

ERROR IN DATA

An error has been discovered in the data for Argentine Islands 1968, H component, December.

- In the 'Explanatory Notes' the baselines for the insensitive magnetogram should read:-

H	22603γ	Dec 12
	22599γ	Dec 25 - Dec 26
	22603γ	Dec 30

In the computed mean hourly values, the values for the whole of Dec 12, 25 and 26 and for 0000-0600 on Dec 30 should be decreased by 470γ.

BRITISH ANTARCTIC SURVEY

(Formerly Falkland Islands Dependencies Survey)

MAGNETIC RECORDS FOR 1968

From ARGENTINE ISLANDS A.973

Latitude $-65^{\circ}15'$, Longitude $295^{\circ}44'$

Geomagnetic Latitude -53.8°

Geomagnetic Longitude 3.3°

Original Records held at:-

British Antarctic Survey
 Atmospheric Sciences Division
 Madingley Road
 Cambridge CB2 0ET

Phone (0223) 61188

ARGENTINE ISLANDS A.973

EXPLANATORY NOTES, 1968

1. Instruments

There are standard La Cour variometers, recording H, D and Z.

2. Time

Charts were changed at Greenwich midnight, so that each chart shows a complete Greenwich day.

The parallax correction, in minutes, for each trace is given below. The correction is to be added to the time read on the trace.

<u>Sensitive Magnetogram</u>	T(upper)	H	T(lower)	D	Z
Jan 01 - May 09, 0002Z	+2	$+1\frac{1}{2}$	+3	$+1\frac{1}{2}$	-1
May 09 - Dec 31	+2	+4	+3	$+1\frac{1}{2}$	$-1\frac{1}{2}$
<u>Storm Magnetogram</u>	D	T(upper)	H	T(lower)	Z
Jan 01 - Feb 08, 2100Z	0		$-4\frac{1}{2}$	$-2\frac{1}{2}$	0
Feb 08 - May 28, 1700Z	0		$-4\frac{1}{2}$	-4	0
May 28 - Jul 09, 1800Z	0		-5	$-4\frac{1}{2}$	-1
Jul 09 - Jul 10, 2100Z	$-1\frac{1}{2}$		$-5\frac{1}{2}$		-1
Jul 10 - Jul 11, 1700Z	$-\frac{1}{2}$		-5		-1
Jul 11 - Dec 31	-1	-3	-5		-1

3. Order of Traces (from top to bottom of chart)

Sensitive Magnetogram

T trace (when present)
 H trace and baseline
 T trace (when present)
 D baseline and trace
 Z trace and baseline

Insensitive Magnetogram

D trace and baseline
 T trace (when present)
 H trace and baseline
 H trace (when present)
 Z baseline and trace (trace above baseline May 27 - Jun 29)

4. Sense of traces

T increases up the chart
 H increases up the chart
 D increases easterly up the chart
 Z becomes less negative down the chart

5. Temperature Coefficients

The only significant temperature coefficient required for reduction of the data is that of the sensitive H variometer. H baseline values increase with increasing temperature.

H Temperature coefficient

4.0 °C

T trace

	<u>Scale Value</u>	<u>Baseline</u> (upper trace)	<u>Baseline</u> (lower trace)
Jan 01 - May 08	0.52°C/mm	-38.42°C	12.63°C
May 09 - Dec 31	0.52°C/mm	-38.24°C	12.60°C

6. Scale Values

Sensitive Magnetograms

Insensitive Magnetograms

H	4.24 γ/mm	16.4 γ/mm	Dec 12, 25, 26, 30
D	0.92 γ/mm	2.35 γ/mm	Dec 12, 25, 26, 30
Z	-4.20 γ/mm	-10.9 γ/mm	Oct 30 - Nov 02, Nov 16 - Dec 31

7. Scale of Reproduction

To give scale, a rule of 50mm length is reproduced on each magnetogram.

8. Baselines

For the sensitive magnetograms, baselines at 0°C are quoted. Chart baselines must be calculated using the data given in section 5 (only H has a temperature coefficient). The insensitive baselines quoted are chart baselines.

Sensitive Magnetograms

H	22897γ	Jan 01 - May 09, 0002Z	D	17°22.4'	Jan 01 - Dec 31
	22871γ	May 09 - Dec 31			
Z	-35740γ	Jan 01 - May 09, 0002Z	-35724γ	Sep 27	
	-35732	May 09 - Jul 05, 0005Z	-35722	Sep 28 - Oct 06	
	-35724	May 05 - Jul 29	-35717	Oct 07 - Oct 22	
	-35719	Jul 30 - Aug 27	-35713	Oct 23 - Oct 24	
	-35716	Aug 28 - Sep 09	-35715	Oct 25 - Oct 26	
	-35724	Sep 10 - Sep 11	-35714	Oct 27	
	-35719	Sep 12 - Sep 14	-35716	Oct 28 - Nov 01	
	-35715	Sep 15 - Sep 16	-35718	Nov 02 - Nov 04	
	-35719	Sep 17 - Sep 23	-35716	Nov 05 - Nov 10	
	-35716	Sep 24	-35714	Nov 11 - Nov 16	
	-35719	Sep 25 - Sep 26	No trace	Nov 17 - Dec 31	

Insensitive Magnetograms

H	22573γ	Dec 12	Z	-36028γ	Oct 31 - Nov 02
	22569	Dec 26 - Dec 26		-36027	Nov 16 - Nov 24
	22573	Dec 30		-36028	Nov 25 - Dec 12
				-36029	Dec 13 - Dec 21
D	16°34.8'	Dec 12, 25, 26, 30			

9. Example of computation of absolute value

01 Jan 1968, 0500Z

H₀ etc. baselines (at 1 °C for H)
 q temperature coefficients
 s scale values
 n ordinate in millimetres

$$\begin{aligned}
 H &= H_0 + s_H n_H + q_H (T_S - (T_0 + s_T n_T)) \\
 &= 22897 + 4.24 \times 25.6 - 4.0 (0 - (12.63 + 0.52(-8.8))) \\
 &= 22897 + 108.54 + 32.22 \\
 &= 23038\gamma
 \end{aligned}$$

$$\begin{aligned}
 D &= D_0 + s_D n_D \\
 &= 17^\circ 22.4' + 0.92(-24.5) \\
 &= 17^\circ 22.4' - 22.54' \\
 &= 16^\circ 59.9'
 \end{aligned}$$

$$\begin{aligned}
 Z &= Z_0 + s_Z n_Z \\
 &= -35740 - 4.2 \times 33.5 \\
 &= -35740 - 140.7 \\
 &= -35881\gamma
 \end{aligned}$$

Lower limit K): 500y

Scale values: H, 4.25y/mm; D, 6.25y/mm

	K_H								K_D								$\text{Max}(K_H, K_D)$								Sum
	E1	E2	E3	E4	E5	E6	E7	E8	E1	E2	E3	E4	E5	E6	E7	E8	E1	E2	E3	E4	E5	E6	E7	E8	
1	3	2	2	3	1	2	4	3	2	2	4	3	2	2	1	2	3	2	4	3	2	2	4	3	23
2	3	3	3	5	3	2	2	3	0	3	5	5	4	2	2	2	3	3	5	5	4	2	2	3	27
3	2	2	1	1	0	0	1	2	2	1	3	1	1	0	0	0	2	2	3	1	1	0	1	2	12
4	2	0	0	0	0	2	3	4	0	0	0	1	0	0	1	3	2	0	0	1	0	2	3	4	12
5	2	1	1	1	2	1	3	4	2	1	1	2	1	1	2	1	2	1	1	2	2	1	3	4	16
6	4	3	2	2	3	4	2	3	3	2	2	3	3	2	2	2	4	3	2	3	3	4	2	3	24
7	3	1	2	2	0	1	1	2	2	2	2	2	2	1	0	1	3	2	2	2	2	1	1	2	15
8	2	0	2	2	0	2	2	1	0	0	2	3	1	0	1	0	2	0	2	3	1	2	2	1	13
9	0	0	0	0	0	1	1	2	0	0	1	0	0	0	1	0	0	0	1	0	0	1	1	2	5
10	2	2	2	1	1	2	2	2	1	2	2	2	1	1	1	0	2	2	2	2	1	2	2	2	15
11	1	0	0	0	2	4	3	3	1	1	1	0	4	2	2	2	1	1	1	0	4	4	3	3	17
12	3	3	2	2	2	2	3	3	2	2	3	2	0	2	2	2	3	3	3	2	2	2	3	3	21
13	0	1	1	1	0	2	3	2	0	2	1	3	1	1	2	1	0	2	1	3	1	2	3	2	14
14	2	1	1	0	0	1	3	2	2	3	2	2	1	1	2	2	2	3	2	2	1	1	3	2	16
15	2	0	1	1	1	2	3	3	0	0	1	2	2	0	2	2	2	0	1	2	2	2	3	3	15
16	2	1	1	0	0	3	4	3	2	1	0	1	1	3	3	1	2	1	1	1	1	3	4	3	16
17	1	2	3	0	1	2	3	4	0	2	3	2	2	1	2	1	1	2	3	2	2	2	3	4	19
18	3	2	2	1	1	1	1	2	3	1	1	2	2	0	0	0	3	2	2	2	2	1	1	2	15
19	1	1	1	1	1	2	3	3	0	1	2	2	1	2	3	3	1	1	2	2	1	2	3	3	15
20	2	2	2	2	2	2	3	1	2	2	2	3	3	2	2	0	2	2	2	3	3	2	3	1	18
21	1	2	3	2	1	2	2	2	0	2	3	3	2	1	2	1	1	2	3	3	2	2	2	2	17
22	1	2	1	2	1	2	3	2	1	2	1	3	3	2	2	0	1	2	1	3	3	2	3	2	17
23	2	2	2	0	1	2	2	2	1	1	2	1	1	1	2	1	2	2	2	1	1	2	2	2	14
24	2	1	2	2	1	2	3	2	1	0	2	2	2	1	2	1	2	1	2	2	2	2	3	2	16
25	1	0	1	0	0	0	1	2	1	0	0	0	0	0	0	0	1	0	1	0	0	0	1	2	5
26	1	1	1	0	2	4	3	3	1	1	1	1	4	4	1	1	1	1	1	1	4	4	3	3	18
27	3	2	1	0	1	3	2	2	2	2	1	2	2	1	0	1	3	2	1	2	2	3	2	2	17
28	3	1	0	1	0	2	3	3	2	1	0	2	2	0	1	1	3	1	0	2	2	2	3	3	16
29	3	2	1	1	0	3	3	3	2	1	1	2	2	1	1	2	3	2	1	2	2	3	3	3	19
30	2	2	1	1	1	1	3	3	3	3	1	2	1	1	2	0	3	3	1	2	1	1	3	3	17
31	3	2	2	1	0	1	1	2	3	3	2	2	1	1	0	0	3	3	2	2	1	1	1	2	15

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EXPLANATORY NOTES, 1968

1. Instruments

There are standard La Cour variometers, recording H, D and Z.

2. Time

Charts were changed at Greenwich midnight, so that each chart shows a complete Greenwich day.

The parallax correction, in minutes, for each trace is given below. The correction is to be added to the time read on the trace.

<u>Sensitive Magnetogram</u>	T(upper)	H	T(lower)	D	Z
Jan 01 - May 09, 0002Z	+2	+1½	+3	+1½	-1
May 09 - Dec 31	+2	+4	+3	+1½	-½
<u>Storm Magnetogram</u>	D	T(upper)	H	T(lower)	Z
Jan 01 - Feb 08, 2100Z	0		-4½	-2½	0
Feb 08 - May 28, 1700Z	0		-4½	-4	0
May 28 - Jul 09, 1800Z	0		-5	-4½	-1
Jul 09 - Jul 10, 2100Z	-1½		-5½		-1
Jul 10 - Jul 11, 1700Z	-½		-5		-1
Jul 11 - Dec 31	-1	-3	-5		-1

3. Order of Traces (from top to bottom of chart)

Sensitive Magnetogram

T trace (when present)
H trace and baseline
T trace (when present)
D baseline and trace
Z trace and baseline

Insensitive Magnetogram

D trace and baseline
T trace (when present)
H trace and baseline
H trace (when present)
Z baseline and trace (trace above baseline May 27 - Jun 29)

4. Sense of traces

T increases up the chart
H increases up the chart
D increases easterly up the chart
Z becomes less negative down the chart

5. Temperature Coefficients

The only significant temperature coefficient required for reduction of the data is that of the sensitive H variometer. H baseline values increase with increasing temperature.

H temperature coefficient.

4.0 $\gamma/^\circ\text{C}$.

T trace

	<u>Scale Value</u>	<u>Baseline (upper trace)</u>	<u>Baseline (lower trace)</u>
Jan 01 - May 08	0.52 $^\circ\text{C}/\text{mm}$	-38.42 $^\circ\text{C}$	12.63 $^\circ\text{C}$
May 09 - Dec 31	0.52 $^\circ\text{C}/\text{mm}$	-38.24 $^\circ\text{C}$	12.60 $^\circ\text{C}$

6. Scale Values

Sensitive Magnetograms

H 4.24 γ/mm
 D 0.92 $'/\text{mm}$
 Z -4.20 γ/mm

Insensitive Magnetograms

16.4 γ/mm Dec 12, 25, 26, 30
 2.35 $'/\text{mm}$ Dec 12, 25, 26, 30
 -10.9 γ/mm Oct 30 - Nov 02,
 Nov 16 - Dec 31

7. Scale of Reproduction

To give scale, a rule of 50mm length is reproduced on each magnetogram.

8. Baselines

For the sensitive magnetograms, baselines at 0°C are quoted. Chart baselines must be calculated using the data given in section 5 (only H has a temperature coefficient). The insensitive baselines quoted are chart baselines.

