



# WAS NEWS

Monthly Newsletter of the Worthing Astronomical Society

www.was.org.uk



Number 194

February 2006

## ALMANAC

All times U.T.

### February / March

#### LUNAR

February	Date	Time	Rise	Set
First Quarter	5 <sup>th</sup>	06.29	10.03	01.23
Full Moon	13 <sup>th</sup>	04.44	17.27	07.49
Last Quarter	21 <sup>st</sup>	07.17	02.05	09.28
New moon	28 <sup>th</sup>	00.31	07.14	18.28
<b>March</b>				
First Quarter	6 <sup>th</sup>	20.16	08.56	01.52
Full Moon	14 <sup>th</sup>	23.35	17.38	06.20
Last Quarter	22 <sup>nd</sup>	19.10	02.25	08.45
New moon	29 <sup>th</sup>	10.15	05.44	18.53

4 <sup>th</sup>	18	Jupiter at stationary point
6 <sup>th</sup>	06	Mars 3° S. of moon
10 <sup>th</sup>	20	Saturn 4° S. of moon
12 <sup>th</sup>	03	Mercury in inferior conjunction
19 <sup>th</sup>	11	Jupiter 5° N. of moon

#### Minima of Algol

February	18 <sup>th</sup> 05.06	21 <sup>st</sup> 01.54	23 <sup>rd</sup> 22.42	26 <sup>th</sup> 19.36
March	13 <sup>th</sup> 03.42	16 <sup>th</sup> 00.30	18 <sup>th</sup> 21.18	

#### Lunar Occultation's

Times as at Old W.A.S. Observatory

Date	U.T.	S.A.O. No	Mag	Phase
<b>Feb</b>	<b>h. m. s.</b>			
8 <sup>th</sup>	20.28.25	78047	8.5	Diss
8 <sup>th</sup>	23.58.15	78154	8.5	Diss
10 <sup>th</sup>	00.09.03	79141	5.6	Diss
10 <sup>th</sup>	21.51.35	79869	6.2	Diss
14 <sup>th</sup>	20.49.48	118648	4.6	Reapp
18 <sup>th</sup>	00.16.59	157837	7.2	Reapp
19 <sup>th</sup>	01.57.02	158331	6.4	Reapp
19 <sup>th</sup>	02.48.54	158363	7.0	Reapp
<b>March</b>				
3 <sup>rd</sup>	20.29.44	92809	9.6	Diss
3 <sup>rd</sup>	20.56.03	92817	8.8	Diss
3 <sup>rd</sup>	22.03.42	92828	8.5	Diss
4 <sup>th</sup>	21.25.55	75727	7.8	Diss
4 <sup>th</sup>	22.01.30	75739	8.6	Diss
5 <sup>th</sup>	19.19.22	76350	6.4	Diss
5 <sup>th</sup>	20.35.07	76374	8.3	Diss
5 <sup>th</sup>	22.25.16	76415	9.1	Diss
6 <sup>th</sup>	19.40.09	76841	8.6	Diss
6 <sup>th</sup>	20.52.25	76857	8.7	Diss
6 <sup>th</sup>	21.58.04	76880	6.6	Diss
7 <sup>th</sup>	19.43.29	77674	8.4	Diss
7 <sup>th</sup>	20.43.25	77708	8.7	Diss
7 <sup>th</sup>	22.10.51	77768	8.6	Diss
7 <sup>th</sup>	22.24.21	77777	9.1	Diss
7 <sup>th</sup>	23.23.03	77818	7.0	Diss
8 <sup>th</sup>	23.40.42	78876	7.0	Diss
8 <sup>th</sup>	23.45.34	78892	9.3	Diss
9 <sup>th</sup>	19.57.41	79650	5.4	Diss
9 <sup>th</sup>	20.29.46	79672	8.9	Diss
9 <sup>th</sup>	21.26.12	79684	9.0	Diss
9 <sup>th</sup>	21.46.32	79685	9.0	Diss
16 <sup>th</sup>	22.43.25	139140	7.8	Reapp

The list above is a selection of about 22 % of the more easily observed evening events, there are lots more in the wee small hours for the insomniacs amongst us

