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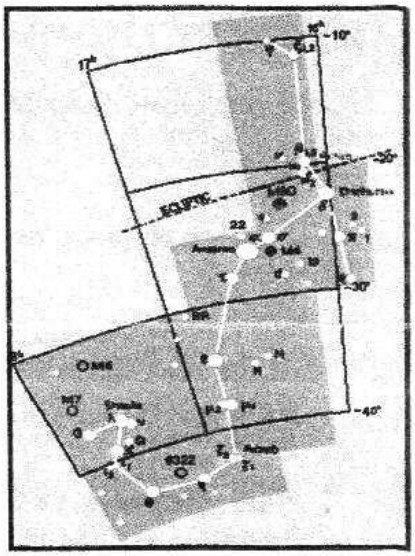
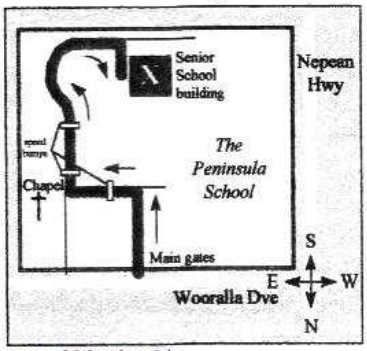


The Mornington Peninsula Astronomical Society (formerly the Astronomical Society of Frankston) was founded in 1969 with the aim of fostering the study of Astronomy by amateurs and promoting the hobby of amateur Astronomy to the general public. The Society holds a General Meeting each month for the exchange of ideas and information. Regular observing nights, both private and public, are arranged to observe currently available celestial objects. For decades the Society has provided *Astronomy on the Move* educational presentations and observing nights for schools and community groups exclusively in the Peninsula and surrounding regions to Moorabbin, Dandenong & Tooradin.

Meeting Venue: *Peninsula School*, Wooralla Drive, Mt. Eliza (Melways map 105/F5) in the Senior School at 8pm on the 3rd Wednesday of each month except December.
Phone: 0419 253 252 Mail: P.O. Box 596, Frankston 3199, Victoria, Australia
Internet: http://www.mpas.websyte.com.au
E-mail: skywatch@iprimus.com.au

Visitors are always welcome!



Annual Membership

Full Member	$50
Pensioner	$45
Student	$35
Family	$65
Family Pensioners	$60
Newsletter Only	$22
Organisation	$70

Due 1st Jan Each Year

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Committee of Management:
Peter Skilton, Don Leggett.

The public officer is Rhonda Sawosz.

All calls after hours and pre- 8:30pm please.

Future Events

General Meetings:

WED 15 September 2004 at the Peninsula School.
Session 1: Session 2: Video: Big G Gravity **Session 3:** Open Forum and Sky for the Month.

The Library will be open at General Meetings from 7:15pm to 7:55pm and again during the tea break.

Viewing Nights

Members Only:

FRI 3rd/SAT 4th, FRI 10th/SAT 11th, FRI 17th/SAT 18th, FRI 24th/SAT 25th September,

FRI 8th/SAT 9th, FRI 15th/SAT 16th, FRI 22nd/SAT 23rd October, all at The Briars, Nepean Hwy, Mt. Martha.

New attendees can contact **John Cleverdon on 5987 1535** if assistance is required, or by calling the **Briars mobile on 0408 127 443.** Remember for security reasons you can only attend on planned Members' Nights, unless by prior arrangement with John who will liaise with *The Briars* accordingly. Last person out must switch on the shed security light. ***All attendees must sign the visitors' book in the observatory for insurance reasons.***

* Remember the Society's **8-inch telescope, 80mm refractor, and binoculars** are available for loan to financial members. **Contact Richard Pollard on 0419 100 802,** or speak to him at a Society function, to arrange the loan of the equipment.

Public, School & Community Groups Viewing/slide nights

Mornington Peninsula Astronomical Society

SEPTEMBER

Wed 8th. Mt. Eliza Primary School, 53 X 11yr olds. 4 scopes needed.

OCTOBER

Wed 6th. Padua College. LOCATION NOT YET CONFIRMED. (EITHER Rosebud or Mornington Campus) 60-100 13 year olds.

NOVEMBER

Tuesday 9th. Rye Primary School. Approx. 50 X 10-11y. olds. 4 scopes needed.

If you can assist, please contact the Secretary.

The once-a-month basic public viewing nights at *The Briars* will continue on the *first Friday of each month.*

The next nights are **FRIDAY 3rd September and FRIDAY 1st October**, all at 8pm.

Welcome to the following new Society member(s):

Danny Irani
Campbell Jackson
Debbie Riley and family
Norman Taylor
Carol Willey
Michael Wishart and family

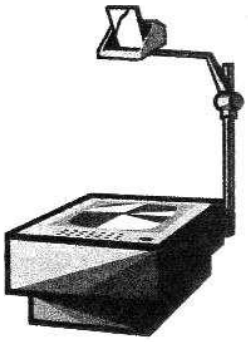
Current number of members is 169.

Recent Events

General Meeting Report – July
Volcanism in the Solar System.

I have this theory of climate that the general seasonal intensities are influenced by where we are in the Sun spot cycle. This year I was expecting a long, summery autumn and a short, sharp winter. The July's general meeting seems to have been a casualty of our short, sharp winter and we saw the smallest turn out of members for some years with only 35 members attending. The highlight of the evening was a lecture given by our guest speaker Dr George Elliston who presented a fascinating insight of Solar System volcanism.

Dr. Elliston explained how volcanism works and its various manifestations on Earth. Later in his talk he shows how Earth is unusual because we have our Moon. Volcanism relies upon the molten core materials finding a path to the surface.



On Mercury, very little if any volcanism has been observed. The surface seen so far consists of the original impact surface created during the planet's formation. Mercury's crust is thought to be too thick for the molten core reaches the surface and the planet has basically cooled beyond the ability to sustain volcanism.
Mars is more massive than Mercury and thus has a bigger core of molten materials. The Martian crustal thickness is assumed to also be reasonable thick, about 200km and the core material has difficulty breaking through to generate volcanoes. The core is not sufficiently active to break the crust into plates and so we just see singular shield volcanoes. These are volcanic break throughs that persist at one location and eventually create gigantic volcanoes such as Olympus Mons. Mars in effect has a single crustal plate. The Martian core has now cooled to the point where further volcanism is unlikely.
Venus is a sort of Martian version of Earth. Venus has a similar mass to Earth but has a much thicker crust, thought to be about 300kms compared with Earth's 30kms. The Venusian core is probably as hot and as active as the Earth's but breaking through that crust is difficult. Venus certainly has numerous volcanoes but they seem to be more Martian-like. The Venusian crust does not seem to show crustal plates. Interestingly there does not seem to be any old crustal material on Venus. It appears the entire planetary surface has been re-cycled in geologically recent times. This may be an aspect of planetary volcanism that if the planet is massive enough and has a thick crust then when volcanoes occur their eruptions might actually turn the entire planetary surface over. Think about it!!
The Earth however is different. It has a relatively thin crust because it is thought the crustal material was blown off during the formation of the Moon. The Moon is believed to have formed when a Mar sized planetoid collided with the Earth at a glancing blow. During the collision the core from the colliding body sank and coalesced with the Earth's core whilst the crustal material was blasted off into space. Most of this crustal material left the Earth but a small proportion settled into orbit and eventually coalesced into the Moon. This left the Earth short of crustal material and has had a significant effect on the types of volcanoes we see here on Earth.
Core material is capable of breaking through the thinner crust and the Earth's crust is broken up into numerous crustal plates. These plates are pushed and pulled about by the underlying lava flows.
At the plate boundaries we see eruptive volcanoes, mid-ocean ridge volcanoes and the larger shield type volcanoes. The Earth's crust is constantly being re-cycled and has the effect of purging the carbon out of the atmosphere. Without this active and continuous volcanism, Earth would probably be more Venus-like with a carbon dioxide atmosphere and life might not have got started. So we have the classic Goldie Lock scenario. Mars and Mercury are too small, Venus is too thick and Earth is just right.
I found the talk absolutely fascinating and a perfect match of astronomy and geology.

