



Wellington Astronomical Society November 2017 Volume 47 Issue 10
WWW.WAS.ORG.NZ, ISSN 01147706 - PRINT, ISSN 2230-5912 ONLINE

The WAS AGM for 2017 will be held on Wednesday 1st of November at 7:30 pm at Space Place at Carter Observatory, Upland Rd, Kelburn, Wellington

WAS 2017 Annual General Meeting

Come and find out about all the great things we have done this year and the exciting developments we have planned for next year.

Agenda:

- President's Annual Report (Antony Gomez)
- Treasurer's Report (John Homes)
- Minutes of previous AGM (Chris Monigatti)
- Cretney Bequest Sub-committee Presentation (Duncan Hall & Andrew Fuller)
- Election of Officers for the next year
- Resolutions seeking approval
- Other Business

NOTE: If you wish to vote at the AGM, please ensure your subscription to WAS is paid before the meeting. Only votes from paid up WAS members will be valid.

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2017 — 2018 SUBSCRIPTIONS DUE

The new subscription year began in September, so WAS looks forward to receiving your subscription renewal.

Renewal forms can be found on the website, but a summary follows:

Subscription for Newsletter by Email 2017-2018

Adult/Waged: \$ 50.00

Student/Unwaged: \$ 30.00

Family: \$ 70.00

Payment methods:

Cheque - make out to Wellington Astronomical Society Inc, and mail to PO

Box 3181, Wellington 6140

Direct Deposit or Internet Banking - use Acc No: 03-0502-0508656-00, please include reference so WAS knows who is making the payment

Cash - please bring exact amount to meeting

It appears that quite a few members from last year have not yet renewed their subscriptions. If this is an oversight, can you please remedy it as soon as possible.

WAS COUNCIL MEMBERS AND CONTACTS

Council Members

The following members were elected to Council at the Nov 2016 AGM

President: Antony Gomez
president@was.org.nz / 021_253_4979

Vice President: Duncan Hall
vice-president@was.org.nz

Secretary/Telescope custodian: Chris Monigatti
secretary@was.org.nz / 021_890_222

Treasurer: John Homes

Newsletter Editor: Gerard Coyle
editor@was.org.nz

Membership Secretary: Janine Bidmead
membership@was.org.nz

Website : John Homes & Peter Woods
webmaster@was.org.nz

Council

Andrew Fuller

Edward Wilcock

Frank Andrews

Janine Bidmead

Murray Forbes

Peter Woods

Sarah Taylor

Postal Address: Wellington Astronomical Society, PO Box 3181, Wellington 6140, New Zealand

WAS ON FACEBOOK

Our Facebook page "Wellington Astronomical Society" is now operational. You can search for it on Facebook or click on this link <https://www.facebook.com/WellingtonAstronomicalSociety/>.

If you are a Facebook user, please use the page to receive up-to-date notifications of our Society's events and news. This is the easiest way to keep informed as to what is going on in the Society, as well as keeping up with astronomical news.

Remember you will need to interact occasionally with the page by liking or commenting on postings, or indicating whether you are coming to an event. Otherwise Facebook will, after a time, stop sending you new postings. So keep visiting the page as there are a number of Society events coming up in the next few months.

We also have Facebook group "WAS – Wellington Astronomical Society" <https://www.facebook.com/groups/96304353012/> which is open for

anyone to join by request. The public group is open for discussion or postings on astronomical news. The WAS Astrophotography Group <https://www.facebook.com/groups/1684738758511214/> is for those interested in astrophotography. It serves as a place to notify others of astrophotography gatherings at short notice and to display images captured by members.

President's Annual Report 2017

It's hard to believe that it has been another year since our last AGM. That the time seems to have passed so quickly might be an indicator of how busy we are. But I am sure I can say that for those of us that are actively involved in the Society, it has been a lot of fun. Promoting astronomy through public outreach remains our number one objective. In the past 12 months we organised, or were involved in, over 60 events almost all of them open to the general public. That is around 5 events per month. These include our monthly Society meetings, Astrophotography and Observing evenings, telescope evenings at a number of schools, Astronomy Nights at the Lower Hutt Library, events for Global Astronomy Month and the Space & Science Festival. Personally, we find it quite uplifting seeing the awe and wonder in people when they look at the Moon, Jupiter or Saturn for the first time.

There continues to be good feedback to the structure of our monthly Society meetings in which we present the upcoming night sky for the month and recent astronomy news, before proceeding with the main talk for the evening. The only issue we seem to have is not having enough time for socialising at the end of the meetings.

The topics for the meetings have been wide and varied.

- New Zealand's last living MOA (Microlensing Observations in Astrophysics) – Alex Thom
- ASTROSAT: India's first dedicated multi-wavelength space observatory – Jibu Stephen
- Introduction to the WAS Research Group – Roland Idaczyk and Aline Homes
- The analemma, dials, and digits: some unusual combinations, or Clocks of the Really Long Now – Duncan Hall



Thomas Murphy's presentation on Space Safari of Dying Stars.

- So, our Universe is a Hologram?? – Antony Gomez
- Pseudo-Science in Astronomy – Sarah Taylor
- From the Greeks to Gaia: the history and science of high-resolution astronomy – Warwick Kissling
- Space Safari of Dying Stars – Thomas Murphy
- Exploring Mars with 150,000 Earthlings – Dr Meg Schwamb

We are grateful to ASTRONZ for giving us the opportunity to have an overseas speaker Dr Meg Schwamb, a planetary scientist, who works with the Gemini Telescope in Hawaii. It was a great talk that showed how involving the ordinary person, in this case 150,000 of them, in identifying features on the surface of Mars.



Frank Andrew's presentation in Upper Hutt on The Evolving Universe.

