

WAS NEWS

Monthly Newsletter of the Worthing Astronomical Society
www.was.org.uk



Number 185

April 2005

ALMANAC

All times U.T. For BST add one hour

April/May LUNAR

April	Date	Time	Rise	Set
Last Quarter	2 nd	00.50	03.12	09.48
New moon	8 th	20.32	05.19	18.32
First Quarter	16 th	14.37	09.32	02.38
Full Moon	24 th	10.06	19.44	04.38

May	Date	Time	Rise	Set
Last Quarter	1 st	06.24	02.26	10.29
New moon	8 th	08.45	04.05	20.16
First Quarter	16 th	08.57	10.55	01.49
Full Moon	23 rd	20.18	20.14	03.16
Last Quarter	30 th	11.47	01.10	11.13

EARTH

April	Sunrise	Sunset
2 nd	05.33	18.35
8 th	05.20	18.45
16 th	05.03	18.59
24 th	04.46	19.12

May	Sunrise	Sunset
1 st	04.32	19.24
8 th	04.20	19.35
16 th	04.07	19.47
23 rd	03.58	19.57
30 th	03.50	20.06

PLANETS (As at April 24th)

	Constellation	Rises	Sets	Mag.
Mercury	Cetus	04.16	16.30	+0.5
Unfavourable				
Venus	Aries	05.08	19.44	-3.9
Unfavourable				
Mars	Capricornus	02.54	12.33	+0.7
Difficult morning object in the South east				
Jupiter	Virgo	16.46	04.25	-2.4
Brilliant object in the South				
Saturn	Gemini	09.22	01.28	+0.2
Evening object in the south east				
Uranus	Aquarius	03.18	13.58	+5.9
Unfavourable				
Neptune	Capricornus	02.29	11.54	+7.9
Unfavourable				
Pluto	Serpens cauda	22.39	08.15	+13.9
Difficult				

PHENOMENA

Day	Hour	April
12 th	08	Mercury at stationary point
16 th	03	Saturn 5° S. of moon
22 nd	17	Jupiter 0.5° N of moon
26 th	16	Mercury at greatest elongation W.27°

	May
2 nd	17
6 th	08
9 th	05
13 th	15
19 th	22
20 th	00

May	Position
17	Mars 2° N. of moon
08	Mercury 3° N. of moon
05	Venus 3° S. of moon
15	Saturn 5° S. of moon
22	Jupiter 0.3° N. of moon
00	Neptune at stationary point

Minima of Algol

April	23 rd	03.36	26 th	00.24	28 th	21.12	May	Unfavourable
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Lunar Occultation's Times as at Old W.A.S. Observatory

Date	U.T.	S.A.O. No	Mag	Phase
April	h. m. s.			
13 th	19.28.15	77177	8.8	Diss
13 th	22.37.01	77266	8.7	Diss
14 th	19.51.46	78299	8.1	Diss
14 th	20.44.07	78334	8.0	Diss
14 th	21.37.15	0	8.9	Diss
15 th	19.54.35	79256	8.5	Diss
15 th	20.24.46	79264	8.3	Diss
15 th	20.39.25	79279	8.6	Diss
15 th	21.00.02	79286	6.9	Diss
15 th	21.05.04	0	9.4	Diss
15 th	22.06.58	79315	9.1	Diss
17 th	01.23.59	80113	5.9	Diss
17 th	21.10.05	80596	8.3	Diss
20 th	20.45.31	118806	6.6	Diss
20 th	21.42.43	118823	7.0	Diss
20 th	22.43.50	118827	8.5	Diss
21 st	21.21.24	119234	7.1	Diss
May				
10 th	21.36.28	77028	6.8	Diss
11 th	21.44.40	78000	8.6	Diss
12 th	20.55.55	78968	7.2	Diss
12 th	21.11.02	78976	8.2	Diss
12 th	22.08.21	79015	9.0	Diss
14 th	21.54.29	80414	7.9	Diss
15 th	21.07.08	98640	7.8	Diss
15 th	21.53.03	98646	8.4	Diss
15 th	22.19.18	98657	8.9	Diss
16 th	20.42.54	99052	8.4	Diss
16 th	21.03.26	99067	8.9	Diss
17 th	22.53.10	118666	8.8	Diss
17 th	23.13.21	118674	9.0	Diss
19 th	22.00.35	138861	8.0	Diss

The list above is a selection of about 30% of the more easily observed events

Dave Wells

Editors Note

Well.....you must forgive me for typo's and spelling errors this month, Mrs Was News Editor has just produced our very first Assistant Was News Editor!!!! So consequently all is a bit of a blur at the moment.

