



SCORPIUS



The Journal of the
Mornington Peninsula Astronomical Society Inc.

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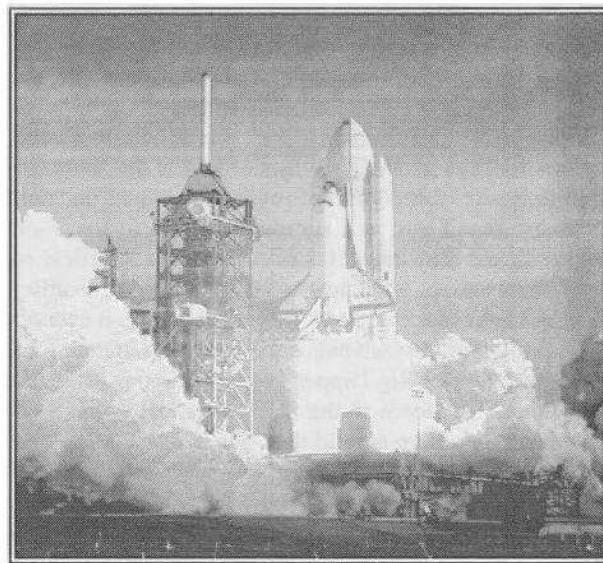
Volume XIV, No. 5 (September 2005)

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.

**And Then There Were Ten
- New Planet In The Solar System ? -**



**The Successful Return
Of The Space Shuttle**



Plus :

Defining a Planet

All you need to know about the Space Shuttles

Night skies for September and October

September / October field nights and events

2nd September – Public viewing night at Briars
21st September – General Meeting

7th October - Public viewing night at Briars
19th October – General Meeting

Society News

General Meetings

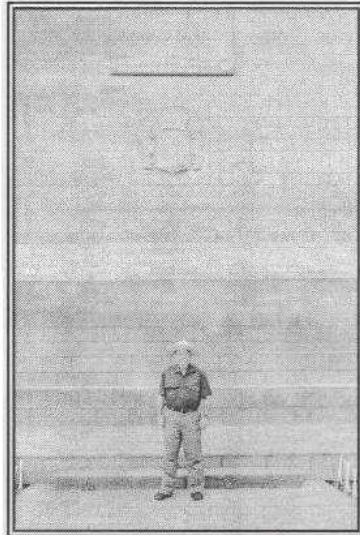
The July general meeting was chaired by Peter Lowe and had about forty attend. Dr. James Murray did a very interesting talk on planet formation followed by the raffle draw then a short coffee break. After the break Bob Heale did 'Sky for the Month' and then Ian Sullivan talked about his recent trip to Equador. Meeting closed at 10:00 pm.

The August general meeting was chaired by Peter Lowe and had about forty attend. Barry Adcock spoke on 'Jupiter in the 21st Century' followed by the coffee break. After the break Bob Heale did 'Sky for the Month'. Meeting closed at 10:00 pm.

SOUTH AMERICAN ASTRONOMY - ON THE EQUATOR IN QUITO AND GALAPAGOS

by Ian Sullivan

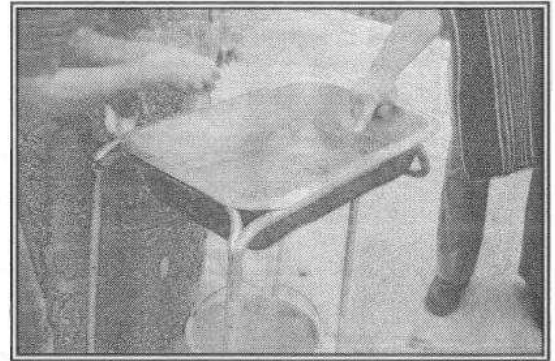
A recent trip revealed some interesting observations, including being on the equator in Ecuador. About 45 minutes drive from the centre of Quito is a park called the 'Centre of the World,' with an 'equator line' painted on the pavement through a square building with the four sides facing North, South, East and West. On the wall is the Longitude 78°27'08", Altitude 2,483 m, and Mag. Dec. 63°38' E.



The altitude explains why it was not exactly tropically hot. In fact this is higher than the highest point in Australia, and a cool wind blew at the end of the day. Why they chiselled the magnetic variation from true N to such accuracy, I do not quite understand. It slowly changes over time, wherever you are (Melbourne, now 113°E, has increased 33' over the last 70 years).

The park also has a working planetarium with sessions in Spanish only, which we attended but understandably, did not fully appreciate. The main central building contains cultural exhibits and there are shops selling every type of handicraft in the area nearby.

Next door, however, had an even more bizarre display. There were indigenous cultural exhibits here, but some astronomical ones which caught my attention. They had a rival equator line (they claim set by GPS), and a portable trough which they moved either side of the equator line. It demonstrated the clockwise swirl down the plughole on the south side, and the



opposite in the north. The basis of this is the 'Coriolis Effect' and explains the opposite directions of cyclonic winds in northern and southern hemispheres. There is a summary of this in the book 'Bad Astronomy' which exposes the myth of it applying to plugholes. Nevertheless they made it 'work' with such effortless ease, that I'm sure they have fooled thousands. For an encore, they stood an egg on its end, on the equator line of course, the only place it balances by the 'force of minimum gravity'? But they didn't claim it only works at the equinox - they need to do it everyday to entertain the visitors!

Sailing in the Galapagos we again encountered the equator, and in the evening I saw

URSA MAJOR ('Big Dipper') on the starboard side, and CRUX on the port side. The N hem 'Pointers' in the Dipper, Dubhe and Merak pointed down to the SCP (Pole Star). The S horizon was 4.5 times the length of the cross from Acrux. This was in late May, and only seen around this time.

(Reference 'Bad Astronomy' Philip C. Plait, John Wiley & Sons, 2002.)

General Society News

The MPAS is looking for a member who may be interested in assisting in running the merchandising side of things. This would involve assisting at public nights and general meetings (when possible) and would include the setting up and display of merchandise and collection of money for sales. If anyone is interested then please contact a committee member at the next general meeting.

Kevin Rossiter is our new loan telescope and binocular co-ordinator. The Society has an 8-inch reflector, 80mm refractor and binoculars available for loan. Contact Kevin at a general meeting if you wish to arrange the loan of equipment or on his email address : kevro@alphalink.com.au .

If any member is interested in doing a 10 minute talk at the November general meeting then please contact Peter Lowe or Ian Sullivan with the topic you'd like to talk on.

It is with regret that I inform the MPAS that **Margaret Zimmerman**, wife of Stan Zimmerman, passed away last May.

BOWLING NIGHT

We have organized a Bowling Night for our members at AMF Karingal (Frankston / Cranbourne Rd. Phone 9789-6721) for Sunday 25th, September, starting at 4-30pm. When you attend at the counter, tell them you are with the Astronomical Society and they will give you a discount on two games and shoe hire. Afterwards, for those who would like to, we will decide on a nearby place to have a bite to eat. Probably not at the bowling centre unless you just want chips! Hope to see you there.

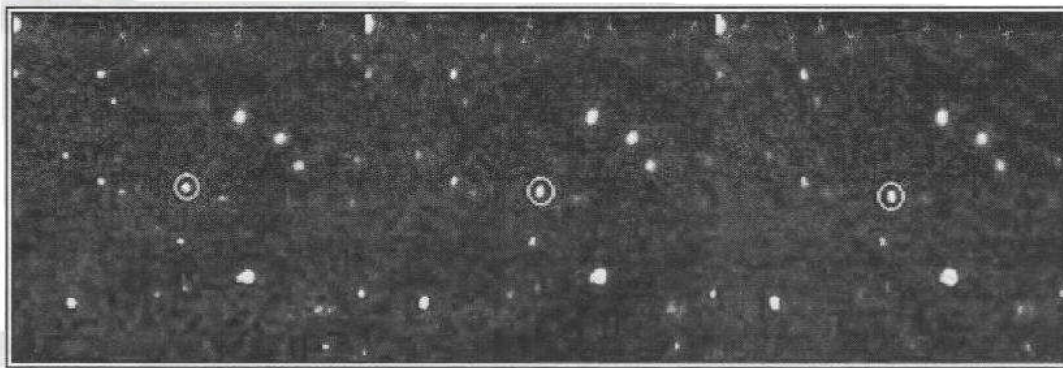
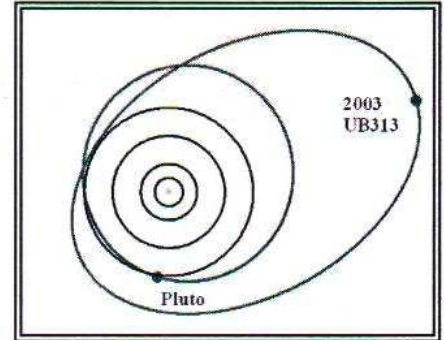
Astro News

And Then There Were Ten

A planet larger than Pluto has been discovered in the outlying regions of the solar system with the Samuel Oschin Telescope at Palomar Observatory, and it is being called the tenth planet. It is the first time an object so big has been found in our solar system since the discovery of Pluto 75 years ago.

Currently at a distance of 97 Astronomical Units from the Sun, the new object, temporarily named 2003 UB313, is a typical member of the Kuiper Belt, but its size compared to the known nine planets has led to it being designated as a planet as well. It has been estimated to have a diameter of 2100 miles, or be 1.5 times the size of Pluto (at 1400 miles diameter). Pluto and the new planet have very similar compositions with surfaces of solid frozen methane and an interior to be likely made up of rock and ice. The new 'planet', like Pluto, differs from the rest of the planets with its eccentric orbit. The object is inclined by a whopping 45 degrees to the main plane of the solar system, where most of the other planets orbit

A name for the new planet has been proposed by the discoverers to the International Astronomical Union, and they are awaiting the decision of this body before announcing the name.

