



Wellington Astronomical Society  
2020-11 eNewsletter

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Wellington Astronomical Society Inc.  
Email Newsletter for November 2020

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### 1. ANNUAL GENERAL MEETING – NOVEMBER 2020

The next Wellington Astronomical Society (WAS) Annual General Meeting (AGM) will be held on **Wednesday 4<sup>th</sup> November at 7.30 pm** at Space Place, Carter Observatory in the Botanical Gardens, 40 Salamanca Rd, Kelburn.

The meeting will also be available via Zoom. To watch online, use this link

<https://zoom.us/j/97826699456?pwd=UHhyUjlrVTdyK3RFZGNiZnBoTUMzZz09>

However, to vote on the motions presented, you need to be physically present at the AGM.

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## **Annual General Meeting 2020**

1. Apologies
2. [Minutes of the AGM 2019](#)
3. [President's Report](#)
4. Cretney Bequest Sub-Committee Report
5. Research Astronomy Group Report
6. [Treasurer's Report](#)
7. Election of Officers
8. Other business
9. End of AGM followed by supper

Copies of the reports are available through the links above. If you are having difficulty accessing the reports please contact Matt [secretary@was.org.nz](mailto:secretary@was.org.nz) or Antony [president@was.org.nz](mailto:president@was.org.nz).

NOTE: You need to be a financial member to vote. If you are not a member you are still welcome to attend and find out what we do as a Society.

## **2. EVENTS**

### **WAS Astrophotography Group / Dark Sky Observing**

[Saturday 7 November, 8 pm onwards, Star Field](#) - John Whitby's dark sky site.

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Come along to this Astrophotography / Deep Sky event at a dark sky site in the Wairarapa. There will be a tour of the Night Sky for beginners with a pointer before we get on the telescopes. There is also a lot of expertise available for anyone wanting to photograph the Night Sky.

As this is a private property, you will need to register if you want to come along by contacting us through Facebook Messenger or by emailing [president@was.org.nz](mailto:president@was.org.nz). Include your email and mobile phone in the text if you are using Facebook Messenger. Directions to the site and any updates will be emailed out. Preference will be given to members of the Society first. This event is free to all WAS members. Non-members are required to pay \$10 per person. (To join the Society see <https://www.was.org.nz/join-us/>).

What to bring for astrophotography:

- A DSLR or mirrorless camera
- A wide-angle lens (preferably)
- A tripod to fix the camera to
- Warm clothes as it gets pretty cold at night
- Snacks and warm drinks if you want

With people taking photos, keep lights to a minimum (red lights if you can) especially car headlights (use parking lights). For those just interested in Deep Sky Observing, telescopes will be provided unless you want to bring your own.

Please contact Chris (021 890 222) or Antony (021 253 4979) for further details or cancellations. Updates will be available by the afternoon on the day of the event if the weather forecast is not looking good. This site is made available to the Wellington Astronomical Society through the generosity of John Whitby.

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## **New Zealand Astrophotography Weekend 2020**

November 13th - 15th, 2020, Foxton Beach Camp, Foxton Beach, Horowhenua.



The Horowhenua Astronomical Society is hosting the eighth New Zealand Astrophotography Weekend. Held in the lower North Island it 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 - deep-sky/solar-system/nightscapes.

The weekend shall consist of:

- 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 observe what you are doing.
  - Presentations: There shall be talks on astrophotography related topics held in the large hall.
  - Bring-and-buy: Feel free to bring along any equipment that you are no longer using and wish to sell.
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- 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/mounts/cameras etc. however basic they might be.

Book at: <http://www.horoastronomy.org.nz/.../astrophotography-weekend>

**Lights out: Dark Skies Down Under** (co-host Greater Wellington)  
[Saturday 21 November, 8:30 – 10 pm, Wainuiomata Recreational Park](#)



Book tickets at [www.eventfinda.co.nz/2020/lights-out-dark-skies-down-under/lower-hutt](http://www.eventfinda.co.nz/2020/lights-out-dark-skies-down-under/lower-hutt)

Join us at this FREE event to get a close-up look at the galaxy. It's a unique chance to explore our Southern Skies, looking for Jupiter, Saturn and the Moon through powerful optical telescopes with Wellington Astronomical Society guiding you through the journey.

Light pollution in the city washes out our view of the space, and only the brightest stars pierce the glow. Wainuiomata Recreational Area might be one of the most peaceful spots in the region, yet it has one of the busiest dark skies in the universe, making it a perfect location for stargazing.