I have it on good authority however that the sleepless nights that result are an ideal time to spend observing the summer skies.

Wish me luck!

Rob

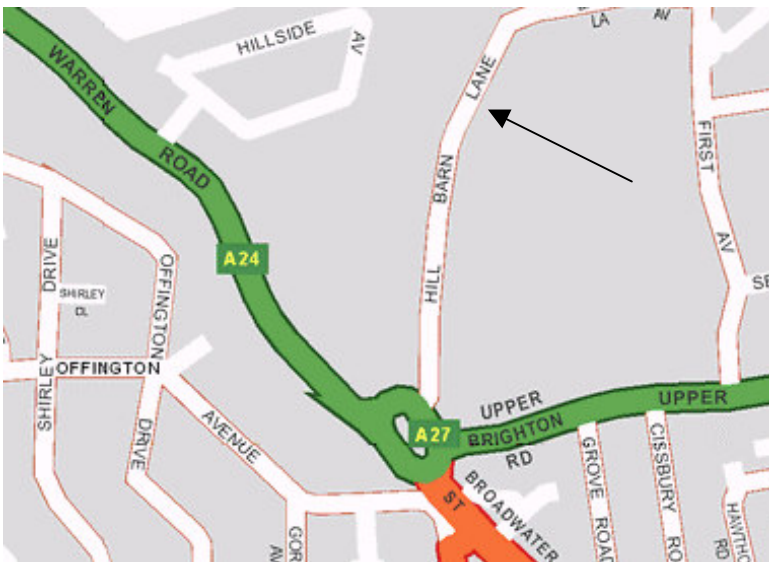
Dates for your Diary

Hill Barn Observers Night

Alex Vincent

I will be running the observer's nights at our Hill Barn observing site while the observatory awaits a new site. These will take place on Friday evenings starting at 7.30PM. Park at the car park at the northern end of the recreation ground in Hill Barn Lane and walk the short distance to the club house where we will be observing.

The gates to the club house car park close at night, but there is a gate to the side for us to walk through. Bring a flask, telescope, binoculars and a camera. Objects to see will be deep sky, Moon, the planet Saturn and the bright Comet Macholz. Any enquiries my telephone number is 07753 282714.



Reports

Solar Section Report - March 2005

Section Director, Brian Halls

Sunspot activity continued downward during the month. Paradoxically, solar activity of other kinds was upbeat.

There were a number of days during the first week, when only one sunspot was visible – the honour of this was divided between a northern and southern group – NOAA 0740 and NOAA 0741. A third spot, NOAA 0739 appeared and disappeared during the course of its transit across the Sun's face during this time. One of these groups, 0741 was the very active region of two rotation's ago (early to mid January) NOAA 0720, which many of you may recall turned out to be a very large naked eye and magnetically active group. It has remained magnetically active, but visually it was now a much smaller group.

During the second week, the number of sunspot active areas increased, before once more quietening down for much of the third week of the month. Apart from NOAA 0741, all activity was confined to the southern solar hemisphere.

Sunspot activity during the last week of March matched that of the earlier part of the month – quiet!

Monthly average sunspot numbers have reached their lowest levels since 1997. Scientists working at the Marshall Space Flight Centre predict sunspot minimum about a year from now – April / May 2006, though a date sometime late in 2006 is also mooted.

One way or another, sunspots will become rarer and rarer over the next year to eighteen months, but once the present cycle, number 23 blends into cycle number 24 sunspot activity will once more increase.

WASNews, shall keep you updated.

