

# Mond- und Dämmerungstabelle 2024

## für die visuelle Deep-Sky-Beobachtung

Weimar 50.9794° N 11.3297° E

Berechnung: pyEphem  
Textsatz: L<sup>A</sup>T<sub>E</sub>X

### Atmosphären-Einstellungen in pyEphem

Standort.pressure = 1010.0  
Standort.horizon = '0:00:00.0'

Alle Zeitangaben beziehen sich auf den in der jeweiligen Zeile angegeben Kalendertag. Liegt ein Ereignis bereits nach Mitternacht, also schon am Folgetag, ist die Zeitangabe mit einem \* gekennzeichnet, z.B.: 00:20\*.

**Spalte 1** Kalendertag.

**Spalte 2** Bei »MESZ« sind alle Zeitangaben in dieser Zeile in Mitteleuropäischer Sommerzeit, ansonsten standardmäßig in MEZ.

**Spalte 3** Die für Deep-Sky-Beobachtungen nutzbare Zeitspanne: Es ist astronomisch dunkel (Sonne steht tiefer als  $-18^\circ$ ) und kein Mond stört.

**Spalte 4** Dauer der für Deep-Sky-Beobachtungen nutzbaren Zeitspanne.

**Spalte 5** Ereignisse, die die für Deep-Sky-Beobachtungen nutzbare Zeitspanne begrenzen: AN<sub>+</sub> (Einbruch der astronomischen Nacht = Ende der astr. Abenddämmerung), M<sub>v</sub> (Monduntergang), AN<sub>-</sub> (Ende der astronomischen Nacht = Beginn der astr. Morgendämmerung), M<sub>7</sub>

(Mondaufgang), Astr. MD (Astronomische Mitternachtsdämmerung), Naut. MD (Nautische Mitternachtsdämmerung).

**Spalte 6** Mondphase.

**Spalte 7** Mondaufgang.

**Spalte 8** Monduntergang.

**Spalte 9** Beginn der astr. Morgendämmerung (Sonnenhöhe =  $-18^\circ$ ).

**Spalte 10** Dauer der astr. Morgendämmerung.

**Spalte 11** Beginn der naut. Morgendämmerung (Sonnenhöhe =  $-12^\circ$ ).

**Spalte 12** Dauer der naut. Morgendämmerung.

**Spalte 13** Beginn der bürg. Morgendämmerung (Sonnenhöhe =  $-6^\circ$ ).

**Spalte 14** Dauer der bürg. Morgendämmerung.

**Spalte 15** Sonnenaufgang.

**Spalte 16** Taglänge.

**Spalte 17** Sonnenuntergang.

**Spalte 18** Dauer der bürg. Abenddämmerung.

**Spalte 19** Ende der bürg. Abenddämmerung (Sonnenhöhe =  $-6^\circ$ ).

**Spalte 20** Dauer der naut. Abenddämmerung.

**Spalte 21** Ende der naut. Abenddämmerung (Sonnenhöhe =  $-12^\circ$ ).

**Spalte 22** Dauer der astr. Abenddämmerung.

**Spalte 23** Ende der astr. Abenddämmerung (Sonnenhöhe =  $-18^\circ$ ).

**Spalte 24** Länge der Nacht.

**Spalte 25** Länge der astr. Nacht.

**Für Beobachter, die zu Zeiten der Mitternachtsdämmerung während der astr. Dämmerung beobachten möchten:**

**Spalte 26** Nutzbare Zeitspanne: Es ist »nautisch dunkel« (Sonne steht tiefer als  $-12^\circ$ ) und kein Mond stört.

**Spalte 27** Dauer der in Spalte 26 angegebenen Zeitspanne.

**Spalte 28** Ereignisse, die die nutzbare Zeitspanne begrenzen: ND<sub>+</sub> (Beginn der »naut. Dunkelheit« = Ende der naut. Abenddämmerung), M<sub>v</sub> (Monduntergang), ND<sub>-</sub> (Ende der »naut. Dunkelheit« = Beginn der naut. Morgendämmerung), M<sub>7</sub> (Mondaufgang), Naut. MD (Nautische Mitternachtsdämmerung).

**Spalte 29** Identisch zu Spalte 1.

| 1           | 2             | 3                          | 4          | 5                                   | 6    | 7          | 8          | 9                          | 10         | 11    | 12         | 13    | 14         | 15         | 16         | 17                      | 18         | 19    | 20         | 21    | 22         | 23       | 24                         | 25         | 26 | 27         | 28 | 29          |
|-------------|---------------|----------------------------|------------|-------------------------------------|------|------------|------------|----------------------------|------------|-------|------------|-------|------------|------------|------------|-------------------------|------------|-------|------------|-------|------------|----------|----------------------------|------------|----|------------|----|-------------|
| 2024        | Zeit-<br>zone | Astr. dunkel und kein Mond |            |                                     | Mond |            |            | Beginn der Morgendämmerung |            |       |            |       | Sonne      |            |            | Ende der Abenddämmerung |            |       |            |       | Nacht      | Astr. N. | Naut. dunkel und kein Mond |            |    | 2024       |    |             |
|             |               |                            | $\Delta t$ |                                     | Ph.  | $\nearrow$ | $\searrow$ | Astr.                      | $\Delta t$ | Naut. | $\Delta t$ | Bürg. | $\Delta t$ | $\nearrow$ | $\Delta t$ | $\searrow$              | $\Delta t$ | Bürg. | $\Delta t$ | Naut. | $\Delta t$ | Astr.    | $\Delta t$                 | $\Delta t$ |    | $\Delta t$ |    |             |
| Mo, 1. Jan  |               | 18:22 – 22:05              | 3h 43m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 22:05      | 11:19      | 06:14                      | 40m        | 06:54 | 41m        | 07:35 | 41m        | 08:17      | 8h 01m     | 16:18                   | 41m        | 17:00 | 41m        | 17:41 | 40m        | 18:22    | 15h 58m                    | 11h 52m    |    |            |    | Mo, 1. Jan  |
| Di, 2. Jan  |               | 18:22 – 23:14              | 4h 51m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 23:14      | 11:30      | 06:14                      | 40m        | 06:54 | 41m        | 07:35 | 41m        | 08:17      | 8h 02m     | 16:19                   | 41m        | 17:01 | 41m        | 17:42 | 40m        | 18:22    | 15h 57m                    | 11h 51m    |    |            |    | Di, 2. Jan  |
| Mi, 3. Jan  |               | 18:23 – 00:23*             | 5h 59m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | —:—        | 11:41      | 06:14                      | 40m        | 06:54 | 41m        | 07:35 | 41m        | 08:17      | 8h 03m     | 16:20                   | 41m        | 17:02 | 41m        | 17:43 | 40m        | 18:23    | 15h 56m                    | 11h 50m    |    |            |    | Mi, 3. Jan  |
| Do, 4. Jan  |               | 18:24 – 01:34*             | 7h 09m     | AN <sub>+</sub> bis M <sub>7</sub>  | ☾    | 00:23      | 11:51      | 06:14                      | 39m        | 06:54 | 41m        | 07:35 | 41m        | 08:16      | 8h 05m     | 16:22                   | 41m        | 17:03 | 41m        | 17:44 | 40m        | 18:24    | 15h 54m                    | 11h 49m    |    |            |    | Do, 4. Jan  |
| Fr, 5. Jan  |               | 18:25 – 02:48*             | 8h 22m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 01:34      | 12:03      | 06:14                      | 39m        | 06:54 | 41m        | 07:35 | 41m        | 08:16      | 8h 06m     | 16:23                   | 41m        | 17:04 | 41m        | 17:45 | 39m        | 18:25    | 15h 53m                    | 11h 48m    |    |            |    | Fr, 5. Jan  |
| Sa, 6. Jan  |               | 18:26 – 04:06*             | 9h 39m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 02:48      | 12:18      | 06:14                      | 39m        | 06:53 | 41m        | 07:35 | 41m        | 08:16      | 8h 08m     | 16:24                   | 41m        | 17:05 | 41m        | 17:46 | 39m        | 18:26    | 15h 51m                    | 11h 47m    |    |            |    | Sa, 6. Jan  |
| So, 7. Jan  |               | 18:27 – 05:27*             | 10h 59m    | AN <sub>+</sub> bis M <sub>7</sub>  |      | 04:06      | 12:37      | 06:13                      | 39m        | 06:53 | 41m        | 07:34 | 41m        | 08:16      | 8h 09m     | 16:25                   | 41m        | 17:06 | 41m        | 17:47 | 39m        | 18:27    | 15h 49m                    | 11h 45m    |    |            |    | So, 7. Jan  |
| Mo, 8. Jan  |               | 18:28 – 06:13*             | 11h 44m    | AN <sub>+</sub> bis AN <sub>-</sub> |      | 05:27      | 13:04      | 06:13                      | 39m        | 06:53 | 41m        | 07:34 | 41m        | 08:15      | 8h 11m     | 16:26                   | 41m        | 17:08 | 41m        | 17:49 | 39m        | 18:28    | 15h 48m                    | 11h 44m    |    |            |    | Mo, 8. Jan  |
| Di, 9. Jan  |               | 18:29 – 06:13*             | 11h 43m    | AN <sub>+</sub> bis AN <sub>-</sub> |      | 06:47      | 13:44      | 06:13                      | 39m        | 06:53 | 40m        | 07:34 | 40m        | 08:15      | 8h 13m     | 16:28                   | 40m        | 17:09 | 40m        | 17:50 | 39m        | 18:29    | 15h 46m                    | 11h 43m    |    |            |    | Di, 9. Jan  |
| Mi, 10. Jan |               | 18:31 – 06:12*             | 11h 41m    | AN <sub>+</sub> bis AN <sub>-</sub> |      | 07:58      | 14:43      | 06:13                      | 39m        | 06:52 | 40m        | 07:33 | 40m        | 08:14      | 8h 14m     | 16:29                   | 40m        | 17:10 | 40m        | 17:51 | 39m        | 18:31    | 15h 44m                    | 11h 41m    |    |            |    | Mi, 10. Jan |
| Do, 11. Jan |               | 18:32 – 06:12*             | 11h 40m    | AN <sub>+</sub> bis AN <sub>-</sub> | ☾    | 08:53      | 16:00      | 06:12                      | 39m        | 06:52 | 40m        | 07:33 | 40m        | 08:14      | 8h 16m     | 16:31                   | 40m        | 17:11 | 40m        | 17:52 | 39m        | 18:32    | 15h 42m                    | 11h 40m    |    |            |    | Do, 11. Jan |
| Fr, 12. Jan |               | 18:33 – 06:12*             | 11h 38m    | AN <sub>+</sub> bis AN <sub>-</sub> |      | 09:32      | 17:30      | 06:12                      | 39m        | 06:52 | 40m        | 07:32 | 40m        | 08:13      | 8h 18m     | 16:32                   | 40m        | 17:13 | 40m        | 17:53 | 39m        | 18:33    | 15h 40m                    | 11h 38m    |    |            |    | Fr, 12. Jan |
| Sa, 13. Jan |               | 19:03 – 06:11*             | 11h 07m    | M <sub>\</sub> bis AN <sub>-</sub>  |      | 09:59      | 19:03      | 06:12                      | 39m        | 06:51 | 40m        | 07:32 | 40m        | 08:12      | 8h 21m     | 16:33                   | 40m        | 17:14 | 40m        | 17:55 | 39m        | 18:34    | 15h 38m                    | 11h 37m    |    |            |    | Sa, 13. Jan |
| So, 14. Jan |               | 20:34 – 06:11*             | 9h 36m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 10:18      | 20:34      | 06:11                      | 39m        | 06:51 | 40m        | 07:31 | 40m        | 08:12      | 8h 23m     | 16:35                   | 40m        | 17:15 | 40m        | 17:56 | 39m        | 18:35    | 15h 36m                    | 11h 35m    |    |            |    | So, 14. Jan |
| Mo, 15. Jan |               | 22:02 – 06:10*             | 8h 08m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 10:34      | 22:02      | 06:11                      | 39m        | 06:50 | 40m        | 07:31 | 40m        | 08:11      | 8h 25m     | 16:36                   | 40m        | 17:17 | 40m        | 17:57 | 39m        | 18:37    | 15h 33m                    | 11h 33m    |    |            |    | Mo, 15. Jan |
| Di, 16. Jan |               | 23:27 – 06:10*             | 6h 42m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 10:47      | 23:27      | 06:10                      | 39m        | 06:50 | 40m        | 07:30 | 40m        | 08:10      | 8h 27m     | 16:38                   | 40m        | 17:18 | 40m        | 17:58 | 39m        | 18:38    | 15h 31m                    | 11h 31m    |    |            |    | Di, 16. Jan |
| Mi, 17. Jan |               | 00:50* – 06:09*            | 5h 18m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 11:01      | —:—        | 06:10                      | 39m        | 06:49 | 40m        | 07:29 | 39m        | 08:09      | 8h 30m     | 16:39                   | 40m        | 17:19 | 40m        | 18:00 | 39m        | 18:39    | 15h 28m                    | 11h 29m    |    |            |    | Mi, 17. Jan |
| Do, 18. Jan |               | 02:13* – 06:08*            | 3h 54m     | M <sub>\</sub> bis AN <sub>-</sub>  | ☾    | 11:15      | 00:50      | 06:09                      | 39m        | 06:48 | 40m        | 07:28 | 39m        | 08:08      | 8h 32m     | 16:41                   | 39m        | 17:21 | 40m        | 18:01 | 39m        | 18:40    | 15h 26m                    | 11h 27m    |    |            |    | Do, 18. Jan |
| Fr, 19. Jan |               | 03:36* – 06:08*            | 2h 31m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 11:32      | 02:13      | 06:08                      | 39m        | 06:48 | 40m        | 07:28 | 39m        | 08:07      | 8h 35m     | 16:43                   | 39m        | 17:22 | 40m        | 18:02 | 39m        | 18:42    | 15h 23m                    | 11h 25m    |    |            |    | Fr, 19. Jan |
| Sa, 20. Jan |               | 04:57* – 06:07*            | 1h 10m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 11:53      | 03:36      | 06:08                      | 39m        | 06:47 | 40m        | 07:27 | 39m        | 08:06      | 8h 37m     | 16:44                   | 39m        | 17:24 | 40m        | 18:04 | 39m        | 18:43    | 15h 21m                    | 11h 23m    |    |            |    | Sa, 20. Jan |
| So, 21. Jan |               | —:— —:—                    | —          | Mond stört                          |      | 12:23      | 04:57      | 06:07                      | 39m        | 06:46 | 39m        | 07:26 | 39m        | 08:05      | 8h 40m     | 16:46                   | 39m        | 17:25 | 39m        | 18:05 | 39m        | 18:44    | 15h 18m                    | 11h 21m    |    |            |    | So, 21. Jan |
| Mo, 22. Jan |               | —:— —:—                    | —          | Mond stört                          |      | 13:03      | 06:10      | 06:06                      | 39m        | 06:45 | 39m        | 07:25 | 39m        | 08:04      | 8h 43m     | 16:47                   | 39m        | 17:27 | 39m        | 18:07 | 39m        | 18:46    | 15h 15m                    | 11h 19m    |    |            |    | Mo, 22. Jan |
| Di, 23. Jan |               | —:— —:—                    | —          | Mond stört                          |      | 13:56      | 07:11      | 06:05                      | 39m        | 06:44 | 39m        | 07:24 | 39m        | 08:03      | 8h 46m     | 16:49                   | 39m        | 17:28 | 39m        | 18:08 | 39m        | 18:47    | 15h 12m                    | 11h 17m    |    |            |    | Di, 23. Jan |
| Mi, 24. Jan |               | —:~ —:~                    | —          | Mond stört                          |      | 15:01      | 07:57      | 06:04                      | 38m        | 06:43 | 39m        | 07:23 | 39m        | 08:02      | 8h 48m     | 16:51                   | 39m        | 17:30 | 39m        | 18:10 | 39m        | 18:49    | 15h 09m                    | 11h 14m    |    |            |    | Mi, 24. Jan |
| Do, 25. Jan |               | —:~ —:~                    | —          | Mond stört                          | ☾    | 16:13      | 08:31      | 06:03                      | 38m        | 06:42 | 39m        | 07:22 | 38m        | 08:01      | 8h 51m     | 16:53                   | 38m        | 17:31 | 39m        | 18:11 | 38m        | 18:50    | 15h 06m                    | 11h 12m    |    |            |    | Do, 25. Jan |
| Fr, 26. Jan |               | —:~ —:~                    | —          | Mond stört                          |      | 17:28      | 08:54      | 06:02                      | 38m        | 06:41 | 39m        | 07:21 | 38m        | 07:59      | 8h 54m     | 16:54                   | 38m        | 17:33 | 39m        | 18:12 | 38m        | 18:51    | 15h 03m                    | 11h 10m    |    |            |    | Fr, 26. Jan |
| Sa, 27. Jan |               | —:~ —:~                    | —          | Mond stört                          |      | 18:41      | 09:12      | 06:01                      | 38m        | 06:40 | 39m        | 07:20 | 38m        | 07:58      | 8h 57m     | 16:56                   | 38m        | 17:35 | 39m        | 18:14 | 38m        | 18:53    | 15h 00m                    | 11h 07m    |    |            |    | Sa, 27. Jan |
| So, 28. Jan |               | 18:54 – 19:52              | 57m        | AN <sub>+</sub> bis M <sub>7</sub>  |      | 19:52      | 09:26      | 06:00                      | 38m        | 06:39 | 39m        | 07:18 | 38m        | 07:57      | 9h 00m     | 16:58                   | 38m        | 17:36 | 39m        | 18:15 | 38m        | 18:54    | 14h 57m                    | 11h 05m    |    |            |    | So, 28. Jan |
| Mo, 29. Jan |               | 18:56 – 21:01              | 2h 04m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 21:01      | 09:37      | 05:59                      | 38m        | 06:38 | 39m        | 07:17 | 38m        | 07:56      | 9h 03m     | 16:59                   | 38m        | 17:38 | 39m        | 18:17 | 38m        | 18:56    | 14h 54m                    | 11h 02m    |    |            |    | Mo, 29. Jan |
| Di, 30. Jan |               | 18:57 – 22:09              | 3h 12m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 22:09      | 09:48      | 05:58                      | 38m        | 06:37 | 39m        | 07:16 | 38m        | 07:54      | 9h 07m     | 17:01                   | 38m        | 17:39 | 39m        | 18:19 | 38m        | 18:57    | 14h 51m                    | 10h 59m    |    |            |    | Di, 30. Jan |
| Mi, 31. Jan |               | 18:59 – 23:19              | 4h 19m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 23:19      | 09:58      | 05:57                      | 38m        | 06:36 | 38m        | 07:15 | 38m        | 07:53      | 9h 10m     | 17:03                   | 38m        | 17:41 | 39m        | 18:20 | 38m        | 18:59    | 14h 48m                    | 10h 57m    |    |            |    | Mi, 31. Jan |
| Do, 1. Feb  |               | 19:00 – 00:30*             | 5h 29m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | —:—        | 10:09      | 05:56                      | 38m        | 06:34 | 38m        | 07:13 | 37m        | 07:51      | 9h 13m     | 17:05                   | 37m        | 17:43 | 38m        | 18:22 | 38m        | 19:00    | 14h 45m                    | 10h 54m    |    |            |    | Do, 1. Feb  |
| Fr, 2. Feb  |               | 19:02 – 01:45*             | 6h 43m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 00:30      | 10:21      | 05:55                      | 38m        | 06:33 | 38m        | 07:12 | 37m        | 07:50      | 9h 16m     | 17:06                   | 37m        | 17:44 | 38m        | 18:23 | 38m        | 19:02    | 14h 41m                    | 10h 51m    |    |            |    | Fr, 2. Feb  |
| Sa, 3. Feb  |               | 19:03 – 03:03*             | 7h 59m     | AN <sub>+</sub> bis M <sub>7</sub>  | ☾    | 01:45      | 10:38      | 05:53                      | 38m        | 06:32 | 38m        | 07:11 | 37m        | 07:48      | 9h 20m     | 17:08                   | 37m        | 17:46 | 38m        | 18:25 | 38m        | 19:03    | 14h 38m                    | 10h 48m    |    |            |    | Sa, 3. Feb  |
| So, 4. Feb  |               | 19:05 – 04:22*             | 9h 17m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 03:03      | 11:00      | 05:52                      | 38m        | 06:30 | 38m        | 07:09 | 37m        | 07:47      | 9h 23m     | 17:10                   | 37m        | 17:48 | 38m        | 18:26 | 38m        | 19:05    | 14h 35m                    | 10h 45m    |    |            |    | So, 4. Feb  |
| Mo, 5. Feb  |               | 19:06 – 05:37*             | 10h 30m    | AN <sub>+</sub> bis M <sub>7</sub>  |      | 04:22      | 11:33      | 05:51                      | 38m        | 06:29 | 38m        | 07:08 | 37m        | 07:45      | 9h 26m     | 17:12                   | 37m        | 17:49 | 38m        | 18:28 | 38m        | 19:06    | 14h 31m                    | 10h 42m    |    |            |    | Mo, 5. Feb  |
| Di, 6. Feb  |               | 19:08 – 05:48*             | 10h 40m    | AN <sub>+</sub> bis AN <sub>-</sub> |      | 05:37      | 12:21      | 05:49                      | 38m        | 06:28 | 38m        | 07:06 | 37m        | 07:43      | 9h 30m     | 17:14                   | 37m        | 17:51 | 38m        | 18:29 | 38m        | 19:08    | 14h 28m                    | 10h 40m    |    |            |    | Di, 6. Feb  |
| Mi, 7. Feb  |               | 19:09 – 05:46*             | 10h 37m    | AN <sub>+</sub> bis AN <sub>-</sub> |      | 06:39      | 13:28      | 05:48                      | 38m        | 06:26 | 38m        | 07:05 | 37m        | 07:42      | 9h 33m     | 17:15                   | 37m        | 17:53 | 38m        | 18:31 | 38m        | 19:09    | 14h 24m                    | 10h 37m    |    |            |    | Mi, 7. Feb  |
| Do, 8. Feb  |               | 19:11 – 05:45*             | 10h 33m    | AN <sub>+</sub> bis AN <sub>-</sub> |      | 07:25      | 14:53      | 05:46                      | 38m        | 06:25 | 38m        | 07:03 | 37m        | 07:40      | 9h 37m     | 17:17                   | 37m        | 17:54 | 38m        | 18:33 | 38m        | 19:11    | 14h 21m                    | 10h 33m    |    |            |    | Do, 8. Feb  |
| Fr, 9. Feb  |               | 19:13 – 05:43*             | 10h 30m    | AN <sub>+</sub> bis AN <sub>-</sub> | ☾    | 07:57      | 16:27      | 05:45                      | 38m        | 06:23 | 38m        | 07:01 | 36m        | 07:38      | 9h 40m     | 17:19                   | 36m        | 17:56 | 38m        | 18:34 | 38m        | 19:13    | 14h 17m                    | 10h 30m    |    |            |    | Fr, 9. Feb  |
| Sa, 10. Feb |               | 19:14 – 05:42*             | 10h 27m    | AN <sub>+</sub> bis AN <sub>-</sub> |      | 08:20      | 18:02      | 05:43                      | 38m        | 06:22 | 38m        | 07:00 | 36m        | 07:37      | 9h 44m     | 17:21                   | 36m        | 17:58 | 38m        | 18:36 | 38m        | 19:14    | 14h 14m                    | 10h 27m    |    |            |    | Sa, 10. Feb |
| So, 11. Feb |               | 19:34 – 05:40*             | 10h 06m    | M <sub>\</sub> bis AN <sub>-</sub>  |      | 08:38      | 19:34      | 05:42                      | 38m        | 06:20 | 38m        | 06:58 | 36m        | 07:35      | 9h 47m     | 17:23                   | 36m        | 17:59 | 38m        | 18:37 | 38m        | 19:16    | 14h 10m                    | 10h 24m    |    |            |    | So, 11. Feb |
| Mo, 12. Feb |               | 21:04 – 05:39*             | 8h 34m     | M<                                  |      |            |            |                            |            |       |            |       |            |            |            |                         |            |       |            |       |            |          |                            |            |    |            |    |             |

