



SCORPIO

The Journal of the
Astronomical Society of Frankston Inc.
P.O. Box 596, Frankston, Victoria 3199
Volume IV No. 4 1995

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. In addition, the Society provides the services of its members for educational presentations or observing nights for schools and local community groups.

Meeting Venue:

The Peninsula School
Wooralla Drive, Mt Eliza
(Melways Map 105, F5)

Room F6 at 8.00pm on the third
Wednesday of each month
except December.

Visitors always welcome

Annual Membership Fees

Full Members	\$20
Concession Members	\$15
Family Members	\$30
Family Pensioners	\$25
Newsletter Only	\$15
School or Community Group	\$40

Membership fees are due
1st January each year.

President

Peter Lowe 018 318 920

Vice President & Editor

Peter Skilton (03) 9776 5898

Treasurer

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Secretary

Don Leggett (059) 85 4927

FUTURE EVENTS

General Meetings:

Wed 20th September

Session 1: Peter Lowe will
present

"A Case of Solar Wind".

Session 2: David Girling & Bob
Heale on *Practical Astronomy*.

Wed 18th October

Session 1: Video
commemorating *Apollo 11 Man-
on-the-Moon*.

Session 2: David Girling & Bob
Heale on *Practical Astronomy*.

Wed 15th November

Annual General Meeting.
Session 1: Background on
Jupiter to herald Galileo soon to
arrive.

Session 2: David Girling & Bob
Heale on *Practical Astronomy*.

December

Remember, no meeting this
month! Next in January.

Viewing Nights:

Members Only:

Sat 23rd & 30th September, 21st
& 28th October, 18th & 25th
November all at *The Briars*,
Nepean Hwy, Mt.Martha.
Always confirm with David
Girling on (059) 76-2806 before
attending. Meet at the Briars'
Visitor Centre at 7 pm sharp.

Public:

None advised.

School/Community Groups

Viewing nights or slide nights:
None advised.

Social Events:

Film night in September/October
for "Apollo 13" starring Tom
Hanks (delayed by film's
release). Details will be
provided at monthly meeting.

Car Rally, Sun 29th Oct. just
after Daylight Savings starts.
Details provided at monthly
meeting.

Christmas Breakup, Mt.Martha
Park, Sat 2nd December, 4pm in
the picnic areas.

Further suggestions are
welcomed.

Phenomenal Events:

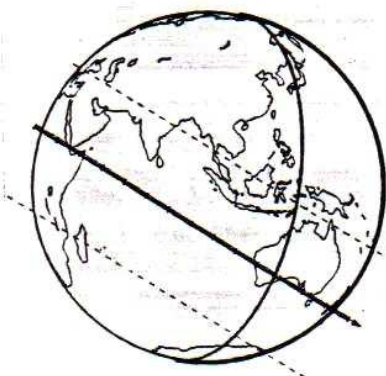
Orionids meteor shower is from Oct 2 to Nov 7, peaking on Oct 22 when 30 per hour is typical. If you can find Orion, you can find it.

Lunar eclipse (85% penumbral) visible on Oct 9. Starts 11:58pm, middle 2:04 am, ends 4:10 am (all local time).

Solar eclipse on Oct 24. Sorry, you have to go to India to see it in totality. However, partially visible in Darwin if you're keen.

Daylight Savings begins overnight on Oct 28/29.

There are 3 very favourable Minor Planet occultations near to us. On Aug 30 at 7:29 pm Elfriede is predicted to occult a mag 9.6 star in Virgo. On Oct 16 at 7:50 pm, Rockefellia will occult a mag 10.3 star in Aquarius, and on Oct 25 at 8:06pm, Adelinda will occult a mag 8.8 star in Sagittarius. Members will be glued to these so as to try and work out the shape and size of these bodies for the professionals and become famous in the process. The first two asteroids have their path predicted to be directly over the Mornington Peninsula. The track of the first asteroid's shadow is shown below. See Peter Skilton or Bruce Tregaskis for details.



NEW MEMBERS

A warm Solstice welcome to the following new members of our Society:

Pam Marchinton

Total membership exceeds 60 at the moment, keeping us the second largest Society in Victoria. Please feel free to say hello at general meetings, where your name tag will be made available. Society badges, Planispheres and Astronomy books & posters are also available at General Meetings.

HELP NEEDED

Does anyone have back copies of the ASF newsletter going back to our origins in 1969? We are interested in taking photocopies so as to put together a library set.

We are looking for volunteers to be responsible for greeting new members on their first night. Please see Don Leggett if you can assist in this important task.

COMMITTEE NEWS

It is possible we may be hosting the next VASTROC gathering at Easter 1997 (Victorian Astronomical Conference) when amateurs get together from across the state. Committee is still deliberating.

Committee is considering the possibility of a future raffle to help fund the Observatory. Various groups are being canvassed to help us.

