

Assistants are required. New members are welcome to watch and participate if desired.

- **MONDAY** May 7: 8pm, Camp Manyung, St Francis of Assisi Primary School, 89 Grade 5 students expected.
- **TUESDAY** May 8 Langwarrin Park Primary School (Melways 136 A4) Approx 100 students over several grades are anticipated.
- **WEDNESDAY** May 9: 8pm, Camp Manyung, St Francis of Assisi Primary School, 62 Grade 5 students expected.
- **THUR** May 24 St. Catherine's Primary School at the BRIARS EDUCATION Centre, Mt Martha (next to the Observatory site), approx. 55 students.

Social Events

Recently occurred...

- **The Equinox Dinner** for 2001, held on Friday, March 23, saw twenty-six members come along to Kirkpatrick's Hotel at Mornington, looking out over Port Phillip Bay. A good time was had by all, with one of the highlights being the "Spirit of Tasmania" ferry passing in front of the setting sun. The recent rain had cleared, so some members went outside later to watch (unsuccessfully) for the International Space Station, only to find the next day that the predicted time had changed.
- **Ten Pin Bowling:** April 21 saw a great turn out for a session of bowling at the AMF Centre in Cranbourne Rd, Frankston. We had 15 adults and children turn up for three games each, and when the powder had settled, here's how the total score stood.
Sally Zetter 355
Richard Pollard 336
Peter Skilton 310
Don Leggett 295
Phil Snelling 289
Graham Zetter 285
Renato Alessio 270
Sue Stoner 243
John Cleverdon 151
Jason Zetter 133

Congratulations to Sally on a great display of precision bowling.

And coming up....

• ASF SCOPE DAY 2001 May 19, 12noon finish late

Come and display your telescope! Everyone who has a telescope, binoculars, anything they use to study the heavens, no matter what sort, type or age, we want to see it. A Buy & Swap table will be there, anything you want to sell regarding Astronomy, and prizes for best display and most unusual scope and best view of Mars will be on offer. Starting at 12pm finish late into the night at the Briars ASF observing site. (If raining or weather is poor, alternate scope day will be September 22nd) A BBQ will be available all day so bring your own meat and drinks. Coffee and Tea will be on site. Tell a friend to bring the Family, most important bring yourself and your Telescope. Any inquiries ring or e-mail Dave Girling on 59762806 or mobile 0407883165.

- **Planetarium Visit:** The Committee is again considering a members' trip to the Melbourne Planetarium. This would be organised for a Sunday afternoon to make it easier to attend. If you are interested, please speak to Peter Skilton or Richard Pollard.

YOUR SOCIETY

NEW MEMBERS

Welcome to the following new Society member(s):

Jarrold Anderson
Phil Snelling

NAME TAG UPDATE

Last year, the Society nametag was redesigned to make the text easier to read, and new nametags were printed out for all members. These were brought along to meetings to be handed out. However, there are still a number of new nametags that are yet to be picked up. As a result, several members will find a new nametag appearing with this edition of Scorpius. If you are one of these members, please use this new nametag to replace the existing one. For newer members, there are still a few spare nametag holders – if you need one, please see me at a meeting.

John Cleverdon

HELP NEEDED

Articles, features, book reviews, member observations and points of general interest for this journal are always welcome. New contributors are encouraged. For example do a bit of reading and pass on some information, but remember not to plagiarise. Hand written material is fine; computer text files are perfect. The editor will even correct any mistakes you might make, so don't be bashful.

RECENT MEETINGS

MARCH'S meeting saw a good turn out on a rather bleak (for March, anyway) evening. Session 1 was the usual hive of activity, with myself acting as a sort of roadie, hooking up laptops and dimming light to suit the variety of presenters. Don Leggett traded in his bell for a timer with buzzer, and put it to good use. After hearing from Bob Heale and Sky for the Month, Ian Sullivan gave a talk on the equinox, which had occurred some 20hrs prior. Peter Skilton showed us how to use the charts in Astronomy 2001 to indicate planet visibility, and Ian Porter concluded his 'What Goes Up' with a 'What comes down'; his thoughts on the impending demise of the Mir Space Station. Others to speak were Roger Giller on aurorae and David Girling on the upcoming occultation by the asteroid (709) Fringilla.

After the break, three concurrent sessions were run. Ian Porter gave a talk in the main theatre aimed at beginners called "What Can You See", a video was shown, appropriately the excellent Horizon documentary "Mir Mortals" in the 'other' room, and David Girling attempted to show some occultation videos, but had an incompatibility problem with the VCR and TV.

APRIL'S meeting was once again held in the theatre at the Peninsula School, and marked the first occasion in which we have had to pay for it's use. The proceedings were kicked off in the usual way by Peter S., and due to the unexpected absence of regular contributors, the agenda was thrown into disarray. Ian Sullivan was first up, and included in his talk was an explanation

as to why there was no full moon at Easter. Roger Giller followed with 'Sky Lights', but, unfortunately, during his aurora presentation, we started experiencing technical difficulties with the projection system shutting down after a few minutes, requiring a full restart. During these forced breaks, we were able to see Peter Skilton's fantastic aurora slides, and other short contributions from members. Russell Thompson had prepared a detailed presentation on Pluto, but, once again, projector shutdown cut it short. After the Zettlers won the raffle (again), we broke for refreshments. When we reconvened, it was time to welcome our guest speaker: Barry Adcock, member of the BAS, ASV and ASA, to talk about Mars and it's impending opposition. Barry kept us enthralled for quite some time, explaining that this year's opposition will be a precursor to the best one of all: 2003.

OBSERVATIONS:

Mars: David Girling, Russell, John, Sue and Neil spent the evening of March 30 viewing many objects with galaxy-hunting on the list while using supernova search charts, although no novae were seen. Many other Deep Sky objects were viewed, but the highlight of the night was Mars. With Russell's (Thompson) scope, a 10inch Dobby, the views were outstanding. At 9 arcseconds diameter, Mars was small. The big 10inch was up to the task, with very steady seeing and a range of magnification up to 510x there was plenty of detail, the polar cap and dark markings everywhere to be seen. Russell was very excited as he had not seen Mars at opposition and with Mars to get bigger at 20.79 arcseconds diameter in June, he, and all of us can't wait. For those who have not seen through Russell's scope do yourself a big favour and ask for a look. It is one of the best if not the best I have ever looked through. Good viewing ... Dave Girling.

