WAS NEWS

Monthly Newsletter of the **W**orthing **A**stronomical **S**ociety

Official website: www.worthingastro.freeserve.co.uk

Affiliated websites: www.observatory99.freeserve.co.uk, www.damocles.freeserve.co.uk

Number 140 **March 2001**

ALMANAC

The clocks change but we don't. ! ! All times U.T. for B.S.T. add one hour.

March. / April.

LUNAR

March	Date	Time	rise	set
Last Quarter	16th	20.45	01.22	09.44
New moon	25th	01.21	06.33	18.48
April				
First Quarter	1st	10.49	09.59	02.01
Full Moon	8th	03.22	19.15	05.57
Last Quarter	15th	15.31	02.02	09.55
New moon	23rd	15.26	05.14	18.58

EARTH

March	Sunrise	Sunset
16th	06.12	18.07
25th	05.52	18.22
April		
1st	05.36	18.34
8th	05.20	18.45
15th	05.05	18.57
23rd	04.48	19.10

PLANETS

(As at March 25th.)

	Constellation	Rises	Sets	Mag.
Mercury	Aquarius	05.27	16.01	-0.1
Unfavourable				
Venus	Pisces	05.16	19.27	-4.1
Brilliant evening and morning object				
Mars	Ophiuchus	00.57	09.01	0.0
Morning object getting brighter.				
Jupiter	Taurus	08.13	00.07	-2.2
Evening object				
Saturn	Taurus	07.55	23.06	+0.2
Early evening object				
Uranus	Capricornus	04.44	14.23	+5.9
Unfavourable				
Neptune	Capricornus	04.04	13.02	+8.0
Unfavourable				
Pluto	Ophiuchus	23.45	09.54	+13.8
Morning object				

PHENOMENA

Day	Hour	March
15th	21	Mars 2° S. of moon
18th	03	Pluto at stationary point
22nd	20	Mercury 2° N. of moon
25th	16	Venus 13° N. of moon
29th	04	Saturn 2° N. of moon
29th	22	Jupiter 2°N. of moon
30th	04	Venus in inferior conjunction

		April
8th	15	Venus 9° N. of Mercury
13th	02	Mars 1° S. of moon
20th	05	Venus at stationary point
21st	03	Venus 9° N. of moon
23rd	09	Mercury in superior conjunction
23rd	16	Saturn 1° N. of moon

Minima of Algol

March. 24th 03.06 26th 23.54 29th 20.42

April. 13th 04.48 16th 01.36 18th 22.30 21st 19.18

Lunar Occultation's

Times as at W.A.S. Observatory

Date	U.T.	Z.C.No	Mag	Phase
March	**h. m. s.**			
17th	04.59.07	2597	7.5	Reapp
28th	20.43.29	496	8.1	Diss
April				
1st	22.57.53	1110	3.5	Diss
1st	23.34.48	1110	3.5	Reapp
2nd	01.53.27	1128	6.8	Diss
2nd	22.10.03	1250	5.8	Diss
14th	03.06.07	2689	6.8	Reapp
14th	03.42.59	2692	5.5	Reapp
28th	22.20.43	1078	6.0	Diss

This is only about 10% of the predictions for the W.A.S.observatory. If you are interested there are some Occultation's of Planets later in the year so get in some timing practise beforehand Z.C.No 1110 = delta Geminorum

Planetary report

Mercury. Remains too close to the Sun for observation.

Venus. A brilliant evening object heading for inferior conjunction on the 30th March. During the second part of the month it attains it's greatest northern ecliptic latitude. In April it can be seen in the E.N.E. just before sunrise mag. 4.5

Mars. A morning object in Ophiuchus, and brightening from mag. +0.3 to -0.8

Jupiter and Saturn. At Mag -2.2 and +0.2 respectively are gradually fading and moving apart in Taurus, as they move away from us and get smaller. Jupiter passes 5° N of Aldebaran on the 16th of April.

Uranus and Neptune. Are both unsuitably placed

Editors Note

What first interested you in Astronomy? Was there a catalyst that piqued your curiosity?

Over the next year I hope to run short articles from various members of the Society based on the above question……start thinking!!