The Astrophotography and Observing events have had mixed success with the weather mostly to blame. It really hasn't been a good year for observing or photographing the night sky. We had one reasonable evening where a good number of people turned up at the Brooklyn Hill Turbine after many attempts to have an event up there. We will continue to use this dark site while we have the opportunity. The normal monthly observing is at our Tawa College Observatory site. The dome and telescope are operational and there are other telescopes available for members to use. Chris Monigatti and Paul Higgin are often there on Friday evenings if the weather is good and anyone is welcome to join in.

During the year a few of us have ventured to the Wairarapa on a couple of occasions to observe the night sky from a really dark site. More recently, we were involved in a public outreach event in Martinborough and also attended a meeting of local business people, council members including

President's Annual Report 2017 *(continued)*

the mayor and a road lighting engineer as well as amateur astronomers to discuss the prospect of turning the Southern Wairarapa into a dark sky reserve and attract tourists not just for the wines but beautiful night skies clear of light pollution. The meeting, which was partly organised by WAS member Lee Mauger, attracted a lot of interest and there are moves now to make it happen. It may take a few years yet but I can see it happening. WAS will be actively supporting



Chris Monigatti showing the Moon at our public outreach event in Martinborough.

this venture. In having a foothold in the Wairarapa, one day we may be able to establish a dark sky observatory site there. One positive result announced at the meeting is the road lighting engineer had already made a decision to use the warmer LED lights for road lighting rather than the harsher white LED which is known to cause health and environmental issues. Lee has also approached the Wellington mayor and WAS Council member, Andrew Fuller, has written to the Hutt City Council about the issues of using white LEDs for road lighting. Hopefully in time we can look forward to less light pollution in the cities and suburbs.

Lee is also the chair of the Space & Science Festival (S&S Festival) and this year we saw what was a single day and night event at Onslow College split into three events which was attended by thousands. Our Society had telescopes out at the @Night event to observe the Moon, Jupiter and Saturn, solar scopes for the @Day event and we had telescopes out again at Red Rocks for the Astrophotography event with Mark Gee. WAS has been part of the S&S Festival since the beginning but we are now formally a member of S&S Festival and we will be involved in the organisation of future S&S Festival events.

The Cretney Bequest sub-committee, under the guidance of Duncan Hall, has been working hard preparing the Gifford Observatory as a remote access observatory. The mount has been extended and a 14" Meade telescope installed. Security cameras are active and recently the observatory was repainted in preparation for Wellington College's 150th Jubilee where at least a couple of hundred people visited on the Saturday of Labour weekend. The observatory is expected to be fully operational as a remote site sometime early next year.

One of the WAS Council's plans is to run more social events outside the monthly meetings. We had three events in the past year, the Christmas Party last December which we plan to hold again this year, the Midwinter Dinner and the Cassini-Huygens: This is Your Life Party! These were successful with a scrumptious roast Midwinter dinner and a highly entertaining Cassini party, thanks to Janine Bidmead. Who would have guessed that in Wellington there are two people who actually worked on parts of the Cassini mission and they would be present at the Party! Look out for more social events in the coming year.



Enjoying a delicious roast meal at the Midwinter Dinner

During the year we launched our new website and if you haven't seen it please have a look. It is now mobile friendly and Facebook postings feed directly to the website. We have Peter Woods to thank for the huge effort he has put in to develop the website. Over time we will be adding more features.

President's Annual Report 2017 *(continued)*



Mulling over the answers during the quiz at the Cassini-Huygens: This is Your Life Party.

We have a new WAS logo designed which we will display at the AGM and glow-in-the-dark WAS T-shirts (available for purchase) which have made us stand out at our public outreach events. A fun event we have started is to try and get the T-shirt photographed in as many parts of the world as possible. So far it has been seen in Alaska, at the 2017 Solar Eclipse last August, Greenwich Observatory, Skopje (Macedonia) and Budapest.



Alex Thom in his WAS T-shirt at the 2017 Solar Eclipse.

A lot has happened in the Society this year and it has been a busy time. For all their hard work and support, I would like to especially thank

- the Council members especially Sarah Taylor and Edward Wilcock who have stepped down
- the Editor and newsletter team for preparing the monthly newsletter,
- the presenters at our monthly meetings,
- Lesley Hughes and Bill Parkin for providing the meetings with supper and tidy-up
- the Cretney Bequest sub-committee for their efforts to date,
- and those Society members who come out and help with the public outreach events, especially Paul Higgin.



Janine teaching primary school children where the Sun is in our Milky Way galaxy

Lastly, when I was in Skopje attending a work meeting, I contacted the Skopje Astronomical Society on the small chance they might be able to come and meet me. The next evening, five of them turned up and after showing me through a telescope set up in the city centre, they took me out to a local restaurant for dinner. We chatted through the evening about all things astronomical, comparing our two societies. I told them about the spectacular southern sky objects which we can see in New Zealand which surprisingly they already knew about - I could sense some jealousy creeping in. It was a wonderful evening with great food, drink and companionship which goes to show there are no borders when it comes to astronomy.

- Antony Gomez



With members of the Skopje Astronomical Society.