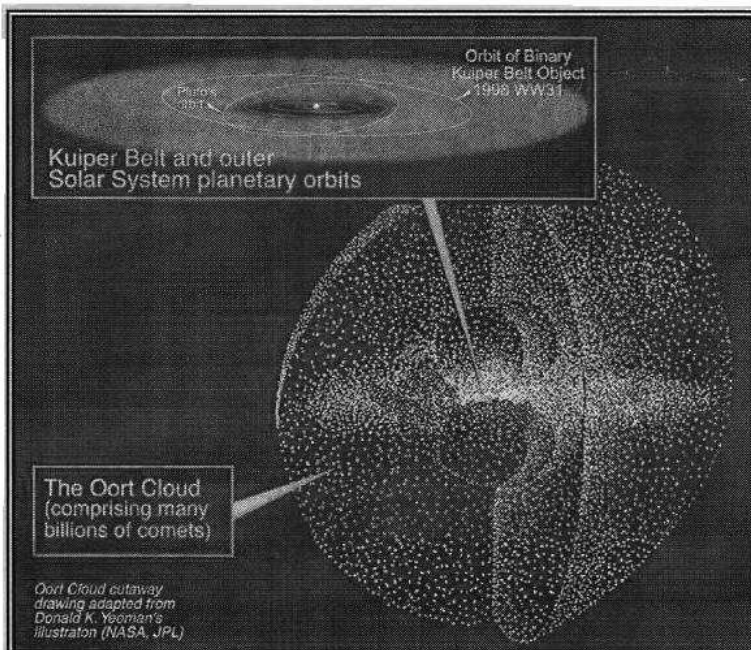


Discovery images of the new planet. The three images were taken 1 1/2 hours apart on the night of October 21st, 2003. The planet can be seen very slowly moving across the sky over the course of 3 hours.

Defining a Planet ?

Remarkable as it seems, but as it stands today, there is no true definition for what a planet is. Most primary school kids would know there are nine planets orbiting the Sun and that Pluto is the farthest and Earth is the third from the Sun, but this may well be wrong. The IAU (International Astronomical Union), which serves as the internationally recognized authority for assigning designations to celestial bodies and any surface features on them, currently has a working group considering the definition of 'planet', and it's proving to be a tough assignment.

When Guiseppe Piazzi discovered an object in 1801 between Mars and Jupiter, it was thought to be a 'missing planet'. Subsequently numerous other small planets were discovered and doubts were cast on Piazzi's planet. By 1923, 1000 minor planets or 'asteroids' were known and Piazzi's 'planet, named Ceres, was just the first. More recently Pluto's status as a planet has been the subject of much debate, especially with the discovery of large Kuiper Belt Objects (KBO's) including 2003 UB313 which may well be larger than Pluto. Is Pluto then a planet or a large KBO ?



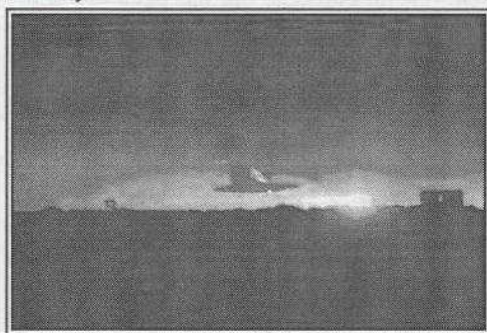
To answer that question, the original question has to be answered; 'What is a planet?'. There are several guidelines or simple criteria that could be used in the definition of a planet. Mass for example. A planet may not be so large that it can sustain nuclear reactions nor so small that it is held together by mechanical strength rather than gravity. It must be round, meaning it must be at least 700 km in diameter where gravity moulds it into a sphere. And what about binary objects. One suggestion to distinguish between a binary planet and a planet/moon system is the location of the barycentre, or common centre of mass. If the barycentre is contained within the larger object then the smaller object could be regarded as a moon. Thus our Moon remains a moon (barycentre below the Earth's surface) but Charon and Pluto, for example, form a binary planet, with a barycentre about 1500km above Pluto's surface.

As the IAU continues to debate the topic, one may consider then that in the near future the number of 'planets' in our solar system may differ, maybe even

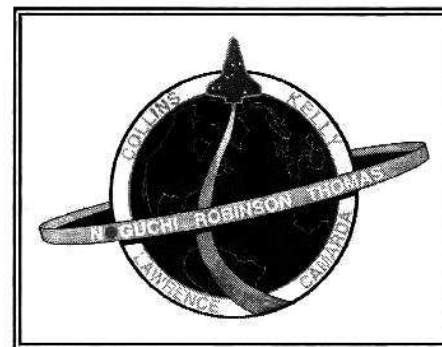
double, when the IAU reaches its verdict.

Return of the Space Shuttle

A collective sigh of relief was heard at NASA headquarters as the Space Shuttle Discovery landed safely at Edward's Air Force Base on the west coast of the USA after its 14 day trouble plagued mission. Two and a half years after the space shuttle Columbia accident, the landing of Discovery hailed the successful return of the shuttle program after one of the most dramatic and watched space flights in history.



(Mission STS-114 badge pictured right).



The mission, which was dubbed 'Return to Flight' was an International Space Station resupply and servicing mission as well as having astronauts Steve Robinson and Soichi Noguchi performing three spacewalks during the mission, testing repair techniques and servicing the International Space Station. The mission was dogged by problems. The initial launch was delayed due to a faulty fuel sensor and then on the eventual July 26th lift-off, a near disaster occurred as a large piece of foam fell off, narrowly missing the shuttle and causing any damage. During the 14 day mission, a space

walk was necessary to remove pieces of ceramic fabric that were protruding between heat resistant tiles on the Shuttle and finally a torn piece of thermal blanket was discovered under a cockpit window but reportedly posed no threat to the mission. Finally the landing was delayed twice due to bad weather but eventually all turned out well with a successful mission & landing.

This mission also marked the end of 53 year old Adelaide born astronaut Andy Thomas' time in space. After four shuttle missions, with his first in 1996 on the space shuttle Endeavour, he has decided to retire from flight.

The Workings of a Space Shuttle

Towards the end of the Appollo space program, NASA was looking at the possibility of a reuseable rocket as up until then expensive one shot rockets had been used. The idea of a reuseable space shuttle that could launch like a rocket and land like a plane was very appealing. In 1972, President Nixon announced that NASA was to develop the space shuttle or (STS) space transportation system.

NASA's space shuttle program first launched on 14th April, 1981, with the space shuttle Columbia taking the honours and piloted by astronauts John Young and Robert Crippen. The mission officially named STS-1 (Space Transportation System) orbited 36 times during its 54.5 hour mission and safely landed at Edward's Air Force Base in California. Not only was this the first launch of the Space Shuttle, but it marked the first time that solid fuel rockets were used for a U.S. manned launch.

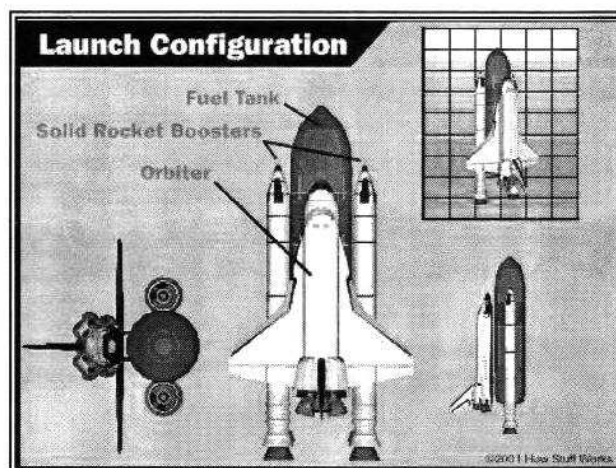
Shuttles are both named and given a number using the NASA Orbiter Vehicle Designation System. Atlantis (OV-104), Discovery (OV-103) and Endeavour (OV-105) are still in use today. The Challenger shuttle (OV-099) was destroyed 73 seconds after lift off on January 28th 1986, killing all seven crew members while the shuttle Columbia (OV-102) was destroyed during re-entry over Texas on February 1st 2003, also killing its crew of seven.

The Basics

A space shuttle has three main components which include two solid rocket boosters (SRB), an external fuel tank (ET) and the orbiter, which carries the astronauts and the payload. The two rocket boosters provide 70 per cent of the thrust needed to lift the space shuttle off the pad, the rest of the thrust comes from the shuttle's engines. The external fuel tank supplies fuel to the shuttle's engines.

Getting into Orbit

To get a two million kilogram shuttle into an orbit above the Earth, the shuttle uses the SRB's, the ET, the three main engines on the orbiter and the orbital manoeuvring system (OMS). The SRB's provide most of the thrust to lift the shuttle off the launch pad, as well as supporting the entire weight of the space shuttle orbiter and fuel tank on the launch pad. Each SRB is 46 meters long, 3.7 meters in diameter, weighs approximately 590,000 kgs when full and provides 2.65 million pounds of thrust.



The orbiter has three main engines which burn liquid hydrogen and oxygen at a ratio of 6:1, which is stored in the ET. The fuel is burned in chambers inside the engines and the exhaust gases leave the nozzle at 10,000 km/h providing up to 500,000 pounds of thrust. The ET is 48 meters long & stores up to 2 million litres of propellant.

The two orbital manoeuvring system engines are located either side of the shuttle tail. These engines place the shuttle into final orbit, change the shuttle's position from one orbit to another, and slow the shuttle down for re-entry. The OMS engines burn monomethyl hydrazine fuel (CH_3NHNH_2) and nitrogen tetroxide oxidizer (N_2O_4). When these two substances come in contact, they ignite and burn automatically in the absence of oxygen. The OMS engines have a total fuel burn time of 15 hours.

