AGSO

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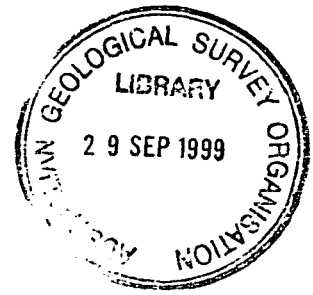

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Contents

Abstract

Nineteen geomagnetic repeat stations from the network maintained by the Australian Geological Survey Organisation (AGSO) were occupied in the period 1996 to 1998. The occupations were made to re-measure the normal magnetic field and thus derive the geomagnetic secular variation at each station.

A portable four component digital magnetic variometer was used to measure the variations in the vector magnetic field at all but two of the stations. Digital data from the variometer were recorded at a sample rate of one second on a portable computer. The variometer data were calibrated to magnetic observatory standards.

The normal (quiet) geomagnetic field level for each station was determined by analysing the on-site variometer record with reference to data from the network of permanent magnetic observatories within Australia. The secular variation at each station was derived by first differences between the normal field data collected from the two most recent occupations at each station.

The secular variations data derived from the survey indicate that the geomagnetic field is increasing in the northerly, easterly and vertical components in the western half of the Australian continent (at about 20 nT/year, for all three components). On the eastern side of the region the northerly and easterly components are decreasing (-5 nT/year and -20nT/year respectively) and the vertical component is increasing at about 45 nT/year.

The data collected during the surveys described in this report will be used to derive the secular variation model in the Australian Geomagnetic Reference Field - a mathematical model of the geomagnetic field in the Australian region. The data have also been submitted to the World Data Centres for Geomagnetism to be made available for use in deriving global geomagnetic field models such as the International Geomagnetic Reference Field.

Introduction

The Australian Geological Survey Organisation (AGSO) maintains a network of eight magnetic observatories in Australia and Australian Antarctic Territory, and a repeat station network covering the Australian mainland, offshore island, Papua New Guinea and the south-western Pacific region. The observatories are operated continuously to monitor geomagnetic phenomena, including the long-term change in the magnetic field. The observatory network records vector data once per second.

The repeat stations are occupied for three to four days as frequently as once per year. During the occupation a four-component portable magnetic variometer is used to monitor the variations in the geomagnetic field. Digital data are recorded once per second to a portable computer. The variometer record is calibrated to observatory standards using magnetic absolute observations made at the repeat station markers.

The sole purpose for making a repeat station occupation is to measure the undisturbed quiet (normal) geomagnetic field at the station and thus derive the secular variation (time rate of change of the field) since the previous occupation. The secular variation data collected at the repeat stations are used to develop secular variation models, primarily for the Australian Geomagnetic Reference Field (AGRF), which is a mathematical model of the geomagnetic field in the Australian region. The data are also made available to the global geomagnetic field modelling community. The data collected from the repeat station occupations described in this report will be used in the epoch 2000.0 revision of the AGRF model.

The geomagnetic observatory network and repeat stations occupied in the period covered by this report are shown in figure 1 below

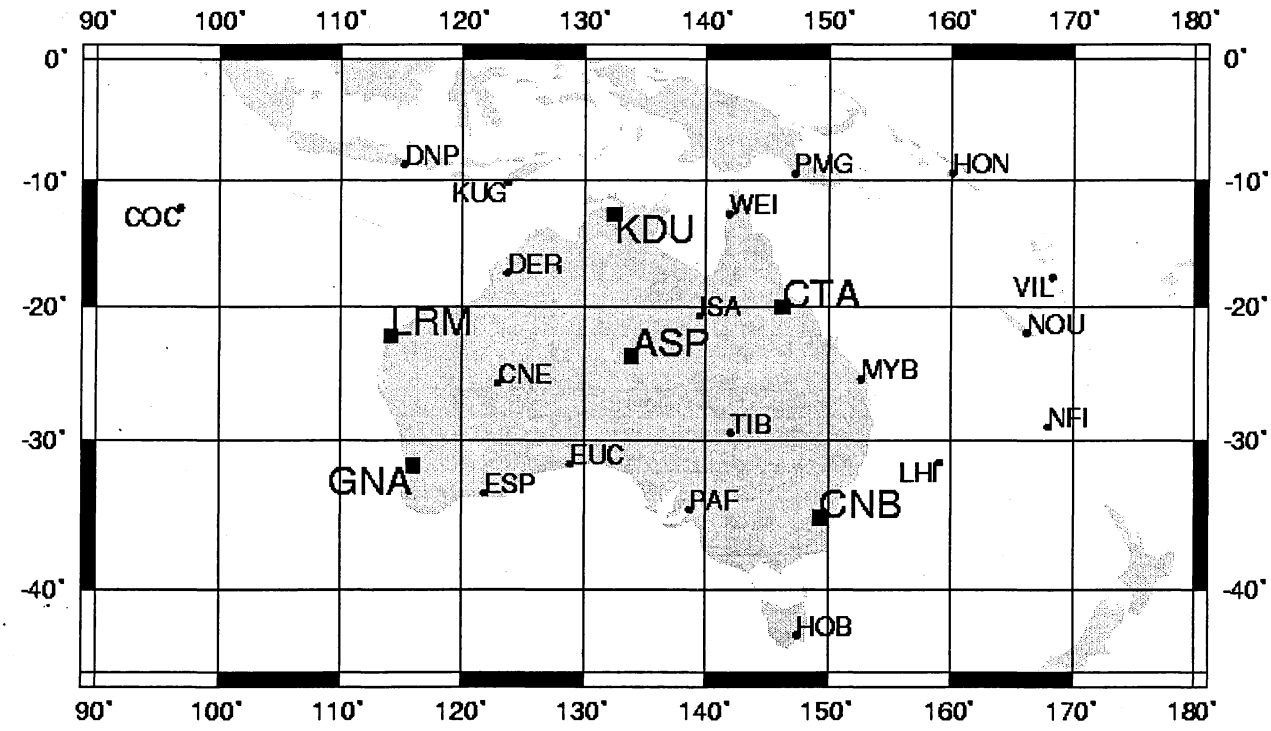

Figure 1 The AGSO observatory network (large squares) and repeat stations occupied

Survey Schedule and Personnel

The repeat station survey over 1996 to 1998 was split into 9 legs, the dates, personnel and stations occupied in each of the legs is set out in Table 1 below.

Stations on legs 1, 3, 6, 7 and 10 were occupied with AGSO four-wheel-drive vehicles. A Toyota Land Cruiser station-wagon and trailer was used on legs 1 and 6, a Nissan Patrol station-wagon and a Toyota Land Cruiser tray-top utility on leg 3 and Toyota Land Cruiser tray-top utility with cage and canvas cover on leg 7. All other legs were occupied by commercial aircraft. The flight schedule for legs 4, 5, 8 and 9 are shown in Table 2 to Table 5.

Table 1 Survey legs

Leg	*Dates*	*Personnel*	*Stations*	*Note*
1	21 Sep - 05 Oct 1996	E.P. Paull, O.D. McConnel	Derby, Carnegie	Note 1
2	08 Dec - 21 Dec 1996	O.D. McConnel	Cocos Island	Note 2
3	01 Apr - 25 Apr 1997	A.M. Lewis, P.G. Crosthwaite	Parafield, Eucla Tibooburra, Maryborough	
4	07 May - 29 May 1997	A.M. Lewis (S.D. Dennis)	Lord Howe Is., Norfolk Is., Hobart ,Weipa	Note 3
5	30 May - 20 Jun 1997	A.M. Lewis (C.E. Barton)	Port Moresby, Honiara, Port Vila, Noumea	Note 4
6	30 Oct - 12 Nov 1997	E.P. Paull, O.D. McConnel	Derby, Carnegie	Note 5
7	09 Mar - 01 Apr 1998	A.M. Lewis V.F. Dent	Parafield, Eucla, Tibooburra, Maryborough	
8	28 Apr - 21 May 1998	A.M. Lewis (P Crosthwaite) I Limer, M Husni	Mt Isa, Denpasar, Kupang	Note 6
9	03 Jun - 22 June 1998	V.F.Dent	Weipa, Norfolk Is, Lord Howe Is, Hobart	
10	25 Nov 19998	P.J. Gregson E.P. Paull	Esperance	Note 7

Note 1: Stations occupied in conjunction with seismic fieldwork from Mundaring

Note 2: Installing an IRIS down-hole seismometer, - not a full station occupation

Note 3: Dennis assisted in the occupation of Lord Howe Island

Note 4: Barton assisted in the occupation of Noumea

Note 5: Stations occupied in conjunction with seismic fieldwork from Mundaring

Note 6: Combined with occupation of two Indonesian stations with two officers from the BMG, Indonesia Crosthwaite did not occupiy Mt Isa

Note 7: A one-day occupation of Esperance was made to measure station differences only.

Table 2 Flight Schedule, Leg 4

Date	*Day*	*From*	*To*	*Times*	*Flight(s)*	*Notes*
7 May 1997	Wed	Canberra	Sydney	09.35 – 10:20	QF564	
7 May 1997	Wed	Sydney	Lord Howe	11:35 – 13:55	QF2260	
11 May 1997	Sun	Lord Howe	Sydney	10:00 – 11:50	QF2255	
11 May 1997	Sun	Sydney	Norfolk Is.	14:30 – 18:25	AN873	
15 May 1997	Thu	Norfolk Is.	Sydney	16:55 – 18:25	AN870	
16 May 1997	Fri	Sydney	Hobart	06:00 – 09:35	AN1/AN7	
20 May 1997	Tue	Hobart	Melbourne	06:15 – 07:25	AN018	
20 May 1997	Tue	Melbourne	Cairns	08:10 – 13:00	AN032	
21 May 1997	Wed	Cairns	Weipa	12:00 – 13:15	AN004	
25 May 1997	Sun	Weipa	Cairns	13:45 – 14:55	AN117	Note 1
25 May 1997	Sun	Cairns	Mount Isa	15:20 – 18:20	AN7073	Note 2
29 May 1997	Thu	Mount Isa	Cairns	10:30 – 13:30	AN7070	Note 2

Note 1 This flight was originally booked for 24 May but aircraft mechanical problems caused a delay of one day.

Note 2 These flights were booked but not used since all the repeat station equipment could not be loaded onto the small aircraft. Alternate flights to Mount Isa via Brisbane would have caused at least one-day delay, with no guarantee of getting all the gear back to Cairns in time for leg 4 of the survey.

Flights to Mount Isa from Cairns are on small aircraft which increases the likely-hood of problems carrying all the equipment. For future occupations of Mount Isa it would be much wiser to travel from and to Brisbane rather than Cairns, even though this means back-tracking. A larger Boeing 737 aircraft services the Brisbane flights.

Table 3 Flight Schedule, Leg 5

Date	*Day*	*From*	*To*	*Times*	*Flight*	*Notes*
30 May 1997	Fri	Cairns	Port Moresby	10:15 - 11:40	PX99	
04 Jun 1997	Wed	Port Moresby	Honiara	08:45 - 12:05	PX2	
10 Jun 1997	Tue	Honiara	Port Vila	07:50 - 09:50	IE710	
16 Jun 1997	Mon	Port Vila	Noumea	16:50- 17:50	SB233	Note 3
20 Jun 1997	Fri	Noumea	Sydney	13:15 - 15:10	IW924	
20 Jun 1997	Fri	Sydney	Canberra	17:10 - 18:00	AN5971	

Note 3. Originally flight NF61 (14:00 - 15:35) on 15 Jun was booked but this was changed after discussions with ORSTOM in Noumea and Air Vanuatu in Pt Vila indicated that there would be problems carrying the equipment on the small plane. Flight SB233 was a larger Boeing 737.

Table 4 Flight Schedule, Leg 8

Date	*Day*	*From*	*To*	*Times*	*Flight*
28 Apr 98	Tue	Canberra	Mt Isa	06:15 - 11:55	AN106/66
02 May	Sat	Mt Isa	Darwin	10:30 - 18:00	AN7070/417
06 May	Wed	Darwin	Denpasar	23:15 - 00:30	AN038
11 May	Mon	Denpasar	Kupang	15:00-16:45	MZ610
15 May	Fri	Kupang	Ujung Pandang	09:15 - 12:20	MZ6590
16 May	Sat	Ujung Pandang	Manado	11:20 - 13:00	GA600
19 May	Tue	Manado	Surabaya	12:55 - 15:25	BO408
21 May	Thu	Denpasar	Canberra	01:15 - 14:00	AN39/5963

Table 5 Flight Schedule, Leg 9

Date	*Day*	*From*	*To*	*Times*	*Flight*
04 June 1998	Th	Canberra	Weipa	07:00 - 14:55	AN200/14/62
08 Jun	Mon	Weipa	Cairns	15:20 - 16:30	AN077
09 Jun	Tue	Cairns	Brisbane	13:50 - 15:50	AN187
10 Jun	Wed	Brisbane	Norfolk Island	09:30-13:20	NC087
14 Jun	Sun	Norfolk Island	Sydney	16:00 - 20:20	AN155
15 Jun	Mon	Sydney	Lord Howe Is	11:35 -13:55	QF2260
18 Jun	Th	Lord Howe Is	Hobart	14:20 - 20:00	QF2261/AN37
22 Jun	Mon	Hobart	Canberra	13:30 - 16:20	AN36/94

Planning and Preparation

Travel and Accommodation

All air travel was arranged with the departmental travel agents, Ansett Australia, the domestic (including Norfolk Island) through Ansett government travel and the international through the Ansett International travel office at the Department of Primary Industries and Energy. Domestic accommodation was not pre-booked except for that at Weipa, Lord Howe Island and Norfolk Island. All international accommodation was pre-booked through the Ansett International travel office, except for that at Port Moresby at Indonesia. Accommodation in Port Moresby was arranged with the assistance of the officer in charge, Port Moresby Geophysical Observatory, Mr Ian Ripper. See the appendix for more details on the accommodation. Within Indonesia some of the flights and all of the accommodation were arranged with the assistance of the Geomagnetism Subdivision of the Badan Meteorologi dan Geofisika (BMG), Department of Communications, Government of Indonesia.

Hire Cars

Hire cars were needed on those legs occupied by commercial aircraft. On leg 4 hire cars were arranged through Dasfleet government hire. Dasfleet could not provide a car on Norfolk Island, so a car was arranged directly with one of the numerous car hire companies on the island. A hire car was not organised for Lord Howe Island, push bikes were hired on arrival on Lord Howe and one of the Met. Observers lent his personal vehicle for several hours to occupy the historic station C. A car is necessary for at least one day on Lord Howe.

Avis hire cars were arranged through the travel agent for all station on leg 5 except Port Moresby, where an AVIS 4WD was arranged with the assistance of the officer in charge of the Port Moresby Geophysical Observatory

Within Indonesia, hire cars (and drivers) were arranged through the Geomagnetism subdivision of the BMG

Finances

All finances for the domestic legs (1, 2, 3, 4, 6, 7, and 10) were arranged through a movement requisition form with advances paid directly into the travelling officers bank account for accommodation and meals. A petty cash advance was specifically requested to cover the purchase of generator fuel, batteries and material to construct new stations on leg 3. All other expenses incurred on the survey were paid on petty cash, which was acquitted at the completion of each leg.

On leg 5 advances for meals and accommodation were calculated by the overseas travel officer, an advance was also requested to cover the cost of hire cars. All advances were paid directly to the officer travelling and costs for accommodation, meals and hire cars were then paid with cash or on a personal credit card. Traveller's cheques in Australian dollars and a small amount of each local currency was organised prior to departure from the advances received. The considerable excess baggage costs were met with Miscellaneous Charges Orders, (MCO's) which were issued through the AGSO travel agent for each flight and for appropriate amounts to cover the expected cost for transporting the known weight of the equipment. MCO's are best issued as close as possible to the date of departure to ensure no major currency exchange rates fluctuations alter the excess baggage costs. The MCO's were posted to Cairns from the travel agent the day before departure to Port Moresby. The MCO's proved to be very convenient, although it did take the airline staff a considerable time to fill them out as some locations.

Official permission was received to use an Australian Government Credit Card (AGCC) on leg 8 within Indonesia and all accommodation costs for the party were payed on an Australian Government Visa card whereever possible. Several motels did not accepts Visa card and so cash had to be paid. MCO's were carried in Indonesia to cover the cost of excess baggage but none of the airlines showed any interest in them, all accepted Visa card as payment for excess baggage fees, although Bouraq airlines

gave a great deal of trouble before accepting Visa. Merpati and Garuda airlines accepted Visa willingly. All the unused MCO's were returned to the AGSO travel agent at the end of the trip for a refund. All hire cars and petty cash requirements where paid by cash within Indonesia.

Health

Standard vaccinations and malaria prophylactics suitable for the survey destinations were arranged through a private doctor for leg 5 of the survey. Vaccinations were available through the Commonwealth Medical officer however a very long waiting period for an appointment and a hectic survey schedule within Australia before the overseas legs precluded using this service. Oral typhoid and a hepatitis-A injection vaccinations were administered. Daily oral 100 mg capsules of doxy-cycline were prescribed as the appropriate anti-malaria medication.

Vaccinations for the Indonesian section of leg 8 were arranged though the government health service, the typhoid vaccination was injected and oral polio vaccinations were administered, as well as anti-malaria prescription of daily 100mg doxy-cycline 2 days before, during and 4 weeks after being in the malarious area.

Equipment Freight

All the equipment was transported in the vehicles on legs 1, 2, 3, 6, 7 and 10. On legs 4, 5, 8 and 9 the equipment was transported as checked baggage with the airlines. This means that excess baggage charges were paid but it ensures that baggage arrives at each station and that work could commence immediately. Excess baggage rates for Australian domestic rates are charged per piece of baggage, and six pieces incurs a full charge of about $150.00 per flight. Airport staff nearly always let the equipment on for less than the full cost. Each piece of baggage must weigh less than 30kg otherwise it has to be sent as freight, and the airlines are strict on this rule, hence the equipment must be packed and weighted carefully before departure and during the survey to ensure this limit is not exceeded.

Excess baggage on international flights, including flights to and from Norfolk Island, is dealt with on a "per kilogram" basis, and the standard rate is 1% of the first class airfare per kilogram over the free baggage allowance (usually 20kg). This means that transporting excess baggage internationally is a very expensive business. The airlines generally apply the rules strictly, although occasionally they do increase the free baggage allowance by 10 or 20 kg. Excess baggage fees are an unavoidable expense since sending the equipment as freight may be slightly cheaper but it means that it can get delayed in customs bond stores for up to several weeks.

Some problems were experienced with the large amount of equipment. An extra night has to be spent in Weipa after the scheduled aircraft broke down and the smaller replacement aircraft could not carry all the baggage. This 24 hour delay resulted in only 30 minutes to catch the flight to the next station, Mount Isa. It transpired that the small plane from Cairns to Mount Isa (and return) was fully booked and all the equipment could not be fitted aboard. Hence the entire occupation of Mt Isa was skipped to ensure all the equipment would be available for the commencement of the international leg 5.

The equipment had to be freighted unaccompanied from Mt Isa to Darwin, via Brisbane after the leg 8 occupation of Mt Isa since the small aircraft to Cairns could not accommodate all the equipment. All the equipment arrived at Darwin on the baggage carousels the following day as arranged.

Customs Clearance

The survey equipment was packed and taken to the Australian Customs Service in Canberra for a pre-departure check before leaving Australia for the international destinations (including Norfolk Island). A complete list of the equipment was provided and this was checked against the equipment and the appropriate "Goods Exported in Passenger Baggage" form filled out and stamped by Customs. This is required for re-entry into Australia and proved most useful when re-entering from Norfolk Island and at the end of leg 5. The feasibility of obtaining a CARNET-ATA for temporary importation of the equipment into New Caledonia was investigated. Carnets are issued by the State Chamber of Commerce in Sydney, but a bond of full import duty plus 10% is required to be lodged with the Chamber to obtain the carnet, this would come to about $70,000 for the survey equipment and thus was out of the question.

Prior warning of the temporary importation of the equipment was supplied to the Customs Authorities at Norfolk Island, Papua New Guinea (through Mr Ian Ripper), the Solomon Islands (through the Australian Consul), Noumea (through ORSTOM) and Indonesia (though BMG). No major problems were experienced in getting the equipment through customs checks. No inspection was made on entering Papua New Guinea and no forms had to be filled out. An inspection of several boxes was made by the Solomon Islands Custom Service, with particular attention given to the observing fly and pegs (inspecting for residual soil). A thorough inspection of one box and the tent pegs was made at Port Vila and a list of the equipment was kept by customs, with an undertaking to re-inspect the equipment on departure. Upon departure the Customs service sighted the boxes but no inspection was made.

Upon arrival in Denpasar (Indonesia) the customs service inspected several boxes extremely thoroughly, going though item by item, to the point that they wanted to know how many metres of wire were on a small cable roll and how many plastic garbage bags were included in the equipment! On leaving Indonesia (at Denpasar) a customs officer took about 1 hour on paper work but no inspection of the equipment was made.

Careful attention has to be payed to cleaning the equipment of all residual soil before entering a new country, especially the tent pegs, observing and variometer flies and all digging implements. This can take several hours at the end of each occupation

Equipment Preparation

All the survey equipment was tested at the Canberra Magnetic Observatory before leaving on each leg of the survey, the variometer was run for several days at Canberra. A full list of the equipment is given in the appendix.

Instrument Comparisons and Corrections

Before and after each major leg of the survey instrument differences were measured between the repeat

station absolute instruments and the Australian standard absolute instruments at the Canberra Magnetic Observatory. These measured instrument differences where used to adopt instrument corrections to the repeat station absolute instruments. The adopted instrument corrections have been applied to all field values in this report, unless stated otherwise.

The sequence of instrument comparisons and resultant instrument differences are reported in Table 6 to Table 8

The Australian standard instruments are those used as absolute instruments at the Canberra Magnetic Observatory (CNB), being Elsec E810_200 DIM electronics with Zeiss 020B theodolite 353756 to measure the declination (D) and inclination (I), and proton precession magnetometer MNS2.3X to measure the total magnetic intensity (F). The standard DIM has no instrument correction associated with it, the standard PPM has a correction of -0.78 nT associated with it, originating from a correction required for the gyro-magnetic ratio used by the instrument.

Table 6 Declination Inclination (DIM) instrument differences

Place	*Date*	*Standard Instrument*	*Comparison Instrument*	*D difference minutes*	*I difference minutes*
CNB	14 Aug 1996	E810_200 353756	E810_220 308887	0.05	-0.15
CNB	Mar 1997*	E810_200 353756	E810_220 308887	-0.08	-0.10
CNB	Mar 1977*	E810_200 353756	B0702H 312714	-0.10	-0.26
CNB	July 1997	E810_200 353756	E810_220 308887	0.04	-0.05
CNB	10 Dec 1997	E810_200 353756	E810_220 308887	-0.02	-0.23
CNB	18 Feb 1998	E810_200 353756	E810_220 308887	0.01	-0.08
CNB	18 Feb 1998	E810_200 353756	E810_202 311542	-0.02	0.08
CNB	03 Jul 1998	E810_200 353756	E810_220 308887	0.29	-0.09
CNB	25 Aug 1998	E810_200 353756	E810_220 308887	0.29	0.01

* Average instrument difference over three weeks of one observations each week during the Canberra Magnetic Observatory weekly absolute observation routine.

Table 7 Proton Precession (PPM) magnetometer instrument Differences

Place	*Date*	*Standard Instrument*	*Comparison Instrument*	*F Difference (nT)*
CNB	14 Aug 1996	MNS2.3X	E770_214	0.58
CNB	14 Aug 1996	MNS2.3X	G856_50713	1.37
CNB	06 Mar 1997	MNS2.3X	E770_214	3.60
CNB	07 Mar 1997	MNS2.3X	G856_50699	2.40
CNB	07 Mar 1997	MNS2.3X	G867_277000	1.20
CNB	19 May 1997	MNS2.3X	G856_50700	1.50
CNB	08 Jul 1997	MNS2.3X	G856_50699	2.02
CNB	08 Jul 1997	MNS2.3X	G856_50700	1.88
CNB	10-Dec 1997	MNS2.3X	G856_50700	2.27
CNB	18 Feb 1998	MNS2.3X	G856_50700	2.48
CNB	18 Feb 1998	MNS2.3X	G856_50699	2.47
CNB	24 Feb 1998	MNS2.3X	G856_277000	0.87
CNB	03 Jul 1998	MNS2.3X	G856_50700	1.63
CNB	03 Jul 1998	MNS2.3X	G856_50699	1.79

Note: The F difference is the standard instrument - the comparison instrument. All instrument differences in the table do NOT take into account the -0.78 nT correction to the MNS2.3 PPM to correct for the gyro-magnetic ratio.

Table 8 Adopted Instrument Corrections

Instruments Used	*Stations*	*Instrument Corrections*
E810_220, 308887, E770_214	DER-96 CNE-96 COC, PAF-97, EUC-97, TIB-97, MYB-97	Ds=DE810_220/308887 + 0.0' Is=IE810_220/308887 + 0.0' Fs=FE70_214 +1.0 nT
E810_220, 308887, G856_50699	LHI-97, NFI-97, HOB-97, WEI-97, PMG-97	Ds=DE810_220/308887 + 0.0' Is=IE810_220/308887 + 0.0' Fs=FG856_50699 + 1.0 nT
E810_220, 308887, G856_50700	VIL-97, NOU-97, DER-97 CNE-97	Ds=DE810_220/308887 + 0.0' Is=IE810_220/308887 + 0.0' Fs=FG856_50700 +1.0 nT
E810_200, 308887, G856_50700	PAF-98, EUC-98, TIB-98, MYB-98, ISA-98, DNP-98, KUG-98, WEI-98, NFI-98, LHI-98, HOB-98	Ds=DE810_220/308887 + 0.0' Is=IE810_220/308887 + 0.0' Fs=FG856_50700 +1.0 nT

The subscript 'S' in indicates the magnetic element as measured by the Australian Standard Instruments, (DIM E810_200, 353756 and PPM MNS2.3. The adopted corrections for F do take into account the -0.78 nT gyro-magnetic ratio correction that belongs to the MNS2.3 PPM.

These instrument corrections yield the following corrections at the ambient field levels at each station

Table 9 Instrument Corrections at Repeat Stations.

Station	*X*	*Y*	*Z*	*F*	*H*	*D*	*I*
DER-96	0.66	0.03	-0.75 (-37635)	1.00	0.66 (33276)	0.00 (2 33.1)	0.00
CNE-96	0.51	0.02	-0.86 (-47772)	1.00	0.51 (28022)	0.00 (2 7.0)	0.00
PAF-97	0.38	0.06	-0.92 (-54986)	1.00	0.39 (23040)	0.00 (8 17.0)	0.00
EUC 97	0.40	0.03	-0.91 (-53530)	1.00	0.40 (23689)	0.00 (4 25.9)	0.00
TIB 97	0.47	0.07	-0.88 (-49499	1.00	0.48 (26924)	0.00 (8 32.2)	0.00
MYB 97	0.56	0.11	-0.83 (-43464)	1.00	0.56 (29761)	0.0)0 (10 44.0)	0.00
LHI 97	0.46	0.12	-0.88 (-48155	1.00	0.48 (26227)	0.00 (14 15.8)	0.00
NFI 97	0.53	0.15	-0.83 (-43198)	1.00	0.55 (28692)	0.00 (15 18.0)	0.00
HOB 97	0.29	0.07	-0.96 (-59439	1.00	0.30 (18379)	0.00 (14 41.7)	0.00
WEI 97	0.76	0.08	-0.64 (-29886	1.00	0.77 (35646)	0.00 (5 40.7)	0.00
PMG 97	0.83	0.10	-0.55 (-23647)	1.00	0.84 (36022)	0.00 (6 31.7)	0.00
HON 97	0.85	0.14	-0.50 (-20661)	1.00	0.86 (35525)	0.00 (6 26.9)	0.00
VIL 97	0.73	0.15	-0.67 (-30085)	1.00	0.74 (33546)	0.00 (11 37.2)	0.00
NOU 97	0.65	0.15	-0.74 (-35801)	1.00	0.67 (32252)	0.00 (12 48.3)	0.00
DER-97	0.66	0.03	-0.75 (-37587)	1.00	0.66 (33315)	0.00 (2 33.9)	0.00
CNE-97	0.51	0.02	-0.86 (-47751)	1.00	0.51 (28045)	0.00 (2 10.3)	0.00
PAF 98	0.38	0.06	-0.92 (-54959)	1.00	0.39 (23064)	0.00 (08. 18.2)	0.00
EUC 98	0.40	0.03	-0.91 (-53510)	1.00	0.41 (23710)	0.00 (04 29.3)	0.00
TIB 98	0.47	0.07	-0.88 (-49464)	1.00	0.48 (26933)	0.00 (08 32.4)	0.00
MYB 98	0.56	0.11	-0.82 (-43420)	1.00	0.57 (29763)	0.00 (10 42.6)	0.00
ISA 98	0.62	0.07	-0.78 (-39815)	1.00	0.63 (31924)	0.00 (06 8.2)	0.00
DNP 98	0.81	0.02	-0.58 (-26453)	1.00	0.82 (37211)	0.00 (01 13.4)	0.00
KUG 98	0.80	0.03	-0.60 (-27667)	1.00	0.80 (36536)	0.00 (02 13.3)	0.00
WEI 98	0.76	0.08	-0.64 (-29819)	1.00	0.77 (35642)	0.00 (05 40.4)	0.00
NFI 98	0.53	0.15	-0.83 (-43160)	1.00	0.55 (28662)	0.00 (15 16.0)	0.00
LHI 98	0.46	0.12	-0.88 (-48103)	1.00	0.48 (26222)	0.00 (14 50.0)	0.00
HOB 98	0.29	0.08	-0.96 (-59413)	1.00	0.30 (18383)	0.00 (14 43.4)	0.00

(The ambient field values used to calculate corrections in H, X, Y and Z are shown in brackets).

The Survey Equipment

Variometer Equipment

Variations in the magnetic field were monitored using a four component digital variometer. An EDA FM-105B three component portable fluxgate magnetometer was used to measure three nominally orthogonal components of the magnetic field and a Geometrics G856AX proton precession magnetometer (PPM) measured the total magnetic intensity. The temperature of both the fluxgate sensor head and fluxgate electronics unit were also monitored with sensors built into both units.

The +/- 10 volt continuos analogue output from each of the three magnetic channels from the fluxgate and the analogue output from the temperature sensors was digitised with an ADAM-4017 8 channel, 16 bit analogue to digital converter coupled with a ADAM-4520 RS485 to RS232 converter The pair of ADAM units were mounted together on a printed circuit board which was plugged into a free slot with the EDA FM-105B electronics unit. The wiring within the EDA unit had been modified to provide power to the ADAM from the EDA power supply and direct the analogue voltage outputs from the three magnetic and two temperature channels as input to the ADAM-4017. The ADAM A/D unit gave a nominal scale value of 0.1 nT per count. A 9 pin D connector was mounted on the front face of the EDA electronics unit to provide RS-232 output of the digitised fluxgate data to the computer acquisition system.

The digital output from the PPM was input to a second serial port on the acquisition computer. The data were recorded on a NEC Ultra-Lite Versa 486 notebook computer running version V0312 (leg 1) or V0313 of the DOS based acquisition system MACQ (Crosthwaite, 1997). The MACQ software is the standard acquisition system run at all AGSO magnetic observatories throughout Australia and Australian Antarctic Territory. The computer has only one built in serial port, the second port required for the PPM data was installed using a PCMCIA serial card and DOS driver software supplied with the card.

Data was recorded as both 1 second and one minute averages in separate daily data files. The one second files contain the 10 second PPM samples. The recording minutes in MACQ runs from 29 seconds to the minutes until 30 seconds past the minute, so minute averages will apply at integer minutes. Timing for the system was provided by the computer internal DOS clock which was corrected for a linear drift rate by the MACQ software and kept to within 1 second of UTC by timing checks at least twice every day at each station occupation. The foreground program MACQMON displayed real-time screen plots of all data, allowing the incoming digital data to be monitored on the screen and provided an interface to execute DOS commands without interrupting the data acquisition. A record of variometer running times is set out in the appendix.

For legs 1- 6 the analogue signal from the three fluxgate and two temperature channels was also recorded on a Yokogawa 6 channel colour chart recorder running at 2 cm per hour, with timing marks every four hours supplied by the chart recorder's internal clock. The chart recorder clock was checked and synchronised once daily. There is no analogue output from the G856AX PPM. The chart record was

maintained as a backup to the digital data and was not used in the routine processing of the magnetic data.

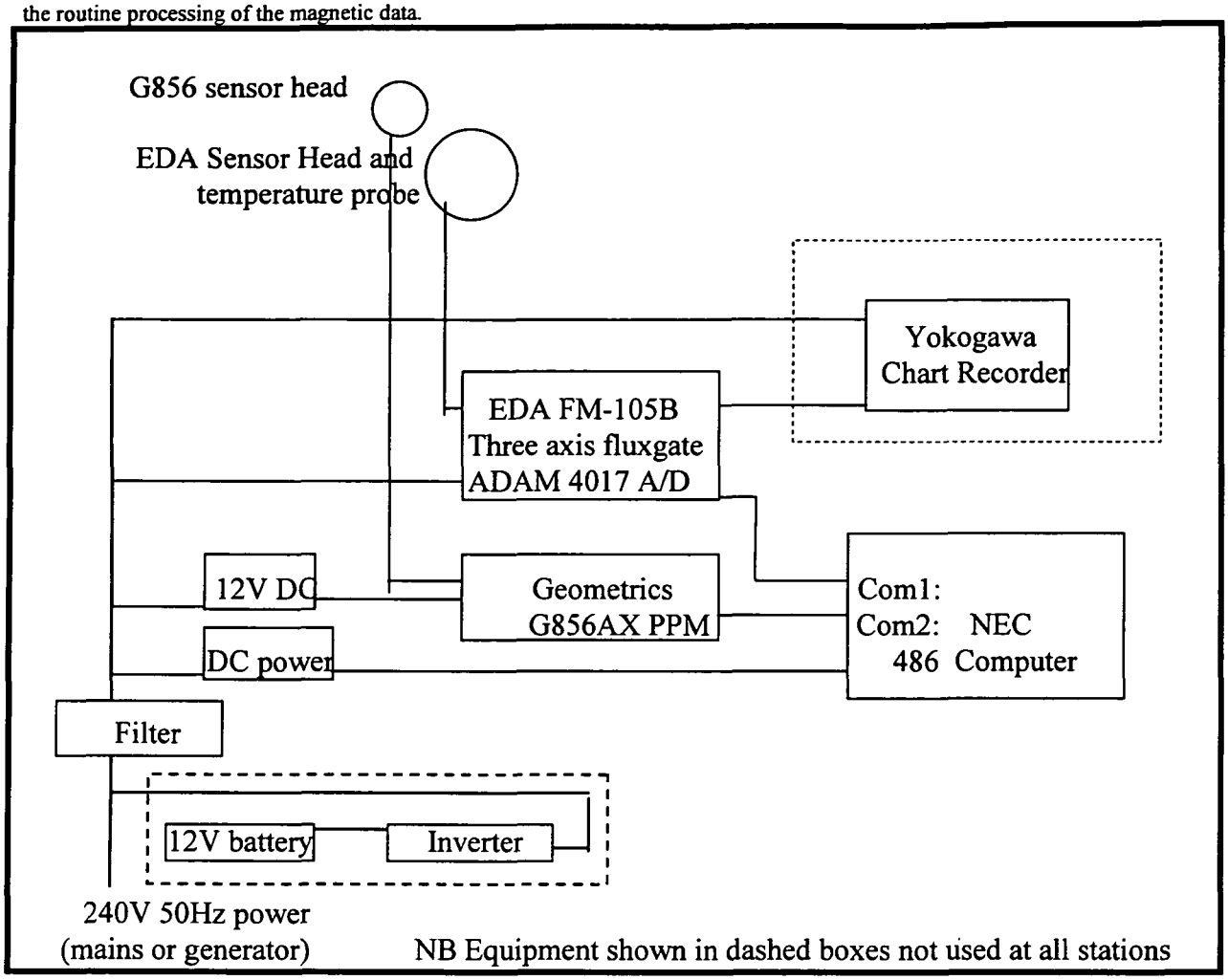

Figure 2 Variometer Equipment Schematic

Absolute Equipment

Absolute magnetic observations were made over the station markers to calibrate the variometer records using a Declination Inclination Magnetometer (DIM) and a PPM. Throughout all legs of the survey Elsec E810_220 and Zeiss 020B theodolite 308887 were used as the primary DIM. The primary PPM varied over different legs of the survey due to malfunction or poor performance of the instruments.

Elsec E770_214 was used as the primary PPM on legs 1, 2 and 3 of the survey. It was intended to use E770_214 as the primary PPM on leg 4 but unacceptably large scatter in the readings at the first station on leg 4 forced the use of the backup PPM Geometrics G856_50699 to be adopted as the primary throughout leg 4. It was found that the sensor head for E770_214 was leaking fluid, so the entire PPM was sent back to Canberra. A second backup PPM, Geometrics G856_50700 was sent to Cairns and collected after the occupation of Weipa.

The standard PPM was again changed for leg 5 after G856_50699 began giving intermittent bad readings at the first station on that leg. PPM G856_50700 was adopted as the primary PPM for the whole of leg 5 and leg 6 and G856_50699 was relegated to the backup instrument. After the survey G856_50699 was serviced at AGSO and found to have several dry solder joints.

Both a backup DIM and PPM were carried with the survey at all times. As described above, the backup PPM was rotated through several individual PPMs, all of which were promoted to primary PPM throughout the survey. Due to malfunction of the primary PPM there was no reliable backup available for the last two stations on leg 4 and all of legs 5 and 6. The backup DIM was Zeiss 020B theodolite 312714, and Bartington fluxgate 0702H. The theodolite was used on several occasions where using two theodolites provided easy solutions to some surveying problems. Theodolite 312714 was in need of mechanical servicing but logistics prevented any work being done to the instrument until all legs of the survey were completed. The backup DIM on legs 7, 8 and 9 was Elsec Dim E810_202 and theodolite 311542.

Leg 10, the brief occupation of Esperance to measure station differences, used the standard absolute instruments from the Gnangara observatory (Zeiss 020B theodolite 355937 with Bartington sensor 434 and Bartington Mag01H electronics 0725H) and PPM G856_50713. A second DIM and tripod was sent to Mundaring to make simultaneous observations (Zeiss 020B theodolite 308887 with Elsec 810_220 electronics unit. A second PPM, G856_50695, was already available at Mundaring.

Auxiliary equipment

A large amount of auxiliary equipment is required to successfully complete a station occupation. On legs 1, 3 and 7 a stand-by power system was used for the variometer equipment. This system comprised of a 15 Amp-hour 12V gel-cell battery, a 300VA inverter and an inverter relay switching box which automatically switched to the inverter in the event of the mains power failing. A 2.2 KVA (1760W) or slightly smaller portable petrol generator was carried on legs 1, 3, 6 and 7 and was used to power the equipment for occupations of Tibooburra and Carnegie, a 30 litre external fuel tank was also used to run the generator for extended periods.

A 2.4m high non-magnetic observing shelter was set up over the magnetic stations whenever absolute observations were being made to protect the instruments and observer from sun and rain. An ACER pentium colour notebook computer running Windows-95 was used to process data at the stations. This computer also acted as a backup to the NEC acquisition computer and could be set to boot to DOS and so run the MACQ acquisition system. The ACER computer was not required in its role as backup on any leg of the survey.

An HP200LX palm-top computer was carried from leg 4 onwards. The HP was used to enter magnetic absolute observations as they were made rather than writing the information to paper and then transcribing the paper records into the processing computer at the end of the day. The HP200LX ran the DOS operating system and a DOS program, DIMOBS was written to accept the magnetic observation data. The HP200LX was also used to log the output from the Trimble ScoutMaster GPS receiver. A Kodak DC-50 digital camera was carried on legs 3 to 9 to take photographs of stations. A PCMCIA 4 MB memory flashcard was transferable between the HP200LX, the camera and the processing ACER computer and allowed easy interchange of data between the three devices.

A spade and mattock were carried on legs 1, 3 and 6. A small hand-trowel was carried on the other legs - if larger digging tools were required on these legs they were bought and left at the station or with a friendly local since it was impractical to transport them by plane.

A detailed list of the equipment carried on the survey is set out in the appendix.

Field Procedures

Setting up the Variometer

The variometer equipment was set up as near as practical to the repeat station, (details of the location used at each station are included in the station occupation reports, starting on page 14. The site chosen for the variometer must be free from transient magnetic interference, have 240V mains power available if at all possible, It must also be safe, secure and accessible 24 hours each day of the station occupation. These conditions are often found at the airports, but in some locations finding a suitable site did prove difficult.

The EDA-FM105B fluxgate sensor head was installed on a 15 cm non-magnetic stainless steel spike driven into the ground at the base of a shallow round hole, approximately 5 cm deep. The head was aligned to measure approximations to the horizontal, declination and vertical components on leg 1, by aligning the second (Y) channel on the magnetometer so that the output was 0 v, thus indicating that it was perpendicular to the magnetic meridian. This puts the first channel (X) nominally along the direction of the magnetic meridian at the time of set-up. The head was then levelled using the two level bubbles mounted on the head to align the third channel (Z) in the vertical plane. For legs 3 to 8 the head was aligned to measure the magnetic north-west and north-east and vertical components of the field. This was done by first aligning the head to measure HDZ as described above and then rotating the head 45 degrees anti-clockwise using the pointer and graduations on the base of the EDA as the scale. On leg 9 the first station was occupied with the EDA head aligned in the NW/NE orientation, but the last three stations were occupied with the HDZ orientation.

The EDA head was covered with an inverted non-magnetic insulating box (plastic Esky) which was secured with local soil around the base and a heavy non-magnetic rock or piece of wood on top, or if nothing else suitable was available, with two non-magnetic pegs. The Esky was then protected from the sun and rain by erecting a two-man A-frame tent fly over the top. The whole structure was also set up in the shade of trees whenever practical to reduce the effects of temperature variations. The head was set up as far as possible from the recording equipment using the 50 m cable.

The G856 variometer PPM was mounted using a three piece pole at least 10 metres from the EDA head. The pole was driven into the ground and secured with three guy ropes and pegs, such that the head was very stable and about 1.2 - 1.6 metres above ground level. The head was covered with a plastic bag to protect the electrical contacts from moisture. A 50m cable was used to connect the head to the G856 electronics.

Magnetic Observations

Absolute observations of the total field, declination and inclination were made at the repeat stations using a DIM and PPM. The DIM theodolite was set up over the station on a non-magnetic tripod so that the height from the station plaque to the centre of the objective lens, with the vertical circle set at 90 or 270, is 1.60 metres, measured to an accuracy better than 5 mm. The horizontal position of the theodolite was set by carefully levelling the theodolite using the on-board level bubbles and then adjusting the horizontal position of the instrument to be over the centre of each station using the optical plumb. The horizontal positioning accuracy is better than 2 mm. Observations on the primary stations were always made beneath an observing shelter constructed from wooden poles, a two man tent fly, stainless steel pegs and brass bolts. The shelter kept the sun and rain off the theodolite and made conditions more pleasant for the observer.

Total field measurements were made with the PPM head mounted on a plastic stand in the long-axis vertical, "bolts-down" orientation on an auxiliary tripod, not more than 10 metres from the main station. The plastic stand had been designed to raise the centre of the PPM sensor head to the same height as the centre of the theodolite objective lens when placed on the same tripod as the theodolite. The location of the auxiliary F station was chosen such that the difference in F at the auxiliary and primary station was small. The difference

in F between the two stations was measured in a symmetrical sequence of PPM readings, starting and finishing on the primary station and alternating between the two stations. The difference in F was measured at the beginning and at the end of each station occupation, and any other time that it was considered necessary. The average scalar difference between the stations was converted to a vector using the proportions of the measured field at the station and applied as a correction during data processing. The location of the auxiliary station was marked with three brass tubes hammered into the ground to allow re-location of the tripod feet exactly. The adjustable auxiliary tripod legs were also marked to ensure that they could be extended to exactly the same height for each set of observations at the station.

A standard set of observations were made in the early morning and late afternoon on the primary station to ensure that the important night time variometer record was well controlled. A standard set of observations consists of the sequence F, D, I, F repeat four times to yield four separate values of the vector field. F represents one minutes worth of PPM samples at about 1 sample per 8 to 10 seconds, D and I represent a determination of declination and inclinations using the DIM, each consisting of four symmetric observations and two pairs of azimuth mark readings. In general the PPMs were configured to run in "auto-recycle" mode for the absolute observations.

In general the secondary repeat station was used as the azimuth mark from the primary station. A length of small diameter, inflexible aluminium tubing was set up over the secondary station, secured with four guy ropes and set to vertical with a level bubble. At the usual station distance of 100 - 400 metres this made a good mark in most conditions. At some stations it was not practical to use the secondary station, so any suitable azimuth mark was chosen. A suitable azimuth mark is one with an accurately known true azimuth, preferably one that has a past history of use, one that is easily identifiable and should hopefully be easily re-located in the future. The magnetic absolute observations were recorded with pencil and non-magnetic pencilling board on a standard DIM observation form for legs 1 to 3. The observations were typed into the HP200LX palm-top computer for legs 4 to 9. The palm-top was magnetic and had to be kept at least as far from the DIM theodolite as the DIM electronics. This meant that a lot of walking back and forth was required if there was only one observer, but with two people, one observer and one to enter data, it proved to be very convenient. The data files containing the observations was backed up to the flashcard memory on the HP200LX several times each day to minimise the chance of loosing any data due to equipment failure or "finger trouble". The use of the palm-top saved a great deal of time in transcribing observation data from forms onto the processing computer every night during the occupations.

On legs 3 and 7 a standard set of observations were also made around "local midnight" at most of the primary stations. The observations were usually made between 01:00 and 02:30 local time to take advantage of the magnetically quietest time of the day. A specially constructed "night-mark" or a torch was used to illuminate the standard azimuth mark pole and torches used to illuminate the theodolite circle scales and PPM.

Magnetic observations were also made on the secondary and any historic magnetic stations that could be located. In general, a standard set of 4 observations were done, as on the primary station, although no auxiliary F tripod was set up and consequently the observations were done in a slightly different order. This minimised the number of time the theodolite had to be removed and re-set on the tripod. The order was FFDI, DIFF, FFDI, DIFF. These observations were used to measure the station differences between primary and secondary stations through variometer baselines. The calculated station differences are presented below in Table 10. A full list of magnetic observations made on each station throughout the survey is set out in the appendix, commencing on page 40.