Peter Lowe

General Meeting Report – Aug
The Square Kilometre Radio Telescope

The Olympic men's swimming events seems to have overshadowed the August meeting and we saw another low attendance.
Dr Steve Tingay of the Centre for Astrophysics and Supercomputing gave a detailed lecture on the current state of play with radio telescope designs and their limitations. Radio is at the long wavelength end of the electromagnetic spectrum and as such severely limits the resolving capabilities of a single receiving dish.
This has been partly resolved, if you'll pardon the pun, through the use of very long baseline interferometry in which several widely spaced radio telescopes

can emulate a much bigger instrument. While this certainly works, it is limited by insufficient collecting area and adequate spacings between radio dishes to collect enough measurements.
What is needed is a single instrument capable of filling in these spacings and having a large enough collecting area, hence The Square Kilometre Radio Telescope project.
Like the Olympics, an international competition is currently underway to design a suitable instrument to be funded internationally. The aim is to build an instrument with a collecting area of one square kilometre and a resolving power of a continent sized antenna. This is 100,000 the current global capabilities.
The Chinese favour single large radio dishes constructed within suitable mountain ranges. The American/Canadian's propose a series of collector dishes focused upon a single receiver held high above them, suspended from giant balloons. The Australians are proposing an array of high-tech antenna spread out across the country. Located in West Australia, the antenna array would steadily spiral out right across to the East coast.
The instrument would allow astronomers to monitor thousands of pulsars, radio galaxies, quasars and most importantly offers the possibility of looking back into the "Dark Ages", that time just after the big bang when matter and radiation had not yet separated and stars could not have formed.
The final instrument selection is not expected until next year and then starts the challenge of getting the funding, estimated at 1-2 billion US dollars.
Following the main lecture Bob Heale gave the "Sky for the Month" presentation and Ian Sullivan finished with an astro-quiz.

Peter Lowe

Briars Public Nights

The monthly public viewing nights are increasing in popularity despite the often less than ideal viewing conditions over winter. We regularly fill the room and what began as a summer activities campaign has turned into a fantastic source of income and new members.

Usually this journal reports on each night, but as the crowds are constant and contributors are the same, one report is much like the other, so in future, one wrap up will cover both events.

It's been a few months since we introduced the Powerpoint shows and they have been very well accepted by everyone. We now have the show , a meteorite for hands-on astronomy, glow sticks for the kids (unfortunately someone who shall remain nameless dropped the container, setting off a few sticks in the process!) and of course, the scope time.

These nights would be impossible without the on-going assistance of the following members: **Don Leggett** for taking the cash and playing tea lady, **Peter Lowe** for supplying the laptop, **Roger Chandler** and **Ian Sullivan** for their general helping out, **Greg Walton, Bob Heale** and **John Cleverdon** for supplying scopes on a regular basis.

On August 20th at The Briars, specifically for National Science Week, MPAS held a special public night, which was attended by 52, with no cloud. **Richard Pollard** and **Peter Lowe** presented the multimedia talk, followed outside by telescope viewing. Thanks in the field to **Don Leggett, Peter Skilton, Bruce Tregaskis, Norm Taylor, Roger Chandler, Ian Sullivan** and prospective new member **Kev.**

ASTRONOMY 2005

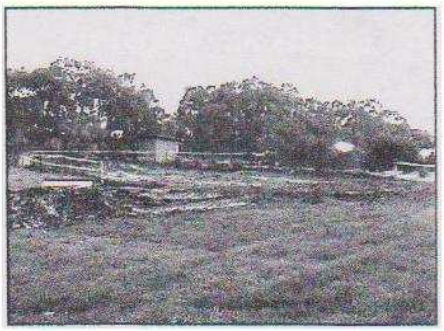
Time to book your copy of Astronomy 2005.

We need to get our bulk order in soon for the Astronomy 2005 book. If you would like to book your copy please see one of the committee members at the general meeting or send an e-mail to convenor@NACAA.org.au

BRIAR CONSTRUCTION STARTS

The next stage in our development of the Briars facilities has started with the excavations for the general-purpose building and toilet block. The first stage of this building will be a 9m x 12m shed with a 3m x 9m veranda extension. A three cubical toilet building will be attached at the southwest end. The building will eventually house a storage area for members and society instruments plus a general workroom. We hope to use this workroom for speciality group meetings or short training sessions. It of course also functions as the "wimps" room for those who prefer to comfort of a warm room on a cold viewing night. Additionally the observing platforms will be doubled in size to provide members with more observing space. We have yet to name the building. I prefer to call it "The All Weather Facilities", other just call it the "Big Shed". I expect we will give it a formal name at an opening ceremony. If you can think of a suitable name please send it in. We plan to have the building (at least) completed for Christmas. Any further developments will depend upon our available funds. Unfortunately the power and water has had to be cut from the site however a temporary supply has bee set up. When the building facilities are completed the next stage will be housing for the various society telescopes.

Peter Lowe



Flares are Back in Style

Before you star rummaging in the attic for your snazzy threads from the 70's, the flares I'm referring to are the Iridium flares that light up the night sky most evenings and mornings.

What is an **Iridium flare**?

A 'flare' is a light, initially dim, but over a few seconds rapidly brightens before fading just as fast. Depending on your location, these flares can reach magnitude –8, far brighter than Venus!

They have been known to cause an influx of calls to UFO hotlines and emergency services worldwide.

Why ***Iridium?***

The **Iridium** network is a 'constellation' of mobile phone satellites launched in the late 90's. There are currently 66 operational satellites orbiting in a grid 780km above the Earth.

These satellites have highly polished antennae and a flare is produced when an antenna catches the sun and reflects the light back to us on the ground.

The position of the Sun, satellite and observer can be calculated so these flares can be predicted with exceptional accuracy. The width the flare path is often very narrow, so someone in Frankston may see a flare but that same flare would not be seen from Mornington.

Fortunately, thanks to the Internet, you can get all the necessary information to view flares from your backyard.

The best website for this is Heavens Above, at, not surprisingly, www.heavens-above.com .

Here's how it works…

1. **Register at the website.** You don't have to, but it allows you to store your location and any other observing sites for easy reference.
2. **Select your location.** If you know your latitude and longitude, fine, but most people (like me) choose their location from the massive database. You can select right down to your suburb.
3. **Choose your subject.** You can get predictions for Iridium flares, the International Space Station, in fact, most satellites for your location, or you can just choose those over Mag 3.5.

On the back page, I have selected some of the brighter evening flares visible from **Mount Martha** over the next two months. Here's how to read the table:

DATE and ***TIME*** are self-explanatory; ***Mag*** is the brightness from Mt Martha itself, ***Alt*** is the altitude above the horizon… 0 is on the horizon, 10 is low, 90 is overhead. ***Azimuth*** is the direction: 0 is north, 90 is east, 180 is south and 270 is west: i.e. an azimuth of 160 is just east of south. ***Distance to flare centre*** is how far (and, usually which direction) to the flare's brightest point with ***flare centre mag*** being its brightness at that point. Finally ***Sat number*** denotes which of the Iridium satellites is creating the flare.

