



CAS MAG

The official magazine of the Canterbury Astronomical Society

CAS home page: <http://www.cas.org.nz>

Monthly Meeting and Practical Astronomy: Tuesday 17th July,
from 7:00 p.m., Rooms 105/106, Law School, University of Canterbury.

Monthly Speaker: Euan Mason, Stellar Evolution, Understanding what you're seeing, Euan will be giving his talk on stellar evolution, pretty much an introduction to the science of things of which we regularly observe.



Omega Centauri, NGC 5139, King of the globulars, the largest and brightest in the sky. It can even be seen as a naked eye object and appears as a fuzzy ball. In actuality it's assumed to be a galactic remnant, cannibalized by the Milky Way. The core of a small dwarf galaxy with a medium sized black hole, long since stripped of its gas. The 10s of millions of stars and close proximity ~15000 lyrs make it visually spectacular in any instrument. It's one of the many amazing objects worth a good look this yearly CASAC viewing marathon, hope to see you there! (photo: CAS 40cm f8, Adrian Kelly)

CAS Contact Information

Canterbury Astronomical Society Inc.
PO Box 25-137
Victoria Street Post Office
Christchurch 8144
Web: www.cas.org.nz

West Melton Observatory

43° 29' 55.5" S, 172° 20' 59.0" E

218 Bells Road, West Melton
Observatory phone: 347-9261

Public open nights for 2012 will be held every Friday evening when daylight savings is not in force. To make a booking inquiry follow the Open Nights link on the CAS website to find out which nights are available. For all other inquiries and bookings please email bookings@cas.org.nz

CAS Meetings

Monthly meetings are held on the 3rd Tuesday of each month from February to November at 7:45 pm, in Room 106 on the ground floor of the Law School, University of Canterbury. Meetings begin with tea/coffee, followed by a 45 minute talk from an invited speaker as advertised on the front cover of CASMAG.

Meetings are preceded by Practical Astronomy, from 7:00-8:00 pm in Room 105 of the Law School next door to the main meeting room. This is a friendly, informal meeting open to all interested people, with particular emphasis on new and beginning astronomers. Check the CAS website for details of the topic to be covered each month. Attendees are welcome and encouraged to stay for both meetings.

CAS Committee and Officers 2012/2013

President	Steve Johnson	president@cas.org.nz	981 9636
Vice President	Euan Mason	vice.president@cas.org.nz	348 2671
Treasurer	Vacant	treasurer@cas.org.nz	
Secretary	Jim Turnbull	secretary@cas.org.nz	337 9802
Observatory Sub Committee	Adrian Kelly David Brian Gary Steel Ken MacMasters	macmaster@xtra.co.nz	
Editor	Adrian Kelly	editor@cas.org.nz	021 555 882
Membership Secretary	Vacant	membership@cas.org.nz	
Librarian	Colin Fortune	librarian@cas.org.nz	
Web Master	Steve Simatos	webmaster@cas.org.nz	021 638 691
Committee Members	Malcolm Carr Sharlene Mullen Gary Steel	malcolmcarr@clear.net.nz sharlene.mullenxtra.co.nz gary.steel@lincoln.ac.nz	332 2581 027 664 2892

Public Nights and Group Bookings Sharlene Mullen bookings.liaison@cas.org.nz 027 664 2892

For more specialized information see the contact information page on www.cas.org.nz

CAS Membership

Subscriptions (as listed below) are due 1 April. Fees for current members who renew before 31 May, and new members joining in 2012/13, will be discounted to the amount shown in brackets, i.e., there is a \$10 discount for Adult members etc.

Financial year: April to March

Adult (full) membership \$70 (\$60)

Family membership \$105 (\$90)

All other classes (Junior, Senior citizen, Student, Community Services \$35 (\$30))

Contributions to CASMAG

Member contributions to CASMAG (e.g., letters, observing notes, articles, news) are most welcome. Please submit articles to The Editor, CASMAG, PO Box 25-137, Christchurch 8144, or email to editor@cas.org.nz. The deadline for the next (July) issue is 1 August.

Small personal advertisements (less than 8 lines in a column) are free to financial members.

Charges for larger items range from \$5 to \$40; email the editor for full details.

Disclaimer

This newsletter is for general information purposes only. The views expressed herein are not necessarily those of the Canterbury Astronomical Society Inc. (CAS). CAS has taken all reasonable measures to ensure that the material contained herein is correct, but gives no warranty for, and accepts no responsibility for, its accuracy or completeness. Readers are advised not to rely solely on this information, and should seek independent advice before making any decision. CAS reserves the right to make changes at any time, as deemed necessary.

CAS Calendar, July 2012 – September 2012

July						
Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

4 ☉ 11 ☾ 19 ● 26 ☾



Monthly meeting



Members open night



Public open night

August						
Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

2 ☉ 10 ☾ 18 ● 25 ☾



Special event



Public holiday

September						
Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

1 ☉ 9 ☾ 16 ● 23 ☾ 30 ☉

Coming Events

Tuesday 19th June: CAS General Monthly Meeting and Practical Astronomy

Practical astronomy at 7:00pm followed by the monthly meeting and speaker at 8:00pm onwards as per usual. Euan Mason gives us a lecture on stellar evolution, this is pretty much an introduction, so the science won't be too intimidating.

Friday 13th April – Friday 28th September: Public Open Nights

Our 2012 Open Nights begin on Friday 13 April, and will run every Friday night until the end of daylight savings (28 September). We will run a cloudy night programme, when it is not possible to observe on open nights; that group bookings will go ahead irrespective of observing conditions; and that group sizes will be capped at 35 (some accommodation may be made for larger group sizes with regards to educational institutes) with space left open for the general public.

