Crewkerne & District Astronomical Society

Sky Notes December 2018

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

Winter Solstice 21st. December The Sun will be at its lowest Southern point below the Ecliptic, at Declination -23° 26'. There will be 8 hours of daylight and 16 hours of darkness.

Moon's Phases

New	December	07d. 07h. 22m.	
First Quarter	"	15d. 11h. 15m.	
Full	"	22d. 17h. 50m.	
Last Quarter	"	29d. 09h. 35m.	
Moon at apogee (furthest from Earth)		Dec. 12d. 12h.	Diameter 29' 13".
Moon at perigee (nearest to Earth)		Dec. 24d. 09h.	" 33' 34"

The Planets

Mercury ; A morning object all month On the 1st. it rises at 04.00, 3¾ hours before dawn, and on the 31st. at 04.10, 4 hours before the Sun. It starts the month in S.W. Libra, on the border with Scorpius. It travels 21° E.S.E., crossing Scorpius it ends the month 7° inside western Ophiuchus.
Mid month Mercury will be mag. -0.3, diam. 6.8", elongation 21° W.. and rising at 03.50, 4 hours before dawn.

Venus : Continues to be a late morning object. On the 1st. it rises at 04.00, 3¾ hours before dawn, and by the 31st. at 04.10, 4 hours before dawn. It begins the month in eastern Virgo. Moving E.S.E. it goes 22° during the month, entering Libra around the 15th.
Mid month it will be mag. -4.6, 31.5" diam., elong. 44° W. and rising at 03.55, 4 hours before dawn.

Mars : Continues to be a late morning object - for the rest of the year. At the start of the month it rises at 23.20, and continues this time through Nov. & Dec. Starting in N.E. Aquarius it moves 26° N.E. during the month, crossing into S.W. Pisces around the 19th.
Mid month Mars will be mag. 0.2, 8.4" diam., elong. 87° E.. and setting at 23.20.

Jupiter : Following solar conjunction on Nov. 26th., it is now a late morning object. On the 1st. rises at 07.00, 40 minutes before dawn, and by the 31st. at 06.00, 2 hours & 10 mins. before the Sun. On the 1st. it is in N.E. Scorpius. Moving E. it enters Ophiuchus around the 12th. and ends the month 6° N.E. of 1st.mag. star Antares, Alpha Scorp. A total travel of 6°.
Mid month Jupiter will be mag. -1.7, 32" diam., elong. 16° W. and rising at 06.50, an hour before dawn.

Saturn : Continues to be a very early evening object. On the 1st. it sets at 17.30, 1¾ hours after sunset. By the 31st. it sets at sunset, 16.0. Remaining in Sagittarius, North of the 'Teapot'. It travels 4° E. during the month, ending it 4° N.W. of the 2nd. mag. star Nunki, Sigma Sag., the top star of the 'Teapot's handle.
Mid month it will be mag. 0.5, disc diam. 15.1", rings 34.3, elong. 17°E. and setting at 17.00, 1 hour & 10 minutes.after the Sun.
Titan, too near sunset to be easily visible.

Uranus : Still a good evening and early morning object. At the start of the month it sets at 04.10, 3½ hours before dawn. On the 31st. it sets at 02.00. On the 1st. it lies on the border of Pisces and Aries. It moves 1½° S.W. to a stationary point, then goes back N.E. to its starting point.
Mid month it will lie 1.3° N.N.E. of Omicron (110) Piscium. It will then be mag. 5.7, 3.6" diam., elong. 124° E. and setting at 03.10.

Neptune : Remains an evening object, getting earlier. At the month's start it sets at 23.45, and by the end at 21.50, 5¾ hours after sunset. Still in Aquarius. From a stationary point on Nov. 25th. it travels 1/3° N.E. during the month. It will then lie 0.22° S.S.E. of the 7th. mag. star 81 Aqu.
Mid month it will be mag. +7.9, 2.2" diam., elong. 83° E. and setting at 22.45.

