



# SCORPIUS

THE JOURNAL OF THE  
MORNINGTON PENINSULA ASTRONOMICAL SOCIETY INC.

Volume XIX, No. 5 (October/November/December 2010)

The Mornington Peninsula Astronomical Society (formerly the Astronomical Society of Frankston) was founded in 1969 with the aim of fostering the study and understanding of Astronomy by amateurs and promoting the hobby of amateur Astronomy to the general community at all levels.

The Society holds a focused general meeting each month for the exchange of ideas and information. Regular public and private observing nights are arranged to observe currently available celestial objects and phenomena. In addition, the society encourages the services of its members for educational presentations and observing nights for schools and community groups.

## Is this the Droid we are looking for?



*Insert: Preparing R2 for flight.  
Image Credit: ©NASA*

Almost 200 people from 15 countries have visited the International Space Station, but the orbiting complex has so far only ever had human crew members – until now.

Robonaut 2, the latest generation of the Robonaut astronaut helpers, is set to launch to the space station aboard space shuttle Discovery on the STS-133 mission, in November. It will be the first humanoid robot in space, and although its primary job for now is teaching engineers how dexterous robots behave in space, the hope is that through upgrades and advancements, it could one day venture outside the station to help spacewalkers make repairs or additions to the station or perform scientific work.

R2, as the robot is called, will launch inside the Leonardo Permanent Multipurpose Module, which will be packed with supplies and equipment for the station and then installed permanently on the Unity node. Once R2 is unpacked – likely several months after it arrives – it will initially be operated inside the Destiny laboratory for operational testing, but over time both its territory and its applications could expand. There are no plans to return R2 to Earth.

[http://www.nasa.gov/mission\\_pages/station/main/robonaut.html](http://www.nasa.gov/mission_pages/station/main/robonaut.html)

Article Extract and Image Credit: ©NASA



# Society Calendar

## Upcoming Events in October

**Friday 1st of Oct.: Public Viewing Night at The Briars (8pm).**

*October's regular Public Viewing Nights at The Briars, starting at 8pm, and held regardless of the weather. As usual, a large turnout is expected so we will need at least 6 scopes.*

**Wednesday 20th of Oct.: October's General Meeting at the Peninsula School (8pm).**

*Session 1 - Speaker Andrew Rennie on 'Saturn's Rings and Moons'*

*Session 2 - Open Forum and 'Sky for the Month'*

**Saturday 23rd of Oct.: President's Birthday & Members Viewing Night at The Briars.**

*This month's members viewing night and this year's President's Birthday has been organised for the 23rd of October. Intensity of incident light from our Lunar neighbour is quite high with a Full Moon. So while not a great night's viewing (weather permitting of course), some of the regulars are still there to visit again. As with all member viewing nights, there will be a free BBQ Sausage-Sizzle prior to viewing.*

**Wednesday 27th of Oct.: October's Committee Meeting at The Briars (8pm).**

## Upcoming Events in November

**Friday 5th of Nov.: Public Viewing Night at The Briars (8pm).**

*November's regular Public Viewing Nights at The Briars, starting at 8pm, and held regardless of the weather. As usual, a large turnout is expected so we will need at least 6 scopes.*

**Saturday 13th of Nov.: Members Viewing Night at The Briars.**

*This month's members viewing night has been organised for the 13th of November. Intensity of incident light from our Lunar neighbour is slight with a First Quarter Moon. So why not bring your scopes along for a great night's viewing (weather permitting of course). As with all member viewing nights, there will be a free BBQ Sausage-Sizzle prior to viewing.*

**Wednesday 17th of Nov.: Annual General Meeting at the Peninsula School (8pm).**

*Session 1 - Tabling of the Annual General Meeting.*

*Session 2 - Speaker & Topic: To be Confirmed.*

*Session 3 - Open Forum and 'Sky for the Month'*

**Wednesday 24th of Nov.: November Committee Meeting at The Briars (8pm).**

**Thursday 25th of Nov.: St. Augustine's Primary School at The Briars (8pm).**

*(Approx. 45 Year 3/4 pupils) on Thursday 25th of November. About 3 scopes required*

## Upcoming Events in December

**Friday 3rd of Dec.: Public Viewing Night at The Briars (8pm).**

*December's regular Public Viewing Nights at The Briars, starting at 8pm, and held regardless of the weather. As usual, a large turnout is expected so we will need at least 6 scopes.*

**Saturday 11th of Nov.: MPAS Christmas Party & Members Viewing Night at The Briars.**

*This month's members viewing night is also this year's MPAS Christmas Party. Organised for the 11th of December. Intensity of incident light from our Lunar neighbour is slight with a First Quarter Moon. So why not bring your scopes along for a great night's viewing (weather permitting of course) and join in the Christmas cheer. As with all member viewing nights, there will be a free BBQ Sausage-Sizzle prior to viewing.*

*Note: there is no General Meeting in December*

### ADVANCE NOTICE - January's Public Viewing Nights at The Briars

With the Summer holiday makers about in January, the society will once again be holding Public Viewing Nights at The Briars on every Friday in this month. Any assistance that could be offered over this period would be greatly appreciated.

While all care is taken to ensure the above dates are correct, these can change at late notice. To be up-to-date on the latest society happenings, check either E-Scorpius, the MPAS website: [www.mpas.asn.au](http://www.mpas.asn.au), or the latest "What's On" for up-to-date information.



# Society News



The Committee and Society  
welcome the following  
new members.

Wishing you clear skies.

Tracey Neave  
John & Sunahwa O'Mahony  
Denis O'Loughlin  
Jenny Thompson  
Peter Honey

Kolawole Family -  
Michael, Helen, Reni, Seyi

George Family -  
Regina, Murray, Chelton, Jarrod, April, Charlotte, Maeve

Hanna Family -  
Robert, Michael, Morgan, Jody, Joseph, Ronan



## President's Report 2010

Oh what a year!  
The International Year of Astronomy in 2009 was busy, and 2010 has continued at the same pace. Although the weather this year has not been helpful for viewing, we have maintained all our normal public and members viewing nights. Dare I say, the lack of sunspots has brought wetter weather to our latitude!!

We have held a record number of BBQ/Viewing nights this year because the Moon's phase. New Moon has been occurring in the first half of the month, which is out of sync with our General Meetings on the third Wednesday of the month. Thus we have been holding our normal members viewing night close to the New Moon plus the special events closer to the Full Moon. Happily the New Moon goes back to the latter half of the month in 2011 where it belongs.

School viewing nights have also continued at a high rate with ten school events held this year. School events have become decidedly dangerous this year. At one event Fiona stepped off a cliff in the dark

and fortunately wasn't hurt. I did my foot at another viewing night breaking a few bones in the process. I think I'll go down in history as the only astronomy society president to be "attacked" by a meteorite.

Ian Sullivan has maintained a high standard of guest speakers for our general meetings. Bob Heale has maintained his high standard Sky for the Month presentations and this year introduced a new section showing the Sky for the Month from other parts of the Galaxy. Handy if you need a star chart from Betelgeuse.

The Briars continues to develop. Apart from better facilities inside the main building we have extended the concrete observing platforms to provide additional space and power. The main building has been enclosed and we plan to incorporate the library into this new section.

The lower building is being extended to increase the storage space for scopes. We plan to have this work completed for the VASTROC next year at the end of April. This will be our third VASTROC and it will be held at our Briars facilities



One of the new concrete slabs in 2010

together with the Briars Camp.

There has been a technological arms race at the Briars site with various iPods, iPad, iPhones, new automated telescopes and astrophotographic rivalry. I'm not sure if Alex's new 22" Dobsonian has been dubbed the "Rain Make" or "Leaning Tower of Piza" but it's a beautiful instrument.

As always none of this is possible without the work and commitment from the committee and volunteers who provide enormous support to keep the activities successful and fun. 2011 is shaping up to be another exciting year and all we need is a naked eye comet or supernova for VASTROC.

Clear skies and Happy viewing  
*Peter Lowe*  
President



# Society News

## 2011 VASTROC - Call for Presentations

VASTROC 2011 aims to bring together amateur astronomers from Victoria and beyond and provide opportunities for these astronomers to present and share their work and interests. We plan to have various streams of presentations covering a great width of astronomical work including observing, instrumentation, education, research, history and local activities.

Presentations may be made on any topic pertaining to Astronomy, preferably on work done by the presenter in observing, instrument making, software development or education. The types of presentations that we are hoping to present are:

### Oral Addresses

Call them papers or lectures, if you prefer. These will occur on the Saturday and Sunday. Length is usually in 30 minutes time slots, but allow up to a third of the time for discussion. We request you to provide a computer-based visual accompaniment to your address, e.g. using PowerPoint™ or Keynote™, which will be included in the conference CD.

### Posters

Posters can take many forms, limited only by your artistic imagination. And a poster doesn't need to be all on one big sheet. Try to make them as visual as possible, and arresting from a distance. Consider tear-offs of useful Web addresses or other information. The idea is to communicate, and that need not be one-way. There will be a time-slot in the Oral Addresses programme for all poster presenters to give a 5-minute talk on their poster: what it's about, what it concludes, why it matters, will you join my project.

### Workshops

These will be aimed specifically at training, skill improvement, etc. and should be as interactive as possible. Workshops are to be delivered within a time frame of 60 minutes, including the completion of all practical requirements.

If you are considering making a presentation, but are not sure of what's expected, how to prepare, whether the topic is suitable, or any other issue, please contact the M.P.A.S. VASTROC Committee with your concerns. A member of the VASTROC Committee will get back to you to assist.

We look forward to your contribution for the VASTROC in 2011.

Regards

Peter Skilton

Convenor, VASTROC 2011.



## A Big THANK YOU for a big August

August was indeed a very busy month for the society with another successful National Science Week.

multiple public viewing nights, putting extra pressure on our small band of volunteers. So it is with relief that we have been able to meet this challenge again and produce The time and enthusiasm these volunteers bring earned positive reviews from the public who attended. So for those that helped out over this period, congratulations

on a job very well done.

Remember, if you can spare the time just every once in a while, we could always use an extra set of hands. If interested, just catch up with one of the committee members to discuss any help you can give.

## Missing September

Apologies to members looking for their September issue of Scorpius. Work commitments meant it was a difficult month to put Scorpius together.

Because of the above, this edition of Scorpius covers October, November, and December. Hence the reason why some pages are footed with Sept./Oct. and others with Oct./Nov./Dec.

While discussing Scorpius, unfortunately the afore mentioned

work commitments means my ability to produce the society newsletter in usual paper mailout format will be quite limited.

Because of this, in 2011 I will be having to transfer Scorpius to an online PDF format, to keep the society newsletter regular and informative for members

We understand this will inconvenience some society members, however we also hope that most members will be able to

embrace the format change over.

If you have concerns about this, please forward an email to Scorpius (scorpius@mpas.asn.au), or discuss with a committee member your concerns and an alternative arrange will be sought.

The limited paper versions of Scorpius (as mentioned earlier) will only be available at The Briars Astronomical Facility, and at the General Meetings at the Peninsula School.