Rob

Dates for your Diary

Comet Mcnaught-Hartley (1999 T1)

Alex Vincent

Date	R.A.		Dec.		Mag.
	h	m	°	′	
Mar 15th	18	10.7	52	13	8.3
Mar 20th	18	20.6	55	19	8.5
Mar 25th	18	29.6	58	09	8.7
Mar 30th	18	37.5	60	44	8.9
Apr 4th	18	44.3	63	05	9.1
Apr 9th	18	49.8	65	13	9.2
Apr 14th	18	53.8	67	10	9.4
Apr 19th	18	56.2	68	56	9.6

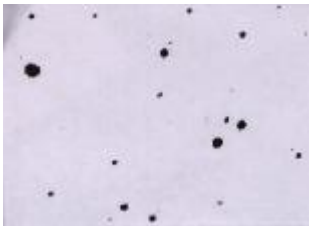
The above co-ordinates are for Epoch 2000

Astrophorographic Nights

Alex Vincent

I shall be doing a few astrophotographic nights at the Hill Barn Golf Course Golf car park by the clubhouse on Monday evenings for these who wish to photograph star fields, meteors, conjunctions etc. Dates for your diary are March 19th and the 26th and April 2nd from 7.30PM. Bring along a camera and tripod. I will bring my clock drive.

Subjects to photograph are Jupiter and Saturn with the Pleiades and the Hyades, Comet McNaught-Hartley which is circumpolar and the eclipsing binary star 'Zeta Aurrigae' (see drawing below) which is at a minimum an March 28th, but eclipse lasts 40 days. Also as a matter of interest the planet Venus comes to inferior conjunction on March 30th and as it will be some seven degrees north of the Sun, it will be seen as both an evening and morning star for a few days at this time.



Epsilion Aurigae at minimum and Zeta Aurigae at maximum 22.01.84

Epsilion Aurigae at maximum and Zeta Aurigae at minimum 22.01.85

The following article was presented by member Richard Godley – Ed.

The Best of the Caribbean

Arcadia Cruise 9th to November 24th 2001

Designed to show you the many cultures and varied faces of the Caribbean, this is a magnificent holiday: and the perfect antidote to the British Winter. This is a special 2001 Space Odyssey theme cruise so join Patrick Moore and US Astronaut, Buzz Aldrin for talks, interviews and star gazing.

For more information contact P&O Cruises Ref AR127

Articles / Reports

Solar Section Report - January 2001

By Section Director Brian Halls

The large group at $S07^0$, $L = 201^0$, (type Eki size 890 on 30 December) was the most interesting spot group on the disk at the start of the month, having been quite active over the New Year holiday. By the end of the first week it was disappearing over

the west solar limb. As this interesting group disappeared another group at N12^0, L = 054^0, type Dai size110 rotated into view. Apart from this group there were about a dozen small, stable sunspot groups on the disk by the end of the first week.

This large group (region 9306) developed into a large Fac class group during the second week. On 14 January there was a large coronal mass ejection (CME) following an eruptive flare from this group but was not Earth directed.

Further large, active spot groups appeared during the rest of the month. A Eao type group at S07^0, L = 272^0 was active and was responsible for some flares. On January 20 a powerful flare from this groups again produced the months second CME.

This group (region 9313) was very active for much of the latter part of the month. It was also quite a spotty period as well. There were as many as 9 groups a day visible, with several large groups visible. By January 28 this group had rotated over the west limb, but was now breaking up, though other regions were very active; large E-class groups were visible at S03^0 L= 231^0 and S06^0 L=232^0 – the southern groups being more active than the north.

Members of the Society observed the Sun on 18 days in January. Graham Boots, Nick Quinn and the director all reported observations in the month.

Spotting the New Moons in 2001

Paul Carter

For a number of years members of WAS having been seeking out the youngest new Moon in the early half of the year, when conditions favour spotting it at less than 24hours old. Opportunities for spotting the youngest new moon this year are shown in the table following.