Start the night off by checking out the moon. There will be a half moon in the sky, this is the best time to do a visual observing of the moon! After 9pm it will be dark enough to observe the planets.

Meet us at the carpark and the bus will take you to the ranger's office for the welcoming hot drinks & biscuits. A bus will continuously loop

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between the carpark and the ranger's hut so show up anytime between 8.30 – 10.00pm to take advantage of this.

Please bring sturdy walking shoes/boots and waterproof jacket in case of wet weather.

You can also bring your camera and tripod if you want to learn some basics of the dark sky shooting.

Getting there: <https://www.google.com/.../data=!3m1!1e3!4m5!3m4...>

This is a bookable event, please register by clicking here - <https://www.eventfinda.co.nz/.../lights-out.../lower-hutt>

To ensure we can keep you informed on any updates on this event including cancellation due to weather, we encourage that a mobile number is provided upon ticketing. We will also keep Facebook updated with any changes.

### **3. SOCIETY NEWS**

#### **2020 – 2021 Subscriptions**

The new WAS Financial Year is upon us (from 1<sup>st</sup> September) and membership renewals are due for the 2020/21 year. Renewal of your subscription will enable you to maintain your membership till 31 August 2021. We want to thank all those that have already renewed their memberships.

To make astronomy fun and accessible for all, WAS would like to continue providing free events for everyone in and around Wellington, but we are only able to do this with your support. The Society has a number of fixed costs, including payment of insurance, affiliation to the Royal Astronomical Society of NZ, post-office box charges, venue fees and costs incurred when an international speaker is hosted.

There are also additional costs for telescope equipment to ensure members and the wider community have access to the universe through well-functioning equipment. We are also looking to fund a solar telescope as part of our outreach programme. Support from members through joining WAS and renewing their memberships allows us to promote astronomy through education and outreach for

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free. We appreciate your continued support of our Society's activities by renewing your membership.

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

Adult/Waged: \$50.00

Student/Unwaged/Associate: \$30.00

Family: \$70.00

Payment methods:

- Direct Deposit or Internet Banking - use Account No: 03-0502-0508656-00, please include reference so we know who is making the payment
- Cheque - make out to Wellington Astronomical Society Inc, and mail to PO Box 3181, Wellington 6140
- Cash - please bring exact amount to meeting.

Please send an email to [membership@was.org.nz](mailto:membership@was.org.nz) informing us of your membership renewal and payment.

### WAS Branded Merchandise - Order before 6th Nov

As mentioned at the last meeting, we will be doing a short run of WAS Branded merchandise for order before Christmas.



We are offering the following items:

**\$35** - Men's/Women's T-shirt

**\$55** - Hoodie

**\$20** - Beanie

**\$25** - Cap

**\$20** - Tote bag (single sided logo) (\$25 for Double sided logo)

If you wish to order then please use the linked form.

[Link to Order Form](#)

Note that orders must be completed AND paid for BEFORE Friday the 6th November 2020

### **WAS RAG**

The WAS research group (WAS-RAG) will be meeting online on 11 November and details will be communicated on the group's mailing list. Everyone in the group will be contacted beforehand for a decision on the timing.

The group will keep contact via the WAS-RAG mailing list. Roland can be reached on [roland@cno.org.nz](mailto:roland@cno.org.nz) in the meantime.

### **WAS meeting presentations on Video**

If you were unable to attend any of the Society meetings but are interested in watching our brilliant speakers deliver their presentations, you can find them online at <https://www.was.org.nz/2019-meeting-presentations/>. To access the videos, you will need the password: *WASvideo*.

### **WAS newsletters**

Similarly, if you are interested in accessing WAS newsletters, going all the way back to 2007, you can find them on the following link: <https://www.was.org.nz/was-monthly-newsletters/>. The newsletters are accessible for anyone that is interested in reading them.

### **ASTRONZ Binoculars for Sale**

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WAS, in conjunction with ASTRONZ, has these 10x50 high-quality light-weight binoculars available at a reduced price to members. Binoculars are available for **\$80** each (usually sell for \$99 excluding freight). Please email Antony Gomez, [president@was.org.nz](mailto:president@was.org.nz), if you would like to buy a pair.

### **RASNZ 2021 Calendar**



The RASNZ 2021 calendar with the winning images from the 2020 New Zealand Astrophotography Competition will be available at the December Society meeting. The recommended retail price is **\$10**. Please email the [secretary@was.org.nz](mailto:secretary@was.org.nz) if

you are interested in purchasing one or more of them. This will give us an idea of how many to order.

