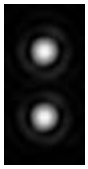
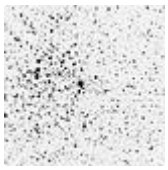
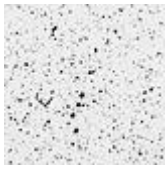
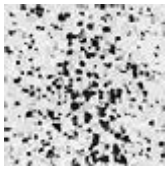
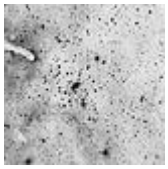
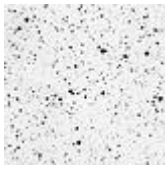
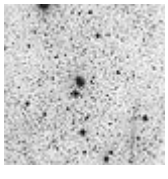
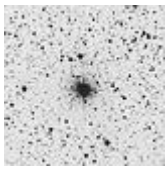
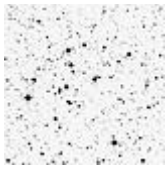
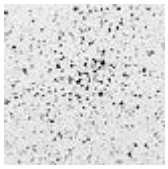
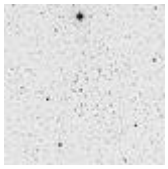
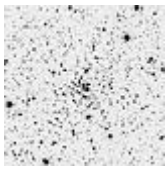
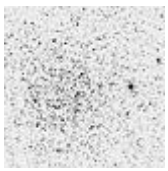
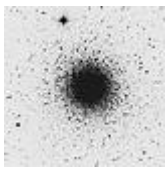
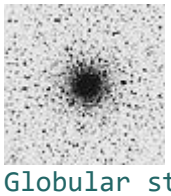
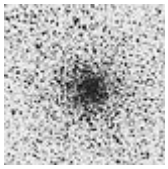
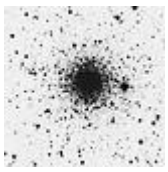
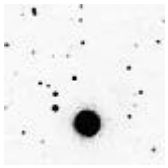
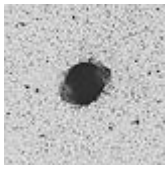
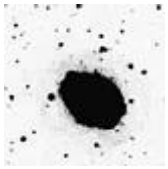
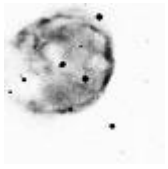
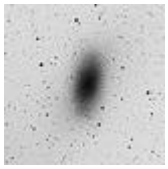
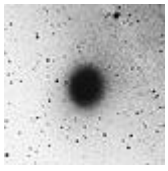
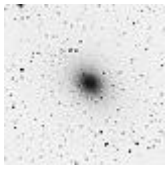
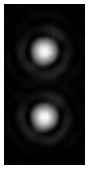
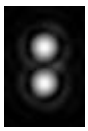
The Calendar-Sky

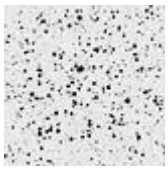
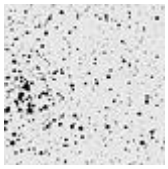
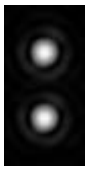
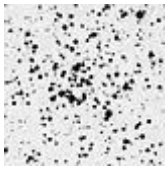
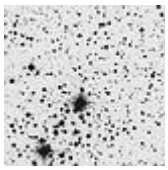
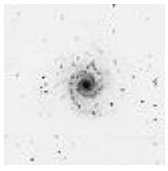
Friday, 20 December 2019

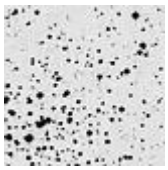
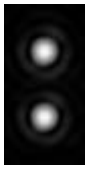
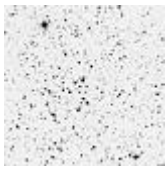
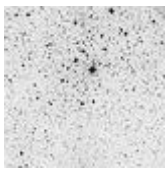
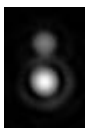
Time (24-hour clock)	Object (Link)	Event
	Observer Site	**User Site, Germany** **WGS84: Lon: +13d42m00.00s Lat: +51d06m00.00s Alt: 177m** **Geoid Alt: 134m** **All times in +01**
19.0h	Uranus	Magnitude= 5.8mag Best seen from 17.7h - 1.6h (h_{top}=51° at S at 20.2h) (in constellation Aries) RA= 2h02m11s Dec=+11°53.6' (J2000) Distance=19.249AU Elongation=124° Diameter=3.6"
19.0h	 **Binary Star (super-wide split) Kap1 Scl (SAO 166083, WDS 00094-2759) Components AB**	**Magnitudes: 6.1 and 6.2 mag,** Separation: 1.3" Positionangle: 258° **RA= 0h09.4m Dec=-27°59' (constellation Sculptor)** Best seen from 17.4h -21.6h (h_{top}=11° at S at 19.0h) (Orbit solution; Periastron-Year: 2096, min. separation: 1.3", period: 616 years)
19.0h	 NGC 7654: Open star cluster	**M 52 (NGC 7654) Magnitude=6.9mag** Diameter=13' RA=23h24.2m Dec=+61°35' (**in constellation Cassiopeia/Cas**) best seen between 17.4h - 6.7h (h_{top}=74° at NW at 19.0h). cluster, large, rich, much compressed (in the) middle, round, stars 9...13 mag; = Messier 52
19.0h	 NGC 133: Open star cluster	**NGC 133 Magnitude=9mag** Diameter=7' RA= 0h31.2m Dec=+63°22' (**in constellation Cassiopeia/Cas**) best seen between 17.7h - 6.4h (h_{top}=77° at N at 19.0h). cluster, pretty large, stars 10... mag, double star involv(ed)(ing)