Sensitive Magnetograms

H 22897 γ	Jan 01 - May 09, 0002Z	D 17 $^\circ$ 22.4'	Jan 01 - Dec 31
22871 γ	May 09 - Dec 31		
Z -35740 γ	Jan 01 - May 09, 0002Z	-35724 γ	Sep 27
-35732	May 09 - Jul 05, 0005Z	-35722	Sep 28 - Oct 06
-35724	May 05 - Jul 29	-35717	Oct 07 - Oct 22
-35719	Jul 30 - Aug 27	-35713	Oct 23 - Oct 24
-35716	Aug 28 - Sep 09	-35715	Oct 25 - Oct 26
-35724	Sep 10 - Sep 11	-35714	Oct 27
-35719	Sep 12 - Sep 14	-35716	Oct 28 - Nov 01
-35715	Sep 15 - Sep 16	-35718	Nov 02 - Nov 04
-35719	Sep 17 - Sep 23	-35716	Nov 05 - Nov 10
-35716	Sep 24	-35714	Nov 11 - Nov 16
-35719	Sep 25 - Sep 26	No trace	Nov 17 - Dec 31

Insensitive Magnetograms

H 22573 γ	Dec 12	Z -36028 γ	Oct 31 - Nov 02
22569	Dec 26 - Dec 26	-36027	Nov 16 - Nov 24
22573	Dec 30	-36028	Nov 25 - Dec 12
		-36029	Dec 13 - Dec 21
D 16 $^\circ$ 34.8'	Dec 12, 25, 26, 30		

9. Examples of computation of absolute values.

01 Jan 1968, 0500Z

H_0 etc. baselines (at T_S $^\circ\text{C}$ for H)

q temperature coefficients
 s scale values
 n ordinate in millimetres

$$\begin{aligned}
 H &= H_0 + s_H n_H + q_H (T_S - (T_0 + s_T n_T)) \\
 &= 22897 + 4.24 \times 25.6 - 4.0 (0 - (12.63 + 0.52(-8.8))) \\
 &= 22897 + 108.54 + 32.22 \\
 &= 23038\gamma
 \end{aligned}$$

$$\begin{aligned}
 D &= D_0 + s_D n_D \\
 &= 17^\circ 22.4' + 0.92(-24.5) \\
 &= 17^\circ 22.4' - 22.54' \\
 &= 16^\circ 59.9'
 \end{aligned}$$

$$\begin{aligned}
 Z &= Z_0 + s_Z n_Z \\
 &= -35740 - 4.2 \times 33.5 \\
 &= -35740 - 140.7 \\
 &= -35881\gamma
 \end{aligned}$$

Lower Limit K_0 : 500y

Scale values: H, 1.25y/mm; D, 6.25y/mm

	K_H								K_D								$\max(K_H, K_D)$								Sum
	E1	E2	E3	E4	E5	E6	E7	E8	E1	E2	E3	E4	E5	E6	E7	E8	E1	E2	E3	E4	E5	E6	E7	E8	
1	0	2	2	1	2	3	3	3	0	1	2	2	3	1	2	2	0	2	2	2	3	3	3	3	18
2	3	2	1	1	2	3	3	3	4	1	3	4	3	2	2	3	4	2	3	4	3	3	3	3	25
3	3	1	1	1	2	2	2	3	3	1	2	2	2	2	2	2	3	1	2	2	2	2	2	3	17
4	3	2	2	4	2	1	2	2	2	4	3	4	2	0	1	0	3	4	3	4	2	1	2	2	21
5	0	1	1	1	1	2	3	3	0	0	1	2	1	2	3	2	0	1	1	2	1	2	3	3	13
6	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	2
7	0	0	0	0	0	2	3	4	0	0	0	0	0	1	1	1	0	0	0	0	0	2	3	4	9
8	4	3	2	1	1	2	3	2	2	2	2	2	1	1	2	3	4	3	2	2	1	2	3	3	20
9	3	3	2	1	2	1	2	4	3	3	4	3	2	0	1	2	3	3	4	3	2	1	2	4	22
10	2	3	2	2	1	5	4	5	4	2	3	2	2	4	5	5	4	3	3	2	2	5	5	5	29
11	4	4	4	4	3	2	3	3	4	5	5	5	3	1	3	2	4	5	5	5	3	2	3	3	30
12	3	1	1	1	1	3	2	0	4	1	3	2	2	1	1	0	4	1	3	2	2	3	2	0	17
13	0	2	3	2	3	3	0	2	0	3	4	2	4	2	0	0	0	3	4	2	4	3	0	2	18
14	2	1	0	1	0	0	1	3	1	0	0	1	2	0	1	1	2	1	0	1	2	0	1	3	10
15	2	2	3	4	3	3	2	2	1	2	2	4	3	3	2	2	2	2	3	4	3	3	2	2	21
16	2	1	2	2	2	2	3	3	1	1	2	3	3	1	2	2	2	1	2	3	3	2	3	3	19
17	2	1	2	2	3	2	3	4	3	2	2	2	3	2	3	3	3	2	2	2	3	2	3	4	21
18	2	2	3	3	2	3	4	3	3	1	4	4	3	3	3	2	3	2	4	4	3	3	4	3	26
19	3	2	2	1	1	0	0	1	3	3	3	2	1	0	0	0	3	3	3	2	1	0	0	1	13
20	2	1	4	5	5	1	3	4	2	1	5	6	5	1	3	4	2	1	5	6	5	1	3	4	27
21	4	3	2	2	1	2	3	3	4	3	2	2	2	2	3	3	4	3	2	2	2	2	3	3	21
22	2	2	1	1	1	2	2	0	1	2	1	2	1	1	2	0	2	2	1	2	1	2	2	0	12
23	0	1	2	0	1	2	2	1	0	2	1	1	1	1	1	1	0	2	2	1	1	2	2	1	11
24	1	2	2	0	1	1	1	0	0	2	2	2	1	1	0	0	1	2	2	2	1	1	1	0	10
25	2	1	2	0	0	1	2	1	1	0	2	0	1	0	1	0	2	1	2	0	1	1	2	1	10
26	1	1	0	0	0	1	1	2	0	1	0	0	0	1	1	3	1	1	0	0	0	1	1	3	7
27	3	0	0	0	0	1	3	4	3	0	0	1	2	1	2	3	3	0	0	1	2	1	3	4	14
28	3	3	2	2	3	3	4	4	4	3	1	3	3	2	3	4	4	3	2	3	3	3	4	4	26
29	4	3	3	2	1	2	2	2	5	3	3	2	2	2	2	1	5	3	3	2	2	2	2	2	21

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Charts were changed at Greenwich midnight, so that each chart shows a complete Greenwich day.

The parallax correction, in minutes, for each trace is given below. The correction is to be added to the time read on the trace.

<u>Sensitive Magnetogram</u>	T(upper)	H	T(lower)	D	Z
Jan 01 - May 09, 0002Z	+2	$+1\frac{1}{2}$	+3	$+1\frac{1}{2}$	-1
May 09 - Dec 31	+2	+4	+3	$+1\frac{1}{2}$	$-\frac{1}{2}$
<u>Storm Magnetogram</u>	D	T(upper)	H	T(lower)	Z
Jan 01 - Feb 08, 2100Z	0		$-4\frac{1}{2}$	$-2\frac{1}{2}$	0
Feb 08 - May 28, 1700Z	0		$-4\frac{1}{2}$	-4	0
May 28 - Jul 09, 1800Z	0		-5	$-4\frac{1}{2}$	-1
Jul 09 - Jul 10, 2100Z	$-1\frac{1}{2}$		$-5\frac{1}{2}$		-1
Jul 10 - Jul 11, 1700Z	$-\frac{1}{2}$		-5		-1
Jul 11 - Dec 31	-1	-3	-5		-1

3. Order of Traces (from top to bottom of chart)

<u>Sensitive Magnetogram</u>	<u>Insensitive Magnetogram</u>
T trace (when present)	D trace and baseline
H trace and baseline	T trace (when present)
T trace (when present)	H trace and baseline
D baseline and trace	H trace (when present)
Z trace and baseline	Z baseline and trace (trace above baseline May 27 - Jun 29)

4. Sense of traces

T increases up the chart
H increases up the chart
D increases easterly up the chart
Z becomes less negative down the chart

5. Temperature Coefficients

The only significant temperature coefficient required for reduction of the data is that of the sensitive H variometer. H baseline values increase with increasing temperature.

If temperature coefficient: -4.0 $\gamma/^\circ\text{C}$

1 trace

	<u>Scale Value</u>	<u>Baseline</u> (upper trace)	<u>Baseline</u> (lower trace)
Jan 01 - May 08	0.52 $^\circ\text{C}/\text{mm}$	-38.42 $^\circ\text{C}$	12.63 $^\circ\text{C}$
May 09 - Dec 31	0.52 $^\circ\text{C}/\text{mm}$	-38.24 $^\circ\text{C}$	12.60 $^\circ\text{C}$

6. Scale Values

Sensitive Magnetograms

H 4.24 γ/mm
D 0.92 $'/\text{mm}$
Z -4.20 γ/mm

Insensitive Magnetograms

16.4 γ/mm Dec 12, 25, 26, 30
2.35 $'/\text{mm}$ Dec 12, 25, 26, 30
-10.9 γ/mm Oct 30 - Nov 02,
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7. Scale of Reproduction

To give scale, a rule of 50mm length is reproduced on each magnetogram.

8. Baselines

For the sensitive magnetograms, baselines at 0 $^\circ\text{C}$ are quoted. Chart baselines must be calculated using the data given in section 5 (only H has a temperature coefficient). The insensitive baselines quoted are chart baselines.

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H 22897 γ	Jan 01 - May 09, 0002Z	D 17 $^\circ$ 22.4'	Jan 01 - Dec 31
22871 γ	May 09 - Dec 31		
Z -35740 γ	Jan 01 - May 09, 0002Z	-35724 γ	Sep 27
-35732	May 09 - Jul 05, 0005Z	-35722	Sep 28 - Oct 06
-35724	May 05 - Jul 29	-35717	Oct 07 - Oct 22
-35719	Jul 30 - Aug 27	-35713	Oct 23 - Oct 24
-35716	Aug 28 - Sep 09	-35715	Oct 25 - Oct 26
-35724	Sep 10 - Sep 11	-35714	Oct 27
-35719	Sep 12 - Sep 14	-35716	Oct 28 - Nov 01
-35715	Sep 15 - Sep 16	-35718	Nov 02 - Nov 04
-35719	Sep 17 - Sep 23	-35716	Nov 05 - Nov 10
-35716	Sep 24	-35714	Nov 11 - Nov 16
-35719	Sep 25 - Sep 26	No trace	Nov 17 - Dec 31

Insensitive Magnetograms

H 22573 γ	Dec 12	Z -36028 γ	Oct 31 - Nov 02
22569	Dec 26 - Dec 26	-36027	Nov 16 - Nov 24
22573	Dec 30	-36028	Nov 25 - Dec 12
		-36029	Dec 13 - Dec 21
D 16 $^\circ$ 34.8'	Dec 12, 25, 26, 30		

9. Examples of computation of absolute values

01 Jan 1968, 0500Z

H₀ etc. baselines (at T_S 0 $^\circ\text{C}$ for H)
q temperature coefficients
s scale values
n ordinate in millimetres

$$\begin{aligned}
 H &= H_0 + s_H n_H + q_H (T_S - (T_0 + s_T n_T)) \\
 &= 22897 + 4.24 \times 25.6 - 4.0 (0 - (12.63 + 0.52(-8.8))) \\
 &= 22897 + 108.54 + 32.22 \\
 &= 23038\gamma
 \end{aligned}$$

$$\begin{aligned}
 D &= D_0 + s_D n_D \\
 &= 17^\circ 22.4' + 0.92(-24.5) \\
 &= 17^\circ 22.4' - 22.54' \\
 &= 16^\circ 59.9'
 \end{aligned}$$

$$\begin{aligned}
 Z &= Z_0 + s_Z n_Z \\
 &= -35740 - 4.2 \times 33.5 \\
 &= -35740 - 140.7 \\
 &= -35881\gamma
 \end{aligned}$$

Lower limit K_H : 500g

Scale values: H, 4.25g/mm; D, 6.25g/mm

	K_H								K_D								$\max(K_H, K_D)$								Sum
	E1	E2	E3	E4	E5	E6	E7	E8	E1	E2	E3	E4	E5	E6	E7	E8	E1	E2	E3	E4	E5	E6	E7	E8	
1	2	2	3	1	1	2	1	0	3	1	2	3	3	2	1	0	3	2	3	3	3	2	1	0	17
2	2	3	2	2	0	1	2	2	0	3	2	3	1	0	1	2	2	3	2	3	1	1	2	2	16
3	2	1	2	2	1	3	3	3	2	1	2	2	2	2	3	3	2	1	2	2	2	3	3	3	18
4	3	2	3	2	1	2	3	4	4	2	4	2	2	0	3	5	4	2	4	2	2	2	3	5	24
5	3	3	2	2	3	2	2	2	1	4	3	3	3	1	1	2	3	4	3	3	3	2	2	2	22
6	3	1	2	1	0	1	2	2	2	0	3	2	1	1	2	3	3	1	3	2	1	1	2	3	16
7	0	1	0	1	1	1	1	2	1	2	2	1	1	0	0	1	1	2	2	1	1	1	1	2	11
8	2	0	0	0	0	0	0	2	2	0	0	0	0	0	0	1	2	0	0	0	0	0	0	2	4
9	1	1	0	0	0	0	1	2	0	1	0	0	0	0	1	2	1	1	0	0	0	0	1	2	5
10	3	3	2	0	1	2	2	2	2	3	3	0	1	2	2	2	3	3	3	0	1	2	2	2	16
11	2	2	2	1	0	0	2	2	1	2	3	1	0	0	1	0	2	2	3	1	0	0	2	2	12
12	1	1	0	2	2	2	2	2	0	1	0	2	2	2	2	2	1	1	0	2	2	2	2	2	12
13	1	2	1	0	0	0	0	1	0	2	1	1	0	0	0	2	1	2	1	1	0	0	0	2	7
14	2	2	3	2	2	2	4	5	4	2	2	3	3	3	3	4	4	2	3	3	3	3	4	5	27
15	3	3	3	2	3	2	3	3	4	3	4	3	3	3	3	4	4	3	4	3	3	3	3	4	27
16	3	3	3	2	3	2	3	3	3	3	4	3	5	1	2	4	3	3	4	3	5	2	3	4	27
17	3	2	2	1	1	0	1	2	3	3	2	2	1	0	1	2	3	3	2	2	1	0	1	2	14
18	2	3	2	2	1	1	1	2	3	3	3	2	1	2	1	0	3	3	3	2	1	2	1	2	17
19	1	1	2	2	1	2	2	0	0	2	2	2	2	2	2	0	1	2	2	2	2	2	2	0	13
20	3	4	1	2	2	1	1	3	4	4	0	3	3	1	1	3	4	4	1	3	3	1	1	3	20
21	1	2	1	1	1	1	2	1	2	2	1	1	1	1	2	0	2	2	1	1	1	1	2	1	11
22	1	1	1	0	1	0	0	0	1	1	1	1	1	0	0	0	1	1	1	1	1	0	0	0	5
23	0	1	1	0	1	0	2	3	0	1	1	1	2	0	1	3	0	1	1	1	2	0	2	3	10
24	2	3	3	2	2	2	4	4	1	3	4	3	3	2	3	3	2	3	4	3	3	2	4	4	25
25	3	3	3	1	2	2	3	3	4	3	5	2	3	2	2	3	4	3	5	2	3	2	3	3	25
26	0	1	3	2	2	2	3	3	0	1	2	3	3	2	1	2	0	1	3	3	3	2	3	3	18
27	3	3	3	1	1	1	3	2	3	4	4	3	2	1	2	2	3	4	4	3	2	1	3	2	22
28	2	3	3	1	1	1	2	3	0	4	3	2	3	1	1	3	2	4	3	2	3	1	2	3	20
29	2	3	3	1	1	1	2	3	3	3	4	2	2	2	2	3	3	3	4	2	2	2	2	3	21
30	3	4	4	2	2	4	3	3	5	3	4	2	2	3	3	3	5	4	4	2	2	4	3	3	27
31	2	2	2	0	1	2	3	4	2	2	2	1	2	3	4	5	2	2	2	1	2	3	4	5	21