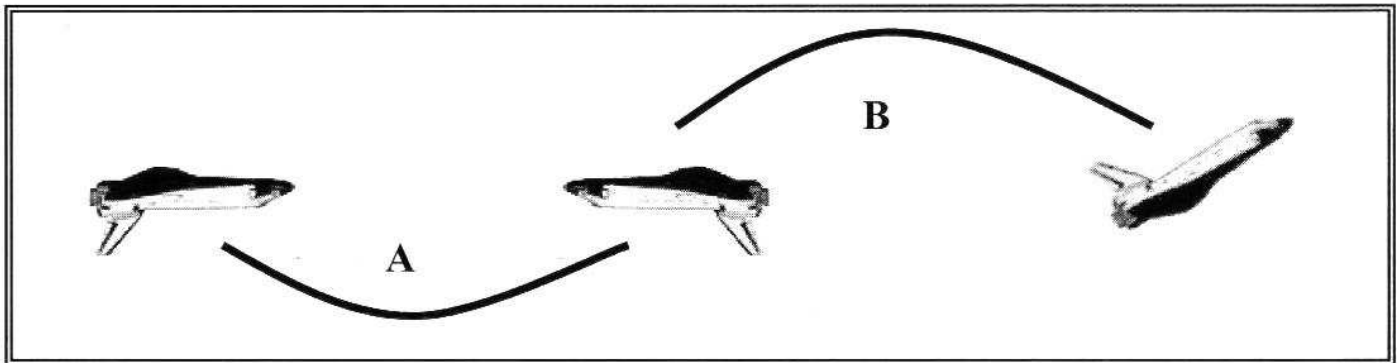
Once all systems are go for launch, the countdown commences :

- T-31s** : on board computers take over the launch sequence
- T-7s** : the shuttle's main engines ignite one at a time to build up to 90 percent of their maximum thrust
- T-3s** : shuttle's main engines in launch position
- T-0s** : the SRB's ignite and the shuttle launches from the pad
- T plus 20 s** : the shuttle rolls right (180 degree roll, 78 degree pitch)
- T plus 60 s** : shuttle engines are at maximum throttle
- T plus 2 min** : SRBs separate from the orbiter and fuel tank at an altitude of 28 miles (45 km). Main engines continue firing
- T plus 7.7 min** : main engines throttled down to keep acceleration below 3g's so that the shuttle does not break apart
- T plus 8.5 min** : main engines shut down
- T plus 9 min** : ET separates from the orbiter. The ET will burn up upon re-entry.
- T plus 10.5 min** : OMS engines fire to place the shuttle in a low orbit.
- T plus 45 min** : OMS engines fire again to place the shuttle in a higher, circular orbit (about 250 miles/400 km).

Re-entry and landing

Once a mission is complete, it's then time to bring the shuttle safely back. The crew go through a huge check list to make sure everything is set for re-entry. In most cases the shuttle has been flying nose first and upside down. If this is the case then the orbiter must be manoeuvred into the proper position. This is crucial to a safe landing.

Firstly (A) to change the direction that the orbiter is pointed, the reaction control system (RCS) located on the nose and OMS pods must be used. They are used to turn the shuttle so that it is travelling tail first. The OMS engines are now fired to slow the shuttle down and bring the shuttle out of orbit. This takes about 25 minutes before the upper atmosphere is reached. During this time the RCS is fired again (B) to pitch the orbiter over so that the bottom of the orbiter faces the atmosphere (about 40 degrees) and is moving nose first again.



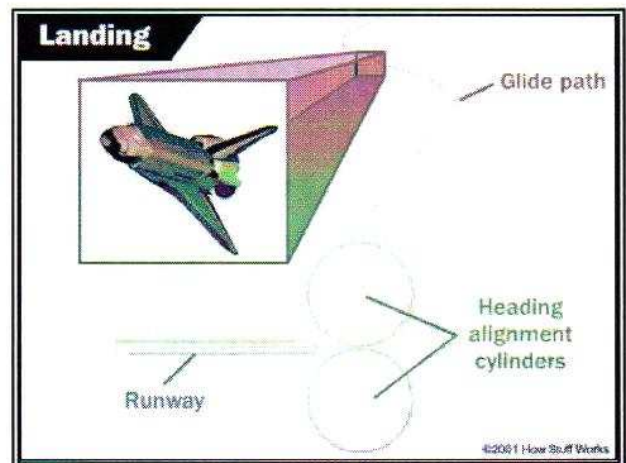
When the shuttle starts re-entering the Earth's atmosphere, it is travelling at 28,000 km/h. This enormous speed causes great heat of up to 1650°C as the shuttle causes friction with the air molecules. The orbiter is covered in ceramic insulated heat resistant materials to protect against such high temperatures. The materials include:

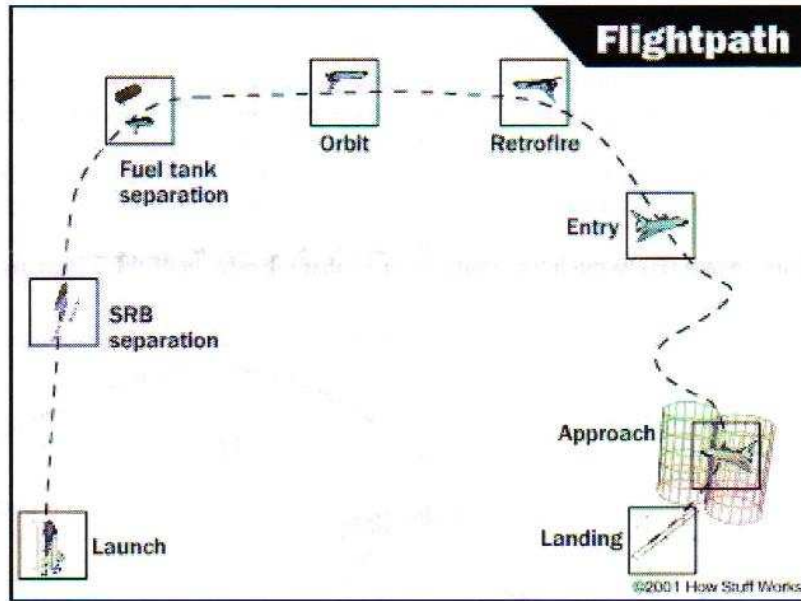
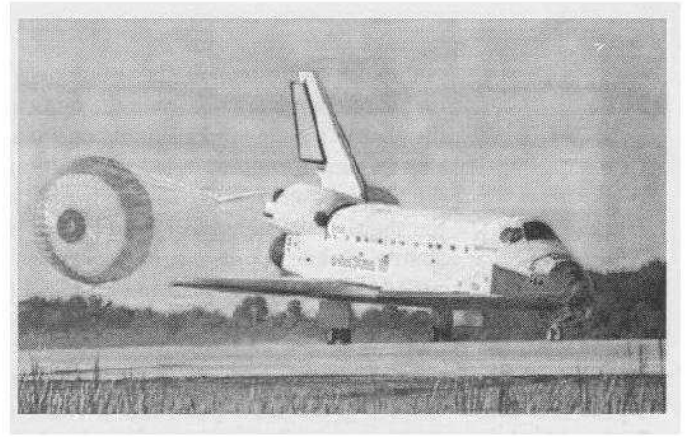
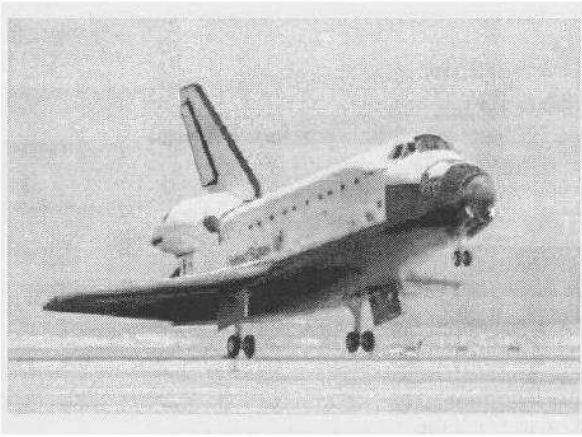
- Reinforced carbon-carbon (RCC) on the wing surfaces and underside
- High-temperature black surface insulation tiles on the upper forward fuselage and around the windows
- White Nomex blankets on the upper payload bay doors, portions of the upper wing and mid/aft fuselage
- Low-temperature white surface tiles on the remaining areas

During re-entry, the rear steering jets help to keep the orbiter at its 40 degree attitude. The hot ionized gases of the atmosphere that surround the orbiter prevent radio communication with the ground for about 12 minutes (i.e., ionization blackout). Upon completion of re-entry, the orbiter enters the main atmosphere and can now fly like a plane. The flight computer has control and flies the orbiter in a series of S-shaped banking turns to so the descent speed as it begins final approach to the runway.

At 25 km from the runway the computer hands control over to the commander. The commander flies the shuttle around an imaginary cylinder so as to line up the final approach, decrease altitude and speed. During the final approach, the commander steepens the angle of descent to minus 20 degrees (almost seven times steeper than the descent of a commercial airliner).

At 600m above the ground, the commander pulls the nose up and the landing gear is lowered. The orbiter lands and the brakes are applied as well as the parachute. After landing the crew goes through a shut down procedure which usually takes around 20 minutes.





Flight statistics (as of August 25, 2005)

Shuttle	Flight days	Orbits	Distance -mi-	Distance -km-	Flights	Longest flight -days-	Crews	EVAs	Mir/ISS docking	Sat. dep. †
<u>Atlantis</u>	220.40	3,468	89,908,732	144,694,078	26	12.89	161	21	7 / 6	14
<u>Challenger</u>	62.41	995	25,803,940	41,527,416	10	8.23	60	6	0 / 0	10
<u>Columbia</u>	300.74	4,808	125,204,911	201,497,772	28	17.66	160	7	0 / 0	8
<u>Discovery</u>	255.84	4,027	104,510,673	168,157,672	31	13.89	192	28	1 / 5	26
<u>Endeavour</u>	206.60	3,259	85,072,077	136,910,237	19	13.86	130	29	1 / 6	3
Total	1,045.99	16,557	430,500,333	692,787,174	114	*17.66	703	91	9 / 17	61

Tune into a Space Walk

EVA is NASA shorthand for "extra vehicular activity." That is, a spacewalk. During spacewalks, shuttle astronauts use UHF radio transceivers to communicate with their colleagues inside the shuttle cabin. The astronauts also sometimes use their UHF radios to talk with ground controllers during launch or landing.