19.0h	 NGC 6802: Open star cluster	**NGC 6802 Magnitude=8.8mag** Diameter=3' RA=19h30.6m Dec=+20°16' (**in constellation Vulpecula/Vul**) best seen between 17.7h -19.7h (h_{top}=34° at W at 17.7h). cluster, large, very compressed, extended 0 degrees, stars 14...18 mag
19.0h	 NGC 6823: Open star cluster	**NGC 6823 Magnitude=7.1mag** Diameter=12' RA=19h43.1m Dec=+23°18' (**in constellation Vulpecula/Vul**) best seen between 17.4h -20.2h (h_{top}=41° at WSW at 17.4h). cluster, considerably rich, extended, stars 11...12 mag
19.0h	 NGC 6866: Open star cluster	**NGC 6866 Magnitude=7.6mag** Diameter=7' RA=20h03.7m Dec=+44°00' (**in constellation Cygnus/Cyg**) best seen between 17.7h -22.8h (h_{top}=55° at W at 17.7h). cluster, large, very rich, considerably compressed
19.0h	 **NGC 6871: Open star cluster**	**NGC 6871 Magnitude=5.2mag Diameter=20'** **RA=20h05.9m Dec=+35°47' (in constellation Cygnus/Cyg) best seen between 17.0h -23.3h (h_{top}=57° at W at 17.0h).** **cluster, stars large and small, double star involv(ed)(ing)**
19.0h	NGC 6883: Open star cluster	**NGC 6883 Magnitude=8mag** Diameter=15' RA=20h11.3m Dec=+35°51' (**in constellation Cygnus/Cyg**) best seen between 17.7h -21.8h (h_{top}=51° at W at 17.7h). cluster, pretty rich, double star involv(ed)(ing)

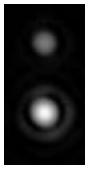
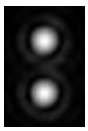
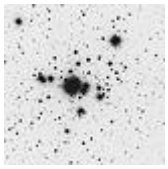
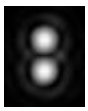
Time (24-hour clock)	Object (Link)	Event
	NGC 6885: Open star cluster	
19.0h		**NGC 6885 Magnitude=6mag Diameter=7' RA=20h12.0m Dec=+26°29' (in constellation Vulpecula/Vul) best seen between 17.0h -22.2h (h_{top}=51° at WSW at 17.0h). cluster, very bright, very large, rich, little compressed, stars 6...11 mag**
19.0h	 NGC 7063: Open star cluster	**NGC 7063 Magnitude=7mag** Diameter=8' RA=21h24.4m Dec=+36°30' (**in constellation Cygnus/Cyg**) best seen between 17.4h -23.1h (h_{top}=66° at WSW at 17.4h). cluster, sparse, stars 10... mag
19.0h	 NGC 7086: Open star cluster	**NGC 7086 Magnitude=8.4mag** Diameter=9' RA=21h30.5m Dec=+51°35' (**in constellation Cygnus/Cyg**) best seen between 17.7h - 1.9h (h_{top}=71° at WNW at 17.7h). cluster, considerably large, very rich, pretty compressed, stars 11...16 mag
19.0h	 NGC 7209: Open star cluster	**NGC 7209 Magnitude=6.7mag** Diameter=25' RA=22h05.2m Dec=+46°30' (**in constellation Lacerta/Lac**) best seen between 17.4h - 1.2h (h_{top}=78° at WSW at 17.4h). cluster, large, considerably rich, pretty compressed, stars 9...12 mag
19.0h	 NGC 7788: Open star cluster	**NGC 7788 Magnitude=9mag** Diameter=9' RA=23h56.7m Dec=+61°24' (**in constellation Cassiopeia/Cas**) best seen between 17.7h - 6.4h (h_{top}=77° at NNW at 19.0h). cluster, small, pretty rich, very compressed, stars 10 mag, 13...
