UNIVERSITY OF CALIFORNIA, BERKELEY

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SANTA BARBARA • SANTA CRUZ

DEPARTMENT OF MINERAL TECHNOLOGY
CERAMIC ENGINEERING
METALLURGY
ENGINEERING GEOSCIENCE

BERKELEY, CALIFORNIA 94720

December 12, 1966

Miss Beth Ralph
Associate Director
Applied Science Center for Archaeology
University Museum, University of Pennsylvania
33rd and Spruce Streets
Philadelphia 4, Pennsylvania

Dear Beth,

Followin g our conversation of last week in Palo Alto, I ran off some total field and gradient calculations for that open shaft prospect in Egypt. The model corresponds to your sketch, except that it is 2 dimensional (infinitely extended in the y direction). This should not be too serious a drawback however, as the profiles approximate quite well a profile run over the cenetr of the shaft. I assumed the brick anomaly was induced, with a susceptibility of 4.0×10^{-3} emu, the shaft was taken to be 3.0×10^{-4}. The computer output included should be self explanatory. Note that the edge of the brick mass has a slight tendency to obscure the shaft anomaly. You might be well advised to employ a closer spaced horizontal gradient configuration, since from figure 2 the gradient curve for the brick+shaft is sharply differentiated form the brick alone gradient. For this configuration, there is a gradient cross-over, and the gradient anomaly due to the shaft is broader than the sharply rising gradient due to the edge of the brick mass. since depth to top is greater

I've included the computer output, so that you can investigate cases where the magnetic total field vector is not parallel to the strike of the brick mass (as plotted in figures 1 and 2)

Thanks for the bourbon, Frank and I ploished it off last night.

Sincerely,

Dany

FONDAZIONE ING. C. M. LERICI

DEL POLITECNICO DI MILANO

CELATA INVENIO

PROSPEZIONI ARCHEOLOGICHE
Roma - Via Veneto, 108 - Tel. 460083
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Tel. 293.889

Roma, 4th December 1967
Via Veneto 108

00187 Roma

Miss E. RALPH
University Museum
University of Pennsylvania
PHILADELPHIA / PENN.

Dear Miss Ralph,

Thank you for your letter enquiring about our work in Egypt. I have asked Ing. Linington and he reports that the work at Memphis seemed to show that structures of mud brick would probably give fairly large anomalies if buried in fairly pure sand. Of course if the deposits are more mixed the results will be less clear. For sites such as Memphis there seems to be little hope of gaining any useful results due to the very great complexity of the deposits.

I am glad to be able to take this opportunity to send you my best wishes for Christmas and the New Year and also those from everyone else here at Rome. In particular we hope that you are now feeling better.

With all best regards,

Lerici

(ing. Carlo M. Lerici)

GRADIENT FIELDS (γ/meter)

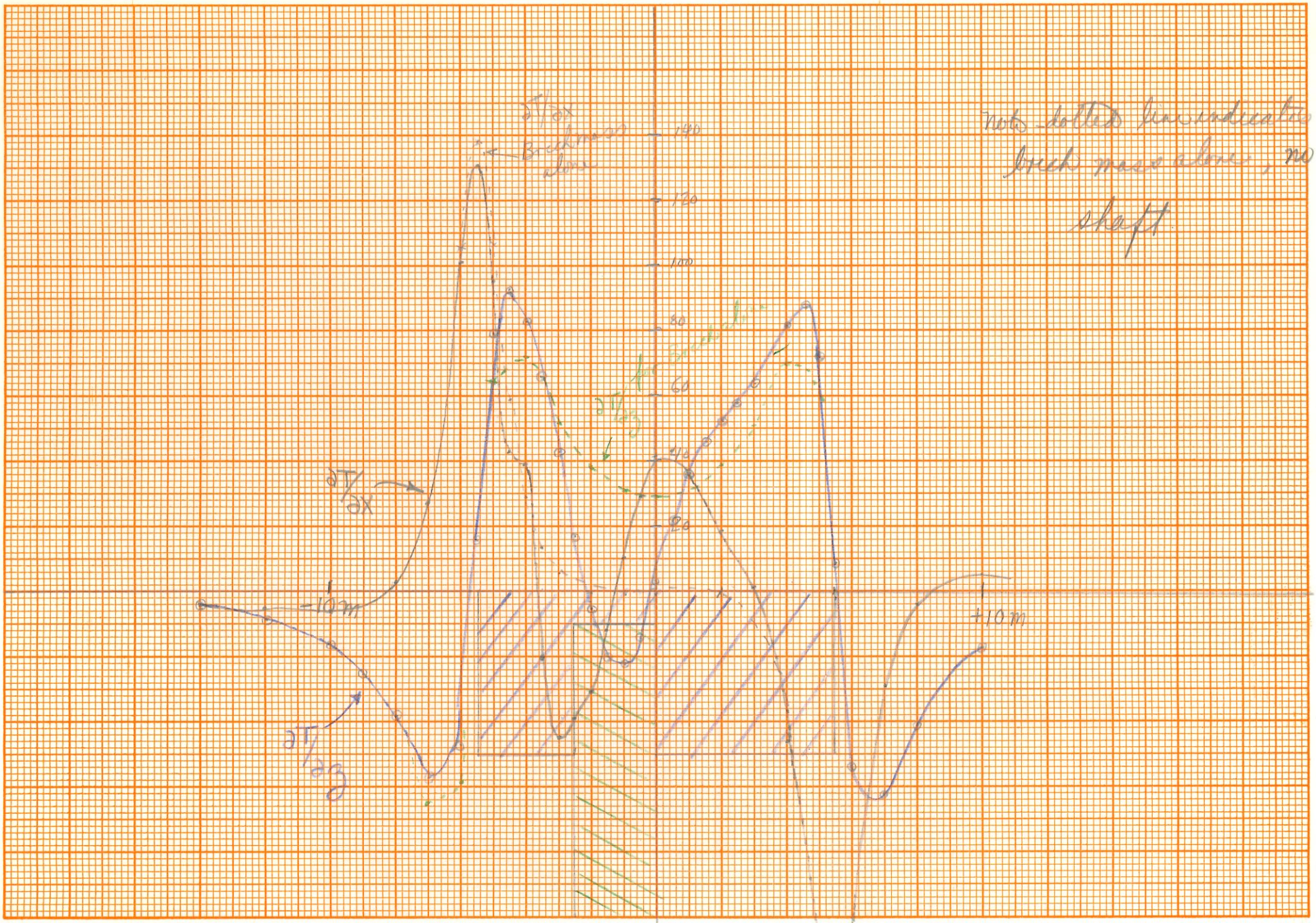


Figure 2

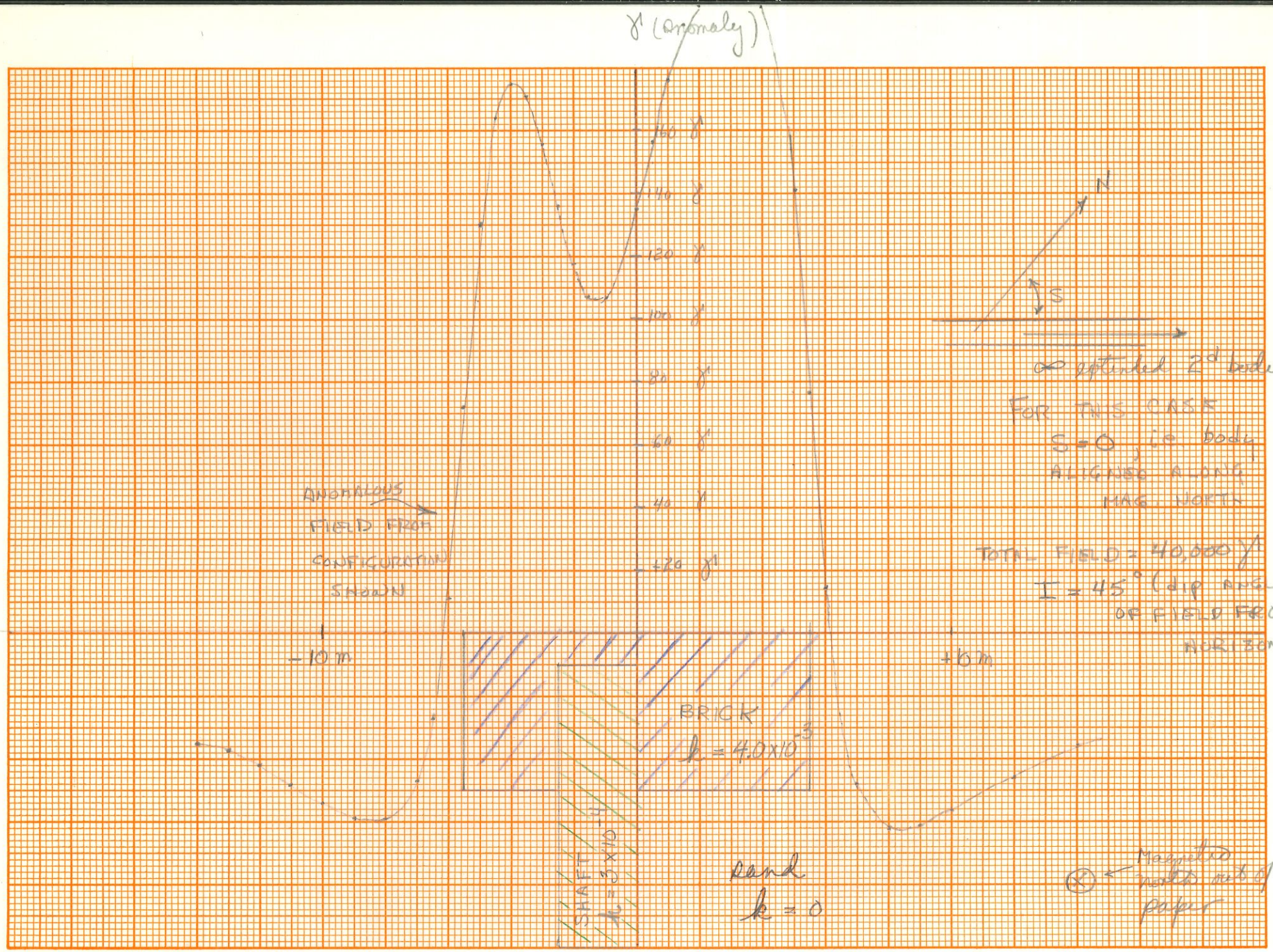


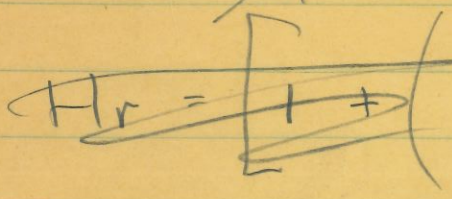
Figure 1

5/10/67

Mud Brick from Egypt

Δ = 13.2 units $\sim 7\gamma \sim 1 \times 10^{-4}$ emu

$\mu_1 = 1 + 4\pi\chi_1$, $\mu_2 = 1 + 4\pi\chi_2$, $\chi_2 = 0$



$$\frac{\mu_2 - \mu_1}{\mu_2 + 2\mu_1} = \frac{1 - 1 + 4\pi \times 1 \times 10^{-4}}{1 - 2(1 + 4\pi \times 10^{-4})}$$

$$= \frac{4\pi \times 10^{-4}}{-1 + 4\pi \times 10^{-4}} = -4\pi \times 10^{-4}$$

$$H_r = \left[1 - \left(4\pi \times 10^{-4}\right)\frac{5.73}{42.9}\right] H_v$$

$H_v = .32$ oersteds $= .32 \times 10^5 \gamma$

$$= \left[1 - 1.68 \times 10^{-4}\right] H_v$$

$$= \begin{array}{r} 1.00000 \\ .00017 \\ \hline .99983 \end{array}$$

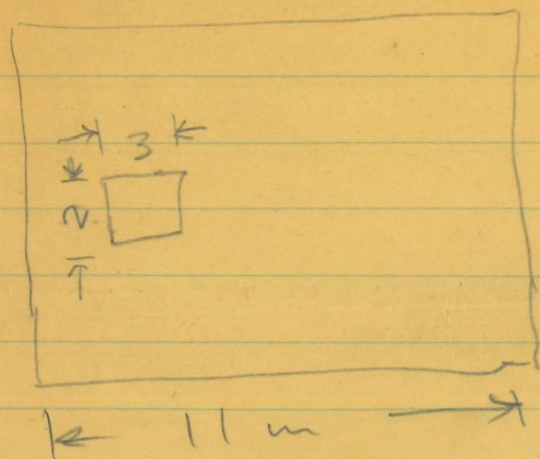
$$= 31995$$

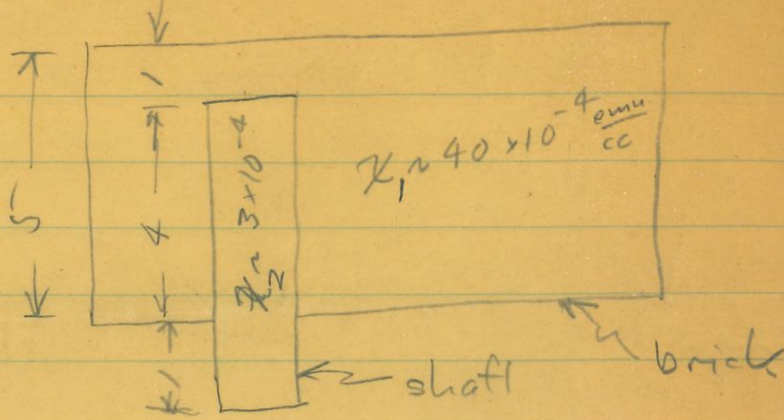
Ans. = 5 γ

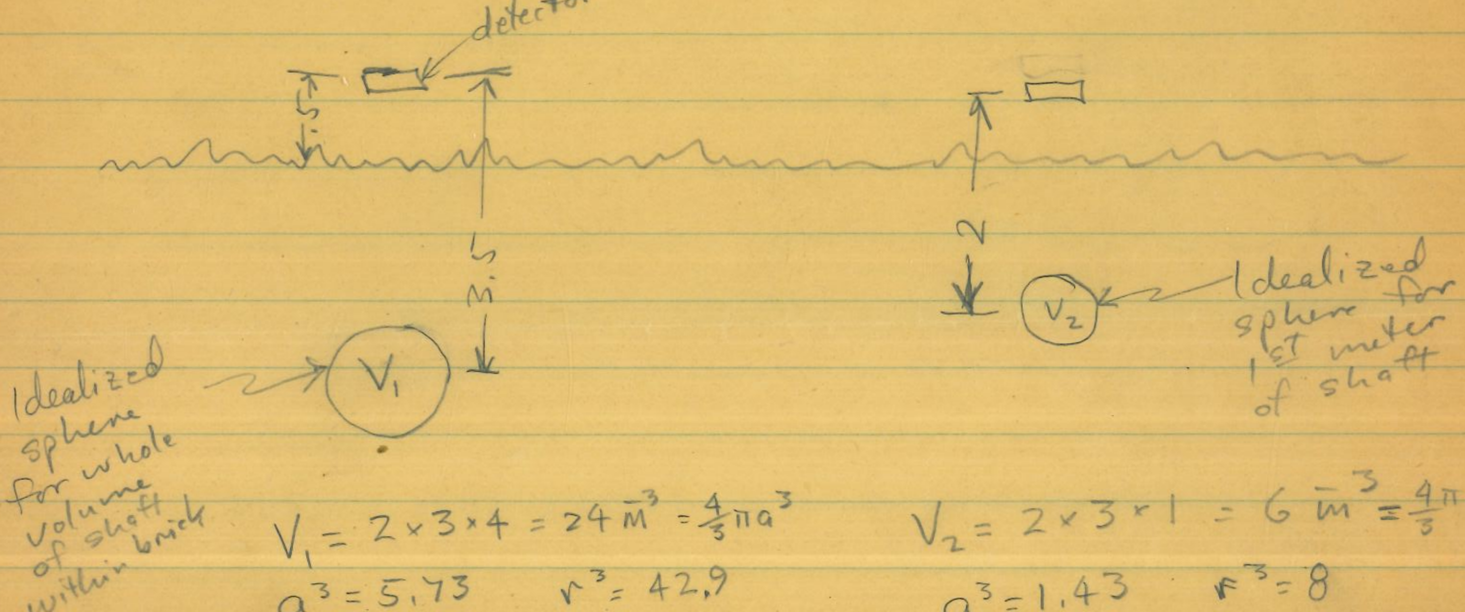
Shafts in Brick ?

Egypt.

10/25/66
send dope to Fro







$V_1 = 2 \times 3 \times 4 = 24 \, m^3 = \frac{4}{3}\pi a^3$

$a^3 = 5.73 \qquad r^3 = 42.9$

$V_2 = 2 \times 3 \times 1 = 6 \, m^3 = \frac{4}{3}\pi a^3$

$a^3 = 1.43 \qquad r^3 = 8$

For sphere,

$$H_r = \left[1 + \left(\frac{\mu_2 - \mu_1}{\mu_2 + 2\mu_1}\right)\frac{a^3}{r^3}\right] H_v \cos\theta$$

$H_T \sim .41$
$I \sim 40^\circ N$
$H_v \sim 0.32$ oersted

$$\frac{\mu_2 - \mu_1}{\mu_2 + 2\mu_1} = \frac{4\pi(3\times10^{-4} - 40\times10^{-4})}{1 + 4\pi\cdot3\times10^{-4} + 2(1 + 4\pi\cdot40\times10^{-4})} = \frac{-4.65\times10^{-2}}{3.104} = 1.50\times10^{-2}$$

$H_r = \left[1 - (1.50\times10^{-2})\frac{5.73}{42.9}\right] H_v$

$H_r = \left[1 - 2.01\times10^{-3}\right] H_v$

$H_r = 31936 \, \gamma$

$\Delta \sim -64 \, \gamma$

$H_r = \left[1 - (1.50\times10^{-2})\frac{1.43}{8}\right] H_v$

$H_r = \left[1 - 2.69\times10^{-3}\right] H_v$

$H_r = 31914 \, \gamma$

$\Delta \sim -86 \, \gamma$

One sensor ~~On top of sensor~~

#90 — 58,379 ~ 58,400 8

2 — 77919
18.8

5/9/67
home
bet, apple ~~trees~~

Mud bricks from Egypt

		Bkg.	Δ
Material from top			
On top of sensor	79935.7	22.5	+13.2
Under sensor ~6"	23..0		+ .5
Material from side			
On top	946.3	23.7	+ ~~2~~2.6
under	925.7	23.7	+ 2.0
Local soil			
On top	928.3	23.7	~~+4~~. 6
under	924.~~3~~	23.7	+ 0.6

All calculations here are
for brick mass + shaft

* MEMORY MAP *

SYSTEM	00000 THRU	02717
FILE BLOCK ORIGIN	02720	
FILES 1. UNITPR		
2. UNITRD		
FILE LIST ORIGIN	02750	
PRE-EXECUTION INITIALIZATION	02754	
CALL ON OBJECT PROGRAM	02777	
OBJECT PROGRAM	03004 THRU	45270

DECK	ORIGIN	CONTROL SECTIONS	(/NAME/=NON 0 LENGTH, (LOC)=DELETED, *=NOT REFERENCED)									
1. VARIAN	03004	EVEN	03005	.....	32052 *							
2. .LXCON	32103	.LXSTR	32103 *	.LXSTP	32106	.LX40	32110 *	IBEXIT	32111 *	.LXERR	32112	
		.LXRTN	32113	.LXOUT	32220	.DBCLS	32412 *	.LXARG	32623	(FPTC)	32701	
		.LINCT	32702	.RDCT	32703	.CRDCT	32704 *	.PLTCT	32705 *	.LO	32710 *	
		.CLSE	32716	.LFBL	32717 *	.LUNB	32720	.DFOUT	32721			
3. .IODEF	32730	.DEFIN	32730	.ATTAC	32734 *	.CLOSE	32736	.OPEN	32740	.READ	32742	
		.WRITE	32744	.BSR	32754 *	.READR	32764 *	.RELES	32766 *	.LAREA	32777 *	
		.LFBLK	33015	.LTSX	33020 *	.AREA1	33032	.LUNBL	33040 *	.ENTRY	33044	
		.SOA	33077	.GO	33103	.DERR	33117	.NOPXI	33120	.COMXI	33122	
		.EX34	33144									
4. .IOCSF	33151											
5. .LXSL	35453	.LXSEL	35453	.LXTST	35470 *	.LXOVL	35530 *	.LXRCT	35536 *	.LXIND	35605 *	
		.LXDIS	35610 *	.LXFLG	35611 *	.LTCH	35612					
6. .FPTRP	35617	.FFPT.	35617 *	.TRPRT	35631 *	(QUOT)	36025 *	EVEN	36113	FTMOPT	36142 *	
		FTMSET	36217 *	OVFLOW	36230	FTSLOC	36231					
7. .ERAS.	36245	CC.1	36245	CC.2	36246	CC.3	36247	CC.4	36250	E.1	36251	
		E.2	36252	E.3	36253	E.4	36254					
8. XIT	36255	EXIT	36255	.EXIT.	36255							
9. FXEM	36257	.FXEM.	36307	TRACE.	36626	TRACE	36657 *	TRACEX	36660 *	.FXOUT	37030	
		.FXARG	37043	FXMSET	37115	FXMSET	(37115)					
10. FOUT	37271	.FOUT.	37271									
11. FCNV	37341	.FCON.	37341	.FCNV.	37360	.ENDFS	37372	.CNVSW	37374	.FDX1	37400	
		.FDX2	37401	.DBC	37403	.DBC10	37541	.DBC20	37567	.DDSW	37577	
		.DDFIX	37606	.FIXSW	37614	.DDBC	37671	.DDRS1	40125	.DDRS2	40130 *	
		.D1	40133	.D2	40135	DPIO	40316 *	.SPIOS	40364	.FERR2	40376 *	
		.ANPT	40433	.ONPT	40450	.LNTP	40524	.AOUT	40564	.DFLT	40602	
		.FLT	40746	.DEXPN	41036	.FXD	41037	.HOUT	41172	.INTG	41242	
		.IOUT	41361	.ODUT	41400	.XCF	41431	TRUNC	41627 *	EVEN	42145	
		.TEST	42272 *	.KOUNT	42275	.LIST	42300	.DONE	42311	.OUTBF	42314	
		EVEN	42313	.BUF	42343	.OSTO	42344	.WIDTH	42345	.GAIN	42346	
		.GAIN1	42347	.FBDBF	42357	EVEN	42367	.DDDFL	42404	.DDFLG	42405	
		.MOD	42406	.PEX	42407	.FEXP	42410	.DIG	42411			
12. FIOS	42441	.FIOS.	42441	.FSEL.	42607	.INTBF	42611	.FILR.	42615 *	.FRTB.	42625 *	
		.FRTD.	42632	.FILL.	42640	.LBL.	43002 *	.REED	43021 *	.BIN	43022 *	
		.FCT	43023	.FCBLC	43024	.FCKSZ	43025 *					
13. FIOH	43056	.FIOH.	43056	.RTER.	43722	.FFIL.	43743	.FRTN.	43774	.FMLOC	44066	
14. FWRD	44115	.FWRD.	44115 *	FPRN.	44121	.PNCH.	44152 *					
15. FRDD	44170	.FRDD.	44170 *	FRCD.	44174							
16. FPRN	44233	.FPRN.	44233									

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17. UNPR    44240      .UNPR.   44240      .BUFSZ  44241 *
18. UNRD    44242      .UNRD.   44242
19. FLOG    44243      ALOG10   44243 *    ALOG    44244
20. FSCN    44474      COS      44474      SIN     44475
21. FSQR    44704      SQRT     44704
22. FATN    44761      ATAN2    44761      ATAN    44762 *
23. FRCD    45216      .FRCD.   45216
24. EXP38.  45223      RSE38.   45227 *    RSEZ.   45233
25. FFPA.   45237      RSEMM.   45243
26. AE88.   45250      AGTNA.   45255
27. MEOTE.  45261      MEOTE.  (45261)
28. JT.     45265