# Society News

## Ongoing Briars Site Works

Anyone who has been to the Briars over these past couple of months would have noticed the works going on around the Briars Observing site.

Unfortunately with these works, some disruptions to the normal viewing practices may occur. Rest

assured, the site can be used for observing but please be careful when driving or walking around the site.

We especially ask that members that are **not** setting up equipment on the observing field, please refrain from driving through the site, and

preferably use the upper public carpark, in front of the Sustainability Display Home.

Once again this edition we thank members for their understanding during these works, and hope to have the observing area back to normal quite soon.

# Society Reports

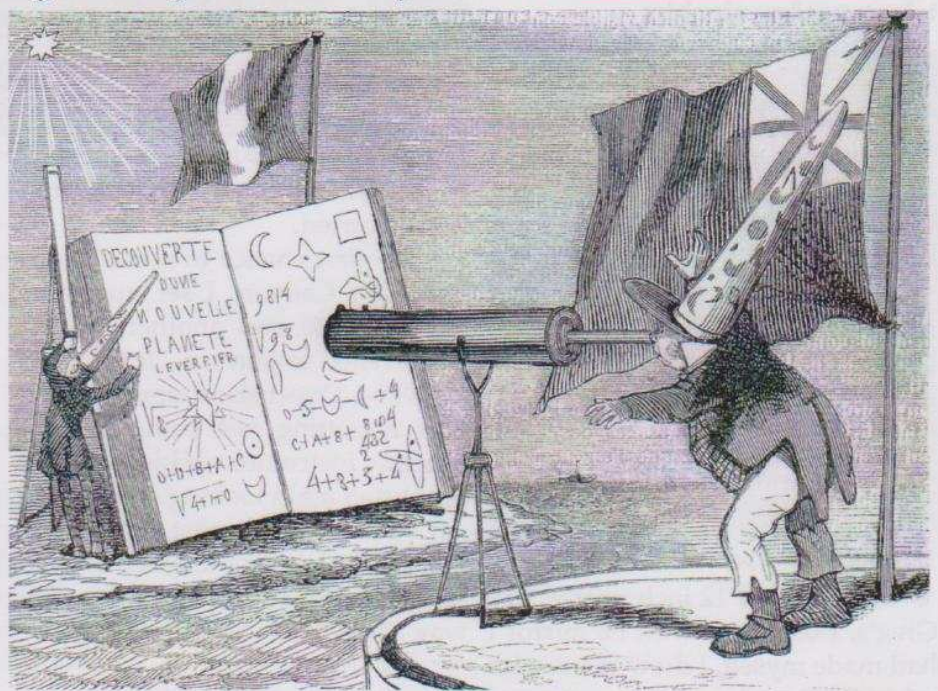
## One Neptunian Year - Beginning with a great discovery in 1846

Rod Brown of ASV gave a talk at our last General Meeting in August and mentioned a forthcoming historic event - the completion of one sidereal period of Neptune since its discovery.

In 1845 Urbain Le Verrier of the Paris Observatory, prompted by the errant behaviour of Uranus, calculated and published a paper on the position of another possible planet, causing what we now call a perturbation. A copy was sent to the British Astronomer Royal, George Airy claiming it then had a heliocentric longitude of of  $325^\circ$ .

Airy did nothing until the following year, when he heard from John Adams, a Cambridge mathematician who, independently, made a very similar estimate. Both calculations were based on Newtonian mechanics and the 'purely empirical Bode's Law' of planetary distances. As neither Le Verrier nor Adams were observers, Airy gave the Adams estimate to Challis at the Cambridge Observatory and Le Verrier alerted Paris Observatory. Both placed the planet at about 30 Astronomical Units from the Sun.

As both Observatories were slow to act, an impatient Le Verrier passed the information on to the Berlin Observatory to look at around  $5^\circ$  from the star Gamma Capricorni. On 23 Sep 1846, Galle at Berlin found a non stellar body near the position given, and claimed



French cartoon shows Adams viewing Le Verriers work rather than the sky; and shows that these scientific events were then better publicised, than today.

From Hoskin's 'Cambridge History of Astronomy', two copies of which are in the MPAS Library at The Briars.

the glory of actual discovery. After a controversy ensued, some credit was eventually shared, but Airy, by initially ignoring Adams, was never allowed to forget his lost claim to fame.

Soon, by international agreement, the new planet was called Neptune and its period of revolution was estimated to be (Earth time) 164 years, 287.9 days. Next year, 2011, marks one revolution since this discovery, and around July 12 is the time. Then, many amateurs will attempt to view and make comparison of its position

in the star field. No doubt maths buffs will calculate again, to make allowance for the many gravitational effects that will cause change. We amateurs all know at least about precession and the elliptical, not circular, orbits of all planets. Nevertheless, allowing for usual weather in July, it may be an event, if only as there will not be much movement for several nights.

*Ian Sullivan*

August '10



# Society Projects

## Rod's Travel Telescope

This year was our chance to travel the Northern Territory. After working in the same job for ten years, I had earned long service leave. And we decided to hire a campervan for the 6 week family holiday. Before leaving I decided it would be great to take a telescope with me. I looked at several Travelscope designs on the internet and ultimately decided to build one around US amateur Greg Babcock's design located at: <http://www.synrgistic.com/astro/telescopes/traveler.htm>



Rod's assembled 10 inch travel telescope, ready for the night sky.

concerned about dew but needn't have worried.

My first chance to observe was at King's Canyon. I set up at the camping site and another camper was excited to join me. It turned out he was a Queensland amateur and was regretting not being able to bring an instrument of his own. We spent two nights looking at the night sky there. I spent most of my time looking at messier objects around scorpio and browsing the milky way. They were very clear.

My best night was observing from Standly Chasm. We camped there for the night and I used some setting circles I made for the first time. This helped me locate fainter objects.

The scope performed very well. It was a fiddle to set up the first time but once I did it once it was fine and I found I could leave it partially assembled in the van. I got a lot of strange looks as I set up. Most people had no idea what I was doing. But I would offer the chance to look to any passers by. I used the scope in a couple of caravan parks. One older gentleman and his wife thought it was amazing and asked how they could get their own instrument. They had not looked through a large telescope before.

Some German tourists joined me at Edith Falls, just north of Katherine gorge. The moon was at first quarter so faint fuzzies were washed out. Nevertheless, they were amazed by the moon Saturn, the jewel box etc.

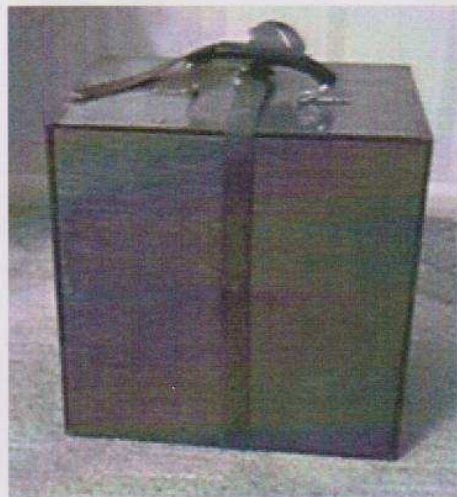
It was great fun. My only disappointment was that the seeing in the Northern part of the Territory, past Katherine was not that good while we were there. There was a lot of smoke from the burning off this time of year and we got much more cloud than in the centre. If I were to do this again, I would build a shorter scope - F5. This would be a little lighter and enable a shorter mirror box that should meet the airline carry on requirements.

*Rod Brackenridge*

August '10



Sunset Near Uluru.



The telescope when packed up for transport.

Instead of a 12 inch mirror, like Greg's, I used a 10 inch F6 mirror I had made myself. I drew plans with a free CAD package and announced my intention on iceinspace. Another iceinspace member offered to cut the parts for me with a CNC router. This made assembly much simpler.

The plan was to carry the optical parts as hand luggage and the rest would go in my suitcase. Well it didn't quite go that way. The airline said the corners of the mirror box were dangerous, so it had to travel as oversize luggage. Fortunately, the mirror box and optical components arrived safely at both destinations.

Observing in Central Australia was a real treat. I don't think I have ever seen such dark skies. Scorpio looked fantastic and the milky way seemed to almost extend from one horizon to the other. I had been



# Skywatcher: October's Rise & Shine Times

The following times are calculated for the Local Time at  
 The Briars Observing Facility: Latitude 38° 16' South, Longitude 145° 02' East.  
 These times can be used throughout the Mornington Peninsula and surrounding areas to within +/- 1 minute.

