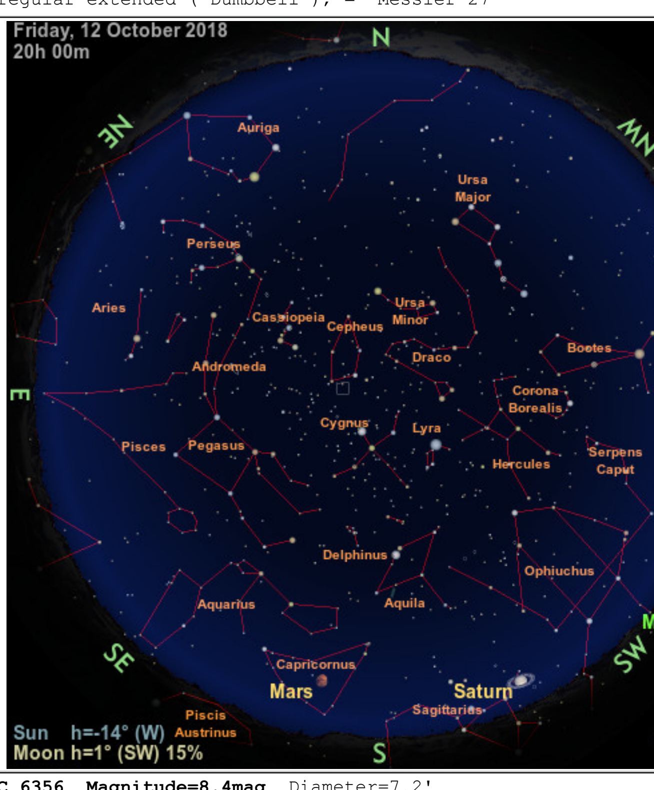
# The Calendar-Sky

## Friday 12 October 2018

| Time (24-hour clock) | Object (Link) | Event |
|---|---|---|
| | Observer Site | JSLObs, United Kingdom<br>WGS84: Lon: -4d05m30.33s Lat: +57d28m38.01s Alt: 205m Geoid Alt: 152m<br>All times in GMT or BST (during summer) |
| 20.0h | ♂ Mars | Magnitude=-1.0mag Best seen from 18.6h - 0.4h ($h_{top}$=12° at S at 20.8h) (in constellation Capricornus)<br>RA=20h56m51s Dec=-20°37.9' (J2000) Distance=0.662AU Elongation=112° Phase k=87% Diameter=14.1" planetographic latitude of the Earth=-16.6° |
| 20.0h | ♄ Saturn | Magnitude= 0.5mag Best seen from 18.6h -21.4h ($h_{top}$=10° at S at 18.6h) (in constellation Sagittarius)<br>RA=18h14m30s Dec=-22°46.6' (J2000) Distance=10.289AU Elongation= 74° Diameter=16.1" planetocentric latitude of the Earth=26.6° |
| 20.0h | ⛢ Uranus | Magnitude= 5.7mag Best seen from 19.7h - 6.4h ($h_{top}$=44° at S at 1.8h) (in constellation Aries)<br>RA= 1h55m18s Dec=+11°12.4' (J2000) Distance=18.893AU Elongation=168° Diameter=3.7" |
| 20.0h | NGC 6254: Globular star cluster | **M 10 (NGC 6254) Magnitude=6.6mag** Diameter=15.1'<br>RA=16h57.1m Dec= -4°06' (**in constellation Ophiuchus/Oph**) best seen between 19.3h -21.7h ($h_{top}$=21° at SW at 19.3h).<br>remarkable globular cluster, bright, very large, round, gradually very much brighter in the middle, well resolved, stars 10...15 mag; = |
| 20.0h | NGC 6218: Globular star cluster | **M 12 (NGC 6218) Magnitude=6.6mag** Diameter=14.5'<br>RA=16h47.2m Dec= -1°57' (**in constellation Ophiuchus/Oph**) best seen between 19.3h -21.8h ($h_{top}$=22° at SW at 19.3h).<br>very remarkable globular cluster, very bright, very large, irregular round, gradually much brighter in the middle, well resolved, stars 10... mag; = |
| 20.0h | NGC 6402: Globular star cluster | **M 14 (NGC 6402) Magnitude=7.6mag** Diameter=11.7'<br>RA=17h37.6m Dec= -3°15' (**in constellation Ophiuchus/Oph**) best seen between 19.7h -22.5h ($h_{top}$=24° at SW at 19.7h).<br>remarkable globular cluster, bright, very large, round, extremely rich, very gradually much brighter in the middle, well resolved, stars 15 mag; = |
| 20.0h | **NGC 5272: Globular star cluster** | **M 3 (NGC 5272) Magnitude=6.4mag Diameter=16.2'**<br>**RA=13h42.2m Dec=+28°23' (in constellation Canes Venatici/CVn) best seen between 19.3h -23.4h ($h_{top}$=25° at WNW at 19.3h).**<br>**very remarkable, globular cluster, extremely bright, very large, very suddenly much brighter in the middle, stars 11... mag; = Messier 3** |
| 20.0h | NGC 6712: Globular star cluster | **NGC 6712 Magnitude=8.2mag** Diameter=7.2'<br>RA=18h53.1m Dec= -8°42' (**in constellation Scutum/Sct**) best seen between 19.7h -23.1h ($h_{top}$=23° at SSW at 19.7h).<br>globular cluster, pretty bright, very large, irregular, very gradually little brighter (in the) middle, well resolved |