19.0h	 NGC 7789: Open star cluster	**NGC 7789 Magnitude=6.7mag** Diameter=16' RA=23h57.0m Dec=+56°44' (**in constellation Cassiopeia/Cas**) best seen between 17.4h - 6.7h (h_{top}=80° at NW at 19.0h). cluster, very large, very rich, very much compressed, stars 11...18 mag
19.0h	 **NGC 7078:** Globular star cluster	**M 15 (NGC 7078) Magnitude=6.4mag Diameter=12.3' RA=21h30.0m Dec=+12°10' (in constellation Pegasus/Peg) best seen between 17.4h -22.1h (h_{top}=46° at SW at 17.4h). remarkable, globular cluster, very bright, very large, irregular round, very suddenly much brighter in the middle, well resolved, stars very small; = Messier 15**
19.0h	**NGC 7089:** Globular star cluster	**M 2 (NGC 7089) Magnitude=6.5mag Diameter=12.9' RA=21h33.5m Dec= -0°49' (in constellation Aquarius/Aqr) best seen between 17.4h -21.1h (h_{top}=34° at SSW at 17.4h). very remarkable, globular cluster, bright, very large, gradually pretty much brighter (in the) middle, well resolved, stars extremely small; = Messier 2**
19.0h	 NGC 6779: Globular star cluster	**M 56 (NGC 6779) Magnitude=8.3mag** Diameter=7.1' RA=19h16.6m Dec=+30°11' (**in constellation Lyra/Lyr**) best seen between 17.7h -20.4h (h_{top}=39° at W at 17.7h). globular cluster, bright, large, irregular round, gradually very much compressed (in the) middle, well resolved, stars 11...14 mag; = Messier 5

Time (24-hour clock)	Object (Link)	Event
	NGC 6838: Globular star cluster	
19.0h		**M 71 (NGC 6838) Magnitude=8.3mag** Diameter=7.2' RA=19h53.8m Dec=+18°47' (**in constellation Sagitta/Sge**) best seen between 17.7h -20.0h (h_{top}=36° at WSW at 17.7h). cluster, very large, very rich, pretty much compressed, stars 11...16 mag; = Messier 71
19.0h	 NGC 6934: Globular star cluster	**NGC 6934 Magnitude=8.9mag** Diameter=5.9' RA=20h34.2m Dec= +7°24' (**in constellation Delphinus/Del**) best seen between 17.7h -19.7h (h_{top}=33° at WSW at 17.7h). globular cluster, bright, large, round, well resolved, stars 16... mag, star 9 mag preceding (westward)
19.0h	 NGC 7662: Planetary nebula	**Blue Snowball (NGC 7662) Magnitude=9mag** Diameter=2.2' RA=23h25.9m Dec=+42°33' (**in constellation Andromeda/And**) best seen between 17.7h - 1.9h (h_{top}=81° at S at 17.7h). magnificent or interesting planetary nebula or ring, very bright, pretty small, round, blue, variable nucleus
19.0h	 NGC 6853: Planetary nebula	**Dumbbell nebula, M 27 (NGC 6853) Magnitude=8.1mag** Diameter=15.2' RA=19h59.6m Dec=+22°43' (**in constellation Vulpecula/Vul**) best seen between 17.7h -20.4h (h_{top}=40° at WSW at 17.7h). magnificent or interesting, very bright, very large, binuclear, irregular extended (Dumbbell); = Messier 27
19.0h	 NGC 6720: Planetary nebula	**M 57, Ring nebula in Lyra (NGC 6720) Magnitude=9mag** Diameter=2.5' RA=18h53.6m Dec=+33°02' (**in constellation Lyra/Lyr**) best seen between 17.7h -20.3h (h_{top}=37° at W at 17.7h). magnificent or interesting, ring, bright, pretty large, considerably extended (in Lyra); = Messier 57