Statement of Financial Performance

For Year ending 31-August-2017

INCOME:	2017	2016	2015	2014
Subscriptions Renewals in year	\$1,940.00	\$2,050.00	\$1,865.00	\$2,395.00
New Subscriptions	\$625.00	\$325.00	\$410.00	\$290.00
Interest	\$27.32	\$120.61	\$188.44	\$183.96
Donations	\$107.58	\$110.00	\$60.00	\$1,110.00
Grants	\$-	\$-	\$-	\$-
Solstice Dinner	\$484.00		\$-	\$-
Te Papa	\$150.00		\$-	\$-
G Blow Legacy	\$-	\$1,000.00	\$-	\$-
Sold capital Items	\$-	\$100.00	\$-	\$-
Solar Viewers	\$-	\$-	\$-	\$-
Other	\$80.00	\$400.00	\$2,825.95	\$-
Total Income	\$3,413.90	\$4,105.61	\$5,349.39	\$3,978.96
EXPENDITURE:				
Affiliation Fees to RASNZ	\$243.75	\$183.75	\$127.50	\$213.75
Reviewer	\$120.00	\$100.00	\$100.00	\$-
Bank Fees & Cheque book	\$-	\$-	\$-	\$-
Insurance	\$408.25	\$410.55	\$410.55	\$410.55
Charities Commission	\$51.11	\$-	\$-	\$-
Post Office Box Hire	\$-	\$-	\$92.50	\$185.00
Newsletter Printing	\$-	\$168.50	\$129.00	\$128.90
Postage	\$-	\$-	\$-	\$126.00
Room Hire	\$-	\$-	\$-	\$100.00
Speakers	\$-	\$314.50	\$377.03	\$50.00
Cretney Bequest	\$-	\$-	\$2,825.95	\$-
Maintenance on Equipment	\$480.68	\$-	\$-	\$-
Moving Observatory	\$-	\$172.50	\$-	\$-
BHT Lecture	\$257.70	\$187.00	\$-	\$-
T-shirts	\$563.50	\$-	\$-	\$-
Flyers	\$82.19	\$-	\$-	\$-
Student Travel to Space Camp, Olympiad etc	\$-	\$-	\$250.00	\$-
Web Site	\$137.63	\$195.94	\$195.94	\$199.28
Other Expenses	\$45.70	\$128.73	\$25.80	\$50.00
Capital Items	\$350.00	\$825.00		
Total Expenditure	\$2,740.51	\$2,686.47	\$4,534.27	\$1,463.48
Cash Income less Expenditure	\$673.39	\$1,419.14	\$815.12	\$2,515.48

Statement of Financial Performance

For Year ending 31-August-2017 (continued)

Accrual adjustments				
Reverse of previous years AP	\$150.00	\$113.20	\$107.00	\$16.00
Less current Accounts Payable	-\$759.91	-\$150.00	-\$113.20	-\$107.00
Reverse of previous years Prepaid	\$-	-\$239.49	-\$310.30	-\$293.44
Plus Debtors/Prepayments	\$-	\$-	\$239.49	\$310.30
Reverse previous years Telescope Deposits	\$-	\$-	\$-	\$-
Reverse Capital Items	\$350.00	\$825.00	\$-	\$-
Less Depreciation	-\$613.73	-\$599.06	-\$673.27	-\$779.05
	-\$200.25	\$1,368.79	\$64.84	\$1,762.29

Wellington Astronomical Society Incorporated

Statement of Financial Position

Current Assets	
Bank Accounts	\$17,036.56
Prepayments	\$-
Total Current Assets	\$17,036.56
Property, Plant & Equipment from Dep Schedule	\$6,471.75
Total Assets	\$23,508.31
Liabilities	
Accounts Payable	\$379.91
Total Current Liabilities	\$379.91
Net Assets	\$23,128.40

Bank Accounts

Cheque	\$1,990.31
Saver	\$15,046.25
Total	\$17,036.56

Minutes of the 2016 Annual General Meeting

Held at Space Place, Carter Observatory, 7:30pm, Wednesday 2 November

The meeting was opened by WAS President Antony Gomez.

Attendees:

24 financial members and two Life Members, exceeding the quorum of '25% of financial members'.

Apologies:

Apologies were received from: Gordon Hudson, Janine Bidmead, Murray Forbes, Becky Bateman, Ed Budding.

'That the apologies be accepted:'

Moved: John Field; **Seconded:** Roland Idaczyk; Carried

Noted with regret that in January former WAS member Graham Blow passed away after a long illness. Honorary Member Terence Conaghan had recently passed away.

Minutes:

The 2015 AGM minutes were read by the Secretary.

'That the 2015 minutes are a true and accurate record of the previous meeting:'

Moved: Chris Monigatti; **Seconded:** Gordon Hudson; Carried

President's Report:

The President's report in was shown as a Powerpoint slideshow.

- Noted that over 70 outreach events had been held, leading to many facebook 'likes' and several new members.
- An Astrophotography Group had recently been formed.
- Ten diverse talks had been presented to members, including Night Sky and Astronomy announcements. Feedback had been positive.
- The WAS Research group had been meeting prior to the main monthly meeting.
- The WAS telescope is expected to be operational at Tawa College within a few months.
- A goal is to apply for a grant to purchase a Solar Telescope.
- Gratitude expressed for the opportunity that the bequest from former member Syd Cretney allows development of a remote-access telescope at the Gifford Observatory, which may be operational by October 2017 for the Wellington College 150th Anniversary.
- Expressed thanks to the incoming and former council members.

Future plans:

- Encourage former members to re-join the society.
- Develop programs for younger kids and students.
- Donate a prize to the NIWA Science Fair.
- Prepare for the 2020 RASNZ Conference in Wellington
- Prepare for the 2023 WAS 50th Anniversary

'That the President's report be received.'

Moved: Antony Gomez; **Seconded:** Frank Andrews; Carried.

Minutes of the 2016 Annual General Meeting *(continued)*

Treasurer's Report:

The summary of the treasurer's report had been published in the November newsletter, and was displayed as a slideshow.

The Reviewer's report was available for members perusal.

Noted that the Reviewer looks at the accounts only, not the minutes.

A modest profit was generated for the financial year.

The society had received a \$1000 bequest from Graham Blow.

'That the Treasurer's report be accepted, subject to assessment'.

Moved: John Homes; **Seconded:** John Field. Carried.

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Appointment of Honorary Assessor / Reviewer:

Mr Robert Toothill

Moved: John Homes; **Seconded:** Duncan Hall. Carried.

