# SEGments

Journal of the Scientific Expedition Group Inc.

Volume 41 No. 2 September 2025

# Scientific Expedition Group Inc.



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**Cover Photo** : Eastern Rosella helping itself to basil seeds in my back garden. We were going to keep the seeds for planting next year but they went to a better fate. Photo: Alun Thomas

Rear Cover Photo: Mitchell Falls , Kimberley WA. Photo: Alun Thomas

The Scientific Expedition Group is a not-for-profit organisation which began in 1984. SEG undertakes several expeditions each year to record scientific information on wildlife and the environment in many parts of South Australia.

A major expedition to conduct a biodiversity survey occurs each year over two weeks. Scientific experts lead volunteers in surveying mammals, reptiles, invertebrates, vegetation, birds and physical geography. The data collected on each survey are archived with the relevant State scientific institutions to ensure they are available to anyone interested in our State's environment.

In addition to the major expedition, a number of trips for the Vulkathunha-Gammon Ranges Scientific Project are organised annually. A long term study of rainfall on the ranges and of water flow in arid-zone creeks is undertaken. All data are supplied to the Department for Environment and Water and to the Bureau of Meteorology and are available for analysis.

SEG conducts four-day biodiversity surveys at eight different sites each autumn and spring in the Heritage Area of scrub on "Minnawarra" farm near Myponga. Data collected are entered into the Biological Data Base of SA. SEG also conducts mallee fowl monitoring in the Murraylands.

**ISSN 0816 6463**
SEGments is the authorised journal publication of the Scientific Expedition Group Inc., 111 Franklin St, Adelaide, SA 5000. It is published four times a year to promote articles about biodiversity, scientific exploration and ecological research.



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# SEGments

## Volume 41 Number 2 September 2025


**CONTENTS**


**Australian Antarctic Geomagnetism and The South Magnetic Pole Part 2**
Andrew Lewis Page 3

**Geomagnetism at Cape Dennison on the AAE**
Alun Thomas Page 7

**North Magnetic Pole**
Alun Thomas Page 12

**Report on Pluviometer network Upgrade trip to Gammon Ranges June 2025**
Chris Wright and Graham Blair Page 13

**SYP Reconnaissance**
Alun Thomas Page 14

**Membership form** Page 18


## EDITORIAL

Certain parts of South Australia are currently in a state of natural disaster in all but name.

I refer of course to the marine algal bloom caused by the dinoflagellate *Karenia mikimotoi*. This algal bloom has spread from the south coast of Fleurieu Peninsula where it was first detected in March to now affecting much of the coastline of South Australia to at least some extent.

The State government accurately describes the effect of the *Karenia mikimotoi* in that it does not produce a toxin that is harmful to humans and hence does not cause long term harmful effects to humans. However, it is toxic to marine wildlife by damaging gills and gill structures and the bloom has caused widespread and substantial mortalities of fish, sharks, rays, seahorses, pipis and other species. Demersal species, that is, bottom dwelling fish species, appear to be particularly effected. Unfortunately the substantial mortalities of fish species has had a secondary effect on fish predators such as dolphins and possibly also seals by denying them a food source. Depletion of dissolved oxygen has also been associated with harmful algal blooms This generally occurs towards the end of the bloom when the algae start to die off and decompose, and bacterial consumption of dying algae takes place.

The short term question is when and how will it end and of course, will it come back? Apparently the accepted wisdom was that colder water temperatures as winter progressed should have sufficiently diminished so the dinoflagellate is not a problem. This has not occurred. We need to look ahead for solutions but also study the causes to try to prevent it happening again..

There Has been a recent State Government Forum, the report of which, Harmful Algal Bloom Science Forum Summary is well worth reading. This discusses the science and impact of the harmful algal bloom and is well explained.

Two accepted main causes are warmer ocean temperatures and nutrient influx from the River Murray.

I started off this Editorial saying that SA is in a “natural disaster in all but name”. It is a “disaster” but not a “natural disaster” according to the Federal Government because if it had so been declared then considerable funds would have had to be expended outside the Eastern States where floods, storms and bushfires are quite rightly declared as “natural” and disasters. Why then is a natural disaster which is occurring at sea in South Australia not a ”declared natural disaster”?

It seems that there are at least two reasons South Australia’s harmful bloom has not been so declared.

First it is open ended. It could go on for several years which would absorb Eastern States money. Secondly the bloom is not happening in the Eastern States. Eastern States are used to turning their backs on us. They do it with the River Murray where inefficient farming practices, too much fertilizer use and wasteful water practices mean insufficient dilution occurs down the Murray. The resultant outflow at the Murray Mouth is too rich in nutrient. This is one of the admitted causes of the algal bloom.

Surely it is time to admit that Australia is one country and that management of our main inland river should not be subject to the petty interests of one State.

Finally, the elephant in the room is “climate change”. There is absolutely no doubt that climate change is occurring throughout the world and one effect of this is increased sea temperatures. Scientists have been warning about climate change. In many case these warnings have been ignored and we are reaping the rewards of this ignorance.


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# AUSTRALIAN ANTARCTIC GEOMAGNETISM AND THE SOUTH MAGNETIC POLE PART 2

**Andrew Lewis, Geomagnetism Lead Scientist, Geoscience Australia**

Following on from part one of this article published in the previous edition of SEGments (V41, No.1) this second part offers a brief overview of the history of Australian geomagnetic monitoring in the Antarctic and sub-Antarctic and includes a reference list for both parts of the article.

Thanks to Dr Ian Allison for providing additional information on the seaborne south magnetic pole measurements discussed in the previous article. Ian recalled the south magnetic pole survey carried out in December 1986 aboard MV *Nella Dan*. Hence there were actually two seaborne surveys in 1986, one in January 1986 on MV *Icebird* and the second in December 1986 on *Nella Dan*. Ian was on that *Nella Dan* voyage and contributed to running the experiment. The on-line version of the first part of this article in Aurora has been amended to mention that December 1986 survey.