Table 10 Station Differences

Station1 - Station2

Station 1	*Station 2*	*Date*	*X nT*	*Y nT*	*Z nT*	*F nT*	*H nT*	*D mins*	*I mins*	*# obs on station 2*
Derby E	Derby F	23/09/96	0.6	-5.7	7.4	-5.4	0.3	-0.6	0.3	4
Carnegie A	Carnegie B	02/10/96	-14.3	-14.5	28.3	-31.9	-14.9	-1.7	0.1	4
Parafield A	Parafield B	04/04/97	-17.7	32.0	-31.0	23.6	-12.9	5.1	-1.4	2
Parafield A	Parafield C	05/04/97	39.3	-15.2	-32.3	44.0	36.6	-3.1	1.2	4
Parafield A	Flinders Uni B	04/04/97	126.7	143.1	214.4	-141.8	145.8	18.5	12.5	2
Eucla D	Eucla E	10/04/97	-639.3	42.5	-685.7	363.9	-634.2	13.0	-50.1	4
Tibooburra A	Tibooburra B	16/04/97	5.5	-31.4	0.2	0.2	0.8	-4.1	0.0	3
Maryborough D	Maryborough C	21/04/97	73.9	-159.8	-145.7	144.2	42.5	-19.8	-3.1	4
Maryborough D	Maryborough E	22/04/97	5.5	3.0	0.1	3.3	6.0	0.2	0.3	4
Lord Howe Is D	Lord Howe Is E	08/05/97	-28.6	22.9	120.7	-116.4	-21.8	3.9	2.4	4
Lord Howe Is D	Lord Howe Is C	09/05/97	-718.1	-508.0	32.6	-428.1	-825.9	-39.1	-44.1	4
Norfolk Is B	Norfolk Is C	13/05/97	88.1	-68.4	53.0	-7.3	66.8	-10.7	5.6	4
Hobart H	Hobart I	17/05/97	-65.3	-188.2	44.7	-75.8	-111.8	-30.8	-5.2	4
Weipa B	Weipa C	22/05/97	17.2	21.8	32.2	-5.9	19.3	1.9	2.7	4
Port Moresby C	Port Moresby B	01/06/97	-54.7	-44.4	-13.0	-42.6	-59.4	-3.6	-3.5	4
Honiara B	Honiara C	06/06/97	-52.0	20.5	-52.2	-15.3	-48.0	2.8	-5.8	4
Port Vila B	Port Vila C	11/06/97	27.1	-47.9	75.5	-37.9	16.9	-5.4	5.1	5
Noumea B	Noumea C	17/06/97	37.2	41.5	-43.9	63.0	45.4	3.4	0.3	4
Derby E	Derby F	31/10/97	-5.3	4.8	1.1	-4.2	-5.1	0.5	-0.2	4
Carnegie A	Carnegie B	10/11/97	-11.9	-18.2	30.3	-32.5	-12.6	-2.2	0.3	4
Parafield A	Parafield C	11/3/98	37.4	-8.3	-30.6	42.1	35.5	-2.0	1.2	4
Parafield A	Parafield B	12/3/98	-17.5	31.6	-32.0	24.6	-12.8	5.0	-1.4	4
Parafield A	Flinders Uni B	13/3/98	112.4	143.1	214.3	-147.3	131.5	18.9	11.7	4
Eucla D	Eucla E	18/3/9	-642.5	38.1	-692.9	370.0	-637.6	12.5	-51.1	4

Eucla D	Eucla B	19/3/98	-858.0	131.5	-718.5	304.9	-845.8	27.9	-62.9	2
Tibooburra A	Tibooburra B	24/03/98	11.1	-32.8	-3.2	5.5	6.0	-4.4	0.2	4
Maryborough D	Maryborough C	30/3/98	76.0	-155.0	-153.4	152.3	45.5	-19.3	-3.2	4
Maryborough D	Maryborough E	29/3/98	2.8	-0.9	-0.3	1.7	2.6	-0.2	0.1	4
Mt Isa A	Mt Isa B	29/4/98	-0.3	2.8	6.3	-5.0	0.0	0.3	0.3	4
Weipa B	Weipa C	06/06/98	21.2	8.7	35.0	-5.6	22.0	0.6	3.0	4
Norfolk Is B	Norfolk Is C	13/06/98	85.5	-69.9	57.6	-14.3	61.0	-10.7	5.5	4
Lord Howe Is D	Lord Howe Is E	17/06/98	-30.3	26.8	118.7	-114.9	-22.4	4.4	2.3	2
Hobart H	Hobart I	20/06/98	-67.2	-192.0	49.6	-81.2	-114.5	-31.3	-5.2	4
Esperance C (PSM21)	Esperance E (PSM10)	25/11/98	113.7	169.3	-34.8	75.5	114.2	25.5	5.3	8**

Comparing station differences at Parafield from the 1997 and 1998 occupation to previous occupations indicate that some stations have become contaminated. It appears that station A has remained uncontaminated, despite the station difference data. The differences compared to the Canberra and Alice Springs Observatories from the last three occupations do not indicate that there has been contamination at station A. The environment around station PAF B has altered a great deal since the 1993 occupation. A star picket, driven full length into the ground 0.5 m to the east of FLU B produces very large gradients at the station - a slight movement of the picket could easily account for a large change in station differences.

** Station differences at Esperance were derived through simultaneous observations in D and I and through baselines for F using GNA variometer data.

Other Observations

Sun Observations

Other work undertaken during a station occupation includes observations of the sun to determine the azimuth of the reference mark from the primary station, and from other stations as required. Morning and afternoon sun observations (azimuth by hour angle) were made whenever possible, at some stations continuos overcast conditions prevented any sun observations from being made. The results of the sun observations are presented in Table 11. The azimuths derived from sun observations are not necessarily the adopted azimuth used for reduction of the magnetic observations. Adopted azimuths are shown in the appendix, commencing on page.34 Station co-ordinates used in the calculation of the sun-shots are presented in Table 12. Azimuths listed in Table 11 are reported as degrees, minutes and seconds from true north, calculated from mean of observations of the sun for azimuth made at the station listed

Table 11 Sun observations

Station	*Date*	*Mark Description*	*Azimuth*	*Observer*
Derby E	23 Sep 96	Station F	089 03 05	EPP
Carnegie A	02 Oct 96	Station B	036 55 09	EPP
Parafield C	05 Apr 97	LHS AWS pole, above AWS base	123 41 10	AML
Eucla D	09 Apr 97	Aerial on house across highway	260 57 03	PGC
Eucla E	10 Apr 97	BDC Aerial RH side Met office roof	027 57 29	PGC
Tibooburra	15 Apr 97	Station B	156 27 40	AML/PGC
Maryborough E	22 Apr 97	Station D	207 58 34	AML
Maryborough D	20 Apr 97	Station C	267 26 07	PGC
Lord Howe Is D	09 May 97	BDC mast on Transit Hill	350 39 18	AML
Norfolk Is B	12 May 97	Station C	248 14 30	AML
Hobart H	17 May 97	Station I	306 18 10	AML
Weipa B	22 May 97	Station C	237 28 30	AML
Port Moresby C	31 May 97	TDC EM-TV Tower	244 26 47	AML
Honiara B	06 Jun 97	Station C	303 03 00	AML
Port Vila B	11 Jun 97	Station C	297 01 20	AML
Noumea B	Jun 1997	No sun observations, overcast	--------	AML
Derby E	02 Nov 97	Station F	089 03 01	EPP
Carnegie A	10 Nov 97	Station B	036 55 24	EPP
Parafield C	11 Mar 98	LHS AWS pole, above AWS base	123 41 15	AML
Eucla D	18 Mar 98	Station C	152 30 24	AML/VFD
Eucla E	18 Mar 98	BDC RH aerial on Met office roof	027 57 54	AML
Tibooburra A	24 Mar 98	Station B	156 27 36	AML
Maryborough D	29 Mar 98	Station C	267 26 13	AML/VFD
Mt Isa	28 April 98	Station B	034 11 06	AML/IL
Denpasar A	09 May 98	Top of spike on mosque prayer tower	039 19 57	AML/PGC/IL
Kupang A	13 May 98	Spike on coms tower to NW	329 31 27	AML/IL
Weipa B	08 June 98	Station C	237 28 38	VFD
Norfolk Is	June 1998	No observations overcast conditions	----------	VFD
Lord Howe Is D	17 June 98	Mast on Transit Hill	350 39 13	VFD
Hobart H	22 June 98	Station I	306 18 22	VFD

Table 12 Station Co-ordinates

Station	*Latitude*	*Longitude*	*elev.(m)*	*UT Local Noon*	*Status*
CARNEGIE A	-25 48 12	122 56 50	452	0348	P
B	-25 48 07	122 56 54	452		S
COCOS ISLAND A	-12 12 00	096 50 15	003		S
C	-12 12 00	096 50 14	002		S
D	-12 11 57	096 50 22	001	0533	P
E	-12 12 06	096 50 26	???		S
DERBY D	-17 22 12	123 39 50	006		S
E	-17 22 12	123 39 54	006	0345	P
F	-17 22 12	123 40 03	006		S
EUCLA B	-31 43 00	128 53 30	???		H
C	-31 40 54	128 52 48	005		S
D	-31 40 48	128 52 45	???	0324	P
E	-31 43 04	128 52 42	???		S
ESPERANCE C PSM21 1983 -	-33 41 10	121 49 17	137	0353	P
D	-33 41 08	121 49 11	136		S
E (PSM10) 1963-1983	-33 41	121 49			
HOBART F	-42 49 42	147 30 05	005		S
G	-42 49 45	147 30 09	004		S
H	-42 50 05	147 30 38	005	0210	P
I	-42 49 57	147 30 25	004		S
LORD HOWE ISLAND C	-31 31 35	159 03 33	004		H
D	-31 32 35	159 04 43	002	0124	P
E	-31 32 27	159 04 46	004		S
MARYBOROUGH C	-25 31 15	152 42 38	010		H
D	-25 31 15	152 42 45	011	0140	P
E	-25 31 02	152 42 52	010		S
NORFOLK ISLAND B	-29 02 35	167 56 27	112	0048	P
C	-29 02 39	167 56 14	107		S
PARAFIELD A	-34 47 30	138 38 28	015	0245	P
B	-34 47 38	138 38 30	016		S
C	-34 47 55	138 37 32	015		S
TIBOOBURRA A	-29 26 54	142 03 12	174	0232	P
B	-29 26 59	142 03 15	178		S
WEIPA B	-12 40 46	141 55 23	018	0232	P
C	-12 40 49	141 55 17	018		S
PORT MORSEBY B	-09 25 52	147 13 00	035		
C	-09 25 55	147 12 59	033	0211	P
NOUMEA B	-22 00 35	166 11 58	009	0055	P
C	-22 00 39	166 11 52	011		S
HONIARA B	-09 25 25	160 02 48	010	0119	P
C	-09 25 21	160 02 43	010		S
PORT VILA B	-17 41 54	168 18 12	???	0047	P
C	-17 41 55	168 18 11	???		S
MT ISA A	-20 39 54	139 29 18	339	0242	P
B	-20 39 49	139 29 22	339		S
DENPASAR A	-08 44 50	115 10 44	???	0419	P
KUPANG A	-10 10 35	123 39 48	???	0345	P

All Australian stations measured on AGD'84,with elevations in metres relative to AHD,
P = primary station
S = secondary station
H = historic station

Rounds of Angles

A round of angles was made at every station to determine the true azimuth of a number of prominent marks distributed evenly around the station. This is important for data continuity in the case when, at a later occupation of the station, the main azimuth mark is lost and sun observations cannot be done. The primary azimuth reference mark was always included in the round of angles and, whenever possible, the same marks used in previous occupations were used to allow checking of current and past data for consistency. The results of the rounds of angles are shown in the appendix commencing on page 34. The primary azimuth mark from each station is labelled as "1". The azimuths shown in this table are the adopted azimuths of the specified mark from true north in degree, minutes and seconds.

Local Total Field Surveys

At each station a local total field survey was made out to 25 metres from the station in the four cardinal geographic directions. Two 60 metre tapes were aligned true north-south and east-west using a magnetic compass and the known declination at the station. The tapes were used to measured distances for the survey. Readings were taken at 0.5 m intervals from the station plaque out to 5 metres, and then at 5 metres intervals from 5 to 25 metres. Repeated readings were taken over the station plaque throughout the survey to allow correction for linear temporal variations. The primary absolute PPM was used

with the head mounted on a pole to raise the head to the standard instrument height of 1.6 metres above ground level. The surveys were most efficiently done with two people, one to hold the staff and one to carry the electronics box and record the readings. However at those station occupied by one person the survey was done with the staff at arms length. The results of these surveys are plotted by hand and kept with the station descriptions - they allow any changes in magnetic field in the immediate vicinity of the station to be detected when there is a history of similar surveys at the stations.

A vertical total field survey was also made at most stations. This was made by making a symmetric series of PPM observations over the station with the tripod set at three different heights, - as low as possible (about 1.2 metres), at the standard height (1.6m) and as high as possible, (about 1.9 m).

GPS observations

A Trimble ScoutMaster hand held GPS receiver was run on most stations for about 30 minutes. The digital data was recorded onto the ACER PC or the HP200LX palm-top computer. Locations calculated using four satellites were averaged to yield the Australian Geodetic Datum, 1984 (AGD '84) location of the stations shown in Table 13. No attempt at differential corrections or post processing was undertaken on any of the GPS data. The GPS locations recorded in the table are determined with an uncertainty of 100m, at best. The locations shown below are not necessarily the adopted co-ordinates for the stations. The adopted co-ordinates, are shown in Table 12 above.

Table 13 GPS Observations

Station	*Date*	*Latitude*	*Longitude*	*Datum*
Derby E	24 Sep 96	-17 22 12	123 39 54	AGD84
Derby F	24 Sep 96	-17 22 12	123 40 05	AGD84
Carnegie A	02 Oct 96	-25 48 07	122 56 48	AGD84
Cocos Is A	Dec 1996	-12 12 00	096 56 16	AGD84
Cocos Is D	Dec 1996	-12 11 57	096 50 23	AGD84
Cocos Is E	Dec 1996	-12 12 06	096 50 26	AGD84
Parafield A	04 Apr 97	-34 47 30	138 38 29	AGD84
Parafield C	05 Apr 97	-34 47 55	138 37 32	AGD84
Eucla D	10 Apr 97	-31 40 46	128 52 38	AGD84
Eucla E	11 Apr 97	-31 42 27	128 52 37	AGD84
Eucla C	10 Apr 97	-31 40 50	128 52 41	AGD84
Tibooburra A	06 Apr 97	-29 27 09	142 03 23	AGD84
Tibooburra B	06 Apr 97	-29 27 14	142 03 26	AGD84
Maryborough C	22 Apr 97	-25 31 15	152 42 38	AGD84
Maryborough D	21 Apr 97	-25 31 15	152 42 45	AGD84
Maryborough E	22 Apr 97	-25 31 02	152 42 52	AGD84
Lord Howe Is D	09 May 97	-31 32 36	159 04 42	AGD84
Lord Howe Is C	09 May 97	-31 31 38	159 03 32	AGD84
Norfolk Is B	14 May 97	-29 02 34	167 56 27	AGD84
Norfolk Is C	14 May 97	-29 02 40	167 56 15	AGD84
Hobart H	17 May 97	-42 50 06	147 30 38	AGD84
Hobart I	18 May 97	-42 49 58	147 30 26	AGD84
Weipa B	23 May 97	-12 40 45	141 55 23	AGD84
Weipa C	23 May 97	-12 40 49	141 55 17	AGD84
Port Moresby B	01 Jun 97	-09 25 53	147 13 01	AGD84
Port Moresby C	31 May 97	-09 25 55	147 12 59	AGD84
Honiara B	06 Jun 97	-09 25 57	160 02 55	AGD84
Honiara C	06 Jun 97	-09 25 53	160 02 48	AGD84
Port Vila B	13 Jun 97	-17 41 44	168 18 36	AGD84
Port Vila C	14 Jun 97	-17 41 40	168 18 26	AGD84
Noumea B	18 Jun 97	-22 00 31	166 12 03	AGD84
Noumea C	19 Jun 97	-22 00 34	166 11 57	AGD84
Derby E	02 Nov 97	-17 22 12	123 39 54	AGD84
Derby F	02 Nov 97	-17 22 12	123 40 04	AGD84
Carnegie A	11 Nov 97	-25 48 07	122 56 47	AGD84
Carnegie B	11 Nov 97	-25 48 03	122 56 50	AGD84
Parafield A	13 Mar 98	-34 47 30	138 38 29	AGD84
Parafield B	13 Mar 98	-34 47 39	138 38 29	AGD84
Parafield C	12 Mar 98	-34 47 53	138 37 32	AGD84
Flinders Uni B	13 Mar 98	-35 01 57	138 34 40	AGD84
Eucla D	19 Mar 98	-31 40 44	128 52 38	AGD84
Eucla E	18 Mar 98	-31 42 26	128 52 35	AGD84
Eucla B	19 Mar 98	-31 42 51	128 53 05	AGD84
Tibooburra A	24 Mar 98	-29 27 09	142 03 24	AGD84
Tibooburra B	24 Mar 98	-29 27 14	142 03 27	AGD84
Maryborough C	30 Mar 98	-25 31 16	152 42 38	AGD84
Maryborough D	29 Mar 98	-25 31 16	152 42 44	AGD84
Maryborough E	29 Mar 98	-25 31 02	152 42 52	AGD84
Mt Isa A	30 Apr 98	-20 39 54	139 29 18	AGD84

Mt Isa B	29 Apr 98	-20 39 49	139 29 23	AGD84
Denpasar A	09 May 98	-08 44 50	115 10 44	WGS84
Kupang A	12 May 98	-10 10 35	123 39 48	WGS84
Weipa	Jun 1998	No GPS		
Norfolk Is B*	14 Jun 98	-29 02 41	167 56 36	not AGD84
Norfolk Is C*	14 Jun 98	-29 02 45	167 56 22	not AGD84
Lord Howe D*	16 Jun 98	-31 32 44	159 04 51	not AGD84
Hobart H*	21 Jun 98	-42 50 13	145 30 49	not AGD84
Hobart I*	21 Jun 98	-42 37 12	146 46 05	not AGD84
Esperance	Nov 1998	No GPS		

The geodetic datum on which these co-ordinates were measured is unknown.

Typical Work Timetable

Day 1

- Arrive at the station as early as possible
- Talk to the local authorities, arrange access, keys etc and decide on a location for the variometer
- Set up the variometer and allow several hours for it to warm up and settle in.
- Locate the absolute stations and evaluate them for magnetic contamination
- Set up on the primary station and do a set of four magnetic observations and an auxiliary F pier difference - use the secondary station as the azimuth mark where possible.
- Process the data collected during the day
- Record overnight

Day 2

- Arrive on the station early and check the variometer
- A set of four absolute observations on the primary station
- Morning sun observations on the primary station
- Round of angles on the primary station
- Move to the secondary station
- Round of angles on the secondary station
- Horizontal and vertical total field surveys on the secondary station
- Sun observations if necessary on the secondary station
- Collect GPS data and take photographs on the secondary station
- A set of four magnetic observations on the secondary station
- Move back to the primary station and do a set of four observations and afternoon sun observations.
- Process the data collected during the day
- Record overnight

Day 3

- Arrive early and check the variometer
- A set of four observations on the primary station
- GPS and photographs of the primary stations.
- Horizontal and vertical total field survey at the primary station
- Mid-day observations on the primary station if necessary
- Upgrade station descriptions as required
- Any other work as required, ie extra sun observations etc. Search for any historic stations
- A set of late afternoon observations on the primary station
- Process data collected during the day
- Record overnight

Day 4

- Do a set of local midnight observations between about 12:30 and 02:30 local time
- sleep in slightly later than normal, check the variometer
- A set of four magnetic observations on the primary station
- Auxiliary F pier difference
- Photographs of the variometer set-up
- Back up all variometer data and pack up the equipment.
- Return keys to local authorities and thank them.
- Move on to the next station in the survey

Field Data Reductions

All observations were reduced as soon as possible, generally in the evening on the same day that they were made. The ACER notebook processing computer running a suite of DOS-based processing programs and a commercial spread sheet package were used for the data reductions. Every evening the magnetic observations made during the day were transcribed from the observing forms (or down-loaded from the HP200LX). The daily variometer data files, both one minute and one seconds were copied from the acquisition computer to the processing computer via floppy disk.

A series of batch files with the same names and similar functionality to the standard AGSO observatory data processing batch files were run each evening to process the absolute observations and calculate variometer baseline residuals (the difference between the measured absolute values of the magnetic field and the field values as derived using the variometer data and model). A preliminary estimation of the variometer parameters was made by applying a rotation to the variometer nominal scale values. The rotation applied was determined from the known magnetic declination at the station (to the nearest degree) and the known orientation of the variometer sensor head. Initial baselines were adopted from values calculated using the Australian Geomagnetic Reference Field, 1995 revision, or if the station was outside the area in which the AGRF applies then the International Geomagnetic Reference Field was used. These preliminary estimates were then refined using the information collected with the absolute observations.

The processing batch files converted the binary daily data files to ASCII text, extracted the digital variometer ordinates from the daily data and called the standard absolute processing programs - Macqobs, Macqcsv, Reduce, Compare, Machview (Crosthwaite, 1997) to calculate the observations and the baseline residual values. Screen plots of the variometer data, showing the difference between the total magnetic intensity derived form the three axis variometer and that measured with the variometer

PPM were also inspected routinely to check the quality of the variometer data.

Screen plots of baseline residuals were produced using the spreadsheet program, thus allowing a visual check on the quality of the observations and the station occupations as they progressed. Processing data as quickly as possible is an important part of repeat station survey work so that any problems with the occupation can be highlighted and rectified before the station occupation is completed.

Similarly, the sun observation, round of angles and GPS data were also entered into the computer and processed on the evening that they were collected.

Backup copies of all variometer and observations data files were made to floppy disk every night and data was posted to AGSO every two or three stations.

Station Occupation Reports

Derby E, F 1996

DER 22-25 September, 1996
E.P. Paull and O.D. McConnel

Contacts:

Ken Spry (Tel 08 9191-5058) airport manager at Shire depot, light aircraft airport for access to the airstrip. Adrian LeGassick (Tel 08 9191 1211) Chief engineer, RFDS Derby for power from RFDS hangar at airport. Both of these people were extremely helpful.

Setting Up:

The equipment was set up in a compressor shed attached to the RFDS hangar on the east side at the front. This could be locked up and was separate from the hangar which has a security system precluding access after hours or on the weekend. There is no 240v power so a lead was run into the hangar. The sensor cables were run under the door and out to the east with the sensors inside the airport fence. The cables passed in front of a gate used by the ambulance. For protection they were pulled through a length of 50 mm galvanised water pipe, borrowed from Ken Spry, which was pegged to prevent it from rolling.

Azimuth marks:

Station F from E and vice versa.

Equipment

A little difficulty was experienced getting the acquisition system up and running. Wriggling the ADAM board in the EDA and reseating the internal serial lead connectors fixed the problem. A broken wire in the DIM cable near the plug was repaired mid survey.

Observations:

Station E was occupied as the main station and F as the secondary. Thirty sets of observations and morning and afternoon sunshots were made on E. Four sets of observations were made on F. Rounds of angles, vertical total field gradients and local F surveys were conducted on stations E and F. Windy conditions slowed down DIM observations and some cloud and haze hampered sunshots. GPS readings were taken for about 20 minutes on each station.

Station Condition and Upgrades:

Stations E and F had full concrete triangles. E was in good condition but F was cracked near the SW footpad. This did not cause any problems. D was not occupied as it was too close to the new RFDS hangar. D is below ground level but is dug out and has a white cone covering it. E and F have red and white cones over them. All stations were easily found (especially as Ken Spry pointed them out).

Notes:

- The survey markers are on what is now the light aircraft aerodrome, 8 km from Derby, and not the domestic airport.

Station D is in line with the edge of the old tarmac apron which has been quite obviously extended.

Carnegie A, B 1996

CNE 1-4 October, 1996
E.P. Paull and O.D. McConnel

Contacts:

Owners of Carnegie Station, Ian and Faye Smith. Tel: 08 9981 2991

Setting Up:

The equipment was located in the old derelict store house out on the airstrip, with the EDA and PPM sensors out to the NW. This was close to station A and was very convenient. Mains power was not available so the generator was set up about 20 meters to the west.

Azimuth marks:

Station B from A and vice versa.

Equipment:

No problems were experienced. The generator stopped once for about an hour during the day for no apparent reason. The equipment survived on the inverter.

Observations:

Station A was occupied as the main station and B as the secondary. Twenty four sets of observations and morning and afternoon sunshots were made on A. Four sets of observations were made on B. Rounds of angles, total field vertical gradient and local F surveys were conducted on both stations. The GPS was left on both stations for about 20 minutes to check station co-ordinates.

Station Condition and Upgrades:

Stations A and B had full concrete triangles and both were in good condition. The station A marker is about 60 mm proud of the ground and the (non-magnetic) rock upon which to stand to enable the high eyepiece I readings to be made was still in place from the previous occupation. It was by now nicely stuck in the ground and was rock solid. Both stations were easily found.

Notes:

- The homestead generator is switched off at about 9.30 pm so if working late take a 12 volt light or small inverter.
- Accommodation (room) is available with shared kitchen facilities and there is a store from which the necessities of life can be purchased (bread, beer etc).

Cocos Island D 1996

COC 09-22 December 1996
O.D. McConnel

Contacts:
Air Services (Neil and Brian)
Met. Office

Setting Up:
Cocos Island was occupied on a opportunistic basis since a down-hole IRIS seismometer was being installed and it was a good chance to make some magnetic observations. No magnetic variometer was used. A series of night-time observations were made by a relatively inexperienced observer on station D only.

Azimuth Marks:
Station E was used as the azimuth mark from station D

Equipment:
No variometer equipment was used, only night-time magnetic absolute observations were made. A solar-powered high-intensity LED was made to fit onto the standard azimuth mark pole so that it could be used during night-time observations.

Observations:
A total of eight magnetic observations were made on station D, all at approximately 2am local-time. Local F surveys were made on stations A, D and E. Round of angles were made on D and E and the co-ordinates of A, D, and E were measured with a hand-help GPS unit.

Station Conditions and Upgrades:
Station A and C were located after considerable searching. The plaque for station A was missing. The plaque from station C was removed with the intention of replacing the missing A plaque. However on further investigation of A a 20mm fibre optic cable was found to run beneath the station and two 6600V power cables run a few metres towards the runway, thus both stations A and C are now contaminated. The cables run to an installation on the south end of the island.

Station D was located without any problems. There is a cable route to a Doppler VHF Omni Range station (DVOR) at the south end of the runway which runs about 30 metres from station D.

A new station, E, was installed to replace station A. Station E is at the south end of the runway on the same side as station D. The route of the above mentioned power cables is largely unknown on the opposite side of the runway. Station E is at the intersection of a line through the T-VASIS lights and a line at right angles from the east edge of the runway through PSM23. Station E is a station marker about 50mm below ground level set in a round cement pipe joiner. The pipe joiner is about 50mm above ground level. There are three foot-pipes and concrete around the central plaque but the station is not a full concrete triangle.

The windsock that has been used as an azimuth mark in previous occupations has now been moved closer to true north.

Further Work:
A full occupation with on-site variometer, including stations differences between D and E, a full station description of E, sun observations on station D and E, formal total field surveys on station D and E

Parafield A, B, C 1997

PAF 03 - 06 April 1997
A.M. Lewis, P.G. Crosthwaite

Contacts:
The Operations Manager, Parafield Aerodrome, Federal Airports Corporation. P.O. Box 652 Salisbury S.A. 5108. Mr John Phillips. Ph 08 8281 0866, Mobile 018 834 352 Fax 08 8281 5006,

Bureau of Meteorology, S.A. Regional Office, P.O. Box 421, Kenttown S.A. 5071 Mr Peter Roswell, Ph 8366 2623 or Mobile 0417 809 180

Setting Up:
The variometer equipment was set up in the anemometer (dynes) hut which is on the southern side of the airport, accessed by the perimeter road. (either along the western or eastern side, but the western side proved more convenient. There are security gates that require a key-card which was supplied by John Phillips.) The key to the dynes hut is held by the air traffic controllers in the control tower. Access to the key and hut was arranged with the tower through John Phillips at the start of the occupation. There was no mains power connected in the hut so an alternative source had to be found. The Bureau of Meteorology have recently installed an automatic weather station in the instrument enclosure which is near the hut and there was a power point available in a newly installed power distribution box. The box is about 50 metres from the hut, so a long extension lead is required. Contact was made with Mr Peter Roswell of the Bureau of Meteorology to seek permission to use the power point. Permission was granted provided that the magnetic equipment did not cause interference with the weather equipment. Several phone calls were made to Mr Roswell throughout the occupation to confirm that all was O.K. No interference was noted during the occupation.

The EDA and PPM sensor heads were set up to the east of the hut, towards the Met instrument enclosure a trench was dug for the cables to cross the windsock access loop road and the cables were threaded through a protective sheath (old fire hose). The EDA head was aligned such that the two horizontal components were 45 degrees to the magnetic meridian at the time of set up.

Azimuth Marks
The top left hand side of the left hand Torrens island power station chimney was used as the azimuth mark from station A. A theodolite on station A was used as the mark from station B.(station A was visible through three layers of 8 foot cyclone wire perimeter fencing!) The left hand side of the Automatic Weather Station (AWS) pole, just above were it joins the AWS box was used from station C.

Observations.
Station A was occupied as the main station. 25 observations were made as well as a round of angles and local total field survey on A. No sun observations were made on A due to overcast conditions. Two observations were made on station B to check the station difference. Four observations were made of station C as well as sun observations, local total field survey. Digital photographs were taken of stations A, B and C.

Station Condition and Upgrades
Major commercial re-development of the northern and eastern boundaries of the airport have been undertaken which

have affected station A and B. Station B is now outside the grounds of the airport and will soon be built out. The new airport perimeter fence is 38 metres from station A, and new commercial premises have been constructed about 60 m from station A. Some major earthworks have also been undertaken in the vicinity of station A to fill in a drainage channel that was close to A.

A new station, C, was installed near the dynes hut, on the opposite side of the airport from the development site. Station C was constructed using mortar mix and plastic netting rather than gravel, to ensure that the concrete mixture was non-magnetic.

New and upgraded station descriptions of A and C were drawn up.

Flinders University B 1997

FLU 4 April 1997
A.M. Lewis, P.G. Crosthwaite

Contacts:

Dr Francois Chamalaun, School of Earth Sciences, Flinders University, Bedford Park S.A. 5159 Ph 08 8201 2319, Fax 08 8201 2676 email- mgfhc@es.flinders.edu.au

Setting Up.

The variometer equipment was running at Parafield aerodrome.

Azimuth Marks

A theodolite set up on station A was used as the azimuth mark from station B

Observations.

Two observations of station B only.

Station Condition and Upgrades.

Station A has been contaminated by a 8 foot wire fence built about 2 metres from the station (between station A and B). The station itself is still in good condition and would probably be useable if the fence were removed. Station B has a star picket driven flush with the ground about 0.5m away. This creates very large magnetic gradients and basically makes the stations un-usable.

Eucla D, E 1997

EUC 8 - 13 April 1997
A. M. Lewis P.G. Crosthwaite

Contacts:

The Officer in Charge, Eucla Airfield, Eucla W.A. 6443.

The manager of the Eucla Motel seems to be the local official in town from which permission to access the station at the airfield was granted. If the equipment is set up in the vicinity of the motel permission should also be sought from the motel manager.

The Bureau of Meteorology have a station at Eucla which would make a reasonable place to set up the variometer gear. Tel: 090 393 444 Fax: 090 393 433. The station is run by a single observer.

Setting Up:

Initially the equipment was set up in room 9 with the sensor heads out the back behind the motel units with the cables through the window. However a bus parked in the car park overnight and caused baseline shifts on the first night. The equipment was moved the next day. One of the vehicles was parked behind the motel (access through the motel residence) and the equipment was set up in the vehicle with the heads set up further from the buildings, close to the escarpment. Power was run to the vehicle from room 9 using a long (70m) power extension lead.

Azimuth Marks:

The aerial on the house on the other side of the highway from D.

A temporary illuminated "night mark" was set up on the opposite side of the highway for the single local midnight observation made on station D.

The centre of the base of the tower on the right-hand-side of the roof of the Meteorology office from station E.

Equipment:

All the equipment functioned well. The ground is very hard calcrete with only a thin layer of humus; this makes it very difficult to get the EDA spike and any pegs into the ground.

Observations:

Station D was occupied as the main station and E as the secondary station. Twenty six observations on D, afternoon sunshots only, round of angles and local F survey on D. Four observations on E, afternoon sunshots, local total field survey and a round of angles.

One set of local midnight observations were made on station D. A temporary illuminated night mark was set up on the opposite side of the highway for this purpose and the azimuth derived by including it in a round of angles during the day

Station Condition and Upgrades:

Station C, D and E are full concrete triangles. One of the footpads of station D has cracked away from the main slab and can move slightly if stepped upon. Observations on station D are effected by large trucks travelling up the Eucla Pass, about 40 metres away. Station C is too close to houses to be useful as a magnetic station, although it is easy to locate and makes a useful azimuth mark from stations D and E.

The brass tripod locators used for the auxiliary F pier on station D were left in place for the next occupation, since it was very difficult to get them into the hard calcrete terrain.

Notes:

Station E, on the coastal plane at the airport is in a better magnetic environment than station D, which is close to the highway (see comment above) and seems to be in a popular location for dumping rubbish, both metallic and bio-degradable non metallic waste. Station E would make a better primary station.

The Bureau of Meteorology office may make a better location to set up the variometer equipment.

Tibooburra A, B 1997

TIB 14-16 April 1997
A.M Lewis, P.G. Crosthwaite

Contacts

The Remote Area Manager, Western Lands Commission, P.O. Box 1840 Dubbo NSW, 2830 Tel 02 -6883 3000 Fax 068-833099

Airport Reporting Officer, Tibooburra Hotel, Briscoe Street Tibooburra NSW 2880, Attn Mr Joe Lowe Tel 08 8009 13310 Fax 08 8091 3406

Mr Lowe is the local contact, the Western Lands Commission should be contacted first, and they will then inform the local contact.

Azimuth Marks
Station B from station A, station A from station B

Setting Up
The equipment was set up in the back of one of the vehicles (Nissan station-wagon) which was parked under the shade of some trees just west of the airport entrance gate near the new electric fence. The PPM and EDA heads were set up to the S and W of the vehicle and the generator was set up in a cleared area to the north of the vehicle.

Equipment
All the equipment operated well

Observations
Station A was occupied as the primary station. Twenty one observations on A, Morning and afternoon sunshots, local total field survey and rounds of angles were made on station A. Three observations were made on station B, together with a round of angles and a local total field survey.

Station Condition and Upgrades:
Both stations are full concrete triangles in good condition and easy to locate. Station B is marked with star pickets, A has some old yellow plastic pegs, no upgrades were necessary. There is an iron bar driven flush with the ground about 2.5 m to the east of station A - it appears to have been in place for many years.

The airport has been upgraded since the previous occupation with solar powered radio controlled runway and windsock lights and an electric perimeter fence. There were many magnetic sheet metal runway cone markers around the windsock and airport circle near station A.

Maryborough D, E, C 1997

MYB 20-22 April 1997
A.M. Lewis, P.G. Crosthwaite

Contacts:
The Chief Executive Officer, Maryborough City Council, P.O. Box 110 Maryborough QLD 4650 (Mr N.E. Gorrie, Tel. 07 4123 8888 Fax 07 4123 1470
Services Engineeer, Mr Colin Moes 041 8727085
Airport Reporting Officer (local contact) Mr John Sloane, (015 157028)

Setting Up:
The variometer equipment was set up in the back of one of the vehicles (Nissan Patrol Station wagon) which was parked in the NDB enclosure. The enclosure is surrounded by an 8 foot fence on three side and is accessed through a locked gate. The sensor heads were also set up within the enclosure. Mains power was taken from the groundsman's workshop and run to the vehicle via a long extension cable. The cable was run across the road between the works yard and the NDB enclosure and protected under several lengths of angle iron which were secured to the ground with pegs and road nails. John Sloane, the Airport reporting officer, supplied the angle iron, pegs and road nails. John also supplied witches hats to mark the cable and on the second day of the occupation blocked the access road at either end. The road only carries very occasional traffic and so this was of no great inconvenience to road users. The Met. Observers are the most regular users of the road and they were quite willing to use the other road for the time of the occupation.

Azimuth Marks:
Station C from Station D. Station D from station E.

Equipment:
All the equipment functioned well. The absolute DIM malfunctioned on the first day after observing in heavy rain. After a night of drying-out the DIM again functioned normally.

Observations:
Station D was occupied as the main station. Twenty one absolute observations on D, morning and afternoon sunshots on D, local total field survey, round of angles, and GPS data were collected on the station. Four observations were made on station E, together with afternoon sunshots, round of angles, local total field survey and recording of GPS data. Four observations and GPS data were recorded on station C.

Station Condition and Upgrades:
All three stations are full concrete triangles in good condition. Station C and D are easy to locate, station E should be quite easy to locate for future occupations. The central plaque for station D is a PSM survey mark, not a repeat station plaque. A new station, station E was installed as a secondary station. The concrete used for station E contains plastic netting and short lengths of nylon rope that had been teased apart rather than aggregate to ensure the mixture remained as non-magnetic as possible. This method of concreting should be used in the future if this station proves to be durable.

Notes:
Station C has always been occupied as the main station for past occupations but that station is in an area of unacceptably large magnetic gradients which could easily cause large discrepancies in adopted values if the absolute instruments were re-located carelessly. Thus for future occupations station D should be occupied as the main station, the new station E, installed in 1997 occupied as the secondary and station C kept as an historic station.

The Airport Reporting Officer, Mr. John Sloane was extremely helpful throughout the occupation.

Lord Howe Island D, E, C 1997

LHI 7 - 11 May 1997
A.M. Lewis, S.D. Dennis

Contacts:
The Observer in Charge, Bureau of Meteorology, Lord Howe Island. NSW 2898. (Ian Moran in 1997) Tel: 02-6563 2083 Fax 02-6563 2109

The Manager/Executive Officer Lord Howe Island Board, Administrative Office Lord Howe Island 2898 (Judith Mortlock in 1997) Tel 02- 6563 2066 Fax 02 6563 2127

The Manager, Beachcomber Lodge, Lord Howe Island, Tel: 02-6563 2032 Fax 02-6563 2132.

Setting Up:
The variometer equipment was set up in the spare room of the Met. Office with the sensor heads to the north of the office in the airport grounds - between the aircraft parking area and

the boundary fence. The cables were run out the window. There is a desk conveniently placed beneath the window on which to set up the equipment. This proved to be a very convenient location which is only about 50 metres from station D.

Azimuth Marks

The bottom dead centre of the mast of Transit Hill was used as the mark from station D. Station D was used from station E and the right-hand-side of the windsock stump on Rabbit Island was used from station C.

Equipment:

The variometer equipment worked well, although the variometer PPM did give some periods of bad data, probably due to rain on the electrical contacts of the sensor head. The absolute PPM (E770_214) malfunctioned, possibly due to low fluid level in the head, which was found to be leaking at a later date. A nut, which secures the DIM cable to the theodolite, was lost but the DIM was still useable.

Observations:

Station D was occupied as the main station. Twenty observations on D, two sets of morning sunshots on D, local F surveys and round of on D. Four observations on E, round of angles. Four observations on station C, and an incomplete round of angles.

Station Condition and Upgrades:

All three stations are full concrete triangles in good condition. Station E was difficult to locate since it had been covered by a thick mat of grass. A new wire fence has been built near station E since the last occupation. Station C and E are difficult stations to work on since they are both in popular tourist areas, cars and bikes are often left parked near station E, and at no stage was station E clear enough or the weather dry enough, to do a local total field survey. Wet and windy weather prevented a full occupation of the historic station C. If ever station D becomes lost or contaminated I recommend establishing a new primary station within the airport grounds - station E would be unusable as a primary station.

The station description for station E was upgraded due to the new fence built in the area.

Notes:

It is important to pre-book accommodation for the occupation. The Beachcomber Lodge proved to be most satisfactory. Most of the occupation can be made with only a bicycle since all the equipment can be stored in the Met Office and both the Met Observer and the manager of the accommodation met us at the airport with their vehicles. However, transporting the equipment to make observations on the secondary stations can be difficult and hiring (or borrowing) a car for this purpose is recommended - both cars and bicycles can be hired from Wilson's hire. Car hire would need to be arranged in advance - bike hire can be organised without prior notice.

The Met OIC, Ian Moran was very helpful throughout the occupation.

Lord Howe Island suffers from many wet and windy days which can make observing difficult.

Further Work:

Sunshots should be done on station C at the next opportunity. Local F survey on station E

Norfolk Island B, C 1997

NFI 12-14 May 1997
A.M. Lewis

Contacts:

The Chief Administrative Officer, Administration of Norfolk Island, Administration Offices, Kingston Norfolk Island 2899

The Observer in Charge, Bureau of Meteorology, Norfolk Island PO Box 20 Norfolk Island 2899 Tel: 0011 6723 22 079 Fax 0011 6723 23 356

The Collector of Customs Administration of Norfolk Island, Administration Offices, Kingston Norfolk Island 2899 Tel 0011 6723 22 001 Fax 0011 6723 23 260

Paul (Pinky) Finch, the airport manager, is the point of contact to gain access to the airport. His office is located in the airport works yard off Ferny Lane/Peters Highway (Tel. 0011 6723 22 445 Fax: 0011 6723 23 201), he is very helpful.

The Castaway Motel, Tel: 0011 6723 22625 Fax 0011 6723 22785

Aloha Car Rental, Tel 0011 6723 2251 Fax 0011 6723 23064

Azimuth Marks:

Station C was used as the azimuth mark from station B and station B was used from C.

Setting Up:

The equipment was set up in the anemometer hut which is on the airport grounds close to the Bureau of Meteorology. Access to the hut is gained through the Met. Office. The hut has power and makes a good location for the variometer equipment

Equipment:

All the equipment operated well, there was one unexplained baseline jump in the Y channel during the first few hours of the occupation.

Observations:

Station B was occupied as the primary station. Twenty five observations were made on station B, Morning and afternoon sun observations were made on station B. Rounds of angles, local total field and vertical gradient surveys were made on each station. Four observations were made on station C to determine the station difference.

The station difference between B and C differed by about 10 nT in some components from that measured at the last occupation - no obvious source of contamination could be located and I do not believe that the stations have been contaminated.

Station Condition and Upgrades:

Station B is a full concrete triangle with plaque and footpads in good condition. The station was easily located. Station C is the ARP (Aerodrome Reference Mark) and had neither a large concrete pad nor tripod footpads. As the main survey mark for the airport is would be in-appropriate for AGSO to construct a full concrete triangle around the station. Station C was difficult to locate since it had been overgrown by grass, but usually both station B and C are kept free of grass by the ground-staff, and station C was due to be sprayed soon after the occupation.

Notes:

To facilitate the problem free entry of the equipment back into Australia all the equipment was taken to the Australian Customs Office in Canberra to be inspected by a Customs Officer several days prior to leaving. A "Goods Exported In Passenger Baggage" form was filled out and stamped by a Customs Officer, which included the full list of the equipment with serial numbers.

Norfolk Island Customs required a full list of the equipment including approximate value to be faxed to them before arrival. All the equipment was declared upon arrival and no problems were experienced.

An "Export Entry" had to be arranged just prior to leaving, this was done at the Customs Office in Burnt Pine, near the Post Office and Liquor Bond Store, once again a full list of the equipment had to be provided.

Upon arrival in Sydney Australian Customs officers let the equipment through with only a minor check of some of the equipment against the list in the "Goods Exported in Passenger Baggage" form that was arranged prior to departure.

Accommodation and hire cars are plentiful on the island but both should be booked in advance. A car is essential to complete the occupation. The Castaway Motel in Burnt Pine provided suitable motel -style accommodation. Aloha Car Rental provided a small Honda hatchback that was just large enough to carry all the equipment.

Hobart H, I 1997

HOB 16 - 19 May 1997
A.M. Lewis

Contacts:

The Operations Manager, Federal Airports Corporation, Hobart Airport, P.O. Box 400 Rosny Park Tasmania 7018 (Mr Tom Griffiths, Tel: 03 6248 5279 Fax: 03 6248 3082 email tom.griffiths@hobart.fac.com.au). Tom is the initial contact, he can then arrange access onto the airport grounds.

The Manager, Air Services Australia, Hobart Airport, P.O. Box 212, Rosny park Tasmania 7018 (Mr Kevin Montgomery) Tel: 03 6248 5279 Fax 03 6248 5540

The Australian Federal Police, Locked Bag 1, Weston ACT 2611

(A police records check had to be organised before going to Hobart since it was a requirement to be issues with an Airport Security Identification Card (ASIC). This took about 10 days and cost $25.)

Setting Up:

The variometer equipment was set up in the old VAR building, building 19 which is about half way between stations H and I on the airport perimeter road. The building is unused but did have power in 1997, though I would imagine that it will soon be demolished. The sensor head were set up to the west and east of the building at the extent of the cables. The cables were run out the end window of the building. The site proved adequate, although the ground was very boggy and probably floods after heavy rain.

The VAR building is maintained by the FAC, the anemometer hut, which has been used in the past no longer had power and is due for demolition very soon. Some of the airport buildings are run by ASA.

Another possibility for setting up the variometer equipment would be at the Bureau of Meteorology Office, which is behind the control tower, although the cables would need to be run across an access road.

The airport safety Officer provided escort to the site every day, and had to be contacted via radio to arrange exit from the airport grounds, since the security gate required a special pass to open. There is a telephone on the wall outside the gate which is patched through to the security officers radio to allow initial contact.

Azimuth Marks:

Station I from station H, station H from station I.

Equipment:

All the equipment worked well, the Z channel of the EDA could not be zeroed due to insufficient range of the Z potentiometer. This did not cause any problems since there was enough range on the ADAM A/D converter to ensure all variations were monitored. The range of the Z channel of the chart recorder was adjusted to match the Z channel output. The Elsec 770_214 PPM was found to be leaking fluid from the head and so it was emptied completely and sent back to Canberra.

Observations:

Station H was occupied as the primary station. Twenty three observations on H, morning and afternoon sunshots, rounds of angles, local total field survey and vertical gradient survey, GPS data. Four observations on station I, round of angles, local total field survey and vertical gradient survey, round of angles and GPS data.

Station Condition and Upgrades:

Both station H and I were easy to locate and are full concrete triangles with plaque and footpads. The concrete of station H has started to deteriorate. Both stations are marked with star pickets. Station F and G remain intact and locatable, but unusable due to the proximity of the airport perimeter fence (about 50cm away). Both stations F and G are separate concrete pads for a central plaque and three footpads.

Weipa B, C 1997

WEI 21-23 May 1997
A. M. Lewis

Contacts:

The Town Administrator, Weipa, Comalco Aluminium Ltd. P.O. Box 420 Weipa QLD 4874 (Mr Ron Doherty Tel: 07-4069 9799 Fax 07-4069 9800

Weipa Airport Manager. Comalco Aluminium Limited, Post Office Box, Weipa QLD 4874 (Mr. A.J. (Sandy) Nelson) Tel: 07 4069 8514 Fax: 07-4069 8698

The Manager Cairns-Mt Isa Area, AirServices Australia, P.O. Box 314N, North Cairns QLD 4870 Tel: 07-4050 5314 Fax: 07 4050 5390 (Mr Rod Meakin)

Both the COMALCO town manger and the COMALCO airport manager should be contacted with separate letters. AirServices Australia (ASA) maintain both the NDB hut and the airport power house at Weipa. The NDB hut is good for setting up the variometer equipment. The ASA Weipa manager, (Peter Hall) should be contacted to organise access to the NDB hut and to borrow the keys to the hut and boom gate. Also ensure that Peter explains the route from the airport to the hut since the roads in the area change often and

it is difficult to locate the hut without assistance. The ASA office is at the base of the control tower at Cairns Airport. It was necessary to spend a night in Cairns to allow time to meet with Peter Hall. ASA do not have staff stationed at Weipa permanently, but make regular service visits from Cairns.