Two flares are highlighted: These two are **only 20 seconds apart** in the same spot and will make for an excellent photograph or video. Anyone wanting to do this, contact me and I'll demonstrate the procedure.

Cheers, Richard Pollard

Mid winter Observers Report

Hello,
It has been a long and wet winter so far, down here in Southern central Victoria. Saturday 14 August was no exception. As I watched a game of football on TV, I looked outside with rain dumping down and thought I wonder when the next time I will get under the stars. Sunday 15 August dawned cold and clear, I thought, " wow that's a change". Through the day cloud came and went and by around 4 pm it was very clear. I rang my friend Mark at times through the day and said how unlikely that we could get to observe after such a bad day yesterday.
I also had just purchased 2 new eyepieces. You know the story… new scope equipment only means more rain. So with very clear skies I just could not give up this chance to observe even if I had to get up early for work. So I rang Mark and he agreed lets do some observing.

So I turned up at our observing location, and Mark was all ready under way setting up. Mark has a Meade 14 inch LX 200 GPS. Very nice scope! It was still twilight but getting dark quick. I have a 10 inch LX 200 GPS. So as we set up it looked very promising, Very clear with stars that I had not seen for a while emerging quickly. I was keen to get going. With my scope I use my laptop running Cartes du Ciel.
This programme is great and works very nicely with the Meade. I wanted to observe C/2003 K4 Linear. Comet on screen… press "Go To"…look in My Tele Vue 32 mm Wide field. Bingo… very nice comet. Not as bright as I thought but very prominent coma with a hint of tail.
Mark had his mighty 14, which I'll call big M! up and ready. He commented to me that it looks like cloud coming in! I said "What!"
As I looked up I just smiled and said " No that's the Milky Way"! This is going to be a good night.

So with that Mark said I have to go and have dinner with the family for an hour or so. No problem I look after things here. Heh Heh. Me in control of 2 Meads Big M and Little M. Have a nice dinner and I will see you later. Now, what's a person to do?
Well, I put Marks 31 mm Nagler in the Big M and had the 32 mm in mine. I looked up and said Globular time. So of I went for over an hour going to the different Globulars In Sagittarius. I went for the smaller ones and boy, Big M really shows of on these. My advice: don't look through a big scope with your smaller one next to it. Well, I can't lift Big M so little M will have to do. I wont go through all the globulars that I saw (how long is this story going to be) but to say wow wow and wow.
I left Big M for a while and wanted to test my new eyepieces. A Tele Vue 12 mm Nagler type 4. A Meade 8.8 mm UWA. I went for small globulars and was very satisfied with my results. Both eyepieces worked to my expectations excellently. The eye relief, fields of view were just fantastic.
Mark arrived back and took his Big M and a tonight's best tour. 31 Nagler in scope some of those views were beyond explaining!
I concentrated my efforts in Capricornius. With a peek through Big M from time to time, I was mainly observing double stars which I like doing.
Cartes gives you plenty to choose from just click on a double. Read about it and if it sounds interesting "Go To" it and enjoy.

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After a while I said "Hey I haven't looked at Neptune for some time and Uranus either".
So onto Neptune, (well that's a great view) more power 288x in Little M and 395x for Big M. Fantastic. What's that speck?
Not 100% sure, but I would say that's Triton. Also a very faint star near as well. Yearbook showed it was Triton very faint but steady.
Uranus was also fantastic… very steady image at most magnifications. Uranus seemed almost 3D like.
Sky transparency was as good as I have seen it down here. Also the seeing was very good also.
With all this observing all of a sudden the cold sprang on us and I realised I was freezing!
So, in for a hot coffee and tea and biscuits.
After 5 hours time the cold had gotten to us. One last look at, I know how about 3 very nice Galaxies together.
Yes, NGC 7582,7590 and 7599.
In Grus, if you're a Galaxy hunter these would have to rank high among your favourites, they do with me.

So we ended there and even if it has been a cold and miserable winter so far this night was worth the wait.

Clear Skies.
Dave Girling.

SpaceNews

ESA Considers The Next Step In Assessing The Risk From Near-Earth Objects

Paris (ESA) Jul 15, 2004

On 9 July 2004, the Near-Earth Object Mission Advisory Panel recommended that ESA place a high priority on developing a mission to actually move an asteroid. The conclusion was based on the panel's consideration of six near-Earth object mission studies submitted to the Agency in February 2003.
Of the six studies, three were space-based observatories for detecting NEOs and three were rendezvous missions. All addressed the growing realisation of the threat posed by Near-Earth Objects (NEOs) and proposed ways of detecting NEOs or discovering more about them from a close distance.

A panel of six experts, known as the Near-Earth Object Mission Advisory Panel (NEOMAP) assessed the proposals.

Alan Harris, German Aerospace Centre (DLR), Berlin, and Chairman of NEOMAP, says,

"The task has been very difficult because the goalposts have changed. When the studies were commissioned, the discovery business was in no way as advanced as it is now."

"Today, a number of organisations are building large telescopes on Earth that promise to find a very large percentage of the NEO population at even smaller sizes than visible today."

As a result, the panel decided that ESA should leave detection to ground-based telescopes for the time being, until the share of the remaining population not visible from the ground becomes better known.

The need for a space-based observatory will then be re-assessed. The panel placed its highest priority on rendezvous missions, and in particular, the Don Quijote mission concept.

"If you think about the chain of events between detecting a hazardous object and doing something about it, there is one area in which we have no experience at all and that is in directly interacting with an asteroid, trying to alter its orbit," explains Harris.

The Don Quijote mission concept will do this by using two spacecraft, Sancho and Hidalgo. Both are launched at the same time but Sancho takes a faster route.

When it arrives at the target asteroid it will begin a seven-month campaign of observation and physical characterisation during which it will land penetrators and seismometers on the asteroid's surface to understand its internal structure.

Sancho will then watch as Hidalgo arrives and smashes into the asteroid at very high speed. This will provide information about the behaviour of the internal structure of the asteroid during an impact event as well as excavating some of the interior for Sancho to observe.

After the impact, Sancho and telescopes from Earth will monitor the asteroid to see how its orbit and rotation have been affected.

Harris says, "When we do actually find a hazardous asteroid, you could imagine a Don Quijote-type mission as a precursor to a mitigation mission. It will tell us how the target responds to an impact and will help us to develop a much more effective mitigation mission."

On 9 July, the findings were presented to the scientific and industrial community. Representatives of other national space agencies were also invited in the hope that they will be interested in developing a joint mission, based around this concept.

Andrés Galvez, ESA's Advanced Concepts Team and technical officer for the NEOMAP report says, "This report gives us a solid foundation to define programmatic priorities and an implementation strategy, in which I also hope we are joined by international partners".

With international cooperation, a mission could be launched as early as 2010-2015.

Apollo 11 Experiment Still Going Strong After 35 Years

Pasadena CA (JPL) Jul 22, 2004

It was the summer of '69. Director John Schlesinger's "Midnight Cowboy" had won the Oscar for Best Picture; the

Rolling Stones' newly released "Honky Tonk Women" was climbing the charts; 400,000 people were gearing up to attend Woodstock…and America landed on the Moon, making "one giant leap for mankind."
On the afternoon of July 20, 1969, Apollo 11 astronauts Neil Armstrong and Edwin "Buzz" Aldrin explored the surface of the Moon for two and a half hours, collecting samples and taking photographs while Michael Collins orbited in the command module Columbia.