19.0h	 NGC 246: Planetary nebula	**NGC 246 Magnitude=8mag** Diameter=3.8' RA= 0h47.0m Dec=-11°53' (**in constellation Cetus/Cet**) best seen between 17.7h -22.1h (h_{top}=27° at S at 18.9h). very faint, large, 4 stars in diffuse nebula(e)
19.0h	 NGC 205: Galaxy	**M 110 (NGC 205) Magnitude=8mag** Diameter=17.4' RA= 0h40.4m Dec=+41°41' (**in constellation Andromeda/And**) best seen between 17.7h - 3.0h (h_{top}=81° at S at 18.8h). very bright, very large, much extended 165 degrees, very gradually very much brighter in the middle; = Messier 110
19.0h	 NGC 221: Galaxy	**M 32 (NGC 221) Magnitude=8.2mag** Diameter=7.6' RA= 0h42.7m Dec=+40°52' (**in constellation Andromeda/And**) best seen between 17.7h - 3.0h (h_{top}=80° at S at 18.9h). remarkable very very bright, large, round, pretty suddenly much brighter in the middle (to a) nucleus; = Messier 32
19.0h	 NGC 185: Galaxy	**NGC 185 Magnitude=9.2mag** Diameter=11.5' RA= 0h39.0m Dec=+48°20' (**in constellation Cassiopeia/Cas**) best seen between 17.7h - 4.1h (h_{top}=87° at S at 18.8h). pretty bright, very large, irregular round, very gradually much brighter in the middle, resolvable

Time (24-hour clock)	Object (Link)	Event
19.0h	NGC 247: Galaxy	**NGC 247 Magnitude=8.9mag** Diameter=20' RA= 0h47.1m Dec=-20°46' (**in constellation Cetus/Cet**) best seen between 17.7h -20.6h (h_{top}=18° at S at 18.9h). faint, extremely large, very much extended 172 degrees
19.0h	NGC 7331: Galaxy	**NGC 7331 Magnitude=9.5mag** Diameter=10.7' RA=22h37.1m Dec=+34°25' (**in constellation Pegasus/Peg**) best seen between 17.7h - 0.1h (h_{top}=70° at SW at 17.7h). bright, pretty large, pretty much extended 163 degrees, suddenly much brighter in the middle
19.0h	Deep-Sky Observing	**Best time interval for observing dim objects: 17.7h- 4.1h (10.4 hours)** **Prior to midnight**
19.1h	 Binary Star (very wide split) SAO 103443, WDS 18101+1629	**Magnitudes: 6.7 and 7.2 mag**, Separation: 1.2" Positionangle: 215° **RA=18h10.1m Dec=+16°29' (constellation Hercules)** Best seen from 17.4h -19.8h (h_{top}=7° at WNW at 19.0h) (Orbit solution; Periastron-Year: 1551, min. separation: 1.1", period: 3040 years)
19.1h	Binary Star ADS 13887 (WDS 20289-1749) Components AD	**Magnitudes: 5.0 and 6.7 mag**, Separation: 259.3" Positionangle: 150° **RA=20h28.9m Dec=-17°49' (constellation Capricornus)** Best seen from 17.4h -19.1h (h_{top}=1° at WSW at 19.0h) (Linear solution; Periastron-Year: 1983, min. separation: 255.4")
19.1h	Binary Star 29 Cyg (SAO 69678, WDS 20145+3648) Components AB	**Magnitudes: 5.0 and 6.7 mag**, Spectral type A2V, Separation: 215.4" Positionangle: 155° **RA=20h14.5m Dec=+36°48' (constellation Cygnus)** Best seen from 17.4h - 0.9h (h_{top}=40° at WNW at 19.0h) This pair is non-physical (WDS catalog)