Setting Up:

The variometer equipment was set up in the large disused generator room of the NDB hut which is several kilometres from the airport. The location is a good one, with power, security and very few passers-by. The cables were run out the high windows in the hut and the sensor heads set up out the back of the hut, away from the earth-mat for the NDB towers. The key to the hut and boom gate was obtained from Mr Peter Hall of ASA at Cairns Airport.

Azimuth Marks

Station C from station B and station B from station C.

Equipment:

All the equipment operated well. Conditions at Weipa are generally very hot and humid, and the NDB hut is very hot.

Observations:

Station B was occupied as the primary station and C as the secondary. Twenty two observations on B, morning and afternoon sunshots, round of angles, local total field and vertical gradient surveys and GPS data were collected from the station. Four observations were made on station C to measure the station differences, local total field and vertical gradient surveys, round of angles and GPS data were collected on the secondary station.

Station Condition and Upgrades:

Both stations are full concrete triangles in good condition. Station B is easy to locate with the pad exposed on bare bauxitic soil. Station C tends to get buried and is thus more difficult to locate. No upgrades were necessary. The ground around station B is very hard - making it difficult to hammer in tent pegs and tripod locators. Station B is accessed via a perimeter road which runs outside the airport fence and is accessed from the Coen road. The perimeter road crosses the disused dirt airstrip and there is an unlocked gate close to the location of station B.

A new Automatic Weather Station AWS has been constructed in the Meteorology instrument enclosure several hundred metres from station C. There may be a new Meteorological Office constructed in the vicinity of station C in the future.

Notes:

The route to the NDB hut is tricky, several road blocks need to be negotiated. A high clearance 4WD vehicle (Land Cruiser) is required to facilitate access if the variometer equipment is set up at the NDB site. The vehicle should be booked in advance. Get updated advice from ASA in Cairns about the best way to get to the NDB hut since the tracks often change due to mining activity.

Port Moresby B, C 1997

PMG 30 May - 2 June 1997
A. M. Lewis

Contacts:

The Observer in Charge, Port Moresby Geophysical Observatory, P.O. Box 323 Port Moresby Papua New Guinea, (Mr Ian Ripper, Tel: +675 321 4500 Fax: +6785 321 3976

The Secretary, Department of Mining and Petroleum, Office of the Secretary, Private Mail Bag, Port Moresby Post Office, Papua New Guinea, Mr R. B. Moaina Tel: +675 321 1961/322 7617, Fax +675 321 7958

The General Manager, Jackson Airport, Office of Civil Aviation, Department of Transport and Works, P.O. Box 684 Boroko, Papua New Guinea Mr Bernard Tingiran Tel: +675 324 4598/4400 Fax +675 323 2849

(The Airport Safety Officer, Jackson Airport, Mr Mellie Wakokon, Tel: +675 324 4516 fax: +675 324 4418)

The Director, PNG National Weather Service, Jackson Airport, Port Moresby Tel: +675 325 2788, Fax +675 325 2740

The Collector of Customs, Papua New Guinea Bureau of Customs and Excise, P.O. Box 1830 Port Moresby Tel: +675 321 1172 / 321 2536 Fax: +675 321 2892

The Australian High Commission, Locked Bag 129 Waigani, NCD Tel: +675 325 9333 Fax +675 325 9183

Notes: The local contact at the airport was Mellie Wakokon. Mr Ian Ripper of the Port Moresby Geophysical Observatory was instrumental in organising the official contacts required for the occupation.

Setting Up:

The variometer equipment was set up in a de-mountable building in the grounds of the Meteorology Service near Jackson Airport. There is no longer any suitable place to set up the equipment at the site of the Geophysical Observatory or the Geophysics Office.

The Meteorology site proved adequate but far from ideal, with little space to get the sensor heads away from buildings or the perimeter fence. There are residences close to the Met. compound.

Azimuth Marks

The top dead centre of the prominent red and white EM-TV transmitter tower was used as the azimuth mark for both station B and C

Equipment

The variometer PPM performed poorly after the first 20 hours of the occupation and was switched off for most of the remainder of the occupation. All the other equipment operated well.

Observations

Station C was occupied as the main station since it was further from the old DC-3 shell (see below). Twenty two observations were made on C. Morning and afternoon sunshots, rounds of angles and local total field and vertical gradient surveys were made on the station

Four observations were made on station B, as well as a round of angles, local total field and vertical gradient surveys. GPS data was collected over both stations.

Station Condition and Upgrades:

The concrete triangle for both stations B and C at Jackson airport had deteriorated badly since the previous occupation. When installed (1993) the station were constructed from mortar mix only (sand and cement) since no suitable non-magnetic aggregate could be located. - the mixture was

obviously not adequate for the job. The plaque and footpads were still in place and undisturbed for both stations. Both stations were re-concreted using pre-mix concrete. The location of station B and C is now far busier than previously. The area in which the stations are located appears to be no longer maintained by the airport ground-staff. It was only burnt and mown shortly before the occupation. Station C had been marked with four star pickets wrapped with barbed wire by the airport ground staff. Scrub fires are common in the area. There was a disused shell of an old DC-3 aircraft in the area. Both stations B and C were each marked by four star-pickets and barbed wire at the completion of the occupation.

A new wire fence has been constructed around the old power house since the previous occupation.

A new control tower was under construction to the east of the stations at the time of the occupation. There is also a new international passenger terminal that was almost completed but was not being used at the time of the occupation.

Station A, installed at the site of the Port Moresby Geophysical Observatory in 1993, had been vandalised and completely destroyed. The concrete slab was dug out of the ground, the plaque and foot-pipes were missing and all that remained was several large chunks of broken concrete in the vicinity of the original station location. The hill-top on which station A is located had recently been burnt out by fire.

There is now no trace of the geomagnetic vault or absolute hut, both having been destroyed to make way for new houses. The seismic vault is surrounded on all sides by housing.

Further Work:

At least one and probably two stations should be established in the main grounds of the airport, closer to the runway than either stations B or C to ensure that the station remains secure. The azimuth data collected during 1997 from station B and C should be checked, since it was inconsistent with the 1993 data. The rounds of angles on station C (which included station B as one of the marks) was done before station B was re-concreted. The round of angles and observations on station B were done after B was re-concreted.

Notes:

A form 58B for the PNG Bureau of Customs and Excise was filled out prior to arrival. After a very long wait all the equipment was passed through the customs checks without any inspection or problems. The form 58B, which states that all the goods will be exported within three months, was not required.

Honiara B, C 1997

HON 5-7 June 1997
A.M. Lewis

Contacts:

The Director, Water and Mineral Resources Division, Ministry of Energy, Water, and Mineral Resources, P.O. Box G37 Honiara, Solomon Islands. Tel. +677 21 521 Fax +677 25 811.

The Principle Aviation Officer, Civil Aviation Division, Ministry of Culture, Tourism and Aviation, P.O. Box G20 Honiara Solomon Islands,Tel: +677 39720 Fax +677 36 775 (Mr Demetrius T Piziki. in 1997.

The Australian High Commission, Cnr Hibiscus Avenue and Mud Alley, Honiara P.O. Box 589 Honiara, Solomon Islands. Tel: +677 21 561 Fax +677 23 691

Setting Up:

The variometer equipment was set up in the rock store building which is behind (and below) the main office of the Water and Mineral Resources Division on Lengakiki Ridge, in Honiara, about 15 km from the airport. The sensor heads were set up further down the slope from the rock store building. Power was taken from the end laboratory of the main office and two long extension leads were required to reach the rock store building.

Equipment:

All the variometer equipment operated well, although the variometer PPM failed to restart after a power failure, thus causing several hours of F data loss. The absolute PPM G856-50699 gave some trouble - producing inconsistent and scattered readings.

Azimuth Marks:

Station C from station B, station B from station C.

Observations:

Station B was occupied as the primary station. Twenty six observations on B, morning sunshots, round of angles, local F and vertical gradient surveys, GPS data. Four observations were made on station C, together with a round of angles, local F survey, a vertical gradient F survey and GPS data.

Station Condition and Upgrades:

Both station B and C are full concrete triangles with plaque and footpads. Station C shows some signs of cracking but is still in good condition. Station C is located in the middle of a rugby training field which is set up every afternoon after about 4:30 pm - this can cause problems if doing observations on station C late in the day.

Notes:

Access to the airport was not permitted when the Solomon airlines 737 or the Air Nuigini F28 landed or took off, so the observing schedule had to be organised around the flight timetable for these large aircraft. Observing through take off and landing of the smaller Islander and Twin Otter aircraft was no problem. The aircraft timetable was supplied by the air traffic controllers.

A radio was collected every morning from the air traffic control office (next to the Met office) near the base of the (unused) control tower. The radio was used to get clearance to cross the runway to station B. The radio was returned every evening at the end of the day. There is no perimeter road around the runway since the very thick shrubbery had not been mown for some time.

Port Vila B, C 1997

VIL 10 - 13 June 1997
A.M. Lewis

Contacts:

The Director, Civil Aviation Department, Republic of Vanuatu, Private Mail Bag 068, Port Vila, Tel: 678 22 416 Fax 678 23 783, (J Kasten in 1997)

The Director, Vanuatu Meteorological Service, Private Mail bag 054, Port Vila, Tel: 678 22 331 Fax 678 22 310. Met Office at Bauerfied Airport Tel: 22 433 Fax 25 012 (Henry Kwai TAIKI in 1997)

The Director, Department of Geology, Mines and Rural Water Supply, Private Mail Bag 01, Tel: 678 23 246 Fax 678 22 213

Notes:

No reply to any correspondence was received from the Department of Geology, but in the end this did not hinder the occupation. It is important to contact Civil Aviation to get permission to work on the airport and also Meteorology to set up the equipment in the Met Office at the airport. A security pass was needed to enter the airport, initial contact with the airport security manager was difficult - the first attempt should be made at the airport security office which is between the international and domestic terminals. There is a manned security boom gate beyond the domestic terminal to enter the airport grounds. A explanation of the survey work was required about twice a day at the security gate since different security officers manned the post at different times.

It is wise to speak to the officers in the control tower at the start of the occupation to explain what the survey involves and where the stations are located.

Setting Up:

The equipment was set up in the Met balloon shed. The shed has three rooms, the end room, furthest from the balloon filling area is a store room and this is where the equipment was placed. The cables were run out the unlocked double doors facing the runway and the heads were set up near the Met instrument enclosure. Mr Rowland Kalsong, the Met technician was the local contact. Rowland provided a desk from the Met office on which to set up the equipment. He also assisted in locating and upgrading the stations.

The fire fighting service is near the balloon shed and they drive trucks close to the Met instruments, so it is best to explain the survey to the head fire officer and request that they not drive near the heads.

The absolute magnetometers were left in the balloon shed overnight since it was too inconvenient to carry them to the first floor hotel room every night.

Equipment:

The variometer equipment suffered from intermittent periods of noise which looked like radio transmission interference, possibly from the Met Office but this caused no great problems. All the equipment operated well.

Azimuth Marks:

Station C was used from station B and station B was used from station C.

Observations:

Station B was occupied as the main station. Twenty six observations were made on B

Morning and afternoon sunshots on B, round of angles, local field and vertical gradient surveys. Five observations were made on station C, round of angles, local total field surveys and vertical gradient surveys. GPS data was collected over both stations.

Station Condition and Upgrades:

Both stations B and C were separate concrete pads for centre and footpads. Station B, which was installed by New Zealand in 1981, does not have a central plaque but a brass nail embedded in the concrete. Both stations were difficult to locate due to inadequate descriptions and a thick covering of soil and grass. Both stations were upgraded to full concrete triangles with cement/sand/coral mix. The level of the concrete on station C is below that of the plaque since there was not quite enough concrete mix for the job.

The descriptions of both stations were improved with measurements to more nearby features to make re-locating the stations easier.

Station C is only 35 metres from the edge of the runway and is too close for comfort when large (737) aircraft are landing or taking off. I found it prudent to leave the station whenever large planes were using the runway. The approach angle lights come on several minutes prior to a large aircraft landing, so it pays to keep an eye on the lights for early warning.

Notes:

There are traffic lights and boom gates to cross the runway to access the stations and Met office. The crossing is monitored and controlled by the control tower but there is a button to push if they keep you waiting to long.

Customs allowed all the equipment in after a detailed check of several boxes. They required a full list of the equipment and I had to contact them on departure for another inspection to ensure that all the equipment was being exported. This final inspection proved to be very informal, a glance at the boxes through the car window was sufficient.

There has been a new international passenger terminal built since the last occupation made in 1989. The control tower mentioned on the older station descriptions is now no longer in operation. A new tower has been built further down the runway. The old control tower building is still in place but the upper story has been re-built after a fire.

A good quality mattock, water container and poly-tarp was left in the balloon shed store room.

Noumea B, C 1997

NOU 16 - 19 June 1997
A.M. Lewis, C.E. Barton

Contacts:

The Director, Department of Geology and Geophysics, ORSTOM BP A5, Noumea Cedex New Caledonia. Tel 0011 687 26 10 00, Fax 0015 687 26 43 26 Bernard Pelletier in 1997, e-mail bpelletier@noumea.orstom.nc or pelletib@noumea.orstom.nc

The Director, l'Aviation Civile, BP H1 Noumea Cedex New Caledonia

Assistant: Jean-Louis Laurent from ORSTOM assisted throughout the survey. Jean-Phillipe Caminade helped in the early stages of the survey.

Setting Up:

The equipment was set up in room 35 of the Tontoutel Hotel with the sensor heads set up on a narrow area of land between the high side of the cutting behind the motel and the fence of a horse paddock. There is a seldom used track running along the fence. The ground was very wet after heavy rain. The cables were run out the glass sliding door, thus the door could not be locked. The active and neutral on the french-style power point had to be reversed using a short extension lead and power point adaptor. The location is a good one, being far from the motel car-park and magnetic gradients are low. The only concern would be if some-one decided to use the track. It is occasionally used by the motel manager, but not during this occupation.

Azimuth Marks:

Station C from station B, station A from station B

Equipment:

All the equipment operated well. The variometer baselines drifted more than usual throughout the occupation, possibly due to movement of the EDA head in the rain softened ground. The level bubbles on the EDA head indicated that the head had moved out of level during the occupation.

Observations:

Station B was occupied as the primary station. Twenty seven absolute observations were made on B, including 4 observations made between 1:30 am and 3:30 am local time. A round of angles, local total field survey, total field vertical gradient survey and a recording of GPS location data were also made on the station. No sunshots could be made since heavily overcast condition prevailed throughout the occupation. Station C was occupied as the secondary station with four absolute observations, local field and vertical gradient surveys, round of angles and GPS data recorded at the station.

Station Condition and Upgrades:

Both station were in good condition. They were easily located using the measurements on the description. No changes in the immediate station environment have taken place since the last occupation.

Comments:

Access to the airport is through the "Gendarmerie" security gate and both personal and vehicle passes were required to enter the airport each day. Passports were held at the gendarmerie as deposits for the passes. A radio was collected from the officers at the fire station (les pompiers) and the control tower was contacted before commencing and completing work on the stations each day. The radio and passes were returned at the end of each day. We were requested to leave the vicinity of station B when large aircraft were landing or taking off, though this caused no great inconvenience.

Derby E, F 1997

DER 30 October - 03 Nov 1997
E.P. Paull and O.D. McConnel

Contacts:

Ken Spry (Tel 08 9193 1443), Airport Manager at Shire depot for access to the airstrip.

Adrian LeGassick (Tel 08 9191 1211) Chief Engineer, RFDS Derby for power from RFDS hangar and a key to the gate used by the ambulance.

Setting Up:

The equipment was set up in the compressor shed attached to the RFDS hangar on the east side at the front. This could be locked up (padlock required) and was separate from the hangar which has a security system precluding access after hours. There is no 240v power available so a short power lead was run through a small hole in the adjoining hangar wall (and afterwards abandoned). The sensor cables were run under the door and out to the east with the sensors inside the airport fence. The cables passed in front of a gate used by the ambulance. For protection they were pulled through a length of 50 mm galvanised water pipe borrowed from Ken Spry, which was pegged to prevent it from rolling.

Azimuth marks:

Station F from E and vice versa.

Equipment:

A few problems were encountered. The ambulance is now a smaller vehicle, a Holden Commodore van, with attendant smaller wheels. These did not roll as easily over the pipe carrying the sensor cables. On one occasion the pipe was dislodged from the restraining spikes, jerking the cables and causing the EDA head to spin around causing data loss (09:30-10:38 31/10/97). The head was re-aligned (causing a baseline shift) and 6 more pegs were added along the pipe. There was data contamination from an unknown source - probably a vehicle from 03:47 to 04:27 on 1/11/97

The weather was rather hot and humid with temperatures in the low to mid 40s. The extreme temperatures caused the EDA power supply to overheat and shut down. This was overcome by connecting a 12 volt power supply to the battery input terminals (after repairing a broken internal battery wire). This caused data loss from 01:12 to 04:21 on 03/11/97

Observations:

Station E was occupied as the main station and F as the secondary. Thirty-seven observations including 4 night time observations, and morning and afternoon sunshots were made on E. Four sets were made on F. Rounds of angles, vertical total field gradients and local F surveys were conducted on both stations. Heat haze hampered mark readings and sunshots. GPS data was acquired on both stations.

Station Condition and Upgrades:

Station E and F had full concrete triangles. E was in good condition but F was cracked near the SW footpad. This did not cause any problems. D was not occupied as it was too close to the new RFDS hangar. D is below ground level but is dug out and has a white cone covering it. E and F have red and white cones over them. All stations were easily found.

Notes:

- The survey markers are on the light aircraft aerodrome which has become the domestic airport again.
- Station D is in line with the old tarmac apron which has since been extended.

Carnegie A, B 1997

CNE 09 - 12 November, 1997
E P Paull and O D McConnel

Contacts:

Owners of Carnegie Station, Ian and Faye Smith Tel 08 9981 2991

Setting Up:

The equipment was located in the old derelict store house out on the airstrip, with the EDA and PPM sensors out to the NW. This was close to station A and was very convenient. Mains power was not available so the generator was set up about 20 meters to the west.

Azimuth marks:

Station B from A and vice versa.

Equipment

No major problems were experienced. The ADAM board in the EDA console required re-eating before it would work properly and a problem with the recording PPM turned out to be a loose wire in a banana plug of the power lead. The

generator ran faultlessly using about half a jerry of fuel per day.

Carnegie experiences wind storms which come out of the blue and can be heard approaching as a whistling in the trees. They take about 10 seconds to pass by. One of these blew down the observing shelter tearing out both pole eyelets and knocking over the tripod. The DIM theodolite had just been packed away. Running repairs were made to the fly sheet with some spare eyelets that had been acquired for this possibility.

Observations:

Station A was occupied as the main station and B as the secondary. 24 sets of observations (including night obs) and morning and afternoon sunshots were made on A. The sunshots were made through cloud. Four sets of magnetic observations were made on B. Rounds of angles, vertical gradient and local F surveys were conducted on both stations. GPS data was collected on both stations.

Station Condition and Upgrades:

Stations A and B had full concrete triangles and both were in good condition. The station A marker is about 60 mm proud of the ground as previously noted and the (non-magnetic) rock upon which to stand to enable the high eyepiece Inclination readings to be made was still in place. Both stations were easily found.

Notes:

- The station generator goes off at about 9.30 PM so if working late take a 12 volt light or small inverter.
- Accommodation (rooms) is available with shared kitchen facilities and there is a store from which the necessities of life can be purchased (bread, beer etc). Fuel can also be purchased.
- Out at the airstrip, try not to park the vehicle on or near a cattle trail, for a heard of Brahman cattle might come along, in single file, lead for example by a rather large bull.

Parafield A, B, C 1998

PAF 10-13 March 1998
A.M.Lewis V.F.Dent

Contacts

The Operations Supervisor, Federal Airports Corporation, Parafield Airport P.O. Box 652 Salisbury, S.A. 5108, (Mr John Phillips) Tel 08 8281 0868 or Mobile 018 834 352 Fax 08 8281 5006 (Tigermoth Lane Parafield Airport)

Bureau of Meteorology, Engineering Services P.O. Box 421, Kent Town S.A. 5067, (Mr Peter Strous/ Mr Peter Roswell) Tel: 08 8366 2623 or2614 or 2615 or mobile 0417 809 180 Fax 08 8366 2620 e-mail p.strous@bom.gov.au

Notes:

The FAC contact provides access to the airport and card-keys to the security gates. FAC also provided an introduction to the air-traffic controllers in the control tower who have the key to the anemometer hut, and alert the controllers to the survey activity. The Bureau of Met contact is necessary to get permission to use power from the Met instrument enclosure.

Setting Up

The variometer equipment was set up in the Dines/Anemometer hut, which is near the main windsock on the southern side of the airport. The hut no longer has power since the new automatic weather station was installed prior to the previous occupation in April 1997. There is a working telephone in the hut - dial 0 for an outside line.

Power was taken from the stainless steel box inside the Met. Instrument enclosure via a long extension cable. The power box is not locked but a screw driver is required to open the catch. The sensor heads were set up to the north-east of the anemometer hut in the stubble. A shallow trench was dug across the gravel windsock loop road to allow the cables to cross the road..

Azimuth Marks

The left hand side of the left hand Torrens Island Power Station chimney from station A, at the top of the chimney.

The left hand side of the left hand Torrens island chimney, at the top of the chimney, was also used as the azimuth mark from station B.

The left hand side of the Automatic Weather Station (AWS) pole, just above the base of the AWS was used as the azimuth mark from station C.

Equipment

On initial set up the acquisition computer date was wrongly set to 26 January.

And this was not corrected until a few hours into the occupation. The head temperature channel of the EDA fluxgate was not functioning for the first night of the occupation.

The EDA fluxgate malfunctioned during the first night of the occupation. The EDA electronics was opened and all the boards re-seated. The EDA head was uncovered, realigned and the head temperature connector was checked for continuity and found to have a broken connector. After these modifications the EDA began behaving normally and the occupation was re-started, the first nights data should be discarded.

Processing software problems were also experienced during the occupation. The problem was found to be due to software version mixing problems. Some of the software was a new year 2000 compliant version and some was the old non-compliant version.

Updates of the necessary software and a back up EDA fluxgate variometer were sent from Canberra and received during the Parafield occupation.

Observations

Station A was occupied as the main station. Twenty seven observation were made on station A, although only twenty one observations could be used since the first night of the occupation had to be abandoned due to the equipment problems mentioned above. A round of angles, local total field and vertical gradient surveys were made on station A. No sun observations could be made on station A due to cloudy conditions.

Four observations were made on station C together with a round of angles, afternoon sunshots, local total field and vertical gradient surveys.

Four observations were made on station B and a round of angles.

GPS data were collected from all three stations and digital photographs were taken of the stations.

The stations at Flinders University were also visited during the occupation of Parafield - see the occupation report for Flinders University for details.

Station Condition and Upgrades

Station A, B and C are full concrete triangles enclosing magnetic plaques and tripod foot pipes all in good condition.

Station A is close to a commercial development, any more building in the vicinity will probably cause station A to become magnetically contaminated.

Station B is outside the boundary of the airport and may be built out at any time, it cannot be used as a reliable secondary station because of this threat. Station differences indicate that station B has become contaminated since the occupation in 1993, but has not changed since the occupation of 1997.

Station C , installed in 1997, is on the opposite side of the airport from the two other stations. The station is in good condition and seems safe from immediate contamination. It is easily located provided the two star picket markers remain in place.

Eucla D, E, B 1998

EUC 17 - 20 March 1998
A.M.Lewis V.F.Dent

Contacts

The Observer in Charge Meteorology Office, Eucla PMB 20 Norseman W.A. 6443 Attn: Stefan Adorian Tel: 08 9039 3111 Fax 08 9039 3433 Home tel 08 9039 3416

Notes:

There is no definite contact person to access the station. The closest person of "authority" is the manager of the Eucla Motel, Raisa in 1998.

Setting Up

The variometer equipment was set up in a tent within the grounds of the Met. Office. Power was taken from the external point near the door to the office and a long extension cord was run to the equipment on the southern side of the building in the scrub. The sensor heads were set up further to the south. The terrain is very sandy with a shallow calcareous bed-rock which makes it difficult to seat the EDA head well - it is either too soft or too hard! There are many trees in the area to provide shade for the equipment. This location proved far superior to those used in previous occupations (near the motel)

Azimuth Marks

Station C was used as the azimuth mark from station D. The limestone wall on the path to the travellers cross had to be partially dismantled to view the azimuth mark pole on station C. Vegetation also had to be pruned along the line of sight.

The bottom dead centre of the right hand aerial on the Met Office roof was used from station E. The Telstra tower was used from station B.

Equipment

All the equipment functioned very well throughout the occupations.

Observations

Station D was occupied as the main station. Twenty nine observation were made on station D, including 4 mid-night observations. A round of angles, local total field and vertical gradient surveys were made on station D as well as sun observations, photographs and GPS observations

Four observations were made on station E together with a round of angles, sunshots, local total field and vertical gradient surveys. GPS data and photographs were also taken.

Two observations were made on station B, together with GPS observations and photographs.

No observations were made on station C.

Station Condition and Upgrades

Station D, E and C are full concrete triangles enclosing magnetic plaques and tripod foot pipes. The concrete on station D is cracked and care must be exercised not to step on the slab. The very shallow calcareous bedrock in the vicinity of D make it hard to hammer in pegs and foot pipes for the auxiliary F station. The three foot-pipes used to mark the auxiliary F station in 1997 were used again for this occupation and again left in place and marked with a triangle of stones.

The concrete slab on station E does not come up to the same level as the plaque and footpads.

Station B is marked by a brass foot-pipe tube and three pieces of black poly-pipe driven flush with the ground in the middle of the car-park to the old Eucla ruins. It is difficult to locate.

Station C is too close to houses to be of any use as a magnetic station, it is useful as an azimuth mark and is very easy to locate and so can be used as a starting point to locate the other stations if necessary.

Tibooburra A, B 1998

TIB 23-25 Mar 1998
A.M. Lewis, V.F. Dent

Contacts

The Manager, Resource Access, Works and Services, Far West Region, Dept Land and Water Conservation, P.O. Box 1840 Dubbo NSW 2830 (P.J.Walker) Tel: 02 6883 3042, Fax 02 6883 3099 (45 Wingewarra St Dubbo)

The Airport Reporting Officer, Mr Joe Lowe, Licencee, The Tibooburra Hotel, Briscoe Street Tibooburra. Tel 08 8091 3310, Fax 08 8091 3406

Setting Up:

The recording equipment was set up in a tent under the shade of a stand of she-oaks to the west of the main gate to the airport, (within the electric fence). The EDA and PPM sensor heads were set up also in the shade of trees towards the gravel runway. The portable petrol generator and long range fuel tank was set up near the recording equipment.

Azimuth Marks

Station B was used as the azimuth mark from station A, station A was used from station B.

Equipment

The EDA fluxgate suffered from data dropouts for a couple of hours during the occupation for no obvious reason. The power outlet plug that the variometer equipment was connected to on the generator stop functioning, the second outlet remained functioning. The equipment ran on the inverter until the problem was realised when the battery was very nearly flat. The equipment was swapped to the second plug and the 500W floodlight (used as a load) was put onto a power board with the rest of the equipment.

Observations:

Station A was occupied as the main station, 27 observations were made, including 2 midnight observations. Four observations were made on station B. Horizontal and vertical total field gradient surveys were made on both stations as were rounds of angles. Sun observations were made on station A, photographs were taken of station B and the variometer set-up. GPS data was collected over stations A and B.

Station Description and Upgrades

Both stations are full concrete triangles in good condition. There is a steel bar driven into the ground a few metres from station A, but it has been there for many occupations.

Notes:

The road from Broken Hill to Tibooburra is alternating bitumen and good dirt. The trip takes about four and a half hours. The road north from Tibooburra is all dirt with some sand, bulldust and clay patches, There is one unsign-posted fork in the road 101 kilometres north of Tibooburra - veer right here. The bitumen re-commences at Noccundra Pub.

Maryborough D, E, C 1998

MYB 28 - 30 March 1998
A.M. Lewis V.F. Dent

Contacts

The Chief Executive Officer, Maryborough City Council, P.O. Box 110 Maryborough QLD 4650

The Airport Reporting Officer, Mr John Sloane, (Tel: 0419 671 405)

Notes:

The Airport reporting Officer is the local on-site contact, Mr John Sloane, he is very helpful.

Setting Up

The variometer equipment was set up in a tent within the NDB enclosure near the works compound at the airport. Power was taken from the shed in the works yard and a long extension cord was taped under two pieces of angle iron across the road to the equipment. The road, which is rarely used, was flagged off with yellow tape with permission from the airport reporting officer.

The sensor heads were set up towards the eastern end of the NDB enclosure.

Azimuth Marks

Station C was used as the azimuth mark from station D. Station D was used as the azimuth mark from station E and station D was used from station C.

Equipment

All the equipment functioned very well throughout the occupations.

Observations

Station D was occupied as the main station. 24 observation were made on station D, including two mid-night observations (abundant mosquitoes made any more night-time observations impractical). A round of angles, local total field and vertical gradient surveys were made on station D as well as morning and afternoon sun observations.

Four observations were made on station E and station C . A round of angles, local total field and vertical gradient surveys were also done on station E. GPS data was collected at all stations and digital photographs of the station and variometer set-up were taken.

Station Condition and Upgrades

Station D, E and C are full concrete triangles enclosing magnetic plaques and tripod foot pipes. Station D is a PSM marker, not a BMR magnetic plaque. All three stations are in good condition.

Mt Isa A, B 1998

ISA 28 April - 01 May 1998
A.M.Lewis I Limer, M Husni

Contacts

The Operations Supervisor, FAC Management Centre, P.O. Box 7638 Garbutt, QLD 4814 (Mr Ron Lores) (Tel: 07 4727 3211 Fax 07 4779 1843)

The Operations Manager, Mt Isa Airport, P.O. Box 2305 Mt Isa QLD 4825 (Ms Jennifer Welk) (Tel:07 4743 4598 Fax 07 4743 0101)

The Observer in Charge, Bureau of Meteorology - Mt Isa, P.O. Box 359 Mt Isa QLD 4825 (Mr Jim Milne) (Tel: 07 4743 3382 Fax 07 4743 6725 E-mail jimmi@BoM.gov.au)

Notes:

Ms Jennifer Welk is the on-site contact, her office is a de-mountable opposite the control tower. She can provide access to the airport grounds. The Bureau of Meteorology have keys to the anemometer hut. The Met office is at the southern end of the airport - it is sign-posted on the main road to town.

Setting Up

The variometer equipment was set up in the anemometer hut, power was available from the hut after the fuses were re-installed into the power box within the hut. The sensor heads were set up to the west of the hut near the taxi-way. The cables were run out the louvred window of the anemometer hut.

Azimuth Marks

Station B was used as the azimuth mark from station A. Station A was used as the azimuth mark from station B.

Equipment

All the equipment functioned very well throughout the occupations. There were small (~0.5 nT) regular (about every 10 second) spikes on all three channels of the EDA fluxgate - most noticeable on the Z channel. They did not seem related to the PPM polarisation cycle. A possible cause is the from the anemometer radio transmission link on the new automatic anemometer pole. The spikes are only visible on the high resolution one seconds variometer records.

Observations

Station A was occupied as the main station. Twenty six observation were made on station A, including two mid-night observations. A round of angles, local total field and vertical gradient surveys were made on station A as well as morning and afternoon sun observations.

Four observations were made on station B. A round of angles, local total field and vertical gradient surveys were also done on station B. GPS data was collected at all stations and digital photographs of the station and variometer set-up were taken.

Station Condition and Upgrades

Both station A and B are full concrete triangles enclosing magnetic plaques and tripod foot pipes. All the stations are in good condition.

Notes:

A new automatic anemometer pole has been constructed about 5 m to the south of the old anemometer hut. The pole was constructed in about August 1996. The new pole has replaced the function of the hut, although the hut still remains in position as the power to the pole goes through the hut. It

appears that the new pole has not affected the magnetic environment of station A which is about 35 metres to the north of the old hut. The pole was placed on the far side of the hut from station A at AGSO's request

Mt Isa airport was to be privatised soon after the 1998 occupation, hence the FAC may not be the appropriate contact for future occupation. Ms Jennifer Welk advised that she should be contacted directly for future occupations.

Denpasar A 1998

DNP 8-10 May 1998
A.M. Lewis, P.G. Crosthwaite, I Limer, M Husni.

Contacts:
Badan Meteorologi dan Geofisika, Region 3
Division of Geophysics
Division of Meteorology

All contacts made through the Geomagnetism Subdivision, BMG
Jalan Angkasa I No. 2, Kemayoran, Jakarta, 10720 Indonesia
P.O. Box: 3540 JKT
Mr M. Husni. Tel: +62 21 424 8016/ 6314 Fax:+62 21 424 6703
E-mail:sunarjo@cbn.net.id or husni54@hotmail.com

Notes:
Only the vehicle from the BMG Meteorology office can enter the airport grounds, so use of this vehicle and a driver is required to work on the station.
Absolute equipment was stored at the Meteorology office which is close to the airport.

Accommodation
Hotel Puri Nusantara
Jl Raya Tuban No 56 Kuta, Bali
Tel +62 361 751649

The motel is close to the airport and not expensive but difficult for data processing in the evening since it is poorly lit and has weak air-conditioning.

Setting Up:
The variometer equipment was set up at the BMG regional office. The sensor heads were placed in the small grassed area behind the meeting room, with the recording equipment in the meeting room. The metal chairs in the meeting room were moved out to avoid baseline shifts caused by movement of the chairs during the occupation. The site was far from ideal - gradients were high and the PPM had to shifted once to find a site where it would work. The BMG office is on the main road to Denpasar and traffic noise was detectable on the variometer record.

Azimuth Mark
The top of the spike on the mosque prayer tower to the north east.

Equipment
The variometer and absolute equipment operated well throughout the occupation. There was some traffic noise on the variometer record caused by the proximity to the main road.

Observations
Twelve absolute observations were made on station A. Morning and afternoon sun observations, a round of angles, local total field and vertical gradient surveys were made on station A. GPS data was also collected - (WGS84). Photographs and station description measurements were also taken.
A standard instrument height of 150cm above the station plaque was adopted for Indonesian repeat station surveys.

Station Condition and Upgrades
Station A was installed during the occupation. The station is a full concrete triangle enclosing an AGSO/BMR brass plaque and tripod foot-pipes. The station was not marked with a stake.

Notes
A secondary station should be installed. Total field gradients in the area, both horizontal and vertical are very high - probably due to the volcanic mineral sand prevalent in the airport. It is very difficult to locate a low gradient region, hence extra care should be exercised when setting the instrument height, the standard instrument height for all Indonesian repeat stations was adopted at 150 cm above the station plaque. This height was first adopted at this station during this occupation.

Indonesia uses two pin European-style power plugs - 220V 50 Hz.

Kupang A 1998

KUG 11-14 May 1998
A.M. Lewis, P.G. Crosthwaite, I Limer, M Husni.

Contacts:
Badan Meteorologi dan Geofisika, Region 3
Division of Geophysics, Division of Meteorology

All contacts made through the Geomagnetism Subdivision, BMG Jalan Angkasa I No. 2, Kemayoran Jakarta, 10720 Indonesia P.O. Box: 3540 JKT Mr M. Husni. Tel: +62 21 424 8016/ 6314 Fax:+62 21 424 6703 E-mail:sunarjo@cbn.net.id

Notes:
Absolute equipment was stored at the Meteorology office, which is very convenient to the magnetic station.

Accommodation
The Kristal Hotel
Jalan Timtim 59, Kupang- NTT, Indonesia
Tel: +62 380 25100 Fax +62 380 25104

A good quality hotel on the beach front in the centre of town. Large, well lit rooms.

Setting Up:
The variometer equipment was set up at the BMG meteorology office. The sensor heads were placed on the grassed area at the back of the office and outside the meteorology instrument enclosure. Magnetic gradients in this area were large, due to the nearby metal and wire fencing but the location was secure within the Met. office grounds. The recording equipment was set up on a desk near the back entrance to the building, next to the radio room and praying area.

Azimuth Mark

The spike on the communication tower to the north west.

Equipment

The variometer suffered several short periods of total data loss due to brief and frequent power blackouts. The variometer PPM failed to re-boot after several of the blackouts and thus there are considerable periods of PPM data loss. The PPM also suffered from periods of poor signal strength and interference, possibly caused by the regular radio transmission of meteorological data.

Observations

Fourteen absolute observations were made on station A. Morning and afternoon sun observations, a round of angles, local total field and vertical gradient surveys were made on station A. GPS data was also collected - (WGS84). Photographs and station description measurements were also taken.

The new standard Indonesian instrument height of 150cm above the station plaque was used throughout the occupation.

The Indonesian officers did a series of absolute observations and sunshots over the course of one day, as they would normally do at a repeat station occupation so the BMG and AGSO methods of repeat station occupations can be compared.

Station Condition and Upgrades

Station A was installed during the occupation. The station is a full concrete triangle enclosing an AGSO/BMR brass plaque and tripod foot-pipes. The station was not marked with a stake.

Notes

A secondary station should be installed. Total field gradients in the area are low in the vicinity of the station and the location is a quiet one - on the far side of the airport, with very few casual passers-by. All the land in and around the airport is controlled by the Indonesian armed forces (air-force). It took several hours for the BMG chiefs to receive official permission to install the station. Permission to install a secondary station would be probably equally difficult to gain.

Weipa B, C 1998

WEI 4 - 8 June 1998
V.F. Dent

Contacts

The Manager, Weipa Aerodrome, Comalco Aluminium Limited, Post Office Box, Weipa N Qld 4874 (Mr A.J. (Sandy) Nelson 07 4069 8514 Fax 07- 4069 8698

The Manager, Air Services Australia, P.O. Box 314N North Cairns QLD 4870.(Mr Rod Meakin Tel; 07 4050 5314 Fax 07 4050 5390

Notes:

Permission to undertake the survey at Weipa should be requested from the Comalco Airport Manager. Permission to use the ASA NDB hut to set up the equipment is requested from ASA, Cairns. The key to the NDB was collected and returned to the ASA office at the Cairns Airport (under the control tower) during the transit through Cairns that is necessary to get to Weipa by air, Peter Hall is the ASA officer in charge of the NDB at Weipa. The NDB is about 4 kilometres from the airport and the access road sometimes changes due to mining activity. The latest information on the route to the NDB hut should be sought from ASA at the time that the key is collected.

The local airport reporting office at Weipa is Robert Statton, who works in the Weipa Air hangar beyond the airport terminal (Tel: 07 4069 7807). He was contacted upon arrival in Weipa for permission to enter the airport grounds.

Setting Up.

The equipment was set up in the disused generator room of the NDB hut, as in 1994 and 1997. The sensor heads were set up behind the NDB hut.

Azimuth marks:

Station C from Station B, and station B from C

Equipment

The first nights data from the EDA variometer was unusable due to many un-explained steps and noise. The equipment settled down after the first night and no more problems were experienced. The GPS receiver could not be made to operate - the problem was later found to be caused by flat batteries.

Observations

Station B was occupied as the primary station, where 27 observations were done. Four obs were done on station C. Rounds of angles, local F surveys were done on both stations B and C. A vertical gradient F survey was done on station B. Morning and afternoon sunshots were done on station B.

Station Condition and Upgrades:

Both stations B and C are full concrete triangles in good condition. Neither are marked with stakes, station B is easy to locate, being well exposed on bare soil. Station C is harder to find since it is amongst grass and gets buried between occupations.

Norfolk Island B, C 1998

NFI 10 - 14 June 1998
V.F. Dent

Contacts:

The Chief Administrative Officer, Administration Offices, Kingston, Norfolk Island 2899.

The Observer in Charge, Bureau of Meteorology, Norfolk Island P.O. Box 20 Norfolk Island 2899 (Barry Jones) (Tel +6723 22079)

The Collector of Customs, Administration Offices, Kingston, Norfolk Island 2899

Notes:

The Aiport manager, Paul (Pinkie) Finch (Tel +6723 22445) is the local contact for getting access permission to the airport grounds, - his office is located in the airport ground-staff works yard.

Setting Up.

The gear was initially set up in the anemometer hut at the Meteorology Office, the same as in 1997. Problems with the EDA fluxgate were at first thought to be due to possible magnetic contamination from the Met. Office so the next day the equipment was moved the Castaway motel and set up in room 145 with the heads in the magnetically quiet area at the back of the room.

Azimuth marks:

Station C from Station B, and station B from C

Observations

Station B was occupied as the primary station. Sixteen observations were done on station B. Four observations were done on station C. Rounds of angles, local F surveys, and GPS observations were done on both stations B and C. A vertical F survey was done on station B. Morning sunshots were done on station B.

Equipment

Initially, the equipment was operating correctly in the HDZ orientation, but when the head was rotated through 45 degrees, the data became very scattered. The equipment was shut down, and re-started in the HDZ orientation, but the data was still scattered. This process was repeated several times, but good data could not be obtained. Eventually, because of lateness, the equipment was left running overnight, although the data was scattered. Days 159, 160 and 161 of the raw data files have the incorrect date and time, but the data is not useable so they should be discarded.

The procedure of shutting down and restarting, in the HDZ orientation was repeated several times the next day. The equipment was moved further from the Met office, in case there was any interference emanating from it, but satisfactory data could not be obtained. The initial attempts at setting up the equipment had the date and time on the acquisition PC set incorrectly. Eventually the equipment was moved to room 145 at the Castaway Lodge, and the heads were set up in the back garden, which was quite isolated, and was free from unwanted magnetic disturbances. Still no good data could be obtained. Putting the esky over the EDA head seemed to cause some hiatus in the data, and when the pots were zeroed, the data was seen to be reasonable. The equipment was left running in the HDZ orientation for the rest of the survey

Station Condition and Upgrades:

Both station B and C are full concrete triangles in good condition. Both stations were easy to locate, and the airport ground staff know the station locations.

Lord Howe Island D, E 1998

LHI 15 - 18 June 1998
V.F.Dent

Contacts:

The Observer in Charge, Bureau of Meteorology, Lord Howe Island, 2898, NSW Ian (Gus) Moran, Tel 02 6563 2083/Fax 02 6563 2109, E-mail i.moran@bom.gov.au

The Chief Executive Officer, Lord Howe Island Board, Administration Offices, Lord Howe Island, 2899 NSW, Tel 02 6563 2066 Fax 02 6563 2127

The Beachcomber Lodge, Lord Howe Island, 2989 NSW, Don and Una Payten. Tel 02 6563 2032/Fax 02 6563 2132

Setting Up.

The equipment was set up in the spare room at the Meteorology office with the sensor heads out on the aircraft parking area in front of the Met. Office. The EDA head was set up in the HDZ orientation.

Azimuth marks

From station D the mast on Transit Hill was used as the azimuth mark, from station E the mast on Transit Hill was used for the first two observations, then the spike on the Met. Radar dome for the second two observations

Equipment:

The equipment operated well apart from some data losses caused by problems with the mains power supply. The equipment was run from a power point which had a reset button beside it. There was a 20 minute power outage on the first evening, (15/6) and all data was lost from the time of the blackout, until the station was visited the next morning. At this time, the power source was moved to a different power point, without the reset switch.

On the morning of 17 June, the PPM was found to have ceased reading, because its memory had been filled. The correct setting must have been lost on losing power the previous day, this was rectified and there was no more data loss from then on.

Observations

Station D was occupied as the primary station, where 19 observations were done. Four observations were done on station E. Rounds of angles, local F surveys, were done on both stations D and E, although the local F survey on E was limited by the large pond in one direction, and dense vegetation in another. A vertical F survey was done on station D. Morning sunshots were done on station D. GPS data were collected on station D only.

Station Condition and upgrades.

Both station D and E are full concrete triangles in good condition. There had been a lot of rain prior to arrival, and there was a deep pond on water about 10 m from the auxiliary station. Station E is poorly located outside the airport grounds in a busy tourist parking area, it is adequate as a secondary station but it would make a very poor primary station if ever station D was lost. If D is lost or contaminated another station should be established in the grounds of the airport as the primary station.

Further Work:

Due to lack of time and poor weather, no observations were attempted on Station C

Hobart H, I 1998

HOB 19 - 22 June 1998
V.F. Dent

Contacts:

The operations Manager, Federal Airports Corporation, Hobart Airport, P.O, Box 400 Rosny Park Tasmania, 7018 (Mr Tom Griffiths, Tel: 03 6248 5279 Fax: 03 6248 3082 E-mail: tom.griffith@hobart.fac.com.au

Setting up.

The VAR hut near the magnetic stations was checked first as the most likely place to set up the equipment, but power to the hut had been disconnected. A search was made for another location, including the Met office, control tower, the old Met station and the nearby Cambridge airfield. No suitable location could be found so assistance was sought from the FAC electrician to re-connect the power to the VAR hut. The equipment was then set up in the hut with the cables run out the back window and the heads set up on the clay-pan beside the hut.

Equipment:

The EDA sensor head was aligned in the HDZ orientation. The Z channel could not be nulled because the adjustable front panel potentiometer did not have enough range. Z could only be adjusted to +2V, but this was close enough to zero to allow all the variations in the magnetic field to be monitored, since the A/D reads up to +10V. This problem is always experienced on set-up at Hobart. The absolute PPM G856_50700 gave periods of bad data for no obvious reason, particularly during the local F surveys.

The GPS receiver seemed to drain the batteries very quickly and so it took several attempts to collect enough data.

Azimuth marks:

Station I from Station H, except for four observations on 20 June when the centre shaft of the rotating light on the control tower was used. Station H was used as the azimuth mark from station I.

Observations

Station H was occupied as the primary station, where 24 observations were done. Four observations were done on station I. Rounds of angles were done on both stations H and I. A vertical F survey was commenced on station H, but not completed because of PPM problems. Morning sunshots were done on station H. GPS data and digital photographs were taken at both stations.

Station Condition and Upgrades:

Both station H and I are full concrete triangles. The surface on station H is deteriorating, but the plaque is still well seated in the concrete and so this causes no problems with the magnetic observations.

Esperance C 1998

ESP 25 Nov 1998
P.J.Gregson, E.P. Paull

Contacts

The Shire Engineer, Esperance Shire Council P.O. Box 507 Esperance W.A 6450 Fax: 08 9071 3427

The local contact is the Airport Groundsman, Bill Lance, Tel: 08 9071 1666, Mob 018 935 618

Notes:

Esperance was visited to measure station differences between the stations on permanent survey marker (PSM) 10 and PSM21. The station differences in D and I were measured using simultaneous observations with DIM E810_220 and theodolite 308887 and DIM B0725H with theodolite 355937 and for F through baselines using PPM G856_50695.

At Esperance there are two permanent survey markers about 30-40 metres apart. The original station C was established on PSM10 in 1963 and re-occupied in 1977 and 1978. In 1983 PSM21 was mistakenly occupied as station C without realising that prior to that occupation PSM 10 has been used as station C. In 1986 PSM21 was upgraded to a full concrete triangle. Every occupation since 1983 has used PSM21 as station C. Prior to this occupation no station difference had ever been measured between PSM10 and PSM21.

This occupation of Esperance was made on an opportunistic basis to measure the station difference between PSM10 and PSM21 and thus connect the secular variation record at Esperance before 1983 and after 1983.

Equipment

PPM G856_50713 malfunctioned during the occupation and could not be repaired, hence only one PPM (G856_50965) was available for observations. The one good PPM was used to make a symmetric set of PPM observations alternating between PSM10 and PSM21 as quickly as possible

Azimuth Marks:

The windsock was used as the reference mark from PSM21. The gable of the airport hangar was used as the reference mark from PSM10. The azimuth for the gable of the hangar from PSM10 was determined from rounds of angles data taken from PSM21 and PSM10.

