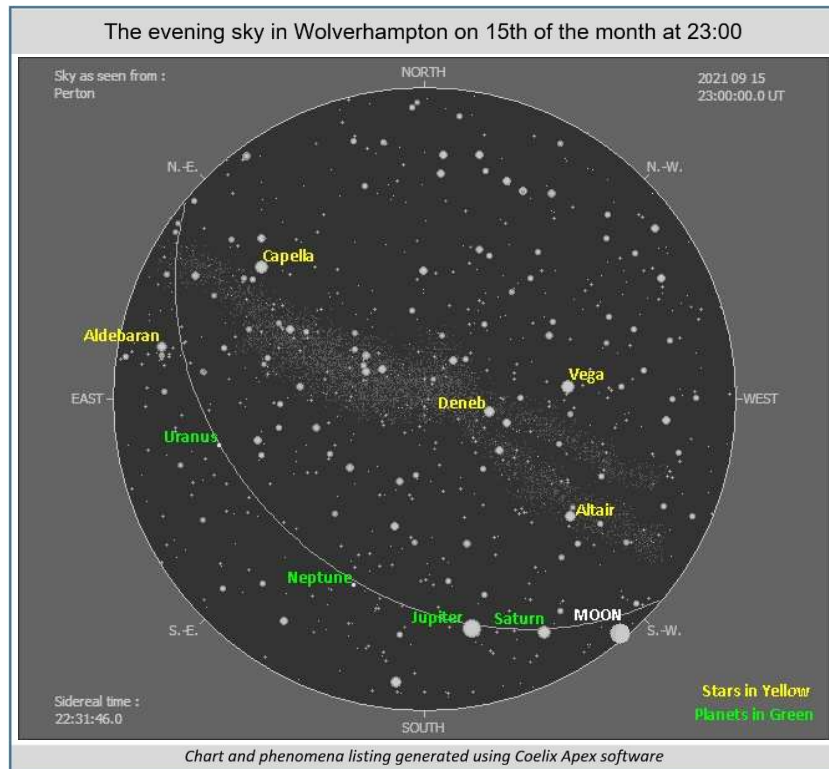


The Night Sky in September 2021

- a quick and easy guide



Monthly Guide Compiled
by Doug Bickley



MOON PHASES	
New Moon	7 Sept
First quarter	13 Sept
Full Moon	20 Sept
Third (last) quarter	29 Sept

Events this month to look out for:

- 1 Aurigid meteor shower peak (unfavourable, early morning)
- 4 Crescent Moon above Beehive Cluster M44 (morning)
- 5 Venus above Spica (morning)
- 6 Slim Crescent Moon left of Regulus (morning twilight)
- 9 Slim Crescent Moon right of Venus (evening twilight)
- 14 Neptune at opposition (visible all night)
- 16 Moon below right of Saturn (evening)
- 17 Moon forms triangle with Saturn and Jupiter, in Capricornus (evening)
- 18 Moon below left of Jupiter (evening)
- 22 Autumnal Equinox
- 25 Moon below Pleiades cluster M45 (evening)
- 26 Moon above left of Hyades and Aldebaran (evening)
- 30 Moon forms a triangle with "twin" stars Castor and Pollux (morning)

Moon:

Full Moon is on the 20 September.

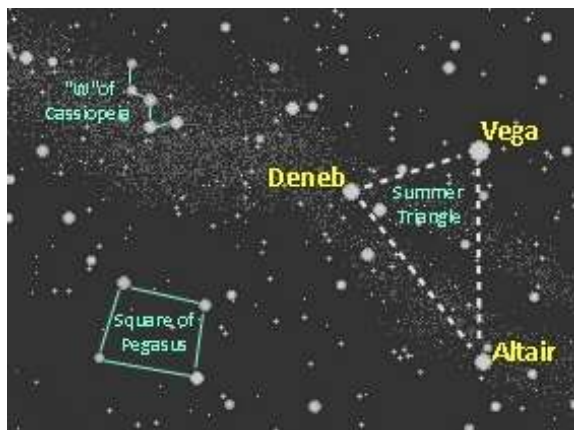
This will be the Harvest Moon, the name given to the full moon that occurs nearest to the autumnal equinox (see below).