On July 21, about an hour before the end of their final moonwalk, they left an experiment on the lunar surface which, after 35 years, continues to work as well as it did the day it got there. Called the lunar laser ranging experiment, it studies the Earth-Moon system and returns data to scientific centres around the world, including NASA's Jet Propulsion Laboratory.

"An accurate knowledge of the Moon's orbit and orientation is needed for future robotic and manned missions to our satellite," said Dr. James G. Williams, one of four JPL scientists who analyze the data from the Lunar Laser Ranging Experiment. "Scientists have been able to use the data they received through lunar laser ranging to study the Earth, the Moon and the character of gravity."

Scientists from various institutions who analyze the data from the lunar laser ranging experiment have observed, among other things, that the Moon is moving away from the Earth and has a fluid core, and that Einstein's Theory of Relativity is accurate.

The experiment consists of an instrument called the lunar laser ranging reflector, designed to reflect pulses of laser light fired from the Earth. The idea was to determine the round-trip travel time of a laser pulse from the Earth to the Moon and back again, thereby calculating the distance between the two bodies to unprecedented accuracy. Unlike the other scientific experiments left on the Moon, this reflector requires no power and is still functioning perfectly after 35 years.

The Apollo 11 laser reflector consists of 100 fused silica half cubes, called corner cubes, mounted in a 46-centimeter square aluminium panel. Each corner cube is 3.8 centimetres in diameter. Corner cubes reflect a beam of light directly back toward its point of origin; it is this fact that also makes them so useful in Earth surveying.

Three more reflectors have since been left on the Moon, including two by later Apollo 14 and 15 missions and one (built by the French) on the unmanned Soviet Lunokhod 2 rover. Each of the reflectors rests on the lunar surface in such a way that its flat face points toward the Earth.

The McDonald Observatory in Western Texas and a second observatory near the city of Grasse in southern France regularly send a laser beam through an optical telescope to hit one of the reflectors. The reflectors are too small to be seen from Earth, so even when the beam is correctly aligned in the telescope, actually hitting a lunar reflector is quite challenging. At the Moon's surface, the beam is a few kilometres or miles wide and scientists liken the task of properly aiming the beam to using a rifle to hit a moving dime 3.2 kilometres away.

Once the laser beam hits a reflector, scientists at the observatories use sensitive filtering and amplification equipment to detect any return signal. The reflected light is too weak to be seen with the human eye, but under good conditions, one photon - the fundamental particle of light - will be received every few seconds.

The lunar laser ranging experiment is the only lunar investigation continuously operating since the Apollo project. Improvements in lasers and electronics over the years have led to measurements currently accurate to about 2 centimetres.

Scientists know the average distance between the centres of the Earth and the Moon is 385,000 kilometres, implying that the modern lunar ranges have relative accuracies of better than one part in 10 billion. This level of accuracy represents one of the most precise distance measurements ever made and is equivalent to determining the distance between Los Angeles and New York to one hundredth of an inch.

"Technical improvements at the observatories rejuvenate the lunar laser ranging effort," Williams said. "When the range accuracy improves, it is like getting a new experiment on the Moon."

To this end, a new lunar ranging instrument with significantly improved accuracy is being constructed at Apache Point Observatory in New Mexico by the University of California at San Diego and the University of Washington.

"The usefulness of continued improvements in range determinations for further advancing our understanding of the Earth-Moon system will keep the lunar reflectors in service for years to come," Williams said.

Fiery blastoff sets US probe toward first rock from the Sun

WASHINGTON (AFP) Aug 03, 2004

US spacecraft Messenger lifted off from Cape Canaveral, Florida, early Tuesday, August 3 on a six-year exploratory journey toward Mercury, the closet planet to the Sun.
With Messenger safely nestled in its payload bay, a massive Delta II rocket roared off from its launching pad at about 2:16 am (0616 GMT), turning in a matter of seconds from a fire-breathing giant into a tiny speck of light in the sky.

The launch was delayed by one day due to strong winds created by a tropical storm churning in the Atlantic Ocean.

But "Tropical Storm Alex is no longer an influence on weather in the Cape Canaveral vicinity," George Diller, spokesman for the Kennedy Space Center, told reporters shortly before launch.

Minutes after launch, the Delta rocket released the refrigerator-sized probe on

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the first leg of its 7.9-billion-kilometer odyssey through the solar system.

One of the most enigmatic planets of the solar system, Mercury endures more solar radiation than any other planet and has one of the densest crusts of all, scientists say.

Its daytime temperatures could reach 450 degrees Celsius, which is enough to melt lead.

However, at night, Mercury plunges into a deep freeze that could be enough to liquefy oxygen: the temperature plummets to minus 212 Celsius.

Despite these climatic quirks, researchers, using radar, detected in the early 1990s what appeared to be a glint of ice inside the planet's massive polar craters.

Scientist at the National Aeronautics and Space Administration are also puzzled why Mercury has a disproportionately large iron core, which takes up more than 60 percent of its total mass.

"The answers to these questions will not only tell us more about Mercury, but illuminate processes that affect all the terrestrial planets," said Sean Solomon, a lead scientist on the Messenger project.

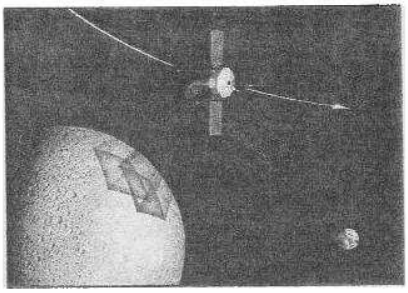
The probe will try to tackle questions left unanswered by a similar mission undertaken by NASA three decades ago. Probe Mariner 10 sailed past Mercury three times in 1974 and 1975 but given the level of that era's equipment, was able to gather data on less than half of the planet's surface.

By contrast, Messenger is packed with state-of-the-art technological marvels, including a colour imager and a vast array of spectrometers capable of bombarding the Mercury surface with gamma- and X-rays, neutrons and laser beams, and measure its magnetic fields.

The spectrometers could help determine with more certainty if indeed there is ice on Mercury; measure the structure of surface rocks and its thin atmosphere, NASA officials said.

The plan calls for three flybys of Mercury in 2008 and 2009 and a yearlong orbit of the planet starting in March 2011.

Messenger project manager David Grant called the 427-million-dollar mission that will include 15 loops around the Sun "risky and difficult," but said there was every reason to believe in its successful outcome.



Messenger at Mercury

"The team is confident that the spacecraft they designed, built and tested is ready for the journey and its mission to Mercury," he said.

The successful launch is also seen as a political boost for NASA, which has been targeted for severe budget cuts by congressional appropriators eager to reduce the skyrocketing budget deficit fuelled by massive spending on the wars in Iraq and Afghanistan.

Small asteroid gives Earth its closest shave

PARIS (AFP) Aug 26, 2004

A rock measuring less than 10 metres across zipped past the Earth at the closest distance ever detected, but it would not have posed any threat if it had struck our planet, astronomers said The "very small" asteroid missed the Earth on March 31 by the wafer-thin gap of 6,500 kilometres, according to an email circulated by the international network NEO News (NEO stands for Near-Earth Object).