Observations

Simultaneous D and I observations were made on PSM10 and PSM21. Three sets of alternating PPM observations were also made. A round of angles was made on PSM21 to check azimuths and determine an azimuth mark for PSM10.

Station Conditions and Upgrades

Both PSM10 and PSM21 were located and appeared undisturbed. No upgrades were made to either station. No attempt was made to locate station D.

Recommendations

PSM21 should continue to be referred to as station C and occupied as the primary station for future occupations. The original station C on PSM10 should be renamed to station E and occupied as a secondary station, along with station D.

Final Data Reductions and Adoptions

On return to AGSO all the data collected at the stations were check and re-processed using the same methods as used in the field. The azimuth of the reference mark was adopted by checking the sun observations data collected during the occupations and all other available azimuth data. In general, if the stations had been surveyed by a surveyor, as most of them were in the early 1980's, the surveyors derived azimuth was adopted provided all other data did not indicate any reason to doubt the survey information.

The temperatures at the time of each observation on the primary station, as measured using the two temperature channels recorded with the variometer data, was averaged and adopted as the standard temperatures for the occupation.

Multiple linear regression analysis was carried out on the baseline residual data against the fluxgate variometer ordinates and temperatures to refine the variometer parameters. (scale-values, temperature coefficients). Variometer drift rates were picked manually by plotting the baseline residual data and selecting a linear trend in time to reduce the data to a constant value. The regression analysis did not always converge to a sensible result, so the nominal scale values were adopted for some channels.

The final variometer parameters thus derived were transcribed to a "baseline file" in a format compatible with the Magobs observatory processing software (Hopgood, 1990). Magobs was then used to plot daily magnetograms of the data for the elements H, D, Z and F and also hourly mean value plots in all magnetic elements. Tables of hourly mean values for the elements HDZ and F were also calculated using Magobs and are presented in the appendix commencing on page 56.

The ultimate result of all the work at a repeat station is to determine the value of the normal field at the repeat station. This is the value of the vector magnetic field at the repeat station which is undisturbed by any external sources of magnetic signal. The normal field is usually best represented by the value of the magnetic field around local midnight on a magnetically quiet night.

Values of the normal field at the epoch of occupation were adopted using the "On-Site Variometer" method. This involves comparison of the magnetic field data from the calibrated on-site variometer at each repeat station with the record from a suitable observatory and is described in more detail in the next section. The On-Site Variometer method of calculating the adopted values is the standard used at AGSO and had been used for many years. A second method, the "Reference Observatory" method uses only the absolute observations made at the repeat station in conjunction with variation data from a permanent magnetic observatory. Reductions were also made using this method but are not reported here.

On-Site Variometer Data Reductions

Paper plots of the hourly mean value (HMV) data for H, D and Z from the calibrated repeat station variometer record were analysed in conjunction with similar plots from the AGSO observatory network. Generally, three months of observatory data were inspected, which included the month containing the repeat station occupation and one month before and after the occupation. Normal field values at the observatory were adopted by inspecting the observatory HMV plots, giving particular attention to the field values on (international) quiet days around local midnight that are unaffected by magnetic storms and periods of post storm recovery.

The repeat station HMV data was then compared to the HMV data from the observatory that most resembled the variation at the repeat station, this is usually, but not always, the closest observatory to the repeat station. The normal field value at the observatory was transferred to the repeat station plot by overlaying the two and adjusting the horizontal position to achieve the best fit between the repeat station and observatory data, giving particular attention to the match during the quiet local midnight data.

This technique corrects for depression in the field values which can affect the magnetic record for several weeks after a magnetic storm, particularly in the H component.

Adopted values thus derived are presented below in Table 14. The final column, OBS, in the table refers to the observatory used in the adoption of the data, as described above.

Table 14 Adopted Station Values at Epoch of Occupation

Station	*Date*	*D deg min*	*H nT*	*Z nT*	*F nT*	*X nT*	*Y nT*	*I deg min*	*Obs*
Derby E	23 Sep 1996	02 33.1	33277	-37636	50238	33244	1482	-48 31.0	ASP
Carnegie A	02 Oct 1996	02 07.0	28023	-47773	55385	28004	1035	-59 36.3	ASP
Cocos Is	20 Dec 1996	-	-	-	-	-	-	-	-
Parafield A	04 Apr 1997	08 17.0	23040	-54987	59649	22800	3319	-67 15.9	CNB
Eucla D	10 Apr 1997	04 25.9	23689	-53531	58538	23618	1830	-66 07.7	GNA
Tibooburra A	15 Apr 1997	08 32.2	26924	-49500	56348	26626	3997	-61 27.4	ASP
Maryborough D	21 Apr 1997	10 44.0	29762	-43465	52678	29241	5543	-55 35.9	CTA
Lord Howe Island D	09 May 1997	14 51.8	26227	-48156	54835	25349	6728	-61 25.6	CNB
Norfolk Island B	13 May 1997	15 18.0	28693	-43199	51860	27676	7571	-56 24.5	CTA
Hobart H	18 May 1997	14 41.7	18379	-59440	62217	17778	4662	-72 49.1	CNB
Weipa B	22 May 1997	05 40.7	35647	-29887	46518	35472	3527	-39 58.6	CTA
Port Moresby C	31 May 1997	06 31.7	36023	-23648	43092	35789	4096	-33 17.0	CTA
Honiara B	06 Jun 1997	09 26.9	35526	-20662	41098	35044	5832	-30 10.9	CTA
Pt Vila B	12 Jun 1997	11 37.2	33547	-30086	45062	32859	6757	-41 53.2	CTA
Noumea B	18 Jun 1997	12 48.3	32253	-35802	48188	31451	7148	-47 59.1	CTA
Derby E	02 Nov 1997	02 33.9	33316	-37588	50228	33283	1491	-48 26.5	ASP
Carnegie A	10 Nov 1997	02 10.3	28046	-47752	55379	28026	1063	-59 34.4	ASP
Parafield A	12 Mar 1998	08 18.2	23064	-54960	59603	22822	3331	-67 14.1	CNB
Eucla D	18 Mar 1998	04 29.3	23710	-53511	58529	23637	1855	-66 06.1	CNB
Tibooburra A	24 Mar 1998	08 32.4	26933	-49465	56322	26634	4000	-61 25.9	ASP
Maryborough D	29 Mar 1998	10 42.6	29764	-43421	52643	29246	5531	-55 34.2	ASP
Mt Isa A	29 Apr 1998	06 08.2	31925	-39816	51034	31742	3413	-51 16.6	ASP
Denpasar A	09 May 1998	01 13.4	37212	-26454	45657	37203	794	-35 24.5	KDU
Kupang A	13 May 1998	02 13.3	36529	-27668	45824	36502	1416	-37 08.5	CTA
Weipa B	6 June 1998	05 40.4	35643	-29820	46472	35468	3524	-39 55.0	CTA
Norfolk Island B	12 June 1998	15 16.0	28663	-43161	51812	27652	7547	-56 24.7	CTA
Lord Howe Is D	16 June 1998	14 50.0	26222	-48104	54786	25348	6713	-61 24.3	CNB
Hobart H	20 June 1998	14 43.4	18383	-59414	62193	17779	4672	-72 48.5	CNB
Esperance	25 Nov 1998	-	-	-	-	-	-	-	-

Instrument corrections have been applied, DHZ derived graphically from HMV plots, other components derived from DHZ. The adopted values shown in the table above are plotted for these and previous station occupations back to 1960 in the appendix, commencing on page 101.

Secular Variation at Epoch of Occupation

The adopted station values from the two most recent station occupations were used to calculate the average secular variation of the period between occupations. The adopted secular variations were derived by calculating the gradient of the straight-line segment joining data points from the two most recent occupations of each station in the time series of adopted values of D, H and Z. The adopted values used were those from the "on-site variometer" method described above. The secular variation in F, X, Y and I were derived from the DHZ secular variation and adopted field values. The adopted secular variations for all stations that could be calculated are presented in Table 15. Units are minutes-of-arc per year or nanoTelsa per year

Table 15 Adopted Secular Variation at Epoch of Occupation

Station	*Date*	*D min/yr*	*H nT/yr*	*Z nT/yr*	*F nT/yr*	*X nT/yr*	*Y nT/yr*	*I min/yr*
Carnegie A	02 Oct 1996	2.3	24	27	-11	23	20	2.1
Carnegie A	10 Nov 1997	2.9	21	18	-5	20	24	1.7
Cocos Is	20 Dec 1996	-	-	-	-	-	-	-
Denpasar A	09 May 1998	-	-	-	-	-	-	-
Derby E	23 Sep 1996	1.7	23	32	-9	22	17	2.6
Derby E	02 Nov 1997	0.7	35	42	-39	35	2	3.5
Eucla D	10 Apr 1997	2.5	18	29	-19	17	19	1.7
Eucla D	18 Mar 1998	3.6	22	21	-10	20	27	1.7
Hobart H	18 May 1997	1.4	12	22	-17	10	11	1.0
Hobart H	20 June 1998	1.6	04	24	-22	2	9	0.6
Honiara B	06 Jun 1997	-2.1	-02	50	-27	2	-22	3.5
Kupang A	13 May 1998	-	-	-	-	-	-	-
Lord Howe Is D	09 May 1997	-0.7	05	37	-30	6	-4	1.4
Lord Howe Is D	16 June 1998	-1.6	-05	48	-45	-2	-13	1.2
Maryborough D	21 Apr 1997	-0.5	09	36	-25	10	-2	1.8
Maryborough D	29 Mar 1998	-1.5	02	47	-38	4	-12	1.8
Mt Isa A	29 Apr 1998	0.2	17	43	-23	17	4	2.7
Norfolk Island B	13 May 1997	-1.5	-05	35	-32	-2	-13	1.0
Norfolk Island B	12 June 1998	-1.8	-27	35	-44	-22	-23	-0.2
Noumea B	18 Jun 1997	-1.8	-04	43	-35	0	-17	1.8
Parafield A	04 Apr 1997	1.2	10	31	-25	9	9	1.2
Parafield A	12 Mar 1998	1.3	26	29	-17	25	12	2.0
Port Moresby C	31 May 1997	-0.5	-12	51	-38	-11	-7	2.9
Pt Vila B	12 Jun 1997	-1.7	-08	33	-28	-5	-18	1.5
Tibooburra A	15 Apr 1997	0.4	19	33	-20	18	6	2.0
Tibooburra A	24 Mar 1998	0.2	10	37	-28	10	3	1.6
Weipa B	22 May 1997	0.2	20	47	-15	20	4	3.6
Weipa B	6 June 1998	-0.3	-04	64	-44	-4	-3	3.4
Esperance C	25 Nov 1998	-	-	-	-	-	-	-

Recommendations

A major difficulty in undertaking repeat station surveys is finding a location for the variometer equipment that is free from magnetic interference and close enough to mains power. The time is now approaching when the entire repeat station variometer equipment should be upgraded. Modern very low power Overhauser effect total field instruments and compact, low power three axis fluxgate variometers are now available that would allow the entire variometer equipment to be run from a moderately sized battery and solar panel on a routine basis. This would then offer far more freedom in choosing a location to set up the equipment, thus improving data quality. A heavy, expensive and inefficient portable petrol generator would no longer be needed at some stations so all the equipment could be carried in the enclosed cabin of a single troop carrier or perhaps a station wagon.

The other major problem is the stability of the fluxgate variometer sensor head. The current set up of mounting the head on a stainless steel spike driven into the ground probably allows small amounts of movement of the head throughout an occupation, which manifests itself as baseline drifts.

A mobile telephone and two UHF CB radios with a range of at least several kilometres (for those stations occupied by two people) would be useful additions to the repeat station equipment.

A more automated differential GPS based method for measuring local total field surveys and a suitable automated processing system to reduce and display the data thus gathered would make the task of doing local total field surveys around the stations more accurate, useful and enjoyable.

Conclusions

A total of nineteen individual repeat stations were occupied in the period 1996 to 1998. Of these stations ten were occupied twice, making a total of 29 separate occupations. Two stations in Indonesia, Denpasar and Kupang, were occupied for the first time by AGSO using an on-site variometer. Two stations, Cocos Island and Esperance, were occupied without an on-site variometer.

The adopted secular variation since the previous occupation at each station indicates that the northerly component of the geomagnetic field (X) is increasing on the western side of the continent at a rate of about 20 nT/year, but in the east it is decreasing at about -5 nT/year. The easterly component of the field (Y) is increasing in the west at about 20 nT/year and decreasing in the east at about -20nT/year. The vertical component of the field (Z) is increasing (getting less negative) at all stations, in the west at about 25 nT/year and in the east at about 45 nT/year.

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Appendices

Reference Marks

All azimuths are quoted in degrees minutes and second from true north

CNE A Carnegie A 1996	
1 Station B	036 54 54
2 TDC Telecom Tower	051 17 00
3 TDC Windmill	052 19 56
4 Apex of Windsock	290 30 04
5 TDC Pipe in ground to NNW, (leans to right)	339 18 07
6 Trig point	030 35 30
CNE B Carnegie B 1996	
1 Station A	216 54 54
2 old windsock, base of pipe at top of stand	272 39 54
3 TDC pipe in ground	303 41 17
4 Trig point	029 57 39
5 Windmill, centre pipe at top of stand	057 25 27
CNE A Carnegie A 1997	
1 Station B	036 54 54
2 TDC Telstra Tower	051 16 50
3 TDC windmill	052 19 52
4 Apex of old windsock	290 29 59
5 TDC pipe in ground to NNW (leans to right)	339 17 53
6 Trig point	030 35 22
CNE B Carnegie B 1997	
1 Station A	216 54 54
2 old windsock, base of pipe at top of stand	272 40 03
3 TDC pipe in ground	303 41 27
4 Trig point	029 57 48
5 Windmill, centre pipe at top of stand	057 25 35
COC D Cocos Island D 1996	
1 DME tower, TDC	316 24 06
2 Telecom Tower, inner west (LH) leg	314 21 02
3 PSM 222	240 56 15
4 Station E	159 13 09
5 PSM 23, LHS at ground level	145 03 07
COC E Cocos Island E 1996	
1 Station D	339 13 09
2 Spook Tower, TDC	082 19 24
3 Telecom Tower inner west (LH) leg	317 35 12
4 PSM 222	319 17 24
5 DME tower, TDC	319 54 12
DER E Derby E 1996	
1 Station F	089 03 12
2 TDC western NDB tower	202 35 01
3 Station D	269 03 29
4 Base of long antenna on mast to north	005 03 00
5 Radio 6DB tower, base Y shaped lightening rod	013 19 53
DER F Derby F 1996	
1 Station E	269 03 12
2 Base of long antennae on mast to north	353 25 08
3 Radio 6DB tower, base Y shaped lightening rod	004 03 01
4 TDC water tank	262 16 11
DER E Derby E 1997	
1 Station F	089 03 12
2 TDC western NDB tower	202 34 53
3 Station D	269 03 22
4 Base of long antenna on mast to north	005 02 54
5 Radio 6DB tower, base Y shaped lightening rod	013 19 51

DER F Derby F 1997

1	Station E	269	03 12
2	Base of long antennae on mast to north	353	25 08
3	Radio 6DB tower, base Y shaped lightening rod	004	03 02
4	TDC water tank	262	16 16

ESP C Esperance C PSM21 1998

1	Windsock	067	52 05
2	Top of VOR	009	13 14
3	Gable of hangar roof	062	42 09
4	NDB tower	123	18 00
5	PSM 10	320	34 04

ESP E Esperance E PSM10 (old ESP C) 1998

1	PSM21 (Esperance C)	140	34 04
2	Gable of Hangar roof	074	04 33

EUC D Eucla D 1997

1	Aerial on Harvey Guerneys house	260	56 59
2	Station C	152	30 30
3	LHS base of cross, just above buttress	156	59 06
4	TDC Telstra Tower	268	47 01
5	TDC power pole	014	14 35
6	Temporary night mark	339	33 53

EUC E Eucla E 1997

1	BDC aerial on RHS of Met. office roof	027	57 29
2	TDC old telegraph pole, most easterly of three	168	26 59
3	Station C (tripod on station)	002	18 57
4	Travellers Cross, RHS as low as possible	001	55 48
5	TDC Telstra tower	296	25 48

EUC D Eucla D 1998

1	Station C	152	30 30
2	LHS base Travellers Cross, just above buttress	156	59 09
3	Aerial on Harvey Guerneys House	260	57 01
4	LHS top of Telstra tower	268	46 17
5	TDC power pole	014	14 27

EUC E Eucla E 1998

1	BDC RH aerial on Met. Office roof	027	57 29
2	Station C (tripod on station)	002	19 08
3	Travellers Cross, RHS, as low as possible	001	55 55
4	TDC Telstra Tower	296	25 51
5	Gable of airport shed	038	50 23

FLU B Flinders Univesity B 1998

1	Station A	110	12 05
2	LHS of old pole, power pole to S, not extension	195	53 47

HOB H Hobart H 1997

1	Station I	306	18 08
2	Centre shaft, rotating light on control tower	252	38 25
3	TDC central tower (of 3) hill behind Intn. Term	237	20 41
4	Base of light, windsock to SE	155	03 24
5	LHS base LH support, windsock to NW	311	40 37

HOB I Hobart I 1997

1	Station H	126	18 08
2	TDC anemometer pole on AWS	128	16 12
3	Base of lights, windsock to SE	148	48 17
4	Centre shaft, rotating light on control tower	228	39 18
5	LHS top element, glide angle tower	305	59 02

HOB H Hobart H 1998

1	Station I	306	18 08
2	Centre shaft, rotating light on control tower	252	38 22
3	TDC central tower (of 3) hill behind Intn. Term.	237	20 35
4	Base of light, windsock to SE	155	03 16
5	LHS base LH support, windsock to NW	311	40 26

HOB I Hobart I 1998

1 Station H	126	18 08
2 TDC anemometer pole on AWS	128	16 15
3 Base of lights, windsock to SE	148	48 18
4 Centre shaft, rotating light on control tower	228	39 16
5 LHS top element, glide angle tower	305	58 58

LHI C Lord Howe Island C, 1997

1 RHS windsock stump on Rabbit Island	184	30 20
2 Centre of windsock stump on Rabbit island	184	29 50
3 South gable, building to NW	321	54 14
4 BDC mast on Transit Hill	098	15 20
5 Gable of third boathouse (newest) from the east	121	47 26

LHI D Lord Howe Island D, 1997

1 BDC mast on Transit Hill	350	39 22
2 Station E	018	49 53
3 LHS base of windsock on dune (behind E)	024	19 47
4 SW corner of DME building, base of concrete	128	14 14
5 Nearest gable on terminal building (LHS)	337	20 13

LHI E Lord Howe Island E, 1997

1 Station D	198	49 53
2 Spike on Met. radar dome	209	47 50
3 Middle gable on airport terminal	231	03 47
4 LHS of anemometer mast to W just above base box	280	06 18
5 Mast on Transit Hill,centre base (elev. high)	337	20 13

LHI D Lord Howe Island D, 1998

1 BDC mast on Transit Hill	350	39 22
2 Station E	018	49 44
3 LHS base of windsock on dune (behind E)	024	19 47
4 TDC of anemometer pole	215	08 38
5 LHS base of flag pole at airport terminal	309	35 00

LHI E Lord Howe Island E, 1998

1 Station D	198	49 53
2 Spike on Met. radar dome	209	47 49
3 Middle gable on airport terminal	231	03 49
4 LHS of anemometer mast to W just above base box	280	06 20
5 Mast on Transit Hill, centre base (elev. high)	337	20 12

MYB D Maryborough D 1997

1 Station C	267	26 11
2 TDC LH NDB tower	260	29 43
3 TDC RH NDB tower	262	41 14
4 Gable of large hangar (MYB Aviation Services)	334	31 00
5 Station E	027	57 17

MYB E Maryborough E 1997 (installed 1997)

1 Station D	207	58 34
2 TDC LH NDB tower	229	13 23
3 RHS of green tank to NW (at top of tank)	324	29 20

MYB D Maryborough 1998

1 Station C	267	26 11
2 TDC LH NDB tower	260	29 44
3 TDC RH NDB tower	262	41 16
4 Gable of large hangar	334	30 59
5 Station E	027	58 59

MYB E Maryborough E 1998

1 Station D	207	58 34
2 TDC LH NDB tower	229	13 29
3 Centre of shaft, rotating airport light	239	45 03
4 RHS of green tank, at top of tank	324	29 19

NFI B Norfolk Island B 1997

1 Station C	248	14 34
2 TDC anemometer hut mast	337	12 14
3 TDC light on top of Mt Pitt	351	35 32
4 LHS of support, windsock to SE	146	59 23
5 LHS of white DME aerial at end of runway	235	12 04

NFI C Norfolk Island C 1997

1 Station B	068	14 34
2 LHS white DME antenna at SW end of the runway.	229	26 27
3 TDC light on Mt. Pitt	358	32 11
4 TDC anemometer hut pole	035	25 36
5 LHS base of windsock to N	042	18 02

NFI B Norfolk Island B 1998

1 Station C (ARP)	248	14 34
2 TDC anemometer hut mast	337	10 32
3 TDC light on top of Mt Pitt	351	35 31
4 LHS of support, windsock to SE	146	59 26
5 LHS of white DME aerial at end of runway	235	12 03

NFI C Norfolk Island C 1998 (the ARP)

1 Station B	068	14 34
2 LHS white DME antenna at SW end of the runway.	229	26 28
3 TDC light on Mt. Pitt	358	31 56
4 TDC anemometer hut pole	035	25 35
5 LHS base of windsock to N	042	18 03

PAF A Parafield A 1997

1 LHS of top of LH Torrens Island Chimney	260	43 30
2 LHS of top part of Bridgestone chimney	357	15 58
3 Station B	171	33 28
4 Station C	242	47 23
5 TDC LH comms tower on Mt Lofty	163	56 14
6 Top of sock, windsock to south	202	18 28

PAF C Parafield C 1997

1 LHS of AWS pole, just above AWS base	123	41 10
2 LHS at top of LH Torrens Island chimney	263	38 48
3 Bridgestone Chimney, LHS of top part	030	56 52
4 Station A (tripod set up on station)	062	47 29
5 Windsock to NE, just above the sock	082	03 48

PAF A Parafield A 1998

1 LHS of top of LH Torrens Island Chimney	260	43 30
2 LHS of top part of Bridgestone chimney	357	15 50
3 Station C	242	47 11
4 TDC LH comms tower on Mt Lofty	163	56 02
5 Top of sock, windsock to south	202	18 24

PAF B Parafield B 1998

1 Station A	351	33 28
2 LHS top part of Bridgestone Chimney	356	32 47
3 LHS top of LH Torrens Island Chimney	261	51 03
4 TDC LH comms tower on Mt Lofty	163	51 31

PAF C Parafield C 1998

1 LHS of AWS pole, just above AWS base	123	41 10
2 LHS at top of LH Torrens Island chimney	263	38 45
3 Bridgestone Chimney, LHS of top part	030	56 53
4 Station A (tripod set up on station)	062	47 27
5 Windsock to NE, just above the sock	082	03 42

TIB A Tibooburra A 1997

1 Station B	156	27 43
2 TDC RH NDB Tower	007	13 47
3 TDC LH NDB Tower	000	17 00
4 TDC Air Navigation Tower	356	43 30
5 Bluff to SSE	170	25 25

TIB B Tibooburra B 1997

1 Station A	336	27 43
2 TDC Air Navigation Tower	352	04 35
3 TDC LH NDB	354	11 23
4 Bluff to SSE	170	34 02
5 Windsock near A, LH base of LH suppport	331	55 41

TIB A Tibooburra A 1998

1 Station B	156	27 43
2 TDC RH NDB Tower	007	13 47
3 TDC LH NDB Tower	000	16 59

4 TDC Air Navigation Tower	356 43 30
5 Bluff to SSE	170 25 30
TIB B Tibooburra B 1998	
1 Station A	336 27 43
2 TDC Air Nav Tower (element on top of main tower)	352 03 39
3 TDC LH NDB	354 11 20
4 Bluff to SSE	170 34 03
5 Windsock near A, LH base of LH support	331 55 38
WEI B Weipa B 1997	
1 Station C	237 28 05
2 Spike atop tube (DME) atop yellow VOR	340 44 03
3 Base of spike atop MET. radome	352 46 59
4 Gable of MET/ASA building to left of terminal	174 16 35
5 LHS base of light pole behind windsock to S	205 33 56
WEI C Weipa C 1997	
1 Station B	057 28 05
2 Top LHS of tower, comms tower near terminal	141 26 34
3 Top LH edge, powerhouse brickwork	177 50 02
4 Spike atop tube (DME) atop yellow VOR	359 40 32
5 Base of spike, MET radome	002 23 18
WEI B Weipa B 1998	
1 Station C	237 28 05
2 Spike atop tube (DME) atop yellow VOR	340 44 00
3 Base of spike atop MET. radome	352 46 55
4 Gable of MET/ASA building to left of terminal	174 16 31
5 LHS base of light pole behind windsock to S	205 34 01
WEI C Weipa C 1998	
1 Station B	057 28 05
2 Top LHS of tower, comms tower near terminal	141 26 38
3 Top LH edge, powerhouse brickwork	177 50 10
4 Spike atop tube (DME) atop yellow VOR	359 40 34
5 Base of spike, MET radome	002 23 20
NOU B Noumea B 1997	
1 Station C	241 26 03
2 LH edge of top white element glide angle tower	116 17 18
3 Red and white aerial, on top of control tower	118 26 34
4 TDC LH red and white aerial behind navy hangar	138 07 15
5 TDC LH spike on top red & white aerial to south	169 49 36
NOU C Noumea C 1997	
1 Station B	061 26 03
2 LH edge of top white element, glide angle tower	087 44 58
3 LHS base of RH light tower, front of terminal	110 07 05
4 TDC RH aerial above navy hangar,nearly obscured	132 32 43
5 TDC LH spike, top of RH R&W aerial on hill to S	162 19 03
HON B Honiara B 1997	
1 Station C	303 03 04
2 RHS base of RH edge rail RH top 'Henderson Tower	277 24 01
3 Spike on RH top of RH radio mast	129 54 44
4 Spike on LH top of LH radio mast	124 23 19
5 TDC RH NDB (pyramid) tower	041 30 15
HON C Honiara C	
1 Station B	123 03 04
2 RHS base RH edge rail RHS top 'Henderson Tower'	265 46 03
3 TDC 2'nd aerial from left on control tower	045 09 15
4 spike, LH top of LH radio mast	124 10 59
5 spike, RH top of RH radio mast	128 52 36
VIL B Port Vila B 1997	
1 Station C	297 01 17
2 LHE of nearest building, low as possible	034 02 20
3 Top RHE of concrete tank above fire station	084 30 55
4 RHE DCA building beyond Met. (above foundations)	104 15 50
5 Centre, roof level, RH R+W light pole near term	131 54 49
VIL C Port Vila C 1997	
1 Station B	117 01 17

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2 LH R+W light pole near terminal, LHS base       127 16 08
3 LHS base R+W traffic light pole, S side runway  141 40 14
4 RHE tallest section of Met balloon shed         109 54 50
5 LHS base, windsock near station B               115 07 57

PMG C Jackson Airport 1997
1 TDC EM-TV tower                                 244 26 47
2 TDC NBC radio tower                             199 10 13
3 TDC red and white mast atop (old) control tower 188 48 52
4 LH edge of new control tower, below windows     146 22 12
5 Station B                                       044 03 05

# 1997 data is inconsistent - use the 1993 data
PMG B Jackson Airport 1997
1 TDC of EM-TV TX tower (red and white)           243 16 46
2 station C                                       224 03 05
3 TDC of NBC radio Tx tower                       198 35 07
4 TDC red and white aerial atop control tower     188 55 02
5 RH edge of power house                          162 05 55

KUG A Kupang A 1998, Timor, Indonesia
1 Spike on Communications tower to NW             329 31 27
2 Top LHS of RH (western) apron light pole        290 41 23
3 Geodesy station - in front garden of BMG office 207 52 00
4 Vertical cliff - top of range to North          001 28 26

ISA A Mount Isa A 1998
1 Station B                                       034 11 06
2 TDC nearest aerial tower (behind Stat. B)       046 25 16
3 LHS top tallest (Pb) mine chimney, not very top 186 14 36
4 Trig point on hills to south west               214 31 04
5 TDC spike on white DME on yellow VOR Cone       251 00 14

ISA B Mount Isa B 1998
1 Station A                                       214 11 06
2 LHS top tallest (Pb) mine chimney               187 00 50
3 Closest Aerial Tower                            060 20 41
4 TDC yellow VOR radar cone                       239 11 37
5 Trig point on hills to southwest (as for A)     214 30 16
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Abbreviations used in this table:
ARP - Aerodrome Reference Mark
BDC - Bottom Dead Centre
comms - communications
E - East
LH - Left Hand
LHS/E - Left Hand Side/Edge
N - North
NDB - Non-Directional Beacon
PSM - Permanent Survey Marker
RH - Right Hand
RHS/E - Right Hand Side/Edge
S - South
TDC - Top Dead Centre
Tx - Transmitter
stat - Station
VOR - VHF Omni Radar
W - West

Magnetic Absolute Observations

DERBY (22-25 September 1996 EPP)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
266.2847	1996	DER	E	266	06:49:58	2.5663	-48.5476	50211.1
266.3014	1996	DER	E	266	07:14:01	2.5811	-48.5615	50206.4
266.3222	1996	DER	E	266	07:43:58	2.5711	-48.6055	50188.6
266.3299	1996	DER	E	266	07:55:03	2.5555	-48.5982	50194.0
266.3694	1996	DER	E	266	08:51:56	2.5522	-48.5563	50208.0
266.3799	1996	DER	E	266	09:07:03	2.5523	-48.5572	50208.4
266.3882	1996	DER	E	266	09:19:00	2.5516	-48.5542	50211.4
266.3951	1996	DER	E	266	09:28:57	2.5536	-48.5426	50214.4
266.9715	1996	DER	E	266	23:18:58	2.5126	-48.5247	50242.5
266.9792	1996	DER	E	266	23:30:03	2.5140	-48.5243	50242.2
266.9889	1996	DER	E	266	23:44:01	2.5134	-48.5249	50242.1
266.9965	1996	DER	E	266	23:54:58	2.5148	-48.5240	50242.2
267.1472	1996	DER	F	267	03:31:58	2.5273	-48.5437	50232.6
267.1653	1996	DER	F	267	03:58:02	2.5351	-48.5392	50231.4
267.1757	1996	DER	F	267	04:13:00	2.5426	-48.5375	50229.8
267.1896	1996	DER	F	267	04:33:01	2.5471	-48.5392	50228.1
267.3729	1996	DER	E	267	08:56:59	2.5497	-48.5626	50217.0
267.3806	1996	DER	E	267	09:08:04	2.5477	-48.5667	50215.8
267.3882	1996	DER	E	267	09:19:00	2.5245	-48.5801	50213.6
267.3965	1996	DER	E	267	09:30:58	2.5074	-48.5647	50223.9
267.9792	1996	DER	E	267	23:30:03	2.5208	-48.5273	50229.0
267.9875	1996	DER	E	267	23:42:00	2.5188	-48.5261	50229.5
267.9979	1996	DER	E	267	23:56:59	2.5153	-48.5267	50228.5
268.0819	1996	DER	E	268	01:57:56	2.5145	-48.5091	50234.1
268.0903	1996	DER	E	268	02:10:02	2.5135	-48.5090	50233.8
268.3111	1996	DER	E	268	07:27:59	2.5759	-48.5280	50215.9
268.3194	1996	DER	E	268	07:39:56	2.5721	-48.5350	50216.5
268.3271	1996	DER	E	268	07:51:01	2.5673	-48.5406	50216.0
268.3354	1996	DER	E	268	08:02:59	2.5701	-48.5388	50216.9
269.0097	1996	DER	E	269	00:13:58	2.5176	-48.5224	50233.2
269.0174	1996	DER	E	269	00:25:03	2.5113	-48.5221	50233.1
269.0278	1996	DER	E	269	00:40:02	2.5123	-48.5221	50232.3
269.0361	1996	DER	E	269	00:51:59	2.5081	-48.5214	50232.3

CARNEGIE (1-4 October 1996 EPP)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (deg)	I (deg)	F (nT)
275.3722	1996	CNE	A	275	08:55:58	2.1429	-59.6193	55386.0
275.3847	1996	CNE	A	275	09:13:58	2.1256	-59.6180	55386.2
275.3951	1996	CNE	A	275	09:28:57	2.1359	-59.6184	55386.8
275.4049	1996	CNE	A	275	09:43:03	2.1347	-59.6180	55386.9
275.966	1996	CNE	A	275	23:11:02	2.0961	-59.6014	55400.0
275.9757	1996	CNE	A	275	23:25:00	2.0902	-59.5993	55400.2
275.9847	1996	CNE	A	275	23:37:58	2.0884	-59.6024	55398.1
275.9917	1996	CNE	A	275	23:48:03	2.0882	-59.6026	55397.9
276.1771	1996	CNE	B	276	04:15:01	2.1714	-59.6022	55405.7
276.1958	1996	CNE	B	276	04:41:57	2.1825	-59.6080	55399.4
276.2715	1996	CNE	B	276	06:30:58	2.2224	-59.6157	55405.1
276.2889	1996	CNE	B	276	06:56:01	2.2121	-59.6198	55402.5
276.375	1996	CNE	A	276	09:00:00	2.1391	-59.6121	55387.0
276.3819	1996	CNE	A	276	09:09:56	2.1353	-59.6115	55388.1
276.3896	1996	CNE	A	276	09:21:01	2.1342	-59.6104	55387.9
276.3965	1996	CNE	A	276	09:30:58	2.1342	-59.6108	55388.7
277.0833	1996	CNE	A	277	01:59:57	2.0730	-59.6060	55389.2
277.0917	1996	CNE	A	277	02:12:03	2.0707	-59.6053	55387.0
277.1007	1996	CNE	A	277	02:25:00	2.0803	-59.6026	55387.5
277.1097	1996	CNE	A	277	02:37:58	2.0839	-59.6049	55384.1
277.3431	1996	CNE	A	277	08:14:04	2.1615	-59.6365	55378.7
277.3486	1996	CNE	A	277	08:21:59	2.1587	-59.6355	55379.7
277.3556	1996	CNE	A	277	08:32:04	2.1579	-59.6323	55380.9
277.3618	1996	CNE	A	277	08:41:00	2.1542	-59.6320	55380.7
277.959	1996	CNE	A	277	23:00:58	2.0949	-59.6150	55388.3
277.9681	1996	CNE	A	277	23:14:04	2.0920	-59.6160	55387.9
277.9757	1996	CNE	A	277	23:25:00	2.0839	-59.6180	55387.3
277.9826	1996	CNE	A	277	23:34:57	2.0801	-59.6171	55388.1

COCOS ISLAND (18-20 December 1996 ODM)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
353.7729	1996	COC	D	353	18:32:59	356.6064	-44.6179	47484.2
353.8007	1996	COC	D	353	19:13:00	356.6046	-44.6154	47485.8
353.8285	1996	COC	D	353	19:53:02	356.5981	-44.6157	47486.7
353.8285	1996	COC	D	353	19:53:02	356.5861	-44.6162	47485.1
355.7688	1996	COC	D	355	18:27:04	356.5941	-44.6028	47491.8
355.7986	1996	COC	D	355	19:09:59	356.5881	-44.6087	47493.9
355.8132	1996	COC	D	355	19:31:00	356.5918	-44.6084	47494.4
355.8417	1996	COC	D	355	20:12:03	356.5882	-44.6076	47494.2

PARAFIELD (03-06 April 1997 AML/PGC)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
93.3347	1997	PAF	A	093	08:01:58	8.3052	-67.2695	59614.4
93.3417	1997	PAF	A	093	08:12:03	8.3019	-67.2692	59614.9
93.3479	1997	PAF	A	093	08:20:59	8.3018	-67.2691	59615.2
93.3542	1997	PAF	A	093	08:30:03	8.3010	-67.2689	59615.5
94.0028	1997	PAF	A	094	00:04:02	8.2280	-67.2836	59616.9
94.0208	1997	PAF	A	094	00:29:57	8.2244	-67.2876	59615.2
94.0375	1997	PAF	A	094	00:54:00	8.2474	-67.2824	59610.8
94.0486	1997	PAF	A	094	01:09:59	8.2476	-67.2830	59610.2
94.1292	1997	PAF	A	094	03:06:03	8.3177	-67.2723	59600.4
94.3194	1997	PAF	A	094	07:39:56	8.3220	-67.2920	59613.7
94.3264	1997	PAF	A	094	07:50:01	8.3236	-67.2903	59613.3
94.3354	1997	PAF	A	094	08:02:59	8.3262	-67.2863	59612.5
94.0028	1997	PAF	A	094	00:04:02			59600.0
94.9882	1997	PAF	A	094	23:43:00	8.2747	-67.3084	59612.0
94.9979	1997	PAF	A	094	23:56:59	8.2697	-67.3144	59610.9
95.0069	1997	PAF	A	095	00:09:56	8.2696	-67.3106	59610.2
95.0153	1997	PAF	A	095	00:22:02	8.2853	-67.3037	59609.3
95.0993	1997	PAF	A	095	02:23:00	8.3053	-67.2842	59598.2
95.1535	1997	PAF	B	095	03:41:02	8.2439	-67.2592	59572.8
95.1646	1997	PAF	B	095	03:57:01	8.2406	-67.2569	59573.7
95.3167	1997	PAF	A	095	07:36:03	8.3108	-67.2845	59613.1
95.3222	1997	PAF	A	095	07:43:58	8.3112	-67.2843	59613.5
96.0618	1997	PAF	A	096	01:29:00	8.2505	-67.2816	59604.7
96.0674	1997	PAF	A	096	01:37:03	8.2510	-67.2800	59603.7
96.0743	1997	PAF	A	096	01:47:00	8.2529	-67.2775	59601.6
96.0833	1997	PAF	A	096	01:59:57	8.2598	-67.2760	59600.5
96.0917	1997	PAF	A	096	02:12:03			59600.6

FLINDERS UNIVERSITY (04 April 1997 AML/PGC)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
94.2431	1997	FLU	B	094	05:50:04	8.0479	-67.4901	59756.4
94.2521	1997	FLU	B	094	06:03:01	8.0328	-67.4947	59754.9

EUCLA (9-11 April 1997 AML/PGC)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
099.3132	1997	EUC	D	099	07:31:00	4.4517	-66.1361	58537.3
099.3563	1997	EUC	D	099	08:33:04	4.4505	-66.1328	58537.6
099.3625	1997	EUC	D	099	08:42:00	4.4467	-66.1343	58537.5
099.3674	1997	EUC	D	099	08:49:03	4.4439	-66.1328	58537.7
099.6965	1997	EUC	D	099	16:42:58	4.4138	-66.1393	58536.4
100.0535	1997	EUC	D	100	01:17:02			58530.3
100.0688	1997	EUC	D	100	01:39:04	4.3972	-66.1353	58528.9
100.0743	1997	EUC	D	100	01:47:00	4.3987	-66.1354	58528.9
100.0806	1997	EUC	D	100	01:56:04	4.4012	-66.1333	58528.4
100.0868	1997	EUC	D	100	02:05:00	4.4089	-66.1330	58528.5
100.2896	1997	EUC	E	100	06:57:01	4.2484	-65.2799	58170.0
100.3028	1997	EUC	E	100	07:16:02	4.2486	-65.2768	58170.5
100.3153	1997	EUC	E	100	07:34:02	4.2454	-65.2764	58170.1
100.3194	1997	EUC	E	100	07:39:56	4.2449	-65.2768	58170.0
100.3771	1997	EUC	D	100	09:03:01	4.4421	-66.1229	58538.1
100.384	1997	EUC	D	100	09:12:58	4.4434	-66.1223	58538.3
100.9757	1997	EUC	D	100	23:25:00	4.4755	-66.1171	58541.5
100.9819	1997	EUC	D	100	23:33:56	4.4867	-66.1161	58542.2
100.9868	1997	EUC	D	100	23:41:00	4.4900	-66.1142	58542.7
100.9924	1997	EUC	D	100	23:49:03	4.4783	-66.1108	58541.7
101.3486	1997	EUC	D	101	08:21:59	4.4654	-66.1560	58528.0
101.3556	1997	EUC	D	101	08:32:04	4.4649	-66.1594	58528.6

101.3604	1997	EUC	D	101	08:38:59	4.4678	-66.1682	58528.1
101.3653	1997	EUC	D	101	08:46:02	4.4582	-66.1620	58527.8
101.3715	1997	EUC	D	101	08:54:58			58531.4
101.9021	1997	EUC	D	101	21:39:01	4.3937	-66.1403	58538.3
101.9083	1997	EUC	D	101	21:47:57	4.4021	-66.1416	58539.2
101.9146	1997	EUC	D	101	21:57:01	4.4169	-66.1452	58537.8
101.9208	1997	EUC	D	101	22:05:57	4.4213	-66.1497	58538.2

TIBOOBURRA (14-16 April 1997 AML/PGC)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
104.3660	1997	TIB	A	104	08:47:02	8.5495	-61.4698	56338.4
104.9556	1997	TIB	A	104	22:56:04	8.5123	-61.4644	56341.6
104.9674	1997	TIB	A	104	23:13:03	8.5082	-61.4641	56341.0
104.9729	1997	TIB	A	104	23:20:59	8.5095	-61.4650	56340.2
104.9778	1997	TIB	A	104	23:28:02	8.5071	-61.4648	56341.2
104.9896	1997	TIB	A	104	23:45:01			56339.5
105.0993	1997	TIB	A	105	02:23:00	8.5158	-61.4515	56337.7
105.1056	1997	TIB	A	105	02:32:04	8.5238	-61.4491	56337.7
105.2833	1997	TIB	A	105	06:47:57	8.5601	-61.4628	56343.0
105.2903	1997	TIB	A	105	06:58:02	8.5602	-61.4621	56342.7
105.3271	1997	TIB	A	105	07:51:01	8.5477	-61.4602	56342.6
105.3326	1997	TIB	A	105	07:58:57	8.5457	-61.4620	56341.7
105.9410	1997	TIB	A	105	22:35:02	8.5090	-61.4670	56341.5
105.9465	1997	TIB	A	105	22:42:58	8.5048	-61.4689	56340.9
105.9521	1997	TIB	A	105	22:51:01	8.5022	-61.4700	56340.5
105.9569	1997	TIB	A	105	22:57:56	8.5027	-61.4706	56339.9
106.2986	1997	TIB	B	106	07:09:59	8.6262	-61.4598	56341.7
106.3118	1997	TIB	B	106	07:29:00	8.6229	-61.4600	56339.8
106.3160	1997	TIB	B	106	07:35:02	8.6239	-61.4598	56340.1
106.3354	1997	TIB	A	106	08:02:59	8.5485	-61.4587	56339.8
106.3424	1997	TIB	A	106	08:13:03	8.5508	-61.4603	56340.2
106.8826	1997	TIB	A	106	21:10:57	8.5666	-61.4733	56335.7
106.8875	1997	TIB	A	106	21:18:00	8.5684	-61.4763	56334.4
106.8938	1997	TIB	A	106	21:27:04	8.5674	-61.4800	56333.1
106.8993	1997	TIB	A	106	21:35:00	8.5699	-61.4768	56334.0
106.9063	1997	TIB	A	106	21:45:04			56340.4

MARYBOROUGH (20-22 April 1887 AML/PGC)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
110.2118	1997	MYB	D	110	05:05:00	10.7583	-55.6183	52671.2
110.2264	1997	MYB	D	110	05:26:01	10.7477	-55.6165	52670.3
110.2938	1997	MYB	D	110	07:03:04			52666.1
110.3007	1997	MYB	D	110	07:13:00			52664.6
110.9625	1997	MYB	D	110	23:06:00	10.6897	-55.6070	52662.1
110.9674	1997	MYB	D	110	23:13:03	10.6894	-55.6075	52661.6
110.9722	1997	MYB	D	110	23:19:58	10.6878	-55.6075	52660.9
110.9764	1997	MYB	D	110	23:26:01	10.6864	-55.6064	52660.4
110.9833	1997	MYB	D	110	23:35:57			52658.0
111.2361	1997	MYB	E	111	05:39:59	10.7598	-55.6718	52639.7
111.2438	1997	MYB	E	111	05:51:04	10.7574	-55.6708	52639.1
111.2493	1997	MYB	E	111	05:59:00	10.7514	-55.6688	52641.0
111.2563	1997	MYB	E	111	06:09:04	10.7486	-55.6674	52640.9
111.2722	1997	MYB	D	111	06:31:58	10.7383	-55.6057	52669.3
111.2785	1997	MYB	D	111	06:41:02	10.7353	-55.6058	52669.6
111.2854	1997	MYB	D	111	06:50:59	10.7359	-55.6047	52669.5
111.2903	1997	MYB	D	111	06:58:02	10.7344	-55.6048	52669.3
111.9556	1997	MYB	D	111	22:56:04	10.7588	-55.6687	52639.4
111.9611	1997	MYB	D	111	23:03:59	10.7533	-55.6708	52637.1
111.9701	1997	MYB	D	111	23:16:57	10.7483	-55.6711	52634.9
111.9778	1997	MYB	D	111	23:28:02	10.7517	-55.6731	52635.2
112.2903	1997	MYB	D	112	06:58:02	10.7503	-55.6640	52644.3
112.2958	1997	MYB	D	112	07:05:57	10.7430	-55.6615	52646.4
112.3014	1997	MYB	D	112	07:14:01	10.7385	-55.6594	52647.0
112.8854	1997	MYB	D	112	21:14:59	10.7057	-55.6241	52663.5
112.8931	1997	MYB	D	112	21:26:04	10.7036	-55.6244	52663.6
112.8993	1997	MYB	D	112	21:35:00			52663.1

LORD HOWE ISLAND (07-10 May 1997 AML/SDD)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
127.9090	1997	LHI	D	127	21:48:58	14.8412	-61.4174	54848.3
127.9201	1997	LHI	D	127	22:04:57	14.8365	-61.4194	54846.3

127.9292	1997	LHI	D	127	22:18:03	14.8324	-61.4175	54845.4
127.9368	1997	LHI	D	127	22:29:00	14.8339	-61.4166	54844.1
127.9472	1997	LHI	D	127	22:43:58			54840.4
128.0590	1997	LHI	E	128	01:24:58	14.8042	-61.4629	54926.2
128.0694	1997	LHI	E	128	01:39:56	14.8158	-61.4634	54924.2
128.0778	1997	LHI	E	128	01:52:02	14.8172	-61.4633	54922.8
128.0861	1997	LHI	E	128	02:03:59	14.8203	-61.4648	54921.8
128.2229	1997	LHI	D	128	05:20:59	14.8929	-61.4280	54827.8
128.2340	1997	LHI	D	128	05:36:58	14.8883	-61.4282	54830.5
128.2417	1997	LHI	D	128	05:48:03	14.8817	-61.4290	54832.3
128.2493	1997	LHI	D	128	05:59:00	14.8790	-61.4303	54833.3
128.9014	1997	LHI	D	128	21:38:01	14.8368	-61.4233	54850.4
128.9132	1997	LHI	D	128	21:55:00	14.8347	-61.4236	54850.0
128.9264	1997	LHI	D	128	22:14:01	14.8243	-61.4230	54851.1
128.9340	1997	LHI	D	128	22:24:58	14.8192	-61.4229	54851.9
129.0014	1997	LHI	C	129	00:02:01	15.4677	-60.6934	55262.7
129.0146	1997	LHI	C	129	00:21:01	15.4739	-60.6960	55257.0
129.0236	1997	LHI	C	129	00:33:59	15.4714	-60.6969	55253.8
129.0361	1997	LHI	C	129	00:51:59	15.4774	-60.6956	55249.6
129.2396	1997	LHI	D	129	05:45:01	14.9014	-61.4271	54822.8
129.2549	1997	LHI	D	129	06:07:03	14.8878	-61.4288	54827.9
129.2646	1997	LHI	D	129	06:21:01	14.8837	-61.4323	54830.4
129.9174	1997	LHI	D	129	22:01:03	14.8104	-61.4281	54845.0
129.9361	1997	LHI	D	129	22:27:59	14.8025	-61.4307	54843.4
129.9465	1997	LHI	D	129	22:42:58	14.7977	-61.4330	54841.6
129.9542	1997	LHI	D	129	22:54:03	14.7982	-61.4335	54840.2
129.9861	1997	LHI	D	129	23:39:59			54830.6