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## **4. ASTRONOMY NEWS**



### **2020 RASNZ On-Line Conference Presentations**

Here is the schedule of talks that have been arranged for the 2020 on-line RASNZ Conference. For abstracts and any last-minute changes please check out the RASNZ website ([www.rasnz.org.nz](http://www.rasnz.org.nz)).

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The talks will be streamed via RASNZ's YouTube channel. Please go to - [https://www.youtube.com/channel/UCjE5Y-Eg2fkrfofBkDt3\\_EQ](https://www.youtube.com/channel/UCjE5Y-Eg2fkrfofBkDt3_EQ) and subscribe to RASNZ's channel.

The only software you will need to watch these presentations is a web browser pointed to the RASNZ channel where all talks will be made available for later viewing.

**Tuesday 3 November, 7:30 pm**

**Nick Rattenbury**

***Te Pūnaha Ātea Auckland Space Institute (20 min)***

I present Te Pūnaha Ātea Auckland Space Institute, a new Centre at The University of Auckland. I will give an overview of our research including in-orbit operations for space situational awareness, debris monitoring and removal, educational programmes, and our research in orbit planet detection via the NASA/GFSC RamJET project. I will give a summary of the satellite missions developed from the Auckland Programme for Space Systems. I will also present Te Pūnaha Ātea Auckland Space Institute research supporting a mission to the upper atmosphere of Venus, with a goal of detecting extremophile life.

**Tom Love**

***Chasing rainbows: spectroscopy with small telescopes (20 min)***

Recent years have seen the emergence of off the shelf equipment and software that make it possible to carry out a range of useful spectroscopic observations with amateur scale telescopes. This paper briefly describes some of the available equipment and techniques, gives examples of spectroscopic observations being made by amateur astronomers around the world, and describes some of the resources available to support those who want to try such observations.

**Shaun Hotchkiss**

***The non-linear Schrodinger equation in cosmology (20 min, pre-recorded)***

The non-linear Schrodinger equation shows up in many places in cosmology. This includes "fuzzy dark matter", "axion stars" and a potential period of early matter domination right after inflation. I will talk about why this equation is so ubiquitous and the interesting new phenomena that arise when it is relevant. This includes the formation of solitonic structures and smoothing out of sharp cusps at

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the centre of gravitationally bound structures, and the formation of granular blobs in those structures' outskirts.

**Tuesday 10 November, 7:30 pm**

**Heloise Stevance**

***How old is Matariki? (30 min)***

The age of Matariki (a.k.a. the Pleiades), has previously been found to be around 100 million years old, but could it be older than that? In order to determine the age of a star cluster, astronomers rely on theoretical models of stellar evolution and compare those to current observations. In the past couple of decades, binary interactions have been shown to play a crucial role in how stars live and how they grow old. However, the age of most star clusters (including Matariki) has been inferred by using single stars only! Our team has set out to change that with a new tool called AgeWizard, and it seems that the Seven Sisters might be older than we previously thought.

**Steve Butler**

***Measuring the night (20 min)***

**Tuesday 17 November, 7:30 pm**

**Nick Rattenbury**

***The Kerr-Tinsley Centre of Research Excellence (20 min)***

I present here a summary of the application made by NZ academic astronomers for funding the Kerr-Tinsley Centre of Research Excellence. The CoRE application has five themes, extending from cosmological research, through stellar population, computational astrophysics to proposing New Zealand's first space telescope mission.

**Ed Budding**

***Collaborative studies of southern close binary systems: a progress report (20 min)***

A programme of studies of southern eclipsing binary stars, underway during the last decade has involved spectroscopic observations at the University of Canterbury's Mt John Observatory, photometric data from the RASNZ-VSS and various other international resources available on internet, together with appropriate software development. Examples of facilities and materials used are shown, together with some recent results. Absolute stellar

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parameters derived from these studies allow insights into a number of topics in stellar formation and evolution.

**Petra Nianqi Tang**

***Estimating spectral density for the stochastic gravitational wave background for LISA (20 min, pre-recorded)***

**Tuesday 24 November, 7:30 pm**

**JJ Eldridge**

***Understanding the stars that create gravitational wave transients (30 min, pre-recorded)***

**Max Briel**

***Observing transients in a simulated universe (30 min)***

Transients are short, on an astronomical timescale, duration events compared to the evolution of galaxies and stars. Gravitational wave events and supernovae are two main types of transients. Supernovae - the explosion at the end of a star's life - have been measured for centuries, but gravitational waves from the merger of two compact objects were measured for the first time in 2016. The rate of both of these events relate to the number of stars being formed over the history of the Universe and the evolution of binary star systems. Using stellar population synthesis and cosmological simulation of the universe, we predict the number of transients taking place in a synthetic universe, similar to ours, and discuss what they tell us about the evolution of binaries.

