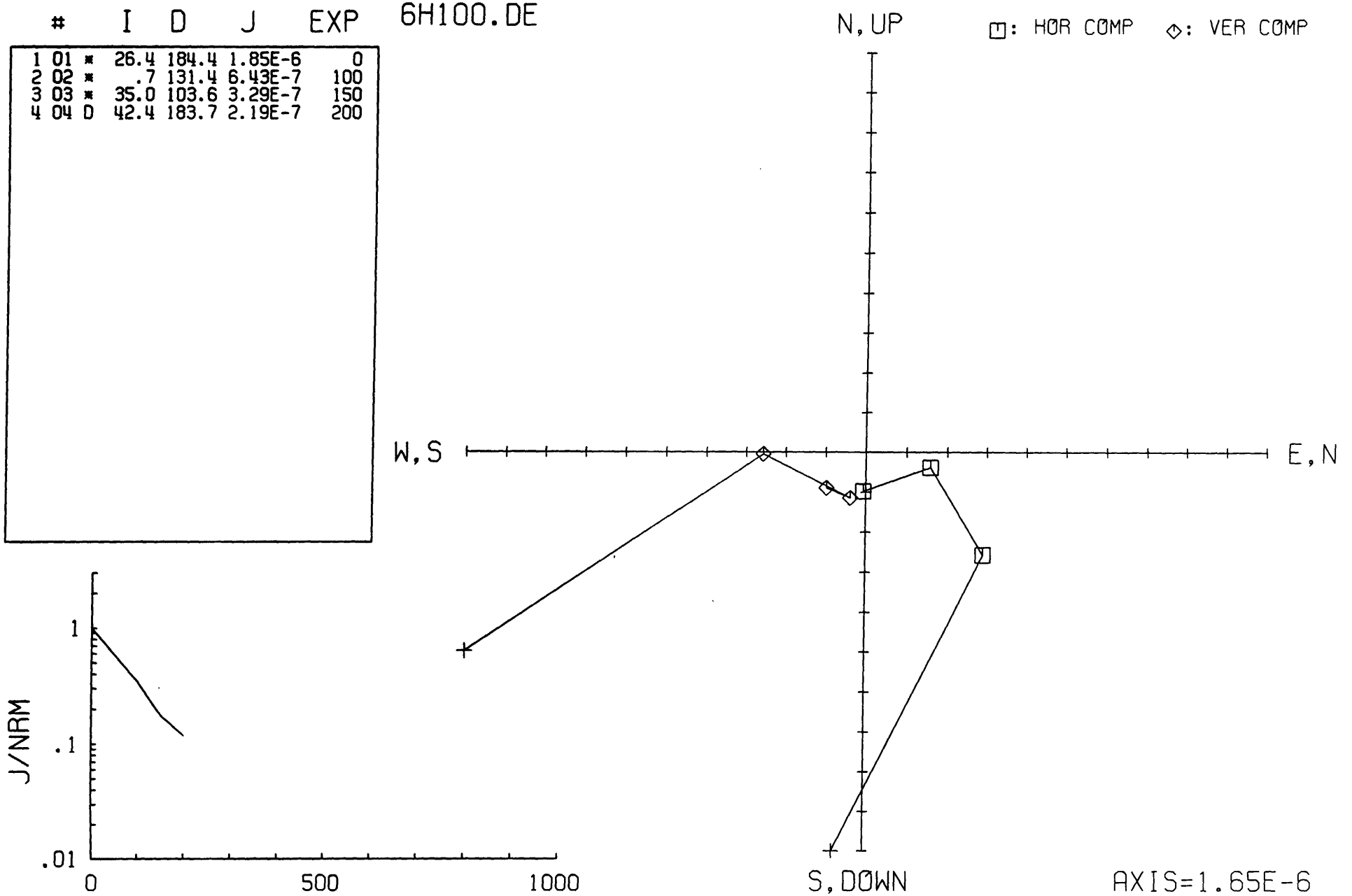


6H112-1 AF DEMAG 6M2MW7 137.0'

Tue Jan 14 14:47:05

6H100.DE

#		I	D	J	EXP	
1	01	*	26.4	184.4	1.85E-6	0
2	02	*	.7	131.4	6.43E-7	100
3	03	*	35.0	103.6	3.29E-7	150
4	04	D	42.4	183.7	2.19E-7	200

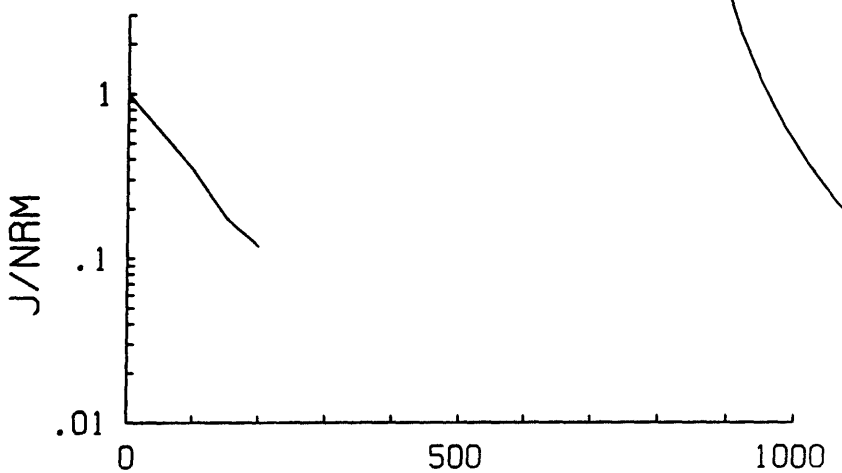


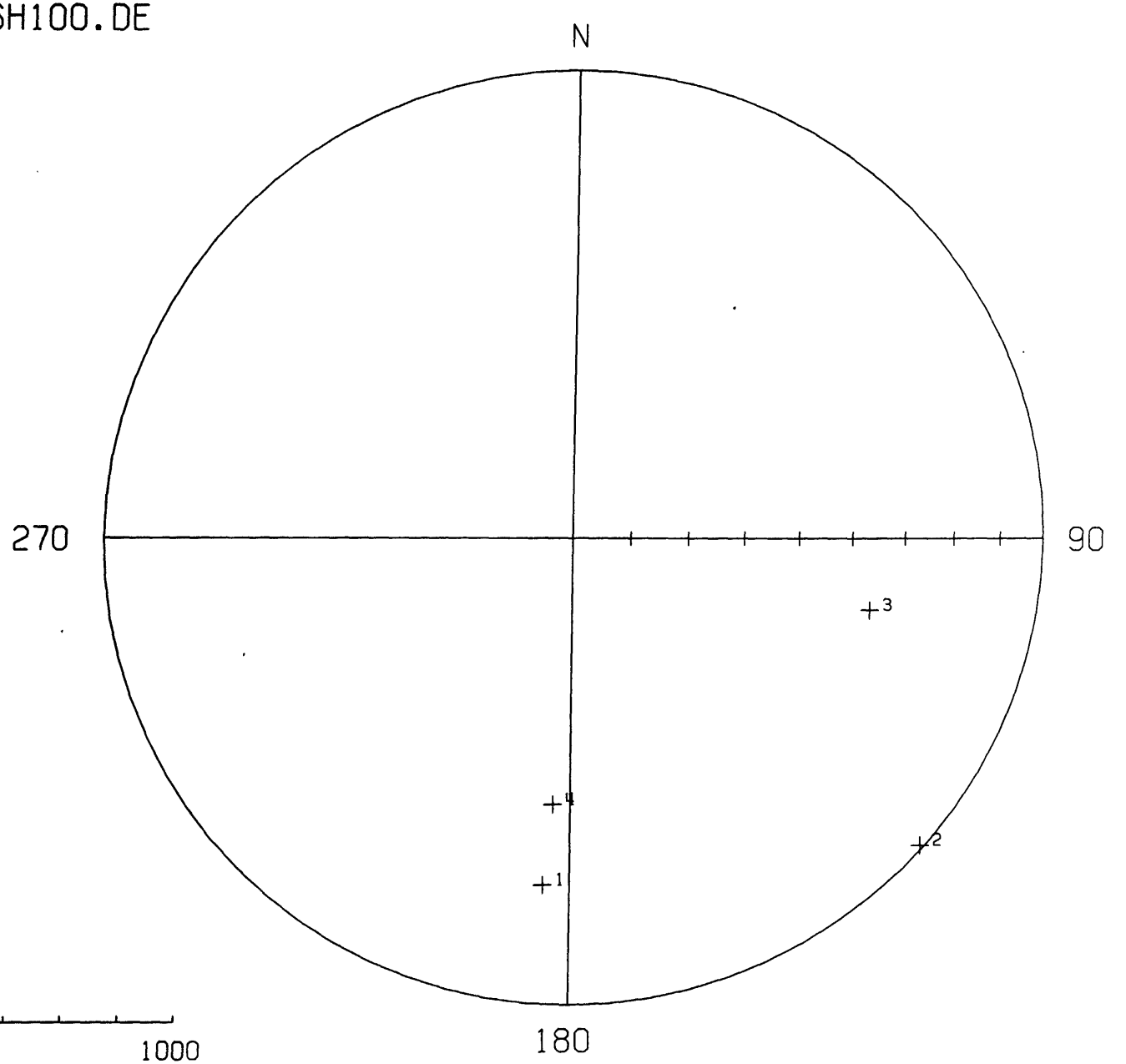
6H112-1 AF DEMAG 6M2MW7 137.0'

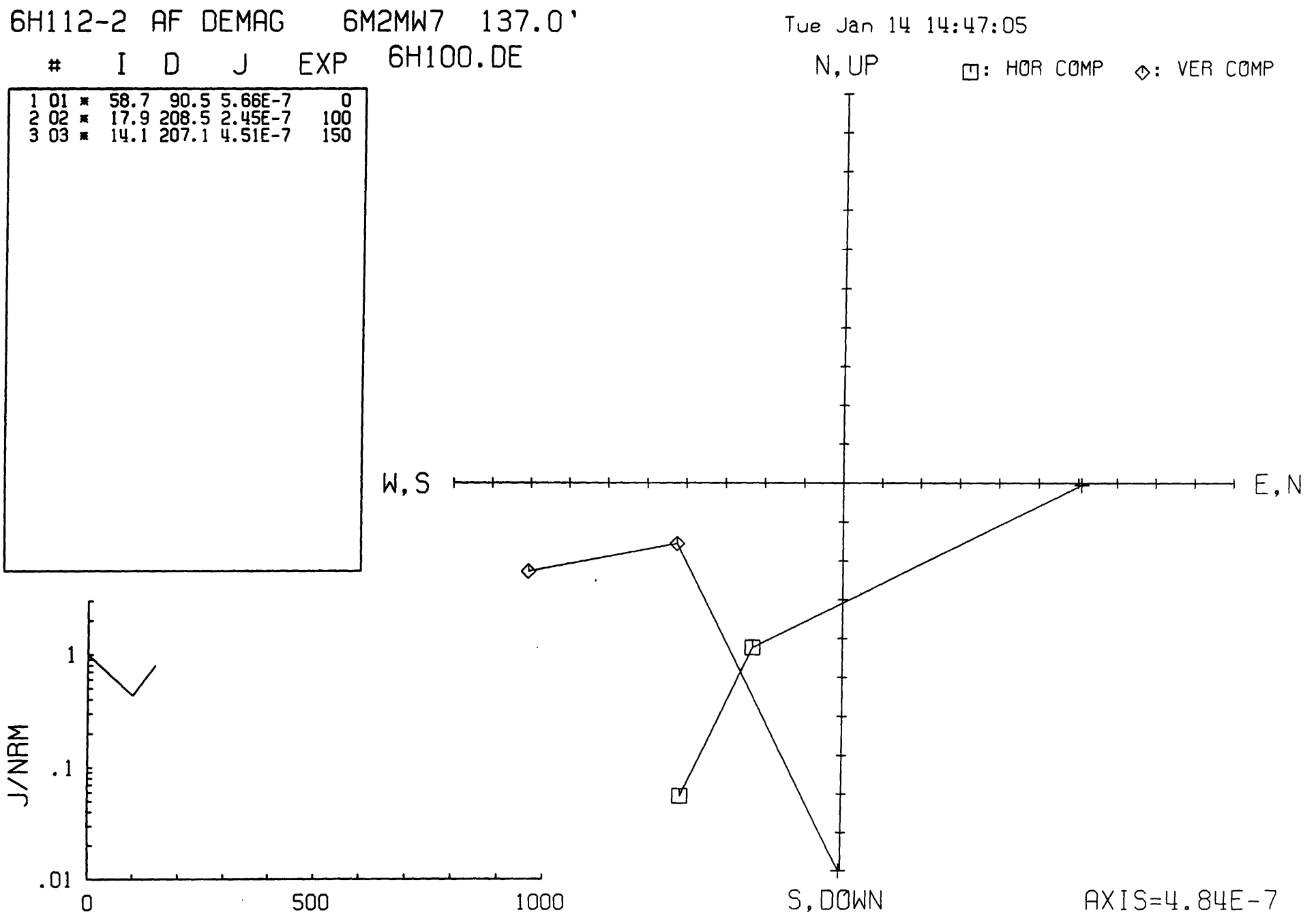
Tue Jan 14 14:47:05

6H100.DE

#		I	D	J	EXP
1	01 *	26.4	184.4	1.85E-6	0
2	02 *	.7	131.4	6.43E-7	100
3	03 *	35.0	103.6	3.29E-7	150
4	04 D	42.4	183.7	2.19E-7	200





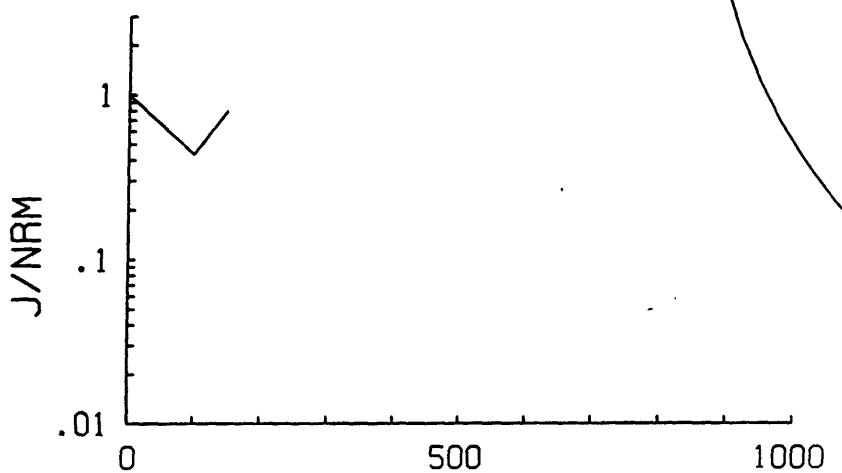

6H112-2 AF DEMAG 6M2MW7 137.0'
6H100.DE
Tue Jan 14 14:47:05
I D J EXP
1 01 * 58.7 90.5 5.66E-7 0
2 02 * 17.9 208.5 2.45E-7 100
3 03 * 14.1 207.1 4.51E-7 150
N,UP
□: HOR COMP
◇: VER COMP
W,S
E,N
S,DOWN
AXIS=4.84E-7
J/NRM
1
.1
.01
0
500
1000

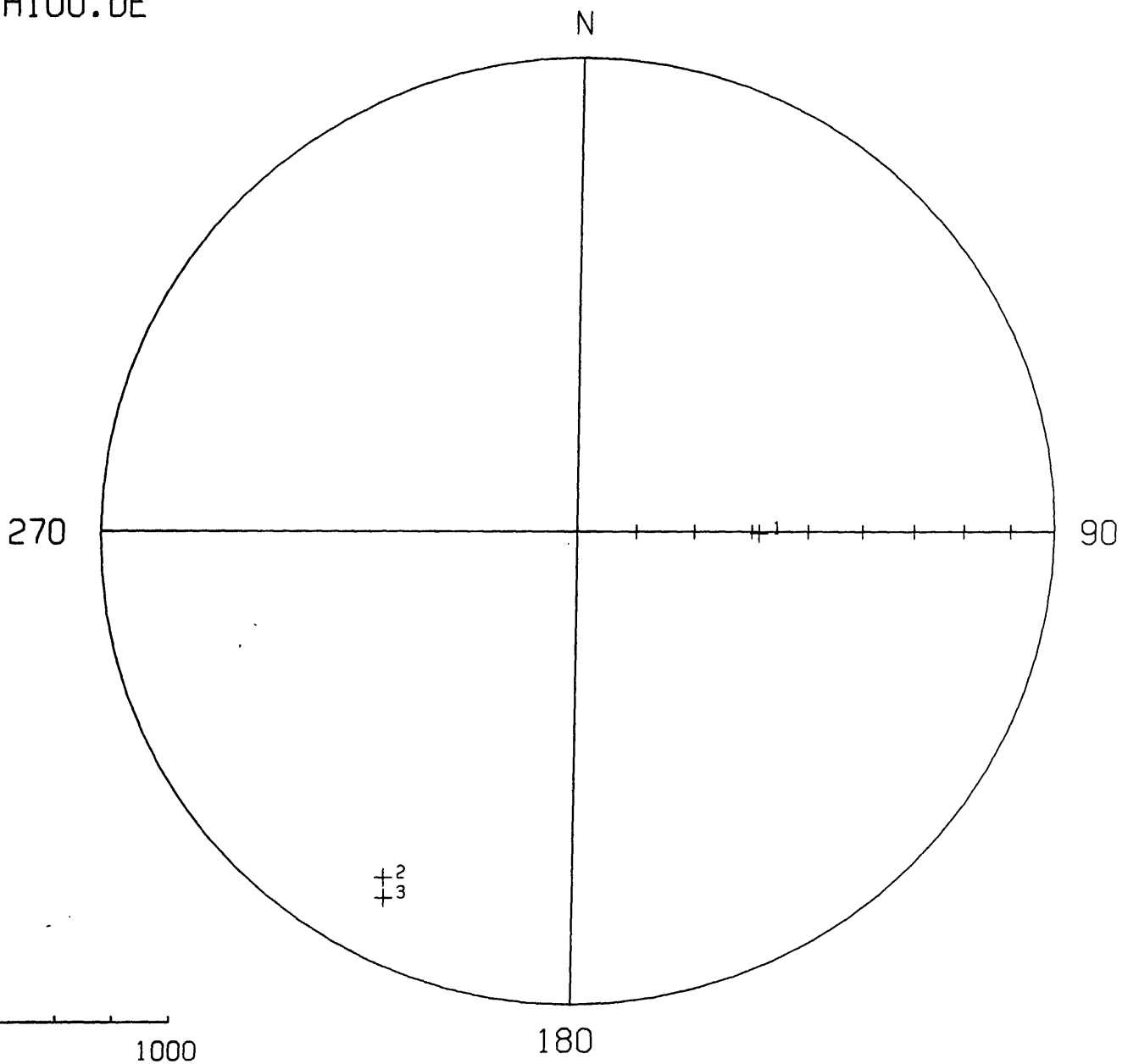
6H112-2 AF DEMAG 6M2MW7 137.0'

Tue Jan 14 14:47:05

6H100.DE

#		I	D	J	EXP	
1	01	*	58.7	90.5	5.66E-7	0
2	02	*	17.9	208.5	2.45E-7	100
3	03	*	14.1	207.1	4.51E-7	150



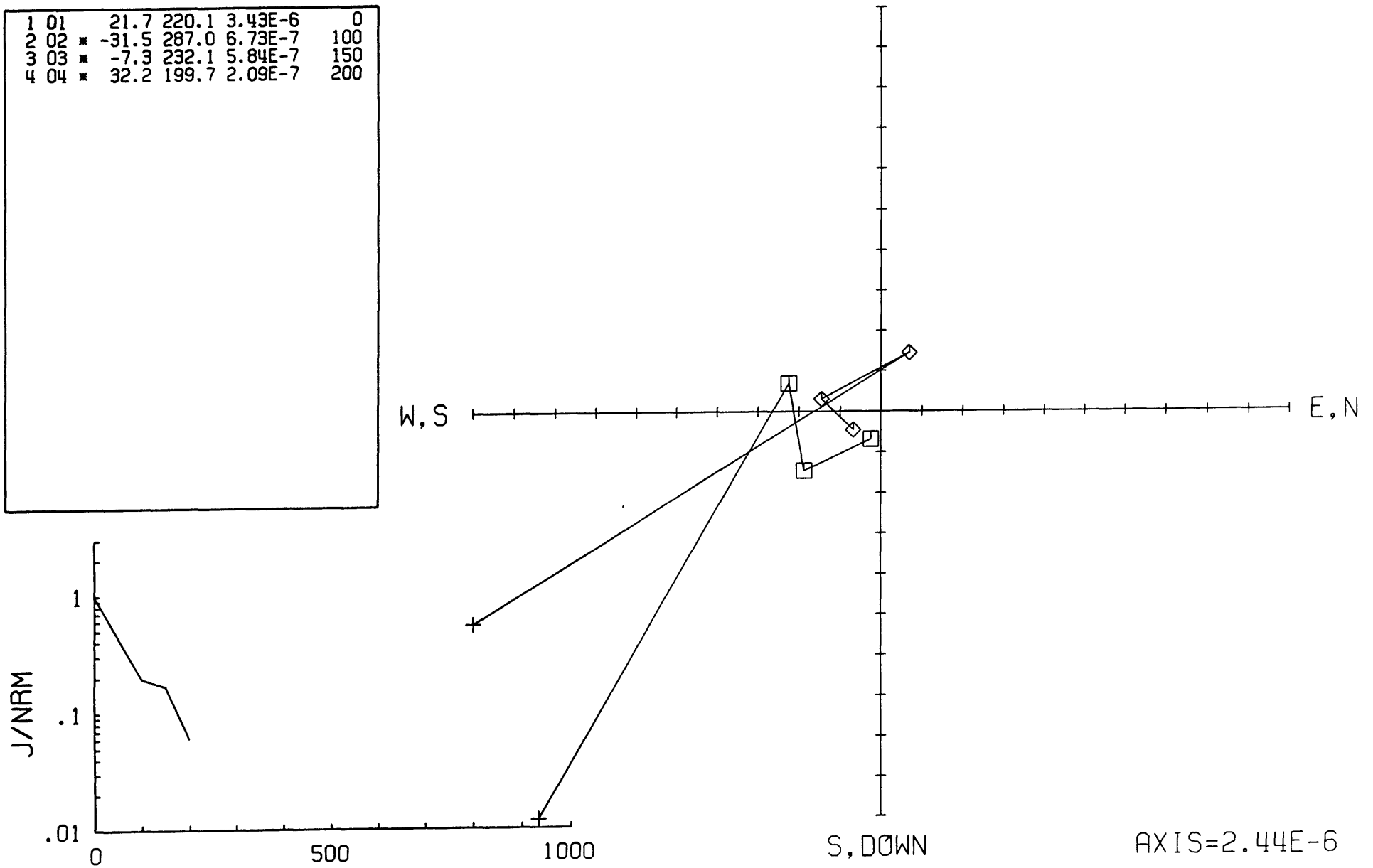


6H112-3 AF DEMAG 6M2MW7 137.0'

6H100.DE

Tue Jan 14 14:47:05

#		I	D	J	EXP	
1	01		21.7	220.1	3.43E-6	0
2	02	*	-31.5	287.0	6.73E-7	100
3	03	*	-7.3	232.1	5.84E-7	150
4	04	*	32.2	199.7	2.09E-7	200