I/O BUFFERS                          45271 THRU  77760

UNUSED CORE                          77761 THRU  77777

BEGIN EXECUTION  13JOB  BCDCS 00036.13
```

*** MAGNETIC ENVIRONMENT ***

TOTAL MAGNETIC INTENSITY (GAMMAS) = 4.0000E 04 DIP ANGLE (DEGREES) = 45.0
SUSCEPTIBILITY OF BODY 1 IN EMU UNITS = 4.0000E-03 ← brick mass
SUSCEPTIBILITY OF BODY 2 IN EMU UNITS = -3.7000E-03 ← portion of shaft within brick mass
SUSCEPTIBILITY OF BODY 3 IN EMU UNITS = 3.0000E-04 ← portion of shaft outside brick mass
STRIKE OF BODY RELATIVE TO MAGNETIC NORTH = 0.00 (DEGREES)

} Computer sums all contributions to give anomalous total field and gradients

*** COORDINATES OF BODY, GRID INTERVAL ***

SURVEY ORIGIN, X = -1.500E 01 GRID INTERVAL = 5.000E-01
(X-Z) COORDINATES READING CCW FROM UPPER LEFT HAND CORNER NEAREST ORIGIN, COORDINATES ARE DIMENSIONLESS

(X1,Z1)	(X2,Z2)	(X3,Z3)	(X4,Z4)
-5.500E 00 0.000E-39	-5.500E 00 5.000E 00	5.500E 00 5.000E 00	5.500E 00 0.000E-39
-2.500E 00 1.000E 00	-2.500E 00 5.000E 00	0.000E-39 5.000E 00	0.000E-39 1.000E 00
-2.500E 00 5.000E 00	-2.500E 00 1.000E 01	0.000E-39 1.000E 01	0.000E-39 5.000E 00

TOTAL FIELD SENSOR AT HEIGHT 1.0000 DIMENSIONLESS UNITS ABOVE X-Y PLANE

*** ANOMALY CALCULATIONS ***

X = -1.500E 01	T = -2.980E 01	DT/DX = -3.460E 00	DT/DZ = -3.357E 00	(DT/DZ)/(DT/DX) =	0.970
X = -1.450E 01	T = -3.160E 01	DT/DX = -3.734E 00	DT/DZ = -3.856E 00	(DT/DZ)/(DT/DX) =	1.033
X = -1.400E 01	T = -3.354E 01	DT/DX = -4.027E 00	DT/DZ = -4.449E 00	(DT/DZ)/(DT/DX) =	1.105
X = -1.350E 01	T = -3.563E 01	DT/DX = -4.335E 00	DT/DZ = -5.157E 00	(DT/DZ)/(DT/DX) =	1.190
X = -1.300E 01	T = -3.787E 01	DT/DX = -4.654E 00	DT/DZ = -6.008E 00	(DT/DZ)/(DT/DX) =	1.291
X = -1.250E 01	T = -4.028E 01	DT/DX = -4.975E 00	DT/DZ = -7.035E 00	(DT/DZ)/(DT/DX) =	1.414
X = -1.200E 01	T = -4.285E 01	DT/DX = -5.281E 00	DT/DZ = -8.282E 00	(DT/DZ)/(DT/DX) =	1.568
X = -1.150E 01	T = -4.556E 01	DT/DX = -5.550E 00	DT/DZ = -9.805E 00	(DT/DZ)/(DT/DX) =	1.767
X = -1.100E 01	T = -4.838E 01	DT/DX = -5.739E 00	DT/DZ = -1.168E 01	(DT/DZ)/(DT/DX) =	2.034
X = -1.050E 01	T = -5.127E 01	DT/DX = -5.788E 00	DT/DZ = -1.399E 01	(DT/DZ)/(DT/DX) =	2.417
X = -1.000E 01	T = -5.413E 01	DT/DX = -5.592E 00	DT/DZ = -1.687E 01	(DT/DZ)/(DT/DX) =	3.016
X = -9.500E 00	T = -5.680E 01	DT/DX = -4.985E 00	DT/DZ = -2.047E 01	(DT/DZ)/(DT/DX) =	4.106
X = -9.000E 00	T = -5.900E 01	DT/DX = -3.689E 00	DT/DZ = -2.501E 01	(DT/DZ)/(DT/DX) =	6.778
X = -8.500E 00	T = -6.029E 01	DT/DX = -1.218E 00	DT/DZ = -3.075E 01	(DT/DZ)/(DT/DX) =	25.243
X = -8.000E 00	T = -5.988E 01	DT/DX = 3.314E 00	DT/DZ = -3.802E 01	(DT/DZ)/(DT/DX) =	-11.472
X = -7.500E 00	T = -5.636E 01	DT/DX = 1.162E 01	DT/DZ = -4.702E 01	(DT/DZ)/(DT/DX) =	-4.047
X = -7.000E 00	T = -4.708E 01	DT/DX = 2.710E 01	DT/DZ = -5.707E 01	(DT/DZ)/(DT/DX) =	-2.106
X = -6.500E 00	T = -2.704E 01	DT/DX = 5.592E 01	DT/DZ = -6.344E 01	(DT/DZ)/(DT/DX) =	-1.135
X = -6.000E 00	T = 1.184E 01	DT/DX = 1.016E 02	DT/DZ = -4.766E 01	(DT/DZ)/(DT/DX) =	-0.469
X = -5.500E 00	T = 7.214E 01	DT/DX = 1.307E 02	DT/DZ = 1.606E 01	(DT/DZ)/(DT/DX) =	0.123
X = -5.000E 00	T = 1.308E 02	DT/DX = 9.482E 01	DT/DZ = 7.946E 01	(DT/DZ)/(DT/DX) =	0.838
X = -4.500E 00	T = 1.644E 02	DT/DX = 4.155E 01	DT/DZ = 9.390E 01	(DT/DZ)/(DT/DX) =	2.260
X = -4.000E 00	T = 1.751E 02	DT/DX = 3.952E 00	DT/DZ = 8.394E 01	(DT/DZ)/(DT/DX) =	21.238
X = -3.500E 00	T = 1.705E 02	DT/DX = -2.077E 01	DT/DZ = 6.604E 01	(DT/DZ)/(DT/DX) =	-3.179
X = -3.000E 00	T = 1.559E 02	DT/DX = -3.577E 01	DT/DZ = 4.320E 01	(DT/DZ)/(DT/DX) =	-1.208
X = -2.500E 00	T = 1.366E 02	DT/DX = -3.942E 01	DT/DZ = 1.736E 01	(DT/DZ)/(DT/DX) =	-0.440
X = -2.000E 00	T = 1.186E 02	DT/DX = -3.041E 01	DT/DZ = -5.836E 00	(DT/DZ)/(DT/DX) =	0.192
X = -1.500E 00	T = 1.078E 02	DT/DX = -1.196E 01	DT/DZ = -2.020E 01	(DT/DZ)/(DT/DX) =	1.689
X = -1.000E 00	T = 1.073E 02	DT/DX = 1.003E 01	DT/DZ = -2.293E 01	(DT/DZ)/(DT/DX) =	-2.285
X = -5.000E-01	T = 1.174E 02	DT/DX = 2.962E 01	DT/DZ = -1.418E 01	(DT/DZ)/(DT/DX) =	-0.479

X =	0.000E-39	T =	1.355E 02	DT/DX =	4.123E 01	DT/DZ =	2.888E 00	(DT/DZ)/(DT/DX) =	0.070
X =	5.000E-01	T =	1.569E 02	DT/DX =	4.238E 01	DT/DZ =	2.176E 01	(DT/DZ)/(DT/DX) =	0.513
X =	1.000E 00	T =	1.767E 02	DT/DX =	3.599E 01	DT/DZ =	3.663E 01	(DT/DZ)/(DT/DX) =	1.018
X =	1.500E 00	T =	1.924E 02	DT/DX =	2.699E 01	DT/DZ =	4.631E 01	(DT/DZ)/(DT/DX) =	1.716
X =	2.000E 00	T =	2.037E 02	DT/DX =	1.819E 01	DT/DZ =	5.275E 01	(DT/DZ)/(DT/DX) =	2.900
X =	2.500E 00	T =	2.107E 02	DT/DX =	1.001E 01	DT/DZ =	5.828E 01	(DT/DZ)/(DT/DX) =	5.819
X =	3.000E 00	T =	2.136E 02	DT/DX =	1.396E 00	DT/DZ =	6.455E 01	(DT/DZ)/(DT/DX) =	46.252
X =	3.500E 00	T =	2.117E 02	DT/DX =	-9.851E 00	DT/DZ =	7.251E 01	(DT/DZ)/(DT/DX) =	-7.361
X =	4.000E 00	T =	2.027E 02	DT/DX =	-2.762E 01	DT/DZ =	8.184E 01	(DT/DZ)/(DT/DX) =	-2.963
X =	4.500E 00	T =	1.819E 02	DT/DX =	-5.852E 01	DT/DZ =	8.793E 01	(DT/DZ)/(DT/DX) =	-1.503
X =	5.000E 00	T =	1.412E 02	DT/DX =	-1.065E 02	DT/DZ =	7.230E 01	(DT/DZ)/(DT/DX) =	-0.679
X =	5.500E 00	T =	7.770E 01	DT/DX =	-1.386E 02	DT/DZ =	9.005E 00	(DT/DZ)/(DT/DX) =	-0.065
X =	6.000E 00	T =	1.418E 01	DT/DX =	-1.068E 02	DT/DZ =	-5.406E 01	(DT/DZ)/(DT/DX) =	0.506
X =	6.500E 00	T =	-2.681E 01	DT/DX =	-5.927E 01	DT/DZ =	-6.901E 01	(DT/DZ)/(DT/DX) =	1.164
X =	7.000E 00	T =	-4.820E 01	DT/DX =	-2.920E 01	DT/DZ =	-6.181E 01	(DT/DZ)/(DT/DX) =	2.117
X =	7.500E 00	T =	-5.830E 01	DT/DX =	-1.287E 01	DT/DZ =	-5.100E 01	(DT/DZ)/(DT/DX) =	3.961
X =	8.000E 00	T =	-6.230E 01	DT/DX =	-4.004E 00	DT/DZ =	-4.134E 01	(DT/DZ)/(DT/DX) =	10.326
X =	8.500E 00	T =	-6.295E 01	DT/DX =	9.054E-01	DT/DZ =	-3.351E 01	(DT/DZ)/(DT/DX) =	-37.015
X =	9.000E 00	T =	-6.175E 01	DT/DX =	3.623E 00	DT/DZ =	-2.730E 01	(DT/DZ)/(DT/DX) =	-7.536
X =	9.500E 00	T =	-5.954E 01	DT/DX =	5.076E 00	DT/DZ =	-2.237E 01	(DT/DZ)/(DT/DX) =	-4.408
X =	1.000E 01	T =	-5.680E 01	DT/DX =	5.780E 00	DT/DZ =	-1.845E 01	(DT/DZ)/(DT/DX) =	-3.192
X =	1.050E 01	T =	-5.383E 01	DT/DX =	6.033E 00	DT/DZ =	-1.531E 01	(DT/DZ)/(DT/DX) =	-2.538
X =	1.100E 01	T =	-5.081E 01	DT/DX =	6.014E 00	DT/DZ =	-1.279E 01	(DT/DZ)/(DT/DX) =	-2.126
X =	1.150E 01	T =	-4.784E 01	DT/DX =	5.836E 00	DT/DZ =	-1.074E 01	(DT/DZ)/(DT/DX) =	-1.840
X =	1.200E 01	T =	-4.499E 01	DT/DX =	5.568E 00	DT/DZ =	-9.067E 00	(DT/DZ)/(DT/DX) =	-1.628
X =	1.250E 01	T =	-4.228E 01	DT/DX =	5.253E 00	DT/DZ =	-7.699E 00	(DT/DZ)/(DT/DX) =	-1.465
X =	1.300E 01	T =	-3.974E 01	DT/DX =	4.921E 00	DT/DZ =	-6.571E 00	(DT/DZ)/(DT/DX) =	-1.335
X =	1.350E 01	T =	-3.736E 01	DT/DX =	4.587E 00	DT/DZ =	-5.637E 00	(DT/DZ)/(DT/DX) =	-1.229
X =	1.400E 01	T =	-3.515E 01	DT/DX =	4.263E 00	DT/DZ =	-4.859E 00	(DT/DZ)/(DT/DX) =	-1.140
X =	1.450E 01	T =	-3.310E 01	DT/DX =	3.954E 00	DT/DZ =	-4.208E 00	(DT/DZ)/(DT/DX) =	-1.064

*** MAGNETIC ENVIRONMENT ***

TOTAL MAGNETIC INTENSITY (GAMMAS) = 4.0000E 04 DIP ANGLE (DEGREES) = 45.0
SUSCEPTIBILITY OF BODY 1 IN EMU UNITS = 4.0000E-03
SUSCEPTIBILITY OF BODY 2 IN EMU UNITS = -3.7000E-03
SUSCEPTIBILITY OF BODY 3 IN EMU UNITS = 3.0000E-04
STRIKE OF BODY RELATIVE TO MAGNETIC NORTH = 15.00 (DEGREES)

*** COORDINATES OF BODY, GRID INTERVAL ***

SURVEY ORIGIN, X = -1.500E 01 GRID INTERVAL = 5.000E-01
(X-Z) COORDINATES READING CCW FROM UPPER LEFT HAND CORNER NEAREST ORIGIN,COORDINATES ARE DIMENSIONLESS

(X1,Z1)		(X2,Z2)		(X3,Z3)		(X4,Z4)	
-5.500E 00	0.000E-39	-5.500E 00	5.000E 00	5.500E 00	5.000E 00	5.500E 00	0.000E-39
-2.500E 00	1.000E 00	-2.500E 00	5.000E 00	0.000E-39	5.000E 00	0.000E-39	1.000E 00
-2.500E 00	5.000E 00	-2.500E 00	1.000E 01	0.000E-39	1.000E 01	0.000E-39	5.000E 00

TOTAL FIELD SENSOR AT HEIGHT 1.0000 DIMENSIONLESS UNITS ABOVE X-Y PLANE

*** ANOMALY CALCULATIONS ***

X = -1.500E 01	T = -1.937E 01	DT/DX = -1.490E 00	DT/DZ = -4.923E 00	(DT/DZ)/(DT/DX) =	3.304
X = -1.450E 01	T = -2.011E 01	DT/DX = -1.488E 00	DT/DZ = -5.531E 00	(DT/DZ)/(DT/DX) =	3.717
X = -1.400E 01	T = -2.085E 01	DT/DX = -1.454E 00	DT/DZ = -6.235E 00	(DT/DZ)/(DT/DX) =	4.289
X = -1.350E 01	T = -2.156E 01	DT/DX = -1.375E 00	DT/DZ = -7.056E 00	(DT/DZ)/(DT/DX) =	5.132
X = -1.300E 01	T = -2.221E 01	DT/DX = -1.232E 00	DT/DZ = -8.015E 00	(DT/DZ)/(DT/DX) =	6.504
X = -1.250E 01	T = -2.278E 01	DT/DX = -9.996E-01	DT/DZ = -9.139E 00	(DT/DZ)/(DT/DX) =	9.143
X = -1.200E 01	T = -2.319E 01	DT/DX = -6.402E-01	DT/DZ = -1.046E 01	(DT/DZ)/(DT/DX) =	16.339
X = -1.150E 01	T = -2.339E 01	DT/DX = -1.021E-01	DT/DZ = -1.202E 01	(DT/DZ)/(DT/DX) =	117.699
X = -1.100E 01	T = -2.325E 01	DT/DX = 6.892E-01	DT/DZ = -1.387E 01	(DT/DZ)/(DT/DX) =	-20.119
X = -1.050E 01	T = -2.264E 01	DT/DX = 1.841E 00	DT/DZ = -1.605E 01	(DT/DZ)/(DT/DX) =	-8.715
X = -1.000E 01	T = -2.132E 01	DT/DX = 3.513E 00	DT/DZ = -1.863E 01	(DT/DZ)/(DT/DX) =	-5.303
X = -9.500E 00	T = -1.900E 01	DT/DX = 5.944E 00	DT/DZ = -2.168E 01	(DT/DZ)/(DT/DX) =	-3.647
X = -9.000E 00	T = -1.519E 01	DT/DX = 9.503E 00	DT/DZ = -2.524E 01	(DT/DZ)/(DT/DX) =	-2.656
X = -8.500E 00	T = -9.211E 00	DT/DX = 1.478E 01	DT/DZ = -2.932E 01	(DT/DZ)/(DT/DX) =	-1.984
X = -8.000E 00	T = 3.765E-02	DT/DX = 2.278E 01	DT/DZ = -3.376E 01	(DT/DZ)/(DT/DX) =	-1.482
X = -7.500E 00	T = 1.429E 01	DT/DX = 3.518E 01	DT/DZ = -3.785E 01	(DT/DZ)/(DT/DX) =	-1.076
X = -7.000E 00	T = 3.642E 01	DT/DX = 5.483E 01	DT/DZ = -3.922E 01	(DT/DZ)/(DT/DX) =	-0.715
X = -6.500E 00	T = 7.091E 01	DT/DX = 8.502E 01	DT/DZ = -3.025E 01	(DT/DZ)/(DT/DX) =	-0.356
X = -6.000E 00	T = 1.224E 02	DT/DX = 1.195E 02	DT/DZ = 8.135E 00	(DT/DZ)/(DT/DX) =	0.068
X = -5.500E 00	T = 1.837E 02	DT/DX = 1.136E 02	DT/DZ = 8.264E 01	(DT/DZ)/(DT/DX) =	0.727
X = -5.000E 00	T = 2.251E 02	DT/DX = 4.734E 01	DT/DZ = 1.232E 02	(DT/DZ)/(DT/DX) =	2.603
X = -4.500E 00	T = 2.331E 02	DT/DX = -9.842E 00	DT/DZ = 1.091E 02	(DT/DZ)/(DT/DX) =	-11.086
X = -4.000E 00	T = 2.199E 02	DT/DX = -3.976E 01	DT/DZ = 8.036E 01	(DT/DZ)/(DT/DX) =	-2.021
X = -3.500E 00	T = 1.960E 02	DT/DX = -5.357E 01	DT/DZ = 5.086E 01	(DT/DZ)/(DT/DX) =	-0.950
X = -3.000E 00	T = 1.682E 02	DT/DX = -5.573E 01	DT/DZ = 2.179E 01	(DT/DZ)/(DT/DX) =	-0.391
X = -2.500E 00	T = 1.423E 02	DT/DX = -4.577E 01	DT/DZ = -4.211E 00	(DT/DZ)/(DT/DX) =	0.092
X = -2.000E 00	T = 1.242E 02	DT/DX = -2.535E 01	DT/DZ = -2.118E 01	(DT/DZ)/(DT/DX) =	0.836
X = -1.500E 00	T = 1.177E 02	DT/DX = -6.998E-01	DT/DZ = -2.504E 01	(DT/DZ)/(DT/DX) =	35.779
X = -1.000E 00	T = 1.230E 02	DT/DX = 2.123E 01	DT/DZ = -1.620E 01	(DT/DZ)/(DT/DX) =	-0.763
X = -5.000E-01	T = 1.375E 02	DT/DX = 3.498E 01	DT/DZ = 2.104E 00	(DT/DZ)/(DT/DX) =	0.060

X =	0.000E-39	T =	1.560E 02	DT/DX =	3.697E 01	DT/DZ =	2.404E 01	(DT/DZ)/(DT/DX) =	0.650
X =	5.000E-01	T =	1.727E 02	DT/DX =	2.827E 01	DT/DZ =	4.223E 01	(DT/DZ)/(DT/DX) =	1.494
X =	1.000E 00	T =	1.835E 02	DT/DX =	1.462E 01	DT/DZ =	5.280E 01	(DT/DZ)/(DT/DX) =	3.611
X =	1.500E 00	T =	1.874E 02	DT/DX =	1.206E 00	DT/DZ =	5.718E 01	(DT/DZ)/(DT/DX) =	47.417
X =	2.000E 00	T =	1.850E 02	DT/DX =	-1.034E 01	DT/DZ =	5.864E 01	(DT/DZ)/(DT/DX) =	-5.673
X =	2.500E 00	T =	1.772E 02	DT/DX =	-2.082E 01	DT/DZ =	5.956E 01	(DT/DZ)/(DT/DX) =	-2.860
X =	3.000E 00	T =	1.641E 02	DT/DX =	-3.211E 01	DT/DZ =	6.095E 01	(DT/DZ)/(DT/DX) =	-1.898
X =	3.500E 00	T =	1.446E 02	DT/DX =	-4.673E 01	DT/DZ =	6.255E 01	(DT/DZ)/(DT/DX) =	-1.339
X =	4.000E 00	T =	1.162E 02	DT/DX =	-6.814E 01	DT/DZ =	6.206E 01	(DT/DZ)/(DT/DX) =	-0.911
X =	4.500E 00	T =	7.463E 01	DT/DX =	-1.001E 02	DT/DZ =	5.175E 01	(DT/DZ)/(DT/DX) =	-0.517
X =	5.000E 00	T =	1.507E 01	DT/DX =	-1.368E 02	DT/DZ =	1.231E 01	(DT/DZ)/(DT/DX) =	-0.090
X =	5.500E 00	T =	-5.561E 01	DT/DX =	-1.340E 02	DT/DZ =	-6.333E 01	(DT/DZ)/(DT/DX) =	0.473
X =	6.000E 00	T =	-1.081E 02	DT/DX =	-7.167E 01	DT/DZ =	-1.057E 02	(DT/DZ)/(DT/DX) =	1.475
X =	6.500E 00	T =	-1.296E 02	DT/DX =	-1.958E 01	DT/DZ =	-9.507E 01	(DT/DZ)/(DT/DX) =	4.855
X =	7.000E 00	T =	-1.324E 02	DT/DX =	4.748E 00	DT/DZ =	-7.278E 01	(DT/DZ)/(DT/DX) =	-15.328
X =	7.500E 00	T =	-1.272E 02	DT/DX =	1.439E 01	DT/DZ =	-5.424E 01	(DT/DZ)/(DT/DX) =	-3.771
X =	8.000E 00	T =	-1.190E 02	DT/DX =	1.767E 01	DT/DZ =	-4.065E 01	(DT/DZ)/(DT/DX) =	-2.301
X =	8.500E 00	T =	-1.100E 02	DT/DX =	1.819E 01	DT/DZ =	-3.080E 01	(DT/DZ)/(DT/DX) =	-1.693
X =	9.000E 00	T =	-1.011E 02	DT/DX =	1.751E 01	DT/DZ =	-2.360E 01	(DT/DZ)/(DT/DX) =	-1.347
X =	9.500E 00	T =	-9.258E 01	DT/DX =	1.632E 01	DT/DZ =	-1.825E 01	(DT/DZ)/(DT/DX) =	-1.118
X =	1.000E 01	T =	-8.476E 01	DT/DX =	1.494E 01	DT/DZ =	-1.422E 01	(DT/DZ)/(DT/DX) =	-0.952
X =	1.050E 01	T =	-7.764E 01	DT/DX =	1.356E 01	DT/DZ =	-1.116E 01	(DT/DZ)/(DT/DX) =	-0.824
X =	1.100E 01	T =	-7.120E 01	DT/DX =	1.223E 01	DT/DZ =	-8.815E 00	(DT/DZ)/(DT/DX) =	-0.721
X =	1.150E 01	T =	-6.539E 01	DT/DX =	1.100E 01	DT/DZ =	-6.996E 00	(DT/DZ)/(DT/DX) =	-0.636
X =	1.200E 01	T =	-6.018E 01	DT/DX =	9.888E 00	DT/DZ =	-5.577E 00	(DT/DZ)/(DT/DX) =	-0.564
X =	1.250E 01	T =	-5.549E 01	DT/DX =	8.887E 00	DT/DZ =	-4.463E 00	(DT/DZ)/(DT/DX) =	-0.502
X =	1.300E 01	T =	-5.127E 01	DT/DX =	7.993E 00	DT/DZ =	-3.584E 00	(DT/DZ)/(DT/DX) =	-0.448
X =	1.350E 01	T =	-4.748E 01	DT/DX =	7.198E 00	DT/DZ =	-2.885E 00	(DT/DZ)/(DT/DX) =	-0.401
X =	1.400E 01	T =	-4.406E 01	DT/DX =	6.493E 00	DT/DZ =	-2.327E 00	(DT/DZ)/(DT/DX) =	-0.358
X =	1.450E 01	T =	-4.097E 01	DT/DX =	5.867E 00	DT/DZ =	-1.879E 00	(DT/DZ)/(DT/DX) =	-0.320

*** MAGNETIC ENVIRONMENT ***

TOTAL MAGNETIC INTENSITY (GAMMAS) = 4.0000E 04 DIP ANGLE (DEGREES) = 45.0
SUSCEPTIBILITY OF BODY 1 IN EMU UNITS = 4.0000E-03
SUSCEPTIBILITY OF BODY 2 IN EMU UNITS = -3.7000E-03
SUSCEPTIBILITY OF BODY 3 IN EMU UNITS = 3.0000E-04
STRIKE OF BODY RELATIVE TO MAGNETIC NORTH = 30.00 (DEGREES)

*** COORDINATES OF BODY, GRID INTERVAL ***

SURVEY ORIGIN, X = -1.500E 01 GRID INTERVAL = 5.000E-01
(X-Z) COORDINATES READING CCW FROM UPPER LEFT HAND CORNER NEAREST ORIGIN,COORDINATES ARE DIMENSIONLESS

(X1,Z1)	(X2,Z2)	(X3,Z3)	(X4,Z4)
-5.500E 00 0.000E-39	-5.500E 00 5.000E 00	5.500E 00 5.000E 00	5.500E 00 0.000E-39
-2.500E 00 1.000E 00	-2.500E 00 5.000E 00	0.000E-39 5.000E 00	0.000E-39 1.000E 00
-2.500E 00 5.000E 00	-2.500E 00 1.000E 01	0.000E-39 1.000E 01	0.000E-39 5.000E 00

TOTAL FIELD SENSOR AT HEIGHT 1.0000 DIMENSIONLESS UNITS ABOVE X-Y PLANE

*** ANOMALY CALCULATIONS ***

X =	-1.500E 01	T =	-6.050E 00	DT/DX =	7.624E-01	DT/DZ =	-5.978E 00	(DT/DZ)/(DT/DX) =	-7.841
X =	-1.450E 01	T =	-5.599E 00	DT/DX =	1.056E 00	DT/DZ =	-6.626E 00	(DT/DZ)/(DT/DX) =	-6.277
X =	-1.400E 01	T =	-4.981E 00	DT/DX =	1.429E 00	DT/DZ =	-7.364E 00	(DT/DZ)/(DT/DX) =	-5.153
X =	-1.350E 01	T =	-4.152E 00	DT/DX =	1.906E 00	DT/DZ =	-8.203E 00	(DT/DZ)/(DT/DX) =	-4.304
X =	-1.300E 01	T =	-3.053E 00	DT/DX =	2.518E 00	DT/DZ =	-9.160E 00	(DT/DZ)/(DT/DX) =	-3.638
X =	-1.250E 01	T =	-1.606E 00	DT/DX =	3.304E 00	DT/DZ =	-1.025E 01	(DT/DZ)/(DT/DX) =	-3.102
X =	-1.200E 01	T =	2.899E-01	DT/DX =	4.321E 00	DT/DZ =	-1.149E 01	(DT/DZ)/(DT/DX) =	-2.660
X =	-1.150E 01	T =	2.766E 00	DT/DX =	5.643E 00	DT/DZ =	-1.290E 01	(DT/DZ)/(DT/DX) =	-2.287
X =	-1.100E 01	T =	6.001E 00	DT/DX =	7.372E 00	DT/DZ =	-1.450E 01	(DT/DZ)/(DT/DX) =	-1.966
X =	-1.050E 01	T =	1.023E 01	DT/DX =	9.648E 00	DT/DZ =	-1.628E 01	(DT/DZ)/(DT/DX) =	-1.687
X =	-1.000E 01	T =	1.577E 01	DT/DX =	1.267E 01	DT/DZ =	-1.824E 01	(DT/DZ)/(DT/DX) =	-1.439
X =	-9.500E 00	T =	2.307E 01	DT/DX =	1.673E 01	DT/DZ =	-2.034E 01	(DT/DZ)/(DT/DX) =	-1.216
X =	-9.000E 00	T =	3.274E 01	DT/DX =	2.224E 01	DT/DZ =	-2.244E 01	(DT/DZ)/(DT/DX) =	-1.009
X =	-8.500E 00	T =	4.566E 01	DT/DX =	2.984E 01	DT/DZ =	-2.428E 01	(DT/DZ)/(DT/DX) =	-0.814
X =	-8.000E 00	T =	6.309E 01	DT/DX =	4.051E 01	DT/DZ =	-2.520E 01	(DT/DZ)/(DT/DX) =	-0.622
X =	-7.500E 00	T =	8.693E 01	DT/DX =	5.573E 01	DT/DZ =	-2.364E 01	(DT/DZ)/(DT/DX) =	-0.424
X =	-7.000E 00	T =	1.199E 02	DT/DX =	7.740E 01	DT/DZ =	-1.570E 01	(DT/DZ)/(DT/DX) =	-0.203
X =	-6.500E 00	T =	1.654E 02	DT/DX =	1.054E 02	DT/DZ =	8.339E 00	(DT/DZ)/(DT/DX) =	0.079
X =	-6.000E 00	T =	2.240E 02	DT/DX =	1.239E 02	DT/DZ =	6.587E 01	(DT/DZ)/(DT/DX) =	0.532
X =	-5.500E 00	T =	2.790E 02	DT/DX =	8.197E 01	DT/DZ =	1.428E 02	(DT/DZ)/(DT/DX) =	1.742
X =	-5.000E 00	T =	2.972E 02	DT/DX =	-8.343E 00	DT/DZ =	1.544E 02	(DT/DZ)/(DT/DX) =	-18.507
X =	-4.500E 00	T =	2.774E 02	DT/DX =	-6.274E 01	DT/DZ =	1.120E 02	(DT/DZ)/(DT/DX) =	-1.785
X =	-4.000E 00	T =	2.404E 02	DT/DX =	-8.097E 01	DT/DZ =	6.690E 01	(DT/DZ)/(DT/DX) =	-0.826
X =	-3.500E 00	T =	1.993E 02	DT/DX =	-8.162E 01	DT/DZ =	2.876E 01	(DT/DZ)/(DT/DX) =	-0.352
X =	-3.000E 00	T =	1.608E 02	DT/DX =	-7.002E 01	DT/DZ =	-3.372E 00	(DT/DZ)/(DT/DX) =	0.048
X =	-2.500E 00	T =	1.312E 02	DT/DX =	-4.693E 01	DT/DZ =	-2.641E 01	(DT/DZ)/(DT/DX) =	0.563
X =	-2.000E 00	T =	1.151E 02	DT/DX =	-1.697E 01	DT/DZ =	-3.478E 01	(DT/DZ)/(DT/DX) =	2.050
X =	-1.500E 00	T =	1.139E 02	DT/DX =	1.123E 01	DT/DZ =	-2.711E 01	(DT/DZ)/(DT/DX) =	-2.413
X =	-1.000E 00	T =	1.248E 02	DT/DX =	3.045E 01	DT/DZ =	-7.161E 00	(DT/DZ)/(DT/DX) =	-0.235
X =	-5.000E-01	T =	1.421E 02	DT/DX =	3.639E 01	DT/DZ =	1.899E 01	(DT/DZ)/(DT/DX) =	0.522

X =	0.000E-39	T =	1.588E 02	DT/DX =	2.803E 01	DT/DZ =	4.340E 01	(DT/DZ)/(DT/DX) =	1.548
X =	5.000E-01	T =	1.685E 02	DT/DX =	1.002E 01	DT/DZ =	5.869E 01	(DT/DZ)/(DT/DX) =	5.855
X =	1.000E 00	T =	1.686E 02	DT/DX =	-9.630E 00	DT/DZ =	6.346E 01	(DT/DZ)/(DT/DX) =	-6.590
X =	1.500E 00	T =	1.595E 02	DT/DX =	-2.607E 01	DT/DZ =	6.172E 01	(DT/DZ)/(DT/DX) =	-2.367
X =	2.000E 00	T =	1.431E 02	DT/DX =	-3.911E 01	DT/DZ =	5.776E 01	(DT/DZ)/(DT/DX) =	-1.477
X =	2.500E 00	T =	1.206E 02	DT/DX =	-5.077E 01	DT/DZ =	5.372E 01	(DT/DZ)/(DT/DX) =	-1.058
X =	3.000E 00	T =	9.212E 01	DT/DX =	-6.350E 01	DT/DZ =	4.981E 01	(DT/DZ)/(DT/DX) =	-0.784
X =	3.500E 00	T =	5.647E 01	DT/DX =	-7.990E 01	DT/DZ =	4.453E 01	(DT/DZ)/(DT/DX) =	-0.557
X =	4.000E 00	T =	1.117E 01	DT/DX =	-1.026E 02	DT/DZ =	3.376E 01	(DT/DZ)/(DT/DX) =	-0.329
X =	4.500E 00	T =	-4.725E 01	DT/DX =	-1.318E 02	DT/DZ =	7.427E 00	(DT/DZ)/(DT/DX) =	-0.056
X =	5.000E 00	T =	-1.195E 02	DT/DX =	-1.522E 02	DT/DZ =	-5.230E 01	(DT/DZ)/(DT/DX) =	0.344
X =	5.500E 00	T =	-1.892E 02	DT/DX =	-1.129E 02	DT/DZ =	-1.318E 02	(DT/DZ)/(DT/DX) =	1.167
X =	6.000E 00	T =	-2.237E 02	DT/DX =	-2.605E 01	DT/DZ =	-1.474E 02	(DT/DZ)/(DT/DX) =	5.657
X =	6.500E 00	T =	-2.221E 02	DT/DX =	2.456E 01	DT/DZ =	-1.110E 02	(DT/DZ)/(DT/DX) =	-4.522
X =	7.000E 00	T =	-2.051E 02	DT/DX =	3.991E 01	DT/DZ =	-7.556E 01	(DT/DZ)/(DT/DX) =	-1.893
X =	7.500E 00	T =	-1.844E 02	DT/DX =	4.134E 01	DT/DZ =	-5.112E 01	(DT/DZ)/(DT/DX) =	-1.237
X =	8.000E 00	T =	-1.644E 02	DT/DX =	3.834E 01	DT/DZ =	-3.501E 01	(DT/DZ)/(DT/DX) =	-0.913
X =	8.500E 00	T =	-1.463E 02	DT/DX =	3.419E 01	DT/DZ =	-2.423E 01	(DT/DZ)/(DT/DX) =	-0.709
X =	9.000E 00	T =	-1.302E 02	DT/DX =	3.002E 01	DT/DZ =	-1.685E 01	(DT/DZ)/(DT/DX) =	-0.561
X =	9.500E 00	T =	-1.162E 02	DT/DX =	2.618E 01	DT/DZ =	-1.170E 01	(DT/DZ)/(DT/DX) =	-0.447
X =	1.000E 01	T =	-1.040E 02	DT/DX =	2.279E 01	DT/DZ =	-8.059E 00	(DT/DZ)/(DT/DX) =	-0.354
X =	1.050E 01	T =	-9.333E 01	DT/DX =	1.984E 01	DT/DZ =	-5.452E 00	(DT/DZ)/(DT/DX) =	-0.275
X =	1.100E 01	T =	-8.407E 01	DT/DX =	1.730E 01	DT/DZ =	-3.574E 00	(DT/DZ)/(DT/DX) =	-0.207
X =	1.150E 01	T =	-7.598E 01	DT/DX =	1.511E 01	DT/DZ =	-2.216E 00	(DT/DZ)/(DT/DX) =	-0.147
X =	1.200E 01	T =	-6.890E 01	DT/DX =	1.324E 01	DT/DZ =	-1.232E 00	(DT/DZ)/(DT/DX) =	-0.093
X =	1.250E 01	T =	-6.269E 01	DT/DX =	1.164E 01	DT/DZ =	-5.204E-01	(DT/DZ)/(DT/DX) =	-0.045
X =	1.300E 01	T =	-5.723E 01	DT/DX =	1.026E 01	DT/DZ =	-7.344E-03	(DT/DZ)/(DT/DX) =	-0.001
X =	1.350E 01	T =	-5.240E 01	DT/DX =	9.077E 00	DT/DZ =	3.597E-01	(DT/DZ)/(DT/DX) =	0.040
X =	1.400E 01	T =	-4.812E 01	DT/DX =	8.056E 00	DT/DZ =	6.189E-01	(DT/DZ)/(DT/DX) =	0.077
X =	1.450E 01	T =	-4.432E 01	DT/DX =	7.173E 00	DT/DZ =	7.985E-01	(DT/DZ)/(DT/DX) =	0.111

*** MAGNETIC ENVIRONMENT ***

TOTAL MAGNETIC INTENSITY (GAMMAS) = 4.0000E 04 DIP ANGLE (DEGREES) = 45.0
SUSCEPTIBILITY OF BODY 1 IN EMU UNITS = 4.0000E-03
SUSCEPTIBILITY OF BODY 2 IN EMU UNITS = -3.7000E-03
SUSCEPTIBILITY OF BODY 3 IN EMU UNITS = 3.0000E-04
STRIKE OF BODY RELATIVE TO MAGNETIC NORTH = 45.00 (DEGREES)

*** COORDINATES OF BODY, GRID INTERVAL ***

SURVEY ORIGIN, X = -1.500E 01 GRID INTERVAL = 5.000E-01
(X-Z) COORDINATES READING CCW FROM UPPER LEFT HAND CORNER NEAREST ORIGIN,COORDINATES ARE DIMENSIONLESS

(X1,Z1)	(X2,Z2)	(X3,Z3)	(X4,Z4)
-5.500E 00 0.000E-39	-5.500E 00 5.000E 00	5.500E 00 5.000E 00	5.500E 00 0.000E-39
-2.500E 00 1.000E 00	-2.500E 00 5.000E 00	0.000E-39 5.000E 00	0.000E-39 1.000E 00
-2.500E 00 5.000E 00	-2.500E 00 1.000E 01	0.000E-39 1.000E 01	0.000E-39 5.000E 00

TOTAL FIELD SENSOR AT HEIGHT 1.0000 DIMENSIONLESS UNITS ABOVE X-Y PLANE

*** ANOMALY CALCULATIONS ***

X = -1.500E 01	T =	8.151E 00	DT/DX =	3.018E 00	DT/DZ =	-6.572E 00	(DT/DZ)/(DT/DX) =	-2.177
X = -1.450E 01	T =	9.798E 00	DT/DX =	3.586E 00	DT/DZ =	-7.209E 00	(DT/DZ)/(DT/DX) =	-2.010
X = -1.400E 01	T =	1.176E 01	DT/DX =	4.279E 00	DT/DZ =	-7.919E 00	(DT/DZ)/(DT/DX) =	-1.851
X = -1.350E 01	T =	1.410E 01	DT/DX =	5.126E 00	DT/DZ =	-8.709E 00	(DT/DZ)/(DT/DX) =	-1.699
X = -1.300E 01	T =	1.692E 01	DT/DX =	6.170E 00	DT/DZ =	-9.586E 00	(DT/DZ)/(DT/DX) =	-1.554
X = -1.250E 01	T =	2.031E 01	DT/DX =	7.462E 00	DT/DZ =	-1.055E 01	(DT/DZ)/(DT/DX) =	-1.414
X = -1.200E 01	T =	2.443E 01	DT/DX =	9.072E 00	DT/DZ =	-1.161E 01	(DT/DZ)/(DT/DX) =	-1.280
X = -1.150E 01	T =	2.945E 01	DT/DX =	1.109E 01	DT/DZ =	-1.275E 01	(DT/DZ)/(DT/DX) =	-1.150
X = -1.100E 01	T =	3.561E 01	DT/DX =	1.364E 01	DT/DZ =	-1.395E 01	(DT/DZ)/(DT/DX) =	-1.023
X = -1.050E 01	T =	4.321E 01	DT/DX =	1.689E 01	DT/DZ =	-1.518E 01	(DT/DZ)/(DT/DX) =	-0.899
X = -1.000E 01	T =	5.266E 01	DT/DX =	2.106E 01	DT/DZ =	-1.634E 01	(DT/DZ)/(DT/DX) =	-0.776
X = -9.500E 00	T =	6.447E 01	DT/DX =	2.645E 01	DT/DZ =	-1.728E 01	(DT/DZ)/(DT/DX) =	-0.653
X = -9.000E 00	T =	7.939E 01	DT/DX =	3.352E 01	DT/DZ =	-1.772E 01	(DT/DZ)/(DT/DX) =	-0.529
X = -8.500E 00	T =	9.838E 01	DT/DX =	4.288E 01	DT/DZ =	-1.710E 01	(DT/DZ)/(DT/DX) =	-0.399
X = -8.000E 00	T =	1.228E 02	DT/DX =	5.543E 01	DT/DZ =	-1.432E 01	(DT/DZ)/(DT/DX) =	-0.258
X = -7.500E 00	T =	1.545E 02	DT/DX =	7.231E 01	DT/DZ =	-7.077E 00	(DT/DZ)/(DT/DX) =	-0.098
X = -7.000E 00	T =	1.960E 02	DT/DX =	9.427E 01	DT/DZ =	9.792E 00	(DT/DZ)/(DT/DX) =	0.104
X = -6.500E 00	T =	2.491E 02	DT/DX =	1.177E 02	DT/DZ =	4.736E 01	(DT/DZ)/(DT/DX) =	0.402
X = -6.000E 00	T =	3.101E 02	DT/DX =	1.182E 02	DT/DZ =	1.199E 02	(DT/DZ)/(DT/DX) =	1.014
X = -5.500E 00	T =	3.541E 02	DT/DX =	4.264E 01	DT/DZ =	1.929E 02	(DT/DZ)/(DT/DX) =	4.524
X = -5.000E 00	T =	3.469E 02	DT/DX =	-6.496E 01	DT/DZ =	1.738E 02	(DT/DZ)/(DT/DX) =	-2.676
X = -4.500E 00	T =	3.001E 02	DT/DX =	-1.120E 02	DT/DZ =	1.057E 02	(DT/DZ)/(DT/DX) =	-0.944
X = -4.000E 00	T =	2.419E 02	DT/DX =	-1.167E 02	DT/DZ =	4.756E 01	(DT/DZ)/(DT/DX) =	-0.407
X = -3.500E 00	T =	1.862E 02	DT/DX =	-1.038E 02	DT/DZ =	3.643E 00	(DT/DZ)/(DT/DX) =	-0.035