| 20.0h | NGC 6853: Planetary nebula | **Dumbbell nebula, M 27 (NGC 6853) Magnitude=8.1mag** Diameter=15.2'<br>RA=19h59.6m Dec=+22°43' (**in constellation Vulpecula/Vul**) best seen between 19.7h - 3.7h ($h_{top}$=55° at S at 19.8h).<br>magnificent or interesting, very bright, very large, binuclear, irregular extended ( Dumbbell ); = Messier 27 |
| 20.0h | Star chart |  |
| 20.0h | NGC 6356: Globular star cluster | **NGC 6356 Magnitude=8.4mag** Diameter=7.2'<br>RA=17h23.6m Dec=-17°49' (**in constellation Ophiuchus/Oph**) best seen between 20.1h -20.5h ($h_{top}$=7° at SW at 20.1h).<br>globular cluster, very bright, considerably large, very gradually very much brighter in the middle, well resolved, stars 20 mag |
| 20.1h | NGC 6779: Globular star cluster | **M 56 (NGC 6779) Magnitude=8.3mag** Diameter=7.1'<br>RA=19h16.6m Dec=+30°11' (**in constellation Lyra/Lyr**) best seen between 20.1h - 4.2h ($h_{top}$=61° at SSW at 20.1h).<br>globular cluster, bright, large, irregular round, gradually very much compressed (in the) middle, well resolved, stars 11...14 mag; = Messier 5 |
| 20.1h | NGC 6838: Globular star cluster | **M 71 (NGC 6838) Magnitude=8.3mag** Diameter=7.2'<br>RA=19h53.8m Dec=+18°47' (**in constellation Sagitta/Sge**) best seen between 20.1h - 3.1h ($h_{top}$=51° at S at 20.1h).<br>cluster, very large, very rich, pretty much compressed, stars 11...16 mag; = Messier 71 |
| 20.1h | NGC 5466: Globular star cluster | **NGC 5466 Magnitude=9.1mag** Diameter=11'<br>RA=14h05.5m Dec=+28°32' (**in constellation Bootes/Boo**) best seen between 20.1h -22.7h ($h_{top}$=23° at WNW at 20.1h).<br>cluster, large, very rich, very much compressed, stars 11... mag |
| 20.1h | NGC 6426: Globular star cluster | **NGC 6426 Magnitude=11.2mag** Diameter=3.2'<br>RA=17h44.9m Dec= +3°00' (**in constellation Ophiuchus/Oph**) best seen between 20.1h -22.4h ($h_{top}$=28° at SW at 20.1h).<br>very faint, considerably large, extended, very little brighter in the middle |
| 20.1h | NGC 6535: Globular star cluster | **NGC 6535 Magnitude=10.6mag** Diameter=3.6'<br>RA=18h03.8m Dec= -0°18' (**in constellation Serpens Cauda/Ser**) best seen between 20.1h -22.4h ($h_{top}$=27° at SW at 20.1h).<br>pretty faint, large, diameter 1' or 2' |
| 20.1h | NGC 6749: Globular star cluster | **NGC 6749 Magnitude=11.1mag** Diameter=6.3'<br>RA=19h05.1m Dec= +1°47' (**in constellation Aquila/Aql**) best seen between 20.1h -23.6h ($h_{top}$=33° at SSW at 20.1h).<br>cluster, large, little compressed, stars large & small |
| 20.1h | NGC 6760: Globular star cluster | **NGC 6760 Magnitude=9.1mag** Diameter=6.6'<br>RA=19h11.2m Dec= +1°02' (**in constellation Aquila/Aql**) best seen between 20.1h - 0.5h ($h_{top}$=32° at SSW at 20.1h).<br>pretty bright, pretty large, very gradually little brighter (in the) middle |