Robot telescopes operated by NASA in New Mexico under the Spaceguard Survey to track potential threats from asteroids, spotted the object, 2004 FU 162, just a few hours before the flyby.

"It would have exploded harmlessly in the upper atmosphere had it hit," the circular said.

Given the large population of asteroids of this size -- a population estimated to be a couple of hundred million in the Solar System -- the statistical chance of a flyby is "more than once a year" and the risk of an actual impact is rated once every several years.
"This event is not particularly rare, except that (the telescopes) had the good fortune to notice it," NEO News said.

Modified US space shuttle ready to fly next March/April

WASHINGTON (AFP) Aug 27, 2004

NASA said Thursday it had corrected flaws that caused the destruction of the space shuttle Columbia in February 2003 and that a modified shuttle would be ready to resume flights sometime next Spring.
"A year ago, I said that return to flight was going to be difficult," said Bill Readdy, NASA associate administrator for space operations.

"I'm happy to report that a year later, we have been making steady progress on that path to return to flight next spring," he said in a telephone briefing.

"I am extremely proud of the team, their morale is very high," said Readdy, adding that NASA was aiming to launch a shuttle destined to dock at the orbiting International Space Station between March 16 and April 18.

"It has been a hard year," said space shuttle program manager Bill Parsons. "We are in familiar territory now, getting the vehicle ready. That work is going well, on schedule."

Bill Gestenmaier, ISS program manager, said the space station, which relies on shuttle flights to ferry up equipment needed for its own construction, "is in very good shape to begin assembly when the shuttle returns to flight.

"It has not been easy to keep the station flying," he said. "The crews have been doing a phenomenal job. When the shuttle gets back to flight, lots of supply will go up and down. Then we will be ready for assembly."

This edition is the last for me as Editor. However, in the interim, any future contributions can still be emailed to me at rlpollard@iprimus.com.au and I will forward to the new Editor once one has been appointed. Thanks to all who have helped out over the past four years.

- Richard Pollard.

Mornington Peninsula Astronomical Society

DATE	TIME (local)	Mag	Alt	Azimuth	Dist. to flare centre	Flare centre Mag	Sat. number
07 Sep	18:30:19	-8	57°	170° (S)	3.7 km (E)	-8	Iridium 32
29 Sep	18:39:15	-8	51°	184° (S)	2.0 km (W)	-8	Iridium 37
10 Oct	19:46:31	-7	28°	182° (S)	2.5 km (E)	-7	Iridium 52
27 Oct	***20:35:34***	***-4***	***11°***	***187° (S)***	***27.6 km (E)***	***-6***	***Iridium 38***
27 Oct	***20:35:54***	***-2***	***11°***	***187° (S)***	***40.5 km (E)***	***-6***	***Iridium 39***
28 Oct	21:44:44	-6	10°	133° (SE)	17.4 km (W)	-6	Iridium 23

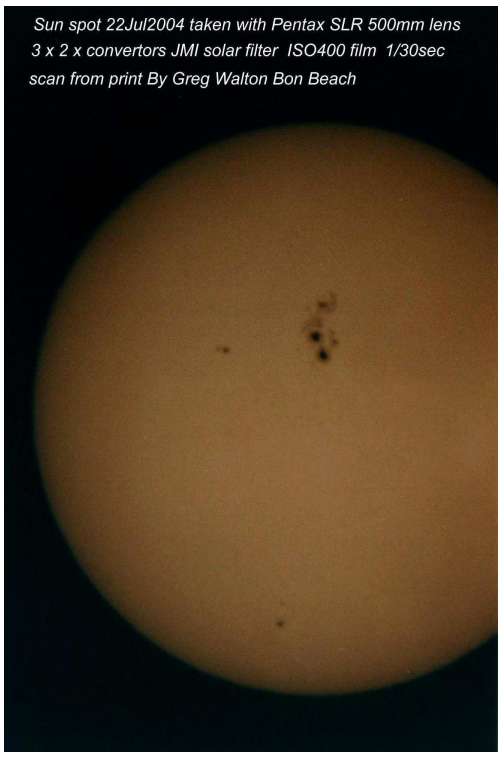
Iridium flares from Mount Martha for Sept/Oct... see article on page 3.

Left - Working Bee at the MPAS Briars site on 1st August 2004

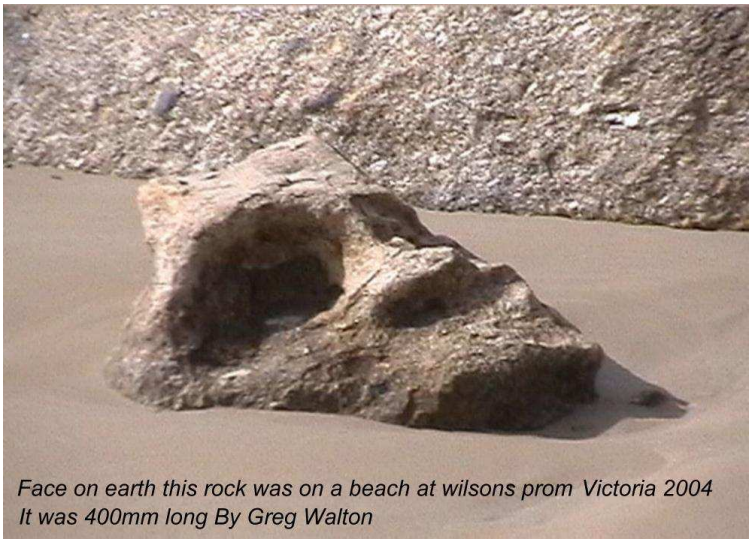
Photo - *By John Cleverdon*

Below - Sun Spots 22nd July 2004

Photo - *By Greg Walton*



Sun spot 22Jul2004 taken with Pentax SLR 500mm lens 3 x 2 x convertors JMI solar filter ISO400 film 1/30sec scan from print By Greg Walton Bon Beach