**Geomagnetic Observatories**

Geomagnetic observatories continuously measure and record the changing magnetic field and modern observatory data are necessary for compass-based navigation, magnetic field modelling, space weather monitoring and studying earth and space physics processes. Global observatory standards, data collection and distribution are co-ordinated through several international science bodies, including the International Association of Geomagnetism and Aeronomy (IAGA), the International Real-Time Magnetic Observatory Network (INTERMAGNET) and the various World Data Centres for Geomagnetism (WDC).

A geomagnetic observatory comprises two equally important components. The first is an instrument or set of instruments to continuously record the varying strength and direction of the vector geomagnetic field. In the early days of geomagnetic observatories these so-called magnetic variometers were essentially high precision suspended magnets able to respond to magnetic field variations and reflect a beam of light onto a rotating drum of photographic paper. Today the variometers are electronic instruments with computer-based digital data acquisition.

The second important component of a geomagnetic observatory is the so-called absolute instruments. These manually operated instruments are set up on a dedicated observing pillar in an “absolute hut” where a skilled observer can take spot observations of the absolute value of the strength and direction of the geomagnetic field. Absolute observations are carried out once-per-week and are required to calibrate the continuous data recorded by the magnetic variometers at the observatory.

**Australian Antarctic Geomagnetism**

A magnetic observatory was established at Cape Denison as part of Mawson’s Australasian Antarctic Expedition. The geomagnetist for that expedition, the aforementioned Eric Webb, commenced spot absolute observations of the

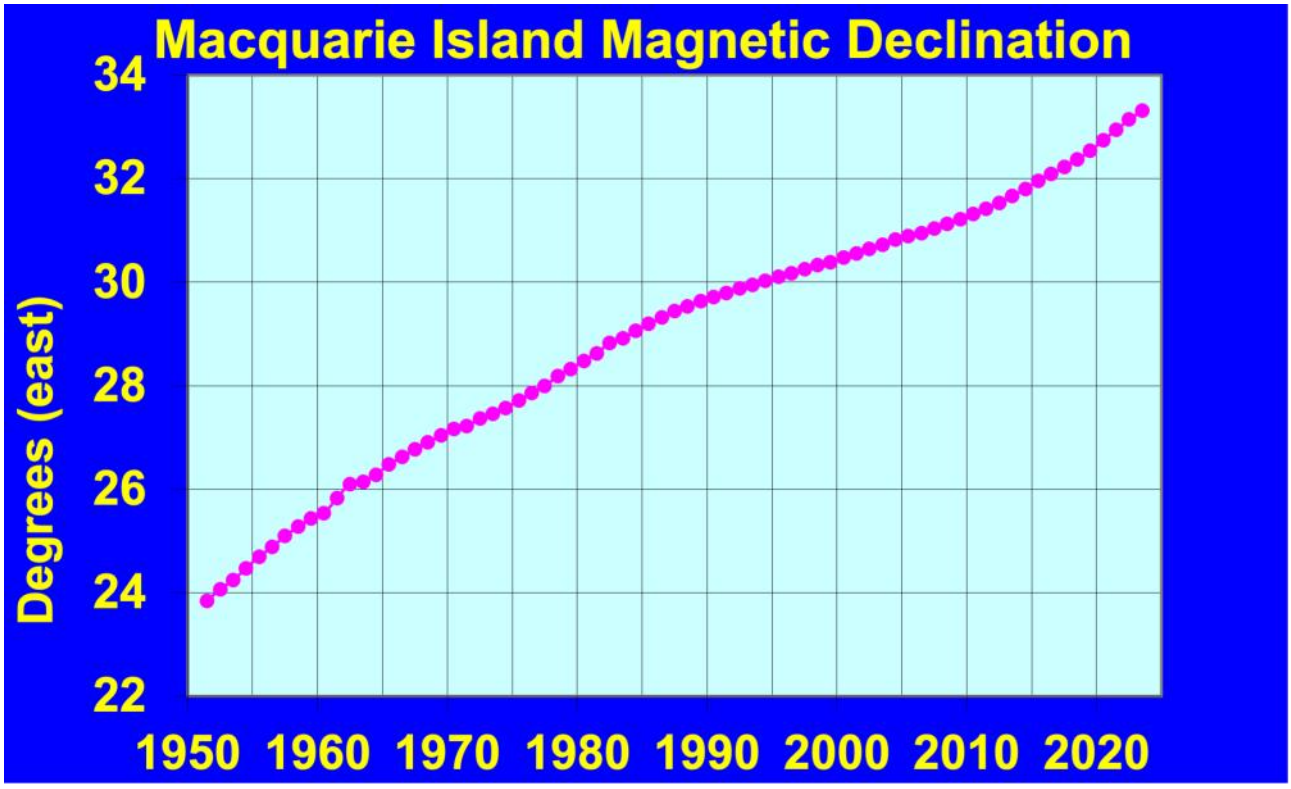


*Figure 4 Macquarie Island magnetic declination annual means*

magnetic field in February 1912. Continuous recording of magnetic variation on daily photographic paper using an Eschenhagen magnetograph started in April 1912 and continued until April 1913.

Since then, numerous Antarctic expeditions have included geomagnetic measurements in their goals and both short- and long-term monitoring has been established at several magnetic observatories. Three of those observatories continue in operation today. Comprehensive accounts of Australian Antarctic geomagnetic and seismic observatory activities are available in earlier editions of this publication. (McGregor, 2000; Kirton, 1995) and other listed references. A brief summary is included below together with some more recent information for some of the observatories.

**Macquarie Island Geomagnetic Observatory (MCQ)**

Early geomagnetic observation work was made on the isthmus at Macquarie Island by the Australian Antarctic Expeditions (AAE) in 1911 and followed by later work during the British Australian New Zealand Antarctic Expedition in 1930 and the Australian National Antarctic Research Expedition in 1947.