| 1           | 2             | 3                          | 4          | 5                                   | 6    | 7          | 8          | 9                          | 10         | 11    | 12         | 13    | 14         | 15         | 16         | 17                      | 18         | 19    | 20         | 21    | 22         | 23       | 24                         | 25         | 26 | 27         | 28 | 29          |
|-------------|---------------|----------------------------|------------|-------------------------------------|------|------------|------------|----------------------------|------------|-------|------------|-------|------------|------------|------------|-------------------------|------------|-------|------------|-------|------------|----------|----------------------------|------------|----|------------|----|-------------|
| 2024        | Zeit-<br>zone | Astr. dunkel und kein Mond |            |                                     | Mond |            |            | Beginn der Morgendämmerung |            |       |            |       | Sonne      |            |            | Ende der Abenddämmerung |            |       |            |       | Nacht      | Astr. N. | Naut. dunkel und kein Mond |            |    | 2024       |    |             |
|             |               |                            | $\Delta t$ |                                     | Ph.  | $\nearrow$ | $\searrow$ | Astr.                      | $\Delta t$ | Naut. | $\Delta t$ | Bürg. | $\Delta t$ | $\nearrow$ | $\Delta t$ | $\searrow$              | $\Delta t$ | Bürg. | $\Delta t$ | Naut. | $\Delta t$ | Astr.    | $\Delta t$                 | $\Delta t$ |    | $\Delta t$ |    |             |
| Di, 20. Feb |               | —:—:—:—                    | —          | Mond stört                          |      | 12:51      | 05:58      | 05:26                      | 38m        | 06:05 | 37m        | 06:42 | 35m        | 07:18      | 10h 20m    | 17:39                   | 35m        | 18:15 | 37m        | 18:52 | 38m        | 19:30    | 13h 37m                    | 9h 54m     |    |            |    | Di, 20. Feb |
| Mi, 21. Feb |               | —:—:—:—                    | —          | Mond stört                          |      | 14:01      | 06:34      | 05:25                      | 38m        | 06:03 | 37m        | 06:40 | 35m        | 07:16      | 10h 24m    | 17:40                   | 35m        | 18:16 | 37m        | 18:54 | 38m        | 19:32    | 13h 33m                    | 9h 50m     |    |            |    | Mi, 21. Feb |
| Do, 22. Feb |               | —:—:—:—                    | —          | Mond stört                          |      | 15:15      | 07:00      | 05:23                      | 38m        | 06:01 | 37m        | 06:38 | 35m        | 07:14      | 10h 28m    | 17:42                   | 35m        | 18:18 | 37m        | 18:55 | 38m        | 19:34    | 13h 29m                    | 9h 47m     |    |            |    | Do, 22. Feb |
| Fr, 23. Feb |               | —:—:~:~                    | —          | Mond stört                          |      | 16:28      | 07:19      | 05:21                      | 38m        | 05:59 | 37m        | 06:36 | 35m        | 07:12      | 10h 31m    | 17:44                   | 35m        | 18:20 | 37m        | 18:57 | 38m        | 19:35    | 13h 26m                    | 9h 43m     |    |            |    | Fr, 23. Feb |
| Sa, 24. Feb |               | —:~:~:~                    | —          | Mond stört                          | ○    | 17:40      | 07:34      | 05:19                      | 38m        | 05:57 | 37m        | 06:34 | 35m        | 07:10      | 10h 35m    | 17:46                   | 35m        | 18:21 | 37m        | 18:59 | 38m        | 19:37    | 13h 22m                    | 9h 39m     |    |            |    | Sa, 24. Feb |
| So, 25. Feb |               | —:~:~:~                    | —          | Mond stört                          |      | 18:50      | 07:45      | 05:17                      | 38m        | 05:55 | 37m        | 06:33 | 35m        | 07:08      | 10h 39m    | 17:47                   | 35m        | 18:23 | 37m        | 19:00 | 38m        | 19:39    | 13h 18m                    | 9h 36m     |    |            |    | So, 25. Feb |
| Mo, 26. Feb |               | 19:40 – 19:59              | 18m        | AN <sub>+</sub> bis M <sub>7</sub>  |      | 19:59      | 07:56      | 05:15                      | 38m        | 05:53 | 37m        | 06:31 | 35m        | 07:06      | 10h 43m    | 17:49                   | 35m        | 18:25 | 37m        | 19:02 | 38m        | 19:40    | 13h 14m                    | 9h 32m     |    |            |    | Mo, 26. Feb |
| Di, 27. Feb |               | 19:42 – 21:08              | 1h 25m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 21:08      | 08:06      | 05:13                      | 38m        | 05:51 | 37m        | 06:29 | 35m        | 07:04      | 10h 47m    | 17:51                   | 35m        | 18:26 | 37m        | 19:04 | 38m        | 19:42    | 13h 10m                    | 9h 28m     |    |            |    | Di, 27. Feb |
| Mi, 28. Feb |               | 19:44 – 22:18              | 2h 34m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 22:18      | 08:16      | 05:11                      | 38m        | 05:49 | 37m        | 06:26 | 35m        | 07:02      | 10h 50m    | 17:53                   | 35m        | 18:28 | 37m        | 19:05 | 38m        | 19:44    | 13h 06m                    | 9h 24m     |    |            |    | Mi, 28. Feb |
| Do, 29. Feb |               | 19:46 – 23:31              | 3h 45m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 23:31      | 08:28      | 05:09                      | 38m        | 05:47 | 37m        | 06:24 | 35m        | 07:00      | 10h 54m    | 17:54                   | 35m        | 18:30 | 37m        | 19:07 | 38m        | 19:46    | 13h 03m                    | 9h 20m     |    |            |    | Do, 29. Feb |
| Fr, 1. Mär  |               | 19:47 – 00:47*             | 4h 59m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | —:—        | 08:42      | 05:07                      | 38m        | 05:45 | 37m        | 06:22 | 35m        | 06:58      | 10h 58m    | 17:56                   | 35m        | 18:31 | 37m        | 19:09 | 38m        | 19:47    | 12h 59m                    | 9h 17m     |    |            |    | Fr, 1. Mär  |
| Sa, 2. Mär  |               | 19:49 – 02:04*             | 6h 15m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 00:47      | 09:01      | 05:04                      | 38m        | 05:43 | 37m        | 06:20 | 35m        | 06:55      | 11h 02m    | 17:58                   | 35m        | 18:33 | 37m        | 19:11 | 38m        | 19:49    | 12h 55m                    | 9h 13m     |    |            |    | Sa, 2. Mär  |
| So, 3. Mär  |               | 19:51 – 03:19*             | 7h 28m     | AN <sub>+</sub> bis M <sub>7</sub>  | ●    | 02:04      | 09:28      | 05:02                      | 38m        | 05:41 | 37m        | 06:18 | 35m        | 06:53      | 11h 06m    | 18:00                   | 35m        | 18:35 | 37m        | 19:12 | 38m        | 19:51    | 12h 51m                    | 9h 09m     |    |            |    | So, 3. Mär  |
| Mo, 4. Mär  |               | 19:53 – 04:26*             | 8h 32m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 03:19      | 10:08      | 05:00                      | 38m        | 05:39 | 37m        | 06:16 | 35m        | 06:51      | 11h 10m    | 18:01                   | 35m        | 18:36 | 37m        | 19:14 | 38m        | 19:53    | 12h 47m                    | 9h 05m     |    |            |    | Mo, 4. Mär  |
| Di, 5. Mär  |               | 19:54 – 04:56*             | 9h 01m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 04:26      | 11:04      | 04:58                      | 38m        | 05:37 | 37m        | 06:14 | 34m        | 06:49      | 11h 14m    | 18:03                   | 35m        | 18:38 | 37m        | 19:16 | 38m        | 19:54    | 12h 43m                    | 9h 01m     |    |            |    | Di, 5. Mär  |
| Mi, 6. Mär  |               | 19:56 – 04:53*             | 8h 57m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 05:17      | 12:20      | 04:56                      | 38m        | 05:34 | 37m        | 06:12 | 34m        | 06:47      | 11h 17m    | 18:05                   | 35m        | 18:40 | 37m        | 19:17 | 38m        | 19:56    | 12h 39m                    | 8h 57m     |    |            |    | Mi, 6. Mär  |
| Do, 7. Mär  |               | 19:58 – 04:51*             | 8h 53m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 05:54      | 13:48      | 04:53                      | 38m        | 05:32 | 37m        | 06:10 | 34m        | 06:45      | 11h 21m    | 18:06                   | 35m        | 18:41 | 37m        | 19:19 | 38m        | 19:58    | 12h 36m                    | 8h 53m     |    |            |    | Do, 7. Mär  |
| Fr, 8. Mär  |               | 20:00 – 04:49*             | 8h 49m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 06:21      | 15:22      | 04:51                      | 38m        | 05:30 | 37m        | 06:08 | 34m        | 06:42      | 11h 25m    | 18:08                   | 34m        | 18:43 | 37m        | 19:21 | 39m        | 20:00    | 12h 32m                    | 8h 49m     |    |            |    | Fr, 8. Mär  |
| Sa, 9. Mär  |               | 20:02 – 04:47*             | 8h 44m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 06:40      | 16:56      | 04:49                      | 38m        | 05:28 | 37m        | 06:05 | 34m        | 06:40      | 11h 29m    | 18:10                   | 34m        | 18:45 | 37m        | 19:22 | 39m        | 20:02    | 12h 28m                    | 8h 44m     |    |            |    | Sa, 9. Mär  |
| So, 10. Mär |               | 20:03 – 04:44*             | 8h 40m     | AN <sub>+</sub> bis AN <sub>-</sub> | ●    | 06:56      | 18:28      | 04:47                      | 39m        | 05:26 | 37m        | 06:03 | 34m        | 06:38      | 11h 33m    | 18:12                   | 34m        | 18:46 | 37m        | 19:24 | 39m        | 20:03    | 12h 24m                    | 8h 40m     |    |            |    | So, 10. Mär |
| Mo, 11. Mär |               | 20:05 – 04:42*             | 8h 36m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 07:10      | 19:59      | 04:44                      | 39m        | 05:23 | 37m        | 06:01 | 34m        | 06:36      | 11h 37m    | 18:13                   | 34m        | 18:48 | 37m        | 19:26 | 39m        | 20:05    | 12h 20m                    | 8h 36m     |    |            |    | Mo, 11. Mär |
| Di, 12. Mär |               | 21:29 – 04:39*             | 7h 10m     | M <sub>7</sub> bis AN <sub>-</sub>  |      | 07:24      | 21:29      | 04:42                      | 39m        | 05:21 | 37m        | 05:59 | 34m        | 06:34      | 11h 41m    | 18:15                   | 34m        | 18:50 | 37m        | 19:28 | 39m        | 20:07    | 12h 16m                    | 8h 32m     |    |            |    | Di, 12. Mär |
| Mi, 13. Mär |               | 22:59 – 04:37*             | 5h 38m     | M <sub>7</sub> bis AN <sub>-</sub>  |      | 07:40      | 22:59      | 04:39                      | 39m        | 05:19 | 37m        | 05:57 | 34m        | 06:31      | 11h 45m    | 18:17                   | 34m        | 18:52 | 37m        | 19:29 | 39m        | 20:09    | 12h 12m                    | 8h 28m     |    |            |    | Mi, 13. Mär |
| Do, 14. Mär |               | 00:27* – 04:35*            | 4h 07m     | M <sub>7</sub> bis AN <sub>-</sub>  |      | 07:59      | —:—        | 04:37                      | 39m        | 05:17 | 37m        | 05:54 | 34m        | 06:29      | 11h 49m    | 18:18                   | 34m        | 18:53 | 37m        | 19:31 | 39m        | 20:11    | 12h 08m                    | 8h 23m     |    |            |    | Do, 14. Mär |
| Fr, 15. Mär |               | 01:50* – 04:32*            | 2h 42m     | M <sub>7</sub> bis AN <sub>-</sub>  |      | 08:23      | 00:27      | 04:35                      | 39m        | 05:14 | 37m        | 05:52 | 34m        | 06:27      | 11h 52m    | 18:20                   | 34m        | 18:55 | 37m        | 19:33 | 39m        | 20:13    | 12h 04m                    | 8h 19m     |    |            |    | Fr, 15. Mär |
| Sa, 16. Mär |               | 03:01* – 04:30*            | 1h 28m     | M <sub>7</sub> bis AN <sub>-</sub>  |      | 08:57      | 01:50      | 04:32                      | 39m        | 05:12 | 37m        | 05:50 | 34m        | 06:25      | 11h 56m    | 18:22                   | 34m        | 18:57 | 37m        | 19:35 | 40m        | 20:15    | 12h 00m                    | 8h 15m     |    |            |    | Sa, 16. Mär |
| So, 17. Mär |               | 03:57* – 04:27*            | 29m        | M <sub>7</sub> bis AN <sub>-</sub>  | ●    | 09:43      | 03:01      | 04:30                      | 39m        | 05:10 | 37m        | 05:48 | 34m        | 06:22      | 12h 00m    | 18:23                   | 35m        | 18:58 | 38m        | 19:36 | 40m        | 20:17    | 11h 57m                    | 8h 10m     |    |            |    | So, 17. Mär |
| Mo, 18. Mär |               | —:~:~:~                    | —          | Mond stört                          |      | 10:42      | 03:57      | 04:27                      | 40m        | 05:07 | 37m        | 05:45 | 34m        | 06:20      | 12h 04m    | 18:25                   | 35m        | 19:00 | 38m        | 19:38 | 40m        | 20:18    | 11h 53m                    | 8h 06m     |    |            |    | Mo, 18. Mär |
| Di, 19. Mär |               | —:~:~:~                    | —          | Mond stört                          |      | 11:50      | 04:38      | 04:25                      | 40m        | 05:05 | 38m        | 05:43 | 34m        | 06:18      | 12h 08m    | 18:27                   | 35m        | 19:02 | 38m        | 19:40 | 40m        | 20:20    | 11h 49m                    | 8h 01m     |    |            |    | Di, 19. Mär |
| Mi, 20. Mär |               | —:~:~:~                    | —          | Mond stört                          |      | 13:03      | 05:06      | 04:22                      | 40m        | 05:03 | 38m        | 05:41 | 34m        | 06:16      | 12h 12m    | 18:28                   | 35m        | 19:03 | 38m        | 19:42 | 40m        | 20:22    | 11h 45m                    | 7h 57m     |    |            |    | Mi, 20. Mär |
| Do, 21. Mär |               | —:~:~:~                    | —          | Mond stört                          |      | 14:17      | 05:27      | 04:20                      | 40m        | 05:00 | 38m        | 05:39 | 35m        | 06:14      | 12h 16m    | 18:30                   | 35m        | 19:05 | 38m        | 19:43 | 40m        | 20:24    | 11h 41m                    | 7h 52m     |    |            |    | Do, 21. Mär |
| Fr, 22. Mär |               | —:~:~:~                    | —          | Mond stört                          |      | 15:29      | 05:42      | 04:17                      | 40m        | 04:58 | 38m        | 05:36 | 35m        | 06:11      | 12h 20m    | 18:32                   | 35m        | 19:07 | 38m        | 19:45 | 41m        | 20:26    | 11h 37m                    | 7h 48m     |    |            |    | Fr, 22. Mär |
| Sa, 23. Mär |               | —:~:~:~                    | —          | Mond stört                          |      | 16:39      | 05:54      | 04:14                      | 41m        | 04:55 | 38m        | 05:34 | 35m        | 06:09      | 12h 24m    | 18:33                   | 35m        | 19:08 | 38m        | 19:47 | 41m        | 20:28    | 11h 33m                    | 7h 43m     |    |            |    | Sa, 23. Mär |
| So, 24. Mär |               | —:~:~:~                    | —          | Mond stört                          |      | 17:49      | 06:05      | 04:12                      | 41m        | 04:53 | 38m        | 05:32 | 35m        | 06:07      | 12h 28m    | 18:35                   | 35m        | 19:10 | 38m        | 19:49 | 41m        | 20:30    | 11h 29m                    | 7h 38m     |    |            |    | So, 24. Mär |
| Mo, 25. Mär |               | —:~:~:~                    | —          | Mond stört                          | ○    | 18:58      | 06:15      | 04:09                      | 41m        | 04:51 | 38m        | 05:29 | 35m        | 06:05      | 12h 31m    | 18:36                   | 35m        | 19:12 | 38m        | 19:51 | 41m        | 20:32    | 11h 25m                    | 7h 34m     |    |            |    | Mo, 25. Mär |
| Di, 26. Mär |               | —:~:~:~                    | —          | Mond stört                          |      | 20:08      | 06:25      | 04:07                      | 41m        | 04:48 | 38m        | 05:27 | 35m        | 06:02      | 12h 35m    | 18:38                   | 35m        | 19:13 | 38m        | 19:52 | 41m        | 20:34    | 11h 21m                    | 7h 29m     |    |            |    | Di, 26. Mär |
| Mi, 27. Mär |               | 20:37 – 21:21              | 43m        | AN <sub>+</sub> bis M <sub>7</sub>  |      | 21:21      | 06:36      | 04:04                      | 41m        | 04:46 | 38m        | 05:25 | 35m        | 06:00      | 12h 39m    | 18:40                   | 35m        | 19:15 | 39m        | 19:54 | 42m        | 20:37    | 11h 18m                    | 7h 24m     |    |            |    | Mi, 27. Mär |
| Do, 28. Mär |               | 20:39 – 22:36              | 1h 57m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 22:36      | 06:49      | 04:01                      | 42m        | 04:43 | 39m        | 05:22 | 35m        | 05:58      | 12h 43m    | 18:41                   | 35m        | 19:17 | 39m        | 19:56 | 42m        | 20:39    | 11h 14m                    | 7h 19m     |    |            |    | Do, 28. Mär |
| Fr, 29. Mär |               | 20:41 – 23:53              | 3h 11m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 23:53      | 07:07      | 03:59                      | 42m        | 04:41 | 39m        | 05:20 | 35m        | 05:56      | 12h 47m    | 18:43                   | 35m        | 19:19 | 39m        | 19:58 | 42m        | 20:41    | 11h 10m                    | 7h 15m     |    |            |    | Fr, 29. Mär |
| Sa, 30. Mär |               | 20:43 – 01:08*             | 4h 25m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | —:—        | 07:30      | 03:56                      | 42m        | 04:38 | 39m        | 05:18 | 35m        | 05:53      | 12h 51m    | 18:45                   | 35m        | 19:20 | 39m        | 20:00 | 43m        | 20:43    | 11h 06m                    | 7h 10m     |    |            |    | Sa, 30. Mär |
| So, 31. Mär | MESZ          | 21:45 – 03:16*             | 5h 31m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 02:08      | 09:04      | 04:53                      | 42m        | 05:36 | 39m        | 06:16 | 35m        | 06:51      | 12h 55m    | 19:46                   | 35m        | 20:22 | 39m        | 21:02 | 43m        | 21:45    | 11h 02m                    | 7h 05m     |    |            |    | So, 31. Mär |
| Mo, 1. Apr  | MESZ          | 21:47 – 04:12*             | 6h 24m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 03:16      | 09:53      | 04:50                      | 43m        | 05:34 | 39m        | 06:13 | 35m        | 06:49      | 12h 59m    | 19:48                   | 35m        | 20:24 | 39m        | 21:04 | 43m        | 21:47    | 10h 58m                    | 7h 00m     |    |            |    | Mo, 1. Apr  |
| Di, 2. Apr  | MESZ          | 21:49 – 04:45*             | 6h 55m     | AN <sub>+</sub> bis AN <sub>-</sub> | ●    | 04:12      | 11:00      | 04:48                      | 43m        | 05:31 | 39m        | 06:11 | 35m        | 06:47      | 13h 02m    | 19:50                   | 35m        | 20:25 | 40m        | 21    |            |          |                            |            |    |            |    |             |