Dave Wells

#### EARTH

February	Sunrise	Sunset
5 <sup>th</sup>	07.33	16.57
13 <sup>th</sup>	07.18	17.11
21 <sup>st</sup>	07.03	17.26
28 <sup>th</sup>	06.48	17.39
<b>March</b>		
6 <sup>th</sup>	06.35	17.54
14 <sup>th</sup>	06.17	18.03
22 <sup>nd</sup>	05.59	18.16
29 <sup>th</sup>	05.43	18.28

#### PLANETS (As at February 21st)

Constellation	Rises	Sets	Mag.
<b>Mercury</b> Pisces	07.33	19.10	-0.7
In the south west, best evening apparition this year			
<b>Venus</b> Sagittarius	04.47	14.07	-4.6
Morning object in the south east			
<b>Mars</b> Taurus	09.49	01.59	0.6
Evening object in the south west			
<b>Jupiter</b> Libra	00.25	09.44	-2.2
Morning object			
<b>Saturn</b> Cancer	14.43	06.19	-0.2
Visible most of night			
<b>Uranus</b> Aquarius	07.24	18.06	+5.9
Unfavourable			
<b>Neptune</b> Capricornus	06.35	16.01	+8.0
Unfavourable			
<b>Pluto</b> Serpens cauda	03.01	12.24	+14.0
Have you seen it yet?			

#### PHENOMENA

Day	Hour	February
11 <sup>th</sup>	17	Saturn 4° S. of moon
17 <sup>th</sup>	15	Venus at greatest brilliancy
20 <sup>th</sup>	05	Jupiter 5° N. of moon
24 <sup>th</sup>	05	Mercury at greatest elongation E. 18°
25 <sup>th</sup>	00	Venus 10° N. of moon
<b>March</b>		
1 <sup>st</sup>	04	Mercury 3° N. of moon
1 <sup>st</sup>	11	Uranus in conjunction
2 <sup>nd</sup>	20	Mercury at stationary point

## *Editors Note*

**G**reetings!

Firstly a thank you to all that contacted me asking to be added to the eWAS News mailing list, this will surely help to reduce society costs.

Secondly a big thank you to Ed Sampson whose article this month certainly propelled this Editor off his perfectly sculptured behind and into his back garden, camera clutched in hand

**Rob**

## *Reports*

### Solar Section Report - January, 2005

Brian Halls

**O**nce more, solar observers who regularly observe the Sun with their telescopes saw what can only be defined as a 'mixed bag' of sunspot activity, during January.

The first week of the month saw few groups – 3 began the month but by the end of the first week, only one small group remained with activity mostly in the northern hemisphere.

From the 13<sup>th</sup> to the 15<sup>th</sup>, there were no spots, however small C and D groups in the north and south appeared and for much of the third week, small groups crossed the solar disk.

One of these groups – Region 0848 (S18<sup>0</sup>L=322<sup>0</sup>) developed into a large and moderately magnetically active sunspot, and was for a time, the only sunspot visible for several days until it began to fade in size as it approached the south-west solar limb.

By the 29<sup>th</sup> no sunspots were visible – a situation that persisted through into February.

Reports were received for 16 days; Graham Boots (15 days) and the director (3!!)

MDF = 0.83 (R = 13)

[solar\\_section@was.org.uk](mailto:solar_section@was.org.uk)

## *Articles*

### Recording your observations – Part 2

Ed Sampson

#### *Compact Digital cameras*

**L**ast Month we had a look at the most simple for of observation, the sketch.

Simply drawing what you see in the most inexpensive way of recording any type of stellar object in the sky.

A problem commonly associated with sketching is the 'I'm not very good at drawing' complaint. Let's face it we are all wowed by all those lovely pictures we see in the magazines, But if we look closer at the equipment used and dedication of some exposures it soon becomes in a league of its own.

The problem is many of us want to record our image with some sort of photo and don't want the expense or difficulty associated with imaging. Is there a cheap and simple way of capturing objects? The simple answer is yes. All we need is a simple digital camera.



*The Moon Jan 2004 captured with a 10" Newtonian and Sony DSC 50 2MP camera held at*

The camera does not have to be very special any point and click type will do. You can even use a mobile phone!!!!