Note: David Girling has taken over the role of Briars coordinator for **members viewing nights only**.



METEORS: Four meteor observers from the ASF and ASV (Adam Marsh, Marty Rudd, Roger Vodicka and Lance Kelly), met on April 28 at (the wonderful-sounding) Cannibal Hill observing site in Garfield Nth, Victoria, for a few hours of Eta Aquarid observing. The group met at a rock outcropping at the top of Cannibal Hill, elevation 350 metres up a well-worn track, which faces north to east; the perfect setting for the Eta Aquarids. We began observing at 0005 hours. Around 15 meteors were seen in the first hour, including some good activity from the Librids Radiant. The second hour went from 0110 to 0210 hrs with higher meteor rates, around 20 per hour were seen. The highlight was at the start of that hour at 0112 hrs with a great magnitude -3 yellow fireball seen heading down to the southeast. The third hour from 0225 to 0325 hrs had similar rates, also with a surprise. At 0311 hrs a magnitude -4/-5 yellow/green fireball was seen by all observers, bringing a few cheers to the hillside, seen heading down to the eastern horizon.

The Eta Aquarid activity started up in the 4th hour with 6 seen between 0325 and 0425 hrs. Sporadic rates were also high with total rates for the hour at around 25. The night ended at 0440 hrs after seeing a few more Eta's. Due to the current aurora warning we also had our eye on any possible aurora, however none was visible to us. Overall, a cold but great night's observing.

Adam Marsh

SECRETARY'S JOTTINGS

Over the past few months, the Committee has been in consultation with the administration at the Peninsula School, regarding our arrangements to hold our General Meetings there. The ASF has been using this venue free of charge for more than the past decade or so, but, unfortunately, this has changed. Since the building of the theatre, the school has been charging \$55.00 per hour for it's use, but have offered us the discounted price of \$55.00 *per night*. The committee has accepted this, but has suggested the option of free viewing nights to offset the cost. We are currently awaiting their reaction to our offer, and will keep you all informed.

Sally Zetter, Secretary

E-SCORPIUS

The Society maintains an e-mail distribution list (called E-Scorpius) for rapid dissemination of astronomy information to members. This list proved invaluable during the recent aurora displays.

In addition, members can send a message to the distribution list, for example asking a question, and have it immediately sent to all other members on the list.

If you feel this might be of interest to you, and you have an Internet e-mail address, then simply pass it along to



Richard Pollard or any other Committee member. This e-mail distribution

list is provided as a free service to members in the interest of sharing information between meetings.

JUST FOR STARTERS

VP VISITS ALBERT JONES

Back in early March, whilst visiting relatives and friends in New Zealand, I took the opportunity to pay a visit to the person who got me interested in astronomy way back in 1986. Albert Jones worked in the maintenance department of the auto-assembly plant I also worked at, and he invited me to view the skies through his homemade reflector. Albert has recently been confirmed as the oldest person to discover a comet: in 1999, he co-discovered comet Utsunomiya-Jones (C/2000 W1) at 80 years of age. He is renowned for his observations of variable stars over more than 50 years. He has recorded over 500,000 observations, and was the co-discoverer of Supernova 1987A. In 1946 he discovered Comet Jones (1946VI) while observing the variable star U Pup.

Albert wrote this for 'Scorpius':

"After WW2, I had a 5-inch refractor (of unknown lineage) and an 8-inch reflector (bought mirror and flat, the rest home-made.) Wishing to see fainter stars, I bought a 12.5-inch f.5 mirror

and flat, and made a telescope and mounting of my own design. Intended to make a drive but never got around to that, nor to make setting circles - 99.9% of time spent on variable stars - I locate a star by star-hopping, make the estimate in a few seconds, write the result in the log-book, then shift the telescope to the next variable, so a drive would not be used. The telescope is nothing to look at (being made to look through not at!) The telescope was first used in February 1948.

On the telescope there are two finders, the smaller, 45mm diam. besides being used for pointing the main telescope, is also used to making estimates of bright variable stars. Another finder has a 78mm OG that was brought back from WW2 by a relative -the OG was rescued from a German Tiger Tank I am told. That home-made finder is used for fainter variable stars, while the main telescope is used on the faintest variables that I observe.

On Comet U-J: Most of my variable star observing concerns RCBs, WRs, symbiotics, SRs, a few CVs and when there is time to spare I "do" a few Miras. As I had not checked on T Apodis for a couple of weeks, I intended to look at it on the Friday morning by the time it had risen high enough in the morning sky, but by the time I had done more important stars, I found that twilight had beaten me, so I thought I had better make sure of it the next morning. But Saturday was cloudy, however Sunday morning was clear, so when time I turned the telescope towards the T Aps direction around daybreak, and was star hopping to the field, I noticed the fuzzy stranger. Marked its position on the finder chart, noted its brightness and diameter, by which time the sky was getting light. I felt sure that it must be a well-observed comet that I had not heard about, so phoned Alan Gilmore at Mount John Observatory to find out what he knew about it. Alan did not know so e-mailed Dan Green at the CBAT. Dan Green emailed to me that it might be the comet that Syogo Utsunomiya in Japan had seen but not confirmed as it was moving rapidly south. Others (but no-one in NZ) had been asked to look but it was "lost" until I happened to look at the right place at the right time. Had I looked at T Aps on Friday or Saturday, the comet would have been a long way out of the region, so that was lucky for me that I did not get the chance until the Sunday - by the way, I still did not "get" T Aps then - the sky was too

bright by the time I had noted details of the comet - I did see T Aps on the Monday ! Danie Overbeek tells me that many years ago, Houghton and Ensor in South Africa jointly discovered a comet near T Aps. Another good reason for becoming a variable star observer!"