Date	Sun		Moon		Mercury ♀		Venus ♀		Mars ♂		Jupiter ♃		Saturn ♄		Uranus ♅		Neptune ♆				
	Civil Twilight Begins	Sunrise	Sunset	Civil Twilight Ends	Phase	Rise	Seis	Rise	Seis	Rise	Seis	Rise	Seis	Rise	Seis	Rise	Seis	Rise	Seis		
Oct 1 (Fri)	05:30	05:56	18:24	18:51	L.Q.	01:09	10:47	05:36	17:20	06:56	21:28	07:22	21:08	17:21	05:45	06:07	18:18	17:27	05:44	14:50	04:23
Oct 2 (Sat)	05:28	05:55	18:25	18:51		01:57	11:54	05:36	17:25	06:52	21:25	07:20	21:07	17:16	05:41	06:04	18:15	17:23	05:40	14:46	04:19
Oct 3 (Sun)	06:26	06:53	19:26	19:52		03:40	14:05	06:36	18:30	07:48	22:22	08:18	22:07	18:12	06:37	07:00	19:12	18:19	06:36	15:42	05:15
Oct 4 (Mon)	06:25	06:51	19:27	19:53		04:17	15:18	06:37	18:35	07:44	22:19	08:16	22:06	18:07	06:33	06:57	19:08	18:15	06:32	15:38	05:11
Oct 5 (Tue)	06:23	06:50	19:28	19:54		04:51	16:31	06:37	18:40	07:41	22:16	08:14	22:06	18:03	06:28	06:53	19:05	18:11	06:28	15:34	05:07
Oct 6 (Wed)	06:22	06:48	19:29	19:55		05:24	17:45	06:37	18:45	07:37	22:13	08:12	22:05	17:58	06:24	06:49	19:02	18:07	06:24	15:30	05:03
Oct 7 (Thu)	06:20	06:47	19:30	19:56		05:56	19:00	06:37	18:50	07:32	22:10	08:10	22:05	17:54	06:20	06:46	18:58	18:03	06:20	15:25	04:59
Oct 8 (Fri)	06:19	06:45	19:30	19:57	New	06:29	20:15	06:37	18:55	07:28	22:06	08:08	22:05	17:49	06:16	06:42	18:55	17:59	06:16	15:21	04:55
Oct 9 (Sat)	06:17	06:44	19:31	19:58		07:05	21:29	06:37	18:59	07:24	22:02	08:06	22:04	17:45	06:11	06:38	18:52	17:55	06:12	15:17	04:51
Oct 10 (Sun)	06:16	06:42	19:32	19:59		07:46	22:40	06:37	19:04	07:20	21:58	08:04	22:04	17:40	06:07	06:35	18:48	17:50	06:08	15:13	04:47
Oct 11 (Mon)	06:14	06:41	19:33	20:00		08:32	23:46	06:37	19:09	07:15	21:53	08:02	22:03	17:36	06:03	06:31	18:45	17:46	06:04	15:09	04:43
Oct 12 (Tue)	06:12	06:39	19:34	20:01		09:24	D.N.S.	06:37	19:14	07:11	21:49	08:00	22:03	17:31	05:59	06:28	18:42	17:42	06:00	15:05	04:39
Oct 13 (Wed)	06:11	06:38	19:35	20:02		10:20	00:45	06:37	19:19	07:07	21:44	07:59	22:03	17:27	05:55	06:24	18:38	17:38	05:56	15:01	04:35
Oct 14 (Thu)	06:09	06:36	19:36	20:03		11:20	01:35	06:37	19:24	07:02	21:39	07:57	22:02	17:22	05:50	06:20	18:35	17:34	05:52	14:57	04:31
Oct 15 (Fri)	06:08	06:35	19:37	20:04	F.Q.	12:20	02:17	06:37	19:28	06:57	21:33	07:55	22:02	17:18	05:46	06:17	18:32	17:30	05:48	14:53	04:27
Oct 16 (Sat)	06:06	06:34	19:38	20:05		13:20	02:52	06:37	19:33	06:53	21:28	07:53	22:01	17:13	05:42	06:13	18:28	17:26	05:44	14:50	04:23
Oct 17 (Sun)	06:05	06:32	19:39	20:06		14:18	03:23	06:37	19:38	06:48	21:22	07:51	22:01	17:09	05:38	06:09	18:25	17:22	05:40	14:46	04:19
Oct 18 (Mon)	06:04	06:31	19:40	20:07		15:16	03:50	06:37	19:42	06:43	21:16	07:50	22:01	17:04	05:34	06:06	18:22	17:18	05:36	14:42	04:15
Oct 19 (Tue)	06:02	06:29	19:41	20:09		16:13	04:15	06:37	19:47	06:38	21:10	07:48	22:00	17:00	05:29	06:02	18:18	17:13	05:32	14:38	04:11
Oct 20 (Wed)	06:01	06:28	19:42	20:10		17:10	04:39	06:37	19:51	06:34	21:03	07:46	22:00	16:56	05:25	05:59	18:15	17:09	05:28	14:34	04:07
Oct 21 (Thu)	05:59	06:27	19:43	20:11		18:08	05:04	06:37	19:56	06:29	20:57	07:44	22:00	16:51	05:21	05:55	18:12	17:05	05:24	14:30	04:03
Oct 22 (Fri)	05:58	06:25	19:44	20:12		19:07	05:30	06:37	20:00	06:24	20:50	07:43	21:59	16:47	05:17	05:51	18:08	17:01	05:20	14:26	03:59
Oct 23 (Sat)	05:56	06:24	19:45	20:13	Full	20:07	05:58	06:37	20:05	06:19	20:43	07:41	21:59	16:42	05:13	05:48	18:05	16:57	05:16	14:22	03:55
Oct 24 (Sun)	05:55	06:23	19:46	20:14		21:09	06:30	06:37	20:09	06:14	20:36	07:39	21:58	16:38	05:09	05:44	18:02	16:53	05:12	14:18	03:52
Oct 25 (Mon)	05:54	06:21	19:47	20:15		22:11	07:08	06:37	20:14	06:09	20:29	07:38	21:58	16:34	05:04	05:40	17:58	16:49	05:08	14:14	03:48
Oct 26 (Tue)	05:52	06:20	19:48	20:16		23:10	07:52	06:37	20:18	06:05	20:21	07:36	21:58	16:30	05:00	05:37	17:55	16:45	05:04	14:10	03:44
Oct 27 (Wed)	05:51	06:19	19:49	20:17		D.N.R.	08:43	06:37	20:22	06:00	20:14	07:34	21:57	16:25	04:56	05:33	17:52	16:41	05:00	14:06	03:40
Oct 28 (Thu)	05:50	06:18	19:51	20:19		00:05	09:42	06:37	20:27	05:55	20:06	07:33	21:57	16:21	04:52	05:29	17:48	16:37	04:56	14:02	03:36
Oct 29 (Fri)	05:48	06:16	19:52	20:20		00:55	10:46	06:37	20:31	05:50	19:59	07:31	21:57	16:17	04:48	05:26	17:45	16:33	04:52	13:58	03:32
Oct 30 (Sat)	05:47	06:15	19:53	20:21	L.Q.	01:38	11:54	06:37	20:35	05:46	19:51	07:30	21:56	16:12	04:44	05:22	17:41	16:29	04:48	13:54	03:28
Oct 31 (Sun)	05:46	06:14	19:54	20:22		02:16	13:04	06:37	20:39	05:41	19:44	07:28	21:56	16:08	04:40	05:18	17:38	16:24	04:44	13:50	03:24

----- Daylight Savings Begins. At 2am, Sunday 3rd of October, clocks go forward 1 hour to 3am.  
 L.Q. - Last Quarter Moon New - New Moon F.Q. - First Quarter Moon D.N.R. - Moon Does Not Rise D.N.S. - Moon Does Not Set  
 Full - Full Moon  
 Civil Twilight is calculated when the Sun is 6° below the horizon, and is practically marked as the beginning or end of the day's useable light. The first of the evening stars are visible at this time.



# Skywatcher: November's Rise & Shine Times

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 The Briars Observing Facility: Latitude 38° 16' South, Longitude 145° 02' East.  
 These times can be used throughout the Mornington Peninsula and surrounding areas to within +/- 1 minute.

Date	☀ Sun		☾ Moon		♀ Mercury		♀ Venus		♂ Mars		♃ Jupiter		♄ Saturn		♅ Uranus		♆ Neptune				
	Civil Twilight Begins	Sunrise	Sunset	Civil Twilight Ends	Phase	Rise	Sets	Rise	Sets	Rise	Sets	Rise	Sets	Rise	Sets	Rise	Sets	Rise	Sets		
Nov 1 (Mon)	05:45	06:13	19:55	20:23	☾	02:50	14:14	06:37	20:43	05:37	19:37	07:27	21:56	16:04	04:36	05:15	17:35	16:20	04:40	13:46	03:20
Nov 2 (Tue)	05:43	06:12	19:56	20:24	☾	03:22	15:25	06:38	20:48	05:32	19:29	07:25	21:55	16:00	04:32	05:11	17:31	16:16	04:36	13:42	03:16
Nov 3 (Wed)	05:42	06:10	19:57	20:25	☾	03:53	16:37	06:38	20:52	05:28	19:22	07:24	21:55	15:56	04:27	05:08	17:28	16:12	04:32	13:38	03:12
Nov 4 (Thu)	05:41	06:09	19:58	20:27	☾	04:24	17:50	06:38	20:56	05:23	19:15	07:22	21:55	15:51	04:23	05:04	17:25	16:08	04:28	13:34	03:08
Nov 5 (Fri)	05:40	06:08	19:59	20:28	☾	04:58	19:03	06:39	21:00	05:19	19:08	07:21	21:54	15:47	04:19	05:00	17:21	16:04	04:24	13:30	03:04
Nov 6 (Sat)	05:39	06:07	20:00	20:29	New	05:36	20:16	06:39	21:04	05:15	19:01	07:19	21:54	15:43	04:15	04:57	17:18	16:00	04:20	13:26	03:00
Nov 7 (Sun)	05:38	06:06	20:01	20:30	☾	06:20	21:25	06:40	21:08	05:11	18:54	07:18	21:54	15:39	04:11	04:53	17:14	15:56	04:16	13:22	02:56
Nov 8 (Mon)	05:36	06:05	20:03	20:31	☾	07:10	22:28	06:40	21:12	05:07	18:48	07:17	21:53	15:35	04:07	04:49	17:11	15:52	04:12	13:18	02:52
Nov 9 (Tue)	05:35	06:04	20:04	20:33	☾	08:06	23:23	06:41	21:16	05:03	18:41	07:15	21:53	15:31	04:03	04:46	17:08	15:48	04:08	13:14	02:48
Nov 10 (Wed)	05:34	06:03	20:05	20:34	☾	09:05	D.N.S.	06:42	21:19	05:00	18:35	07:14	21:53	15:27	03:59	04:42	17:04	15:44	04:04	13:11	02:45
Nov 11 (Thu)	05:33	06:02	20:06	20:35	☾	10:07	00:10	06:42	21:23	04:56	18:29	07:13	21:52	15:23	03:55	04:38	17:01	15:40	04:00	13:07	02:41
Nov 12 (Fri)	05:32	06:02	20:07	20:36	☾	11:08	00:49	06:43	21:27	04:52	18:23	07:11	21:52	15:19	03:51	04:35	16:57	15:36	03:56	13:03	02:37
Nov 13 (Sat)	05:31	06:01	20:08	20:37	☾	12:08	01:22	06:44	21:31	04:49	18:18	07:10	21:52	15:14	03:47	04:31	16:54	15:32	03:52	12:59	02:33
Nov 14 (Sun)	05:31	06:00	20:09	20:39	F.Q.	13:06	01:51	06:45	21:34	04:46	18:12	07:09	21:51	15:10	03:43	04:27	16:51	15:28	03:48	12:55	02:29
Nov 15 (Mon)	05:30	05:59	20:10	20:40	☾	14:03	02:17	06:46	21:38	04:42	18:07	07:08	21:51	15:06	03:39	04:24	16:47	15:24	03:44	12:51	02:25
Nov 16 (Tue)	05:29	05:58	20:11	20:41	☾	15:00	02:41	06:47	21:41	04:39	18:02	07:07	21:50	15:02	03:35	04:20	16:44	15:20	03:40	12:47	02:21
Nov 17 (Wed)	05:28	05:58	20:12	20:42	☾	15:57	03:06	06:48	21:45	04:36	17:57	07:05	21:50	14:59	03:31	04:16	16:40	15:16	03:36	12:43	02:17
Nov 18 (Thu)	05:27	05:57	20:14	20:43	☾	16:56	03:31	06:50	21:48	04:33	17:53	07:04	21:50	14:55	03:27	04:13	16:37	15:12	03:32	12:39	02:13
Nov 19 (Fri)	05:26	05:56	20:15	20:45	☾	17:56	03:58	06:51	21:51	04:30	17:48	07:03	21:49	14:51	03:23	04:09	16:33	15:08	03:28	12:35	02:09
Nov 20 (Sat)	05:26	05:55	20:16	20:46	☾	18:58	04:29	06:52	21:54	04:27	17:44	07:02	21:49	14:47	03:19	04:05	16:30	15:04	03:24	12:31	02:05
Nov 21 (Sun)	05:25	05:55	20:17	20:47	☾	20:00	05:05	06:54	21:57	04:24	17:40	07:01	21:48	14:43	03:15	04:02	16:27	15:00	03:20	12:28	02:01
Nov 22 (Mon)	05:24	05:54	20:18	20:48	Full	21:02	05:47	06:55	21:59	04:22	17:37	07:00	21:48	14:39	03:11	03:58	16:23	14:56	03:16	12:24	01:57
Nov 23 (Tue)	05:24	05:54	20:19	20:49	☾	22:00	06:37	06:57	22:02	04:19	17:33	06:59	21:48	14:35	03:07	03:54	16:20	14:52	03:12	12:20	01:54
Nov 24 (Wed)	05:23	05:53	20:20	20:50	☾	22:52	07:35	06:58	22:04	04:16	17:30	06:58	21:47	14:31	03:03	03:51	16:16	14:48	03:08	12:16	01:50
Nov 25 (Thu)	05:22	05:53	20:21	20:52	☾	23:37	08:39	07:00	22:06	04:14	17:27	06:57	21:47	14:27	03:00	03:47	16:13	14:44	03:04	12:12	01:46
Nov 26 (Fri)	05:22	05:52	20:22	20:53	☾	D.N.R.	09:47	07:01	22:08	04:11	17:24	06:56	21:46	14:24	02:56	03:43	16:09	14:40	03:00	12:08	01:42
Nov 27 (Sat)	05:21	05:52	20:23	20:54	☾	00:17	10:56	07:02	22:10	04:09	17:21	06:55	21:46	14:20	02:52	03:40	16:06	14:36	02:56	12:04	01:38
Nov 28 (Sun)	05:21	05:51	20:24	20:55	☾	00:52	12:06	07:04	22:12	04:07	17:18	06:54	21:45	14:16	02:48	03:36	16:02	14:32	02:52	12:00	01:34
Nov 29 (Mon)	05:20	05:51	20:25	20:56	L.Q.	01:24	13:15	07:05	22:13	04:04	17:16	06:53	21:45	14:12	02:44	03:32	15:59	14:28	02:48	11:56	01:30
Nov 30 (Tue)	05:20	05:51	20:26	20:57	☾	01:54	14:24	07:07	22:14	04:02	17:14	06:53	21:44	14:09	02:40	03:29	15:55	14:24	02:44	11:53	01:26