19.1h	Binary Star 48 Cyg (SAO 70287, WDS 20375+3134) Components AB	**Magnitudes: 6.3 and 6.5 mag**, Spectral type B8III+F0V, Separation: 182.9" Positionangle: 177° **RA=20h37.5m Dec=+31°34' (constellation Cygnus)** Best seen from 17.4h - 0.1h (h_{top}=41° at W at 19.0h) This pair is non-physical (WDS catalog)
19.1h	Binary Star WDS 20312+1116 Components A,BC	**Magnitudes: 7.1 and 7.4 mag**, Spectral type B8V, Separation: 17.7" Positionangle: 256° **RA=20h31.2m Dec=+11°16' (constellation Delphinus)** Best seen from 17.4h -21.6h (h_{top}=25° at WSW at 19.0h) (WDS catalog)
19.1h	Binary Star SAO 89505, WDS 21105+2227 Components AB	**Magnitudes: 6.7 and 7.4 mag**, Spectral type A1V, Separation: 18.2" Positionangle: 300° **RA=21h10.5m Dec=+22°27' (constellation Vulpecula)** Best seen from 17.4h -23.4h (h_{top}=39° at WSW at 19.0h) (WDS catalog)
19.2h	 Binary Star (tiny gap split) 72 Peg (SAO 73341, WDS 23340+3120)	**Magnitudes: 5.7 and 6.1 mag**, Separation: 0.6" (visual limit for separation: 0.1") Positionangle: 107° **RA=23h34.0m Dec=+31°20' (constellation Pegasus)** Best seen from 17.4h - 3.0h (h_{top}=66° at SW at 19.0h) (Orbit data may be unreliable) (Orbit solution; Periastron-Year: 1905, min. separation: 0.4", period: 492 years)

Time (24-hour clock)	Object (Link)	Event
		Flare from unknown Mirror Magnitude= 1.0mag Azimuth=223.9° SW altitude= 12.3° in constellation Aquarius **Flare angle=1.24°** **Flare center line, closest point →MapIt: Longitude=16.380°E Latitude=+51.669° (WGS84) Distance=196.3 km Azimuth= 70.2° ENE Peak Magnitude= 0.4mag** **Satellite above: longitude=0.0°W latitude=+38.1° height above Earth=627.4 km distance to satellite=1844.6 km** **Altitude of Sun=-28.6°** **This is an experimental flare prediction. Brightness estimate may be unreliable. Please report a successful observation (Object/site coordinates/date/measured time/accuracy/magnitude).**
19h10m36s	**COSMO-SkyMed 2**	
19.3h	 NGC 381: Open star cluster	**NGC 381 Magnitude=9mag** Diameter=6' RA= 1h08.3m Dec=+61°35' (**in constellation Cassiopeia/Cas**) best seen between 17.7h - 6.4h (h_{top}=80° at N at 19.3h). cluster, pretty compressed
19.4h	 NGC 436: Open star cluster	**NGC 436 Magnitude=8.8mag** Diameter=6' RA= 1h15.6m Dec=+58°49' (**in constellation Cassiopeia/Cas**) best seen between 17.7h - 6.4h (h_{top}=82° at N at 19.4h). cluster, small, irregular figure, pretty compressed
19.5h	 **Binary Star (super-wide split) 42 Cet (SAO 129235, WDS 01198-0031) Components A,BC**	**Magnitudes: 6.5 and 7.0 mag**, Separation: 1.6" Positionangle: 21° **RA= 1h19.8m Dec= +0°31' (constellation Cetus)** Best seen from 17.4h - 1.5h (h_{top}=40° at S at 19.5h) (Orbit solution; Periastron-Year: 2336, min. separation: 0.5", period: 650 years)
19.6h	 NGC 559: Open star cluster	**NGC 559 Magnitude=9.5mag** Diameter=4' RA= 1h29.5m Dec=+63°18' (**in constellation Cassiopeia/Cas**) best seen between 17.7h - 6.4h (h_{top}=78° at N at 19.6h). cluster, bright, pretty large, pretty rich