Albert Jones via Richard Pollard

IN THE NEWS

NOW A 'MIR' MEMORY

The aging Russian Space Station made it's final rendezvous - this time, with the Earth - at 5:04 pm Australian Summer Time on Friday, 23 March. It was the culmination of fifteen years of operations for the space outpost.

According to the most precise estimates currently available, the station crossed the critical threshold of 62 miles (100 kilometres) above Earth's surface at 12:45 a.m. EST (05:45 GMT; 8:45 a.m. Moscow time). At this point, it entered the atmosphere and began to disintegrate under the stresses of reentry.

At 12:49 a.m. EST (05:49 GMT; 8:49 a.m. Moscow time), the station had plunged to 55 miles (90 kilometres), according to MCC. Its solar batteries, antennas and insulation broke away. Two minutes later, the MCC reported, friction had torn the modules apart. Station debris continued to fall as it burned, with the focus of the shower of flaming wreckage expected to splash down at 40 degrees south latitude, 160 degrees west longitude.

At 12:55 a.m. EST (05:55 GMT; 8:55 a.m. Moscow time), Mir was deep into its final descent, only 31 miles (50 kilometres) above Earth's surface. Reaching terminal speeds of nearly 900 miles per hour (400 meters per second), its altitude dropped to 24 miles (39 kilometres) in less than a minute. Three minutes later at 12:59 a.m. EST (05:59 GMT; 8:59 a.m. Moscow time), the station was dead in the water, drowning 15 years of service to human space, and more than four decades of Russia's sovereign orbital power.

"Orbital Space Station Mir has completed its triumphant flight, which has been unprecedented in the history of manned space exploration and which humankind has yet to fully appreciate," was the message carried over loudspeakers at the Russian space facility outside Moscow. Space.com

MARS ODYSSEY ON ITS WAY TO ... MARS

On Saturday, April 7 2001, the Mars Odyssey spacecraft was launched on an epic, 286-million-mile journey to the Red Planet. The interplanetary voyage started from Cape Canaveral Air Force Station at 11:02 a.m. EDT (15:02 GMT) and is expected to take six months before the \$297 million mission settles into orbit around Mars on October 24.

Historically less than half of all missions flown from Earth to Mars have been successful, with the most recent failures for the United States coming in 1999.

Two probes were lost that year: Mars Climate Orbiter was destroyed when government and contractor engineers mixed up converting between English and Metric measurements. Then Mars Polar Lander went silent after beginning its final landing sequence. The humiliating fiasco prompted an overhaul of NASA's Mars exploration program and included the addition of independent reviews and pre-flight tests, raising the price tag of Mars Odyssey by several million dollars and risking support for future Martian flights.

"This mission has to succeed, there's no question," said Ed Weiler, NASA chief of the space science office in Washington, D.C. "We're going across a hundred million miles of space. Bad things can happen. We've done the kind of testing, we've done the kind of



checking that we know how to do. Beyond that, I really don't know what else we could do."

If all goes well, Mars Odyssey will spend more than two years circling the Red Planet and training its trio of major science instruments on the planet to look for signs of water -- past or present -- within the rusting red soil. And where

there's water -- the theory goes -- life cannot be far away.

"If there was life on Mars or is life on Mars today, I think over the next 15 to 20 years we'll be able to answer that," Weiler said. "We're on the verge of being able to say that perhaps life on Earth was not a cosmic fluke, but it was part of a broader cosmic imperative."

Meanwhile, there was plenty of life evident around the Florida launch site Saturday as perfect weather and a high-profile launch combined to entice thousands of residents and tourists to jam the roads around the space centre for an up close view of the Boeing Delta 2 rocket lifting off.

No-one was disappointed. Right on time the 13-storey rocket rode its column of smoke and fire to the northeast, marking its path across sunny, crystal clear skies.

And as good as the view was from the ground, it was even better from the two cameras placed by NASA and Boeing on the outside of the Delta 2. One camera pointed down and one pointed up, providing live televised views of the climb to orbit that were sharper and more detailed than any rocketcams seen before.

About 31 minutes after launch the Mars Odyssey spacecraft separated from the Delta 2 rocket's third stage, officially ending the launch on a successful note. A few minutes later flight controllers began communicating with the probe, which was reported to be in good health despite one sensor that said a spot on a solar panel was getting a little hot. "I've never seen a more spectacular launch," said David Spencer, Mars Odyssey's mission manager at NASA's Jet Propulsion Laboratory in Pasadena, Calif. "The spacecraft seems to be performing beautifully, and we're right on our timeline. This gives us a terrific start on our odyssey to Mars."

Space.com

GALILEO GETS ONE LAST FREQUENT-FLYER UPGRADE

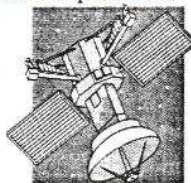
The resilient Galileo spacecraft doesn't know when to call it quits. So, NASA has outlined the details of one last mission extension, which includes five

more flybys of the Jovian moons before a final plunge into the crushing pressure of the giant planet's atmosphere.

Galileo has been orbiting Jupiter for more than five years and survived radiation exposure more than three times what it was built to withstand. Galileo's mission has previously been extended twice and during that time it has returned an enormous wealth of scientific information, including evidence of a sub-surface ocean on Jupiter's moon Europa.

"We're proud that this workhorse of a spacecraft has kept performing well enough that we can ask it to keep serving science a little longer," said Dr. Jay Bergstralh, acting director of solar system exploration at NASA Headquarters, Washington, D.C.

On May 25, Galileo should pass about 123 kilometres (76 miles) above the moon Callisto, the second largest of Jupiter's 28 known moons. The effects of Callisto's gravity will set up the space probe for a swing over both polar regions of the intensely volcanic moon Io in August and October.



Galileo will take pictures, measure magnetic forces, and study dust and smaller particles. Science goals include studying the extent of volcanism on Io, both in new and previously active sites; determining whether Io generates its own weak magnetic field; and gaining a better understanding of a doughnut-shaped ring, the so-called Io torus, that encircles Jupiter and contains electrically charged gases.