Election of Officers:

There were nominees sufficient to fill the positions of;

President: Antony Gomez,

Vice-President: Duncan Hall,

General Secretary: Chris Monigatti,

Treasurer: John Homes.

For positions on council, there were nominations received from;

Murray Forbes, Peter Woods, Janine Bidmead, Andrew Fuller, Sarah Taylor

Co-opted: Frank Andrews, Edward Wilcock

There being no other nominations, President Antony Gomez announced that those named above were elected to council.

Former council members Peter Graham, Aline Homes, and James Smith were thanked for their involvement.

'That the above Council be elected'.

Moved: Antony Gomez; **Seconded:** John Talbot. Carried by acclamation.

Additional Roles:

Murray Forbes will post newsletters on the website.

Peter Woods will be Web-Master

Chris Monigatti will manage Observing nights.

Gerard Coyle will edit the newsletter.

Duncan Hall will chair the SCB Observatory Committee.

Lesley and Bill are willing to continue arranging supper after meetings.

Minutes of the 2016 Annual General Meeting *(continued)*

General Business:

1. **Constitution:** Remit: To change the registered office of the society to: Space Place at Carter Observatory, Wellington.

Moved: Antony Gomez; Seconded: Frank Andrews; Carried.

2. **Constitution:** Discussion re Associate membership. Intention to include 'out-of-town' members in the Associate member class with students and beneficiaries. Suggestion to set subscriptions for people of different circumstances. No clear agreement. Intention to re-address with a thorough review of the constitution.

Remit: To temporarily review clause 4.5 of the constitution 'Associate membership shall be ..'; Moved Antony Gomez; Seconded: Frank Andrews; Carried.

3. **Life membership nomination:** Antony Gomez presented background on Gordon Hudson's contributions to the Wellington Astronomical Society.

Motion: 'That Gordon Hudson be elected a Life Member of the Wellington Astronomical Society'. Moved: Antony Gomez; Seconded: Roland Idaczyk; Carried by acclamation.

Thoroughly supported by John Talbot; Margaret Gordon expressed congratulations to Gordon. Chris Monigatti to write a letter and prepare a certificate for Gordon.

4. **Cretney Observatory report:** Concern expressed on the quote for installation of underground fibre optic cable, of over \$70,000.

5. **All Sky cameras** are being investigated for the society.

Bill and Lesley were thanked for the **suppers** after meetings.

The meeting was declared closed at 8:25pm. (Minutes recorded by General Secretary, Chris Monigatti)

Resolutions Seeking Approval at 2017 AGM

There are two resolutions being put forward at the AGM:

- **Resolution 1:** "That the Society (i) cease to produce the monthly newsletter in its current format; and (ii) make use of online means to communicate to and between its members." (moved Duncan Hall, seconded Antony Gomez).
- **Resolution 2:** "That the Society reduce the membership fee for Associated members from \$30 to \$20." (moved John Homes, seconded Antony Gomez)

As stated in the main AGM item, if you wish to vote on either of these resolutions, you must ensure your WAS subscription for 2017-2018 is paid up **before** the AGM.

Wellington Astronomical Society November 2017 Events

Wellington Astronomical Society 2017 Annual General Meeting

As advertised on our front page, this month is the Wellington Astronomical Society Annual General Meeting for 2017. This is an opportunity to find out what we have achieved over the past year, and our plans for the next.

Agenda:

- President's Annual Report (Antony Gomez)
- Treasurer's Report (John Homes)
- Minutes of previous AGM (Chris Monigatti)

- Cretney Bequest Sub-committee Presentation (Duncan Hall)
- Election of Officers for the next year
- Resolutions seeking approval
- Other Business

All WAS members are strongly encouraged to attend, but please note that if you wish to vote on the election of WAS officers or on a resolution, your 2017-2018 subscription to WAS must be paid before the meet-

ing. Only votes from paid up WAS members will be valid.

Date: Wednesday, 1st November

Time: 7:30 pm

Venue: Space Place at Carter Observatory, Upland Rd, Kelburn, Wellington

WAS Astrophotography group / Dark Sky Observing

We are again planning to get special access to this site again both for astrophotography and dark sky observing. Please be at the gates by 8:15pm. The gates will be opened for cars to drive in and closed again at 8:30pm. There won't be anyone there to let you in if

you are late. Any updates will be posted on the [WAS Astrophotography Group](#) Facebook page closer to the time. For further details or cancellations contact Edward 021_08304802 or Chris 021_890222.

Date: Saturday 19th November

Time: 8:30pm,

Venue (to be confirmed): Brooklyn Hill Turbine

WAS Observing Evening

See many wonderful objects, star clusters, galaxies, dying stars and nebulae. We will be focusing on objects around the galactic centre like the Lagoon, Trifid, Swan, and Eagle nebulae as well as a number of other Messier objects prominent in this part of the night sky. Saturn and the Moon will be visible from early evening. Come and learn

how to star-hop through the night sky to find many of the various astronomical objects using the Society's Dobsonian telescopes.

Chris is often there on Friday evenings too so feel free to come along though it would be best to give him a ring on 021_890222 to check on conditions.

Dates: Saturday 25th November

Time: 8:00pm,

Venue: Tawa College

Attention Occultation Observers

I've been asked by some of our occultation observers to organise a brief get-together at 6:45pm on Wednesday 1st November, just before the start of our main meeting. The intention is to have a brief discussion among our observers, to work out how we can help each other. At the moment, the procedure is for each observer to do the analysis and reporting of their own

observations. However some people struggle with doing the analysis. So should these people bring in their observations on a USB stick to be analysed during our research meeting by an analysis guru? Or for the gurus to do this in between meetings? Any other thoughts?