The Macquarie Island geomagnetic observatory buildings were erected in 1950 within a magnetic quiet zone just south of the main station. Regular magnetic observations commenced in April 1952. The observatory operated continuously out of these original buildings until 1985 when they were removed and new buildings erected in the same locations.

In recent years the long-standing Macquarie Island geomagnetic quiet zone was ear-marked for future development as part of the Macquarie Island modernisation project, so a new magnetic quiet zone was established some 400 m further to the south where a new observatory could be constructed. A temporary absolute hut and magnetic variometer system were installed in 2019 to bridge the anticipated gap between decommissioning the old observatory and establishing the new observatory.

A new variometer hut, absolute hut and external observation pillar were constructed to the west of Razorback Hill in the new magnetic quiet zone during 2021 and observatory operations were transferred from the old to the new buildings in November 2022 without, as it turned out, any hiatus in data recording. The full record of annual mean magnetic declination from the observatory is shown in figure 4, with recent values corrected to the location of the old observing pillar.

**Heard Island Geomagnetic Observatory (HII)**

Geomagnetic observations were first made at Heard Island in 1947, and a short-lived geomagnetic observatory was operated from 1952 to October 1954. The Heard Island magnetic variometer was dismantled in November and December 1954 but absolute observations continued into January 1955 when the absolute hut was dismantled. The observatory huts and instrumentation were packed and transported to the newly established Mawson station for use at the Mawson geomagnetic observatory, though the absolute observing pillars were left in place at Heard Island to allow future re-occupation during visits to the island.

Between the time the observatory was closed and 1985 the old magnetic pillars at Heard Island were re-occupied to make magnetic observation whenever possible during expeditions to the island. This work was often done by

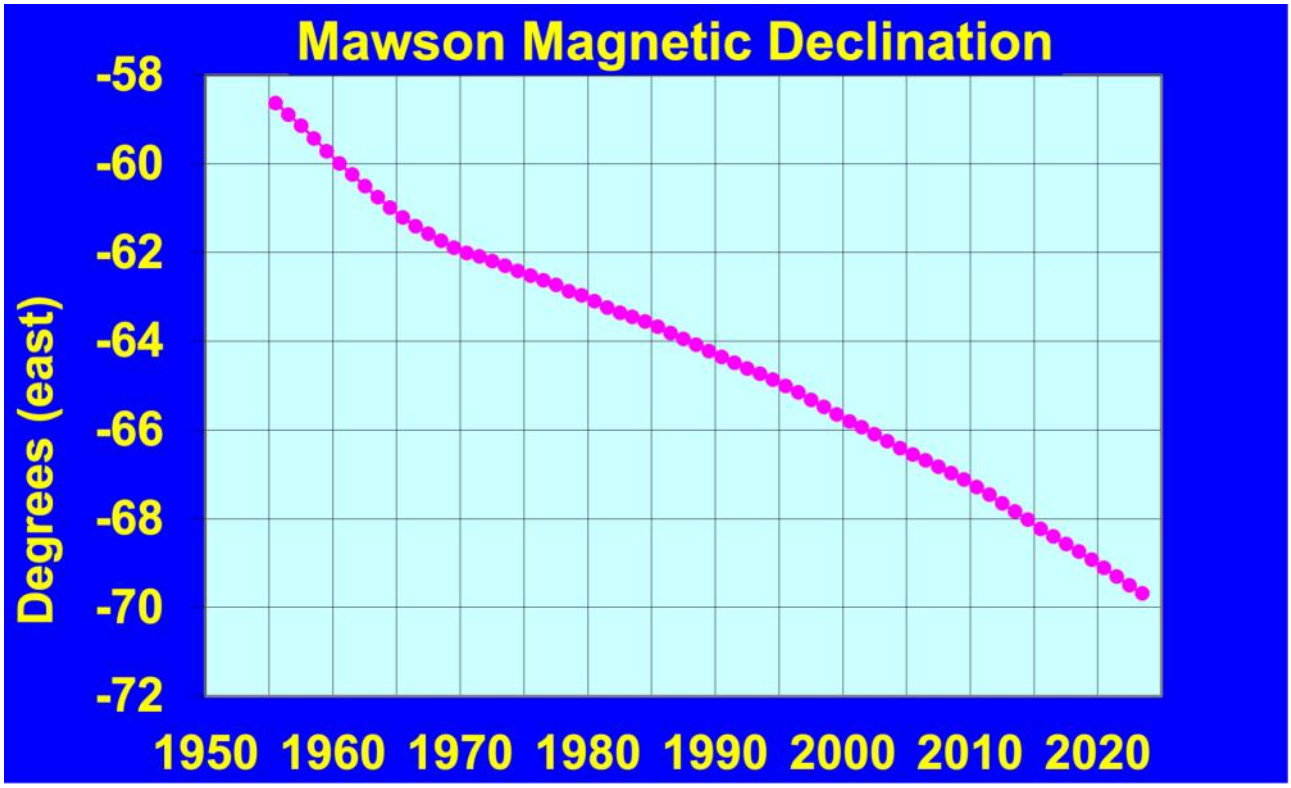


*Figure 5 Mawson magnetic declination annual means*

geophysicists or observers on their way to or from the Mawson observatory.

During October and November 1985 an extended series of magnetic observations were made and a temporary magnetic variometer set up for a period of about one month. This work was undertaken by the Bureau of Mineral Resources as part of an AAD voyage to the island. Since that 1985 visit there has been at least one other brief re-occupation of the observing pillars in November 2000.

**Mawson Geomagnetic Observatory (MAW)**

The Mawson geomagnetic observatory commenced full operations in July 1955 just a few months after the establishment of the main station in 1954. As mentioned above, the Mawson observatory buildings were transferred from Heard Island and this original absolute hut is still in routine operation today as an integral part of the Mawson observatory.

The magnetic variometer equipment was relocated from the old Mawson variometer hut to a new hut in 1985. In 1994 a poorly managed quarry explosion destroyed the old, disused variometer hut and caused damage to the operational variometer hut. Fortunately, no-one was injured, and no magnetometer equipment was damaged in the explosion, but extensive repairs were required to the variometer hut which caused considerable periods of data loss.