In 2002, having completed its imaging mission, Galileo will continue studies of Jupiter's massive magnetic field with seven instruments. In January, the orbiter will fly near the equator of Io. In November, it will swing closer to Jupiter than ever before, dipping within about 500 kilometres (about 300 miles) of the moon Amalthea, which is less than one-tenth the size of Io and less than half as far from Jupiter. Scientists will use Galileo measurements to determine the mass and density of Amalthea. They will also study dust particles as Galileo flies through Jupiter's gossamer rings and seek new details of the magnetic forces and the densities of charged particles close to the planet.

Galileo's final orbit will take an elongated loop away from Jupiter. Then in August 2003, the spacecraft will head back for a direct impact and burn up as it plows into Jupiter's 60,000-kilometre-thick atmosphere. This final act was recommended by the National Research Council of the National Academy of Sciences last June.

Galileo has already succeeded beyond expectations, and we have the opportunity to learn still more in coming months, but it is sad to see the end of the road up ahead," said Eilene Theilig, Galileo project manager at JPL. "Exposure from Jupiter's intense radiation belts has impaired some of Galileo's instruments, but it is still producing valuable scientific results." The science program for the Galileo mission extension, which will cost \$9 million, was recommended to NASA by a blue-ribbon panel of planetary scientists that met last July. "This mission extension accomplishes the highest priorities of the review panel in a cost effective way," said Paul Hertz, Galileo program executive at NASA Headquarters.

Galileo was launched Oct. 18, 1989, aboard NASA's Space Shuttle Atlantis. On Dec. 7, 1995, a probe released earlier from Galileo made measurements while dropping through Jupiter's upper atmosphere. Galileo's top scientific accomplishments include:

- Produced strong evidence that Europa has a melted saltwater ocean under the ice layer on its surface. The spacecraft has also found indications that Ganymede and Callisto also have layers of liquid saltwater.
- Detailed the varied and extensive volcanic processes on Io, catching plumes erupting, fire fountains in process and lava flows expanding, among other observations.
- Delivered a probe that made the first measurements of Jupiter's atmosphere from within the atmosphere.
- Made the first close approach to an asteroid and made the first discovery of a satellite orbiting an asteroid.
- Discovered the first internal magnetic field of a moon. Ganymede's intrinsic magnetic field actually creates a "mini-magnetosphere" embedded within Jupiter's vast magnetosphere.
- Provided the only direct observation of Comet Shoemaker-Levy's impact into Jupiter. (NASA NEWS)

NASA CONTACTS PIONEER 10

NASA scientists claim to have contacted the Pioneer 10 spacecraft, ending fears that the robotic probe had gone silent 29 years into a mission that has carried it more than 7 billion miles from Earth. A radio antenna outside Madrid received a signal from Pioneer 10 on Saturday, marking the first time the spacecraft had been heard from since Aug. 19. The spacecraft was launched March 2, 1972.

"Pioneer 10 lives on," project manager Larry Lasher said in a status report posted on the mission's Web site. Pioneer 10 was the first spacecraft to pass through the asteroid belt and the first to obtain close-up images of Jupiter.

In 1983, it became the first manmade object to leave the solar system when it passed the orbit of distant Pluto.

The spacecraft is currently 7.29 billion miles from Earth, travelling at 27,380 mph relative to the sun. At that distance, radio signals take 21 hours and 45 minutes to make the roundtrip between the Earth and the spacecraft. The Pioneer 10 mission came to a formal close in 1997, but the probe had remained in fairly regular contact with Earth, returning limited scientific data before going silent in August.

Picking out the faint signal of the spacecraft's eight-watt transmitter put the National Aeronautics and Space Administration's international network of antennas to the test. Further communications with Pioneer likely will remain difficult, because engineers can contact the spacecraft only by first beaming signals to it.

"In order (for Pioneer 10) to talk to us, we need to talk to it," said Ric Campo, the mission's chief flight controller.

Even in silence, the spacecraft will continue its steady voyage toward the constellation Taurus. It should pass one of the stars in the constellation more than 2 million years from now.

The spacecraft carries a gold plaque engraved with a message of goodwill and a map showing the Earth's location within the solar system.

(NASA NEWS)

(Ed's note)

NASA's oldest operating spacecraft is Pioneer 6, which scientists contacted in

December to mark the 35th anniversary of its launch.

TWO ASTEROIDS JOIN BLARNEY STONE AS IRISH ROCK LEGENDS

Two asteroids were given Irish names in time for St. Patrick's Day.

Discovered in July 1987 by famed asteroid hunter and planetary astronomer Eleanor Helin of the Jet Propulsion Laboratory, Pasadena, Calif., the asteroids have been officially christened by the International Astronomical Union and honor Irish contributions to astronomical research.

One asteroid is named for the Armagh Observatory in Northern Ireland, which is active in the studies of near-Earth objects. The 10,502nd asteroid found, it is called ArmaghObs. Its official designation was 1987 OT.

Another, formerly 1987 QF6, was given the ancient Gaelic name for the town of Armagh, which St Patrick founded in 445 A.D. as "Ardmacha." The Armagh Observatory lies on the outskirts of the town.

Helin, the principal investigator of JPL's Near-Earth Asteroid Tracking program, (called NEAT), said that she has had a long association with the Armagh Observatory and she named the asteroids in part to honour that collaboration, and the observatory staff members who have made many contributions to asteroid research.

"We've been working together since the early 70's, and I named an asteroid in 1975 for their distinguished Estonian-Irish astronomer E.J. Opik, who was a resident astronomer for 33 years," said Helin. "The asteroids were named to honour the rich heritage of the ancient city of Armagh, and noteworthy contributions from the 200-year-old observatory."

The asteroid names were published in the January 2001 Minor Planet Circular of the International Astronomical Union.

The NEAT project is managed by JPL.

(NASA NEWS)

ELEVEN MORE EXTRA-SOLAR PLANETS DISCOVERED

An international team of astronomers from the Geneva Observatory and other research institutes announced the discovery of 11 new planetary companions to solar-type stars. The discoveries include a



giant planet that circles its Sun-like central star in an orbit similar to Earth's and whose potential satellites could theoretically be "habitable."