As always, we desperately need more members to volunteer to help with open nights. If you'd like to help, please contact the open night organisers at bookings@cas.org.nz and let them know which night or nights you are available. Helpers must be society members, but all experience levels are welcome. Open nights are a great time to get training and experience using the society's telescopes, as there are always experienced members on hand to help. Even if you're a complete newcomer to CAS, you know one hundred times more about astronomy than do most members of the public, so don't be shy.

Saturday 21st July: CASAC Observing Marathon at the West Melton Observatory (from 5:00 p.m.)

Join us for our second CASAC observing marathon. This is an all-night event, where we'll attempt to view all the objects on the CASAC list which are visible from West Melton during winter. This is an ambitious task, but well worth trying. We'll have an ordered observing list available for download from the CAS website prior to the event, or you can download your own copy of the CASAC list from the Practical Astronomy page. CASAC is undergoing an update soon, ready for the new session.

SEE my featured article in this CASMAG for more information.

If weather conditions are unsuitable, the Marathon will be postponed to the following Saturday, 28th July. Confirmation of the event will be displayed on the CAS website home page at 5:00 p.m. on the night.

Friday 14th September – Monday 17th September: Herbert Star Party 2012

The 2012 Herbert Star Party will be held over the weekend of 14-17 September, at Camp Iona, 20 km south of Oamaru. Keep your eye on CASMAG and the CAS website for further details.



Noticeboard

Bonfire night

Bonfire night BBQ was a great success with, good turnout, thanks for all those who turned up to make it the event it was. The weather was fine and surprisingly warm, and the bonfire did not disappoint... until around 11pm when the inevitable rain arrived! Oh well at least it put out the fire for us, after which we migrated into the lodge to enjoy a few videos and drinks.



Bonfire + Moon, looking like a meteor has just impacted!

Post Transit- A few more Transit tales

Transit of Venus, woes--or nearly... from Heather Skinner.

Well like most if not all astronomers, there was but one thing on my mind, of course, The Transit of Venus...I was getting obsessed with it; at every opportunity listening to the weather forecast, - it wasn't looking good, - sunny days before, -sunny days after, but on That day, snow!! NO!!!!!! They get it wrong other times, Please be wrong This time.

No, this time they were right!! I tell you, I was not easy to live with, none stop grumble,complain, TXTing people about my frustrations and hearing theirs.. I had all these plans, I was going to be out and about sharing and enjoying, I had the kind offer of a lift to sun-chase if there were clear patches anywhere..Total white--outFrustration, depression... But, there was a 'sunny patch' for me on-line.

The weather cleared at Mt John and I enjoyed watching the direct link and seeing the transit in real time.. It was very much appreciated, and a Big thankyou to all at Mt John who worked at sending through this link... It saved my day..

On a very sad note for me, in several articles from time to time, I have mentioned my cat Boots.. He became very ill with a heart problem and the vet had to come out to us and help in the only way that was right.. Pet/cat lovers will understand I hope--- it has been very painful for me as he was my little buddy. He would go outside with me when I went out to do obs.. He was family and my friend..

Tearing after a Transit – by Alan Teague

Based on the weather forecast a couple of days before June 6, Jocelyn and I decided to stay in Christchurch, thinking skies would clear during the day. How wrong we were! Snow started falling at 7 am. Should we head south hoping for clearing skies? We decided to attempt it. Late morning we left. The hardest part was leaving our own street. After that the driving wasn't too bad, but the snow kept falling. "Are we mad?" I asked.

After lunch at Rakaia, the snowing stopped, but there was a thick cover of high cloud stretching as far south as we could see. We stopped at the visitors' centre in Ashburton and were told it was fine in Timaru. Fine, however, does not mean clear. At Winchester we phoned a friend in Timaru. "Try inland, it looks brighter there."

At Geraldine we checked with their visitors' centre. The Sun was shining in Fairlie. It was mid-afternoon now. We raced towards Fairlie and about half-way there the Sun appeared through a gap in the cloud. We stopped by a farm gate, leapt out of the car, grabbed our observing gear, and looked. Venus could be seen quite easily naked-eye with the RASNZ viewer – better than I had expected. It was a much better sight with binoculars; one objective with the lens cap on and other with a solar filter in front. After ten minutes the cloud returned and that was that. We had experienced the scale of the Solar System. Thanks, Martin.



Marshmellow time!, thanks Gary!

Was it worth it? Um ... I'm thinking, I'm thinking. Probably. In Christchurch, of course, the next day was brilliantly sunny!

My Transit of Venus story June 2012. By Steve Johnson

Who would have thought that an event that would happen once in our life time would be stopped by something as spectacular in nature as a snowstorm!

I had organised to show as many children at Somerfield School as I could a real time event in our solar neighbourhood. I had chosen this school because my partner has worked there for many years, and during this time has included astronomy lessons and visits to the observatory in his science programme. As it turned out, a unit on space was in full swing for them. Included in the unit plan was observing the transit of Venus on Wednesday and ending the week with a visit to the observatory on Friday.

It was something that I could share with him and the school to show, and hopefully inspire one or two children to venture into, the amazing world of astronomy.

Over a year of planning and much anticipation of this coming event saw many anxious hours go by. As time grew closer we all checked our weather stats for the region, everyone hoping for clear skies. Heading to bed on the eve of such a significant event was difficult, as we in Christchurch anticipated the developing weather conditions.