Don Leggett

EDITOR'S BIT

This edition of the newsletter comes hot on the heels of the last

and brings us up to date with our normal schedule.

PRACTICAL ASTRONOMY

At the monthly meetings, Bob Heale and myself hold Practical Astronomy talks. These are for people active in Astronomy or want to be. Over the past year, we have talked about telescopes and how to use them, how to use star charts, finding your way around the sky, the different books you can buy on Astronomy, the sort of objects there are to see in the night sky, and what your telescope or instrument can see. Bob recently gave an excellent talk on Galaxies which was well received.

In the future, we will talk on many different subjects, mostly on how to observe the night sky, and what objects will be around that month. Any member wanting to give a talk at these meetings is most welcome. We are looking for other members to talk on what they are doing or want to do in Astronomy. I will try to write about some of the subjects we cover in future issues of the newsletter.

David Girling

SEEING THE PLANETS

Mercury: Visible all Sep until first week Oct, in the evening just after sunset. Shows a thin crescent on Oct 10, becoming 50% full on Oct 20.

Venus: Sets 1 hour after sunset.

Earth: Look down.

Mars: Sets about 9:30 pm.

Jupiter: Sets about midnight, so is high in the sky in the evening.

Saturn: Rises around sunset.

Neptune/Uranus: Both set around 2 am.

Pluto: Sets about 9:30pm.
You'll need an 8 inch mirror.

JUST FOR STARTERS

Twilight's Gleaming

Twilight is caused when the light from the Sun is scattered by the upper layers of the Earth's atmosphere. This occurs before sunrise and after sunset. There are three types of twilight:

1) Civil twilight begins in the morning, or finishes in the evening, when the Sun's centre reaches 6 degrees below the horizon at sea level. At this time, in good weather conditions, the brightest stars are visible and the sea's horizon can be clearly seen. Officially, this is the time at which outdoor activities that depend on natural lighting require artificial illumination.

2) Nautical twilight begins or ends when the centre reaches 12 degrees below the horizon. At this time, the sea's horizon is generally invisible, stopping altitude measurements with respect to the horizon.

3) Astronomical twilight begins or ends when the centre reaches 18 degrees below the horizon. At this time, the Sun's scattered illumination is less than that from starlight, and is about the same brightness as the light from aurorae and the zodiacal light.

1995 AUGUST 09 GRAZE EXPEDITION

The southern limit graze of a magnitude 5 star (that's quite bright) went ahead on a nearly full Moon, with members from

both the ASF and the ASV meeting near the Frankston Tip. Details will be reported in the next edition of the newsletter.

VARIABLE STARS

An alert has been issued from the RASNZ on the variable star EX HYA. A new X-ray telescope is due to be launched end of August into orbit and will begin by studying this star that has rare outbursts in brightness. The new X-ray Timing Explorer (or XTE) satellite will turn round onto this star if it becomes brighter than magnitude 11.5. You will need a 6 inch mirror to see it. Because the satellite cannot monitor it all the time (too expensive), amateur Astronomers have been asked to keep a lookout instead. Here is your chance to say that your observation turned an orbiting professional telescope around. See Peter Skilton or Bruce Tregaskis for advice on observing it.

BRIARS' VIEWING NIGHTS

I have not written in the newsletter for sometime - a long time really! So I have finally found some time to do so and will endeavour to write regular articles about viewing nights and practical Astronomy.

First, I should tell you all about our viewing nights at The Briars. Normally, 2 Saturdays each month are set aside around New Moon. Why New Moon? Well when the Moon is out it lightens up the sky, reducing contrast, so views of deep sky objects are harder to see.

You don't have to own a telescope to come along, but a

keen interest in "doing" Astronomy is a must. Normally 4 to 5 telescopes are there, ranging from 8 to 12 inch Newtonians, so fantastic views of the night sky are the norm!

We don't limit observations to deep sky objects either. Solar System objects are always of keen interest. For those deep sky viewers who scoff, have you ever tried to find Pluto or some of those elusive comets, or those asteroids, or the moons of the outer planet? Not as easy as you may think. Jupiter and Saturn are not the only objects in our Solar System, mind you they are some of the best and biggest.

We are keen for any person "doing" Astronomy, whether that be deep sky, planetary, variable star, astrophotography, CCD (half your luck) etc. to come along and join us. It's a good way to share and enjoy the best hobby in the Universe.

In later issues, I will report on some of the more interesting objects seen. If anyone has any interesting observing programs going, why not write about them and send them to the editor? I'm sure they will be of interest to all amateur Astronomers.

One observing program I have is to view as many globular clusters listed in Sky Catalogue 2000 Vol.2 as I can. I have seen many globulars, but have made no real record of them. I am now in the stages of changing that, making proper records of my observations. I have just started to sketch some of my observations onto observing cards I've had printed. Sketching is rewarding and I think makes a better observer.