The discovery also includes two new multi-planet systems. The masses of these new objects range from slightly less than, to about 10 times the mass of the planet Jupiter.

The new detections are based on measured velocity changes of the stars, performed with the CORALIE spectrometer on the Swiss 47-inch (1.2-meter) Leonard Euler telescope at the European Space Observatory's La Silla Observatory. Instruments on telescopes at the Haute-Provence Observatory in France and on the twin Keck telescopes on Mauna Kea, Hawaii were also used to verify the findings.

Some of the new planets have unusual characteristics: One is a two-planet system revolving around the star HD 82943 that indicates one orbital period is nearly exactly twice as long as the other -- cases like this (referred to as "orbital resonance") are well known in our own solar system.

Another two-planet system around star HD 74156 has a Jupiter-like planet and a more massive planet farther out from the star. They also discovered a planet (at star HD 80606) with the most elongated orbit detected so far, moving between a near point of 3.1 million and far point of 78.9 million miles (5 million and 127 million kilometres) from the central star.

At this moment, there are 63 known extrasolar-planet candidates with minimum masses below 10 Jupiter masses, and 67 known objects with minimum masses below 17 Jupiters. The present team of astronomers has detected about half of these. Space.com

FEATURE

AURORA ON
DISPLAY

The Aurora Australis, counterpart of the northern hemisphere's Aurora Borealis, put on a couple of dazzling light shows recently. Our aurora expert, Roger Giller, explains:

"Auroras occur when charged particles from the sun, known as the solar wind, interact with the Earth's upper atmosphere. The particles "excite" the nitrogen and oxygen atoms, increasing their energy level. As the excited atoms return to their ground state they emit the extra energy as photons of light. The energy of the photons, and hence the colour of the light, depends on the type of atom and its degree of ionisation.

The particles of the solar wind are directed by the Earth's magnetic field toward the Polar Regions where they are concentrated in a region known as the auroral oval, centred on the magnetic pole. At times of intense solar emission the auroral oval expands far enough away from the magnetic pole to be visible at lower latitudes. This is usually as the result of a solar flare associated with a magnetically active region or sunspot. Flares of sufficient intensity usually only occur within a year or so of the maximum of the 11-year solar cycle.

When the solar wind shock front reaches the Earth it produces a geomagnetic storm which may last from as little as a few minutes to as long as a day or so. It is during this time that we can expect to see auroras. The phenomenon is highly variable. If there are reports of geomagnetic and auroral activity, don't give up looking just because you don't see anything immediately. A display can last for less than a minute, or there may be activity of varying levels for many hours. You can save wasted effort by monitoring solar activity at any of the several web sites as you can't expect to see anything when activity is low, but when activity is high there is no substitute for spending time outside looking up."

On the evening of March 31, such an aurora was readily visible from our viewing site at 'The Briars'. A constant

white glow resembling twilight covered the southern sky, with brilliant red areas appearing for periods of half an hour or so, often displaying the characteristic near-vertical 'beams'. These beams formed and faded rapidly, and reached almost from the horizon to about 45 degrees, much to the delight of the bunch of observers who had gathered. People oohed and aahed, cameras whirred and clicked, and everyone present said it was the best they'd seen from that location. Several great photographs resulted from this very active display, and can be viewed on the Internet at

<http://asfnet.20m.com/aurora.html>.

Adam Marsh also submitted this report from the Tooradin Lookout tower on Good Friday, April 13:

"The observing started at 19.50 AEST with Lance Kelly and myself doing an hour of meteor observing. The hour was good with frequent evening meteors witnessed. At about 20.40 there was some brightening of the southern horizon, but it was fairly minor. This brightening stretched across about 50 degrees, centred on due south. The hour ended at 20.50 AEST, however the sky was still bright, perhaps a little brighter.

We continued by starting another, following the first, starting at 20.50 AEST. Around 5 minutes in, at 20.55 Lance commented that the south western horizon looked a orange/reddish colour. We both got up for a better look, as we had been lying in deck chairs at that stage. To our delight, the horizon was red from south west right around to the south south east, there was a further patch in the south east, near to the tail of Scorpius. There were some faint rays in the south west patch, but the most striking feature was the deep

crimson red colour of the whole display at this stage. The display was reaching a height of about 15 to 20 degrees in altitude.

We continued watching, while waiting for Roger, Geoff and Aiden to arrive. By about 21.10 the display had died off some, but the horizon was still bright.

The others arrived at about 21.15, just in time to see the display increase in intensity once again. Same as before, red patches