BRITISH ANTARCTIC SURVEY

(Formerly Falkland Islands Dependencies Survey)

MAGNETIC RECORDS FOR 1968

From ARGENTINE ISLANDS A.973

Latitude $-65^{\circ}15'$, Longitude $295^{\circ}44'$

Geomagnetic Latitude -53.8°

Geomagnetic Longitude 3.3°

Original Records held at:-

British Antarctic Survey
Atmospheric Sciences Division
Madingley Road
Cambridge CB2 0ET

Phone (0223) 61188

1. Instruments

There are standard La Cour variometers, recording H, D and Z.

2. Time

Charts were changed at Greenwich midnight, so that each chart shows a complete Greenwich day.

The parallax correction, in minutes, for each trace is given below. The correction is to be added to the time read on the trace.

<u>Sensitive Magnetogram</u>	T(upper)	H	T(lower)	D	Z
Jan 01 - May 09, 0002Z	+2	$+1\frac{1}{2}$	+3	$+1\frac{1}{2}$	-1
May 09 - Dec 31	+2	+4	+3	$+1\frac{1}{2}$	$-\frac{1}{2}$

<u>Storm Magnetogram</u>	D	T(upper)	H	T(lower)	Z
Jan 01 - Feb 08, 2100Z	0		$-4\frac{1}{2}$	$-2\frac{1}{2}$	0
Feb 08 - May 28, 1700Z	0		$-4\frac{1}{2}$	-4	0
May 28 - Jul 09, 1800Z	0		-5	$-4\frac{1}{2}$	-1
Jul 09 - Jul 10, 2100Z	$-1\frac{1}{2}$		$-5\frac{1}{2}$		-1
Jul 10 - Jul 11, 1700Z	$-\frac{1}{2}$		-5		-1
Jul 11 - Dec 31	-1	-3	-5		-1

3. Order of Traces (from top to bottom of chart)

<u>Sensitive Magnetogram</u>	<u>Insensitive Magnetogram</u>
T trace (when present)	D trace and baseline
H trace and baseline	T trace (when present)
T trace (when present)	H trace and baseline
D baseline and trace	H trace (when present)
Z trace and baseline	Z baseline and trace (trace above baseline May 27 - Jun 29)

4. Sense of traces

T increases up the chart
H increases up the chart
D increases easterly up the chart
Z becomes less negative down the chart.

5. Temperature Coefficients

— The only significant temperature coefficient required for reduction of the data is that of the sensitive H variometer. H baseline values increase with increasing temperature.

H temperature coefficient: $-4.0 \gamma/^\circ\text{C}$

T trace

	Scale Value	Baseline (upper trace)	Baseline (lower trace)
Jan 01 - May 08	$0.52^\circ\text{C}/\text{mm}$	-38.42°C	12.63°C
May 09 - Dec 31	$0.52^\circ\text{C}/\text{mm}$	-38.24°C	12.60°C

6. Scale Values

Sensitive Magnetograms

H $4.24 \gamma/\text{mm}$
D $0.92 \text{ '}/\text{mm}$
Z $-4.20 \gamma/\text{mm}$

Insensitive Magnetograms

$16.4 \gamma/\text{mm}$ Dec 12, 25, 26, 30
 $2.35 \text{ '}/\text{mm}$ Dec 12, 25, 26, 30
 $-10.9 \gamma/\text{mm}$ Oct 30 - Nov 02,
Nov 16 - Dec 31

7. Scale of Reproduction

To give scale, a rule of 50mm length is reproduced on each magnetogram.

8. Baselines

For the sensitive magnetograms, baselines at 0°C are quoted. Chart baselines must be calculated using the data given in section 5 (only H has a temperature coefficient). The insensitive baselines quoted are chart baselines.

Sensitive Magnetograms

H	22897 γ	Jan 01 - May 09, 0002Z	D	$17^\circ 22.4'$	Jan 01 - Dec 31
	22871 γ	May 09 - Dec 31			
Z	-35740 γ	Jan 01 - May 09, 0002Z	-35724 γ	Sep 27	
	-35732	May 09 - Jul 05, 0005Z	-35722	Sep 28 - Oct 06	
	-35724	May 05 - Jul 29	-35717	Oct 07 - Oct 22	
	-35719	Jul 30 - Aug 27	-35713	Oct 23 - Oct 24	
	-35716	Aug 28 - Sep 09	-35715	Oct 25 - Oct 26	
	-35724	Sep 10 - Sep 11	-35714	Oct 27	
	-35719	Sep 12 - Sep 14	-35716	Oct 28 - Nov 01	
	-35715	Sep 15 - Sep 16	-35718	Nov 02 - Nov 04	
	-35719	Sep 17 - Sep 23	-35716	Nov 05 - Nov 10	
	-35716	Sep 24	-35714	Nov 11 - Nov 16	
	-35719	Sep 25 - Sep 26	No trace	Nov 17 - Dec 31	

Insensitive Magnetograms

H	22573 γ	Dec 12	Z	-36028 γ	Oct 31 - Nov 02
	22569	Dec 26 - Dec 26		-36027	Nov 16 - Nov 24
	22573	Dec 30		-36028	Nov 25 - Dec 12
				-36029	Dec 13 - Dec 21
D	$16^\circ 34.8'$	Dec 12, 25, 26, 30			

9. Examples of computation of absolute values

01 Jan 1968, 0500Z

H_0 etc. baselines (at $T_s = 0^\circ\text{C}$ for H)

q temperature coefficients
s scale values
n ordinate in millimetres

$$\begin{aligned}
 H &= H_0 + s_H n_H + q_H (T_S - (T_0 + s_T n_T)) \\
 &= 22897 + 4.24 \times 25.6 - 4.0 (0 - (12.63 + 0.52(-8.8))) \\
 &= 22897 + 108.54 + 32.22 \\
 &= 23038\gamma
 \end{aligned}$$

$$\begin{aligned}
 D &= D_0 + s_D n_D \\
 &= 17^\circ 22.4' + 0.92(-24.5) \\
 &= 17^\circ 22.4' - 22.54' \\
 &= 16^\circ 59.9'
 \end{aligned}$$

$$\begin{aligned}
 Z &= Z_0 + s_Z n_Z \\
 &= -35740 - 4.2 \times 33.5 \\
 &= -35740 - 140.7 \\
 &= -35881\gamma
 \end{aligned}$$

lower limit (L): 000,

scale values: 1, 0.25/mm, 0, 0.25/mm

	r_{ij}								r_j	$ax(r_{ij}, r_j)$								Sum							
	E1	E2	E3	E4	E5	E6	E7	E8		E1	E2	E3	E4	E5	E6	E7	E8								
1	3	3	4	3	2	2	3	3	4	4	4	3	2	2	2	3	4	4	4	3	2	2	3	3	25
2	3	1	3	1	2	1	3	2	4	2	2	1	2	1	1	2	4	2	3	1	2	1	3	2	18
3	3	2	1	2	1	1	0	2	3	4	1	3	1	1	0	2	3	4	1	3	1	1	0	2	15
4	3	3	2	0	0	1	1	1	3	3	2	0	0	1	0	1	3	3	2	0	0	1	1	1	11
5	2	2	1	1	2	2	3	5	2	2	2	2	2	2	5	5	2	2	2	2	2	2	5	5	22
6	3	3	5	4	2	3	3	2	4	3	4	4	2	3	3	2	4	3	5	4	2	3	3	2	26
7	2	2	2	2	1	2	0	1	2	1	3	3	2	1	0	0	2	2	3	3	2	2	0	1	15
8	1	2	1	0	0	0	0	0	2	1	1	0	1	0	0	0	2	2	1	0	1	0	0	0	6
9	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	2
10	2	3	2	1	0	0	1	1	2	2	2	1	0	0	0	1	2	3	2	1	0	0	1	1	10
11	2	2	2	2	1	1	2	1	3	4	2	2	1	1	0	0	3	4	2	2	1	1	2	1	16
12	1	2	2	1	1	1	3	3	0	1	1	0	0	0	1	4	1	2	2	1	1	1	3	4	15
13	3	3	1	2	2	2	2	4	4	4	2	3	3	3	2	4	4	4	2	3	3	3	2	4	25
14	3	2	1	2	3	2	1	1	5	4	3	5	5	2	2	2	5	4	3	5	5	2	2	2	28
15	2	2	3	3	2	2	2	2	1	0	2	3	2	2	2	3	2	2	3	3	2	2	2	3	19
16	3	2	2	1	1	1	3	3	2	2	3	3	1	1	2	3	3	2	3	3	1	1	3	3	19
17	2	2	2	2	1	2	2	3	3	2	2	3	2	2	2	3	3	2	2	3	2	2	2	3	19
18	3	2	2	2	0	1	1	2	3	2	2	2	1	1	1	3	3	2	2	2	1	1	1	3	15
19	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	2
20	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
21	0	0	1	0	0	0	1	1	0	0	1	0	1	0	0	0	0	0	1	0	1	0	1	1	4
22	0	2	3	1	0	0	1	2	2	1	3	3	1	1	1	3	2	2	3	3	1	1	1	3	16
23	3	3	2	1	1	0	2	1	5	3	3	2	1	1	2	1	5	3	3	2	1	1	2	1	18
24	3	3	0	1	0	0	0	0	5	4	3	1	1	0	0	0	5	4	3	1	1	0	0	0	14
25	0	1	1	0	0	1	1	2	0	0	1	0	0	0	0	3	0	1	1	0	0	1	1	3	7
26	3	4	3	2	2	2	4	4	4	4	3	3	1	2	3	4	4	4	3	3	2	2	4	4	26
27	4	3	4	3	1	1	3	2	3	3	3	4	1	1	3	1	4	3	4	4	1	1	3	2	22
28	3	3	2	2	1	1	2	3	4	4	4	3	1	1	1	3	4	4	4	3	1	1	2	3	22
29	2	2	2	2	2	1	2	3	3	3	4	3	1	1	1	4	3	3	4	3	2	1	2	4	22
30	3	1	2	1	0	0	0	2	3	0	2	2	0	0	0	2	3	1	2	2	0	0	0	2	10

BRITISH ANTARCTIC SURVEY

(Formerly Falkland Islands Dependencies Survey)

MAGNETIC RECORDS FOR 1968

From ARGENTINE ISLANDS A.973

Latitude $-65^{\circ}15'$, Longitude $295^{\circ}44'$

Geomagnetic Latitude -53.8°

Geomagnetic Longitude 3.3°

Original Records held at:-

British Antarctic Survey
Atmospheric Sciences Division
Madingley Road
Cambridge CB2 0ET

Phone (0223) 61188

ARGENTINE ISLANDS A.973

EXPLANATORY NOTES, 1968

1. Instruments

There are standard La Cour variometers, recording H, D and Z.

2. Time

Charts were changed at Greenwich midnight, so that each chart shows a complete Greenwich day.

The parallax correction, in minutes, for each trace is given below. The correction is to be added to the time read on the trace.

<u>Sensitive Magnetogram</u>	T(upper)	H	T(lower)	D	Z
Jan 01 - May 09, 0002Z	+2	$+1\frac{1}{2}$	+3	$+1\frac{1}{2}$	-1
May 09 - Dec 31	+2	+4	+3	$+1\frac{1}{2}$	$-\frac{1}{2}$

<u>Storm Magnetogram</u>	D	T(upper)	H	T(lower)	Z
Jan 01 - Feb 08, 2100Z	0		$-4\frac{1}{2}$	$-2\frac{1}{2}$	0
Feb 08 - May 28, 1700Z	0		$-4\frac{1}{2}$	-4	0
May 28 - Jul 09, 1800Z	0		-5	$-4\frac{1}{2}$	-1
Jul 09 - Jul 10, 2100Z	$-1\frac{1}{2}$		$-5\frac{1}{2}$		-1
Jul 10 - Jul 11, 1700Z	$-\frac{1}{2}$		-5		-1
Jul 11 - Dec 31	-1	-3	-5		-1

3. Order of Traces (from top to bottom of chart)

Sensitive Magnetogram

T trace (when present)
H trace and baseline
T trace (when present)
D baseline and trace
Z trace and baseline

Insensitive Magnetogram

D trace and baseline
T trace (when present)
H trace and baseline
H trace (when present)
Z baseline and trace (trace above baseline May 27 - Jun 29)

4. Sense of traces

T increases up the chart
H increases up the chart
D increases easterly up the chart
Z becomes less negative down the chart

5. Temperature Coefficients

The only significant temperature coefficient required for reduction of the data is that of the sensitive H variometer. H baseline values increase with increasing temperature.