Figure 5 shows the full record of annual mean geomagnetic declination from the Mawson observatory. At Mawson magnetic north is to the west of true north, hence the negative values shown on the plot

**Wilkes Geomagnetic Observatory (WIL)**

A geomagnetic observatory was established by the United States Coast and Geodetic Survey at Wilkes in 1957 as part of the International Geophysical Year. Wilkes was transferred to ANARE in 1958. Magnetic observers were employed and trained by BMR to operate the Wilkes observatory until 1967 when the observatory was closed.

**Casey Geomagnetic Observatory (CSY)**

Starting in 1975 geomagnetic absolute observations were regularly measured at Casey station and used to derived monthly mean values to monitor the slow change in the geomagnetic field for the region. This work was a collaboration between Australian Antarctic Division and Bureau of Mineral Resources. In 1986 AAD installed a magnetic variometer at Casey to support the atmospheric and space physics program. Data from the instrument were calibrated with monthly absolute observations.

In 1991 AGSO assumed the task of processing the magnetic variometer and absolute data collected at Casey by AAD to derive monthly means and in 1998 started calculating calibrated minute means of the geomagnetic field. Systems were upgraded and full observatory operations commenced at Casey in March 1999.

In March 2006 the primary pillar for absolute observations at the Casey observatory was re-located from the old absolute hut to a red “apple” hut constructed over a pre-existing observation pillar which had stood idle and uncovered for some years. A new observatory-quality variometer system was installed in the old absolute hut in 2007. Whilst there are data available for the period 2007 – 2010 they have not yet been processed to definitive quality, hence annual means in

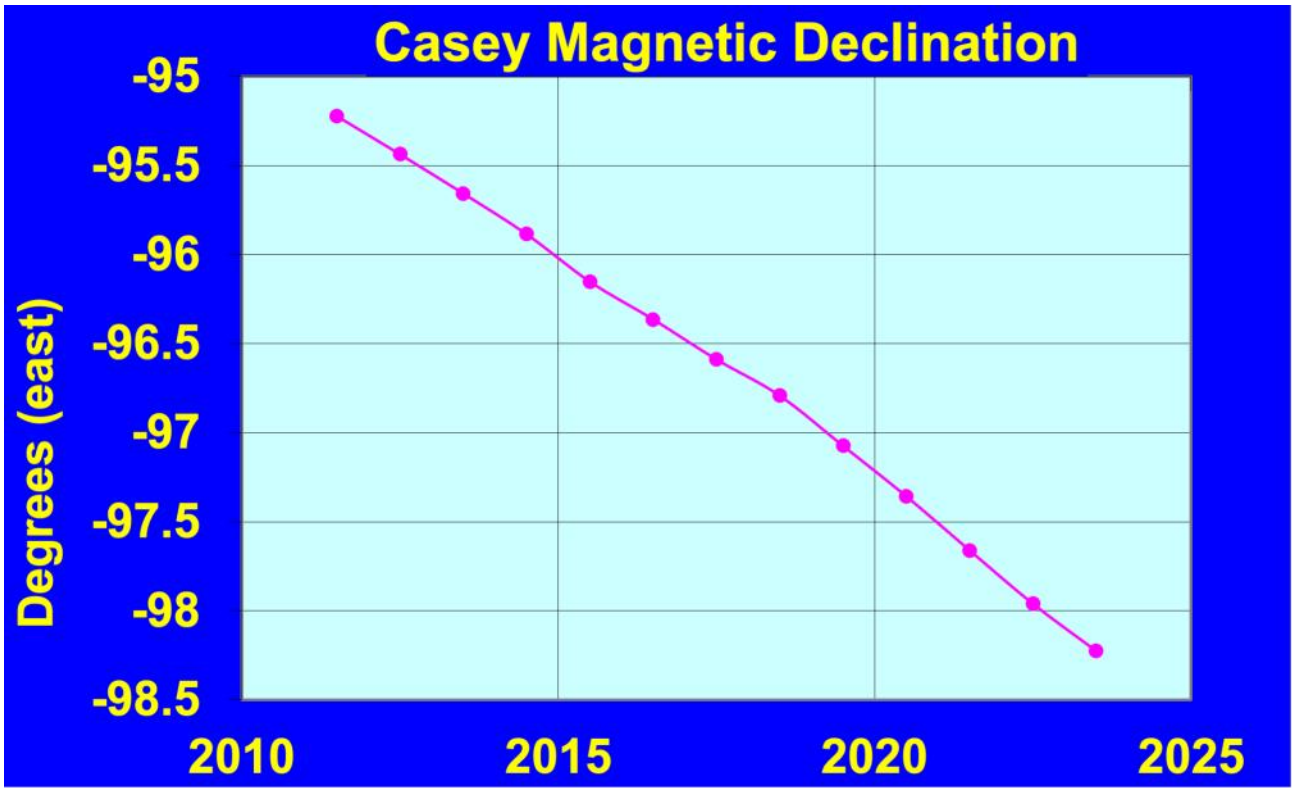


*Figure 6 Casey magnetic declination annual means*

the declination plot shown in figure 6 commence in 2011. Like Mawson, magnetic declination at Casey is west of true north, and in fact is only a few degrees away from true west.

Casey is now the closest INTERMAGNET geomagnetic observatory to the south magnetic dip pole, at a distance of about 1200 km. The French base at Dumont d'Urville is closer, at about 400 km from the 2025 location of the pole, but the geomagnetic observatory there withdrew from the INTERMAGNET network in late 2020.

**Davis**

Similar to the earlier history of magnetic monitoring at Casey, regular absolute observations were made by Antarctic Division personnel at Davis. These observations commenced in 1972 to monitor the main field and secular change.