| 20.1h | IC 4593: Planetary nebula | **IC 4593 Magnitude=11mag** Diameter=2'<br>RA=16h11.7m Dec=+12°04' (**in constellation Hercules/Her**) best seen between 20.1h -21.8h ($h_{top}$=26° at WSW at 20.1h).<br>planetary nebula, stellar |
| 20.1h | NGC 6720: Planetary nebula | **M 57, Ring nebula in Lyra (NGC 6720) Magnitude=9mag** Diameter=2.5'<br>RA=18h53.6m Dec=+33°02' (**in constellation Lyra/Lyr**) best seen between 20.1h - 4.4h ($h_{top}$=62° at SW at 20.1h).<br>magnificent or interesting, ring, bright, pretty large, considerably extended ( in Lyra ); = Messier 57 |
| 20.1h | NGC 6210: Planetary nebula | **NGC 6210 Magnitude=9mag** Diameter=0.2'<br>RA=16h44.5m Dec=+23°49' (**in constellation Hercules/Her**) best seen between 20.1h - 0.6h ($h_{top}$=40° at WSW at 20.1h).<br>planetary nebula, very bright, very small, round, disk & border ( nucleus variable?) |
| 20.1h | NGC 6572: Planetary nebula | **NGC 6572 Magnitude=9mag** Diameter=0.1'<br>RA=18h12.1m Dec= +6°51' (**in constellation Ophiuchus/Oph**) best seen between 20.1h - 0.1h ($h_{top}$=34° at SW at 20.1h).<br>planetary nebula, very bright, very small, round, little hazy |
| 20.1h | NGC 6741: Planetary nebula | **NGC 6741 Magnitude=11mag** Diameter=0.1'<br>RA=19h02.6m Dec= -0°27' (**in constellation Aquila/Aql**) best seen between 20.1h -23.3h ($h_{top}$=30° at SSW at 20.1h).<br>planetary nebula, stellar |
| 20.1h | NGC 6803: Planetary nebula | **NGC 6803 Magnitude=11mag** Diameter=0.1'<br>RA=19h31.3m Dec=+10°03' (**in constellation Aquila/Aql**) best seen between 20.1h - 0.9h ($h_{top}$=42° at SSW at 20.1h).<br>planetary nebula, stellar |
| 20h06m07s | COSMO-SkyMed 2 | Flare from SAR-Panel **Magnitude= 0.1mag**<br>Azimuth=262.0° W altitude= 68.3° in constellation Hercules<br>RA=17h58.9m Dec=+49°05'<br>Flare angle=9.04°<br>In a clock-face concept, the satellite will seem to move toward 8:07 Angular Velocity=38.4'/s<br><br>**Flare center line**, **closest point** →MapIt: Longitude=5.802°W Latitude=+57.778° (WGS84) **Distance=107.1 km** Azimuth=288.9° WNW Peak Magnitude=-2.7mag<br>Satellite above: longitude=7.8°W latitude=+57.2° height above Earth=631.5 km distance to satellite=674.8 km<br>Altitude of Sun=-14.9°<br>This is an experimental flare prediction. Brightness estimate may be unreliable. Please report a successful observation (Object/site coordinates/date/measured time/accuracy/magnitude). |
| 20h07m | Twilight | Sun 15° below horizon |
| 20.1h | ♇ Pluto | Magnitude=14.3mag Best seen from 20.1h - 6.0h ($h_{top}$=10° at SSW at 20.1h) (in constellation Sagittarius)<br>RA=19h20m16s Dec=-22°08.2' (J2000) Distance=33.656AU Elongation= 89° Diameter=0.1" |