Full - Full Moon L.Q. - Last Quarter Moon New - New Moon F.Q. - First Quarter Moon D.N.R. - Moon Does Not Rise D.N.S. - Moon Does Not Set  
 Civil Twilight is calculated when the Sun is 6° below the horizon, and is practically marked as the beginning or end of the day's useable light. The first of the evening stars are visible at this time.



# Skywatcher: December's Rise & Shine Times

The following times are calculated for the Local Time at  
 The Briars Observing Facility: Latitude 38° 16' South, Longitude 145° 02' East.  
 These times can be used throughout the Mornington Peninsula and surrounding areas to within +/- 1 minute.

Date	☀ Sun		☾ Moon		♀ Mercury		♀ Venus		♂ Mars		♃ Jupiter		♄ Saturn		♅ Uranus		♆ Neptune				
	Civil Twilight Begins	Sunrise	Sunset	Civil Twilight Ends	Phase	Rise	Sets	Rise	Sets	Rise	Sets	Rise	Sets	Rise	Sets	Rise	Sets				
Dec 1 (Wed)	05:20	05:51	20:27	20:58	☾	02:24	15:34	07:08	22:14	04:00	17:12	06:52	21:44	14:05	02:36	03:25	15:52	14:20	02:41	11:49	01:22
Dec 2 (Thu)	05:19	05:50	20:28	20:59	☾	02:56	16:45	07:09	22:14	03:58	17:10	06:51	21:43	14:01	02:32	03:21	15:48	14:16	02:37	11:45	01:18
Dec 3 (Fri)	05:19	05:50	20:29	21:00	☾	03:31	17:56	07:09	22:14	03:56	17:08	06:50	21:43	13:57	02:29	03:17	15:45	14:12	02:33	11:41	01:15
Dec 4 (Sat)	05:19	05:50	20:30	21:01	☾	04:11	19:05	07:10	22:13	03:54	17:06	06:49	21:42	13:54	02:25	03:14	15:41	14:08	02:29	11:37	01:11
Dec 5 (Sun)	05:19	05:50	20:31	21:02	☾	04:58	20:11	07:10	22:12	03:52	17:05	06:49	21:42	13:50	02:21	03:10	15:38	14:04	02:25	11:33	01:07
Dec 6 (Mon)	05:19	05:50	20:32	21:03	New	05:50	21:10	07:10	22:10	03:50	17:03	06:48	21:41	13:46	02:17	03:06	15:34	14:00	02:21	11:29	01:03
Dec 7 (Tue)	05:18	05:50	20:33	21:04	☾	06:49	22:01	07:10	22:08	03:48	17:02	06:47	21:40	13:43	02:13	03:03	15:31	13:56	02:17	11:26	00:59
Dec 8 (Wed)	05:18	05:50	20:34	21:05	☾	07:50	22:43	07:08	22:05	03:46	17:01	06:47	21:40	13:39	02:10	02:59	15:27	13:53	02:13	11:22	00:55
Dec 9 (Thu)	05:18	05:50	20:35	21:06	☾	08:53	23:19	07:07	22:01	03:45	17:00	06:46	21:39	13:36	02:06	02:55	15:23	13:49	02:09	11:18	00:51
Dec 10 (Fri)	05:18	05:50	20:35	21:07	☾	09:54	23:50	07:05	21:56	03:43	16:59	06:45	21:39	13:32	02:02	02:51	15:20	13:45	02:05	11:14	00:47
Dec 11 (Sat)	05:18	05:50	20:36	21:08	☾	10:54	D.N.S.	07:02	21:51	03:41	16:58	06:45	21:38	13:28	01:58	02:48	15:16	13:41	02:01	11:10	00:43
Dec 12 (Sun)	05:18	05:50	20:37	21:08	☾	11:52	00:18	06:58	21:45	03:40	16:58	06:44	21:37	13:25	01:54	02:44	15:13	13:37	01:57	11:06	00:40
Dec 13 (Mon)	05:19	05:50	20:38	21:09	F.Q.	12:49	00:43	06:54	21:38	03:38	16:57	06:44	21:37	13:21	01:51	02:40	15:09	13:33	01:53	11:03	00:36
Dec 14 (Tue)	05:19	05:50	20:38	21:10	☾	13:46	01:07	06:49	21:30	03:36	16:56	06:43	21:36	13:18	01:47	02:37	15:06	13:29	01:49	10:59	00:32
Dec 15 (Wed)	05:19	05:51	20:39	21:11	☾	14:43	01:32	06:43	21:21	03:35	16:56	06:43	21:35	13:14	01:43	02:33	15:02	13:25	01:46	10:55	00:28
Dec 16 (Thu)	05:19	05:51	20:40	21:11	☾	15:42	01:58	06:36	21:11	03:33	16:56	06:42	21:35	13:11	01:39	02:29	14:58	13:21	01:42	10:51	00:24
Dec 17 (Fri)	05:19	05:51	20:41	21:12	☾	16:42	02:27	06:29	21:01	03:32	16:55	06:42	21:34	13:07	01:36	02:25	14:55	13:17	01:38	10:47	00:20
Dec 18 (Sat)	05:20	05:51	20:41	21:13	☾	17:45	03:00	06:21	20:51	03:30	16:55	06:41	21:33	13:04	01:32	02:22	14:51	13:14	01:34	10:43	00:16
Dec 19 (Sun)	05:20	05:52	20:42	21:13	☾	18:47	03:39	06:13	20:40	03:29	16:55	06:41	21:32	13:01	01:28	02:18	14:48	13:10	01:30	10:40	00:12
Dec 20 (Mon)	05:21	05:52	20:42	21:14	☾	19:47	04:26	06:04	20:29	03:28	16:55	06:40	21:32	12:57	01:25	02:14	14:44	13:06	01:26	10:36	00:09
Dec 21 (Tue)	05:21	05:53	20:43	21:14	Full	20:43	05:22	05:56	20:18	03:26	16:55	06:40	21:31	12:54	01:21	02:10	14:40	13:02	01:22	10:32	00:05
Dec 22 (Wed)	05:21	05:53	20:43	21:15	☾	21:33	06:25	05:47	20:08	03:25	16:55	06:39	21:30	12:50	01:17	02:07	14:37	12:58	01:18	10:28	23:57
Dec 23 (Thu)	05:22	05:54	20:44	21:15	☾	22:15	07:33	05:39	19:58	03:24	16:56	06:39	21:29	12:47	01:13	02:03	14:33	12:54	01:14	10:24	23:53
Dec 24 (Fri)	05:22	05:54	20:44	21:16	☾	22:53	08:44	05:31	19:49	03:23	16:56	06:39	21:28	12:43	01:10	01:59	14:29	12:50	01:10	10:21	23:49
Dec 25 (Sat)	05:23	05:55	20:45	21:16	☾	23:26	09:56	05:23	19:40	03:22	16:56	06:38	21:27	12:40	01:06	01:55	14:26	12:46	01:06	10:17	23:45
Dec 26 (Sun)	05:24	05:55	20:45	21:17	☾	23:57	11:07	05:16	19:33	03:20	16:57	06:38	21:26	12:37	01:02	01:51	14:22	12:43	01:03	10:13	23:42
Dec 27 (Mon)	05:24	05:56	20:45	21:17	☾	D.N.R.	12:16	05:10	19:26	03:19	16:57	06:38	21:25	12:33	00:59	01:48	14:18	12:39	00:59	10:09	23:38
Dec 28 (Tue)	05:25	05:57	20:46	21:17	L.Q.	00:27	13:26	05:04	19:20	03:18	16:57	06:38	21:25	12:30	00:55	01:44	14:15	12:35	00:55	10:05	23:34
Dec 29 (Wed)	05:26	05:57	20:46	21:17	☾	00:58	14:35	04:58	19:15	03:17	16:58	06:37	21:24	12:27	00:51	01:40	14:11	12:31	00:51	10:02	23:30
Dec 30 (Thu)	05:26	05:58	20:46	21:18	☾	01:32	15:45	04:53	19:11	03:16	16:59	06:37	21:23	12:23	00:48	01:36	14:07	12:27	00:47	09:58	23:26
Dec 31 (Fri)	05:27	05:59	20:46	21:18	☾	02:09	16:53	04:49	19:08	03:15	16:59	06:37	21:22	12:20	00:44	01:33	14:04	12:23	00:43	09:54	23:22