Date / time of New Moon		Age of Moon at Sunset	Altitude of Moon at Sunset	Sunset	Moon set
23-02	*08:21*	*9h 14m*	*<2°*	*17:24*	*17:35*
25-03	**01:21**	**17h 01m**	**3°**	**18:22**	**18:47**
23-04	*15:26*	*<4h*	*set*	*19:11*	*18:58*
23-05	**02:46**	**17h 12m**	**3°**	**19:58**	**20:29**
21-06	*11:58*	*<9h*	*<2°*	*20:23*	*20:34*
20-07	*19:44*	*<1h*	*<2°*	*20:07*	*20:15*

Data generated using Sky Map Pro 7 ©

The new moons in February, April, June and July are all too young to be seen (OK, technically it is going to be possible to see the new Moon in June - provided you're in Africa for the eclipse!). But on the bright side, these will provide great opportunities for observing & photographing a slim new moon less than 36 hours old on the day after new moon.

The first possible opportunity comes in March with an extremely difficult moon only 17 hours old at sunset. The Moon sets less than half an hour after the Sun so you'll need to locate it in strong twilight to be successful. Venus will be in the same area of the sky but its not much of a signpost to the Moon which is some 6 degrees lower and 12 degrees east of Venus at that time.

By the way, look out for a Moon around 48 hours old on the evening of 25April, when it will be only 2 degrees away from Saturn (magnitude 0.2) and 12 degrees from the much brighter (mag –2) Jupiter. That evening the Moon and Saturn will be neatly sandwiched between the Hyades and the Pleiades, which will make it an ideal photo opportunity.

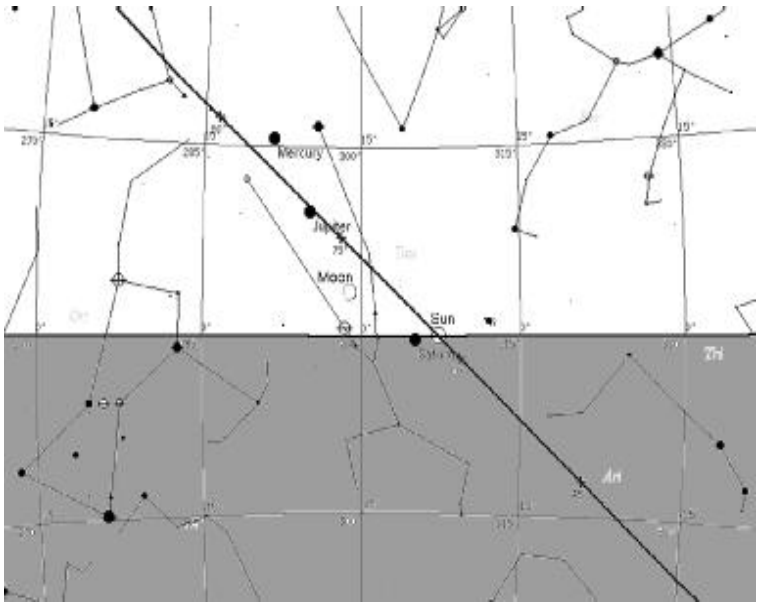
The next best chance of spotting a young Moon less than 24 hours old comes on 23rd May. Around sunset that day (19:58), the Moon is just over 17 hours old and still less than 18 by the time it sets at 20:29. Although the Moon is only 3 degrees above the horizon at sunset, we have a couple of helpful planets signposting its position (see map below).

The Moon lies a couple of degrees off a line from the Sun to Jupiter and after the latter has disappeared, a line from Mercury to Jupiter points directly towards the Moon. Mercury in itself will

be a good target at mag 0.7 and showing a slim 33% phase. Jupiter below it will be a lot brighter at mag –1.9 and should be easily spotted in the twilight.

For anyone with alt-az settings, the relative offsets for these are:

Mercury is 6° above and 3.5° east of Jupiter.
Jupiter is 6.5° above and 3.5° east of the Moon.
All in all the prospects for 2001 are not that good with only 2 very difficult young Moons less than 18 hours on offer. But the world record is much less than that so given a clear sky and favourable conditions who knows.... I will certainly be having a go at breaking my personal record of 19hours 15mins for a young Moon spotted from Tenerife in Feb 96.



Total Lunar Eclipse

Alex Vincent

The total lunar eclipse of January 9th 2001 was the first eclipse of the 21st century. I, together with several WAS members and other people assembled by Worthing Pier to view it. The weather was not good to begin with, due to a lot of cloud where the Moon was faintly seen through it. We thought that we may not see much at all. Some of us brought along cameras to take photographs and Dave Storey brought a 1000mm mirror lens to use as a telescope for people to view the eclipse. The press was also there.