| 1           | 2             | 3                          | 4          | 5                                   | 6    | 7          | 8          | 9                          | 10         | 11    | 12         | 13    | 14         | 15         | 16         | 17                      | 18         | 19    | 20         | 21    | 22         | 23       | 24                         | 25         | 26 | 27         | 28 | 29          |
|-------------|---------------|----------------------------|------------|-------------------------------------|------|------------|------------|----------------------------|------------|-------|------------|-------|------------|------------|------------|-------------------------|------------|-------|------------|-------|------------|----------|----------------------------|------------|----|------------|----|-------------|
| 2024        | Zeit-<br>zone | Astr. dunkel und kein Mond |            |                                     | Mond |            |            | Beginn der Morgendämmerung |            |       |            |       | Sonne      |            |            | Ende der Abenddämmerung |            |       |            |       | Nacht      | Astr. N. | Naut. dunkel und kein Mond |            |    | 2024       |    |             |
|             |               |                            | $\Delta t$ |                                     | Ph.  | $\nearrow$ | $\searrow$ | Astr.                      | $\Delta t$ | Naut. | $\Delta t$ | Bürg. | $\Delta t$ | $\nearrow$ | $\Delta t$ | $\searrow$              | $\Delta t$ | Bürg. | $\Delta t$ | Naut. | $\Delta t$ | Astr.    | $\Delta t$                 | $\Delta t$ |    | $\Delta t$ |    |             |
| Mi, 10. Apr | MESZ          | 22:55 – 04:22*             | 5h 26m     | M <sub>\</sub> bis AN <sub>\</sub>  |      | 07:00      | 22:55      | 04:25                      | 46m        | 05:11 | 41m        | 05:52 | 36m        | 06:29      | 13h 33m    | 20:03                   | 36m        | 20:39 | 41m        | 21:21 | 46m        | 22:08    | 10h 24m                    | 6h 13m     |    |            |    | Mi, 10. Apr |
| Do, 11. Apr | MESZ          | 00:24* – 04:19*            | 3h 54m     | M <sub>\</sub> bis AN <sub>\</sub>  |      | 07:22      | —:—        | 04:22                      | 46m        | 05:09 | 41m        | 05:50 | 36m        | 06:27      | 13h 37m    | 20:04                   | 36m        | 20:41 | 41m        | 21:23 | 47m        | 22:10    | 10h 20m                    | 6h 08m     |    |            |    | Do, 11. Apr |
| Fr, 12. Apr | MESZ          | 01:44* – 04:16*            | 2h 31m     | M <sub>\</sub> bis AN <sub>\</sub>  |      | 07:52      | 00:24      | 04:19                      | 47m        | 05:06 | 41m        | 05:48 | 36m        | 06:25      | 13h 41m    | 20:06                   | 37m        | 20:43 | 42m        | 21:25 | 47m        | 22:13    | 10h 16m                    | 6h 02m     |    |            |    | Fr, 12. Apr |
| Sa, 13. Apr | MESZ          | 02:49* – 04:13*            | 1h 23m     | M <sub>\</sub> bis AN <sub>\</sub>  |      | 08:33      | 01:44      | 04:16                      | 47m        | 05:04 | 42m        | 05:46 | 36m        | 06:23      | 13h 44m    | 20:08                   | 37m        | 20:45 | 42m        | 21:27 | 48m        | 22:15    | 10h 12m                    | 5h 57m     |    |            |    | Sa, 13. Apr |
| So, 14. Apr | MESZ          | 03:37* – 04:10*            | 33m        | M <sub>\</sub> bis AN <sub>\</sub>  |      | 09:29      | 02:49      | 04:13                      | 48m        | 05:01 | 42m        | 05:43 | 37m        | 06:21      | 13h 48m    | 20:09                   | 37m        | 20:47 | 42m        | 21:29 | 48m        | 22:18    | 10h 09m                    | 5h 51m     |    |            |    | So, 14. Apr |
| Mo, 15. Apr | MESZ          | —:—:—:—                    | –          | Mond stört                          | ☾    | 10:36      | 03:37      | 04:10                      | 48m        | 04:58 | 42m        | 05:41 | 37m        | 06:18      | 13h 52m    | 20:11                   | 37m        | 20:48 | 42m        | 21:31 | 49m        | 22:21    | 10h 05m                    | 5h 46m     |    |            |    | Mo, 15. Apr |
| Di, 16. Apr | MESZ          | —:—:—:—                    | –          | Mond stört                          |      | 11:50      | 04:10      | 04:07                      | 49m        | 04:56 | 42m        | 05:39 | 37m        | 06:16      | 13h 56m    | 20:13                   | 37m        | 20:50 | 43m        | 21:33 | 49m        | 22:23    | 10h 01m                    | 5h 40m     |    |            |    | Di, 16. Apr |
| Mi, 17. Apr | MESZ          | —:—:—:—                    | –          | Mond stört                          |      | 13:04      | 04:33      | 04:04                      | 49m        | 04:53 | 43m        | 05:37 | 37m        | 06:14      | 13h 59m    | 20:14                   | 37m        | 20:52 | 43m        | 21:35 | 50m        | 22:26    | 9h 57m                     | 5h 34m     |    |            |    | Mi, 17. Apr |
| Do, 18. Apr | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 14:17      | 04:50      | 04:01                      | 50m        | 04:51 | 43m        | 05:34 | 37m        | 06:12      | 14h 03m    | 20:16                   | 37m        | 20:54 | 43m        | 21:38 | 50m        | 22:28    | 9h 54m                     | 5h 29m     |    |            |    | Do, 18. Apr |
| Fr, 19. Apr | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 15:28      | 05:03      | 03:57                      | 50m        | 04:48 | 43m        | 05:32 | 37m        | 06:10      | 14h 07m    | 20:17                   | 38m        | 20:56 | 44m        | 21:40 | 51m        | 22:31    | 9h 50m                     | 5h 23m     |    |            |    | Fr, 19. Apr |
| Sa, 20. Apr | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 16:37      | 05:14      | 03:54                      | 51m        | 04:46 | 44m        | 05:30 | 38m        | 06:08      | 14h 11m    | 20:19                   | 38m        | 20:57 | 44m        | 21:42 | 52m        | 22:34    | 9h 46m                     | 5h 17m     |    |            |    | Sa, 20. Apr |
| So, 21. Apr | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 17:46      | 05:24      | 03:51                      | 52m        | 04:43 | 44m        | 05:28 | 38m        | 06:06      | 14h 14m    | 20:21                   | 38m        | 20:59 | 44m        | 21:44 | 52m        | 22:37    | 9h 43m                     | 5h 11m     |    |            |    | So, 21. Apr |
| Mo, 22. Apr | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 18:56      | 05:34      | 03:48                      | 52m        | 04:41 | 44m        | 05:26 | 38m        | 06:04      | 14h 18m    | 20:22                   | 38m        | 21:01 | 45m        | 21:46 | 53m        | 22:40    | 9h 39m                     | 5h 05m     |    |            |    | Mo, 22. Apr |
| Di, 23. Apr | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 20:08      | 05:45      | 03:45                      | 53m        | 04:38 | 45m        | 05:23 | 38m        | 06:02      | 14h 21m    | 20:24                   | 38m        | 21:03 | 45m        | 21:48 | 54m        | 22:42    | 9h 36m                     | 4h 59m     |    |            |    | Di, 23. Apr |
| Mi, 24. Apr | MESZ          | —:~:~:~:~                  | –          | Mond stört                          | ☾    | 21:23      | 05:57      | 03:42                      | 54m        | 04:36 | 45m        | 05:21 | 38m        | 06:00      | 14h 25m    | 20:26                   | 39m        | 21:05 | 45m        | 21:50 | 54m        | 22:45    | 9h 32m                     | 4h 53m     |    |            |    | Mi, 24. Apr |
| Do, 25. Apr | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 22:41      | 06:13      | 03:38                      | 54m        | 04:33 | 45m        | 05:19 | 38m        | 05:58      | 14h 29m    | 20:27                   | 39m        | 21:06 | 46m        | 21:52 | 55m        | 22:48    | 9h 28m                     | 4h 46m     |    |            |    | Do, 25. Apr |
| Fr, 26. Apr | MESZ          | 22:51 – 23:58              | 1h 06m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 23:58      | 06:35      | 03:35                      | 55m        | 04:31 | 46m        | 05:17 | 39m        | 05:56      | 14h 32m    | 20:29                   | 39m        | 21:08 | 46m        | 21:55 | 56m        | 22:51    | 9h 25m                     | 4h 40m     |    |            |    | Fr, 26. Apr |
| Sa, 27. Apr | MESZ          | 22:54 – 01:09*             | 2h 14m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | —:—        | 07:06      | 03:32                      | 56m        | 04:28 | 46m        | 05:15 | 39m        | 05:54      | 14h 36m    | 20:30                   | 39m        | 21:10 | 46m        | 21:57 | 57m        | 22:54    | 9h 21m                     | 4h 34m     |    |            |    | Sa, 27. Apr |
| So, 28. Apr | MESZ          | 22:57 – 02:09*             | 3h 11m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 01:09      | 07:50      | 03:28                      | 57m        | 04:26 | 46m        | 05:13 | 39m        | 05:52      | 14h 39m    | 20:32                   | 39m        | 21:12 | 47m        | 21:59 | 58m        | 22:57    | 9h 18m                     | 4h 27m     |    |            |    | So, 28. Apr |
| Mo, 29. Apr | MESZ          | 23:01 – 02:53*             | 3h 52m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 02:09      | 08:50      | 03:25                      | 58m        | 04:23 | 47m        | 05:11 | 39m        | 05:50      | 14h 43m    | 20:34                   | 40m        | 21:14 | 47m        | 22:01 | 59m        | 23:01    | 9h 14m                     | 4h 21m     |    |            |    | Mo, 29. Apr |
| Di, 30. Apr | MESZ          | 23:04 – 03:18*             | 4h 14m     | AN <sub>+</sub> bis AN <sub>\</sub> |      | 02:53      | 10:06      | 03:22                      | 59m        | 04:21 | 47m        | 05:08 | 39m        | 05:48      | 14h 46m    | 20:35                   | 40m        | 21:15 | 48m        | 22:03 | 1h 00m     | 23:04    | 9h 11m                     | 4h 14m     |    |            |    | Di, 30. Apr |
| Mi, 1. Mai  | MESZ          | 23:07 – 03:15*             | 4h 07m     | AN <sub>+</sub> bis AN <sub>\</sub> | ☾    | 03:25      | 11:31      | 03:18                      | 1h 00m     | 04:18 | 48m        | 05:06 | 40m        | 05:47      | 14h 50m    | 20:37                   | 40m        | 21:17 | 48m        | 22:06 | 1h 01m     | 23:07    | 9h 07m                     | 4h 07m     |    |            |    | Mi, 1. Mai  |
| Do, 2. Mai  | MESZ          | 23:10 – 03:11*             | 4h 00m     | AN <sub>+</sub> bis AN <sub>\</sub> |      | 03:48      | 12:58      | 03:15                      | 1h 01m     | 04:16 | 48m        | 05:04 | 40m        | 05:45      | 14h 53m    | 20:38                   | 40m        | 21:19 | 48m        | 22:08 | 1h 02m     | 23:10    | 9h 04m                     | 4h 00m     |    |            |    | Do, 2. Mai  |
| Fr, 3. Mai  | MESZ          | 23:14 – 03:08*             | 3h 53m     | AN <sub>+</sub> bis AN <sub>\</sub> |      | 04:06      | 14:26      | 03:11                      | 1h 02m     | 04:14 | 48m        | 05:02 | 40m        | 05:43      | 14h 57m    | 20:40                   | 40m        | 21:21 | 49m        | 22:10 | 1h 03m     | 23:14    | 9h 01m                     | 3h 53m     |    |            |    | Fr, 3. Mai  |
| Sa, 4. Mai  | MESZ          | 23:17 – 03:04*             | 3h 46m     | AN <sub>+</sub> bis AN <sub>\</sub> |      | 04:20      | 15:53      | 03:08                      | 1h 03m     | 04:11 | 49m        | 05:00 | 40m        | 05:41      | 15h 00m    | 20:42                   | 41m        | 21:23 | 49m        | 22:12 | 1h 04m     | 23:17    | 8h 57m                     | 3h 46m     |    |            |    | Sa, 4. Mai  |
| So, 5. Mai  | MESZ          | 23:21 – 03:00*             | 3h 39m     | AN <sub>+</sub> bis AN <sub>\</sub> |      | 04:34      | 17:21      | 03:04                      | 1h 04m     | 04:09 | 49m        | 04:58 | 41m        | 05:40      | 15h 03m    | 20:43                   | 41m        | 21:25 | 50m        | 22:15 | 1h 05m     | 23:21    | 8h 54m                     | 3h 39m     |    |            |    | So, 5. Mai  |
| Mo, 6. Mai  | MESZ          | 23:24 – 02:57*             | 3h 32m     | AN <sub>+</sub> bis AN <sub>\</sub> |      | 04:47      | 18:50      | 03:00                      | 1h 05m     | 04:06 | 50m        | 04:56 | 41m        | 05:38      | 15h 06m    | 20:45                   | 41m        | 21:26 | 50m        | 22:17 | 1h 07m     | 23:24    | 8h 51m                     | 3h 32m     |    |            |    | Mo, 6. Mai  |
| Di, 7. Mai  | MESZ          | 23:28 – 02:53*             | 3h 24m     | AN <sub>+</sub> bis AN <sub>\</sub> |      | 05:03      | 20:20      | 02:57                      | 1h 07m     | 04:04 | 50m        | 04:55 | 41m        | 05:36      | 15h 10m    | 20:46                   | 41m        | 21:28 | 51m        | 22:19 | 1h 08m     | 23:28    | 8h 48m                     | 3h 24m     |    |            |    | Di, 7. Mai  |
| Mi, 8. Mai  | MESZ          | 23:32 – 02:49*             | 3h 17m     | AN <sub>+</sub> bis AN <sub>\</sub> | ☾    | 05:22      | 21:51      | 02:53                      | 1h 08m     | 04:02 | 51m        | 04:53 | 41m        | 05:34      | 15h 13m    | 20:48                   | 42m        | 21:30 | 51m        | 22:22 | 1h 10m     | 23:32    | 8h 44m                     | 3h 17m     |    |            |    | Mi, 8. Mai  |
| Do, 9. Mai  | MESZ          | 23:36 – 02:45*             | 3h 09m     | AN <sub>+</sub> bis AN <sub>\</sub> |      | 05:48      | 23:18      | 02:49                      | 1h 10m     | 03:59 | 51m        | 04:51 | 42m        | 05:33      | 15h 16m    | 20:49                   | 42m        | 21:32 | 52m        | 22:24 | 1h 11m     | 23:36    | 8h 41m                     | 3h 09m     |    |            |    | Do, 9. Mai  |
| Fr, 10. Mai | MESZ          | 00:32* – 02:41*            | 2h 09m     | M <sub>\</sub> bis AN <sub>\</sub>  |      | 06:24      | —:—        | 02:45                      | 1h 11m     | 03:57 | 52m        | 04:49 | 42m        | 05:31      | 15h 19m    | 20:51                   | 42m        | 21:34 | 52m        | 22:26 | 1h 13m     | 23:40    | 8h 38m                     | 3h 01m     |    |            |    | Fr, 10. Mai |
| Sa, 11. Mai | MESZ          | 01:28* – 02:37*            | 1h 08m     | M <sub>\</sub> bis AN <sub>\</sub>  |      | 07:14      | 00:32      | 02:41                      | 1h 13m     | 03:54 | 52m        | 04:47 | 42m        | 05:30      | 15h 22m    | 20:52                   | 42m        | 21:35 | 53m        | 22:28 | 1h 15m     | 23:44    | 8h 35m                     | 2h 53m     |    |            |    | Sa, 11. Mai |
| So, 12. Mai | MESZ          | 02:08* – 02:33*            | 24m        | M <sub>\</sub> bis AN <sub>\</sub>  |      | 08:18      | 01:28      | 02:37                      | 1h 15m     | 03:52 | 53m        | 04:45 | 42m        | 05:28      | 15h 25m    | 20:54                   | 43m        | 21:37 | 53m        | 22:31 | 1h 17m     | 23:48    | 8h 32m                     | 2h 44m     |    |            |    | So, 12. Mai |
| Mo, 13. Mai | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 09:31      | 02:08      | 02:33                      | 1h 17m     | 03:50 | 53m        | 04:44 | 43m        | 05:27      | 15h 28m    | 20:55                   | 43m        | 21:39 | 54m        | 22:33 | 1h 19m     | 23:52    | 8h 29m                     | 2h 35m     |    |            |    | Mo, 13. Mai |
| Di, 14. Mai | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 10:47      | 02:36      | 02:28                      | 1h 19m     | 03:48 | 54m        | 04:42 | 43m        | 05:25      | 15h 31m    | 20:57                   | 43m        | 21:41 | 54m        | 22:35 | 1h 21m     | 23:57    | 8h 26m                     | 2h 26m     |    |            |    | Di, 14. Mai |
| Mi, 15. Mai | MESZ          | —:~:~:~:~                  | –          | Mond stört                          | ☾    | 12:02      | 02:55      | 02:24                      | 1h 21m     | 03:45 | 54m        | 04:40 | 43m        | 05:24      | 15h 34m    | 20:58                   | 43m        | 21:42 | 55m        | 22:37 | 1h 24m     | 00:02*   | 8h 23m                     | 2h 17m     |    |            |    | Mi, 15. Mai |
| Do, 16. Mai | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 13:14      | 03:10      | 02:19                      | 1h 24m     | 03:43 | 55m        | 04:38 | 43m        | 05:22      | 15h 37m    | 21:00                   | 44m        | 21:44 | 55m        | 22:40 | 1h 27m     | 00:07*   | 8h 20m                     | 2h 07m     |    |            |    | Do, 16. Mai |
| Fr, 17. Mai | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 14:24      | 03:22      | 02:14                      | 1h 27m     | 03:41 | 55m        | 04:37 | 44m        | 05:21      | 15h 40m    | 21:01                   | 44m        | 21:46 | 56m        | 22:42 | 1h 30m     | 00:12*   | 8h 18m                     | 1h 56m     |    |            |    | Fr, 17. Mai |
| Sa, 18. Mai | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 15:33      | 03:32      | 02:09                      | 1h 30m     | 03:39 | 56m        | 04:35 | 44m        | 05:19      | 15h 43m    | 21:03                   | 44m        | 21:47 | 56m        | 22:44 | 1h 33m     | 00:18*   | 8h 15m                     | 1h 45m     |    |            |    | Sa, 18. Mai |
| So, 19. Mai | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 16:42      | 03:42      | 02:03                      | 1h 33m     | 03:37 | 56m        | 04:34 | 44m        | 05:18      | 15h 46m    | 21:04                   | 44m        | 21:49 | 57m        | 22:46 | 1h 37m     | 00:24*   | 8h 12m                     | 1h 32m     |    |            |    | So, 19. Mai |
| Mo, 20. Mai | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 17:53      | 03:52      | 01:57                      | 1h 37m     | 03:35 | 57m        | 04:32 | 44m        | 05:17      | 15h 48m    | 21:06                   | 45m        | 21:51 | 58m        | 22:49 | 1h 42m     | 00:31*   | 8h 10m                     | 1h 18m     |    |            |    | Mo, 20. Mai |
| Di, 21. Mai | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 19:08      | 04:04      | 01:50                      | 1h 42m     | 03:32 | 58m        | 04:31 | 45m        | 05:16      | 15h 51m    | 21:07                   | 45m        | 21:52 | 58m        | 22:51 | 1h 48m     | 00:40*   | 8h 07m                     | 1h 02m     |    |            |    | Di, 21. Mai |
| Mi, 22. Mai | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 20:25      | 04:19</    |                            |            |       |            |       |            |            |            |                         |            |       |            |       |            |          |                            |            |    |            |    |             |