If you happen to be under their flight path during such rare instances, go to a high spot outdoors and tune your police radio scanning receiver to 259.7 or 296.8 or 279.0 MHz. Here are the frequency allocations:

Spacewalk communication	Launch or landing communication			
259.7 spacesuit-to-shuttle	296.8	shuttle-to-ground	primary	uhf
296.8 shuttle-to-spacesuit	259.7	shuttle-to-ground	backup	uhf
279.0 spacesuit-to-shuttle				
279.0 spacesuit-to-spacesuit				

Skywatchers Events

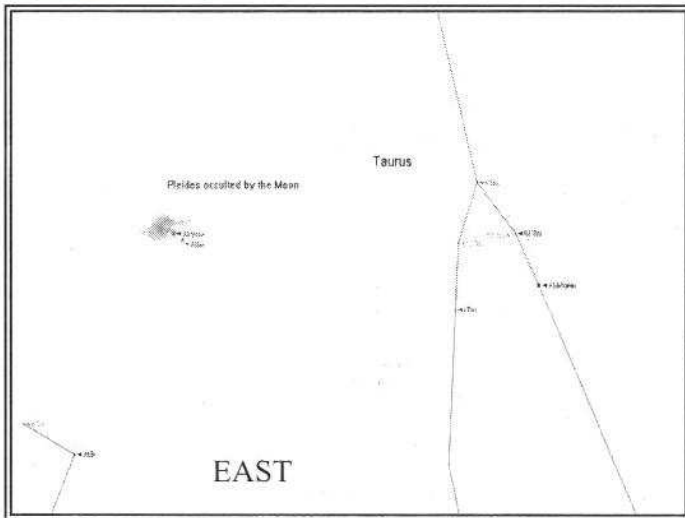
September

- 4th New Moon
- 7th Moon, Jupiter, Venus, Spica grouping
- 10th Moon, Mars, Antares grouping
- 11th First quarter Moon
- 18th Full Moon
- 22nd Occultation of Pleiades by Moon (23:59)
- 25th Last quarter Moon

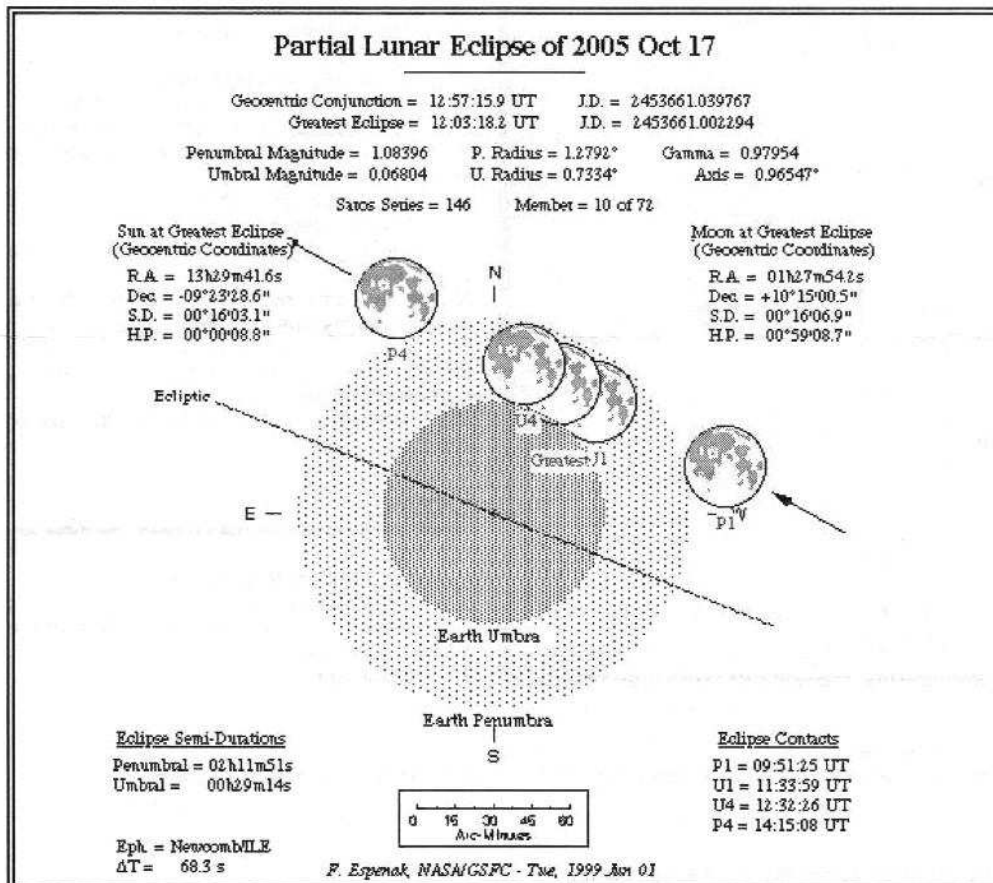
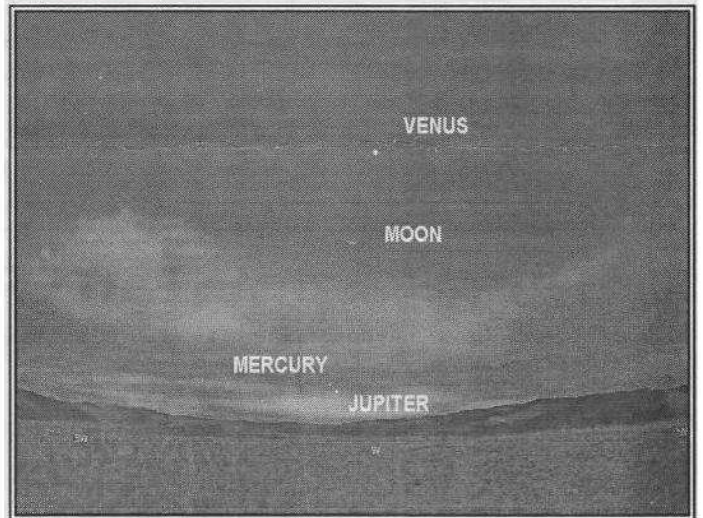
October

- 3rd New Moon
- 6th Mercury 1.5°S of Jupiter
- 7th Venus 1.4°N of Moon
- 17th Partial lunar eclipse – full moon
- Venus 1.6°N Antares
- 25th Last quarter Moon
- 30th Mars closest approach

September 22nd, 11:50pm



October 6th, 7:00 pm



The partial lunar eclipse on October 17th is the final eclipse of 2005. It has only 7% of the Moon entering the Umbra.

The Moon will first enter the Umbra at 9:34 pm EST, reach mid eclipse at 10:03 pm EST and leave the Umbra at 10:32 pm EST. Total duration of the partial phase is 58 minutes.

The Umbra is the conical zone of darkness or shadow directly opposite the Sun formed by a planet or satellite, from within which the Sun's disk is completely obscured. The penumbra is the region surrounding the Umbra within which the Sun's disk is partially obscured.

The next partial lunar eclipse occurs next year on September 8th 2006 and the next total lunar eclipse not until August 28th 2007 so get out and see this if you can.

WEB SITES

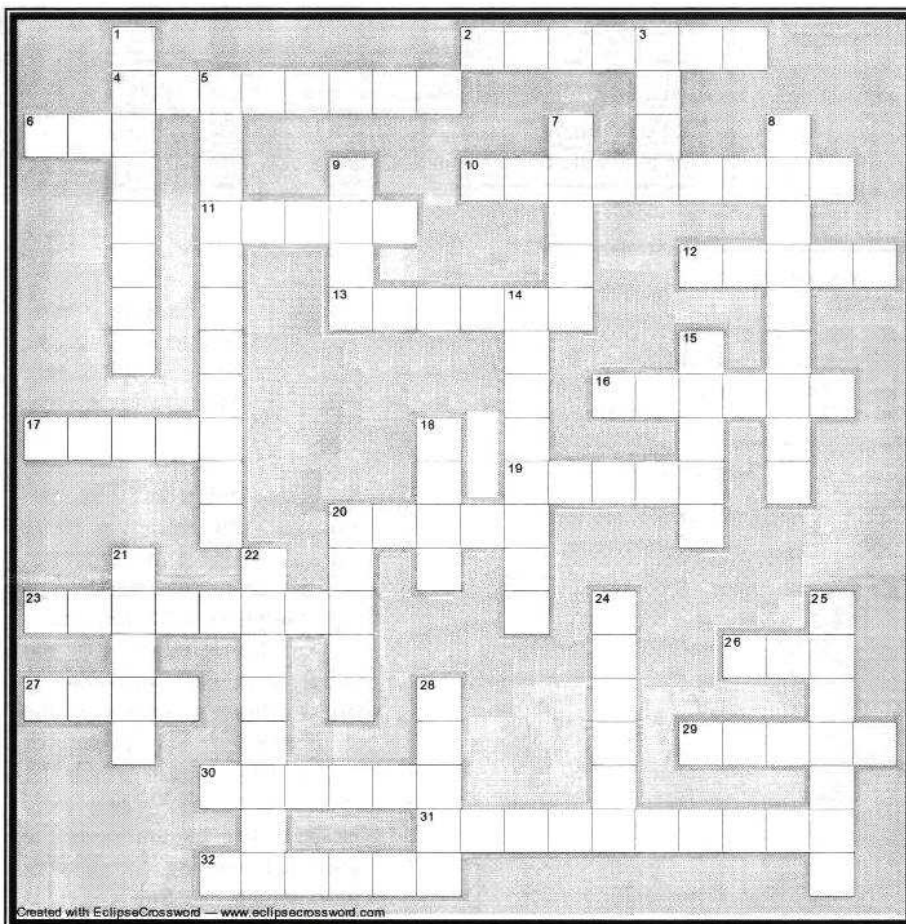
Further information on some of the stories in this edition of Scorpius can be found at the following web addresses :

- The Tenth Planet : <http://www.gps.caltech.edu/~mbrown/planetlila/index.html>
 : <http://www.nasa.gov/vision/universe/solarsystem/newplanet-072905-images.html>
 : <http://www.astro.caltech.edu/palomarnew/sot.html>
- International Astronomical Union : <http://www.iau.org/>
 Kuiper Belt Objects : <http://www.ifa.hawaii.edu/faculty/jewitt/kb.html>
 Shuttle missions and spaceflight : <http://spaceflight.nasa.gov/home/index.html>
 : <http://spaceflight.nasa.gov/shuttle/sts-121/index.html>
 : http://en.wikipedia.org/wiki/Space_Shuttle_program
 : <http://spaceflight.nasa.gov/shuttle/reference/index.html>
- NASA : <http://www.nasa.gov/home/index.html>

Join the E-scorpius newsgroup

The MPAS has an online newsgroup called E-Scorpius. Here you will be kept up to date with the latest MPAS news and event information as well as being able join in discussions and ask questions with other members. To join go to <http://groups.yahoo.com/> and sign up to Yahoo groups. You require to sign up to Yahoo groups to join E-Scorpius. Once you have signed up at Yahoo Groups, email skywatch@iprimus.com.au saying that you want to join E-Scorpius and you will be added to the E-Scorpius list. Come on, join up. The more people in the group the better.