The larger the camera 'Mega Pixel' the more detail you will capture.

The technique could not be simpler,

- 1 Find your target
- 2 Focus the telescope
- 3 hold camera to eyepiece
- 4 Shoot image

This method does have its disadvantages though, You can only record bright objects. Another problem is that some shots could take a second or more so you will need a very steady hand.

The types of work you could do is quite varied, you can record bright double or variable stars, Phases of planets, Surface details, Positions of satellites or the moons surface and features.



*Saturn Feb 2004 captured with a 10" Newtonian and Sony DSC 50 2MP camera held at the eyepiece.*

There are some simple adapters that attach your camera to your telescope. I highly recommend these and it will almost eliminate camera shake (providing you use timer mode). These items should be sold at your nearest telescope supplier. Most cameras will focus very well by simply pressing the button half way in.

If you are lucky enough to have a compact with a large range of exposure times Bright deep sky objects are a possibility. Simply mount the camera on the adapter set your exposure to no more than 10 seconds and activate the timer.

Most of your pictures will not be as clear, sharp or bright as other methods but they will be recorded by you in your own back yard.



*Jupiter Feb 2004 captured with a 10" Newtonian and Sony DSC 50 2MP camera held at the eyepiece. Note the Great Red Spot top centre.*

Don't forget if you have any photos or sketches of your recent observations please send them to me [starman01@btinternet.com](mailto:starman01@btinternet.com)

## Messier Objects - Continued

Janet Young

The Messier Objects are so called because they were a list of fuzzy objects in the night sky compiled by Charles Messier (1730-1817) a French comet hunter. While hunting for comets he kept finding these faint and fuzzy objects, so decided to compile a catalogue of them to avoid them being mistaken for comets. He listed them as M or Messier followed by a number. Charles Messier did discover several comets, but it is for the Messier catalogue he is best remembered.

M37

Constellation: Auriga

RA 05.52

Dec +33.33

Distance: 4,400 light years

Type: Open Cluster

NGC 2099

One of the three clusters in Auriga discovered by Messier in 1764.

M38

Constellation: Auriga

RA 05.28

Dec +35.50

Distance: 4,200 light years

Type: Open Cluster

NGC 1912

Open star cluster visible in small telescopes. Discovered by Messier in 1764 about ten days after M37.

M39  
Constellation: Cygnus  
RA 21.32  
Dec +48.26  
Distance: 800 light years  
Type: Open cluster  
NGC 7092

Very loose open star cluster. Catalogued by Messier in 1764.

M40  
Constellation: Ursa Major  
RA 12.11  
Dec +58.05  
Distance: 510 light years  
Type: Double Star  
NGC -----

Double star. A classic example of why Messier compiled the catalogue, he thought that this particular double star could be mistaken for a comet and included it in his catalogue.

## ***WAS Ad***

### **Sussex Astronomy Centre**

**F**or all your astronomy needs  
Meade, Celestron, SkyWatcher, Tal Telescopes  
Large range of accessories, software, books etc  
16 Mulberry Lane  
Goring by sea  
Worthing, West Sussex.  
Telephone 01903-247317  
Email [worthingastronomy@tiscali.co.uk](mailto:worthingastronomy@tiscali.co.uk)  
Web Site. [www.sussex-astronomy-centre.co.uk](http://www.sussex-astronomy-centre.co.uk)  
Ask for Paul Farmer (Club Member)

### **For Sale -Final Update**

Graham Boots

**T**he list below has been updated.

The society owns a large number of small telescopes and other astronomical instruments plus computer equipment making them available to members for loan. Over the years the number of items has steadily grown but the number out on loan has decreased giving rise to storage problems. As demand is now very small the Committee recently has decided to dispose of some items but in the first instant offer them for sale to members. I hope to display some on the items listed below at the February monthly meeting on Wednesday the 8th February 2006. If

any one is interested please contact Graham Boots on 01903 505346. There are no fixed prices as we are open to offers. All items are complete unless otherwise stated. Any remaining items will be sold at the Astromart at the SAGAS meeting to be held at the Chichester Panetarium on Saturday the 18th February 2006. Members who currently have society instruments on loan are now invited to purchase them for a small but realistic offer.