H temperature coefficient: $4.0 \text{ } ^\circ\text{C}^{-1}$

T trace

	<u>Scale Value</u>	<u>Baseline</u> (<u>upper trace</u>)	<u>Baseline</u> (<u>lower trace</u>)
Jan 01 - May 08	$0.52^\circ\text{C}/\text{mm}$	-38.42°C	12.63°C
May 09 - Dec 31	$0.52^\circ\text{C}/\text{mm}$	-38.24°C	12.60°C

6. Scale Values

Sensitive Magnetograms

H $4.24 \text{ } \gamma/\text{mm}$
 D $0.92 \text{ } \text{'}/\text{mm}$
 Z $-4.20 \text{ } \gamma/\text{mm}$

Insensitive Magnetograms

$16.4 \text{ } \gamma/\text{mm}$ Dec 12, 25, 26, 30
 $2.35 \text{ } \text{'}/\text{mm}$ Dec 12, 25, 26, 30
 $-10.9 \text{ } \gamma/\text{mm}$ Oct 30 - Nov 02,
 Nov 16 - Dec 31

7. Scale of Reproduction

To give scale, a rule of 50mm length is reproduced on each magnetogram.

8. Baselines

For the sensitive magnetograms, baselines at 0°C are quoted. Chart baselines must be calculated using the data given in section 5 (only H has a temperature coefficient). The insensitive baselines quoted are chart baselines.

Sensitive Magnetograms

H	22897 γ	Jan 01 - May 09, 0002Z	D	$17^\circ 22.4'$	Jan 01 - Dec 31
	22871 γ	May 09 - Dec 31			
Z	-35740 γ	Jan 01 - May 09, 0002Z	-35724 γ	Sep 27	
	-35732	May 09 - Jul 05, 0005Z	-35722	Sep 28 - Oct 06	
	-35724	May 05 - Jul 29	-35717	Oct 07 - Oct 22	
	-35719	Jul 30 - Aug 27	-35713	Oct 23 - Oct 24	
	-35716	Aug 28 - Sep 09	-35715	Oct 25 - Oct 26	
	-35724	Sep 10 - Sep 11	-35714	Oct 27	
	-35719	Sep 12 - Sep 14	-35716	Oct 28 - Nov 01	
	-35715	Sep 15 - Sep 16	-35718	Nov 02 - Nov 04	
	-35719	Sep 17 - Sep 23	-35716	Nov 05 - Nov 10	
	-35716	Sep 24	-35714	Nov 11 - Nov 16	
	-35719	Sep 25 - Sep 26	No trace	Nov 17 - Dec 31	

Insensitive Magnetograms

H	22573 γ	Dec 12	Z	-36028 γ	Oct 31 - Nov 02
	22569	Dec 26 - Dec 26		-36027	Nov 16 - Nov 24
	22573	Dec 30		-36028	Nov 25 - Dec 12
				-36029	Dec 13 - Dec 21
D	$16^\circ 34.8'$	Dec 12, 25, 26, 30			

9. Example of computation of absolute values

01 Jan 1968, 0500Z

H_0 etc. baselines (at $T_S = 0^\circ\text{C}$ for H)
 q temperature coefficients
 s scale values
 n ordinate in millimetres

$$\begin{aligned}
 H &= H_0 + s_H n_H + q_H (T_S - (T_0 + s_T n_T)) \\
 &= 22897 + 4.24 \times 25.6 - 4.0 (0 - (12.63 + 0.52(-8.8))) \\
 &= 22897 + 108.54 + 32.22 \\
 &= 23038\gamma
 \end{aligned}$$

$$\begin{aligned}
 D &= D_0 + s_D n_D \\
 &= 17^\circ 22.4' + 0.92(-24.5) \\
 &= 17^\circ 22.4' - 22.54' \\
 &= 16^\circ 59.9'
 \end{aligned}$$

$$\begin{aligned}
 Z &= Z_0 + s_Z n_Z \\
 &= -35740 - 4.2 \times 33.5 \\
 &= -35740 - 140.7 \\
 &= -35881\gamma
 \end{aligned}$$

Lower Limit K): 2007

Upper values: H, 0.00/0.00; 0, 0.00/0.00

	r_H								r_D								$\max(r_H, r_D)$								Sum
	E1	E2	E3	E4	E5	E6	E7	E8	E1	E2	E3	E4	E5	E6	E7	E8	E1	E2	E3	E4	E5	E6	E7	E8	
1	3	1	0	1	2	3	2	4	2	2	1	2	2	3	2	4	3	2	1	2	2	3	2	4	19
2	4	3	2	2	1	2	1	1	6	3	3	3	1	1	0	1	6	3	3	3	1	2	1	1	20
3	2	3	2	1	1	1	0	0	4	3	3	1	1	0	0	0	4	3	3	1	1	1	0	0	13
4	2	1	0	0	0	0	0	0	3	2	1	1	0	0	0	0	3	2	1	1	0	0	0	0	7
5	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1	0	1	0	0	3
6	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	3
7	3	5	5	4	4	3	3	3	1	6	7	5	5	3	1	5	3	6	7	5	5	3	3	5	37
8	3	3	2	1	0	1	1	2	3	2	2	2	1	0	1	3	3	3	2	2	1	1	1	3	16
9	4	4	3	3	3	2	3	2	4	3	4	3	2	2	4	3	4	4	4	3	3	2	4	3	27
10	1	3	1	1	1	2	2	2	2	4	2	0	1	1	0	1	2	4	2	1	1	2	2	2	16
11	3	3	3	2	2	2	2	2	4	4	4	3	2	1	1	2	4	4	4	3	2	2	2	2	23
12	4	3	3	3	1	0	3	3	5	5	3	3	2	1	2	3	5	5	3	3	2	1	3	3	25
13	4	1	1	2	1	2	2	1	5	1	3	3	1	2	2	1	5	1	3	3	1	2	2	1	18
14	3	3	1	2	1	2	2	1	4	2	2	1	1	1	2	1	4	3	2	2	1	2	2	1	17
15	3	2	2	1	0	1	1	2	3	2	3	1	0	1	0	2	3	2	3	1	0	1	1	2	13
16	3	2	2	1	1	0	1	0	3	3	3	3	2	0	0	0	3	3	3	3	2	0	1	0	15
17	2	1	2	1	2	2	2	4	1	3	1	2	2	2	1	3	2	3	2	2	2	2	2	4	19
18	3	2	3	1	1	2	2	3	3	3	4	2	1	3	2	4	3	3	4	2	1	3	2	4	22
19	1	3	2	1	1	2	2	3	1	2	2	1	1	1	2	3	1	3	2	1	1	2	2	3	15
20	4	3	3	2	1	2	0	3	5	3	4	4	2	2	1	4	5	3	4	4	2	2	1	4	25
21	4	3	2	2	3	2	2	3	4	3	4	2	2	4	3	4	4	3	4	2	3	4	3	4	27
22	3	3	1	0	0	1	0	2	4	4	4	2	1	1	0	2	4	4	4	2	1	1	0	2	18
23	3	1	0	0	1	1	2	3	4	2	1	2	1	1	2	4	4	2	1	2	1	1	2	4	17
24	4	3	2	2	2	0	2	1	5	4	4	3	1	2	1	3	5	4	4	3	2	2	2	3	25
25	1	0	0	1	0	0	2	0	3	1	2	2	0	0	1	0	3	1	2	2	0	0	2	0	10
26	2	3	0	0	0	0	0	0	2	3	0	1	0	0	0	0	2	3	0	1	0	0	0	0	6
27	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	2
28	1	1	1	0	0	0	1	0	0	1	2	0	0	0	1	0	1	1	2	0	0	0	1	0	5
29	2	2	1	2	1	0	0	1	3	3	2	3	1	0	1	1	3	3	2	3	1	0	1	1	14
30	2	2	2	1	0	1	1	2	2	4	3	2	0	1	0	2	2	4	3	2	0	1	1	2	15
31	3	2	2	1	0	1	1	1	4	3	1	1	2	1	1	0	4	3	2	1	2	1	1	1	15

BRITISH ANTARCTIC SURVEY

(Formerly Falkland Islands Dependencies Survey)

MAGNETIC RECORDS FOR 1968

From ARGENTINE ISLANDS A.973

Latitude $-65^{\circ}15'$, Longitude $295^{\circ}44'$

Geomagnetic Latitude -53.8°

Geomagnetic Longitude 3.3°

Original Records held at:

British Antarctic Survey
 Atmospheric Sciences Division
 Madingley Road
 Cambridge CB2 0ET

Phone (0223) 61188

ARGENTINE ISLANDS A.973

EXPLANATORY NOTES, 1968

1. Instruments

There are standard La Cour variometers, recording H, D and Z.

2. Time

Charts were changed at Greenwich midnight, so that each chart shows a complete Greenwich day.

The parallax correction, in minutes, for each trace is given below. The correction is to be added to the time read on the trace.

<u>Sensitive Magnetogram</u>	T(upper)	H	T(lower)	D	Z
Jan 01 - May 09, 0002Z	+2	$+1\frac{1}{2}$	+3	$+1\frac{1}{2}$	-1
May 09 - Dec 31	+2	+4	+3	$+1\frac{1}{2}$	$-\frac{1}{2}$

<u>Storm Magnetogram</u>	D	T(upper)	H	T(lower)	Z
Jan 01 - Feb 08, 2100Z	0		$-4\frac{1}{2}$	$-2\frac{1}{2}$	0
Feb 08 - May 28, 1700Z	0		$-4\frac{1}{2}$	-4	0
May 28 - Jul 09, 1800Z	0		-5	$-4\frac{1}{2}$	-1
Jul 09 - Jul 10, 2100Z	$-1\frac{1}{2}$		$-5\frac{1}{2}$		-1
Jul 10 - Jul 11, 1700Z	$-\frac{1}{2}$		-5		-1
Jul 11 - Dec 31	-1	-3	-5		-1

3. Order of Traces (from top to bottom of chart)

<u>Sensitive Magnetogram</u>	<u>Insensitive Magnetogram</u>
T trace (when present)	D trace and baseline
H trace and baseline	T trace (when present)
T trace (when present)	H trace and baseline
D baseline and trace	H trace (when present)
Z trace and baseline	Z baseline and trace (trace above baseline May 27 - Jun 29)

4. Sense of traces

T increases up the chart
 H increases up the chart
 D increases easterly up the chart
 Z becomes less negative down the chart

5. Temperature Coefficients

The only significant temperature coefficient required for reduction of the data is that of the sensitive H variometer. H baseline values increase with increasing temperature.

H temperature coefficient: 4.0 $\gamma/^\circ\text{C}$

T trace

	<u>Scale Value</u>	<u>Baseline</u> (upper trace)	<u>Baseline</u> (lower trace)
Jan 01 - May 08	0.52 $^\circ\text{C}/\text{mm}$	-38.42 $^\circ\text{C}$	12.63 $^\circ\text{C}$
May 09 - Dec 31	0.52 $^\circ\text{C}/\text{mm}$	-38.24 $^\circ\text{C}$	12.60 $^\circ\text{C}$

6. Scale Values

Sensitive Magnetograms

H 4.24 γ/mm
D 0.92 $'/\text{mm}$
Z -4.20 γ/mm

Insensitive Magnetograms

16.4 γ/mm Dec 12, 25, 26, 30
2.35 $'/\text{mm}$ Dec 12, 25, 26, 30
-10.9 γ/mm Oct 30 - Nov 02,
Nov 16 - Dec 31

7. Scale of Reproduction

To give scale, a rule of 50mm length is reproduced on each magnetogram.

8. Baselines

For the sensitive magnetograms, baselines at 0 $^\circ\text{C}$ are quoted. Chart baselines must be calculated using the data given in section 5 (only H has a temperature coefficient). The insensitive baselines quoted are chart baselines.

