

[Astronomy Things To See During December 2017 \(For UK Observers\)](#)

The Winter Solstice occurs on 21st December, marking the official start of winter in the northern hemisphere

Moon:

Full: 3rd December 3:47pm (Perigee-syzygy Full Moon)
Last Quarter: 10th December 7:51am
New: 18th December 6:30am
First Quarter: 26th December 9:20am

The Lunar "X" and "V" are visible for about 3 hours starting at around 2pm UT on 25th December, a couple of hours after moonrise. You will need binoculars or a telescope to see them and viewing will improve as the afternoon light begins to dim.

Lunar conjunctions & occultations:

Note: When the Moon is waxing it is visible in the western sky after sunset. When near Full Moon it is visible most of the night.

When it is waning, it is visible in the eastern sky before sunrise

1st December Waxing Gibbous Moon lies close to Mu Ceti
2nd December Waxing Gibbous Moon forms triangle with M45 and Aldebaran
3rd December Full Moon lies close to Aldebaran
8th December Rising Waning Gibbous Moon occults Regulus
12th December Waning Crescent Moon lies close to Porrima
13th December Waning Crescent Moon lies close to Spica and Mars
14th December Waning Crescent Moon lies close to Mars and Jupiter
16th December Waning Crescent Moon lies above Beta Scorpii
22nd December Waxing Crescent Moon lies close to Theta Cap
24th December Waxing Crescent Moon lies close to Neptune and Lambda Aquarii
27th December Waxing Gibbous Moon lies close to Gamma Tauri
30th December Waxing Gibbous Moon occults Gamma Tauri
31st December Waxing Gibbous Moon occults Aldebaran (see below)

Planetary Observations:

Mercury – is not visible during the first half of the December but it will be observable during the last few days of 2017, lying low in the south-east at around 7am. It will be low but quite bright, at mag -0.1

Venus – during the first half of the month you may spot Venus very low in the dawn sky, shining at mag -3.8. At the start of December it rises about an hour before the Sun, but it will quickly slip down and will become lost in the dawn twilight by the end of the month

Mars – moving from Virgo into Libra, Mars is rising at around 3:30am this month. It will be mag +1.6 and you should be able to see the distinctive red colour. During December, Mars will be moving closer to Jupiter and by 31st December they will be within 3 degrees of each other

Jupiter – locating in Libra, Jupiter dominates the dawn sky, rising at around 4:30am and shining at mag -1.6. It lies close to Vesta all month, and moves towards Mars as December progresses and by 31st December they will be within 3 degrees of each other. On 14th & 15th December, the Waning Crescent Moon lies close to Jupiter

Saturn – is not observable this month

Neptune – one of the two dim planets visible in our evening sky, Neptune is located in Aquarius and sets at around 10:30pm. At mag +7.9 you will need binoculars or a small telescope to observe it

Uranus – the other dim planet visible in the evening sky this month is Uranus. Located in Pisces, it sets at around 2:30am. At Mag +5.7 you will need binoculars or a small telescope to observe it

Pluto – it not easily observable this month

Ceres – located in Leo, Ceres is well placed for observation this month as it rises at around 8pm and remains visible all night long. At mag +7.1 you will need binoculars or a small telescope to spot it. On 8th December look for the Waning Gibbous Moon close by

Vesta – located in Libra, Vesta is visible in our predawn skies this month. Rising at around 4:30am, It lies above and left of Jupiter. At mag +7.3 you will need binoculars or a telescope to observe it. On 14th & 15th December, the Waning Crescent Moon lies close to them both

Phaethon – the 5km diameter asteroid believed to be a dead comet and the source of the annual Geminids Meteor Shower is making an unusually close pass to Earth (10.4 million km) on the night of 16th December, so we have a rare chance of spotting the parent body of a meteor shower whilst that shower is at its peak! It will move rapidly through Andromeda and the Square of Pegasus between 16th – 18th December, but the best chance to observe it is at 11pm on 16th December when it will be in southern Andromeda. At mag +11 it should be a relatively easy target in a moderate telescope. It will be moving quickly against the background stars

Other Observations:

Geminids Meteor Shower – we are in for a treat this month as the Geminids meteor shower peaks. The shower is active from 4th – 17th December with the peak activity being the early hours of the morning of 14th December. However, this shower has quite a broad peak so it's worth observing the nights before and after. With little interference from the Moon during the peak this year, you can expect to see up to 60 meteors per hour from a dark sky site, as fragments of debris from asteroid Phaethon burn up in our atmosphere. Rates are always higher after midnight so wrap up warm! Meteors can occur anywhere in the sky, but they will all trace back to a region of sky within Gemini. Showers are best observed by looking about 45 degrees away from the radiant and 45-50 degrees up. You don't need any special equipment to observe meteors; if possible get away from city lights, and let your eyes become dark adapted (no looking at your phone screen!) to make sure you spot the faint meteors as well as the brighter ones

Ursids Meteor Shower – with a much lower hourly rate of just 10 meteors per hour, the Ursids is often overshadowed by the Geminids. The shower is active from 17th – 26th December with the peak overnight on 22nd/23rd December. The Moon will be out of the way so it's definitely worth getting out and observing it because it has been known to have unexpected outbursts

Moon Occults Aldebaran – overnight on 30th/31st December, the Waxing Gibbous Moon occults the red giant star Aldebaran in Taurus. From London, it disappears behind the shadow side of the limb at 1:14am and reappears again on the illuminated southern limb at 1:59am. Exact times will vary at by around 15 minutes between London and Edinburgh so make sure you are out in plenty of time so you don't miss the event. Earlier in the evening some of the fainter stars of the Hyades cluster are also occulted, and full details of these can be found in the December issue of Astronomy Now magazine