Date: Wednesday, 1st November

Time: 6:45 pm

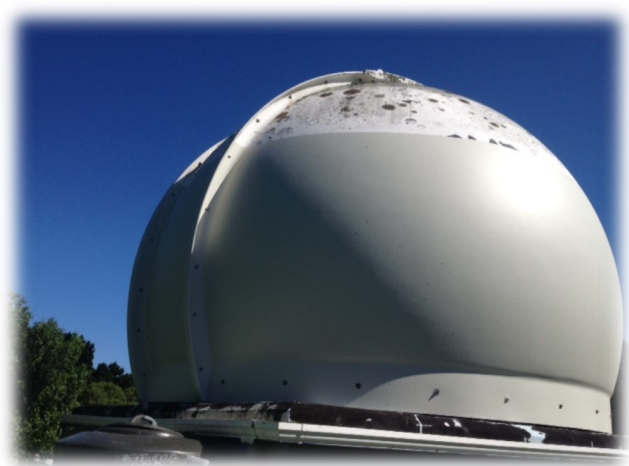
Venue: Space Place at Carter Observatory, Upland Rd, Kelburn, Wellington

Murray Forbes

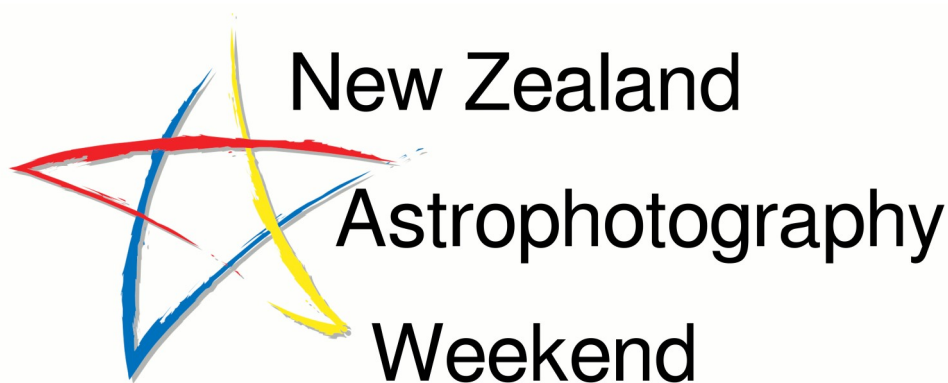
Painting out Graffiti at Gifford Observatory

On Saturday 14th October, Duncan Chris, Peter and Kara from WAS; Delly, Liam and Matt from WCC; Angela, Simon and Sean from the Gifford Observatory Trust; and other volunteers Briana and Roy painted out the graffiti on the Gifford Observatory. The results can be seen below.

Thanks to all involved for their efforts.



NZ Astrophotography Weekend



Bookings are now open for the Horowhenua Astronomical Society's 5th Astrophotography Weekend.

Held in the lower North Island, this is an annual event dedicated to astrophotography in a wonderful dark-sky location. It is open to everyone interested in astrophotography - from beginners to advanced. Come along and share your knowledge, tips and experiences. All sorts of astrophotography can be undertaken - solar-system/nightscapes/deep-sky.

The weekend includes:

- **Practical astrophotography:** There are plenty of safe areas for people to set up their equipment and leave it in situ for the whole weekend.
- **Image Processing:** There is a huge room with long tables available which is perfect for people to set up computers. If you have one then please bring an external monitor to attach to your laptop as this is very useful for other people to ob-

serve what you are doing.

- **Presentations:** There shall be talks on astrophotography related topics held in the large hall (see below).
- **Bring-and-buy:** Feel free to bring along any equipment that you are no longer using and wish to sell.
- **Fish and chips dinner:** Saturday night. Please pay when you book.
- **Late-night movies:** Should the weather not be kind then movies can be shown on the big screen.

Everyone is encouraged to bring along their own telescopes/binoculars/mounts/cameras etc. however basic they might be.

Please book early so the society knows numbers.

Cost - Attendance Fee: \$23.00

On-Site Accommodation: Shared heated Cabins (from twin to 8 per cabin)

or Dormitory - \$21 per night per person. See website

www.horoastronomy.org.nz for details.

This weekend is strictly self-catering. Groceries can be bought locally from New World in Foxton, or from the dairy in Foxton Beach itself.

Mattresses and pillows are provided but please note that you must bring your own pillow slips and bedding.

The main hall is fully set up for talks. It has a large open fire as well as electric heating.

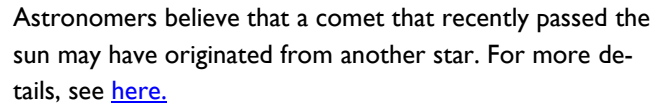
To make or enquire about bookings you can go to:

sales@horoastronomy.org.nz, or for more general information, visit the Horowhenua Astronomical Society web-site at: www.horoastronomy.org.nz

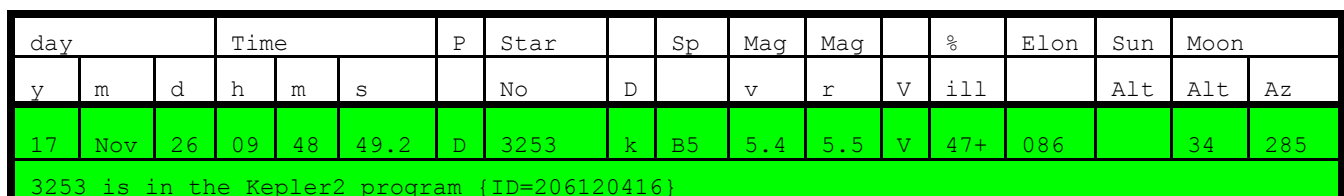
Dates: Friday 17th to Sunday 19th November

Venue: Foxton Beach Bible Camp

First Interstellar Comet Discovered?



The latest set of discoveries from the LIGO and VIRGO Gravitational Wave Detectors have continued to add to our knowledge of the universe and the ways we can explore it. For more details, see [here](#).