ASTRO CROSSWORD



Across

2. Passage of the shadow of one astronomical body over the surface of another
4. Alpha Eridani
6. Long period of time (10^9 years)
10. Star in earliest form of life
11. Constellation of Native American Indian
12. Third planet from the Sun
13. Another term for eyepiece
16. Satellite of Pluto
17. 4TH largest satellite of Saturn
19. Constellation representing the scales
20. Beta Orionis, 7th brightest star in the sky
23. Meteor whose apparent magnitude exceeds that of Venus
26. Very Large Array (abb)
27. Earth's satellite
29. Glowing ionisation left along the path of a bright meteor
30. Two atomic nuclei join together to form a larger single nucleus
31. Class of stony meteorite usually lacking the tiny round inclusions known as chondrules found in chondrites
32. Johannes, established the laws of planetary motion

Down

1. Largest satellite of Jupiter
3. Constellation, the peacock
5. Region of space around the Sun where the solar wind flows
7. Of the Sun

8. Smallest constellation of the zodiac
9. Third asteroid to be discovered
14. Asteroid 588, first Trojan asteroid to be discovered
15. Carl, American astronomer. In the early 1960's predicted the greenhouse effect on Venus and its surface temp. of 650 K.
18. Alpha Lyrae
20. Long narrow valley on the Moon
21. The Hunter
22. Angle north or south of some reference plane. In astronomy is called declination.
24. Unit of force, symbol N
25. US planetary probes. #2 was the first to reach another planet & #4 was the first to take close photos of Mars
28. Of the Moon

Office bearers of the Mornington Peninsula Astronomical Society

President :	Peter Lowe – 0419 355 819	Secretary :	Don Leggett
Vice President :	Ian Sullivan	Treasurer :	Marty Rudd – 5977 8863
Editor :	Marty Rudd	Public Officer :	Rhonda Sawosz
Committee :	Peter Skilton Terry Ryan		
Librarian :	Andrew Thornton	Web Master :	Richard Pollard
Phone Contact :	Peter Skilton		

Meetings

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

Subscriptions

Full Member	\$50.00	Family	\$65.00
Pensioner	\$45.00	Family Pensioner	\$60.00
Student	\$35.00	Newsletter Only	\$22.00

(Please send payments to the MPAS, PO Box 596, Frankston, Vic, 3199)

Loan Equipment

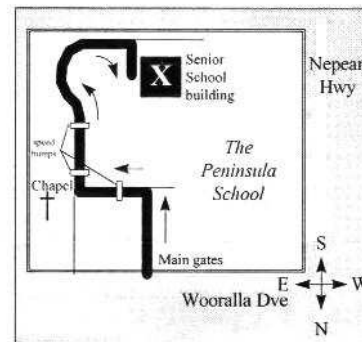
The Society has an 8-inch reflector, 80mm refractor and binoculars available for loan.

Contact Kevin Rossiter or a committee member to arrange the loan of equipment.

The Society also has books and videos for loan from its library, made available during General Meetings:

Viewing Nights

Members only: Any night, at The Briars, Nepean Hwy, Mt. Martha, starting at dusk. If you would like to know if others are observing at the site, then call the society's site mobile on (0408) 127 443. Members visiting The Briars for the first time must contact John Cleverdon on 5987 1535 if they need help in getting to the site. Upon arrival at the site, remember to sign the attendance book in the observatory building and verify that the mobile is turned on.

**Future Events**

- | | |
|-------------------------------------|---|
| 2 nd Sept, Friday | - Briars Public Viewing Night |
| 21 st Sept, Wednesday | - General Meeting at The Peninsula School
- Session 1 : Speaker : John Robinson & Arthur Co 'Photographing the Lunar 100'
Session 2 : Video "Welcome to Woomera"
Session 3 : Open forum and <i>Sky for the Month</i> |
| 24 th September | - Astronomy class with Ian Sullivan at the library in Vancouver St, (Melways 104 D10), from 1:00 pm to 4:00 pm |
| 25 th September | - MPAS Bowling night at Frankston Bowling, Cranbourne Rd. Start 4:15 pm. |
| 7 th October, Friday | - Briars Public Viewing Night |
| 19 th October, Wednesday | - General Meeting at The Peninsula School
- Session 1 : Speaker: Peter Lowe "From Astronomy to Astrology - a history of observing the skies"
Session 2 : Video: "Rocket Men - the 12 Apollo astronauts".
Session 3 : Open forum and <i>Sky for the Month</i> |

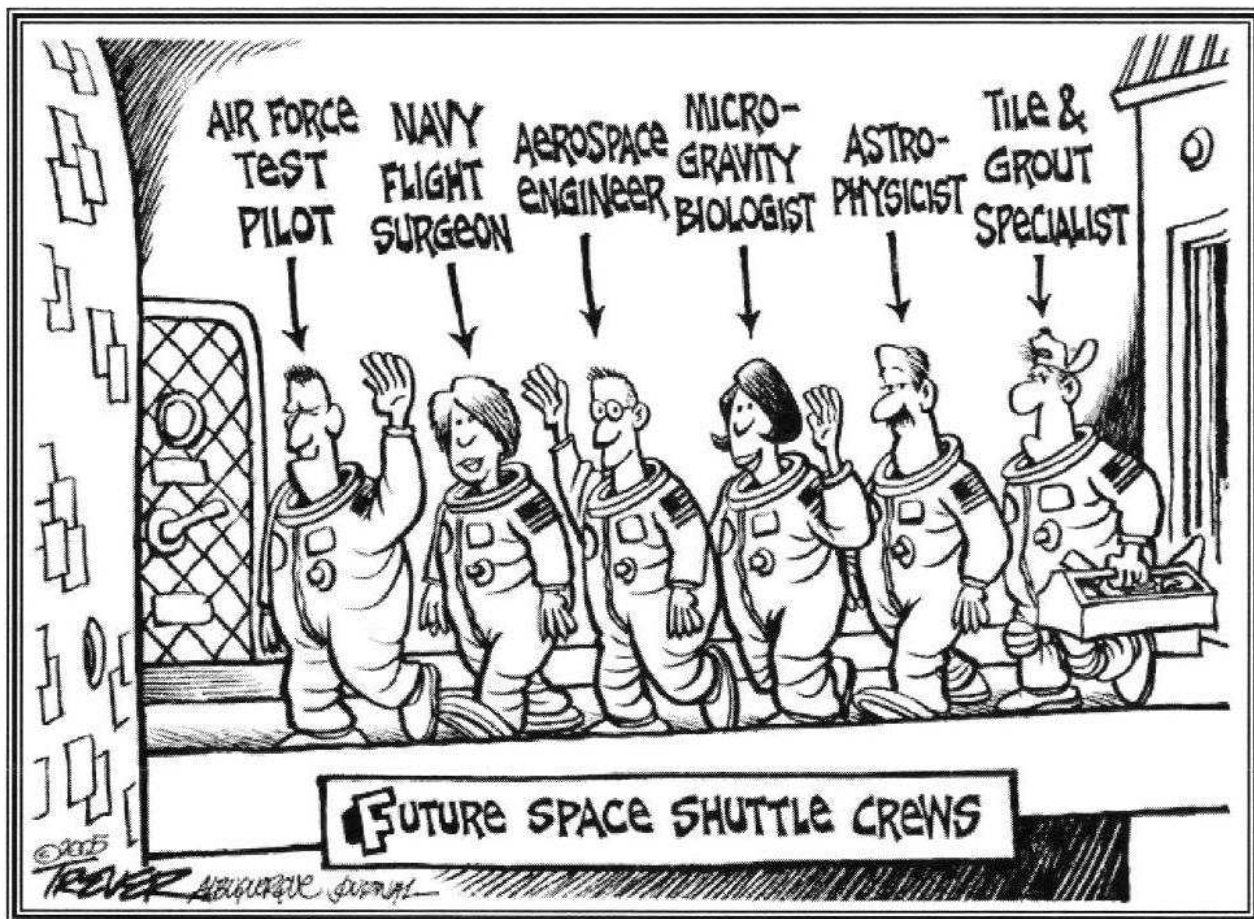
Contributions to Scorpius

If you would like to submit an article or written contribution to Scorpius then please send your submission to MPAS, PO BOX 596, Frankston, Vic, 3198

or email to quasar3671@aapt.net.au (Attn : Marty Rudd).

Any astronomical events that you have witnessed or tales you would like to tell, things you have for sale (eg : telescopes, eyepieces etc.) then please send them in. All contributions are welcome.