| 1           | 2             | 3                          | 4          | 5        | 6    | 7          | 8          | 9                          | 10         | 11    | 12         | 13    | 14         | 15         | 16         | 17                      | 18         | 19    | 20         | 21    | 22         | 23       | 24                         | 25         | 26              | 27         | 28                                  | 29          |
|-------------|---------------|----------------------------|------------|----------|------|------------|------------|----------------------------|------------|-------|------------|-------|------------|------------|------------|-------------------------|------------|-------|------------|-------|------------|----------|----------------------------|------------|-----------------|------------|-------------------------------------|-------------|
| 2024        | Zeit-<br>zone | Astr. dunkel und kein Mond |            |          | Mond |            |            | Beginn der Morgendämmerung |            |       |            |       | Sonne      |            |            | Ende der Abenddämmerung |            |       |            |       | Nacht      | Astr. N. | Naut. dunkel und kein Mond |            |                 | 2024       |                                     |             |
|             |               |                            | $\Delta t$ |          | Ph.  | $\nearrow$ | $\searrow$ | Astr.                      | $\Delta t$ | Naut. | $\Delta t$ | Bürg. | $\Delta t$ | $\nearrow$ | $\Delta t$ | $\searrow$              | $\Delta t$ | Bürg. | $\Delta t$ | Naut. | $\Delta t$ | Astr.    | $\Delta t$                 | $\Delta t$ |                 | $\Delta t$ |                                     |             |
| Do, 30. Mai | MESZ          |                            |            | Astr. MD | ☾    | 02:12      | 12:12      | —:—                        |            | 03:16 | 1h 03m     | 04:19 | 47m        | 05:06      | 16h 11m    | 21:18                   | 47m        | 22:05 | 1h 03m     | 23:09 |            | —:—      | 7h 47m                     |            | 23:09 – 02:27*  | 3h 17m     | ND <sub>+</sub> bis M <sub>7</sub>  | Do, 30. Mai |
| Fr, 31. Mai | MESZ          |                            |            | Astr. MD |      | 02:27      | 13:37      | —:—                        |            | 03:14 | 1h 03m     | 04:18 | 47m        | 05:05      | 16h 13m    | 21:19                   | 47m        | 22:07 | 1h 04m     | 23:11 |            | —:—      | 7h 45m                     |            | 23:11 – 02:40*  | 3h 29m     | ND <sub>+</sub> bis M <sub>7</sub>  | Fr, 31. Mai |
| Sa, 1. Jun  | MESZ          |                            |            | Astr. MD |      | 02:40      | 15:01      | —:—                        |            | 03:12 | 1h 04m     | 04:17 | 47m        | 05:05      | 16h 15m    | 21:20                   | 47m        | 22:08 | 1h 05m     | 23:13 |            | —:—      | 7h 43m                     |            | 23:13 – 02:53*  | 3h 40m     | ND <sub>+</sub> bis M <sub>7</sub>  | Sa, 1. Jun  |
| So, 2. Jun  | MESZ          |                            |            | Astr. MD |      | 02:53      | 16:27      | —:—                        |            | 03:11 | 1h 05m     | 04:16 | 47m        | 05:04      | 16h 17m    | 21:21                   | 48m        | 22:09 | 1h 05m     | 23:15 |            | —:—      | 7h 42m                     |            | 23:15 – 03:08*  | 3h 52m     | ND <sub>+</sub> bis M <sub>7</sub>  | So, 2. Jun  |
| Mo, 3. Jun  | MESZ          |                            |            | Astr. MD |      | 03:08      | 17:54      | —:—                        |            | 03:10 | 1h 05m     | 04:15 | 48m        | 05:03      | 16h 18m    | 21:22                   | 48m        | 22:10 | 1h 06m     | 23:17 |            | —:—      | 7h 40m                     |            | 23:17 – 03:08*  | 3h 51m     | ND <sub>+</sub> bis ND <sub>-</sub> | Mo, 3. Jun  |
| Di, 4. Jun  | MESZ          |                            |            | Astr. MD |      | 03:25      | 19:23      | —:—                        |            | 03:08 | 1h 06m     | 04:14 | 48m        | 05:03      | 16h 20m    | 21:23                   | 48m        | 22:12 | 1h 06m     | 23:18 |            | —:—      | 7h 38m                     |            | 23:18 – 03:07*  | 3h 48m     | ND <sub>+</sub> bis ND <sub>-</sub> | Di, 4. Jun  |
| Mi, 5. Jun  | MESZ          |                            |            | Astr. MD |      | 03:47      | 20:50      | —:—                        |            | 03:07 | 1h 06m     | 04:14 | 48m        | 05:02      | 16h 21m    | 21:24                   | 48m        | 22:13 | 1h 07m     | 23:20 |            | —:—      | 7h 37m                     |            | 23:20 – 03:06*  | 3h 45m     | ND <sub>+</sub> bis ND <sub>-</sub> | Mi, 5. Jun  |
| Do, 6. Jun  | MESZ          |                            |            | Astr. MD | ☀    | 04:18      | 22:10      | —:—                        |            | 03:06 | 1h 07m     | 04:13 | 48m        | 05:01      | 16h 23m    | 21:25                   | 48m        | 22:14 | 1h 07m     | 23:21 |            | —:—      | 7h 36m                     |            | 23:21 – 03:05*  | 3h 43m     | ND <sub>+</sub> bis ND <sub>-</sub> | Do, 6. Jun  |
| Fr, 7. Jun  | MESZ          |                            |            | Astr. MD |      | 05:01      | 23:15      | —:—                        |            | 03:05 | 1h 07m     | 04:12 | 48m        | 05:01      | 16h 24m    | 21:26                   | 48m        | 22:15 | 1h 08m     | 23:23 |            | —:—      | 7h 34m                     |            | 23:23 – 03:03*  | 3h 40m     | ND <sub>+</sub> bis ND <sub>-</sub> | Fr, 7. Jun  |
| Sa, 8. Jun  | MESZ          |                            |            | Astr. MD |      | 06:00      | —:—        | —:—                        |            | 03:03 | 1h 08m     | 04:12 | 48m        | 05:01      | 16h 25m    | 21:27                   | 49m        | 22:16 | 1h 08m     | 23:24 |            | —:—      | 7h 33m                     |            | 00:03* – 03:02* | 2h 59m     | M <sub>\</sub> bis ND <sub>-</sub>  | Sa, 8. Jun  |
| So, 9. Jun  | MESZ          |                            |            | Astr. MD |      | 07:11      | 00:03      | —:—                        |            | 03:02 | 1h 08m     | 04:11 | 49m        | 05:00      | 16h 27m    | 21:27                   | 49m        | 22:16 | 1h 09m     | 23:26 |            | —:—      | 7h 32m                     |            | 00:35* – 03:02* | 2h 26m     | M <sub>\</sub> bis ND <sub>-</sub>  | So, 9. Jun  |
| Mo, 10. Jun | MESZ          |                            |            | Astr. MD |      | 08:27      | 00:35      | —:—                        |            | 03:02 | 1h 09m     | 04:11 | 49m        | 05:00      | 16h 28m    | 21:28                   | 49m        | 22:17 | 1h 09m     | 23:27 |            | —:—      | 7h 31m                     |            | 00:58* – 03:01* | 2h 02m     | M <sub>\</sub> bis ND <sub>-</sub>  | Mo, 10. Jun |
| Di, 11. Jun | MESZ          |                            |            | Astr. MD |      | 09:44      | 00:58      | —:—                        |            | 03:01 | 1h 09m     | 04:10 | 49m        | 05:00      | 16h 29m    | 21:29                   | 49m        | 22:18 | 1h 09m     | 23:28 |            | —:—      | 7h 30m                     |            | 01:15* – 03:00* | 1h 45m     | M <sub>\</sub> bis ND <sub>-</sub>  | Di, 11. Jun |
| Mi, 12. Jun | MESZ          |                            |            | Astr. MD |      | 10:58      | 01:15      | —:—                        |            | 03:00 | 1h 09m     | 04:10 | 49m        | 04:59      | 16h 29m    | 21:29                   | 49m        | 22:19 | 1h 10m     | 23:29 |            | —:—      | 7h 29m                     |            | 01:28* – 02:59* | 1h 31m     | M <sub>\</sub> bis ND <sub>-</sub>  | Mi, 12. Jun |
| Do, 13. Jun | MESZ          |                            |            | Astr. MD |      | 12:09      | 01:28      | —:—                        |            | 02:59 | 1h 10m     | 04:10 | 49m        | 04:59      | 16h 30m    | 21:30                   | 49m        | 22:20 | 1h 10m     | 23:30 |            | —:—      | 7h 29m                     |            | 01:39* – 02:59* | 1h 19m     | M <sub>\</sub> bis ND <sub>-</sub>  | Do, 13. Jun |
| Fr, 14. Jun | MESZ          |                            |            | Astr. MD | ☾    | 13:18      | 01:39      | —:—                        |            | 02:59 | 1h 10m     | 04:09 | 49m        | 04:59      | 16h 31m    | 21:30                   | 49m        | 22:20 | 1h 10m     | 23:31 |            | —:—      | 7h 28m                     |            | 01:49* – 02:58* | 1h 09m     | M <sub>\</sub> bis ND <sub>-</sub>  | Fr, 14. Jun |
| Sa, 15. Jun | MESZ          |                            |            | Astr. MD |      | 14:27      | 01:49      | —:—                        |            | 02:58 | 1h 10m     | 04:09 | 49m        | 04:59      | 16h 32m    | 21:31                   | 49m        | 22:21 | 1h 10m     | 23:32 |            | —:—      | 7h 27m                     |            | 01:59* – 02:58* | 58m        | M <sub>\</sub> bis ND <sub>-</sub>  | Sa, 15. Jun |
| So, 16. Jun | MESZ          |                            |            | Astr. MD |      | 15:37      | 01:59      | —:—                        |            | 02:58 | 1h 10m     | 04:09 | 49m        | 04:59      | 16h 32m    | 21:31                   | 49m        | 22:21 | 1h 11m     | 23:32 |            | —:—      | 7h 27m                     |            | 02:10* – 02:58* | 47m        | M <sub>\</sub> bis ND <sub>-</sub>  | So, 16. Jun |
| Mo, 17. Jun | MESZ          |                            |            | Astr. MD |      | 16:49      | 02:10      | —:—                        |            | 02:58 | 1h 11m     | 04:09 | 49m        | 04:59      | 16h 32m    | 21:32                   | 49m        | 22:22 | 1h 11m     | 23:33 |            | —:—      | 7h 27m                     |            | 02:24* – 02:58* | 33m        | M <sub>\</sub> bis ND <sub>-</sub>  | Mo, 17. Jun |
| Di, 18. Jun | MESZ          |                            |            | Astr. MD |      | 18:05      | 02:24      | —:—                        |            | 02:58 | 1h 11m     | 04:09 | 49m        | 04:59      | 16h 33m    | 21:32                   | 49m        | 22:22 | 1h 11m     | 23:33 |            | —:—      | 7h 26m                     |            | 02:41* – 02:58* | 16m        | M <sub>\</sub> bis ND <sub>-</sub>  | Di, 18. Jun |
| Mi, 19. Jun | MESZ          |                            |            | Astr. MD |      | 19:23      | 02:41      | —:—                        |            | 02:58 | 1h 11m     | 04:09 | 49m        | 04:59      | 16h 33m    | 21:32                   | 49m        | 22:22 | 1h 11m     | 23:34 |            | —:—      | 7h 26m                     |            | —:—:—:—         | —          | Mond stört                          | Mi, 19. Jun |
| Do, 20. Jun | MESZ          |                            |            | Astr. MD |      | 20:41      | 03:06      | —:—                        |            | 02:58 | 1h 11m     | 04:09 | 49m        | 04:59      | 16h 33m    | 21:33                   | 49m        | 22:23 | 1h 11m     | 23:34 |            | —:—      | 7h 26m                     |            | —:—:—:—         | —          | Mond stört                          | Do, 20. Jun |
| Fr, 21. Jun | MESZ          |                            |            | Astr. MD |      | 21:51      | 03:41      | —:—                        |            | 02:58 | 1h 11m     | 04:09 | 49m        | 04:59      | 16h 33m    | 21:33                   | 49m        | 22:23 | 1h 11m     | 23:34 |            | —:—      | 7h 26m                     |            | —:—:—:—         | —          | Mond stört                          | Fr, 21. Jun |
| Sa, 22. Jun | MESZ          |                            |            | Astr. MD | ☉    | 22:47      | 04:32      | —:—                        |            | 02:58 | 1h 11m     | 04:10 | 49m        | 05:00      | 16h 33m    | 21:33                   | 49m        | 22:23 | 1h 11m     | 23:34 |            | —:—      | 7h 26m                     |            | —:—:—:—         | —          | Mond stört                          | Sa, 22. Jun |
| So, 23. Jun | MESZ          |                            |            | Astr. MD |      | 23:28      | 05:41      | —:—                        |            | 02:59 | 1h 11m     | 04:10 | 49m        | 05:00      | 16h 33m    | 21:33                   | 49m        | 22:23 | 1h 11m     | 23:34 |            | —:—      | 7h 27m                     |            | —:—:—:—         | —          | Mond stört                          | So, 23. Jun |
| Mo, 24. Jun | MESZ          |                            |            | Astr. MD |      | 23:57      | 07:03      | —:—                        |            | 02:59 | 1h 11m     | 04:10 | 49m        | 05:00      | 16h 32m    | 21:33                   | 49m        | 22:23 | 1h 11m     | 23:34 |            | —:—      | 7h 27m                     |            | 23:34 – 23:57   | 23m        | ND <sub>+</sub> bis M <sub>7</sub>  | Mo, 24. Jun |
| Di, 25. Jun | MESZ          |                            |            | Astr. MD |      | —:—        | 08:30      | —:—                        |            | 03:00 | 1h 11m     | 04:11 | 49m        | 05:01      | 16h 32m    | 21:33                   | 49m        | 22:23 | 1h 10m     | 23:34 |            | —:—      | 7h 28m                     |            | 23:34 – 00:18*  | 44m        | ND <sub>+</sub> bis M <sub>7</sub>  | Di, 25. Jun |
| Mi, 26. Jun | MESZ          |                            |            | Astr. MD |      | 00:18      | 09:59      | —:—                        |            | 03:00 | 1h 10m     | 04:11 | 49m        | 05:01      | 16h 31m    | 21:33                   | 49m        | 22:23 | 1h 10m     | 23:33 |            | —:—      | 7h 28m                     |            | 23:33 – 00:34*  | 1h 00m     | ND <sub>+</sub> bis M <sub>7</sub>  | Mi, 26. Jun |
| Do, 27. Jun | MESZ          |                            |            | Astr. MD |      | 00:34      | 11:25      | —:—                        |            | 03:01 | 1h 10m     | 04:12 | 49m        | 05:02      | 16h 31m    | 21:33                   | 49m        | 22:23 | 1h 10m     | 23:33 |            | —:—      | 7h 29m                     |            | 23:33 – 00:48*  | 1h 14m     | ND <sub>+</sub> bis M <sub>7</sub>  | Do, 27. Jun |
| Fr, 28. Jun | MESZ          |                            |            | Astr. MD | ☾    | 00:48      | 12:49      | —:—                        |            | 03:02 | 1h 10m     | 04:13 | 49m        | 05:02      | 16h 30m    | 21:33                   | 49m        | 22:22 | 1h 10m     | 23:32 |            | —:—      | 7h 29m                     |            | 23:32 – 01:01*  | 1h 28m     | ND <sub>+</sub> bis M <sub>7</sub>  | Fr, 28. Jun |
| Sa, 29. Jun | MESZ          |                            |            | Astr. MD |      | 01:01      | 14:13      | —:—                        |            | 03:03 | 1h 10m     | 04:13 | 49m        | 05:03      | 16h 29m    | 21:33                   | 49m        | 22:22 | 1h 09m     | 23:32 |            | —:—      | 7h 30m                     |            | 23:32 – 01:14*  | 1h 42m     | ND <sub>+</sub> bis M <sub>7</sub>  | Sa, 29. Jun |
| So, 30. Jun | MESZ          |                            |            | Astr. MD |      | 01:14      | 15:38      | —:—                        |            | 03:04 | 1h 09m     | 04:14 | 49m        | 05:03      | 16h 28m    | 21:32                   | 49m        | 22:22 | 1h 09m     | 23:31 |            | —:—      | 7h 31m                     |            | 23:31 – 01:30*  | 1h 58m     | ND <sub>+</sub> bis M <sub>7</sub>  | So, 30. Jun |
| Mo, 1. Jul  | MESZ          |                            |            | Astr. MD |      | 01:30      | 17:05      | —:—                        |            | 03:05 | 1h 09m     | 04:15 | 49m        | 05:04      | 16h 27m    | 21:32                   | 49m        | 22:21 | 1h 08m     | 23:30 |            | —:—      | 7h 32m                     |            | 23:30 – 01:49*  | 2h 19m     | ND <sub>+</sub> bis M <sub>7</sub>  | Mo, 1. Jul  |
| Di, 2. Jul  | MESZ          |                            |            | Astr. MD |      | 01:49      | 18:31      | —:—                        |            | 03:07 | 1h 09m     | 04:16 | 49m        | 05:05      | 16h 26m    | 21:32                   | 49m        | 22:21 | 1h 08m     | 23:29 |            | —:—      | 7h 33m                     |            | 23:29 – 02:16*  | 2h 46m     | ND <sub>+</sub> bis M <sub>7</sub>  | Di, 2. Jul  |
| Mi, 3. Jul  | MESZ          |                            |            | Astr. MD |      | 02:16      | 19:53      | —:—                        |            | 03:08 | 1h 08m     | 04:16 | 49m        | 05:05      | 16h 25m    | 21:31                   | 48m        | 22:20 | 1h 08m     | 23:28 |            | —:—      | 7h 35m                     |            | 23:28 – 02:54*  | 3h 25m     | ND <sub>+</sub> bis M <sub>7</sub>  | Mi, 3. Jul  |
| Do, 4. Jul  | MESZ          |                            |            | Astr. MD |      | 02:54      | 21:03      | —:—                        |            | 03:09 | 1h 08m     | 04:17 | 48m        | 05:06      | 16h 24m    | 21:31                   | 48m        | 22:19 | 1h 07m     | 23:27 |            | —:—      | 7h 36m                     |            | 23:27 – 03:11*  | 3h 43m     | ND <sub>+</sub> bis ND <sub>-</sub> | Do, 4. Jul  |
| Fr, 5. Jul  | MESZ          |                            |            | Astr. MD |      | 03:46      | 21:56      | —:—                        |            | 03:11 | 1h 07m     | 04:18 | 48m        | 05:07      | 16h 23m    | 21:30                   | 48m        | 22:19 | 1h 07m     | 23:26 |            | —:—      | 7h 37m                     |            | 23:26 – 03:12*  | 3h 46m     | ND <sub>+</sub> bis ND <sub>-</sub> | Fr, 5. Jul  |
| Sa, 6. Jul  | MESZ          |                            |            | Astr. MD | ☀    | 04:52      | 22:34      | —:—                        |            | 03:12 | 1h 07m     | 04:19 | 48m        | 05:08      | 16h 21m    | 21:30                   | 48m        | 22:18 | 1h 06m     | 23:25 |            | —:—      | 7h 39m                     |            | 23:25 – 03:14*  | 3h 49m     | ND <sub>+</sub> bis ND <sub>-</sub> | Sa, 6. Jul  |
| So, 7. Jul  | MESZ          |                            |            | Astr. MD |      | 06:07      | 23:01      | —:—                        |            | 03:14 | 1h 06m     | 04:20 | 48m        | 05:09      | 16h 20m    | 21:29                   | 48m        | 22:17 | 1h 06m     | 23:23 |            | —:—      | 7h 40m                     |            | 23:23 – 03:15*  | 3h 52m     | ND <sub>+</sub> bis ND <sub>-</sub> | So, 7. Jul  |
| Mo, 8. Jul  | MESZ          |                            |            | Astr. MD |      | 07:25      | 23:19      | —:—                        |            | 03:15 | 1h 06m     | 04:22 | 48m        | 05:10      | 16h 18m    | 21:28                   | 48m        | 22:16 | 1h 05m     | 23:22 |            | —:—      | 7h 42m                     |            | 23:22 – 03:17*  | 3h 55m     | ND <sub>+</sub> bis ND <sub>-</sub> | Mo, 8. Jul  |
| Di, 9. Jul  | MESZ          |                            |            | Astr. MD |      | 08:40      | 23:34      | —:—                        |            | 03:17 | 1h 05m     | 04:23 | 48m        | 05:11      | 16h 16m    | 21:28                   | 47m        | 22:16 | 1h 05m     | 23:21 |            | —:—      | 7h 44m                     |            | 23:34 – 03:19*  | 3h 45m     | M <sub>\</sub> bis ND <sub>-</sub>  | Di, 9. Jul  |
| Mi, 10. Jul | MESZ          |                            |            | Astr. MD |      | 09:53      | 23:45      | —:—                        |            | 03:19 | 1h 05m     | 04:24 | 47m        | 05:12      | 16h 15m    | 21:27                   | 47m        | 22:15 | 1h 04m     | 23:19 |            | —:—      | 7h 45m                     |            | 23:45 – 03:21*  | 3h 35m     | M <sub>\</sub> bis ND <sub>-</sub>  | Mi, 10. Jul |
| Do, 11. Jul | MESZ          |                            |            | Astr. MD |      | 11:03      | 23:56      | —:—                        |            | 03:21 | 1h 04m     | 04:25 | 47m        | 05:13      | 16h 13m    | 21:26                   | 47m        | 22:14 | 1h 03m     | 23:17 |            | —:—      | 7h 47m                     |            | 23:56 – 03:23*  | 3h 26m     | M <sub>\</sub> bis ND <sub>-</sub>  | Do, 11. Jul |
| Fr, 12. Jul | MESZ          |                            |            | Astr. MD |      | 12:12      |            |                            |            |       |            |       |            |            |            |                         |            |       |            |       |            |          |                            |            |                 |            |                                     |             |