Globulars are hard to sketch, so a lot of my observations may just be written or tape recorded. An equatorially mounted telescope with drive would make sketching easier (I have an 8 inch Dobsonian). I will write in later issues on how my program is going.

David Girling

GALILEO REPORTS BACK

Comet Shoemaker-Levy-9 smashed into Jupiter's atmosphere a year back now. Because the impact zones were on the night side of the planet, Earth-based observer's were robbed of the chance to see the impacts at the actual time of impact. Over a million images were taken by large Earth-based telescopes. However, the Jupiter-bound Galileo space probe had a ring side seat, being able to observe the moment of impact directly. Images have been leaking back to Earth at a very slow rate due to a crippled antenna on the space probe, but nevertheless pictures are now being received.

The exact instant of impact was recorded by Galileo for each of the fragments. A massive flash lasting tens of seconds accompanied each, which then became visible as a fireball plume that lasted several minutes before sinking and spreading out. If you recall, the Hubble Space Telescope snapped the famous images of the plumes reaching over 3,000 kilometres into Jupiter's atmosphere.

One of the larger fragments, G, created a plume that spread 12,000 kilometres downwind, producing a dark patch easily

visible from Earth in even very small telescopes.

Several observatories reported seeing small flashes of light prior to the predicted impact times. It is now thought they were caused by fragments too small to be seen from Earth impacting ahead of the larger parent body. A puzzle yet to be solved is why the plumes from all the impacts rose to the same height in the atmosphere, when you would have expected larger fragments to cause larger explosions and hence throw material higher into the atmosphere. Planetary scientists are still scratching their heads over this one.

The debris left over was found to contain rare diatomic sulphur and in billion tonne quantities based on spectroscopic measurements. Because of the sheer amount of the stuff, this strongly suggests it was dredged up from lower within Jupiter, rather than originating from the comets themselves.

Another puzzle was water. Some observatories detected seeing it, whereas others didn't when they should have been able. NASA's Kuiper Airborne Observatory (that visited us at Tullamarine) reported water with fragments G, K, R and W. The water traces lasted for about an hour for each, after which time it had cooled sufficiently to be undetectable. It is suspected that oxygen from the comet combined with hydrogen in the Jovian atmosphere to produce the observed water, since the impact should have completely dissociated any comet-bound water. Alternatively, there may be a water layer deep in the

Jovian atmosphere and the impacts merely dredged it up where we could see it.



Moments after impact of Fragment C of comet Shoemaker-Levy-9 impact on Jupiter last year. Imaged by Dr. Peter McGregor using the ANU 2.3 metre telescope and the CASPIR infrared detector at a wavelength of 2.34 microns. Times shown are in Universal Time (i.e. 10 hours before our local time).

NEW COMET FOUND

A new comet has just been discovered beyond Jupiter and it promises great things, even outdoing comet Shoemaker-Levy-9 last year. Based on current telescopic estimates, the comet is 1000 times the mass of Halley's comet, and could possibly, due to its sheer size, be visible during the daytime in about 18 months time when it

nears the Sun in early 1997. Originally, astronomers were unsure as to whether a collision with Earth might result, however, now it seems clear that this will not occur this time. Just as well, since at over 100 km in diameter we would go the way of the dinosaurs if it did.

The large size of the comet could be bluff if it is only gaseous emissions that we see, though it is highly unusual for a comet to be active out beyond Jupiter's orbit. Alternatively, the comet could be a new arrival from the Oort Cloud outside our Solar System, and hence unusually active since this would be its first pass by our Sun.

The comet, officially designated 1995O1, was first spotted on 23rd July by two amateur astronomers, Alan Hale of New Mexico, and Tomas Bopp of Arizona. Comet Hale-Bopp is in Sagittarius at the moment, near the deep sky object M70, and 840 million km from Earth. Poor weather in Australia has hampered much observation to date. It is a faint magnitude 10.5, requiring an 8 inch scope.

ON TARGET, BY JOVE

Galileo, the spacecraft currently bound for Jupiter, underwent a milestone manoeuvre in mid-July this year. On command from Earth, the craft separated into two pieces: a mother craft and a small probe craft. Although there were no instruments onboard to tell NASA that the separation had been successful, mission planners are confident that all went well. This was supported by careful measurements of the Doppler shift in the broadcast

radio frequencies from the mother craft, and from measurements of heat loss from the docking bay where the probe craft originally sat. Upon separation, a guillotine severed electrical connections joining the two craft together, permitting them to move apart.