As the eclipse progressed, it cleared a bit and you could see the partial phase through thin cloud, but as totality approached a clear patch came along and when the eclipse was total, the moon turned a reddish colour with a brightish grey section on the northern limb which made some people think that it was not quite total. I explained that this was due to the Moon only being in the northern part of the Earth's shadow. The total lunar eclipse of November 18th 1975 showed this at the southern limb and was very bright making it look not quite total although it was yellowish-orange in colour.

Not long after mid totality, cloud came over and the eclipse was seen now and again and so when totality ended everyone went and I stayed on Worthing Beach and watched the latter partial phases between the cloud. All in all, it was a most enjoyable experience, despite a cold biting wind blowing from the sea.

What's on the Box

Thursday 15th March

BBC TWO

11.50~Science Zone
(The Earth and beyond – Out of this World) Educational series for 9 – 11 year olds. With a look at how astronauts train and prepare for emergency situations. Plus how a space suit works, and the future role of the International Space Station.

BBC CHOICE

22.30~Clive Anderson's Conspiracies
(Outer Space) Series taking a look at conspiracy theories. This edition considers the possibilities of the Moon landing having been a hoax, and of alien bases on the Moon. Contributors include NASA technicians, journalists, conspiracy theorists and Patrick Moore

Sunday 18th March

BBC KNOWLEDGE

07.00/11.00/15.00/19.00/23.00~Horizon
(A Miracle in Orbit) Documentary tracing the history of the Hubble Space telescope.

07.50/11.50/15.50/19.50~Being There
(Above the Earth)Portraits of the World's wildest places through the eyes of the early explorers. In this programme, astronauts reflect on the delicacy and fragility of our planet as seen from space.

Monday 19th March

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20.00~Destination Mars
Documentary series which takes us through Mars's exploration history and shows us how scientists are finding their own version of Mars on Earth so they can prepare the first explorers.

Wednesday 21st March

BBC KNOWLEDGE

08.30/11.30/14.30/17.30/20.30/23.30/~Journeys in Time and Space
(Searching the Heavens) Series exploring the birth and growth of the Universe. Chris Riley looks at the successor to the Hubble space telescope and finds out how Ion engines and Solar sails will propel us into interstellar space. Kathy Sykes talks to the director of the British National Space Centre about his discovery of a dark star.

WAS News News

NASA spots streaking meteors with $500 radar

Steve Bush

NASA scientists have built the best radar detector yet for micrometeorites, costing only $500.

"Our system is pretty simple," said Rob Suggs, of the Marshall Space Flight Centre. "We use a six-element Yagi antenna and a computer-controlled short-wave receiver to listen for 67MHz signals from distant [US] Channel 4 TV stations."

Suggs' machine is a 'forward-scatter' radar.

The transmitters are over the horizon and normally out of range. When a meteor streaks overhead the system records a brief reflection of the TV signal from the meteor's trail.

The radar is sensitive to meteoroids above 10µg and records 200 echoes per hour on an average day, said Suggs.

Most meteoroids weigh under 100µg and fly by at between 10 to 70km/s.

It is not so much the physical damage, said Suggs, but the plasma cloud released on impact. This spreads and can set-up potential differences across the satellite, causing unpredictable behaviour from the electronics.

Nick Quinn also has a few words to say on the preceding article. – Ed

Many amateurs (including myself, I may humbly add) have been using VHF broadcast stations for years to do this sort of thing. In the UK, Polish stations around 70 MHz have been used as a 'source', because Poland is about optimum distance for good reflections, and because the 70 MHz band is fairly clear of local transmissions. A pioneer in this field was Ron Ham from Storrington (also responsible for the radio collection at the Amberley Chalk Pits museum) who was detecting meteors by this method back in the 1970's.

Diary

Mar 14th Professor Andrew Liddle (University of Sussex) 'Is the Universe Accelerating?'

All monthly meetings (**bold**) are held at the Heene Church Rooms, Heene Rd, Worthing @ 7:30pm

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Contributions to the **April** issue of WAS NEWS should be with the Editor by **April 1st**. All material for inclusion should be sent to the Editor.

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