19.7h	 NGC 581: Open star cluster	**M 103 (NGC 581) Magnitude=7.4mag** Diameter=6' RA= 1h33.2m Dec=+60°42' (**in constellation Cassiopeia/Cas**) best seen between 17.7h - 6.4h (h_{top}=80° at N at 19.7h). cluster, pretty large, bright, round, rich, stars 10...11 mag; = Messier 103
19.8h	 NGC 628: Galaxy	**M 74 (NGC 628) Magnitude=9.2mag** Diameter=10.2' RA= 1h36.7m Dec=+15°47' (**in constellation Pisces/Psc**) best seen between 17.7h - 1.4h (h_{top}=55° at S at 19.8h). globular cluster, faint, very large, round, very gradually, pretty suddenly much brighter in the middle, partially resolved; = Messier 74
19h49m	Occultation of star by (87) Sylvia	**Asteroid (87) Sylvia, 12.6 mag, occults TYC 1940-00875-1, 11.5 mag** Duration: 24.1 seconds. Magnitude drop: 1.5 mag. Visibility: Japan, Russia, Scandanavia; Altitude=15.8° Azimuth=63.5° (Source: asteroidoccultation.com)

Time (24-hour clock)	Object (Link)	Event
19.9h	 NGC 659: Open star cluster	**NGC 659 Magnitude=7.9mag** Diameter=5' RA= 1h44.2m Dec=+60°42' **(in constellation Cassiopeia/Cas)** best seen between 17.7h - 6.4h (h_{top}=80° at N at 19.9h). cluster, little rich, stars bright
20.0h	 **Binary Star (super-wide split) ADS 1438 (WDS 01493+4754) Components AB**	**Magnitudes: 6.5 and 7.2 mag,** Separation: 2.0" Positionangle: 198° **RA= 1h49.3m Dec=+47°54' (constellation Perseus)** Best seen from 17.4h - 6.7h (h_{top}=87° at S at 20.0h) (Linear solution; Periastron-Year: 1938, min. separation: 1.9")
20.1h	 NGC 744: Open star cluster	**NGC 744 Magnitude=7.9mag** Diameter=11' RA= 1h58.4m Dec=+55°29' **(in constellation Perseus/Per)** best seen between 17.7h - 6.4h (h_{top}=86° at N at 20.1h). cluster, pretty large, pretty rich, irregular figure, stars 11...13 mag
20h12.1m	Uranus	Transit Altitude=+50.9° (in constellation Aries) Elongation=124.2° East, Magnitude=5.8mag
20.7h	**IC 1805: Nebulous cluster**	**IC 1805 Magnitude=6.5mag Diameter=60' RA= 2h32.7m Dec=+61°27' (in constellation Cassiopeia/Cas) best seen between 17.4h - 6.7h (h_{top}=80° at N at 20.7h). cluster, coarse(ly), extremely large nebulosity extends following (eastward)**
20.8h	NGC 1023: Galaxy	**NGC 1023 Magnitude=9.5mag** Diameter=8.7' RA= 2h40.4m Dec=+39°04' **(in constellation Perseus/Per)** best seen between 17.7h - 4.7h (h_{top}=78° at S at 20.8h). very bright, very large, very much extended, very very much brighter in the middle
20.9h	 NGC 1027: Open star cluster	**NGC 1027 Magnitude=6.7mag** Diameter=20' RA= 2h42.7m Dec=+61°33' **(in constellation Cassiopeia/Cas)** best seen between 17.4h - 6.7h (h_{top}=80° at N at 20.9h). cluster, large, scattered stars, one 10th mag
20.9h	NGC 1068: Galaxy	**M 77 (NGC 1068) Magnitude=8.8mag** Diameter=6.9' RA= 2h42.7m Dec= -0°01' **(in constellation Cetus/Cet)** best seen between 17.7h - 1.2h (h_{top}=39° at S at 20.9h). very bright, pretty large, irregular round, suddenly brighter (in the) middle partially resolved (to a) nucleus; = Messier 77