Sensitive Magnetograms

H 22897 γ	Jan 01 - May 09, 0002Z	D 17 $^\circ$ 22.4'	Jan 01 - Dec 31
22871 γ	May 09 - Dec 31		
Z -35740 γ	Jan 01 - May 09, 0002Z	-35724 γ	Sep 27
-35732	May 09 - Jul 05, 0005Z	-35722	Sep 28 - Oct 06
-35724	May 05 - Jul 29	-35717	Oct 07 - Oct 22
-35719	Jul 30 - Aug 27	-35713	Oct 23 - Oct 24
-35716	Aug 28 - Sep 09	-35715	Oct 25 - Oct 26
-35724	Sep 10 - Sep 11	-35714	Oct 27
-35719	Sep 12 - Sep 14	-35716	Oct 28 - Nov 01
-35715	Sep 15 - Sep 16	-35718	Nov 02 - Nov 04
-35719	Sep 17 - Sep 23	-35716	Nov 05 - Nov 10
-35716	Sep 24	-35714	Nov 11 - Nov 16
-35719	Sep 25 - Sep 26	No trace	Nov 17 - Dec 31

Insensitive Magnetograms

H 22573 γ	Dec 12	Z -36028 γ	Oct 31 - Nov 02
22569	Dec 26 - Dec 26	-36027	Nov 16 - Nov 24
22573	Dec 30	-36028	Nov 25 - Dec 12
		-36029	Dec 13 - Dec 21
D 16 $^\circ$ 34.8'	Dec 12, 25, 26, 30		

9. Example of computation of absolute value:

01 Jan 1968, 0500Z

H₀ etc. baselines (at T_S 0 $^\circ\text{C}$ for H)

q temperature coefficients

s scale values

n ordinate in millimetres

$$H = H_0 + s_H n_H + q_H (T_S - (T_0 + s_T n_T))$$

$$= 22897 + 4.24 \times 25.6 - 4.0 (0 - (12.63 + 0.52(-8.8)))$$

$$= 22897 + 108.54 + 32.22$$

$$= 23038\gamma$$

$$D = D_0 + s_D n_D$$

$$= 17 $^\circ$ 22.4' + 0.92(-24.5)$$

$$= 17 $^\circ$ 22.4' - 22.54'$$

$$= 16 $^\circ$ 59.9'$$

$$Z = Z_0 + s_Z n_Z$$

$$= -35740 - 4.2 \times 33.5$$

$$= -35740 - 140.7$$

$$= -35881\gamma$$

Lower Limit K9: 500y

Scale values: H, 4.25y/mm; D, 6.25y/mm

	K_H								K_D								$\text{Max}(K_H, K_D)$								Sum
	E1	E2	E3	E4	E5	E6	E7	E8	E1	E2	E3	E4	E5	E6	E7	E8	E1	E2	E3	E4	E5	E6	E7	E8	
1	2	2	1	2	1	1	3	4	0	1	1	3	2	1	2	4	2	2	1	3	2	1	3	4	18
2	3	4	2	1	1	0	2	4	4	3	3	2	1	1	2	4	4	4	3	2	1	1	2	4	21
3	3	2	1	2	2	3	1	2	4	3	3	3	2	2	2	3	4	3	3	3	2	3	2	3	23
4	3	2	0	1	0	1	2	3	3	3	2	2	1	1	1	4	3	3	2	2	1	1	2	4	18
5	1	2	1	0	0	0	0	0	1	2	1	0	0	0	0	0	1	2	1	0	0	0	0	0	4
6	0	0	1	0	1	1	0	1	0	0	1	0	1	1	0	0	0	0	1	0	1	1	0	1	4
7	1	2	3	2	1	2	2	0	2	1	4	2	2	2	2	0	2	2	4	2	2	2	2	0	16
8	1	2	1	1	1	2	2	1	1	3	1	2	1	1	2	1	1	3	1	2	1	2	2	1	13
9	1	2	2	1	0	0	1	3	1	2	3	0	0	0	1	3	1	2	3	1	0	0	1	3	11
10	4	3	3	2	3	2	1	4	4	5	5	3	3	1	2	5	4	5	5	3	3	2	2	5	29
11	6	6	5	5	4	2	5	3	6	7	5	5	4	3	4	4	6	7	5	5	4	3	5	4	39
12	3	4	4	3	4	2	3	3	4	4	5	5	4	3	3	4	4	4	5	5	4	3	3	4	32
13	4	5	5	5	5	2	2	3	4	6	6	6	3	3	3	3	4	6	6	6	5	3	3	3	36
14	4	2	4	4	2	1	1	3	3	3	3	3	3	3	1	4	4	2	5	6	3	3	1	4	28
15	1	2	2	1	1	1	1	2	1	3	2	1	1	0	2	1	2	3	2	1	1	1	2	1	13
16	1	1	1	2	2	1	3	3	1	2	2	2	2	1	4	1	2	1	2	2	1	3	4	1	16
17	4	2	4	3	1	0	1	1	4	4	5	4	2	0	0	1	4	4	5	4	2	0	1	1	21
18	1	1	3	2	2	2	3	2	1	2	4	3	2	1	3	1	1	2	4	3	2	2	3	3	20
19	3	1	3	2	2	2	3	2	3	4	4	3	3	1	3	3	3	4	4	3	3	2	3	3	25
20	2	2	1	0	0	1	1	0	3	3	1	0	0	0	0	0	3	3	1	0	0	1	1	0	9
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	2	2	2	2	1	1	1	0	2	3	4	2	0	1	1	0	2	3	4	1	1	1	1	14
23	1	2	2	1	0	0	0	1	3	3	3	2	0	0	0	2	3	3	3	2	0	0	0	1	12
24	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
25	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	2
26	3	1	1	1	1	1	1	3	4	1	0	1	1	2	1	2	4	1	1	1	1	2	1	3	14
27	1	3	2	1	1	0	1	2	1	3	2	2	2	1	2	1	1	3	2	2	2	1	2	2	15
28	3	0	1	0	0	1	0	1	3	0	0	0	0	0	1	0	3	0	1	0	0	1	1	1	7
29	2	1	1	0	0	1	4	3	2	2	1	0	0	1	2	4	2	2	1	0	0	1	4	4	14
30	3	3	2	2	0	1	1	3	4	3	3	1	0	1	1	3	4	3	3	2	0	1	1	3	17

BRITISH ANTARCTIC SURVEY

(Formerly Falkland Islands Dependencies Survey)

MAGNETIC RECORDS FOR 1968

From ARGENTINE ISLANDS A.973

Latitude $-65^{\circ}15'$, Longitude $295^{\circ}44'$ Geomagnetic Latitude -53.8° Geomagnetic Longitude 3.3°

Original Records held at:-

British Antarctic Survey
 Atmospheric Sciences Division
 Madingley Road
 Cambridge CB2 0ET

Phone (0223) 61188

1. Instruments

There are standard La Cour variometers, recording H, D and Z.

2. Time

Charts were changed at Greenwich midnight, so that each chart shows a complete Greenwich day.

The parallax correction, in minutes, for each trace is given below. The correction is to be added to the time read on the trace.

<u>Sensitive Magnetogram</u>	T(upper)	H	T(lower)	D	Z
Jan 01 - May 09, 0002Z	+2	$+1\frac{1}{2}$	+3	$+1\frac{1}{2}$	-1
May 09 - Dec 31	+2	+4	+3	$+1\frac{1}{2}$	$-\frac{1}{2}$
<u>Storm Magnetogram</u>	D	T(upper)	H	T(lower)	Z
Jan 01 - Feb 08, 2100Z	0		$-4\frac{1}{2}$	$-2\frac{1}{2}$	0
Feb 08 - May 28, 1700Z	0		$-4\frac{1}{2}$	-4	0
May 28 - Jul 09, 1800Z	0		-5	$-4\frac{1}{2}$	-1
Jul 09 - Jul 10, 2100Z	$-1\frac{1}{2}$		$-5\frac{1}{2}$		-1
Jul 10 - Jul 11, 1700Z	$-\frac{1}{2}$		-5		-1
Jul 11 - Dec 31	-1	-3	-5		-1

3. Order of Traces (from top to bottom of chart)

<u>Sensitive Magnetogram</u>	<u>Insensitive Magnetogram</u>
T trace (when present)	D trace and baseline
H trace and baseline	T trace (when present)
T trace (when present)	H trace and baseline
D baseline and trace	H trace (when present)
Z trace and baseline	Z baseline and trace (trace above baseline May 27 - Jun 29)

4. Sense of traces

T increases up the chart
 H increases up the chart
 D increases easterly up the chart
 Z becomes less negative down the chart

5. Temperature Coefficients

The only significant temperature coefficient required for reduction of the data is that of the sensitive H variometer. H baseline values increase with increasing temperature.

H temperature coefficient

4.0 $\gamma/^\circ\text{C}$

T trace

	<u>Scale Value</u>	<u>Baseline</u> (upper trace)	<u>Baseline</u> (lower trace)
Jan 01 - May 08	0.52 $^\circ\text{C}/\text{mm}$	-38.42 $^\circ\text{C}$	12.63 $^\circ\text{C}$
May 09 - Dec 31	0.52 $^\circ\text{C}/\text{mm}$	-38.24 $^\circ\text{C}$	12.60 $^\circ\text{C}$

6. Scale Values

Sensitive Magnetograms

H 4.24 γ/mm
D 0.92 $'/\text{mm}$
Z -4.20 γ/mm

Insensitive Magnetograms

16.4 γ/mm Dec 12, 25, 26, 30
2.35 $'/\text{mm}$ Dec 12, 25, 26, 30
-10.9 γ/mm Oct 30 - Nov 02,
Nov 16 - Dec 31

7. Scale of Reproduction

To give scale, a rule of 50mm length is reproduced on each magnetogram.

8. Baselines

For the sensitive magnetograms, baselines at 0°C are quoted. Chart baselines must be calculated using the data given in section 5 (only H has a temperature coefficient). The insensitive baselines quoted are chart baselines.

Sensitive Magnetograms

H 22897 γ Jan 01 - May 09, 0002Z	D 17 $^\circ$ 22.4' Jan 01 - Dec 31
22871 γ May 09 - Dec 31	
Z -35740 γ Jan 01 - May 09, 0002Z	-35724 γ Sep 27
-35732 May 09 - Jul 05, 0005Z	-35722 Sep 28 - Oct 06
-35724 May 05 - Jul 29	-35717 Oct 07 - Oct 22
-35719 Jul 30 - Aug 27	-35713 Oct 23 - Oct 24
-35716 Aug 28 - Sep 09	-35715 Oct 25 - Oct 26
-35724 Sep 10 - Sep 14	-35714 Oct 27
-35719 Sep 12 - Sep 14	-35716 Oct 28 - Nov 01
-35715 Sep 15 - Sep 16	-35718 Nov 02 - Nov 04
-35719 Sep 17 - Sep 23	-35716 Nov 05 - Nov 10
-35716 Sep 24	-35714 Nov 11 - Nov 16
-35719 Sep 25 - Sep 26	No trace Nov 17 - Dec 31

Insensitive Magnetograms

H 22573 γ Dec 12	Z -36028 γ Oct 31 - Nov 02
22569 Dec 26 - Dec 26	-36027 Nov 16 - Nov 24
22573 Dec 30	-36028 Nov 25 - Dec 12
	-36029 Dec 13 - Dec 21
D 16 $^\circ$ 34.8' Dec 12, 25, 26, 30	

9. Examples of computation of absolute values.

01 Jan 1968, 0500Z

H_0 etc. baselines (at $T_S = 0^\circ\text{C}$ for H)

q_H temperature coefficients
s scale values
n ordinate in millimetres

$$\begin{aligned}
 H &= H_0 + s_H n_H + q_H (T_S - (T_0 + s_T n_T)) \\
 &= 22897 + 4.24 \times 25.6 - 4.0 (0 - (12.63 + 0.52(-8.8))) \\
 &= 22897 + 108.54 + 32.22 \\
 &= 23038\gamma
 \end{aligned}$$

$$\begin{aligned}
 D &= D_0 + s_D n_D \\
 &= 17^\circ 22.4' + 0.92(-24.5) \\
 &= 17^\circ 22.4' - 22.54' \\
 &= 16^\circ 59.9'
 \end{aligned}$$

$$\begin{aligned}
 Z &= Z_0 + s_Z n_Z \\
 &= -35740 - 4.2 \times 33.5 \\
 &= -35740 - 140.7 \\
 &= -35881\gamma
 \end{aligned}$$

	A								B								C								
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	Sum
1	3	3	3	1	1	1	1	3	3	3	2	2	1	1	0	3	3	3	2	1	1	1	3	17	
2	3	1	1	2	0	1	1	3	4	1	2	3	1	1	1	2	4	1	2	3	1	1	1	3	16
3	3	3	3	3	1	0	0	0	1	0	0	0	1	0	0	0	4	4	3	3	1	2	0	0	17
4	0	2	3	1	1	1	3	1	1	3	3	1	1	1	1	1	1	3	3	3	1	1	3	1	16
5	2	2	0	1	1	1	0	0	3	3	1	2	1	0	1	0	3	3	1	2	1	1	1	3	12
6	2	2	1	2	1	0	1	1	3	2	2	2	0	0	0	0	3	2	2	2	1	0	1	1	12
7	0	2	2	2	0	0	0	0	1	2	3	3	0	1	0	0	1	2	3	3	0	1	0	0	10
8	1	2	2	1	0	1	0	0	2	3	3	2	0	1	0	0	2	3	3	2	0	1	0	0	11
9	0	2	1	0	0	0	0	1	0	2	2	0	0	0	0	1	0	2	2	0	0	0	0	1	5
10	3	3	3	0	3	1	3	1	4	4	4	2	5	1	2	5	4	4	4	2	5	1	3	5	28
11	4	4	2	0	0	0	2	3	3	3	2	1	0	0	2	3	4	4	2	1	0	0	2	3	16
12	3	2	0	0	0	0	0	0	1	2	0	0	0	0	0	0	1	2	0	0	0	0	0	0	6
13	1	3	2	0	0	2	4	3	1	3	3	0	0	2	4	3	1	3	3	0	0	2	4	3	16
14	1	1	2	2	1	0	3	2	5	4	1	1	3	1	1	2	5	4	2	2	3	1	3	2	22
15	2	3	1	1	0	0	1	1	3	2	2	1	0	0	1	1	3	3	2	1	0	0	1	1	11
16	2	2	1	1	1	3	2	0	3	2	2	1	1	3	1	0	3	2	2	1	1	3	2	0	14
17	0	0	0	0	2	0	1	1	1	0	0	1	3	1	1	1	1	0	0	1	3	1	1	1	8
18	2	3	1	0	1	1	0	0	3	3	2	1	1	1	0	0	3	3	2	1	1	1	0	0	11
19	1	2	2	1	0	1	0	3	1	2	2	2	1	1	0	3	1	2	2	2	1	1	0	3	12
20	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3
21	1	1	1	0	0	1	2	2	1	1	1	0	0	0	1	2	1	1	1	0	0	1	2	2	8
22	3	3	3	3	2	1	1	1	4	3	4	1	2	1	1	1	4	3	4	4	2	1	1	1	20
23	1	2	3	1	1	1	1	0	2	3	3	2	1	1	0	1	2	3	3	2	1	1	1	1	14
24	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	2
25	0	1	1	0	1	0	0	0	0	2	3	2	1	0	0	0	0	2	3	2	1	0	0	0	8
26	1	2	1	2	1	1	2	2	1	3	1	2	2	2	1	1	1	3	1	2	2	2	2	4	17
27	3	3	3	2	1	0	1	0	5	4	3	3	1	0	1	1	5	4	3	3	1	0	1	1	18
28	1	2	0	0	1	1	2	2	3	2	0	1	0	1	2	2	3	2	0	1	1	1	2	2	12
29	2	3	2	0	1	0	0	0	3	2	2	0	0	0	0	0	3	3	2	0	1	0	0	0	9
30	1	1	0	0	0	1	2	1	1	1	0	0	0	0	1	2	1	1	0	0	0	1	2	1	6
31	3	1	1	1	0	1	0	0	3	2	1	1	1	0	0	0	3	2	1	1	1	1	0	0	9

BRITISH ANTARCTIC SURVEY

(Formerly Falkland Islands Dependencies Survey)

MAGNETIC RECORDS FOR 1968

From ARGENTINE ISLANDS A.973

Latitude $-65^{\circ}15'$, Longitude $295^{\circ}44'$

Geomagnetic Latitude -53.8°

Geomagnetic Longitude 3.3°

Original Records held at:-

British Antarctic Survey

Atmospheric Sciences Division

Madingley Road

Cambridge CB2 0ET

ARGENTINE ISLANDS A.973

EXPLANATORY NOTES, 1968

1. Instruments

There are standard La Cour variometers, recording H, D and Z.