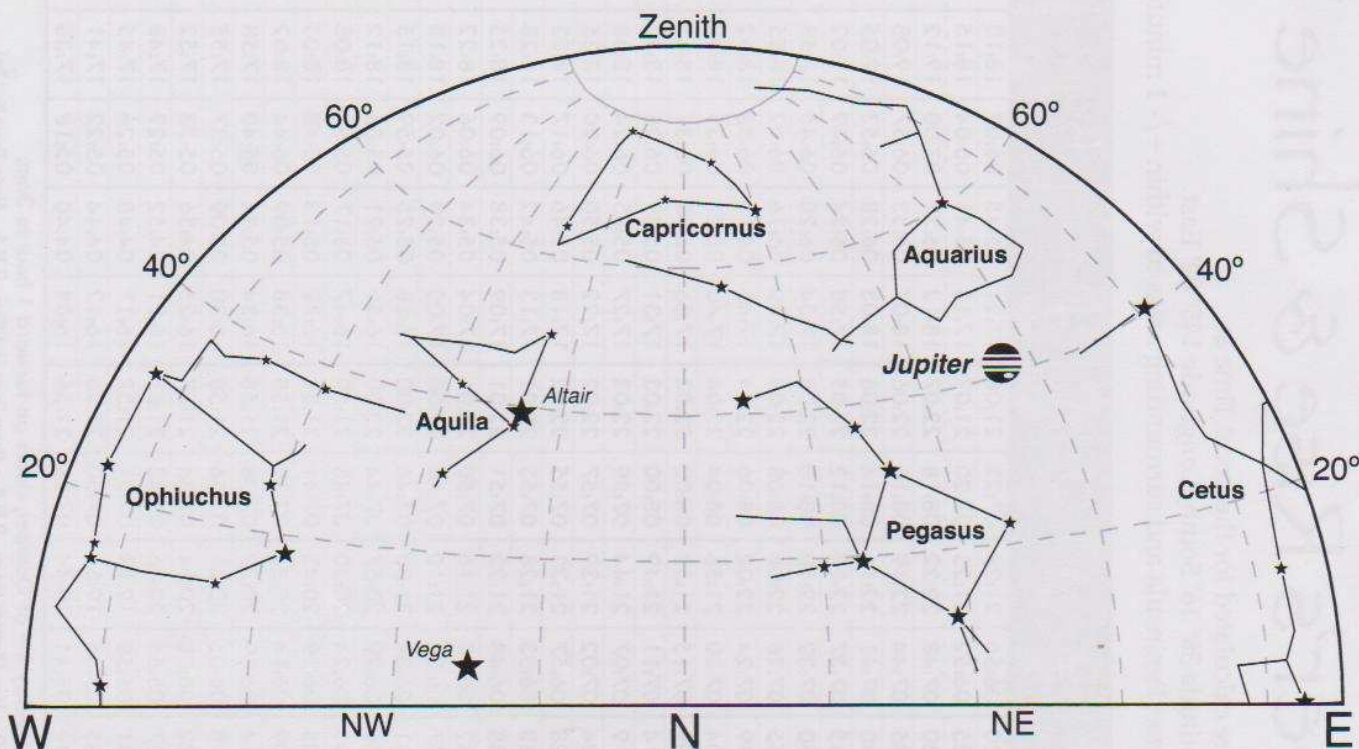
Full - Full Moon L.Q. - Last Quarter Moon New - New Moon F.Q. - First Quarter Moon D.N.R. - Moon Does Not Rise D.N.S. - Moon Does Not Set  
 Civil Twilight is calculated when the Sun is 6° below the horizon, and is practically marked as the beginning or end of the day's useable light. The first of the evening stars are visible at this time.



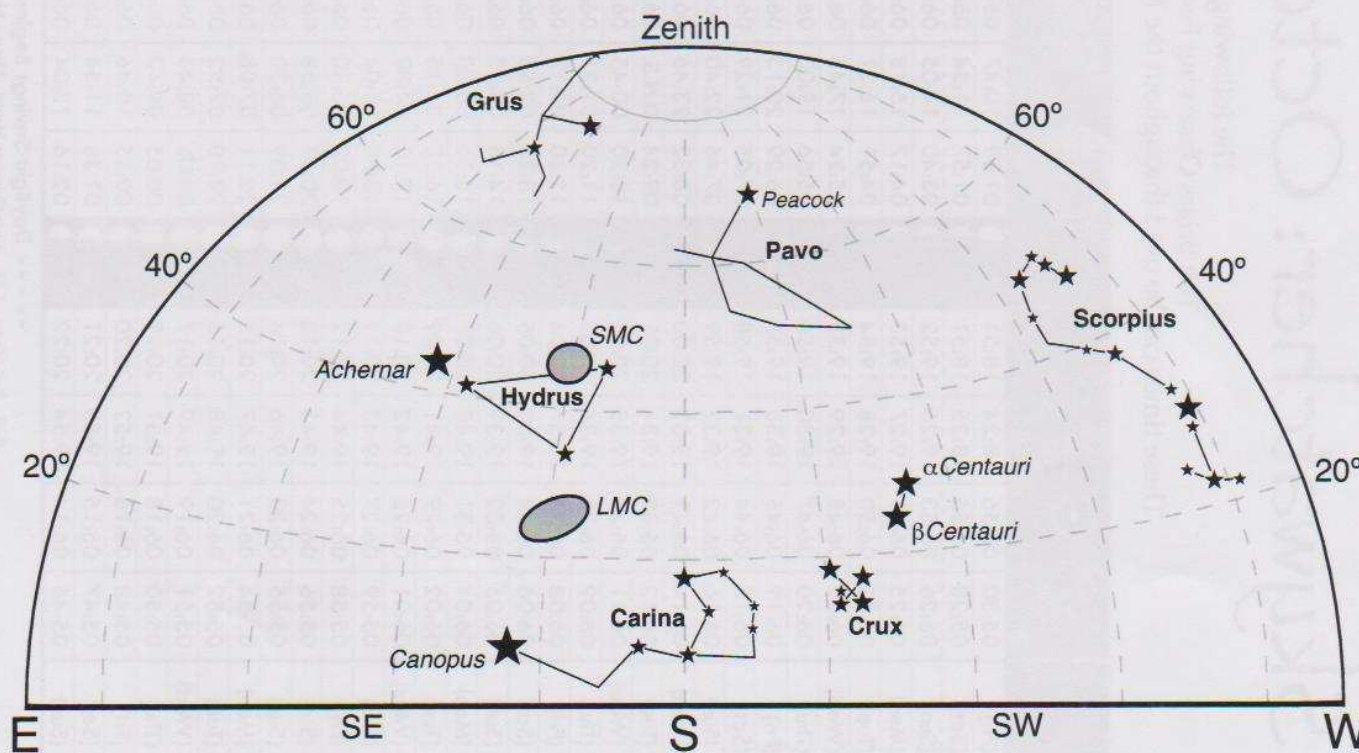
# Skywatcher: In the October Sky

The following hemispherical positionals for October is calculated for The Briars Observing Facility, at approximately 10:00pm Eastern Daylight Savings Time. This can be used throughout October along the Mornington Peninsula and surrounding areas.