Historically the light of the Harvest Moon was said to enable farmers to work late into the night, helping them to bring in the crops from the fields.



The September (or Autumnal) Equinox occurs at 19:21 UTC on 20 September marking the end of summer and the beginning of winter - the first day of autumn in the northern hemisphere, and the first day of spring in the southern hemisphere. On this date, the Sun will be directly over the equator and as a result for a brief period day and night will be almost exactly the same length.

This time of year presents a perfect time for stargazers to make the most of the improved seeing conditions as the summer's heat (haha) haze begins to die down.



Constellations that are prominent in the mid to late evening sky in September include Cygnus, Aquila Lyra, Perseus, and Cassiopeia, with the Great Square of Pegasus to the eastward of Cygnus.

Of particular interest is the "Summer Triangle" formed by the very bright and prominent stars Deneb, Vega and Altair. This can be seen in the sky during the late evening. Also conspicuous is the Great Square of Pegasus, and also look for the constellation Andromeda, which is attached to Pegasus, and found between the constellation and the W asterism of Cassiopeia.

We'll look at this in more detail later.

Planets this month:

Here is the usual run down of planetary movements for September:

Jupiter is still in the South in Capricornus, an evening planet which gets to its highest position in the sky, due south, in darkness during the month. Its apparent position in the sky has it travelling west through the eastern part of Capricornus with its altitude reducing slightly but this remaining at over 20° over the month.

Saturn is still in the South in Capricornus with a reasonable altitude of around 18° all month long. As the dark (and hopefully clear) nights return in September you should obtain good views of the planet. Saturn reaches its highest point in the sky due south at around 23:00 at the start of the month and at around 21:00 by month end.

Mars is low in the West in Leo but not a viable target this month as it is too close to the Sun to be seen.

Venus is still low in the evening sky (altitude 5°), in the WSW in Virgo shining at mag -4.0 and increasing to mag -4.2 at month end. You will need to be quick in your observations because the planet sets approximately 1 hour after the Sun throughout the month.