What wonders, when I woke the next morning to the unfolding whiteness that was a sleeting, freezing winter's morning. It was pretty clear at 6am (excuse the expression) that today was not a day the sun would be making an appearance. I decided that heading to work (very carefully) was the best option, with the intention of heading to Somerfield if the skies improved. Not so. By 9am Gavin called to tell me that the school had closed for the day due to the snow that was now falling steadily. By 10:30am non essential staff from work, including myself, were told to go home. This for me was good news as I didn't end up wasting a leave day and still ended up having most of the day off to enjoy Mother Nature's winter wonderland.

All I can say about this change of plan is, at least I missed the transit for something as unique as the coldest Christchurch day on record. The next task now is to try and survive till the next Transit.

Here's hoping.....

Gumboot Astronomy: Transit of Venus from Mussel Point

Martin Unwin

The 2012 Transit of Venus from Mussel Point Observatory, Mussel Point takes a bit of finding even in a New Zealand atlas, let alone a tourist guide book. Barely 20 m high, it is a low scrub covered headland from which a few rocky columns stagger out into the pounding waves of the Tasman Sea, providing a firm toe hold for the many fat bivalves which give the rocks their name. But as the only elevated feature on the 50 km sweep from Knights Point to Jackson Bay it is well known to Haast locals.

Appreciating its virtues, the landowner decided last Christmas that – should a tsunami ever threaten the low-lying Haast community – Mussel Point would make an ideal gathering point. He bulldozed a track to the top, levelled an area the size of a tennis court, and added a boulder or two for local colour. On first visiting the reconfigured Point – affectionately dubbed Tsunami Hill – in January, I realised it had other virtues as well. North facing, in the far west of New Zealand, and with a completely unobstructed western horizon, it looked to me like the perfect site for a Transit of Venus observatory. The geometry of the 2012 Transit meant it would be fully visible from anywhere in New Zealand, but – with 4th contact at about 16:44 – the Sun would be low in the west for many observers. The predicted elevations for Mussel Point at 3rd and 4th contact were $6^{\circ} 18'$ and $3^{\circ} 42'$, respectively – still low, but better than $4^{\circ} 24'$ and $1^{\circ} 48'$ for Christchurch.

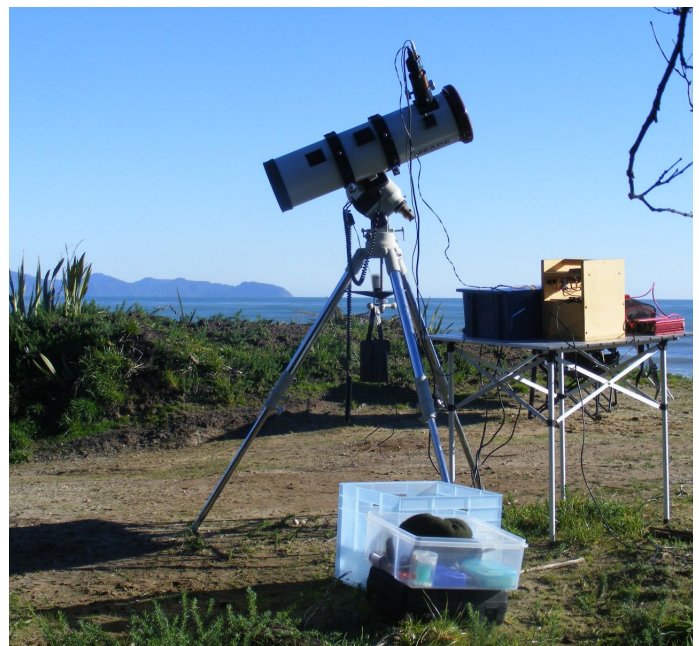
The only uncertainty was the weather. I hedged my bets on where to try observing from until the Sunday before the event, tossing up between Christchurch, Wanaka, and Haast. As it happened, the lower South Island was the place to be. The storm which hit Christchurch and the northern half of the South Island cleared overnight, and pretty well everywhere south of a line from Dunedin to Haast had clear skies and great views.

My observing goal for the day was to record the Transit using the video camera set up I use for timing lunar and asteroid occultations. I was hoping to get up to 100 minutes of video, including 20-25 minutes spanning ingress, mid-transit, and egress, along with a series of 20-30 second video clips at regular intervals throughout the transit. I was also keen to get as many Haast locals involved as possible, after giving a talk at the local DoC office the night before and advertising the event via bush telegraph. So I had plenty of gear: my 15 cm Newtonian, a heavy deep cycle battery, video recording equipment, Coronado solar telescope, binoculars masked with a home-made solar filter, observing table, chair, lunch. It took 7 trips to lug all my gear up the short but steep bush track to the viewpoint.