Reports were received from Jan Marshall, Graham Boots (18 days) and the Director (1 day) with other details in the article from the daily Space Environment Center reports and weekly reports from the Solar Influences Data analysis Center, Royal Observatory of Belgium.

MDF= 1.94 ; R= 26.5

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Astrophotography Impact Since 1795

Michael Maunder

Michael began his talk by asking us to enthuse about, respect and remember the unsung heroes whose inventions and discoveries were fundamental to the development of astrophotography and, indeed, photography in general.

The first photograph was taken in 1795 by Thomas Wedgwood. He was the son of the potter Josiah Wedgwood and was a member of the Lunar Society, who met at the full moon. A solar microscope was used to take photographs onto silver nitrate, but Wedgwood was unable to fix his results. Sir Humphrey Davy also experimented with this method and published a paper on the subject. These experiments are now largely forgotten.

The first real photograph was taken by Nicéphore Niépce, a Frenchman, in 1816. French advances in photography are also now largely forgotten. At this time, one year after the Battle of Waterloo, there was little co-operation between British and French scientists. He exposed a polished silver copper plate to iodine vapour to produce an image. This was the first positive photograph. By 1826 he had perfected the system. His ideas were subsequently stolen by the more famous Louis-Jacques-Mandé Daguerre.

In 1839 William Henry Fox Talbot invented the negative to positive process using material exposed to silver iodide, and patented it. The fact that he did patent the idea is the reason why people know his name, while other pioneers have been forgotten. Frederick Scott Archer then took this idea further, producing greater sharpness of image.

In the meantime, Sir John Herschel had discovered the photographic fixative known as hypo and invented colour photography in 1836 while investigating the spectrum. However, he took the idea no further.

At this point Michael was keen to test our recognition of two of the forgotten pioneers of astrophotography. Both were presidents of the Royal Astronomical Society, but unfortunately both these heroes of Michael's were a little too unsung even for us.

The first of them was Warren De La Rue. As well as having been president of the RAS he was also a president of the Chemical Society. He hailed from Guernsey. The Government gave him money and a ship, the Himalaya, to

photograph the solar eclipse of 1860. His photographs of the eclipse taken from different locations proved that the corona and the prominences are solar phenomena rather than lunar or atmospheric phenomena. De La Rue invented a shutter mechanism using a piece of string burning through, the shutter mechanism later being improved upon by Foucault. The Astronomer Royal, Sir George Airy, called De La Rue a genius.

The second name that we were unable to identify was that of William de Wiveleslie (W.W.) Abney. As well as being a president of the RAS, Abney was a president of the Royal Photographic Society. He founded 1,000 laboratories in the UK. In 1874 the Government asked him to photograph the transit of Venus. He developed a photographic emulsion for mapping the solar spectrum and used stale beer to fix his photographs.

Another pioneer was Mary Rosse, wife of Lord Rosse. She was a very important photographer who invented the pictorial approach. Her laboratory at Birr Castle, where she cast mirrors for the famous 72-inch "Leviathan" telescope in the 1840s, still exists today, as do the iron gates to the castle, which she also made.

Among later pioneers included in Michael's talk were Alex Boksenberg, whose invention of an image photon-counting system enabled the study of faint astronomical objects, and D.D. Matsukov, who introduced an eyepiece for telescopes used in Cassegrain systems.

Next, Michael showed a large number of photographs that he has taken, both from his home on Alderney, and on holidays in other countries, especially on eclipse expeditions. The aim was to show us what is now possible thanks to the pioneering efforts of the people he had highlighted in the earlier part of his talk.

His eclipse photographs included advice on the right, and sometimes wrong, kinds of cameras and tripods, to take. Essential items for eclipse chasers include a silly hat and a drink for the post-eclipse celebrations.

The eclipse photographs ranged from Zanzibar in 1976 to the most recent total eclipse in 2003, taking in Arizona and Chile (both 1994), India (1995), Mongolia (1997), and Guadeloupe (1998).

In Mongolia many were clouded out, but the temperatures were milder than expected at just above freezing. Minus 20 or even forty degrees had been forecast. Michael was one of the lucky ones able to see and photograph this eclipse.