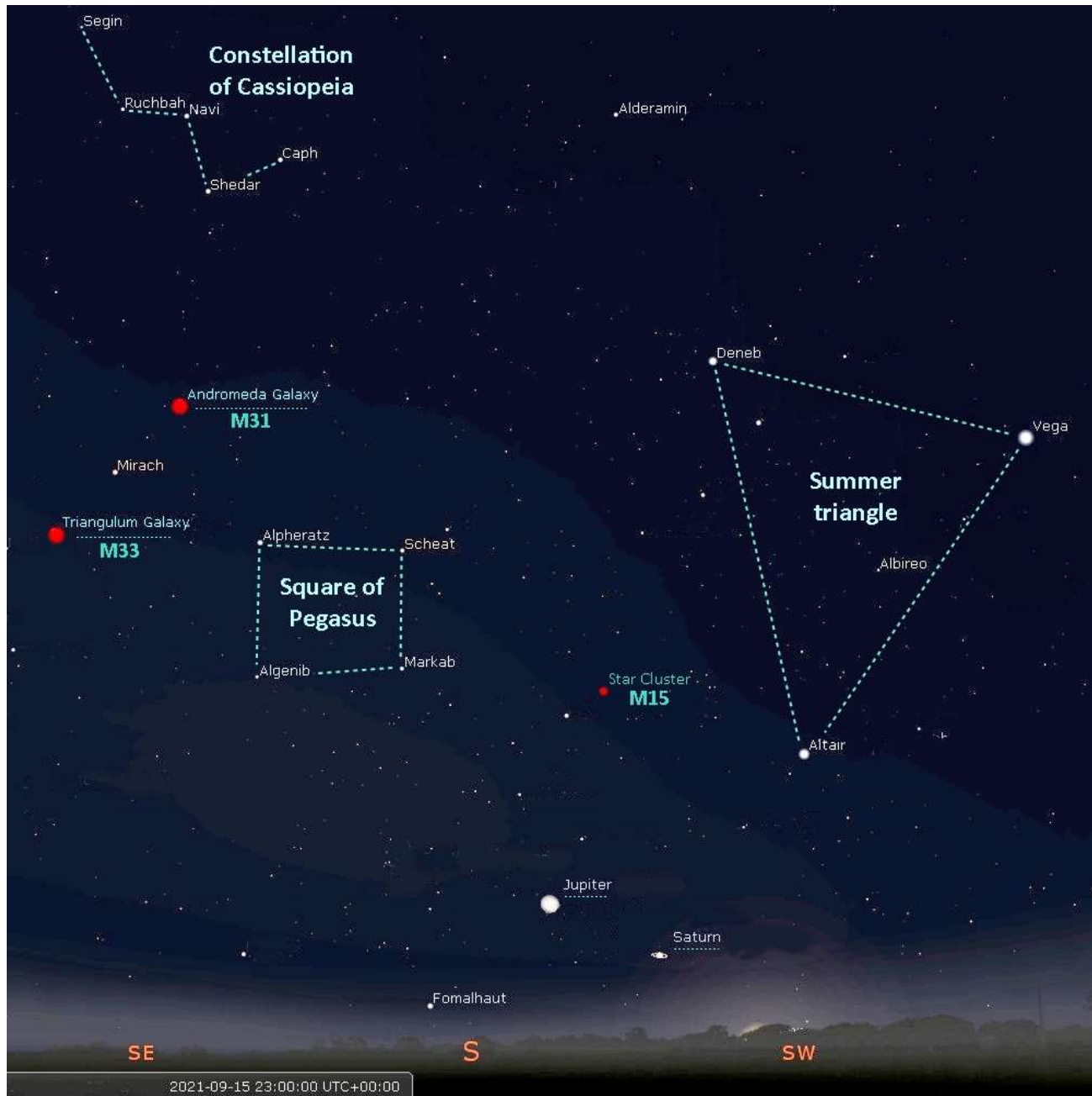
Mercury is in the West in Virgo at an altitude of 2° (very low). It will be tricky to spot but early in the month when it sets just 30 minutes after the Sun, but by the end of the month it sets with the Sun.

Uranus is in the South in Aries and is a morning planet. It reaches a good altitude of 50° due south at around 03:00 in the dark morning sky.

Neptune is still in the South in Aquarius and at an altitude of 30° and shows a small blue disc though larger instruments. At mag +7.8 the planet reaches opposition on 14 September so is visible all night.

Deep Sky Objects

Let's have a change this month and look at a couple of deep sky objects that are easily visible with simple equipment, this might be binoculars or a small telescope. At this time of year the constellations Cygnus and Lyra are still prominent, but the change in season brings the constellations Andromeda, Triangulum, and Pegasus into view. Although Pegasus does not have much to recommend it except the globular star cluster M15, both Andromeda and Triangulum offer galaxies that can be viewed with binoculars.



Looking South on 15 September at 23:00

(generated using Stellarium software)

M31 Andromeda Galaxy

Located close to 3 million light years away, this great spiral galaxy that contains about twice as many stars as the Milky Way can be seen without optical aid under dark skies. Binoculars reveal a distinct patch of light, but won't reveal any structure in the galaxy.

M33 Triangulum Galaxy

M33 is a satellite galaxy of M31, and at just over 3 million light years away, it is the most distant object that unaided human vision can make out. With binoculars under clear, dark skies M33 looks like a very faint cloud about twice the diameter of the full Moon, but it is not possible to resolve its structure with binoculars or small telescopes.

Meteor Showers:

No major showers this month but the September Epsilon Perseid meteor shower takes place within the boundaries constellation of Perseus.

This shower occurs between 5 September and 21 September with the peak occurring on the 9 September every year. The Zenith Hourly Rate - or how many you expect to see during the hour – is a paltry 5, and their radiant point will be close to the star Algol. September skies are getting darker but it will be best to wait until after 21:00 to have any chance of seeing a meteor.

See last month's sky guide for meteor viewing tips.

