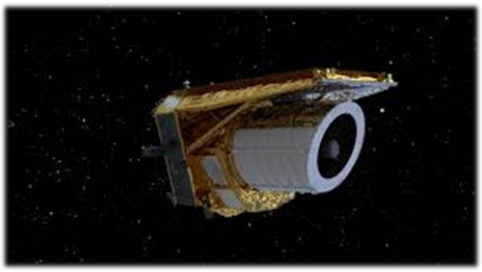
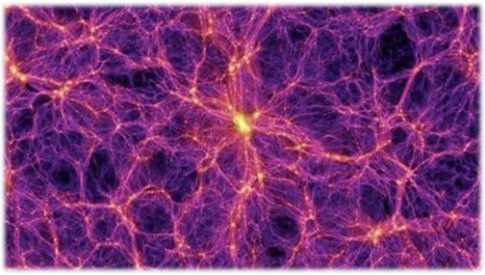
Central Star Party 2026 programme (version 12/1/2026)

Thursday, 15 January 2026

From 2:00 pm	**Arrival and set up. No official programme.**
9:30 pm	**Telescope viewing on the bottom field**

Friday, 16 January 2026

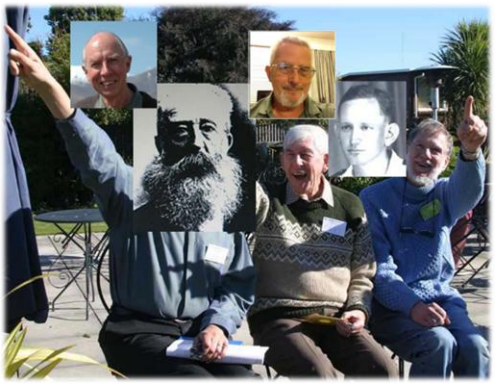
6:00 pm	**DIY Sausage sizzle - Gold coin donation**
7:00 pm	**Official opening and housekeeping matters – Remco Mensert (HBAS)**
7:10 pm	**Weather forecast for the weekend – Paul Mallinson**
7:30 pm	**Its 5 year mission – Remco Mensert**  A brief overview of recent, current and upcoming space research missions, exploring in a bit more detail a few more generic missions and how they have contributed to our broader (theoretical) understanding of the way our universe evolved. Remco is the Vice-President of the HB Astronomical Society, has a broad interest in (theoretical) cosmology and has given a variety of presentations at the CSP for over 9 years.
8:00 pm	**The Cosmic Web, a wonderous maze – Bethany Jones**  This presentation will explain the larger structure of the cosmos, with its massive galaxy clusters, forming interconnected filaments, known as the cosmic web. Voids and huge areas of invisible gasses are another important part of the cosmos. Finally, the cosmos is a dynamic, ever moving place, where galaxies seem to flow along pre-ordained paths towards attractors. This presentation will also explain the drivers behind these dynamics. Bethany Jones is a member of the Hawke's Bay Astronomical Society. Her interests include astrophysics, astrobiology and cosmology. She has given many presentations at the Star Party meetings, including Space Medicine, Exoplanets and Gravity.
8:30 pm	**The Hobby of Astrophotography - Morgan Nathan & Brendan Evans**  This presentation is a guide through the processes of astrophotography. Including detailed explanations of the deep space objects that are captured by backyard amateur telescopes and how they can tell us information about the universe. We will also show the telescope used to capture the images shown

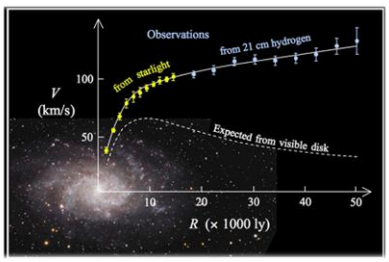
	Brendan is a 17-year-old American space enthusiast who has done astrophotography for 5 years and Morgan is a 16-year-old local student who has done the hobby for roughly the same time. We both love to show and teach people about the stars and how we can use our telescopes to understand them.
9:00 pm	**Night Sky Workshop – Andrew Buckingham**  There are many great deep sky objects to observe in the summer night sky; nebula, open clusters, globular clusters and galaxies. This workshop will be a group effort to learn the current night sky and to make a catalogue of objects that we know how to find them in the sky over the weekend. Andrew Buckingham is the General Manager at Astronz (Astronomy NZ Ltd) supplying astronomical equipment and supporting astronomy throughout New Zealand. He has developed a considerable knowledge of telescopes, binoculars and astronomical equipment. He has an extensive career in public outreach astronomy and loves teaching people the night sky. Prior to Astronz, Andrew led the public programmes at Stardome Observatory. Andrew is a long-term member of the Auckland Astronomical Society and the International Planetarium Society.
9:30 pm	**Supper & Telescope set up time**
9:45 pm	**Movie:** TBD / **Telescope viewing on the bottom field**