Michael has used binoculars as a cheap alternative to a zoom lens, to produce a spectacular photograph of the

diamond ring effect. One of his photographs has been used for the cover of Singapore Airlines' in-flight magazine.

Michael emphasized the value of being prepared. In Chile he had set up a camera the night before the eclipse and had captured the moment complete with an American couple in the foreground expressing their excitement at the event.

There are also moments of improvisation on eclipse sites. In the Arizona desert, in the absence of anything more suitable, a small hole was punched through a dried cowpat to show crescent Suns during the partial phase of an eclipse.

In 1999 Michael had the opportunity to observe the total solar eclipse from his home in Alderney. Conditions were mostly cloudy but he did manage to take one photograph of totality. More recently, in May 2003, he observed and photographed the annular solar eclipse in Iceland, after which snow fell began to fall.

The most recent total solar eclipse observed was in November 2003. This eclipse was visible from Antarctica. Rather than make the long trip from Australia to Antarctica by Russian ship, Michael was able to observe the eclipse from the air, on a flight leaving Australia. 50 seats were available down one side of the plane. The speed of the plane increased the duration of observed totality from 25 seconds to 33 seconds. As totality approached the drop in temperature caused ice crystals to form on the windows giving some a poor view and some cameras were focussing on the ice crystals rather than the eclipsed Sun. The eclipse occurred on the day after England had beaten Australia in the Rugby Union World Cup Final. Michael had taken an Alderney flag with him and its similarity to the England flag meant that Michael was not entirely popular with the locals.

Michael had previously made a visit to in Antarctica, in 1998. He showed a photograph of the Mount Erebus volcano erupting, sending chlorine and fluorine into the atmosphere. Michael stated that this showed that not only man-made substances affect the climate. He is more interested in the possibilities for sudden global cooling, due to a large volcanic eruption. The last really big bang was of Tambora in Indonesia in 1815. This was bigger than the Krakatoa eruption of 1883. On a visit to Krakatoa in 1988 Michael's hat saved him from the ash and rock of a sudden eruption. Michael also showed a photograph of Venus apparently caught up in the fire of an eruption of the volcano Stromboli.

Michael was able to observe and photograph the June 2004 transit of Venus from a hotel in the Auvergne region of France. After the transit a number of beers were drunk

in honour of Sir W.W. Abney. Michael also photographed a transit of Mercury from Bali in 1999.

A number of Michael's photographs were taken from near his home on Alderney. We were treated to a sunset photograph in which a solar pillar was also captured and a number of photographs of double rainbows, crepuscular rays, sundogs and solar halos. We also saw a number of photographs of lunar eclipses and of comets Hale-Bopp and Hyakutake.

The latter comet was photographed from La Palma in the Canary Islands. Remarkably, light pollution is a problem for astrophotographers even here. Michael's travels have also taken him to the island of Palau in the Pacific Ocean, from where he photographed the Leonid meteor shower, and to Australia. He showed some photographs of the southern sky, particularly the Southern Cross and the Coal Sack, including one taken at full moon. Another southern hemisphere photograph showed Scorpius on its head with the tail part, not visible from here, at the top.

On a trip to Egypt Michael photographed the triple conjunction between Venus, Mars and Saturn and also photographed Sirius rising between sections of the temple at Karnak. The temple was built purely for astronomical purposes, using the rising of stars to predict the annual flooding of the Nile delta.

Michael showed that photographs such as these, and one showing Mars above the fortress at Carcassonne in southern France, illustrate that astronomical photographs can have an artistic quality. The front cover of his book on eclipses is another such photograph, with a silhouetted figure pointing at Venus, Mercury and Antares. Other such pictures included sunrise and sunset pictures from Namibia with the sky colours enhanced by atmospheric effects due to the 1991 eruption of the volcano Mount Pinatubo in the Philippines.

Further artistic photographs included those taken at a floodlit waterhole in Africa, with elephants, giraffes and rhinoceroses, with some of the animals reflected in the waterhole and stars and planets shown above them.