| 20.1h | Swift-Gehrels →Star chart | Comet '64P' **Magnitude=11.5mag**<br>Best seen from 20.1h - 6.0h ($h_{top}$=67° at S at 0.3h) (in constellation Andromeda)<br>RA= 0h32m37s Dec=+34°32.3' (J2000), hourly motion: 34.8"/h Position angle= 23.7° dRA= 1.1sec/h dDec= 31.9"/h, Distance to Sun= 1.42AU, Distance to Earth= 0.46AU, Elongation=152°, h=42.1° az=89.5°/E, Sun altitude=-15°, Elongation from Moon center=128°, Moon elevation=0° SW, Moon phase=15%<br>Position angle of ion tail=169° (re zenith=210°), Length of a 0.05AU long tail=29', Position angle of dust trail (not tail)=204° (re zenith=245°), Orbit direction=135° (towards the Earth), Latitude of Earth above orbit plane=-19° |
| 20.1h | Pan-STARRS →Star chart | Comet 'C/2016 R2' **Magnitude=12.1mag**<br>Best seen from 20.1h - 6.0h ($h_{top}$=32° at NE at 6.0h) (in constellation Canes Venatici)<br>RA=12h53m02s Dec=+45°45.6' (J2000), hourly motion: 66.8"/h Position angle=106.1° dRA= 6.1sec/h dDec=-18.8"/h, Distance to Sun= 3.07AU, Distance to Earth= 3.56AU, Elongation= 53°, h=28.2° az=312.1°/NW, Sun altitude=-15°, Elongation from Moon center=78°, Moon elevation=0° SW, Moon phase=15%<br>Position angle of ion tail=348° (re zenith=313°), Length of a 0.02AU long tail=4', Latitude of Earth above orbit plane=12° |
| 20.1h | NGC 6826: Planetary nebula | **Blinking planetary (NGC 6826) Magnitude=10mag** Diameter=2.3'<br>RA=19h44.8m Dec=+50°31' (**in constellation Cygnus/Cyg**) best seen between 20.1h - 6.0h ($h_{top}$=82° at SW at 20.1h).<br>planetary nebula, bright, pretty large, round, star 11 mag (in the) middle |
| 20.1h | NGC 6543: Planetary nebula | **NGC 6543 Magnitude=9mag** Diameter=5.8'<br>RA=17h58.6m Dec=+66°38' (**in constellation Draco/Dra**) best seen between 20.1h - 6.0h ($h_{top}$=72° at NW at 20.1h).<br>planetary nebula, very bright, pretty small, suddenly brighter (in the) middle very small (to a) nucleus |
| 20.1h | NGC 5473: Galaxy | **NGC 5473 Magnitude=11.4mag** Diameter=2.6'<br>RA=14h04.7m Dec=+54°54' (**in constellation Ursa Major/UMa**) best seen between 20.1h - 6.0h ($h_{top}$=42° at NW at 20.1h).<br>pretty bright, small, round, gradually brighter (in the) middle |
| 20.1h | NGC 5982: Galaxy | **NGC 5982 Magnitude=11.1mag** Diameter=2.9'<br>RA=15h38.7m Dec=+59°21' (**in constellation Draco/Dra**) best seen between 20.1h - 6.0h ($h_{top}$=55° at WNW at 20.1h).<br>considerably bright, small, round, pretty suddenly brighter (in the) middle, resolvable |
| 20.1h | **Deep-Sky Observing** | **Best time interval for observing dim objects: 20.1h- 6.0h (9.9 hours) Prior to midnight** |
| 20.2h | ♆ Neptune | Magnitude= 7.8mag Best seen from 20.2h - 2.5h ($h_{top}$=25° at S at 22.9h) (in constellation Aquarius)<br>RA=23h02m19s Dec= -7°14.7' (J2000) Distance=29.119AU Elongation=145° Diameter=2.3" |