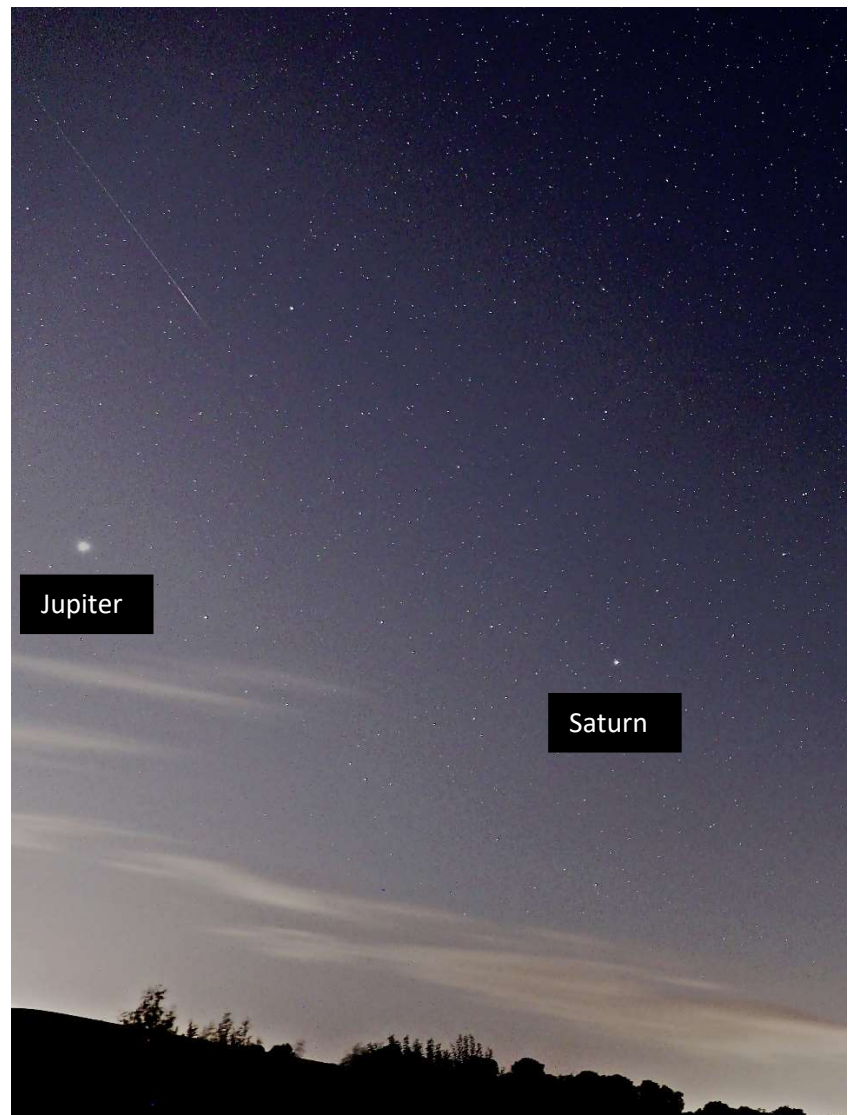
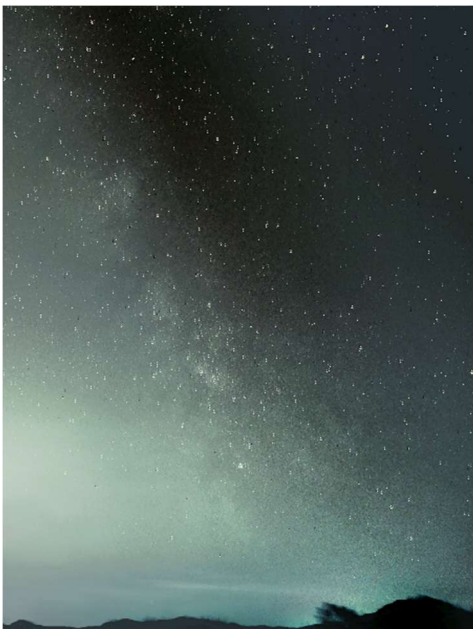
Update from last month - Perseid meteor shower

Did you try and hopefully manage to see any Perseid meteors between the cloudy nights?