## Looking North



## Looking South

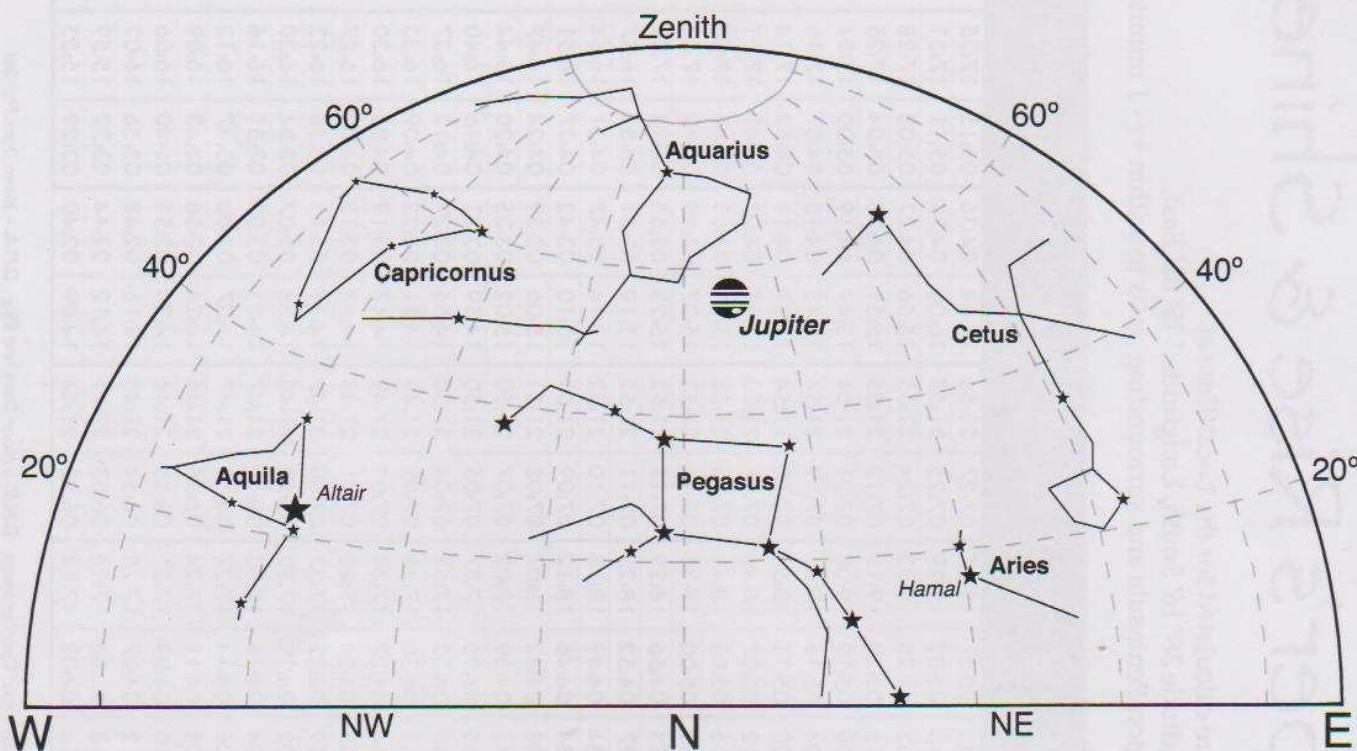




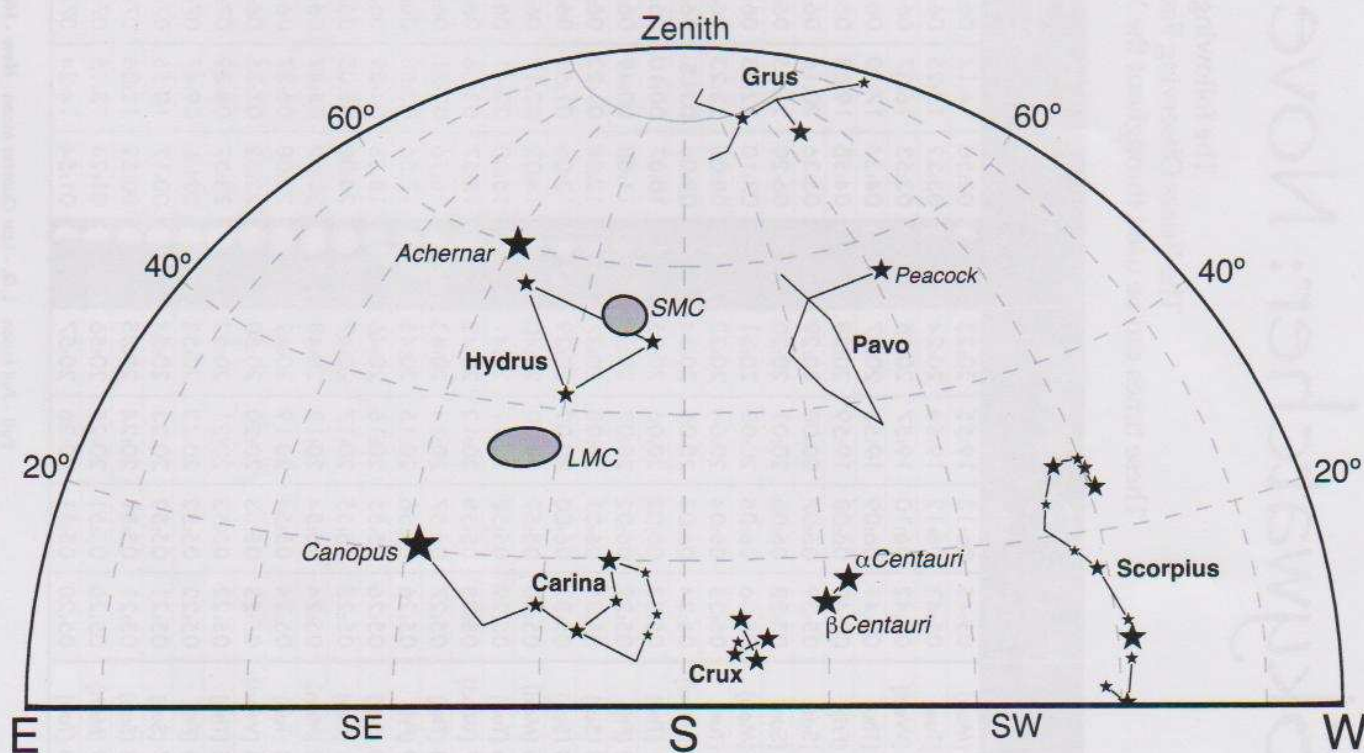
# Skywatcher: In the November Sky

The following hemispherical positionals for November is calculated for The Briars Observing Facility, at approximately 10:00pm Eastern Daylight Savings Time. This can be used throughout October along the Mornington Peninsula and surrounding areas.

## Looking North



## Looking South

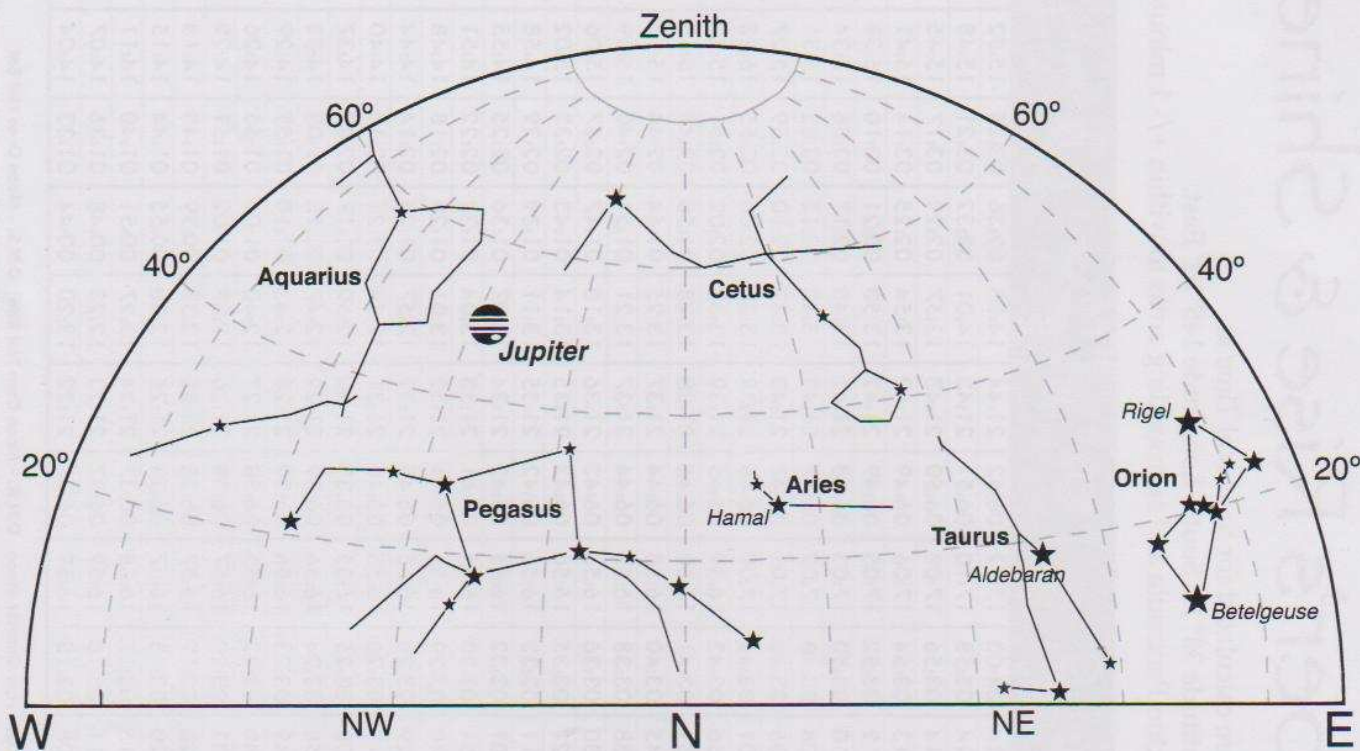




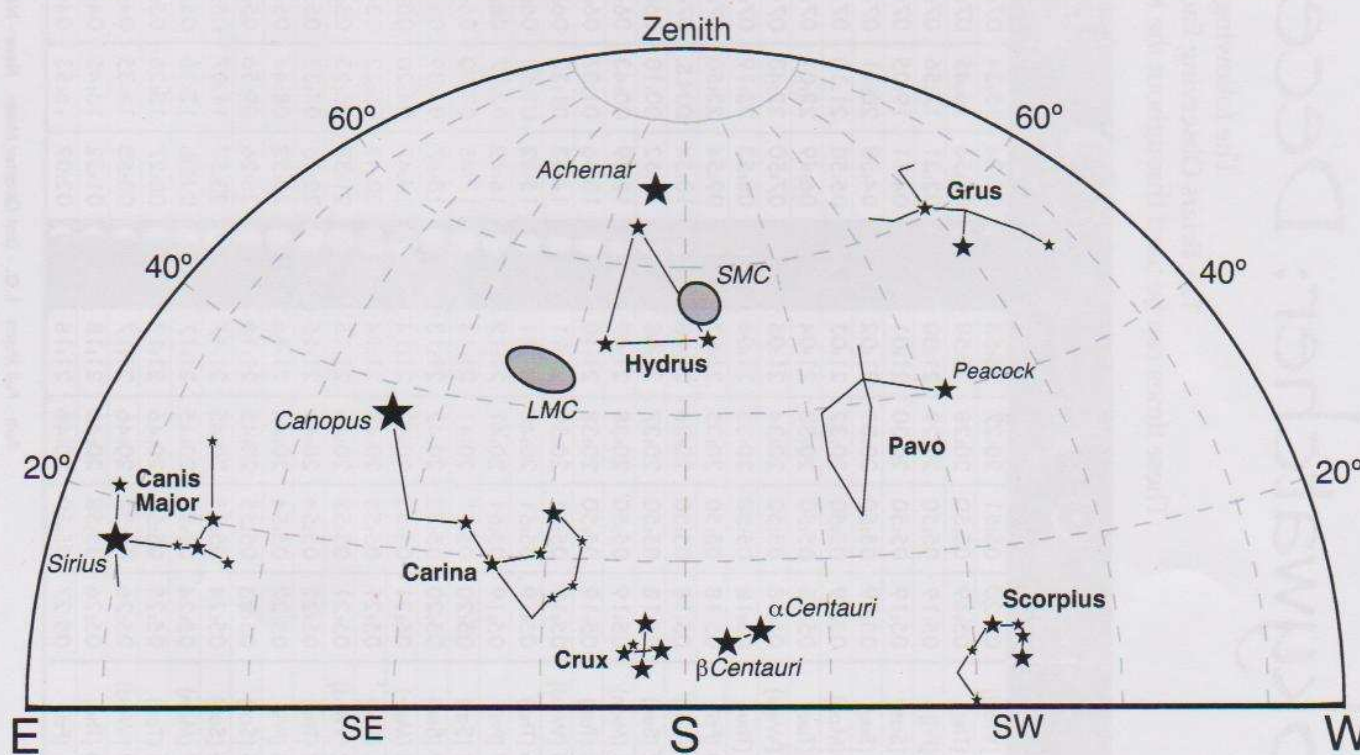
# Skywatcher: In the December Sky

The following hemispherical positional for December is calculated for The Briars Observing Facility, at approximately 10:00pm Eastern Daylight Savings Time. This can be used throughout October along the Mornington Peninsula and surrounding areas.

## Looking North



## Looking South





Briars Pentax ist 18Lens ISO200 10sec No editing  
By Greg Walton 31oct09



Briars Pentax ist 18Lens ISO200 10sec  
By Greg Walton 31oct09







Éta Carina LMDSS 8"Newton AG Pentax K-x 12x30sec 6400iso By Greg Walton MPAS/ASV 14jun10 No editing



Eta Carinae Pentax K-x MPAS 18inch 2x10sec iso6400  
No editing By Greg walton 17Feb10 Briars

