

BRITISH ANTARCTIC SURVEY
(FORMERLY FALKLAND ISLANDS DEPENDENCIES SURVEY)

Magnetic Records for 1978
from Argentine Islands, A.973

Latitude $-65^{\circ}15'$
Longitude $295^{\circ}44'$
Geomagnetic Latitude $-53^{\circ}8'$
~~Geomagnetic Longitude $+3^{\circ}3'$~~

Original records held at:-

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Argentine Islands, A.973

Explanatory Notes for 1978

1. Instruments

These are standard La Cour variometers, and an E.D.A. fluxgate magnetometer, all recording H, D and Z.

2. Time

The La Cour charts are usually changed at midnight U.T.C., so that each chart shows a complete day in U.T.C. The fluxgate charts are usually changed at about 2330 U.T.C. every Sunday so that each chart shows a complete week in U.T.C.

Parallax (Mins)		H	D	Z	T
1 Jan	→ 12 Feb	0	$-2\frac{1}{2}$	-2	+1
13 Feb	→ 14 Feb	0	-3	-2	+1
15 Feb	→ 16 Feb	0	-3	0	+1
17 Feb	→ 2 Apr	0	-3	-1	+1
3 Apr	→ 17 Apr	0	-3	+3	+1
18 Apr	→ 4 May	0	-2	+3	+1
5 May	→ 8 June (1800)	0	-2	$+1\frac{1}{2}$	+1
8 June (1927)	→ 9 June (1641)	0	-3	$+1\frac{1}{2}$	$+1\frac{1}{2}$
9 June (2205)	→ 11 June (1629)	$-2\frac{1}{2}$	$-1\frac{1}{2}$	$+1\frac{1}{2}$	+1
11 June (1830)	→ 14 June	$-1\frac{1}{2}$	-1	+1	+1
15 June	→ 10 July	$-1\frac{1}{2}$	$-1\frac{1}{2}$	+1	+1
11 July	→ 17 July	-2	$+2\frac{1}{2}$	+1	+1
18 July	→ 19 July	-2	+1	$-\frac{1}{2}$	+1
20 July	→ 21 July (1800)	+4	-	$-2\frac{1}{2}$	+5
21 July (2215)	→ 26 July	0	+2	$-\frac{1}{2}$	+2
27 July	→ 28 July	0	$+2\frac{1}{2}$	$+3\frac{1}{2}$	+2
29 July	→ 14 Aug	0	+2	$+1\frac{1}{2}$	+1
15 Aug	→ 16 Aug	0	+2	$+1\frac{1}{2}$	-1
17 Aug	→ 21 Aug	-1	+1	+2	-1
22 Aug	→ 27 Dec	-1	+1	$+2\frac{1}{2}$	-1
28 Dec	→ 31 Dec	-1	+1	$+2\frac{1}{2}$	-1

Correction to be added to time read on trace.

3. (a) Order of the traces

Reading from top downwards.

Normal Sens. La Cour	Storm Sens. La Cour	Fluxgate
T trace (when present)	Z trace	H trace
H trace	Z baseline	Time
H baseline (also used as T baseline)	T trace	D trace
T trace (when present)	H trace	Z trace
D trace	H baseline	
D baseline	T trace (when present)	
Z trace	D trace	
Z baseline	D baseline	

Sense of Traces

T increases up the chart

H increases up the chart

D becomes more easterly (i.e. increases) up the chart

Z becomes more negative up the chart

Temperature Co-efficients

Normal H	Jan 01 - Jun 19	-1.0γ/°C
	Jun 20 - Dec 31	-1.4γ/°C
Normal Z	Jan 01 - Jun 19	+2.9γ/°C
	Jun 20 - Dec 31	+3.4γ/°C
Storm H	Jan 01 - Dec 31	-1.1γ/°C
Storm Z	Jan 01 - Dec 31	0.0γ/°C

5. Missing Normal Record for 1978.

Date.	Time.	Alternative Record: (S. Storm, F-Fluxgate).
3rd Jan	1713-2400 UTC	S
5th Jan	1800-1948, 2304-2400 UTC	S
6th Jan	0001-0114, 2310-2400 UTC	S
24th Jan	2327-2400 UTC	S
25th Jan	0001-0023 UTC	S
27th Jan	1915-2400 UTC	S (D only)
28th Jan	0001-2400 UTC	S "
29th Jan	0001-1629 UTC	F "
11th Feb	0001-2400 UTC	S (Z only)
12th Feb	0001-2400 UTC	S "
13th Feb	0001-0347 UTC	S "
8th Mar	0001-0024 UTC	S
1st May	1200-1400, 2100-2400 UTC	S (Z only)
2nd May	0600-1100 UTC	S "
4th May	0400-0900 UTC	S "
5th May	0001-0139 UTC	S
9th May	0700-0800 UTC	S (Z only)
8th Jun	1500-2400 UTC	S
9th Jun	1641-2205 UTC	S
11th Jun	1629-1830 UTC	S
11th Jul	0001-0036 UTC	S
21st Jul	1800-2215 UTC	S
28th Aug	0700-0800 UTC	S (Z only)
4th Nov	0001-2400 UTC	S "
5th Nov	0001-0029 UTC	S "