My first images of the Sun on the video monitor screen, just before 10:00 am, were atrocious. The weather was fine and clear, but low along the northeast horizon I could see plenty of distant cloud from the storm

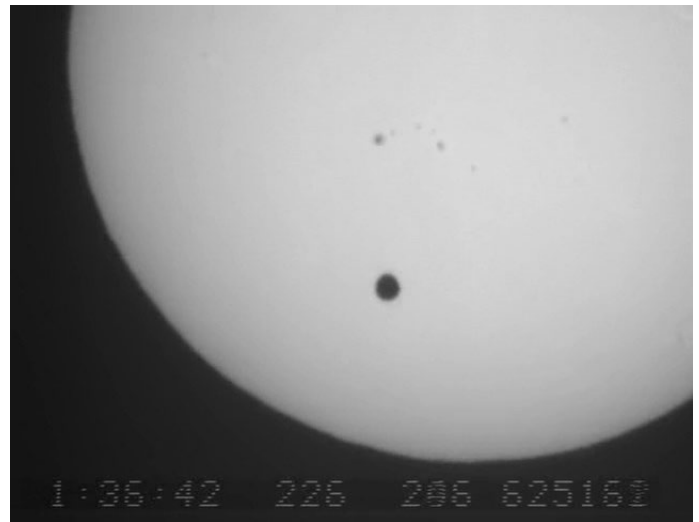
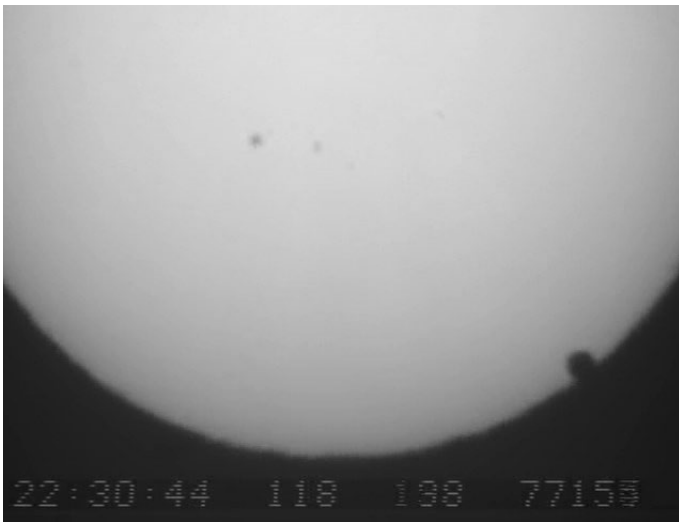


Late afternoon at Mussel Point Observatory, 6 June 2012.



Another view of the observatory, with Jackson Bay in the distance.

which was sweeping up the coast and blanketing Christchurch in snow. With 100 km/h wind gusts battering Hokitika my view was filtered through layers of clear but highly turbulent air, and it showed. The solar limb danced wildly, making it almost impossible to focus. I did the best I could, using the fuzzy images of two small but prominent sunspots as a guide. I started recording at 10:13 a.m. – over two minutes before



Two video frames taken shortly before 2nd contact (10:30:44 NZST) and just after mid-transit (13:36:52 NZST). The afternoon image is markedly sharper than the morning image, reflecting the improvement in seeing as the day progressed.

first contact, but I wasn't taking chances. I left the video to itself, and switched my attention to the Coronado.

The view through the Coronado was much more promising, but still badly affected by the poor seeing. Thanks to the sunspots I could easily match my eyepiece view to Venus' projected track across the solar disc, so had a good idea of exactly where on the limb I should be looking, but even so it was at least a minute after 1st contact before I could be sure of what I was seeing. But once spotted it became easier to see with each passing second: a small bite slowly eating into the limb at about 4 o'clock as seen through my eyepiece.

I ran the video for another ten minutes after 2nd contact, finally switching off at 10:44 a.m. From then on I slipped into a more or less regular routine, recording video clips at roughly 5 minute intervals. The seeing remained poor until about noon, but improved noticeably thereafter as the Sun moved higher in the sky and – perhaps more importantly – swung steadily further west so as to take my line of sight further away from the more turbulent air in the northeast.

The afternoon became balmy. I took another 20 minute video clip centred on mid transit, and a final 35 minute clip ending shortly after 4th contact. The seeing began to deteriorate again from about 3 p.m., as the Sun started to fall towards the western horizon, but even at 4th contact – with my view now masked by over 10 air masses – conditions were never as bad as they had been in the morning. I ended up with just over 100 minutes of video in total, representing just over 150,000 images. My homework for the next few months will be working my way through these images, using a suite of automated image processing tools, to measure each frame as accurately and consistently as possible and hence figure out the transit geometry and the contact times.

I entertained a steady stream of visitors all day. The solar telescope was a hit, but so were the binoculars, and even the little hand held RASNZ solar filters proved their worth. I had been concerned that – without magnification – Venus would be too small to be seen by any but the most sharp-eyed, but was happy to be proved conclusively wrong. Once clear of the limb Venus was easily visible as a small but well defined black dot. At about 12:30 I took a 25 minute break to dash 2 km down the road to the school so I could show the kids the view through the Coronado and the binoculars, although they had already been enjoying the view courtesy of RASNZ and were well aware of what to look for. And shortly after lunch I had a surprise visit from the Christchurch Press' Hokitika reporter, who had driven down through gale force winds to get the story.

In a day packed with memories, the one which will perhaps linger longest was my final view as Venus inched towards 4th contact. I remained at the eyepiece of the Coronado for at least ten minutes, watching and waiting. The shimmering dimple which marked Venus' passage gradually shrank, but remained clearly visible as the countdown reached the final 60 seconds. I would test myself by glancing away from the eyepiece and then switching back after a few brief seconds to see if the dimple remained. For a while, it did; then, suddenly, I lost it in the atmospherics. That's it, I remember thinking, for another 105 years.



Afternoon visitors, including children from Haast School. Gumboots everywhere!



10 year old Molly Todd enjoys the view through a hand held solar filter.

The Solar System mid July to August 2012

Brian Loader

Sunrise, transit and sunset times for Christchurch.
All times are NZST.