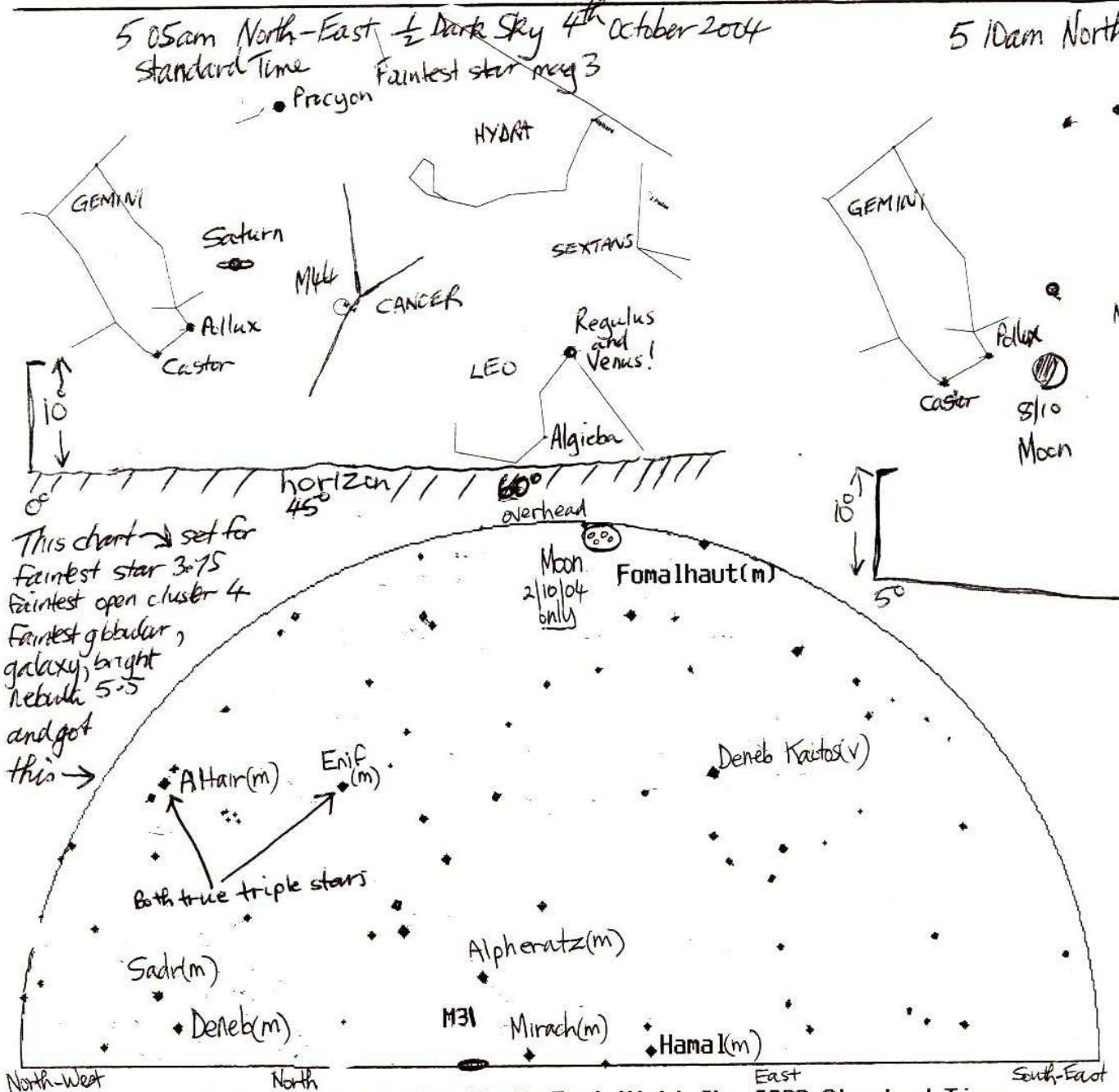
Face on earth this rock was on a beach at wilsons prom Victoria 2004 It was 400mm long By Greg Walton

Left -
Face on Earth
taken in 2004

Photo -
By Greg Walton

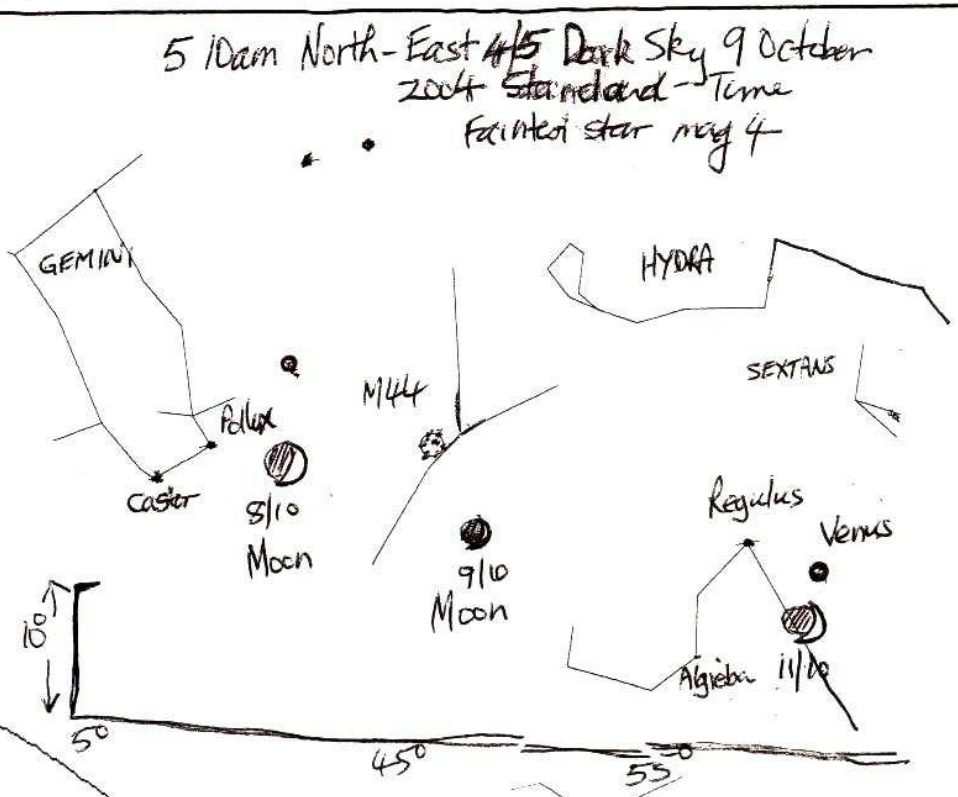
Kindly reproduced by Jane McConnell and collated/posted by Mary Westaway