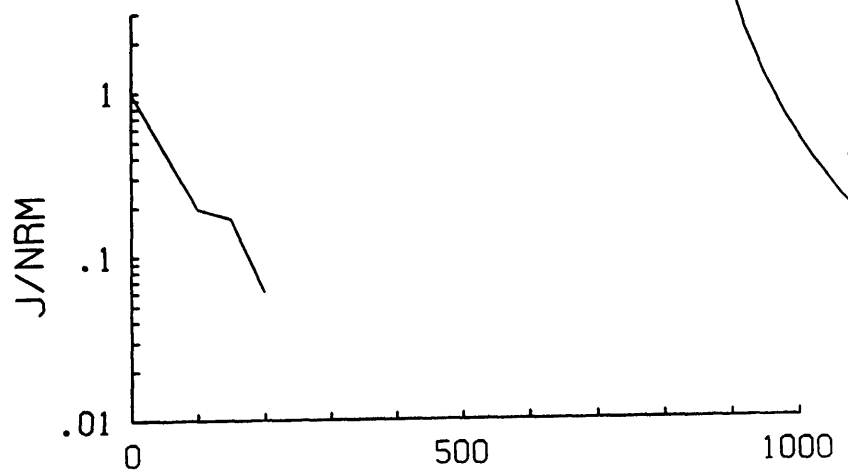


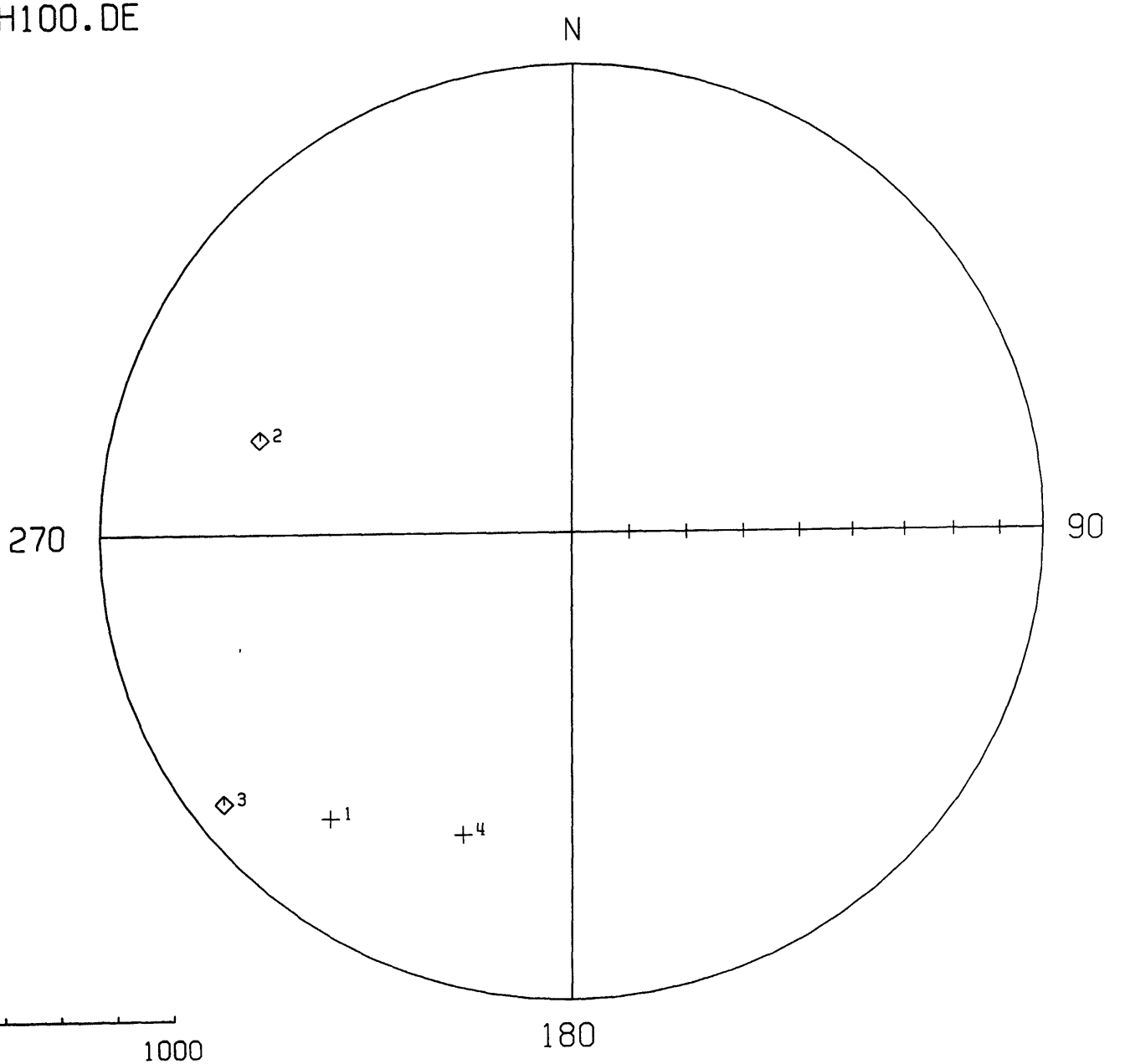
6H112-3 AF DEMAG 6M2MW7 137.0'

Tue Jan 14 14:47:05

6H100.DE

#		I	D	J	EXP	
1	01		21.7	220.1	3.43E-6	0
2	02	*	-31.5	287.0	6.73E-7	100
3	03	*	-7.3	232.1	5.84E-7	150
4	04	*	32.2	199.7	2.09E-7	200



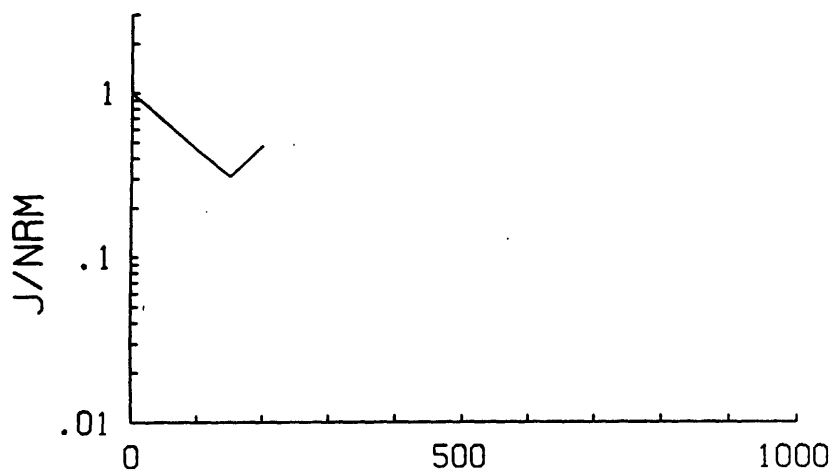


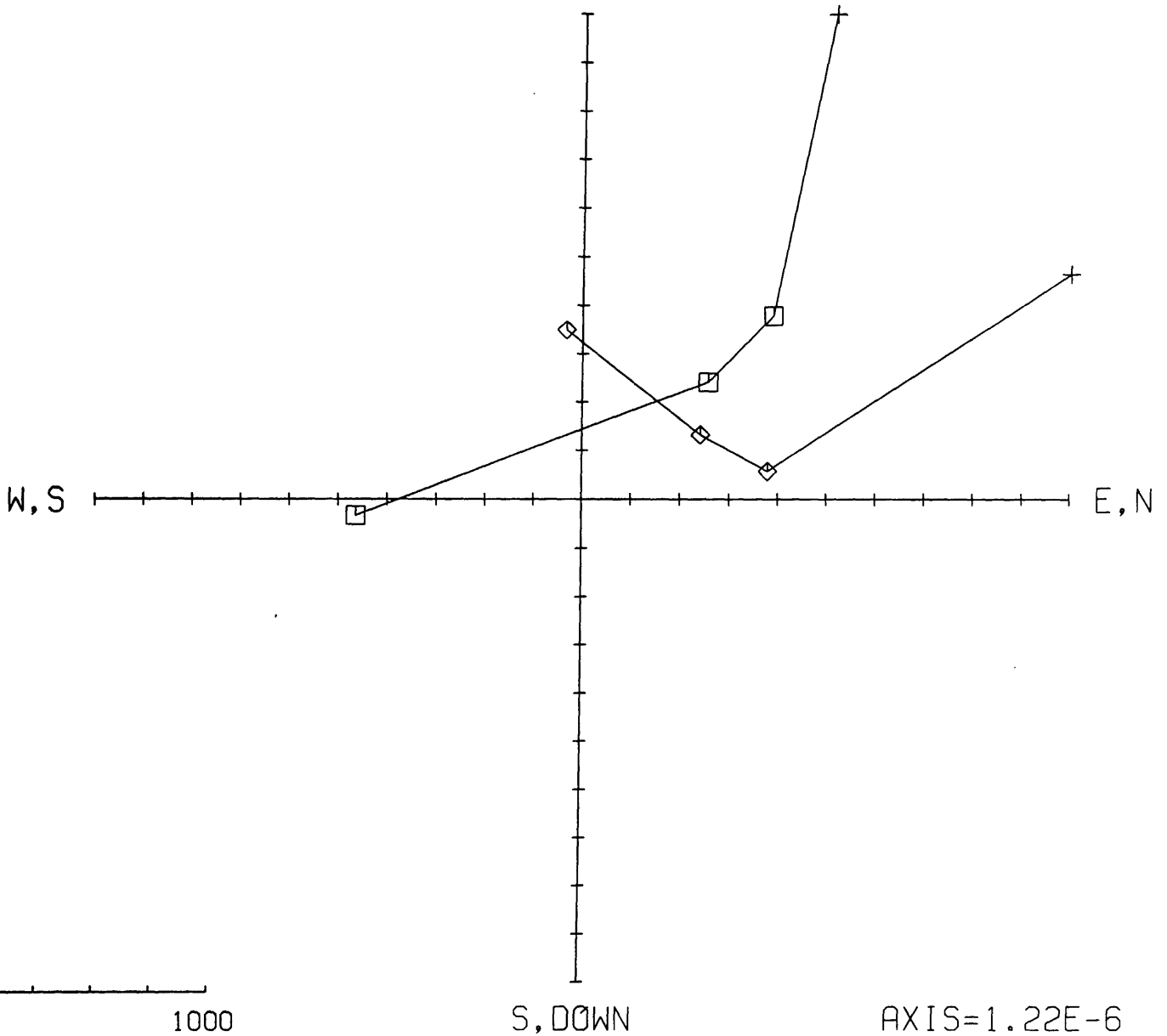
6H113-1 AF DEMAG 6M2MW7 148.0'

6H100.DE

Tue Jan 14 14:47:05

#		I	D	J	EXP
1	01	-22.5	27.2	1.49E-6	0
2	02 *	-6.0	45.7	6.68E-7	100
3	03 *	-20.6	46.7	4.60E-7	150
4	04 *	-36.9	265.9	7.12E-7	200



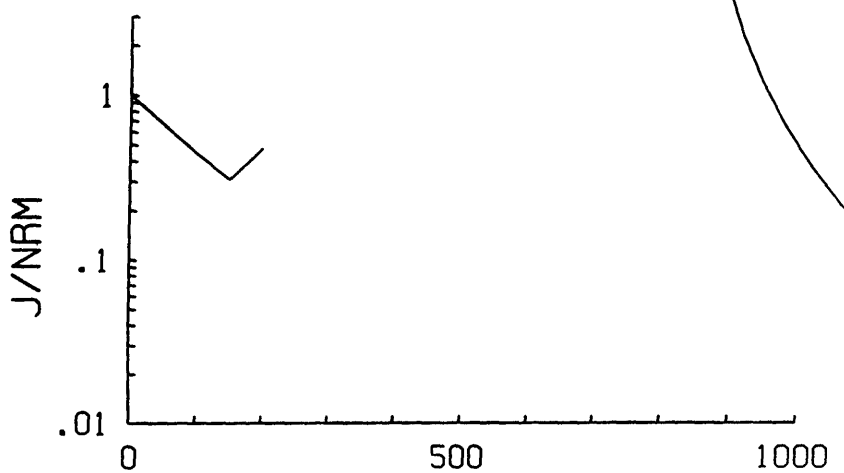


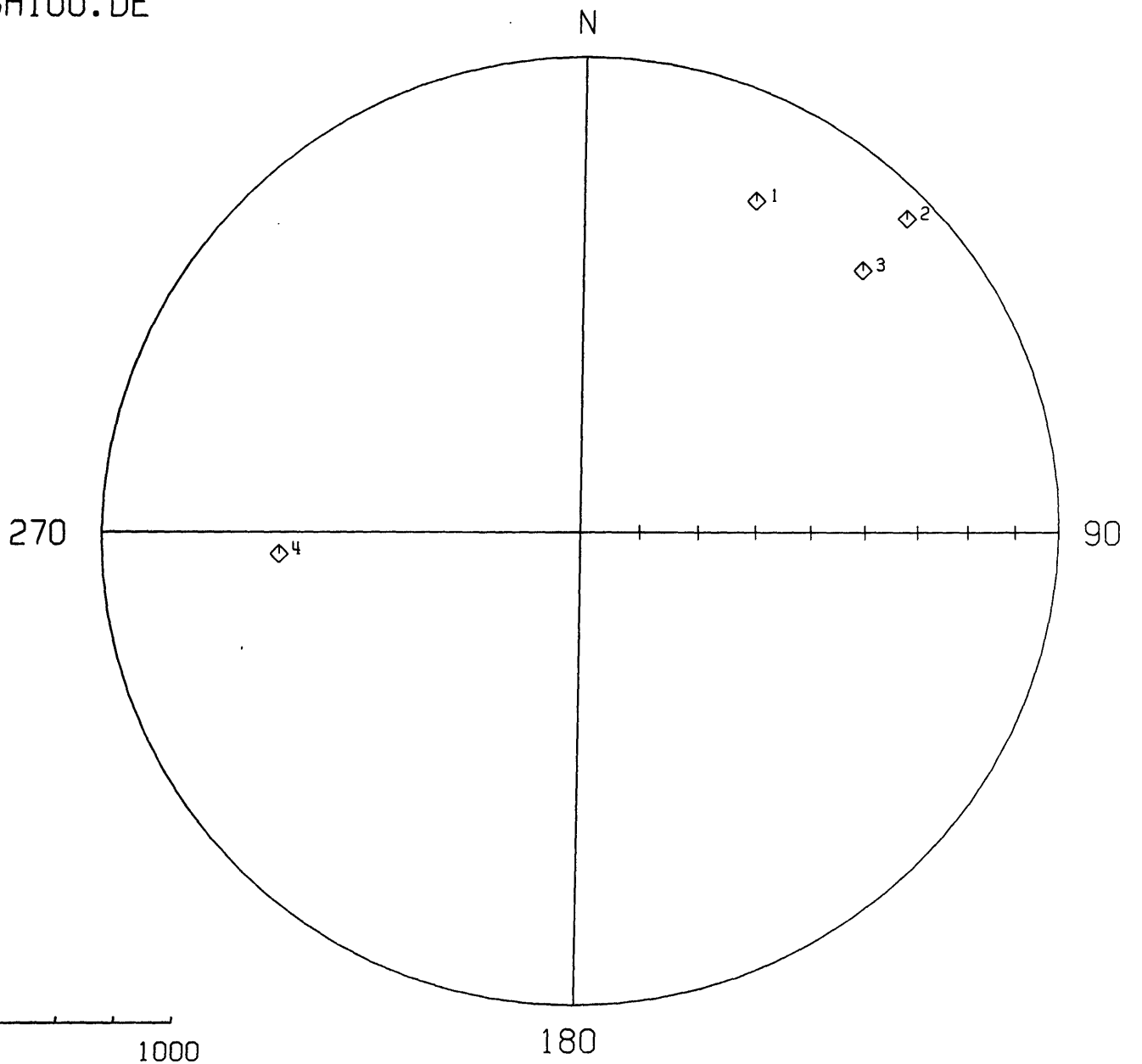
6H113-1 AF DEMAG 6M2MW7 148.0'

Tue Jan 14 14:47:05

6H100.DE

#		I	D	J	EXP
1	01	-22.5	27.2	1.49E-6	0
2	02 *	-6.0	45.7	6.68E-7	100
3	03 *	-20.6	46.7	4.60E-7	150
4	04 *	-36.9	265.9	7.12E-7	200



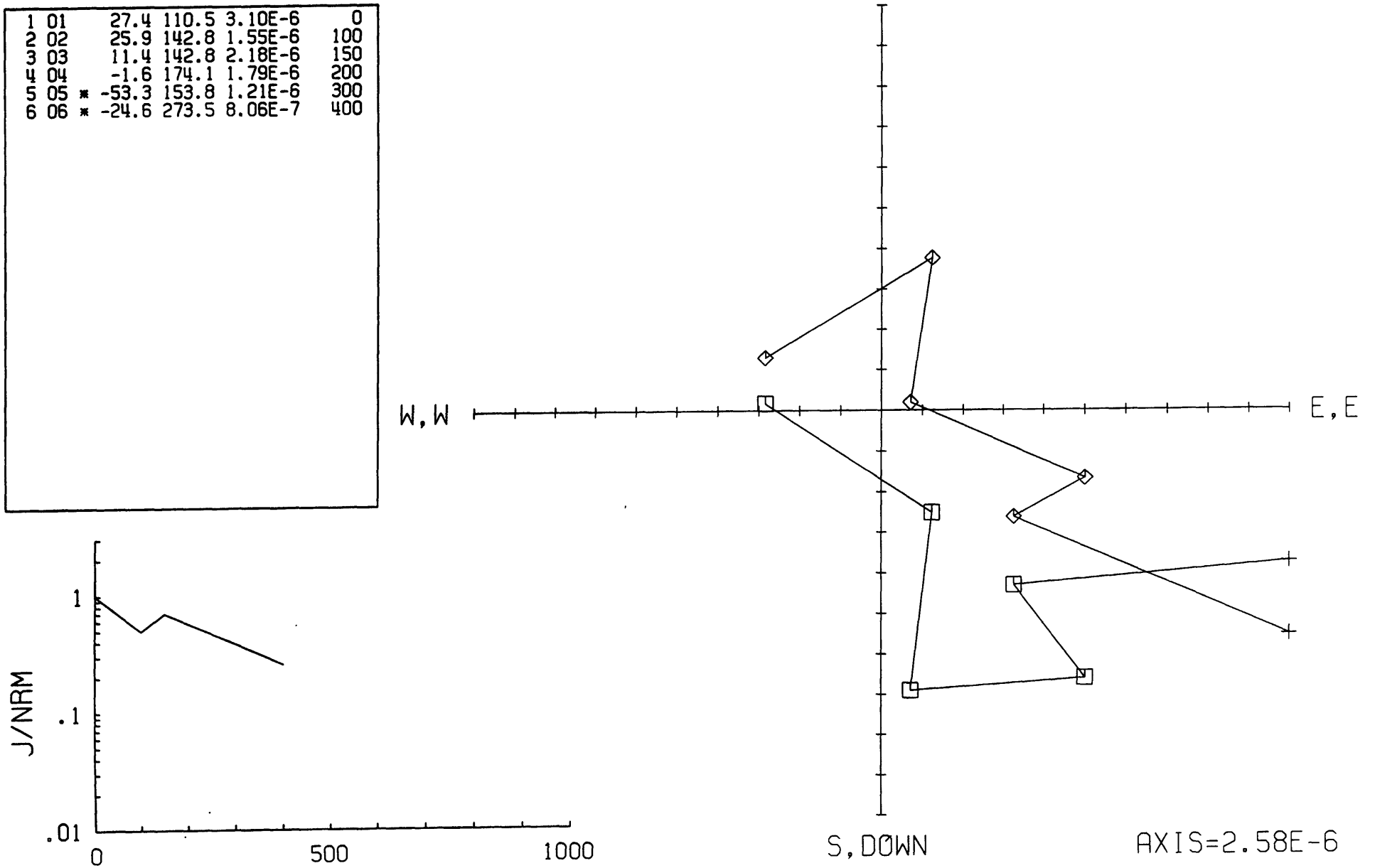


6H113-2 AF DEMAG 6M2MW7 148.0'

6H100.DE

Tue Jan 14 14:47:05

#		I	D	J	EXP
1	01	27.4	110.5	3.10E-6	0
2	02	25.9	142.8	1.55E-6	100
3	03	11.4	142.8	2.18E-6	150
4	04	-1.6	174.1	1.79E-6	200
5	05 *	-53.3	153.8	1.21E-6	300
6	06 *	-24.6	273.5	8.06E-7	400

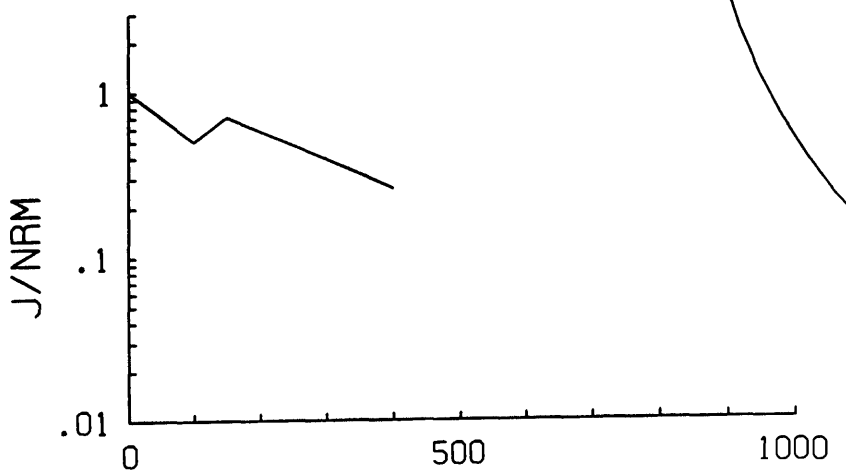


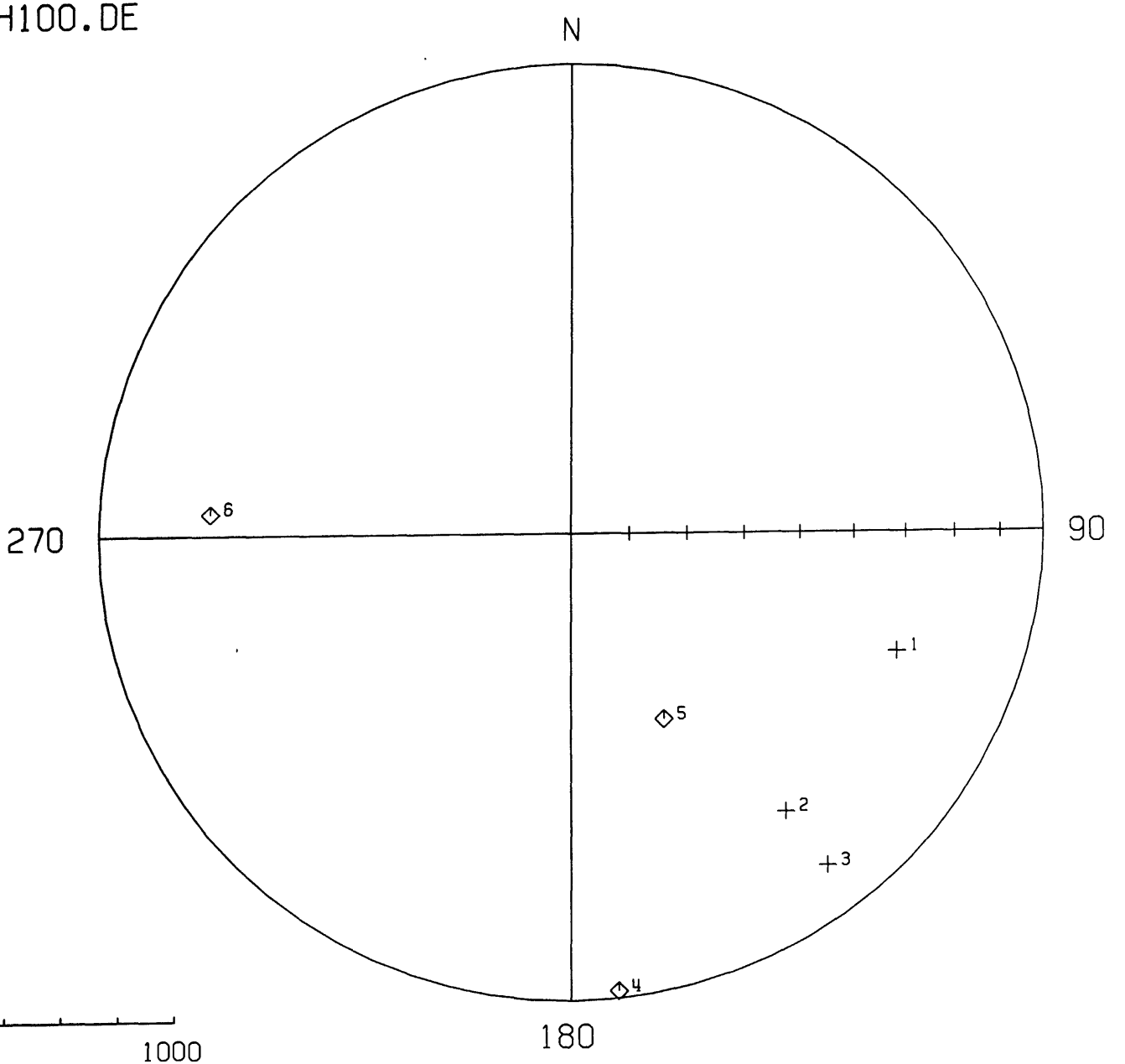
6H113-2 AF DEMAG 6M2MW7 148.0'

Tue Jan 14 14:47:05

6H100.DE

#		I	D	J	EXP
1	01	27.4	110.5	3.10E-6	0
2	02	25.9	142.8	1.55E-6	100
3	03	11.4	142.8	2.18E-6	150
4	04	-1.6	174.1	1.79E-6	200
5	05 *	-53.3	153.8	1.21E-6	300
6	06 *	-24.6	273.5	8.06E-7	400