NORFOLK ISLAND (12-14 May 1997 AML)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
132.1465	1997	NFI	B	132	03:30:58	15.3458	-56.4196	51839.4
132.1597	1997	NFI	B	132	03:49:58	15.3470	-56.4189	51841.9
132.1694	1997	NFI	B	132	04:03:56	15.3465	-56.4174	51844.4
132.1792	1997	NFI	B	132	04:18:03	15.3437	-56.4176	51847.9
132.2042	1997	NFI	B	132	04:54:03			51852.8
132.2264	1997	NFI	B	132	05:26:01	15.3292	-56.4140	51857.4
132.8681	1997	NFI	B	132	20:50:04	15.2997	-56.3984	51870.3
132.8778	1997	NFI	B	132	21:04:02	15.2945	-56.4000	51871.0
132.9097	1997	NFI	B	132	21:49:58	15.2892	-56.4026	51869.5
132.9194	1997	NFI	B	132	22:03:56	15.2880	-56.4026	51868.7
133.0903	1997	NFI	C	133	02:10:02	15.4675	-56.5072	51849.0
133.1042	1997	NFI	C	133	02:30:03	15.5029	-56.5044	51847.8
133.1167	1997	NFI	C	133	02:48:03	15.5048	-56.5057	51847.9
133.1292	1997	NFI	C	133	03:06:03	15.5086	-56.5040	51849.4
133.1993	1997	NFI	B	133	04:47:00	15.3321	-56.4051	51850.7
133.2076	1997	NFI	B	133	04:58:57	15.3304	-56.4054	51852.0
133.2153	1997	NFI	B	133	05:10:02	15.3261	-56.4047	51853.6
133.2236	1997	NFI	B	133	05:21:59	15.3183	-56.4054	51855.1
133.8618	1997	NFI	B	133	20:41:00	15.2995	-56.3992	51867.6
133.8743	1997	NFI	B	133	20:59:00	15.2971	-56.3989	51868.7
133.8840	1997	NFI	B	133	21:12:58	15.2956	-56.3988	51868.5
133.8931	1997	NFI	B	133	21:26:04	15.2948	-56.4012	51868.3
134.1792	1997	NFI	B	134	04:18:03	15.3336	-56.4124	51850.6
134.1868	1997	NFI	B	134	04:29:00	15.3310	-56.4113	51852.0
134.1951	1997	NFI	B	134	04:40:57	15.3336	-56.4106	51853.9
134.2069	1997	NFI	B	134	04:57:56	15.3319	-56.4104	51855.6
134.8576	1997	NFI	B	134	20:34:57	15.2971	-56.4007	51860.9
134.8667	1997	NFI	B	134	20:48:03	15.2959	-56.4028	51859.3
134.8778	1997	NFI	B	134	21:04:02	15.2912	-56.4064	51858.2
134.8868	1997	NFI	B	134	21:17:00	15.2880	-56.4087	51858.4
134.8986	1997	NFI	B	134	21:33:59		51858.0	

HOBART (16-19 May 1997 AML)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
136.2104	1997	HOB	H	136	05:02:59	14.7349	-72.8516	62218.2
136.2194	1997	HOB	H	136	05:15:56	14.7412	-72.8497	62217.7
136.2264	1997	HOB	H	136	05:26:01	14.7398	-72.8453	62216.5
136.9097	1997	HOB	H	136	21:49:58	14.6990	-72.8368	62206.0
136.9208	1997	HOB	H	136	22:05:57	14.6962	-72.8389	62204.6
136.9306	1997	HOB	H	136	22:20:04	14.6904	-72.8342	62204.4
136.9403	1997	HOB	H	136	22:34:02	14.6928	-72.8351	62203.6
136.9972	1997	HOB	H	136	23:55:58			62218.7

137.0465	1997	HOB	I	137	01:06:58	15.2988	-72.7893	62305.1
137.0583	1997	HOB	I	137	01:23:57	15.2842	-72.7794	62296.7
137.0694	1997	HOB	I	137	01:39:56	15.2766	-72.7762	62291.8
137.0806	1997	HOB	I	137	01:56:04	15.2536	-72.7764	62287.7
137.2174	1997	HOB	H	137	05:13:03	14.7391	-72.8527	62207.5
137.2250	1997	HOB	H	137	05:24:00	14.7417	-72.8510	62208.4
137.2313	1997	HOB	H	137	05:33:04	14.7373	-72.8516	62208.5
137.2396	1997	HOB	H	137	05:45:01	14.7304	-72.8531	62208.9
137.9333	1997	HOB	H	137	22:23:57	14.7075	-72.8277	62204.0
137.9444	1997	HOB	H	137	22:39:56	14.7018	-72.8299	62204.3
137.9535	1997	HOB	H	137	22:53:02	14.7059	-72.8365	62207.8
137.9639	1997	HOB	H	137	23:08:01	14.7049	-72.8416	62210.9
138.1653	1997	HOB	I	138	03:58:02			62294.5
138.2153	1997	HOB	H	138	05:10:02	14.7294	-72.8457	62216.6
138.2215	1997	HOB	H	138	05:18:58	14.7334	-72.8450	62215.3
138.2285	1997	HOB	H	138	05:29:02	14.7278	-72.8472	62214.4
138.2347	1997	HOB	H	138	05:37:58	14.7187	-72.8416	62213.7
138.9361	1997	HOB	H	138	22:27:59			62210.2
138.9507	1997	HOB	H	138	22:49:00	14.7003	-72.8312	62211.9
138.9590	1997	HOB	H	138	23:00:58	14.6963	-72.8342	62212.9
138.9667	1997	HOB	H	138	23:12:03	14.6945	-72.8350	62213.2
138.9750	1997	HOB	H	138	23:24:00	14.6911	-72.8322	62211.6

WEIPA (21-23 May 1997 AML)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
141.9403	1997	WEI	B	141	22:34:02	5.6824	-39.9711	46525.2
141.9507	1997	WEI	B	141	22:49:00	5.6810	-39.9714	46523.9
141.9590	1997	WEI	B	141	23:00:58	5.6777	-39.9709	46524.5
141.9674	1997	WEI	B	141	23:13:03	5.6734	-39.9703	46524.9
141.9965	1997	WEI	B	141	23:54:58			46525.3
142.0924	1997	WEI	C	142	02:13:03	5.6410	-40.0051	46538.0
142.1049	1997	WEI	C	142	02:31:03	5.6441	-40.0047	46538.4
142.1139	1997	WEI	C	142	02:44:01	5.6467	-40.0040	46539.1
142.1264	1997	WEI	C	142	03:02:01	5.6466	-40.0030	46538.7
142.1903	1997	WEI	B	142	04:34:02	5.6859	-39.9594	46515.6
142.2014	1997	WEI	B	142	04:50:01	5.6842	-39.9647	46512.4
142.2167	1997	WEI	B	142	05:12:03	5.6855	-39.9668	46510.0
142.2250	1997	WEI	B	142	05:24:00	5.6875	-39.9692	46510.1
142.2757	1997	WEI	B	142	06:37:00	5.6880	-39.9795	46504.8
142.2847	1997	WEI	B	142	06:49:58	5.6883	-39.9812	46505.8
142.2924	1997	WEI	B	142	07:01:03	5.6867	-39.9814	46506.5
142.3007	1997	WEI	B	142	07:13:00	5.6861	-39.9825	46507.4
142.9451	1997	WEI	B	142	22:40:57	5.6741	-39.9789	46519.2
142.9556	1997	WEI	B	142	22:56:04	5.6714	-39.9759	46519.9
142.9646	1997	WEI	B	142	23:09:01	5.6700	-39.9754	46520.0
142.9743	1997	WEI	B	142	23:23:00	5.6685	-39.9742	46520.7
143.1194	1997	WEI	C	143	02:51:56			46537.9
143.2313	1997	WEI	B	143	05:33:04			46513.9
143.2542	1997	WEI	B	143	06:06:03	5.6927	-39.9769	46511.2
143.2632	1997	WEI	B	143	06:19:00	5.6942	-39.9806	46510.8
143.2722	1997	WEI	B	143	06:31:58	5.6910	-39.9811	46510.9
143.2813	1997	WEI	B	143	06:45:04	5.6884	-39.9831	46511.6
143.8986	1997	WEI	B	143	21:33:59	5.6847	-39.9735	46527.3
143.9063	1997	WEI	B	143	21:45:04	5.6858	-39.9717	46527.5

PORT MORESBY (30 May - 02 June 1997 AML)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
150.2938	1997	PMG	C	150	07:03:04	6.5480	-33.2843	
150.9486	1997	PMG	C	150	22:45:59	6.5444	-33.2801	43091.6
150.9597	1997	PMG	C	150	23:01:58	6.5379	-33.2812	43091.2
150.9674	1997	PMG	C	150	23:13:03	6.5374	-33.2814	43090.1
150.9757	1997	PMG	C	150	23:25:00	6.5346	-33.2790	43090.2
151.0208	1997	PMG	C	151	00:29:57			43097.5
151.2625	1997	PMG	C	151	06:18:00	6.5508	-33.2828	43087.9
151.2722	1997	PMG	C	151	06:31:58	6.5471	-33.2842	43088.2
151.2799	1997	PMG	C	151	06:43:03	6.5461	-33.2850	43088.2
151.2868	1997	PMG	C	151	06:53:00	6.5456	-33.2859	43088.2
151.9660	1997	PMG	C	151	23:11:02	6.5442	-33.2757	43096.2
151.9750	1997	PMG	C	151	23:24:00	6.5420	-33.2741	43097.0
151.9833	1997	PMG	C	151	23:35:57	6.5398	-33.2724	43097.4
151.9896	1997	PMG	C	151	23:45:01	6.5404	-33.2731	43097.4
152.0076	1997	PMG	B	152	00:10:57	6.6042	-33.2156	43141.6

152.0181	1997	PMG	B	152	00:26:04	6.5973	-33.2161	43141.5
152.0264	1997	PMG	B	152	00:38:01	6.5916	-33.2163	43140.9
152.0354	1997	PMG	B	152	00:50:59	6.5885	-33.2151	43141.9
152.0667	1997	PMG	B	152	01:36:03			43141.5
152.2028	1997	PMG	C	152	04:52:02	6.5502	-33.2779	43082.4
152.2125	1997	PMG	C	152	05:06:00	6.5541	-33.2810	43082.2
152.2493	1997	PMG	C	152	05:59:00	6.5552	-33.2883	43078.7
152.2556	1997	PMG	C	152	06:08:04	6.5558	-33.2893	43078.4
152.2611	1997	PMG	C	152	06:15:59	6.5540	-33.2897	43078.5
152.2667	1997	PMG	C	152	06:24:03	6.5544	-33.2902	43078.7
152.9389	1997	PMG	C	152	22:32:01	6.5413	-33.2753	43093.2
152.9458	1997	PMG	C	152	22:41:57	6.5311	-33.2729	43093.2
152.9514	1997	PMG	C	152	22:50:01	6.5378	-33.2709	43093.6
152.9563	1997	PMG	C	152	22:57:04	6.5400	-33.2708	43093.5
152.9618	1997	PMG	C	152	23:05:00			43094.4

HONIARA (05-07 June 1997 AML)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
156.1750	1997	HON	B	156	04:12:00	9.4550	-30.1767	41102.8
156.1840	1997	HON	B	156	04:24:58	9.4578	-30.1790	41100.2
156.1993	1997	HON	B	156	04:47:00	9.4595	-30.1810	41095.6
156.2069	1997	HON	B	156	04:57:56	9.4561	-30.1815	41092.9
156.2181	1997	HON	B	156	05:14:04			41090.4
156.2299	1997	HON	B	156	05:31:03	9.4577	-30.1863	41086.3
156.2368	1997	HON	B	156	05:41:00	9.4580	-30.1899	41084.8
156.9056	1997	HON	B	156	21:44:04	9.4522	-30.1710	41108.2
156.9146	1997	HON	B	156	21:57:01	9.4514	-30.1678	41108.5
156.9611	1997	HON	B	156	23:03:59	9.4384	-30.1607	41107.7
156.9701	1997	HON	B	156	23:16:57	9.4386	-30.1590	41108.0
157.0021	1997	HON	C	157	00:03:01	9.3848	-30.0661	41126.4
157.0139	1997	HON	C	157	00:20:01	9.3818	-30.0642	41126.2
157.0229	1997	HON	C	157	00:32:59	9.3782	-30.0665	41127.0
157.0347	1997	HON	C	157	00:49:58	9.3793	-30.0574	41127.6
157.1146	1997	HON	C	157	02:45:01			41128.4
157.1993	1997	HON	B	157	04:47:00	9.4708	-30.1767	41101.1
157.2076	1997	HON	B	157	04:58:57	9.4709	-30.1800	41099.9
157.2153	1997	HON	B	157	05:10:02	9.4683	-30.1825	41097.9
157.2229	1997	HON	B	157	05:20:59	9.4673	-30.1833	41097.1
157.8903	1997	HON	B	157	21:22:02	9.4599	-30.1676	41111.5
157.9153	1997	HON	B	157	21:58:02	9.4604	-30.1658	41112.3
157.9236	1997	HON	B	157	22:09:59	9.4573	-30.1660	41113.0
157.9313	1997	HON	B	157	22:21:04	9.4597	-30.1656	41113.1
158.2007	1997	HON	B	158	04:49:00	9.4547	-30.1804	41103.0
158.2104	1997	HON	B	158	05:02:59	9.4556	-30.1804	41103.9
158.2181	1997	HON	B	158	05:14:04	9.4556	-30.1804	41103.9
158.2250	1997	HON	B	158	05:24:00	9.4554	-30.1802	41104.3
158.2368	1997	HON	B	158	05:41:00			41105.0
158.8896	1997	HON	B	158	21:21:01	9.4479	-30.1891	41097.5
158.8979	1997	HON	B	158	21:32:59	9.4460	-30.1882	41092.9
158.9069	1997	HON	B	158	21:45:56	9.4431	-30.1901	41099.3
158.9153	1997	HON	B	158	21:58:02	9.4400	-30.1910	41099.8

PORT VILA (10 -13 June 1997 AML)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
161.8917	1997	VIL	B	161	21:24:03	11.6237	-41.8790	45067.8
161.9014	1997	VIL	B	161	21:38:01	11.6183	-41.8771	45068.9
161.9479	1997	VIL	B	161	22:44:59	11.6087	-41.8728	45072.2
161.9569	1997	VIL	B	161	22:57:56	11.6086	-41.8707	45071.7
161.9674	1997	VIL	B	161	23:13:03			45072.1
161.9979	1997	VIL	C	161	23:56:59	11.6985	-41.9592	45103.7
162.0229	1997	VIL	C	162	00:32:59			45100.9
162.0250	1997	VIL	C	162	00:36:00			45098.2
162.0757	1997	VIL	C	162	01:49:00			45096.7
162.1986	1997	VIL	B	162	04:45:59	11.6266	-41.8853	45063.1
162.2056	1997	VIL	B	162	04:56:04	11.6250	-41.8872	45062.9
162.2132	1997	VIL	B	162	05:07:00	11.6221	-41.8902	45062.3
162.2208	1997	VIL	B	162	05:17:57	11.6182	-41.8948	45061.5
162.8604	1997	VIL	B	162	20:38:59	11.6235	-41.8660	45075.8
162.8688	1997	VIL	B	162	20:51:04	11.6240	-41.8657	45076.5
162.8965	1997	VIL	B	162	21:30:58	11.6171	-41.8641	45079.0
162.9042	1997	VIL	B	162	21:42:03	11.6122	-41.8648	45079.3
162.9389	1997	VIL	C	162	22:32:01	11.6928	-41.9490	45117.2

162.9493	1997	VIL	C	162	22:47:00	11.6901	-41.9545	45115.7
162.9549	1997	VIL	C	162	22:55:03	11.6874	-41.9515	45114.6
162.9632	1997	VIL	C	162	23:07:00	11.6886	-41.9529	45112.2
162.9979	1997	VIL	C	162	23:56:59			45104.9
163.2229	1997	VIL	B	163	05:20:59	11.6233	-41.8711	45062.5
163.2347	1997	VIL	B	163	05:37:58	11.6196	-41.8746	45062.2
163.9014	1997	VIL	B	163	21:38:01	11.6196	-41.8748	45070.7
163.9083	1997	VIL	B	163	21:47:57	11.6209	-41.8746	45071.0
163.9146	1997	VIL	B	163	21:57:01	11.6181	-41.8738	45071.1
163.9208	1997	VIL	B	163	22:05:57	11.6193	-41.8733	45071.3
164.1750	1997	VIL	B	164	04:12:00			45063.5
164.1910	1997	VIL	B	164	04:35:02	11.6312	-41.8837	45061.6
164.1979	1997	VIL	B	164	04:44:59	11.6339	-41.8832	45060.8
164.2056	1997	VIL	B	164	04:56:04	11.6311	-41.8855	45060.3
164.2139	1997	VIL	B	164	05:08:01	11.6307	-41.8847	45060.5
164.8771	1997	VIL	B	164	21:03:01	11.6163	-41.8826	45068.3
164.8854	1997	VIL	B	164	21:14:59	11.6107	-41.8834	45068.3
164.8931	1997	VIL	B	164	21:26:04	11.6083	-41.8847	45068.3
164.9021	1997	VIL	B	164	21:39:01	11.6070	-41.8864	45068.5

NOUMEA (16-19 June 1997 AML/CEB)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
168.0729	1997	NOU	B	168	01:44:59	12.7970	-47.9768	48185.1
168.0972	1997	NOU	B	168	02:19:58	12.7988	-47.9787	48184.1
168.1042	1997	NOU	B	168	02:30:03	12.8029	-47.9788	48183.3
168.1111	1997	NOU	B	168	02:39:59	12.8033	-47.9801	48182.8
168.2083	1997	NOU	B	168	04:59:57	12.8198	-47.9897	48179.2
168.2194	1997	NOU	B	168	05:15:56	12.8180	-47.9907	48175.9
168.8896	1997	NOU	B	168	21:21:01	12.8111	-47.9746	48192.0
168.8965	1997	NOU	B	168	21:30:58	12.8104	-47.9756	48192.4
168.9243	1997	NOU	B	168	22:11:00	12.8037	-47.9786	48191.7
168.9326	1997	NOU	B	168	22:22:57	12.8035	-47.9786	48191.5
168.9729	1997	NOU	C	168	23:20:59	12.7405	-47.9874	48128.1
168.9847	1997	NOU	C	168	23:37:58	12.7379	-47.9871	48127.7
168.9938	1997	NOU	C	168	23:51:04	12.7398	-47.9887	48127.7
169.0042	1997	NOU	C	169	00:06:03	12.7373	-47.9884	48127.9
169.2132	1997	NOU	B	169	05:07:00	12.8203	-47.9908	48181.9
169.2201	1997	NOU	B	169	05:16:57	12.8181	-47.9907	48181.6
169.2264	1997	NOU	B	169	05:26:01	12.8142	-47.9902	48181.6
169.6451	1997	NOU	B	169	15:28:57	12.8011	-47.9895	48185.1
169.6576	1997	NOU	B	169	15:46:57	12.8025	-47.9910	48184.9
169.6708	1997	NOU	B	169	16:05:57	12.8003	-47.9896	48184.6
169.6806	1997	NOU	B	169	16:20:04	12.8022	-47.9898	48184.6
169.9313	1997	NOU	B	169	22:21:04	12.7942	-47.9737	48193.8
169.9382	1997	NOU	B	169	22:31:00	12.7926	-47.9766	48194.1
169.9458	1997	NOU	B	169	22:41:57	12.7899	-47.9769	48194.3
170.2319	1997	NOU	B	170	05:33:56	12.8213	-47.9868	48185.2
170.2368	1997	NOU	B	170	05:41:00	12.8212	-47.9862	48185.0
170.2424	1997	NOU	B	170	05:49:03	12.8226	-47.9868	48184.6
170.2486	1997	NOU	B	170	05:57:59	12.8151	-47.9865	48184.5
170.8382	1997	NOU	B	170	20:07:00	12.8165	-47.9831	48185.1
170.8451	1997	NOU	B	170	20:16:57	12.8176	-47.9822	48185.6
170.8514	1997	NOU	B	170	20:26:01	12.8195	-47.9830	48185.8

DERBY (30 Oct - 4 Nov 1997 EPP/ODM)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F nT)
304.0340	1997	DER	E	304	00:48:58	2.5105	-48.4603	50230.6
304.0556	1997	DER	E	304	01:20:04	2.5132	-48.4621	50226.3
304.0681	1997	DER	E	304	01:38:04	2.5188	-48.4588	50220.3
304.0785	1997	DER	E	304	01:53:02	2.5197	-48.4557	50221.5
304.1069	1997	DER	E	304	02:33:56	2.5251	-48.4530	50216.4
304.1285	1997	DER	E	304	03:05:02	2.5316	-48.4520	50213.7
304.1465	1997	DER	E	304	03:30:58			50211.7
304.2965	1997	DER	F	304	07:06:58	2.5905	-48.4484	50221.9
304.3243	1997	DER	F	304	07:47:00	2.5836	-48.4500	50223.6
304.3264	1997	DER	F	304	07:50:01	2.5786	-48.4504	50224.0
304.3403	1997	DER	F	304	08:10:02	2.5755	-48.4524	50225.3
304.3729	1997	DER	E	304	08:56:59	2.5724	-48.4524	50222.2
304.3833	1997	DER	E	304	09:11:57	2.5749	-48.4528	50222.3
304.3944	1997	DER	E	304	09:27:56	1.8175	-48.4547	50211.1
304.4035	1997	DER	E	304	09:41:02	2.5715	-48.4522	50223.8
305.3340	1997	DER	E	305	08:00:58	2.5950	-48.4275	50237.9

305.3479	1997	DER	E	305	08:20:59	2.5969	-48.4203	50239.8
305.3563	1997	DER	E	305	08:33:04	2.5887	-48.4307	50236.2
305.3653	1997	DER	E	305	08:46:02	2.5935	-48.4229	50238.7
305.9333	1997	DER	E	305	22:23:57	2.5520	-48.4396	50241.6
305.9465	1997	DER	E	305	22:42:58	2.5420	-48.4422	50244.0
305.9556	1997	DER	E	305	22:56:04	2.5371	-48.4439	50246.0
305.9625	1997	DER	E	305	23:06:00	2.5331	-48.4453	50246.7
306.1438	1997	DER	F	306	03:27:04			50242.9
306.3604	1997	DER	E	306	08:38:59	2.5763	-48.4504	50224.0
306.3708	1997	DER	E	306	08:53:57	2.5800	-48.4493	50224.0
306.3792	1997	DER	E	306	09:06:03	2.5751	-48.4484	50223.6
306.3875	1997	DER	E	306	09:18:00	2.5750	-48.4497	50223.0
306.7528	1997	DER	E	306	18:04:02	2.5637	-48.4336	50229.5
306.7778	1997	DER	E	306	18:40:02	2.5601	-48.4414	50228.7
306.8021	1997	DER	E	306	19:15:01	2.5571	-48.4401	50228.1
306.8125	1997	DER	E	306	19:30:00	2.5567	-48.4373	50228.2
307.2917	1997	DER	E	307	07:00:03	2.6030	-48.4258	50224.7
307.3007	1997	DER	E	307	07:13:00	2.5962	-48.4275	50225.6
307.3090	1997	DER	E	307	07:24:58	2.5934	-48.4292	50226.3
307.3174	1997	DER	E	307	07:37:03	2.5859	-48.4295	50227.0
307.3910	1997	DER	E	307	09:23:02	2.5742	-48.4340	50230.4
307.3993	1997	DER	E	307	09:35:00	2.5701	-48.4360	50230.4
307.4063	1997	DER	E	307	09:45:04	2.5667	-48.4358	50230.4
307.4146	1997	DER	E	307	09:57:01	2.5649	-48.4385	50229.9
307.9375	1997	DER	E	307	22:30:00	2.5270	-48.4498	50233.1
307.9493	1997	DER	E	307	22:47:00	2.5315	-48.4451	50232.7
307.9569	1997	DER	E	307	22:57:56	2.5409	-48.4456	50233.8
307.9653	1997	DER	E	307	23:10:02	2.5235	-48.4432	50235.4
307.9813	1997	DER	E	307	23:33:04			50238.5

CARNEGIE (09 - 11 Nov 1997 EPP/ODM)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
313.9951	1997	CNE	A	313	23:52:57	2.1325	-59.5764	55372.1
314.0069	1997	CNE	A	314	00:09:56	2.1203	-59.5795	55369.5
314.0167	1997	CNE	A	314	00:24:03	2.1321	-59.5802	55370.7
314.0271	1997	CNE	A	314	00:39:01	2.1332	-59.5800	55367.2
314.0917	1997	CNE	A	314	02:12:03			55355.2
314.1479	1997	CNE	B	314	03:32:59	2.2232	-59.5872	55386.8
314.1646	1997	CNE	B	314	03:57:01	2.2252	-59.5895	55386.1
314.1757	1997	CNE	B	314	04:13:00	2.2392	-59.5945	55386.3
314.1958	1997	CNE	B	314	04:41:57	2.2459	-59.5972	55384.7
314.3681	1997	CNE	A	314	08:50:04	2.1988	-59.6122	55359.4
314.3771	1997	CNE	A	314	09:03:01	2.2000	-59.6079	55365.8
314.3854	1997	CNE	A	314	09:14:59	2.1971	-59.6054	55367.6
314.3951	1997	CNE	A	314	09:28:57	2.1956	-59.6034	55368.3
314.7375	1997	CNE	A	314	17:42:00	2.1704	-59.5949	55370.4
314.7563	1997	CNE	A	314	18:09:04	2.1767	-59.5914	55372.9
314.7722	1997	CNE	A	314	18:31:58	2.1760	-59.5893	55373.7
314.7826	1997	CNE	A	314	18:46:57	2.1730	-59.5878	55373.7
315.0451	1997	CNE	A	315	01:04:57	2.1208	-59.5783	55361.5
315.0542	1997	CNE	A	315	01:18:03	2.1276	-59.5794	55362.0
315.0618	1997	CNE	A	315	01:29:00	2.1317	-59.5775	55362.1
315.0701	1997	CNE	A	315	01:40:57	2.1402	-59.5763	55361.3
315.3438	1997	CNE	A	315	08:15:04	2.2110	-59.5911	55370.4
315.3556	1997	CNE	A	315	08:32:04	2.2073	-59.5925	55370.2
315.3646	1997	CNE	A	315	08:45:01	2.2102	-59.5960	55368.7
315.3736	1997	CNE	A	315	08:57:59	2.2077	-59.5929	55371.5
315.9285	1997	CNE	A	315	22:17:02	2.1229	-59.5936	55376.3
315.9389	1997	CNE	A	315	22:32:01	2.1194	-59.5893	55375.1
315.9458	1997	CNE	A	315	22:41:57	2.1165	-59.5887	55374.1
315.9542	1997	CNE	A	315	22:54:03	2.1150	-59.5898	55373.3
315.9694	1997	CNE	A	315	23:15:56			55371.1

PARAFIELD (10 - 13 Mar 1998 AML/VFD)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
69.9792	1998	PAF	A	069	23:30:03	8.2814	-67.3241	59558.8
69.9903	1998	PAF	A	069	23:46:02	8.2697	-67.3173	59558.2
69.9986	1998	PAF	A	069	23:57:59	8.2787	-67.3127	59557.0
70.0056	1998	PAF	A	070	00:08:04	8.2724	-67.3108	59558.6
70.0125	1998	PAF	A	070	00:18:00			59560.2
70.2097	1998	PAF	C	070	05:01:58			59525.8
70.2778	1998	PAF	C	070	06:40:02	8.3987	-67.3026	59541.7

70.2861	1998	PAF	C	070	06:51:59	8.3934	-67.2998	59542.5
70.2917	1998	PAF	C	070	07:00:03	8.3983	-67.2983	59543.4
70.2993	1998	PAF	C	070	07:11:00	8.3956	-67.2961	59545.3
70.3278	1998	PAF	A	070	07:52:02	8.3518	-67.2897	59590.9
70.334	1998	PAF	A	070	08:00:58	8.3599	-67.2942	59591.1
70.9694	1998	PAF	A	070	23:15:56	8.2867	-67.2991	59590.7
70.9778	1998	PAF	A	070	23:28:02	8.2906	-67.2920	59589.8
70.9847	1998	PAF	A	070	23:37:58	8.2763	-67.2876	59591.0
70.9917	1998	PAF	A	070	23:48:03	8.2494	-67.2857	59589.7
71.0535	1998	PAF	B	071	01:17:02	8.2109	-67.2471	59548.5
71.0618	1998	PAF	B	071	01:29:00	8.1981	-67.2437	59547.4
71.0681	1998	PAF	B	071	01:38:04	8.2092	-67.2432	59546.4
71.0771	1998	PAF	B	071	01:51:01	8.2086	-67.2424	59544.4
71.2431	1998	PAF	A	071	05:50:04	8.3970	-67.2847	59581.3
71.2563	1998	PAF	A	071	06:09:04	8.3742	-67.2893	59582.6
71.2618	1998	PAF	A	071	06:17:00	8.3877	-67.2871	59584.0
71.2681	1998	PAF	A	071	06:26:04	8.3733	-67.2843	59585.4
71.9271	1998	PAF	A	071	22:15:01	8.2567	-67.2605	59598.9
71.9347	1998	PAF	A	071	22:25:58	8.2569	-67.2643	59598.9
71.9438	1998	PAF	A	071	22:39:04	8.2566	-67.2688	59598.8
71.9507	1998	PAF	A	071	22:49:00	8.2516	-67.2726	59598.8
72.2361	1998	PAF	A	072	05:39:59			59575.9
72.2458	1998	PAF	A	072	05:53:57	8.3731	-67.2588	59577.8
72.2507	1998	PAF	A	072	06:01:00	8.3699	-67.2595	59579.1
72.2556	1998	PAF	A	072	06:08:04	8.3707	-67.2605	59579.9
72.9174	1998	PAF	A	072	22:01:03	8.2952	-67.2700	59597.3
72.9243	1998	PAF	A	072	22:11:00	8.2937	-67.2680	59598.0
72.9306	1998	PAF	A	072	22:20:04	8.2887	-67.2689	59599.1
72.9389	1998	PAF	A	072	22:32:01	8.2704	-67.2702	59600.3

FLINDERS UNIVERSITY (13 March 1998 AML/VFD)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
72.0438	1998	FLU	B	072	01:03:04	7.9537	-67.4941	59716.2
72.0521	1998	FLU	B	072	01:15:01	7.9627	-67.4919	59711.6
72.0576	1998	FLU	B	072	01:22:57	7.9696	-67.4887	59710.4
72.0646	1998	FLU	B	072	01:33:01	7.9762	-67.4837	59709.7

EUCLA (17 - 20 March 1998 AML/VFD)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
76.3340	1998	EUC	D	076	08:00:58	4.5074	-66.1226	58517.6
76.3410	1998	EUC	D	076	08:11:02	4.5018	-66.1218	58518.3
76.3472	1998	EUC	D	076	08:19:58	4.4974	-66.1220	58518.8
76.3535	1998	EUC	D	076	08:29:02	4.4931	-66.1219	58519.5
76.9535	1998	EUC	D	076	22:53:02	4.4321	-66.1217	58528.8
76.9590	1998	EUC	D	076	23:00:58	4.4289	-66.1242	58529.1
76.9861	1998	EUC	D	076	23:39:59	4.4183	-66.1269	58528.7
76.9917	1998	EUC	D	076	23:48:03	4.4151	-66.1284	58527.0
77.0368	1998	EUC	D	077	00:53:00			58512.6
77.1875	1998	EUC	E	077	04:30:00			58122.3
77.2729	1998	EUC	E	077	06:32:59	4.3134	-65.2732	58137.1
77.2826	1998	EUC	E	077	06:46:57	4.3120	-65.2718	58139.3
77.2903	1998	EUC	E	077	06:58:02	4.3083	-65.2727	58140.2
77.2986	1998	EUC	E	077	07:09:59	4.3072	-65.2736	58142.1
77.3438	1998	EUC	D	077	08:15:04	4.4961	-66.1227	58518.7
77.3521	1998	EUC	D	077	08:27:01	4.4929	-66.1224	58519.4
77.3576	1998	EUC	D	077	08:34:57	4.4920	-66.1215	58519.6
77.3639	1998	EUC	D	077	08:44:01	4.4898	-66.1203	58519.8
77.9944	1998	EUC	D	077	23:51:56	4.3902	-66.1280	58529.0
78.0007	1998	EUC	D	078	00:01:00	4.3921	-66.1275	58528.1
78.0069	1998	EUC	D	078	00:09:56	4.3892	-66.1274	58526.5
78.0132	1998	EUC	D	078	00:19:00	4.3951	-66.1260	58525.3
78.1722	1998	EUC	B	078	04:07:58	4.0554	-65.0744	58200.4
78.1819	1998	EUC	B	078	04:21:56	4.0700	-65.0753	58202.0
78.3361	1998	EUC	D	078	08:03:59	4.4938	-66.1150	58524.7
78.3431	1998	EUC	D	078	08:14:04	4.4818	-66.1133	58525.0
78.3479	1998	EUC	D	078	08:20:59	4.4873	-66.1126	58525.4
78.3535	1998	EUC	D	078	08:29:02	4.4826	-66.1134	58525.6
78.3604	1998	EUC	D	078	08:38:59			58525.5
78.6951	1998	EUC	D	078	16:40:57	4.4922	-66.1109	58523.6
78.7042	1998	EUC	D	078	16:54:03	4.4869	-66.1073	58524.0
78.7153	1998	EUC	D	078	17:10:02	4.4856	-66.1087	58524.0
78.7215	1998	EUC	D	078	17:18:58	4.4822	-66.1079	58524.0

79.0007	1998	EUC	D	079	00:01:00	4.3849	-66.1261	58523.7
79.0056	1998	EUC	D	079	00:08:04	4.4020	-66.1292	58522.7

TIBOOBURRA (23-25 March 1998 AML/VFD)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
82.2903	1998	TIB	A	082	06:58:02	8.5864	-61.4469	56322.5
82.3007	1998	TIB	A	082	07:13:00	8.5817	-61.4462	56322.2
82.3069	1998	TIB	A	082	07:21:56	8.5790	-61.4473	56322.4
82.3125	1998	TIB	A	082	07:30:00	8.5733	-61.4461	56322.2
82.3229	1998	TIB	A	082	07:44:59			56322.3
82.8875	1998	TIB	A	082	21:18:00	8.5055	-61.4450	56320.1
82.8944	1998	TIB	A	082	21:27:56	8.5039	-61.4463	56319.4
82.9000	1998	TIB	A	082	21:36:00	8.5026	-61.4467	56319.3
82.9056	1998	TIB	A	082	21:44:04	8.5039	-61.4462	56318.8
82.9139	1998	TIB	A	082	21:56:01	8.4981	-61.4481	56317.4
82.9944	1998	TIB	B	082	23:51:56			56303.3
83.1076	1998	TIB	B	083	02:34:57	8.6575	-61.4344	56287.3
83.1181	1998	TIB	B	083	02:50:04	8.6608	-61.4339	56288.2
83.1236	1998	TIB	B	083	02:57:59	8.6685	-61.4335	56288.1
83.1313	1998	TIB	B	083	03:09:04	8.6743	-61.4323	56288.8
83.1660	1998	TIB	A	083	03:59:02	8.6135	-61.4341	56298.1
83.1729	1998	TIB	A	083	04:08:59	8.6184	-61.4333	56300.1
83.2618	1998	TIB	A	083	06:17:00	8.6053	-61.4423	56313.7
83.2681	1998	TIB	A	083	06:26:04	8.6033	-61.4421	56314.3
83.2736	1998	TIB	A	083	06:33:59	8.5981	-61.4383	56315.5
83.2799	1998	TIB	A	083	06:43:03	8.5967	-61.4426	56316.7
83.6139	1998	TIB	A	083	14:44:01	8.5192	-61.4501	56314.6
83.6229	1998	TIB	A	083	14:56:59	8.5167	-61.4512	56314.2
83.9792	1998	TIB	A	083	23:30:03	8.5146	-61.4447	56308.5
83.9847	1998	TIB	A	083	23:37:58	8.5163	-61.4430	56309.0
83.9903	1998	TIB	A	083	23:46:02	8.5164	-61.4408	56308.5
83.9958	1998	TIB	A	083	23:53:57	8.5175	-61.4406	56309.3
84.2431	1998	TIB	A	084	05:50:04	8.5815	-61.4455	56311.3
84.2486	1998	TIB	A	084	05:57:59	8.5752	-61.4475	56312.1
84.2528	1998	TIB	A	084	06:04:02	8.5800	-61.4476	56312.6
84.2576	1998	TIB	A	084	06:10:57	8.5790	-61.4464	56312.6
84.2819	1998	TIB	A	084	06:45:56			56316.1
84.8708	1998	TIB	A	084	20:53:57	8.5012	-61.4580	56312.7
84.8764	1998	TIB	A	084	21:02:01	8.4961	-61.4579	56312.7

MARYBOROUGH (28-30 March 1998 AML/VFD)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
87.2764	1998	MYB	D	087	06:38:01	10.7422	-55.5867	52628.3
87.2840	1998	MYB	D	087	06:48:58	10.7402	-55.5873	52629.4
87.2958	1998	MYB	D	087	07:05:57	10.7397	-55.5859	52631.9
87.3021	1998	MYB	D	087	07:15:01	10.7365	-55.5855	52632.2
87.3076	1998	MYB	D	087	07:22:57			52632.3
87.8951	1998	MYB	D	087	21:28:57	10.6461	-55.5857	52632.1
87.9007	1998	MYB	D	087	21:37:00	10.6486	-55.5857	52630.5
87.9063	1998	MYB	D	087	21:45:04	10.6414	-55.5865	52629.1
87.9104	1998	MYB	D	087	21:50:59	10.6377	-55.5863	52627.0
88.0542	1998	MYB	E	088	01:18:03			52601.2
88.1938	1998	MYB	E	088	04:39:04	10.7960	-55.5975	52613.0
88.2021	1998	MYB	E	088	04:51:01	10.7888	-55.5979	52614.1
88.2076	1998	MYB	E	088	04:58:57	10.7821	-55.5946	52615.7
88.2146	1998	MYB	E	088	05:09:01	10.7731	-55.5929	52619.3
88.2444	1998	MYB	D	088	05:51:56	10.7619	-55.5900	52624.4
88.2500	1998	MYB	D	088	06:00:00	10.7605	-55.5903	52624.5
88.2556	1998	MYB	D	088	06:08:04	10.7541	-55.5906	52624.0
88.2604	1998	MYB	D	088	06:14:59	10.7500	-55.5910	52622.9
88.6611	1998	MYB	D	088	15:51:59	10.6929	-55.5622	52641.1
88.6750	1998	MYB	D	088	16:12:00	10.6973	-55.5657	52639.4
88.9528	1998	MYB	D	088	22:52:02	10.6438	-55.5917	52605.6
88.9590	1998	MYB	D	088	23:00:58	10.6408	-55.5914	52604.1
88.9646	1998	MYB	D	088	23:09:01	10.6444	-55.5923	52606.0
88.9701	1998	MYB	D	088	23:16:57	10.6449	-55.5922	52607.1
89.0208	1998	MYB	C	089	00:29:57	10.9951	-55.5404	52466.4
89.0299	1998	MYB	C	089	00:43:03	10.9988	-55.5401	52468.5
89.0347	1998	MYB	C	089	00:49:58	11.0051	-55.5386	52470.3
89.0431	1998	MYB	C	089	01:02:04	11.0127	-55.5369	52473.1
89.2736	1998	MYB	D	089	06:33:59	10.7273	-55.5989	52615.2
89.2799	1998	MYB	D	089	06:43:03	10.7277	-55.6038	52610.3

89.2840	1998	MYB	D	089	06:48:58	10.7266	-55.6074	52608.7
89.2882	1998	MYB	D	089	06:55:00	10.7272	-55.6116	52605.1
89.2938	1998	MYB	D	089	07:03:04			52605.5
89.8722	1998	MYB	D	089	20:55:58	10.6852	-55.5918	52629.9
89.8778	1998	MYB	D	089	21:04:02	10.6824	-55.5902	52630.3

MT ISA (28 April - 01 May 1998 AML/IL)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
118.3063	1998	ISA	A	118	07:21:04	6.1737	-51.3068	51012.4
118.3167	1998	ISA	A	118	07:36:03	6.1728	-51.3061	51014.3
118.9319	1998	ISA	A	118	22:21:56	6.1392	-51.2812	51038.1
118.9431	1998	ISA	A	118	22:38:04	6.1303	-51.2813	51038.7
118.9819	1998	ISA	A	118	23:33:56	6.1020	-51.2807	51036.8
118.9896	1998	ISA	A	118	23:45:01	6.0974	-51.2804	51036.4
119.0028	1998	ISA	A	119	00:04:02	6.0908	-51.2798	51033.9
119.0451	1998	ISA	A	119	01:04:57			51022.2
119.1875	1998	ISA	B	119	04:30:00			51016.2
119.2056	1998	ISA	B	119	04:56:04	6.1514	-51.2916	51016.9
119.2174	1998	ISA	B	119	05:13:03	6.1677	-51.2955	51016.6
119.2250	1998	ISA	B	119	05:24:00	6.1611	-51.2962	51015.9
119.2326	1998	ISA	B	119	05:34:57	6.1767	-51.2977	51016.7
119.2639	1998	ISA	A	119	06:20:01	6.1834	-51.2939	51012.9
119.2722	1998	ISA	A	119	06:31:58	6.1824	-51.2924	51013.5
119.2799	1998	ISA	A	119	06:43:03	6.1820	-51.2935	51014.3
119.2875	1998	ISA	A	119	06:54:00	6.1856	-51.2947	51015.1
119.9354	1998	ISA	A	119	22:26:59	6.1361	-51.2769	51041.9
119.9451	1998	ISA	A	119	22:40:57	6.1325	-51.2790	51042.6
119.9535	1998	ISA	A	119	22:53:02	6.1269	-51.2810	51042.5
119.9701	1998	ISA	A	119	23:16:57	6.1225	-51.2796	51042.8
120.2736	1998	ISA	A	120	06:33:59	6.1854	-51.2744	51032.2
120.2826	1998	ISA	A	120	06:46:57	6.1846	-51.2735	51033.5
120.2882	1998	ISA	A	120	06:55:00	6.1769	-51.2727	51034.5
120.2986	1998	ISA	A	120	07:09:59	6.1729	-51.2738	51035.5
120.3069	1998	ISA	A	120	07:21:56			51036.2
120.6382	1998	ISA	A	120	15:19:00	6.1189	-51.2862	51027.2
120.6507	1998	ISA	A	120	15:37:00	6.1179	-51.2898	51024.5
120.9604	1998	ISA	A	120	23:02:59	6.1230	-51.2650	51045.7
120.9688	1998	ISA	A	120	23:15:04	6.1225	-51.2676	51044.9
120.9854	1998	ISA	A	120	23:38:59	6.1084	-51.2688	51043.6
120.9944	1998	ISA	A	120	23:51:56	6.1016	-51.2631	51044.5

DENPASAR (08 - 10 May 1998 AML/PGC/IL)
No instrument corrections applied

Decimal Day	Year	St	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
129.0965	1998	DNP	A	129	02:18:58	1.1714	-35.3905	45651.3
129.1063	1998	DNP	A	129	02:33:04	1.1694	-35.3875	45652.4
129.1167	1998	DNP	A	129	02:48:03	1.1745	-35.3789	45654.0
129.1285	1998	DNP	A	129	03:05:02	1.1755	-35.3771	45653.5
129.2319	1998	DNP	A	129	05:33:56	1.2093	-35.4310	45630.9
129.2438	1998	DNP	A	129	05:51:04	1.2093	-35.4379	45628.3
129.2514	1998	DNP	A	129	06:02:01	1.2147	-35.4370	45630.6
129.2674	1998	DNP	A	129	06:25:03			45631.4
129.3653	1998	DNP	A	129	08:46:02	1.2464	-35.4472	45625.2
129.9653	1998	DNP	A	129	23:10:02	1.2329	-35.4203	45638.9
129.9771	1998	DNP	A	129	23:27:01	1.2244	-35.4152	45640.0
130.0139	1998	DNP	A	130	00:20:01	1.2057	-35.4113	45640.0
130.0250	1998	DNP	A	130	00:36:00	1.1969	-35.4091	45640.4

KUPANG (11 - 14 May 1998 AML/PGC/IL)
No instrument corrections applied

Decimal Day	Year	St	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
132.3569	1998	KUG	A	132	08:33:56	2.2388	-37.1861	45782.5
132.3681	1998	KUG	A	132	08:50:04	2.2368	-37.1874	45782.1
132.3771	1998	KUG	A	132	09:03:01			45782.4
133.1104	1998	KUG	A	133	02:38:59	2.1845	-37.1306	45818.2
133.1333	1998	KUG	A	133	03:11:57	2.1822	-37.1280	45817.8
133.1569	1998	KUG	A	133	03:45:56	2.1931	-37.1242	45819.8
133.1646	1998	KUG	A	133	03:57:01	2.1951	-37.1273	45820.9
133.1736	1998	KUG	A	133	04:09:59	2.1984	-37.1267	45821.7
133.2458	1998	KUG	A	133	05:53:57	2.2317	-37.1378	45813.9
133.2549	1998	KUG	A	133	06:07:03	2.2369	-37.1408	45812.3
133.2660	1998	KUG	A	133	06:23:02	2.2401	-37.1461	45810.6
133.3597	1998	KUG	A	133	08:37:58	2.2409	-37.1619	45802.1

134.0556	1998	KUG	A	134	01:20:04	2.1704	-37.1331	45848.7
134.0632	1998	KUG	A	134	01:31:00	2.1680	-37.1289	45850.9
134.0701	1998	KUG	A	134	01:40:57	2.1683	-37.1273	45851.7