X = -3.000E 00	T =	1.401E 02	DT/DX =	-7.898E 01	DT/DZ =	-2.899E 01	(DT/DZ)/(DT/DX) =	0.367
X = -2.500E 00	T =	1.089E 02	DT/DX =	-4.426E 01	DT/DZ =	-4.708E 01	(DT/DZ)/(DT/DX) =	1.064
X = -2.000E 00	T =	9.624E 01	DT/DX =	-6.949E 00	DT/DZ =	-4.592E 01	(DT/DZ)/(DT/DX) =	6.608
X = -1.500E 00	T =	1.007E 02	DT/DX =	2.259E 01	DT/DZ =	-2.701E 01	(DT/DZ)/(DT/DX) =	-1.196
X = -1.000E 00	T =	1.164E 02	DT/DX =	3.744E 01	DT/DZ =	2.728E 00	(DT/DZ)/(DT/DX) =	0.073
X = -5.000E-01	T =	1.352E 02	DT/DX =	3.486E 01	DT/DZ =	3.480E 01	(DT/DZ)/(DT/DX) =	0.998

X =	0.000E-39	T =	1.486E 02	DT/DX =	1.653E 01	DT/DZ =	5.975E 01	(DT/DZ)/(DT/DX) =	3.615
X =	5.000E-01	T =	1.504E 02	DT/DX =	-9.582E 00	DT/DZ =	7.081E 01	(DT/DZ)/(DT/DX) =	-7.390
X =	1.000E 00	T =	1.393E 02	DT/DX =	-3.380E 01	DT/DZ =	6.922E 01	(DT/DZ)/(DT/DX) =	-2.048
X =	1.500E 00	T =	1.176E 02	DT/DX =	-5.200E 01	DT/DZ =	6.132E 01	(DT/DZ)/(DT/DX) =	-1.179
X =	2.000E 00	T =	8.812E 01	DT/DX =	-6.551E 01	DT/DZ =	5.210E 01	(DT/DZ)/(DT/DX) =	-0.795
X =	2.500E 00	T =	5.239E 01	DT/DX =	-7.741E 01	DT/DZ =	4.330E 01	(DT/DZ)/(DT/DX) =	-0.559
X =	3.000E 00	T =	1.049E 01	DT/DX =	-9.059E 01	DT/DZ =	3.425E 01	(DT/DZ)/(DT/DX) =	-0.378
X =	3.500E 00	T =	-3.882E 01	DT/DX =	-1.075E 02	DT/DZ =	2.232E 01	(DT/DZ)/(DT/DX) =	-0.208
X =	4.000E 00	T =	-9.787E 01	DT/DX =	-1.296E 02	DT/DZ =	1.858E 00	(DT/DZ)/(DT/DX) =	-0.014
X =	4.500E 00	T =	-1.688E 02	DT/DX =	-1.536E 02	DT/DZ =	-3.880E 01	(DT/DZ)/(DT/DX) =	0.253
X =	5.000E 00	T =	-2.481E 02	DT/DX =	-1.555E 02	DT/DZ =	-1.145E 02	(DT/DZ)/(DT/DX) =	0.736
X =	5.500E 00	T =	-3.111E 02	DT/DX =	-8.202E 01	DT/DZ =	-1.915E 02	(DT/DZ)/(DT/DX) =	2.334
X =	6.000E 00	T =	-3.243E 02	DT/DX =	2.305E 01	DT/DZ =	-1.781E 02	(DT/DZ)/(DT/DX) =	-7.727
X =	6.500E 00	T =	-2.991E 02	DT/DX =	6.796E 01	DT/DZ =	-1.183E 02	(DT/DZ)/(DT/DX) =	-1.741
X =	7.000E 00	T =	-2.630E 02	DT/DX =	7.281E 01	DT/DZ =	-7.220E 01	(DT/DZ)/(DT/DX) =	-0.992
X =	7.500E 00	T =	-2.281E 02	DT/DX =	6.568E 01	DT/DZ =	-4.371E 01	(DT/DZ)/(DT/DX) =	-0.665
X =	8.000E 00	T =	-1.976E 02	DT/DX =	5.647E 01	DT/DZ =	-2.633E 01	(DT/DZ)/(DT/DX) =	-0.466
X =	8.500E 00	T =	-1.716E 02	DT/DX =	4.785E 01	DT/DZ =	-1.548E 01	(DT/DZ)/(DT/DX) =	-0.323
X =	9.000E 00	T =	-1.495E 02	DT/DX =	4.042E 01	DT/DZ =	-8.526E 00	(DT/DZ)/(DT/DX) =	-0.211
X =	9.500E 00	T =	-1.309E 02	DT/DX =	3.418E 01	DT/DZ =	-4.008E 00	(DT/DZ)/(DT/DX) =	-0.117
X =	1.000E 01	T =	-1.152E 02	DT/DX =	2.899E 01	DT/DZ =	-1.052E 00	(DT/DZ)/(DT/DX) =	-0.036
X =	1.050E 01	T =	-1.018E 02	DT/DX =	2.467E 01	DT/DZ =	8.753E-01	(DT/DZ)/(DT/DX) =	0.035
X =	1.100E 01	T =	-9.040E 01	DT/DX =	2.109E 01	DT/DZ =	2.113E 00	(DT/DZ)/(DT/DX) =	0.100
X =	1.150E 01	T =	-8.063E 01	DT/DX =	1.810E 01	DT/DZ =	2.886E 00	(DT/DZ)/(DT/DX) =	0.159
X =	1.200E 01	T =	-7.222E 01	DT/DX =	1.561E 01	DT/DZ =	3.341E 00	(DT/DZ)/(DT/DX) =	0.214
X =	1.250E 01	T =	-6.495E 01	DT/DX =	1.351E 01	DT/DZ =	3.580E 00	(DT/DZ)/(DT/DX) =	0.265
X =	1.300E 01	T =	-5.865E 01	DT/DX =	1.175E 01	DT/DZ =	3.674E 00	(DT/DZ)/(DT/DX) =	0.313
X =	1.350E 01	T =	-5.315E 01	DT/DX =	1.027E 01	DT/DZ =	3.669E 00	(DT/DZ)/(DT/DX) =	0.357
X =	1.400E 01	T =	-4.835E 01	DT/DX =	9.003E 00	DT/DZ =	3.599E 00	(DT/DZ)/(DT/DX) =	0.400
X =	1.450E 01	T =	-4.412E 01	DT/DX =	7.928E 00	DT/DZ =	3.488E 00	(DT/DZ)/(DT/DX) =	0.440

*** MAGNETIC ENVIRONMENT ***

TOTAL MAGNETIC INTENSITY (GAMMAS) = 4.0000E 04 DIP ANGLE (DEGREES) = 45.0
SUSCEPTIBILITY OF BODY 1 IN EMU UNITS = 4.0000E-03
SUSCEPTIBILITY OF BODY 2 IN EMU UNITS = -3.7000E-03
SUSCEPTIBILITY OF BODY 3 IN EMU UNITS = 3.0000E-04
STRIKE OF BODY RELATIVE TO MAGNETIC NORTH = 60.00 (DEGREES)

*** COORDINATES OF BODY, GRID INTERVAL ***

SURVEY ORIGIN, X = -1.500E 01 GRID INTERVAL = 5.000E-01
(X-Z) COORDINATES READING CCW FROM UPPER LEFT HAND CORNER NEAREST ORIGIN,COORDINATES ARE DIMENSIONLESS

(X1,Z1)	(X2,Z2)	(X3,Z3)	(X4,Z4)
-5.500E 00 0.000E-39	-5.500E 00 5.000E 00	5.500E 00 5.000E 00	5.500E 00 0.000E-39
-2.500E 00 1.000E 00	-2.500E 00 5.000E 00	0.000E-39 5.000E 00	0.000E-39 1.000E 00
-2.500E 00 5.000E 00	-2.500E 00 1.000E 01	0.000E-39 1.000E 01	0.000E-39 5.000E 00

TOTAL FIELD SENSOR AT HEIGHT 1.0000 DIMENSIONLESS UNITS ABOVE X-Y PLANE

*** ANOMALY CALCULATIONS ***

X = -1.500E 01	T =	2.078E 01	DT/DX =	4.950E 00	DT/DZ =	-6.832E 00	(DT/DZ)/(DT/DX) =	-1.380
X = -1.450E 01	T =	2.345E 01	DT/DX =	5.746E 00	DT/DZ =	-7.432E 00	(DT/DZ)/(DT/DX) =	-1.293
X = -1.400E 01	T =	2.655E 01	DT/DX =	6.700E 00	DT/DZ =	-8.087E 00	(DT/DZ)/(DT/DX) =	-1.207
X = -1.350E 01	T =	3.018E 01	DT/DX =	7.849E 00	DT/DZ =	-8.798E 00	(DT/DZ)/(DT/DX) =	-1.121
X = -1.300E 01	T =	3.444E 01	DT/DX =	9.243E 00	DT/DZ =	-9.563E 00	(DT/DZ)/(DT/DX) =	-1.035
X = -1.250E 01	T =	3.948E 01	DT/DX =	1.094E 01	DT/DZ =	-1.037E 01	(DT/DZ)/(DT/DX) =	-0.948
X = -1.200E 01	T =	4.545E 01	DT/DX =	1.303E 01	DT/DZ =	-1.122E 01	(DT/DZ)/(DT/DX) =	-0.861
X = -1.150E 01	T =	5.258E 01	DT/DX =	1.560E 01	DT/DZ =	-1.206E 01	(DT/DZ)/(DT/DX) =	-0.773
X = -1.100E 01	T =	6.115E 01	DT/DX =	1.879E 01	DT/DZ =	-1.286E 01	(DT/DZ)/(DT/DX) =	-0.684
X = -1.050E 01	T =	7.151E 01	DT/DX =	2.278E 01	DT/DZ =	-1.352E 01	(DT/DZ)/(DT/DX) =	-0.593
X = -1.000E 01	T =	8.411E 01	DT/DX =	2.781E 01	DT/DZ =	-1.390E 01	(DT/DZ)/(DT/DX) =	-0.500
X = -9.500E 00	T =	9.955E 01	DT/DX =	3.421E 01	DT/DZ =	-1.375E 01	(DT/DZ)/(DT/DX) =	-0.402
X = -9.000E 00	T =	1.186E 02	DT/DX =	4.239E 01	DT/DZ =	-1.264E 01	(DT/DZ)/(DT/DX) =	-0.298
X = -8.500E 00	T =	1.423E 02	DT/DX =	5.296E 01	DT/DZ =	-9.798E 00	(DT/DZ)/(DT/DX) =	-0.185
X = -8.000E 00	T =	1.721E 02	DT/DX =	6.669E 01	DT/DZ =	-3.764E 00	(DT/DZ)/(DT/DX) =	-0.056
X = -7.500E 00	T =	2.097E 02	DT/DX =	8.435E 01	DT/DZ =	8.372E 00	(DT/DZ)/(DT/DX) =	0.099
X = -7.000E 00	T =	2.571E 02	DT/DX =	1.056E 02	DT/DZ =	3.267E 01	(DT/DZ)/(DT/DX) =	0.309
X = -6.500E 00	T =	3.149E 02	DT/DX =	1.239E 02	DT/DZ =	8.100E 01	(DT/DZ)/(DT/DX) =	0.654
X = -6.000E 00	T =	3.755E 02	DT/DX =	1.080E 02	DT/DZ =	1.641E 02	(DT/DZ)/(DT/DX) =	1.520
X = -5.500E 00	T =	4.075E 02	DT/DX =	4.856E 00	DT/DZ =	2.304E 02	(DT/DZ)/(DT/DX) =	47.445
X = -5.000E 00	T =	3.775E 02	DT/DX =	-1.139E 02	DT/DZ =	1.841E 02	(DT/DZ)/(DT/DX) =	-1.616
X = -4.500E 00	T =	3.080E 02	DT/DX =	-1.522E 02	DT/DZ =	9.543E 01	(DT/DZ)/(DT/DX) =	-0.627
X = -4.000E 00	T =	2.328E 02	DT/DX =	-1.444E 02	DT/DZ =	2.783E 01	(DT/DZ)/(DT/DX) =	-0.193
X = -3.500E 00	T =	1.663E 02	DT/DX =	-1.196E 02	DT/DZ =	-1.947E 01	(DT/DZ)/(DT/DX) =	0.163
X = -3.000E 00	T =	1.150E 02	DT/DX =	-8.376E 01	DT/DZ =	-5.116E 01	(DT/DZ)/(DT/DX) =	0.611
X = -2.500E 00	T =	8.392E 01	DT/DX =	-3.992E 01	DT/DZ =	-6.395E 01	(DT/DZ)/(DT/DX) =	1.602
X = -2.000E 00	T =	7.488E 01	DT/DX =	2.507E 00	DT/DZ =	-5.412E 01	(DT/DZ)/(DT/DX) =	-21.586
X = -1.500E 00	T =	8.423E 01	DT/DX =	3.200E 01	DT/DZ =	-2.576E 01	(DT/DZ)/(DT/DX) =	-0.805
X = -1.000E 00	T =	1.036E 02	DT/DX =	4.222E 01	DT/DZ =	1.165E 01	(DT/DZ)/(DT/DX) =	0.276
X = -5.000E-01	T =	1.230E 02	DT/DX =	3.196E 01	DT/DZ =	4.776E 01	(DT/DZ)/(DT/DX) =	1.494

X =	0.000E-39	T =	1.328E 02	DT/DX =	5.304E 00	DT/DZ =	7.213E 01	(DT/DZ)/(DT/DX) =	13.600
X =	5.000E-01	T =	1.274E 02	DT/DX =	-2.709E 01	DT/DZ =	7.884E 01	(DT/DZ)/(DT/DX) =	-2.910
X =	1.000E 00	T =	1.066E 02	DT/DX =	-5.444E 01	DT/DZ =	7.150E 01	(DT/DZ)/(DT/DX) =	-1.313
X =	1.500E 00	T =	7.434E 01	DT/DX =	-7.347E 01	DT/DZ =	5.832E 01	(DT/DZ)/(DT/DX) =	-0.794
X =	2.000E 00	T =	3.411E 01	DT/DX =	-8.683E 01	DT/DZ =	4.470E 01	(DT/DZ)/(DT/DX) =	-0.515
X =	2.500E 00	T =	-1.220E 01	DT/DX =	-9.844E 01	DT/DZ =	3.191E 01	(DT/DZ)/(DT/DX) =	-0.324
X =	3.000E 00	T =	-6.456E 01	DT/DX =	-1.115E 02	DT/DZ =	1.855E 01	(DT/DZ)/(DT/DX) =	-0.166
X =	3.500E 00	T =	-1.243E 02	DT/DX =	-1.281E 02	DT/DZ =	1.063E 00	(DT/DZ)/(DT/DX) =	-0.008
X =	4.000E 00	T =	-1.933E 02	DT/DX =	-1.487E 02	DT/DZ =	-2.738E 01	(DT/DZ)/(DT/DX) =	0.184
X =	4.500E 00	T =	-2.727E 02	DT/DX =	-1.669E 02	DT/DZ =	-7.938E 01	(DT/DZ)/(DT/DX) =	0.476
X =	5.000E 00	T =	-3.550E 02	DT/DX =	-1.518E 02	DT/DZ =	-1.664E 02	(DT/DZ)/(DT/DX) =	1.096
X =	5.500E 00	T =	-4.092E 02	DT/DX =	-5.024E 01	DT/DZ =	-2.378E 02	(DT/DZ)/(DT/DX) =	4.733
X =	6.000E 00	T =	-4.024E 02	DT/DX =	6.693E 01	DT/DZ =	-1.985E 02	(DT/DZ)/(DT/DX) =	-2.966
X =	6.500E 00	T =	-3.566E 02	DT/DX =	1.047E 02	DT/DZ =	-1.199E 02	(DT/DZ)/(DT/DX) =	-1.145
X =	7.000E 00	T =	-3.046E 02	DT/DX =	9.976E 01	DT/DZ =	-6.603E 01	(DT/DZ)/(DT/DX) =	-0.662
X =	7.500E 00	T =	-2.583E 02	DT/DX =	8.511E 01	DT/DZ =	-3.505E 01	(DT/DZ)/(DT/DX) =	-0.412
X =	8.000E 00	T =	-2.194E 02	DT/DX =	7.061E 01	DT/DZ =	-1.727E 01	(DT/DZ)/(DT/DX) =	-0.245
X =	8.500E 00	T =	-1.873E 02	DT/DX =	5.827E 01	DT/DZ =	-6.809E 00	(DT/DZ)/(DT/DX) =	-0.117
X =	9.000E 00	T =	-1.608E 02	DT/DX =	4.819E 01	DT/DZ =	-5.497E-01	(DT/DZ)/(DT/DX) =	-0.011
X =	9.500E 00	T =	-1.388E 02	DT/DX =	4.002E 01	DT/DZ =	3.199E 00	(DT/DZ)/(DT/DX) =	0.080
X =	1.000E 01	T =	-1.205E 02	DT/DX =	3.341E 01	DT/DZ =	5.399E 00	(DT/DZ)/(DT/DX) =	0.162
X =	1.050E 01	T =	-1.052E 02	DT/DX =	2.803E 01	DT/DZ =	6.621E 00	(DT/DZ)/(DT/DX) =	0.236
X =	1.100E 01	T =	-9.231E 01	DT/DX =	2.365E 01	DT/DZ =	7.222E 00	(DT/DZ)/(DT/DX) =	0.305
X =	1.150E 01	T =	-8.141E 01	DT/DX =	2.006E 01	DT/DZ =	7.425E 00	(DT/DZ)/(DT/DX) =	0.370
X =	1.200E 01	T =	-7.214E 01	DT/DX =	1.710E 01	DT/DZ =	7.377E 00	(DT/DZ)/(DT/DX) =	0.432
X =	1.250E 01	T =	-6.423E 01	DT/DX =	1.465E 01	DT/DZ =	7.175E 00	(DT/DZ)/(DT/DX) =	0.490
X =	1.300E 01	T =	-5.743E 01	DT/DX =	1.261E 01	DT/DZ =	6.881E 00	(DT/DZ)/(DT/DX) =	0.546
X =	1.350E 01	T =	-5.156E 01	DT/DX =	1.091E 01	DT/DZ =	6.536E 00	(DT/DZ)/(DT/DX) =	0.599
X =	1.400E 01	T =	-4.647E 01	DT/DX =	9.482E 00	DT/DZ =	6.169E 00	(DT/DZ)/(DT/DX) =	0.651
X =	1.450E 01	T =	-4.204E 01	DT/DX =	8.276E 00	DT/DZ =	5.797E 00	(DT/DZ)/(DT/DX) =	0.700

*** MAGNETIC ENVIRONMENT ***

TOTAL MAGNETIC INTENSITY (GAMMAS) = 4.0000E 04 DIP ANGLE (DEGREES) = 45.0
SUSCEPTIBILITY OF BODY 1 IN EMU UNITS = 4.0000E-03
SUSCEPTIBILITY OF BODY 2 IN EMU UNITS = -3.7000E-03
SUSCEPTIBILITY OF BODY 3 IN EMU UNITS = 3.0000E-04
STRIKE OF BODY RELATIVE TO MAGNETIC NORTH = 75.00 (DEGREES)

*** COORDINATES OF BODY, GRID INTERVAL ***

SURVEY ORIGIN, X = -1.500E 01 GRID INTERVAL = 5.000E-01
(X-Z) COORDINATES READING CCW FROM UPPER LEFT HAND CORNER NEAREST ORIGIN,COORDINATES ARE DIMENSIONLESS

(X1,Z1)	(X2,Z2)	(X3,Z3)	(X4,Z4)
-5.500E 00 0.000E-39	-5.500E 00 5.000E 00	5.500E 00 5.000E 00	5.500E 00 0.000E-39
-2.500E 00 1.000E 00	-2.500E 00 5.000E 00	0.000E-39 5.000E 00	0.000E-39 1.000E 00
-2.500E 00 5.000E 00	-2.500E 00 1.000E 01	0.000E-39 1.000E 01	0.000E-39 5.000E 00

TOTAL FIELD SENSOR AT HEIGHT 1.0000 DIMENSIONLESS UNITS ABOVE X-Y PLANE

*** ANOMALY CALCULATIONS ***

X = -1.500E 01	T =	2.949E 01	DT/DX =	6.254E 00	DT/DZ =	-6.909E 00	(DT/DZ)/(DT/DX) =	-1.105
X = -1.450E 01	T =	3.285E 01	DT/DX =	7.200E 00	DT/DZ =	-7.472E 00	(DT/DZ)/(DT/DX) =	-1.038
X = -1.400E 01	T =	3.672E 01	DT/DX =	8.326E 00	DT/DZ =	-8.077E 00	(DT/DZ)/(DT/DX) =	-0.970
X = -1.350E 01	T =	4.121E 01	DT/DX =	9.673E 00	DT/DZ =	-8.720E 00	(DT/DZ)/(DT/DX) =	-0.901
X = -1.300E 01	T =	4.644E 01	DT/DX =	1.130E 01	DT/DZ =	-9.393E 00	(DT/DZ)/(DT/DX) =	-0.832
X = -1.250E 01	T =	5.256E 01	DT/DX =	1.326E 01	DT/DZ =	-1.008E 01	(DT/DZ)/(DT/DX) =	-0.760
X = -1.200E 01	T =	5.977E 01	DT/DX =	1.565E 01	DT/DZ =	-1.076E 01	(DT/DZ)/(DT/DX) =	-0.688
X = -1.150E 01	T =	6.830E 01	DT/DX =	1.857E 01	DT/DZ =	-1.138E 01	(DT/DZ)/(DT/DX) =	-0.613
X = -1.100E 01	T =	7.845E 01	DT/DX =	2.217E 01	DT/DZ =	-1.187E 01	(DT/DZ)/(DT/DX) =	-0.535
X = -1.050E 01	T =	9.062E 01	DT/DX =	2.664E 01	DT/DZ =	-1.212E 01	(DT/DZ)/(DT/DX) =	-0.455
X = -1.000E 01	T =	1.053E 02	DT/DX =	3.221E 01	DT/DZ =	-1.193E 01	(DT/DZ)/(DT/DX) =	-0.370
X = -9.500E 00	T =	1.231E 02	DT/DX =	3.921E 01	DT/DZ =	-1.100E 01	(DT/DZ)/(DT/DX) =	-0.281
X = -9.000E 00	T =	1.448E 02	DT/DX =	4.806E 01	DT/DZ =	-8.801E 00	(DT/DZ)/(DT/DX) =	-0.183
X = -8.500E 00	T =	1.715E 02	DT/DX =	5.933E 01	DT/DZ =	-4.413E 00	(DT/DZ)/(DT/DX) =	-0.074
X = -8.000E 00	T =	2.046E 02	DT/DX =	7.368E 01	DT/DZ =	3.857E 00	(DT/DZ)/(DT/DX) =	0.052
X = -7.500E 00	T =	2.458E 02	DT/DX =	9.161E 01	DT/DZ =	1.930E 01	(DT/DZ)/(DT/DX) =	0.211
X = -7.000E 00	T =	2.967E 02	DT/DX =	1.121E 02	DT/DZ =	4.854E 01	(DT/DZ)/(DT/DX) =	0.433
X = -6.500E 00	T =	3.570E 02	DT/DX =	1.263E 02	DT/DZ =	1.038E 02	(DT/DZ)/(DT/DX) =	0.822
X = -6.000E 00	T =	4.163E 02	DT/DX =	9.887E 01	DT/DZ =	1.931E 02	(DT/DZ)/(DT/DX) =	1.953
X = -5.500E 00	T =	4.392E 02	DT/DX =	-2.228E 01	DT/DZ =	2.536E 02	(DT/DZ)/(DT/DX) =	-11.384
X = -5.000E 00	T =	3.934E 02	DT/DX =	-1.472E 02	DT/DZ =	1.885E 02	(DT/DZ)/(DT/DX) =	-1.281
X = -4.500E 00	T =	3.087E 02	DT/DX =	-1.786E 02	DT/DZ =	8.655E 01	(DT/DZ)/(DT/DX) =	-0.485
X = -4.000E 00	T =	2.225E 02	DT/DX =	-1.619E 02	DT/DZ =	1.325E 01	(DT/DZ)/(DT/DX) =	-0.082
X = -3.500E 00	T =	1.494E 02	DT/DX =	-1.290E 02	DT/DZ =	-3.571E 01	(DT/DZ)/(DT/DX) =	0.277
X = -3.000E 00	T =	9.526E 01	DT/DX =	-8.585E 01	DT/DZ =	-6.621E 01	(DT/DZ)/(DT/DX) =	0.771
X = -2.500E 00	T =	6.466E 01	DT/DX =	-3.618E 01	DT/DZ =	-7.500E 01	(DT/DZ)/(DT/DX) =	2.073
X = -2.000E 00	T =	5.839E 01	DT/DX =	9.238E 00	DT/DZ =	-5.913E 01	(DT/DZ)/(DT/DX) =	-6.401
X = -1.500E 00	T =	7.111E 01	DT/DX =	3.823E 01	DT/DZ =	-2.445E 01	(DT/DZ)/(DT/DX) =	-0.640
X = -1.000E 00	T =	9.288E 01	DT/DX =	4.496E 01	DT/DZ =	1.785E 01	(DT/DZ)/(DT/DX) =	0.397
X = -5.000E-01	T =	1.123E 02	DT/DX =	2.938E 01	DT/DZ =	5.628E 01	(DT/DZ)/(DT/DX) =	1.916

X =	0.000E-39	T =	1.194E 02	DT/DX =	-2.819E 00	DT/DZ =	7.984E 01	(DT/DZ)/(DT/DX) =	-28.323
X =	5.000E-01	T =	1.088E 02	DT/DX =	-3.919E 01	DT/DZ =	8.332E 01	(DT/DZ)/(DT/DX) =	-2.126
X =	1.000E 00	T =	8.151E 01	DT/DX =	-6.835E 01	DT/DZ =	7.199E 01	(DT/DZ)/(DT/DX) =	-1.053
X =	1.500E 00	T =	4.215E 01	DT/DX =	-8.766E 01	DT/DZ =	5.523E 01	(DT/DZ)/(DT/DX) =	-0.630
X =	2.000E 00	T =	-5.107E 00	DT/DX =	-1.007E 02	DT/DZ =	3.867E 01	(DT/DZ)/(DT/DX) =	-0.384
X =	2.500E 00	T =	-5.826E 01	DT/DX =	-1.119E 02	DT/DZ =	2.325E 01	(DT/DZ)/(DT/DX) =	-0.208
X =	3.000E 00	T =	-1.173E 02	DT/DX =	-1.246E 02	DT/DZ =	7.018E 00	(DT/DZ)/(DT/DX) =	-0.056
X =	3.500E 00	T =	-1.835E 02	DT/DX =	-1.407E 02	DT/DZ =	-1.418E 01	(DT/DZ)/(DT/DX) =	0.101
X =	4.000E 00	T =	-2.586E 02	DT/DX =	-1.600E 02	DT/DZ =	-4.788E 01	(DT/DZ)/(DT/DX) =	0.299
X =	4.500E 00	T =	-3.427E 02	DT/DX =	-1.738E 02	DT/DZ =	-1.072E 02	(DT/DZ)/(DT/DX) =	0.617
X =	5.000E 00	T =	-4.258E 02	DT/DX =	-1.468E 02	DT/DZ =	-2.009E 02	(DT/DZ)/(DT/DX) =	1.369
X =	5.500E 00	T =	-4.729E 02	DT/DX =	-2.667E 01	DT/DZ =	-2.671E 02	(DT/DZ)/(DT/DX) =	10.014
X =	6.000E 00	T =	-4.518E 02	DT/DX =	9.728E 01	DT/DZ =	-2.100E 02	(DT/DZ)/(DT/DX) =	-2.158
X =	6.500E 00	T =	-3.920E 02	DT/DX =	1.294E 02	DT/DZ =	-1.191E 02	(DT/DZ)/(DT/DX) =	-0.921
X =	7.000E 00	T =	-3.295E 02	DT/DX =	1.175E 02	DT/DZ =	-6.055E 01	(DT/DZ)/(DT/DX) =	-0.516
X =	7.500E 00	T =	-2.757E 02	DT/DX =	9.766E 01	DT/DZ =	-2.829E 01	(DT/DZ)/(DT/DX) =	-0.290
X =	8.000E 00	T =	-2.315E 02	DT/DX =	7.960E 01	DT/DZ =	-1.050E 01	(DT/DZ)/(DT/DX) =	-0.132
X =	8.500E 00	T =	-1.956E 02	DT/DX =	6.481E 01	DT/DZ =	-4.945E-01	(DT/DZ)/(DT/DX) =	-0.008
X =	9.000E 00	T =	-1.662E 02	DT/DX =	5.298E 01	DT/DZ =	5.171E 00	(DT/DZ)/(DT/DX) =	0.098
X =	9.500E 00	T =	-1.422E 02	DT/DX =	4.356E 01	DT/DZ =	8.309E 00	(DT/DZ)/(DT/DX) =	0.191
X =	1.000E 01	T =	-1.224E 02	DT/DX =	3.604E 01	DT/DZ =	9.931E 00	(DT/DZ)/(DT/DX) =	0.276
X =	1.050E 01	T =	-1.059E 02	DT/DX =	2.999E 01	DT/DZ =	1.063E 01	(DT/DZ)/(DT/DX) =	0.354
X =	1.100E 01	T =	-9.219E 01	DT/DX =	2.510E 01	DT/DZ =	1.076E 01	(DT/DZ)/(DT/DX) =	0.429
X =	1.150E 01	T =	-8.066E 01	DT/DX =	2.113E 01	DT/DZ =	1.056E 01	(DT/DZ)/(DT/DX) =	0.500
X =	1.200E 01	T =	-7.094E 01	DT/DX =	1.789E 01	DT/DZ =	1.015E 01	(DT/DZ)/(DT/DX) =	0.567
X =	1.250E 01	T =	-6.268E 01	DT/DX =	1.522E 01	DT/DZ =	9.634E 00	(DT/DZ)/(DT/DX) =	0.633
X =	1.300E 01	T =	-5.563E 01	DT/DX =	1.302E 01	DT/DZ =	9.067E 00	(DT/DZ)/(DT/DX) =	0.696
X =	1.350E 01	T =	-4.959E 01	DT/DX =	1.120E 01	DT/DZ =	8.485E 00	(DT/DZ)/(DT/DX) =	0.758
X =	1.400E 01	T =	-4.439E 01	DT/DX =	9.672E 00	DT/DZ =	7.910E 00	(DT/DZ)/(DT/DX) =	0.818
X =	1.450E 01	T =	-3.988E 01	DT/DX =	8.393E 00	DT/DZ =	7.357E 00	(DT/DZ)/(DT/DX) =	0.877

*** MAGNETIC ENVIRONMENT ***

TOTAL MAGNETIC INTENSITY (GAMMAS) = 4.0000E 04 DIP ANGLE (DEGREES) = 45.0
SUSCEPTIBILITY OF BODY 1 IN EMU UNITS = 4.0000E-03
SUSCEPTIBILITY OF BODY 2 IN EMU UNITS = -3.7000E-03
SUSCEPTIBILITY OF BODY 3 IN EMU UNITS = 3.0000E-04
STRIKE OF BODY RELATIVE TO MAGNETIC NORTH = 90.00 (DEGREES)

*** COORDINATES OF BODY, GRID INTERVAL ***

SURVEY ORIGIN, X = -1.500E 01 GRID INTERVAL = 5.000E-01
(X-Z) COORDINATES READING CCW FROM UPPER LEFT HAND CORNER NEAREST ORIGIN,COORDINATES ARE DIMENSIONLESS

(X1,Z1)	(X2,Z2)	(X3,Z3)	(X4,Z4)
-5.500E 00 0.000E-39	-5.500E 00 5.000E 00	5.500E 00 5.000E 00	5.500E 00 0.000E-39
-2.500E 00 1.000E 00	-2.500E 00 5.000E 00	0.000E-39 5.000E 00	0.000E-39 1.000E 00
-2.500E 00 5.000E 00	-2.500E 00 1.000E 01	0.000E-39 1.000E 01	0.000E-39 5.000E 00

TOTAL FIELD SENSOR AT HEIGHT 1.0000 DIMENSIONLESS UNITS ABOVE X-Y PLANE

*** ANOMALY CALCULATIONS ***

X =	-1.500E 01	T =	3.260E 01	DT/DX =	6.715E 00	DT/DZ =	-6.920E 00	(DT/DZ)/(DT/DX) =	-1.031
X =	-1.450E 01	T =	3.620E 01	DT/DX =	7.713E 00	DT/DZ =	-7.468E 00	(DT/DZ)/(DT/DX) =	-0.968
X =	-1.400E 01	T =	4.034E 01	DT/DX =	8.899E 00	DT/DZ =	-8.053E 00	(DT/DZ)/(DT/DX) =	-0.905
X =	-1.350E 01	T =	4.514E 01	DT/DX =	1.032E 01	DT/DZ =	-8.670E 00	(DT/DZ)/(DT/DX) =	-0.841
X =	-1.300E 01	T =	5.071E 01	DT/DX =	1.202E 01	DT/DZ =	-9.308E 00	(DT/DZ)/(DT/DX) =	-0.775
X =	-1.250E 01	T =	5.721E 01	DT/DX =	1.407E 01	DT/DZ =	-9.949E 00	(DT/DZ)/(DT/DX) =	-0.707
X =	-1.200E 01	T =	6.485E 01	DT/DX =	1.657E 01	DT/DZ =	-1.056E 01	(DT/DZ)/(DT/DX) =	-0.638
X =	-1.150E 01	T =	7.387E 01	DT/DX =	1.961E 01	DT/DZ =	-1.110E 01	(DT/DZ)/(DT/DX) =	-0.566
X =	-1.100E 01	T =	8.458E 01	DT/DX =	2.335E 01	DT/DZ =	-1.148E 01	(DT/DZ)/(DT/DX) =	-0.492
X =	-1.050E 01	T =	9.737E 01	DT/DX =	2.798E 01	DT/DZ =	-1.157E 01	(DT/DZ)/(DT/DX) =	-0.414
X =	-1.000E 01	T =	1.127E 02	DT/DX =	3.373E 01	DT/DZ =	-1.118E 01	(DT/DZ)/(DT/DX) =	-0.332
X =	-9.500E 00	T =	1.313E 02	DT/DX =	4.094E 01	DT/DZ =	-9.970E 00	(DT/DZ)/(DT/DX) =	-0.244
X =	-9.000E 00	T =	1.540E 02	DT/DX =	5.002E 01	DT/DZ =	-7.377E 00	(DT/DZ)/(DT/DX) =	-0.148
X =	-8.500E 00	T =	1.818E 02	DT/DX =	6.151E 01	DT/DZ =	-2.435E 00	(DT/DZ)/(DT/DX) =	-0.040
X =	-8.000E 00	T =	2.160E 02	DT/DX =	7.605E 01	DT/DZ =	6.631E 00	(DT/DZ)/(DT/DX) =	0.087
X =	-7.500E 00	T =	2.584E 02	DT/DX =	9.404E 01	DT/DZ =	2.324E 01	(DT/DZ)/(DT/DX) =	0.247
X =	-7.000E 00	T =	3.104E 02	DT/DX =	1.141E 02	DT/DZ =	5.421E 01	(DT/DZ)/(DT/DX) =	0.475
X =	-6.500E 00	T =	3.715E 02	DT/DX =	1.269E 02	DT/DZ =	1.118E 02	(DT/DZ)/(DT/DX) =	0.881
X =	-6.000E 00	T =	4.302E 02	DT/DX =	9.531E 01	DT/DZ =	2.032E 02	(DT/DZ)/(DT/DX) =	2.132
X =	-5.500E 00	T =	4.497E 02	DT/DX =	-3.213E 01	DT/DZ =	2.614E 02	(DT/DZ)/(DT/DX) =	-8.137
X =	-5.000E 00	T =	3.982E 02	DT/DX =	-1.589E 02	DT/DZ =	1.896E 02	(DT/DZ)/(DT/DX) =	-1.193
X =	-4.500E 00	T =	3.082E 02	DT/DX =	-1.878E 02	DT/DZ =	8.309E 01	(DT/DZ)/(DT/DX) =	-0.442
X =	-4.000E 00	T =	2.182E 02	DT/DX =	-1.679E 02	DT/DZ =	7.900E 00	(DT/DZ)/(DT/DX) =	-0.047
X =	-3.500E 00	T =	1.428E 02	DT/DX =	-1.321E 02	DT/DZ =	-4.155E 01	(DT/DZ)/(DT/DX) =	0.315
X =	-3.000E 00	T =	8.781E 01	DT/DX =	-8.639E 01	DT/DZ =	-7.154E 01	(DT/DZ)/(DT/DX) =	0.828
X =	-2.500E 00	T =	5.746E 01	DT/DX =	-3.472E 01	DT/DZ =	-7.885E 01	(DT/DZ)/(DT/DX) =	2.271
X =	-2.000E 00	T =	5.222E 01	DT/DX =	1.167E 01	DT/DZ =	-6.081E 01	(DT/DZ)/(DT/DX) =	-5.209
X =	-1.500E 00	T =	6.615E 01	DT/DX =	4.041E 01	DT/DZ =	-2.392E 01	(DT/DZ)/(DT/DX) =	-0.592
X =	-1.000E 00	T =	8.871E 01	DT/DX =	4.585E 01	DT/DZ =	2.007E 01	(DT/DZ)/(DT/DX) =	0.438
X =	-5.000E-01	T =	1.081E 02	DT/DX =	2.836E 01	DT/DZ =	5.924E 01	(DT/DZ)/(DT/DX) =	2.089

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X =  0.000E-39 T =  1.142E 02 DT/DX = -5.778E 00 DT/DZ =  8.246E 01 (DT/DZ)/(DT/DX) =    -14.271
X =  5.000E-01 T =  1.018E 02 DT/DX = -4.352E 01 DT/DZ =  8.475E 01 (DT/DZ)/(DT/DX) =     -1.948
X =  1.000E 00 T =  7.213E 01 DT/DX = -7.325E 01 DT/DZ =  7.199E 01 (DT/DZ)/(DT/DX) =     -0.983
X =  1.500E 00 T =  3.029E 01 DT/DX = -9.262E 01 DT/DZ =  5.397E 01 (DT/DZ)/(DT/DX) =     -0.583
X =  2.000E 00 T = -1.942E 01 DT/DX = -1.055E 02 DT/DZ =  3.638E 01 (DT/DZ)/(DT/DX) =     -0.345
X =  2.500E 00 T = -7.493E 01 DT/DX = -1.166E 02 DT/DZ =  2.003E 01 (DT/DZ)/(DT/DX) =     -0.172
X =  3.000E 00 T = -1.362E 02 DT/DX = -1.291E 02 DT/DZ =  2.788E 00 (DT/DZ)/(DT/DX) =     -0.022
X =  3.500E 00 T = -2.046E 02 DT/DX = -1.450E 02 DT/DZ = -1.971E 01 (DT/DZ)/(DT/DX) =      0.136
X =  4.000E 00 T = -2.818E 02 DT/DX = -1.637E 02 DT/DZ = -5.525E 01 (DT/DZ)/(DT/DX) =      0.338
X =  4.500E 00 T = -3.674E 02 DT/DX = -1.759E 02 DT/DZ = -1.170E 02 (DT/DZ)/(DT/DX) =      0.666
X =  5.000E 00 T = -4.506E 02 DT/DX = -1.446E 02 DT/DZ = -2.130E 02 (DT/DZ)/(DT/DX) =      1.473
X =  5.500E 00 T = -4.950E 02 DT/DX = -1.800E 01 DT/DZ = -2.772E 02 (DT/DZ)/(DT/DX) =     15.395
X =  6.000E 00 T = -4.687E 02 DT/DX =  1.081E 02 DT/DZ = -2.136E 02 (DT/DZ)/(DT/DX) =     -1.976
X =  6.500E 00 T = -4.040E 02 DT/DX =  1.380E 02 DT/DZ = -1.185E 02 (DT/DZ)/(DT/DX) =     -0.859
X =  7.000E 00 T = -3.378E 02 DT/DX =  1.236E 02 DT/DZ = -5.840E 01 (DT/DZ)/(DT/DX) =     -0.472
X =  7.500E 00 T = -2.814E 02 DT/DX =  1.020E 02 DT/DZ = -2.575E 01 (DT/DZ)/(DT/DX) =     -0.252
X =  8.000E 00 T = -2.354E 02 DT/DX =  8.269E 01 DT/DZ = -8.005E 00 (DT/DZ)/(DT/DX) =     -0.097
X =  8.500E 00 T = -1.981E 02 DT/DX =  6.703E 01 DT/DZ =  1.813E 00 (DT/DZ)/(DT/DX) =      0.027
X =  9.000E 00 T = -1.678E 02 DT/DX =  5.460E 01 DT/DZ =  7.247E 00 (DT/DZ)/(DT/DX) =      0.133
X =  9.500E 00 T = -1.431E 02 DT/DX =  4.475E 01 DT/DZ =  1.015E 01 (DT/DZ)/(DT/DX) =      0.227
X =  1.000E 01 T = -1.227E 02 DT/DX =  3.691E 01 DT/DZ =  1.156E 01 (DT/DZ)/(DT/DX) =      0.313
X =  1.050E 01 T = -1.059E 02 DT/DX =  3.063E 01 DT/DZ =  1.207E 01 (DT/DZ)/(DT/DX) =      0.394
X =  1.100E 01 T = -9.192E 01 DT/DX =  2.557E 01 DT/DZ =  1.203E 01 (DT/DZ)/(DT/DX) =      0.470
X =  1.150E 01 T = -8.019E 01 DT/DX =  2.147E 01 DT/DZ =  1.167E 01 (DT/DZ)/(DT/DX) =      0.544
X =  1.200E 01 T = -7.032E 01 DT/DX =  1.813E 01 DT/DZ =  1.114E 01 (DT/DZ)/(DT/DX) =      0.614
X =  1.250E 01 T = -6.196E 01 DT/DX =  1.540E 01 DT/DZ =  1.051E 01 (DT/DZ)/(DT/DX) =      0.682
X =  1.300E 01 T = -5.484E 01 DT/DX =  1.314E 01 DT/DZ =  9.842E 00 (DT/DZ)/(DT/DX) =      0.749
X =  1.350E 01 T = -4.875E 01 DT/DX =  1.127E 01 DT/DZ =  9.175E 00 (DT/DZ)/(DT/DX) =      0.814
X =  1.400E 01 T = -4.351E 01 DT/DX =  9.718E 00 DT/DZ =  8.526E 00 (DT/DZ)/(DT/DX) =      0.877
X =  1.450E 01 T = -3.899E 01 DT/DX =  8.415E 00 DT/DZ =  7.909E 00 (DT/DZ)/(DT/DX) =      0.940

 END EXECUTION  13JOB  BCDCS 00052.26
```