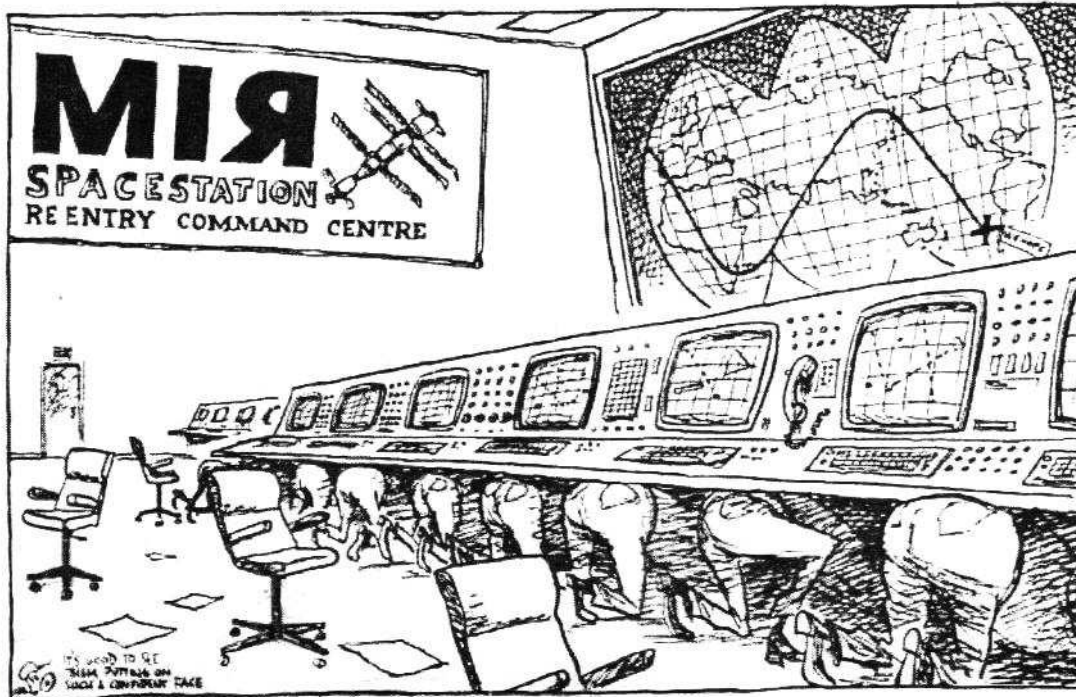
appeared. This continued until about 21.25 when a nice red ray came up almost due south, silhouetting the Lookout Tower that lies between our observing spot and the south. A minute later a nice yellow/green beam came up from the south to a height of about 25 degrees, only to disappear in about 30 seconds. Then another nice, thin ray from the south-southeast up to about 25 degrees also, it looked pencil thin and disappeared in only 20 seconds. By 21.35 this part of the display died off, to leave once again a light southern horizon, and the moon about to rise. No further aurora was seen after this, whether due to the moon and that we couldn't see the subtle colours and rays, or because it simply faded out. "

As Roger explained earlier, and these reports indicate, the displays are variable, and Internet sites like www.spaceweather.com are a great source of information, or you could join the **Aurora Network Alert list**, which is operated for this region of Australia by the Astronomical Society of Frankston.

Basically, if any member on the list (which is also open to people from other Astronomical Societies or others interested in aurorae) sees an aurora, they immediately phone the name above and below them on the list. If contact cannot be made, then they try to leapfrog them and contact the next person on the list. Once contact has been made, that next person repeats the process. Some people wish to have restrictions in place (for example, no calls after 11pm please). This is fine and such details are appended on the list. If you are interested in finding out more about this network, please contact Roger who is the list coordinator.



Aurora Australis as photographed by P.Skilton due South at *The Briars* 2001 March 31 at 11pm AEST. 200ASA Elitechrome film, 28mm tripod mounted lens, 60 sec exposure. Scorpius is to left.



If **undeliverable**, please return to
 Astronomical Society of Frankston Inc.,
 PO Box 596, Frankston, Victoria 3199.



Above - 10 Pin Bowling at Frankston on the 21 April 2001
 Both Photos - By *John Cleverdon*

Right - Working Bee at the Briars site on the 29 April 2001
 Photo - By *John Cleverdon*

Kindly reproduced by Ken Bryant and collated/posted by Sally Zetter.

Scorpius Extra!!!!

By Greg Walton

Right - Tail of the scorpion
Aurora from the Briars 11:30 pm 31 March 2001
By Greg Walton

Below -
Aurora from the Briars 11:25 pm 31 March 2001
By Greg Walton

11:25 pm

11:30 pm

9:00 pm

9:30 pm

On a Moon less night, a group of about 8 ASF members set up there telescope at the Briars site on 31 March 2001. We were all ready for a pleasant night of viewing some deep sky objects. As the sun went down and the sky darkened, someone said, there is a brown glow in the southern part of the sky, maybe is an aurora. I grabbed my camera and tripod, I was waiting for this occasion as I always carried 2 rolls of 800 iso film and my very fast F1.7 50mm lens. I set up as fast as I could, attaching my cable release and then, I held the button down for 15 seconds, just counting cat dog 1, cat dog 2, etc. At first the sky had, red and green around 9:00pm and then at about 11:00 pm bright orange curtain moved across the sky. The next day I went to the chemist shop to get the film processed. I was amazed when I got them back, much better then I could have hoped for. By Greg Walton

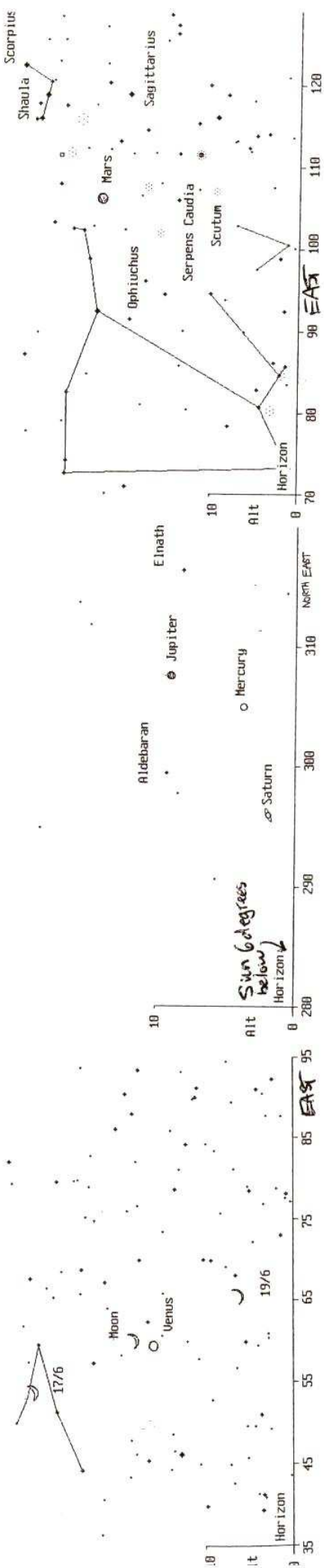
F1.7 lens 800 iso film 15 seconds from 9:00 pm to 11:30 pm