SOLUTION TO THE CROSSWORD

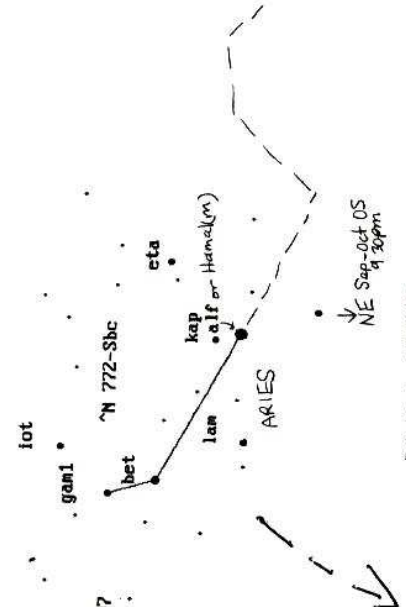
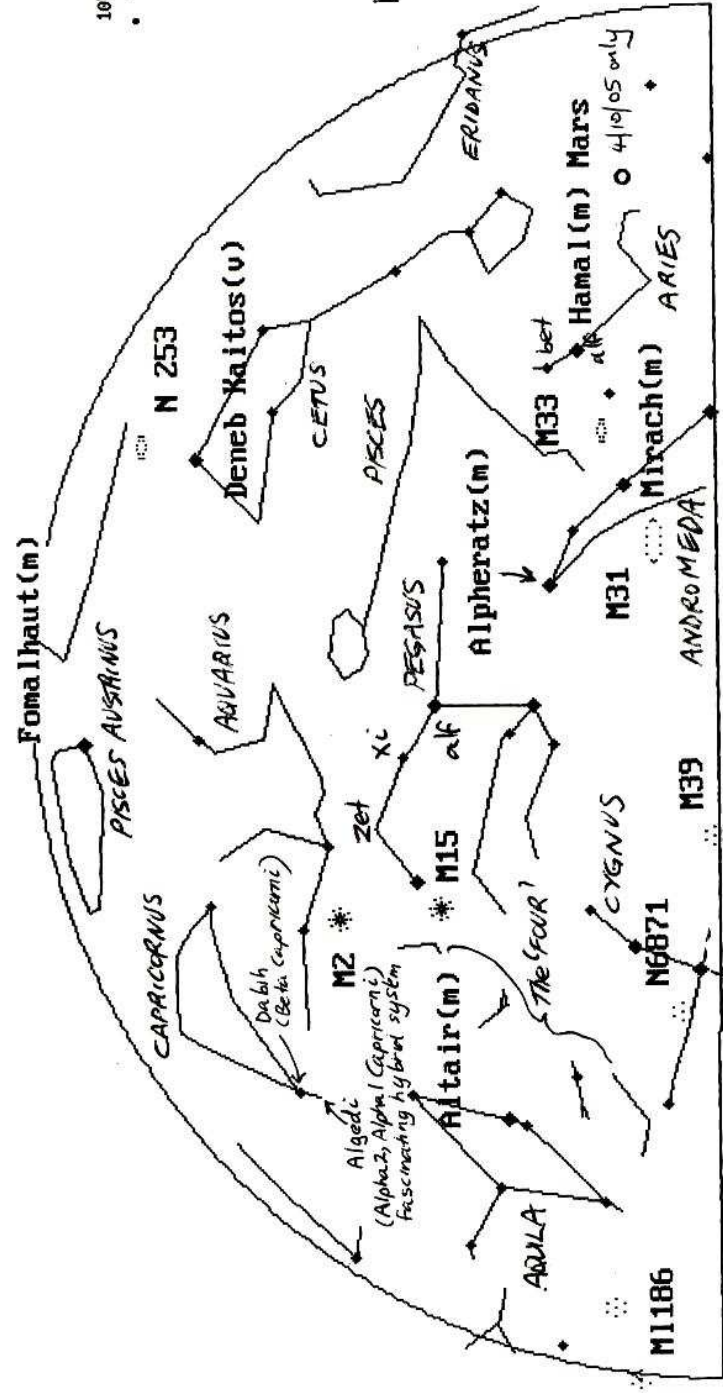
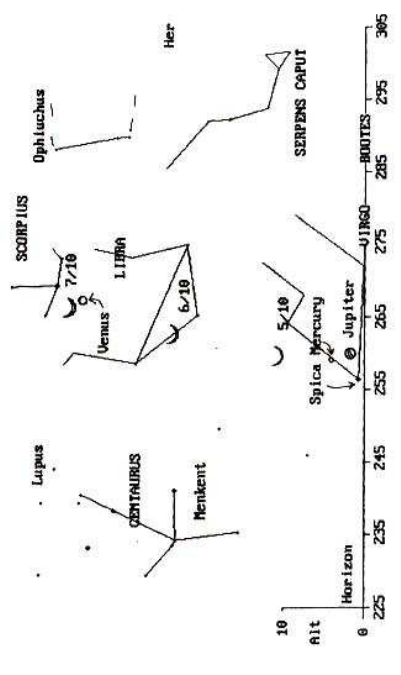
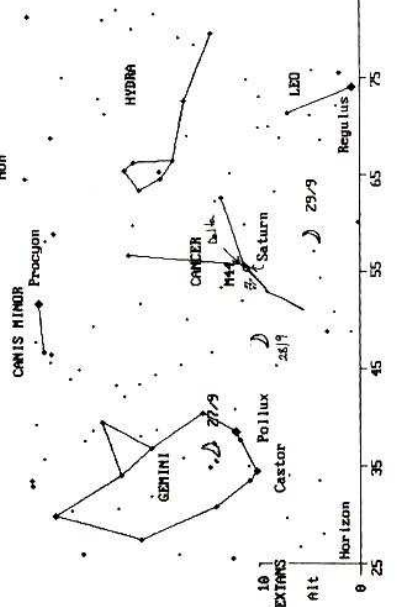
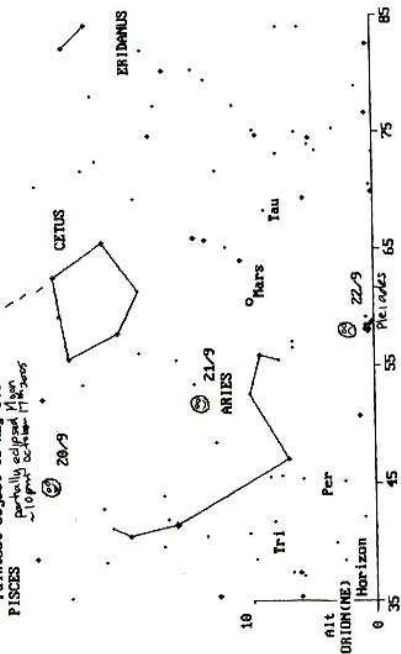


SKY FOR THE MONTH 21ST SEPTEMBER TO 18TH OCTOBER 2005 MORNINGTON PENINSULA

11:27 pm Dark Sky 21st September 2005 Standard Time
 Faintest object is mag 5.5 U1.00 (c) Bob Heale 13/1/03
 PISCES

4:41 am Dark Sky 28th September 2005 Standard Time
 Faintest object is mag 5.5 U1.00 (c) Bob Heale 13/1/03
 Mon

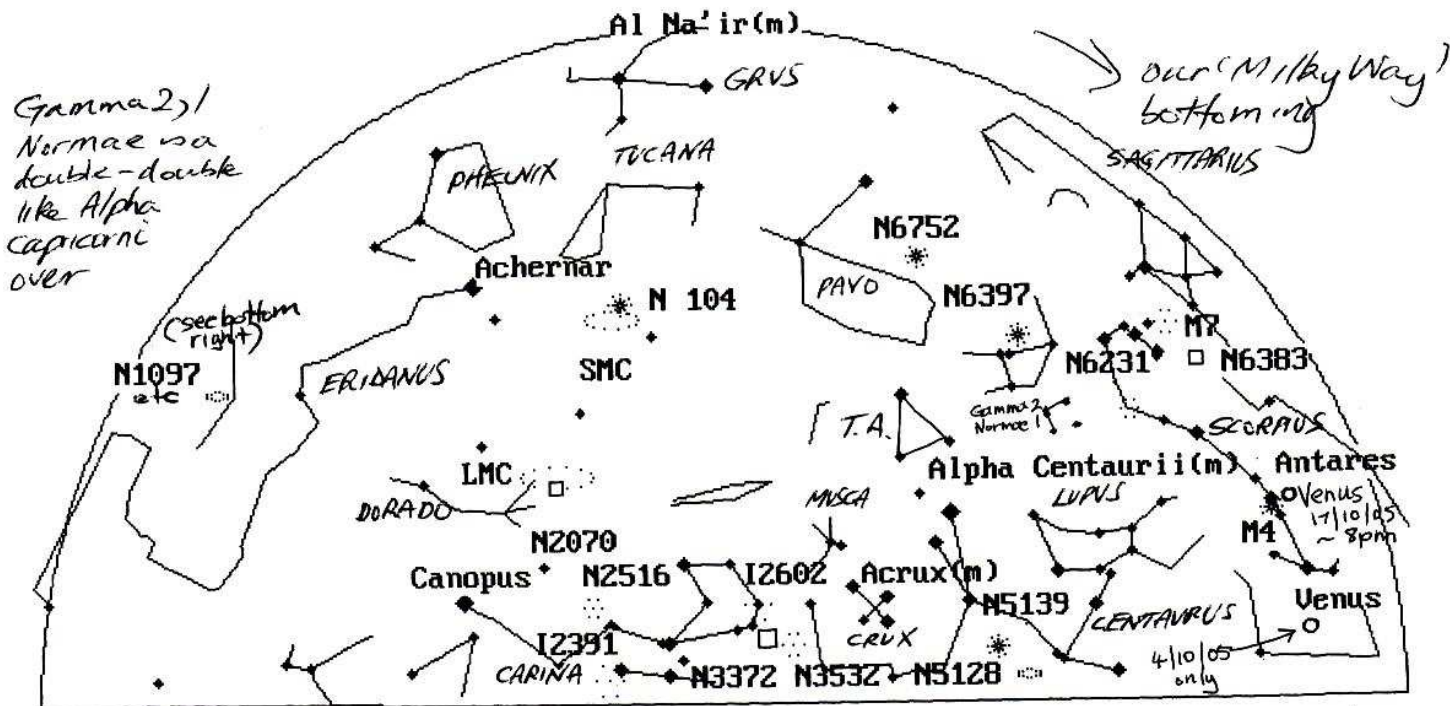
7:11 pm 3:5 Dark Sky 7th October 2005 Standard Time
 Faintest objects mag 3.5 U1.00 (c) Bob Heale 13/1/03