STATISTICS
OVERFLOWS 00000 UNDERFLOWS 00000 DIV CHKS 00000 SUBR ERRORS 00000 EXEC LINES 00602 CARDS READ 00009 CRDS PNCHED 00000
PLOT LINES 00000

TERMINATION TRACE. NO LINES IF RETURN FROM MAIN PROGRAM.

CALLING ROUTINE	IFN OR LINE NO.	ABSOLUTE LOCATION
VARIAN	226	32040

END OF TRACE

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XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
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OBRIEN

  JOB   4189 ACCOUNTING.    ENTERED  7094       12/10/66    14.56.34                                SEQ.   342

                          H  M  S
  TOTAL 7040 TIME       01.21.49
  TOTAL 7094 TIME       00.00.53
  7094 EXECUTION TIME   00.00.17
  TOTAL CARDS READ      000177
  TOTAL CARDS PUNCHED **000081  ON 2
  TOTAL LINES PRINTED   001436  ON 1
  TAPES USED            000000
  NUMBER OF COPIES      000001

  TIME LEFT ON JOB      000.75 HRS.
  RUSH TIME LEFT        000.75 HRS.



INPUT IS BEING ACCEPTED FOR THE CAL CDC 6400. RATE=$420/HR. SAMPLE JOB CARD--

                         JOB NAME,7,TL,FL.JOB NUMBER,NAME
JOB NAME = 7 OR LESS ALPHANUMERIC CHARACTERS BEGINNING WITH A LETTER.
7 = PRIORITY.
TL = TIME LIMIT IN OCTAL SECONDS.
FL = FIELD LENGTH. MAXIMUM IS 55000 OCTAL. THIS MUST BE FOLLOWED BY A PERIOD.
JOB NUMBER = COMPUTER CENTER ACCOUNT NUMBER.  NAME = JOHN USER.



XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
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```

JOB 1855, OPERATOR, NO INPUT ** 012
12/10/66 15.04.03
JOB 1855, OPERATOR, NO INPUT ** 012
12/10/66 15.04.03
JOB 1855, OPERATOR, NO INPUT ** 012
12/10/66 15.04.03
JOB 1855, OPERATOR, NO INPUT ** 012
12/10/66 15.04.03
JOB 1855, OPERATOR, NO INPUT ** 012
12/10/66 15.04.03
JOB 1855, OPERATOR, NO INPUT ** 012
12/10/66 15.04.03

JOB 1855, OPERATOR, NO INPUT ** 012
12/10/66 15.04.03
JOB 1855, OPERATOR, NO INPUT ** 012
12/10/66 15.04.03
JOB 1855, OPERATOR, NO INPUT ** 012
12/10/66 15.04.03

All calculations in this seam of output are for the brick mass alone

* MEMORY MAP *

SYSTEM	00000 THRU	02717
FILE BLOCK ORIGIN	02720	
FILES 1. UNITPR		
2. UNITRD		
FILE LIST ORIGIN	02750	
PRE-EXECUTION INITIALIZATION	02754	
CALL ON OBJECT PROGRAM	02777	
OBJECT PROGRAM	03004 THRU	45270

DECK	ORIGIN	CONTROL SECTIONS	(/NAME/=NON 0 LENGTH, (LOC)=DELETED, *=NOT REFERENCED)									
1. VARIAN	03004	EVEN	03005	.....	32052 *							
2. .LXCON	32103	.LXSTR	32103 *	.LXSTP	32106	.LX40	32110 *	IBEXIT	32111 *	.LXERR	32112	
		.LXRTN	32113	.LXOUT	32220	.DBCLS	32412 *	.LXARG	32623	(EPTC)	32701	
		.LINCT	32702	.RDCT	32703	.CRDCT	32704 *	.PLTCT	32705 *	.LO	32710 *	
		.CLSE	32716	.LFBL	32717 *	.LUNB	32720	.DFOUT	32721			
3. .IODEF	32730	.DEFIN	32730	.ATTAC	32734 *	.CLOSE	32736	.OPEN	32740	.READ	32742	
		.WRITE	32744	.BSR	32754 *	.READR	32764 *	.RELES	32766 *	.LAREA	32777 *	
		.LFBLK	33015	.LTSX	33020 *	.AREA1	33032	.LUNBL	33040 *	.ENTRY	33044	
		.SOA	33077	.GO	33103	.DERR	33117	.NOPXI	33120	.COMXI	33122	
		.EX34	33144									
4. .IOCSF	33151											
5. .LXSL	35453	.LXSEL	35453	.LXTST	35470 *	.LXOVL	35530 *	.LXRCT	35536 *	.LXIND	35605 *	
		.LXDIS	35610 *	.LXFLG	35611 *	.LTCH	35612					
6. .EPTRP	35617	.EEPT.	35617 *	.TRPRT	35631 *	(QUOT)	36025 *	EVEN	36113	FTMOPT	36142 *	
		FTMSET	36217 *	OVFLOW	36230	FTSLOC	36231					
7. .ERAS.	36245	CC.1	36245	CC.2	36246	CC.3	36247	CC.4	36250	E.1	36251	
		E.2	36252	E.3	36253	E.4	36254					
8. XIT	36255	EXIT	36255	.EXIT.	36255							
9. FXEM	36257	.FXEM.	36307	TRACE.	36626	TRACE	36657 *	TRACEX	36660 *	.FXOUT	37030	
		.FXARG	37043	FXMSET	37115	FXMSET	(37115)					
10. FOUT	37271	.FOUT.	37271									
11. FCNV	37341	.FCON.	37341	.FCNV.	37360	.ENDFS	37372	.CNVSW	37374	.FDX1	37400	
		.FDX2	37401	.DBC	37403	.DBC10	37541	.DBC20	37567	.DDSW	37577	
		.DDFIX	37606	.FIXSW	37614	.DDBC	37671	.DDRS1	40126	.DDRS2	40130 *	
		.D1	40133	.D2	40135	DPIO	40316 *	.SPIOS	40364	.FERR2	40376 *	
		.ANPT	40433	.ONPT	40450	.LNTP	40524	.AOUT	40564	.DFLT	40602	
		.FLT	40746	.DEXPN	41036	.FXD	41037	.HOUT	41172	.INTG	41242	
		.LOUT	41361	.DOUT	41400	.XCF	41431	TRUNC	41627 *	EVEN	42145	
		.TEST	42272 *	.KOUNT	42275	.LIST	42300	.DONE	42311	.OUTBF	42314	
		EVEN	42313	.BUF	42343	.QSTO	42344	.WIDTH	42345	.GAIN	42346	
		.GAIN1	42347	.FBDBF	42357	EVEN	42367	.DDDFL	42404	.DDFLG	42405	
		.MOD	42406	.PEX	42407	.FEXP	42410	.DIG	42411			
12. FIOS	42441	.FIOS.	42441	.FSEL.	42607	.INTBF	42611	.FILR.	42615 *	.FRTB.	42625 *	
		.FRTD.	42632	.FILL.	42640	.LBL.	43002 *	.REED	43021 *	.BIN	43022 *	
		.FCT	43023	.FCBLC	43024	.FCKSZ	43025 *					
13. FIOH	43056	.FIOH.	43056	.RTER.	43722	.FFIL.	43743	.FRTN.	43774	.FMLOC	44066	
14. FWRD	44115	.FWRD.	44115 *	FPRN.	44121	.PNCH.	44152 *					
15. FRDD	44170	.FRDD.	44170 *	FRCD.	44174							
16. FPRN	44233	.FPRN.	44233									

```
17. UNPR    44240    .UNPR.   44240     .BUFSZ  44241 *
18. UNRD    44242    .UNRD.   44242
19. FLOG    44243    ALOG10   44243 *   ALOG    44244
20. FSCN    44474    COS      44474     SIN     44475
21. FSQR    44704    SQRT     44704
22. FATN    44761    ATAN2    44761     ATAN    44762 *
23. FRCD    45216    .FRCD.   45216
24. EXP38.  45223    RSE38.   45227 *   RSEZ.   45233
25. FFPA.   45237    RSEMM.   45243
26. AF88.   45250    AGTNA.   45255
27. MEOTF.  45261    MEOTF.  (45261)
28. JT.     45265

I/O BUFFERS                          45271 THRU  77760

UNUSED CORE                          77761 THRU  77777

BEGIN EXECUTION  13JOB  BCDCS 00038.95
```

*** MAGNETIC ENVIRONMENT ***

TOTAL MAGNETIC INTENSITY (GAMMAS) = 4.0000E 04 DIP ANGLE (DEGREES) = 45.0 ← field constants for Egypt (approx.)
SUSCEPTIBILITY OF BODY 1 IN EMU UNITS = 4.0000E-03 ← body 1 is the brick mass
STRIKE OF BODY RELATIVE TO MAGNETIC NORTH = 0.00 (DEGREES)

*** COORDINATES OF BODY, GRID INTERVAL ***

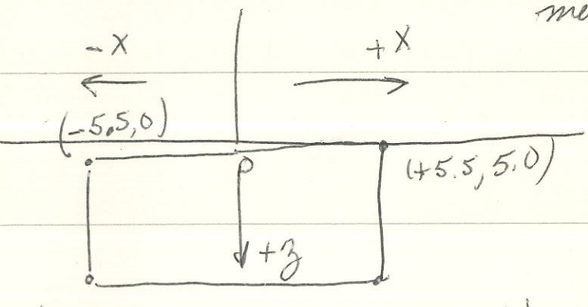
SURVEY ORIGIN, X = -1.500E 01 GRID INTERVAL = 5.000E-01
(X-Z) COORDINATES READING CCW FROM UPPER LEFT HAND CORNER NEAREST ORIGIN, COORDINATES ARE DIMENSIONLESS

(X1,Z1)		(X2,Z2)		(X3,Z3)		(X4,Z4)	
-5.500E 00	0.000E-39	-5.500E 00	5.000E 00	5.500E 00	5.000E 00	5.500E 00	0.000E-39

← co-ordinates of body 1, (brick mass)

TOTAL FIELD SENSOR AT HEIGHT 1.0000 DIMENSIONLESS UNITS ABOVE X-Y PLANE

↑ sensor height is 1 unit above x-y plane (for plotting, I let 1 unit = 1 meter)



note Z is positive downward

*** ANOMALY CALCULATIONS ***

EXEM CALLED. ERROR TYPE = 123

forgot it

FLTNG PNT DIVIDE CHECK

ERROR TRACE. CALLS IN REVERSE ORDER.