WEIPA (04 - 08 June 1998 VFD)
No instrument corrections applied

Decimal Day	Year	St	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
156.1354	1998	WEI	B	156	03:14:59	5.6433	-39.8923	46489.0
156.1556	1998	WEI	B	156	03:44:04	5.6476	-39.8976	46485.3
156.1639	1998	WEI	B	156	03:56:01	5.6534	-39.9001	46480.5
156.1743	1998	WEI	B	156	04:11:00	5.6561	-39.9049	46474.7
156.1861	1998	WEI	B	156	04:27:59			46472.0
156.2701	1998	WEI	B	156	06:28:57	5.6994	-39.9277	46463.2
156.2806	1998	WEI	B	156	06:44:04	5.6938	-39.9319	46463.8
156.9611	1998	WEI	B	156	23:03:59	5.6817	-39.9185	46489.9
156.9715	1998	WEI	B	156	23:18:58	5.6726	-39.9173	46492.9
156.9813	1998	WEI	B	156	23:33:04	5.6702	-39.9163	46491.4
156.9896	1998	WEI	B	156	23:45:01	5.6640	-39.9123	46492.0
156.9965	1998	WEI	B	156	23:54:58	5.6595	-39.9145	46490.7
157.1625	1998	WEI	C	157	03:54:00	5.6513	-39.9426	46493.6
157.1778	1998	WEI	C	157	04:16:02	5.6547	-39.9420	
157.1854	1998	WEI	C	157	04:26:59	5.6574	-39.9455	46490.1
157.1958	1998	WEI	C	157	04:41:57	5.6594	-39.9498	46487.7
157.2146	1998	WEI	C	157	05:09:01	5.6648	-39.9520	46487.1
157.3007	1998	WEI	B	157	07:13:00	5.6871	-39.9240	46478.3
157.3139	1998	WEI	B	157	07:32:01	5.6855	-39.9247	46478.4
157.3208	1998	WEI	B	157	07:41:57	5.6828	-39.9250	46478.6
157.3278	1998	WEI	B	157	07:52:02	5.6807	-39.9247	46478.7
158.0118	1998	WEI	B	158	00:17:00	5.6459	-39.9187	46475.4
158.0215	1998	WEI	B	158	00:30:58	5.6450	-39.9184	46472.7
158.0306	1998	WEI	B	158	00:44:04	5.6403	-39.9187	46470.3
158.0396	1998	WEI	B	158	00:57:01	5.6387	-39.9227	46466.2
158.2313	1998	WEI	B	158	05:33:04	5.6918	-39.9436	46422.7
158.2431	1998	WEI	B	158	05:50:04	5.7165	-39.9596	46409.8
158.2528	1998	WEI	B	158	06:04:02	5.7068	-39.9676	46408.7
158.2618	1998	WEI	B	158	06:17:00	5.7009	-39.9687	46413.3
158.9729	1998	WEI	B	158	23:20:59	5.6559	-39.9367	46472.9
158.9813	1998	WEI	B	158	23:33:04	5.6504	-39.9353	46474.1
158.9896	1998	WEI	B	158	23:45:01	5.6464	-39.9340	46473.6
158.9972	1998	WEI	B	158	23:55:58	5.6482	-39.9335	46473.0
159.0063	1998	WEI	B	159	00:09:04			46472.1

NORFOLK ISLAND (11 - 13 June 1998 VFD)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
162.9632	1998	NFI	B	162	23:07:00	15.2394	-56.3939	51816.3
162.9750	1998	NFI	B	162	23:24:00	15.2446	-56.3942	51815.4
162.9854	1998	NFI	B	162	23:38:59	15.2431	-56.3952	51813.7
162.9938	1998	NFI	B	162	23:51:04	15.2466	-56.3933	51812.0
163.0090	1998	NFI	B	163	00:12:58			51809.5
163.1542	1998	NFI	B	163	03:42:03	15.3121	-56.4275	51783.6
163.2014	1998	NFI	B	163	04:50:01	15.3099	-56.4338	51791.2
163.2111	1998	NFI	B	163	05:03:59	15.3138	-56.4413	51791.1
163.8813	1998	NFI	B	163	21:09:04	15.2656	-56.4085	51818.7
163.8917	1998	NFI	B	163	21:24:03	15.2620	-56.4057	51818.8
163.9014	1998	NFI	B	163	21:38:01			51818.8
163.9250	1998	NFI	B	163	22:12:00	15.2482	-56.4120	51816.6
163.9333	1998	NFI	B	163	22:23:57	15.2534	-56.4112	51815.2
164.1347	1998	NFI	C	164	03:13:58	15.4854	-56.5017	51809.4
164.1521	1998	NFI	C	164	03:39:01	15.4773	-56.5009	51810.0
164.1625	1998	NFI	C	164	03:54:00	15.4797	-56.5029	51810.1
164.1736	1998	NFI	C	164	04:09:59	15.4869	-56.5009	51810.8
164.2424	1998	NFI	B	164	05:49:03	15.2775	-56.4200	51808.3
164.8611	1998	NFI	B	164	20:39:59	15.2642	-56.3855	51828.0
164.3729	1998	NFI	B	164	08:56:59	15.2658	-56.3860	51827.3
164.3806	1998	NFI	B	164	09:08:04	15.2638	-56.3867	51827.3
164.3882	1998	NFI	B	164	09:19:00	15.2630	-56.3879	51827.0
164.3993	1998	NFI	B	164	09:35:00			51826.1

LORD HOWE ISLAND (15-18 June 1998 VFD)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
166.9438	1998	LHI	D	166	22:39:04	14.8201	-61.4039	54792.7

166.9556	1998	LHI	D	166	22:56:04	14.8219	-61.4039	54792.5
166.9646	1998	LHI	D	166	23:09:01	14.8185	-61.4045	54792.3
166.9729	1998	LHI	D	166	23:20:59	14.8201	-61.4062	54791.2
167.0715	1998	LHI	D	167	01:42:58			54785.7
167.2215	1998	LHI	D	167	05:18:58	14.8664	-61.4085	54774.6
167.2306	1998	LHI	D	167	05:32:04	14.8633	-61.4091	54774.5
167.2382	1998	LHI	D	167	05:43:00	14.8619	-61.4107	54774.1
167.9417	1998	LHI	D	167	22:36:03	14.8149	-61.4064	54789.4
167.9500	1998	LHI	D	167	22:48:00	14.8116	-61.4067	54789.7
167.9611	1998	LHI	D	167	23:03:59	14.8087	-61.4079	54789.5
167.9688	1998	LHI	D	167	23:15:04	14.8110	-61.4076	54789.6
168.0083	1998	LHI	E	168	00:11:57			54903.3
168.0236	1998	LHI	E	168	00:33:59			54903.9
168.0444	1998	LHI	E	168	01:03:56	14.7529	-61.4513	54901.3
168.0549	1998	LHI	E	168	01:19:03	14.7485	-61.4537	54900.6
168.1729	1998	LHI	D	168	04:08:59	14.8806	-61.4179	54766.2
168.1847	1998	LHI	D	168	04:25:58	14.8851	-61.4152	54765.1
168.1938	1998	LHI	D	168	04:39:04	14.8889	-61.4168	54764.3
168.2035	1998	LHI	D	168	04:53:02	14.8855	-61.4137	54765.3
168.9097	1998	LHI	D	168	21:49:58	14.8308	-61.3891	54788.9
168.9174	1998	LHI	D	168	22:01:03	14.8274	-61.3906	54789.0
168.9243	1998	LHI	D	168	22:11:00	14.8273	-61.3913	54789.0
168.9326	1998	LHI	D	168	22:22:57	14.8248	-61.3913	54788.9
168.9472	1998	LHI	D	168	22:43:58			54789.3

HOBART (19-22 June 1998 VFD)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
170.1972	1998	HOB	H	170	04:43:58	14.7424	-72.8082	62192.0
170.2069	1998	HOB	H	170	04:57:56	14.7442	-72.8111	62193.4
170.2174	1998	HOB	H	170	05:13:03	14.7383	-72.8112	62193.7
170.2250	1998	HOB	H	170	05:24:00	14.7436	-72.8107	62195.4
170.2639	1998	HOB	H	170	06:20:01			62197.1
170.9576	1998	HOB	H	170	22:58:57	14.6994	-72.8051	62181.3
170.9667	1998	HOB	H	170	23:12:03	14.7008	-72.8044	62181.2
170.9750	1998	HOB	H	170	23:24:00	14.7001	-72.8060	62181.7
170.9826	1998	HOB	H	170	23:34:57	14.6944	-72.8077	62182.1
171.0264	1998	HOB	I	171	00:38:01	15.2138	-72.7204	62266.6
171.0382	1998	HOB	I	171	00:55:00	15.2261	-72.7217	62267.3
171.0472	1998	HOB	I	171	01:07:58	15.2162	-72.7212	62266.9
171.0576	1998	HOB	I	171	01:22:57	15.2203	-72.7212	62267.9
171.1792	1998	HOB	H	171	04:18:03	14.7763	-72.8300	62198.9
171.1896	1998	HOB	H	171	04:33:01	14.7780	-72.8197	62195.9
171.1972	1998	HOB	H	171	04:43:58	14.7773	-72.8155	62193.8
171.2063	1998	HOB	H	171	04:57:04	14.7695	-72.8107	62190.7
171.9576	1998	HOB	H	171	22:58:57	14.7139	-72.8340	62189.0
171.9674	1998	HOB	H	171	23:13:03	14.7303	-72.8340	62192.6
171.9757	1998	HOB	H	171	23:25:00	14.7612	-72.8392	62198.0
171.9840	1998	HOB	H	171	23:36:58	14.7794	-72.8547	62205.0
172.1861	1998	HOB	H	172	04:27:59	14.7619	-72.8502	62190.2
172.1972	1998	HOB	H	172	04:43:58	14.7761	-72.8392	62185.3
172.2049	1998	HOB	H	172	04:55:03	14.7704	-72.8342	62182.2
172.2125	1998	HOB	H	172	05:06:00	14.7707	-72.8266	62181.2
172.9340	1998	HOB	H	172	22:24:58	14.7324	-72.8229	62180.1
172.9438	1998	HOB	H	172	22:39:04	14.7306	-72.8252	62180.0
172.9528	1998	HOB	H	172	22:52:02	14.7310	-72.8260	62179.4
172.9618	1998	HOB	H	172	23:05:00	14.7175	-72.8279	62179.2
172.9619	1998	HOB	H	172	23:21:59			62180.6

ESPERANCE (25 November 1998 PJG/EPP)
No instrument corrections applied

Decimal Day	Year	Stn	Pier	DOY	Time UT	D (degrees)	I (degrees)	F (nT)
329.0430	1998	ESP	C	329	01:02:00			59968.3
329.0486	1998	ESP	C	329	01:10:00			59966.2
329.0500	1998	ESP	C	329	01:12:00			59966.3
329.0549	1998	ESP	C	329	01:19:00			59965.9
329.1153	1998	ESP	C	329	02:46:00	-0.0865	-67.7408	
329.1278	1998	ESP	C	329	03:04:00	-0.0803	-67.7404	
329.1574	1998	ESP	C	329	03:47:00	-0.0257	-67.7279*	
329.1688	1998	ESP	C	329	04:03:00	-0.0061	-67.7287*	
329.1819	1998	ESP	C	329	04:22:00	+0.0122	-67.7438*	
329.1910	1998	ESP	C	329	04:35:00	+0.0168	-67.7458*	
329.2111	1998	ESP	C	329	05:04:00	+0.0085	-67.7429	
329.2201	1998	ESP	C	329	05:17:00	+0.0085	-67.7438	

```
329.2611   1998 ESP  C  329   06:16:00                          59972.7
329.2660   1998 ESP  C  329   06:23:00                          59973.8
329.0458   1998 ESP  E  329   01:06:00                          59891.7
329.0465   1998 ESP  E  329   01:07:00                          59891.6
329.0521   1998 ESP  E  329   01:15:00                          59890.7
329.0528   1998 ESP  E  329   01:16:00                          59890.6
329.1153   1998 ESP  E  329   02:46:00   +0.3596    -67.8304*
329.1278   1998 ESP  E  329   03:04:00   +0.3779    -67.8317*
329.1574   1998 ESP  E  329   03:47:00   +0.3621    -67.8171
329.1688   1998 ESP  E  329   04:03:00   +0.3979    -67.8183
329.1819   1998 ESP  E  329   04:22:00   +0.4062    -67.8317
329.1910   1998 ESP  E  329   04:35:00   +0.4167    -67.8325
329.2111   1998 ESP  E  329   05:04:00   +0.4529    -67.8313*
329.2201   1998 ESP  E  329   05:17:00   +0.4667    -67.8287*
329.2632   1998 ESP  E  329   06:19:00                          59897.4
329.2639   1998 ESP  E  329   06:20:00                          59897.9
```

* DIM B0725H/355937 used for observations thus marked
C is PSM21, E is PSM10

Variometer Data Record

Place		*Start Time (UT) hh:mm dd/mm/yy*	*End Time (UT) hh:mm:ss dd/mm/yy*
DERBY	A	01:52 22/09/96	01:53 25/09/96
	D	02:33 22/09/96	01:48 25/09/96
CARNEGIE	A	06:12 01/10/96	00:50 04/10/96
	D	06:07 01/10/96	00:44 04/10/96
PARAFIELD	A	04:47 03/04/97	02:45 06/04/97
	D	04:46 03/04/97	02:42 06/04/97
	F data loss 19:38 - 23:59 day 093; 15:59 - 23:43 day 094		
EUCLA	A	03:18 09/04/97	22:50 11/04/97
	D	03:14 09/04/97	22:47 11/04/97
	Analogue data loss 10:05 10/4 to 06:59 11/04/1997		
TIBOOBURRA	A	07:54 14/04/97	22:10 16/04/97
	D	07:53 14/04/97	22:11 16/04/97
MARYBOROUGH	A	04:15 20/04/97	22:30 22/04/97
	D	02:19 20/04/97	22:27 22/04/97
LORD HOWE IS	A	06:32 07/05/97	00:45 10/05/97
	D	06:31 07/05/97	00:44 10/05/97
	Rain caused periods of noise on F channel		
NORFOLK IS	A	00:48 12/05/97	23:28 14/05/97
	D	00:46 12/05/97	23:24 14/05/97
	Rain caused two hours of noise on F channel		
HOBART	A	04:02 16/05/97	00:16 19/05/97
	D	04:01 16/05/97	00:19 19/05/97
WEIPA	A	06:24 21/05/97	22:40 23/05/97
	D	06:22 21/05/97	22:40 23/05/97
	1 hour of noise on F channel		
PORT MORESBY	A	06:02 30/05/97	01:11 02/06/97
	D	06:01 30/05/97	01:09 02/06/97
	Very little F data, minute 07:46 on 30/05/97 missing		
HONIARA	A	02:19 06/06/97	23:38 07/06/97
	D	02:18 05/06/97	23:37 07/06/98
	23:41 - 23:46 05/6/97 No XYZ		
	23:41 05/06 06:41 06/06 No F data		
PORT VILA	A	05:56 10/06/97	23:36 13/06/97
	D	05:55 10/06/97	23:34 13/06/97
	noisy periods, F and XYZ data - radio transmissions?		
NOUMEA	A	11:17 16/06/97	22:23 19/06/97
	D	09:38 16/06/97	22:10 19/06/97
DERBY	A	08:50 30/10/97	01:00 04/11/97
	D	08:56 30/10/97	00:59 04/11/97
	XYZ data loss 09:30 - 10:38 31/10		
	XYZ contamination 03:47 - 04:27 01/11/97 XYZ data loss 01:12 - 04:21 03/11/97		

CARNEGIE	A	10:22 09/11/97	01:10 12/11/97
	D	10:17 09/11/97	01:07 12/11/97
	F loss 10:17 - 10:19 day 313; 03:11 - 03:12, 10:20 -10:22, 10:34 - 17:25 day 314 XYZ loss 13:06 - 13:07 day 313		
PARAFIELD	A	No analogue data	
	D	05:41 10/03/98	23:25 13/03/98
	Total loss, 05:41 - 22:07 day 069, 22:10 - 22:12 day 072		
EUCLA	A	No analogue data	
	D	06:11 17/03/98	00:45 20/03/98
TIBOOBURRA	A	No analogue data	
	D	06:00 23/03/98	21:35 25/03/98
	Total loss 14:55 - 15:37 23/03 and 07:05 - 07:15 24/03		
MARYBOROUGH	A	No analogue data	
	D	05:16 28/03/98	21:33 30/03/98
MT ISA	A	No analogue data	
	D	06:30 28/04/98	00:20 01/05/98
DENPASAR	A	No analogue data	
	D	07:39 08/05/98	23:13 10/05/98
KUPANG	A	No analogue data	
	D	08:20 11/05/98	02:19 14/05/98
	F Loss 11:46 day 131 - 00:38 day 132 09:01 - 09:17 day 132 10:47 day 132 - 00:30 day 133 XYZ loss 11:47 - 11:50 and 15:24 - 16:06 day 131 09:01 and 10:47 - 11:00 and 11:18 to 11:20 day 132		
WEIPA	A	No analogue data	
	D	08:16 04/06/98	02:13 08/06/98 Data loss
	Total data loss 08:16 day 154 - 00:50 day 156		
NORFOLK IS	A	No analogue data	
	D	07:37 11/06/98	22:48 13/06/98
	F data loss 21:03 to 22:10 day 162		
LORD HOWE IS	A	No analogue data	
	D	06:30 15/06/98	00:33 18/06/98
	Total data loss 10:40 -17:53, 1818 - 21:58 day 166 F data loss 13:33 - 22:02 :day 167		
HOBART	A	No analogue data	
	D	02:36 19/06/98	01:19 22/06/98
	Data contamination 00:11 - 01:19 day 173		

A=Analogue
D=Digital

Equipment List

All weights shown refer to boxes packed for the aircraft legs. Personal effects were distributed between box 2 and both tripod bags for legs 4 5 and 8.

Aluminium Box 1 (Absolutes) (Weight=30kg)

Description	Serial #	Barcode	Value $AUD
DIM Theodolite, Ziess 020B	308887	11413	$20,000
E810 Electronics console	220	11412	$5,000
E770 PPM and head	214	18815	$5,000
G856 PPM and head + cable	50699	4847	$10,000
Bartington DIM Electronics	0702H	5106	$5,000
NEC Notebook computer	36000521N	19160	$2,000)

Sangean Radio Receiver
Bartington Battery re-charger
Plastic PPM stand
Micronta Stopwatch
Pencilling Board, x2
Metal Tape Measure
Tape measure, 60m
Observing forms
Calculator

Aluminium Box 2 (Variometer) (Weight=29 kg)

Description	Serial #	Barcode	Value $AUD
EDA Fluxgate Magnetometer	2877	15247	$15,000
Yokogawa Chart Recorder 4360BG027		19252	$2,000
Geometrics G856 PPM + head 277000		19141	$10,000
Altronic Inverter	---------	-------	$200
Power Supply, 12V	---------	-------	$100
Power line filter, Squeakyclean	92356		$150
Computer Keyboard	9407-13071		$20
Magnetic compass (x2)	--------	----	$50
*Inverter relay switching box		------	

PPM cable 50m\

Aluminium Box 3 (Miscellaneous) (Weight=30kg)

Description	Serial #	Barcode	Value $AUD
DIM theodolite Ziess 020B	312714		$25,000
Acer Notebook Computer	P026480	24106	$2,000
*(Digital Camera and cable			$800)

Manuals, (equipment and software)
tent fly and ropes (spare)
Azimuth Mark illumination device
Tape measure 60m
D Cell batteies
PPM adapter, spare
PPM stand, spare
Micronta Stopwatch, spare

Torch + battery
Observation and administration forms
Station envelopes
Spare cables and plugs
Spare ropes and bolts
Cable roll
Yokogawa Chart paper and printer ribbon
EDA spike, small with collar
Tripod foot pipes
PPM belt
Flagging tape
Station plaques (x3)
Station footpipes
Padlock and key
RS-232 gear
Electric soldering iron
EDA boards, spare
packing tape
masking tape
insulation tape
Extension lead, short
tool box
stationery box

* Hand luggage on legs 2 and 3

Red 44 litre Esky (Weight =29kg)

Description	Serial #	Barcode	Value $AUD
Multimeter, Fluke 77	42600006	11404	$150
Trimble GPS unit	0010002Y92	4666	$1,000

EDA Tent fly, poles, ropes, 8 pegs
PPM pole (4 piece) 3 pegs, ropes
PPM adaptor
EDA spike (long) and collar
Hammer
Trowel
Plastic bags
EDA cable, 50m
EDA Sensor head
Computer Floppy Disk
Electronic Spares
Rain coat and pants
Double Adaptor
Earth Leakage filter
mains adaptors (Noumea and Indonesia)
Hand Broom

Small Tripod Bag (Weight=19kg)
Description
DIM tripod
Azimuth mark pole
Spirit level
pegs (4) and guy ropes (2)
station template
pink power lead

Large Tripod Bag (Weight = 25kg)
Description
DIM tripod
Observing shelter poles and bolts
PPM pole
pegs (8) and guy ropes (2)
Observing fly
AGRF95 maps

Hand Luggage
ACER PC
Digital Camera

Road Legs Only

Aluminium Box 4 (Generator and Spares)
Description
Inverter Battery, Sona 15 Ah
Battery re-charger
Computer car power supply
500W flood light +spare globe
Funnel, with filter
gloves x2
torch + battery x2
Aeroguard x2
poly-tarp, small
personal first aid kit x2
packing tape x3
flagging tape x2
toilet paper x2
garbage bags
AA batteries x24
9V batteries x3

Shovel (2)
Mattock
Sledge hammer, long handle
sledge hammer, short handle
Power extension leads (roll x 1 and loose x 3)
Generator external fuel tank 30 litre
Jerry Cans, 2

Generator
Oil for generator
Generator Spares (airfilter, spark plug)
Chain and padlock + 2 keys

White Plastic bucket
Polytarp, small, dirty

Red vehicle tool kit x2
Blue belts and filters spares kit

In vehicle cabin
Road Maps Atlas
Accommodation guide
General information envelope
Walkie talkie + batteries

Accommodation

Lord Howe Island

The Beachcomber Lodge, Lord Howe Island, 2989 NSW,
Don and Una Payten. Tel 02 6563 2032/Fax 02 6563 2132
Good quality accommodation, though a fair way from the airport.

Norfolk Island

The Castaway Motel, Tel: 0011 6723 22625 Fax 0011 6723 22785
Aloha Car Rental, Tel 0011 6723 2251 Fax 0011 6723 23064
There are numerous car hire companies on Norfolk Island, all are inexpensive.

Weipa

The Albatross Motel.
P.O. Box 429 Weipa QLD
Tel: 07 4069 7314/Fax 07 4069 7130
This is the only accommodation in town, so it should be booked ahead. Pleasant, well lit, air-conditioned and spacious rooms. The motel has good counter meals.

Port Moresby

The Devarra Ela Beach Motel
P.O. Box 813, Port Moresby PNG
Tel 321 2100, Fax 321 2434

120 Kina per night + 3% tax
Good quality motel on the beach front in Port Moresby. Close to the Observatory office but a considerable drive to the airport.

Honiara

King Solomon Motel (ex Hibiscus Motel)

A good quality tourist motel. The rooms are inconvenient for storing the repeat station equipment since the only access is via a network of very steep stairs or a single carriage cable-car. Good quality dining room and swimming pool.
The motel is close to the MNR office and so is handy for checking the variometer morning and night if it is set up at the MNR. The airport is about 15 kilometres out from Honiara. There are heavy traffic jams through town every morning, lunchtime and evening. Vehicle accommodation is on the street at the front of the motel and as such is inconvenient.

Port Vila

The Iririki Centreville (ex Olympic motel)
P.O. Box 709 Port Vila
$AUD 92 + 10% per night. A good quality motel in the centre of the Port Vila business district, on the main road through town from the airport. There is limited car accommodation at the rear, which is inconvenient for heavy equipment and absolute instruments. Many restaurants and cafes near-by.

Noumea

The Tontoutel Hotel
BP 8 Tontouta
New Caledonia
Tel: 0011 677 30 411
A good quality hotel, the only one close enough to the repeat stations at the airport, which is about 50 kilometres from the city of Noumea.

Denpasar

Puri Nusnatara Transit Hotel
JL Raya Tuban No 56 Kuta Bali
Tel: +62 361 751649
Fax: +62 361 752996
A fairly low quality hotel, but very close to the airport and the BMG regional office. Poorly lit and ineffective air-conditioning. Breakfast is available at the hotel. There are many street vendors and restaurants in the area for other meals.

Kupang

The Kristal Hotel
Jln Tim-Tim 59 Kupang - NTT - Indonesia
Tel: +62 380 25100
Fax +62 382 25104
A good quality new hotel, a considerable distance from the BMG meteorology Office and repeat station, but there are no hotels closer. This is the only hotel in Kupang that will accept credit cards

Hourly Mean Value Tables

1996 SEPTEMBER — Horizontal intensity (H) — FINAL MEAN HOURLY VALUES

Day	UT	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
02	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
03	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
06	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
08		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
09		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
10	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
12	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
15		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
18		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
19		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
20	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
21	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	DERBY										33000 + tabular values in nanoTeslas.																
23		278	278	282	265	258	250	229	224	239	238	242	240	240	267	248	272	258	261	263	263	265	262	262	266		256
24		268	275	282	279	277	266	261	257	255	260	264	267	260	256	267	269	267	268	271	272	273	276	276	271		268
25		271	273	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
26	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
27		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
29		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
30	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-

1996 OCTOBER — **Horizontal intensity (H)** — **FINAL MEAN HOURLY VALUES**

Day	UT	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
	CARNEGIE	28000 + tabular values in nanoTeslas.																									
01		-	-	-	-	-	-	25	18	12	13	16	19	18	18	22	25	28	29	31	34	37	41	40	35		-
02		28	25	25	18	16	14	12	8	14	18	23	32	28	27	22	9	17	23	26	26	27	28	28	29		22
03		24	22	24	20	18	7	-4	-13	-3	1	6	14	20	23	22	33	35	30	31	36	37	31	27	15		19
04		8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
05	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
06	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
07	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
08		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
09	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
10		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
15		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
18	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
19	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
22	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
23	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
26	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
27	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
29		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
30		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
31		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-

1997 APRIL — Horizontal intensity (H) — FINAL MEAN HOURLY VALUES

Day	UT 00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PARAFIELD										23000 + tabular values in nanoTeslas.																
03		-	-	-	-	18	26	27	31	34	35	37	39	40	39	39	40	42	43	42	42	45	42	39	32	-
04		21	21	25	28	32	27	20	19	20	24	24	25	33	29	35	36	36	39	42	43	44	38	26	9	29
05		1	13	17	19	21	22	19	21	23	29	27	35	35	35	35	37	44	41	42	40	41	40	42	23	29
06		17	20	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EUCLA										23500 + tabular values in nanoTeslas.																
09		-	-	-	164	167	174	178	182	185	188	189	189	188	184	182	179	179	180	183	182	184	185	180	172	-
10		180	179	189	199	197	196	194	194	195	196	197	199	198	198	201	197	195	197	198	200	195	198	185	201	195
11	D	200	169	161	139	132	134	123	138	156	159	162	161	169	169	177	175	174	182	179	183	191	177	170	-	-
12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TIBOOBURRA										26500 + tabular values in nanoTeslas.																
14		-	-	-	-	-	-	-	-	410	411	415	414	415	411	409	406	408	412	414	417	418	418	417	415	-
15	Q	416	422	431	434	429	425	421	422	419	417	419	420	420	420	420	419	420	420	420	421	420	420	416	410	421
16		406	410	421	429	426	423	422	423	421	422	423	424	416	417	414	419	424	414	413	426	416	408	435	-	-
17	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MARYBOROUGH										29500 + tabular values in nanoTeslas.																
20		-	-	261	251	247	245	244	239	243	249	251	251	251	249	249	250	251	253	254	256	258	257	251	245	-
21	D	244	256	267	265	261	256	254	252	260	256	242	232	260	238	240	231	237	239	249	229	238	218	200	182	242
22	D	196	212	200	169	167	185	194	199	208	216	215	218	224	227	230	231	232	232	241	246	237	235	230	-	-
23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1997 MAY — **Horizontal intensity (H)** — **FINAL MEAN HOURLY VALUES**

Day	UT	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
02	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
06		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	LORD HOWE ISLAND										26000 + tabular values in nanoTeslas.																
07		-	-	-	-	-	-	-	-	-	-	220	222	223	225	227	228	227	227	228	230	238	242	240	238		-
08		231	220	212	206	215	222	222	220	217	215	215	220	220	220	220	223	224	227	230	231	235	239	238	233		223
09		220	218	210	203	211	220	221	210	200	205	212	217	217	217	217	218	219	221	223	223	229	233	228	218		217
10		212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	NORFOLK ISLAND										28500 + tabular values in nanoTeslas.																
12	Q	-	-	-	173	179	186	191	191	192	193	192	191	191	191	192	193	194	195	197	198	204	205	199	193		-
13	Q	188	184	180	183	188	192	195	195	194	194	195	195	195	195	195	195	195	196	196	200	204	205	201	196		194
14		194	188	183	182	186	192	195	195	195	195	197	196	194	193	192	189	198	198	196	200	200	192	185	187		193
15	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	HOBART										18000 + tabular values in nanoTeslas.																
16	D	-	-	-	-	345	348	352	349	348	347	347	345	340	336	349	327	333	337	345	349	353	355	358	343		-
17		313	328	334	337	340	341	346	347	350	353	347	345	363	355	352	352	350	353	355	350	354	358	361	356		347
18		358	355	347	340	345	351	354	358	356	357	357	359	360	362	362	359	361	367	367	369	368	368	367	362		359
19	Q	360	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	WEIPA										35500 + tabular values in nanoTeslas.																
21		-	-	-	-	-	-	-	-	134	135	134	134	135	134	134	132	133	136	145	145	146	156	158	157		-
22		158	159	168	168	158	145	137	136	137	140	138	141	143	142	141	142	147	151	150	149	151	149	148	151		148
23	Q	157	165	169	163	152	148	141	142	143	142	140	139	139	140	140	142	143	145	148	149	152	156	156	-		-
24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
26		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
27	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
29	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	PORT MORESBY										36000 + tabular values in nanoTeslas.																
30		-	-	-	-	-	-	18	21	23	24	22	17	12	7	8	6	8	6	10	11	13	20	25	25		-
31		35	43	42	40	30	21	20	19	15	12	9	7	5	6	4	5	2	19	18	22	21	23	26	32		20

1997 JUNE — Horizontal intensity (H) — FINAL MEAN HOURLY VALUES

Day	UT	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
PORT MORESBY											36000 + tabular values in nanoTeslas.																
01		34	35	26	19	18	16	9	10	10	11	10	7	9	11	12	11	9	10	14	18	20	28	30	38		17
02		50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
03	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
HONIARA											35500 + tabular values in nanoTeslas.																
05	Q	-	-	-	-	-	17	10	13	14	12	14	17	18	18	17	18	19	21	24	28	34	39	43	45		-
06		47	49	47	45	37	28	22	25	30	38	38	31	27	29	31	31	29	32	33	32	34	41	47	55		36
07	D	64	63	47	34	32	33	31	25	18	7	-4	-8	-12	-3	2	7	9	11	12	14	20	23	29	36		20
08	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
09	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
PORT VILA											33500 + tabular values in nanoTeslas.																
10		-	-	-	-	-	-	11	4	3	14	19	21	23	25	28	29	31	31	34	43	52	57	62	63		-
11		59	61	65	61	52	44	40	43	44	42	44	46	47	48	48	47	51	54	56	61	68	71	71	66		54
12		61	60	61	63	62	57	49	49	47	43	35	40	39	39	39	45	48	47	49	53	57	60	62	61		51
13	Q	60	51	47	50	49	47	46	46	46	47	46	44	43	45	44	45	47	48	49	51	53	53	49	48		48
14	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
15		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
NOUMEA											32000 + tabular values in nanoTeslas.																
16		-	-	-	-	-	-	-	-	-	-	-	-	248	250	248	252	253	253	256	258	264	264	265	263		-
17		264	262	255	248	245	246	250	250	249	250	250	248	248	247	245	247	249	250	250	252	259	262	260	257		252
18	Q	258	257	255	252	248	247	250	249	249	253	255	252	251	251	250	250	249	250	251	252	258	262	264	265		253
19		267	261	255	252	252	251	248	234	217	212	214	213	220	226	231	234	238	240	243	248	253	256	256	-		-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
21	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
26		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
27	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
29		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
30		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-

1997 OCTOBER **Horizontal intensity (H)** **FINAL MEAN HOURLY VALUES**

Day		UT 00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
05	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
06		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
08		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
09		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
10	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
15	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
16	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
18		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
19	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
21	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
24	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
25	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
26		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
27	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
29		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	DERBY										33000 + tabular values in nanoTeslas.																
30		-	-	-	-	-	-	-	-	-	305	301	293	305	293	305	313	313	311	315	316	316	321	322	317		-
31		315	307	307	307	316	314	310	307	307	309	311	310	310	310	310	311	314	320	318	315	319	323	327	338		314

1997 NOVEMBER — Horizontal intensity (H) — FINAL MEAN HOURLY VALUES

Day	UT	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
DERBY											33000 + tabular values in nanoTeslas.																
01		349	358	366	367	349	338	340	344	339	323	301	305	306	309	310	312	311	313	318	319	318	321	331	328		328
02	Q	328	331	336	339	335	329	323	320	316	313	313	314	314	314	315	315	317	323	324	324	325	327	331	336		323
03		342	346	-	-	353	343	332	329	329	327	322	318	319	318	318	322	322	318	332	325	325	324	323	330		-
04		337	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
06	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
07	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
08		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
CARNEGIE											28000 + tabular values in nanoTeslas.																
09		-	-	-	-	-	-	-	-	-	-	-	-	-	-	35	35	35	37	39	36	49	44	44	44		-
10		36	27	25	24	21	12	9	10	8	14	18	18	23	29	35	27	20	22	28	32	36	39	40	41		25
11		33	34	39	41	35	36	36	29	26	25	20	24	14	16	17	22	24	25	26	30	31	33	31	30		28
12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
14	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
15		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
18		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
19		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
21	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
22	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
23	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
26		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
27	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
28	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
29	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
30		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-

1998 MARCH — **Horizontal intensity (H)** — **FINAL MEAN HOURLY VALUES**

Day	UT	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
06		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
07	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
08	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
09	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	PARAFIELD										23000 + tabular values in nanoTeslas.																
10	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-48	-44		-
11	D	-25	-25	-25	-18	-10	-26	2	15	-6	5	-4	7	17	55	34	31	37	37	27	30	32	35	25	5		11
12		13	21	20	5	0	18	11	7	17	34	30	23	24	35	41	38	36	37	48	47	46	51	36	15		27
13		0	-7	3	8	15	28	28	30	29	27	35	23	28	28	23	27	40	47	30	31	29	28	25	16		24
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
15	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	EUCLA										23500 + tabular values in nanoTeslas.																
17		-	-	-	-	-	-	181	183	189	192	191	193	195	197	200	200	199	199	199	196	199	198	197	189		-
18	Q	178	166	166	170	174	179	181	184	188	194	197	198	199	199	198	197	195	196	198	197	199	200	200	193		189
19	Q	187	185	188	187	183	186	189	192	199	199	199	199	200	201	200	199	203	203	203	205	206	206	206	195		197
20		184	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
21	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	TIBOOBURRA										26500 + tabular values in nanoTeslas.																
23		-	-	-	-	-	-	420	422	425	429	428	427	424	424	423	417	423	424	424	425	426	422	414	407		-
24		406	413	420	423	423	422	422	418	426	433	437	430	427	419	416	416	419	418	422	418	419	415	414	415		421
25		422	426	422	416	417	417	418	422	420	417	413	399	417	393	419	388	399	400	397	407	408	407	-	-		-
26		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
27		-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	MARYBOROUGH										29500 + tabular values in nanoTeslas.																
28		-	-	-	-	-	249	240	247	258	257	241	229	223	238	247	250	251	252	253	252	253	248	240	235		-
29	D	205	212	239	260	235	238	237	243	244	248	253	253	253	254	251	273	267	264	267	249	240	237	233	227		245
30		232	241	247	248	247	241	229	220	217	220	227	237	242	244	248	254	246	242	244	243	242	242	-	-		-
31		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-

1998 APRIL — Horizontal intensity (H) — FINAL MEAN HOURLY VALUES

Day	UT	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
02	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
05	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
06		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
08		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
09		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
10	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
15	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
17	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
18		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
19		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
24	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
25	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
26	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
27		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
MT ISA		31500 + tabular values in nanoTeslas.																									
28		-	-	-	-	-	-	387	390	401	405	407	418	413	408	410	416	415	415	415	418	421	428	427	425		-
29	Q	421	414	419	420	409	401	402	403	410	411	406	406	412	413	415	418	420	422	422	422	423	425	428	430		416
30		431	430	434	430	425	420	425	429	429	441	449	442	438	438	424	409	406	414	416	418	417	425	432	437		427

1998 MAY **Horizontal intensity (H)** **FINAL MEAN HOURLY VALUES**

Day	UT	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
MT ISA											31500 + tabular values in nanoTeslas.																
01		441	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DENPASAR											37000 + tabular values in nanoTeslas.																
08		-	-	-	-	-	-	-	-	-	173	171	176	169	168	164	183	174	180	183	188	197	192	192	198		-
09		206	210	216	226	224	192	183	186	173	172	182	187	187	181	184	191	187	189	184	184	178	179	184	195		191
10		200	209	216	217	215	211	198	178	169	172	175	172	173	180	182	186	188	190	190	189	195	197	201	207		192
KUPANG											36500 + tabular values in nanoTeslas.																
11		-	-	-	-	-	-	-	-	12	8	-3	-5	5	11	16	18	19	17	23	24	27	48	41	42		-
12		37	26	28	24	2	-9	-18	-18	-28	-19	-2	-1	-2	-4	-1	7	16	9	12	15	18	19	23	33		7
13	Q	39	35	32	32	31	27	19	9	0	7	13	15	15	16	13	11	14	16	18	19	19	21	32	37		20
14	Q	42	53	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
15		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
18		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
19		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
26		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
27		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
28	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
29	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
30		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
31	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-

1998 JUNE — Horizontal intensity (H) — FINAL MEAN HOURLY VALUES

Day	UT	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	WEIPA	35500 + tabular values in nanoTeslas.																									
05		-	169	168	167	149	142	133	129	134	130	126	120	130	141	134	130	142	139	139	146	150	160	159	158		-
06	D	163	166	168	171	165	158	149	145	149	144	134	127	134	124	130	138	153	144	140	131	131	134	136	146		145
07	D	144	129	111	110	112	95	76	103	109	109	112	116	118	121	119	125	124	127	129	130	131	137	137	135		119
08		140	135	135	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
09		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
10	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	NORFOLK ISLAND	28500 + tabular values in nanoTeslas.																									
11		-	-	-	-	-	-	-	136	143	147	147	151	153	156	156	157	159	161	164	170	180	183	180	178		-
12		178	168	157	144	135	129	133	137	149	156	154	153	150	152	153	152	151	151	152	156	167	170	166	160		153
13		156	151	152	155	157	156	158	159	158	158	158	158	157	156	157	157	157	158	160	168	191	193	181	-		-
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	LORD HOWE ISLAND	26000 + tabular values in nanoTeslas.																									
15		-	-	-	-	-	-	218	219	216	215	205	-	-	-	-	-	-	-	229	-	-	-	228	222		-
16		216	216	215	210	211	213	212	216	216	213	208	215	216	215	216	218	216	216	214	216	219	222	224	220		216
17	Q	218	213	206	200	202	209	213	219	221	222	221	219	218	218	219	222	221	222	224	225	229	235	234	226		219
18		217	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	HOBART	18000 + tabular values in nanoTeslas.																									
19		-	-	379	382	382	380	381	370	361	342	346	361	364	367	369	373	380	382	385	386	386	387	386	382		-
20		379	380	374	368	368	380	379	362	369	371	359	363	368	370	371	385	380	376	378	373	378	384	371	347		372
21		351	361	362	344	339	358	354	359	338	337	354	366	368	366	367	368	371	374	376	374	374	377	365	359		361
22		375	374	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
24	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
26	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
27		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
28	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
29	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
30	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-

Q and D refer to International Quiet and Disturbed days respectively

1996 SEPTEMBER **Declination East (D)** **FINAL MEAN HOURLY VALUES**

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DERBY											2 Deg + tabular values in 0.1 min														
23			305	304	302		308	321	329		344	339	336		316	330	328		320	307	312		318	311	317		323	322	327		331	329	316	321
24			307	311	310		318	327	336		346	344	340		331	326	324		324	317	324		319	322	324		323	325	327		329	325	316	325
25			309	300	-		-	-	-		-	-	-		-	-	-		-	-	-		-	-	-		-	-	-		-	-	-	-
26	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1996 OCTOBER — Declination East (D) — FINAL MEAN HOURLY VALUES

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	
	CARNEGIE										2 Deg + tabular values in 0.1 min																
01		-	-	-	-	-	-	92	93	88	81	74	71	68	65	65	67	67	67	68	66	71	63	59	54	-	
02		47	45	50	70	89	105	113	103	91	82	79	78	75	71	63	61	67	73	72	68	66	64	69	61	73	
03		52	47	47	60	79	98	101	90	94	87	77	71	65	64	58	47	40	54	51	66	58	60	55	53	66	
04		53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
05	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
06	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
07	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
08		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
09	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
10		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
15		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
18	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
19	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
22	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
23	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
26	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
27	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
29		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
30		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
31		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

1997 APRIL — **Declination East (D)** — **FINAL MEAN HOURLY VALUES**

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PARAFIELD										8 Deg + tabular values in 0.1 min															
03			-	-	-	-	207	204	200	192	183	176	173	171	170	165	161	165	167	165	163	171	174	161	149	138	-
04			137	153	185	195	203	210	201	192	178	159	165	155	142	149	154	160	164	168	170	165	161	156	158	157	168
05			169	171	181	192	198	202	197	188	175	157	167	166	165	166	167	164	165	166	159	159	162	169	160	147	171
06			150	151	162	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EUCLA										4 Deg + tabular values in 0.1 min															
09			-	-	-	273	283	287	285	277	271	263	259	258	255	256	245	243	247	246	245	250	251	246	241	236	-
10			232	231	256	282	298	296	287	277	270	267	263	261	259	261	261	261	261	258	255	246	246	250	269	287	264
11	D		274	267	264	282	286	305	270	285	278	269	262	258	254	256	257	257	257	257	258	255	249	240	259	-	-
12			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TIBOOBURRA										8 Deg + tabular values in 0.1 min															
14			-	-	-	-	-	-	-	-	330	324	319	316	314	312	311	306	312	315	316	315	314	312	306	302	-
15	Q		300	306	313	326	338	343	338	331	327	328	324	322	321	320	320	320	322	323	323	321	320	317	308	298	321
16			291	298	322	341	349	345	338	334	332	330	328	326	324	298	310	309	322	318	329	341	320	346	373	-	-
17	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MARYBOROUGH										10 Deg + tabular values in 0.1 min															
20			-	-	471	464	458	451	446	441	438	437	437	438	438	439	440	441	441	439	440	439	437	433	421	414	-
21	D		422	443	465	471	468	457	445	440	438	436	435	425	432	433	419	425	422	427	439	455	467	465	457	452	443
22	D		452	445	455	465	458	462	453	443	439	434	432	432	434	437	439	441	443	443	445	439	434	422	421	-	-
23			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1997 MAY — Declination East (D) — FINAL MEAN HOURLY VALUES

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	
01	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	LORD HOWE ISLAND											14 Deg + tabular values in 0.1 min															FINAL
07		-	-	-	-	-	-	-	-	-	-	-	522	521	521	523	525	527	528	528	527	524	522	513	503	501	-
08		508	522	535	542	540	532	525	522	518	515	510	507	512	515	517	520	523	523	522	519	519	508	494	487	518	
09		492	507	532	542	546	545	532	530	529	520	516	514	515	516	518	520	522	523	522	520	516	503	482	471	518	
10		474	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NORFOLK ISLAND											15 Deg + tabular values in 0.1 min															
12	Q	-	-	-	206	207	197	183	179	176	175	174	173	174	175	176	178	178	179	177	178	181	177	170	165	-	
13	Q	168	177	187	197	201	192	183	181	179	178	178	177	177	178	178	179	179	179	179	180	182	176	168	168	180	
14		171	174	182	193	199	194	184	180	178	177	176	176	176	176	176	178	179	176	175	178	178	174	169	169	179	
15	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	HOBART											14 Deg + tabular values in 0.1 min															
16	D	-	-	-	-	438	442	441	432	427	426	421	419	401	397	315	347	366	421	419	422	426	425	419	410	-	
17		434	463	442	453	451	442	437	430	428	427	418	391	401	406	420	425	427	435	442	428	421	421	424	423	429	
18		409	410	416	431	436	434	425	420	417	418	413	414	414	410	410	416	424	431	420	420	414	417	417	414	419	
19	Q	408	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WEIPA											5 Deg + tabular values in 0.1 min															
21		-	-	-	-	-	-	-	-	415	410	409	406	404	404	404	405	405	408	411	409	411	418	413	402	-	
22		397	398	405	408	410	413	413	410	404	402	401	402	403	404	406	407	410	411	411	411	410	409	405	402	406	
23	Q	402	402	402	399	401	411	415	410	403	400	400	400	401	402	403	404	406	407	408	407	408	411	406	-	-	
24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PORT MORESBY											6 Deg + tabular values in 0.1 min															
30		-	-	-	-	-	-	335	331	324	321	320	319	315	316	318	319	318	320	320	321	323	328	327	321	-	
31		317	310	310	315	326	330	330	324	319	318	317	317	314	315	315	315	315	319	319	320	324	333	328	325	320	

1997 JUNE — **Declination East (D)** — **FINAL MEAN HOURLY VALUES**

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
PORT MORESBY										6 Deg + tabular values in 0.1 min																
01			322	316	315	319	326	333	332	324	318	317	317	316	316	317	317	318	318	320	323	321	321	326	324	321	321
02			322	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HONIARA										9 Deg + tabular values in 0.1 min																
05	Q		-	-	-	-	-	275	276	273	270	269	268	268	268	269	269	269	270	271	272	272	276	273	269	261	-
06			256	259	264	271	279	279	276	272	270	268	267	267	265	268	269	270	269	270	270	271	275	276	276	271	270
07	D		269	264	263	269	274	274	273	271	269	269	267	268	265	266	266	267	268	270	268	272	275	269	260	253	268
08	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PORT VILA										11 Deg + tabular values in 0.1 min																
10			-	-	-	-	-	-	378	376	375	372	372	371	371	372	373	374	375	377	375	378	379	373	367	365	-
11			369	376	381	383	379	371	368	369	368	368	368	368	370	372	374	376	377	376	376	377	377	370	363	361	372
12			367	373	377	377	377	374	370	368	368	368	369	367	368	370	371	372	372	374	374	376	379	374	370	370	372
13	Q		370	371	374	376	379	379	373	370	369	369	368	368	369	369	370	373	375	375	374	375	374	367	362	361	371
14	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NOUMEA										12 Deg + tabular values in 0.1 min																
16			-	-	-	-	-	-	-	-	-	-	-	-	481	480	481	482	485	486	486	488	490	486	478	474	-
17			473	477	481	490	493	490	484	484	484	482	481	481	482	481	481	482	482	481	480	479	483	486	483	480	483
18	Q		475	473	477	481	488	489	483	480	480	479	478	479	481	481	482	482	481	480	480	480	484	481	476	472	480
19			465	464	472	485	495	494	488	489	486	480	475	472	473	477	480	484	484	487	486	485	490	485	478	-	-
20			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1997 OCTOBER — Declination East (D) — FINAL MEAN HOURLY VALUES

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DERBY											2 Deg + tabular values in 0.1 min														
30		-	-	-	-	-	-	-	-	-	-	361	356	353	343	348	347	346	345	345	344	343	347	347	336	318	-
31		308	309	314	325	345	360	365	357	349	344	345	346	345	344	343	342	342	339	338	338	337	331	319	306	337	

1997 NOVEMBER **Declination East (D)** **FINAL MEAN HOURLY VALUES**

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
	DERBY											2 Deg + tabular values in 0.1 min														
01			305	315	333	351	368	371	376	368	357	347	343	343	343	344	341	340	338	338	339	335	336	341	332	316	343
02	Q		311	310	318	330	341	350	357	356	349	346	345	345	345	343	341	342	341	340	338	336	336	335	325	312	337
03			306	309	-	-	370	375	370	358	348	342	339	341	342	341	340	340	339	337	339	335	332	324	315	313	-
04			309	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	CARNEGIE											2 Deg + tabular values in 0.1 min														
09			-	-	-	-	-	-	-	-	-	-	-	-	-	-	111	108	107	106	103	102	114	92	77	73	-
10			77	91	99	108	121	134	138	136	126	118	116	115	116	103	101	85	91	102	105	101	95	88	74	69	105
11			71	79	96	115	134	137	139	132	126	121	115	106	101	105	105	109	106	104	103	102	98	86	73	67	105
12			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1998 MARCH — Declination East (D) — FINAL MEAN HOURLY VALUES

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PARAFIELD											8 Deg + tabular values in 0.1 min														
10	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	138	174
11	D		165	182	220	250	263	251	223	214	180	151	163	159	157	154	162	177	200	179	169	161	157	151	149	170
12			164	174	197	214	224	231	228	226	182	166	170	167	154	178	178	170	174	177	197	179	170	159	153	150
13			157	171	198	215	223	223	222	207	191	171	142	171	160	163	160	182	201	184	172	172	174	170	167	146
14			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EUCLA											4 Deg + tabular values in 0.1 min														
17			-	-	-	-	-	-	334	316	298	286	289	264	285	290	296	291	291	290	288	288	284	276	282	255
18	Q		234	228	250	284	308	323	317	307	294	286	289	294	294	295	294	290	289	293	285	288	283	279	271	246
19	Q		239	239	264	294	318	320	309	296	287	285	290	296	295	294	295	297	302	296	290	291	289	282	266	246
20			243	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TIBOOBURRA											8 Deg + tabular values in 0.1 min														
23			-	-	-	-	-	-	362	346	334	330	329	329	328	327	327	331	328	326	324	321	314	303	292	291
24			303	323	348	362	372	370	362	350	337	327	326	326	325	320	312	314	307	314	309	303	306	296	299	308
25			314	323	331	343	349	350	345	334	327	332	327	307	305	306	307	304	333	335	315	313	303	296	-	-
26			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MARYBOROUGH											10 Deg + tabular values in 0.1 min														
28			-	-	-	-	-	464	452	444	441	433	416	404	412	419	424	424	423	422	420	417	406	390	378	377
29	D		388	425	460	480	476	463	448	440	432	428	426	424	425	424	423	427	417	435	430	423	419	400	388	387
30			400	428	456	471	469	458	442	430	426	422	422	424	425	426	423	422	419	424	428	424	418	406	-	-
31			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1998 APRIL **Declination East (D)** **FINAL MEAN HOURLY VALUES**

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	
01	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MT ISA										6 Deg + tabular values in 0.1 min																
28		-	-	-	-	-	-	114	106	94	85	79	69	75	75	75	74	78	81	80	80	82	83	79	65	-	
29	Q	58	53	63	74	88	103	108	104	92	84	82	80	75	78	79	81	82	82	82	83	82	87	83	71	81	
30		63	64	74	86	97	110	113	102	87	84	82	81	77	77	77	70	80	82	80	81	83	86	89	72	83	

1998 MAY — Declination East (D) — FINAL MEAN HOURLY VALUES

Day	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
MT ISA											6 Deg + tabular values in 0.1 min														
01			63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DENPASAR											1 Deg + tabular values in 0.1 min														
08			-	-	-	-	-	-	-	-	-	147	140	132	134	134	134	135	136	141	140	146	148	141	146	138	-
09			120	106	103	107	113	122	131	139	145	146	143	138	136	135	131	131	130	134	132	139	141	142	141	136	131
10			123	112	112	119	127	134	137	143	143	142	139	136	139	138	137	136	135	134	138	140	143	139	143	144	135
KUPANG											2 Deg + tabular values in 0.1 min														
11			-	-	-	-	-	-	-	-	158	150	153	147	140	135	133	132	134	134	136	137	139	147	143	138	-
12			127	124	119	122	131	141	149	151	146	140	131	131	128	128	128	129	130	131	135	141	136	137	140	129	134
13	Q		116	111	111	113	121	132	142	147	144	138	133	132	132	131	131	131	132	134	136	137	137	138	142	133	131
14	Q		116	105	102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1998 JUNE **Declination East (D)** **FINAL MEAN HOURLY VALUES**

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WEIPA												5 Deg + tabular values in 0.1 min													
05			-	383	383	386	396	405	417	414	408	407	405	404	405	406	407	409	408	413	416	413	415	417	413	402
06	D		391	390	393	396	399	406	411	410	403	400	401	399	401	403	404	406	406	406	409	413	418	421	417	398
07	D		388	384	388	393	400	416	423	415	409	407	405	404	404	404	405	406	409	411	409	410	411	415	406	394
08			388	384	384	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NORFOLK ISLAND												15 Deg + tabular values in 0.1 min													
11			-	-	-	-	-	-	-	157	154	155	156	156	156	157	161	164	168	169	169	168	169	163	153	147
12			154	159	164	181	189	182	173	170	162	158	154	149	152	153	155	157	156	156	155	158	164	158	151	149
13			151	161	173	178	184	172	163	159	158	157	155	152	151	151	152	153	152	153	154	155	158	156	163	-
14			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	LORD HOWE ISLAND												14 Deg + tabular values in 0.1 min													
15			-	-	-	-	-	-	515	515	509	503	497	-	-	-	-	-	-	-	493	-	-	-	492	492
16			496	499	501	508	519	519	511	505	503	502	495	496	494	492	492	490	491	499	500	498	499	499	490	486
17	Q		489	495	500	513	530	531	516	507	503	498	497	496	495	494	494	494	495	496	498	498	501	501	494	486
18			482	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	HOBART												14 Deg + tabular values in 0.1 min													
19			-	-	421	433	443	445	452	468	433	402	429	422	398	421	435	436	438	439	439	438	435	430	424	419
20			415	420	431	445	463	451	436	436	428	424	425	408	403	411	421	432	414	438	419	435	448	443	446	454
21			482	441	439	445	459	470	465	428	448	410	386	426	422	413	418	430	435	436	435	437	489	461	442	433
22			416	422	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Q and D refer to International Quiet and Disturbed days respectively

1996 SEPTEMBER — Vertical intensity (Z) — FINAL MEAN HOURLY VALUES

Day	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DERBY — -37500 - tabular values in nanoTeslas.