**Tuesday 1 December, 7:30 pm**

**John Hearnshaw**

***New Zealand's progress towards becoming a dark-sky nation (30 min)***

**John Drummond**

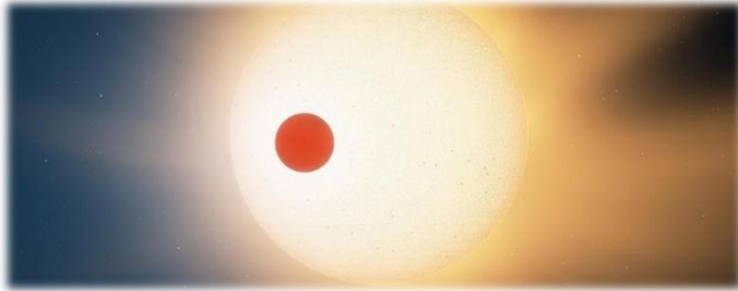
***Murray Geddes, an assiduous NZ observer of meteors, sunspots and variable stars - as well as aurora and comets (20 min)***

Murray Geddes was described as 'an assiduous observer of meteors, sunspots and variable stars'. In addition, Geddes discovered a comet in 1932. He also developed a deep interest in aurora which led to an international collaboration with professional astronomers and significant contributions to the understanding of aurora. Unfortunately for the astronomical community (and others) his life was cut

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short when aged 35 during WW2. The RASNZ honours this New Zealand man's achievements with the Murray Geddes Memorial Prize named after him.

### **Astronomers Peer Into The Atmosphere of a Rare Exoplanet That 'Shouldn't Exist'**

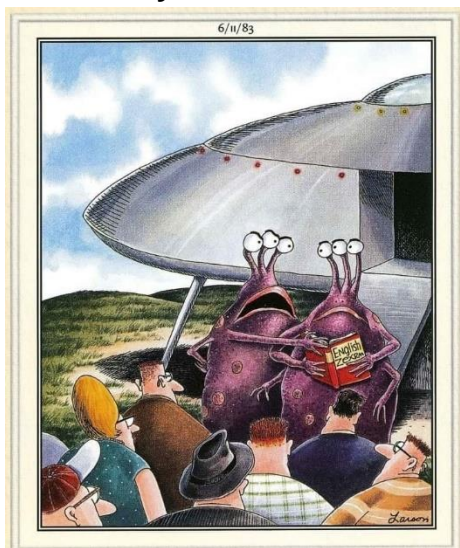


The discovery of the extraordinary exoplanet LTT 9779b was first [announced a month ago](#). Just 260 light-years away, the planet was immediately pegged as an excellent candidate for follow-up study of its curious atmosphere. But it turns out we didn't even have to wait too long to learn more.

LTT 9779b is a little bigger than Neptune, orbiting a Sun-like star - fairly normal so far. But two things are really peculiar. It's so close to its star, the planet orbits once every 19 hours; and, in spite of the scorching heat it must be subjected to at that proximity, LTT 9779b still has a substantial atmosphere.

<https://www.sciencealert.com/astronomers-peer-into-the-atmosphere-of-a-rare-exoplanet-that-shouldn-t-exist>

### **Astronomy Humour**



"Take me to your *stove*? ... You idiot! Give me that book!"



"You're kidding! I was struck twice by lightning too!"

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## 5. NIGHT SKY FOR NOVEMBER 2020

The [Night Sky for November 2020](#) courtesy of the University of Canterbury.



### NASA Night Sky Notes November 2020



This article is distributed by NASA Night Sky Network. The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.gov](https://nightsky.jpl.nasa.gov) to find local clubs, events, and

more!

### The International Space Station: 20 Continuously Crewed Years of Operation - David Prosper

Did you know that humans have been living in the International Space Station, uninterrupted, for twenty years? Ever since the first crew members docked with the International Space Station (ISS) in November 2000, more than 240 people have visited this outpost, representing 19 countries working together. They have been busy building, upgrading, and maintaining the space station - while simultaneously engaging in cutting-edge scientific research.