A number of the photographs shown were a larger size (6 inches by 9 inches). Digital photography has yet to produce such good quality images at this size.

All in all, an enjoyable talk with a larger number of terrific photographs of all kinds of celestial events, taken from locations all around the world, and made possible by the pioneering work of individuals whose names are largely unknown now, but who made significant contributions to photography, allowing us to photograph the night sky.

Articles

Messier Objects - Continued

Jan Marshall

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.

Magnitudes and distances are of course all approximate.

M4
Constellation: Scorpius
RA 16hrs 20m
Dec -26.24
Distance: 10,000 light years
Type: Globular Cluster
NGC 6121

Globular cluster with a total visual magnitude of 6
First logged by Messier in 1764 but had been seen and noted previously by L de Cheseaux in 1746.

M5
Constellation: Serpens
RA 15hrs 16m
Dec +2.16
Distance: 30,000 light years
Type: Globular Cluster
NGC 5904

Globular Cluster with a total visual magnitude of 6.

Discovered by Messier in 1764 but had been seen by Gottfried Kirch in 1702.

M6
Constellation: Scorpius
RA 17h 36m
Dec -32.11
Distance: 2,000 light years
Type: Open Galactic Cluster
NGC 6405

Open cluster with a total magnitude of 4.3. Is visible with the naked eye. Binoculars resolve this object well.

Contains the star BM Scorpii a semi-regular variable which changes between magnitude 5.5 and 7.

M7
Constellation: Scorpius
RA 17h 50m
Dec +34.48
Distance: -
Type: Open Galactic Cluster
NGC 6475

Open cluster with a total magnitude of 10. Stars range from 7-12 magnitudes. Smallest type of optical aid will resolve this cluster.

Was Link

www.spaceflightnow.com

A firm favourite!! – Submitted by the Ed

web.canon.jp/Imaging/astro/index-e.html

An interesting reference guide to astrophotography. This provides advice on exposure settings (apertures, shutter speeds and ISO film speeds) and includes example photos. – Submitted by: Trevor White

www.astropix.com/Index.htm

Another very good Astrophotography WEB site which provides reviews on digital SLR cameras, lenses and equipment for astrophotography. It also offers advice on polar alignment, piggyback shots, auto/manual guiding, focusing and digital processing. - Submitted by: Trevor White

WAS Ad

Items for Sale

Graham Boots

Long standing member, Peter Montgomery who has been our chairman on many occasions and for a long time was our instrument section director is having to dispose and sell his four telescopes and a great deal of photographic equipment.

Anyone interested should, in the first instant contact Graham Boots on 01903 505346.

Sussex Astronomy Centre

Now open: Meade main dealer for Sussex
Stockist of Astro engineering range
And all products from
Meade Telescopes.
Bresser Telescopes.
Discounts for club members
Part Exchange considered.

Sussex Astronomy Centre
16 Mulberry Lane
Goring by sea
Worthing, West Sussex.
Tel 01903 247317
Email worthingastronomy@tiscali.co.uk

Ask for Paul Farmer.
(Club member)

What's on the Box

Saturday 16th April 2005



13.35 – 14.05: **The Sky at Night**

Star Party. Patrick Moore hosts a star party at his house in Selsey. Over two nights, amateur astronomers played lottery with the weather, and after clouds, rain and fog played havoc with the viewing, the night sky was at last revealed in all its glory.