9:05 pm

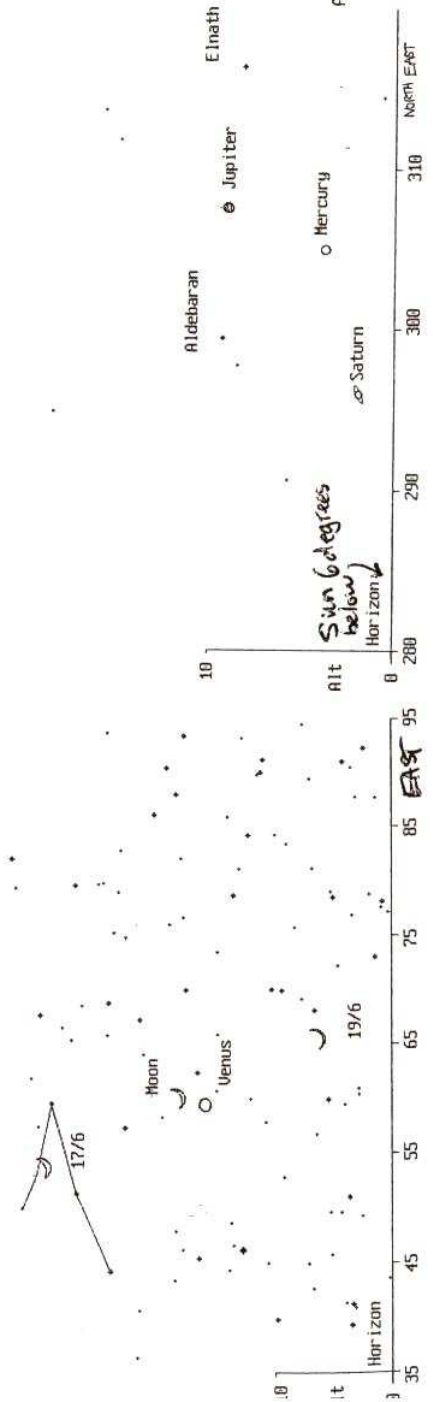
11:10 pm

SKY FOR THE MONTH: 16 MAY - 19 JUNE 2001

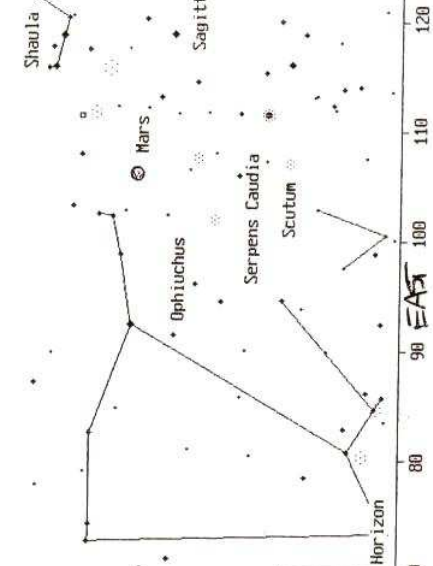
5:20 am North-East Dark Morning Sky 18th June 2001 Standard Time
 U1.00 (C) Bob Heale 18/4/99
 All objects no fainter than 5.5 1 X Sky View



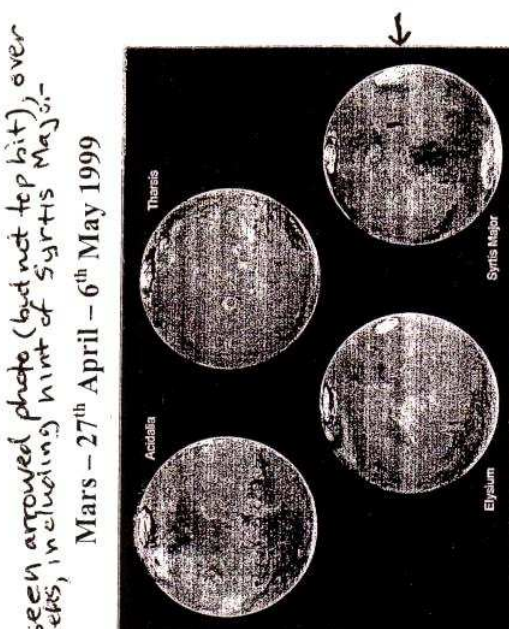
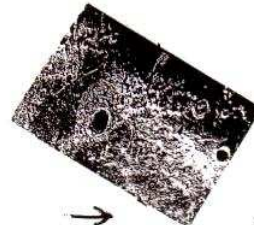
5:49 pm West North West 1/3 Dark Sky 12th May 2001 Standard Time
 U1.00 (C) Bob Heale 18/4/99
 All objects no fainter than 3.5 1 X Sky View



7:55 pm Near East Dark Sky 2nd June 2001 Standard Time
 U1.00 (C) Bob Heale 18/4/99
 All objects no fainter than 5.5 1 X Sky View