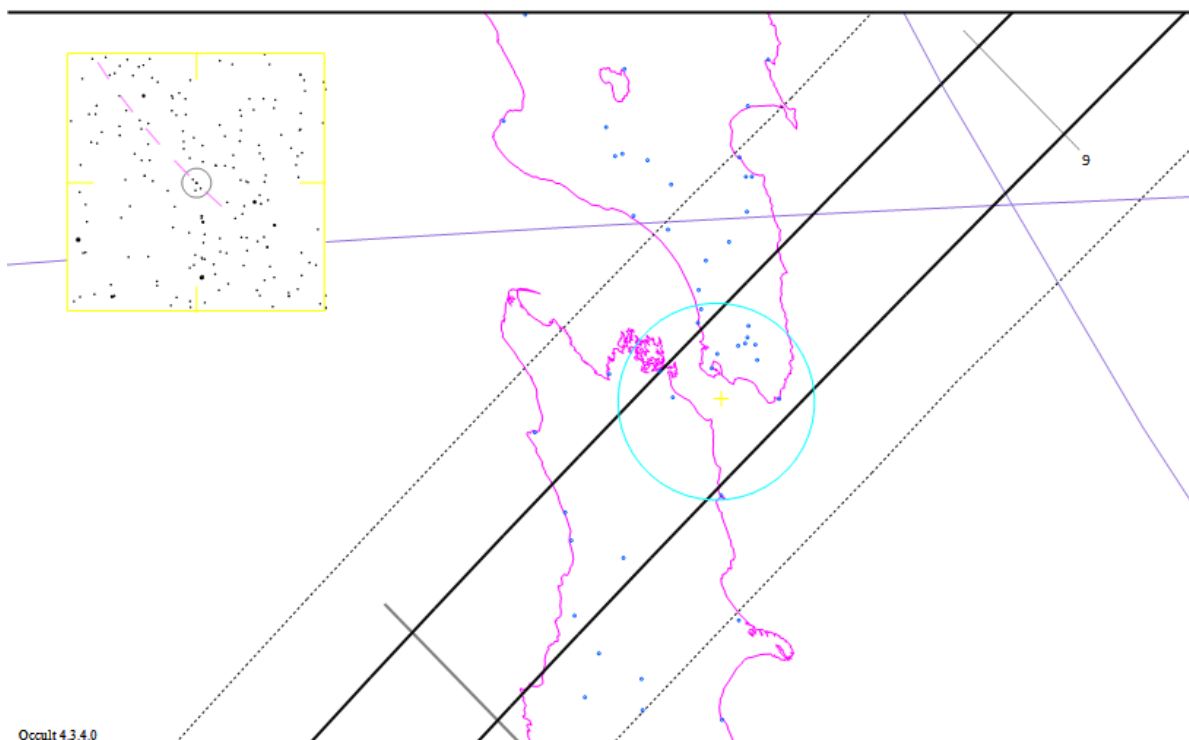
There's only one minor planet occultation predicted for the month, on Thursday 9th November at 11h 09m 30s UT. While somewhat late in the evening at 12:09pm, it is well worth attempting as the 94 km wide shadow is predicted to track across Wellington, Wairarapa and Blenheim. The northern edge of the path is close to Nelson and the Kapiti Coast. The 9th magnitude star should be easily visible in an 8" scope/video camera combination. The predicted 4.7 magnitude drop during the occultation means the star will seem to completely disappear, for up to 8.7 seconds. The star has an altitude of 32° at the time of the event, which should be well above your local horizon even if you live in a valley. The only potential problem is the moon, as it is fairly bright (66% illumination) and close by the star (46°). There's only one good pre-point star on the day, but a fair number the previous night early in the morning (for the early birds among us).

Point			J2000				Dec		
Time			Star	RA		Dec		Offset	SAO
h	m	s	mag	h	m	o	'	ArcMin	
10	30	22	3.9	04	36.3	-03	21	42.0	131346
Previous night									
16	58	46	4.7	11	01.8	-02	29	-2.1	137947
11	38	34	3.7	05	40.8	-01	57	-40.9	132444
11	38	34	1.7	05	40.8	-01	57	-40.9	132444
11	36	34	3.8	05	38.7	-02	36	-1.5	132406
11	22	20	3.4	05	24.5	-02	24	-14.1	132071