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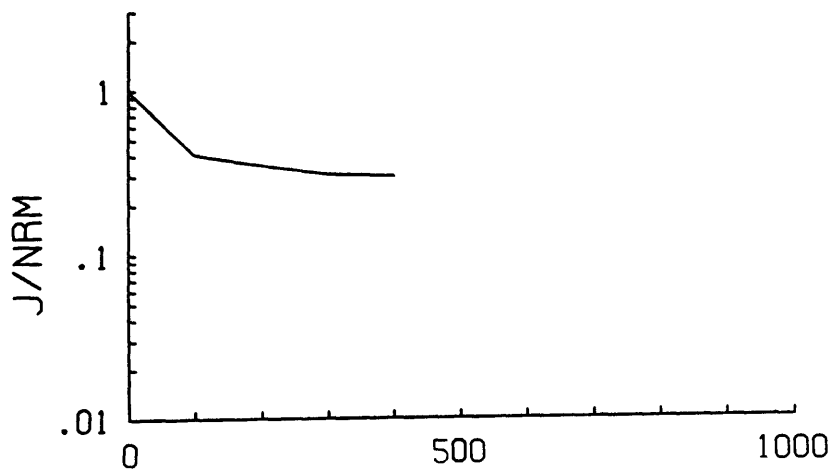
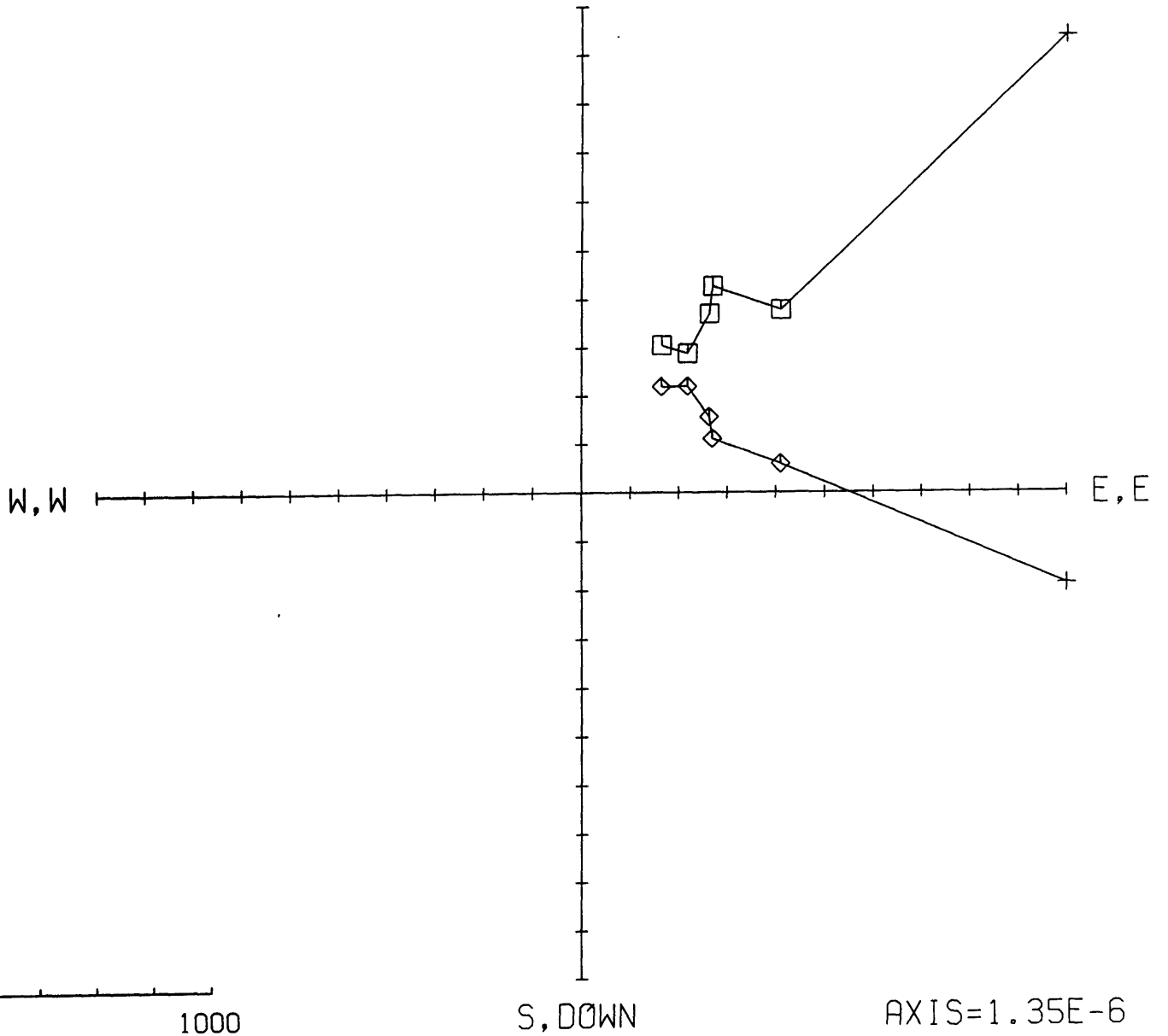
6H114-1 AF DEMAG 6M2MW8 17'

6H114.DE

Tue Jan 14 15:19:55

#		I	D	J	EXP	
1	01		7.8	46.8	1.87E-6	0
2	02	*	-6.0	47.3	7.58E-7	100
3	03	*	-12.4	32.3	6.99E-7	150
4	04	*	-19.0	35.4	6.49E-7	200
5	05	*	-31.3	37.1	5.72E-7	300
6	06	*	-32.3	28.4	5.55E-7	400



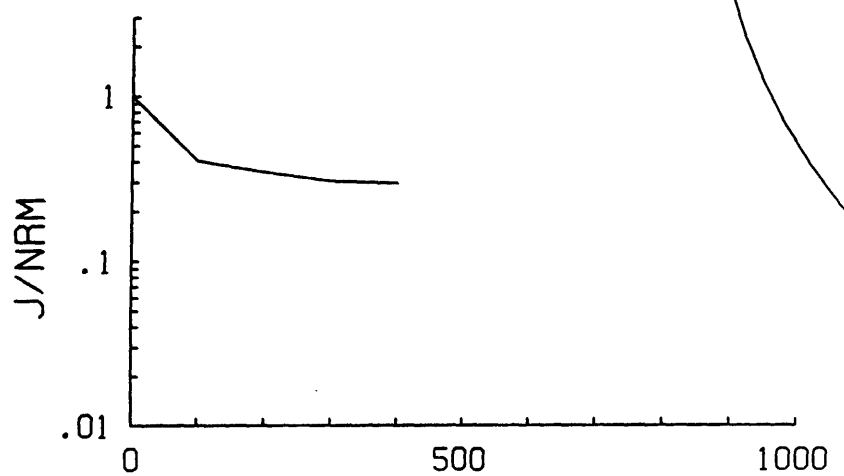


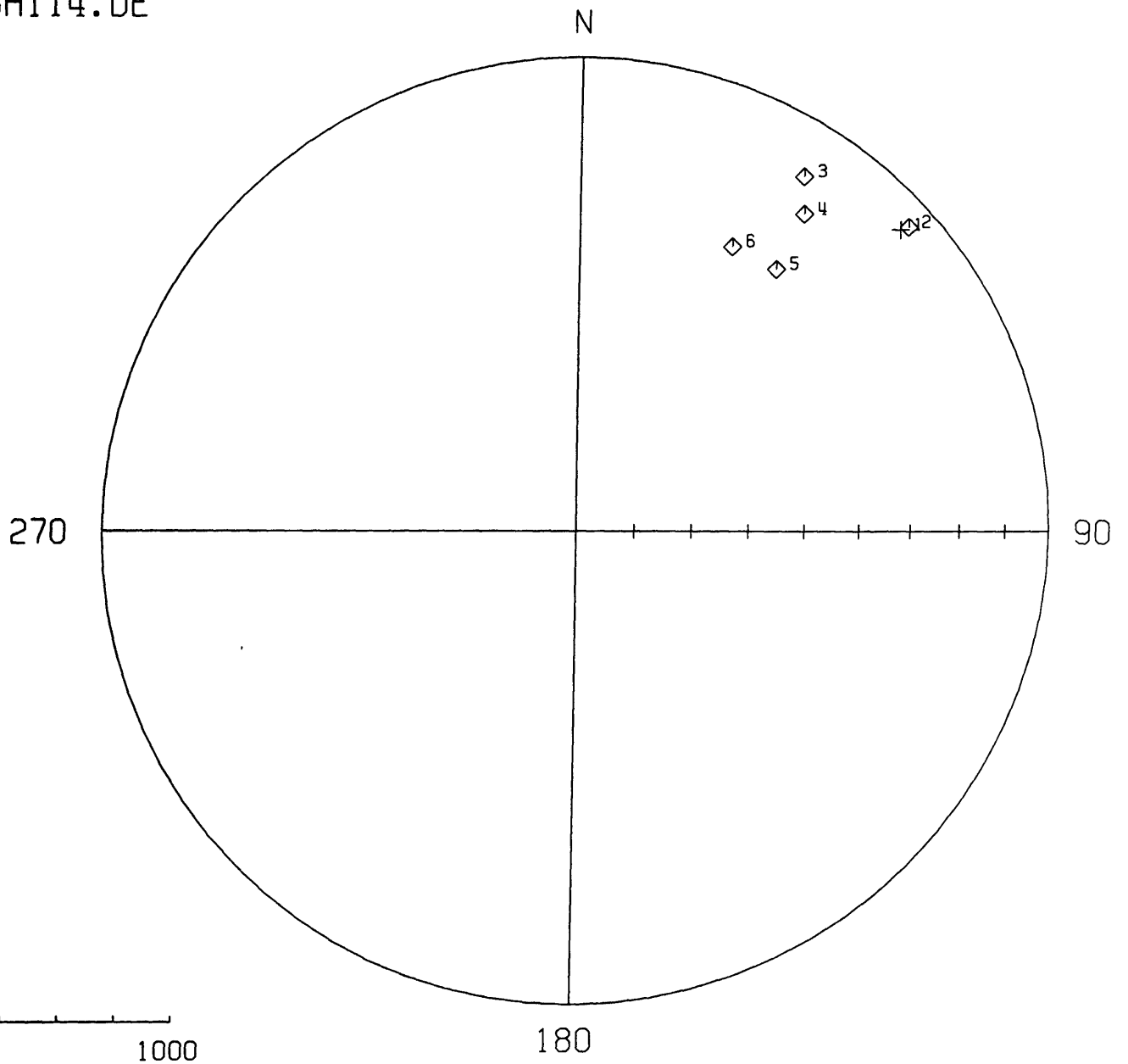
6H114-1 AF DEMAG 6M2MW8 17'

Tue Jan 14 15:19:55

6H114.DE

#		I	D	J	EXP
1	01	7.8	46.8	1.87E-6	0
2	02 *	-6.0	47.3	7.58E-7	100
3	03 *	-12.4	32.3	6.99E-7	150
4	04 *	-19.0	35.4	6.49E-7	200
5	05 *	-31.3	37.1	5.72E-7	300
6	06 *	-32.3	28.4	5.55E-7	400



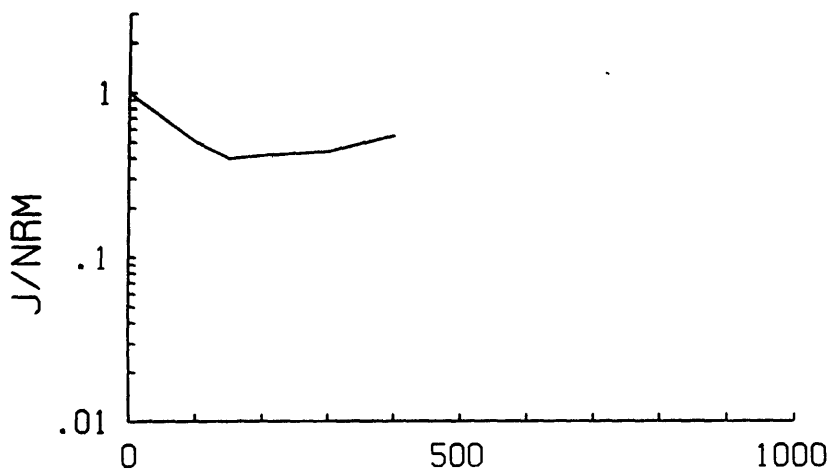


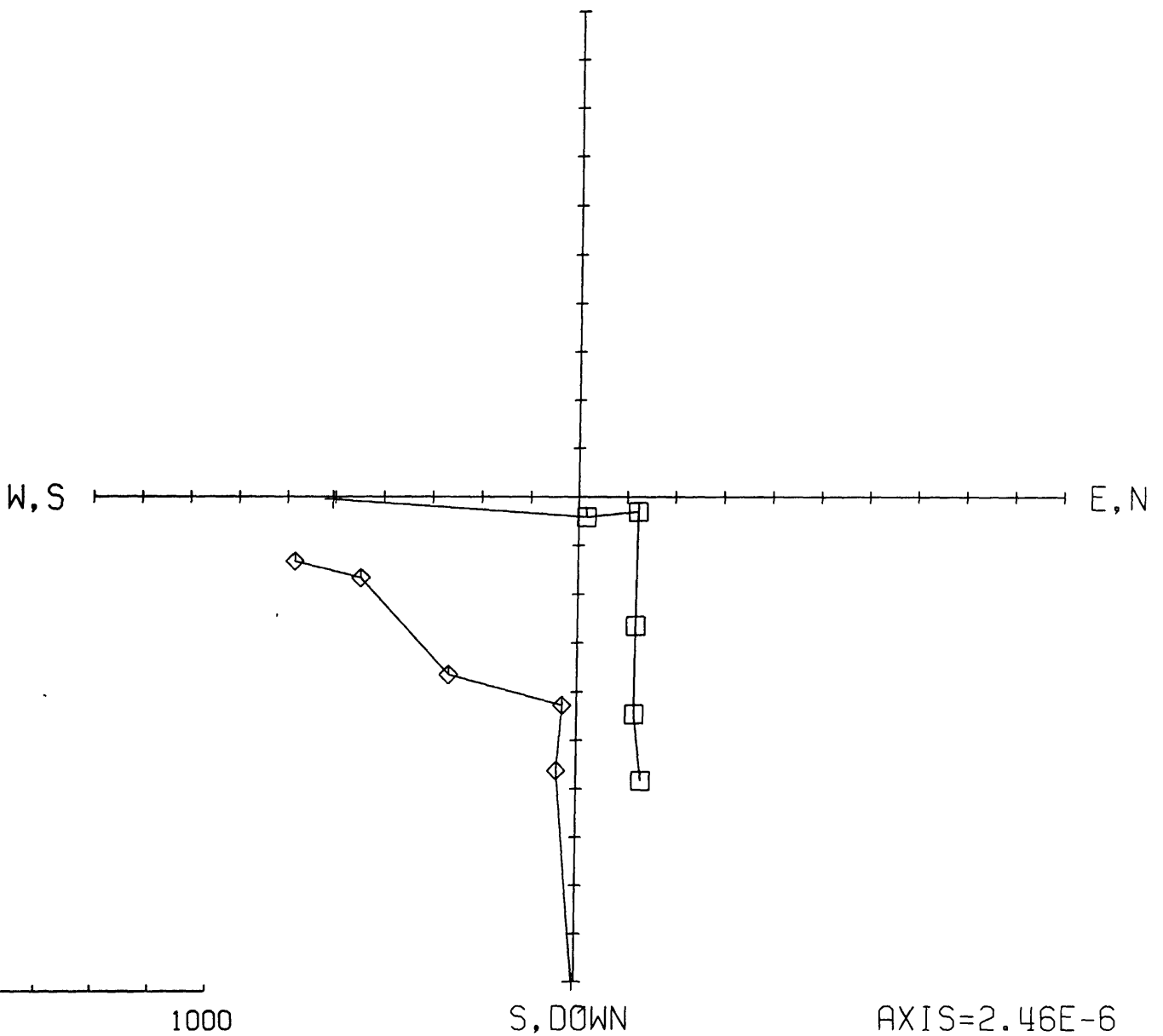
6H115-1 AF DEMAG 6M2MW8 25'

6H114.DE

Tue Jan 14 15:19:55

#		I	D	J	EXP
1	01	63.2	269.4	2.76E-6	0
2	02	85.5	159.1	1.39E-6	100
3	03 *	73.5	103.8	1.10E-6	150
4	04 *	51.5	155.6	1.15E-6	200
5	05 *	19.9	165.1	1.21E-6	300
6	06	12.5	167.1	1.51E-6	400



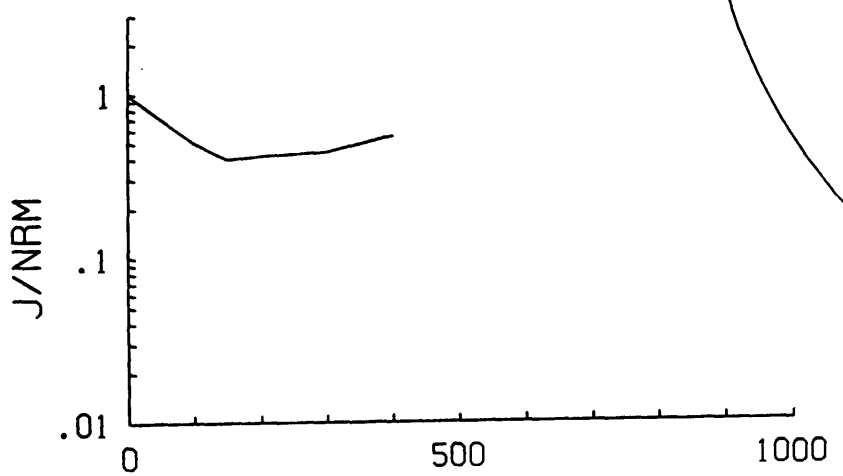


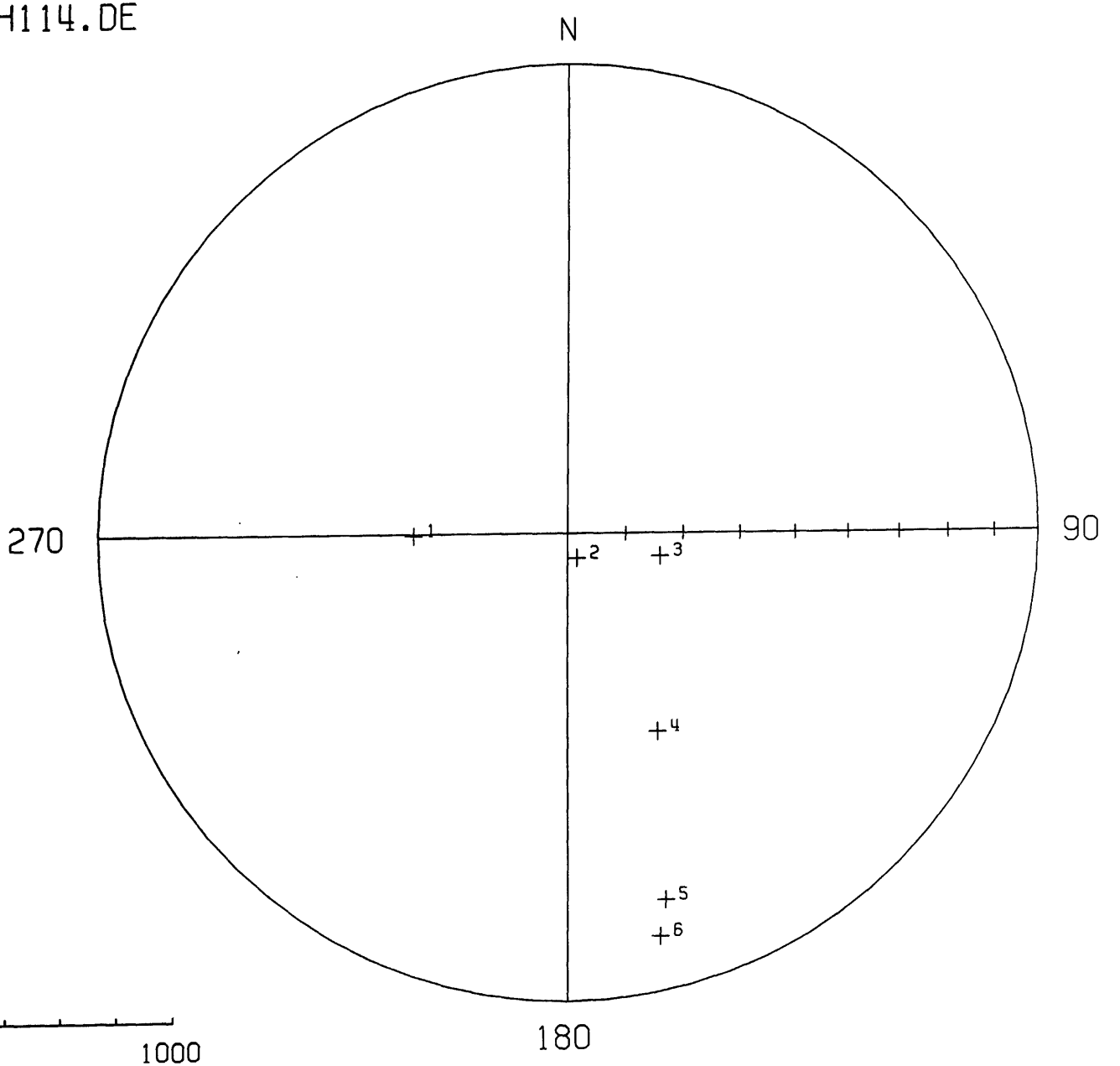
6H115-1 AF DEMAG 6M2MW8 25'

Tue Jan 14 15:19:55

6H114.DE

#		I	D	J	EXP	
1	01		63.2	269.4	2.76E-6	0
2	02		85.5	159.1	1.39E-6	100
3	03	*	73.5	103.8	1.10E-6	150
4	04	*	51.5	155.6	1.15E-6	200
5	05	*	19.9	165.1	1.21E-6	300
6	06		12.5	167.1	1.51E-6	400



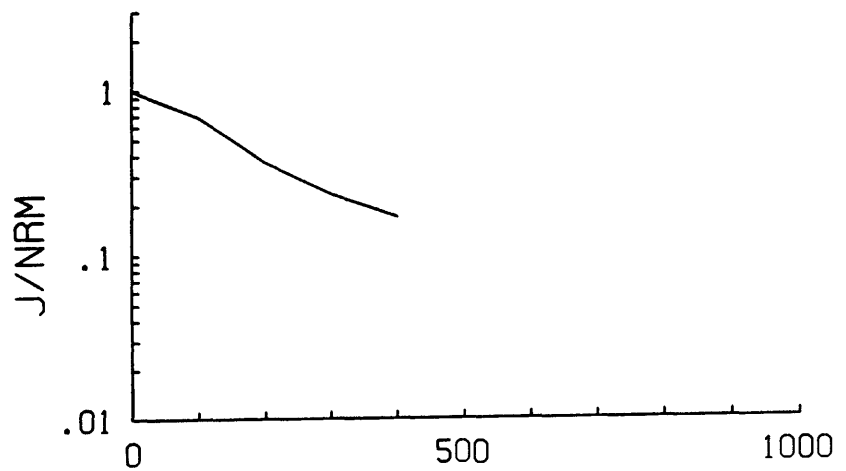


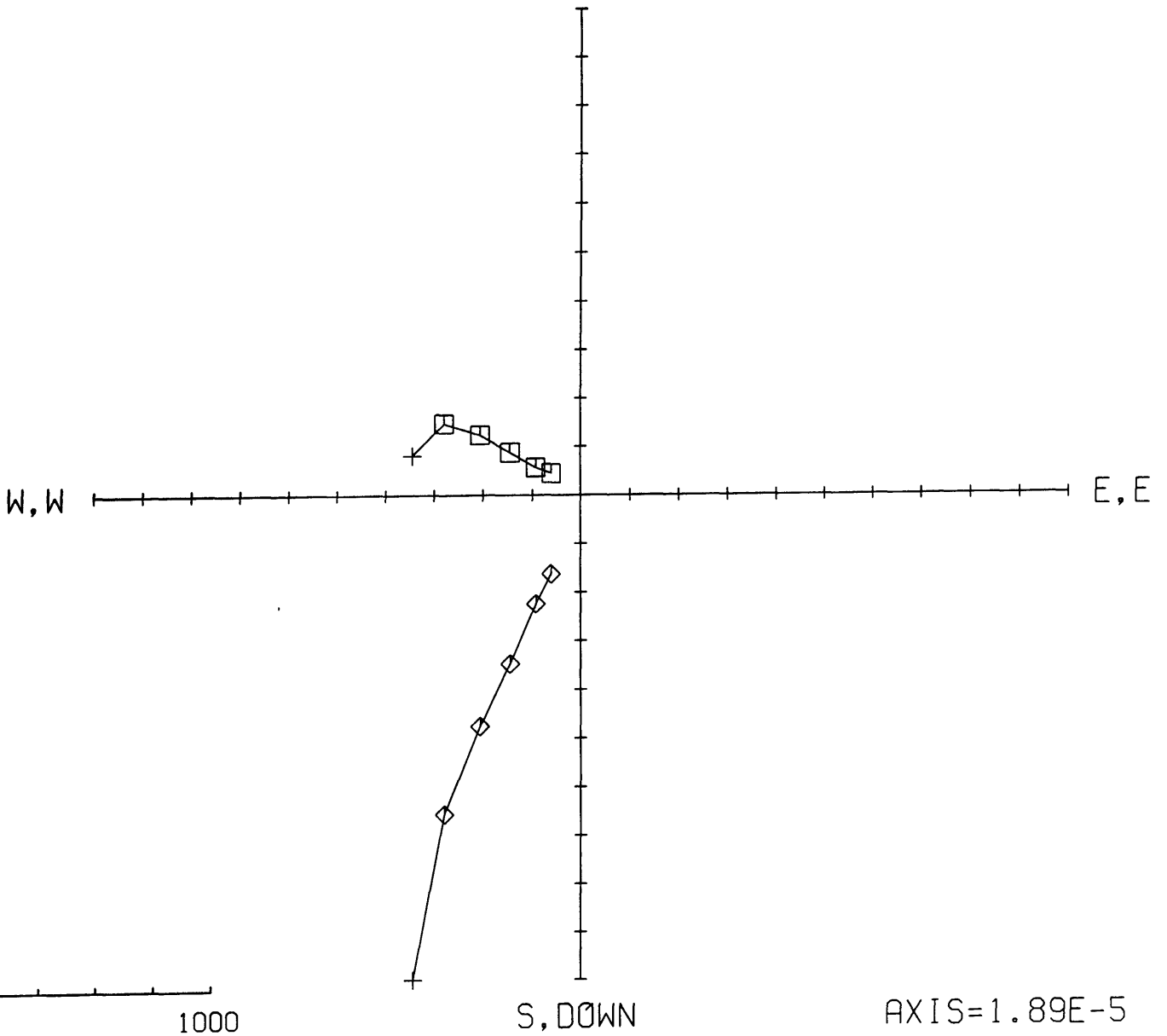
6H116-1 AF DEMAG 6M2MW8 50'

6H114.DE

Tue Jan 14 15:19:55

#		I	D	J	EXP
1	01	70.5	283.3	2.01E-5	0
2	02	64.3	297.8	1.38E-5	100
3	03	63.2	300.9	1.01E-5	150
4	04	64.0	301.1	7.32E-6	200
5	05	64.2	301.3	4.72E-6	300
6	06	65.2	306.4	3.40E-6	400