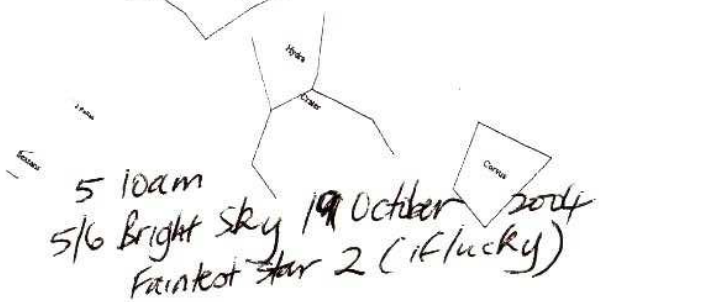
SKY FOR THE MONTH 15TH SEPTEMBER TO 19TH OCTOBER 2004 MORNINGTON PENINSULA



9 15 pm 2nd October North-East Night Sky 2003 Standard Time

Also 10 20pm 15th September and 8 05pm 19th October Standard Time





PTO

Bob Heale MPAS
14/9/2004

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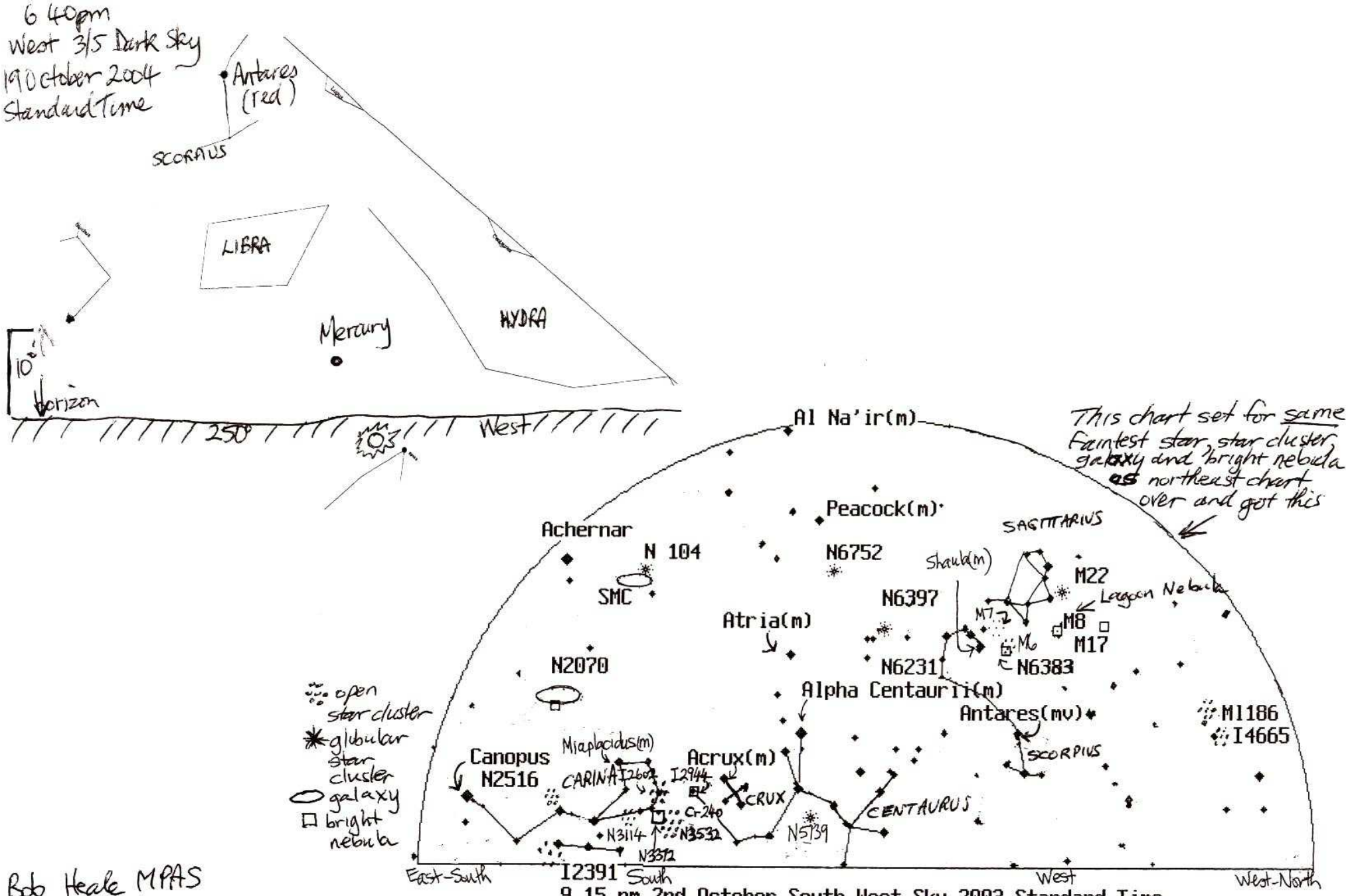

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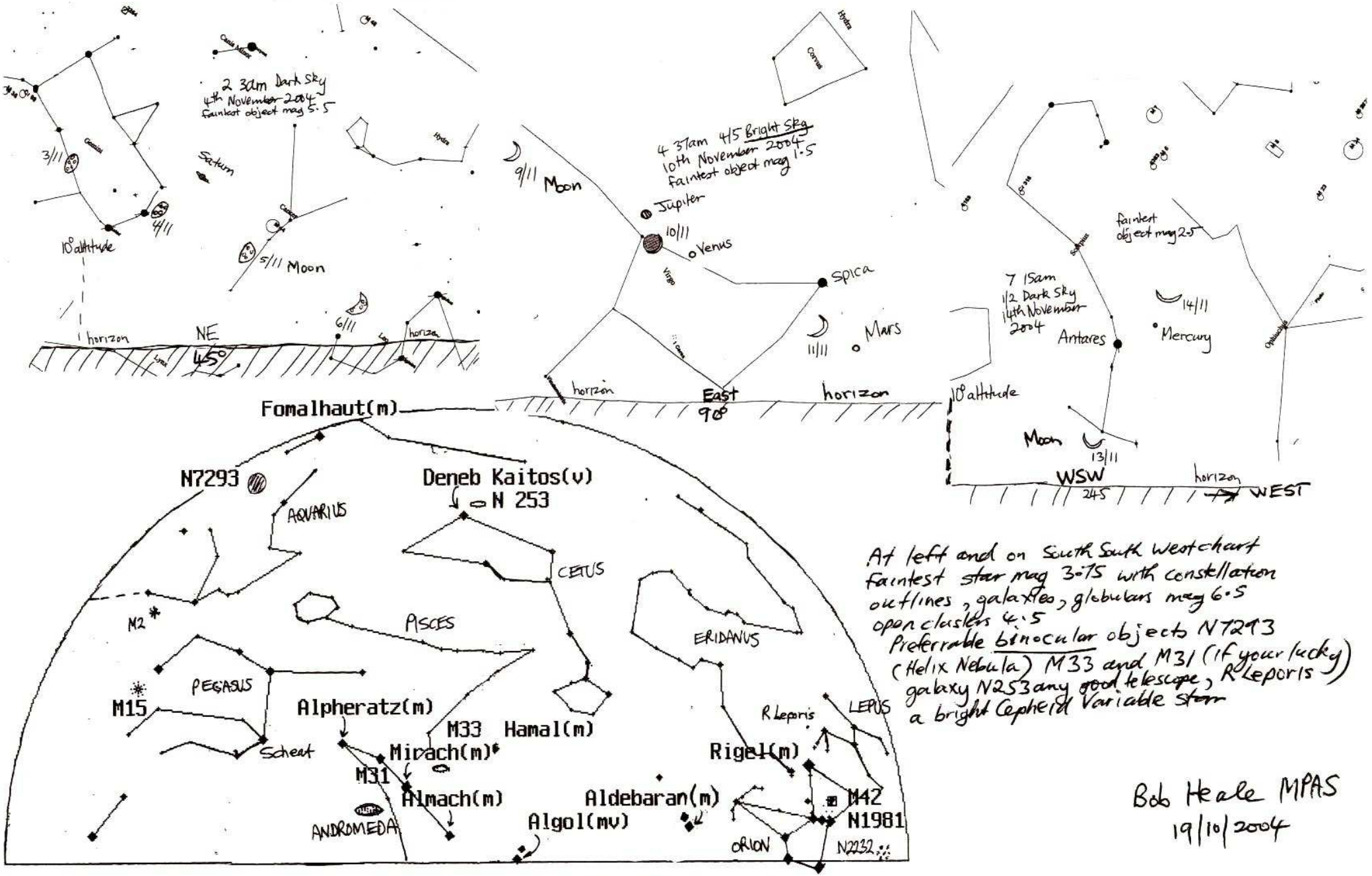
SKY FOR THE MONTH 20th OCTOBER TO 16th NOVEMBER MORNINGTON PENINSULA



At left and on South South West chart faintest star mag 3.75 with constellation outlines, galaxies, globulars mag 6.5 open clusters 4.5
Preferrable binocular objects N7293 (Helix Nebula) M33 and M31 (if your lucky) galaxy N253 any good telescope, R Leporis a bright Cepheid Variable Star

Bob Heale MPAS
19/10/2004

9 45 pm 3rd November North North East Dark Sky 2004 Standard Time
Also 10 30pm 20th October and 8 50pm 16th November 2004 Standard Time