| 20.2h | Forbes →Star chart | Comet '37P' **Magnitude=12.6mag**<br>Best seen from 20.2h - 3.8h ($h_{top}$=38° at S at 22.8h) (in constellation Pisces)<br>RA=22h55m33s Dec= +5°09.0' (J2000), hourly motion: 8.9"/h Position angle=232.1° dRA= -0.5sec/h dDec= -5.5"/h, Distance to Sun= 2.20AU, Distance to Earth= 1.30AU, Elongation=146°, h=29.4° az=133.4°/SE, Sun altitude=-15°, Elongation from Moon center=102°, Moon elevation=0°, Moon phase=15%<br>Position angle of ion tail=88° (re zenith=111°), Length of a 0.04AU long tail=6', Position angle of dust trail (not tail)=52° (re zenith=75°), Orbit direction=6° (away from Earth), Latitude of Earth above orbit plane=-6° |
| 20.2h | Lemmon →Star chart | Comet 'C/2018 EF9' **Magnitude=12.9mag**<br>Best seen from 20.2h - 4.5h ($h_{top}$=63° at S at 20.6h) (in constellation Cygnus)<br>RA=20h46m29s Dec=+30°45.3' (J2000), hourly motion: 108.3"/h Position angle=165.0° dRA= 2.2sec/h dDec=-104.7"/h, Distance to Sun= 2.43AU, Distance to Earth= 1.85AU, Elongation=114°, h=62.9° az=166.4°/SSE, Sun altitude=-15°, Elongation from Moon center=81°, Moon elevation=0°, Moon phase=15%<br>Position angle of ion tail=91° (re zenith=99°), Length of a 0.03AU long tail=14', Position angle of dust trail (not tail)=345° (re zenith=354°), Orbit direction=58° (away from Earth), Latitude of Earth above orbit plane=14° |
| 20h11.2m | Moon | Set Azimuth=236.9°, WSW (in constellation Scorpius) |
| 20.4h | NGC 6934: Globular star cluster | **NGC 6934 Magnitude=8.9mag** Diameter=5.9'<br>RA=20h34.2m Dec= +7°24' (**in constellation Delphinus/Del**) best seen between 20.1h - 2.6h ($h_{top}$=40° at S at 20.4h).<br>globular cluster, bright, large, round, well resolved, stars 16... mag, star 9 mag preceding (westward) |
| 20h30m | Twilight | End astronomical twilight |
| 20h31m45s | **COSMO-SkyMed 4** | **Flare from unknown Mirror Magnitude= 4.0mag**<br>**Azimuth=239.1° WSW altitude= 27.8° in constellation Ophiuchus**<br>**RA=17h19.9m Dec= +8°34'**<br>**Flare angle=6.95°**<br>**In a clock-face concept, the satellite will seem to move toward 7:37 Angular Velocity=16.5'/s**<br><br>**Flare center line**, **closest point** →MapIt: **Longitude=6.906°W Latitude=+58.053° (WGS84) Distance=178.6 km Azimuth=292.2° WNW Peak Magnitude=-1.3mag**<br>**Satellite above: longitude=15.7°W latitude=+53.6° height above Earth=630.8 km distance to satellite=1184.7 km**<br>**Altitude of Sun=-18.2°**<br>**This is an experimental flare prediction. Brightness estimate may be unreliable. Please report a successful observation (Object/site coordinates/date/measured time/accuracy/magnitude).** |
| 20.7h | NGC 6981: Globular star cluster | **M 72 (NGC 6981) Magnitude=9.4mag** Diameter=5.9'<br>RA=20h53.5m Dec=-12°32' (**in constellation Aquarius/Aqr**) best seen between 20.1h - 0.7h ($h_{top}$=20° at S at 20.7h).<br>globular cluster, pretty bright, pretty large, round, gradually much compressed (in the) middle, well resolved; = Messier 72 |