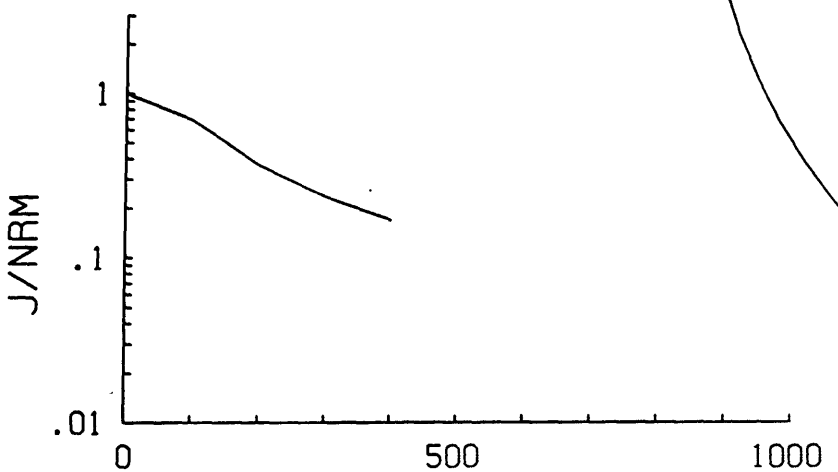


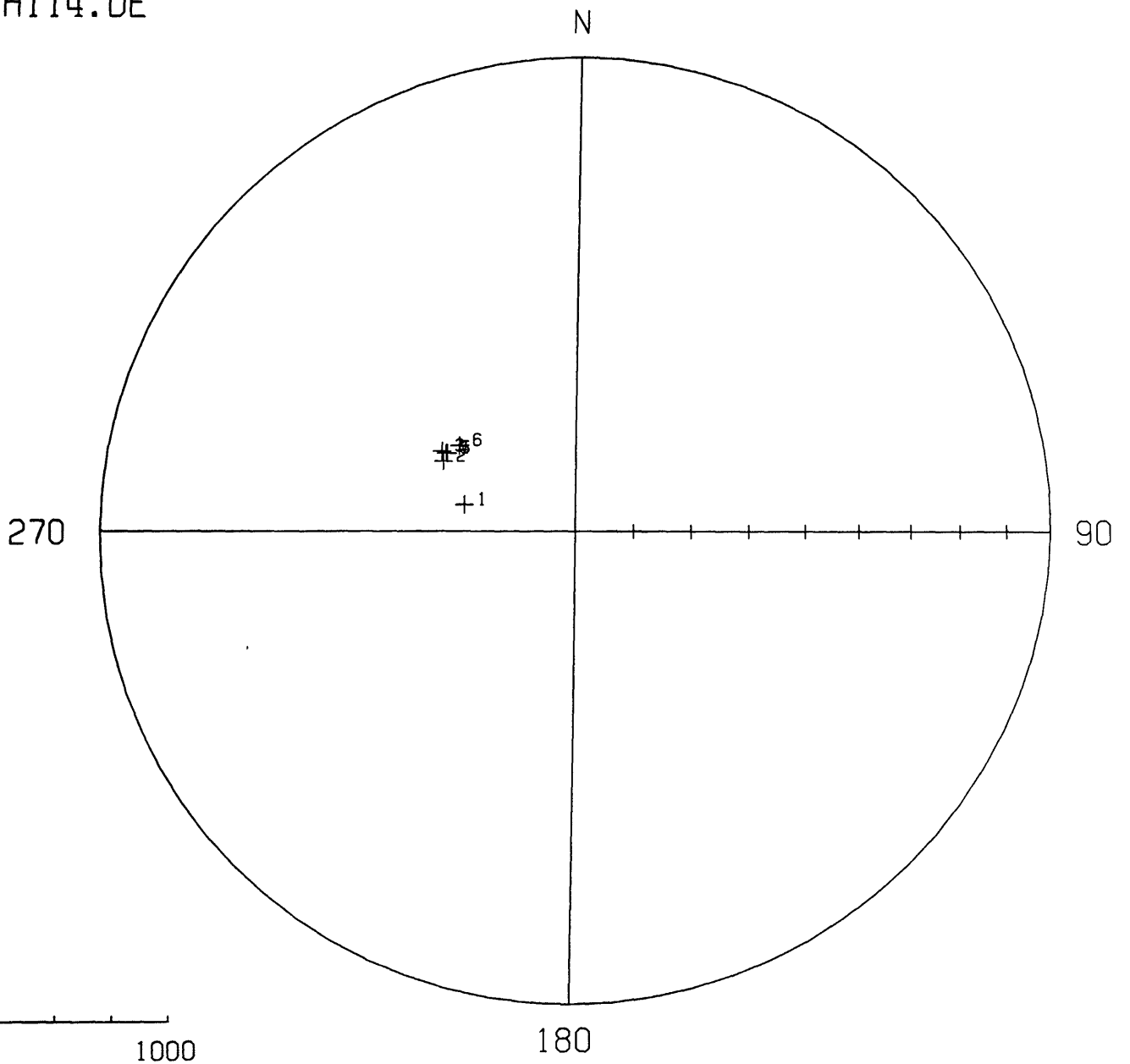
6H116-1 AF DEMAG 6M2MW8 50'

Tue Jan 14 15:19:55

6H114.DE

#	I	D	J	EXP
1 01	70.5	283.3	2.01E-5	0
2 02	64.3	297.8	1.38E-5	100
3 03	63.2	300.9	1.01E-5	150
4 04	64.0	301.1	7.32E-6	200
5 05	64.2	301.3	4.72E-6	300
6 06	65.2	306.4	3.40E-6	400





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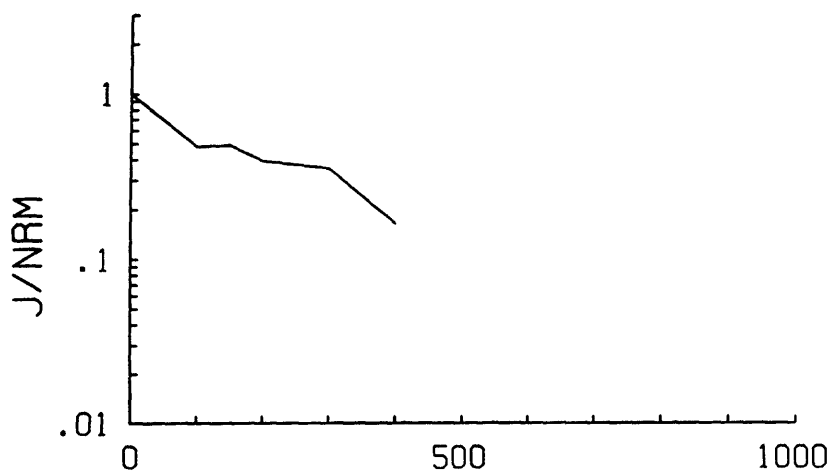
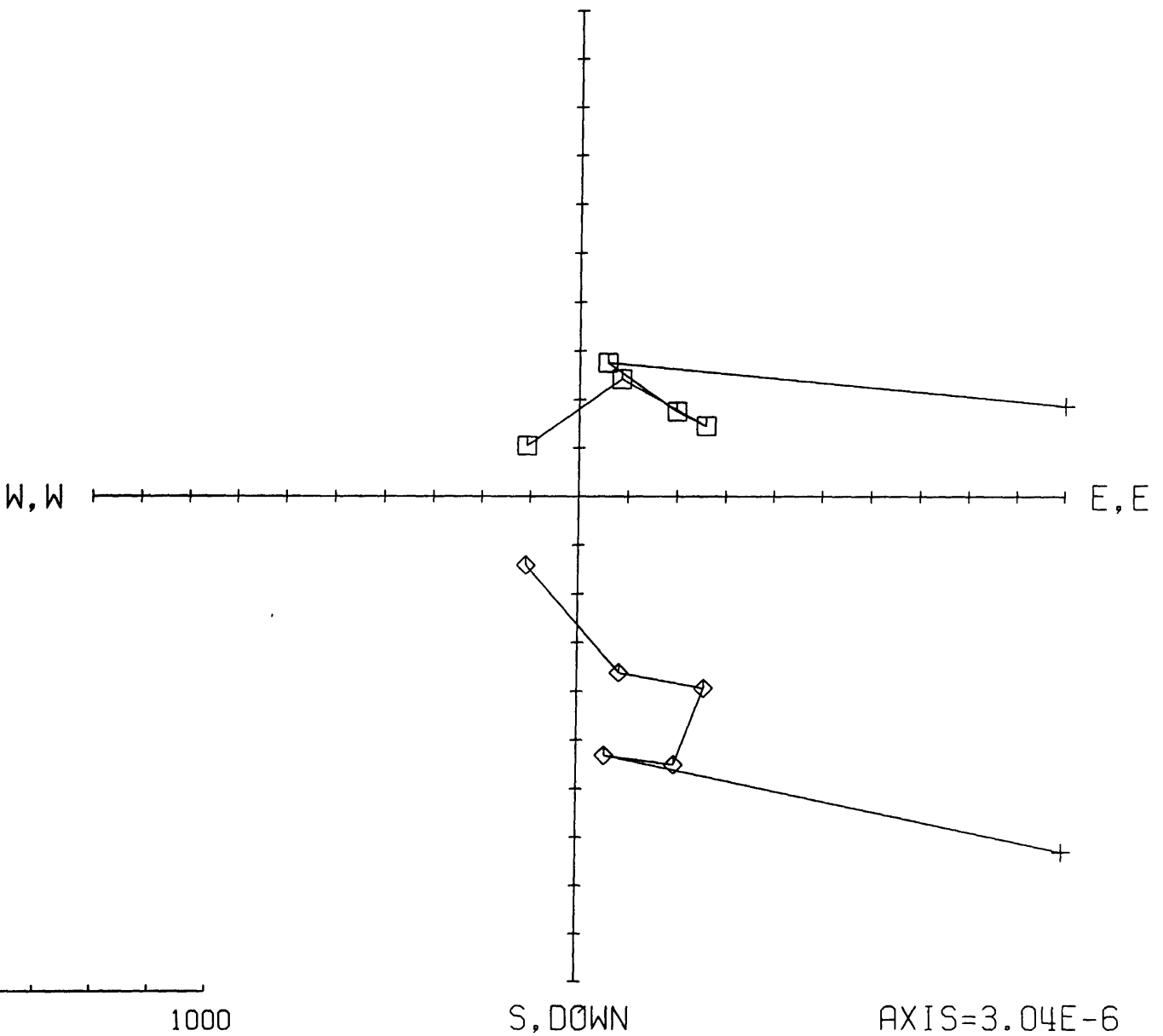
6H117-1 AF DEMAG 6M2MW8 73'

6H114.DE

Tue Jan 14 15:19:55

#		I	D	J	EXP
1	01	35.7	79.4	3.81E-6	0
2	02	62.1	11.7	1.83E-6	100
3	03	64.3	48.5	1.86E-6	150
4	04	53.0	60.6	1.50E-6	200
5	05	54.6	19.5	1.35E-6	300
6	06 *	43.3	314.4	6.26E-7	400





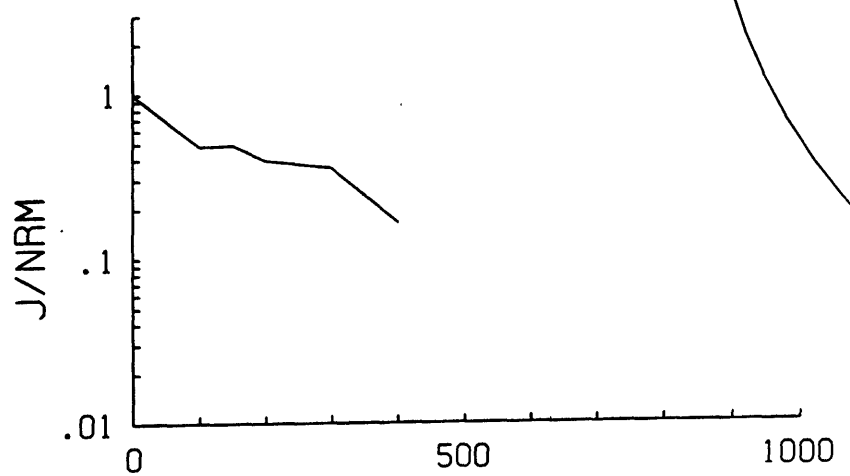
14

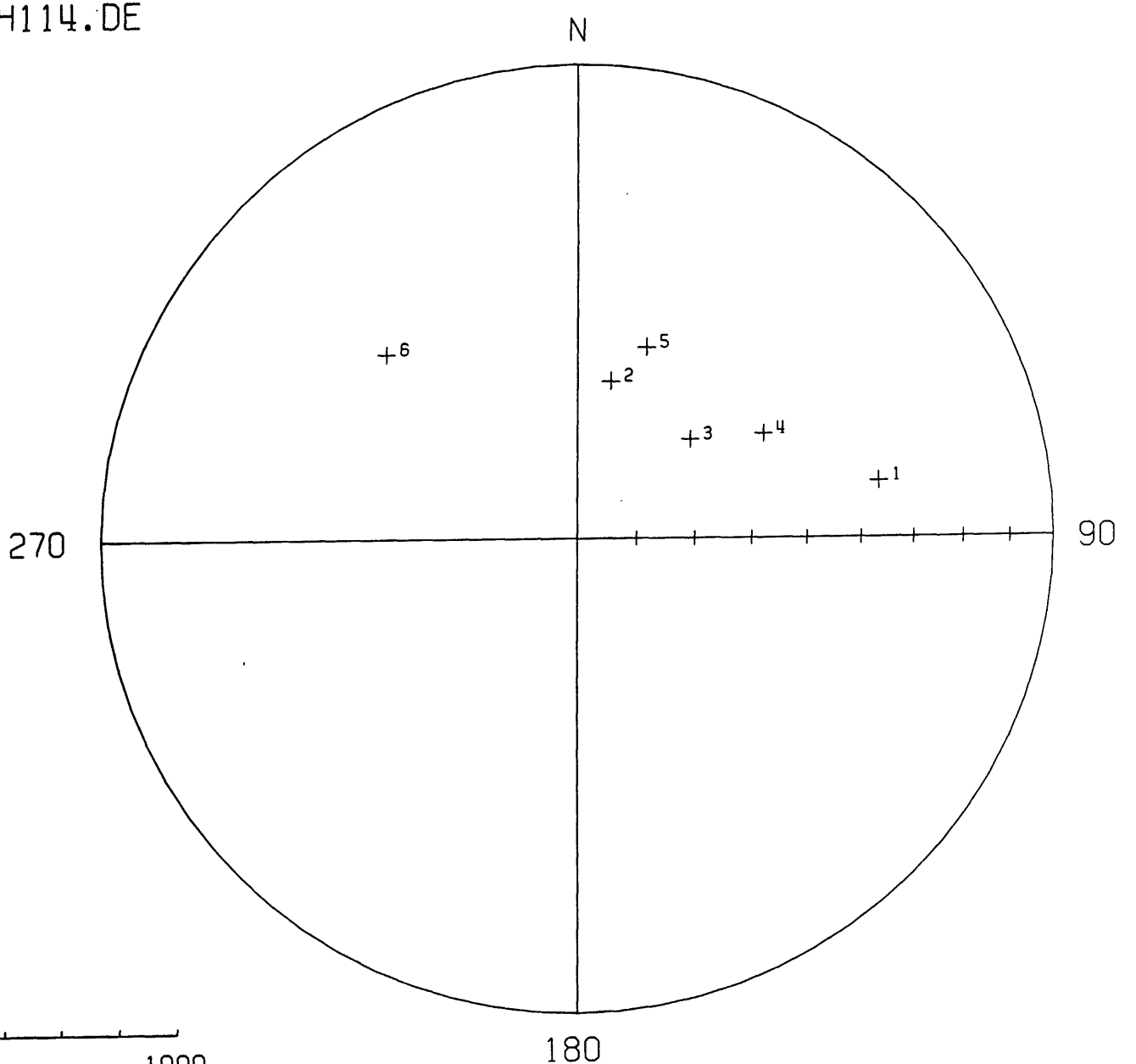
6H117-1 AF DEMAG 6M2MW8 73'

Tue Jan 14 15:19:55

6H114.DE

#		I	D	J	EXP
1	01	35.7	79.4	3.81E-6	0
2	02	62.1	11.7	1.83E-6	100
3	03	64.3	48.5	1.86E-6	150
4	04	53.0	60.6	1.50E-6	200
5	05	54.6	19.5	1.35E-6	300
6	06 *	43.3	314.4	6.26E-7	400



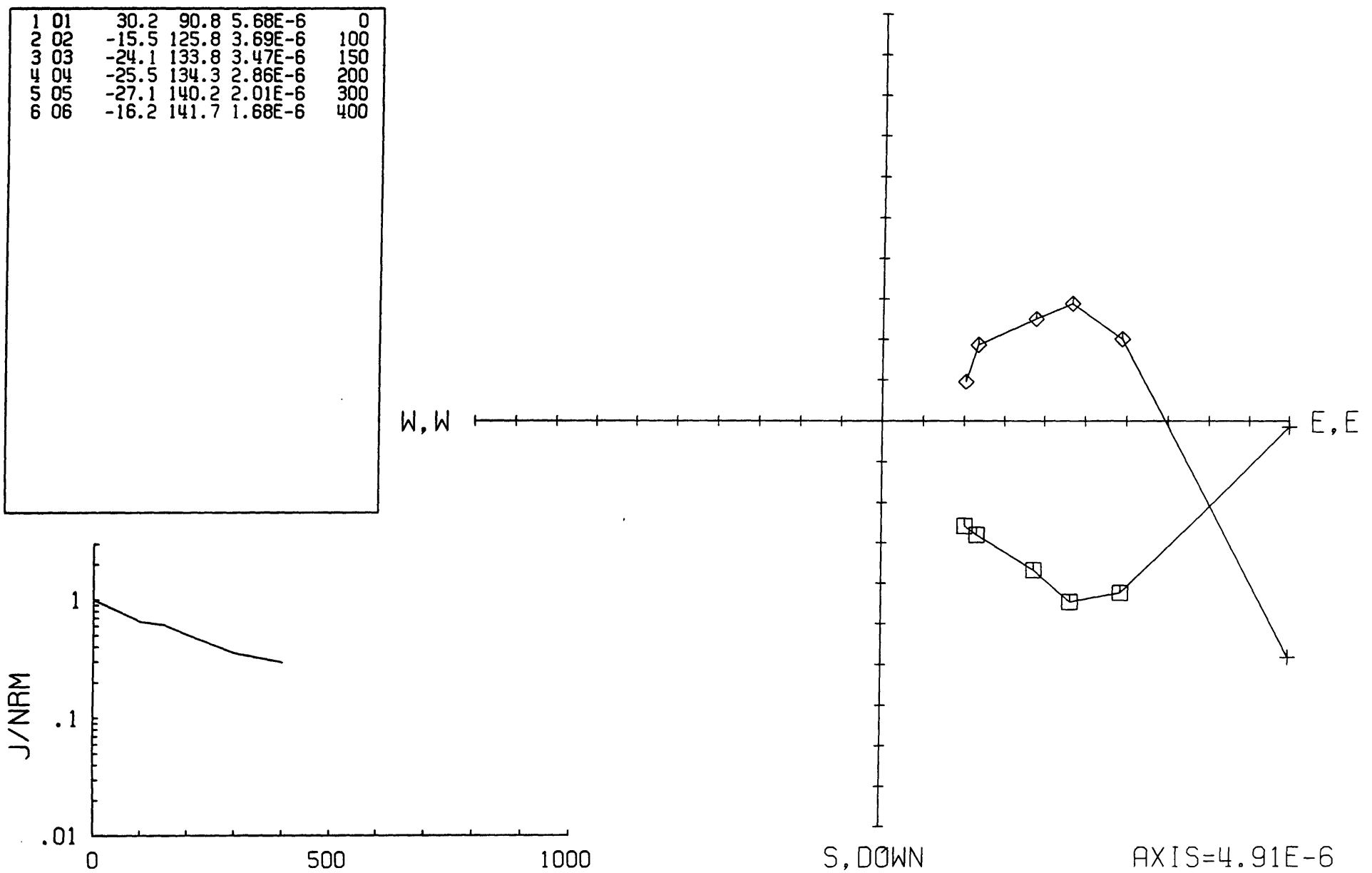


6H118-1 AF DEMAG 6M2MW8 78'

Tue Jan 14 15:19:55

6H114.DE

#		I	D	J	EXP
1	01	30.2	90.8	5.68E-6	0
2	02	-15.5	125.8	3.69E-6	100
3	03	-24.1	133.8	3.47E-6	150
4	04	-25.5	134.3	2.86E-6	200
5	05	-27.1	140.2	2.01E-6	300
6	06	-16.2	141.7	1.68E-6	400

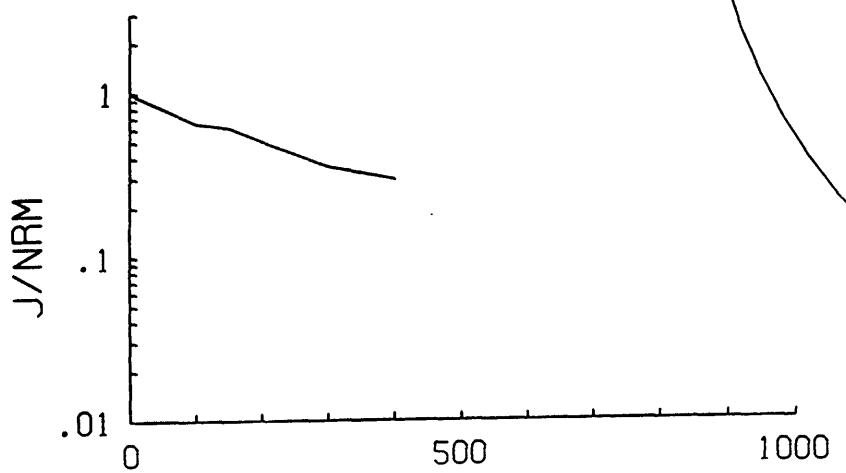


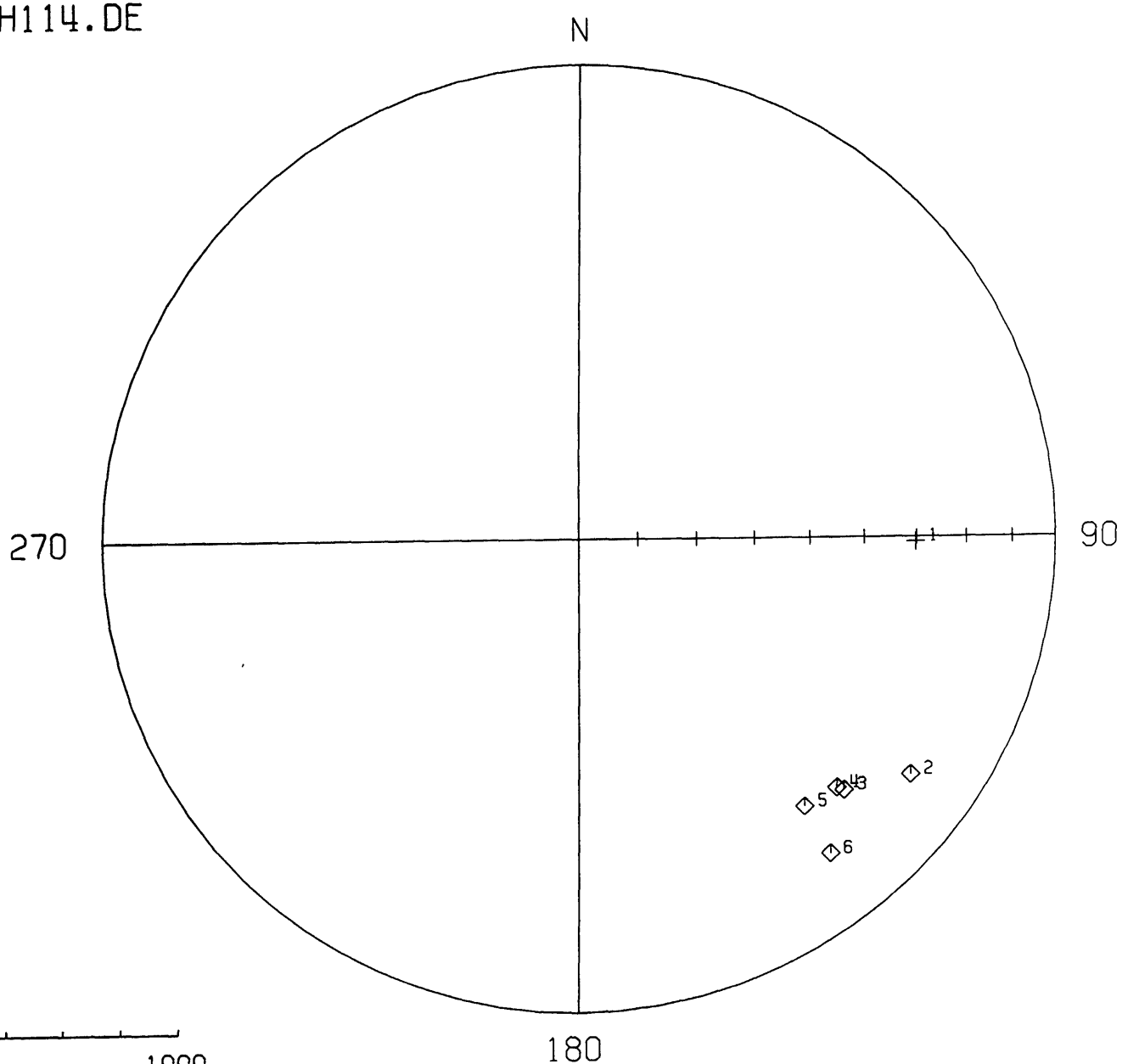
6H118-1 AF DEMAG 6M2MW8 78'

Tue Jan 14 15:19:55

6H114.DE

#		I	D	J	EXP
1	01	30.2	90.8	5.68E-6	0
2	02	-15.5	125.8	3.69E-6	100
3	03	-24.1	133.8	3.47E-6	150
4	04	-25.5	134.3	2.86E-6	200
5	05	-27.1	140.2	2.01E-6	300
6	06	-16.2	141.7	1.68E-6	400