The first modules that would later make up the ISS were launched into orbit in 1998: the Russian Zarya launched via a Proton-K rocket, and the US-built Unity module launched about a week and a half later by the Space Shuttle Endeavour. Subsequent missions added vital elements and modules to the Space Station before it was ready to be inhabited. And at last, on November 2, 2000, Expedition-1 brought the first three permanent crew members to the station in a Russian Soyuz capsule: NASA astronaut William M. Shepherd and Russian cosmonauts Sergei Krikalev and Yuri Gidzenk. Since then, an entire generation has been born into a world where humans continually live and work in space! The pressurized space inside this modern engineering marvel is roughly equal to the volume of a Boeing 747, and is sometimes briefly shared by up to 13 individuals, though the average number of crew members is 6. The unique microgravity

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environment of the ISS means that long-term studies can be performed on the space station that can't be performed anywhere on Earth in many fields including space medicine, fluid dynamics, biology, meteorology and environmental monitoring, particle physics, and astrophysics. Of course, one of the biggest and longest experiments on board is research into the effects of microgravity on the human body itself, absolutely vital knowledge for future crewed exploration into deep space.

Stargazers have also enjoyed the presence of the ISS as it graces our skies with bright passes overhead. This space station is the largest object humans have yet put into orbit at 357 feet long, almost the length of an American football field (if end zones are included). The large solar arrays – 240 feet wide - reflect quite a bit of sunlight, at times making the ISS brighter than Venus to observers on the ground! Its morning and evening passes can be a treat for stargazers and can even be observed from brightly-lit cities. People all over the world can spot the ISS, and with an orbit only 90 minutes long, sometimes you can spot the station multiple times a night. You can find the next ISS pass near you and receive alerts at sites like NASA's Spot the Station website ([spotthestation.nasa.gov](https://spotthestation.nasa.gov)) and stargazing and satellite tracking apps.

Hundreds of astronauts from all over the world have crewed the International Space Station over the last two decades, and their work has inspired countless people to look up and ponder humanity's presence and future in space. You can find out more about the International Space Station and how living and working on board this amazing outpost has helped prepare us to return to the Moon - and beyond! - at [nasa.gov](https://nasa.gov).

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*The ISS photobombs the Sun in this amazing image taken during the eclipse of August 21, 2017 from Banner, Wyoming. Photo credit: NASA/Joel Kowsky More info: [bit.ly/eclipseiss](http://bit.ly/eclipseiss)*



*A complete view of the ISS as of October 4, 2018, taken from the Soyuz capsule of the departing crew of Expedition 56 from their Soyuz capsule. This structure was built by materials launched into orbit by 37 United States Space Shuttle missions and 5 Russian Proton and Soyuz rockets, and assembled and maintained by 230 spacewalks, with more to come! Credit: NASA/Roscosmos More info: [bit.ly/issbasics](http://bit.ly/issbasics)*

## **6. CONTACTS**

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The following members were elected to Council at the November 2019 AGM:

President: Antony Gomez ([president@was.org.nz](mailto:president@was.org.nz)) - 021 253 4979

Vice President: Andrew Fuller ([vice-president@was.org.nz](mailto:vice-president@was.org.nz))

Secretary: Matt Boucher ([secretary@was.org.nz](mailto:secretary@was.org.nz))

Treasurer: Duncan Hall ([treasurer@was.org.nz](mailto:treasurer@was.org.nz))

Membership Secretary: Shazia Gazi ([membership@was.org.nz](mailto:membership@was.org.nz))

Newsletter Editor: Shazia Gazi ([editor@was.org.nz](mailto:editor@was.org.nz))

Website: Peter Woods ([webmaster@was.org.nz](mailto:webmaster@was.org.nz))

Telescope custodian: Chris Monigatti

Research Group coordinator: Roland Idaczyk

Council: Murray Forbes, John Homes, Isabella Eftimov, Grace Esterman

Postal Address:

Wellington Astronomical Society,

PO Box 3181,

Wellington 6140, New Zealand

Website: [www.was.org.nz](http://www.was.org.nz)

Instagram: [@was.nz](https://www.instagram.com/was.nz)

Facebook page: [Wellington Astronomical Society](https://www.facebook.com/WellingtonAstronomicalSociety).

Facebook group: [WAS – Wellington Astronomical Society](https://www.facebook.com/WAS-WellingtonAstronomicalSociety) (for members)

Facebook Astrophotography group: [WAS Astrophotography Group](https://www.facebook.com/WASAstrophotographyGroup) (for members).

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