2. Time

Charts were changed at Greenwich midnight, so that each chart shows a complete Greenwich day.

The parallax correction, in minutes, for each trace is given below. The correction is to be added to the time read on the trace.

<u>Sensitive Magnetogram</u>	T(upper)	H	T(lower)	D	Z
Jan 01 - May 09, 0002Z	+2	$+1\frac{1}{2}$	+3	$+1\frac{1}{2}$	-1
May 09 - Dec 31	+2	+4	+3	$+1\frac{1}{2}$	$-\frac{1}{2}$
<u>Storm Magnetogram</u>	D	T(upper)	H	T(lower)	Z
Jan 01 - Feb 08, 2100Z	0		$-4\frac{1}{2}$	$-2\frac{1}{2}$	0
Feb 08 - May 28, 1700Z	0		$-4\frac{1}{2}$	-4	0
May 28 - Jul 09, 1800Z	0		-5	$-4\frac{1}{2}$	-1
Jul 09 - Jul 10, 2100Z	$-1\frac{1}{2}$		$-5\frac{1}{2}$		-1
Jul 10 - Jul 11, 1700Z	$-\frac{1}{2}$		-5		-1
Jul 11 - Dec 31	-1	-3	-5		-1

3. Order of Traces (from top to bottom of chart)

Sensitive Magnetogram

T trace (when present)
H trace and baseline
T trace (when present)
D baseline and trace
Z trace and baseline

Insensitive Magnetogram

D trace and baseline
T trace (when present)
H trace and baseline
H trace (when present)
Z baseline and trace (trace above baseline May 27 - Jun 29)

4. Sense of traces

T increases up the chart
H increases up the chart
D increases easterly up the chart
Z becomes less negative down the chart

5. Temperature Coefficients

The only significant temperature coefficient required for reduction of the data is that of the sensitive H variometer. H baseline values increase with increasing temperature.

H temperature coefficient

4.0 $\gamma/^\circ\text{C}$

1 trace

	<u>Scale Value</u>	<u>Baseline</u> (upper trace)	<u>Baseline</u> (lower trace)
Jan 01 - May 08	0.52 $^\circ\text{C}/\text{mm}$	-38.42 $^\circ\text{C}$	12.63 $^\circ\text{C}$
May 09 - Dec 31	0.52 $^\circ\text{C}/\text{mm}$	-38.24 $^\circ\text{C}$	12.60 $^\circ\text{C}$

6. Scale Values

Sensitive Magnetograms

H 4.24 γ/mm
D 0.92 $'/\text{mm}$
Z -4.20 γ/mm

Insensitive Magnetograms

16.4 γ/mm Dec 12, 25, 26, 30
2.35 $'/\text{mm}$ Dec 12, 25, 26, 30
-10.9 γ/mm Oct 30 - Nov 02,
Nov 16 - Dec 31

7. Scale of Reproduction

To give scale, a rule of 50mm length is reproduced on each magnetogram.

8. Baselines

For the sensitive magnetograms, baselines at 0°C are quoted. Chart baselines must be calculated using the data given in section 5 (only H has a temperature coefficient). The insensitive baselines quoted are chart baselines.

Sensitive Magnetograms

H 22897 γ	Jan 01 - May 09, 0002Z	D 17 $^\circ$ 22.4'	Jan 01 - Dec 31
22871 γ	May 09 - Dec 31		
Z -35740 γ	Jan 01 - May 09, 0002Z	-35724 γ	Sep 27
-35732	May 09 - Jul 05, 0005Z	-35722	Sep 28 - Oct 06
-35724	May 05 - Jul 29	-35717	Oct 07 - Oct 22
-35719	Jul 30 - Aug 27	-35713	Oct 23 - Oct 24
-35716	Aug 28 - Sep 09	-35715	Oct 25 - Oct 26
-35724	Sep 10 - Sep 11	-35714	Oct 27
-35719	Sep 12 - Sep 14	-35716	Oct 28 - Nov 01
-35715	Sep 15 - Sep 16	-35718	Nov 02 - Nov 04
-35719	Sep 17 - Sep 23	-35716	Nov 05 - Nov 10
-35716	Sep 24	-35714	Nov 11 - Nov 16
-35719	Sep 25 - Sep 26	No trace	Nov 17 - Dec 31

Insensitive Magnetograms

H 22573 γ	Dec 12	Z -36028 γ	Oct 31 - Nov 02
22569	Dec 26 - Dec 26	-36027	Nov 16 - Nov 24
22573	Dec 30	-36028	Nov 25 - Dec 12
		-36029	Dec 13 - Dec 21
D 16 $^\circ$ 34.8'	Dec 12, 25, 26, 30		

9. Example of computation of absolute value:

01 Jan 1968, 0500Z

H₀ etc. baselines (at T_S = 0 $^\circ\text{C}$ for H)
q temperature coefficients
s scale values
n ordinate in millimetres

$$\begin{aligned}
 H &= H_0 + s_H n_H + q_H (T_S - (T_0 + s_T n_T)) \\
 &= 22897 + 4.24 \times 25.6 - 4.0 (0 - (12.63 + 0.52(-8.8))) \\
 &= 22897 + 108.54 + 32.22 \\
 &= 23038\gamma
 \end{aligned}$$

$$\begin{aligned}
 D &= D_0 + s_D n_D \\
 &= 17^\circ 22.4' + 0.92(-24.5) \\
 &= 17^\circ 22.4' - 22.54' \\
 &= 16^\circ 59.9'
 \end{aligned}$$

$$\begin{aligned}
 Z &= Z_0 + s_Z n_Z \\
 &= -35740 - 4.2 \times 33.5 \\
 &= -35740 - 140.7 \\
 &= -35881\gamma
 \end{aligned}$$

...

...

...

...

max(...)

	21	22	23	24	25	26	27	28	21	22	23	24	25	26	27	28	21	22	23	24	25	26	27	28	Sum
1	0	1	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	1	0	0	0	0	3
2	0	1	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	1	0	0	0	0	3
3	2	4	3	1	1	2	1	1	1	4	3	2	1	1	0	0	2	3	2	1	2	1	1	1	16
4	3	2	2	1	0	0	0	1	1	3	2	0	0	0	0	0	3	3	2	1	0	0	0	1	10
5	0	1	0	2	1	1	2	2	2	3	1	2	1	1	1	1	2	3	1	2	1	1	2	2	14
6	2	3	2	2	1	1	2	2	4	1	2	2	0	1	1	1	4	1	2	2	1	1	2	2	18
7	3	3	2	2	2	1	1	0	4	3	4	2	2	1	1	0	1	3	4	2	2	1	1	0	17
8	4	3	1	1	1	0	1	2	4	4	3	1	1	0	1	2	4	4	3	1	1	0	1	2	16
9	3	2	2	1	0	1	3	3	4	1	3	1	1	2	1	2	4	2	3	1	1	2	3	3	19
10	2	2	2	1	1	0	0	0	3	1	1	2	1	1	0	1	3	2	2	2	1	1	0	1	12
11	3	2	2	0	0	0	0	0	4	3	2	0	0	0	0	0	4	3	2	0	0	0	0	0	9
12	2	1	2	0	0	0	1	0	3	1	2	1	0	0	0	0	3	1	2	1	0	0	1	0	8
13	0	1	0	0	1	0	3	4	0	1	0	0	1	0	2	3	0	1	0	0	1	0	3	4	9
14	4	3	3	2	2	1	3	3	4	3	3	3	3	1	3	4	4	3	3	3	3	1	3	4	24
15	3	4	3	2	2	2	3	3	3	5	4	4	2	3	3	3	3	5	4	4	2	3	3	3	27
16	3	4	3	1	3	3	4	4	4	4	4	2	3	3	5	4	4	4	4	2	3	3	5	4	29
17	5	5	3	3	3	3	2	3	6	5	4	3	4	3	2	4	6	5	4	3	4	3	2	4	31
18	3	4	3	2	1	1	3	3	3	4	4	3	1	1	1	3	3	4	4	3	1	1	3	3	22
19	2	2	3	2	2	1	1	0	3	3	3	3	1	1	1	0	3	3	3	3	2	1	1	0	16
20	1	0	2	1	1	1	1	2	1	0	1	1	1	0	1	1	1	0	2	1	1	1	1	2	9
21	1	2	2	0	0	0	0	0	1	2	3	0	0	0	0	0	1	2	3	0	0	0	0	0	6
22	0	0	1	0	0	0	0	2	1	0	0	0	0	0	0	3	1	0	1	0	0	0	0	3	5
23	3	4	3	1	0	1	3	3	3	3	3	2	0	1	3	3	3	4	3	2	0	1	3	3	19
24	4	4	3	2	2	1	2	2	4	5	5	3	3	1	1	2	4	5	5	3	3	1	2	2	25
25	1	1	0	0	0	0	2	1	1	1	0	0	0	0	0	0	1	1	0	0	0	0	2	1	5
26	1	1	0	0	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	7
27	2	0	0	1	0	0	1	0	3	3	1	1	0	0	0	0	3	3	4	1	0	0	1	0	9
28	1	2	0	0	0	0	0	0	0	2	1	0	0	0	0	0	1	2	1	0	0	0	0	0	4
29	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
30	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
31	2	3	2	2	2	3	3	1	1	4	1	2	3	2	1	1	2	4	2	2	3	3	3	1	20

BRITISH ANTARCTIC SURVEY

(Formerly Falkland Islands Dependencies Survey)

MAGNETIC RECORDS FOR 1968

From ARGENTINE ISLANDS A.973

Latitude $-65^{\circ}15'$, Longitude $295^{\circ}44'$ Geomagnetic Latitude -53.8° Geomagnetic Longitude 3.3°

Original Records held at:-

British Antarctic Survey
 Atmospheric Sciences Division
 Madingley Road
 Cambridge CB2 0ET

Phone (0223) 61188

1. Instruments

There are standard La Cour variometers, recording H, D and Z.

2. Time

Charts were changed at Greenwich midnight, so that each chart shows a complete Greenwich day.

The parallax correction, in minutes, for each trace is given below. The correction is to be added to the time read on the trace.

<u>Sensitive Magnetogram</u>	T(upper)	H	T(lower)	D	Z
Jan 01 - May 09, 0002Z	+2	+1 $\frac{1}{2}$	+3	+1 $\frac{1}{2}$	-1
May 09 - Dec 31	+2	+4	+3	+1 $\frac{1}{2}$	- $\frac{1}{2}$

<u>Storm Magnetogram</u>	D	T(upper)	H	T(lower)	Z
Jan 01 - Feb 08, 2100Z	0		-4 $\frac{1}{2}$	-2 $\frac{1}{2}$	0
Feb 08 - May 28, 1700Z	0		-4 $\frac{1}{2}$	-4	0
May 28 - Jul 09, 1800Z	0		-5	-4 $\frac{1}{2}$	-1
Jul 09 - Jul 10, 2100Z	-1 $\frac{1}{2}$		-5 $\frac{1}{2}$		-1
Jul 10 - Jul 11, 1700Z	- $\frac{1}{2}$		-5		-1
Jul 11 - Dec 31	-1	-3	-5		-1

3. Order of Traces (from top to bottom of chart)Sensitive Magnetogram

T trace (when present)
 H trace and baseline
 T trace (when present)
 D baseline and trace
 Z trace and baseline

Insensitive Magnetogram

D trace and baseline
 T trace (when present)
 H trace and baseline
 H trace (when present)
 Z baseline and trace (trace
 above baseline May 27 - Jun 29)

4. Sense of traces

T increases up the chart
 H increases up the chart
 D increases easterly up the chart
 Z becomes less negative down the chart

5. Temperature Coefficients

The only significant temperature coefficient required for reduction of the data is that of the sensitive H variometer. H baseline values increase with increasing temperature.

H temperature coefficient

4.0 °C/mm

T trace

	Scale Value	Baseline (upper trace)	Baseline (lower trace)
Jan 01 - May 08	0.52 °C/mm	-38.42 °C	12.63 °C
May 09 - Dec 31	0.52 °C/mm	-38.24 °C	12.60 °C

6. Scale Values

Sensitive Magnetograms

H 4.24 γ/mm
D 0.92 ' /mm
Z -4.20 γ/mm

Insensitive Magnetograms

16.4 γ/mm Dec 12, 25, 26, 30
2.35 ' /mm Dec 12, 25, 26, 30
-10.9 γ/mm Oct 30 - Nov 02,
Nov 16 - Dec 31

7. Scale of Reproduction

To give scale, a rule of 50mm length is reproduced on each magnetogram.

8. Baselines

For the sensitive magnetograms, baselines at 0 °C are quoted. Chart baselines must be calculated using the data given in section 5 (only H has a temperature coefficient). The insensitive baselines quoted are chart baselines.

