

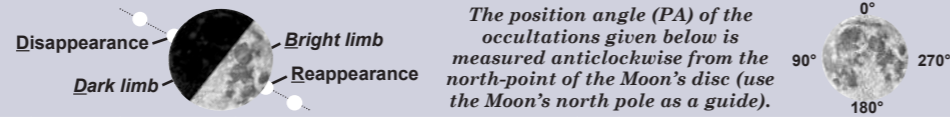
Moon phases

	Last quarter 03 May, 19:50 02 Jun, 07:24		New 11 May, 19:00 10 Jun, 10:53		First quarter 19 May, 19:13 18 Jun, 03:54		Full 26 May, 11:14 24 Jun, 18:40
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Apsides

Date	Apsis	Dist (km)	Size	Date	Apsis	Dist (km)	Size	
11 May, 22h	Apogee	406,512	29' 24"	08 Jun, 02h	Apogee	406,228	29' 25"	
26 May, 02h	Perigee	357,311	33' 26"	23 Jun, 10h	Perigee	359,956	33' 12"	

Occultations



Date	Name	ZC	Mag	Phase	Data for Greenwich				Data for Edinburgh			
					Time	PA°	Alt°	Az°	Time	PA°	Alt°	Az°
15 May	Mebсутa, Epsilon Geminorum, NSV 03183	1030	3.1	DD	22h 37m	36	7	302	22h 35m	29	11	299
15 May	Mebсутa, Epsilon Geminorum, NSV 03183	1030	3.1	RB	23h 03m	336	4	307	22h 57m	342	9	303

These are the only lunar occultations of stars brighter than mag +6 for this period that are observable with small telescopes in a sky dark enough to be seen without difficulty. Abbreviations: Mag: Visual magnitude. Phase: (R)eappearance, (D)isappearance or (G)raze at (D)ark or (B)right lunar limb. Alt: Altitude. The Moon's height. Az: The angular position along the horizon measured clockwise from true north (through E, S, W back to N). PA: Position Angle, measured anticlockwise from the direction of the celestial North Pole. For data specific to your own locality or details of fainter occultations, contact Occultation Section Director Mell Jeffery (address on p46).

Occultation notes

Unfortunately, due to the lengthening daylight hours, few stars of magnitude 6 or brighter are occulted by the Moon for this period. The only reasonable occultation is that of Mebsuta, Epsilon Geminorum.

The magnitude 3.1 star is occulted by the waxing crescent Moon toward the west as the Moon is setting. As this is a reasonably bright star and the Moon is 15 per cent illuminated, I have given the information for both the disappearance at the dark limb and the reappearance, towards the northern cusp, of the bright limb. Of course the Moon is always occulting stars and data can be provided for those who wish to see fainter stars.

▼ The occultation of Mebsuta, Epsilon Geminorum on 15 May 2021.



Mell Jeffery, FRAS

Partial eclipse, 10 June

There will be a partial eclipse of the Sun on the morning of 10 June. At its maximum, at 10:13 UT, the Sun will be about 25 per cent obscured by the Moon as seen from the centre of the UK, with a greater amount to the north and west and a lesser amount to the south and east. The eclipse begins shortly after 09:00 and ends at about 11:25. More details will be available on the SPA website nearer the time. The eclipse will be annular as seen from the north polar regions.

Meteor notes

The Eta Aquariids (ETA) peak about 03:00 UT on 6 May as dawn breaks and may have an hourly rate as high as 50; but as the radiant also rises just before dawn this shower will be hard to observe. The June Boötids (JBO) have not been active for several years and in any events coincide with the nearly full Moon this year, with their maximum between 23 and 27 June.

There are, however, many daytime showers in May and June, so if you're operating a radio detector, look out for the Eta Arietids (DEA) which peak at 09:00 UT on 9 May, the May Arietids (DMA) at 10:00 UT on 16 May, the Daytime Arietids (ARI) at 10:00 UT on 7 June and the Zeta Perseids (ZPE) at 12:00 UT on 9 June. The Arietids can have an hourly rate of up to 30.