CALLING ROUTINE	IEN OR LINE NO.	ABSOLUTE LOCATION
VARIAN	199	31752

TOP IEN OR LINE NO. IS LOC OF LAST CALL BEFORE TRAP

END OF TRACE

X coordinate T = ~~total~~ anomalous total field ↑ = ∂T/∂x ↑ ∂T/∂z ↑ (∂T/∂z)/(∂T/∂x)

X =	-1.500E 01	T =	-3.559E 01	DT/DX =	-4.126E 00	DT/DZ =	-4.021E 00	(DT/DZ)/(DT/DX) =	0.974
X =	-1.450E 01	T =	-3.773E 01	DT/DX =	-4.451E 00	DT/DZ =	-4.613E 00	(DT/DZ)/(DT/DX) =	1.036
X =	-1.400E 01	T =	-4.005E 01	DT/DX =	-4.797E 00	DT/DZ =	-5.315E 00	(DT/DZ)/(DT/DX) =	1.108
X =	-1.350E 01	T =	-4.253E 01	DT/DX =	-5.162E 00	DT/DZ =	-6.152E 00	(DT/DZ)/(DT/DX) =	1.192
X =	-1.300E 01	T =	-4.521E 01	DT/DX =	-5.540E 00	DT/DZ =	-7.154E 00	(DT/DZ)/(DT/DX) =	1.291
X =	-1.250E 01	T =	-4.808E 01	DT/DX =	-5.920E 00	DT/DZ =	-8.362E 00	(DT/DZ)/(DT/DX) =	1.413
X =	-1.200E 01	T =	-5.113E 01	DT/DX =	-6.285E 00	DT/DZ =	-9.823E 00	(DT/DZ)/(DT/DX) =	1.563
X =	-1.150E 01	T =	-5.435E 01	DT/DX =	-6.607E 00	DT/DZ =	-1.160E 01	(DT/DZ)/(DT/DX) =	1.756
X =	-1.100E 01	T =	-5.772E 01	DT/DX =	-6.842E 00	DT/DZ =	-1.378E 01	(DT/DZ)/(DT/DX) =	2.014
X =	-1.050E 01	T =	-6.117E 01	DT/DX =	-6.919E 00	DT/DZ =	-1.646E 01	(DT/DZ)/(DT/DX) =	2.379
X =	-1.000E 01	T =	-6.459E 01	DT/DX =	-6.725E 00	DT/DZ =	-1.978E 01	(DT/DZ)/(DT/DX) =	2.941
X =	-9.500E 00	T =	-6.782E 01	DT/DX =	-6.079E 00	DT/DZ =	-2.391E 01	(DT/DZ)/(DT/DX) =	3.934
X =	-9.000E 00	T =	-7.055E 01	DT/DX =	-4.680E 00	DT/DZ =	-2.910E 01	(DT/DZ)/(DT/DX) =	6.218
X =	-8.500E 00	T =	-7.229E 01	DT/DX =	-2.008E 00	DT/DZ =	-3.562E 01	(DT/DZ)/(DT/DX) =	17.742
X =	-8.000E 00	T =	-7.219E 01	DT/DX =	2.872E 00	DT/DZ =	-4.381E 01	(DT/DZ)/(DT/DX) =	-15.253
X =	-7.500E 00	T =	-6.876E 01	DT/DX =	1.174E 01	DT/DZ =	-5.391E 01	(DT/DZ)/(DT/DX) =	-4.591

this data is plotted in figure 2 for strike = 0° (i.e. parallel to magnetic north)

read E 01 = 10^1, E-02 = 10^{-2} etc.

X =	-7.000E 00	T =	-5.922E 01	DT/DX =	2.811E 01	DT/DZ =	-6.525E 01	(DT/DZ)/(DT/DX) =	-2.322
X =	-6.500E 00	T =	-3.836E 01	DT/DX =	5.828E 01	DT/DZ =	-7.310E 01	(DT/DZ)/(DT/DX) =	-1.254
X =	-6.000E 00	T =	2.183E 00	DT/DX =	1.060E 02	DT/DZ =	-5.892E 01	(DT/DZ)/(DT/DX) =	-0.556
X =	-5.500E 00	T =	6.539E 01	DT/DX =	1.381E 02	DT/DZ =	3.216E 00	(DT/DZ)/(DT/DX) =	0.023
X =	-5.000E 00	T =	1.287E 02	DT/DX =	1.066E 02	DT/DZ =	6.541E 01	(DT/DZ)/(DT/DX) =	0.613
X =	-4.500E 00	T =	1.698E 02	DT/DX =	5.953E 01	DT/DZ =	7.975E 01	(DT/DZ)/(DT/DX) =	1.340
X =	-4.000E 00	T =	1.914E 02	DT/DX =	2.998E 01	DT/DZ =	7.219E 01	(DT/DZ)/(DT/DX) =	2.408
X =	-3.500E 00	T =	2.020E 02	DT/DX =	1.425E 01	DT/DZ =	6.125E 01	(DT/DZ)/(DT/DX) =	4.297
X =	-3.000E 00	T =	2.069E 02	DT/DX =	6.031E 00	DT/DZ =	5.171E 01	(DT/DZ)/(DT/DX) =	8.574
X =	-2.500E 00	T =	2.087E 02	DT/DX =	1.805E 00	DT/DZ =	4.422E 01	(DT/DZ)/(DT/DX) =	24.500
X =	-2.000E 00	T =	2.091E 02	DT/DX =	-2.092E-01	DT/DZ =	3.861E 01	(DT/DZ)/(DT/DX) =	-184.600
X =	-1.500E 00	T =	2.087E 02	DT/DX =	-9.556E-01	DT/DZ =	3.456E 01	(DT/DZ)/(DT/DX) =	-36.167
X =	-1.000E 00	T =	2.082E 02	DT/DX =	-9.683E-01	DT/DZ =	3.184E 01	(DT/DZ)/(DT/DX) =	-32.880
X =	-5.000E-01	T =	2.078E 02	DT/DX =	-5.748E-01	DT/DZ =	3.027E 01	(DT/DZ)/(DT/DX) =	-52.652
X =	0.000E-39	T =	2.077E 02	DT/DX =	-0.000E-39	DT/DZ =	2.975E 01	(DT/DZ)/(DT/DX) =	-0.170E 39
X =	5.000E-01	T =	2.078E 02	DT/DX =	5.748E-01	DT/DZ =	3.027E 01	(DT/DZ)/(DT/DX) =	52.652
X =	1.000E 00	T =	2.082E 02	DT/DX =	9.683E-01	DT/DZ =	3.184E 01	(DT/DZ)/(DT/DX) =	32.880
X =	1.500E 00	T =	2.087E 02	DT/DX =	9.556E-01	DT/DZ =	3.456E 01	(DT/DZ)/(DT/DX) =	36.167
X =	2.000E 00	T =	2.091E 02	DT/DX =	2.092E-01	DT/DZ =	3.861E 01	(DT/DZ)/(DT/DX) =	184.600
X =	2.500E 00	T =	2.087E 02	DT/DX =	-1.805E 00	DT/DZ =	4.422E 01	(DT/DZ)/(DT/DX) =	-24.500
X =	3.000E 00	T =	2.069E 02	DT/DX =	-6.031E 00	DT/DZ =	5.171E 01	(DT/DZ)/(DT/DX) =	-8.574
X =	3.500E 00	T =	2.020E 02	DT/DX =	-1.425E 01	DT/DZ =	6.125E 01	(DT/DZ)/(DT/DX) =	-4.297
X =	4.000E 00	T =	1.914E 02	DT/DX =	-2.998E 01	DT/DZ =	7.219E 01	(DT/DZ)/(DT/DX) =	-2.408
X =	4.500E 00	T =	1.698E 02	DT/DX =	-5.953E 01	DT/DZ =	7.975E 01	(DT/DZ)/(DT/DX) =	-1.340
X =	5.000E 00	T =	1.287E 02	DT/DX =	-1.066E 02	DT/DZ =	6.541E 01	(DT/DZ)/(DT/DX) =	-0.613
X =	5.500E 00	T =	6.539E 01	DT/DX =	-1.381E 02	DT/DZ =	3.216E 00	(DT/DZ)/(DT/DX) =	-0.023
X =	6.000E 00	T =	2.183E 00	DT/DX =	-1.060E 02	DT/DZ =	-5.892E 01	(DT/DZ)/(DT/DX) =	0.556
X =	6.500E 00	T =	-3.836E 01	DT/DX =	-5.828E 01	DT/DZ =	-7.310E 01	(DT/DZ)/(DT/DX) =	1.254
X =	7.000E 00	T =	-5.922E 01	DT/DX =	-2.811E 01	DT/DZ =	-6.525E 01	(DT/DZ)/(DT/DX) =	2.322
X =	7.500E 00	T =	-6.876E 01	DT/DX =	-1.174E 01	DT/DZ =	-5.391E 01	(DT/DZ)/(DT/DX) =	4.591
X =	8.000E 00	T =	-7.219E 01	DT/DX =	-2.872E 00	DT/DZ =	-4.381E 01	(DT/DZ)/(DT/DX) =	15.253
X =	8.500E 00	T =	-7.229E 01	DT/DX =	2.008E 00	DT/DZ =	-3.562E 01	(DT/DZ)/(DT/DX) =	-17.742
X =	9.000E 00	T =	-7.055E 01	DT/DX =	4.680E 00	DT/DZ =	-2.910E 01	(DT/DZ)/(DT/DX) =	-6.218
X =	9.500E 00	T =	-6.782E 01	DT/DX =	6.079E 00	DT/DZ =	-2.391E 01	(DT/DZ)/(DT/DX) =	-3.934
X =	1.000E 01	T =	-6.459E 01	DT/DX =	6.725E 00	DT/DZ =	-1.978E 01	(DT/DZ)/(DT/DX) =	-2.941
X =	1.050E 01	T =	-6.117E 01	DT/DX =	6.919E 00	DT/DZ =	-1.646E 01	(DT/DZ)/(DT/DX) =	-2.379
X =	1.100E 01	T =	-5.772E 01	DT/DX =	6.842E 00	DT/DZ =	-1.378E 01	(DT/DZ)/(DT/DX) =	-2.014
X =	1.150E 01	T =	-5.435E 01	DT/DX =	6.607E 00	DT/DZ =	-1.160E 01	(DT/DZ)/(DT/DX) =	-1.756
X =	1.200E 01	T =	-5.113E 01	DT/DX =	6.285E 00	DT/DZ =	-9.823E 00	(DT/DZ)/(DT/DX) =	-1.563
X =	1.250E 01	T =	-4.808E 01	DT/DX =	5.920E 00	DT/DZ =	-8.362E 00	(DT/DZ)/(DT/DX) =	-1.413
X =	1.300E 01	T =	-4.521E 01	DT/DX =	5.540E 00	DT/DZ =	-7.154E 00	(DT/DZ)/(DT/DX) =	-1.291
X =	1.350E 01	T =	-4.253E 01	DT/DX =	5.162E 00	DT/DZ =	-6.152E 00	(DT/DZ)/(DT/DX) =	-1.192
X =	1.400E 01	T =	-4.005E 01	DT/DX =	4.797E 00	DT/DZ =	-5.315E 00	(DT/DZ)/(DT/DX) =	-1.108
X =	1.450E 01	T =	-3.773E 01	DT/DX =	4.451E 00	DT/DZ =	-4.613E 00	(DT/DZ)/(DT/DX) =	-1.036

*** MAGNETIC ENVIRONMENT ***

TOTAL MAGNETIC INTENSITY (GAMMAS) = 4.0000E 04 DIP ANGLE (DEGREES) = 45.0
SUSCEPTIBILITY OF BODY 1 IN EMU UNITS = 4.0000E-03
STRIKE OF BODY RELATIVE TO MAGNETIC NORTH = 15.00 (DEGREES)

*** COORDINATES OF BODY, GRID INTERVAL ***

SURVEY ORIGIN, X = -1.500E 01 GRID INTERVAL = 5.000E-01
(X-Z) COORDINATES READING CCW FROM UPPER LEFT HAND CORNER NEAREST ORIGIN,COORDINATES ARE DIMENSIONLESS

(X1,Z1)	(X2,Z2)	(X3,Z3)	(X4,Z4)
-5.500E 00 0.000E-39	-5.500E 00 5.000E 00	5.500E 00 5.000E 00	5.500E 00 0.000E-39

TOTAL FIELD SENSOR AT HEIGHT 1.0000 DIMENSIONLESS UNITS ABOVE X-Y PLANE

*** ANOMALY CALCULATIONS ***

X = -1.500E 01	T = -2.307E 01	DT/DX = -1.769E 00	DT/DZ = -5.887E 00	(DT/DZ)/(DT/DX) = 3.329
X = -1.450E 01	T = -2.395E 01	DT/DX = -1.765E 00	DT/DZ = -6.608E 00	(DT/DZ)/(DT/DX) = 3.743
X = -1.400E 01	T = -2.483E 01	DT/DX = -1.725E 00	DT/DZ = -7.442E 00	(DT/DZ)/(DT/DX) = 4.315
X = -1.350E 01	T = -2.567E 01	DT/DX = -1.632E 00	DT/DZ = -8.412E 00	(DT/DZ)/(DT/DX) = 5.155
X = -1.300E 01	T = -2.645E 01	DT/DX = -1.465E 00	DT/DZ = -9.543E 00	(DT/DZ)/(DT/DX) = 6.513
X = -1.250E 01	T = -2.712E 01	DT/DX = -1.195E 00	DT/DZ = -1.087E 01	(DT/DZ)/(DT/DX) = 9.095
X = -1.200E 01	T = -2.762E 01	DT/DX = -7.786E-01	DT/DZ = -1.242E 01	(DT/DZ)/(DT/DX) = 15.950
X = -1.150E 01	T = -2.786E 01	DT/DX = -1.583E-01	DT/DZ = -1.424E 01	(DT/DZ)/(DT/DX) = 89.973
X = -1.100E 01	T = -2.773E 01	DT/DX = 7.497E-01	DT/DZ = -1.640E 01	(DT/DZ)/(DT/DX) = -21.874
X = -1.050E 01	T = -2.704E 01	DT/DX = 2.065E 00	DT/DZ = -1.894E 01	(DT/DZ)/(DT/DX) = -9.170
X = -1.000E 01	T = -2.557E 01	DT/DX = 3.964E 00	DT/DZ = -2.194E 01	(DT/DZ)/(DT/DX) = -5.534
X = -9.500E 00	T = -2.294E 01	DT/DX = 6.707E 00	DT/DZ = -2.546E 01	(DT/DZ)/(DT/DX) = -3.796
X = -9.000E 00	T = -1.865E 01	DT/DX = 1.070E 01	DT/DZ = -2.957E 01	(DT/DZ)/(DT/DX) = -2.765
X = -8.500E 00	T = -1.193E 01	DT/DX = 1.656E 01	DT/DZ = -3.427E 01	(DT/DZ)/(DT/DX) = -2.069
X = -8.000E 00	T = -1.604E 00	DT/DX = 2.536E 01	DT/DZ = -3.939E 01	(DT/DZ)/(DT/DX) = -1.553
X = -7.500E 00	T = 1.420E 01	DT/DX = 3.886E 01	DT/DZ = -4.422E 01	(DT/DZ)/(DT/DX) = -1.138
X = -7.000E 00	T = 3.852E 01	DT/DX = 6.000E 01	DT/DZ = -4.633E 01	(DT/DZ)/(DT/DX) = -0.772
X = -6.500E 00	T = 7.608E 01	DT/DX = 9.222E 01	DT/DZ = -3.803E 01	(DT/DZ)/(DT/DX) = -0.412
X = -6.000E 00	T = 1.318E 02	DT/DX = 1.294E 02	DT/DZ = -9.185E-02	(DT/DZ)/(DT/DX) = -0.001
X = -5.500E 00	T = 1.990E 02	DT/DX = 1.272E 02	DT/DZ = 7.450E 01	(DT/DZ)/(DT/DX) = 0.586
X = -5.000E 00	T = 2.482E 02	DT/DX = 6.564E 01	DT/DZ = 1.162E 02	(DT/DZ)/(DT/DX) = 1.771
X = -4.500E 00	T = 2.669E 02	DT/DX = 1.426E 01	DT/DZ = 1.052E 02	(DT/DZ)/(DT/DX) = 7.380
X = -4.000E 00	T = 2.672E 02	DT/DX = -9.393E 00	DT/DZ = 8.287E 01	(DT/DZ)/(DT/DX) = -8.822
X = -3.500E 00	T = 2.599E 02	DT/DX = -1.841E 01	DT/DZ = 6.453E 01	(DT/DZ)/(DT/DX) = -3.505
X = -3.000E 00	T = 2.498E 02	DT/DX = -2.114E 01	DT/DZ = 5.136E 01	(DT/DZ)/(DT/DX) = -2.430
X = -2.500E 00	T = 2.392E 02	DT/DX = -2.121E 01	DT/DZ = 4.220E 01	(DT/DZ)/(DT/DX) = -1.990
X = -2.000E 00	T = 2.288E 02	DT/DX = -2.018E 01	DT/DZ = 3.591E 01	(DT/DZ)/(DT/DX) = -1.780
X = -1.500E 00	T = 2.191E 02	DT/DX = -1.878E 01	DT/DZ = 3.175E 01	(DT/DZ)/(DT/DX) = -1.691
X = -1.000E 00	T = 2.100E 02	DT/DX = -1.738E 01	DT/DZ = 2.920E 01	(DT/DZ)/(DT/DX) = -1.680
X = -5.000E-01	T = 2.016E 02	DT/DX = -1.620E 01	DT/DZ = 2.794E 01	(DT/DZ)/(DT/DX) = -1.724
X = 0.000E-39	T = 1.938E 02	DT/DX = -1.540E 01	DT/DZ = 2.776E 01	(DT/DZ)/(DT/DX) = -1.802
X = 5.000E-01	T = 1.862E 02	DT/DX = -1.513E 01	DT/DZ = 2.854E 01	(DT/DZ)/(DT/DX) = -1.886
X = 1.000E 00	T = 1.785E 02	DT/DX = -1.558E 01	DT/DZ = 3.021E 01	(DT/DZ)/(DT/DX) = -1.939
X = 1.500E 00	T = 1.704E 02	DT/DX = -1.700E 01	DT/DZ = 3.274E 01	(DT/DZ)/(DT/DX) = -1.926

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X =  2.000E 00 T =  1.613E 02 DT/DX = -1.979E 01 DT/DZ =  3.613E 01 (DT/DZ)/(DT/DX) =    -1.826
X =  2.500E 00 T =  1.503E 02 DT/DX = -2.458E 01 DT/DZ =  4.033E 01 (DT/DZ)/(DT/DX) =    -1.641
X =  3.000E 00 T =  1.362E 02 DT/DX = -3.239E 01 DT/DZ =  4.512E 01 (DT/DZ)/(DT/DX) =    -1.393
X =  3.500E 00 T =  1.171E 02 DT/DX = -4.501E 01 DT/DZ =  4.977E 01 (DT/DZ)/(DT/DX) =    -1.106
X =  4.000E 00 T =  8.992E 01 DT/DX = -6.534E 01 DT/DZ =  5.183E 01 (DT/DZ)/(DT/DX) =    -0.793
X =  4.500E 00 T =  4.988E 01 DT/DX = -9.682E 01 DT/DZ =  4.359E 01 (DT/DZ)/(DT/DX) =    -0.450
X =  5.000E 00 T = -7.990E 00 DT/DX = -1.334E 02 DT/DZ =  5.822E 00 (DT/DZ)/(DT/DX) =    -0.044
X =  5.500E 00 T = -7.694E 01 DT/DX = -1.305E 02 DT/DZ = -6.850E 01 (DT/DZ)/(DT/DX) =     0.525
X =  6.000E 00 T = -1.277E 02 DT/DX = -6.842E 01 DT/DZ = -1.099E 02 (DT/DZ)/(DT/DX) =     1.606
X =  6.500E 00 T = -1.477E 02 DT/DX = -1.654E 01 DT/DZ = -9.837E 01 (DT/DZ)/(DT/DX) =     5.948
X =  7.000E 00 T = -1.490E 02 DT/DX =  7.553E 00 DT/DZ = -7.543E 01 (DT/DZ)/(DT/DX) =    -9.987
X =  7.500E 00 T = -1.425E 02 DT/DX =  1.695E 01 DT/DZ = -5.638E 01 (DT/DZ)/(DT/DX) =    -3.326
X =  8.000E 00 T = -1.331E 02 DT/DX =  2.000E 01 DT/DZ = -4.237E 01 (DT/DZ)/(DT/DX) =    -2.118
X =  8.500E 00 T = -1.230E 02 DT/DX =  2.031E 01 DT/DZ = -3.219E 01 (DT/DZ)/(DT/DX) =    -1.585
X =  9.000E 00 T = -1.130E 02 DT/DX =  1.943E 01 DT/DZ = -2.472E 01 (DT/DZ)/(DT/DX) =    -1.273
X =  9.500E 00 T = -1.036E 02 DT/DX =  1.805E 01 DT/DZ = -1.917E 01 (DT/DZ)/(DT/DX) =    -1.062
X =  1.000E 01 T = -9.497E 01 DT/DX =  1.651E 01 DT/DZ = -1.497E 01 (DT/DZ)/(DT/DX) =    -0.907
X =  1.050E 01 T = -8.710E 01 DT/DX =  1.498E 01 DT/DZ = -1.178E 01 (DT/DZ)/(DT/DX) =    -0.786
X =  1.100E 01 T = -7.998E 01 DT/DX =  1.352E 01 DT/DZ = -9.315E 00 (DT/DZ)/(DT/DX) =    -0.689
X =  1.150E 01 T = -7.356E 01 DT/DX =  1.217E 01 DT/DZ = -7.405E 00 (DT/DZ)/(DT/DX) =    -0.608
X =  1.200E 01 T = -6.779E 01 DT/DX =  1.095E 01 DT/DZ = -5.912E 00 (DT/DZ)/(DT/DX) =    -0.540
X =  1.250E 01 T = -6.259E 01 DT/DX =  9.851E 00 DT/DZ = -4.737E 00 (DT/DZ)/(DT/DX) =    -0.481
X =  1.300E 01 T = -5.792E 01 DT/DX =  8.872E 00 DT/DZ = -3.808E 00 (DT/DZ)/(DT/DX) =    -0.429
X =  1.350E 01 T = -5.370E 01 DT/DX =  8.001E 00 DT/DZ = -3.068E 00 (DT/DZ)/(DT/DX) =    -0.383
X =  1.400E 01 T = -4.990E 01 DT/DX =  7.227E 00 DT/DZ = -2.475E 00 (DT/DZ)/(DT/DX) =    -0.343
X =  1.450E 01 T = -4.646E 01 DT/DX =  6.540E 00 DT/DZ = -2.000E 00 (DT/DZ)/(DT/DX) =    -0.306
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*** MAGNETIC ENVIRONMENT ***

TOTAL MAGNETIC INTENSITY (GAMMAS) = 4.0000E 04 DIP ANGLE (DEGREES) = 45.0
SUSCEPTIBILITY OF BODY 1 IN EMU UNITS = 4.0000E-03
STRIKE OF BODY RELATIVE TO MAGNETIC NORTH = 30.00 (DEGREES)

*** COORDINATES OF BODY, GRID INTERVAL ***

SURVEY ORIGIN, X = -1.500E 01 GRID INTERVAL = 5.000E-01
(X-Z) COORDINATES READING CCW FROM UPPER LEFT HAND CORNER NEAREST ORIGIN,COORDINATES ARE DIMENSIONLESS