Date	Jul 14	Jul 21	Jul 28
Rise	7.58 am	7.53 am	7.47 am
Transit	12.35 pm	12.35 pm	12.35 pm
Set	5.11 pm	5.18 pm	5.24 pm

Date	Aug 4	Aug 11	Aug 18
Rise	7.39 am	7.29 am	7.19 am
Transit	12.35 pm	12.34 pm	12.33 pm
Set	5.32 pm	5.39 pm	5.45 pm

Lunar Phenomena mid July to mid August 2012

July 2012

- 11. Last quarter at 1.48 pm NZST.
- 14. Moon at apogee, its furthest from the Earth for the month, 404782 km.
- 15. 17.5% lit moon 4° to upper left of Jupiter in dawn sky.
- 16. 11% lit moon 5° below Venus, and 7.5° below Aldebaran, mag 1.0 in dawn sky.
- 16. Moon furthest north, so lowest in southern

skies.

- 19. New Moon at 4.24 pm NZST.
- 21. 4.5% lit moon 8.5° to lower left of Regulus, mag 1.4, very early evening sky.
- 24. 27% lit moon 8° to lower left of Mars, mag 1.0, evening sky.
- 25. 38% lit moon 7° above Mars and to left of Saturn, also 5.5° to lower left of Spica, mag 1.1.
- 26. First quarter at 8.56 pm NZST
- 29. 82% lit moon 9° to lower right of Antares mag 1.1, evening sky.
- 29. Moon at perigee, its closest to Earth for the month, 367315 km. Moon furthest south so highest in southern skies.

August 2012

- 1. Full moon at 3.27 pm NZST.
- 10. Last quarter at 6.55 am NZST, Moon at apogee, its furthest from the Earth for the month, 404127 km..
- 12. 31% lit moon 1° left of Jupiter and 5.5° below Aldebaran, mag 1.0, morning sky.
- 12. Moon furthest north, so lowest in southern skies.
- 14. 15% lit moon 1.2° below Venus in the dawn sky.
- 18. New Moon at 3.4 pm NZST.

The Planets, mid July to mid August 2012

August is a time of conjunctions. Saturn and Spica have been close partners for some months, recently the two less than 5° apart. They will stay that way for a while yet. Mars is moving up on them, and will pass between them mid August. The three will be easily visible in the early evening.

The two brightest planets, Venus and Jupiter, are in the morning sky. Jupiter will get higher moving away from Venus which will be to its lower right. The crescent moon will be about a degree from each of them in turn, near Jupiter on the morning of the 12th and Venus on the 14th.

From some parts of the world each planet will be occulted by the moon. Jupiter is occulted during the hours of darkness as seen from Indonesia and during the day time from an equatorial band of the Pacific Ocean, just including Hawaii at its northern edge. The occultation of Venus is visible further north, in a dark sky from much of Siberia, eastern Mongolia, northeast China and Japan. During daylight from eastern Siberia and across to virtually all of North America down to Mexico. Neither of the occultations is visible from New Zealand.

Planets in the Evening Sky –Mercury (just), Mars and Saturn, most of the evening

MERCURY ♀ starts as a difficult evening object in mid July, but you may just be able to catch a glimpse of the planet in the early evening sky. On July 15 at 6.15 pm, an hour after sunset, Mercury will be only 7° up in a direction close to half way between west and northwest. At magnitude 1.9 it will not be over bright, and since the set Sun will be in almost the same direction, that's where the sky glow will be brightest.

Of the stars, Regulus should be easier to see almost round to the northwest and 20° up and 17° from Mercury, while Sirius will be at the same height as Mercury but 45° to the planet's left.

Over the next few evenings Mercury will get steadily lower and become fainter as it catches up with the Earth and presents more of its unlit face to us, leading up to it being at inferior conjunction, passing between the Earth and Sun on July 29. Unlike Venus on June 6, Mercury will not transit the Sun at this conjunction. At its closest it will be some 10 solar diameters south of the Sun as "seen" from the Earth.

The next transit of Mercury is not until May 2016, but that will not be visible from NZ. In November 2019 the end of a transit will be visible at sunrise in NZ, while in November 2032 the start of one will be visible near sunset. It is not until November 2032 that there will be a well placed one for NZ. Transits of Mercury can only occur in May and November, with more in the late month. There are some 14 this century, so they are considerably more common than transits of Venus.

After conjunction, Mercury will be in the morning sky but at most rises no more than an hour before the Sun, in mid August. So it is likely to be too low to see in the brightening sky.

MARS ♂ and SATURN ♄ Mars will start about 17° below Saturn and Spica in mid July but will move steadily towards them, although unless you compare them to the other background stars, Saturn and Spica will seem to move down towards Mars. On August 14 Spica, Mars and Saturn will be almost in line with Mars in the middle. The star will be less than 2° to the left of Mars, Saturn a degree further to the right of Mars. Spica and Mars will be the same brightness but noticeably different in colour, Saturn will be slightly brighter. The following night Mars just above the line from Spica to Saturn, but the two planets will be slightly closer to each other.

Saturn and Spica will be less than 5° apart throughout July and August

The moon will join the group on July 25 while Mars is still below Saturn and Spica. On that evening at around 7 pm, the 38% lit moon will be 7° above Mars and the same distance to the left of Saturn, while Spica will be 5.5° to the upper right of the moon.

Planets in the Morning Sky, Jupiter and Venus.

VENUS ♀ and JUPITER ♃ will be easily visible in the dawn sky to the northeast. In mid July, on the 16th, at 7am almost an hour before sunrise the two planets will be 18° up. Venus will be just under 7° to

the right of Jupiter with the star Aldebaran slightly over 3° above Venus. Also on that morning the moon will be 5° below Venus.