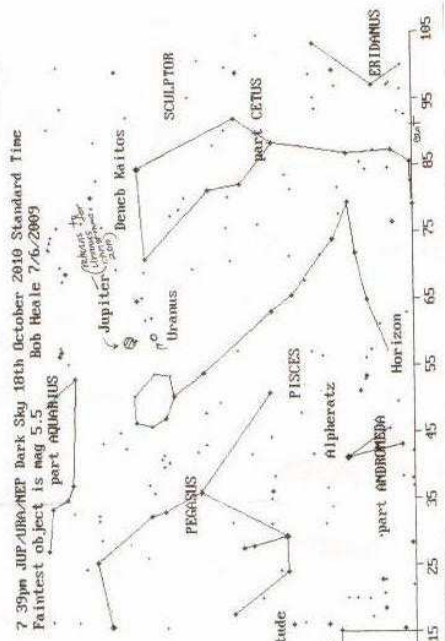
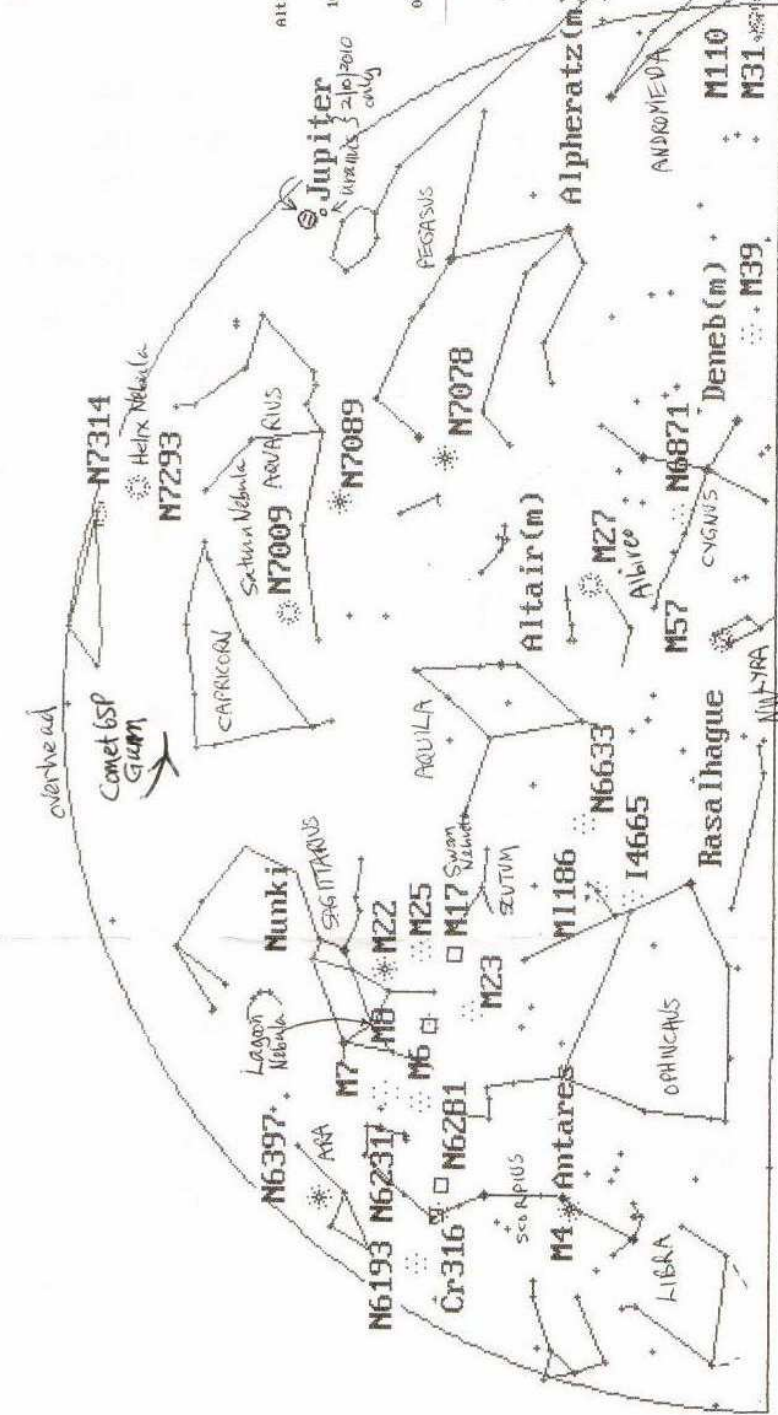
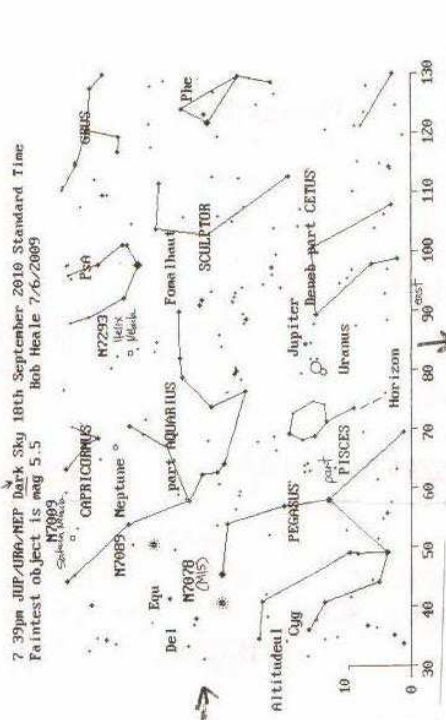
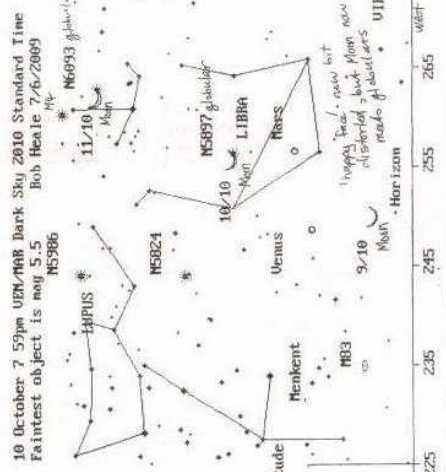
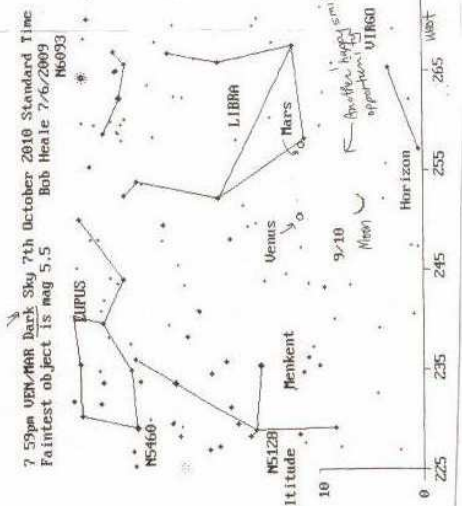


Flame Orion Briars MPAS 18inch 8x10sec iso6400

By Greg Walton 19dec09



SKY FOR THE MONTH 15<sup>TH</sup> SEPTEMBER TO 19<sup>TH</sup> OCTOBER 2010 MORNINGTON PENINSULA 38°16'S 145°02'E



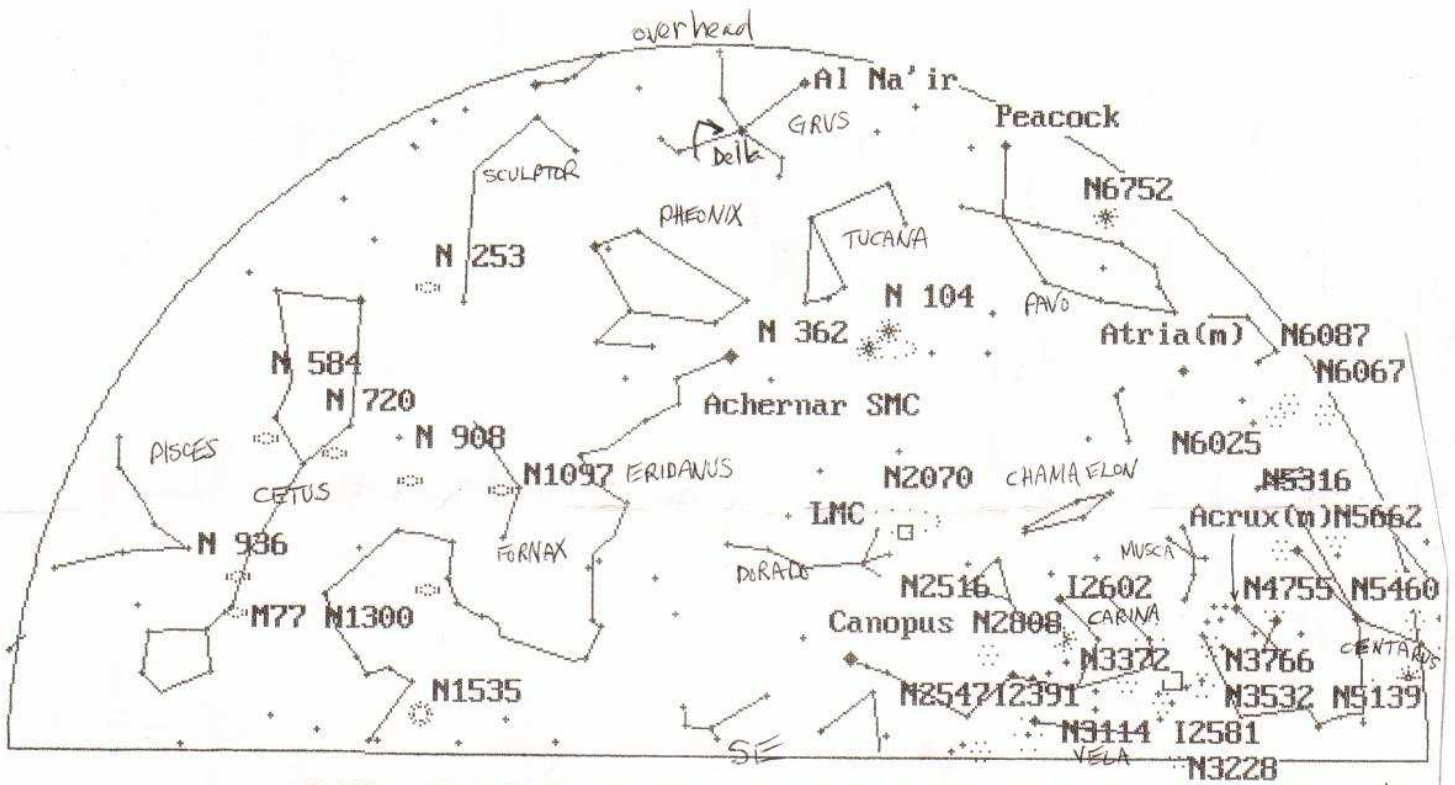
Bob Heale  
MPAS  
11/9/2010

10''

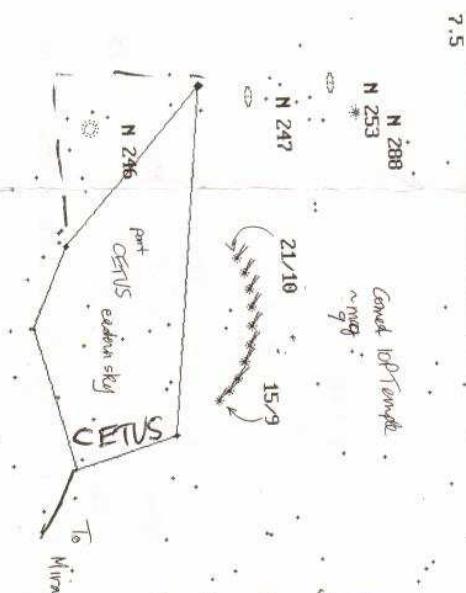
orange mag 3.1  
light blue mag 5.1

Albireo (Alpha Cygni)