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Asteroid:
  Mag =13.7
  Dia = 94km,      0.062"
  Parallax = 4.208"
  Hourly dRA =-1.223s
  dDec =-17.79"

```



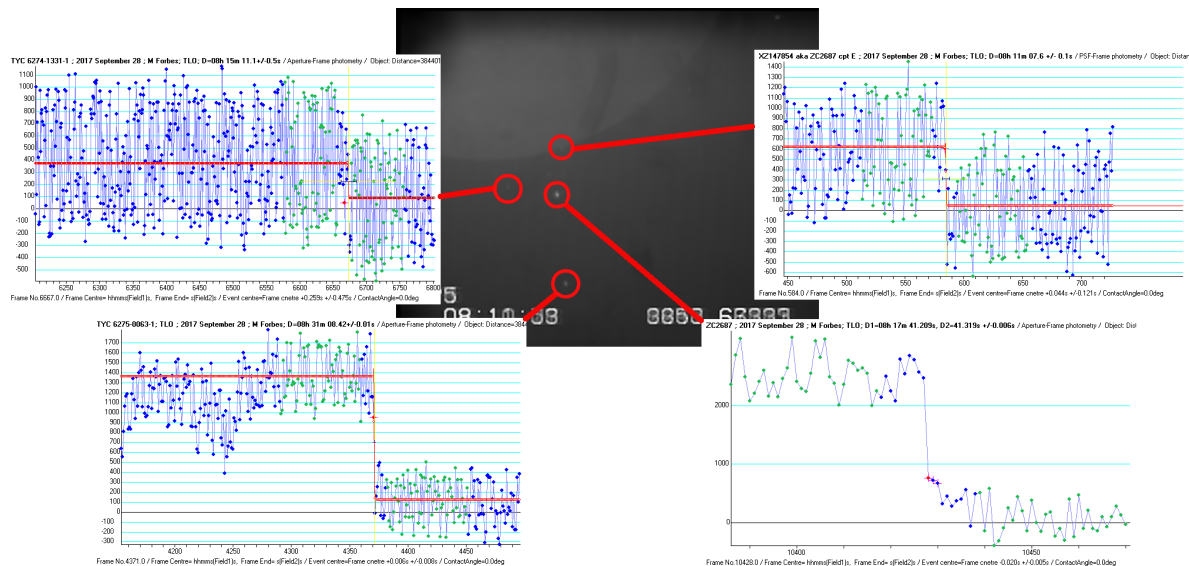
Results from Total Lunar Occultations for September 2017

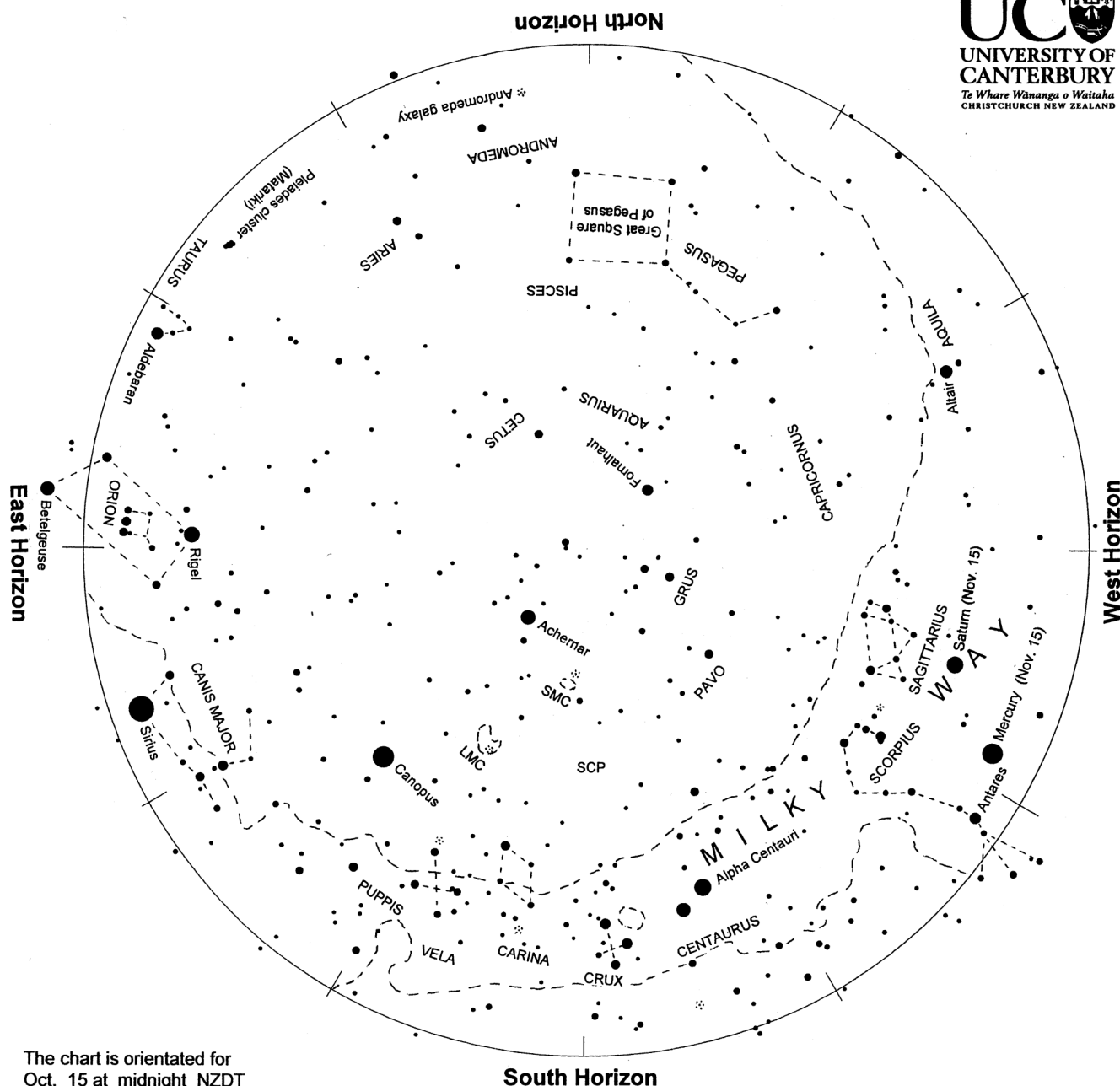
You may remember in the newsletter a few months ago a prediction that the moon will pass across M25 during the evening of Thursday 28th September. After a long 'drought' of cloudy weather, it looked like I might finally get a good night as it was completely clear at sunset. Some high cloud formed about 8pm (NZDST), and then cleared away again by 8:30pm. About 9pm, when I had aligned the moon & first stars in my scope, the sky was about 80% cloud (not high, thin cloud but solid, heavy cloud). The moon was on the edge of the only gap in the cloud cover, with cloud moving rapidly to the south. I attempted as many of M25's stars as I could but lost about 50% due to cloud at the wrong time. I did record a couple that were about 9th magnitude - approximately the same as the dark limb of the moon, so Limovie wasn't able to get lightcurves for all of them. I gave up at about 9:45pm (as I had to go to work early the next morning).

I've shown an image below from my video recording made at the beginning of the night. I used Registax to align and stack 200 frames together to try to get a better image for this newsletter, which did make the stars and dark limb of the moon somewhat clearer. I've also attached the lightcurves I measured in Limovie for four stars. I also measured the occultation for a fifth star but this occurred somewhat later in the evening so that the star wasn't yet in my field of view for the image below.

Did anyone else have any luck with this event (or any other events for that matter)? If so, how about putting together a brief article for the newsletter or research group?

Murray Forbes





The chart is orientated for
 Oct. 15 at midnight NZDT
 Nov. 1 at 11 p.m. "
 Nov. 15 at 10 p.m. "

Evening sky in November 2017

To use the chart, hold it up to the sky. Turn the chart so the direction you are looking is at the bottom of the chart. If you are looking to the south then have 'South horizon' at the lower edge. As the earth turns the sky appears to rotate clockwise around the south celestial pole (SCP on the chart). Stars rise in the east and set in the west, just like the sun. The sky makes a small extra clockwise rotation each night as we orbit the sun.

Saturn and Mercury are in the western sky with the orange star Antares nearby. Late in the month Mercury moves up the evening sky as Saturn and Antares sink lower. Canopus is midway up the southeast sky. Sirius, the brightest true star, appears in the east. Left of Sirius is Orion containing 'The Pot'. Further left are Taurus and the Pleiades/Matariki star cluster. The Pointers and Crux, the Southern Cross, are low in the south. The Milky Way is wrapped around the horizon. The north sky is empty but for the Great Square of Pegasus with the Andromeda galaxy below and right of it.

The Night Sky in November

Bright stars rise in the east while bright planets set in the west. Canopus, the second brightest star is well up the southeast sky at dusk. Sirius, the brightest star, rises a little south of east. Less bright stars appear left of Sirius. On the opposite side of the sky Mercury and Saturn are the brightest 'stars' in the west.

At the beginning of the month Saturn is due west at dusk, setting in the southwest around 11:40. Below and left of Saturn is the orange star Antares marking Scorpio's body. The Scorpion's tail and sting make a back-to-front question mark above Antares. Lower and left again is Mercury, setting 70 minutes after the Sun. The stars and Saturn sink lower night-to-night but Mercury moves higher. On the 14th Mercury will be level with Antares with Saturn well above and to the right. On the 24th Mercury and Saturn will be level toward the southeast. Mercury, on the left, is the brighter of the two. They set two hours after the Sun. The Moon will be near Saturn on the 21st.