60 mm Tasco refractor telescope.

6" Newtonian reflecting telescope (tube & mirrors only)

4" Newtonian reflecting telescope. Both mirrors need realuminising

3 1/2" Newtonian reflecting telescope.

Pentium 1 complete computer system  
4 keyboards

3" refractor about f 16 previously used as a guide scope

8" parabolic mirror and flat mirror  
14" colour TV

2 way intercom suitable for baby listening

Scanner

## ***What's on the Box***

**Saturday 11th February 2006**



12.45 – 13.25: The Sky at Night

**O**n Top of the World. Patrick Moore and Chris Lintott are in the volcanic mountains of Mauna Kea in Hawaii, home to some of the world's best astronomical observatories.

**Monday 20th February 2006**



19.00 – 20.00. The Planets Revisited

Documentary series about the solar system. This programme describes the investigation of weather systems found throughout the solar system. Scientists have discovered sulphuric acid rain and metallic snow on Venus, while space probes have revealed the arid surface and frozen seas of Mars and the mysteries of the gas giant, Saturn.

## Hubble's view of Orion reveals thousands of stars

NASA/JPL News Release

In one of the most detailed astronomical images ever produced, NASA's Hubble Space Telescope is offering an unprecedented look at the Orion Nebula. This turbulent star-formation region is one of astronomy's most dramatic and photogenic celestial objects.



Credit: NASA, ESA, M. Robberto (Space Telescope Science Institute/ESA) and the Hubble Space Telescope Orion Treasury Project Team. [Download larger image version here](#)

"Orion is a bustling cauldron of activity. This new large-scale Hubble image of the region reveals a treasure-house of beauty and astonishing detail for comprehensive scientific study," said Jennifer Wiseman, NASA's Hubble program scientist.

The crisp image reveals a tapestry of star formation, from the dense pillars of gas and dust that may be the homes of fledgling stars to the hot, young, massive stars that have emerged from their gas-and-dust cocoons and are shaping the nebula with their powerful ultraviolet light.

The new picture reveals large-scale structures never seen before, according to C. Robert O'Dell of Vanderbilt University in Nashville, Tenn. "Only with the Hubble Space Telescope can we begin to understand them," O'Dell said.

In a mosaic containing a billion pixels, Hubble's Advanced Camera for Surveys (ACS) uncovered 3,000 stars of various sizes. Some of them have never been spied in visible light.

Some are merely 1/100 the brightness of stars seen previously in the nebula.

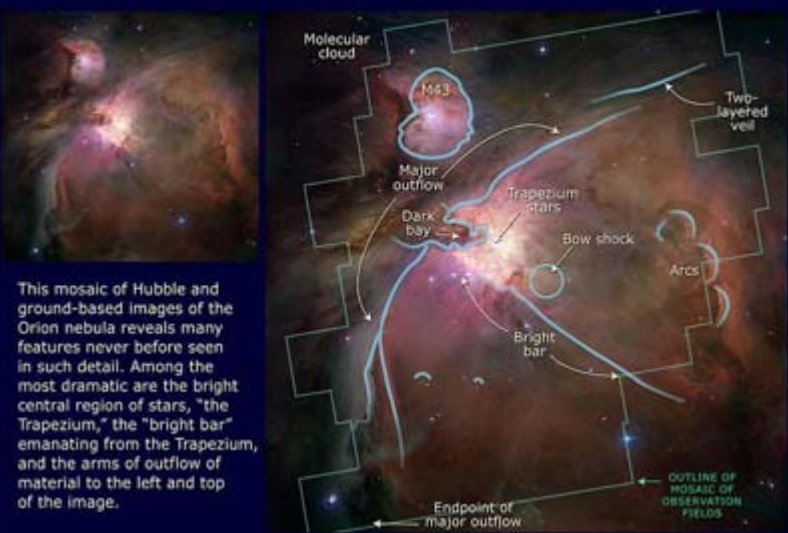
Among the stars Hubble spotted are possible young brown dwarfs, the first time these objects have been seen in the Orion Nebula in visible light. Brown dwarfs are so-called "failed stars." These cool objects are too small to be ordinary stars because they cannot sustain nuclear fusion in their cores the way our Sun does.