Meteors

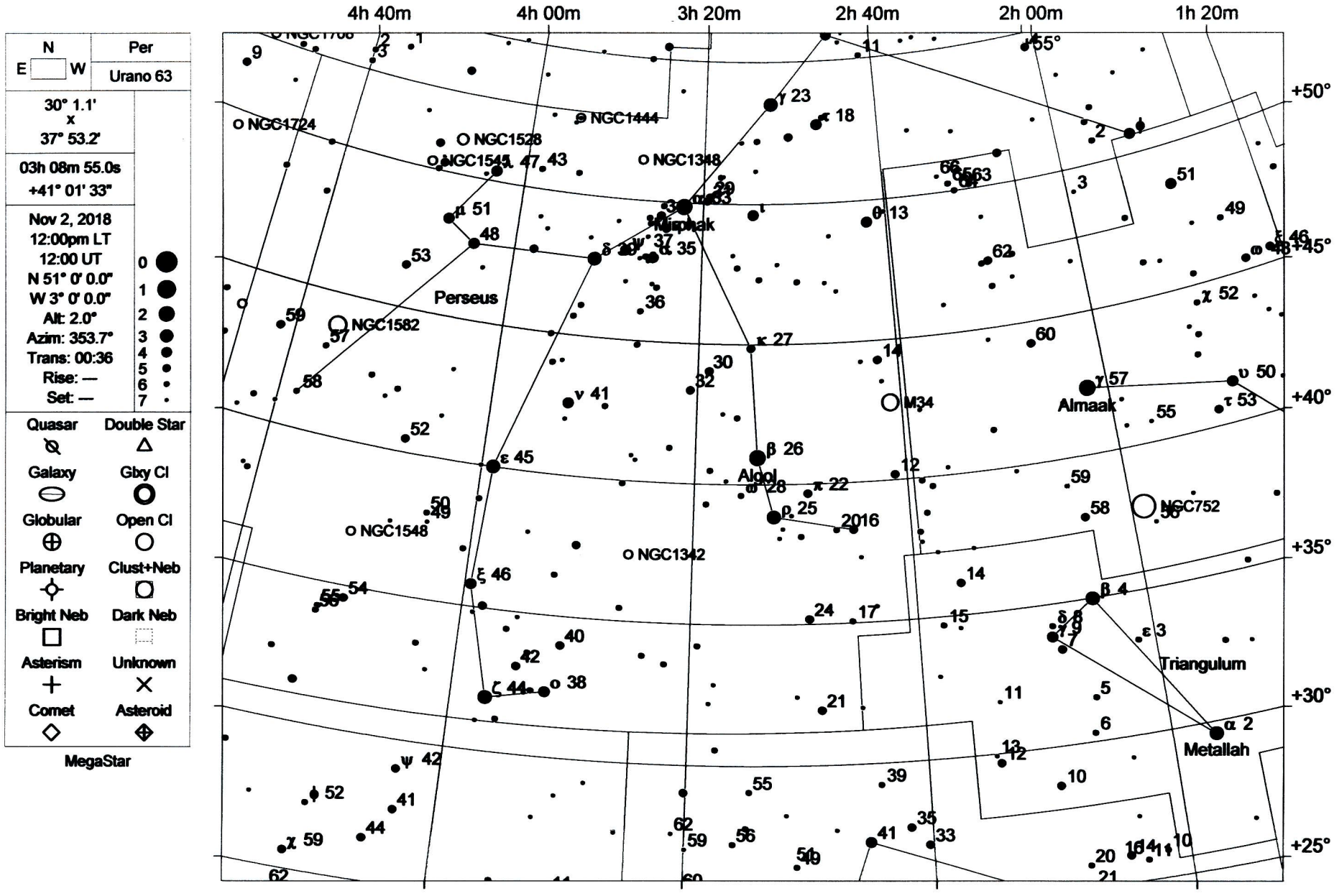
Geminids : December 8 - 17. Maximum on Dec. 14th. 08h. One of the major showers, with a Zenith Hourly Rate of 100+. Believed to originate from minor planet 3200 Phaethon. Radiant at R.A. 07h. 33m., Dec. +32°. Near Castor, mag. 1.6 Alpha Geminorum Culmination at 02.00, altitude 72°. Moon not too favourable, 1 day before F.Q., setting at 22.57.

Ursids : Dec. 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 unfavourable, Full on the 22nd. setting at 07.26 on the 23rd. & 09.33 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 magnitude 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 & 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°03 from the pole, whilst our latitude is 51°/52°. A good companion star to Algol is Rho (25) Persei which lies 2° S. of it at mag. 3.5. (see the current chart). At this time of the year Algol is nearly overhead late in the evening. Algol R.A. 03h.08m., Dec. +40° 57' 20".
Current times of minima observable from our area. Nov. 12, 01.5h., Nov. 14, 22.3h., Dec. 2, 03.2h., Dec. 5, 00.0h., Dec. 25, 01.7h., Dec.27, 22.6h., Jan. 18, 00.0h., Jan. 20, 20.8h., Feb. 7, 01.7h., Feb. 9, 22.5h., March 2, 0.2h., March 04, 21.1h, March 22, 01.9h., M.24,22.8h.

Arthur Davis Nov. 2018



Algol - Beta Persei. (26) Eclipsing binary stars in Perseus