AAD installed a magnetic variometer system at Davis in 1986. Starting in 1991, and continuing for a few years, the ASGO geophysicist at Mawson processed the variometer data and absolute observations from Davis to calculate monthly means of the geomagnetic field.

**Acknowledgements.**

Thanks go to each and every geophysicist and geomagnetic observer who has contributed to the operation of the Australian geomagnetic observatories in the Antarctic and sub-Antarctic over their long history of operation.

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https://doi.org/10.5636/jgg.48.221

**Web Sites**

Geoscience Australia – Australian Geomagnetic Reference Field model and observatory data

https://geomagnetism.ga.gov.au/

International Association of Geomagnetism and Aeronomy (IAGA)

https://www.iaga-aiga.org

IAGA - International Geomagnetic Reference Field model

https://www.ncei.noaa.gov/products/international-geomagnetic-reference-field

International Real-Time Magnetic Observatory Network (INTERMAGNET)

https://www.intermagnet.org

National Centre for Environmental Information - Wandering of the Geomagnetic Poles

https://www.ncei.noaa.gov/products/wandering-geomagnetic-poles

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# GEOMAGNETISM AT CAPE DENNISON ON THE AAE

## Alun Thomas

Andrew Lewis in his fascinating article on "Australian Antarctic Geomagnetism and The South Magnetic Pole - Part 2" refers to a magnetic observatory that was established at Cape Denison as part of Mawson's Australasian Antarctic Expedition (AAE) of 1911 - 1914. Having been to Cape Denison as a member of the Project Blizzard Expedition of 1985 I thought that some more detail on the magnetic observatory, more specifically the magnetic observatories, and their use, would be of interest.

In fact, during the Australasian Antarctic Expedition, two buildings were built near the main hut, the winter quarters, now known as Mawson's Hut.

A first of these was known as the Absolute Magnetic Hut. Measuring just 1.8m x 1.8m, the hut was constructed during February 1912 with remnant timber and tarpaper, and copper nails salvaged from the shipwrecked Clyde on Macquarie Island when the Aurora, the AAE ship, visited on the way south. Copper was preferable to steel because as a non-ferrous metal, it would not interfere with the magnetic measurements. However, archaeologists have since discovered that steel nails were used when the supply of copper nails ran out! No-one actually entered the hut when it was being used – the scientific instruments inside were set into rock and accessed from outside via small sliding doors.

Cape Denison was found to be one of the windiest places on earth due to katabatic winds tumbling down from the Antarctic icecap. These winds have since inflicted considerable

Two views of the structure of the Absolute Magnetic Hut taken in 1985 showing serious timber erosion over more than 70 years. The copper nails can also be seen in the lower photo.

Absolute Magnetic Hut at Cape Denison in December 1985

damage on the hut, tearing off some boards and eroding others to a fraction of their original thickness.

As can be seen by these photographs taken in 1985 the hut had lost its roof and most of its wall. My brother visited it in a year when snow hadn't cleared and only the top of the ruin was visible.

In 1997-98 the Mawson's Huts Foundation Expedition salvaged boards from the ice surrounding the Absolute Magnetic Hut and reattached them which gives a better idea of how it previously looked. Today the Absolute Magnetic Hut is considered a standing ruin. The Absolute Magnetic Hut was built for calibration observations of the absolute magnetic field at Cape Denison.

The second hut built on Cape Denison was called the Magnetograph House. This building was built to accommodate the geomagnetist, Eric Webb, and his equipment for long periods while making detailed continuous geomagnetic observations. The Magnetograph House was built further away from the Winter Quarters to avoid interference from materials in the main hut.

The Absolute Magnetic Hut when my brother visited it in 2007. Photograph Emlyn Thomas

To make the hut more stable stones were built up on each side. The hut was insulated by the use of wool, possibly from the sheep which had been transported south to supply meat.

The current state of the Absolute Magnetic Hut as a standing ruin following repairs by the Mawson's Huts Foundation. Photograph Mawson's Huts Foundation

Magnetograph House in December 1985 from the north-east. The entrance door is under the snowdrift at the western end. Incidentally if you are ever marooned at Cape Denison emergency supplies etc are stored within this hut.

Magnetograph House from the south In 1985

In December 2007 only the top of the Magnetograph House was visible. Photograph Emlyn Thomas