Wolverhampton Astronomical Society held a members only observing event at Halfpenny Green Vineyard on 12 August and we luckily had clear(ish) skies. We had a very successful and convivial evening and logged about 20 meteors.

However, taking a picture is sometimes down to luck. I took 150 pictures that night using the technique described last month, a DSLR controlled by a wireless intervalometer, but only captured 2 meteors. Here's one shot taken on 12 August at 23:21 with a meteor spanning Aquarius and Capricornus. The planets Jupiter and Saturn are also visible:

It was a clear night and I was lucky to spot the Milky Way towering over the distant lights of Kidderminster in the picture below:



Phenomena of the month of September (generated using Coelix Apex software):

	Date	Hour	Description of the phenomenon
	yyyy mm dd	hh:mm	
1	2021 09 01	03:00	Meteor shower : Alpha Aurigids (6 meteors/hour at zenith; duration = 8.0 days)
2	2021 09 02	22:30	Close encounter between the Moon and Pollux (topocentric dist. center to center = 3.6")
3	2021 09 03	23:02	Close encounter between the Moon and M 44 (topocentric dist. center to center = 2.3")
4	2021 09 05	15:44	Close encounter between Venus and Spica (topocentric dist. center to center = 1.6")
5	2021 09 05	19:00	Mercury at its aphelion (distance to the Sun = 0.46670 AU)
6	2021 09 06	19:52	NEW MOON
7	2021 09 08	19:23	Close encounter between the Moon and Mercury (topocentric dist. center to center = 5.1")
8	2021 09 09	10:59	Meteor shower : Sept. Perseids (5 meteors/hour at zenith; duration = 16.0 days)
9	2021 09 09	22:59	Close encounter between the Moon and Venus (topocentric dist. center to center = 3.2")
10	2021 09 11	05:05	Moon at perigee (geocentric dist. = 368461 km)
11	2021 09 13	15:39	FIRST QUARTER OF THE MOON
12	2021 09 13	18:00	GREATEST EASTERN ELONGATION of Mercury (26.6")
13	2021 09 16	01:12	Close encounter between the Moon and Pluto (topocentric dist. center to center = 2.6")
14	2021 09 17	00:23	Close encounter between the Moon and Saturn (topocentric dist. center to center = 4.1")
15	2021 09 18	04:17	Close encounter between the Moon and Jupiter (topocentric dist. center to center = 4.2")
16	2021 09 20	06:40	Close encounter between the Moon and Neptune (topocentric dist. center to center = 4.2")
17	2021 09 20	18:55	FULL MOON
18	2021 09 21	17:46	Close encounter between Mercury and Spica (topocentric dist. center to center = 1.4")
19	2021 09 24	11:59	Close encounter between the Moon and Uranus (topocentric dist. center to center = 2.1")
20	2021 09 26	16:44	Moon at apogee (geocentric dist. = 404640 km)
21	2021 09 28	20:57	LAST QUARTER OF THE MOON

International Space Station (ISS) forecast time for evening passes visible this month:

Visit the Heavens Above website to check on forecast passes during August.

[source: <https://www.heavens-above.com/>]

