

Crewkerne & District Astronomical Society

Sky Notes December 2016

All timings are Universal Time (G.M.T.). U.K. local time is now the same.

Moon's Phases

First Quarter	December	7d. 09h. 03m.
Full	"	14d. 00h. 06m.
Last Quarter	"	21d. 01h. 56m.
New	"	29d. 06h. 53m.
Moon at perigee (nearest to Earth)	Dec. 12d. 23h.	Diam. 33' 20"
Moon at apogee (furthest from Earth)	Dec. 25d. 06h.	" 29' 26"

The Planets

Mercury : An early evening object until the 28th, when Inferior Conjunction occurs. On the 1st, it sets at 16.30, 40 minutes after sunset. Maximum elongation from the Sun (21°) occurs on the 11th, when it sets at 17.00, 70 minutes after the Sun. On the 25th, it again sets at 16.30. It starts the month on the border of Ophiuchus and Sagittarius. Travelling E.N.E. in Sagittarius it moves 12° to a stationary point on the 19th, and then starts to move back W.S.W. some 7° to the end of the month.

Mid month Mercury will be mag. -0.2, 7.4" diam., solar elongation 19.5° E. and setting at 17.00.

Venus : Also an early evening object, but setting much later than Mercury. At the start of the month it sets at 18.40, 2 hours & 50 mins. after sunset, and by the end at 20.00, 4 hours after the Sun. Beginning the month in eastern Sagittarius, it travels E.N.E. to enter it around the 6th, and crosses most of it to end the month a few degrees W. of the border with Aquarius. A total distance of 35°.

Mid month Venus will be mag. -4.2, 18.5" diam., elong. 45° E. and setting at 19.20, 3½ hours after sunset.

Mars : Continues to be another early evening object. On the 1st, it sets at 21.00, 5 hours after sunset, and on the 31st, at 21.20, 5 hours & 20 mins. after the Sun. It starts the month it lies in eastern Capricornus, 10° W. of the border with Aquarius. It moves E.N.E. and enters Aquarius on the 17th, and ends the month 5° W. of the border with Pisces. A total travel of 25°.

Mid month it will be mag. +0.8, 6.1" diam., elong. 63° E. and setting at 21.10, 5¼ hours after sunset.

Jupiter : A morning object, at the start of the month rising at 02.50, 5 hours before dawn. By the end it rises at 01.20, nearly 7 hours before sunrise. Starting the month in central Virgo it moves 3° S.E. to end it 4° N.W. of the 1st, mag. star Spica, Alpha Virginis.

Mid month Jupiter will be mag. -1.9, 34" diam., elong. 64° W. and rising at 02.00, 6 hours before dawn.

Saturn : With solar conjunction on the 10th, Saturn can only be glimpsed at the start or the end of the month. On the 1st, it sets at 16.30, 40 minutes after sunset. It rises at dawn (08.00) on the 11th, and 06.50 on the 31st, 1 hour & 20 mins. before the Sun. Remaining in S.W. Ophiuchus, it begins the month 5½° S.S.W. of Sabik, 2nd, mag. star Eta. Oph. It travels only 4° E.S.E. during the month. Around the 20th, Saturn will be mag. +0.5, disc diam. 15.1", rings 34.2", elong. 9° W. and rising at 07.20, 50 minutes before dawn.

Titan, mag. 8.3 & max. elong. 160" when it can be seen. Greatest E. elong. on Dec. 2., greatest W. elong. on Dec. 26.

Uranus : A good evening object. At the start of the month it sets at 03.20, 4½ hours before dawn and by the end at 01.20. Continuing to lie in S.E. Pisces, near the border with Cetus, it moves only ¼° S.W. to a stationary point on the 29th. It will then be ½° S.S.E. of the double star, mag. 4.5 Zeta (86) Piscium. It then starts to move back N.E. On the 9th, at 20.00 Uranus will be 3° N. of the 10 day old Moon.

Mid month it will be mag. 5.8, 3.6" diam., elong. 111° E. and setting at 02.20.

Neptune : An evening object, but getting earlier. On the 1st, it sets at 23.20, and by the 31st, at 21.20. Remaining in central Aquarius it moves a few arc minutes N.E., ending the month 1¼° N.N.W. of the mag. 6.2 star 70 Aqu.

Mid month it will be mag. 7.9, 2.3" diam., elong. 70° E. and setting at 22.20.

Meteors

Geminids : December 8 - 17. Maximum on Dec. 13 at 20.00. One of the major showers, with a Zenith Hourly Rate of 100+. Believed to originate from minor planet 3200 Phaethon. Radiant at R.A. 07h. 33m., Dec. +32°. Near Castor, mag. 1.6 Alpha Geminorum. Culmination at 02.00, altitude 72°. Unfortunately a very unfavourable Moon. One day before Full, not setting until 04.00 on the 14th.

Ursids : December 17 - 25. Maximum on Dec. 22 & 23. Produced from dust trail left by Comet Tuttle. Z.H.R. 10. Radiant at R.A. 14h. 28m., Dec. +78°, around 5° N. of 2nd, mag. Delta Ursa Minoris. Circumpolar. Moon quite favourable, 2 & 3 days after L.Q., rising at 01.55 on the 23rd, and 02.59 on the 24th.

Variable Stars

Algol (Beta Persei) : Known to the early Arabian astronomers as the 'Winking Demon', it is not a true variable star but an eclipsing binary where a bright star is partially eclipsed by a fainter companion every 69 hours. Normally at mag. 2.1, over a period of 5 hours it drops to 3.4, then rises over 5 hours back to 2.1. Both stars are roughly the same size - about 3 or 4 times our Sun and are separated by 57". However the companion is much cooler and fainter at mag. 12.7. They lie 93 Light Years from us. Their orbital plane is nearly coincidental to our line of sight, so they partially eclipse each other. However, when the brighter member passes the fainter there is only a slight drop in the total brightness - less than 0.05 mag., hardly detectable. The reason for the variation was established by the British astronomer John Goodricke in 1782. In more recent times, two or more members of the group have been discovered spectroscopically. They are reckoned to be mag. 10.5 and 12.5. They are not in our line of sight to their 'big brother'. From our latitude Algol is circumpolar, it never sets. A star is circumpolar when its angular distance from the pole is less than the latitude of the observing site. With a declination of 40°57' it lies 49°43' from the pole, whilst our latitude is around 51°/ 52° N. A good comparison star to Algol is Rho (25) Persei which lies 2° S. of it at mag. 3.5. (See the current chart).

Algol R.A. 03h.08m.10s., Dec. +40° 57' 20".

Current times of minima observable during nighttime from the U.K. Nov. 6, 03.9h., Nov. 9, 0.7h., Nov. 11, 21.5h., Nov. 29, 02.4h. Dec. 1, 23.2h., Dec. 19, 04.1h., Dec. 22, 0.9h., Dec. 24, 21.7h., Jan. 11, 02.6h., Jan. 13, 23.4h., Jan. 16, 20.3h.

Arthur Davis Nov. 2016