Sensitive Magnetograms

H 22897γ	Jan 01 - May 09, 0002Z	D 17°22.4'	Jan 01 - Dec 31
22871γ	May 09 - Dec 31		
Z -35740γ	Jan 01 - May 09, 0002Z	-35724γ	Sep 27
-35732	May 09 - Jul 05, 0005Z	-35722	Sep 28 - Oct 06
-35724	May 05 - Jul 29	-35717	Oct 07 - Oct 22
-35719	Jul 30 - Aug 27	-35713	Oct 23 - Oct 24
-35716	Aug 28 - Sep 09	-35715	Oct 25 - Oct 26
-35724	Sep 10 - Sep 11	-35714	Oct 27
-35719	Sep 12 - Sep 14	-35716	Oct 28 - Nov 01
-35715	Sep 15 - Sep 16	-35718	Nov 02 - Nov 04
-35719	Sep 17 - Sep 23	-35716	Nov 05 - Nov 10
-35716	Sep 24	-35714	Nov 11 - Nov 16
-35719	Sep 25 - Sep 26	No trace	Nov 17 - Dec 31

Insensitive Magnetograms

H 22573γ	Dec 12	Z -36028γ	Oct 31 - Nov 02
22569	Dec 26 - Dec 26	-36027	Nov 16 - Nov 24
22573	Dec 30	-36028	Nov 25 - Dec 12
		-36029	Dec 13 - Dec 21
D 16°34.8'	Dec 12, 25, 26, 30		

9. Example of computation of absolute value

01 Jan 1968, 0500Z

H₀ etc. baselines (at T_S 0 °C for H)
q temperature coefficients
s scale values
n ordinate in millimetres

$$\begin{aligned}
 H &= H_0 + s_H n_H + q_H (T_S - (T_0 + s_T n_T)) \\
 &= 22897 + 4.24 \times 25.6 - 4.0 (0 - (12.63 + 0.52(-8.8))) \\
 &= 22897 + 108.54 + 32.22 \\
 &= 23038\gamma
 \end{aligned}$$

$$\begin{aligned}
 D &= D_0 + s_D n_D \\
 &= 17^\circ 22.4' + 0.92(-24.5) \\
 &= 17^\circ 22.4' - 22.54' \\
 &= 16^\circ 59.9'
 \end{aligned}$$

$$\begin{aligned}
 Z &= Z_0 + s_Z n_Z \\
 &= -35740 - 4.2 \times 33.5 \\
 &= -35740 - 140.7 \\
 &= -35881\gamma
 \end{aligned}$$

روزنامه

روز	روز 1	روز 2	روز 3	روز 4	روز 5	روز 6	روز 7	روز 8	روز 9	روز 10	روز 11	روز 12	روز 13	روز 14	روز 15	روز 16	روز 17	روز 18	روز 19	روز 20	روز 21	روز 22	روز 23	روز 24	روز 25	روز 26	روز 27	روز 28	روز 29	روز 30	مجموع
1	0	1	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	
2	1	0	2	0	0	1	1	3	1	0	1	0	0	0	1	1	1	2	1	0	0	0	0	0	0	0	0	0	0	13	
3	4	3	3	2	1	2	3	4	4	2	3	3	3	3	1	1	2	2	4	0	0	0	0	0	0	0	0	0	0	25	
4	3	3	2	3	0	2	1	2	3	3	3	3	3	3	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0	21	
5	1	3	2	2	3	1	0	2	2	2	4	0	0	2	1	0	2	2	3	0	0	0	0	0	0	0	0	0	0	17	
6	2	2	3	1	2	3	3	4	4	4	4	0	0	2	3	2	4	4	4	1	2	3	3	4	4	4	4	4	4	25	
7	4	2	2	1	1	1	2	4	3	1	2	2	2	2	1	2	4	4	2	2	2	2	1	2	4	4	4	4	4	19	
8	5	4	4	4	3	3	2	1	6	3	6	5	3	3	3	0	0	6	6	5	3	3	3	1	3	3	3	3	3	31	
9	3	3	2	2	1	1	2	2	3	3	2	2	1	1	1	0	0	3	3	2	2	1	1	2	2	2	2	2	2	16	
10	2	2	2	1	1	0	0	0	2	1	1	0	0	1	1	0	0	2	2	2	2	1	1	0	0	0	0	0	0	10	
11	2	3	1	0	0	0	0	0	2	3	1	0	0	0	0	0	0	2	3	1	0	0	0	0	0	0	0	0	0	6	
12	1	2	3	1	3	2	2	3	1	3	2	2	4	3	2	3	3	1	3	3	2	4	3	2	3	3	3	3	3	21	
13	3	3	4	2	2	3	3	3	5	4	4	4	3	3	3	3	3	5	4	4	4	3	3	3	3	3	3	3	3	29	
14	4	4	3	3	2	2	3	4	5	4	3	4	3	2	2	2	2	5	4	3	4	3	2	3	4	4	4	4	4	28	
15	3	4	3	2	2	3	3	3	4	4	4	2	2	2	2	4	4	4	4	2	2	3	3	4	4	4	4	4	4	26	
16	2	3	2	1	1	1	2	2	3	3	2	2	2	1	1	1	1	3	3	2	2	2	1	2	2	2	2	2	2	17	
17	2	1	1	1	0	0	0	0	2	2	2	1	0	0	0	0	0	2	2	2	1	0	0	0	0	0	0	0	0	7	
18	0	1	0	0	0	0	0	2	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3	
19	3	4	3	1	1	1	0	0	2	4	3	3	2	2	0	0	0	3	4	3	3	2	2	0	0	0	0	0	0	17	
20	1	3	0	0	0	0	1	1	3	4	0	0	0	0	1	1	1	3	4	0	0	0	0	1	1	1	1	1	1	9	
21	1	2	3	0	2	1	2	0	1	2	3	0	3	3	2	0	0	1	2	3	0	3	3	2	0	0	0	0	0	14	
22	3	1	1	1	2	1	2	4	3	1	1	3	2	1	2	3	3	3	1	3	2	1	2	4	4	4	4	4	4	17	
23	3	1	2	3	3	3	0	0	5	4	2	3	3	3	0	1	1	5	4	2	3	3	3	0	1	1	1	1	1	21	
24	1	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	4	
25	1	0	0	0	0	1	0	1	1	0	0	1	0	0	0	0	0	1	0	0	1	0	1	0	1	1	1	1	1	4	
26	1	1	2	0	0	0	0	0	2	0	1	1	1	0	0	0	0	2	1	2	1	1	0	0	0	0	0	0	0	7	
27	0	2	2	0	0	0	0	2	0	2	1	0	0	0	0	0	0	0	2	2	0	0	0	0	2	2	2	2	2	6	
28	1	0	2	1	0	1	2	3	2	1	1	2	2	1	2	1	1	2	1	2	2	2	1	2	3	3	3	3	3	15	
29	2	2	2	1	0	2	2	2	4	1	2	1	0	1	2	1	1	4	2	2	1	0	2	2	2	2	2	2	2	15	
30	1	0	0	0	1	1	2	4	1	0	0	0	1	0	1	1	1	1	0	0	0	1	1	2	4	4	4	4	4	9	

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EXPLANATORY NOTES, 1968

1. Instruments

There are standard La Cour variometers, recording H, D and Z.

2. Time

Charts were changed at Greenwich midnight, so that each chart shows a complete Greenwich day.

The parallax correction, in minutes, for each trace is given below. The correction is to be added to the time read on the trace.

<u>Sensitive Magnetogram</u>	T(upper)	H	T(lower)	D	Z
Jan 01 - May 09, 0002Z	+2	$+1\frac{1}{2}$	+3	$+1\frac{1}{2}$	-1
May 09 - Dec 31	+2	+4	+3	$+1\frac{1}{2}$	$-\frac{1}{2}$

<u>Storm Magnetogram</u>	D	T(upper)	H	T(lower)	Z
Jan 01 - Feb 08, 2100Z	0		$-4\frac{1}{2}$	$-2\frac{1}{2}$	0
Feb 08 - May 28, 1700Z	0		$-4\frac{1}{2}$	-4	0
May 28 - Jul 09, 1800Z	0		-5	$-4\frac{1}{2}$	-1
Jul 09 - Jul 10, 2100Z	$-1\frac{1}{2}$		$-5\frac{1}{2}$		-1
Jul 10 - Jul 11, 1700Z	$-\frac{1}{2}$		-5		-1
Jul 11 - Dec 31	-1	-3	-5		-1

3. Order of Traces (from top to bottom of chart)

Sensitive Magnetogram

T trace (when present)
H trace and baseline
T trace (when present)
D baseline and trace
Z trace and baseline

Insensitive Magnetogram

D trace and baseline
T trace (when present)
H trace and baseline
H trace (when present)
Z baseline and trace (trace above baseline May 27 - Jun 29)

4. Sense of traces

T increases up the chart
H increases up the chart
D increases easterly up the chart
Z becomes less negative down the chart

5. Temperature Coefficients

The only significant temperature coefficient required for reduction of the data is that of the sensitive H variometer. H baseline values increase with increasing temperature.

H temperature coefficient: -4.0 $\gamma/^\circ\text{C}$

T trace

	<u>Scale Value</u>	<u>Baseline</u> (upper trace)	<u>Baseline</u> (lower trace)
Jan 01 - May 08	0.52 $^\circ\text{C}/\text{mm}$	-38.42 $^\circ\text{C}$	12.63 $^\circ\text{C}$
May 09 - Dec 31	0.52 $^\circ\text{C}/\text{mm}$	-38.24 $^\circ\text{C}$	12.60 $^\circ\text{C}$

6. Scale Values

Sensitive Magnetograms

H 4.24 γ/mm
D 0.92 $'/\text{mm}$
Z -4.20 γ/mm

Insensitive Magnetograms

16.4 γ/mm Dec 12, 25, 26, 30
2.35 $'/\text{mm}$ Dec 12, 25, 26, 30
-10.9 γ/mm Oct 30 - Nov 02,
Nov 16 - Dec 31

7. Scale of Reproduction

To give scale, a rule of 50mm length is reproduced on each magnetogram.

8. Baselines

For the sensitive magnetograms, baselines at 0 $^\circ\text{C}$ are quoted. Chart baselines must be calculated using the data given in section 5 (only H has a temperature coefficient). The insensitive baselines quoted are chart baselines.

Sensitive Magnetograms

H 22897 γ	Jan 01 - May 09, 0002Z	D 17 $^\circ$ 22.4'	Jan 01 - Dec 31
22871 γ	May 09 - Dec 31		
Z -35740 γ	Jan 01 - May 09, 0002Z	-35724 γ	Sep 27
-35732	May 09 - Jul 05, 0005Z	-35722	Sep 28 - Oct 06
-35724	May 05 - Jul 29	-35717	Oct 07 - Oct 22
-35719	Jul 30 - Aug 27	-35713	Oct 23 - Oct 24
-35716	Aug 28 - Sep 09	-35715	Oct 25 - Oct 26
-35724	Sep 10 - Sep 11	-35714	Oct 27
-35719	Sep 12 - Sep 14	-35716	Oct 28 - Nov 01
-35715	Sep 15 - Sep 16	-35718	Nov 02 - Nov 04
-35719	Sep 17 - Sep 23	-35716	Nov 05 - Nov 10
-35716	Sep 24	-35714	Nov 11 - Nov 16
-35719	Sep 25 - Sep 26	No trace	Nov 17 - Dec 31

Insensitive Magnetograms

H 22573 γ	Dec 12	Z -36028 γ	Oct 31 - Nov 02
22569	Dec 26 - Dec 26	-36027	Nov 16 - Nov 24
22573	Dec 30	-36028	Nov 25 - Dec 12
		-36029	Dec 13 - Dec 21
D 16 $^\circ$ 34.8'	Dec 12, 25, 26, 30		

9. Example of computation of absolute values

01 Jan 1968, 0500Z

H₀ etc. baselines (at T_S 0 $^\circ\text{C}$ for H)

q temperature coefficients

s scale values

n ordinate in millimetres

$$H = H_0 + s_H n_H + q_H (T_S - (T_0 + s_T n_T))$$

$$= 22897 + 4.24 \times 25.6 - 4.0 (0 - (12.63 + 0.52(-8.8)))$$

$$= 22897 + 108.54 + 32.22$$

$$= 23038\gamma$$

$$D = D_0 + s_D n_D$$

$$= 17 $^\circ$ 22.4' + 0.92(-24.5)$$

$$= 17 $^\circ$ 22.4' - 22.54'$$

$$= 16 $^\circ$ 59.9'$$

$$Z = Z_0 + s_Z n_Z$$

$$= -35740 - 4.2 \times 33.5$$

$$= -35740 - 140.7$$

$$= -35881\gamma$$

i	f_{i1}								f_{i2}								f_{i3}								Total		
	s1	s2	s3	s4	s5	s6	s7	s8	s1	s2	s3	s4	s5	s6	s7	s8	s1	s2	s3	s4	s5	s6	s7	s8			
1	1	1	1	2	1	1	1	2	1	3	1	2	1	0	0	2	0	1	1	1	1	0	0	1	1	17	
2	0	1	0	0	1	0	0	0	5	5	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	32	
3	0	0	0	0	1	0	1	0	6	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	15	
4	0	0	0	0	0	2	1	1	0	0	0	0	1	1	0	0	0	0	0	0	1	1	1	1	0	5	
5	0	0	1	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	1	0	0	0	0	3	
6	0	1	1	1	0	1	1	1	1	0	3	2	1	1	1	0	0	1	1	2	1	1	1	1	0	12	
7	2	3	3	0	1	3	3	3	3	2	2	0	1	0	3	3	0	3	0	1	2	3	3	0	0	19	
8	2	2	1	0	0	1	2	2	3	2	1	1	1	1	1	2	0	2	1	1	1	1	2	2	0	13	
9	3	1	0	0	0	3	2	2	3	2	0	0	1	2	2	1	0	0	0	1	3	2	2	0	0	13	
10	3	0	2	0	0	0	0	1	3	1	2	1	1	0	0	0	0	0	0	3	1	2	1	1	0	0	9
11	0	1	1	0	0	0	1	2	0	0	1	1	1	0	1	0	0	0	0	0	1	1	1	1	0	1	7
12	1	4	3	4	2	4	4	3	4	4	4	4	3	4	5	4	0	0	0	4	4	4	4	3	4	5	32
13	5	3	3	2	3	3	2	4	5	2	4	3	3	3	2	3	0	0	0	5	3	4	3	3	3	2	27
14	3	2	1	1	2	1	2	3	3	3	1	1	1	1	1	3	0	0	0	3	3	1	1	2	1	2	16
15	0	1	1	1	0	1	0	1	0	0	0	2	2	1	0	0	0	0	0	0	1	1	2	2	1	0	8
16	0	1	1	1	0	1	2	2	0	1	2	1	2	1	1	1	0	0	0	0	1	2	1	2	1	1	11
17	2	2	2	0	1	1	1	2	2	3	1	1	2	1	1	1	0	0	0	2	3	2	1	2	1	1	14
18	3	2	2	1	1	1	1	3	3	2	2	2	1	1	0	3	0	0	0	3	2	2	2	1	1	1	15
19	1	0	1	1	1	1	4	3	2	0	1	2	2	0	3	4	0	0	0	2	0	1	2	2	1	4	16
20	3	0	2	1	0	2	1	1	2	1	2	2	2	1	0	0	0	0	0	3	1	2	2	2	2	1	14
21	0	0	0	0	0	1	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	2	1	1	0	5
22	0	1	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	1	4
23	0	0	0	0	0	2	2	1	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	2	2	5
24	1	2	0	0	0	2	3	1	1	1	1	2	2	2	2	1	0	0	0	1	2	1	2	2	2	3	14
25	1	2	3	2	1	0	2	2	1	2	2	2	1	0	1	1	0	0	0	1	2	3	2	1	0	2	13
26	0	0	1	1	0	0	3	3	0	0	1	1	0	0	2	2	0	0	0	0	0	1	1	0	0	3	8
27	2	1	2	1	2	1	1	2	2	1	2	1	2	0	1	0	0	0	0	2	1	2	1	2	1	1	12
28	1	1	2	0	0	1	1	4	0	0	2	2	1	1	0	3	0	0	0	1	1	2	2	1	1	1	13
29	3	2	3	3	4	6	4	4	3	2	3	3	6	5	4	3	0	0	0	3	2	3	3	6	6	4	31
30	3	1	1	2	2	3	2	4	1	1	0	3	3	2	2	3	0	0	0	3	1	1	3	3	3	2	20
31	4	4	3	6	8	5	5	5	3	4	4	6	6	5	4	2	0	0	0	4	1	4	6	8	5	5	41