(X1,Z1)	(X2,Z2)	(X3,Z3)	(X4,Z4)
-5.500E 00 0.000E-39	-5.500E 00 5.000E 00	5.500E 00 5.000E 00	5.500E 00 0.000E-39

TOTAL FIELD SENSOR AT HEIGHT 1.0000 DIMENSIONLESS UNITS ABOVE X-Y PLANE

*** ANOMALY CALCULATIONS ***

X =	-1.500E 01	T =	-7.106E 00	DT/DX =	9.260E-01	DT/DZ =	-7.142E 00	(DT/DZ)/(DT/DX) =	-7.712
X =	-1.450E 01	T =	-6.559E 00	DT/DX =	1.274E 00	DT/DZ =	-7.910E 00	(DT/DZ)/(DT/DX) =	-6.207
X =	-1.400E 01	T =	-5.816E 00	DT/DX =	1.717E 00	DT/DZ =	-8.783E 00	(DT/DZ)/(DT/DX) =	-5.116
X =	-1.350E 01	T =	-4.822E 00	DT/DX =	2.280E 00	DT/DZ =	-9.776E 00	(DT/DZ)/(DT/DX) =	-4.287
X =	-1.300E 01	T =	-3.509E 00	DT/DX =	3.000E 00	DT/DZ =	-1.091E 01	(DT/DZ)/(DT/DX) =	-3.635
X =	-1.250E 01	T =	-1.789E 00	DT/DX =	3.922E 00	DT/DZ =	-1.219E 01	(DT/DZ)/(DT/DX) =	-3.108
X =	-1.200E 01	T =	4.568E-01	DT/DX =	5.110E 00	DT/DZ =	-1.365E 01	(DT/DZ)/(DT/DX) =	-2.672
X =	-1.150E 01	T =	3.379E 00	DT/DX =	6.647E 00	DT/DZ =	-1.531E 01	(DT/DZ)/(DT/DX) =	-2.303
X =	-1.100E 01	T =	7.181E 00	DT/DX =	8.649E 00	DT/DZ =	-1.718E 01	(DT/DZ)/(DT/DX) =	-1.986
X =	-1.050E 01	T =	1.213E 01	DT/DX =	1.127E 01	DT/DZ =	-1.926E 01	(DT/DZ)/(DT/DX) =	-1.709
X =	-1.000E 01	T =	1.859E 01	DT/DX =	1.474E 01	DT/DZ =	-2.156E 01	(DT/DZ)/(DT/DX) =	-1.463
X =	-9.500E 00	T =	2.706E 01	DT/DX =	1.936E 01	DT/DZ =	-2.402E 01	(DT/DZ)/(DT/DX) =	-1.241
X =	-9.000E 00	T =	3.822E 01	DT/DX =	2.559E 01	DT/DZ =	-2.650E 01	(DT/DZ)/(DT/DX) =	-1.036
X =	-8.500E 00	T =	5.303E 01	DT/DX =	3.411E 01	DT/DZ =	-2.872E 01	(DT/DZ)/(DT/DX) =	-0.842
X =	-8.000E 00	T =	7.288E 01	DT/DX =	4.597E 01	DT/DZ =	-2.999E 01	(DT/DZ)/(DT/DX) =	-0.652
X =	-7.500E 00	T =	9.981E 01	DT/DX =	6.272E 01	DT/DZ =	-2.869E 01	(DT/DZ)/(DT/DX) =	-0.457
X =	-7.000E 00	T =	1.367E 02	DT/DX =	8.634E 01	DT/DZ =	-2.083E 01	(DT/DZ)/(DT/DX) =	-0.241
X =	-6.500E 00	T =	1.874E 02	DT/DX =	1.168E 02	DT/DZ =	3.459E 00	(DT/DZ)/(DT/DX) =	0.030
X =	-6.000E 00	T =	2.524E 02	DT/DX =	1.384E 02	DT/DZ =	6.183E 01	(DT/DZ)/(DT/DX) =	0.447
X =	-5.500E 00	T =	3.155E 02	DT/DX =	1.004E 02	DT/DZ =	1.405E 02	(DT/DZ)/(DT/DX) =	1.400
X =	-5.000E 00	T =	3.441E 02	DT/DX =	1.457E 01	DT/DZ =	1.557E 02	(DT/DZ)/(DT/DX) =	10.683
X =	-4.500E 00	T =	3.369E 02	DT/DX =	-3.511E 01	DT/DZ =	1.193E 02	(DT/DZ)/(DT/DX) =	-3.399
X =	-4.000E 00	T =	3.148E 02	DT/DX =	-4.970E 01	DT/DZ =	8.412E 01	(DT/DZ)/(DT/DX) =	-1.693
X =	-3.500E 00	T =	2.894E 02	DT/DX =	-5.056E 01	DT/DZ =	6.019E 01	(DT/DZ)/(DT/DX) =	-1.190
X =	-3.000E 00	T =	2.649E 02	DT/DX =	-4.718E 01	DT/DZ =	4.481E 01	(DT/DZ)/(DT/DX) =	-0.950
X =	-2.500E 00	T =	2.424E 02	DT/DX =	-4.287E 01	DT/DZ =	3.497E 01	(DT/DZ)/(DT/DX) =	-0.816
X =	-2.000E 00	T =	2.220E 02	DT/DX =	-3.877E 01	DT/DZ =	2.875E 01	(DT/DZ)/(DT/DX) =	-0.742
X =	-1.500E 00	T =	2.035E 02	DT/DX =	-3.528E 01	DT/DZ =	2.497E 01	(DT/DZ)/(DT/DX) =	-0.708
X =	-1.000E 00	T =	1.866E 02	DT/DX =	-3.256E 01	DT/DZ =	2.291E 01	(DT/DZ)/(DT/DX) =	-0.704
X =	-5.000E-01	T =	1.708E 02	DT/DX =	-3.070E 01	DT/DZ =	2.212E 01	(DT/DZ)/(DT/DX) =	-0.721
X =	0.000E-39	T =	1.558E 02	DT/DX =	-2.975E 01	DT/DZ =	2.231E 01	(DT/DZ)/(DT/DX) =	-0.750
X =	5.000E-01	T =	1.409E 02	DT/DX =	-2.984E 01	DT/DZ =	2.327E 01	(DT/DZ)/(DT/DX) =	-0.780
X =	1.000E 00	T =	1.257E 02	DT/DX =	-3.111E 01	DT/DZ =	2.485E 01	(DT/DZ)/(DT/DX) =	-0.799
X =	1.500E 00	T =	1.095E 02	DT/DX =	-3.385E 01	DT/DZ =	2.688E 01	(DT/DZ)/(DT/DX) =	-0.794

X =	2.000E 00	T =	9.156E 01	DT/DX =	-3.845E 01	DT/DZ =	2.917E 01	(DT/DZ)/(DT/DX) =	-0.758
X =	2.500E 00	T =	7.068E 01	DT/DX =	-4.558E 01	DT/DZ =	3.136E 01	(DT/DZ)/(DT/DX) =	-0.688
X =	3.000E 00	T =	4.540E 01	DT/DX =	-5.623E 01	DT/DZ =	3.275E 01	(DT/DZ)/(DT/DX) =	-0.582
X =	3.500E 00	T =	1.361E 01	DT/DX =	-7.194E 01	DT/DZ =	3.168E 01	(DT/DZ)/(DT/DX) =	-0.440
X =	4.000E 00	T =	-2.772E 01	DT/DX =	-9.468E 01	DT/DZ =	2.416E 01	(DT/DZ)/(DT/DX) =	-0.255
X =	4.500E 00	T =	-8.230E 01	DT/DX =	-1.244E 02	DT/DZ =	2.846E-01	(DT/DZ)/(DT/DX) =	-0.002
X =	5.000E 00	T =	-1.509E 02	DT/DX =	-1.454E 02	DT/DZ =	-5.759E 01	(DT/DZ)/(DT/DX) =	0.396
X =	5.500E 00	T =	-2.175E 02	DT/DX =	-1.068E 02	DT/DZ =	-1.357E 02	(DT/DZ)/(DT/DX) =	1.271
X =	6.000E 00	T =	-2.491E 02	DT/DX =	-2.059E 01	DT/DZ =	-1.502E 02	(DT/DZ)/(DT/DX) =	7.294
X =	6.500E 00	T =	-2.449E 02	DT/DX =	2.939E 01	DT/DZ =	-1.131E 02	(DT/DZ)/(DT/DX) =	-3.849
X =	7.000E 00	T =	-2.256E 02	DT/DX =	4.417E 01	DT/DZ =	-7.705E 01	(DT/DZ)/(DT/DX) =	-1.744
X =	7.500E 00	T =	-2.029E 02	DT/DX =	4.510E 01	DT/DZ =	-5.217E 01	(DT/DZ)/(DT/DX) =	-1.157
X =	8.000E 00	T =	-1.812E 02	DT/DX =	4.166E 01	DT/DZ =	-3.573E 01	(DT/DZ)/(DT/DX) =	-0.858
X =	8.500E 00	T =	-1.615E 02	DT/DX =	3.712E 01	DT/DZ =	-2.471E 01	(DT/DZ)/(DT/DX) =	-0.665
X =	9.000E 00	T =	-1.440E 02	DT/DX =	3.261E 01	DT/DZ =	-1.714E 01	(DT/DZ)/(DT/DX) =	-0.526
X =	9.500E 00	T =	-1.288E 02	DT/DX =	2.847E 01	DT/DZ =	-1.186E 01	(DT/DZ)/(DT/DX) =	-0.416
X =	1.000E 01	T =	-1.155E 02	DT/DX =	2.482E 01	DT/DZ =	-8.109E 00	(DT/DZ)/(DT/DX) =	-0.327
X =	1.050E 01	T =	-1.039E 02	DT/DX =	2.165E 01	DT/DZ =	-5.426E 00	(DT/DZ)/(DT/DX) =	-0.251
X =	1.100E 01	T =	-9.376E 01	DT/DX =	1.891E 01	DT/DZ =	-3.493E 00	(DT/DZ)/(DT/DX) =	-0.185
X =	1.150E 01	T =	-8.491E 01	DT/DX =	1.656E 01	DT/DZ =	-2.095E 00	(DT/DZ)/(DT/DX) =	-0.127
X =	1.200E 01	T =	-7.715E 01	DT/DX =	1.454E 01	DT/DZ =	-1.083E 00	(DT/DZ)/(DT/DX) =	-0.074
X =	1.250E 01	T =	-7.032E 01	DT/DX =	1.280E 01	DT/DZ =	-3.516E-01	(DT/DZ)/(DT/DX) =	-0.027
X =	1.300E 01	T =	-6.431E 01	DT/DX =	1.131E 01	DT/DZ =	1.740E-01	(DT/DZ)/(DT/DX) =	0.015
X =	1.350E 01	T =	-5.898E 01	DT/DX =	1.002E 01	DT/DZ =	5.484E-01	(DT/DZ)/(DT/DX) =	0.055
X =	1.400E 01	T =	-5.425E 01	DT/DX =	8.913E 00	DT/DZ =	8.113E-01	(DT/DZ)/(DT/DX) =	0.091
X =	1.450E 01	T =	-5.004E 01	DT/DX =	7.951E 00	DT/DZ =	9.916E-01	(DT/DZ)/(DT/DX) =	0.125

*** MAGNETIC ENVIRONMENT ***

TOTAL MAGNETIC INTENSITY (GAMMAS) = 4.0000E 04 DIP ANGLE (DEGREES) = 45.0
SUSCEPTIBILITY OF BODY 1 IN EMU UNITS = 4.0000E-03
STRIKE OF BODY RELATIVE TO MAGNETIC NORTH = 45.00 (DEGREES)

*** COORDINATES OF BODY, GRID INTERVAL ***

SURVEY ORIGIN, X = -1.500E 01 GRID INTERVAL = 5.000E-01
(X-Z) COORDINATES READING CCW FROM UPPER LEFT HAND CORNER NEAREST ORIGIN,COORDINATES ARE DIMENSIONLESS

(X1,Z1)		(X2,Z2)		(X3,Z3)		(X4,Z4)	
-5.500E 00	0.000E-39	-5.500E 00	5.000E 00	5.500E 00	5.000E 00	5.500E 00	0.000E-39

TOTAL FIELD SENSOR AT HEIGHT 1.0000 DIMENSIONLESS UNITS ABOVE X-Y PLANE

*** ANOMALY CALCULATIONS ***

X =	-1.500E 01	T =	9.906E 00	DT/DX =	3.623E 00	DT/DZ =	-7.846E 00	(DT/DZ)/(DT/DX) =	-2.166
X =	-1.450E 01	T =	1.188E 01	DT/DX =	4.298E 00	DT/DZ =	-8.601E 00	(DT/DZ)/(DT/DX) =	-2.001
X =	-1.400E 01	T =	1.423E 01	DT/DX =	5.118E 00	DT/DZ =	-9.442E 00	(DT/DZ)/(DT/DX) =	-1.845
X =	-1.350E 01	T =	1.703E 01	DT/DX =	6.119E 00	DT/DZ =	-1.038E 01	(DT/DZ)/(DT/DX) =	-1.696
X =	-1.300E 01	T =	2.038E 01	DT/DX =	7.348E 00	DT/DZ =	-1.141E 01	(DT/DZ)/(DT/DX) =	-1.553
X =	-1.250E 01	T =	2.442E 01	DT/DX =	8.866E 00	DT/DZ =	-1.255E 01	(DT/DZ)/(DT/DX) =	-1.416
X =	-1.200E 01	T =	2.931E 01	DT/DX =	1.075E 01	DT/DZ =	-1.380E 01	(DT/DZ)/(DT/DX) =	-1.284
X =	-1.150E 01	T =	3.525E 01	DT/DX =	1.310E 01	DT/DZ =	-1.514E 01	(DT/DZ)/(DT/DX) =	-1.156
X =	-1.100E 01	T =	4.252E 01	DT/DX =	1.607E 01	DT/DZ =	-1.657E 01	(DT/DZ)/(DT/DX) =	-1.031
X =	-1.050E 01	T =	5.145E 01	DT/DX =	1.982E 01	DT/DZ =	-1.801E 01	(DT/DZ)/(DT/DX) =	-0.909
X =	-1.000E 01	T =	6.251E 01	DT/DX =	2.461E 01	DT/DZ =	-1.940E 01	(DT/DZ)/(DT/DX) =	-0.788
X =	-9.500E 00	T =	7.629E 01	DT/DX =	3.078E 01	DT/DZ =	-2.055E 01	(DT/DZ)/(DT/DX) =	-0.668
X =	-9.000E 00	T =	9.360E 01	DT/DX =	3.881E 01	DT/DZ =	-2.117E 01	(DT/DZ)/(DT/DX) =	-0.545
X =	-8.500E 00	T =	1.155E 02	DT/DX =	4.937E 01	DT/DZ =	-2.065E 01	(DT/DZ)/(DT/DX) =	-0.418
X =	-8.000E 00	T =	1.435E 02	DT/DX =	6.340E 01	DT/DZ =	-1.784E 01	(DT/DZ)/(DT/DX) =	-0.281
X =	-7.500E 00	T =	1.797E 02	DT/DX =	8.211E 01	DT/DZ =	-1.035E 01	(DT/DZ)/(DT/DX) =	-0.126
X =	-7.000E 00	T =	2.266E 02	DT/DX =	1.063E 02	DT/DZ =	7.125E 00	(DT/DZ)/(DT/DX) =	0.067
X =	-6.500E 00	T =	2.865E 02	DT/DX =	1.325E 02	DT/DZ =	4.588E 01	(DT/DZ)/(DT/DX) =	0.346
X =	-6.000E 00	T =	3.557E 02	DT/DX =	1.363E 02	DT/DZ =	1.205E 02	(DT/DZ)/(DT/DX) =	0.884
X =	-5.500E 00	T =	4.096E 02	DT/DX =	6.452E 01	DT/DZ =	1.970E 02	(DT/DZ)/(DT/DX) =	3.053
X =	-5.000E 00	T =	4.144E 02	DT/DX =	-3.918E 01	DT/DZ =	1.835E 02	(DT/DZ)/(DT/DX) =	-4.684
X =	-4.500E 00	T =	3.813E 02	DT/DX =	-8.302E 01	DT/DZ =	1.241E 02	(DT/DZ)/(DT/DX) =	-1.494
X =	-4.000E 00	T =	3.379E 02	DT/DX =	-8.710E 01	DT/DZ =	7.850E 01	(DT/DZ)/(DT/DX) =	-0.901
X =	-3.500E 00	T =	2.961E 02	DT/DX =	-7.950E 01	DT/DZ =	5.078E 01	(DT/DZ)/(DT/DX) =	-0.639
X =	-3.000E 00	T =	2.587E 02	DT/DX =	-7.011E 01	DT/DZ =	3.438E 01	(DT/DZ)/(DT/DX) =	-0.490
X =	-2.500E 00	T =	2.258E 02	DT/DX =	-6.164E 01	DT/DZ =	2.466E 01	(DT/DZ)/(DT/DX) =	-0.400
X =	-2.000E 00	T =	1.968E 02	DT/DX =	-5.471E 01	DT/DZ =	1.901E 01	(DT/DZ)/(DT/DX) =	-0.347
X =	-1.500E 00	T =	1.708E 02	DT/DX =	-4.936E 01	DT/DZ =	1.593E 01	(DT/DZ)/(DT/DX) =	-0.323
X =	-1.000E 00	T =	1.472E 02	DT/DX =	-4.551E 01	DT/DZ =	1.455E 01	(DT/DZ)/(DT/DX) =	-0.320
X =	-5.000E-01	T =	1.251E 02	DT/DX =	-4.309E 01	DT/DZ =	1.432E 01	(DT/DZ)/(DT/DX) =	-0.332
X =	0.000E-39	T =	1.038E 02	DT/DX =	-4.208E 01	DT/DZ =	1.488E 01	(DT/DZ)/(DT/DX) =	-0.354
X =	5.000E-01	T =	8.275E 01	DT/DX =	-4.252E 01	DT/DZ =	1.595E 01	(DT/DZ)/(DT/DX) =	-0.375
X =	1.000E 00	T =	6.105E 01	DT/DX =	-4.454E 01	DT/DZ =	1.729E 01	(DT/DZ)/(DT/DX) =	-0.388
X =	1.500E 00	T =	3.790E 01	DT/DX =	-4.840E 01	DT/DZ =	1.863E 01	(DT/DZ)/(DT/DX) =	-0.385

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X =  2.000E 00 T =  1.228E 01 DT/DX = -5.450E 01 DT/DZ =  1.960E 01 (DT/DZ)/(DT/DX) =     -0.360
X =  2.500E 00 T = -1.707E 01 DT/DX = -6.345E 01 DT/DZ =  1.956E 01 (DT/DZ)/(DT/DX) =     -0.308
X =  3.000E 00 T = -5.179E 01 DT/DX = -7.614E 01 DT/DZ =  1.732E 01 (DT/DZ)/(DT/DX) =     -0.228
X =  3.500E 00 T = -9.403E 01 DT/DX = -9.375E 01 DT/DZ =  1.047E 01 (DT/DZ)/(DT/DX) =     -0.112
X =  4.000E 00 T = -1.465E 02 DT/DX = -1.171E 02 DT/DZ = -6.309E 00 (DT/DZ)/(DT/DX) =      0.054
X =  4.500E 00 T = -2.116E 02 DT/DX = -1.425E 02 DT/DZ = -4.431E 01 (DT/DZ)/(DT/DX) =      0.311
X =  5.000E 00 T = -2.856E 02 DT/DX = -1.458E 02 DT/DZ = -1.181E 02 (DT/DZ)/(DT/DX) =      0.810
X =  5.500E 00 T = -3.442E 02 DT/DX = -7.361E 01 DT/DZ = -1.937E 02 (DT/DZ)/(DT/DX) =      2.632
X =  6.000E 00 T = -3.535E 02 DT/DX =  3.032E 01 DT/DZ = -1.794E 02 (DT/DZ)/(DT/DX) =     -5.917
X =  6.500E 00 T = -3.248E 02 DT/DX =  7.424E 01 DT/DZ = -1.190E 02 (DT/DZ)/(DT/DX) =     -1.603
X =  7.000E 00 T = -2.858E 02 DT/DX =  7.823E 01 DT/DZ = -7.238E 01 (DT/DZ)/(DT/DX) =     -0.925
X =  7.500E 00 T = -2.485E 02 DT/DX =  7.037E 01 DT/DZ = -4.356E 01 (DT/DZ)/(DT/DX) =     -0.619
X =  8.000E 00 T = -2.157E 02 DT/DX =  6.053E 01 DT/DZ = -2.597E 01 (DT/DZ)/(DT/DX) =     -0.429
X =  8.500E 00 T = -1.878E 02 DT/DX =  5.137E 01 DT/DZ = -1.497E 01 (DT/DZ)/(DT/DX) =     -0.291
X =  9.000E 00 T = -1.641E 02 DT/DX =  4.349E 01 DT/DZ = -7.930E 00 (DT/DZ)/(DT/DX) =     -0.182
X =  9.500E 00 T = -1.441E 02 DT/DX =  3.686E 01 DT/DZ = -3.359E 00 (DT/DZ)/(DT/DX) =     -0.091
X =  1.000E 01 T = -1.271E 02 DT/DX =  3.134E 01 DT/DZ = -3.785E-01 (DT/DZ)/(DT/DX) =    -0.012
X =  1.050E 01 T = -1.126E 02 DT/DX =  2.674E 01 DT/DZ =  1.555E 00 (DT/DZ)/(DT/DX) =      0.058
X =  1.100E 01 T = -1.002E 02 DT/DX =  2.291E 01 DT/DZ =  2.786E 00 (DT/DZ)/(DT/DX) =      0.122
X =  1.150E 01 T = -8.960E 01 DT/DX =  1.971E 01 DT/DZ =  3.542E 00 (DT/DZ)/(DT/DX) =      0.180
X =  1.200E 01 T = -8.044E 01 DT/DX =  1.703E 01 DT/DZ =  3.976E 00 (DT/DZ)/(DT/DX) =      0.233
X =  1.250E 01 T = -7.250E 01 DT/DX =  1.479E 01 DT/DZ =  4.191E 00 (DT/DZ)/(DT/DX) =      0.283
X =  1.300E 01 T = -6.559E 01 DT/DX =  1.289E 01 DT/DZ =  4.257E 00 (DT/DZ)/(DT/DX) =      0.330
X =  1.350E 01 T = -5.956E 01 DT/DX =  1.128E 01 DT/DZ =  4.225E 00 (DT/DZ)/(DT/DX) =      0.374
X =  1.400E 01 T = -5.427E 01 DT/DX =  9.915E 00 DT/DZ =  4.127E 00 (DT/DZ)/(DT/DX) =      0.416
X =  1.450E 01 T = -4.961E 01 DT/DX =  8.749E 00 DT/DZ =  3.988E 00 (DT/DZ)/(DT/DX) =      0.456
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*** MAGNETIC ENVIRONMENT ***

TOTAL MAGNETIC INTENSITY (GAMMAS) = 4.0000E 04 DIP ANGLE (DEGREES) = 45.0
SUSCEPTIBILITY OF BODY 1 IN EMU UNITS = 4.0000E-03
STRIKE OF BODY RELATIVE TO MAGNETIC NORTH = 60.00 (DEGREES)

*** COORDINATES OF BODY, GRID INTERVAL ***

SURVEY ORIGIN, X = -1.500E 01 GRID INTERVAL = 5.000E-01
(X-Z) COORDINATES READING CCW FROM UPPER LEFT HAND CORNER NEAREST ORIGIN,COORDINATES ARE DIMENSIONLESS

(X1,Z1)	(X2,Z2)	(X3,Z3)	(X4,Z4)
-5.500E 00 0.000E-39	-5.500E 00 5.000E 00	5.500E 00 5.000E 00	5.500E 00 0.000E-39

TOTAL FIELD SENSOR AT HEIGHT 1.0000 DIMENSIONLESS UNITS ABOVE X-Y PLANE

*** ANOMALY CALCULATIONS ***

X =	-1.500E 01	T =	2.503E 01	DT/DX =	5.932E 00	DT/DZ =	-8.152E 00	(DT/DZ)/(DT/DX) =	-1.374
X =	-1.450E 01	T =	2.822E 01	DT/DX =	6.877E 00	DT/DZ =	-8.862E 00	(DT/DZ)/(DT/DX) =	-1.289
X =	-1.400E 01	T =	3.194E 01	DT/DX =	8.006E 00	DT/DZ =	-9.638E 00	(DT/DZ)/(DT/DX) =	-1.204
X =	-1.350E 01	T =	3.627E 01	DT/DX =	9.365E 00	DT/DZ =	-1.048E 01	(DT/DZ)/(DT/DX) =	-1.119
X =	-1.300E 01	T =	4.135E 01	DT/DX =	1.101E 01	DT/DZ =	-1.138E 01	(DT/DZ)/(DT/DX) =	-1.034
X =	-1.250E 01	T =	4.734E 01	DT/DX =	1.300E 01	DT/DZ =	-1.234E 01	(DT/DZ)/(DT/DX) =	-0.949
X =	-1.200E 01	T =	5.443E 01	DT/DX =	1.544E 01	DT/DZ =	-1.334E 01	(DT/DZ)/(DT/DX) =	-0.864
X =	-1.150E 01	T =	6.287E 01	DT/DX =	1.844E 01	DT/DZ =	-1.434E 01	(DT/DZ)/(DT/DX) =	-0.778
X =	-1.100E 01	T =	7.299E 01	DT/DX =	2.216E 01	DT/DZ =	-1.529E 01	(DT/DZ)/(DT/DX) =	-0.690
X =	-1.050E 01	T =	8.518E 01	DT/DX =	2.678E 01	DT/DZ =	-1.610E 01	(DT/DZ)/(DT/DX) =	-0.601
X =	-1.000E 01	T =	9.997E 01	DT/DX =	3.258E 01	DT/DZ =	-1.659E 01	(DT/DZ)/(DT/DX) =	-0.509
X =	-9.500E 00	T =	1.180E 02	DT/DX =	3.990E 01	DT/DZ =	-1.651E 01	(DT/DZ)/(DT/DX) =	-0.414
X =	-9.000E 00	T =	1.402E 02	DT/DX =	4.923E 01	DT/DZ =	-1.538E 01	(DT/DZ)/(DT/DX) =	-0.312
X =	-8.500E 00	T =	1.677E 02	DT/DX =	6.119E 01	DT/DZ =	-1.238E 01	(DT/DZ)/(DT/DX) =	-0.202
X =	-8.000E 00	T =	2.020E 02	DT/DX =	7.661E 01	DT/DZ =	-5.977E 00	(DT/DZ)/(DT/DX) =	-0.078
X =	-7.500E 00	T =	2.450E 02	DT/DX =	9.631E 01	DT/DZ =	6.861E 00	(DT/DZ)/(DT/DX) =	0.071
X =	-7.000E 00	T =	2.990E 02	DT/DX =	1.201E 02	DT/DZ =	3.237E 01	(DT/DZ)/(DT/DX) =	0.270
X =	-6.500E 00	T =	3.647E 02	DT/DX =	1.412E 02	DT/DZ =	8.268E 01	(DT/DZ)/(DT/DX) =	0.586
X =	-6.000E 00	T =	4.348E 02	DT/DX =	1.286E 02	DT/DZ =	1.689E 02	(DT/DZ)/(DT/DX) =	1.314
X =	-5.500E 00	T =	4.779E 02	DT/DX =	2.896E 01	DT/DZ =	2.401E 02	(DT/DZ)/(DT/DX) =	8.290
X =	-5.000E 00	T =	4.609E 02	DT/DX =	-8.663E 01	DT/DZ =	2.011E 02	(DT/DZ)/(DT/DX) =	-2.321
X =	-4.500E 00	T =	4.055E 02	DT/DX =	-1.233E 02	DT/DZ =	1.230E 02	(DT/DZ)/(DT/DX) =	-0.998
X =	-4.000E 00	T =	3.445E 02	DT/DX =	-1.175E 02	DT/DZ =	6.998E 01	(DT/DZ)/(DT/DX) =	-0.595
X =	-3.500E 00	T =	2.894E 02	DT/DX =	-1.025E 02	DT/DZ =	4.000E 01	(DT/DZ)/(DT/DX) =	-0.390
X =	-3.000E 00	T =	2.418E 02	DT/DX =	-8.805E 01	DT/DZ =	2.337E 01	(DT/DZ)/(DT/DX) =	-0.265
X =	-2.500E 00	T =	2.009E 02	DT/DX =	-7.615E 01	DT/DZ =	1.418E 01	(DT/DZ)/(DT/DX) =	-0.186
X =	-2.000E 00	T =	1.652E 02	DT/DX =	-6.693E 01	DT/DZ =	9.289E 00	(DT/DZ)/(DT/DX) =	-0.139
X =	-1.500E 00	T =	1.336E 02	DT/DX =	-6.010E 01	DT/DZ =	6.984E 00	(DT/DZ)/(DT/DX) =	-0.116
X =	-1.000E 00	T =	1.048E 02	DT/DX =	-5.539E 01	DT/DZ =	6.281E 00	(DT/DZ)/(DT/DX) =	-0.113
X =	-5.000E-01	T =	7.787E 01	DT/DX =	-5.257E 01	DT/DZ =	6.570E 00	(DT/DZ)/(DT/DX) =	-0.125
X =	0.000E-39	T =	5.191E 01	DT/DX =	-5.153E 01	DT/DZ =	7.438E 00	(DT/DZ)/(DT/DX) =	-0.144
X =	5.000E-01	T =	2.603E 01	DT/DX =	-5.228E 01	DT/DZ =	8.561E 00	(DT/DZ)/(DT/DX) =	-0.164
X =	1.000E 00	T =	-6.789E-01	DT/DX =	-5.490E 01	DT/DZ =	9.636E 00	(DT/DZ)/(DT/DX) =	-0.176
X =	1.500E 00	T =	-2.922E 01	DT/DX =	-5.963E 01	DT/DZ =	1.029E 01	(DT/DZ)/(DT/DX) =	-0.173