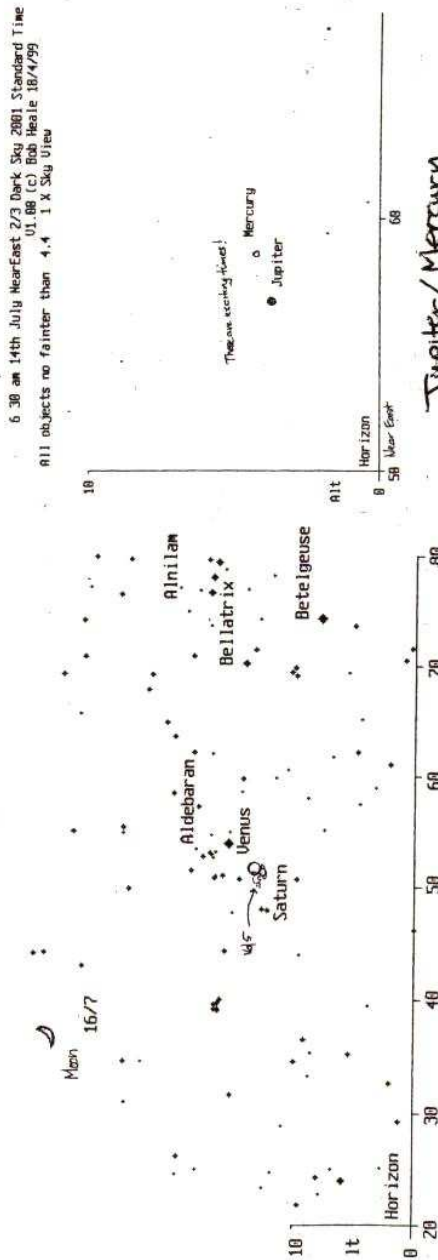
Bob Heale ASF
 16/5/2001



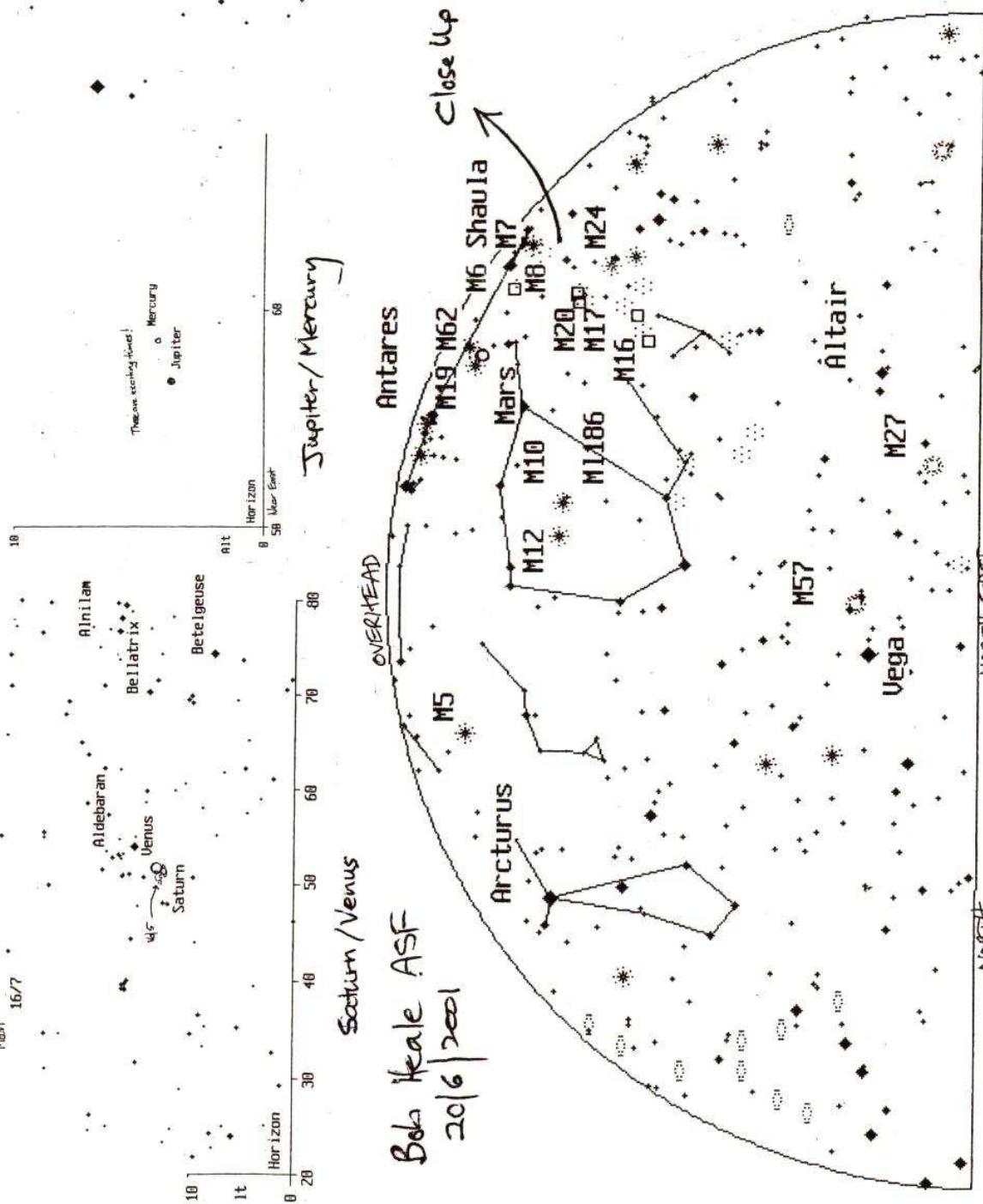
2nd June 9 pm North-East Night Sky 2001 Standard Time Constellation Shaper

SKY FOR THE MONTH 20 JUNE TO 17 JULY INCLUSIVE 2001

5 45 am 15th July North-East Dark Sky 2001 Standard Time
 U1.00 (c) Bob Heale 18/4/99
 All objects no fainter than 5.5 1 X Sky View



6 30 am 14th July Near-East 2/3 Dark Sky 2001 Standard Time
 U1.00 (c) Bob Heale 18/4/99
 All objects no fainter than 4.4 1 X Sky View

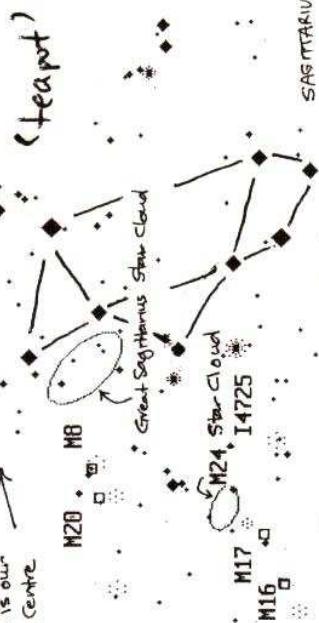


Bob Heale ASF
 20/6/2001

9 pm 27th June Night Sky 2001 Standard Time

U1 (c) Bob Heale 18/4/94

Here is our Milky Way Centre



SCUTUM
 Scutum Star Cloud
 includes ... W. V. D. Duck's cluster M11

June 27 9pm 2001

orange-red
 Scutum Star Cloud
 Mars
 M19
 'iced area'

large binocs view
 Mars