Binocular Tour – This month's Sky at Night Binocular Tour by Stephen Tonkin is focused on the sky around Cetus. As usual there are 4 targets for 10x50 binoculars and 2 for 15x70 binoculars. The first target for 10 x 50s is Zibal, a double star made up of mag +4.8 white star and mag +6.6 golden star. Next is Mira, the variable star which gave its name to a whole class of variable stars! It varies in magnitude from +9.3 to +3.4 with a period of 11 months. Next are 2 asterisms, the first is the Question Mark, and the second is the HD 3807 group. The first target for 15x70 binoculars is M77 a mag +8.9 Seyfert galaxy. You will need a dark, transparent sky to see it. Finally is 37 Ceti, a double star made up a mag +5.1 star and a companion that is 13 times dimmer at mag +7.9. For full details on how to find these objects, look at this month's edition of Sky at Night Magazine

Deep Sky Tour – This month's Sky at Night Deep Sky Tour is centred on the area in the southern part of Auriga. The first 3 targets are Messier catalogue objects. First is M37, a rich open cluster containing around 150 stars. Next is M36 the Pinwheel Cluster. A 6" telescope will resolve around 60 stars in this cluster. The final Messier object is M38, another open cluster, which is fainter but still quite large. The next object is NCG 1931, a star cluster which sits within surrounding emission and reflection nebulae, and is sometimes referred to as a miniature M42. Next is IC 405 the Flaming Heart Nebula. It is a popular photographic target but is a challenging object to observe visually. You will need a dark, transparent sky, moderate telescope with low power eye piece and properly dark adapted eyes. The final target within Auriga is KOHOUTEK 2-1, which is a mag +13.8 planetary nebula. You will need a moderate telescope with low power eye piece, and the use of an OIII filter will help. For full details of where to find these objects and how best to see them, pick up the current issue of Sky at Night magazine

The Hyades and Aldebaran – Astronomy Now’s object of the month is the Hyades Cluster in Taurus which contains the bright star Aldebaran. It is a beautiful sight visually, with the five brightest stars creating the famous “V” shape, but the cluster actually contains around 200 stars, and to the left of the “V” you can see the open cluster NGC 1647. If you want to image this region, it is so large that a DSLR and telephoto lens will be sufficient. For more information on how to observe and image this object, take a look at the current edition of Astronomy Now magazine

Sky Tour – Astronomy Now’s December sky tour focuses on the sky around Orion, Taurus, Eridanus and Lepus. This area is rich in deep sky objects and features open clusters, several nebulae, galaxies, planetary nebulae and multiple star systems. For more information about the objects you can see in this part of the sky, take a look at the current edition of Astronomy Now magazine

International Space Station – there are some brilliant evening ISS passes from 1st until 19th December. It then returns to our dawn skies for some early morning passes from 26th December and into January. No doubt the Christmas Eve “Santa’s Sleigh ISS Pass” memes will be flooding social media again but there will be no ISS passes that day so make sure you educate people about the correct pass times! For the exact timings of the passes from your location, visit www.heavens-above.com You can also check the Iridium flare times for your location at Heavens Above. Flaring Iridium satellites are being replaced with new, non-flaring satellites during the coming months so by the end of 2018 Iridium flares will be a thing of the past.

Comets Visible This Month:

Comet C/2017 O1 (ASASSN) – located in Ursa Minor, this comet is visible all night long. The most recent observations report this comet to be mag +10 and steady but it does have a low surface brightness. You will need binoculars or a telescope to spot it. Click here to view the finder chart: <http://bit.ly/2vSdVNd>

Comet 24/P (Schaumasse) – moving through Virgo this month, this comet rises at about 2am and remains visible until dawn. The most recent observations report this comet also to be mag +10 and steady. You will need binoculars or a telescope to spot it. Click here to view the finder chart: <http://bit.ly/2h2EPfl>

Comet 62/P (Tsuchinsham) – also located in Virgo this month, this comet rises at around half past midnight and remains visible until dawn. The most recent observations report this comet also to be mag +10 and fading. You will need binoculars or a telescope to spot it. Click here to view the finder chart: <http://bit.ly/2hdKwvd>

C/2016 R2 (PanSTARRS) – moving through Orion and toward Taurus during the month, this comet rises at around 5:30pm and remains visible it sets at around 6:30am. The most recent observations have this comet at mag +11.5 and brightening. Click here to view the finder chart: <http://bit.ly/2xi5s9l>

There are several other comets in the mag +11 to +15 range. Details of these can be found in the links below.

For up to date information about the fainter comets which are visible, please visit:

<https://in-the-sky.org/data/comets.php>, the BAA Comets Section: <https://www.ast.cam.ac.uk/~jds/> or Seiichi Yoshida’s home page: <http://www.aerith.net/index.html>

NB: All of the information in this sky guide is taken from Night Scenes 2017 by Paul L Money, Philips Stargazing 2017 by Heather Couper and Nigel Henbest, 2017 Yearbook of Astronomy by Richard Pearson and Brian Jones, Astronomy Now Magazine, Sky at Night Magazine, Stellarium, the BAA Comets Section website <https://www.ast.cam.ac.uk/~jds/>, www.inthesky.org and www.heavens-above.com

Information collated by Mary McIntyre <https://www.marymcintyreastrology.co.uk/index.html>

For regular updates about the events happening in the sky this month, follow the Nightscenes Monthly Night Sky Facebook page at www.facebook.com/AstrospacePublications