Saturday, 17 January 2026

9:00 am	**Children's programme – Jacqui & Ysabel Mackrill**  Making Moon craters, colouring competition & a planet quiz. Astronaut dress up competition with prizes. Please sort out your outfits before coming to the camp.
10:00 am	**Astronomy Equipment Overview – Andrew Buckingham**  A general overview of the different equipment you can use for astronomy. We will look at some of the advantages and disadvantages of each to help work out what is the best equipment to suit your observing needs We will take a look at - telescopes - binoculars - mounts and tripods - camera options - accessory options"
10:30 am	**Imaging with Smart Scopes - S50 and Celestron Origin – Robin Warnes**  Celestron Origin and SeeStar S50. Setting up a smart scope. Examples of images (some stacked and processed in Siril) Advantages and disadvantages of using a Smart Scope. Robin has been interested in astronomy since childhood. Over the last 14 years, he has become very interested in locating and capturing images of Deep Sky Objects, (DSO's) beginning with using a 12 inch Dobsonian and mounting a 60DA Canon Camera to the scope to

	photograph objects. This was a very primitive beginning. Then he managed to obtain a Losmandy GM8 tracking mount with a 8" OTA attached to photograph images. But as imaging technology improved and the first Smart Scopes came on the market. Robin purchased a ZWO SeeStar S50 to discover that imaging with this apparatus, so much easier. So he decided to purchase the Celestron Origin Smart Scope. The rest is history.
11:00 am	**Electronic Assisted Astronomy – Graham Dawson**  This would cover off my journey to setting up my Nexstar 6SE to be able to observe all manner of deep space subjects, distance galaxies, nebula etc in comfort using short exposure image capture and live stacking via an ASIAIR mini and ASI 585MC camera. This is primarily done using the mount in Alt Azimuth mode though I can also cover off the progression to using a wedge and guide camera. The key thing is low cost. You can get into this if you do have a Nexstar system for under $1000.00. This not astrophotography as there is no real post processing. It's a great method of having a bloody good quick look at what's out there in Deep Space. Retired Electrical Engineering and Management. Managed an Electricity Network and rolled out a very successful Ultrafast Broadband system.
11:30 am	**CK-2 DIY Strain Wave Mount – Martin Howard**  In May 2025, performance limitations of an existing telescope tracking mount prompted the development of an improved and cost effective solution for astrophotography. The original setup utilised a Sky-Watcher AZ-GTi mount with a 61mm refractor and typically maintained guiding accuracy within 1-2 arc seconds. However, two critical issues emerged: occasional guiding errors that produced bloated and/or elongated star images, requiring some exposures to be discarded, and insufficient precision when using higher-resolution cameras. Commercial alternatives were evaluated but proved impractical. The ZWO AM3 harmonic drive mount exceeded available budget constraints, while the Sky-Watcher Star Adventurer GTI, though within budget, raised concerns about payload capacity limits for the specific imaging equipment. These constraints led to the decision to design and construct a custom strain wave gear mount. The project combined commercially sourced components with custom 3D-printed parts fabricated from engineering-grade composite materials. The resulting CK-2 mount was completed for under NZD $1000 in parts and achieves consistent sub-arcsecond guiding accuracy with significantly improved image quality and reduced exposure rejection rates. This presentation documents the complete development process, including design iterations, component selection, fabrication methods, and performance testing conducted over several months. The project demonstrates a cost-effective approach to precision telescope tracking that may be relevant to amateur astronomers and astrophotographers facing similar technical and budgetary constraints. Martin Howard (AAS) - Originally from Canada and has been living in New Zealand for over 16 years. Has a love for the night sky since childhood and is still amazed by the southern sky. Currently lives in the Western Bay of Plenty.