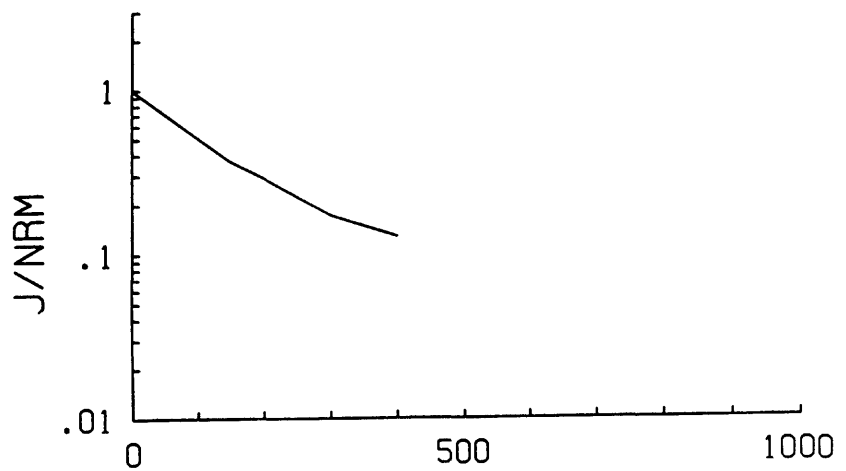


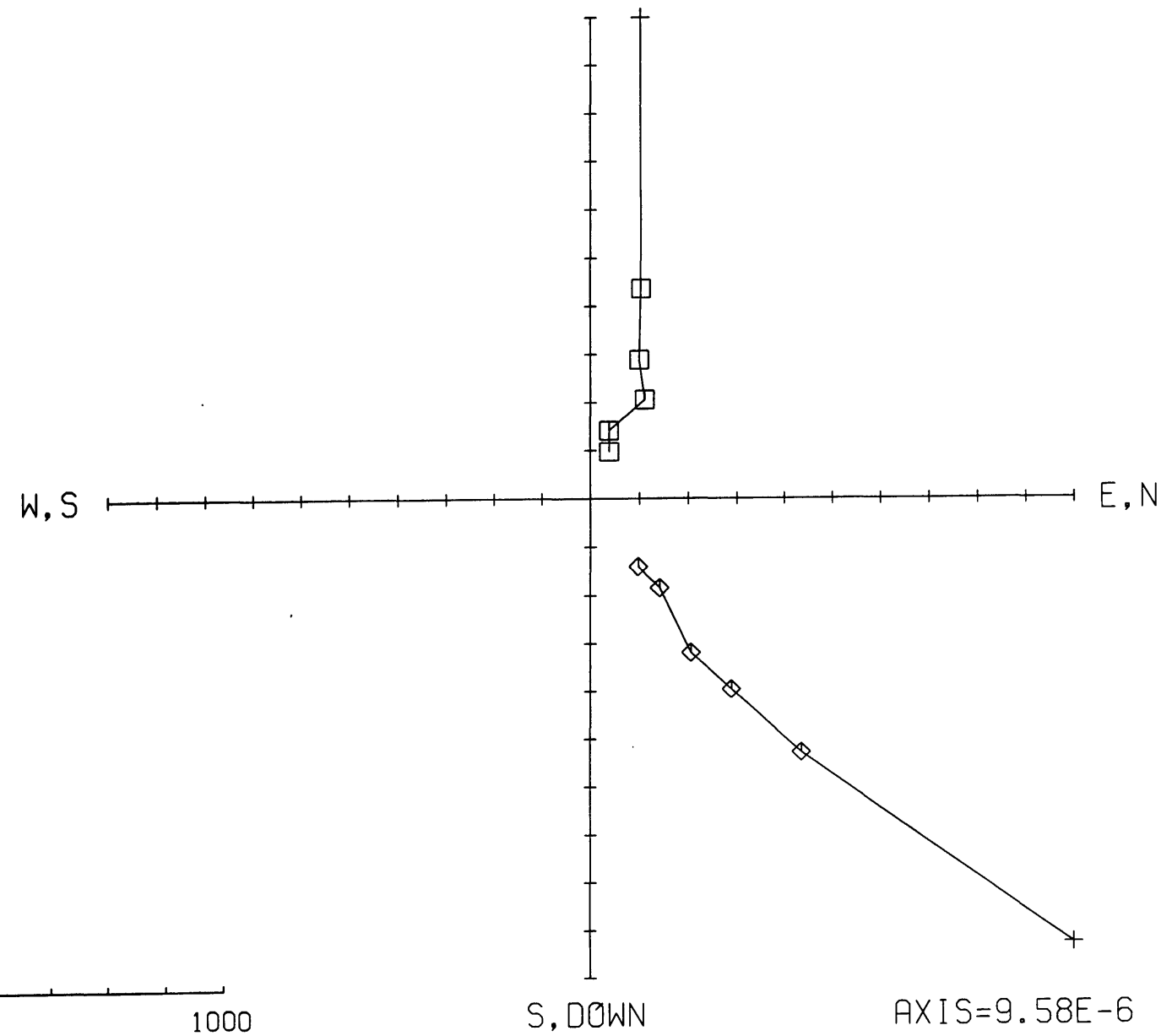
6H119-1 AF DEMAG 6M2MW8 88'

6H114.DE

Tue Jan 14 15:19:55

#	I	D	J	EXP
1 01	42.7	5.8	1.31E-5	0
2 02	49.7	13.4	6.64E-6	100
3 03	52.4	19.0	4.79E-6	150
4 04	53.8	28.3	3.79E-6	200
5 05	51.5	15.1	2.26E-6	300
6 06	53.3	21.5	1.68E-6	400



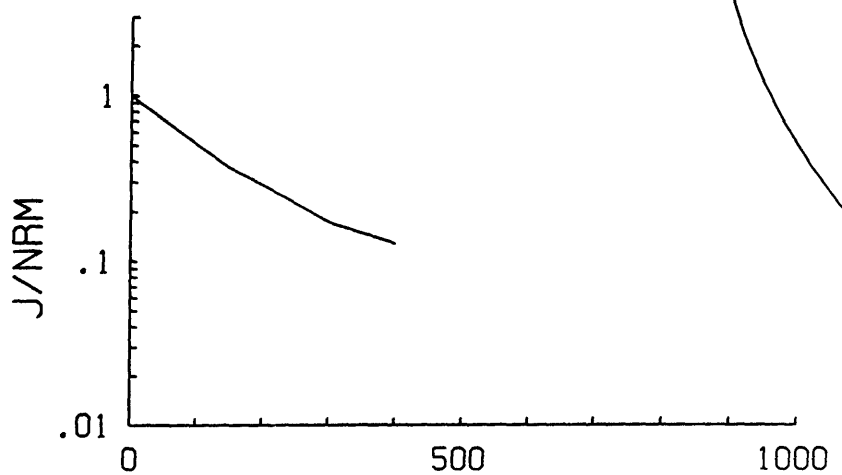


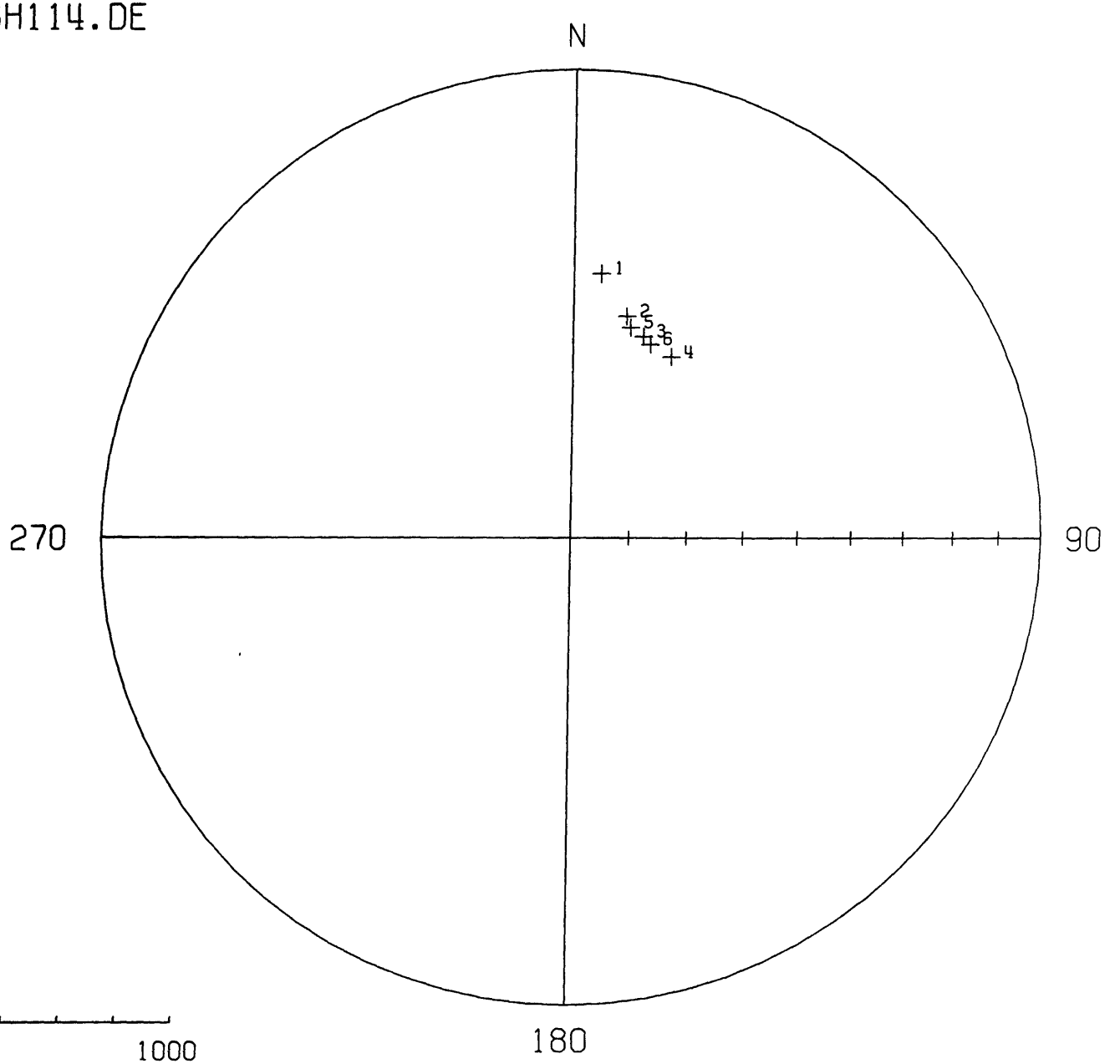
6H119-1 AF DEMAG 6M2MW8 88'

Tue Jan 14 15:19:55

6H114.DE

#	I	D	J	EXP
1 01	42.7	5.8	1.31E-5	0
2 02	49.7	13.4	6.64E-6	100
3 03	52.4	19.0	4.79E-6	150
4 04	53.8	28.3	3.79E-6	200
5 05	51.5	15.1	2.26E-6	300
6 06	53.3	21.5	1.68E-6	400



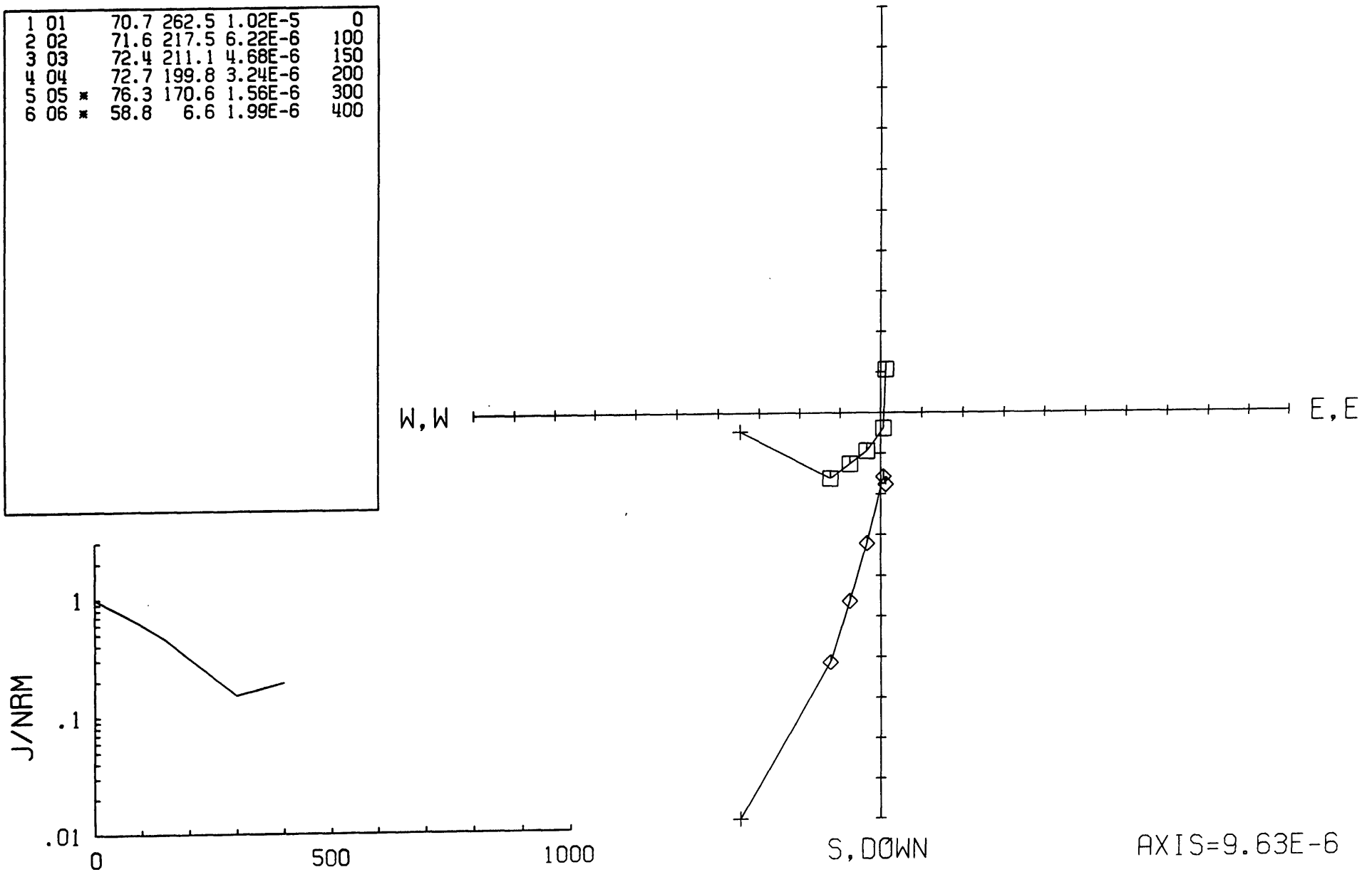


6H121-1 AF DEMAG 6M2MW8 109'

6H114.DE

Tue Jan 14 15:19:55

#		I	D	J	EXP
1	01	70.7	262.5	1.02E-5	0
2	02	71.6	217.5	6.22E-6	100
3	03	72.4	211.1	4.68E-6	150
4	04	72.7	199.8	3.24E-6	200
5	05 *	76.3	170.6	1.56E-6	300
6	06 *	58.8	6.6	1.99E-6	400

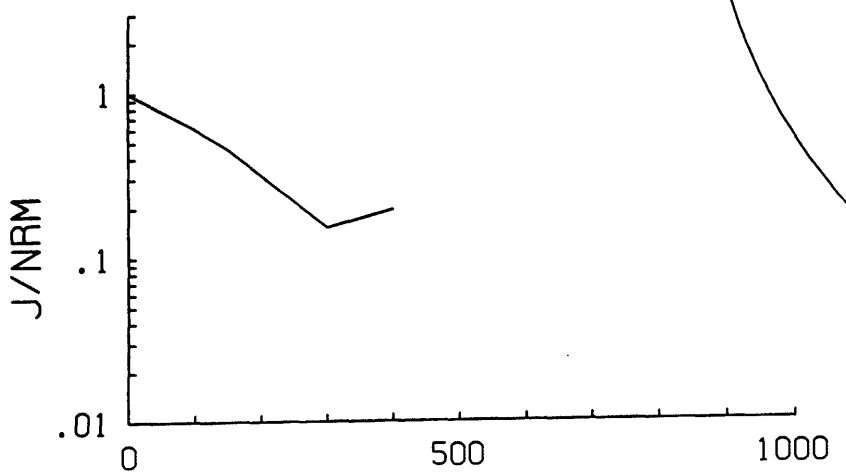


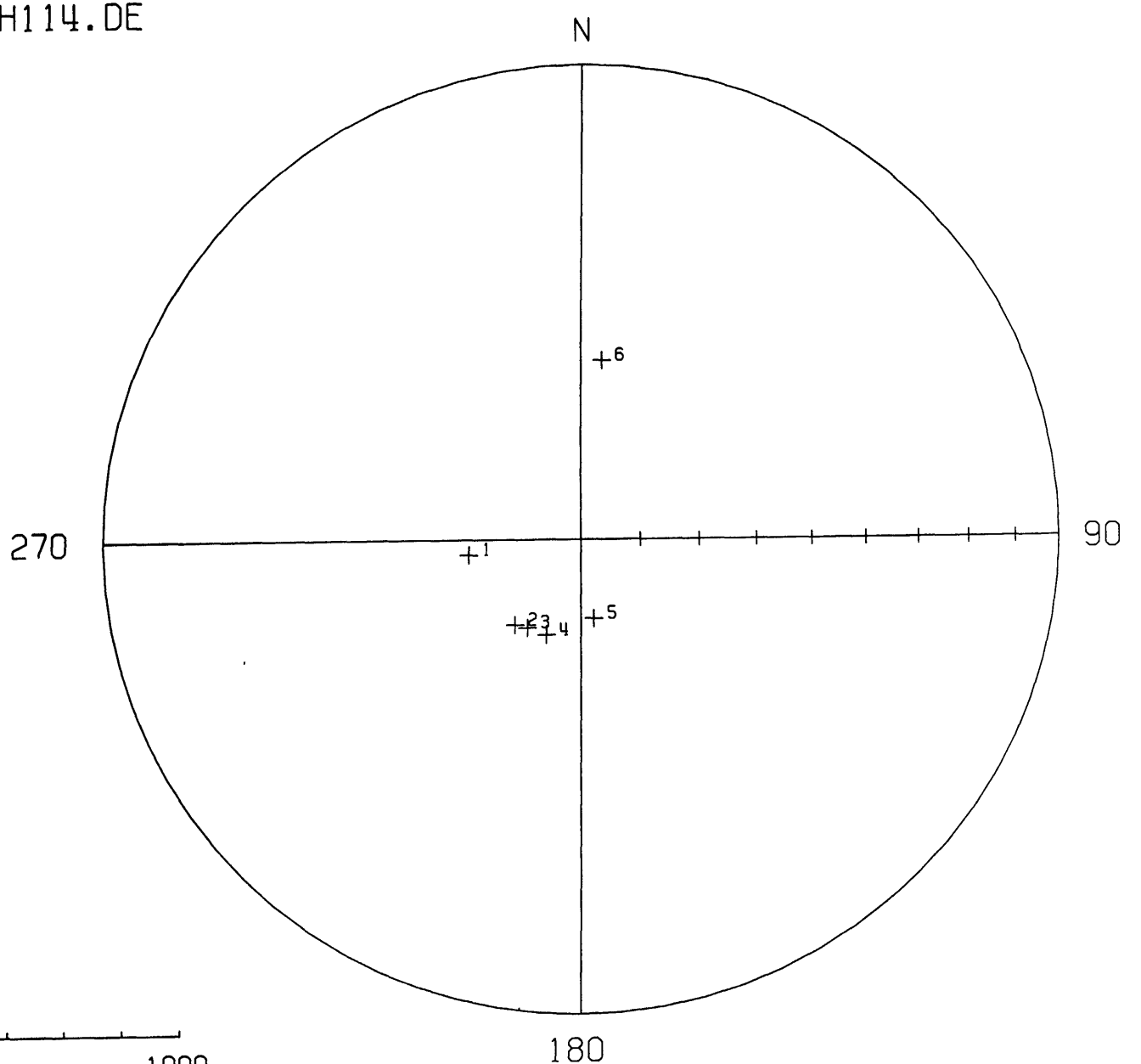
6H121-1 AF DEMAG 6M2MW8 109'

Tue Jan 14 15:19:55

6H114.DE

#		I	D	J	EXP
1	01	70.7	262.5	1.02E-5	0
2	02	71.6	217.5	6.22E-6	100
3	03	72.4	211.1	4.68E-6	150
4	04	72.7	199.8	3.24E-6	200
5	05 *	76.3	170.6	1.56E-6	300
6	06 *	58.8	6.6	1.99E-6	400



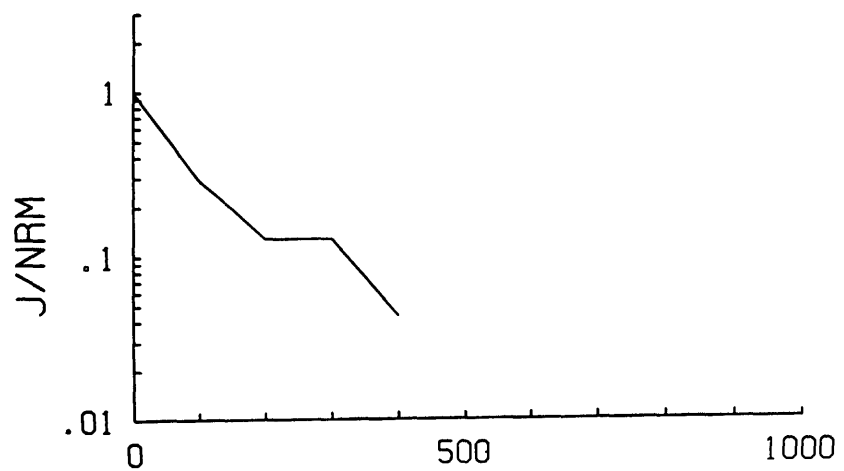


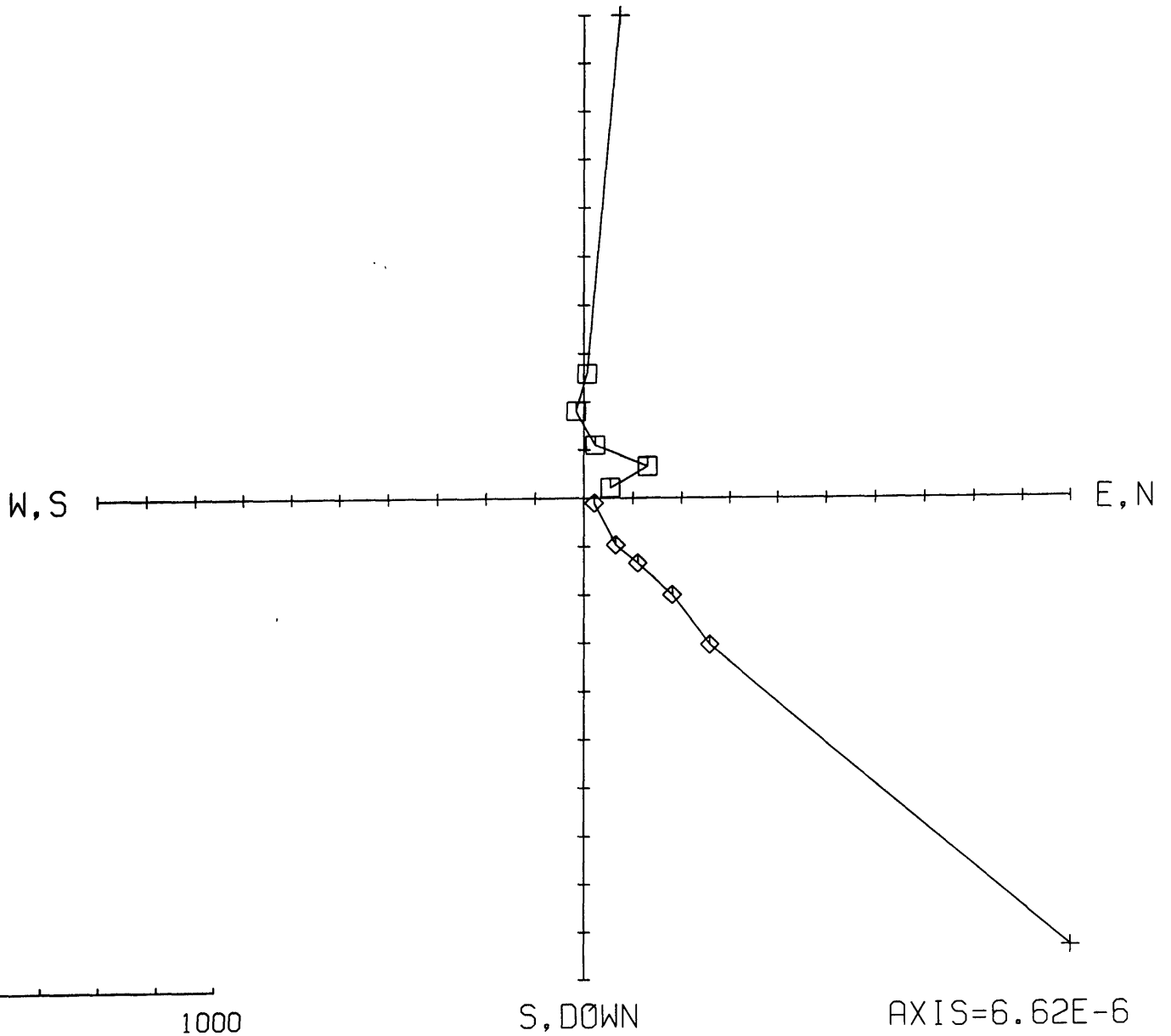
6H120-1 AF DEMAG 6M2MW8 95'