| 1           | 2     | 3                          | 4          | 5                                   | 6    | 7          | 8          | 9                          | 10         | 11    | 12         | 13    | 14         | 15         | 16         | 17                      | 18         | 19    | 20         | 21    | 22         | 23       | 24                         | 25         | 26 | 27         | 28 | 29          |
|-------------|-------|----------------------------|------------|-------------------------------------|------|------------|------------|----------------------------|------------|-------|------------|-------|------------|------------|------------|-------------------------|------------|-------|------------|-------|------------|----------|----------------------------|------------|----|------------|----|-------------|
| 2024        | Zeit- | Astr. dunkel und kein Mond |            |                                     | Mond |            |            | Beginn der Morgendämmerung |            |       |            |       | Sonne      |            |            | Ende der Abenddämmerung |            |       |            |       | Nacht      | Astr. N. | Naut. dunkel und kein Mond |            |    | 2024       |    |             |
|             | zone  |                            | $\Delta t$ |                                     | Ph.  | $\nearrow$ | $\searrow$ | Astr.                      | $\Delta t$ | Naut. | $\Delta t$ | Bürg. | $\Delta t$ | $\nearrow$ | $\Delta t$ | $\searrow$              | $\Delta t$ | Bürg. | $\Delta t$ | Naut. | $\Delta t$ | Astr.    | $\Delta t$                 | $\Delta t$ |    | $\Delta t$ |    |             |
| Fr, 19. Jul | MESZ  | —:—:—:—                    | —          | Mond stört                          |      | 20:36      | 02:18      | —:—                        |            | 03:37 | 59m        | 04:36 | 45m        | 05:22      | 15h 56m    | 21:18                   | 45m        | 22:04 | 59m        | 23:03 | 1h 56m     | 01:00*   | 8h 05m                     | 42m        |    |            |    | Fr, 19. Jul |
| Sa, 20. Jul | MESZ  | —:—:—:—                    | —          | Mond stört                          |      | 21:24      | 03:20      | 01:42                      | 1h 56m     | 03:39 | 59m        | 04:38 | 45m        | 05:23      | 15h 53m    | 21:17                   | 45m        | 22:02 | 58m        | 23:01 | 1h 48m     | 00:49*   | 8h 07m                     | 1h 03m     |    |            |    | Sa, 20. Jul |
| So, 21. Jul | MESZ  | —:—:~:~:~                  | —          | Mond stört                          | ○    | 21:58      | 04:38      | 01:53                      | 1h 48m     | 03:41 | 58m        | 04:39 | 45m        | 05:25      | 15h 51m    | 21:16                   | 45m        | 22:01 | 58m        | 22:59 | 1h 42m     | 00:41*   | 8h 10m                     | 1h 19m     |    |            |    | So, 21. Jul |
| Mo, 22. Jul | MESZ  | —:~:~:~:~                  | —          | Mond stört                          |      | 22:22      | 06:07      | 02:01                      | 1h 42m     | 03:43 | 58m        | 04:41 | 45m        | 05:26      | 15h 48m    | 21:14                   | 44m        | 21:59 | 57m        | 22:57 | 1h 37m     | 00:34*   | 8h 12m                     | 1h 33m     |    |            |    | Mo, 22. Jul |
| Di, 23. Jul | MESZ  | —:~:~:~:~                  | —          | Mond stört                          |      | 22:40      | 07:38      | 02:08                      | 1h 37m     | 03:45 | 57m        | 04:43 | 44m        | 05:27      | 15h 45m    | 21:13                   | 44m        | 21:58 | 56m        | 22:55 | 1h 33m     | 00:28*   | 8h 15m                     | 1h 45m     |    |            |    | Di, 23. Jul |
| Mi, 24. Jul | MESZ  | —:~:~:~:~                  | —          | Mond stört                          |      | 22:55      | 09:07      | 02:14                      | 1h 33m     | 03:47 | 56m        | 04:44 | 44m        | 05:29      | 15h 43m    | 21:12                   | 44m        | 21:56 | 56m        | 22:52 | 1h 29m     | 00:22*   | 8h 18m                     | 1h 57m     |    |            |    | Mi, 24. Jul |
| Do, 25. Jul | MESZ  | —:~:~:~:~                  | —          | Mond stört                          |      | 23:08      | 10:35      | 02:20                      | 1h 29m     | 03:49 | 56m        | 04:46 | 44m        | 05:30      | 15h 40m    | 21:10                   | 44m        | 21:54 | 55m        | 22:50 | 1h 26m     | 00:17*   | 8h 21m                     | 2h 07m     |    |            |    | Do, 25. Jul |
| Fr, 26. Jul | MESZ  | —:~:~:~:~                  | —          | Mond stört                          |      | 23:21      | 12:01      | 02:25                      | 1h 26m     | 03:52 | 55m        | 04:47 | 44m        | 05:31      | 15h 37m    | 21:09                   | 43m        | 21:53 | 55m        | 22:48 | 1h 24m     | 00:12*   | 8h 23m                     | 2h 17m     |    |            |    | Fr, 26. Jul |
| Sa, 27. Jul | MESZ  | —:~:~:~:~                  | —          | Mond stört                          |      | 23:36      | 13:26      | 02:30                      | 1h 24m     | 03:54 | 55m        | 04:49 | 43m        | 05:33      | 15h 34m    | 21:08                   | 43m        | 21:51 | 54m        | 22:46 | 1h 21m     | 00:07*   | 8h 26m                     | 2h 26m     |    |            |    | Sa, 27. Jul |
| So, 28. Jul | MESZ  | —:~:~:~:~                  | —          | Mond stört                          | ◐    | 23:54      | 14:53      | 02:34                      | 1h 21m     | 03:56 | 54m        | 04:51 | 43m        | 05:34      | 15h 31m    | 21:06                   | 43m        | 21:49 | 54m        | 22:44 | 1h 19m     | 00:03*   | 8h 29m                     | 2h 35m     |    |            |    | So, 28. Jul |
| Mo, 29. Jul | MESZ  | 23:59 – 00:18*             | 19m        | AN <sub>+</sub> bis M <sub>7</sub>  |      | —:—        | 16:19      | 02:39                      | 1h 19m     | 03:58 | 54m        | 04:52 | 43m        | 05:36      | 15h 28m    | 21:05                   | 43m        | 21:48 | 53m        | 22:41 | 1h 17m     | 23:59    | 8h 32m                     | 2h 44m     |    |            |    | Mo, 29. Jul |
| Di, 30. Jul | MESZ  | 23:54 – 00:51*             | 56m        | AN <sub>+</sub> bis M <sub>7</sub>  |      | 00:18      | 17:41      | 02:43                      | 1h 17m     | 04:01 | 53m        | 04:54 | 43m        | 05:37      | 15h 25m    | 21:03                   | 42m        | 21:46 | 53m        | 22:39 | 1h 15m     | 23:54    | 8h 35m                     | 2h 53m     |    |            |    | Di, 30. Jul |
| Mi, 31. Jul | MESZ  | 23:50 – 01:38*             | 1h 47m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 00:51      | 18:54      | 02:47                      | 1h 15m     | 04:03 | 53m        | 04:56 | 42m        | 05:39      | 15h 22m    | 21:02                   | 42m        | 21:44 | 52m        | 22:37 | 1h 13m     | 23:50    | 8h 38m                     | 3h 01m     |    |            |    | Mi, 31. Jul |
| Do, 1. Aug  | MESZ  | 23:46 – 02:39*             | 2h 52m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 01:38      | 19:52      | 02:51                      | 1h 13m     | 04:05 | 52m        | 04:58 | 42m        | 05:40      | 15h 19m    | 21:00                   | 42m        | 21:42 | 52m        | 22:34 | 1h 11m     | 23:46    | 8h 41m                     | 3h 09m     |    |            |    | Do, 1. Aug  |
| Fr, 2. Aug  | MESZ  | 23:42 – 02:59*             | 3h 16m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 02:39      | 20:35      | 02:55                      | 1h 11m     | 04:07 | 52m        | 04:59 | 42m        | 05:42      | 15h 16m    | 20:58                   | 42m        | 21:40 | 51m        | 22:32 | 1h 10m     | 23:42    | 8h 44m                     | 3h 16m     |    |            |    | Fr, 2. Aug  |
| Sa, 3. Aug  | MESZ  | 23:38 – 03:03*             | 3h 24m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 03:51      | 21:04      | 02:59                      | 1h 10m     | 04:09 | 51m        | 05:01 | 42m        | 05:43      | 15h 13m    | 20:57                   | 41m        | 21:38 | 51m        | 22:30 | 1h 08m     | 23:38    | 8h 47m                     | 3h 24m     |    |            |    | Sa, 3. Aug  |
| So, 4. Aug  | MESZ  | 23:35 – 03:06*             | 3h 31m     | AN <sub>+</sub> bis AN <sub>-</sub> | ●    | 05:08      | 21:25      | 03:03                      | 1h 08m     | 04:12 | 51m        | 05:03 | 41m        | 05:45      | 15h 10m    | 20:55                   | 41m        | 21:36 | 50m        | 22:27 | 1h 07m     | 23:35    | 8h 51m                     | 3h 31m     |    |            |    | So, 4. Aug  |
| Mo, 5. Aug  | MESZ  | 23:31 – 03:10*             | 3h 39m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 06:24      | 21:40      | 03:06                      | 1h 07m     | 04:14 | 50m        | 05:04 | 41m        | 05:46      | 15h 07m    | 20:53                   | 41m        | 21:35 | 50m        | 22:25 | 1h 06m     | 23:31    | 8h 54m                     | 3h 39m     |    |            |    | Mo, 5. Aug  |
| Di, 6. Aug  | MESZ  | 23:27 – 03:13*             | 3h 46m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 07:38      | 21:52      | 03:10                      | 1h 06m     | 04:16 | 50m        | 05:06 | 41m        | 05:48      | 15h 03m    | 20:51                   | 41m        | 21:33 | 49m        | 22:22 | 1h 04m     | 23:27    | 8h 57m                     | 3h 46m     |    |            |    | Di, 6. Aug  |
| Mi, 7. Aug  | MESZ  | 23:23 – 03:17*             | 3h 53m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 08:49      | 22:03      | 03:13                      | 1h 04m     | 04:18 | 49m        | 05:08 | 41m        | 05:49      | 15h 00m    | 20:50                   | 40m        | 21:31 | 49m        | 22:20 | 1h 03m     | 23:23    | 9h 00m                     | 3h 53m     |    |            |    | Mi, 7. Aug  |
| Do, 8. Aug  | MESZ  | 23:20 – 03:20*             | 4h 00m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 09:59      | 22:13      | 03:17                      | 1h 03m     | 04:20 | 49m        | 05:10 | 40m        | 05:51      | 14h 57m    | 20:48                   | 40m        | 21:29 | 48m        | 22:17 | 1h 02m     | 23:20    | 9h 04m                     | 4h 00m     |    |            |    | Do, 8. Aug  |
| Fr, 9. Aug  | MESZ  | 23:16 – 03:23*             | 4h 06m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 11:07      | 22:23      | 03:20                      | 1h 02m     | 04:23 | 48m        | 05:11 | 40m        | 05:52      | 14h 53m    | 20:46                   | 40m        | 21:27 | 48m        | 22:15 | 1h 01m     | 23:16    | 9h 07m                     | 4h 06m     |    |            |    | Fr, 9. Aug  |
| Sa, 10. Aug | MESZ  | 23:13 – 03:27*             | 4h 13m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 12:17      | 22:34      | 03:23                      | 1h 01m     | 04:25 | 48m        | 05:13 | 40m        | 05:54      | 14h 50m    | 20:44                   | 40m        | 21:24 | 48m        | 22:13 | 1h 00m     | 23:13    | 9h 11m                     | 4h 13m     |    |            |    | Sa, 10. Aug |
| So, 11. Aug | MESZ  | 23:09 – 03:30*             | 4h 20m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 13:29      | 22:48      | 03:27                      | 1h 00m     | 04:27 | 48m        | 05:15 | 40m        | 05:55      | 14h 47m    | 20:42                   | 40m        | 21:22 | 47m        | 22:10 | 59m        | 23:09    | 9h 14m                     | 4h 20m     |    |            |    | So, 11. Aug |
| Mo, 12. Aug | MESZ  | 23:06 – 03:33*             | 4h 26m     | AN <sub>+</sub> bis AN <sub>-</sub> | ◑    | 14:43      | 23:06      | 03:30                      | 59m        | 04:29 | 47m        | 05:17 | 40m        | 05:57      | 14h 43m    | 20:40                   | 39m        | 21:20 | 47m        | 22:08 | 58m        | 23:06    | 9h 17m                     | 4h 26m     |    |            |    | Mo, 12. Aug |
| Di, 13. Aug | MESZ  | 23:30 – 03:36*             | 4h 05m     | M <sub>7</sub> bis AN <sub>-</sub>  |      | 15:59      | 23:30      | 03:33                      | 58m        | 04:31 | 47m        | 05:18 | 39m        | 05:58      | 14h 40m    | 20:39                   | 39m        | 21:18 | 46m        | 22:05 | 57m        | 23:03    | 9h 21m                     | 4h 33m     |    |            |    | Di, 13. Aug |
| Mi, 14. Aug | MESZ  | 00:06* – 03:39*            | 3h 32m     | M <sub>7</sub> bis AN <sub>-</sub>  |      | 17:14      | —:—        | 03:36                      | 57m        | 04:33 | 46m        | 05:20 | 39m        | 06:00      | 14h 36m    | 20:37                   | 39m        | 21:16 | 46m        | 22:03 | 56m        | 22:59    | 9h 24m                     | 4h 39m     |    |            |    | Mi, 14. Aug |
| Do, 15. Aug | MESZ  | 00:58* – 03:42*            | 2h 43m     | M <sub>7</sub> bis AN <sub>-</sub>  |      | 18:22      | 00:06      | 03:39                      | 56m        | 04:35 | 46m        | 05:22 | 39m        | 06:01      | 14h 33m    | 20:35                   | 39m        | 21:14 | 46m        | 22:00 | 55m        | 22:56    | 9h 28m                     | 4h 45m     |    |            |    | Do, 15. Aug |
| Fr, 16. Aug | MESZ  | 02:09* – 03:45*            | 1h 35m     | M <sub>7</sub> bis AN <sub>-</sub>  |      | 19:16      | 00:58      | 03:42                      | 55m        | 04:38 | 46m        | 05:24 | 39m        | 06:03      | 14h 29m    | 20:33                   | 39m        | 21:12 | 45m        | 21:58 | 55m        | 22:53    | 9h 31m                     | 4h 51m     |    |            |    | Fr, 16. Aug |
| Sa, 17. Aug | MESZ  | 03:34* – 03:47*            | 13m        | M <sub>7</sub> bis AN <sub>-</sub>  |      | 19:55      | 02:09      | 03:45                      | 55m        | 04:40 | 45m        | 05:25 | 39m        | 06:05      | 14h 26m    | 20:31                   | 38m        | 21:10 | 45m        | 21:55 | 54m        | 22:49    | 9h 35m                     | 4h 57m     |    |            |    | Sa, 17. Aug |
| So, 18. Aug | MESZ  | —:~:~:~:~                  | —          | Mond stört                          |      | 20:23      | 03:34      | 03:47                      | 54m        | 04:42 | 45m        | 05:27 | 38m        | 06:06      | 14h 22m    | 20:29                   | 38m        | 21:07 | 45m        | 21:52 | 53m        | 22:46    | 9h 38m                     | 5h 04m     |    |            |    | So, 18. Aug |
| Mo, 19. Aug | MESZ  | —:~:~:~:~                  | —          | Mond stört                          | ○    | 20:44      | 05:06      | 03:50                      | 53m        | 04:44 | 45m        | 05:29 | 38m        | 06:08      | 14h 19m    | 20:27                   | 38m        | 21:05 | 44m        | 21:50 | 52m        | 22:43    | 9h 42m                     | 5h 09m     |    |            |    | Mo, 19. Aug |
| Di, 20. Aug | MESZ  | —:~:~:~:~                  | —          | Mond stört                          |      | 21:00      | 06:38      | 03:53                      | 52m        | 04:46 | 44m        | 05:31 | 38m        | 06:09      | 14h 15m    | 20:25                   | 38m        | 21:03 | 44m        | 21:47 | 52m        | 22:40    | 9h 46m                     | 5h 15m     |    |            |    | Di, 20. Aug |
| Mi, 21. Aug | MESZ  | —:~:~:~:~                  | —          | Mond stört                          |      | 21:14      | 08:09      | 03:56                      | 52m        | 04:48 | 44m        | 05:32 | 38m        | 06:11      | 14h 11m    | 20:23                   | 38m        | 21:01 | 44m        | 21:45 | 51m        | 22:37    | 9h 49m                     | 5h 21m     |    |            |    | Mi, 21. Aug |
| Do, 22. Aug | MESZ  | —:~:~:~:~                  | —          | Mond stört                          |      | 21:27      | 09:39      | 03:58                      | 51m        | 04:50 | 44m        | 05:34 | 38m        | 06:12      | 14h 08m    | 20:21                   | 37m        | 20:58 | 43m        | 21:42 | 51m        | 22:33    | 9h 53m                     | 5h 27m     |    |            |    | Do, 22. Aug |
| Fr, 23. Aug | MESZ  | —:~:~:~:~                  | —          | Mond stört                          |      | 21:42      | 11:07      | 04:01                      | 51m        | 04:52 | 43m        | 05:36 | 37m        | 06:14      | 14h 04m    | 20:18                   | 37m        | 20:56 | 43m        | 21:40 | 50m        | 22:30    | 9h 56m                     | 5h 33m     |    |            |    | Fr, 23. Aug |
| Sa, 24. Aug | MESZ  | —:~:~:~:~                  | —          | Mond stört                          |      | 21:59      | 12:36      | 04:03                      | 50m        | 04:54 | 43m        | 05:38 | 37m        | 06:15      | 14h 00m    | 20:16                   | 37m        | 20:54 | 43m        | 21:37 | 49m        | 22:27    | 10h 00m                    | 5h 38m     |    |            |    | Sa, 24. Aug |
| So, 25. Aug | MESZ  | —:~:~:~:~                  | —          | Mond stört                          |      | 22:21      | 14:05      | 04:06                      | 49m        | 04:56 | 43m        | 05:39 | 37m        | 06:17      | 13h 57m    | 20:14                   | 37m        | 20:52 | 42m        | 21:35 | 49m        | 22:24    | 10h 04m                    | 5h 44m     |    |            |    | So, 25. Aug |
| Mo, 26. Aug | MESZ  | 22:21 – 22:51              | 29m        | AN <sub>+</sub> bis M <sub>7</sub>  | ◑    | 22:51      | 15:31      | 04:09                      | 49m        | 04:58 | 43m        | 05:41 | 37m        | 06:19      | 13h 53m    | 20:12                   | 37m        | 20:49 | 42m        | 21:32 | 48m        | 22:21    | 10h 07m                    | 5h 49m     |    |            |    | Mo, 26. Aug |
| Di, 27. Aug | MESZ  | 22:18 – 23:34              | 1h 15m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 23:34      | 16:48      | 04:11                      | 48m        | 05:00 | 42m        | 05:43 | 37m        | 06:20      | 13h 49m    | 20:10                   | 37m        | 20:47 | 42m        | 21:30 | 48m        | 22:18    | 10h 11m                    | 5h 55m     |    |            |    | Di, 27. Aug |
| Mi, 28. Aug | MESZ  | 22:15 – 00:30*             | 2h 15m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | —:—        | 17:50      | 04:13                      | 48m        | 05:02 | 42m        | 05:44 | 37m        | 06:22      | 13h 46m    | 20:08                   | 37m        | 20:45 | 42m        | 21:27 | 47m        | 22:15    | 10h 15m                    | 6h 00m     |    |            |    | Mi, 28. Aug |
| Do, 29. Aug | MESZ  | 22:12 – 01:39*             | 3h 27m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 00:30      | 18:37      | 04:16                      | 47m        | 05:04 | 42m        | 05:46 | 37m        | 06:23      | 13h 42m    | 20:06                   | 36m        | 20:43 | 41m        | 21:25 | 47m        | 22:12    | 10h 19m                    | 6h 06m     |    |            |    | Do, 29. Aug |
| Fr, 30. Aug | MESZ  | 22:09 – 02                 |            |                                     |      |            |            |                            |            |       |            |       |            |            |            |                         |            |       |            |       |            |          |                            |            |    |            |    |             |