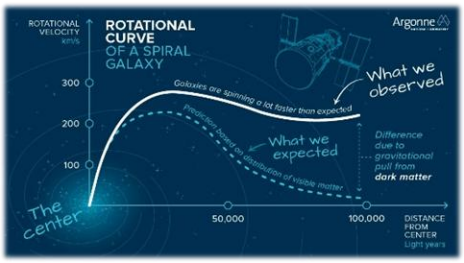
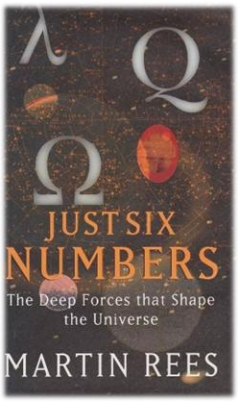
Noon	**DIY Sausage sizzle - Gold coin donation**
1:00 pm	**Buy, Sell and Swap table (also Sunday)**
1:30 pm	**Comets from Carterton – Paul Mallinson**  In my talk, I will discuss and present images of several comets taken in 2025. I will discuss how I formed a collaboration with two Australian amateurs to follow the ghost comet G3 Atlas after the nucleus disintegrated. We had it all to ourselves since it was only visible in the southern hemisphere. I will present some images I have taken through the year of the following comets: Comet Tsuchinshan–ATLAS (formerly C/2023 A3) C/2024 G3 (ATLAS) (The ghost comet) C/2025 R2 (SWAN) a recent comet I have always had an interest in science whether it be in Astronomy, Geology, Meteorology, Physics, Forestry and many other disciplines. In 2017 I retired from a career of 35 years in operational meteorology. Since my early teens I have been interested in the sky and amateur astronomy. This and my involvement in meteorology have kept me looking up! I have acquired various telescopes over the years and attempted a number of aspects of astronomical photography. It wasn't until soon after I retired that I became interested in the modern techniques used to capture images of the planets and more recently those of comets and deep sky objects i.e. nebulae and galaxies.
2:00 pm	**I've discovered a comet from New Zealand!' Only six New Zealanders can officially say this. – John Drummond**  Six Kiwis have made comet discoveries from New Zealand starting with John Grigg in 1902 and with the most recent being Alan Gilmore in 2007. In this talk John will look at the lives of these great explorers and recap on the comets that they discovered. John Drummond has been exploring and photographing the heavens for over 50-years. He is a past President of the Royal Astronomical Society of New Zealand and a Fellow of that Society. He is currently doing a PhD through the University of Southern Queensland on New Zealand's historical role in the observation, discovery and photography of comets.
2:30 pm	**My Journeys as Eclipse chaser since 1999 – Otto Gruebl**  I will talk at my personal mostly amazing experiences and some misses of Solar Eclipses and my stories behind them and illustrate with images and refer to my next adventure to the Total Solar Eclipse of 12.8.2026 in Iceland and to future Eclipses, 2027 the Eclipse of the Century and 2028 in Australia and New Zealand.

	I am Member of the Gisborne Society, Auckland Astronomical Society and of RASNZ. I have a Special interest in Solar Imaging using my Lunt 100 MT as well as of imaging Eclipses.
3:00 pm	**Afternoon tea**
3:30 pm	**Galaxies are influenced by dark matter (DM) – Stuart Mossman**  Even though the nature of the DM itself remains elusive, evidence for its existence, relates to a gravitational effect with consensus that DM has no other definite identifiable marker. Evidence for the gravitational effect is from (1) galaxy rotation curves were stars edges of galaxies rotate faster than expected based on visible matter alone (Figure).The expected speed in relation to a gravitational force exerted by a galaxy mass M, with speed of a circular orbit - $V_c=\sqrt{GM/r}$ (r is the distance from the galaxy centre, G is the gravitational constant) is derived from Newton's law of universal gravitation where F is $\propto GMm/r2$. The expected speed is less than that observed and therefore additional mass is required to explain the difference. The additional invisible mass, to explain galaxy rotation is DM. (2) gravitational lensing when light from a background galaxy is deflected by a gravitational field foreground galaxy and dark matter. Stuart Mossman is a retired Neurologist (MBChB, MD, FRACP) with a previous clinical and research interest in the control eye movements and balance. He is a student in the MSc course of astronomy at Swinburne.
4:00 pm	**Rocket launches – Keith Dyson**  A brief overview of the history and technology of launching rockets from ancient times to current missions, with a look at the principles of rocket fuel combustion. Keith Dyson is a member of the Hawkes Bay Astronomical Society who has a keen interest in the history of science and astronomy. In previous years he has given talks about Isaac Newton and Albert Einstein.
4:30 pm	**Telescope Trail on the bottom field.**
5:30 pm	**Dinner (fish / burger and chips)**
7:00 pm	**Group photo (Meet in the hall) – Graham Palmer** 