Over the next month Venus will move away to the lower right of Jupiter, although the appearance will be that Jupiter, and Aldebaran, are moving away and up from Venus. By mid August at 6.30 am, an hour before sunrise, Jupiter will have moved a little compared to the stars, to be just over 5° below Aldebaran with the Pleiades 13° to the left of the planet. Venus will have moved out of Taurus, across the most northerly lobe of Orion and into Gemini to be about 25° from Jupiter.

As noted above, the moon will be just to the left of Jupiter on the morning of August 12 and only slightly further from Venus two mornings later.

There's again plenty to watch for in both the evening and morning sky this month. Make the most of the morning while it doesn't mean getting up very early to appreciate!

"CASAC, our own Astronomical Catalogue"

Adrian Kelly

Hi all your friendly editor here, this has been my own "pet" project for sometime now, and now after years of proudly shaping it and watching it grow, I am ready to unleash it upon you the unsuspecting.. My masterpiece the CASAC list, pay no mind to the baying of the hounds amid the howls of ITS ALIVE!

An introduction

CASAC is the official observing list of CAS (I hope), a project I started a few years ago now, initially it was a small list we used for observational purposes and came about after one such observational marathon night.

Its a self evolving list now, and just seems to grow itself, when I found objects I've observed. I would look up or read about objects and there nature in magazines and books or online and think gee that looks interesting I wonder if I can see it?. and so...it is by no means complete.

I have often asked should we have our own list, objects that we specifically look for in our southern skies.. Sure. A list like this helps to focus some attention of some the astounding variety in our skies and encourage some degree of learning in the process, it really just makes it easier to get started, if you have an interest

The extended list itself has snowballed to a generously large number of objects now, some 400+ including stars, galaxies, globulars, nebulae, clusters, to observe throughout the year...I tried to cover all the bases from the obvious to the obscure, and many a time I have found myself pleasantly surprised, it really is a wondrous and varied universe out there. I've tried to find objects interesting to all levels from easy to challenging that covers a spread of all instrument types from binos to large aperture scopes.

Do all of these objects deserve to be on the list?, I don't know, it has largely been my own perception as to what people like, I have simply added objects what I felt fit, and interested me, so I'm looking for input and your feedback is invaluable, all options are valid!

After all it could be a useful reference for generations, especially if we provide feedback on what we observed. Id like to see it be made a process we can all have fun with and the observing marathon evolved out of this. Seeing, learning, wondering... Was it interesting visually?, Has it changed over time?, Could you even see it?

I hope you'll join us at the observatory on the night of the CASAC OBSERVING MARATHON and try some of it for yourself, its a fun evening to share with the members and there various telescopes, of course the societies telescopes are available to look through even if you don't own a scope or would like to see though larger equipment. Also don't be intimidated and take your time, it is certainly unreasonable to expect to see all the objects listed especially as many are seasonal but look around, and see a bit of what the sky has to offer. Now down to the nitty gritty.

The CASAC list

This itself I have compiled in various formats, an Excel ordered spreadsheet and as a PDF, which is a core of 250 objects to observe around the year. (I have to plug an amazing piece of software here called SkyTools 3 pro, it does everything. <http://www.skyhound.com/cs.html>) I have also an extended CASAC list of 400+ objects that I have generated for SkyTools 3, and that I personally use as my logbook, to generate highly detailed observational lists, I will make this available as well.

These documents can be downloaded from the CAS website, <http://www.cas.org.nz> and listed under the **practical astronomy** section are the various links.

The Excel Workbook currently contains:

- 250 objects total. On the CASAC worksheet, for southern hemisphere viewing.
- The default list is arranged by constellation.
- Some errata, additional notes, additional objects and previous updates, objected listed by Messier, NGC(New Galactic Catalogue number) and or IC(Index Catalogue)., Stars are listed Under HD, HR SAO AND HIP catalogues.
- Includes Size (in arcmin' and arcsec"), R.A and Dec for all objects, and also surface brightness magnitude for galaxies, planetary nebulas and globulars.
- This update also includes a Constellation worksheet, listing all 88 constellations, Best viewing months, Culmination dates (when its at it highest point in sky), and Circumpolar information.
- All information on CASAC may be easily arranged, and or sorted from the worksheet lists to suit, and can be easily printed for use.