| 1           | 2             | 3                          | 4          | 5                                   | 6    | 7          | 8          | 9                          | 10         | 11    | 12         | 13    | 14         | 15         | 16         | 17                      | 18         | 19    | 20         | 21    | 22         | 23       | 24                         | 25         | 26 | 27         | 28 | 29          |
|-------------|---------------|----------------------------|------------|-------------------------------------|------|------------|------------|----------------------------|------------|-------|------------|-------|------------|------------|------------|-------------------------|------------|-------|------------|-------|------------|----------|----------------------------|------------|----|------------|----|-------------|
| 2024        | Zeit-<br>zone | Astr. dunkel und kein Mond |            |                                     | Mond |            |            | Beginn der Morgendämmerung |            |       |            |       | Sonne      |            |            | Ende der Abenddämmerung |            |       |            |       | Nacht      | Astr. N. | Naut. dunkel und kein Mond |            |    | 2024       |    |             |
|             |               |                            | $\Delta t$ |                                     | Ph.  | $\nearrow$ | $\searrow$ | Astr.                      | $\Delta t$ | Naut. | $\Delta t$ | Bürg. | $\Delta t$ | $\nearrow$ | $\Delta t$ | $\searrow$              | $\Delta t$ | Bürg. | $\Delta t$ | Naut. | $\Delta t$ | Astr.    | $\Delta t$                 | $\Delta t$ |    | $\Delta t$ |    |             |
| Sa, 7. Sep  | MESZ          | 21:46 – 04:39*             | 6h 52m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 11:16      | 20:54      | 04:36                      | 44m        | 05:21 | 40m        | 06:01 | 36m        | 06:37      | 13h 08m    | 19:46                   | 35m        | 20:22 | 40m        | 21:02 | 44m        | 21:46    | 10h 52m                    | 6h 52m     |    |            |    | Sa, 7. Sep  |
| So, 8. Sep  | MESZ          | 21:43 – 04:41*             | 6h 57m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 12:29      | 21:10      | 04:39                      | 44m        | 05:23 | 40m        | 06:03 | 35m        | 06:39      | 13h 04m    | 19:44                   | 35m        | 20:19 | 39m        | 20:59 | 43m        | 21:43    | 10h 56m                    | 6h 57m     |    |            |    | So, 8. Sep  |
| Mo, 9. Sep  | MESZ          | 21:40 – 04:43*             | 7h 02m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 13:43      | 21:31      | 04:41                      | 43m        | 05:24 | 39m        | 06:04 | 35m        | 06:40      | 13h 01m    | 19:41                   | 35m        | 20:17 | 39m        | 20:57 | 43m        | 21:40    | 11h 00m                    | 7h 02m     |    |            |    | Mo, 9. Sep  |
| Di, 10. Sep | MESZ          | 22:01 – 04:45*             | 6h 43m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 14:58      | 22:01      | 04:43                      | 43m        | 05:26 | 39m        | 06:06 | 35m        | 06:42      | 12h 57m    | 19:39                   | 35m        | 20:15 | 39m        | 20:54 | 43m        | 21:37    | 11h 04m                    | 7h 07m     |    |            |    | Di, 10. Sep |
| Mi, 11. Sep | MESZ          | 22:45 – 04:47*             | 6h 02m     | M <sub>\</sub> bis AN <sub>-</sub>  | ☾    | 16:07      | 22:45      | 04:45                      | 43m        | 05:28 | 39m        | 06:08 | 35m        | 06:43      | 12h 53m    | 19:37                   | 35m        | 20:12 | 39m        | 20:52 | 42m        | 21:35    | 11h 08m                    | 7h 12m     |    |            |    | Mi, 11. Sep |
| Do, 12. Sep | MESZ          | 23:45 – 04:49*             | 5h 03m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 17:06      | 23:45      | 04:47                      | 42m        | 05:30 | 39m        | 06:09 | 35m        | 06:45      | 12h 49m    | 19:35                   | 35m        | 20:10 | 39m        | 20:49 | 42m        | 21:32    | 11h 11m                    | 7h 17m     |    |            |    | Do, 12. Sep |
| Fr, 13. Sep | MESZ          | 01:02* – 04:51*            | 3h 48m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 17:51      | —:—        | 04:49                      | 42m        | 05:32 | 39m        | 06:11 | 35m        | 06:47      | 12h 45m    | 19:32                   | 35m        | 20:08 | 39m        | 20:47 | 42m        | 21:29    | 11h 15m                    | 7h 21m     |    |            |    | Fr, 13. Sep |
| Sa, 14. Sep | MESZ          | 02:30* – 04:53*            | 2h 23m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 18:23      | 01:02      | 04:51                      | 42m        | 05:33 | 39m        | 06:13 | 35m        | 06:48      | 12h 41m    | 19:30                   | 35m        | 20:05 | 39m        | 20:44 | 42m        | 21:26    | 11h 19m                    | 7h 26m     |    |            |    | Sa, 14. Sep |
| So, 15. Sep | MESZ          | 04:01* – 04:55*            | 53m        | M <sub>\</sub> bis AN <sub>-</sub>  |      | 18:46      | 02:30      | 04:53                      | 42m        | 05:35 | 39m        | 06:14 | 35m        | 06:50      | 12h 38m    | 19:28                   | 35m        | 20:03 | 38m        | 20:42 | 41m        | 21:24    | 11h 23m                    | 7h 31m     |    |            |    | So, 15. Sep |
| Mo, 16. Sep | MESZ          | —:—:—:—                    | –          | Mond stört                          |      | 19:04      | 04:01      | 04:55                      | 41m        | 05:37 | 38m        | 06:16 | 35m        | 06:51      | 12h 34m    | 19:26                   | 35m        | 20:01 | 38m        | 20:39 | 41m        | 21:21    | 11h 27m                    | 7h 35m     |    |            |    | Mo, 16. Sep |
| Di, 17. Sep | MESZ          | —:—:—:—                    | –          | Mond stört                          |      | 19:18      | 05:34      | 04:57                      | 41m        | 05:39 | 38m        | 06:17 | 35m        | 06:53      | 12h 30m    | 19:23                   | 35m        | 19:58 | 38m        | 20:37 | 41m        | 21:18    | 11h 31m                    | 7h 40m     |    |            |    | Di, 17. Sep |
| Mi, 18. Sep | MESZ          | —:—:~:~:~                  | –          | Mond stört                          | ☾    | 19:32      | 07:05      | 04:59                      | 41m        | 05:40 | 38m        | 06:19 | 35m        | 06:54      | 12h 26m    | 19:21                   | 35m        | 19:56 | 38m        | 20:35 | 41m        | 21:16    | 11h 34m                    | 7h 45m     |    |            |    | Mi, 18. Sep |
| Do, 19. Sep | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 19:46      | 08:36      | 05:01                      | 41m        | 05:42 | 38m        | 06:21 | 35m        | 06:56      | 12h 22m    | 19:19                   | 35m        | 19:54 | 38m        | 20:32 | 40m        | 21:13    | 11h 38m                    | 7h 49m     |    |            |    | Do, 19. Sep |
| Fr, 20. Sep | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 20:02      | 10:08      | 05:03                      | 41m        | 05:44 | 38m        | 06:22 | 35m        | 06:57      | 12h 18m    | 19:16                   | 35m        | 19:51 | 38m        | 20:30 | 40m        | 21:11    | 11h 42m                    | 7h 54m     |    |            |    | Fr, 20. Sep |
| Sa, 21. Sep | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 20:23      | 11:41      | 05:05                      | 40m        | 05:46 | 38m        | 06:24 | 35m        | 06:59      | 12h 15m    | 19:14                   | 34m        | 19:49 | 38m        | 20:27 | 40m        | 21:08    | 11h 46m                    | 7h 58m     |    |            |    | Sa, 21. Sep |
| So, 22. Sep | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 20:50      | 13:12      | 05:07                      | 40m        | 05:47 | 38m        | 06:26 | 35m        | 07:01      | 12h 11m    | 19:12                   | 34m        | 19:47 | 38m        | 20:25 | 40m        | 21:05    | 11h 50m                    | 8h 02m     |    |            |    | So, 22. Sep |
| Mo, 23. Sep | MESZ          | 21:03 – 21:29              | 26m        | AN <sub>+</sub> bis M <sub>7</sub>  |      | 21:29      | 14:36      | 05:08                      | 40m        | 05:49 | 38m        | 06:27 | 35m        | 07:02      | 12h 07m    | 19:10                   | 34m        | 19:45 | 38m        | 20:23 | 40m        | 21:03    | 11h 54m                    | 8h 07m     |    |            |    | Mo, 23. Sep |
| Di, 24. Sep | MESZ          | 21:00 – 22:22              | 1h 21m     | AN <sub>+</sub> bis M <sub>7</sub>  | ☾    | 22:22      | 15:45      | 05:10                      | 40m        | 05:51 | 38m        | 06:29 | 35m        | 07:04      | 12h 03m    | 19:07                   | 34m        | 19:42 | 37m        | 20:20 | 40m        | 21:00    | 11h 57m                    | 8h 11m     |    |            |    | Di, 24. Sep |
| Mi, 25. Sep | MESZ          | 20:58 – 23:29              | 2h 30m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 23:29      | 16:37      | 05:12                      | 40m        | 05:52 | 38m        | 06:30 | 35m        | 07:05      | 11h 59m    | 19:05                   | 34m        | 19:40 | 37m        | 20:18 | 39m        | 20:58    | 12h 01m                    | 8h 16m     |    |            |    | Mi, 25. Sep |
| Do, 26. Sep | MESZ          | 20:55 – 00:43*             | 3h 47m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | —:—        | 17:13      | 05:14                      | 40m        | 05:54 | 37m        | 06:32 | 34m        | 07:07      | 11h 55m    | 19:03                   | 34m        | 19:38 | 37m        | 20:16 | 39m        | 20:55    | 12h 05m                    | 8h 20m     |    |            |    | Do, 26. Sep |
| Fr, 27. Sep | MESZ          | 20:53 – 01:59*             | 5h 06m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 00:43      | 17:38      | 05:16                      | 39m        | 05:56 | 37m        | 06:33 | 34m        | 07:08      | 11h 52m    | 19:01                   | 34m        | 19:35 | 37m        | 20:13 | 39m        | 20:53    | 12h 09m                    | 8h 24m     |    |            |    | Fr, 27. Sep |
| Sa, 28. Sep | MESZ          | 20:50 – 03:14*             | 6h 23m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 01:59      | 17:56      | 05:18                      | 39m        | 05:57 | 37m        | 06:35 | 34m        | 07:10      | 11h 48m    | 18:58                   | 34m        | 19:33 | 37m        | 20:11 | 39m        | 20:50    | 12h 13m                    | 8h 28m     |    |            |    | Sa, 28. Sep |
| So, 29. Sep | MESZ          | 20:48 – 04:27*             | 7h 38m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 03:14      | 18:10      | 05:19                      | 39m        | 05:59 | 37m        | 06:37 | 34m        | 07:12      | 11h 44m    | 18:56                   | 34m        | 19:31 | 37m        | 20:09 | 39m        | 20:48    | 12h 17m                    | 8h 33m     |    |            |    | So, 29. Sep |
| Mo, 30. Sep | MESZ          | 20:46 – 05:23*             | 8h 37m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 04:27      | 18:21      | 05:21                      | 39m        | 06:01 | 37m        | 06:38 | 34m        | 07:13      | 11h 40m    | 18:54                   | 34m        | 19:29 | 37m        | 20:06 | 39m        | 20:46    | 12h 21m                    | 8h 37m     |    |            |    | Mo, 30. Sep |
| Di, 1. Okt  | MESZ          | 20:43 – 05:25*             | 8h 41m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 05:37      | 18:31      | 05:23                      | 39m        | 06:02 | 37m        | 06:40 | 34m        | 07:15      | 11h 36m    | 18:52                   | 34m        | 19:26 | 37m        | 20:04 | 39m        | 20:43    | 12h 24m                    | 8h 41m     |    |            |    | Di, 1. Okt  |
| Mi, 2. Okt  | MESZ          | 20:41 – 05:26*             | 8h 45m     | AN <sub>+</sub> bis AN <sub>-</sub> | ☾    | 06:46      | 18:40      | 05:25                      | 39m        | 06:04 | 37m        | 06:41 | 34m        | 07:16      | 11h 32m    | 18:49                   | 34m        | 19:24 | 37m        | 20:02 | 39m        | 20:41    | 12h 28m                    | 8h 45m     |    |            |    | Mi, 2. Okt  |
| Do, 3. Okt  | MESZ          | 20:39 – 05:28*             | 8h 49m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 07:55      | 18:51      | 05:26                      | 39m        | 06:05 | 37m        | 06:43 | 34m        | 07:18      | 11h 29m    | 18:47                   | 34m        | 19:22 | 37m        | 20:00 | 38m        | 20:39    | 12h 32m                    | 8h 49m     |    |            |    | Do, 3. Okt  |
| Fr, 4. Okt  | MESZ          | 20:36 – 05:30*             | 8h 53m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 09:05      | 19:02      | 05:28                      | 39m        | 06:07 | 37m        | 06:45 | 34m        | 07:20      | 11h 25m    | 18:45                   | 34m        | 19:20 | 37m        | 19:57 | 38m        | 20:36    | 12h 36m                    | 8h 53m     |    |            |    | Fr, 4. Okt  |
| Sa, 5. Okt  | MESZ          | 20:34 – 05:31*             | 8h 57m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 10:17      | 19:17      | 05:30                      | 38m        | 06:09 | 37m        | 06:46 | 35m        | 07:21      | 11h 21m    | 18:43                   | 34m        | 19:18 | 37m        | 19:55 | 38m        | 20:34    | 12h 40m                    | 8h 57m     |    |            |    | Sa, 5. Okt  |
| So, 6. Okt  | MESZ          | 20:32 – 05:33*             | 9h 01m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 11:31      | 19:36      | 05:31                      | 38m        | 06:10 | 37m        | 06:48 | 35m        | 07:23      | 11h 17m    | 18:41                   | 34m        | 19:15 | 37m        | 19:53 | 38m        | 20:32    | 12h 43m                    | 9h 01m     |    |            |    | So, 6. Okt  |
| Mo, 7. Okt  | MESZ          | 20:29 – 05:35*             | 9h 05m     | AN <sub>+</sub> bis AN <sub>-</sub> |      | 12:46      | 20:02      | 05:33                      | 38m        | 06:12 | 37m        | 06:49 | 35m        | 07:25      | 11h 13m    | 18:38                   | 34m        | 19:13 | 37m        | 19:51 | 38m        | 20:29    | 12h 47m                    | 9h 05m     |    |            |    | Mo, 7. Okt  |
| Di, 8. Okt  | MESZ          | 20:40 – 05:37*             | 8h 56m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 13:57      | 20:40      | 05:35                      | 38m        | 06:14 | 37m        | 06:51 | 35m        | 07:26      | 11h 09m    | 18:36                   | 35m        | 19:11 | 37m        | 19:49 | 38m        | 20:27    | 12h 51m                    | 9h 09m     |    |            |    | Di, 8. Okt  |
| Mi, 9. Okt  | MESZ          | 21:33 – 05:38*             | 8h 05m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 14:58      | 21:33      | 05:37                      | 38m        | 06:15 | 37m        | 06:53 | 35m        | 07:28      | 11h 06m    | 18:34                   | 35m        | 19:09 | 37m        | 19:46 | 38m        | 20:25    | 12h 55m                    | 9h 13m     |    |            |    | Mi, 9. Okt  |
| Do, 10. Okt | MESZ          | 22:41 – 05:40*             | 6h 58m     | M <sub>\</sub> bis AN <sub>-</sub>  | ☾    | 15:47      | 22:41      | 05:38                      | 38m        | 06:17 | 37m        | 06:54 | 35m        | 07:29      | 11h 02m    | 18:32                   | 35m        | 19:07 | 37m        | 19:44 | 38m        | 20:23    | 12h 59m                    | 9h 17m     |    |            |    | Do, 10. Okt |
| Fr, 11. Okt | MESZ          | 00:02* – 05:41*            | 5h 39m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 16:22      | —:—        | 05:40                      | 38m        | 06:18 | 37m        | 06:56 | 35m        | 07:31      | 10h 58m    | 18:30                   | 35m        | 19:05 | 37m        | 19:42 | 38m        | 20:21    | 13h 03m                    | 9h 20m     |    |            |    | Fr, 11. Okt |
| Sa, 12. Okt | MESZ          | 01:30* – 05:43*            | 4h 13m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 16:48      | 00:02      | 05:42                      | 38m        | 06:20 | 37m        | 06:57 | 35m        | 07:33      | 10h 54m    | 18:28                   | 35m        | 19:03 | 37m        | 19:40 | 38m        | 20:18    | 13h 06m                    | 9h 24m     |    |            |    | Sa, 12. Okt |
| So, 13. Okt | MESZ          | 02:59* – 05:45*            | 2h 46m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 17:07      | 01:30      | 05:43                      | 38m        | 06:22 | 37m        | 06:59 | 35m        | 07:34      | 10h 51m    | 18:25                   | 35m        | 19:01 | 37m        | 19:38 | 38m        | 20:16    | 13h 10m                    | 9h 28m     |    |            |    | So, 13. Okt |
| Mo, 14. Okt | MESZ          | 04:28* – 05:46*            | 1h 18m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 17:23      | 02:59      | 05:45                      | 38m        | 06:23 | 37m        | 07:01 | 35m        | 07:36      | 10h 47m    | 18:23                   | 35m        | 18:59 | 37m        | 19:36 | 38m        | 20:14    | 13h 14m                    | 9h 32m     |    |            |    | Mo, 14. Okt |
| Di, 15. Okt | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 17:36      | 04:28      | 05:46                      | 38m        | 06:25 | 37m        | 07:02 | 35m        | 07:38      | 10h 43m    | 18:21                   | 35m        | 18:57 | 37m        | 19:34 | 38m        | 20:12    | 13h 18m                    | 9h 35m     |    |            |    | Di, 15. Okt |
| Mi, 16. Okt | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 17:50      | 05:59      | 05:48                      | 38m        | 06:26 | 37m        | 07:04 | 35m        | 07:39      | 10h 39m    | 18:19                   | 35m        | 18:55 | 37m        | 19:32 | 38m        | 20:10    | 13h 21m                    | 9h 39m     |    |            |    | Mi, 16. Okt |
| Do, 17. Okt | MESZ          | —:~:~:~:~                  | –          | Mond stört                          | ☾    | 18:05      | 07:30      | 05:50                      | 38m        | 06:28 | 37m        | 07:05 | 35m        | 07:41      | 10h 36m    | 18:17                   | 35m        | 18:53 | 37m        | 19:30 | 38m        | 20:08    | 13h 25m                    | 9h 43m     |    |            |    | Do, 17. Okt |
| Fr, 18. Okt | MESZ          | —:~:~:~:~                  | –          | Mond stört                          |      | 18:23      | 09:04      | 05:51                      | 38m        | 06:29 | 37m        | 07:07 | 35m        | 07:43      | 10h 32m    | 18:15                   | 35m        | 18:51 | 37m        | 19:28 | 38m        | 20:06    | 13h 29m                    | 9h 46m     |    |            |    | Fr, 18. Okt |