BRITISH ANTARCTIC SURVEY

(Formerly Falkland Islands Dependencies Survey)

MAGNETIC RECORDS FOR 1968

From ARGENTINE ISLANDS A.973

Latitude $-65^{\circ}15'$, Longitude $295^{\circ}44'$

Geomagnetic Latitude -53.8°

Geomagnetic Longitude 3.3°

Original Records held at:-

British Antarctic Survey

Atmospheric Sciences Division

Madingley Road

Cambridge CB2 0ET

Phone (0223) 61188

ARGENTINE ISLANDS A.973

EXPLANATORY NOTES, 1968

1. Instruments

There are standard La Cour variometers, recording H, D and Z.

2. Time

Charts were changed at Greenwich midnight, so that each chart shows a complete Greenwich day.

The parallax correction, in minutes, for each trace is given below. The correction is to be added to the time read on the trace.

<u>Sensitive Magnetogram</u>	T(upper)	H	T(lower)	D	Z
Jan 01 - May 09, 0002Z	+2	$+1\frac{1}{2}$	+3	$+1\frac{1}{2}$	-1
May 09 - Dec 31	+2	+4	+3	$+1\frac{1}{2}$	$-\frac{1}{2}$
<u>Storm Magnetogram</u>	D	T(upper)	H	T(lower)	Z
Jan 01 - Feb 08, 2100Z	0		$-4\frac{1}{2}$	$-2\frac{1}{2}$	0
Feb 08 - May 28, 1700Z	0		$-4\frac{1}{2}$	-4	0
May 28 - Jul 09, 1800Z	0		-5	$-4\frac{1}{2}$	-1
Jul 09 - Jul 10, 2100Z	$-1\frac{1}{2}$		$-5\frac{1}{2}$		-1
Jul 10 - Jul 11, 1700Z	$-\frac{1}{2}$		-5		-1
Jul 11 - Dec 31	-1	-3	-5		-1

3. Order of Traces (from top to bottom of chart)

Sensitive Magnetogram

T trace (when present)
H trace and baseline
T trace (when present)
D baseline and trace
Z trace and baseline

Insensitive Magnetogram

D trace and baseline
T trace (when present)
H trace and baseline
H trace (when present)
Z baseline and trace (trace above baseline May 27 - Jun 29)

4. Sense of traces

T increases up the chart
H increases up the chart
D increases easterly up the chart
Z becomes less negative down the chart

5. Temperature Coefficients

The only significant temperature coefficient required for reduction of the data is that of the sensitive H variometer. H baseline values increase with increasing temperature.

H temperature coefficient: 4.0 $\gamma/^\circ\text{C}$

T trace

	<u>Scale Value</u>	<u>Baseline</u> (upper trace)	<u>Baseline</u> (lower trace)
Jan 01 - May 08	0.52 $^\circ\text{C}/\text{mm}$	-38.42 $^\circ\text{C}$	12.63 $^\circ\text{C}$
May 09 - Dec 31	0.52 $^\circ\text{C}/\text{mm}$	-38.24 $^\circ\text{C}$	12.60 $^\circ\text{C}$

6. Scale Values

Sensitive Magnetograms

H 4.24 γ/mm
D 0.92 $'/\text{mm}$
Z -4.20 γ/mm

Insensitive Magnetograms

16.4 γ/mm Dec 12, 25, 26, 30
2.35 $'/\text{mm}$ Dec 12, 25, 26, 30
-10.9 γ/mm Oct 30 - Nov 02,
Nov 16 - Dec 31

7. Scale of Reproduction

To give scale, a rule of 50mm length is reproduced on each magnetogram.

8. Baselines

For the sensitive magnetograms, baselines at 0°C are quoted. Chart baselines must be calculated using the data given in section 5 (only H has a temperature coefficient). The insensitive baselines quoted are chart baselines.

Sensitive Magnetograms

H 22897 γ	Jan 01 - May 09, 0002Z	D 17 $^\circ$ 22.4'	Jan 01 - Dec 31
22871 γ	May 09 - Dec 31		
Z -35740 γ	Jan 01 - May 09, 0002Z	-35724 γ	Sep 27
-35732	May 09 - Jul 05, 0005Z	-35722	Sep 28 - Oct 06
-35724	May 05 - Jul 29	-35717	Oct 07 - Oct 22
-35719	Jul 30 - Aug 27	-35713	Oct 23 - Oct 24
-35716	Aug 28 - Sep 09	-35715	Oct 25 - Oct 26
-35724	Sep 10 - Sep 11	-35714	Oct 27
-35719	Sep 12 - Sep 14	-35716	Oct 28 - Nov 01
-35715	Sep 15 - Sep 16	-35718	Nov 02 - Nov 04
-35719	Sep 17 - Sep 23	-35716	Nov 05 - Nov 10
-35716	Sep 24	-35714	Nov 11 - Nov 16
-35719	Sep 25 - Sep 26	No trace	Nov 17 - Dec 31

Insensitive Magnetograms

H 22573 γ	Dec 12	Z -36028 γ	Oct 31 - Nov 02
22569	Dec 26 - Dec 26	-36027	Nov 16 - Nov 24
22573	Dec 30	-36028	Nov 25 - Dec 12
		-36029	Dec 13 - Dec 21
D 16 $^\circ$ 34.8'	Dec 12, 25, 26, 30		

9. Example of computation of absolute values:

01 Jan 1968, 0500Z

H_0 etc. baselines (at $T_S = 0^\circ\text{C}$ for H)
q temperature coefficients
s scale values
n ordinate in millimetres

$$\begin{aligned}
 H &= H_0 + s_H n_H + q_H (T_S - (T_0 + s_T n_T)) \\
 &= 22897 + 4.24 \times 25.6 - 4.0 (0 - (12.63 + 0.52(-8.8))) \\
 &= 22897 + 108.54 + 32.22 \\
 &= 23038\gamma
 \end{aligned}$$

$$\begin{aligned}
 D &= D_0 + s_D n_D \\
 &= 17^\circ 22.4' + 0.92(-24.5) \\
 &= 17^\circ 22.4' - 22.54' \\
 &= 16^\circ 59.9'
 \end{aligned}$$

$$\begin{aligned}
 Z &= Z_0 + s_Z n_Z \\
 &= -35740 - 4.2 \times 33.5 \\
 &= -35740 - 140.7 \\
 &= -35881\gamma
 \end{aligned}$$

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Latitude $-65^{\circ}15'$, Longitude $295^{\circ}44'$

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1. Instruments

There are standard La Cour variometers, recording H, D and Z.

2. Time

Charts were changed at Greenwich midnight, so that each chart shows a complete Greenwich day.

The parallax correction, in minutes, for each trace is given below. The correction is to be added to the time read on the trace.

<u>Sensitive Magnetogram</u>	T(upper)	H	T(lower)	D	Z
Jan 01 - May 09, 0002Z	+2	$+1\frac{1}{2}$	+3	$+1\frac{1}{2}$	-1
May 09 - Dec 31	+2	+4	+3	$+1\frac{1}{2}$	$-\frac{1}{2}$
<u>Storm Magnetogram</u>	D	T(upper)	H	T(lower)	Z
Jan 01 - Feb 08, 2100Z	0		$-4\frac{1}{2}$	$-2\frac{1}{2}$	0
Feb 08 - May 28, 1700Z	0		$-4\frac{1}{2}$	-4	0
May 28 - Jul 09, 1800Z	0		-5	$-4\frac{1}{2}$	-1
Jul 09 - Jul 10, 2100Z	$-1\frac{1}{2}$		$-5\frac{1}{2}$		-1
Jul 10 - Jul 11, 1700Z	$-\frac{1}{2}$		-5		-1
Jul 11 - Dec 31	-1	-3	-5		-1

3. Order of Traces (from top to bottom of chart)

<u>Sensitive Magnetogram</u>	<u>Insensitive Magnetogram</u>
T trace (when present)	D trace and baseline
H trace and baseline	T trace (when present)
T trace (when present)	H trace and baseline
D baseline and trace	H trace (when present)
Z trace and baseline	Z baseline and trace (trace above baseline May 27 - Jun 29)

4. Sense of traces

T increases up the chart
H increases up the chart
D increases easterly up the chart
Z becomes less negative down the chart

5. Temperature Coefficients

The only significant temperature coefficient required for reduction of the data is that of the sensitive H variometer. H baseline values increase with increasing temperature.

H temperature coefficient: $4.0 \gamma/^\circ\text{C}$

T trace

	<u>Scale Value</u>	<u>Baseline</u> (upper trace)	<u>Baseline</u> (lower trace)
Jan 01 - May 08	$0.52^\circ\text{C}/\text{mm}$	-38.42°C	12.63°C
May 09 - Dec 31	$0.52^\circ\text{C}/\text{mm}$	-38.24°C	12.60°C

6. Scale Values

Sensitive Magnetograms

H $4.24 \gamma/\text{mm}$
D $0.92 \text{ '}/\text{mm}$
Z $-4.20 \gamma/\text{mm}$

Insensitive Magnetograms

$16.4 \gamma/\text{mm}$ Dec 12, 25, 26, 30
 $2.35 \text{ '}/\text{mm}$ Dec 12, 25, 26, 30
 $-10.9 \gamma/\text{mm}$ Oct 30 - Nov 02,
Nov 16 - Dec 31

7. Scale of Reproduction

To give scale, a rule of 50mm length is reproduced on each magnetogram.

8. Baselines

For the sensitive magnetograms, baselines at 0°C are quoted. Chart baselines must be calculated using the data given in section 5 (only H has a temperature coefficient). The insensitive baselines quoted are chart baselines.

Sensitive Magnetograms

H 22897 γ	Jan 01 - May 09, 0002Z	D $17^\circ 22.4'$	Jan 01 - Dec 31
22871 γ	May 09 - Dec 31		
Z -35740 γ	Jan 01 - May 09, 0002Z	-35724 γ	Sep 27
-35732	May 09 - Jul 05, 0005Z	-35722	Sep 28 - Oct 06
-35724	May 05 - Jul 29	-35717	Oct 07 - Oct 22
-35719	Jul 30 - Aug 27	-35713	Oct 23 - Oct 24
-35716	Aug 28 - Sep 09	-35715	Oct 25 - Oct 26
-35724	Sep 10 - Sep 11	-35714	Oct 27
-35719	Sep 12 - Sep 14	-35716	Oct 28 - Nov 01
-35715	Sep 15 - Sep 16	-35718	Nov 02 - Nov 04
-35719	Sep 17 - Sep 23	-35716	Nov 05 - Nov 10
-35716	Sep 24	-35714	Nov 11 - Nov 16
-35719	Sep 25 - Sep 26	No trace	Nov 17 - Dec 31

Insensitive Magnetograms

H 22573 γ	Dec 12	Z -36028 γ	Oct 31 - Nov 02
22569	Dec 26 - Dec 26	-36027	Nov 16 - Nov 24
22573	Dec 30	-36028	Nov 25 - Dec 12
		-36029	Dec 13 - Dec 21
D $16^\circ 34.8'$	Dec 12, 25, 26, 30		

9. Examples of computation of absolute values

01 Jan 1968, 0500Z

H_0 etc. baselines (at $T_S = 0^\circ\text{C}$ for H)

q temperature coefficients

s scale values

n ordinate in millimetres

$$\begin{aligned}
 H &= H_0 + s_H n_H + q_H (T_S - (T_0 + s_T n_T)) \\
 &= 22897 + 4.24 \times 25.6 - 4.0 (0 - (12.63 + 0.52(-8.8))) \\
 &= 22897 + 108.54 + 32.22 \\
 &= 23038\gamma
 \end{aligned}$$

$$\begin{aligned}
 D &= D_0 + s_D n_D \\
 &= 17^\circ 22.4' + 0.92(-24.5) \\
 &= 17^\circ 22.4' - 22.54' \\
 &= 16^\circ 59.9'
 \end{aligned}$$

$$\begin{aligned}
 Z &= Z_0 + s_Z n_Z \\
 &= -35740 - 4.2 \times 33.5 \\
 &= -35740 - 140.7 \\
 &= -35881\gamma
 \end{aligned}$$