7:15 pm	**Astro-Quiz – Graham Palmer** 
8:15 pm	**Raffle Draw**
8:30 pm	**A Decade of Deep Sky Imaging – Matt Balkham**  In this talk, I'll share images captured over the past 10 years and take you along on my journey—from enthusiastic beginner, to backyard imager, to observatory designer, builder, programmer, and remote operator. We'll explore a wide variety of deep sky objects, imaged with different equipment and processed using a range of techniques and software. Expect to see emission and reflection nebulae, open and globular clusters, dusty regions of the night sky, supernova remnants, lunar landscapes, widefield Milky Way shots, aurora, galaxies, and comets. Planetary imaging is still very much a work in progress—but if I'm feeling brave, I'll share a few of those attempts too! I'm the Curator of Instruments for the Wellington Astronomical Society. I've been imaging for about a decade, starting out with an 8" Newtonian on a German equatorial mount. This year, we opened the Cretney Observatory with its 16" Astrograph, and I now have my own roll-off roof observatory operational—currently home to the Society's C14 Edge HD.
9:00 pm	**Supper & Telescope set up time.**
9:30 pm	**Movie:** TBD / **Telescope viewing on the bottom field**

Sunday, 5 January 2025

9:00 am	**Children's programme – Emily Clarke & Jacqui Mackrill**  Making rockets and galaxy jars.
10:00 am	**Fireballs Aotearoa – Steve Wyn-Harris**  What has been happening since finding NZ's 10th confirmed meteorite Takapō. Steve Wyn-Harris is Fireballs Aotearoa National Meteorite Search Co-ordinator.

10:30 am	**Visualising the heavens –** **from Armillary Spheres to Planetariaums – Jeremy Robertson**  How can we visualise and model the universe? As our knowledge increases, and with the recent rapid development in technology, we have moved well beyond the early attempts using armiliary spheres. Planetariaums, in particular, are a great tool to help people understand where we sit within the universe. This talk will consider some of this history and the various options we currently have to educate the public. Jeremy is part of the WAS outreach team. He had his first telescope in his teens, but has only recently had time to re-engage in astronomical activities.
11:00 am	**Running parameters account for Dark Matter – Terry McMahon**  Dimensional analyses in the S.I. system may be reduced to units of length and time, referred to here as original units (OU). The fine structure constant, known to increase with energy, is shown to have dimensions Hz. Consequences exist for determination of the anomalous magnetic moment for various particles. Energy and mass are found to be inversely proportional exponentially to velocity. The Planck 'constant' h scales proportionally with energy. In bound systems such as galaxies, this accounts for the missing mass in galactic rotation curves, resolving the Dark Matter problem. Consequences exist also for special relativity. Just a backyard hack, that the professionals would call a crack-pot. But I have 40+ years' experience investigating cases to the standard of 'beyond a reasonable doubt', while many of these professionals produce papers based on pure speculation.
11:30 am	**Just Six Numbers – Antony Gomez**  Just Six Numbers explores how six specific physical constants determine the essential feature of our universe, and how even slight variations in these numbers would result in a universe incapable of supporting life. Antony is the National Outreach Coordinator for NZ for the Office of Astronomy Outreach of the International Astronomical Union. He is a former Vice-president of the Royal Astronomical Society of New Zealand and a former President of the Wellington Astronomical Society. As a child he looked up at the stars but it wasn't till the year 2000 that he had his first look through a telescope. Now he is passionate about promoting Astronomy through public outreach and education, showing others the wonders of the night sky. He has a keen interest in the physical sciences, especially in quantum physics and cosmology, which looks at the birth of the Universe and its ultimate fate.x

Noon	**DIY Sausage sizzle - Gold coin donation**
1:00 pm	**Buy, Sell and Swap table (also Saturday)**
1:30 pm	**My journey from astrophotography to citizen science – Ian Transom**  A walk from starting off doing astrophotography to move into doing citizen science and having scientific papers published with the work I have done. Member of the Hamilton Astronomical Society (current treasurer) and part of the outreach programme programme at Hamilton. Married with 4 children and worked in the finance industry for over 38 years.
2:00 pm	**Binoculars – Andrew Buckingham**  Binoculars are a great tool for exploring and learning the night sky. But not all binoculars are created equal and there are many different types. We will learn what all the numbers and terms mean to help you select the bet binoculars for your needs.
2:30 pm	**How does the Sun impact Climate Change? (or does it?) – Bruce Ngataeirua**  The Sun is essential for all life to live on Earth. Is it adding to the growing issue and concerns around global warming and climate change? How is the Sun affecting our environment? Bruce Ngataierua is the President of the Hawkes Bay Astronomical Society and Director of the Napier Holt Planetarium. He is also an Affiliated Society Representative and on the Royal Astronomical Society council.
3:00 pm	**Closing Central Star Party – Bruce Ngataeirua (HBAS)**
3:10 pm	**Afternoon tea**
5:30 pm	**Planetarium Show @ Holt Planetarium** https://www.holtplanetarium.org.nz Chambers St, Napier (on the grounds of Napier Boys High School)
8:30 pm	**Movie:** TBD / **Telescope viewing on the bottom field**

Monday, 19 January 2026

9:00 am -	**Camp Cleanup.** Please help if you are available.