21-732 CAS Astronomical Catalogue (CASAC).xls [Compatibility Mode] - Microsoft Excel																
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O		
A2	NGC 2997															
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O		
1	Common Name	Also Known As	Type of Object	Constellation	Messier	Caldwell	NGC	IC	Size	Magnitude (v)	R.A.	Dec	SB (M)	Distance	Notes	
35	Diamond Cluster		Open Cluster	Carina		56	2518	29'	3.8	07 58.3	-69.52			1,300 Cluster of great clarity-100 stars, one of Carina many showpieces		
36	Carina Globular		Globular Cluster	Carina			2808	14'	6.2	09 12 02.6	-64 51 47	10.7		30,000 Densest class I glob. ~1000000 stars, 3 gen star population, galactic remnant?		
37	Herschels Fools Planet	Royal Aqua Nebula	Planetary Nebula	Carina		90	2867	27"	9.7	09 21 25.54	-58 18 42.3	7.7		5,500 Wolf-Rayet central star, Young 2750 yrs		
38	Fireworks Cluster	NGC 3114	Open Cluster	Carina			3114	35'	4.2	10 02.7	-60.07			2,900 large OC of ~170 stars forming a curved burst pattern		
39	Carinae 3199	RCW48, Smiling Nebula	Emission Nebula	Carina		RCW48	3199	22"x22"	-	10 17 24.0	-57 55 00			12,000 Wolf Rayet star exciting an arc shaped bubble of nebula, UHC		
40	Gem Cluster		Open Cluster	Carina			3293	6"	4.7	10 35 50.4	-58 13 35			7,600 Compact OC with ~90 stars, circular form, distinct traffic lights of 3 stars central		
41	Gabriela Mistral Nebula		Emission Nebula	Carina			3324	18"x20"	6.7	10 37.3	-58.38			7,200 A pair of OB stars excite this pool of nebulosity in the Carina complex, OIII detail		
42	Key Hole Nebula		Dark Nebula	Carina			3324	2599' 18"	-	10 45 06.0	-59 52 00			7,420 Dark Nebula superimposed on top of carina nebula		
43	Eta Carina Nebula		Emission Nebula	Carina			3372	120"x120"	1	10 45 06.0	-59 52 00			7,500 Very Bright, Eta Carinae homunculus visible as bright yellow star with lobes		
44	Wishing Well Cluster	Firefly Cluster	Open Cluster	Carina			91	3532	55'	3	11 06.4	-58.40			1,300 ~300+ bright stars this impressive expansive OC, a wide view showpiece	
45	NGC 3572		Open Cluster + Emission Nebula	Carina			3572	6"	6.6	11 10.4	-60.14			6,500 OC embedded in nebulosity, UHC		
46	Carinae 3576 Complex	RCW57	Emission Nebula	Carina		RCW57	3576	14"x18"	-	11 11 30.0	-61 21 00			6,000 Northern extent of a complex with NGC 3578, 1 deg of sky, loops formations, UHC		
47	NGC 3603 Massive		Emission Nebula + Cluster	Carina			3603	20' [4"]	9	11 50 17.7	-57 10 57	5.7		20,000 Stellar life cycle, proto planetary disc, most massive stars binary 114/89 Messau		
48	Eta Carinae	Homunculus Nebula	Star	Carina		SAO 238429 HD 93308			(4.5)	10 45 03.5	-59 41 04.2			7,500 Supernova impostor, 400000Solium, 100+ SolM, Most energetic object, Variable		
49	Avior	Epsilon Carinae	Binary Star	Carina		SAO 235932 HIP 41037			1.8/ 4.2	08 22 30.8	-59 30 34			630 Orange giant class K0 III, secondary is a hot hydrogen-fusing blue dwarf class B2		
50	Southern Pleiades	Theta Carina Cluster	Open Cluster	Carina		102			2602 49'	1.9	10 43.2	-64.24			479 Large bright OC, with intense blue young stars ~40 stars, close	
51	Toby Jug Nebula		Reflection Nebula	Carina					2220 6'x4'	-	07 56 48.5	-59 07 30			390 Reflection nebulosity lit by variable red star (V941 Carinae), large app to resolve	
52	Pearl Cluster		Open Cluster	Centaurus		97	3766	12'	5.3	11 36 13.3	-61 36 55			5,500 impressive moderate sized cluster of ~ 100 stars		
53	Blue Planetary		Planetary Nebula	Centaurus			3918	19"	8	11 50 17.8	-57 10 57			2,400 Intensely blue and bright, small		
54	NGC 3960		Open Cluster	Centaurus			3960	6"	8.3	11 50.6	-55.41			7,400 ~45 stars		
55	Centaurus Dunlop Galaxy	Dunlop 411, NGC 4945	Galaxy	Centaurus		83	4945	20"x4"	8.2	13 05 26.1	-49 27 48	12.8		11,700,000 Milkyway analogue, edge on, large, type SBCsd		
56	NGC 4976	ESO 219 29	Galaxy	Centaurus			4976	6'x3'	11.0	13 09 23.8	-49 34 23	22.4		41,000,000 Edge on elliptical near a bright star, don't be distracted by the huge NGC 4945		
57	NGC 5102		Galaxy	Centaurus			5102	9'x4'	9.6	13 21 57.0	-36 37 56	13.2		12,100,000 Moderate sized lenticular galaxy type S0, not far from Iota Cen		
58	Centaurus A		Galaxy	Centaurus		77	5128	27'x20"	6.8	13 25 27.79	-43 01 06.0	13.5		16,000,000 Massive radio galaxy, lenticular dust lane, galactic collision, type EO+50 pec		
59	Omega Centauri		Globular Cluster	Centaurus		80	5139	36'	3.6	13 26 45.9	-47 28 37	8.5		15,800 Galactic remnant, brightest and largest globular in sky-1000000 stars, class VII		
60	Blue Dwarf Galaxy		Galaxy	Centaurus			5253	4'x2'	10.9	13 39 55.8	-31 38 32	12.4		10,900,000 Bright irregular starburst, huge young stellar clusters, type Im pec (sbc)		
61	Little Scorpion Cluster		Open Cluster	Centaurus			5281	5'	5.9	13 46.6	-62.54			4,200 Neat compact cluster of ~40 stars formed in a scorpion pattern		
62	NGC 5286		Globular Cluster	Centaurus		84	5286	10'	7.2	13 46 26.5	-51 22 24	11.5		29,000 Neat Class V globular right next to spectroscopic binary star M Cen		
63	NGC 5367		Reflection Nebula	Centaurus			5367	4'x3'	-	13 57 42.0	-39 59 00			Mag 9 and 3 binary, includes IC 4347, dusty cometary globule		
64	NGC 5480		Open Cluster	Centaurus			5480	25'	5.6	14 07.6	-48.19			2,700 Semi circle of bright stars slightly NE at the end is lenticular galaxy, ESO 221-626		
65	NGC 5617		Open Cluster	Centaurus			5617	10'	6.3	14 29.8	-60.43			5,000 Near to Alpha Cen, striking blue coloured OC of ~60 stars		
66	Alpha Centauri	Rigel Kentaurus	Binary Star	Centaurus		SAO 223838 HIP 71683			0.0/1.3	14 39 36.4	-60 50 02.3			4.36 Nearest star system to Solar System, planetary system candidate.		
67	Lambda Cen Nebula	Running Chicken Nebula	Emission Nebula + Cluster	Centaurus					2944 14'	4.5	11 36.6	-63.02			2,000 Cluster is visible, nebula requires UHC, Large Trackers/Big Globules, photogenic	
68	Skull Nebula		Planetary Nebula	Cetus		56	246	276"x246"	10.9	00 07 03.80	-11 52 21.7	13.8		2,100 Binary central stars puff out this large irregular disc planetary USB		
69	M77		Galaxy	Cetus		77	1068	8'x7'	9.1	02 42 40.83	-00 00 48.4	13.2		46,900,000 One of the largest messier galaxies at 170000ly, Seyfert type Sb, Sy1h		
70	NGC 157		Galaxy	Cetus			157	4'x2'	11.0	00 35 26.1	-08 19 26	21.6		78,000,000 Interesting Spumone S symbol, type SAbS barred spiral		
71	Charaellion Planetary		Planetary Nebula	Chamaeleon		109	3195	42"x37"	11.6	10 09 20.99	-60 51 31.0	8.8		5,500 Bright impressive southern PL, OIII enhances		
72	Circinus Dwarf Galaxy		Galaxy	Circinus		ESO 097-0013			7'x3'	9.8	14 13 09.3	-65 20 20	12.9		13,000,000 One of the closest active galaxies, undergoing massive change, type Sb, Sy1h	
73	Alpha Circinus	HR 5463	Binary Star	Circinus		SAO 228998 HIP 19008			3.1/3.8	14 42 30	-64 58 33			53 Young binary system, F and K class companion magnetic pulsating variable		
74	NGC 5823		Open Cluster	Circinus		88	5823	12'	8.6	15 06 29.1	-55 39 19			3900 Distinct S shaped chain of stars in this open cluster		
75	NGC 1808		Galaxy	Columbia			1808	7'x4'	9.8	05 07 42.5	-37 30 50	13.3		35,200,000 Seyfert galaxy, with a bright core, type Sbc, HII		
76	NGC 1851		Globular Cluster	Columbia		73	1851	11'	7.1	05 14 06.3	-40 02 50	11.6		35,000 Very concentrated class II globular, x-ray source		
77	M100		Galaxy	Coma Berenices		100	4321	7'x6'	10	12 22 54.95	-15 49 15.5	14.4		55,000,000 Classic grand design spiral, face on, LSB, type SAb(sbc, (sbc)		
78	Needle Galaxy		Galaxy	Coma Berenices		38	4565	16'x2'	9.6	12 26 21.07	-25 59 13.3	13		42,000,000 Edge on spiral with bright bulge, type SAb(sbc)		
79	Spira Mirabilis Galaxy		Galaxy	Coma Berenices			4725	11'x8'	9.2	12 50 26.69	-25 30 02.3	13.8		40,000,000 Unusual one armed spiral galaxy, bright, type SAb(sbc) pec		