20.9h	 **Binary Star (tiny gap split) Kaffaljidhmah, Gam Cet (SAO 110707, WDS 02433+0314) Components AB.**	**Magnitudes: 3.5 and 6.2 mag,** Spectral type A1V, Separation: 2.0" (visual limit for separation: 0.3") Positionangle: 300° **RA= 2h43.3m Dec= +3°14' (constellation Cetus)** Best seen from 17.4h - 3.1h (h_{top}=42° at S at 20.9h) (WDS catalog)
21.0h	**IC 1848: Nebulous cluster**	**IC 1848 Magnitude=6.5mag Diameter=60' RA= 2h51.2m Dec=+60°26' (in constellation Cassiopeia/Cas) best seen between 17.4h - 6.7h (h_{top}=81° at N at 21.0h). cluster, stars faint, extends 8 minutes following (eastward), in faint nebulosity**

Time (24-hour clock)	Object (Link)	Event
21.4h	 Binary Star (wide split) Fornacis, Alp For (SAO 168373, WDS 03121-2859).	**Magnitudes: 4.0 and 7.2 mag,** Separation: 5.5" Positionangle: 301° **RA= 3h12.1m Dec=-28°59' (constellation Fornax)** Best seen from 18.2h - 0.5h (h_{top}=10° at S at 21.4h) (Orbit solution; Periastron-Year: 1947, min. separation: 1.1", period: 269 years)
21.8h	 Binary Star (fairly close split) 7 Tau (SAO 75999, WDS 03344+2428) Components AB	**Magnitudes: 6.6 and 6.9 mag,** Separation: 0.8" Positionangle: 350° **RA= 3h34.4m Dec=+24°28' (constellation Taurus)** Best seen from 17.4h - 6.0h (h_{top}=63° at S at 21.7h) (Orbit solution; Periastron-Year: 1912, min. separation: 0.2", period: 522 years)
22.0h	Binary Star WDS 03459+2433 Components AB	**Magnitudes: 5.8 and 6.4 mag,** Spectral type B8V, Separation: 149.6" Positionangle: 130° **RA= 3h45.9m Dec=+24°33' (constellation Taurus)** Best seen from 17.4h - 6.2h (h_{top}=64° at S at 21.9h) (WDS catalog)
22.0h	Binary Star SAO 194551, WDS 03486-3737	**Magnitudes: 4.7 and 5.2 mag,** Spectral type B9V+A1V, Separation: 8.1" Positionangle: 217° **RA= 3h48.6m Dec=-37°37' (constellation Eridani)** Best seen from 20.8h -23.1h (h_{top}=2° at S at 22.0h) (WDS catalog)
22.3h	 NGC 1502: Open star cluster	**NGC 1502 Magnitude=5.7mag Diameter=8'** **RA= 4h07.7m Dec=+62°20' (in constellation Camelopardalis/Cam) best seen between 17.0h - 7.1h (h_{top}=79° at N at 22.3h).** **cluster, pretty rich, considerably compressed, irregular figure**
22.6h	Binary Star Kap1 Tau (SAO 76601, WDS 04254+2218) Components AB	**Magnitudes: 4.2 and 5.3 mag,** Spectral type A7IV/V, Separation: 339.4" Positionangle: 174° **RA= 4h25.4m Dec=+22°18' (constellation Taurus)** Best seen from 17.4h - 6.6h (h_{top}=61° at S at 22.6h) (WDS catalog)
22.9h	 Binary Star (hair-split split) SAO 24777, WDS 04433+5931	**Magnitudes: 7.2 and 7.4 mag,** Separation: 0.4" (visual limit for separation: 0.1") Positionangle: 302° **RA= 4h43.3m Dec=+59°31' (constellation Camelopardalis)** Best seen from 17.4h - 6.7h (h_{top}=82° at N at 22.9h) (Orbit solution; Periastron-Year: 1982, min. separation: 0.1", period: 126 years)

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