| 1           | 2             | 3                          | 4       | 5                                   | 6    | 7          | 8          | 9                          | 10         | 11    | 12         | 13    | 14         | 15         | 16         | 17                      | 18         | 19    | 20         | 21    | 22         | 23       | 24                         | 25         | 26 | 27         | 28 | 29          |
|-------------|---------------|----------------------------|---------|-------------------------------------|------|------------|------------|----------------------------|------------|-------|------------|-------|------------|------------|------------|-------------------------|------------|-------|------------|-------|------------|----------|----------------------------|------------|----|------------|----|-------------|
| 2024        | Zeit-<br>zone | Astr. dunkel und kein Mond |         |                                     | Mond |            |            | Beginn der Morgendämmerung |            |       |            |       | Sonne      |            |            | Ende der Abenddämmerung |            |       |            |       | Nacht      | Astr. N. | Naut. dunkel und kein Mond |            |    | 2024       |    |             |
|             |               | $\Delta t$                 |         |                                     | Ph.  | $\nearrow$ | $\searrow$ | Astr.                      | $\Delta t$ | Naut. | $\Delta t$ | Bürg. | $\Delta t$ | $\nearrow$ | $\Delta t$ | $\searrow$              | $\Delta t$ | Bürg. | $\Delta t$ | Naut. | $\Delta t$ | Astr.    | $\Delta t$                 | $\Delta t$ |    | $\Delta t$ |    |             |
| So, 27. Okt |               | 18:50–02:26*               | 7h 36m  | AN <sub>+</sub> bis M <sub>J</sub>  |      | 01:16      | 15:30      | 05:05                      | 38m        | 05:44 | 37m        | 06:22 | 36m        | 06:58      | 9h 59m     | 16:57                   | 36m        | 17:34 | 37m        | 18:12 | 38m        | 18:50    | 14h 02m                    | 10h 17m    |    |            |    | So, 27. Okt |
| Mo, 28. Okt |               | 18:48–03:35*               | 8h 47m  | AN <sub>+</sub> bis M <sub>J</sub>  |      | 02:26      | 15:40      | 05:07                      | 38m        | 05:45 | 38m        | 06:23 | 36m        | 07:00      | 9h 55m     | 16:55                   | 36m        | 17:32 | 37m        | 18:10 | 38m        | 18:48    | 14h 06m                    | 10h 20m    |    |            |    | Mo, 28. Okt |
| Di, 29. Okt |               | 18:46–04:44*               | 9h 57m  | AN <sub>+</sub> bis M <sub>J</sub>  |      | 03:35      | 15:50      | 05:09                      | 38m        | 05:47 | 38m        | 06:25 | 36m        | 07:01      | 9h 52m     | 16:54                   | 36m        | 17:30 | 38m        | 18:08 | 38m        | 18:46    | 14h 09m                    | 10h 23m    |    |            |    | Di, 29. Okt |
| Mi, 30. Okt |               | 18:45–05:12*               | 10h 26m | AN <sub>+</sub> bis AN <sub>-</sub> |      | 04:44      | 16:00      | 05:10                      | 38m        | 05:48 | 38m        | 06:26 | 36m        | 07:03      | 9h 48m     | 16:52                   | 36m        | 17:28 | 38m        | 18:06 | 38m        | 18:45    | 14h 13m                    | 10h 26m    |    |            |    | Mi, 30. Okt |
| Do, 31. Okt |               | 18:43–05:13*               | 10h 30m | AN <sub>+</sub> bis AN <sub>-</sub> |      | 05:54      | 16:11      | 05:12                      | 38m        | 05:50 | 38m        | 06:28 | 36m        | 07:05      | 9h 45m     | 16:50                   | 36m        | 17:27 | 38m        | 18:05 | 38m        | 18:43    | 14h 16m                    | 10h 30m    |    |            |    | Do, 31. Okt |
| Fr, 1. Nov  |               | 18:42–05:15*               | 10h 33m | AN <sub>+</sub> bis AN <sub>-</sub> | ●    | 07:06      | 16:24      | 05:13                      | 38m        | 05:51 | 38m        | 06:30 | 36m        | 07:07      | 9h 41m     | 16:48                   | 36m        | 17:25 | 38m        | 18:03 | 38m        | 18:42    | 14h 20m                    | 10h 33m    |    |            |    | Fr, 1. Nov  |
| Sa, 2. Nov  |               | 18:40–05:16*               | 10h 36m | AN <sub>+</sub> bis AN <sub>-</sub> |      | 08:20      | 16:42      | 05:15                      | 38m        | 05:53 | 38m        | 06:31 | 37m        | 07:08      | 9h 38m     | 16:46                   | 37m        | 17:23 | 38m        | 18:02 | 38m        | 18:40    | 14h 23m                    | 10h 36m    |    |            |    | Sa, 2. Nov  |
| So, 3. Nov  |               | 18:39–05:18*               | 10h 39m | AN <sub>+</sub> bis AN <sub>-</sub> |      | 09:35      | 17:06      | 05:16                      | 38m        | 05:54 | 38m        | 06:33 | 37m        | 07:10      | 9h 34m     | 16:45                   | 37m        | 17:22 | 38m        | 18:00 | 38m        | 18:39    | 14h 27m                    | 10h 39m    |    |            |    | So, 3. Nov  |
| Mo, 4. Nov  |               | 18:37–05:19*               | 10h 42m | AN <sub>+</sub> bis AN <sub>-</sub> |      | 10:47      | 17:40      | 05:18                      | 38m        | 05:56 | 38m        | 06:34 | 37m        | 07:12      | 9h 31m     | 16:43                   | 37m        | 17:20 | 38m        | 17:59 | 38m        | 18:37    | 14h 30m                    | 10h 42m    |    |            |    | Mo, 4. Nov  |
| Di, 5. Nov  |               | 18:36–05:21*               | 10h 44m | AN <sub>+</sub> bis AN <sub>-</sub> |      | 11:52      | 18:28      | 05:19                      | 38m        | 05:58 | 38m        | 06:36 | 37m        | 07:14      | 9h 27m     | 16:41                   | 37m        | 17:19 | 38m        | 17:57 | 38m        | 18:36    | 14h 33m                    | 10h 44m    |    |            |    | Di, 5. Nov  |
| Mi, 6. Nov  |               | 19:31–05:22*               | 9h 50m  | M <sub>\</sub> bis AN <sub>-</sub>  |      | 12:44      | 19:31      | 05:21                      | 38m        | 05:59 | 38m        | 06:38 | 37m        | 07:15      | 9h 24m     | 16:40                   | 37m        | 17:17 | 38m        | 17:56 | 38m        | 18:34    | 14h 37m                    | 10h 47m    |    |            |    | Mi, 6. Nov  |
| Do, 7. Nov  |               | 20:47–05:24*               | 8h 36m  | M <sub>\</sub> bis AN <sub>-</sub>  |      | 13:23      | 20:47      | 05:22                      | 38m        | 06:01 | 38m        | 06:39 | 37m        | 07:17      | 9h 21m     | 16:38                   | 37m        | 17:16 | 38m        | 17:54 | 38m        | 18:33    | 14h 40m                    | 10h 50m    |    |            |    | Do, 7. Nov  |
| Fr, 8. Nov  |               | 22:10–05:25*               | 7h 14m  | M <sub>\</sub> bis AN <sub>-</sub>  |      | 13:51      | 22:10      | 05:24                      | 38m        | 06:02 | 38m        | 06:41 | 37m        | 07:19      | 9h 17m     | 16:37                   | 37m        | 17:14 | 38m        | 17:53 | 38m        | 18:32    | 14h 43m                    | 10h 53m    |    |            |    | Fr, 8. Nov  |
| Sa, 9. Nov  |               | 23:36–05:26*               | 5h 50m  | M <sub>\</sub> bis AN <sub>-</sub>  | ◐    | 14:11      | 23:36      | 05:25                      | 38m        | 06:04 | 38m        | 06:42 | 37m        | 07:20      | 9h 14m     | 16:35                   | 37m        | 17:13 | 38m        | 17:52 | 38m        | 18:30    | 14h 47m                    | 10h 56m    |    |            |    | Sa, 9. Nov  |
| So, 10. Nov |               | 01:01*–05:28*              | 4h 26m  | M <sub>\</sub> bis AN <sub>-</sub>  |      | 14:28      | —:—        | 05:26                      | 38m        | 06:05 | 38m        | 06:44 | 38m        | 07:22      | 9h 11m     | 16:34                   | 38m        | 17:12 | 38m        | 17:51 | 38m        | 18:29    | 14h 50m                    | 10h 58m    |    |            |    | So, 10. Nov |
| Mo, 11. Nov |               | 02:27*–05:29*              | 3h 01m  | M <sub>\</sub> bis AN <sub>-</sub>  |      | 14:41      | 01:01      | 05:28                      | 38m        | 06:07 | 39m        | 06:46 | 38m        | 07:24      | 9h 08m     | 16:32                   | 38m        | 17:10 | 39m        | 17:49 | 38m        | 18:28    | 14h 53m                    | 11h 01m    |    |            |    | Mo, 11. Nov |
| Di, 12. Nov |               | 03:55*–05:31*              | 1h 35m  | M <sub>\</sub> bis AN <sub>-</sub>  |      | 14:55      | 02:27      | 05:29                      | 38m        | 06:08 | 39m        | 06:47 | 38m        | 07:26      | 9h 05m     | 16:31                   | 38m        | 17:09 | 39m        | 17:48 | 38m        | 18:27    | 14h 56m                    | 11h 03m    |    |            |    | Di, 12. Nov |
| Mi, 13. Nov |               | 05:26*–05:32*              | 6m      | M <sub>\</sub> bis AN <sub>-</sub>  |      | 15:08      | 03:55      | 05:31                      | 38m        | 06:09 | 39m        | 06:49 | 38m        | 07:27      | 9h 02m     | 16:29                   | 38m        | 17:08 | 39m        | 17:47 | 38m        | 18:26    | 14h 59m                    | 11h 06m    |    |            |    | Mi, 13. Nov |
| Do, 14. Nov |               | —:—:—:—                    | –       | Mond stört                          |      | 15:25      | 05:26      | 05:32                      | 38m        | 06:11 | 39m        | 06:50 | 38m        | 07:29      | 8h 58m     | 16:28                   | 38m        | 17:06 | 39m        | 17:46 | 38m        | 18:25    | 15h 02m                    | 11h 08m    |    |            |    | Do, 14. Nov |
| Fr, 15. Nov |               | —:—:—:—                    | –       | Mond stört                          | ◑    | 15:46      | 07:00      | 05:34                      | 38m        | 06:12 | 39m        | 06:52 | 38m        | 07:31      | 8h 55m     | 16:27                   | 38m        | 17:05 | 39m        | 17:45 | 38m        | 18:24    | 15h 05m                    | 11h 11m    |    |            |    | Fr, 15. Nov |
| Sa, 16. Nov |               | —:—:—:—                    | –       | Mond stört                          |      | 16:15      | 08:34      | 05:35                      | 38m        | 06:14 | 39m        | 06:53 | 38m        | 07:32      | 8h 53m     | 16:25                   | 38m        | 17:04 | 39m        | 17:44 | 38m        | 18:23    | 15h 08m                    | 11h 13m    |    |            |    | Sa, 16. Nov |
| So, 17. Nov |               | —:~:~:~:~                  | –       | Mond stört                          |      | 16:57      | 10:01      | 05:36                      | 38m        | 06:15 | 39m        | 06:55 | 39m        | 07:34      | 8h 50m     | 16:24                   | 38m        | 17:03 | 39m        | 17:43 | 38m        | 18:22    | 15h 11m                    | 11h 16m    |    |            |    | So, 17. Nov |
| Mo, 18. Nov |               | —:~:~:~:~                  | –       | Mond stört                          |      | 17:56      | 11:14      | 05:38                      | 39m        | 06:17 | 39m        | 06:56 | 39m        | 07:36      | 8h 47m     | 16:23                   | 39m        | 17:02 | 39m        | 17:42 | 39m        | 18:21    | 15h 14m                    | 11h 18m    |    |            |    | Mo, 18. Nov |
| Di, 19. Nov |               | 18:20–19:08                | 48m     | AN <sub>+</sub> bis M <sub>J</sub>  |      | 19:08      | 12:06      | 05:39                      | 39m        | 06:18 | 39m        | 06:58 | 39m        | 07:37      | 8h 44m     | 16:22                   | 39m        | 17:01 | 39m        | 17:41 | 39m        | 18:20    | 15h 17m                    | 11h 20m    |    |            |    | Di, 19. Nov |
| Mi, 20. Nov |               | 18:19–20:27                | 2h 08m  | AN <sub>+</sub> bis M <sub>J</sub>  |      | 20:27      | 12:42      | 05:40                      | 39m        | 06:19 | 39m        | 06:59 | 39m        | 07:39      | 8h 41m     | 16:21                   | 39m        | 17:00 | 39m        | 17:40 | 39m        | 18:19    | 15h 19m                    | 11h 22m    |    |            |    | Mi, 20. Nov |
| Do, 21. Nov |               | 18:18–21:46                | 3h 27m  | AN <sub>+</sub> bis M <sub>J</sub>  |      | 21:46      | 13:06      | 05:42                      | 39m        | 06:21 | 39m        | 07:01 | 39m        | 07:40      | 8h 39m     | 16:19                   | 39m        | 16:59 | 39m        | 17:39 | 39m        | 18:18    | 15h 22m                    | 11h 24m    |    |            |    | Do, 21. Nov |
| Fr, 22. Nov |               | 18:17–23:02                | 4h 44m  | AN <sub>+</sub> bis M <sub>J</sub>  |      | 23:02      | 13:24      | 05:43                      | 39m        | 06:22 | 40m        | 07:02 | 39m        | 07:42      | 8h 36m     | 16:18                   | 39m        | 16:58 | 40m        | 17:38 | 39m        | 18:17    | 15h 25m                    | 11h 26m    |    |            |    | Fr, 22. Nov |
| Sa, 23. Nov |               | 18:17–00:14*               | 5h 57m  | AN <sub>+</sub> bis M <sub>J</sub>  | ◒    | —:—        | 13:37      | 05:44                      | 39m        | 06:24 | 40m        | 07:04 | 39m        | 07:43      | 8h 33m     | 16:17                   | 39m        | 16:57 | 40m        | 17:37 | 39m        | 18:17    | 15h 27m                    | 11h 28m    |    |            |    | Sa, 23. Nov |
| So, 24. Nov |               | 18:16–01:24*               | 7h 07m  | AN <sub>+</sub> bis M <sub>J</sub>  |      | 00:14      | 13:48      | 05:45                      | 39m        | 06:25 | 40m        | 07:05 | 39m        | 07:45      | 8h 31m     | 16:16                   | 39m        | 16:56 | 40m        | 17:37 | 39m        | 18:16    | 15h 30m                    | 11h 30m    |    |            |    | So, 24. Nov |
| Mo, 25. Nov |               | 18:15–02:32*               | 8h 16m  | AN <sub>+</sub> bis M <sub>J</sub>  |      | 01:24      | 13:58      | 05:47                      | 39m        | 06:26 | 40m        | 07:06 | 40m        | 07:47      | 8h 28m     | 16:16                   | 40m        | 16:56 | 40m        | 17:36 | 39m        | 18:15    | 15h 32m                    | 11h 32m    |    |            |    | Mo, 25. Nov |
| Di, 26. Nov |               | 18:15–03:41*               | 9h 26m  | AN <sub>+</sub> bis M <sub>J</sub>  |      | 02:32      | 14:08      | 05:48                      | 39m        | 06:27 | 40m        | 07:08 | 40m        | 07:48      | 8h 26m     | 16:15                   | 40m        | 16:55 | 40m        | 17:35 | 39m        | 18:15    | 15h 34m                    | 11h 34m    |    |            |    | Di, 26. Nov |
| Mi, 27. Nov |               | 18:14–04:52*               | 10h 38m | AN <sub>+</sub> bis M <sub>J</sub>  |      | 03:41      | 14:18      | 05:49                      | 39m        | 06:29 | 40m        | 07:09 | 40m        | 07:50      | 8h 24m     | 16:14                   | 40m        | 16:54 | 40m        | 17:35 | 39m        | 18:14    | 15h 37m                    | 11h 36m    |    |            |    | Mi, 27. Nov |
| Do, 28. Nov |               | 18:14–05:52*               | 11h 37m | AN <sub>+</sub> bis AN <sub>-</sub> |      | 04:52      | 14:31      | 05:50                      | 39m        | 06:30 | 40m        | 07:11 | 40m        | 07:51      | 8h 22m     | 16:13                   | 40m        | 16:54 | 40m        | 17:34 | 39m        | 18:14    | 15h 39m                    | 11h 37m    |    |            |    | Do, 28. Nov |
| Fr, 29. Nov |               | 18:13–05:53*               | 11h 39m | AN <sub>+</sub> bis AN <sub>-</sub> |      | 06:06      | 14:47      | 05:52                      | 39m        | 06:31 | 40m        | 07:12 | 40m        | 07:52      | 8h 20m     | 16:12                   | 40m        | 16:53 | 40m        | 17:34 | 39m        | 18:13    | 15h 41m                    | 11h 39m    |    |            |    | Fr, 29. Nov |
| Sa, 30. Nov |               | 18:13–05:54*               | 11h 40m | AN <sub>+</sub> bis AN <sub>-</sub> |      | 07:21      | 15:09      | 05:53                      | 39m        | 06:32 | 40m        | 07:13 | 40m        | 07:54      | 8h 17m     | 16:12                   | 40m        | 16:52 | 40m        | 17:33 | 39m        | 18:13    | 15h 43m                    | 11h 40m    |    |            |    | Sa, 30. Nov |
| So, 1. Dez  |               | 18:13–05:55*               | 11h 42m | AN <sub>+</sub> bis AN <sub>-</sub> | ●    | 08:35      | 15:40      | 05:54                      | 39m        | 06:34 | 40m        | 07:14 | 40m        | 07:55      | 8h 15m     | 16:11                   | 40m        | 16:52 | 40m        | 17:33 | 39m        | 18:13    | 15h 45m                    | 11h 42m    |    |            |    | So, 1. Dez  |
| Mo, 2. Dez  |               | 18:12–05:56*               | 11h 43m | AN <sub>+</sub> bis AN <sub>-</sub> |      | 09:44      | 16:25      | 05:55                      | 39m        | 06:35 | 40m        | 07:16 | 40m        | 07:57      | 8h 14m     | 16:11                   | 40m        | 16:52 | 40m        | 17:32 | 39m        | 18:12    | 15h 47m                    | 11h 43m    |    |            |    | Mo, 2. Dez  |
| Di, 3. Dez  |               | 18:12–05:57*               | 11h 45m | AN <sub>+</sub> bis AN <sub>-</sub> |      | 10:41      | 17:24      | 05:56                      | 39m        | 06:36 | 40m        | 07:17 | 41m        | 07:58      | 8h 12m     | 16:10                   | 41m        | 16:51 | 40m        | 17:32 | 39m        | 18:12    | 15h 49m                    | 11h 45m    |    |            |    | Di, 3. Dez  |
| Mi, 4. Dez  |               | 18:38–05:58*               | 11h 20m | M <sub>\</sub> bis AN <sub>-</sub>  |      | 11:24      | 18:38      | 05:57                      | 39m        | 06:37 | 41m        | 07:18 | 41m        | 07:59      | 8h 10m     | 16:10                   | 41m        | 16:51 | 41m        | 17:32 | 39m        | 18:12    | 15h 50m                    | 11h 46m    |    |            |    | Mi, 4. Dez  |
| Do, 5. Dez  |               | 19:59–05:59*               | 10h 00m | M <sub>\</sub> bis AN <sub>-</sub>  |      | 11:54      | 19:59      | 05:58                      | 39m        | 06:38 | 41m        | 07:19 | 41m        | 08:00      | 8h 08m     | 16:09                   | 41m        | 16:50 | 41m        | 17:32 | 39m        | 18:11    | 15h 52m                    | 11h 47m    |    |            |    | Do, 5. Dez  |
| Fr, 6. Dez  |               | 21:23–06:00*               | 8h 37m  | M <sub>\</sub> bis AN <sub>-</sub>  |      | 12:17      | 21:23      | 05:59                      | 39m        | 06:39 | 41m        | 07:20 | 41m        | 08:02      | 8h 07m     | 16:09                   | 41m        | 16:50 | 41m        | 17:31 | 39m        | 18:11    | 15h 53m                    | 11h 48m    |    |            |    | Fr, 6. Dez  |
| Sa, 7. Dez  |               | 22:47–06:01*               | 7h 14m  | M <sub>\</sub> bis AN <sub>-</sub>  |      | 12:34      | 22:47      | 06:00                      | 39m        | 06:40 | 41m        | 07:21 | 41m        | 08:03      | 8h 05m     | 16:09                   | 41m        | 16:50 | 41m        | 17:31 | 39m        | 18:11    | 15h 55m                    | 11h 49m    |    |            |    | Sa, 7. Dez  |
| So, 8. Dez  |               | 00:10*–06:02*              | 5h 52m  | M <sub>\</sub>                      |      |            |            |                            |            |       |            |       |            |            |            |                         |            |       |            |       |            |          |                            |            |    |            |    |             |