6H114.DE

Tue Jan 14 15:19:55

#		I	D	J	EXP
1	01	42.9	4.2	9.06E-6	0
2	02	49.6	1.4	2.64E-6	100
3	03	47.8	354.9	1.79E-6	150
4	04 *	50.1	11.8	1.16E-6	200
5	05 *	33.6	63.4	1.16E-6	300
6	06 *	9.5	68.5	3.90E-7	400





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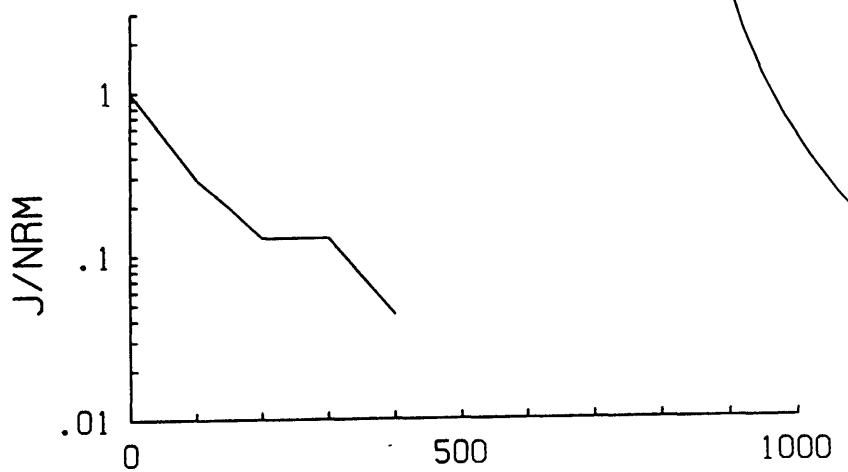
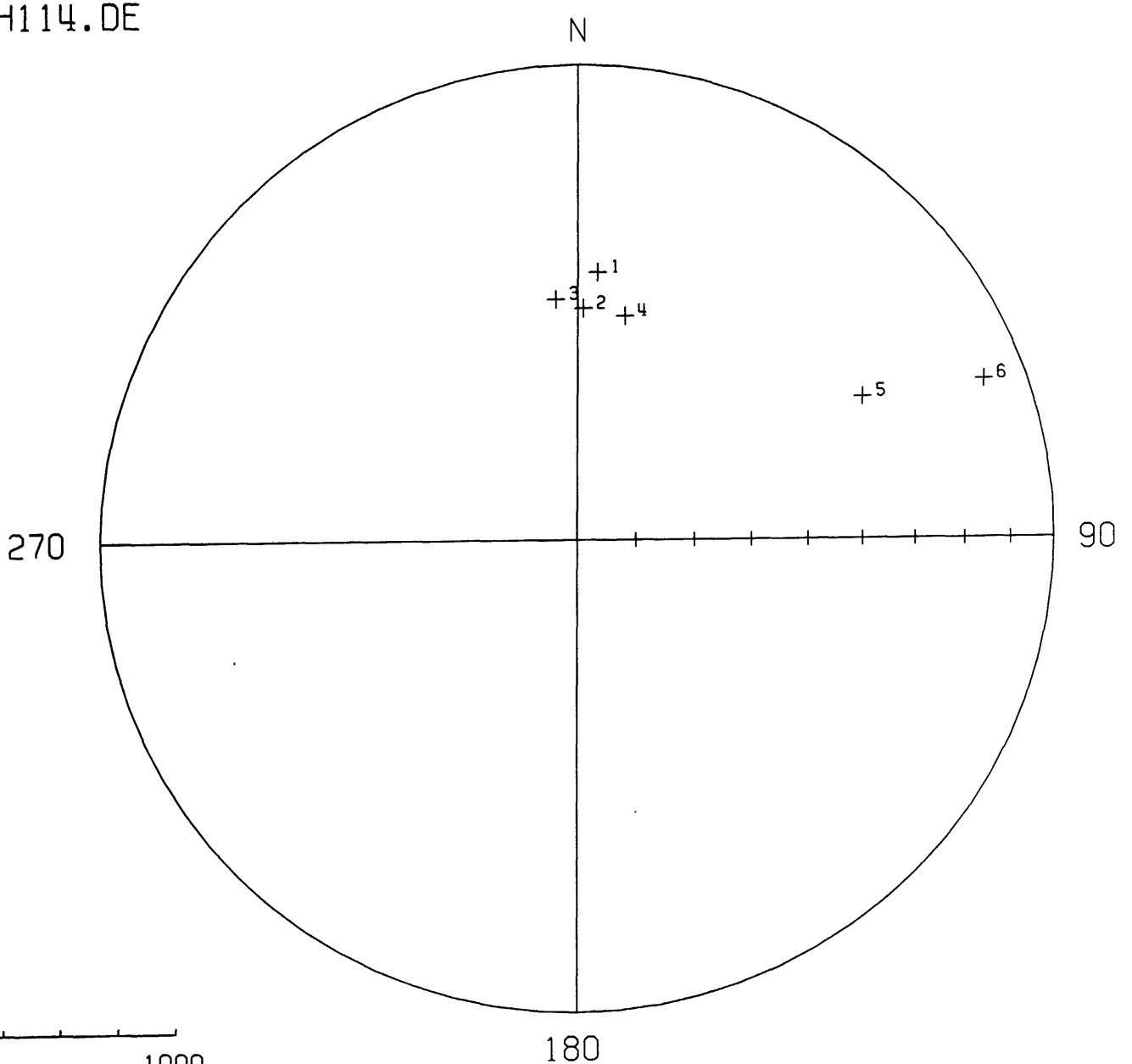
6H120-1 AF DEMAG 6M2MW8 95'

Tue Jan 14 15:19:55

6H114.DE

#		I	D	J	EXP
1	01	42.9	4.2	9.06E-6	0
2	02	49.6	1.4	2.64E-6	100
3	03	47.8	354.9	1.79E-6	150
4	04 *	50.1	11.8	1.16E-6	200
5	05 *	33.6	63.4	1.16E-6	300
6	06 *	9.5	68.5	3.90E-7	400





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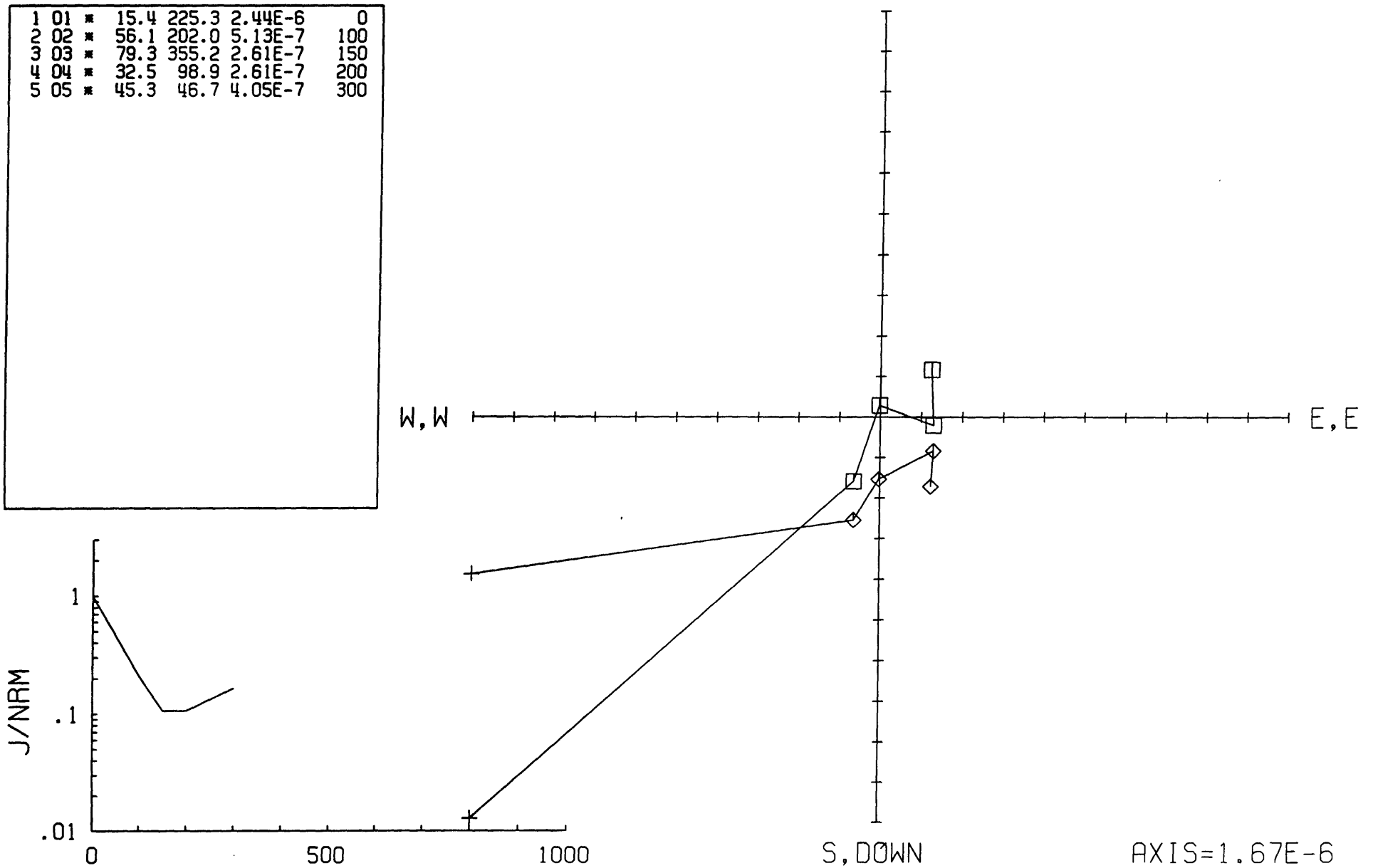
6H122-1 AF DEMAG 6M2MW8 125'

Tue Jan 14 15:19:55

6H114.DE

#		I	D	J	EXP	
1	01	*	15.4	225.3	2.44E-6	0
2	02	*	56.1	202.0	5.13E-7	100
3	03	*	79.3	355.2	2.61E-7	150
4	04	*	32.5	98.9	2.61E-7	200
5	05	*	45.3	46.7	4.05E-7	300

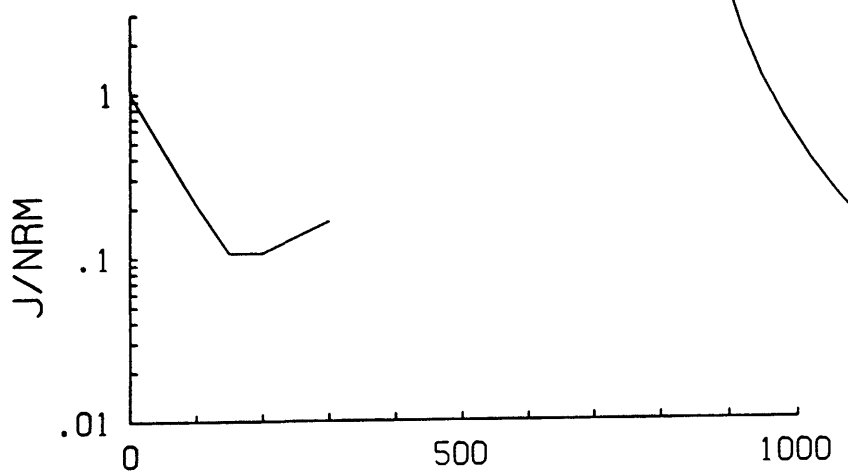


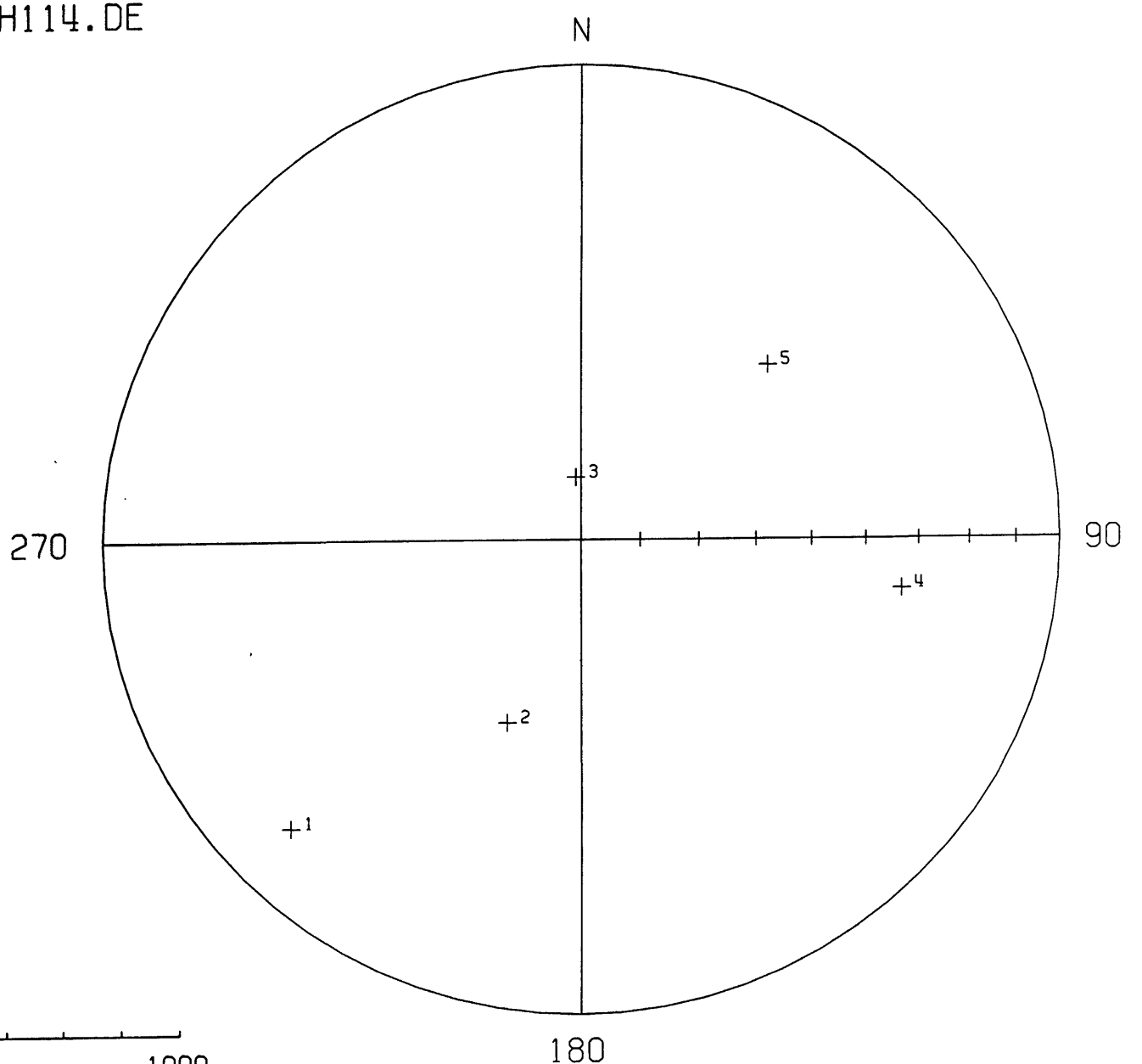
6H122-1 AF DEMAG 6M2MW8 125'

Tue Jan 14 15:19:55

6H114.DE

#		I	D	J	EXP
1	01 *	15.4	225.3	2.44E-6	0
2	02 *	56.1	202.0	5.13E-7	100
3	03 *	79.3	355.2	2.61E-7	150
4	04 *	32.5	98.9	2.61E-7	200
5	05 *	45.3	46.7	4.05E-7	300



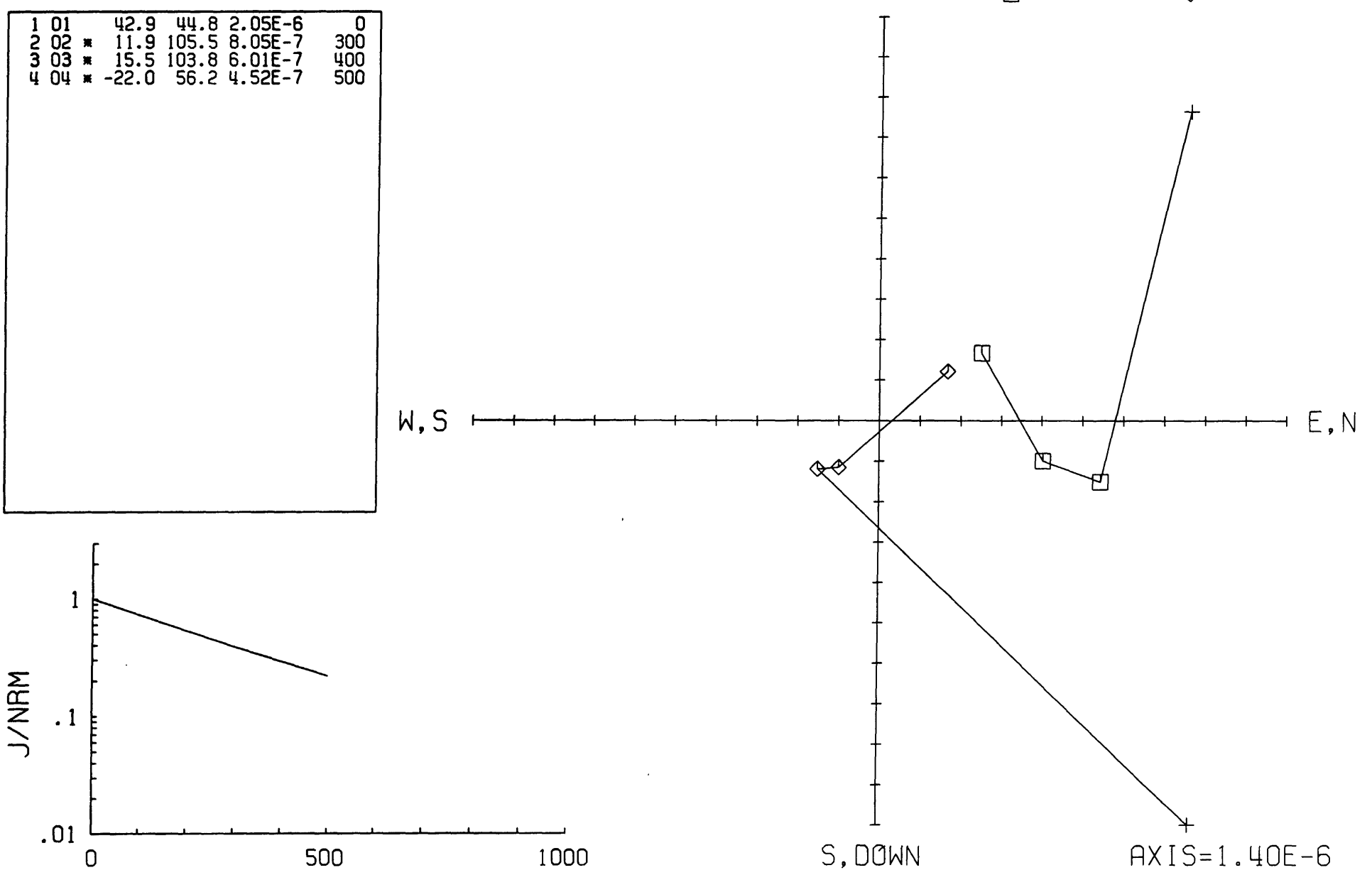


6H123-1 AF DEMAG 6M2MW8 139'

Tue Jan 14 15:19:55

6H114.DE

#		I	D	J	EXP	
1	01		42.9	44.8	2.05E-6	0
2	02	*	11.9	105.5	8.05E-7	300
3	03	*	15.5	103.8	6.01E-7	400
4	04	*	-22.0	56.2	4.52E-7	500

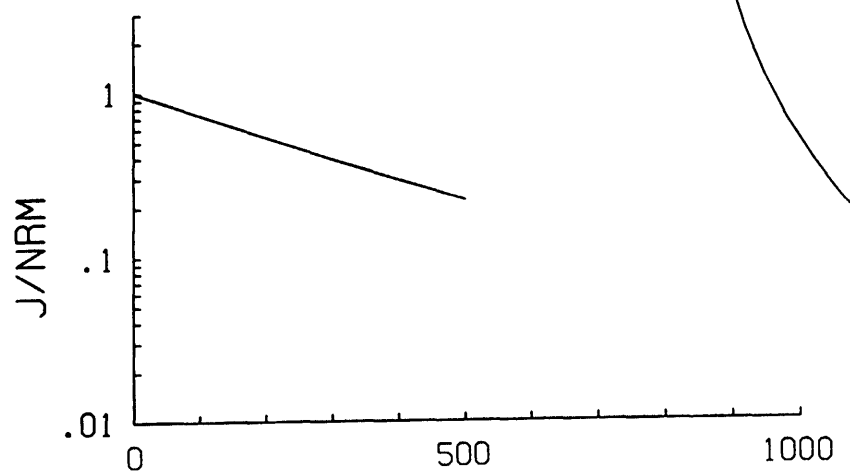


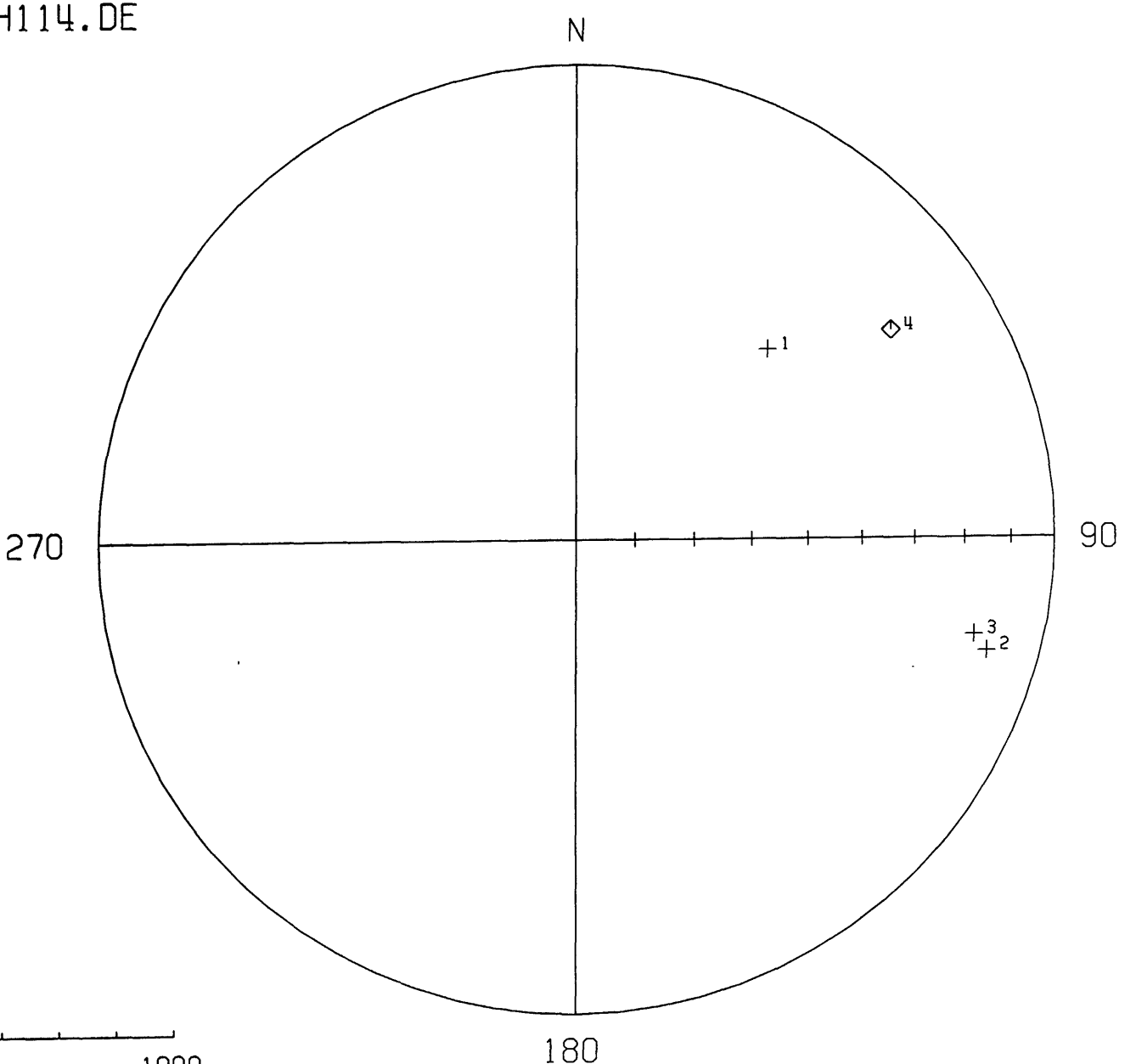
6H123-1 AF DEMAG 6M2MW8 139'

Tue Jan 14 15:19:55

6H114.DE

#		I	D	J	EXP
1	01	42.9	44.8	2.05E-6	0
2	02 *	11.9	105.5	8.05E-7	300
3	03 *	15.5	103.8	6.01E-7	400
4	04 *	-22.0	56.2	4.52E-7	500