Mark McIntyre

Planets

Mercury has an unusually good evening apparition in May for the Northern Hemisphere, undoubtedly the best of the year. From the beginning of the month Mercury can be found very low in the west-north-western sky shortly after sunset, gaining elevation with each evening. From the 2nd to the 5th Mercury passes below the Pleiades (M45) and sits a little farther north (right) of the star Aldebaran, the "eye" of Taurus the Bull, itself slightly dimmer than Mercury. However, the pairing may be hard to catch in the still-bright evening skies of the UK. Greatest evening (eastern) elongation is on 17 May when Mercury stretches 22 degrees from the Sun and may be seen from around 20:30 UT at some 12 degrees of elevation; a little higher from the south coast. On that day Venus will be six degrees below and to the north (right) of Mercury, shining brightly at magnitude -3.9 and acting as an easy marker to the much dimmer (+1.4) innermost planet.

Mercury manages to hold its altitude for a few days after greatest elongation but then sinks steadily with each new sunset. It can be followed into early June and passes into solar conjunction on the 11th before appearing very low in the morning sky towards the end of the month.

Venus is slowly but steadily improving as an evening object through May, initially very low from the UK but better seen the farther south your observing site. On 28 and 29 May Venus and Mercury pass less than half a degree apart but then separate rapidly. After this, despite Venus moving farther from the Sun with each new day, the change in angle of the ecliptic to the horizon in summer hampers the elevation of Venus and it gains very little extra elevation with each subsequent evening. Its brilliance will make it the first thing visible in the darkening western sky other than, on occasion, the Moon itself.

By early May Mars is now small, at below five arcseconds in apparent size and relatively dim at magnitude +1.6. But its obvious red colour will make it easy to find due west, after sunset, at the feet of Gemini the Twins. After viewing Mercury and Venus low in the west-north-west, sweep your telescope some

30 degrees up and left to find the much diminished God of War. Mars sets after midnight UT until mid-May but by mid-June is setting in twilight so is best caught as early as possible in this period.

Jupiter and Saturn are morning objects whose observation is hampered by the early arrival of dawn. In addition the pair is only available to us at low altitude although not as horribly low as during last year's apparitions so this year is actually an improvement! In early May Saturn rises first around 02:15 UT with Jupiter following 25 minutes later; both achieve around 15 degrees of elevation in the south-east at sunrise. Saturn's ring system spreads 39 arcseconds across and is tilted towards us by just under 17 degrees, a minimum amount for this year which then increases slightly until late October. Jupiter is at western quadrature (where the Jupiter-Earth-Sun angle is 90 degrees) on 21 May so shadow transits of its moons will be well displaced from the moons themselves. With Jupiter 40 arcseconds in size this may give good pre-dawn photo opportunities. In early June Saturn rises at midnight UT with Jupiter now 35 minutes behind and both rise before 23:00 UT by the month's end. At that time Saturn achieves south transit at 02:30 UT with 20 degrees of elevation from the UK. Jupiter follows just before sunrise at 03:45 UT and at around 25 degrees up.

Uranus was in solar conjunction in April and remains very low to the horizon before sunrise throughout this period as seen from the UK. It is much better seen late in the period and from the Southern Hemisphere during their long winter nights.

Neptune is similarly placed, rising ahead of Uranus, but due to its dimness at magnitude 7.9 might only just be found in morning twilight from early June onwards. Late in the period it rises a little before midnight and can be found trailing Jupiter along the ecliptic by the same amount Jupiter trails Saturn. Its tiny blue-green 2.3 arcsecond disc will be hard to pick out from the background stars without a telescope of reasonable aperture.

Alan Clitherow

Variable star notes

Eclipsing binaries: Unfortunately, over the course of May and June, there are no eclipses of either Algol and RZ Cassiopeiae that are favourably timed for UK observers.

Long-period Variables: R Serpentis and S Ursae Majoris are both predicted to reach maximum brightness in May, so will be visible in binoculars. R Ursae Majoris will rising to a predicted maximum in

August, while R Leonis will be rising from its minimum in April and T Cephei will be rising to a predicted maximum in September.

Chi Cygni will be fading from its maximum in May and T Ursae Majoris is predicted to reach minimum in May – so both stars will require a large telescope to observe them

Matthew Barrett