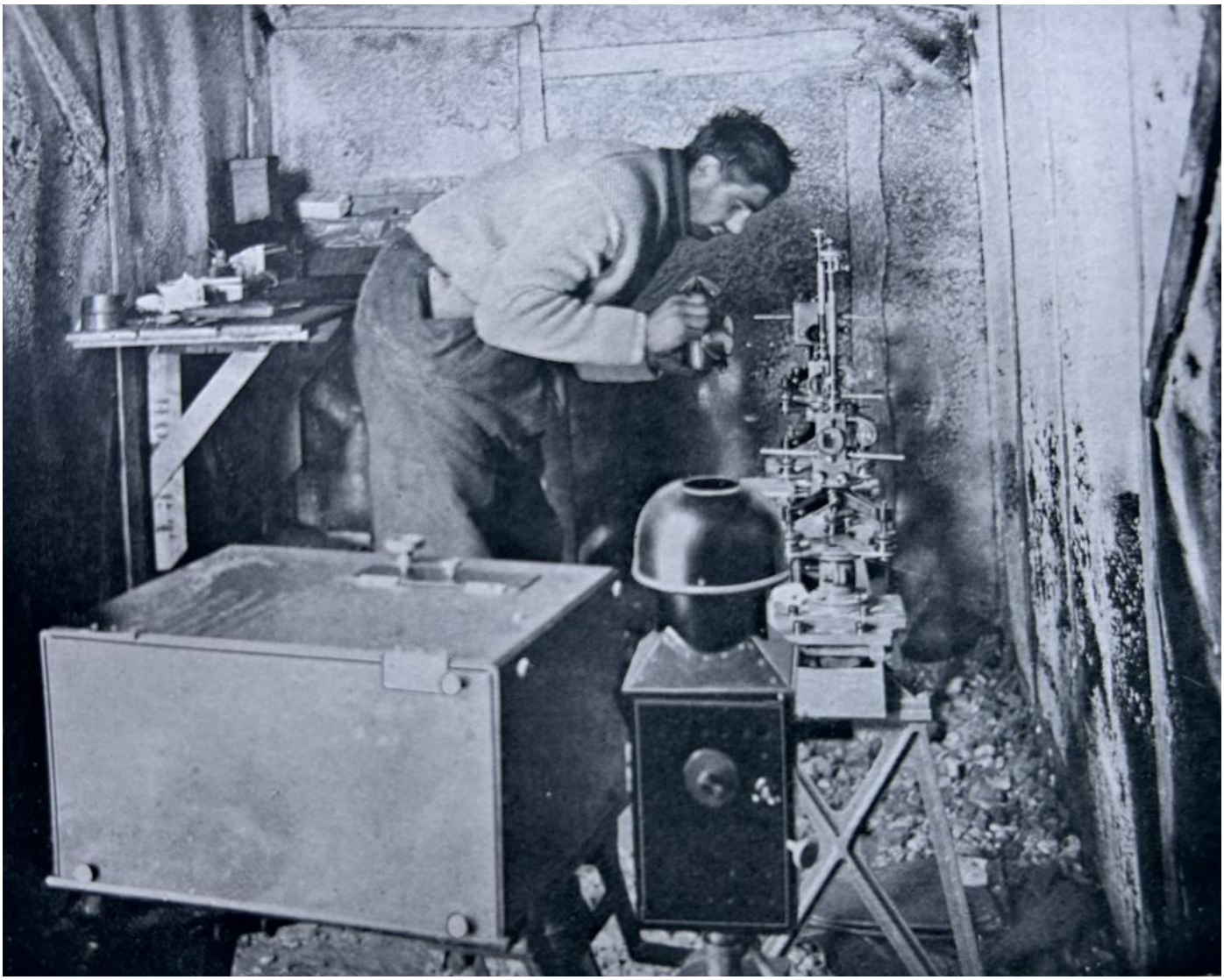
In “Home of the Blizzard” Mawson gives a description of the uses of each hut.

> “The observations made in the "Absolute Hut", carried out at frequent intervals and on each occasion occupying two men for several hours together, are necessary to obtain standard values as a check upon the graphic record of the self-recording instruments which run day and night in the "Magnetograph House".

But this is another story. Three hours, sitting writing figures in a temperature of -15 degrees F., is no joke. The magnetician is not so badly off, because he is moving about, though he often has to stop and warm his fingers, handling the cold metal."

Then Mawson continues describing the work done in the Magnetograph House.

"The Magnetograph House had by far the most formidable name. The Hut, though it symbolized our all in all, sounded very insignificant unless it were repeated with just the right intonation. The Absolute Hut had a superadded dignity. The Hangar, in passing, scarcely seemed to have a right to a capital H. The Transit House, on the and other hand, was the only dangerous rival to the first mentioned. But what's in a name? If the Magnetograph House had been advertised, it would have been described as "two minutes from the Hut." This can easily be understood, for the magnetician after leaving home is speedily blown over a few hillocks and sastrugi, and, coming to an ice-flat about one hundred and fifty yards wide, swiftly slides over it, alighting at the snow-packed door of his house. The outside porch is just roomy enough for a man to slip off burberrys and crampons. The latter are full of steel spikes, and being capable of upsetting magnetic equilibrium, are left outside. Walking in soft finnesko, the magnetician opens an inner door, to be at once accosted by darkness, made more intense after the white glare of the snow. His eyes grow accustomed to the blackness, and he gropes his way to a large box almost concealing the feeble glimmer of a lamp. The lamp is the source of the light, projected on to small mirrors attached to the magnetic needles of three variometers. A ray of light is reflected from the mirrors for several feet on to a slit, past which revolves sensitized photographic paper folded on a drum moving by clockwork. The slightest movements of the suspended needles are greatly magnified, and, when the paper is removed and developed in a dark-room, a



Eric Webb the geomagnetist adjusting his instruments in the Magnetograph House on the AAE. It can be seen that the hut was lined on the inside to keep it slightly warmer than outside. Photo: Frank Hurley from "Home of the Blizzard".

series of intricate curves denoting declination, horizontal intensity and vertical force, are exquisitely traced. Every day the magnetician attends to the lamp and changes papers; also at prearranged times he tests his "scale values" or takes a "quick run."”

Mawson also mentions that observations were made in an ice cave away from the Winter Quarters.

> “To obtain results as free as possible from the local attraction of the rocks in the neighbourhood, Webb resolved to take several sets of observations on the ice-sheet. In order to make the determinations it was necessary to excavate a cave in the glacier. This was done about three-quarters of a mile south of the Hut in working shifts of two men. A fine cavern was hewn out, and there full sets of magnetic observations were taken under ideal conditions.”

It can be seen that the AAE took very seriously its determination of the geomagnetic field and variations in the field at Cape Denison.

As was mentioned in Part 1 of the report by Andrew Lewis, Douglas Mawson was a member of the sledging party on the British Antarctic Expedition of 1907 – 1909 who attempted to get to the vicinity of the south magnetic dip pole in January 1909. It is now estimated that they got to about 130 km from it. Eric Webb, the magnetician on the AAE, was also a member of the sledging party which got to within about 62 Km of the estimated position of the south magnetic pole in 1912.

For completeness it should also be mentioned that Australasian Antarctic Expedition set up a separate base over two thousand kilometres to west of Cape Denison on the Shackleton Ice Shelf where a Western Base party overwintered. Magnetic measurements were also taken there. The magnetician at that base was Alexander Kennedy. In “Home of the Blizzard” Frank Wild, the Leader of the Western Party wrote:

> From the 25th to the 29th [April 1912], Kennedy, Harrisson and Jones were employed building an igloo to be used as a magnetic observatory. On the afternoon of the 30th, the magnetician invited everyone to a tea-party in the igloo to celebrate the opening. He had the place very nicely decorated with flags, and after the reception and the formal inspection of the instruments, we were served with quite a good tea. The outside temperature was -33 degrees F. and it was not much higher inside the igloo. As a result, no one extended his visit beyond the bounds of politeness.