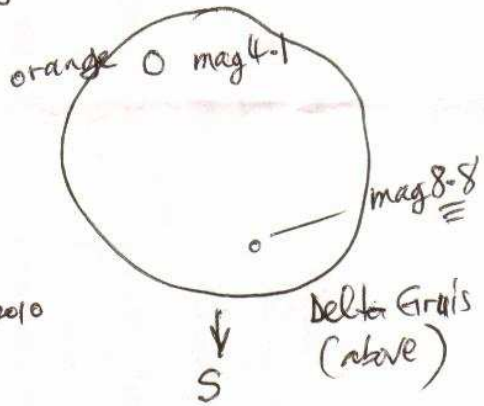
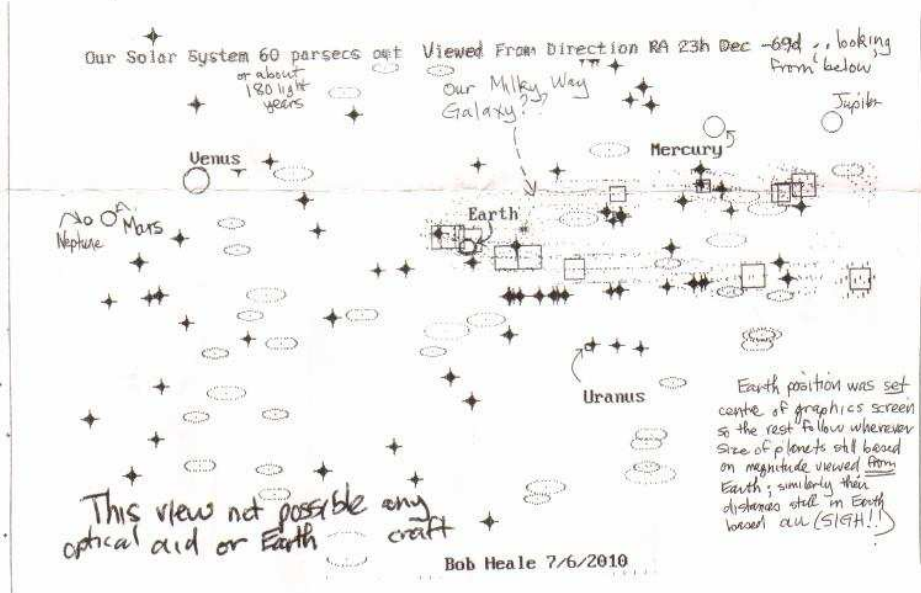




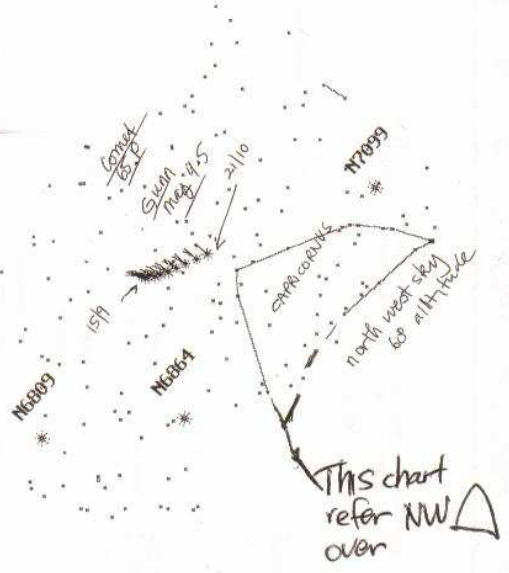
9 33pm 2nd October South East Dark Sky 2010 Standard Times, also  
 10 33pm 18th September 2010 and 8 23pm 19th October 2010



This chart, refer directly above



Bob Heale  
 MPAS 11/9/2010



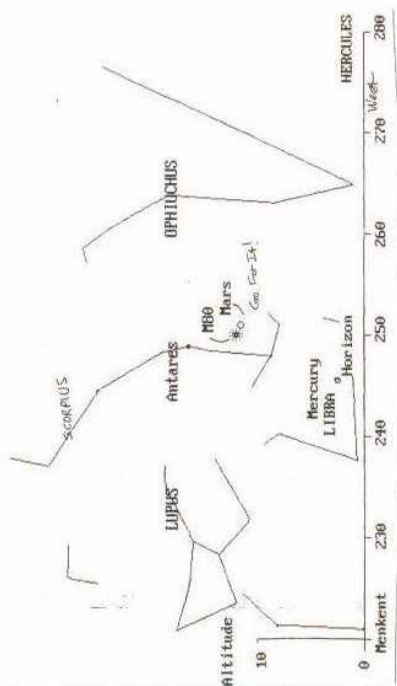
This chart refer NW over



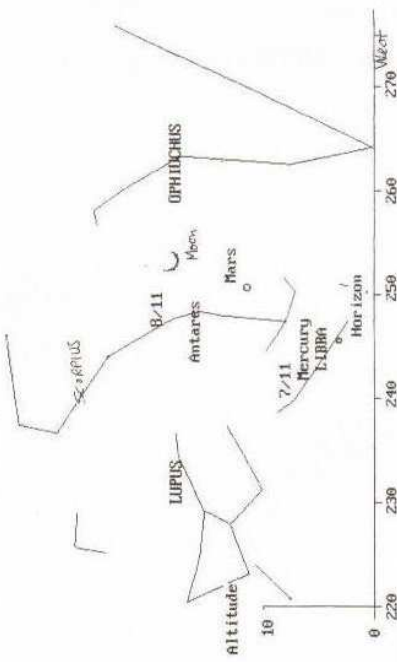
SKY FOR THE MONTH 20<sup>TH</sup> OCTOBER TO 16<sup>TH</sup> NOVEMBER MORNINGTON PENINSULA 2010

145° 02' east  
38° 16' south

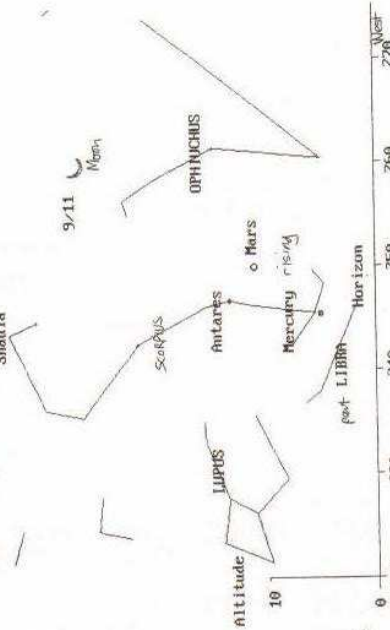
7 22pm MAR/MER 1/2 Bright Sky 6th November 2010 Summer Time  
Faintest object is mag 2.5  
Bob Heale 7/6/2009



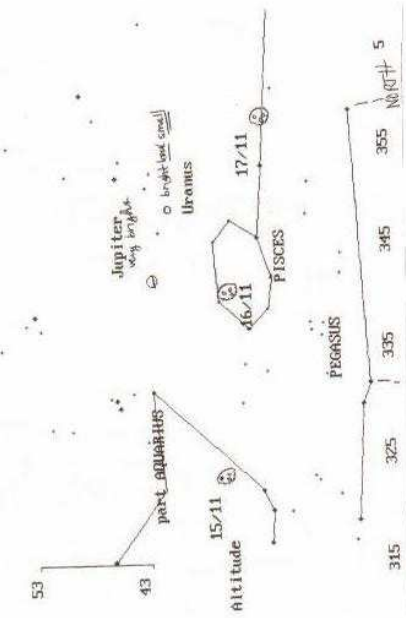
8 45pm MER/MAR 1/2 Bright Sky 7th November 2010 Summer Time  
Faintest object is mag 2.5. haula/Bob Heale 7/6/2009



10 November 8 46pm MER/MAR 1/2 Bright Sky 2010 Summer Time  
Faintest object is mag 2.5  
Shaula



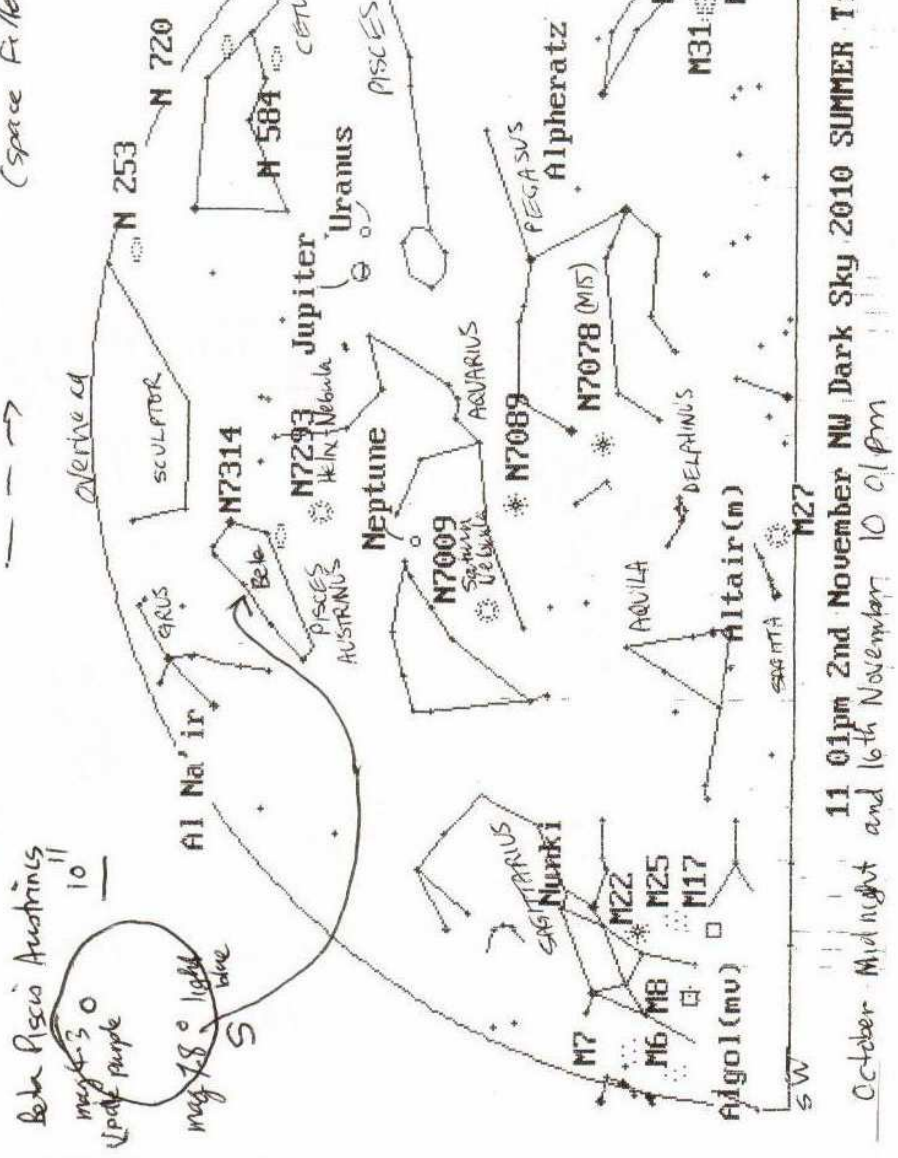
21 56pm JUP/JUR Dark Sky 16th November 2010 Summer Time  
Faintest object is mag 5.5  
Bob Heale 7/6/2009



I won't mention that there are  
NO brighter comets near Earth - see  
system; the media are raving about  
one similar to Earth extra solar planet  
Apo(m) Gliese 581d, 20 light years away  
Shall we all rush? It's actually  
one of 6 near 581 Librae. The  
Universe is not pleased with Earth.

(Space filler)

Bob Heale  
18/10/2010  
MPAS



Bela Piscis Austrinus  
mag 3.0  
light purple  
mag 7.8° light blue

11 01pm 2nd November NW Dark Sky 2010 SUMMER Times, 10.10.10  
October Mid night and 16th November 10.01pm