Day	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
23			142	141	141	140	136	136	141	144	144	149	143	145	146	141	145	134	143	137	136	138	137	138	141
24			133	131	126	119	115	113	112	125	134	140	141	141	143	144	137	138	137	136	136	136	137	137	133
25			137	131	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1996 OCTOBER **Vertical intensity (Z)** **FINAL MEAN HOURLY VALUES**

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
CARNEGIE											-47500 - tabular values in nanoTeslas.															
01		-	-	-	-	-	-	267	277	282	282	279	276	274	273	272	271	269	269	268	267	268	268	272	278	-
02		282	282	278	268	264	262	266	272	278	279	278	277	274	274	274	276	275	273	272	271	271	270	270	272	273
03		279	280	276	266	261	264	275	284	288	289	285	280	276	273	271	271	268	264	262	262	262	264	271	280	273
04		287	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1997 APRIL — Vertical intensity (Z) — FINAL MEAN HOURLY VALUES

Day	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PARAFIELD										-54500 - tabular values in nanoTeslas.														
03			-	-	-	-	485	482	485	486	485	487	486	486	486	487	487	487	487	488	489	487	486	490	493	495	-
04			492	483	475	472	476	485	492	493	495	493	491	492	490	490	488	487	488	487	488	488	488	492	495	497	488
05			494	482	476	473	475	482	488	490	492	491	490	487	487	488	488	489	488	488	489	490	488	490	491	496	487
06			492	482	474	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EUCLA										-53500 - tabular values in nanoTeslas.														
09			-	-	-	32	27	29	33	33	31	31	32	33	35	37	37	38	38	36	35	37	36	38	44	49	-
10			39	29	21	11	16	22	25	24	23	25	28	29	30	30	28	31	32	30	29	27	31	31	45	33	28
11	D		30	40	33	41	47	47	51	41	35	39	41	44	41	42	38	39	40	34	36	34	29	37	44	-	-
12			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TIBOOBURRA										-49000 - tabular values in nanoTeslas.														
14			-	-	-	-	-	-	-	-	500	498	498	499	500	501	502	503	503	503	503	503	503	504	504	499	-
15	Q		491	486	485	488	494	502	504	502	501	499	500	501	501	502	503	503	503	503	503	503	503	503	503	499	499
16			494	491	484	485	492	497	499	498	497	497	497	497	500	501	501	502	503	504	505	504	502	502	501	-	-
17	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MARYBOROUGH										-43000 - tabular values in nanoTeslas.														
20			-	-	458	460	466	467	467	467	468	469	468	467	466	465	465	465	466	467	469	470	470	470	464	456	-
21	D		452	457	463	463	464	460	461	463	466	464	463	459	471	460	458	459	463	467	477	478	486	478	474	467	466
22	D		465	460	463	467	465	472	470	471	475	474	473	474	474	473	472	470	470	470	474	472	470	468	467	-	-
23			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1997 MAY **Vertical intensity (Z)** **FINAL MEAN HOURLY VALUES**

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	
01	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	LORD HOWE ISLAND											**-48000 - tabular values in nanoTeslas.**															
07			-	-	-	-	-	-	-	-	-	-	167	163	158	154	152	151	154	157	162	166	166	165	161	154	-
08			144	134	131	134	142	152	161	166	169	170	169	165	158	154	150	149	150	153	157	162	164	168	169	164	156
09			154	142	128	127	133	142	155	160	163	169	169	166	161	156	152	150	150	151	154	158	161	165	167	161	154
10			149	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NORFOLK ISLAND											**-43000 - tabular values in nanoTeslas.**															
12	Q		-	-	-	187	194	201	203	204	205	205	205	203	202	200	199	198	198	199	200	201	203	206	203	198	-
13	Q		194	191	187	187	190	195	199	200	202	204	204	203	202	200	199	198	197	197	198	199	200	203	205	203	198
14			200	194	190	191	195	199	200	200	200	201	202	202	201	200	199	197	197	196	196	196	197	199	199	198	198
15	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	HOBART											**-59000 - tabular values in nanoTeslas.**															
16	D		-	-	-	-	455	450	444	444	443	444	445	446	445	447	407	432	429	447	442	443	443	440	435	443	-
17			473	463	451	452	443	444	445	444	442	441	443	441	434	441	448	448	449	446	442	442	437	434	434	442	445
18			435	439	444	452	452	448	445	441	442	444	443	442	443	441	442	446	446	442	439	438	438	438	438	441	443
19	Q		439	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WEIPA											**-29500 - tabular values in nanoTeslas.**															
21			-	-	-	-	-	-	-	-	390	389	389	388	387	386	386	385	385	386	389	388	386	387	389	387	-
22			384	385	386	383	377	378	380	386	389	389	390	389	388	387	387	386	387	388	388	388	388	388	390	387	386
23	Q		384	387	388	386	381	382	385	390	390	389	388	387	386	386	385	385	386	386	387	387	387	389	392	-	-
24			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PORT MORESBY											**-23500 - tabular values in nanoTeslas.**															
30			-	-	-	-	-	-	135	141	146	147	150	152	152	151	149	149	149	151	149	150	149	146	145	144	-
31			137	137	141	138	141	141	146	149	153	154	155	155	154	153	152	151	152	143	149	148	149	151	151	146	148

1997 JUNE — Vertical intensity (Z) — FINAL MEAN HOURLY VALUES

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
PORT MORESBY											-23500 - tabular values in nanoTeslas.															
01		146	144	146	142	139	140	147	150	151	151	153	154	152	152	151	151	151	149	147	150	147	146	144	139	148
02		136	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HONIARA											-20500 - tabular values in nanoTeslas.															
05	Q	-	-	-	-	-	160	161	162	161	161	162	162	163	165	165	165	164	163	162	161	160	161	158	154	-
06		156	154	159	159	160	162	164	162	160	159	159	161	162	163	164	164	164	163	162	161	160	160	160	161	161
07	D	162	160	158	160	163	165	166	165	164	164	165	165	165	163	163	163	163	163	163	161	161	165	167	167	163
08	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PORT VILA											-30000 - tabular values in nanoTeslas.															
10		-	-	-	-	-	-	87	92	94	91	90	90	89	88	88	89	89	90	90	86	84	86	87	83	-
11		79	72	69	73	84	91	92	91	90	90	89	87	86	85	85	86	85	85	86	84	84	85	85	82	84
12		78	74	70	73	75	78	84	86	87	88	90	88	87	86	86	84	83	84	85	83	83	85	86	86	83
13	Q	84	83	86	85	84	85	87	87	88	88	88	88	88	86	86	85	84	84	85	84	87	89	92	90	86
14	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NOUMEA											-35500 - tabular values in nanoTeslas.															
16		-	-	-	-	-	-	-	-	-	-	-	-	300	301	301	299	299	298	298	297	295	298	300	304	-
17		301	297	296	296	297	299	300	302	302	301	301	302	303	303	303	302	301	301	300	299	298	299	303	304	301
18	Q	304	303	303	301	301	301	301	302	302	302	302	302	303	303	304	303	303	302	301	300	298	300	302	305	302
19		308	306	304	302	299	300	302	307	310	310	310	310	310	309	308	308	306	305	304	302	300	301	303	-	-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1997 OCTOBER **Vertical intensity (Z)** **FINAL MEAN HOURLY VALUES**

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DERBY											-37500 - tabular values in nanoTeslas.														
30			-	-	-	-	-	-	-	-	-	-	73	80	84	84	85	81	80	79	78	77	78	78	81	93	101	-
31			101	95	85	78	71	77	82	85	88	87	90	89	89	90	89	87	84	83	82	82	81	86	92	93	86

1997 NOVEMBER — Vertical intensity (Z) — FINAL MEAN HOURLY VALUES

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
DERBY												-37500 - tabular values in nanoTeslas.														
01			89	77	72	67	68	70	70	77	83	89	91	90	90	90	91	89	88	86	82	83	81	80	91	105	83
02	Q		107	101	93	85	76	73	74	79	85	86	86	88	89	91	91	90	88	85	84	83	82	83	92	94	87
03			90	86	-	-	56	61	68	76	78	82	85	86	87	89	88	87	87	86	80	82	82	86	90	90	-
04			90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CARNEGIE												-47500 - tabular values in nanoTeslas.														
09			-	-	-	-	-	-	-	-	-	-	-	-	-	-	256	256	256	256	255	256	255	255	254	252	-
10			247	243	238	236	238	239	242	249	254	258	258	258	259	259	260	258	259	257	256	256	258	259	255	251	252
11			244	240	237	234	234	240	246	253	255	256	256	258	258	257	257	257	256	256	256	256	257	260	259	254	252
12			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1998 MARCH — **Vertical intensity (Z)** — **FINAL MEAN HOURLY VALUES**

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PARAFIELD											-54500 - tabular values in nanoTeslas.														
10	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	466	460
11	D		454	454	451	451	451	464	465	465	480	469	472	470	468	452	461	461	455	457	460	461	463	465	469	473	462
12			459	446	441	445	451	454	462	471	472	464	464	468	468	460	459	460	460	461	456	458	460	460	467	473	460
13			465	448	436	432	436	442	452	461	466	467	463	465	464	463	463	460	454	451	459	459	462	466	471	475	458
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EUCLA											-53500 - tabular values in nanoTeslas.														
17		-	-	-	-	-	-	2	6	9	10	13	15	15	14	13	13	14	14	14	15	15	18	20	22	-
18	Q	18	4	-12	-13	-8	-4	0	6	10	10	12	13	14	14	15	16	16	16	14	15	15	18	21	23	10
19	Q	19	6	-3	-5	0	0	3	7	10	10	12	13	14	15	15	15	13	14	14	13	14	16	17	19	10
20		17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TIBOOBURRA											-49000 - tabular values in nanoTeslas.														
23		-	-	-	-	-	-	471	472	468	466	465	465	466	466	465	465	467	467	467	467	468	470	468	467	-
24		459	445	440	442	449	457	464	467	466	465	465	465	466	465	466	468	468	469	469	468	468	467	462	460	462
25		460	459	452	451	454	461	465	467	466	467	469	470	470	468	468	468	470	470	469	469	469	470	-	-	-
26		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MARYBOROUGH											-43000 - tabular values in nanoTeslas.														
28		-	-	-	-	-	422	419	422	427	424	415	414	422	429	428	424	421	420	421	422	423	420	415	408	-
29	D	395	410	423	424	411	417	415	418	420	424	428	427	428	426	423	428	417	427	422	414	414	408	403	404	418
30		412	422	429	432	432	424	417	415	419	424	430	434	435	432	429	426	421	423	426	424	423	421	-	-	-
31		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1998 APRIL — Vertical intensity (Z) — FINAL MEAN HOURLY VALUES

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

MT ISA -39500 - tabular values in nanoTeslas.

28		-	-	-	-	-	-	314	316	318	319	319	318	318	318	318	317	318	318	318	318	319	318	322	321	-
29	Q	317	305	299	296	301	307	308	314	316	318	319	319	318	320	320	319	318	318	317	318	318	319	324	325	315
30		322	316	303	302	301	303	311	315	315	315	314	314	314	315	316	317	320	319	318	317	317	316	323	319	314

1998 MAY — **Vertical intensity (Z)** — **FINAL MEAN HOURLY VALUES**

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
MT ISA												-39500 - tabular values in nanoTeslas.														
01			317	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DENPASAR												-26000 - tabular values in nanoTeslas.														
08			-	-	-	-	-	-	-	-	-	460	460	458	460	460	461	451	456	454	454	453	450	454	455	458	-
09			456	446	437	432	433	449	453	450	457	459	457	456	457	458	456	452	454	454	457	457	461	460	456	451	452
10			447	436	429	431	434	440	451	460	466	464	464	463	463	457	455	453	453	453	455	456	455	456	453	453	452
KUPANG												-27500 - tabular values in nanoTeslas.														
11			-	-	-	-	-	-	-	-	147	155	161	165	167	167	166	165	164	163	161	160	159	153	155	159	-
12			162	161	159	154	156	157	158	162	170	172	172	173	175	177	177	174	171	171	169	167	167	166	163	164	167
13	Q		166	165	160	157	159	160	161	166	171	174	175	176	178	178	180	181	180	178	176	175	175	172	169	175	171
14	Q		179	178	177	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1998 JUNE — Vertical intensity (Z) — FINAL MEAN HOURLY VALUES

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	
01	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WEIPA											-29500 - tabular values in nanoTeslas.															
05		-	319	316	316	316	318	322	326	328	326	326	326	326	328	326	326	327	327	328	328	326	326	331	333	-	
06	D	327	325	324	318	315	318	326	329	328	325	324	324	326	324	325	326	328	327	326	325	326	327	330	331	325	
07	D	324	316	309	308	309	305	317	332	333	332	333	332	331	331	330	331	331	331	331	331	331	331	333	333	326	
08		328	321	319	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
09		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
10	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	NORFOLK ISLAND											-43000 - tabular values in nanoTeslas.															
11		-	-	-	-	-	-	-	178	179	174	170	166	164	163	162	162	162	162	161	160	156	157	160	156	-	
12		147	145	146	145	151	161	165	166	164	159	160	162	160	160	160	161	162	163	165	166	165	166	165	158	159	
13		153	147	147	148	149	158	164	165	166	165	164	163	161	160	159	159	161	162	163	164	163	160	167	-	-	
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	LORD HOWE ISLAND											-48000 - tabular values in nanoTeslas.															
15		-	-	-	-	-	-	96	101	107	111	115	-	-	-	-	-	-	-	103	-	-	-	107	110	-	
16		110	107	104	98	94	95	100	102	104	106	111	111	112	112	110	108	104	99	98	100	99	100	106	109	104	
17	Q	109	108	106	100	92	92	100	103	104	105	107	108	110	111	110	107	105	102	99	97	95	97	101	106	103	
18		107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	HOBART											-59000 - tabular values in nanoTeslas.															
19		-	-	411	412	414	418	419	426	425	430	439	424	416	419	420	415	411	410	408	407	406	403	402	404	-	
20		408	409	414	420	424	411	413	424	415	411	425	417	410	408	413	404	400	408	400	411	408	398	411	433	412	
21		429	407	403	418	425	415	426	415	441	438	418	417	415	415	416	418	416	413	411	413	422	400	407	409	417	
22		391	395	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
24	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
26	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
27		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
28	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
29	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
30	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Q and D refer to International Quiet and Disturbed days respectively

1996 SEPTEMBER **Total intensity (F)** **FINAL MEAN HOURLY VALUES**

	Day	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DERBY 50000 + tabular values in nanoTeslas.

23		243	242	244	233	225	220	210	209	218	222	220	220	221	235	225	233	230	228	228	230	230	230	230	230	227
24		230	233	233	227	222	214	209	216	221	230	233	235	232	230	231	234	232	232	234	235	236	238	240	238	230
25		234	231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1996 OCTOBER — Total intensity (F) — FINAL MEAN HOURLY VALUES

CARNEGIE — 55000 + tabular values in nanoTeslas.

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01		-	-	-	-	-	-	382	386	387	388	387	386	384	383	384	385	385	385	385	386	389	390	393	396	-
02		396	395	391	379	374	371	374	377	385	388	389	394	389	388	386	380	384	386	386	385	385	385	385	388	385
03		391	391	388	378	372	370	373	377	385	388	387	387	387	385	383	389	387	381	380	383	383	381	385	388	383
04		390	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1997 APRIL — **Total intensity (F)** — **FINAL MEAN HOURLY VALUES**

Day	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PARAFIELD													59500 + tabular values in nanoTeslas.												
03		-	-	-	-	108	109	112	114	115	117	117	117	117	119	119	119	120	121	121	120	120	123	124	123	-
04		116	108	102	101	106	112	116	117	118	118	117	118	119	117	118	118	119	119	120	121	121	123	121	116	116
05		110	104	100	98	101	107	112	114	117	118	117	117	117	117	118	120	121	120	121	121	120	122	123	121	115
06		115	106	101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EUCLA													58500 + tabular values in nanoTeslas.												
09		-	-	-	29	26	30	36	37	36	38	39	41	41	42	41	41	41	40	39	41	41	43	46	48	-
10		41	32	29	25	28	33	35	34	34	36	39	40	41	41	41	42	42	41	40	39	41	42	49	45	38
11	D	42	39	29	27	30	30	30	27	29	33	37	39	39	40	40	40	40	38	39	38	37	39	43	-	-
12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TIBOOBURRA													56000 + tabular values in nanoTeslas.												
14		-	-	-	-	-	-	-	-	342	341	342	343	344	343	343	342	344	345	346	347	348	349	348	343	-
15	Q	337	335	339	343	345	350	350	349	347	345	346	347	348	348	349	349	349	349	349	349	349	350	347	341	346
16		335	334	333	338	342	346	347	346	345	345	346	346	345	346	344	348	351	348	348	353	346	343	355	-	-
17	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MARYBOROUGH													52500 + tabular values in nanoTeslas.												
20		-	-	172	168	171	170	170	167	170	174	175	174	173	171	171	171	173	174	177	179	180	180	171	161	-
21	D	158	168	179	179	177	171	170	171	178	174	166	156	182	160	160	156	162	167	181	170	182	163	151	135	167
22	D	141	146	141	128	125	140	144	147	156	160	158	160	164	165	165	165	165	165	174	175	169	165	162	-	-
23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1997 MAY — Total intensity (F) — FINAL MEAN HOURLY VALUES

	Day	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	LORD HOWE ISLAND											54500 + tabular values in nanoTeslas.														
07		-	-	-	-	-	-	-	-	-	-	-	341	338	334	332	331	331	333	336	341	345	349	350	346	338 -
08		326	312	305	306	317	329	336	340	341	341	340	339	333	329	326	327	328	332	337	342	346	351	351	345	333
09		330	318	302	298	307	319	331	330	328	336	339	339	334	330	327	325	326	328	331	335	340	346	345	335	328
10		321	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NORFOLK ISLAND											51500 + tabular values in nanoTeslas.														
12	Q	-	-	-	339	348	358	363	363	364	365	364	362	361	359	359	359	360	361	363	364	369	372	366	359	-
13	Q	353	348	342	344	350	356	360	362	363	364	365	364	363	362	360	359	359	360	361	364	367	369	369	365	360
14		361	353	347	347	352	359	361	362	362	363	364	364	362	361	359	356	362	361	359	361	362	359	356	356	359
15	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	HOBART											62000 + tabular values in nanoTeslas.														
16	D	-	-	-	-	221	217	213	212	211	211	211	212	210	211	176	194	193	211	208	210	212	210	206	209	-
17		228	224	213	215	208	209	212	211	210	209	210	207	206	210	216	216	216	215	211	210	206	205	206	212	212
18		206	208	211	217	218	216	214	211	212	214	213	213	214	213	214	217	217	215	212	211	211	211	212	213	213
19	Q	210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WEIPA											46500 + tabular values in nanoTeslas.														
21		-	-	-	-	-	-	-	-	10	10	10	9	9	8	8	5	6	9	18	18	17	25	27	26	-
22		24	26	33	32	20	11	6	9	12	14	13	15	15	14	14	14	18	22	22	21	22	20	21	21	18
23	Q	24	31	35	30	18	15	12	16	17	15	14	12	12	12	12	13	15	17	19	20	22	27	29	-	-
24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PORT MORESBY											43000 + tabular values in nanoTeslas.														
30		-	-	-	-	-	-	80	86	91	92	92	89	85	80	80	78	80	79	81	83	83	88	92	91	-
31		95	102	103	101	94	86	88	89	88	86	84	82	80	80	78	78	76	86	88	91	91	93	95	98	89

1997 JUNE **Total intensity (F)** **FINAL MEAN HOURLY VALUES**

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
PORT MORESBY												43000 + tabular values in nanoTeslas.														
01		100	99	94	85	83	82	80	82	82	83	84	82	82	84	84	83	81	81	84	89	88	94	95	99	87
02		107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HONIARA												41000 + tabular values in nanoTeslas.														
05	Q	-	-	-	-	-	89	84	86	86	85	87	90	91	92	92	92	93	94	96	98	104	108	110	110	-
06		112	114	115	113	106	100	95	97	100	106	106	102	99	101	103	103	102	104	104	102	103	110	114	122	105
07	D	131	129	113	103	103	105	104	98	91	82	74	69	66	73	78	82	84	85	86	87	92	96	103	108	93
08	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PORT VILA												45000 + tabular values in nanoTeslas.														
10		-	-	-	-	-	-	36	34	34	41	44	45	46	47	49	51	52	52	54	58	64	69	73	72	-
11		66	63	64	63	64	63	61	62	62	60	61	62	62	62	62	62	64	66	68	71	76	79	79	73	66
12		67	63	62	66	66	64	62	63	62	61	56	58	57	56	56	59	60	61	62	65	67	71	73	72	63
13	Q	70	62	62	64	63	61	61	62	62	63	63	61	60	60	59	60	60	61	62	64	67	68	67	65	63
14	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NOUMEA												48000 + tabular values in nanoTeslas.														
16		-	-	-	-	-	-	-	-	-	-	-	-	183	184	183	185	185	185	186	187	190	192	194	196	-
17		194	190	185	180	178	181	184	185	185	185	185	185	184	184	183	184	185	185	184	185	189	192	193	192	186
18	Q	192	191	190	186	183	182	185	185	185	187	189	187	187	187	187	186	186	186	185	185	188	192	195	198	188
19		201	196	190	187	185	185	184	178	169	167	167	167	171	175	177	179	181	181	182	184	186	189	190	-	-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1997 OCTOBER Total intensity (F) FINAL MEAN HOURLY VALUES

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DERBY											50000 + tabular values in nanoTeslas.														
30		-	-	-	-	-	-	-	-	-	-	209	211	209		217	210	215	220	219	217	218	220	220	225	235	238	-
31			237	227	219		214	215	218		219	220	222	222	226	225		224	225	224	223	223	226	225	222	224	231	238	246	225

1997 NOVEMBER — **Total intensity (F)** — **FINAL MEAN HOURLY VALUES**

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
DERBY												50000 + tabular values in nanoTeslas.														
01			250	247	249	246	235	229	230	238	239	232	220	222	222	224	225	226	225	224	224	226	223	225	240	248	232
02	Q		250	247	244	240	231	225	222	223	225	224	224	226	227	228	229	229	229	230	230	229	229	232	241	246	232
03			246	246	-	-	228	225	224	227	229	231	229	228	229	230	230	231	231	228	232	230	229	231	234	239	-
04			243	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CARNEGIE												55000 + tabular values in nanoTeslas.														
09			-	-	-	-	-	-	-	-	-	-	-	-	-	-	377	376	377	378	378	377	383	380	380	378	-
10			369	362	357	355	354	351	352	358	361	368	370	370	373	376	380	375	372	371	374	376	379	381	379	376	368
11			366	363	363	361	358	363	369	371	371	371	369	372	368	368	369	371	372	372	373	374	376	380	378	373	370
12			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1998 MARCH — Total intensity (F) — FINAL MEAN HOURLY VALUES

Day	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PARAFIELD											59500 + tabular values in nanoTeslas.														
10	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	65	62
11	D	64	63	61	63	66	72	84	89	95	89	88	91	93	93	93	91	89	90	89	91	93	96	97	92
12		83	74	68	67	71	80	84	92	96	95	94	95	95	92	93	93	93	94	93	95	96	98	99	96
13		83	65	58	56	62	73	82	91	95	95	95	92	93	92	90	88	89	88	89	90	92	95	98	99
14		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EUCLA											58500 + tabular values in nanoTeslas.														
17		-	-	-	-	-	-	8	13	18	20	23	25	26	26	26	26	27	27	27	26	28	30	32	30
18	Q	22	4	-10	-9	-4	2	7	14	19	21	24	26	27	27	27	27	27	27	27	27	28	31	34	33
19	Q	26	14	7	4	7	9	13	18	23	24	25	26	27	28	28	28	28	28	28	29	29	32	33	30
20		23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TIBOOBURRA											56000 + tabular values in nanoTeslas.														
23		-	-	-	-	-	-	321	323	321	321	320	320	318	318	318	314	319	319	319	320	322	321	316	311
24		304	295	294	297	304	310	316	317	320	323	324	321	320	315	315	316	318	318	320	317	318	315	310	309
25		312	313	305	301	305	311	315	319	317	316	316	310	319	306	318	303	310	311	308	313	314	314	-	-
26		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MARYBOROUGH											52500 + tabular values in nanoTeslas.														
28		-	-	-	-	-	135	128	134	144	142	125	118	121	134	139	137	136	135	137	137	138	133	124	116
29	D	88	105	130	143	118	124	123	128	131	136	143	142	142	141	137	154	141	147	145	129	123	117	111	108
30		117	131	140	143	142	132	120	113	115	121	130	139	142	140	141	141	133	132	135	133	132	130	-	-
31		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1998 APRIL **Total intensity (F)** **FINAL MEAN HOURLY VALUES**

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	
01	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

MT ISA 51000 + tabular values in nanoTeslas.

28		-	-	-	-	-	-	9	12	21	24	26	32	29	25	27	30	29	30	30	31	34	37	40	39	-	
29	Q	33	20	17	16	13	12	14	19	25	27	25	25	28	30	31	32	33	34	34	34	35	37	42	44	28	
30		42	38	30	27	23	21	30	36	36	44	48	44	41	42	34	25	26	30	30	31	31	35	44	45	35	

1998 MAY — Total intensity (F) — FINAL MEAN HOURLY VALUES

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	
MT ISA												51000 + tabular values in nanoTeslas.															
01			46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DENPASAR												45500 + tabular values in nanoTeslas.															
08			-	-	-	-	-	-	-	-	-	129	127	129	125	124	122	132	127	131	133	137	142	140	141	148	-
09			153	151	151	156	154	138	133	133	127	127	134	138	138	134	135	138	137	138	136	136	133	133	135	141	139
10			143	144	146	148	147	148	143	133	129	131	132	130	130	133	133	135	137	138	139	140	144	145	147	152	139
KUPANG												45500 + tabular values in nanoTeslas.															
11			-	-	-	-	-	-	-	-	298	300	295	296	305	310	313	314	314	312	315	315	317	331	326	330	-
12			327	318	318	312	296	288	281	283	281	288	302	304	304	304	305	311	316	311	312	312	316	315	317	326	306
13	Q		331	328	322	320	321	318	313	308	304	310	316	318	319	320	319	318	319	320	321	321	320	321	328	335	320
14	Q		342	350	354	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1998 JUNE — **Total intensity (F)** — **FINAL MEAN HOURLY VALUES**

Day		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
01	Q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WEIPA																									
05			-	491	489	489	474	470	465	465	470	466	463	458	466	475	469	466	476	474	474	480	481	489	491	492	-
06	D		492	493	493	493	486	483	481	480	482	476	468	463	469	460	465	472	484	477	474	466	467	470	473	481	477
07	D		475	459	440	440	441	426	419	449	455	454	456	459	460	462	460	465	465	467	468	469	470	475	476	474	458
08			475	467	466	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NORFOLK ISLAND																									
11			-	-	-	-	-	-	-	311	315	313	310	309	308	309	309	309	310	311	312	314	317	319	320	316	-
12			308	301	295	288	288	293	299	301	306	306	306	307	304	304	305	305	306	307	309	312	317	320	316	308	305
13			301	293	293	296	298	305	311	313	313	313	312	310	309	307	306	306	308	310	311	317	329	328	326	-	-
14			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	LORD HOWE ISLAND																									
15			-	-	-	-	-	-	278	282	287	290	288	-	-	-	-	-	-	-	290	-	-	-	293	292	-
16			289	287	284	275	273	275	278	282	284	284	286	289	291	291	289	289	284	279	278	280	281	284	290	290	284
17	Q		290	286	281	272	267	270	279	285	286	287	288	289	290	291	290	290	287	285	283	282	282	286	290	291	284
18			287	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	HOBART																									
19			-	-	189	191	192	195	197	200	197	196	206	196	189	193	194	191	189	189	188	187	186	184	182	183	-
20			186	187	190	194	198	189	191	197	190	187	196	190	184	184	188	184	179	185	178	187	186	178	186	200	188
21			198	180	176	185	190	186	196	187	205	203	188	191	189	188	190	192	191	190	188	189	198	177	181	181	189
22			169	172	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Q		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

46000 + tabular values in nanoTeslas.

51500 + tabular values in nanoTeslas.

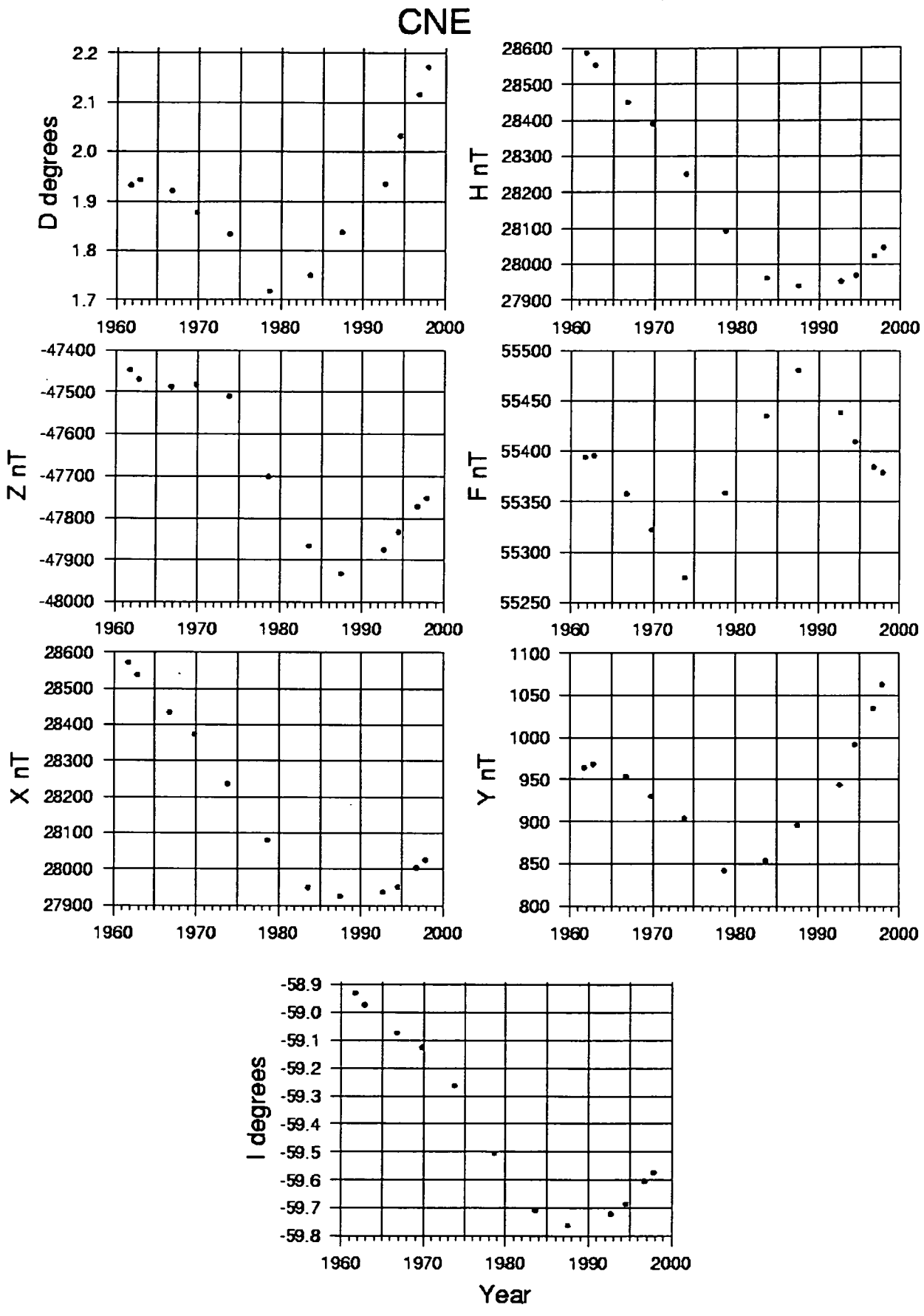
54500 + tabular values in nanoTeslas.

62000 + tabular values in nanoTeslas.

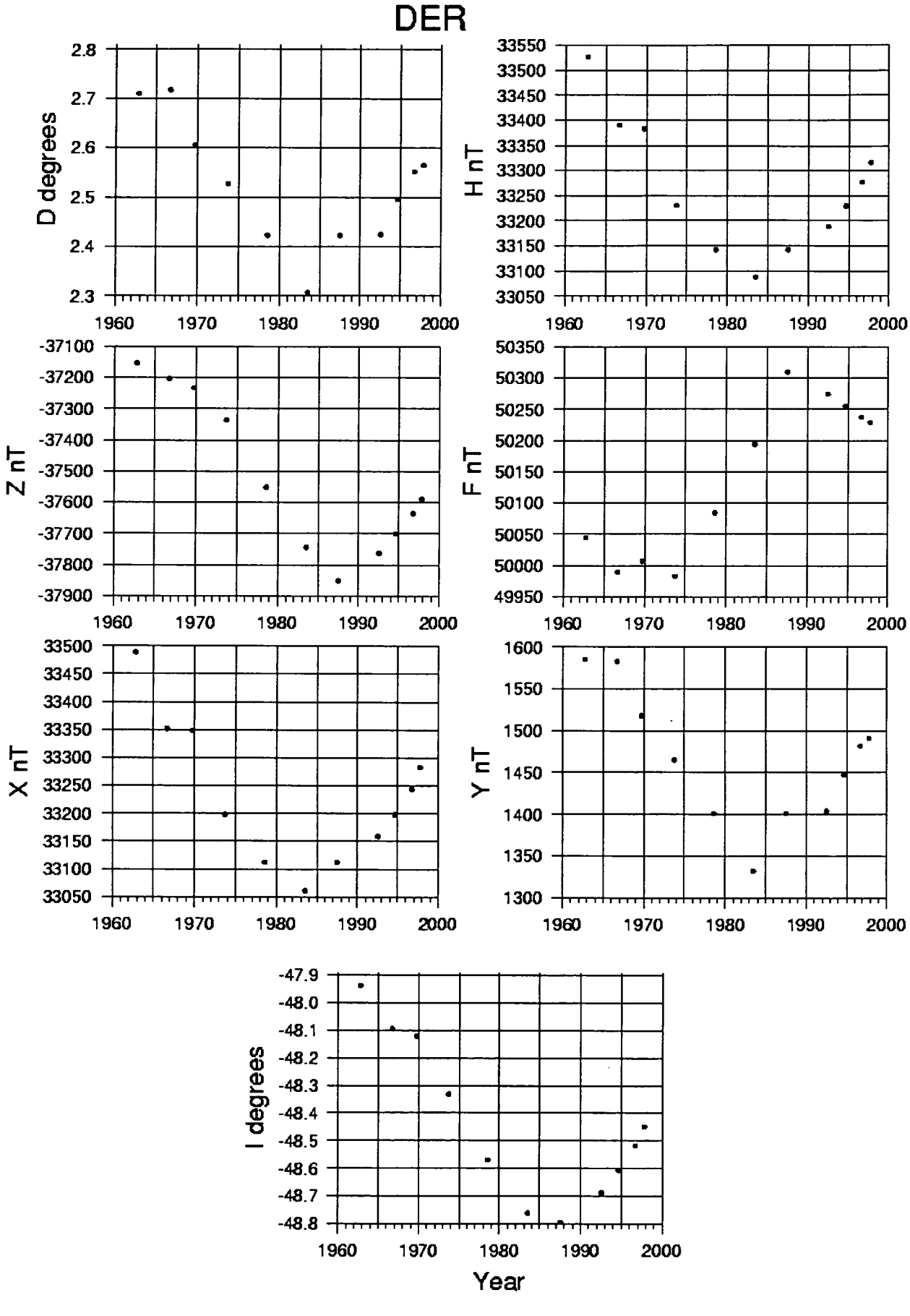
Q and D refer to International Quiet and Disturbed days respectively