After the departure of the Australasian Antarctic Expedition, the Absolute Magnetic Hut and the Magnetograph House have been reused a number of times by various expeditions for magnetic observations. A first of these was by Mawson himself during the BANZARE cruises of 1929 - 1931. On 5th January 1931 the expedition ship Discovery anchored off Cape Denison. Mawson in his diary states:

> “On the morning of the 5th the wind having calmed down, a landing was made. Kennedy redetermined the magnetic elements after this long period to time. His observations show the south magnetic pole, had in the interval, steadily moved to the north-west and was now not more than 250 miles distant from Cape Denison.”

The Kennedy referred to here was the same man who was the magnetician on the AAE at the Western Base. In the ships log, Captain Mackenzie stated that after the expeditioners landed:

> “Several hours were occupied in picking out ice from the magnetic hut before observations were obtained.”

There were subsequent geomagnetic observations made at Cape Denison by French Antarctic Expeditions in 1951 and 1959, and by New Zealand researchers in 1962.

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# MINNAWARRA BIODIVERSITY SPRING SURVEY 2025

## Spring Survey 27th September—3rd October 2025

Come for half a day, one day or several days.

Minnawarra is situated on the southern Fleurieu Peninsula

For further information and registration forms, contact:

Janet Furler on 0419 842 667 or thefurlers@gmail.com

# NORTH MAGNETIC POLE

## Alun Thomas

While I was preparing the article on the Australasian Antarctic Expedition and the South Magnetic Pole in this issue, I came across an article in social media which discussed the movement of the North Magnetic Pole. While the South Magnetic Pole has been moving so has the North Magnetic Pole.

**Beauty of planet earth**

A Map of the Northern Magnetic Pole's Shift Over 400 Years:

Earth's magnetic poles are undergoing dramatic change — and the pace of change is accelerating.

The North Magnetic Pole, the point where Earth's geomagnetic field is vertical, has been steadily shifting for centuries. A historical mapping of its movement from 1640 to 2020 reveals a gradual northwest trajectory in more recent centuries, primarily toward Siberia.

This shift has significantly accelerated in the past century, with the pole rapidly approaching Russia.

The movement is influenced by changes in the dynamics of Earth's molten iron core, which generates the planet's magnetic field. Unlike fixed geographical poles, the North Magnetic Pole's position fluctuates daily within an oval-shaped locus due to geomagnetic variations.

To create maps like these, scientists have used historical data from magnetic measurements taken at various locations over centuries, including records from old compass readings, volcanic rock samples, and recent satellite observations.

# REPORT ON PLUVIOMETER NETWORK UPGRADE TRIP TO GAMMON RANGES JUNE 2025

## Chris Wright and Graham Blair

**PURPOSE**

This was a combined routine service visit to four of the ten sites to complete the 2025 maintenance of the network, to replace all 12-volt gel-cell batteries, and to upgrade the telemetry at the Arcoona Bluff pluviometer-repeater.

STEPS

**Part 1. Sunday 8th June** Chris Wright and Graham Blair set off early and drove to the Arcoona Creek Public Car park where we were met by Phil and Janet Davill in their 4WD and super new camper trailer.

**PART 2 Monday 9th June Servicing/Calibration of the Arcoona Bluff Pluviometer and repeater**

The four of us set out from camp at 10 a.m. on a cold and frosty morning, climbed up Arcoona Bluff to the pluvio site. Graham had organised a new, higher-gain Yagi Antenna, which was duly installed, and time was spent working out the exact orientation. It turned out that the Lyndhurst repeater gave the strongest signal.

We continued with calibration of the Pluviometer, downloading of all data, and battery change (Fitted battery clamps for safety). After a few glitches, the radio which speaks to Arcoona South, Exclosure and Water level recorder was reset and working.

Back to camp in time to cook tea before it got dark.

**PART 3 Tuesday 10th June Servicing Arcoona South pluviometer**

All of us in the Subaru, drove to Painter's Baseline, and then climbed the ridge overlooking Arcoona Pound, arrived at the Pluvio site by lunchtime. Serviced the site, downloaded data, calibrated the instrument, fitted new batteries and battery clamp. New weatherproof tape was applied to the antenna connections. Then back over the ridge to the Subie.

Overnight in the Public Car Park.

**PART 4 Wednesday 11th June Servicing the Exclosure Pluvio and the Stream Gauge**

An easy walk from the camp, followed by routine servicing and calibration and downloading and fitting of new batteries and clamps. New weatherproof tape was applied to the antenna connections.

Graham and Chris then packed up camp and drove to Maynard's Well, meeting up with Eddie Nicholls, Siobhan and Fionn. Stayed at the Shearers Quarters, wonderful hot shower and comfortable beds.

**PART 5 Thursday 12th June Going Home**

Graham and Chris returned via Leigh Creek, stopping to look at a beautiful display of art by Siobhan Nicholls at the Leigh Creek Library, followed by a cultured cup of tea at James and Dale's tea shop. The home via quick stop at Hawker for fuel and late lunch at Maggies in Orroroo. Home in Adelaide by 6.30.

Phil and Janet packed up camp and returned under their own steam.

**Notes on the trip**

1. Graham and Chris called in at Owieandana on arrival and when we left, and met up with Colin and his wife, who are managers there. They were most welcoming, had an interesting chat with them, and we were offered accommodation there anytime. They already knew about SEG and its work and know Garry and Michelle.
2. After the disruption caused by the bushfire, we can now report that with a great deal of effort by Graham Blair, Chris and Sarah Kemp, the Plateau Pluviometer is operating well and the whole of the network is fully functional, complete with new batteries at all sites.