Date	Mag	Transit time	Time	Start Alt.degs.	Az.	High point	Time	End Alt.degs.	Az.
18-Sep	-2.5	02:03	21:26	10°	SW	30°	21:28	30°	SSW
19-Sep	-3.0	03:57	20:39	10°	SW	34°	20:43	29°	ESE
19-Sep	-1.0	00:37	22:16	10°	WSW	15°	22:16	15°	WSW
20-Sep	-2.5	05:35	19:53	10°	SSW	26°	19:58	11°	E
20-Sep	-3.1	02:35	21:29	10°	WSW	47°	21:31	47°	SW
21-Sep	-3.6	04:25	20:42	10°	WSW	56°	20:46	36°	ESE
21-Sep	-1.0	00:44	22:18	10°	W	15°	22:19	15°	W
22-Sep	-3.3	06:07	19:55	10°	SW	45°	20:01	12°	E
22-Sep	-3.0	02:33	21:31	10°	W	48°	21:34	48°	WSW
23-Sep	-3.8	04:19	20:44	10°	W	74°	20:48	43°	E
23-Sep	-0.7	00:30	22:21	10°	W	14°	22:21	14°	W
24-Sep	-3.7	06:03	19:57	10°	WSW	67°	20:03	15°	E
24-Sep	-2.5	02:17	21:34	10°	W	39°	21:36	39°	W
25-Sep	-3.8	04:02	20:47	10°	W	76°	20:51	54°	ESE
25-Sep	-0.5	00:08	22:24	10°	W	11°	22:24	11°	W
26-Sep	-3.8	05:45	20:00	10°	W	78°	20:05	18°	E
26-Sep	-2.0	01:55	21:36	10°	W	29°	21:38	29°	WSW
27-Sep	-3.6	03:40	20:49	10°	W	59°	20:53	55°	SSE
28-Sep	-3.7	05:25	20:02	10°	W	69°	20:08	21°	ESE
28-Sep	-1.4	01:27	21:39	10°	W	20°	21:41	20°	WSW
29-Sep	-2.8	03:21	20:52	10°	W	37°	20:55	37°	SSW
30-Sep	-3.1	05:11	20:05	10°	W	47°	20:10	21°	SE
30-Sep	-0.8	00:37	21:42	10°	WSW	12°	21:43	12°	WSW

PERTON LIBRARY ASTRONOMY GROUP (PLAG)

Further to last month's notes we're really delighted that we can begin our PLAG session again. This is for PLAG members only who will have received an email. If you are not yet a member but interested please contact Scott Whitehouse at the library (scott.whitehouse@staffordshire.gov.uk). The first meeting will be on Thursday 16 September at 7pm until 9pm. We will be able to meet in the library, but there will need to be some measures put in place for the time being to keep everyone safe for example sanitisers.

The first session will be a presentation by Doug Bickley and Steve Wootton followed by a group chat. We will organise distanced seating for this. For this first meeting no astronomy equipment will be available nor any of the library computers or printer. Please bring your own refreshments. Numbers will be limited.

WOLVERHAMPTON ASTRONOMICAL SOCIETY LECTURES

We are continuing with our programme of online lectures and will supplement these with "in person" meetings for astronomical events, so keep an eye on our social media for announcements. We also have regular Monday evening chat nights on Zoom throughout the year, the first 30 minutes for beginners to ask questions, in these sessions we give basic astronomy advice and swap tips, sometimes with a short talk.

Invitations to all talks are emailed to members. For the coming year Wolvas subscription will be only £10 per annum and you can sign up now our website www.wolvas.org.uk

Lectures online will only be available to paid-up members of Wolverhampton Astronomical Society. We continue to try and bring you some of the best speakers around and we have an exciting line up for the coming season. Our programme of speakers for next season 2021/22 has almost been filled.

Lectures for the 2021/22 season:

13/09/21	Dr Steve Barrett	The ABC of Galaxy Evolution
27/09/21	Steve Wootton	The David Harris Lecture
11/10/21	AGM then short talk by member Adam Foster	My Astronomy Journey
25/10/21	Prof Ian Morison	Wonders of the Southern Sky
08/11/21	Martin Braddock	<i>Talk to be decided</i>
22/11/21	Alex Binks	Young Stars in our Backyard
06/12/21	Georgia Pulford	A Brief Geological History of Time
10/01/22	Prof Rene Breton	<i>Talk to be decided</i>
24/01/22	Dr Julian Onions	Crazy Interstellar Rockets
07/02/22	Steve Clifton	Astrophotography Then and Now
21/02/22	Mike Frost	<i>Talk to be decided</i>
07/03/22	# not booked yet #	Annual free public Paul Pope Lecture
21/03/22	Pete Williamson	The Moons of our Solar System
11/04/22	Paul Fellows	<i>Talk to be decided</i>
16/05/22	Damian Hardwick	The Life of Albert Einstein
13/06/22	# not yet booked yet #	

Watch out for updates

As well as our webpage www.wolvas.org.uk we will be posting details of events on social media, so keep an eye on our Facebook (<https://www.facebook.com/wolvasuk>) and Twitter (<https://twitter.com/wolvasuk>) accounts for the latest updates and news.