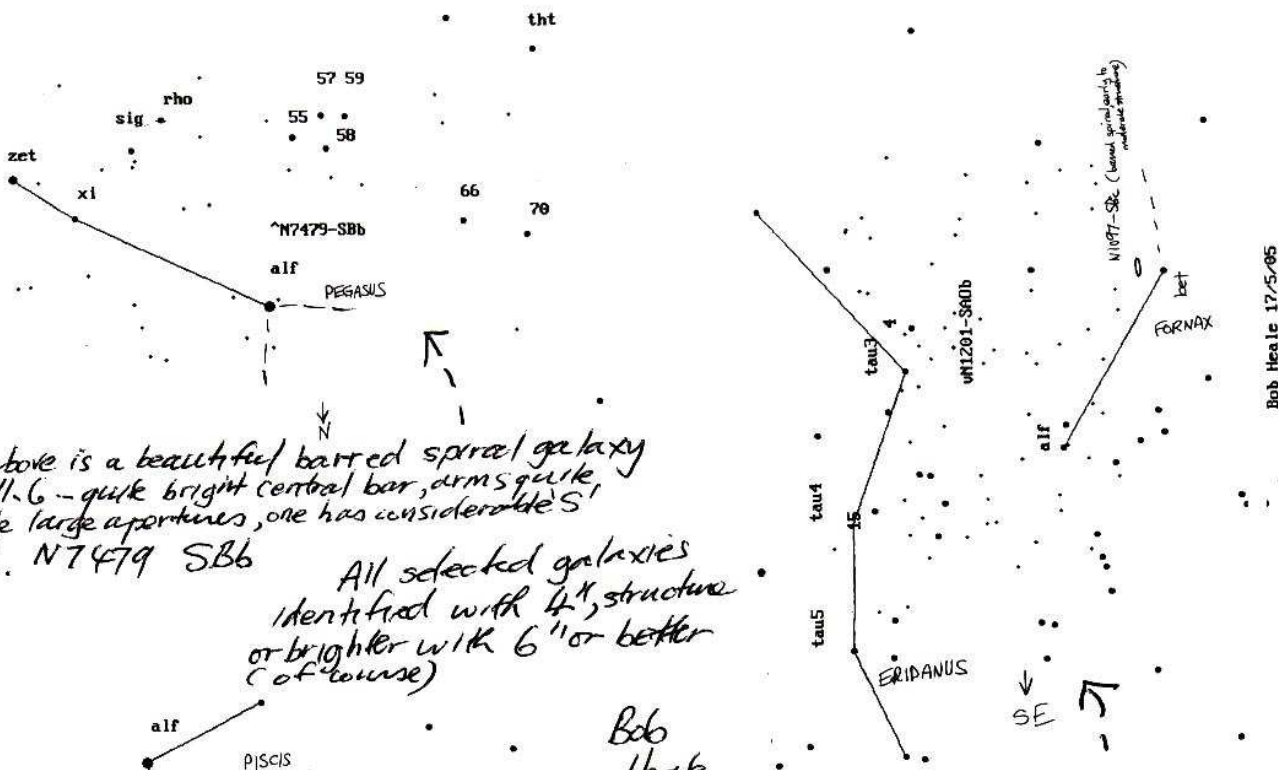
Above finder chart for early to moderately structural spiral galaxy NGC 772 (classical Sbc - brightest example in sky, largeish round, gradually brightens to centre 11'x7'). This classification and others with finder charts results from much work done by Hubble and de Vaucouleurs (see over)

Bob Heale 19/9/05
 MPAS

10:30 pm 20th September 2005, 8:30pm 18th October 2005
 North Dark Sky 2005 Standard Time, similarly



10 30pm 20th September 2005, 9 30 pm 4th October South Dark Sky 2005 Standard Time, similarly 8 30pm 18th October 2005

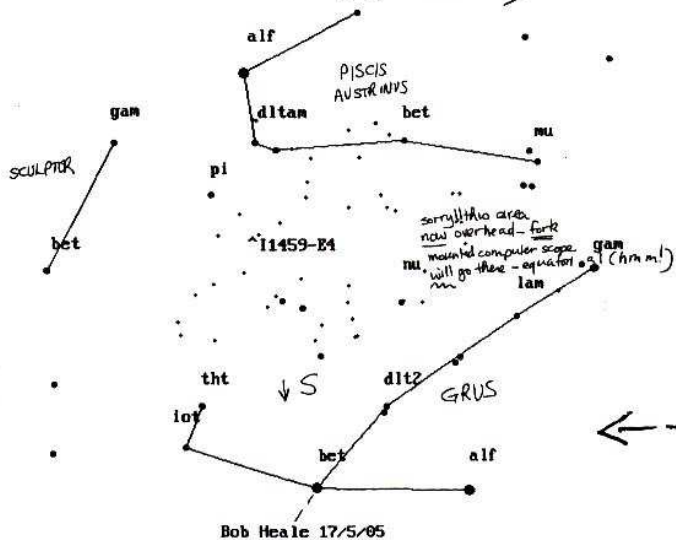


The above is a beautiful barred spiral galaxy mag 11.6 - quite bright central bar, arms quite visible large apertures, one has considerable S¹ band. N7479 SBb

All selected galaxies identified with 4", structure or brighter with 6" or better (of course)

Bob Heale 19/9/05 MPAS

FORNAX IS N1201 SA06 - a lenticular (lens shaped), ordinary with little structure, an elongated glow visible in 6" - bright nuclear region



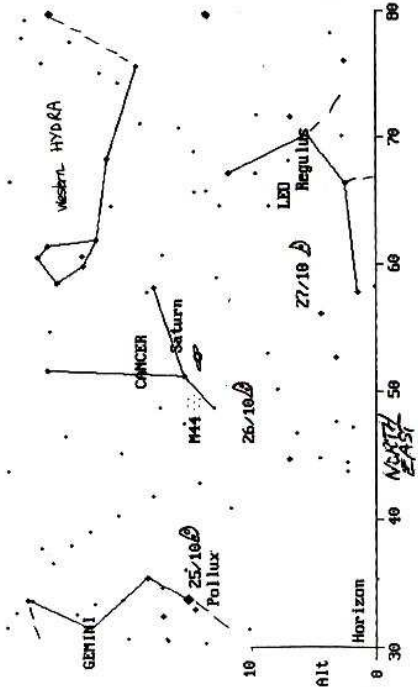
The moderately advanced elliptical I1459 mag 10.0 E4 (an E0 is essentially circular an E6 is very elliptical, some have a halo then E5 F, some compact, then CE2 or dwarf, then d E5

Bob Heale 17/5/05

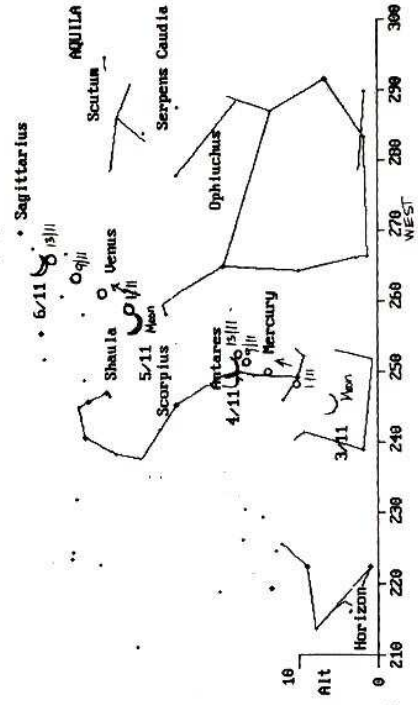
Bob Heale 17/5/05

SKY FOR THE MONTH 19TH OCTOBER TO 15TH NOVEMBER 2005 MORNINGTON PENINSULA (STANDARD) SUMMER TIMES

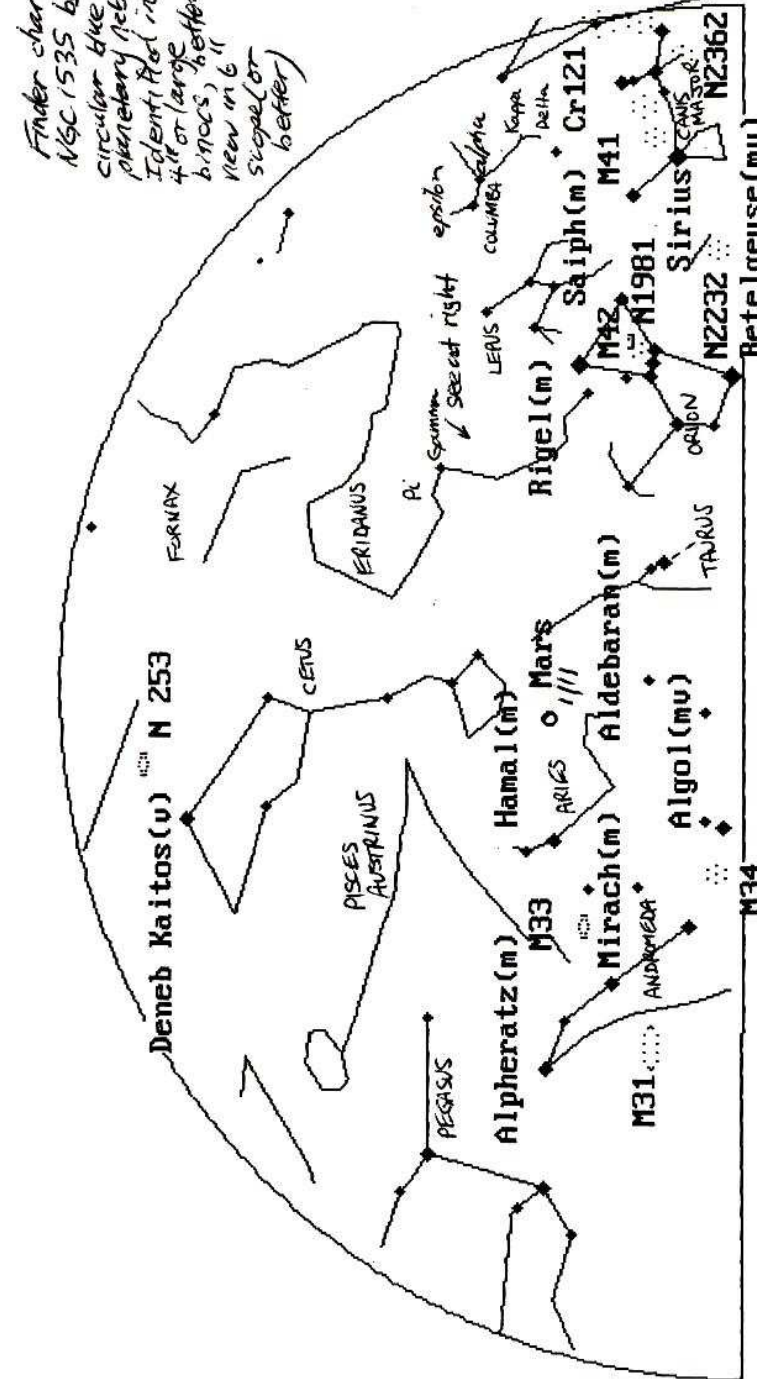
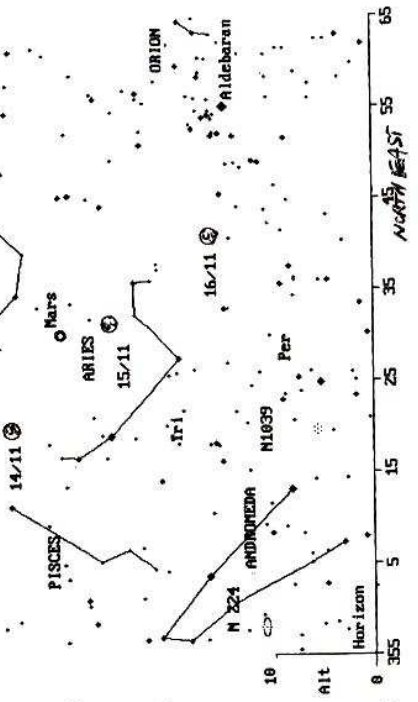
3:16 am Dark Sky 26th October 2005 Standard Time
Faintest object is mag 5.5 U1.00 (c) Bob Heale 13/1/03