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X =   2.000E 00  T = -6.072E 01  DT/DX = -6.682E 01  DT/DZ =  1.001E 01  (DT/DZ)/(DT/DX) =    -0.150
X =   2.500E 00  T = -9.654E 01  DT/DX = -7.705E 01  DT/DZ =  7.929E 00  (DT/DZ)/(DT/DX) =    -0.103
X =   3.000E 00  T = -1.384E 02  DT/DX = -9.107E 01  DT/DZ =  2.479E 00  (DT/DZ)/(DT/DX) =    -0.027
X =   3.500E 00  T = -1.884E 02  DT/DX = -1.097E 02  DT/DZ = -9.377E 00  (DT/DZ)/(DT/DX) =     0.086
X =   4.000E 00  T = -2.488E 02  DT/DX = -1.325E 02  DT/DZ = -3.389E 01  (DT/DZ)/(DT/DX) =     0.256
X =   4.500E 00  T = -3.206E 02  DT/DX = -1.530E 02  DT/DZ = -8.317E 01  (DT/DZ)/(DT/DX) =     0.544
X =   5.000E 00  T = -3.965E 02  DT/DX = -1.399E 02  DT/DZ = -1.684E 02  (DT/DZ)/(DT/DX) =     1.203
X =   5.500E 00  T = -4.452E 02  DT/DX = -4.010E 01  DT/DZ = -2.385E 02  (DT/DZ)/(DT/DX) =     5.946
X =   6.000E 00  T = -4.337E 02  DT/DX =  7.555E 01  DT/DZ = -1.984E 02  (DT/DZ)/(DT/DX) =    -2.626
X =   6.500E 00  T = -3.839E 02  DT/DX =  1.120E 02  DT/DZ = -1.192E 02  (DT/DZ)/(DT/DX) =    -1.064
X =   7.000E 00  T = -3.286E 02  DT/DX =  1.060E 02  DT/DZ = -6.500E 01  (DT/DZ)/(DT/DX) =    -0.613
X =   7.500E 00  T = -2.794E 02  DT/DX =  9.044E 01  DT/DZ = -3.381E 01  (DT/DZ)/(DT/DX) =    -0.374
X =   8.000E 00  T = -2.381E 02  DT/DX =  7.517E 01  DT/DZ = -1.593E 01  (DT/DZ)/(DT/DX) =    -0.212
X =   8.500E 00  T = -2.038E 02  DT/DX =  6.219E 01  DT/DZ = -5.426E 00  (DT/DZ)/(DT/DX) =    -0.087
X =   9.000E 00  T = -1.755E 02  DT/DX =  5.157E 01  DT/DZ =  8.323E-01  (DT/DZ)/(DT/DX) =     0.016
X =   9.500E 00  T = -1.519E 02  DT/DX =  4.294E 01  DT/DZ =  4.552E 00  (DT/DZ)/(DT/DX) =     0.106
X =   1.000E 01  T = -1.323E 02  DT/DX =  3.594E 01  DT/DZ =  6.704E 00  (DT/DZ)/(DT/DX) =     0.187
X =   1.050E 01  T = -1.158E 02  DT/DX =  3.024E 01  DT/DZ =  7.869E 00  (DT/DZ)/(DT/DX) =     0.260
X =   1.100E 01  T = -1.018E 02  DT/DX =  2.558E 01  DT/DZ =  8.406E 00  (DT/DZ)/(DT/DX) =     0.329
X =   1.150E 01  T = -9.005E 01  DT/DX =  2.175E 01  DT/DZ =  8.543E 00  (DT/DZ)/(DT/DX) =     0.393
X =   1.200E 01  T = -7.999E 01  DT/DX =  1.859E 01  DT/DZ =  8.430E 00  (DT/DZ)/(DT/DX) =     0.454
X =   1.250E 01  T = -7.137E 01  DT/DX =  1.596E 01  DT/DZ =  8.163E 00  (DT/DZ)/(DT/DX) =     0.511
X =   1.300E 01  T = -6.395E 01  DT/DX =  1.378E 01  DT/DZ =  7.807E 00  (DT/DZ)/(DT/DX) =     0.567
X =   1.350E 01  T = -5.753E 01  DT/DX =  1.195E 01  DT/DZ =  7.404E 00  (DT/DZ)/(DT/DX) =     0.620
X =   1.400E 01  T = -5.196E 01  DT/DX =  1.040E 01  DT/DZ =  6.981E 00  (DT/DZ)/(DT/DX) =     0.671
X =   1.450E 01  T = -4.709E 01  DT/DX =  9.102E 00  DT/DZ =  6.556E 00  (DT/DZ)/(DT/DX) =     0.720
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*** MAGNETIC ENVIRONMENT ***

TOTAL MAGNETIC INTENSITY (GAMMAS) = 4.0000E 04 DIP ANGLE (DEGREES) = 45.0
SUSCEPTIBILITY OF BODY 1 IN EMU UNITS = 4.0000E-03
STRIKE OF BODY RELATIVE TO MAGNETIC NORTH = 75.00 (DEGREES)

*** COORDINATES OF BODY, GRID INTERVAL ***

SURVEY ORIGIN, X = -1.500E 01 GRID INTERVAL = 5.000E-01
(X-Z) COORDINATES READING CCW FROM UPPER LEFT HAND CORNER NEAREST ORIGIN,COORDINATES ARE DIMENSIONLESS

(X1,Z1)	(X2,Z2)	(X3,Z3)	(X4,Z4)
-5.500E 00 0.000E-39	-5.500E 00 5.000E 00	5.500E 00 5.000E 00	5.500E 00 0.000E-39

TOTAL FIELD SENSOR AT HEIGHT 1.0000 DIMENSIONLESS UNITS ABOVE X-Y PLANE

*** ANOMALY CALCULATIONS ***

X =	-1.500E 01	T =	3.546E 01	DT/DX =	7.491E 00	DT/DZ =	-8.240E 00	(DT/DZ)/(DT/DX) =	-1.100
X =	-1.450E 01	T =	3.948E 01	DT/DX =	8.613E 00	DT/DZ =	-8.908E 00	(DT/DZ)/(DT/DX) =	-1.034
X =	-1.400E 01	T =	4.411E 01	DT/DX =	9.946E 00	DT/DZ =	-9.624E 00	(DT/DZ)/(DT/DX) =	-0.968
X =	-1.350E 01	T =	4.947E 01	DT/DX =	1.154E 01	DT/DZ =	-1.038E 01	(DT/DZ)/(DT/DX) =	-0.900
X =	-1.300E 01	T =	5.570E 01	DT/DX =	1.345E 01	DT/DZ =	-1.118E 01	(DT/DZ)/(DT/DX) =	-0.831
X =	-1.250E 01	T =	6.298E 01	DT/DX =	1.576E 01	DT/DZ =	-1.200E 01	(DT/DZ)/(DT/DX) =	-0.761
X =	-1.200E 01	T =	7.154E 01	DT/DX =	1.856E 01	DT/DZ =	-1.280E 01	(DT/DZ)/(DT/DX) =	-0.690
X =	-1.150E 01	T =	8.164E 01	DT/DX =	2.197E 01	DT/DZ =	-1.354E 01	(DT/DZ)/(DT/DX) =	-0.616
X =	-1.100E 01	T =	9.364E 01	DT/DX =	2.616E 01	DT/DZ =	-1.414E 01	(DT/DZ)/(DT/DX) =	-0.540
X =	-1.050E 01	T =	1.080E 02	DT/DX =	3.134E 01	DT/DZ =	-1.447E 01	(DT/DZ)/(DT/DX) =	-0.462
X =	-1.000E 01	T =	1.252E 02	DT/DX =	3.776E 01	DT/DZ =	-1.432E 01	(DT/DZ)/(DT/DX) =	-0.379
X =	-9.500E 00	T =	1.460E 02	DT/DX =	4.579E 01	DT/DZ =	-1.335E 01	(DT/DZ)/(DT/DX) =	-0.291
X =	-9.000E 00	T =	1.713E 02	DT/DX =	5.590E 01	DT/DZ =	-1.099E 01	(DT/DZ)/(DT/DX) =	-0.197
X =	-8.500E 00	T =	2.023E 02	DT/DX =	6.867E 01	DT/DZ =	-6.263E 00	(DT/DZ)/(DT/DX) =	-0.091
X =	-8.000E 00	T =	2.406E 02	DT/DX =	8.484E 01	DT/DZ =	2.616E 00	(DT/DZ)/(DT/DX) =	0.031
X =	-7.500E 00	T =	2.878E 02	DT/DX =	1.049E 02	DT/DZ =	1.907E 01	(DT/DZ)/(DT/DX) =	0.182
X =	-7.000E 00	T =	3.460E 02	DT/DX =	1.279E 02	DT/DZ =	4.993E 01	(DT/DZ)/(DT/DX) =	0.390
X =	-6.500E 00	T =	4.149E 02	DT/DX =	1.451E 02	DT/DZ =	1.077E 02	(DT/DZ)/(DT/DX) =	0.742
X =	-6.000E 00	T =	4.845E 02	DT/DX =	1.209E 02	DT/DZ =	2.009E 02	(DT/DZ)/(DT/DX) =	1.661
X =	-5.500E 00	T =	5.192E 02	DT/DX =	3.035E 00	DT/DZ =	2.671E 02	(DT/DZ)/(DT/DX) =	87.998
X =	-5.000E 00	T =	4.868E 02	DT/DX =	-1.192E 02	DT/DZ =	2.104E 02	(DT/DZ)/(DT/DX) =	-1.765
X =	-4.500E 00	T =	4.163E 02	DT/DX =	-1.501E 02	DT/DZ =	1.203E 02	(DT/DZ)/(DT/DX) =	-0.802
X =	-4.000E 00	T =	3.437E 02	DT/DX =	-1.375E 02	DT/DZ =	6.276E 01	(DT/DZ)/(DT/DX) =	-0.457
X =	-3.500E 00	T =	2.800E 02	DT/DX =	-1.174E 02	DT/DZ =	3.164E 01	(DT/DZ)/(DT/DX) =	-0.270
X =	-3.000E 00	T =	2.259E 02	DT/DX =	-9.949E 01	DT/DZ =	1.511E 01	(DT/DZ)/(DT/DX) =	-0.152
X =	-2.500E 00	T =	1.798E 02	DT/DX =	-8.532E 01	DT/DZ =	6.448E 00	(DT/DZ)/(DT/DX) =	-0.076
X =	-2.000E 00	T =	1.400E 02	DT/DX =	-7.460E 01	DT/DZ =	2.181E 00	(DT/DZ)/(DT/DX) =	-0.029
X =	-1.500E 00	T =	1.048E 02	DT/DX =	-6.683E 01	DT/DZ =	4.677E-01	(DT/DZ)/(DT/DX) =	-0.007
X =	-1.000E 00	T =	7.275E 01	DT/DX =	-6.157E 01	DT/DZ =	2.608E-01	(DT/DZ)/(DT/DX) =	-0.004
X =	-5.000E-01	T =	4.282E 01	DT/DX =	-5.851E 01	DT/DZ =	9.158E-01	(DT/DZ)/(DT/DX) =	-0.016
X =	0.000E-39	T =	1.390E 01	DT/DX =	-5.748E 01	DT/DZ =	1.992E 00	(DT/DZ)/(DT/DX) =	-0.035
X =	5.000E-01	T =	-1.499E 01	DT/DX =	-5.843E 01	DT/DZ =	3.137E 00	(DT/DZ)/(DT/DX) =	-0.054
X =	1.000E 00	T =	-4.487E 01	DT/DX =	-6.144E 01	DT/DZ =	4.002E 00	(DT/DZ)/(DT/DX) =	-0.065
X =	1.500E 00	T =	-7.681E 01	DT/DX =	-6.671E 01	DT/DZ =	4.160E 00	(DT/DZ)/(DT/DX) =	-0.062

X =	2.000E	00	T =	-1.120E	02	DT/DX =	-7.458E	01	DT/DZ =	2.989E	00	(DT/DZ)/(DT/DX) =	-0.040
X =	2.500E	00	T =	-1.519E	02	DT/DX =	-8.556E	01	DT/DZ =	-5.264E	-01	(DT/DZ)/(DT/DX) =	0.006
X =	3.000E	00	T =	-1.982E	02	DT/DX =	-1.003E	02	DT/DZ =	-8.189E	00	(DT/DZ)/(DT/DX) =	0.082
X =	3.500E	00	T =	-2.529E	02	DT/DX =	-1.193E	02	DT/DZ =	-2.344E	01	(DT/DZ)/(DT/DX) =	0.196
X =	4.000E	00	T =	-3.180E	02	DT/DX =	-1.415E	02	DT/DZ =	-5.309E	01	(DT/DZ)/(DT/DX) =	0.375
X =	4.500E	00	T =	-3.936E	02	DT/DX =	-1.581E	02	DT/DZ =	-1.097E	02	(DT/DZ)/(DT/DX) =	0.694
X =	5.000E	00	T =	-4.695E	02	DT/DX =	-1.335E	02	DT/DZ =	-2.016E	02	(DT/DZ)/(DT/DX) =	1.510
X =	5.500E	00	T =	-5.105E	02	DT/DX =	-1.546E	01	DT/DZ =	-2.666E	02	(DT/DZ)/(DT/DX) =	17.246
X =	6.000E	00	T =	-4.842E	02	DT/DX =	1.067E	02	DT/DZ =	-2.088E	02	(DT/DZ)/(DT/DX) =	-1.956
X =	6.500E	00	T =	-4.201E	02	DT/DX =	1.373E	02	DT/DZ =	-1.175E	02	(DT/DZ)/(DT/DX) =	-0.856
X =	7.000E	00	T =	-3.539E	02	DT/DX =	1.242E	02	DT/DZ =	-5.867E	01	(DT/DZ)/(DT/DX) =	-0.472
X =	7.500E	00	T =	-2.970E	02	DT/DX =	1.034E	02	DT/DZ =	-2.629E	01	(DT/DZ)/(DT/DX) =	-0.254
X =	8.000E	00	T =	-2.502E	02	DT/DX =	8.445E	01	DT/DZ =	-8.483E	00	(DT/DZ)/(DT/DX) =	-0.100
X =	8.500E	00	T =	-2.120E	02	DT/DX =	6.894E	01	DT/DZ =	1.494E	00	(DT/DZ)/(DT/DX) =	0.022
X =	9.000E	00	T =	-1.808E	02	DT/DX =	5.652E	01	DT/DZ =	7.093E	00	(DT/DZ)/(DT/DX) =	0.125
X =	9.500E	00	T =	-1.551E	02	DT/DX =	4.661E	01	DT/DZ =	1.014E	01	(DT/DZ)/(DT/DX) =	0.218
X =	1.000E	01	T =	-1.338E	02	DT/DX =	3.866E	01	DT/DZ =	1.167E	01	(DT/DZ)/(DT/DX) =	0.302
X =	1.050E	01	T =	-1.162E	02	DT/DX =	3.226E	01	DT/DZ =	1.226E	01	(DT/DZ)/(DT/DX) =	0.380
X =	1.100E	01	T =	-1.014E	02	DT/DX =	2.708E	01	DT/DZ =	1.229E	01	(DT/DZ)/(DT/DX) =	0.454
X =	1.150E	01	T =	-8.892E	01	DT/DX =	2.286E	01	DT/DZ =	1.199E	01	(DT/DZ)/(DT/DX) =	0.524
X =	1.200E	01	T =	-7.838E	01	DT/DX =	1.940E	01	DT/DZ =	1.148E	01	(DT/DZ)/(DT/DX) =	0.592
X =	1.250E	01	T =	-6.942E	01	DT/DX =	1.655E	01	DT/DZ =	1.088E	01	(DT/DZ)/(DT/DX) =	0.657
X =	1.300E	01	T =	-6.175E	01	DT/DX =	1.419E	01	DT/DZ =	1.022E	01	(DT/DZ)/(DT/DX) =	0.720
X =	1.350E	01	T =	-5.516E	01	DT/DX =	1.223E	01	DT/DZ =	9.561E	00	(DT/DZ)/(DT/DX) =	0.782
X =	1.400E	01	T =	-4.947E	01	DT/DX =	1.059E	01	DT/DZ =	8.912E	00	(DT/DZ)/(DT/DX) =	0.842
X =	1.450E	01	T =	-4.453E	01	DT/DX =	9.209E	00	DT/DZ =	8.290E	00	(DT/DZ)/(DT/DX) =	0.900

*** MAGNETIC ENVIRONMENT ***

TOTAL MAGNETIC INTENSITY (GAMMAS) = 4.0000E 04 DIP ANGLE (DEGREES) = 45.0
SUSCEPTIBILITY OF BODY 1 IN EMU UNITS = 4.0000E-03
STRIKE OF BODY RELATIVE TO MAGNETIC NORTH = 90.00 (DEGREES)

*** COORDINATES OF BODY, GRID INTERVAL ***

SURVEY ORIGIN, X = -1.500E 01 GRID INTERVAL = 5.000E-01
(X-Z) COORDINATES READING CCW FROM UPPER LEFT HAND CORNER NEAREST ORIGIN,COORDINATES ARE DIMENSIONLESS

(X1,Z1)	(X2,Z2)	(X3,Z3)	(X4,Z4)
-5.500E 00 0.000E-39	-5.500E 00 5.000E 00	5.500E 00 5.000E 00	5.500E 00 0.000E-39

TOTAL FIELD SENSOR AT HEIGHT 1.0000 DIMENSIONLESS UNITS ABOVE X-Y PLANE

*** ANOMALY CALCULATIONS ***

X =	-1.500E 01	T =	3.918E 01	DT/DX =	8.041E 00	DT/DZ =	-8.252E 00	(DT/DZ)/(DT/DX) =	-1.026
X =	-1.450E 01	T =	4.349E 01	DT/DX =	9.226E 00	DT/DZ =	-8.902E 00	(DT/DZ)/(DT/DX) =	-0.965
X =	-1.400E 01	T =	4.844E 01	DT/DX =	1.063E 01	DT/DZ =	-9.595E 00	(DT/DZ)/(DT/DX) =	-0.903
X =	-1.350E 01	T =	5.416E 01	DT/DX =	1.230E 01	DT/DZ =	-1.032E 01	(DT/DZ)/(DT/DX) =	-0.839
X =	-1.300E 01	T =	6.080E 01	DT/DX =	1.431E 01	DT/DZ =	-1.108E 01	(DT/DZ)/(DT/DX) =	-0.774
X =	-1.250E 01	T =	6.854E 01	DT/DX =	1.672E 01	DT/DZ =	-1.184E 01	(DT/DZ)/(DT/DX) =	-0.708
X =	-1.200E 01	T =	7.761E 01	DT/DX =	1.965E 01	DT/DZ =	-1.257E 01	(DT/DZ)/(DT/DX) =	-0.640
X =	-1.150E 01	T =	8.829E 01	DT/DX =	2.321E 01	DT/DZ =	-1.321E 01	(DT/DZ)/(DT/DX) =	-0.569
X =	-1.100E 01	T =	1.009E 02	DT/DX =	2.756E 01	DT/DZ =	-1.368E 01	(DT/DZ)/(DT/DX) =	-0.496
X =	-1.050E 01	T =	1.160E 02	DT/DX =	3.292E 01	DT/DZ =	-1.384E 01	(DT/DZ)/(DT/DX) =	-0.420
X =	-1.000E 01	T =	1.341E 02	DT/DX =	3.956E 01	DT/DZ =	-1.345E 01	(DT/DZ)/(DT/DX) =	-0.340
X =	-9.500E 00	T =	1.559E 02	DT/DX =	4.783E 01	DT/DZ =	-1.216E 01	(DT/DZ)/(DT/DX) =	-0.254
X =	-9.000E 00	T =	1.823E 02	DT/DX =	5.819E 01	DT/DZ =	-9.358E 00	(DT/DZ)/(DT/DX) =	-0.161
X =	-8.500E 00	T =	2.145E 02	DT/DX =	7.124E 01	DT/DZ =	-4.013E 00	(DT/DZ)/(DT/DX) =	-0.056
X =	-8.000E 00	T =	2.541E 02	DT/DX =	8.763E 01	DT/DZ =	5.747E 00	(DT/DZ)/(DT/DX) =	0.066
X =	-7.500E 00	T =	3.028E 02	DT/DX =	1.078E 02	DT/DZ =	2.349E 01	(DT/DZ)/(DT/DX) =	0.218
X =	-7.000E 00	T =	3.623E 02	DT/DX =	1.305E 02	DT/DZ =	5.622E 01	(DT/DZ)/(DT/DX) =	0.431
X =	-6.500E 00	T =	4.322E 02	DT/DX =	1.462E 02	DT/DZ =	1.166E 02	(DT/DZ)/(DT/DX) =	0.797
X =	-6.000E 00	T =	5.015E 02	DT/DX =	1.178E 02	DT/DZ =	2.120E 02	(DT/DZ)/(DT/DX) =	1.800
X =	-5.500E 00	T =	5.330E 02	DT/DX =	-6.439E 00	DT/DZ =	2.763E 02	(DT/DZ)/(DT/DX) =	-42.904
X =	-5.000E 00	T =	4.950E 02	DT/DX =	-1.308E 02	DT/DZ =	2.133E 02	(DT/DZ)/(DT/DX) =	-1.630
X =	-4.500E 00	T =	4.192E 02	DT/DX =	-1.595E 02	DT/DZ =	1.191E 02	(DT/DZ)/(DT/DX) =	-0.746
X =	-4.000E 00	T =	3.425E 02	DT/DX =	-1.444E 02	DT/DZ =	5.996E 01	(DT/DZ)/(DT/DX) =	-0.415
X =	-3.500E 00	T =	2.758E 02	DT/DX =	-1.225E 02	DT/DZ =	2.850E 01	(DT/DZ)/(DT/DX) =	-0.233
X =	-3.000E 00	T =	2.195E 02	DT/DX =	-1.034E 02	DT/DZ =	1.206E 01	(DT/DZ)/(DT/DX) =	-0.117
X =	-2.500E 00	T =	1.717E 02	DT/DX =	-8.845E 01	DT/DZ =	3.608E 00	(DT/DZ)/(DT/DX) =	-0.041
X =	-2.000E 00	T =	1.304E 02	DT/DX =	-7.722E 01	DT/DZ =	-4.203E-01	(DT/DZ)/(DT/DX) =	0.005
X =	-1.500E 00	T =	9.397E 01	DT/DX =	-6.913E 01	DT/DZ =	-1.913E 00	(DT/DZ)/(DT/DX) =	0.028
X =	-1.000E 00	T =	6.088E 01	DT/DX =	-6.368E 01	DT/DZ =	-1.938E 00	(DT/DZ)/(DT/DX) =	0.030
X =	-5.000E-01	T =	2.991E 01	DT/DX =	-6.053E 01	DT/DZ =	-1.151E 00	(DT/DZ)/(DT/DX) =	0.019
X =	0.000E-39	T =	-1.094E-02	DT/DX =	-5.951E 01	DT/DZ =	-1.567E-03	(DT/DZ)/(DT/DX) =	0.000
X =	5.000E-01	T =	-2.994E 01	DT/DX =	-6.053E 01	DT/DZ =	1.148E 00	(DT/DZ)/(DT/DX) =	-0.019
X =	1.000E 00	T =	-6.090E 01	DT/DX =	-6.368E 01	DT/DZ =	1.935E 00	(DT/DZ)/(DT/DX) =	-0.030
X =	1.500E 00	T =	-9.400E 01	DT/DX =	-6.913E 01	DT/DZ =	1.909E 00	(DT/DZ)/(DT/DX) =	-0.028

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 X =  2.000E 00 T = -1.305E 02 DT/DX = -7.722E 01 DT/DZ =  4.163E-01 (DT/DZ)/(DT/DX) =     -0.005
 X =  2.500E 00 T = -1.717E 02 DT/DX = -8.845E 01 DT/DZ = -3.613E 00 (DT/DZ)/(DT/DX) =      0.041
 X =  3.000E 00 T = -2.195E 02 DT/DX = -1.034E 02 DT/DZ = -1.206E 01 (DT/DZ)/(DT/DX) =      0.117
 X =  3.500E 00 T = -2.758E 02 DT/DX = -1.225E 02 DT/DZ = -2.851E 01 (DT/DZ)/(DT/DX) =      0.233
 X =  4.000E 00 T = -3.425E 02 DT/DX = -1.444E 02 DT/DZ = -5.997E 01 (DT/DZ)/(DT/DX) =      0.415
 X =  4.500E 00 T = -4.192E 02 DT/DX = -1.595E 02 DT/DZ = -1.191E 02 (DT/DZ)/(DT/DX) =      0.746
 X =  5.000E 00 T = -4.950E 02 DT/DX = -1.308E 02 DT/DZ = -2.133E 02 (DT/DZ)/(DT/DX) =      1.631
 X =  5.500E 00 T = -5.330E 02 DT/DX = -6.425E 00 DT/DZ = -2.763E 02 (DT/DZ)/(DT/DX) =     43.001
 X =  6.000E 00 T = -5.015E 02 DT/DX =  1.178E 02 DT/DZ = -2.120E 02 (DT/DZ)/(DT/DX) =     -1.799
 X =  6.500E 00 T = -4.322E 02 DT/DX =  1.462E 02 DT/DZ = -1.166E 02 (DT/DZ)/(DT/DX) =     -0.797
 X =  7.000E 00 T = -3.623E 02 DT/DX =  1.305E 02 DT/DZ = -5.621E 01 (DT/DZ)/(DT/DX) =     -0.431
 X =  7.500E 00 T = -3.028E 02 DT/DX =  1.078E 02 DT/DZ = -2.348E 01 (DT/DZ)/(DT/DX) =     -0.218
 X =  8.000E 00 T = -2.540E 02 DT/DX =  8.763E 01 DT/DZ = -5.743E 00 (DT/DZ)/(DT/DX) =     -0.066
 X =  8.500E 00 T = -2.145E 02 DT/DX =  7.124E 01 DT/DZ =  4.017E 00 (DT/DZ)/(DT/DX) =      0.056
 X =  9.000E 00 T = -1.823E 02 DT/DX =  5.819E 01 DT/DZ =  9.361E 00 (DT/DZ)/(DT/DX) =      0.161
 X =  9.500E 00 T = -1.558E 02 DT/DX =  4.783E 01 DT/DZ =  1.216E 01 (DT/DZ)/(DT/DX) =      0.254
 X =  1.000E 01 T = -1.341E 02 DT/DX =  3.956E 01 DT/DZ =  1.345E 01 (DT/DZ)/(DT/DX) =      0.340
 X =  1.050E 01 T = -1.160E 02 DT/DX =  3.292E 01 DT/DZ =  1.384E 01 (DT/DZ)/(DT/DX) =      0.420
 X =  1.100E 01 T = -1.009E 02 DT/DX =  2.756E 01 DT/DZ =  1.368E 01 (DT/DZ)/(DT/DX) =      0.497
 X =  1.150E 01 T = -8.829E 01 DT/DX =  2.320E 01 DT/DZ =  1.321E 01 (DT/DZ)/(DT/DX) =      0.569
 X =  1.200E 01 T = -7.760E 01 DT/DX =  1.965E 01 DT/DZ =  1.257E 01 (DT/DZ)/(DT/DX) =      0.640
 X =  1.250E 01 T = -6.853E 01 DT/DX =  1.672E 01 DT/DZ =  1.184E 01 (DT/DZ)/(DT/DX) =      0.708
 X =  1.300E 01 T = -6.079E 01 DT/DX =  1.431E 01 DT/DZ =  1.108E 01 (DT/DZ)/(DT/DX) =      0.774
 X =  1.350E 01 T = -5.416E 01 DT/DX =  1.230E 01 DT/DZ =  1.032E 01 (DT/DZ)/(DT/DX) =      0.839
 X =  1.400E 01 T = -4.844E 01 DT/DX =  1.063E 01 DT/DZ =  9.595E 00 (DT/DZ)/(DT/DX) =      0.903
 X =  1.450E 01 T = -4.348E 01 DT/DX =  9.225E 00 DT/DZ =  8.902E 00 (DT/DZ)/(DT/DX) =      0.965