6. SCALE VALUES.

Normal La Cour.	H (γ/mm)	D (γ/mm)	Z (γ/mm)	U (γ/mm)
1st Jan-9th June	4.47	0.72	-2.20	0.39
10th Jun-31st Dec	4.47	0.93	-2.65	0.39

0.42 from 11th Jul

b. Storm La Cour

1st Jan-12th May	15.51	2.36	-10.80	2.1
13th May-31st Dec	15.51	2.36	-10.50	2.1

c. Fluxgate.

30th Jan	0.88
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7. SCALE OF REPRODUCTION.

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

8. BASELINES.

Corrected to 0°C.

	Date.	Value.
Normal H:	1st Jan-11th Feb	22473γ
	12th Feb-21st Apr	22474γ
	22nd Apr-9th Jun	22475γ
	10th Jun-17th Sep	22262γ
	18th Sep-31st Dec	22263γ
NORMAL D:	1st Jan-28th Jan	16° 26.2'
	29th Jan-2nd Mar	16° 26.1'
	3rd Mar-3rd Apr	16° 26.0'
	4th Apr-6th May	16° 25.9'
	7th May-9th Jun	16° 25.8'
	10th Jun-21st Jul	16° 14.5'
	22nd July-10th Aug	16° 17.3'
	11th Aug-10th Sep	16° 17.4'
	11th Sep-11th Oct	16° 17.5'
	12th Oct-12th Nov	16° 17.6'
	13th Nov-13th Dec	16° 17.7'
	14th Dec-31st Dec	16° 17.8'
Normal Z:	1st Jan-3rd Jan	-34,940γ
	4th Jan-5th Jan	-34,842γ
	6th Jan-16th Mar	-34,873γ
	17th Mar-9th Jun	-34,872γ
	10th Jun-14th Jun	-34,774γ
	15th Jun-20th Jun	-34,775γ
	21st Jun-26th Jun	-34,776γ
	27th Jun-2nd Jul	-34,777γ

		Value.
		-34,777γ
	10th Jul-14th Jul	-34,779γ
	16th Jul-21st Jul	-34,780γ
	22nd Jul-16th Aug	-34,781γ
	17th Aug-21st Aug	-34,773γ
	22nd Aug-23rd Sep	-34,797γ
	24th Sep-28th Nov	-34,796γ
	29th Nov-31st Dec	-34,795γ
Storm H	1st Jan-13th May	22240γ
	14th May-31st Dec	22033γ
Storm D	1st Jan-13th May	16° 36.0'
	14th May-31st Dec	16° 01.5'
Storm Z	1st Jan-13th May	-34,670γ
	14th May-18th Nov	-34,675γ
	19th Nov-31st Dec	-34,600γ
Normal T	1st Jan-10th Jul	11.8° C. (lower T)
	11th Jul-21st Jul	-25.9° C. (upper T)
	22nd Jul-31st Dec	-23.6° C. (upper T)
		14.7° C. (lower T)
Storm T	1st Jan-4th Feb	-72.3° C.
	5th Feb-11th May	-76.3° C.
	12th May-22nd Jun	-86.6° C.
	23rd Jun-31st Dec	-82.2° C.
-Fluxgate D	29th Jan.	16° 18.7' (ordinate 100)

9. Example of computation of absolute values.

01 January, 1978, 1200UtC.

H_o, D_o, Z_o are baselines reduced to 0° C., from section 8.

s_h, s_d, s_z are scale values from section 6 as is s_t .

n_h, n_d, n_z are ordinates from the magnetogram H, D, Z baselines respectively.

n_t is the temperature ordinate measured from the H baseline (T_o).

q_h, q_z are the temperature coefficients from section 4.

$$H = H_o + s_h \cdot n_h - q_h \cdot (T_o + s_t \cdot n_t) \\ = 22473 + 4.47 \times 4.0 - (-1.0) \cdot (11.8 + 0.39 \times (-7.9)) = \underline{22500 \gamma}$$

$$D = D_o + s_d \cdot n_d \\ = 16^\circ 26.2' + 0.92 \times 23.1 = \underline{16^\circ 47.5'}$$

$$Z = Z_o + s_z \cdot n_z - q_z \cdot (T_o + s_t \cdot n_t) \\ = -34,940 + (-2.20) \times (-14.5) - 2.9 \times (11.8 + 0.39 \times (-7.9)) = \underline{-34,933 \gamma}$$