The small probe craft is due to race ahead and dive into the atmosphere of Jupiter later this year while the mother craft follows behind then remains in orbit around Jupiter to do prolonged surveys. Radio silence from the probe craft is to be maintained until 7th December this year, when it will switch itself on using an onboard clock, and begin measurements. Six hours later, the probe will deploy parachutes as it hits the Jovian atmosphere at supersonic speeds. It is expected to transmit scientific information for about an hour and a quarter, before being crushed out of existence by the titanic pressures lurking in the depths of the atmosphere.

ALIENS HAVE LANDED !

For the first time in history, the United States Immigration and Naturalisation Service officially allowed two aliens from space to land on US territory in July.

In late June, early July time, the US Space Shuttle Atlantis docked successfully with the Russian Mir spacestation high in Earth orbit. On board Atlantis at launch were 7 US astronauts yet, after exchanging personnel, it returned with 8 passengers, 2 of whom were Russian.

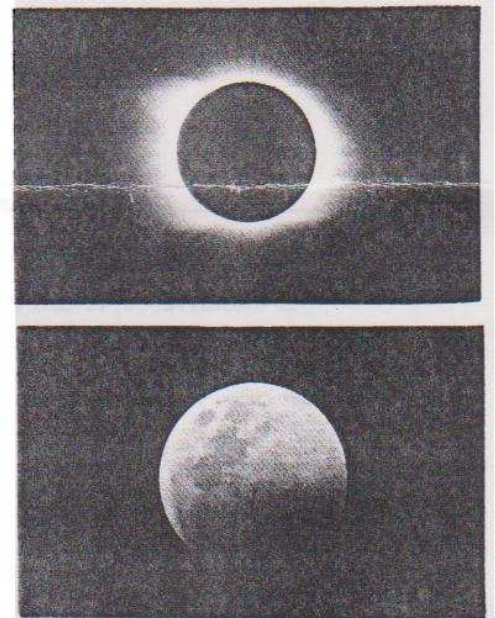
Vladimir Dezhurov and Grennady Strekalov, who have been on Mir for 3 months were

to return to Earth when it was discovered there had been a slight administrative oversight: they had forgotten to lodge an application for a US entry visa. The US State Department has for the first, and probably the last, time asked for a waiver for "aliens from outer space" to land on US soil. Kindly, the Immigration Service has agreed not to arrest the cosmonauts for illegal entry into the USA.

FINAL PRONOUNCEMENT - SYZYGY

An alignment of the Sun, Earth and a third planetary body, including the Moon. Both conjunction and opposition are examples of a syzygy, as are all lunar and solar eclipses. Pronounced as "sizz-idge-ee".

If you have any Astronomical word that has been niggling you for years, drop it in the question box at a General Meeting and let us look into it for you?

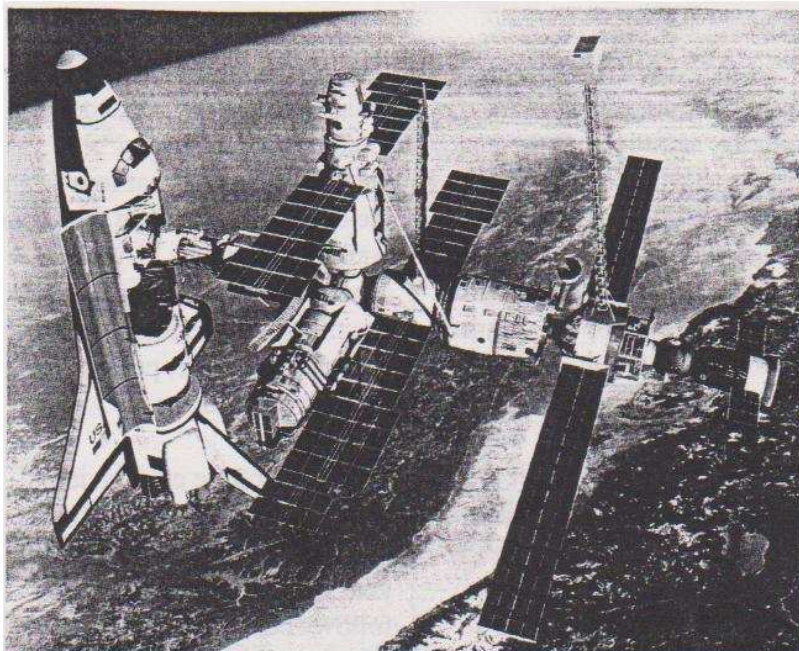


Recent Solar & Lunar eclipses.

BACK ISSUES

Copies of past editions of the ASF Newsletter are available at \$3 each from the Editor.

Space Shuttle Atlantis docks with Russian Mir Spacestation in low Earth orbit in July. Notice the large solar panels on Mir that provide its onboard power needs. This rendezvous is an early prelude to the international space station.



If undelivered, return to GPO Box 596, Frankston, Victoria 3199.



Note: If this box is ticked then membership has lapsed and this will be your last edition of the newsletter. Please contact the Treasurer in this case.