| 20h49.0m | ♂ Mars | Transit Altitude=+12.0° (in constellation Capricornus) Elongation=111.6° East, Magnitude=-1.0mag |
| 20.9h | NGC 7009: Planetary nebula | **Saturn nebula (NGC 7009) Magnitude=8mag** Diameter=1.7'<br>RA=21h04.2m Dec=-11°22' (**in constellation Aquarius/Aqr**) best seen between 19.7h - 1.0h ($h_{top}$=21° at S at 20.9h).<br>magnificent or interesting, planetary nebula, very bright, small, elliptical |
| 21.0h | NGC 7039: Open star cluster | **NGC 7039 Magnitude=7.6mag** Diameter=25'<br>RA=21h11.2m Dec=+45°39' (**in constellation Cygnus/Cyg**) best seen between 19.7h - 6.4h ($h_{top}$=78° at S at 21.0h).<br>cluster, very large, pretty rich, extended, stars 10... mag |
| 21.1h | NGC 7048: Planetary nebula | **NGC 7048 Magnitude=11mag** Diameter=1'<br>RA=21h14.2m Dec=+46°16' (**in constellation Cygnus/Cyg**) best seen between 20.1h - 6.0h ($h_{top}$=79° at S at 21.1h).<br>pretty faint, pretty large, diffuse, irregular round, very little brighter in the middle |
| 21.4h | **NGC 7089: Globular star cluster** | **M 2 (NGC 7089) Magnitude=6.5mag Diameter=12.9'**<br>**RA=21h33.5m Dec= -0°49' (in constellation Aquarius/Aqr) best seen between 19.3h - 3.3h ($h_{top}$=32° at S at 21.4h).**<br>**very remarkable, globular cluster, bright, very large, gradually pretty much brighter (in the) middle, well resolved, stars extremely small; = Messier 2** |
| 21h27.9m | ♄ **Saturn** | **Set Azimuth=225.2°, SW (in constellation Sagittarius)** |
| 21.9h | NGC 7177: Galaxy | **NGC 7177 Magnitude=11.2mag** Diameter=3.3'<br>RA=22h00.7m Dec=+17°44' (**in constellation Pegasus/Peg**) best seen between 20.1h - 4.2h ($h_{top}$=50° at S at 21.9h).<br>pretty bright, pretty small, round, brighter (in the) middle (to a) nucleus, resolvable, star south preceding |
| 22.1h | **NGC 7243: Open star cluster** | **NGC 7243 Magnitude=6.4mag Diameter=21'**<br>**RA=22h15.3m Dec=+49°53' (in constellation Lacerta/Lac) best seen between 19.3h - 6.7h ($h_{top}$=82° at S at 22.1h).**<br>**cluster, large, sparse, little compressed, stars very large** |
| 22h54.0m | ♆ Neptune | Transit Altitude=+25.4° (in constellation Aquarius) Elongation=144.6° East, Magnitude=7.8mag |
| 23.0h | NGC 7492: Globular star cluster | **NGC 7492 Magnitude=11.5mag** Diameter=6.2'<br>RA=23h08.4m Dec=-15°37' (**in constellation Aquarius/Aqr**) best seen between 20.8h - 1.2h ($h_{top}$=17° at S at 23.0h).<br>extremely faint, large, cluster of extremely faint stars |
| 23h | Meteor | **Draconids (Giacobinids, DRA)** Best seen from 19.8h - 6.4h ($h_{top}$=51° at WNW at 23.0h) ZHR=5.9<br>Local hour rate=2.6 Velocity=23.7km/s (slow)<br>Radiant: RA=18.1h/271° Dec=57.0° (J2000) (**in constellation Draco/Dra**) |

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