The screenshot shows the SkyTools 3 Professional Edition software interface. The top panel displays a star chart of the Centaurus constellation, with various objects labeled. The bottom panel shows a detailed logbook for NGC 4945, including observation data, filters, and a list of objects. The right panel shows a detailed view of the NGC 4945 galaxy, highlighting its structure and features.

CASAC in Excel, top, and SkyTools 3 Pro, below. Skytools generates a far more detailed list with a huge amount of customization as well as a logbook and is an amazing peice of software, I highly recommend it.

Canterbury Astronomical Society Inc.

APPLICATION FOR MEMBERSHIP



To: The Membership Secretary

Receipt #:

Date:

Canterbury Astronomical Society Inc.

P.O.Box 25-137

Victoria Street

Christchurch 8144

Elected:

Member advised:

Editor advised:

Applicant's name in full (block letters): _____

Address: (Note: a P.O. Box is NOT a legal address) _____

Phones: Home: _____ Work: _____ Mobile: _____

eMail: _____ Date of birth (if under 18) _____

Occupation: _____

Membership Category (**subscription must accompany application. Discounted if paid by 31 May**)

*Please circle your selection

\$70	\$60
\$105	\$90
\$35	\$30
\$35	\$30
\$35	\$30
\$35	\$30
\$35	\$30
\$210	\$180

Adult (any person 18 years of age or over who is not eligible for any other category)

Family (two or more persons living at the same address) §

Junior (under 18 years of age on 1 April of the current year)

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Corporate (members have voting rights of one member but cannot take office)

§ If family membership, please list the other persons involved.

Name	Date of birth (if under 18)	Signature

All CAS members receive CASMAG, a monthly newsletter. Would you prefer to receive this

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Do you have access to a telescope? What type and size? _____

What are your astronomical interests? _____

I, the undersigned declare that the information given herein is true.

Signature: _____ Date: _____

Proposer: _____ Second: _____

Address: _____ Address: _____