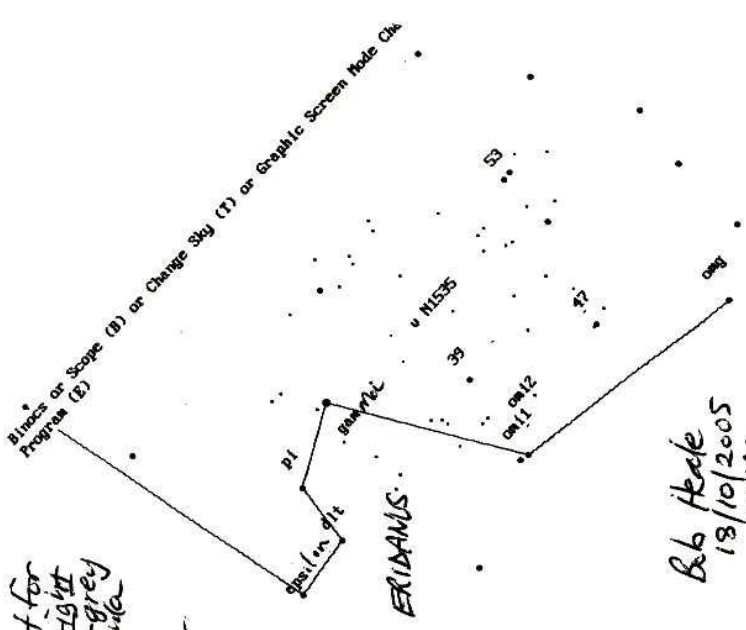
8:39 pm 2/3 Dark Sky 5th November 2005 Summer Time
Faintest object is mag 3 U1.00 (c) Bob Heale 13/1/03



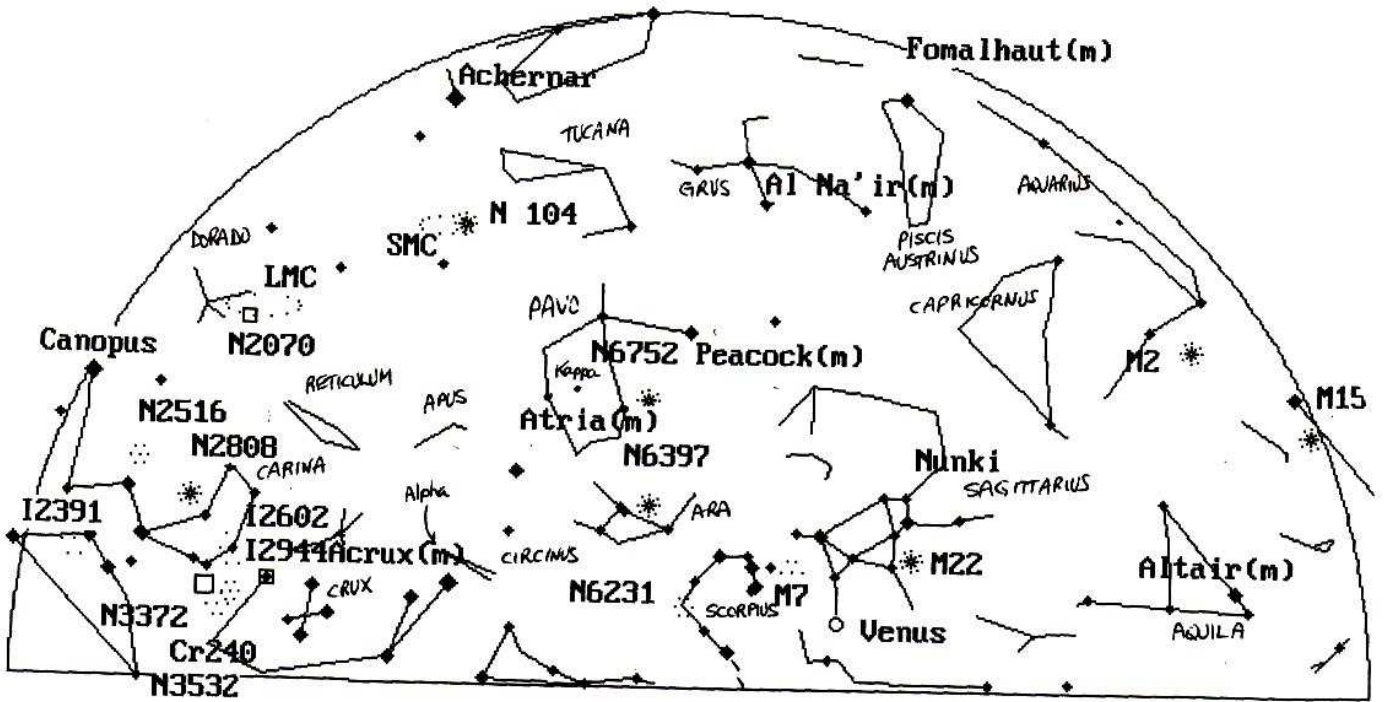
10:33 pm Dark Sky 15th November 2005 Summer Time
Faintest object is mag 5.5 U1.00 (c) Bob Heale 13/1/03



Finder chart for NGC 1535 bright circular like grey object. Red in 4" or large binocs, better view in 6" scope (or better)

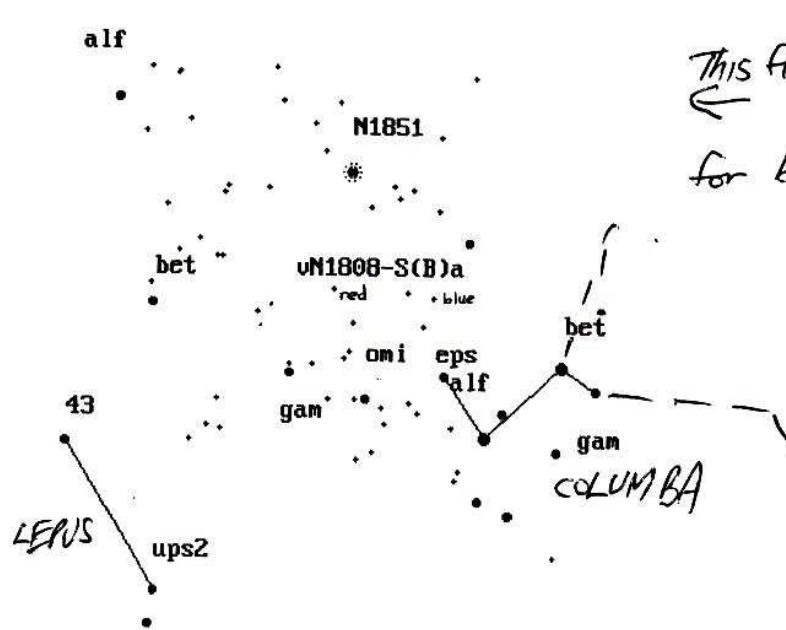
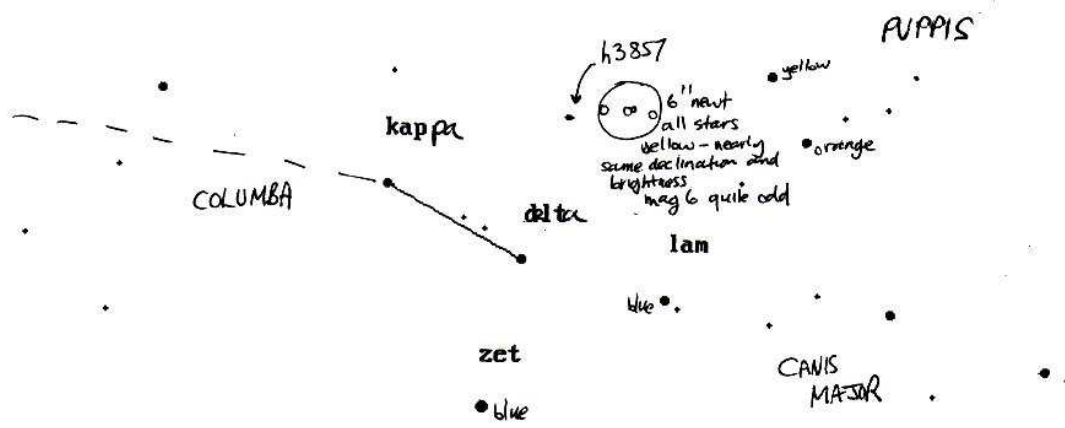


11 pm 1st November NE Dark Sky 2005 Summer Time, a/s/c 11p m
17 October (not Mars) standard time, 15th November 10pm Summer Time (not 5)



11 pm 1st November SW Dark Sky 2005 Summer Time, also 11pm 17 October (not Mars) Standard Time, 15th November 10pm Summer Time (not Mars)

This finder chart
 refer COLUMBA on
 chart over
 h3857 an odd
 lined multiple star
 all yellow and bright



This Finder at left, again for
 COLUMBA
 for bright spiral galaxy NGC 1808

Don't forget - Comet Linear
 2003 K4 is in ERIDANUS,
 nearby area that planetary
 N1535 is in - Comet is
 magnitude 13 (well!!
 not all is ideal all the time

Bob Heak 18/10/2005
 MPAS