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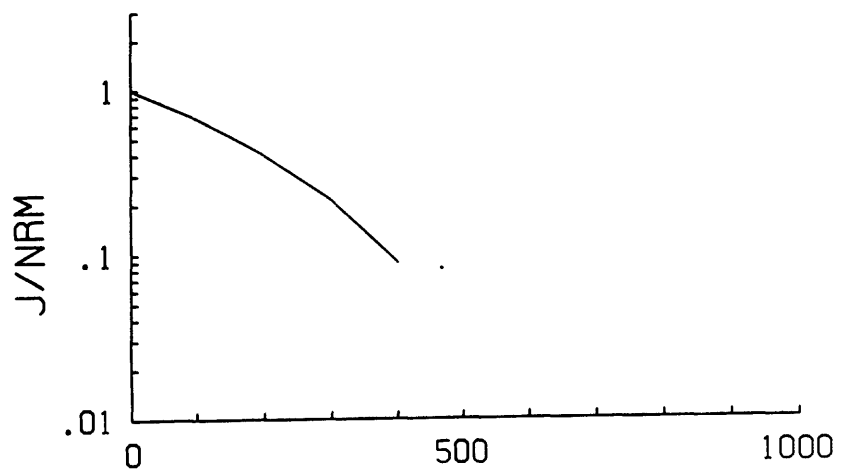
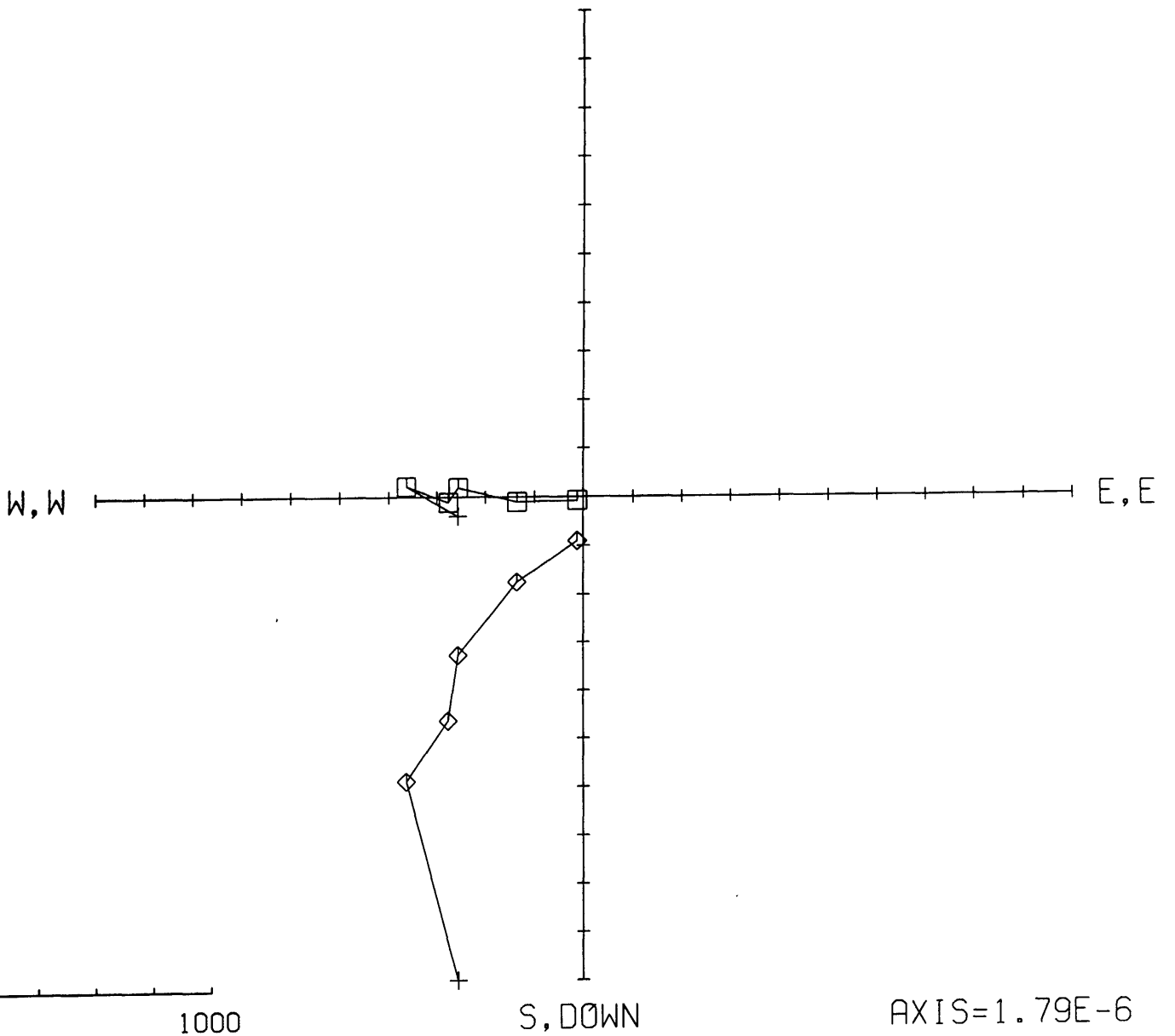
6H124-1 AF DEMAG 6M2MW8 148'

6H114.DE

Tue Jan 14 15:19:55

#		I	D	J	EXP
1	01	75.5	261.3	1.85E-6	0
2	02	58.3	273.4	1.24E-6	100
3	03	59.2	267.8	9.67E-7	150
4	04 *	51.9	274.2	7.44E-7	200
5	05 *	52.2	265.8	3.96E-7	300
6	06 *	81.0	239.0	1.64E-7	400



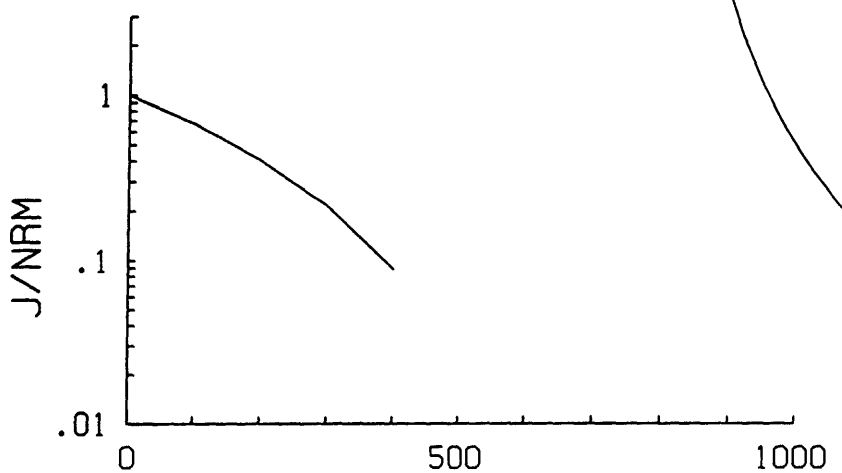


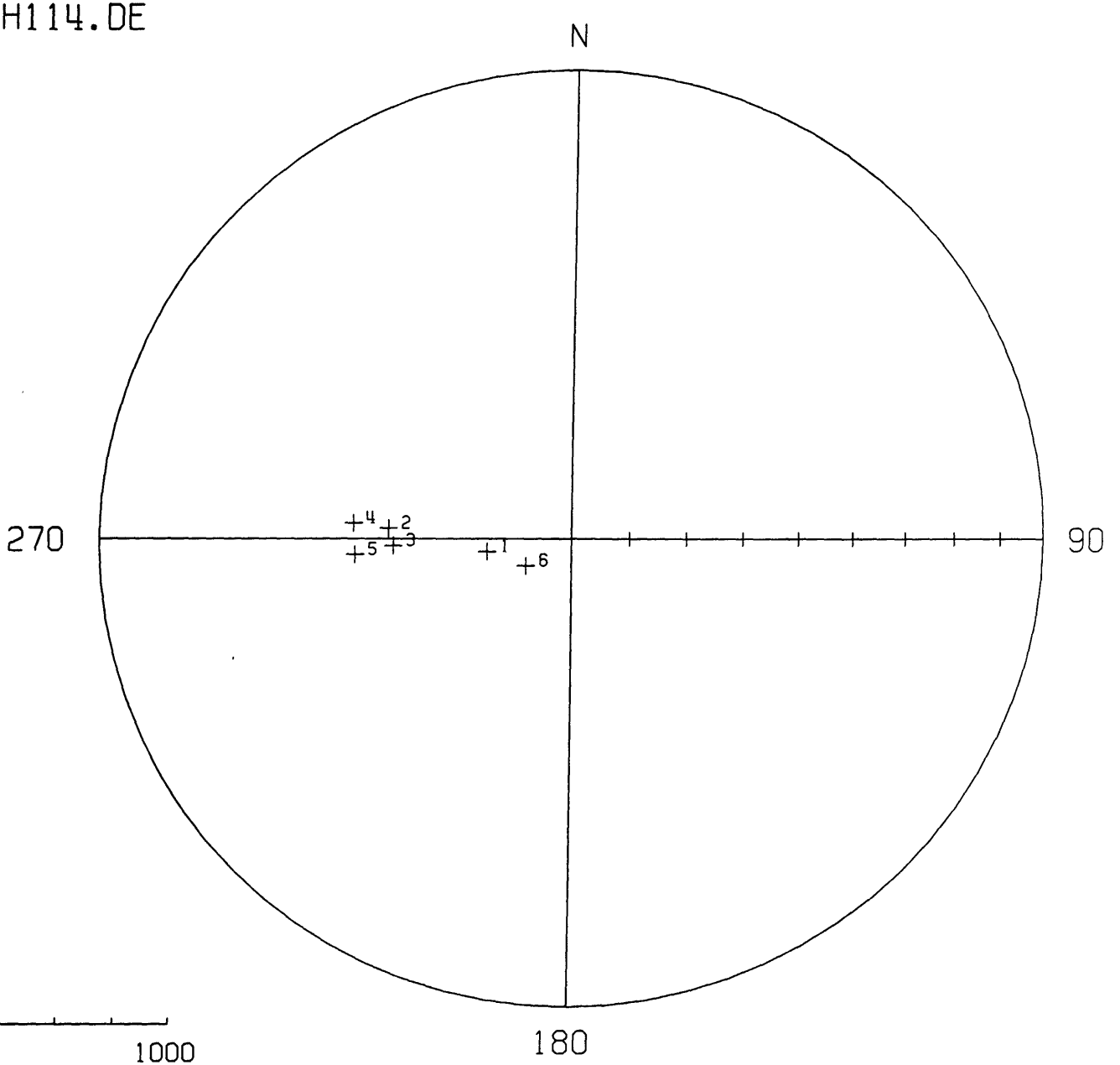
6H124-1 AF DEMAG 6M2MW8 148'

Tue Jan 14 15:19:55

6H114.DE

#		I	D	J	EXP
1	01	75.5	261.3	1.85E-6	0
2	02	58.3	273.4	1.24E-6	100
3	03	59.2	267.8	9.67E-7	150
4	04 *	51.9	274.2	7.44E-7	200
5	05 *	52.2	265.8	3.96E-7	300
6	06 *	81.0	239.0	1.64E-7	400





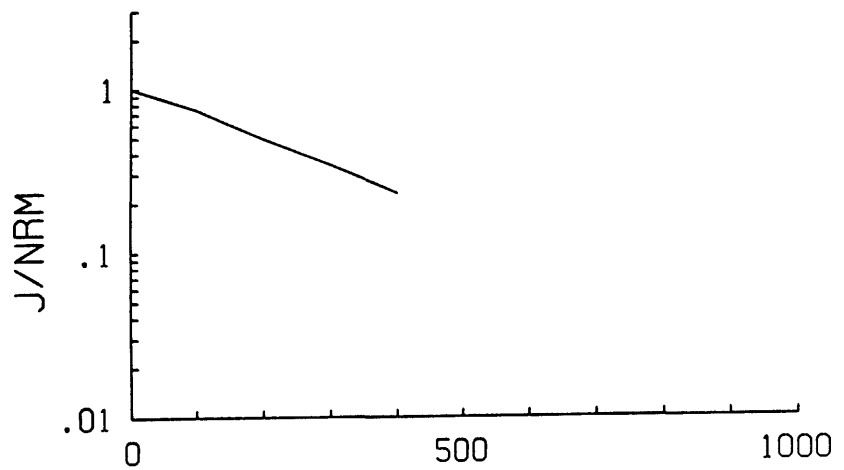
25

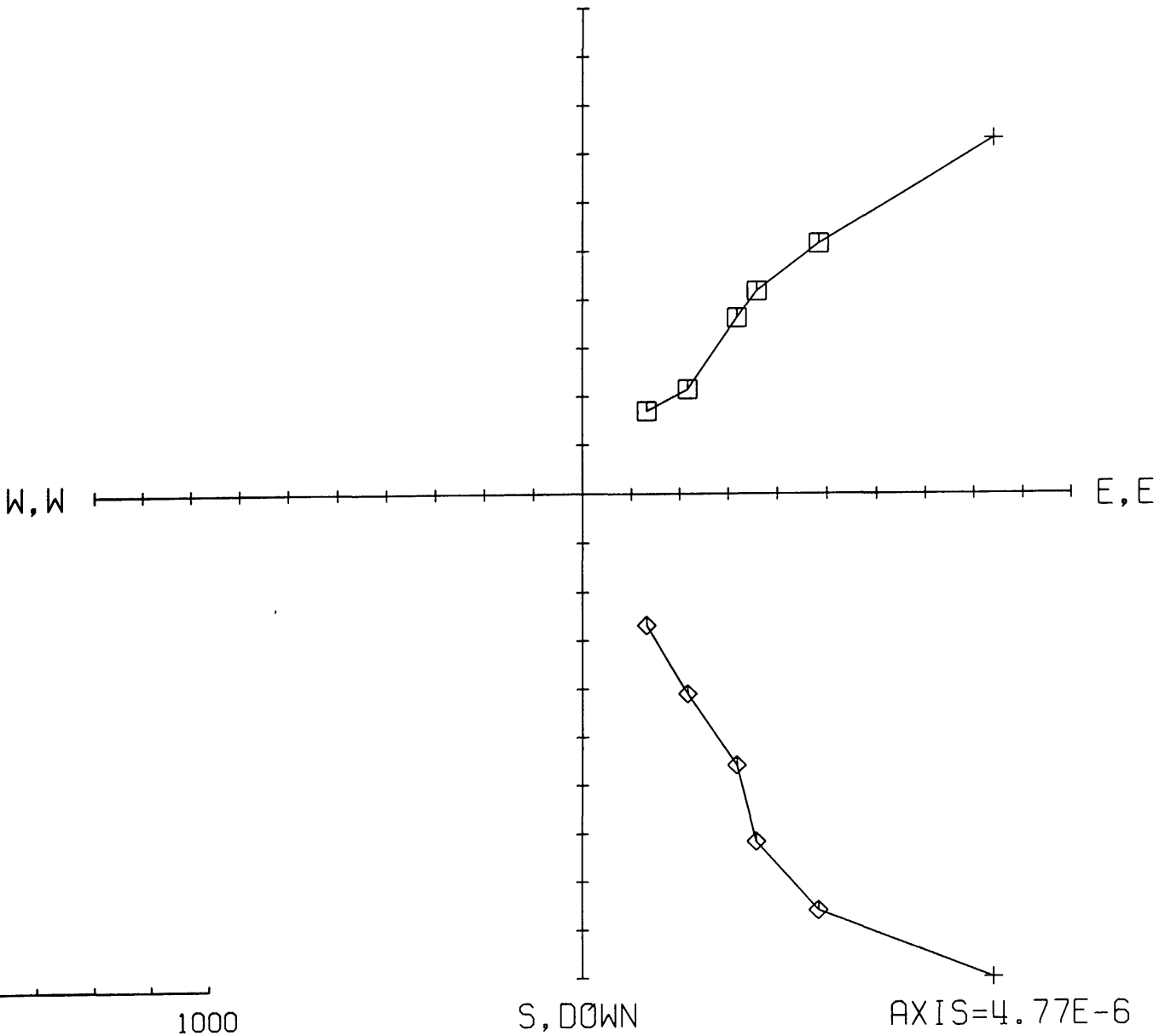
6H125-1 AF DEMAG 6M2MW8 150'

6H114.DE

Tue Jan 14 15:19:55

#		I	D	J	EXP
1	01	41.9	49.0	7.14E-6	0
2	02	50.6	43.2	5.31E-6	100
3	03	52.5	40.6	4.31E-6	150
4	04	49.2	41.3	3.52E-6	200
5	05	53.4	45.4	2.44E-6	300
6	06	51.3	37.9	1.64E-6	400



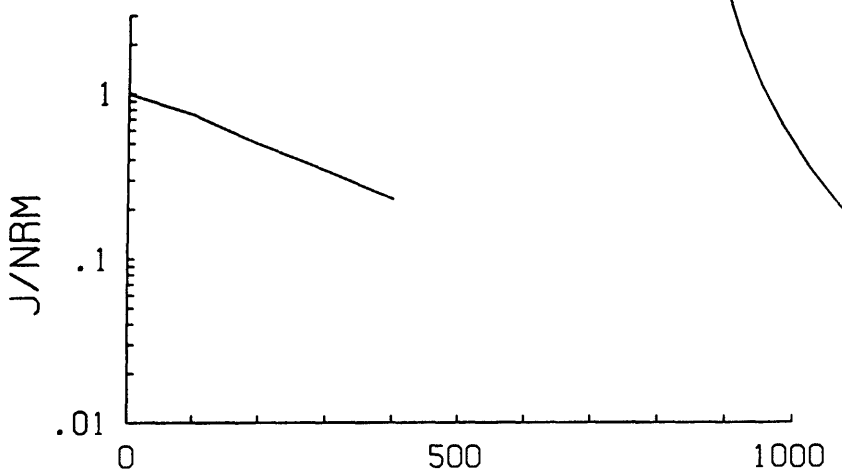


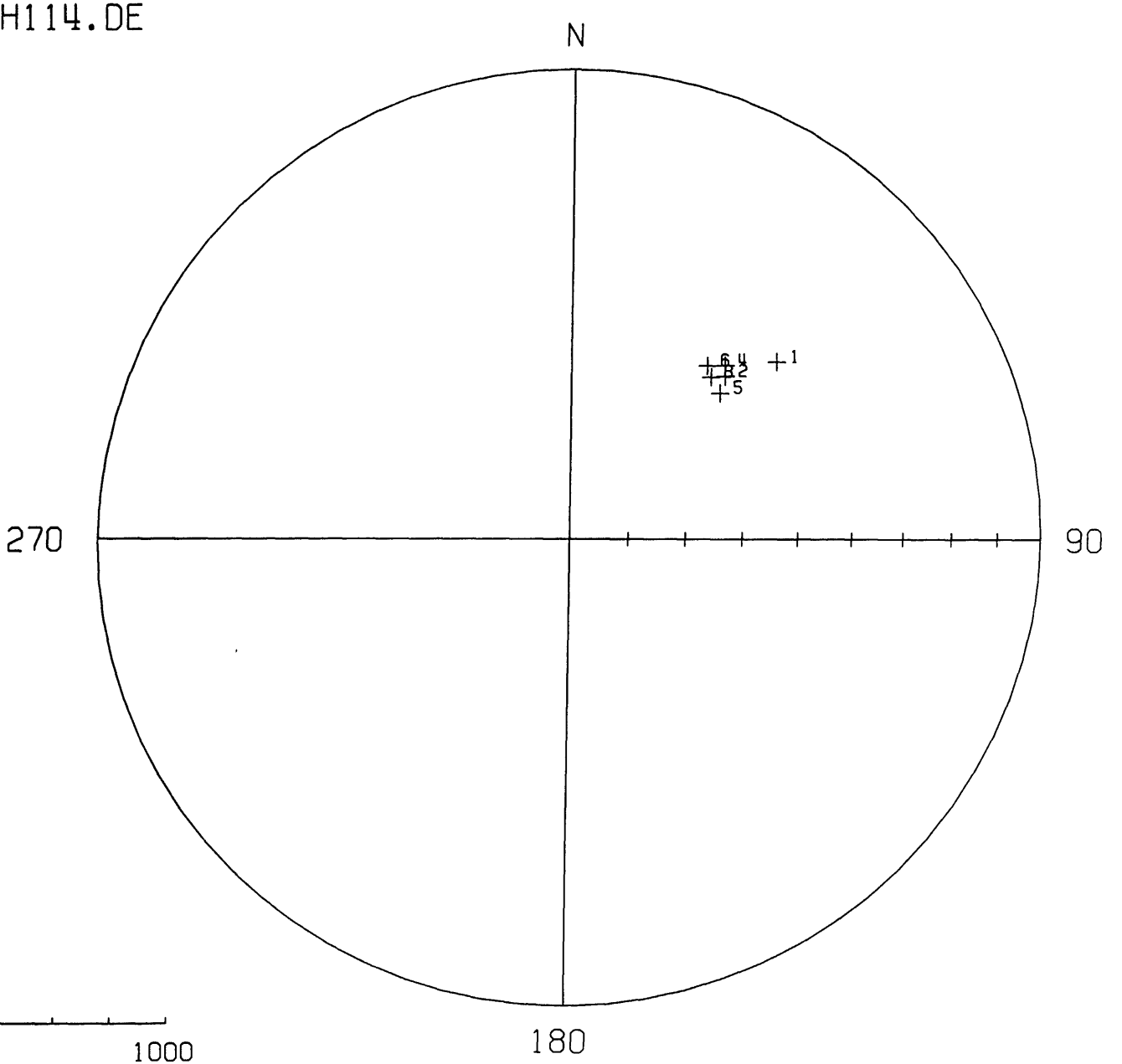
6H125-1 AF DEMAG 6M2MW8 150'

Tue Jan 14 15:19:55

6H114.DE

#	I	D	J	EXP
1 01	41.9	49.0	7.14E-6	0
2 02	50.6	43.2	5.31E-6	100
3 03	52.5	40.6	4.31E-6	150
4 04	49.2	41.3	3.52E-6	200
5 05	53.4	45.4	2.44E-6	300
6 06	51.3	37.9	1.64E-6	400



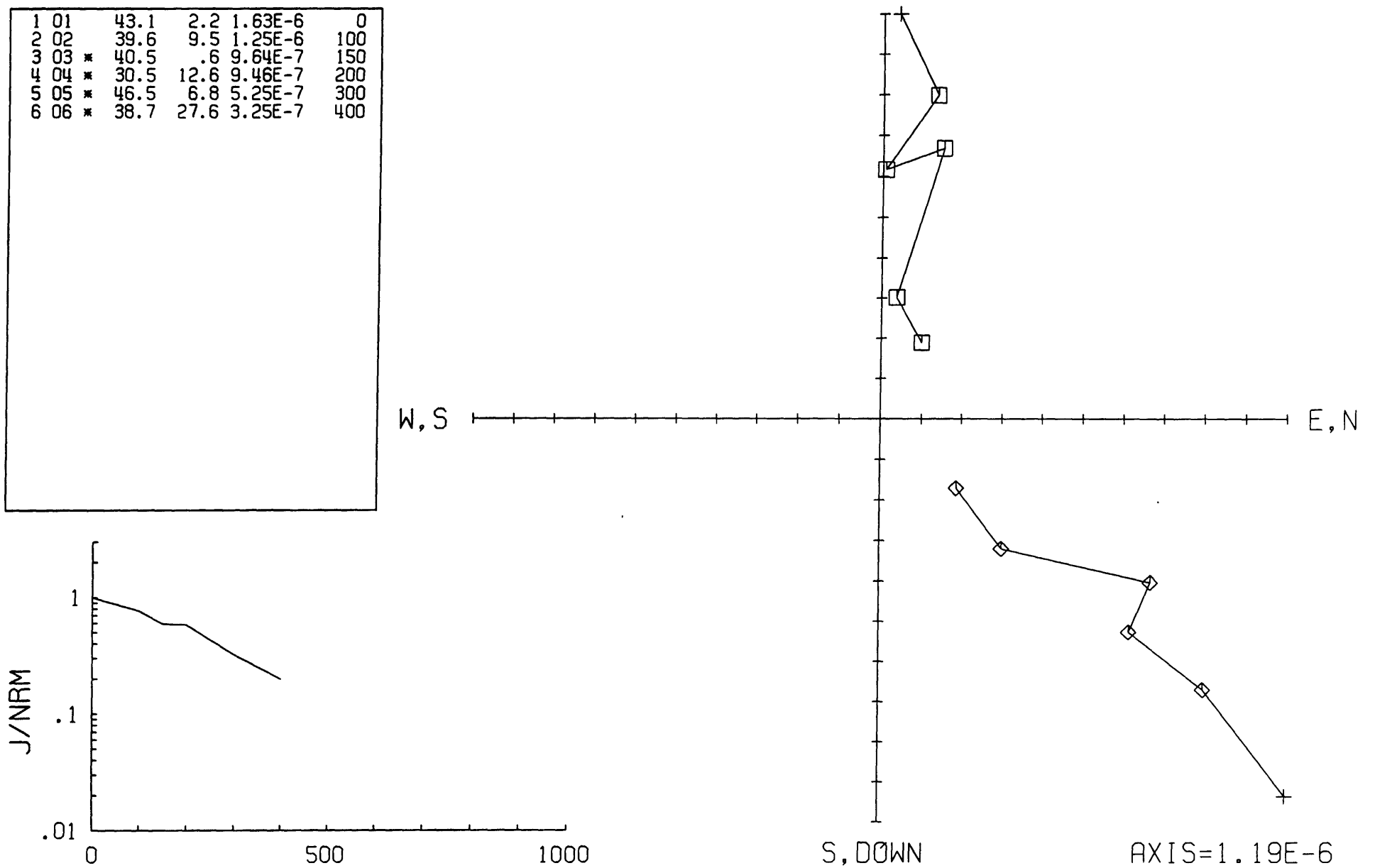


6H126-1 AF DEMAG 6M2MW8 165'

6H114.DE

Tue Jan 14 15:19:55

#		I	D	J	EXP
1	01	43.1	2.2	1.63E-6	0
2	02	39.6	9.5	1.25E-6	100
3	03 *	40.5	.6	9.64E-7	150
4	04 *	30.5	12.6	9.46E-7	200
5	05 *	46.5	6.8	5.25E-7	300
6	06 *	38.7	27.6	3.25E-7	400