The Hubble Space Telescope also spied for the first time a small population of possible binary brown dwarfs -- two brown dwarfs orbiting each other. Comparing the characteristics of newborn stars and brown dwarfs in their natal environment provides unique information about how they form.

"The wealth of information in this Hubble survey, including seeing stars of all sizes in one dense place, provides an extraordinary opportunity to study star formation," said Massimo Robberto of the Space Telescope Science Institute in Baltimore, Md., and leader of the observations. "Our goal is to calculate the masses and ages for these young stars so that we can map their history and get a general census of the star formation in that region. We can then sort the stars by mass and age and look for trends."

Robberto presented his results on Jan. 11 at the 207th meeting of the American Astronomical Society in Washington.

### Hubble Space Telescope reveals dramatic features of the Orion Nebula in exquisite detail



Credit: NASA, ESA and A. Feild (STScI). [Download larger image version here](#)

The Orion Nebula is a perfect laboratory to study how stars are born because it is 1,500 light-years away, a relatively short distance within our 100,000 light-year wide galaxy. Astronomers have a clear view into this crowded stellar maternity ward because massive stars in the center of the nebula have blown out most of the dust and gas in which they formed, carving a cavity in the dark cloud.

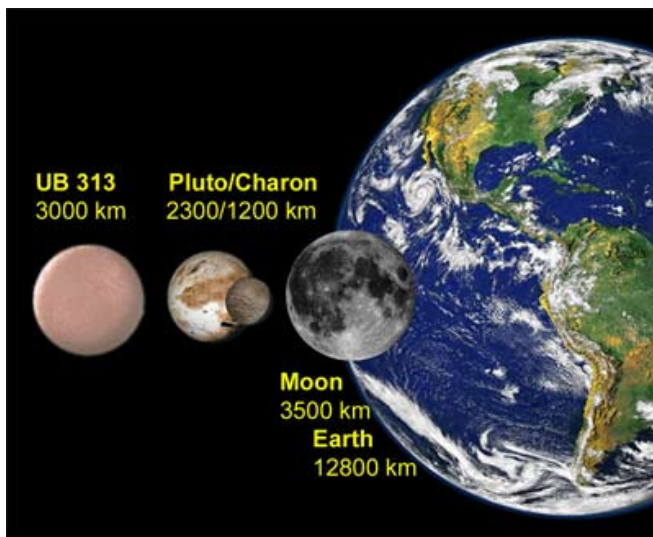
"In this bowl of stars we see the entire star formation history of Orion printed into the features of the nebula: arcs, blobs, pillars, and rings of dust that resemble cigar smoke," Robberto said. "Each one tells a story of stellar winds from young stars that impact the stellar environment and the material ejected from other stars. This is a typical star-forming environment. Our Sun was probably born 4.5 billion years ago in a cloud like this one."

This extensive study took 105 Hubble orbits to complete. All imaging instruments aboard the telescope - the ACS, Wide Field and Planetary Camera 2, and Near Infrared Camera and Multi-Object Spectrometer - were used simultaneously to study the nebula. The ACS mosaic covers approximately the apparent angular size of the full moon.

## Solar System's new planet is larger than Pluto

### Max Planck Institute News Release

Claims that the Solar System has a tenth planet are bolstered by the finding by a group led by Bonn astrophysicists that this alleged planet, announced last summer and tentatively named 2003 UB313, is bigger than Pluto. By measuring its thermal emission, the scientists were able to determine a diameter of about 3000 km, which makes it 700 km larger than Pluto and thereby marks it as the largest solar system object found since the discovery of Neptune in 1846 (Nature, 2 February 2006).