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Stenhouse Bay Hall

# SYP RECONNAISSANCE

## Alun Thomas

A team of Piers Brissenden, Julie Schofield, Trent Porter and I recently went to the Southern Yorke Peninsula to reconnoitre for the upcoming Southern Yorke Peninsula Biodiversity Survey. This survey is being carried out on behalf of the Northern and Yorke Landscape Board.

SEG carried out a survey in Southern Yorke Peninsula in 2019 and this current survey is to note any changes since the previous survey**.** The survey will quantify animals and birds by revisiting several established survey sites so that changes in animal distribution and abundance can be documented. Since the first survey animals have be re-introduced soi t is possible that some of the reintroduced animals will be caught.

The reconnoitre was in particular to check out the Stenhouse Bay Hall, the campground and the survey sites in Dhilba Guuranda-Innes National Park and Warrenben Conservation Park. This is the region for the upcoming Southern Yorke Peninsula Survey in October this year.

The Northern and Yorke Landscape Board gave us use of their local accommodation, Model Hut, for which we were very grateful.

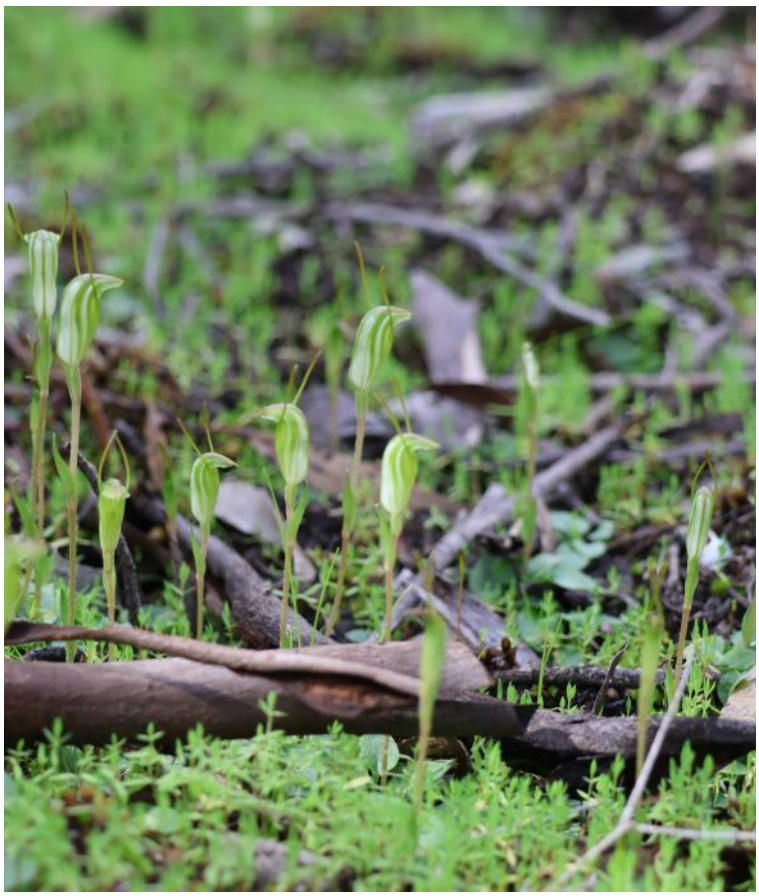
The Stenhouse Bay Hall is a reasonably large meeting hall with attached adequate kitchen, male and female dormitories and an adjacent ablution block. The hall has a stage where the science teams can set up shop and ample room for setting up a lunch preparation and dining area as well as a sitting area. The male and female dormitories each have about 7 double bunks. The ablution block has separate male and female areas with showers and toilets.

The camping ground we are going to use is the Stenhouse Bay Campsite in which we have about 20 sites reserved. The campground has four unisex long-drop toilets but no shower facilities. The campground is about 450 metres from the Stenhouse Bay Hall. Campers will need to use the ablution facilities at the Hall.

There are seven survey sites in Warrenben CP and several surrounding heritage blocks and there are seven survey sites in Dhilba Guuranda-Innes National Park. It is intended to survey the Warrenben sites in the first week and the Dhilba Guuranda-Innes National Park in the second week.

All the sites have been surveyed during the SEG

Large Gnat Orchid *Cyrtostylis robusta* Warrenben Conservation Park. Photo Julie Schofield



Dwarf Snail Orchid *Pterostylis nana* Warrenben Conservation Park. Photo Julie Schofield

The old bread oven in the Inneston Bakery.

Red Shell Orchid *Pterostylis erythrochoncha* Warrenben Conservation Park.

Photo Julie Schofield

## APOLOGY

**In the June edition of SEGments I gave the wrong name to the author of the article Osprey Update. It should have been Ian Falkenberg**

Burnt site in in Dhilba Guuranda-Innes National Park due to recent proscribed burning. One pitfall location is under the stone in the foreground.

biodiversity survey in 2019 and have installed pitfalls so we will only need to install the drift fences and place the Elliot, funnel and cage traps to set up each site. Most of the sites are in fairly dense woodland so it is a bit of a challenge to find the sites and walk along them.

At one of the sites in Warrenben in an area of about 10 metres square Julie noted 5 different species of orchid including the beautiful ones shown here.

Some of the Dhilba Guuranda-Innes National Park sites have recently been burnt in proscribed burns so at least one of the sites is quite bare and others have a number of burnt mallee branches extending over the pitfall fence lines. Some line clearance will be necessary. Other sites in Dhilba Guuranda-Innes National Park have been burned several years ago so present fairly dense vegetation up to about one metre and burnt mallee trunks above that.

As usual expeditioners may have free time during the survey and there are a number of walks within Dhilba Guuranda-Innes National Park which will be interesting to do. One of these is to Inneston, the gypsum mining town quite close to the Hall. Inneston includes an old bakery, the oven of which is still useable. It is hoped to have a pizza meal cooked in the old bakery during the expedition.

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