Secular Variation Plots

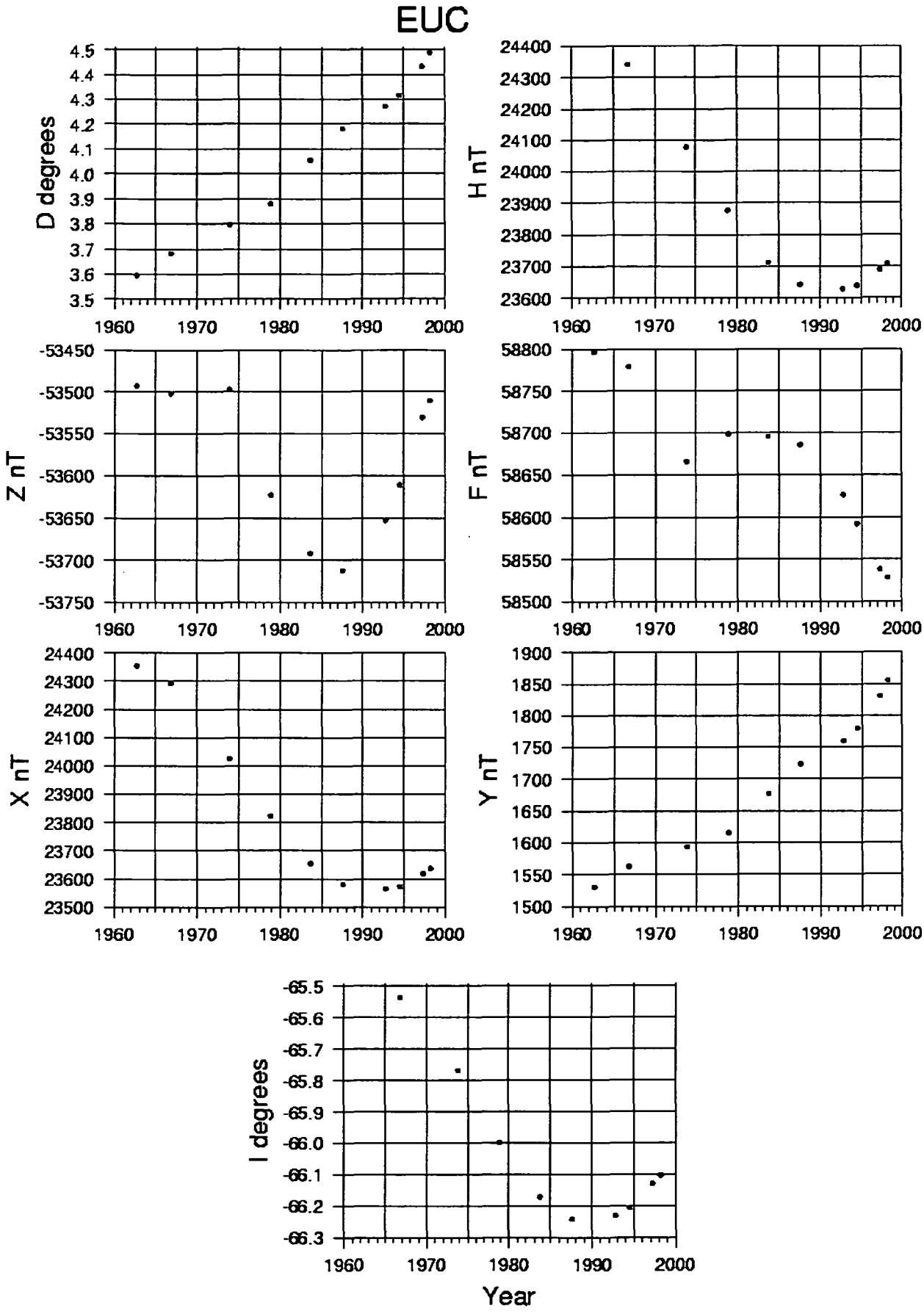
Carnegie A



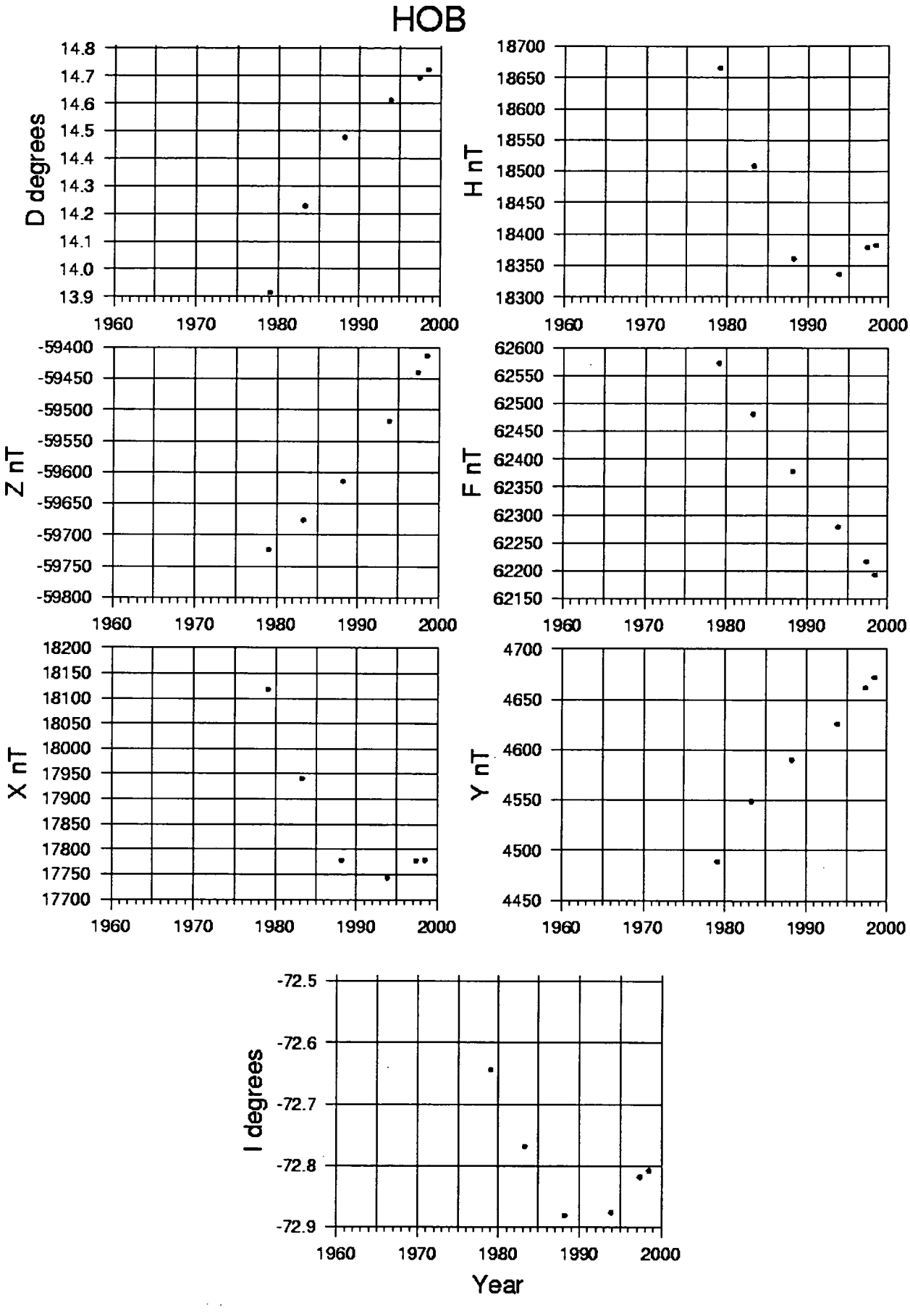
Derby E


DER
D degrees
H nT
Z nT
F nT
X nT
Y nT
I degrees
Year
1960
1970
1980
1990
2000

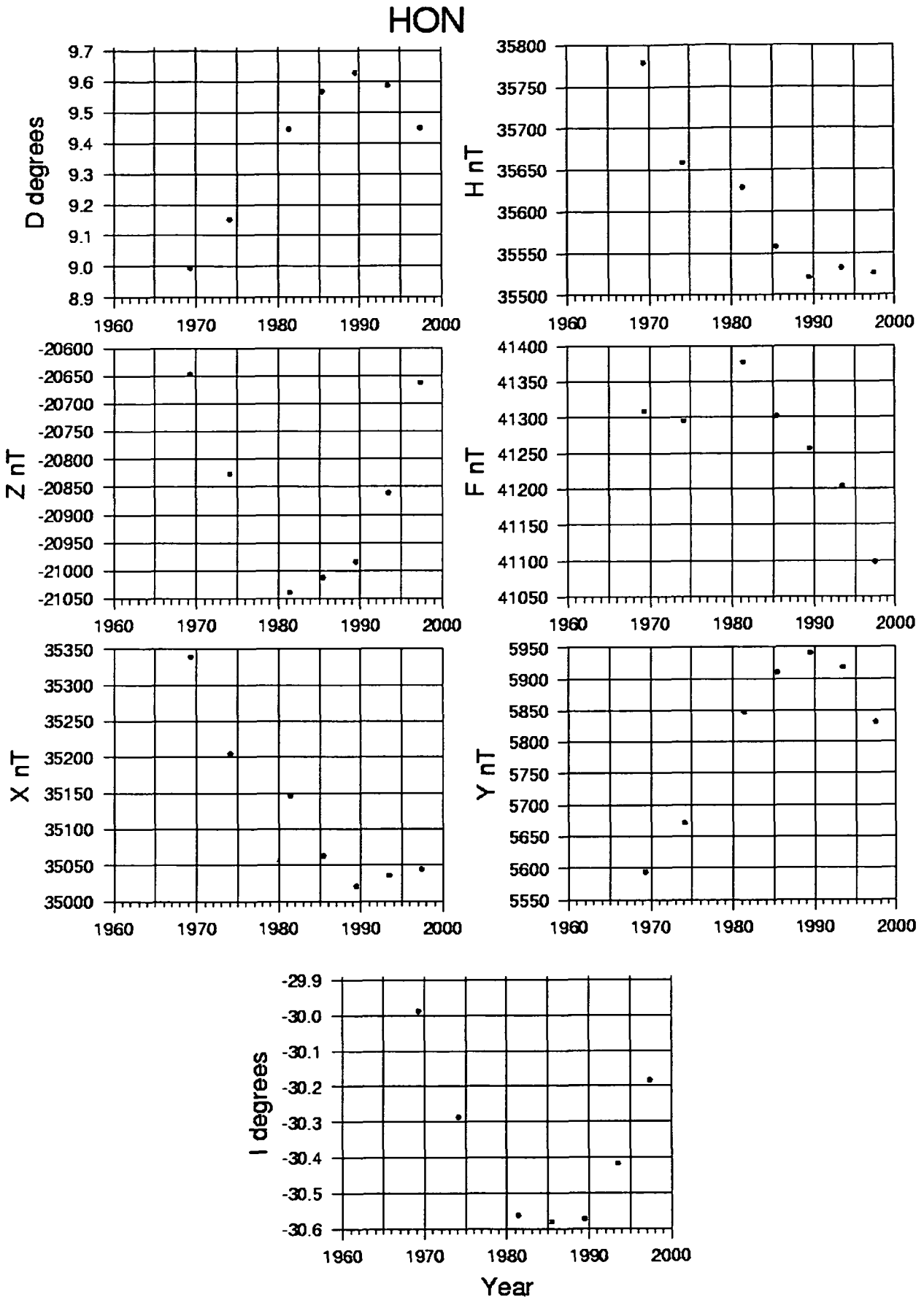
Eucla D


EUC
D degrees
H nT
Z nT
F nT
X nT
Y nT
I degrees
Year
1960
1970
1980
1990
2000

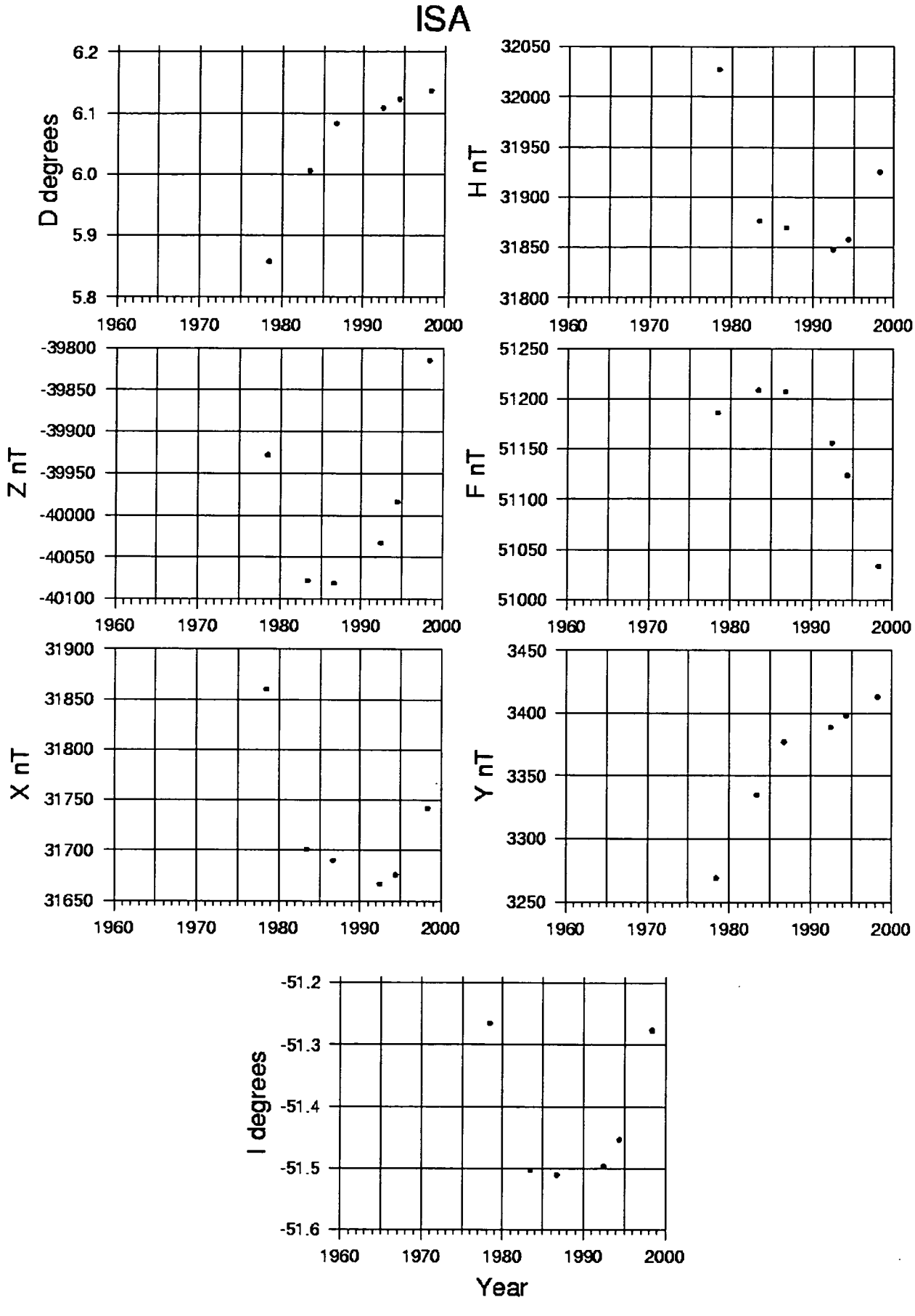
Hobart H


HOB
D degrees
14.8
14.7
14.6
14.5
14.4
14.3
14.2
14.1
14.0
13.9
H nT
18700
18650
18600
18550
18500
18450
18400
18350
18300
Z nT
-59400
-59450
-59500
-59550
-59600
-59650
-59700
-59750
-59800
F nT
62600
62550
62500
62450
62400
62350
62300
62250
62200
62150
X nT
18200
18150
18100
18050
18000
17950
17900
17850
17800
17750
17700
Y nT
4700
4650
4600
4550
4500
4450
I degrees
-72.5
-72.6
-72.7
-72.8
-72.9
1960
1970
1980
1990
2000
Year

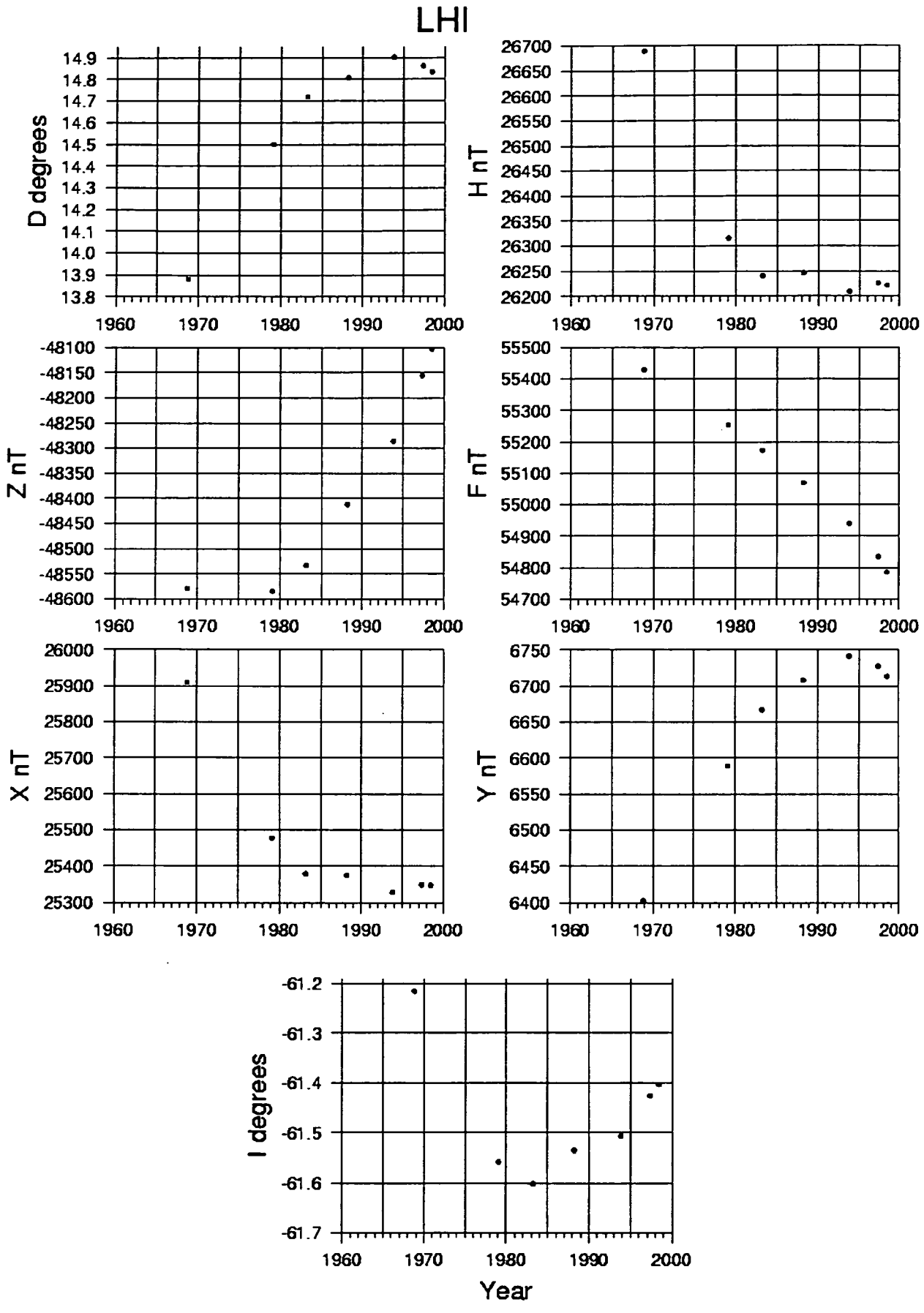
Honiara B


HON
D degrees
H nT
Z nT
F nT
X nT
Y nT
I degrees
Year
1960
1970
1980
1990
2000

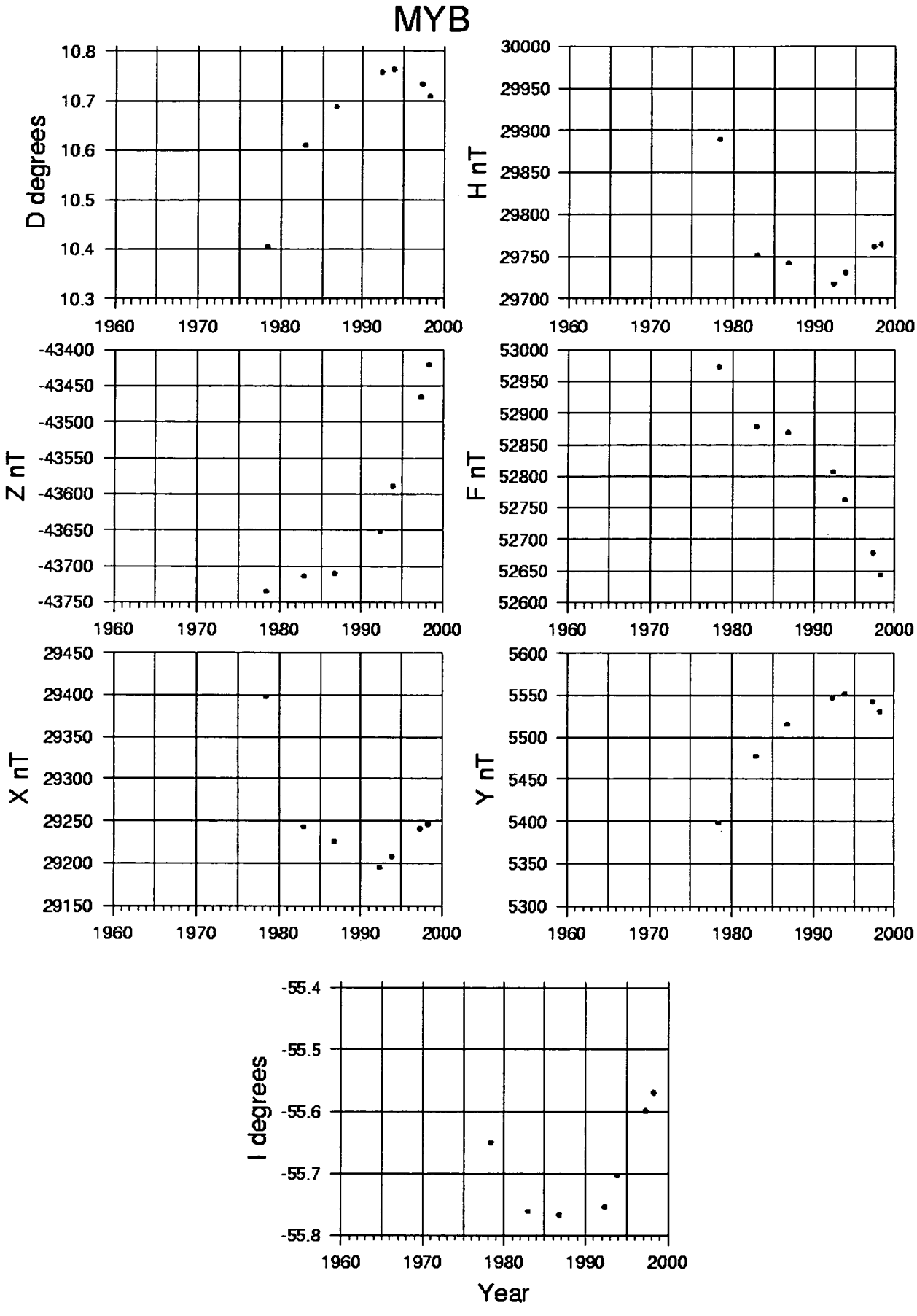
Mount Isa A


ISA
D degrees
H nT
Z nT
F nT
X nT
Y nT
I degrees
Year
1960
1970
1980
1990
2000

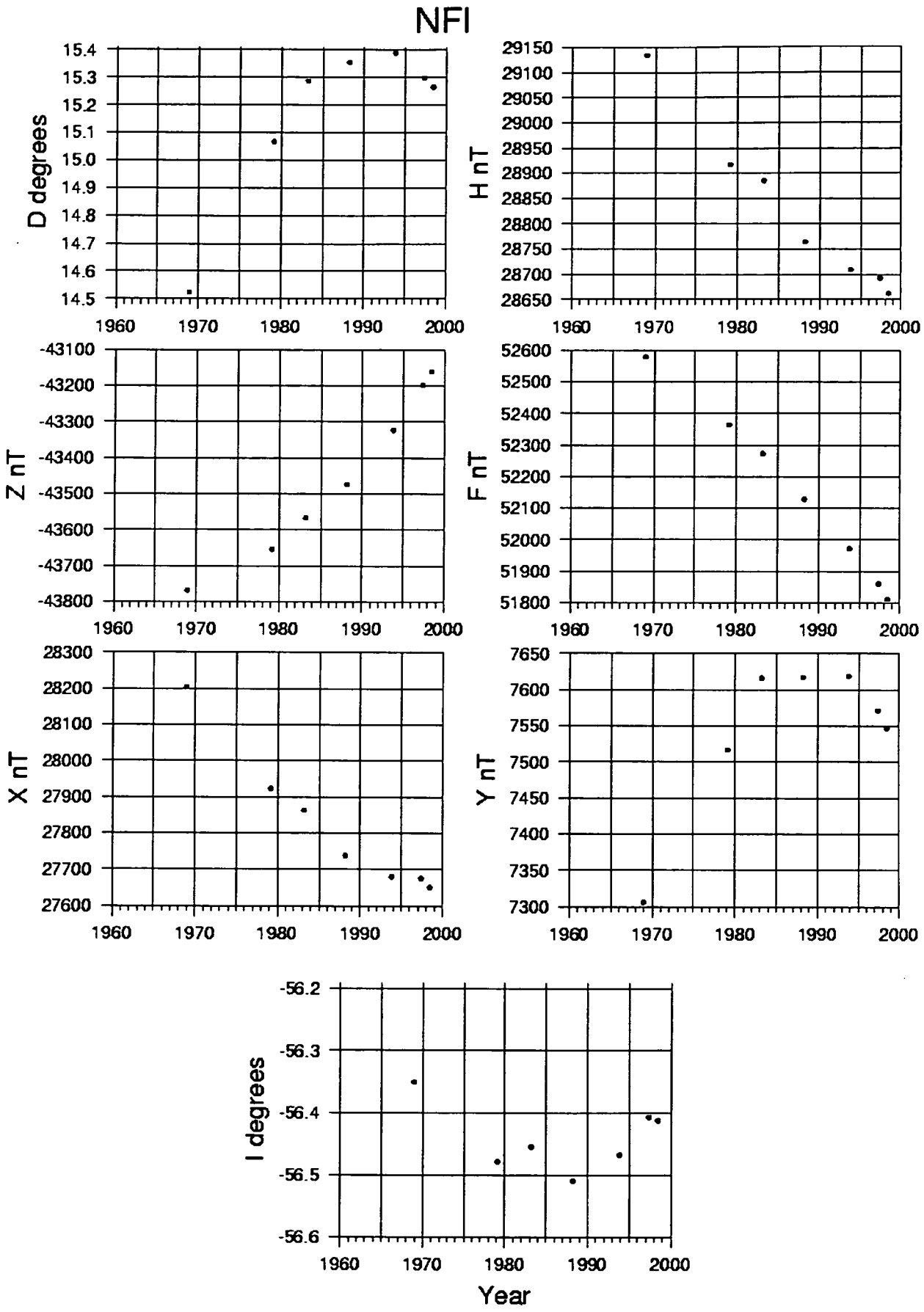
Lord Howe Island D



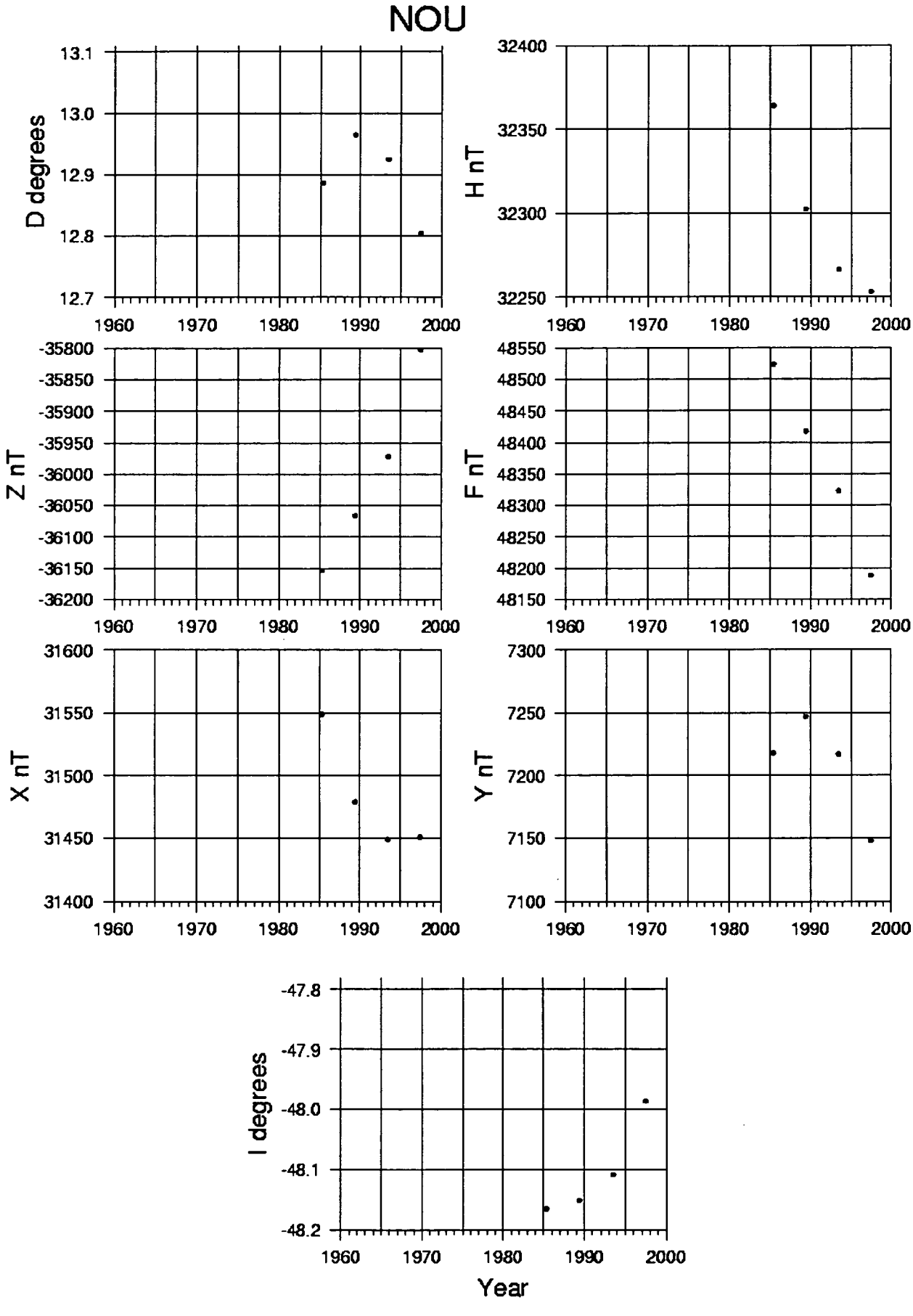
Maryborough D



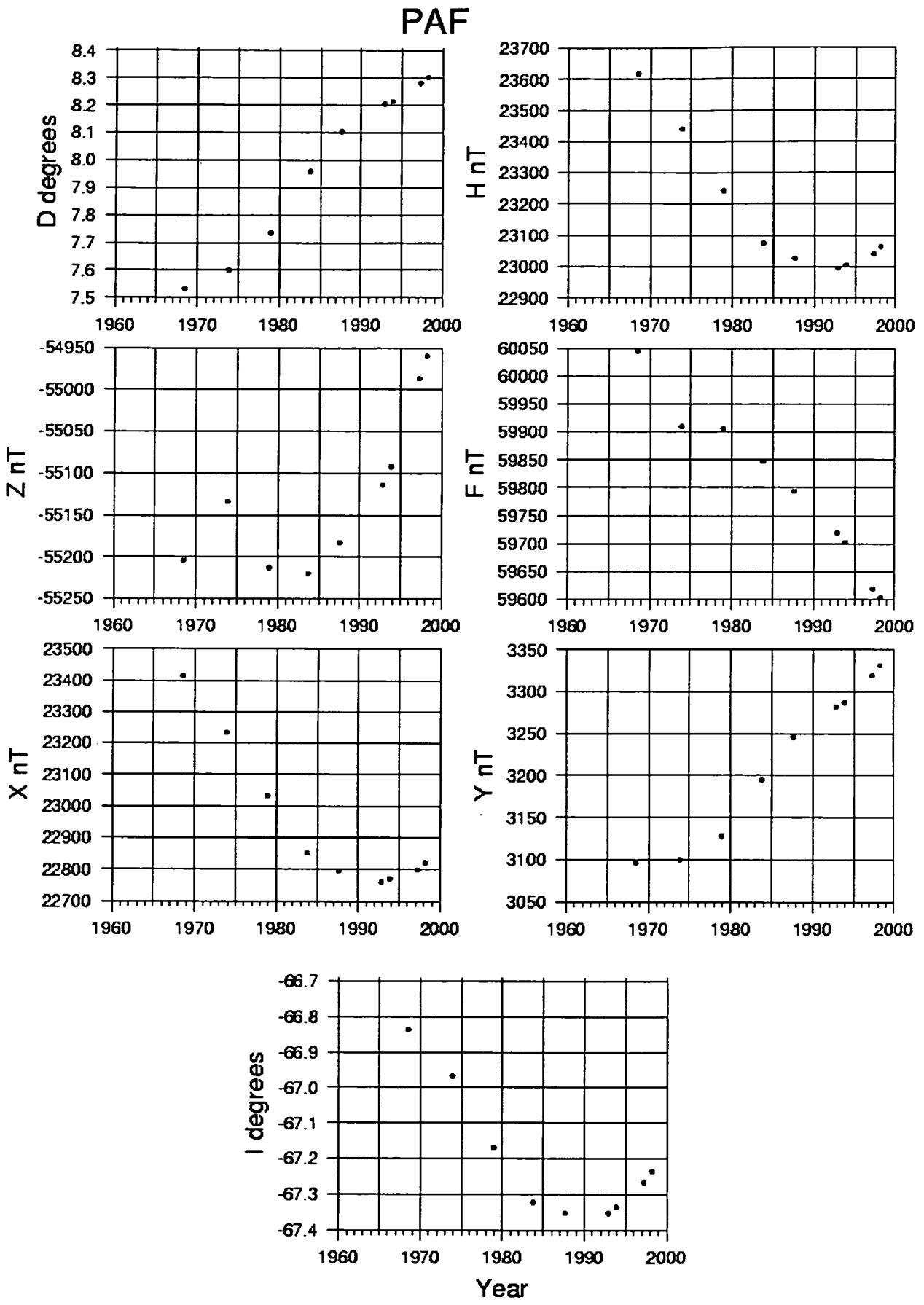
Norfolk Island B



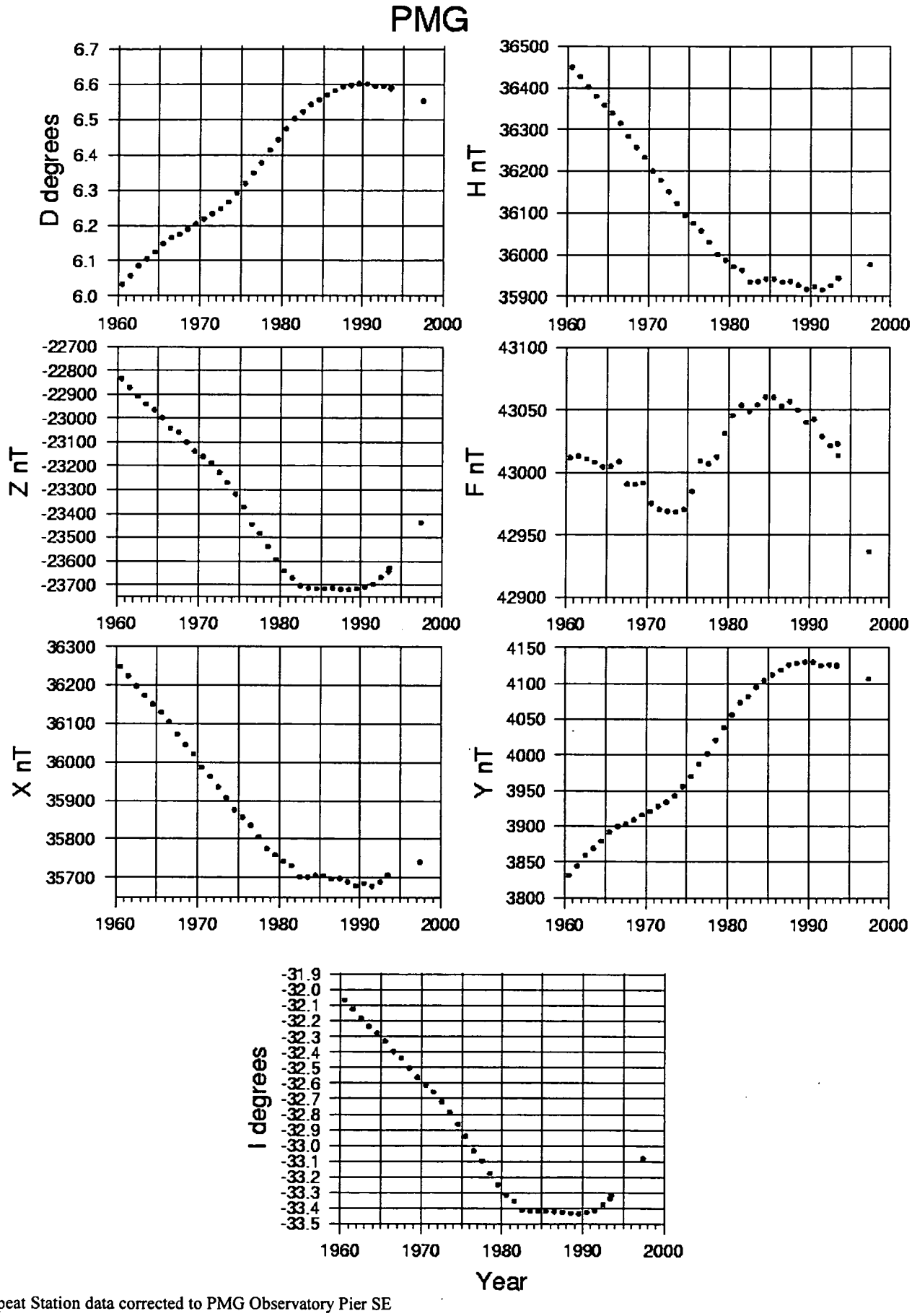
Noumea B


NOU
D degrees
13.1
13.0
12.9
12.8
12.7
H nT
32400
32350
32300
32250
Z nT
-35800
-35850
-35900
-35950
-36000
-36050
-36100
-36150
-36200
F nT
48550
48500
48450
48400
48350
48300
48250
48200
48150
X nT
31600
31550
31500
31450
31400
Y nT
7300
7250
7200
7150
7100
I degrees
-47.8
-47.9
-48.0
-48.1
-48.2
1960
1970
1980
1990
2000
Year

Parafield A

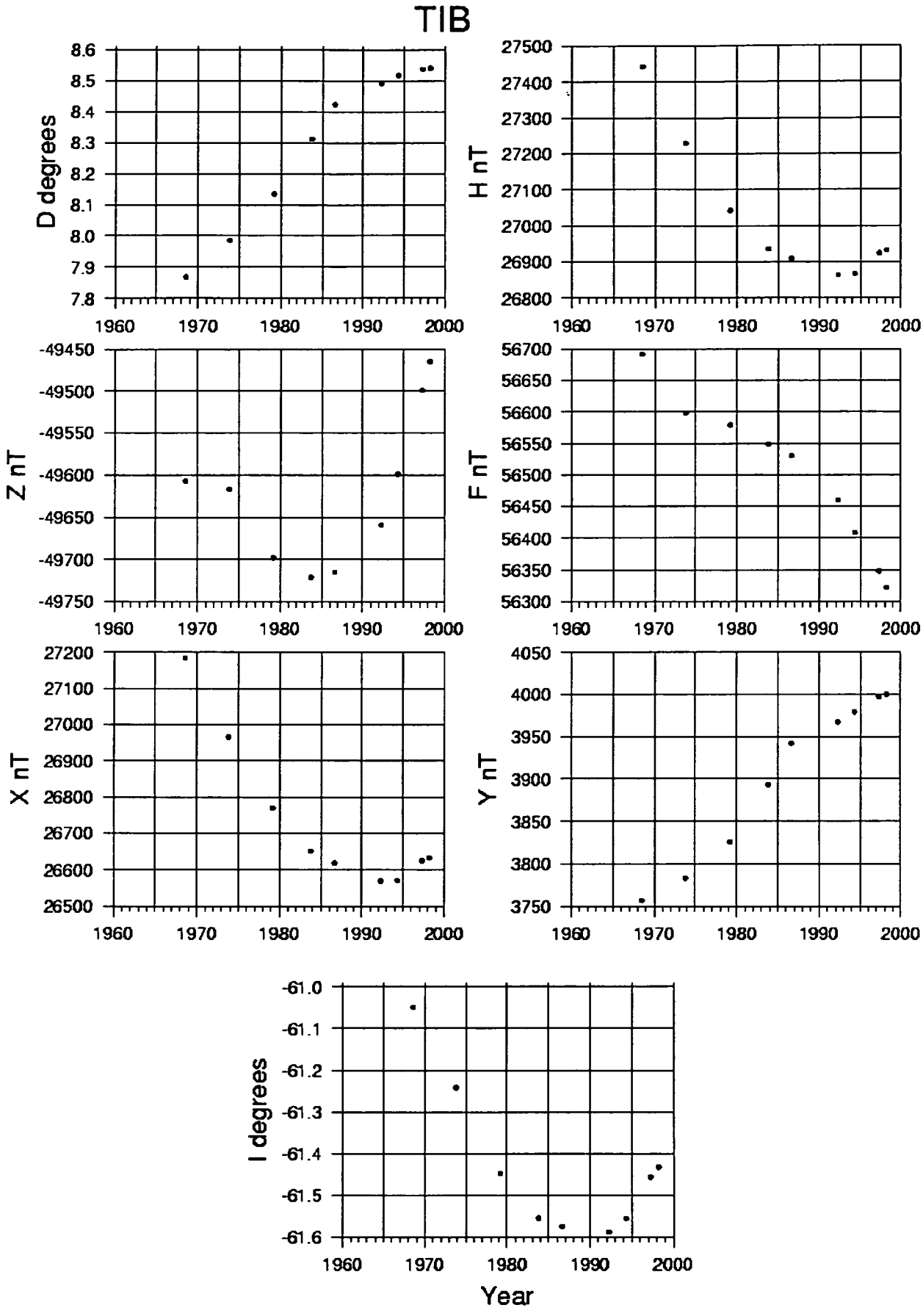

PAF
D degrees
8.4
8.3
8.2
8.1
8.0
7.9
7.8
7.7
7.6
7.5
H nT
23700
23600
23500
23400
23300
23200
23100
23000
22900
Z nT
-54950
-55000
-55050
-55100
-55150
-55200
-55250
F nT
60050
60000
59950
59900
59850
59800
59750
59700
59650
59600
X nT
23500
23400
23300
23200
23100
23000
22900
22800
22700
Y nT
3350
3300
3250
3200
3150
3100
3050
I degrees
-66.7
-66.8
-66.9
-67.0
-67.1
-67.2
-67.3
-67.4
1960
1970
1980
1990
2000
Year

Port Moresby SE

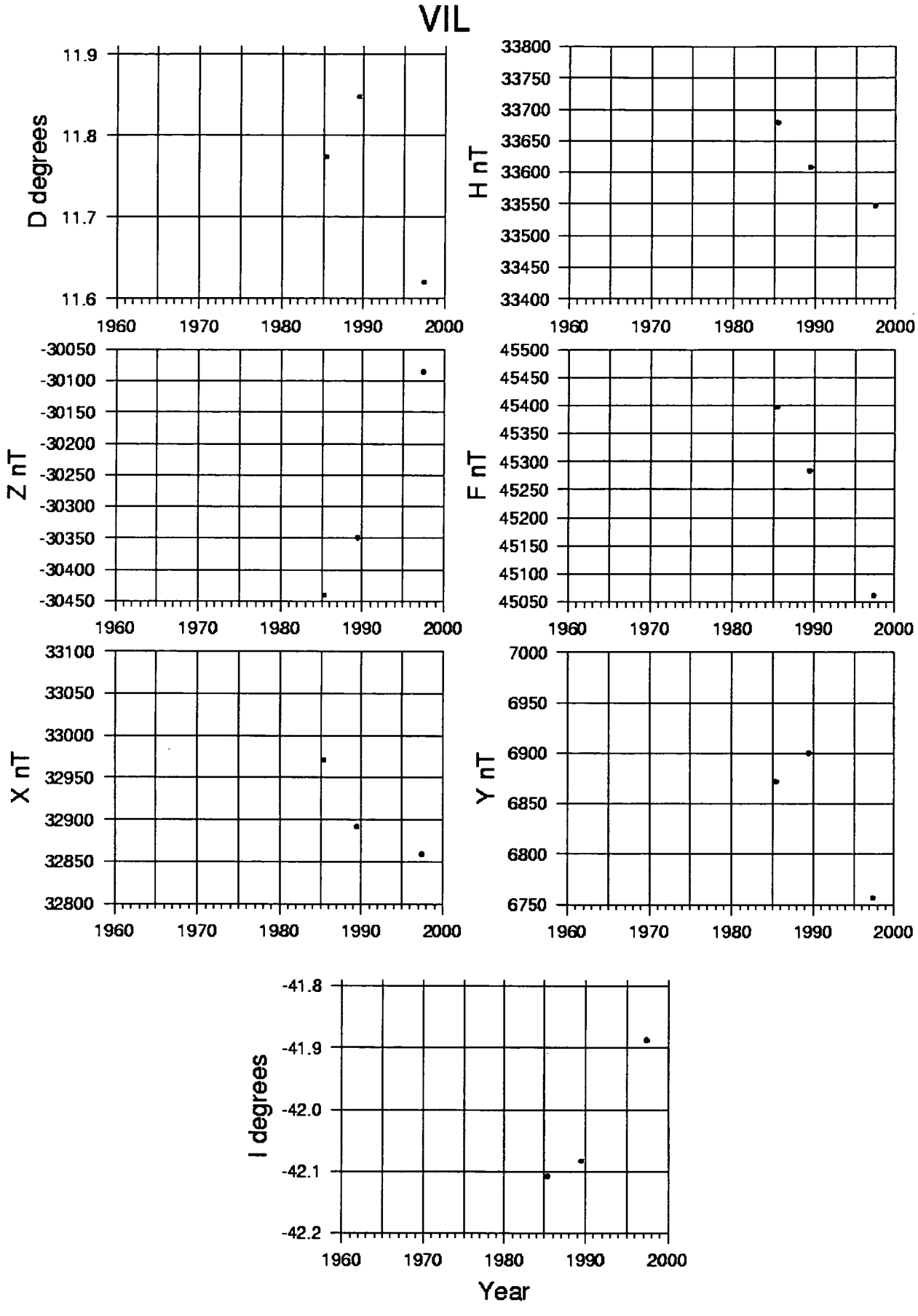


Repeat Station data corrected to PMG Observatory Pier SE

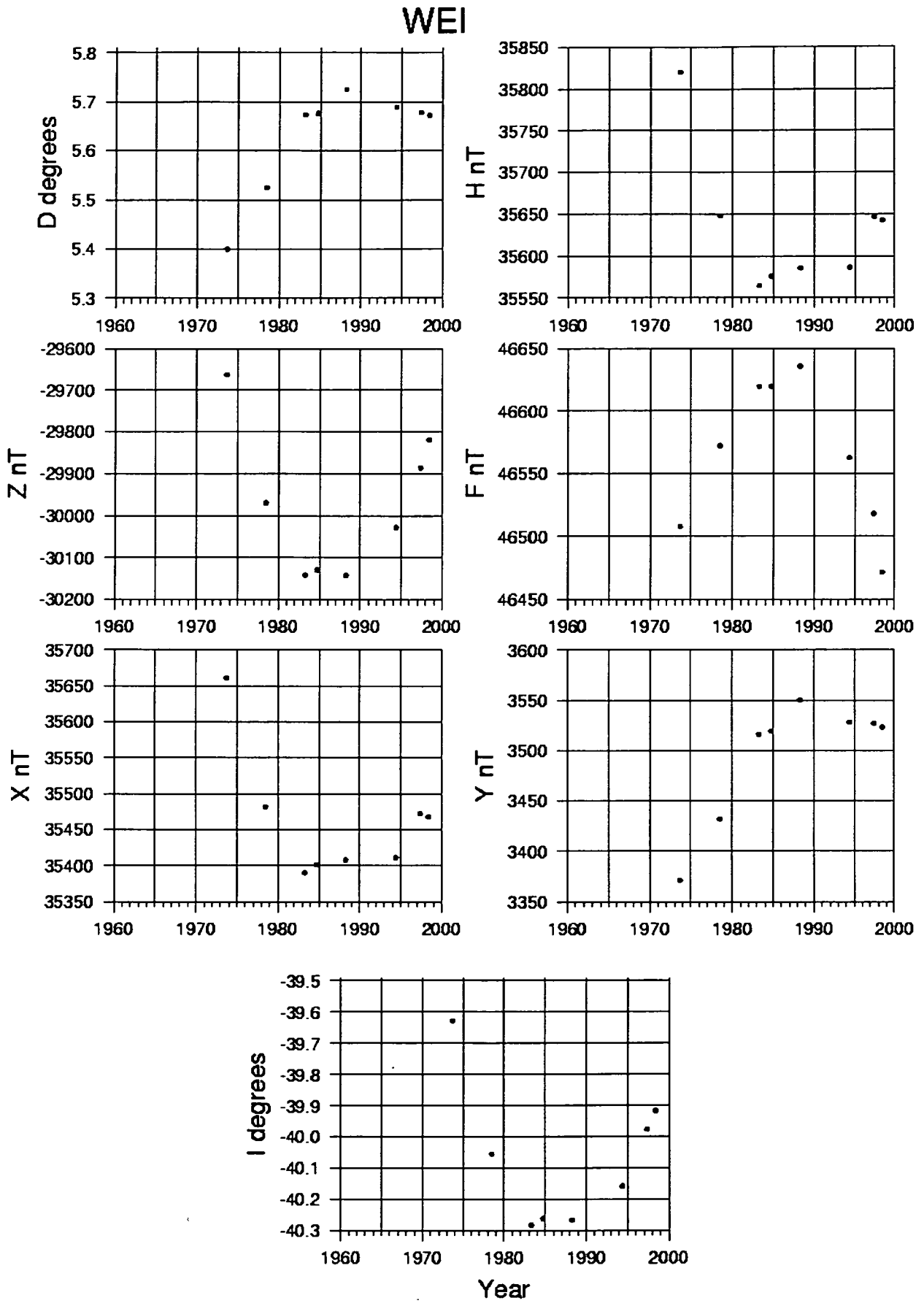
Tibooburra A



Port Vila B


VIL
D degrees
11.9
11.8
11.7
11.6
H nT
33800
33750
33700
33650
33600
33550
33500
33450
33400
Z nT
-30050
-30100
-30150
-30200
-30250
-30300
-30350
-30400
-30450
F nT
45500
45450
45400
45350
45300
45250
45200
45150
45100
45050
X nT
33100
33050
33000
32950
32900
32850
32800
Y nT
7000
6950
6900
6850
6800
6750
I degrees
-41.8
-41.9
-42.0
-42.1
-42.2
1960
1970
1980
1990
2000
Year

Weipa B


WEI
D degrees
H nT
Z nT
F nT
X nT
Y nT
I degrees
Year
1960
1970
1980
1990
2000