Sirius, the brightest star, rises in the later evening at the beginning of the month. By month's end it is in the sky at dusk, twinkling like a diamond as the air disperses its light. Left of Sirius is the constellation of Orion, with 'The Pot' at its centre. Rigel, a bluish super-giant star, is directly above the line of three stars; Betelgeuse, a red-giant star, is straight below. Left again is orange Aldebaran. It is at one tip of a triangular group called the Hyades cluster. The Hyades and Aldebaran make the upside down face of Taurus the bull. Still further left is the Pleiades or Matariki star cluster, also called The Seven Sisters, Subaru and many other names. Six stars are visible to the eye; dozens are seen in binoculars. The cluster is 440 light years* away and around 70 million years old.

Sirius is the brightest star both because it is relatively close, nine light years away. Seen up close it would be 23 times brighter than the sun. By contrast, Canopus is 300 light years away and 13 000 times brighter than the sun.

The Milky Way is low in the sky, visible around the horizon from the north-west, through west and south and around into the eastern sky. It is our edgewise view of the galaxy, the pancake of billions of stars of which the Sun is just one. The broadest, brightest part is in Sagittarius in the west to the right of the Scorpion's sting. That's where the thick hub of the galaxy lies, 30 000 light years away, mostly hidden by clouds of smoke-like dust. The thin nearby edge of the Milky Way is below Orion on the opposite side of the sky.

Low in the south are the Pointers, Beta and Alpha Centauri, and Crux the Southern Cross upside down. In some Maori star lore the bright southern Milky Way makes the canoe of Maui with Crux being the canoe's anchor hanging off the side. In this picture the Scorpion's tail can be the canoe's prow and the Clouds of Magellan are the sails. Alpha Centauri is the closest naked-eye star; 4.3 light years away.

The Clouds of Magellan, (LMC and SMC), high in the southern sky, are two small galaxies about 160 000 and 200 000 light years away, respectively. They are easily seen by eye on a dark moonless night. The larger Cloud is about 1/20th the mass of the Milky Way galaxy, the smaller Cloud 1/30th. That's still billions of stars in each. The globular star cluster 47 Tucanae looks like a slightly fuzzy star near the top-right edge of the SMC. It is 'only' 16 000 light years away and merely on the line of sight to the SMC. Globular clusters are spherical clouds of stars many billions of years old.

Very low in the north is the Andromeda Galaxy, easily seen in binoculars in a dark sky and faintly visible to the eye. It appears as a spindle of light. It is similar in shape to our galaxy but is a little bigger and nearly three million light years away.

Mars, Venus and Jupiter are all in the dawn sky so not on the chart. At the beginning of the month all three planets are hidden in the twilight. Venus and Jupiter make a close pair around the 12th but very low in the east, rising only 30 minutes before the Sun. By the end of November Mars rises two

hours before the Sun. It is a medium-bright reddish 'star' just below the blue-white star Spica. Jupiter is then rising 80 minutes before the Sun and is the brightest 'star' in the dawn sky.

*A light year (l.y.) is the distance that light travels in one year: nearly 10 million million km or 10¹³ km. Sunlight takes eight minutes to get here; moonlight about one second. Sunlight reaches Neptune, the outermost major planet, in four hours. It takes four years to reach the nearest star, Alpha Centauri.

Notes by Alan Gilmore, University of Canterbury's Mt John Observatory, P.O. Box 56, Lake Tekapo 7945, New Zealand.

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