WAS News News

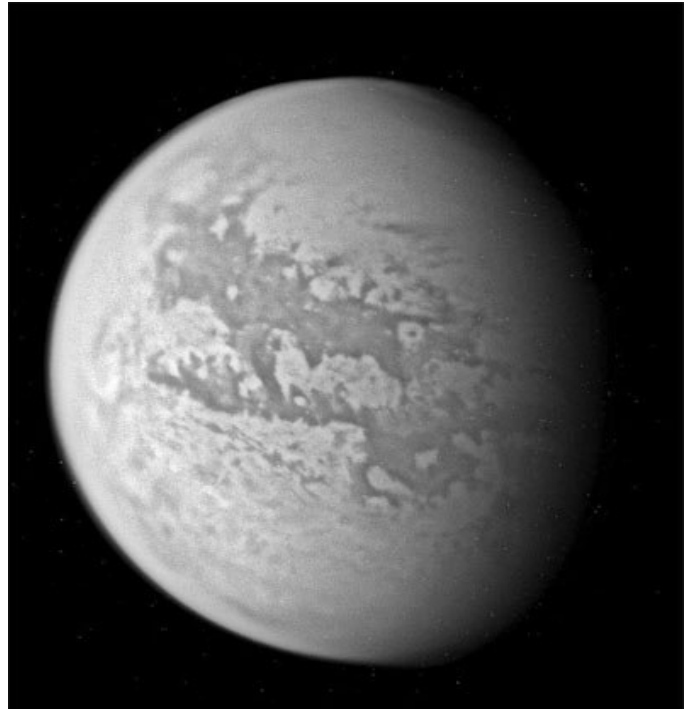
New Titan Territory

Cassini Photo Release

Although the Huygens probe has now pierced the murky skies of Titan and landed on its surface, much of the moon remains for the Cassini spacecraft to explore. Titan continues to present exciting puzzles.

This view of Titan uncovers new territory not previously seen at this resolution by Cassini's cameras. The view is a composite of four nearly identical wide-angle camera images, all taken using a filter sensitive to wavelengths of infrared light centered at 939 nanometers. The individual images have been combined and contrast-enhanced in such a way as to sharpen surface features and enhance overall brightness variations.

Some of the territory in this view was covered by observations made by the Cassini synthetic aperture radar in October 2004 and February 2005. At large scales, there are similarities between the views taken by the imaging science subsystem cameras and the radar results, but there also are differences.



Credit: NASA/JPL/Space Science Institute Download larger image version here

For example, the center of the floor of the approximately 80-kilometer-wide (50-mile) crater identified by the radar team in February (near the center in this image) is relatively bright at 2.2 centimeters, the wavelength of the radar experiment, but dark in the near-infrared wavelengths used here by Cassini's optical cameras. This brightness difference is also apparent for some of the surrounding material and could indicate differences in surface composition or roughness.

Such comparisons, as well as information from observations acquired by the visual and infrared mapping spectrometer at the same time as the optical camera observations, are important in trying to understand the nature of Titan's surface materials.

The images for this composite view were taken with the Cassini spacecraft on March 31, 2005, at distances ranging from approximately 146,000 to 130,000 kilometers (91,000 to 81,000 miles) from Titan and at a Sun-Titan-spacecraft, or phase, angle of about 57 degrees. The image scale is 8 kilometers (5 miles) per pixel. Previous observations indicate that, due to Titan's thick, hazy atmosphere, the sizes of surface features that can be resolved are a few times larger than the actual pixel scale.

Diary

13th April 2005 Member's Evening Short Talks and Imaging Displays by members

11th May 2005 Southern Africa Large Telescope (SALT) 11 meter - Dr Malcolm Coe Southampton University

8th June 2005 Jets, the exhaust of the most efficient engines in The Universe - Dr Christian Kaiser Southampton University

13th July 2005 'Wish You Were Here Astronomy' - Dr Lilian Hobbs Southampton Astronomical Society

14th September 2005 40th Anniversary Lecture September 1965 – 2005. Black Holes & White Rabbits (physics & magic) - Professor John C. Brown Astronomer Royal for Scotland Dept., of Physics & Astronomy Glasgow University

12th October 2005 Member's Contributions Inc The Super String Theory - David Storey.

9th November 2005 Universe in 4D- Cosmic Light Show - Dr. Christopher Baddiley Infrared Physicist Worcester

14th December 2005 Adventures with a Small Telescope - Neil Bone Meteor Section Director of the British Astronomical Association

All Meetings (**bold**) are held on the second Wednesday of every month unless otherwise stated, at Heene Church Rooms, Worthing at 7.30 p.m. Meetings include the latest astronomical work, reports and, photographs by members. For further information please call 01903 521205, on the Internet at www.was.org.uk or email: chairman@was.org.uk

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