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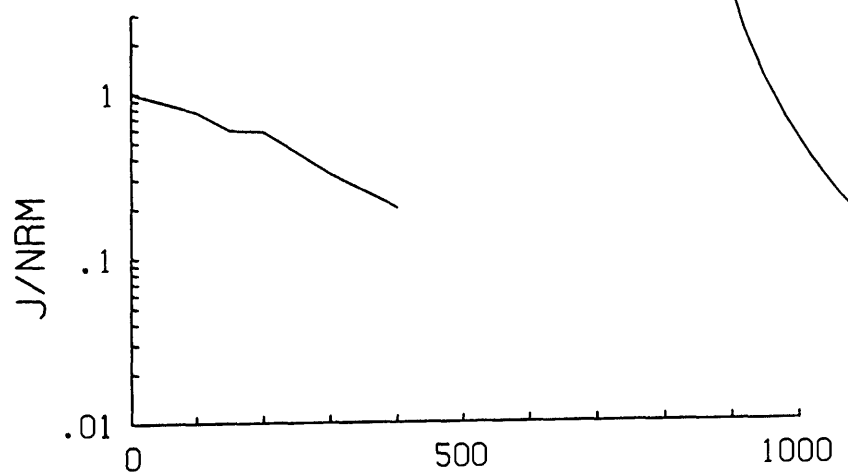
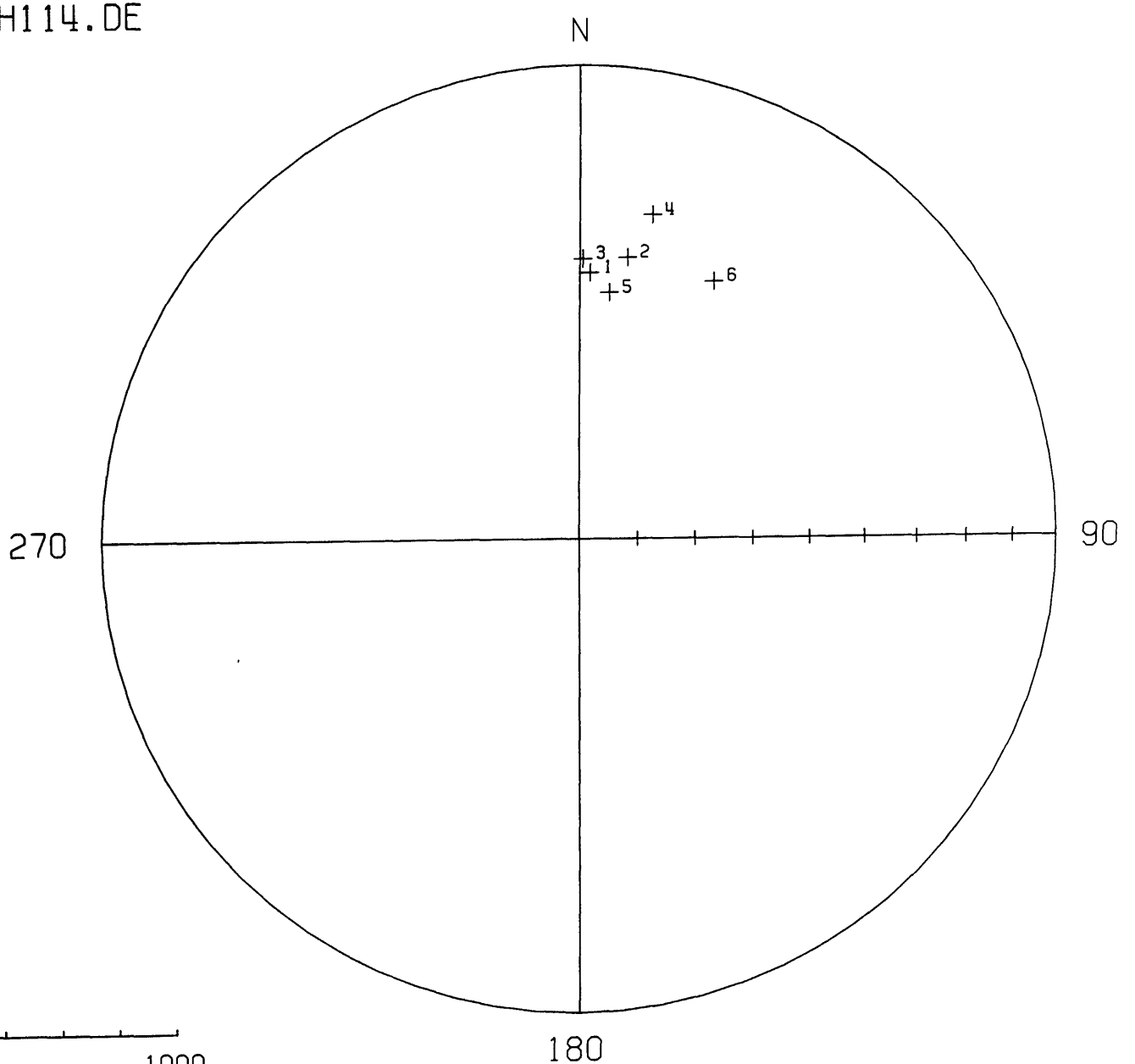
6H126-1 AF DEMAG 6M2MW8 165'

Tue Jan 14 15:19:55

EXP 6H114.DE

#		I	D	J	
1	01	43.1	2.2	1.63E-6	0
2	02	39.6	9.5	1.25E-6	100
3	03 *	40.5	.6	9.64E-7	150
4	04 *	30.5	12.6	9.46E-7	200
5	05 *	46.5	6.8	5.25E-7	300
6	06 *	38.7	27.6	3.25E-7	400



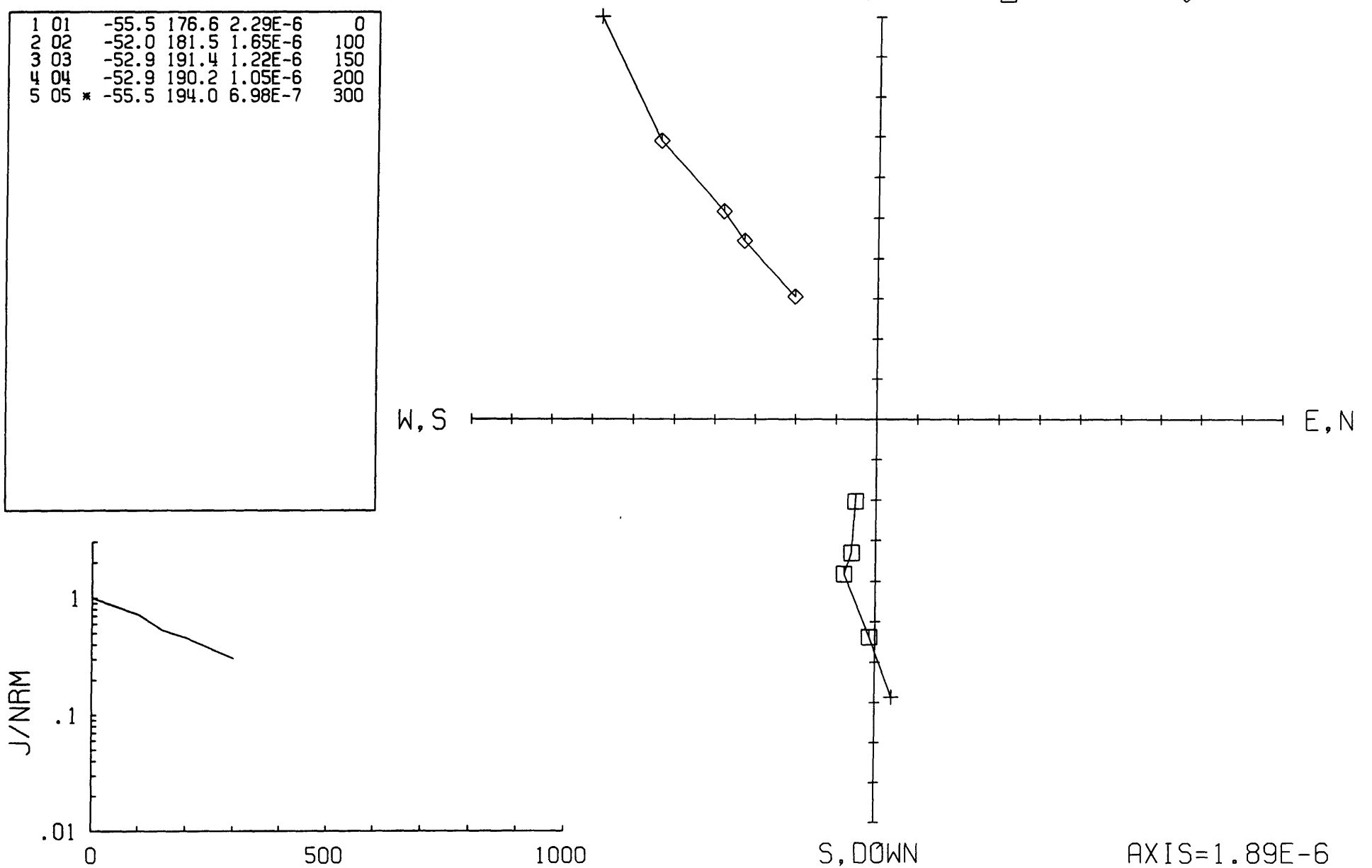


6H127-1 AF DEMAG 6M2MW8 172'

Tue Jan 14 15:19:55

6H114.DE

#		I	D	J	EXP
1	01	-55.5	176.6	2.29E-6	0
2	02	-52.0	181.5	1.65E-6	100
3	03	-52.9	191.4	1.22E-6	150
4	04	-52.9	190.2	1.05E-6	200
5	05	* -55.5	194.0	6.98E-7	300

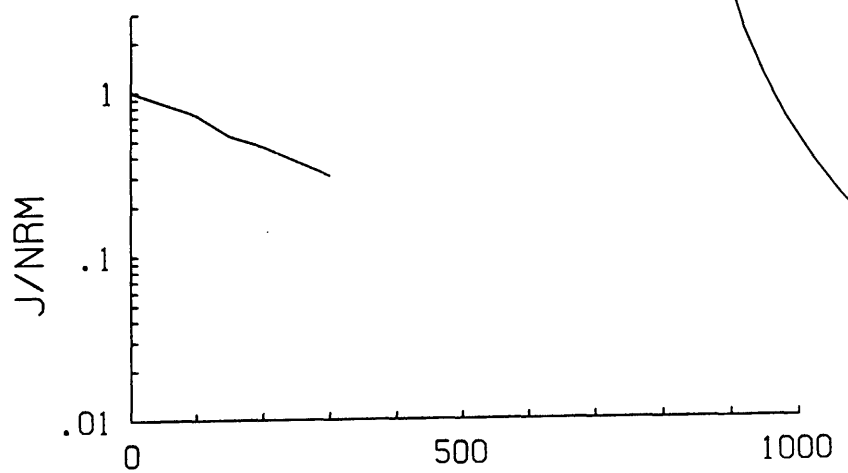


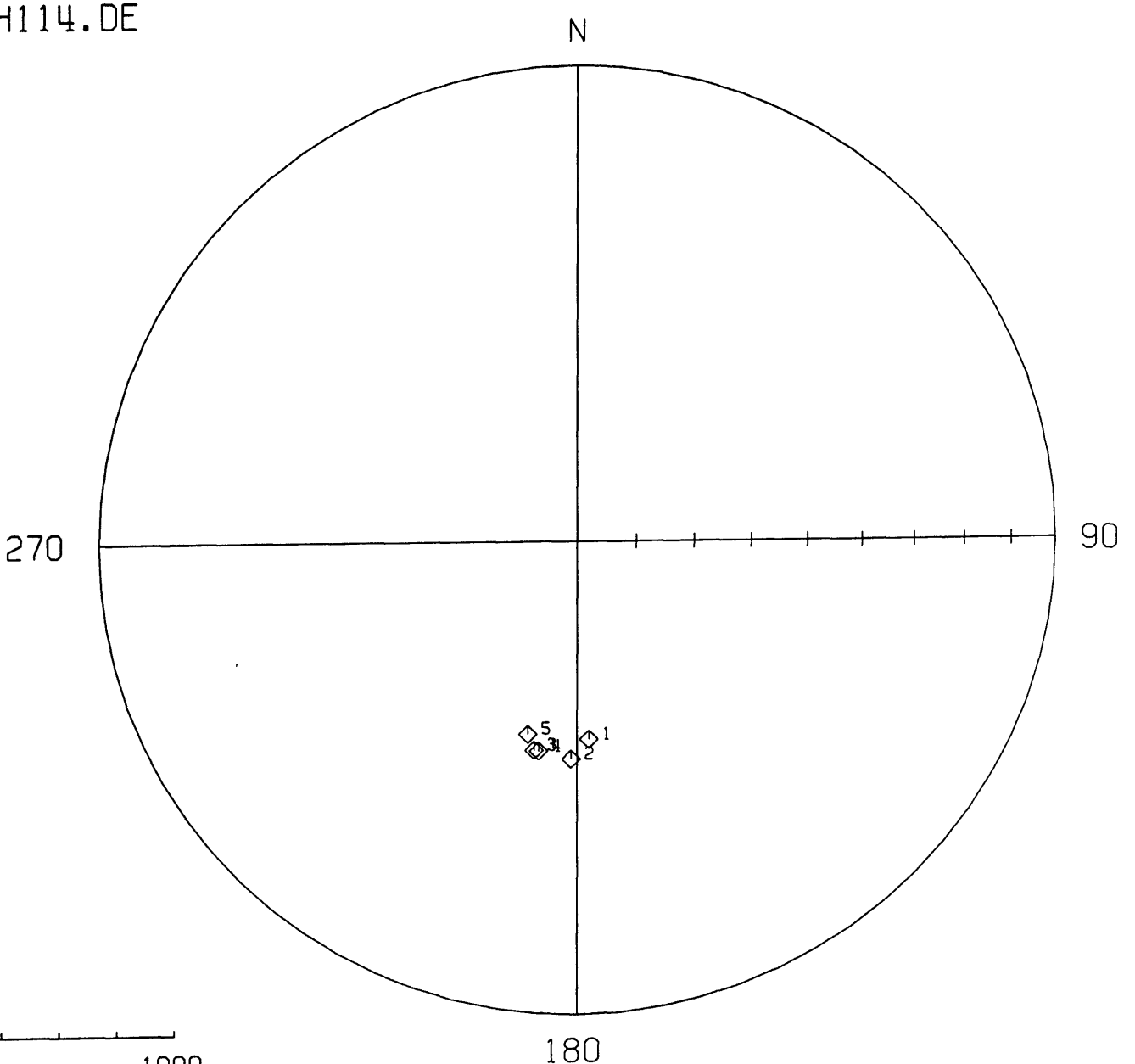
6H127-1 AF DEMAG 6M2MW8 172'

Tue Jan 14 15:19:55

6H114.DE

#		I	D	J	EXP
1	01	-55.5	176.6	2.29E-6	0
2	02	-52.0	181.5	1.65E-6	100
3	03	-52.9	191.4	1.22E-6	150
4	04	-52.9	190.2	1.05E-6	200
5	05 *	-55.5	194.0	6.98E-7	300



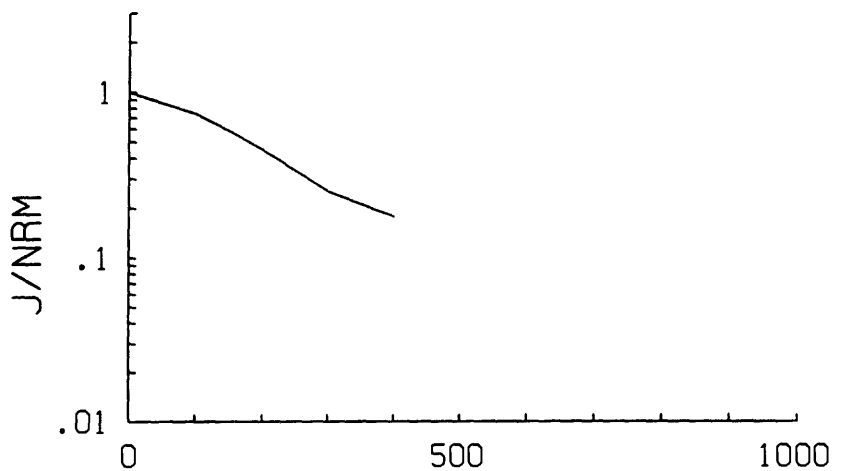


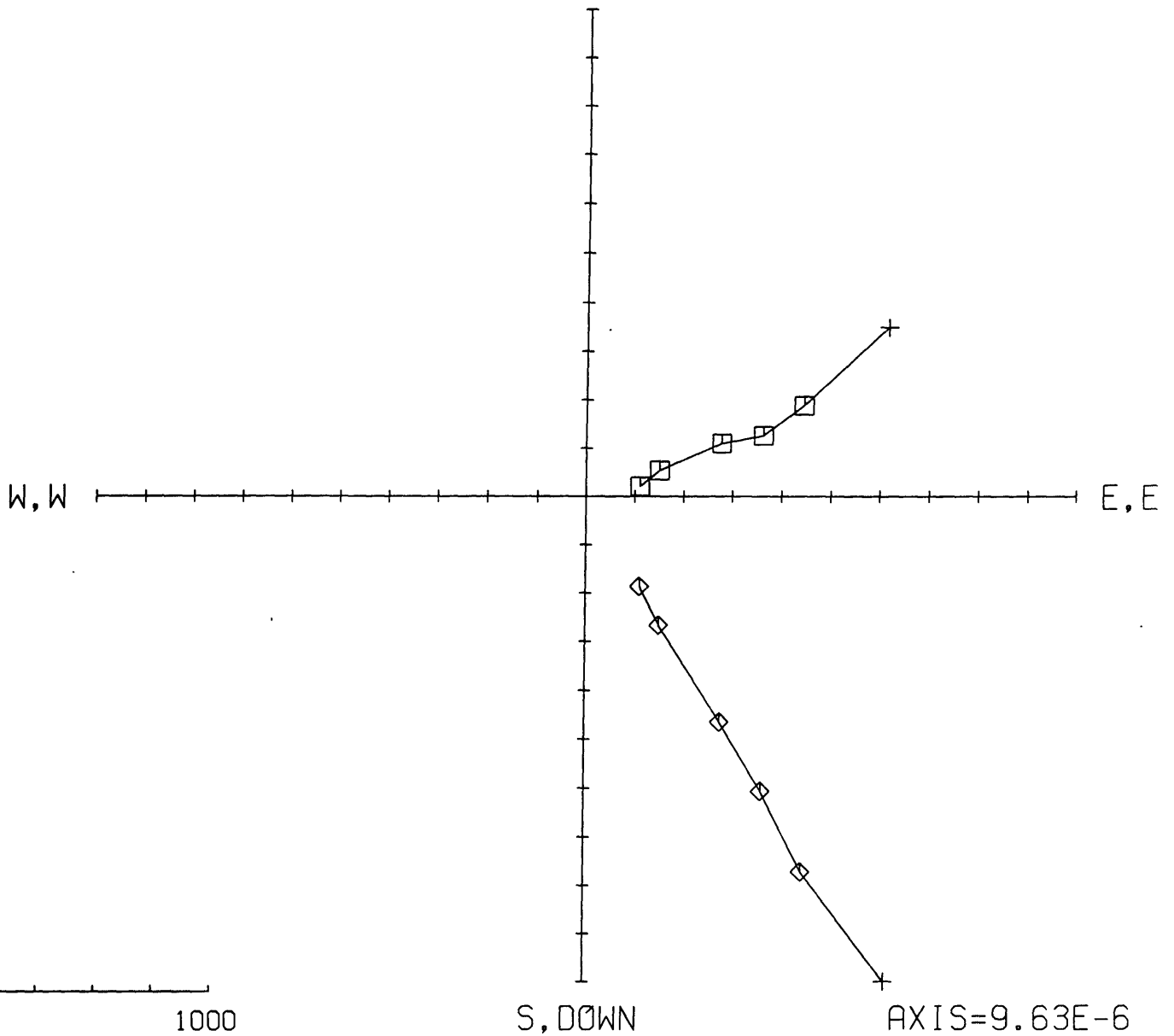
6H128-1 AF DEMAG 6M2MW8 175'

6H114.DE

Tue Jan 14 15:19:55

#		I	D	J	EXP
1	01	54.7	60.4	1.18E-5	0
2	02	58.0	67.0	8.76E-6	100
3	03	57.7	70.8	6.91E-6	150
4	04	57.3	68.4	5.32E-6	200
5	05	59.0	70.3	2.99E-6	300
6	06	58.9	79.3	2.10E-6	400



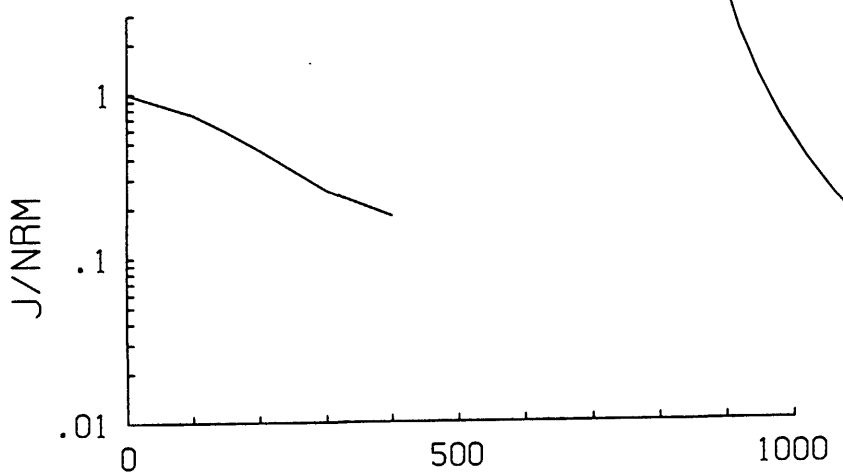


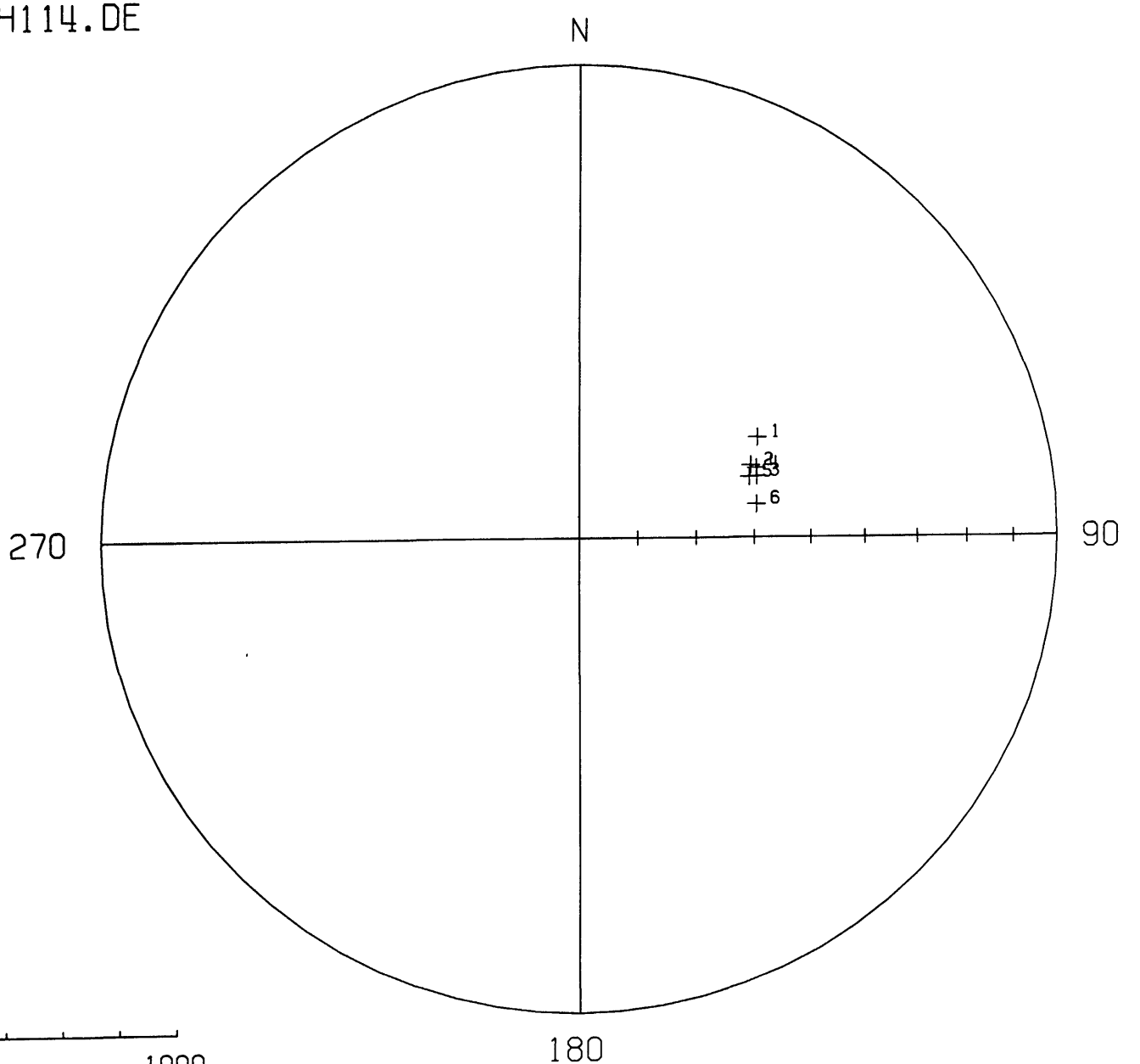
6H128-1 AF DEMAG 6M2MW8 175'

Tue Jan 14 15:19:55

6H114.DE

#		I	D	J	EXP
1	01	54.7	60.4	1.18E-5	0
2	02	58.0	67.0	8.76E-6	100
3	03	57.7	70.8	6.91E-6	150
4	04	57.3	68.4	5.32E-6	200
5	05	59.0	70.3	2.99E-6	300
6	06	58.9	79.3	2.10E-6	400





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