The diameter of 2003 UB313 compared with that of the Pluto, Charon, Earth, and the Moon. Credit: Max Planck Institute for Radio Astronomy

Like Pluto, 2003 UB313 is one of the icy bodies in the so-called Kuiper belt that exists beyond Neptune. It is the most distant object ever seen in the Solar System. Its very elongated orbit takes it up to 97 times farther from the Sun than is the Earth - almost twice as far as the most distant point of Pluto's orbit - so that it takes twice as long as Pluto to orbit the Sun. When it was first seen, UB313 appeared to be at least as big as Pluto. But an accurate estimate of its size was not possible without knowing how reflective it is. A team led by Prof. Frank Bertoldi from the University of

Bonn and the Max Planck Institute for Radio Astronomy (MPIfR) and the MPIfR's Dr. Wilhelm Altenhoff has now resolved this problem by using measurements of the amount of heat UB313 radiates to determine its size, which when combined with the optical observations also allowed them to determine its reflectivity. "Since UB313 is decidedly larger than Pluto," Frank Bertoldi remarks, "it is now increasingly hard to justify calling Pluto a planet if UB313 is not also given this status."

UB313 was discovered in January 2005 by Prof. Mike Brown and his colleagues from the Californian Institute of Technology in a sky survey using a wide field digital camera that searches for distant minor planets at visible wavelengths. They discovered a slowly moving, spatially unresolved source, the apparent speed of which allowed them to determine its distance and orbital shape. However, they were not able to determine the size of the object, although from its optical brightness it was believed to be larger than Pluto.

Astronomers have found small planetary objects beyond the orbits of Neptune and Pluto since 1992, confirming a then 40-year old prediction by astronomers Kenneth Edgeworth (1880-1972) and Gerard P. Kuiper (1905-1973) that a belt of smaller planetary objects beyond Neptune exists. The so-called Kuiper Belt contains objects left from the formation of our planetary system some 4.5 billion years ago. In their distant orbits they were able to survive the gravitational clean-up of similar objects by the large planets in the inner solar system. Some Kuiper Belt objects are still occasionally deflected to then enter the inner solar system and may appear as short period comets.

In optically visible light, the solar system objects are visible through the light they reflect from the Sun. Thus, the apparent brightness depends on their size as well as on the surface reflectivity. Latter is known to vary between 4% for most comets to over 50% for Pluto, which makes any accurate size determination from the optical light alone impossible.

The Bonn group therefore used the IRAM 30-meter telescope in Spain, equipped with the sensitive Max-Planck Millimeter Bolometer (MAMBO) detector developed and built at the MPIfR, to measure the heat radiation of UB313 at a wavelength of 1.2 mm, where reflected sunlight is negligible and the object brightness only depends on the surface temperature and the object size. The temperature can be well estimated from the distance to the sun, and thus the observed 1.2 mm brightness allows a good size measurement. One can further conclude that the UB313 surface is such that it reflects about 60% of the incident solar light, which is very similar to the reflectivity of Pluto.

"The discovery of a solar system object larger than Pluto is very exciting," Dr. Altenhoff exclaims, who has researched minor planets and comets for decades. "It tells us that Pluto, which should properly also be counted to the Kuiper Belt, is

not such an unusual object. Maybe we can find even other small planets out there, which could teach us more about how the solar system formed and evolved. The Kuiper Belt objects are the debris from its formation, an archeological site containing pristine remnants of the solar nebula from which the sun and the planets formed." Dr. Altenhoff made the pioneering discovery of heat radiation from Pluto in 1988 with a predecessor of the current detector at the IRAM 30-meter telescope.

### *Diary*

<b>8th February</b>	<b>Adventures in Deep Space Photography from Wiltshire to Southern France -- Philip Perkins</b>
<b>8th March</b>	<b>Orbital Oddities - Strange Goings-on with 3 or more bodies - James Fradgley</b>
<b>12th April</b>	<b>Members Contributions</b>
<b>10th May</b>	<b>Our Vital Moon Robin Gorman</b>
<b>14th June</b>	<b>TBA</b>
<b>12th July</b>	<b>Venus Express Andrew Coates</b>
<b>13th September</b>	<b>Sir Arthur Stanley Eddington -Mark Hurn</b>
<b>11th October</b>	<b>AGM &amp; Members Contributions</b>
<b>8th November</b>	<b>Campaign for Dark Skies – Update - Bob Mizon</b>
<b>13th December</b>	<b>TBA</b>

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

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