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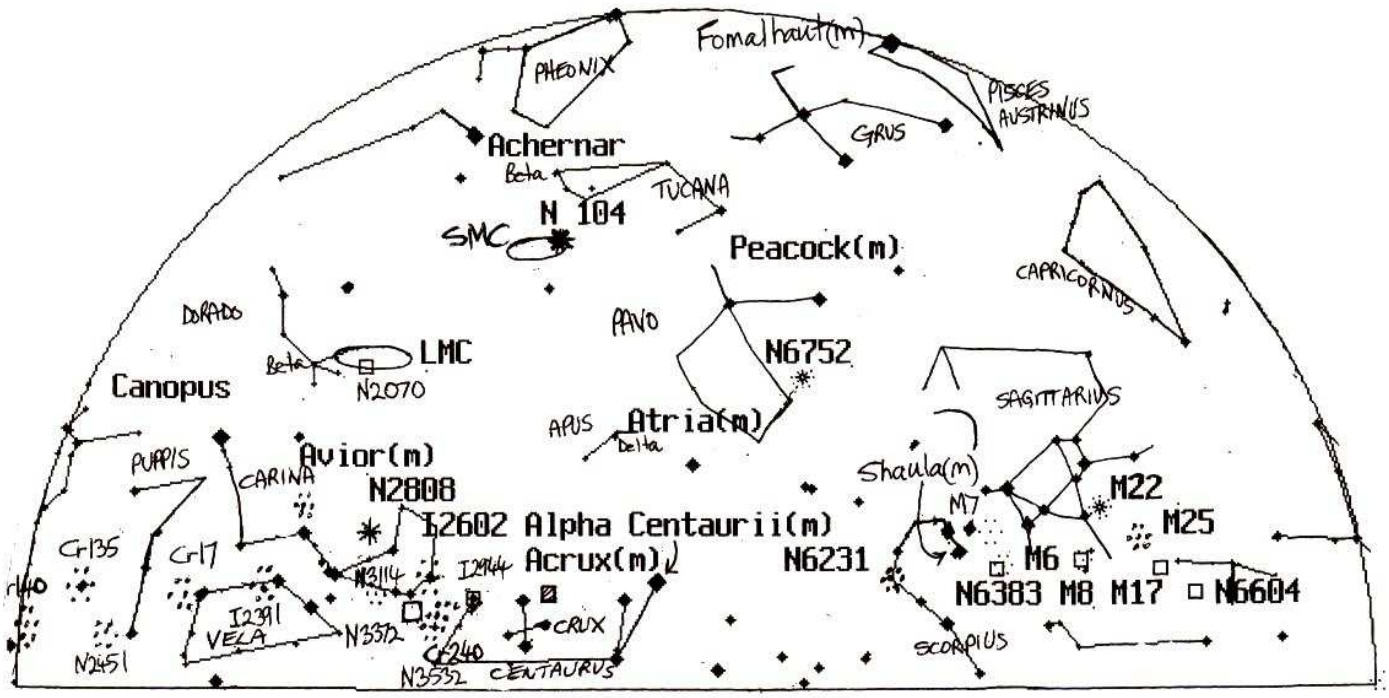
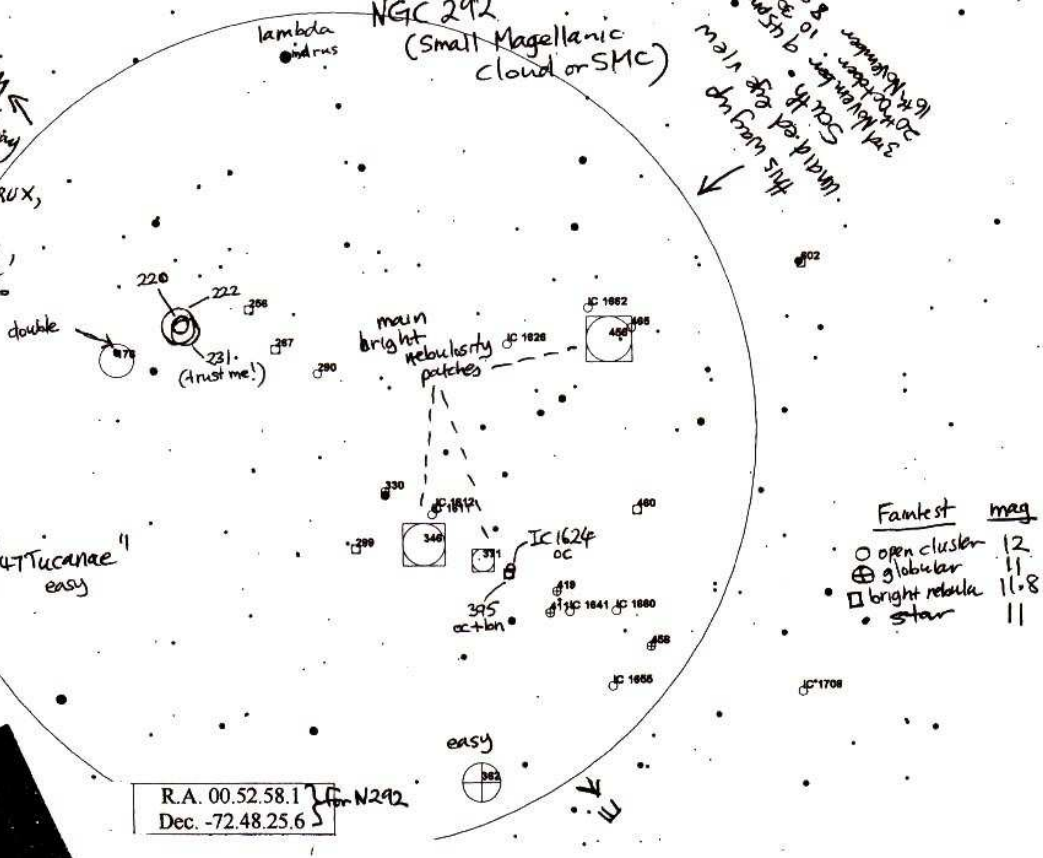


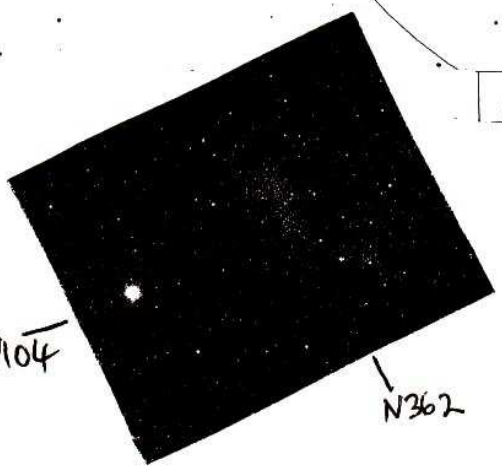
9 45 pm 3rd November South South West Sky 2004 Standard Time
Also 10 30pm 20th October 2004 and 8 50pm 16th November 2004 Standard Time

SMC

NGC 292 the Small Magellanic Cloud (or 'Nubecula Minor') is one of closest members of the Local Group of galaxies to our Milky Way (the haze running across south sky-west hemispherical chart from east to west through VELA, CENTAURUS, CRUX, SCORPIUS) It is 4° x 3° visible to unaided eye as a hazy cloud, slightly curved, hence 'fishhook' or 'comma' often used. Many faint nebulosities with open clusters eg NGC 346, NGC 371, along with the great globular clusters NGC 104, NGC 362

Bob Heale MPAS
19/10/04





SMC

Worthwhile objects, apart from LMC, SMC and other obvious, are Beta Dorados, Beta Tucanae

Bob Heale MPAS
19/10/2004