   END EXECUTION  13JOB  BCDCS 00048.21
```

STATISTICS
OVERFLOWS 00000 UNDERFLOWS 00000 DIV CHKS 00001 SUBR ERRORS 00001 EXEC LINES 00584 CARDS READ 00007 CRDS PNCHED 00000
PLOT LINES 00000

TERMINATION TRACE. NO LINES IF RETURN FROM MAIN PROGRAM.

CALLING ROUTINE	IEN OR LINE NO.	ABSOLUTE LOCATION
VARIAN	226	32040

END OF TRACE

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OBRIEN

  JOB   4189 ACCOUNTING.    ENTERED  7094       12/10/66    18.27.38                    SEQ.   536

                          H  M  S
  TOTAL 7040 TIME        01.00.24
  TOTAL 7094 TIME        00.00.49
  7094 EXECUTION TIME    00.00.10
  TOTAL CARDS READ       000175
  TOTAL CARDS PUNCHED **000081  ON 2
  TOTAL LINES PRINTED    001418  ON 1
  TAPES USED             000000
  NUMBER OF COPIES       000001

  TIME LEFT ON JOB       000.73 HRS.
  RUSH TIME LEFT         000.73 HRS.



INPUT IS BEING ACCEPTED FOR THE CAL CDC 6400. RATE=$420/HR. SAMPLE JOB CARD--

                        JOB NAME,7,TL,FL.JOB NUMBER,NAME
JOB NAME = 7 OR LESS ALPHANUMERIC CHARACTERS BEGINNING WITH A LETTER.
7 = PRIORITY.
TL = TIME LIMIT IN OCTAL SECONDS.
FL = FIELD LENGTH, MAXIMUM IS 55000 OCTAL. THIS MUST BE FOLLOWED BY A PERIOD.
JOB NUMBER = COMPUTER CENTER ACCOUNT NUMBER.  NAME = JOHN USER.



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A. HESSE

Mesures et interprétation en prospection geophysique des sites archeologiques du Nil

Les conclusions exposées ici sont déduites de l'expérience de deux campagnes de prospection sur le site de Mirgissa en Nubie soudanaise (Missions 1965-66 et 1966-67)[1]. L'objectif principal de ce travail était la détection des vestiges ensablés qui risquaient de rester ignorés lors du recouvrement des lieux par les eaux du barrage d'Assouan.

De fait, si ce but a été partiellement atteint par les mesures magnétiques (découverte d'une dizaine de petites structures isolées et d'anciennes lignes de rivage), les grands murs d'enceinte, spécialement recherchés, n'ont pu être retrouvés, leurs vestiges ayant vraisemblablement disparu en plusieurs endroits. La prospection géophysique a cependant apporté une autre contribution à la recherche archéologique en permettant, toujours par la méthode magnétique, la détermination, avant fouille, d'éléments du plan d'une partie de la ville, de la forteresse et d'une autre agglomération du Moyen Empire[2]; des sondages électriques enfin ont contribué à l'établissement d'une hypothèse sur les modifications de la rive du Nil et du paysage depuis l'époque égyptienne.

Les résultats seront exposés en détail dans la publication du site de Mirgissa. L'objet, essentiellement pratique, de cet article est de préciser les conditions d'exécution des mesures, quelques solutions techniques adoptées et le mode d'interprétation des résultats.

Prospection magnétique

Le choix de ce procédé[3] était fondé sur l'observation d'un contraste de susceptibilité magnétique très élevé entre les matériaux en présence[4].

Matériaux	Susceptibilités massiques $\chi \cdot 10^6$ u.e.m. C.G.S.
sable éolien (3 éch.)	3 - 6 - 20
briques crues, mortiers (4 éch.)	295 - 254 - 240 - 100
limons et sables du Nil (3 éch.)	375 - 375 - 100

1 Je remercie particulièrement ici le Professeur Vercoutter et A. Vila pour leurs fructueux conseils, la Mission Archéologique Française qui a assuré mon séjour sur place et le Centre National de la Recherche Scientifique qui a subventionné à deux reprises mon déplacement.

2 J. Vercoutter, Excavations at Mirgissa I, Kush, vol. XII, pp. 57-62, 1964. J. Vercoutter, Nouvelles fouilles de Mirgissa, Bul. Soc. Franç. Egyptologie, n. 40, Juillet 1964.

3 Rappelons qu'il consiste en la détermination d'anomalies du champ magnétique terrestre perturbé par les structures contenues dans le sous-sol. Pour plus de détails on pourra consulter: M. J. Aitken, Physics and Archaeology, Interscience Publishers, 1961. A. Hesse, Prospections Géophysiques à faible profondeur, Applications à l'Archéologie, Dunod, 1966.

4 Je suis redevable à H. Elhaï, Maître de Conférences, d'avoir bien voulu me donner quelques uns de ses échantillons prélevés lors d'une mission précédente, et au Professeur Thellier qui s'est chargé de la détermination de leur susceptibilité magnétique (Observatoire de Physique du Globe de Saint-Maur - Seine).

Le sable éolien de provenance occidentale possède une susceptibilité magnétique extrèmement faible; de cette propriété, jointe à l'absense de sol (pl. VIII), il résulte que le gradient de champ au voisinage de la surface est très atténué. De la sorte, il était possible, dans certains cas, de poser directement la sonde du magnétomètre sur la surface à étudier et d'augmenter ainsi sensiblement la précision des localisations et la profondeur d'investigation.

Par ailleurs, les maisons sont constituées de briques crues dont le caractère magnétique est très affirmé. D'après Hoarau de la Source [5], ce sédiment contient 9,1% d'oxyde ferrique. Les autres minéraux ayant une susceptibilité négligeable, la valeur obtenue pour le sédiment brut (375.10^{-6} u.e.m. C.G.S.) révèle une certaine proportion de Fe_2O_3 γ cubique (environ 1,2% de l'ensemble du sédiment pour 7,9% de Fe_2O_3 α rhomboédrique si l'on admet des susceptibilités massiques de l'ordre de 32000.10^{-6} u.e.m. C.G.S. pour le premier (maghémite) et 20.10^{-6} u.e.m. C.G.S. pour le second (hématite) [6].

Les matériaux de construction ont une susceptibilité légèrement plus faible que le sédiment brut, qui s'explique par l'adjonction d'une certaine quantité de sable pour la préparation du mélange mis à sécher, dans le but vraisemblable d'éviter les fissures. On admettra $\chi = 250.10^{-6}$ u.e.m. C.G.S., en moyenne, dans la suite de l'exposé, soit $k = 400.10^{-6}$ u.e.m C.G.S. pour une densité des briques voisine de 1,6. Ces facteurs sont très favorables à la prospection, malgré quelques particularités inhérentes à l'appareil de mesure et à la latitude géomagnétique.

L'instrument utilisé était le magnétomètre à protons Elsec de la firme anglaise Littlemore Scientific Engineering [7]. Robuste et simple d'emploi, il a donné entière satisfaction pendant tout le temps des deux campagnes, la recharge des batteries étant effectuée chaque jour sur celles des véhicules de la Mission, en l'absence de toute autre source de courant disponible. Seule gêne, la chaleur locale, en provoquant le déclenchement intempestif de la mesure, donnait des lectures aberrantes et obligeait à travailler aux heures fraîches de la journée. Un bon isolement thermique et un étui de couleur claire suffiraient à accroître très sensiblement le temps de travail [8].

Si nous abordons les effets de la latitude géomagnétique, la faiblesse de certaines anomalies par rapport à celles observées en Europe est en partie compensée par l'augmentation de la sensibilité du magnétomètre. A Mirgissa (22° N, 31° E) les éléments du champ magnétique sont les suivants [9].

Latitude géomagnétique $\varphi = 19°$ N

L'inclinaison peut être déterminée soit par la relation:

$tg\ I = 2\ tg\ \varphi$ d'où $I = 34°\ 30'$,

soit par le rapport:

$$tg\ I = \frac{Z}{H} \text{ d'où } I = 26°\ 55\ ;$$

la valeur moyenne $I = 30°$ a été adoptée pour l'établissement des abaques.

Valeur du champ total = 0,38 oersted

Valeur absolue d'une unité magnétométrique Elsec = 0,62 γ (cette unité vaut environ 1 γ à la latitude de l'Europe).

Les caractères principaux des anomalies et leur ordre de grandeur avaient été déterminés préalablement au Centre de Recherches Géophysiques de Garchy (Nièvre) par une méthode d'intégration optique sur un principe dérivé de celui de l'abaque à mailles [10].

En effet, le mode d'interprétation simple proposé par R. E. Linington [11] en assimilant les anomalies à une fonction inverse du carré de la distance pour les structures longues, n'est pas valable entre 50° d'inclinaison et le voisinage de l'équateur magnétique. L'utilisation de modèle réduits [12] n'est possible que si la prospection a lieu dans une région magnétiquement proche de celle où se trouve l'appareil expérimental. Quant au calcul des anomalies à partir des données de Vacquier [13] ou de Aubert [14], il nous a paru moins simple que l'usage de l'intégrateur optique qui donne directement des tracés d'anomalies pour l'inclinaison choisie et l'angle de la structure avec le Nord magnétique $(0 < \theta < \frac{\pi}{2})$ (fig. 33).

Les anomalies obtenues dans le cas considéré (structu-

5
Hoarau de la Source, Rapport de Mission d'Etudes en Egypte, Annales de l'I.N.A., 1936, Tome XXVII.

6
D'après E. Le Borgne, Sur la susceptibilité magnétique du sol, Thèse, Paris 1955.

7
M. J. Aitken: op. cit.

8
La solution de fortune adoptée consistait à maintenir le magnétomètre dans une caisse remplie de paille ou de chiffons humides.

9
U.S.A.F. Handbook of Geophysics, The Macmillan Company, New York, 1960.

10
L'appareil, construit par M. Aubert dont l'aide m'a été précieuse dans ce travail, est destiné à l'interprétation a posteriori des anomalies magnétiques, mais a fait ainsi la preuve de son intérêt pour le tracé rapide d'abaques. (M. Aubert, Interprétation des cartes gravimétriques et magnétiques par intégrateur analogique de flux lumineux, Thèse, Paris, 1965).

11
R. E. Linington, The use of simplified anomalies in magnetic surveying, Archaeometry, vol. 7, 1964, p. 3 à 13.

12
M. J. Aitken, J. C. Alldred: A simulator trainer for magnetic prospection Archaeometry, vol. 7, 1964, p. 28 à 35.

13
V. Vacquier et alii, Interpretation of aeromagnetic maps, the Geol. Soc. of America, 1958.

14
M. Aubert, Interprétation des cartes magnétiques au moyen d'abaques pour structures cylindriques, Annales de Géophysique, 20, n. 3 Juillet-Septembre 1964.

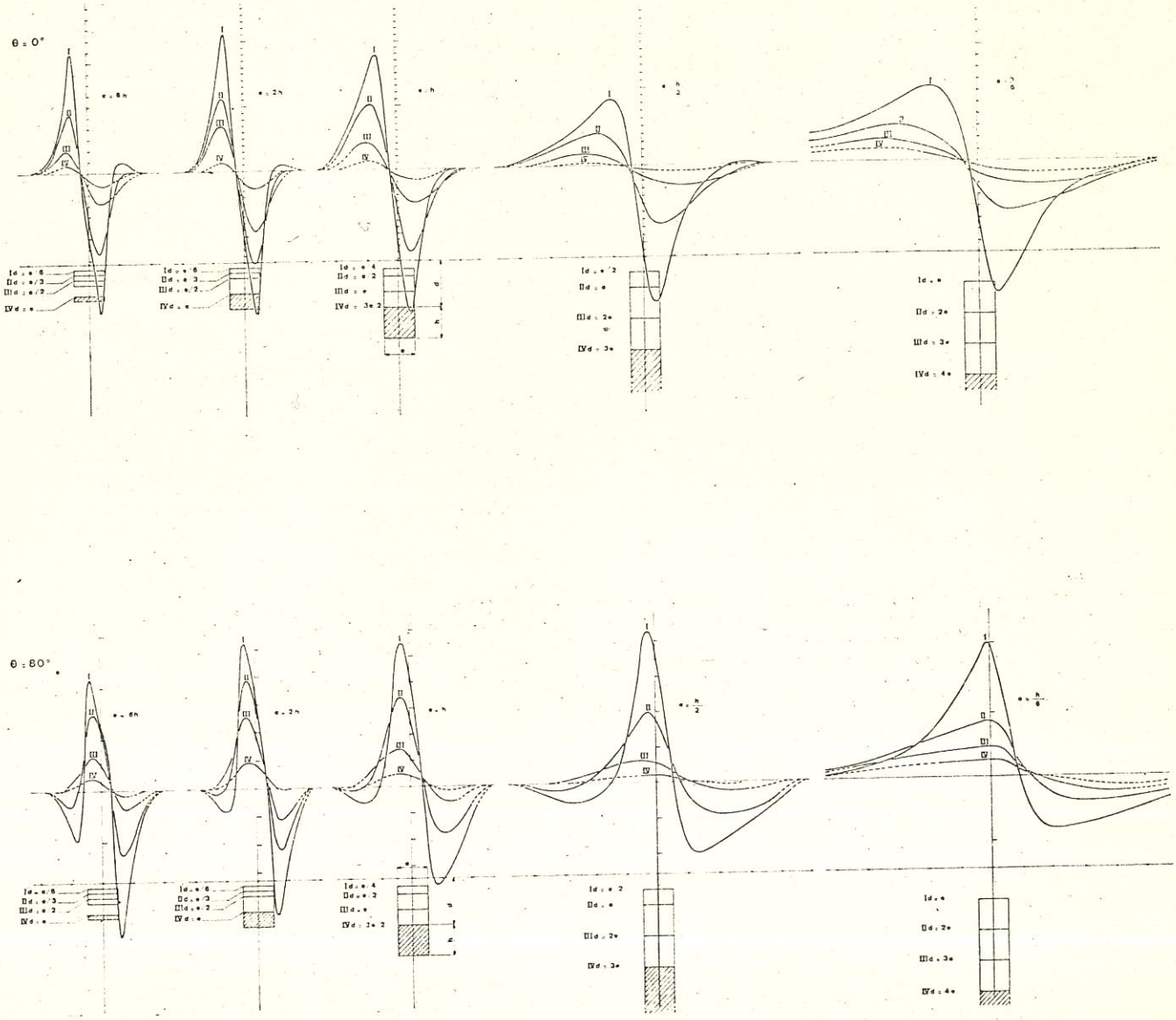

Fig. 33
Anomalies du champ magnétique total (I = 30°) provoquées par des structures longues d'axe horizontal perpendiculaire au plan de figure, et de section rectangulaire (largeur e, hauteur h) situées à la profondeur d sous la surface du sol. En abcisses, les distances des stations à l'axe sont rapportées à la longueur e. En ordonnées l'unité représente 1 γ à Mirgissa (F = 0,38 oersted, k = 400 $\times$ 10^{-6} u.e.m. C.G.S.).
Les deux séries relatives à $\vartheta = 0°$ et $\vartheta = 80°$ (ϑ : angle entre l'axe de la structure et la direction du Nord magnétique) ont seules été représentées. Les caractères intéressants des séries intermédiaires et de la série $\vartheta = 90°$ pour laquelle l'anomalie présente une symétrie, peuvent être déduits, aux détails de forme près, de la figure 3. Chaque série est subdivisible en familles suivant la hauteur de la structure (h/e croit de gauche à droite de la planche). L'aire hachurée figure la structure à la profondeur extrême étudiée; en clair le sommet des positions moins profondes. L'intervalle de variation des paramètres étant limité par les caractéristiques de l'intégrateur optique, les portions de courbe en tracé interrompu sont d'une précision incertaine.

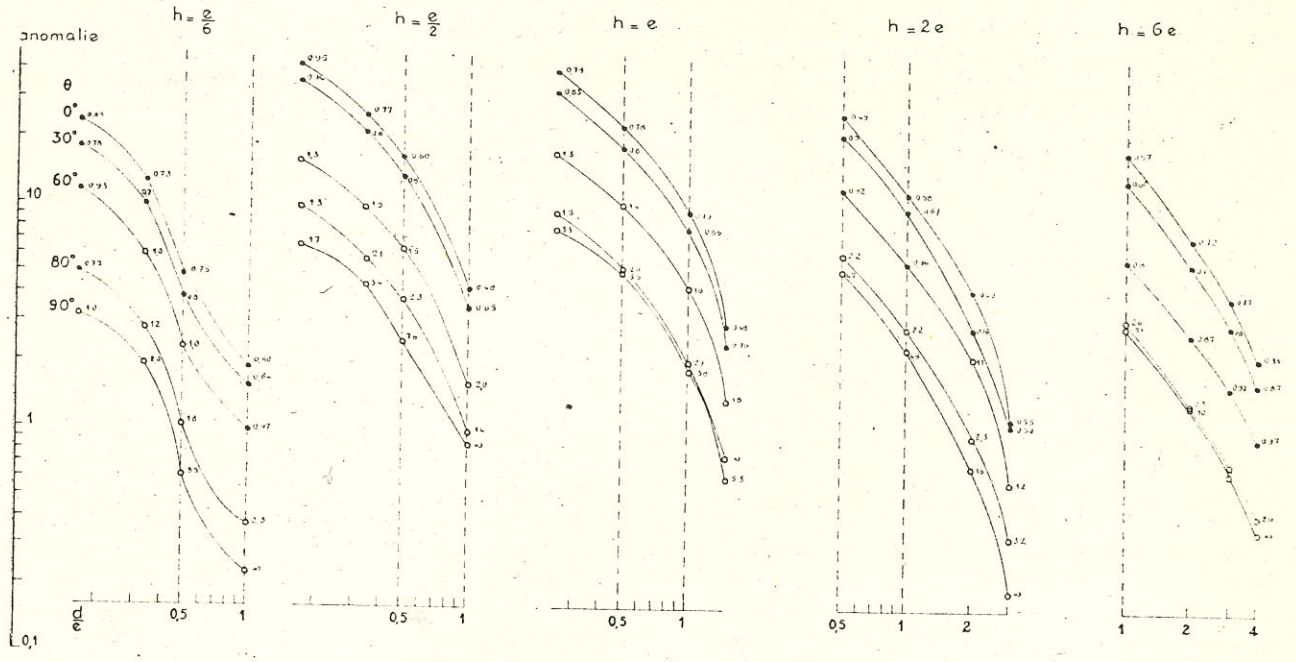

Fig. 34
Abaque des grandeurs d'anomalies du champ magnétique total (I = 30°). Pour cinq séries de valeurs de ϑ et par famille de h/e croissant de gauche à droite sont portées en ordonnées l'écart (en γ à Mirgissa) entre le sommet de l'anomalie normale et le minimum de la plus grande anomalie associée, en fonction de d/e. En regard de chaque point est indiqué le rapport des valeurs absolues de chacune de ces deux anomalies (points noirs: $\frac{\text{normale}}{\text{associée}} < 1$, points clairs $\frac{\text{normale}}{\text{associée}} > 1$).

res cylindriques horizontales à section rectangulaire, simulant des murs) présentent quelques aspects remarquables:

a. L'anomalie associée (minimum de champ au Nord de la structure) est supérieure dans certains cas à l'anomalie normale (maximum au Sud). Ce phénomène qui n'est pas observé sous nos latitudes est probablement du au fait qu'il s'agit d'anomalies du champ total. Il est particulièrement marqué pour les valeurs de θ comprises entre 0 et 45° et apparaît dans tous les cas de section rectangulaire étudiés (fig. 34).

b. Les anomalies des structures pour lesquelles θ est voisin de 90° (murs Nord-Sud) sont beaucoup plus faibles que pour θ voisin de 0° (murs Est-Ouest) (fig. 35). Ceci ne se produit pratiquement pas à la latitude de l'Europe et s'est révélé très gênant pour l'étude des constructions sur plan rectangulaire, car, en exceptant le cas où l'orientation générale est à 45° du Nord magnétique, les murs voisins de la direction Nord-Sud ne sont pratiquement pas visibles.

L'interprétation des mesures réalisées à Mirgissa n'utilise, en fait ces données que dans le cas très particulier des anomalies bien isolées de tout voisinage perturbé. La plupart du temps, les débris des contructions forment, en mélange avec le sable apporté par le vent, un remplissage complexe. L'interprétation quantitative, rendue de ce fait aléatoire et, de plus, très longue s'il fallait l'appliquer à toutes les perturbations du champ observées sur les zones construites, est remplacée par une estimation globale de la validité de l'anomalie, de la longueur et de l'orientation du mur.

Les résultats archéologiques obtenus en procédant ainsi se sont révélés très satisfaisants: identification de fours, délimitation de sous ensembles architecturaux séparés par des rues, dont l'exposé est destiné à la publication définitive.

Mesures électriques

En ce domaine, les essais ont été limités à l'exécution de sondages électriques. La prospection proprement dite est en effet très délicate compte tenu de la difficulté d'obtenir des contacts satisfaisants entre les électrodes et le sable; de plus le sens du contraste de résistivité entre les matériaux est souvent incertain, ce caractère dépendant dans une très large me-

sure de faibles variations de la teneur en eau du sable et du limon.

Les sédiments, souvent très secs, sont naturellement très résistants et le matériel utilisé (un ampéremètre Métrix permettant la lecture jusqu'à 10 μ A, un électromètre Keithley, et 500 V sur piles sèches) n'a pas permis une grande précision dans la détermination des résistivités superficielles surtout: des effets électrostatiques et ioniques, l'influence du vent sur les conducteurs rendaient les mesures difficilement reproductibles; l'abondance enfin d'un arrosage indispensable perturbait manifestement le milieu à mesurer lui-même, pour les plus petits quadripôles de chaque sondage (A B $\geq$ 3 m). De ce fait, la résistivité des sables secs superficiels a seulement pu être estimée à une valeur comprise entre 1.000 et 100.000 (Ωm)

En fixant en quelques endroits du site la profondeur du socle rocheux, qui semble s'enfoncer lentement du Nord vers le Sud, ces sondages ont cependant permis de comprendre comment la rive du Nil avait pu avancer par comblement progressif d'une partie des rapides de la Deuxième Cataracte.

Un détail opératoire peut être précisé: pour l'envoi de courant, les habituels piquets métalliques ont été remplacés par des bidons percés de nombreux petits trous, remplis de sable et copieusement arrosés par l'intérieur. Cet arrosage très efficace augmente sensiblement, et rapidement, l'intensité du courant traversant le sol pour une même tension sur les électrodes. On constate qu'à cette rapide amélioration de la résistance de contact succède une lente évolution de plusieurs heures dans le sens favorable. L'augmentation de l'intensité disponible peut aller jusqu'à décupler la valeur atteinte aussitôt après l'apport d'eau. Cet effet est intéressant car l'arrosage de l'emplacement des électrodes une journée à l'avance, permet alors des mesures assez confortables.

Plusieurs phénomènes peuvent être invoqués pour expliquer cet effet: augmentation du rayon de l'électrode par diffusion de l'eau, rôle des solutions ioniques. Des essais de laboratoire sur de petites électrodes semblables tendent à prouver que le rôle de la diffusion dans le sable est limité au temps nécessaire à l'établissement de la première amélioration de la résistance de contact. En revanche, l'importance du rôle de la mise en solution des ions est attestée par le fait qu'une solution saturée en sulfate de cuivre donne une évolution ultérieure minime (fig. 36). Dans le cas d'une argile naturelle très humide où les solutions du sol sont déjà saturées, on peut faire une épreuve inverse en apportant, toujours par l'intérieur de l'électrode, une eau peu chargée en ions: celle-ci provoque une augmentation de la résistance de contact puis un retour lent à la valeur normale. A la longue, l'électrode revient évidemment toujours à l'état initial, soit par dilution progressive des solutions l'une dans l'autre, soit par dessication dans le cas des terrains secs.

La liste des phénomènes jouant un rôle dans la dimi-

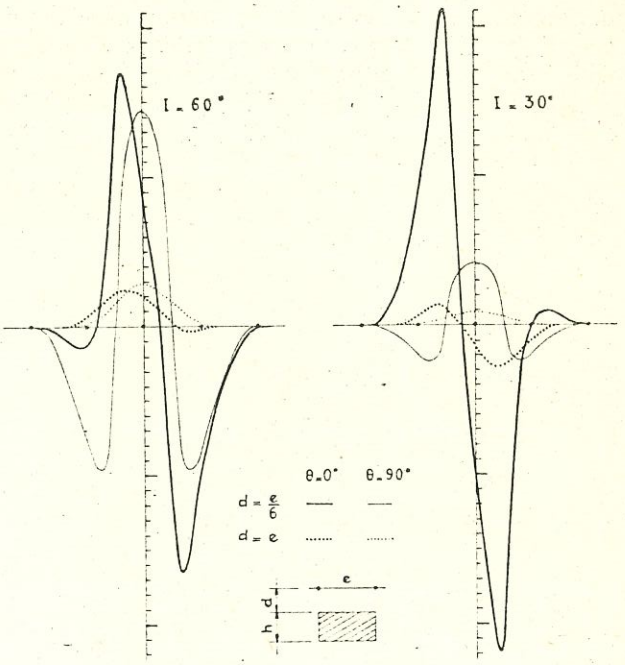

Fig. 35
Comparaison entre les effets d'une même structure à des latitudes différentes
(I = 30° : F = 0,38 oersted,
I = 60° : F = 0,46 oersted)
pour une même susceptibilité magnétique
(k = 400.10⁻⁶ u.e.m. C.G.S.).
Dans les deux cas l'unité en ordonnée vaut 1 γ.
On peut voir l'atténuation considérable provoquée par la faible latitude géomagnétique sur les structures Nord-Sud.

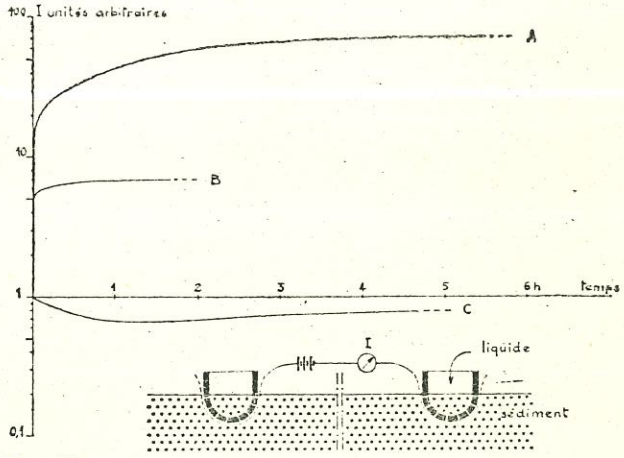

Fig. 36
Variation de l'intensité traversant une électrode métallique (fin grillage de laiton appliqué sur une hémisphère de matière plastique percée) après arrosage, dans différents sédiments
(A = eau naturelle dans sable sec,
B = eau saturée en sulfate de cuivre dans sable sec,
C = eau naturelle dans argile saturée).
Dans les trois cas, la variation en ordonnées logarithmiques, a été ramenée arbitrairement à une même intensité initiale.
L'importance de la variation secondaire de l'intensité apparaît dans le premier cas.

nution lente de la résistance de contact n'est certainement pas close par ces deux hypothèses. Quoiqu'il en soit, il peut être utile de penser à la possibilité de l'arrosage anticipé si l'on ne dispose pas de solutions salines pour l'étude par mesures électriques des sables secs.

Riassunto

L'autore espone le conclusioni raggiunte nel corso di due campagne svolte negli anni 1965-66 e 1966-67 a Mirgissa nella Nubia Sudanese, dove ha lavorato con una Missione Archeologica Francese, allo scopo di individuare le formazioni insabbiate nella zona che verrà allagata con il completamento della diga di Assuan.

La prospezione geofisica è stata molto utile per ottenere delle indicazioni sulla pianta della città, su una fortezza, su una serie di costruzioni del Medio Impero e per ipotizzare le variazioni della riva del Nilo e del paesaggio dal periodo egiziano in poi, mentre non è stata utile per trovare le grandi mura di cinta, forse distrutte in molti punti. In questo articolo l'autore espone le condizioni in cui sono state fatte le misure, le soluzioni tecniche adottate e il modo di interpretazione dei risultati seguito.

Prospezioni magnetiche

E' stato scelto questo metodo data l'esistenza di un contrasto nella suscettività magnetica della sabbia eolica che copre le formazioni archeologiche e le formazioni archeologiche stesse formate da costruzioni in mattoni crudi (vedi tabella a pag. 43 e tav. VIII). E' stato usato il magnetometro a protoni Elsec della Littlemore Scientific Engineering, che non ha mai dato alcuna preoccupazione tranne che per la mancanza di un buon isolamento termico.

Data la latitudine geomagnetica della zona (22° N, 31 E; $\varphi = 19°$ N), a Mirgissa si sono avute delle anomalie minori di quelle osservabili in Europa; questo fatto è stato peró in parte compensato dall'aumento nella sensibilità del magnetometro. Il tipo delle anomalie e il loro ordine di grandezza, era stato sperimentalmente definito in laboratorio con un metodo di integrazione ottica che dà direttamente dei profili di anomalie per l'inclinazione e la direzione delle formazioni rispetto al nord magnetico date (fig. 33). Le anomalie cosí ottenute mostrano alcune particolarità; l'anomalia associata in certi casi è superiore all'anomalia normale, probabilmente perché si tratta di anomalie del campo totale (fig. 34), e le anomalie corrispondenti a formazioni per le quali ϑ ha un valore di circa 90° (mura in direzione nord-sud), sono molto più deboli di quelle di formazioni per le quali ϑ è di circa 0° (cioè mura in direzione est-ovest) (fig. 35). Questo fenomeno ha intralciato l'individuazione di costruzioni a pianta rettangolare, perché le mura in direzione nord-sud in pratica non vengono individuate. A Mirgissa questi dati per l'interpretazione delle anomalie sono stati usati solo in casi molto semplici; per lo piú l'interpretazione è stata invece fatta in via generale stabilendo solo la lunghezza e la direzione delle mura; su questa base si sono avuti risultati archeologici soddisfacenti.

Misure elettriche

Ci si è limitati a fare alcuni sondaggi verticali, essendo una vera prospezione elettrica resa difficile dalla bassa conduttività della sabbia. La strumentazione usata (un amperometro Métrix che dà letture fino a 10 μ A, un elettrometro Keithley e delle pile a secco per 500 V) non ha permesso la determinazione esatta delle resistività superficiali; si è potuto solo approssimativamente stabilire la resistività della sabbia asciutta superficiale (da 1.000 a 100.000 (Ωm). Per trasmettere la corrente nel terreno, al posto degli elettrodi, sono stati usati dei bidoni con il fondo forato pieni di sabbia abbondantemente bagnata 24 ore prima in modo da aumentare l'intensità della corrente che attraversa il suolo (fig. 36). In questo modo si sono avute delle misure interessanti che hanno permesso di stabilire la profondità dello strato roccioso; si è potuto così dimostrare che la riva del Nilo era avanzata per il riempimento progressivo di una parte della rapida della Seconda Cataratta.