| 1           | 2        | 3                          | 4          | 5                                   | 6    | 7          | 8          | 9                          | 10         | 11    | 12         | 13    | 14         | 15         | 16         | 17                      | 18         | 19    | 20         | 21    | 22         | 23       | 24                         | 25         | 26 | 27         | 28 | 29          |
|-------------|----------|----------------------------|------------|-------------------------------------|------|------------|------------|----------------------------|------------|-------|------------|-------|------------|------------|------------|-------------------------|------------|-------|------------|-------|------------|----------|----------------------------|------------|----|------------|----|-------------|
| 2024/25     | Zeitzone | Astr. dunkel und kein Mond |            |                                     | Mond |            |            | Beginn der Morgendämmerung |            |       |            |       | Sonne      |            |            | Ende der Abenddämmerung |            |       |            |       | Nacht      | Astr. N. | Naut. dunkel und kein Mond |            |    | 2024/25    |    |             |
|             |          |                            | $\Delta t$ |                                     | Ph.  | $\nearrow$ | $\searrow$ | Astr.                      | $\Delta t$ | Naut. | $\Delta t$ | Bürg. | $\Delta t$ | $\nearrow$ | $\Delta t$ | $\searrow$              | $\Delta t$ | Bürg. | $\Delta t$ | Naut. | $\Delta t$ | Astr.    | $\Delta t$                 | $\Delta t$ |    | $\Delta t$ |    |             |
| Mo, 16. Dez |          | —:—:—:—                    | —          | Mond stört                          |      | 16:43      | 09:53      | 06:08                      | 40m        | 06:48 | 41m        | 07:29 | 41m        | 08:11      | 7h 57m     | 16:09                   | 41m        | 16:50 | 41m        | 17:32 | 40m        | 18:12    | 16h 03m                    | 11h 55m    |    |            |    | Mo, 16. Dez |
| Di, 17. Dez |          | —:—:—:—                    | —          | Mond stört                          |      | 18:01      | 10:37      | 06:08                      | 40m        | 06:48 | 41m        | 07:30 | 41m        | 08:12      | 7h 56m     | 16:09                   | 41m        | 16:51 | 41m        | 17:32 | 40m        | 18:13    | 16h 03m                    | 11h 56m    |    |            |    | Di, 17. Dez |
| Mi, 18. Dez |          | 18:13–19:23                | 1h 09m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 19:23      | 11:06      | 06:09                      | 40m        | 06:49 | 41m        | 07:31 | 41m        | 08:13      | 7h 56m     | 16:09                   | 41m        | 16:51 | 41m        | 17:33 | 40m        | 18:13    | 16h 04m                    | 11h 56m    |    |            |    | Mi, 18. Dez |
| Do, 19. Dez |          | 18:13–20:42                | 2h 28m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 20:42      | 11:27      | 06:09                      | 40m        | 06:50 | 41m        | 07:31 | 42m        | 08:13      | 7h 56m     | 16:09                   | 42m        | 16:51 | 41m        | 17:33 | 40m        | 18:13    | 16h 04m                    | 11h 56m    |    |            |    | Do, 19. Dez |
| Fr, 20. Dez |          | 18:14–21:57                | 3h 43m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 21:57      | 11:42      | 06:10                      | 40m        | 06:50 | 41m        | 07:32 | 42m        | 08:14      | 7h 55m     | 16:10                   | 42m        | 16:52 | 41m        | 17:34 | 40m        | 18:14    | 16h 04m                    | 11h 56m    |    |            |    | Fr, 20. Dez |
| Sa, 21. Dez |          | 18:14–23:09                | 4h 54m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 23:09      | 11:54      | 06:11                      | 40m        | 06:51 | 41m        | 07:32 | 42m        | 08:15      | 7h 55m     | 16:10                   | 42m        | 16:52 | 41m        | 17:34 | 40m        | 18:14    | 16h 04m                    | 11h 56m    |    |            |    | Sa, 21. Dez |
| So, 22. Dez |          | 18:15–00:18*               | 6h 03m     | AN <sub>+</sub> bis M <sub>7</sub>  | ☾    | —:—        | 12:04      | 06:11                      | 40m        | 06:51 | 41m        | 07:33 | 42m        | 08:15      | 7h 55m     | 16:11                   | 42m        | 16:53 | 41m        | 17:35 | 40m        | 18:15    | 16h 04m                    | 11h 56m    |    |            |    | So, 22. Dez |
| Mo, 23. Dez |          | 18:15–01:27*               | 7h 11m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 00:18      | 12:14      | 06:11                      | 40m        | 06:52 | 41m        | 07:33 | 42m        | 08:15      | 7h 56m     | 16:12                   | 42m        | 16:54 | 41m        | 17:35 | 40m        | 18:15    | 16h 04m                    | 11h 56m    |    |            |    | Mo, 23. Dez |
| Di, 24. Dez |          | 18:16–02:37*               | 8h 20m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 01:27      | 12:25      | 06:12                      | 40m        | 06:52 | 41m        | 07:34 | 41m        | 08:16      | 7h 56m     | 16:12                   | 41m        | 16:54 | 41m        | 17:36 | 40m        | 18:16    | 16h 03m                    | 11h 56m    |    |            |    | Di, 24. Dez |
| Mi, 25. Dez |          | 18:17–03:49*               | 9h 32m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 02:37      | 12:37      | 06:12                      | 40m        | 06:53 | 41m        | 07:34 | 41m        | 08:16      | 7h 56m     | 16:13                   | 41m        | 16:55 | 41m        | 17:36 | 40m        | 18:17    | 16h 03m                    | 11h 55m    |    |            |    | Mi, 25. Dez |
| Do, 26. Dez |          | 18:17–05:03*               | 10h 46m    | AN <sub>+</sub> bis M <sub>7</sub>  |      | 03:49      | 12:51      | 06:13                      | 40m        | 06:53 | 41m        | 07:34 | 41m        | 08:16      | 7h 57m     | 16:14                   | 41m        | 16:56 | 41m        | 17:37 | 40m        | 18:17    | 16h 02m                    | 11h 55m    |    |            |    | Do, 26. Dez |
| Fr, 27. Dez |          | 18:18–06:13*               | 11h 55m    | AN <sub>+</sub> bis AN <sub>-</sub> |      | 05:03      | 13:11      | 06:13                      | 40m        | 06:53 | 41m        | 07:35 | 41m        | 08:17      | 7h 57m     | 16:14                   | 41m        | 16:56 | 41m        | 17:38 | 40m        | 18:18    | 16h 02m                    | 11h 55m    |    |            |    | Fr, 27. Dez |
| Sa, 28. Dez |          | 18:19–06:13*               | 11h 54m    | AN <sub>+</sub> bis AN <sub>-</sub> |      | 06:19      | 13:38      | 06:13                      | 40m        | 06:53 | 41m        | 07:35 | 41m        | 08:17      | 7h 58m     | 16:15                   | 41m        | 16:57 | 41m        | 17:39 | 40m        | 18:19    | 16h 01m                    | 11h 54m    |    |            |    | Sa, 28. Dez |
| So, 29. Dez |          | 18:20–06:14*               | 11h 53m    | AN <sub>+</sub> bis AN <sub>-</sub> |      | 07:30      | 14:17      | 06:13                      | 40m        | 06:54 | 41m        | 07:35 | 41m        | 08:17      | 7h 59m     | 16:16                   | 41m        | 16:58 | 41m        | 17:39 | 40m        | 18:20    | 16h 00m                    | 11h 53m    |    |            |    | So, 29. Dez |
| Mo, 30. Dez |          | 18:20–06:14*               | 11h 53m    | AN <sub>+</sub> bis AN <sub>-</sub> | ☉    | 08:33      | 15:12      | 06:14                      | 40m        | 06:54 | 41m        | 07:35 | 41m        | 08:17      | 8h 00m     | 16:17                   | 41m        | 16:59 | 41m        | 17:40 | 40m        | 18:20    | 15h 59m                    | 11h 53m    |    |            |    | Mo, 30. Dez |
| Di, 31. Dez |          | 18:21–06:14*               | 11h 52m    | AN <sub>+</sub> bis AN <sub>-</sub> |      | 09:21      | 16:23      | 06:14                      | 40m        | 06:54 | 41m        | 07:35 | 41m        | 08:17      | 8h 01m     | 16:18                   | 41m        | 17:00 | 41m        | 17:41 | 40m        | 18:21    | 15h 58m                    | 11h 52m    |    |            |    | Di, 31. Dez |
| Mi, 1. Jan  |          | 18:22–06:14*               | 11h 51m    | AN <sub>+</sub> bis AN <sub>-</sub> |      | 09:56      | 17:44      | 06:14                      | 40m        | 06:54 | 41m        | 07:35 | 41m        | 08:17      | 8h 02m     | 16:19                   | 41m        | 17:01 | 41m        | 17:42 | 40m        | 18:22    | 15h 57m                    | 11h 51m    |    |            |    | Mi, 1. Jan  |
| Do, 2. Jan  |          | 19:09–06:14*               | 11h 04m    | M <sub>\</sub> bis AN <sub>-</sub>  |      | 10:21      | 19:09      | 06:14                      | 40m        | 06:54 | 41m        | 07:35 | 41m        | 08:17      | 8h 03m     | 16:20                   | 41m        | 17:02 | 41m        | 17:43 | 40m        | 18:23    | 15h 56m                    | 11h 50m    |    |            |    | Do, 2. Jan  |
| Fr, 3. Jan  |          | 20:35–06:14*               | 9h 38m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 10:40      | 20:35      | 06:14                      | 40m        | 06:54 | 41m        | 07:35 | 41m        | 08:16      | 8h 04m     | 16:21                   | 41m        | 17:03 | 41m        | 17:44 | 40m        | 18:24    | 15h 54m                    | 11h 49m    |    |            |    | Fr, 3. Jan  |
| Sa, 4. Jan  |          | 21:59–06:14*               | 8h 14m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 10:55      | 21:59      | 06:14                      | 39m        | 06:54 | 41m        | 07:35 | 41m        | 08:16      | 8h 06m     | 16:22                   | 41m        | 17:04 | 41m        | 17:45 | 39m        | 18:25    | 15h 53m                    | 11h 48m    |    |            |    | Sa, 4. Jan  |
| So, 5. Jan  |          | 23:22–06:13*               | 6h 51m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 11:08      | 23:22      | 06:14                      | 39m        | 06:54 | 41m        | 07:35 | 41m        | 08:16      | 8h 07m     | 16:24                   | 41m        | 17:05 | 41m        | 17:46 | 39m        | 18:26    | 15h 51m                    | 11h 47m    |    |            |    | So, 5. Jan  |
| Mo, 6. Jan  |          | 00:46*–06:13*              | 5h 27m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 11:21      | —:—        | 06:13                      | 39m        | 06:53 | 41m        | 07:34 | 41m        | 08:16      | 8h 09m     | 16:25                   | 41m        | 17:06 | 41m        | 17:47 | 39m        | 18:27    | 15h 50m                    | 11h 46m    |    |            |    | Mo, 6. Jan  |
| Di, 7. Jan  |          | 02:12*–06:13*              | 4h 01m     | M <sub>\</sub> bis AN <sub>-</sub>  | ☾    | 11:34      | 00:46      | 06:13                      | 39m        | 06:53 | 41m        | 07:34 | 41m        | 08:15      | 8h 10m     | 16:26                   | 41m        | 17:07 | 41m        | 17:48 | 39m        | 18:28    | 15h 48m                    | 11h 44m    |    |            |    | Di, 7. Jan  |
| Mi, 8. Jan  |          | 03:40*–06:13*              | 2h 33m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 11:50      | 02:12      | 06:13                      | 39m        | 06:53 | 40m        | 07:34 | 40m        | 08:15      | 8h 12m     | 16:27                   | 40m        | 17:08 | 40m        | 17:49 | 39m        | 18:29    | 15h 46m                    | 11h 43m    |    |            |    | Mi, 8. Jan  |
| Do, 9. Jan  |          | 05:08*–06:12*              | 1h 04m     | M <sub>\</sub> bis AN <sub>-</sub>  |      | 12:11      | 03:40      | 06:13                      | 39m        | 06:53 | 40m        | 07:33 | 40m        | 08:14      | 8h 14m     | 16:29                   | 40m        | 17:10 | 40m        | 17:51 | 39m        | 18:30    | 15h 44m                    | 11h 42m    |    |            |    | Do, 9. Jan  |
| Fr, 10. Jan |          | —:—:—:—                    | —          | Mond stört                          |      | 12:41      | 05:08      | 06:12                      | 39m        | 06:52 | 40m        | 07:33 | 40m        | 08:14      | 8h 16m     | 16:30                   | 40m        | 17:11 | 40m        | 17:52 | 39m        | 18:31    | 15h 42m                    | 11h 40m    |    |            |    | Fr, 10. Jan |
| Sa, 11. Jan |          | —:~:~:~:~                  | —          | Mond stört                          |      | 13:23      | 06:30      | 06:12                      | 39m        | 06:52 | 40m        | 07:32 | 40m        | 08:13      | 8h 18m     | 16:32                   | 40m        | 17:12 | 40m        | 17:53 | 39m        | 18:33    | 15h 40m                    | 11h 39m    |    |            |    | Sa, 11. Jan |
| So, 12. Jan |          | —:~:~:~:~                  | —          | Mond stört                          |      | 14:22      | 07:39      | 06:12                      | 39m        | 06:51 | 40m        | 07:32 | 40m        | 08:12      | 8h 20m     | 16:33                   | 40m        | 17:14 | 40m        | 17:54 | 39m        | 18:34    | 15h 38m                    | 11h 37m    |    |            |    | So, 12. Jan |
| Mo, 13. Jan |          | —:~:~:~:~                  | —          | Mond stört                          | ☉    | 15:36      | 08:30      | 06:11                      | 39m        | 06:51 | 40m        | 07:31 | 40m        | 08:12      | 8h 22m     | 16:34                   | 40m        | 17:15 | 40m        | 17:55 | 39m        | 18:35    | 15h 36m                    | 11h 35m    |    |            |    | Mo, 13. Jan |
| Di, 14. Jan |          | —:~:~:~:~                  | —          | Mond stört                          |      | 16:57      | 09:05      | 06:11                      | 39m        | 06:50 | 40m        | 07:31 | 40m        | 08:11      | 8h 24m     | 16:36                   | 40m        | 17:16 | 40m        | 17:57 | 39m        | 18:36    | 15h 34m                    | 11h 33m    |    |            |    | Di, 14. Jan |
| Mi, 15. Jan |          | —:~:~:~:~                  | —          | Mond stört                          |      | 18:18      | 09:29      | 06:10                      | 39m        | 06:50 | 40m        | 07:30 | 40m        | 08:10      | 8h 27m     | 16:37                   | 40m        | 17:18 | 40m        | 17:58 | 39m        | 18:38    | 15h 31m                    | 11h 32m    |    |            |    | Mi, 15. Jan |
| Do, 16. Jan |          | 18:39–19:36                | 57m        | AN <sub>+</sub> bis M <sub>7</sub>  |      | 19:36      | 09:46      | 06:10                      | 39m        | 06:49 | 40m        | 07:29 | 40m        | 08:09      | 8h 29m     | 16:39                   | 40m        | 17:19 | 40m        | 17:59 | 39m        | 18:39    | 15h 29m                    | 11h 30m    |    |            |    | Do, 16. Jan |
| Fr, 17. Jan |          | 18:40–20:50                | 2h 10m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 20:50      | 09:59      | 06:09                      | 39m        | 06:48 | 40m        | 07:29 | 39m        | 08:09      | 8h 32m     | 16:41                   | 39m        | 17:20 | 40m        | 18:01 | 39m        | 18:40    | 15h 26m                    | 11h 28m    |    |            |    | Fr, 17. Jan |
| Sa, 18. Jan |          | 18:41–22:01                | 3h 20m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 22:01      | 10:11      | 06:08                      | 39m        | 06:48 | 40m        | 07:28 | 39m        | 08:08      | 8h 34m     | 16:42                   | 39m        | 17:22 | 40m        | 18:02 | 39m        | 18:41    | 15h 24m                    | 11h 26m    |    |            |    | Sa, 18. Jan |
| So, 19. Jan |          | 18:43–23:11                | 4h 28m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 23:11      | 10:21      | 06:08                      | 39m        | 06:47 | 40m        | 07:27 | 39m        | 08:07      | 8h 37m     | 16:44                   | 39m        | 17:23 | 40m        | 18:03 | 39m        | 18:43    | 15h 21m                    | 11h 24m    |    |            |    | So, 19. Jan |
| Mo, 20. Jan |          | 18:44–00:21*               | 5h 36m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | —:—        | 10:31      | 06:07                      | 39m        | 06:46 | 39m        | 07:26 | 39m        | 08:06      | 8h 39m     | 16:45                   | 39m        | 17:25 | 39m        | 18:05 | 39m        | 18:44    | 15h 19m                    | 11h 22m    |    |            |    | Mo, 20. Jan |
| Di, 21. Jan |          | 18:45–01:32*               | 6h 46m     | AN <sub>+</sub> bis M <sub>7</sub>  | ☾    | 00:21      | 10:42      | 06:06                      | 39m        | 06:45 | 39m        | 07:25 | 39m        | 08:04      | 8h 42m     | 16:47                   | 39m        | 17:26 | 39m        | 18:06 | 39m        | 18:45    | 15h 16m                    | 11h 19m    |    |            |    | Di, 21. Jan |
| Mi, 22. Jan |          | 18:47–02:45*               | 7h 58m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 01:32      | 10:55      | 06:05                      | 39m        | 06:44 | 39m        | 07:24 | 39m        | 08:03      | 8h 45m     | 16:49                   | 39m        | 17:28 | 39m        | 18:08 | 39m        | 18:47    | 15h 13m                    | 11h 17m    |    |            |    | Mi, 22. Jan |
| Do, 23. Jan |          | 18:48–03:59*               | 9h 11m     | AN <sub>+</sub> bis M <sub>7</sub>  |      | 02:45      | 11:12      | 06:04                      | 38m        | 06:43 | 39m        | 07:23 | 39m        | 08:02      | 8h 48m     | 16:50                   | 39m        | 17:29 | 39m        | 18:09 | 39m        | 18:48    | 15h 10m                    | 11h 15m    |    |            |    | Do, 23. Jan |
| Fr, 24. Jan |          | 18:50–05:13*               | 10h 22m    | AN <sub>+</sub> bis M <sub>7</sub>  |      | 03:59      | 11:35      | 06:04                      | 38m        | 06:43 | 39m        | 07:22 | 38m        | 08:01      | 8h 51m     | 16:52                   | 38m        | 17:31 | 39m        | 18:11 | 38m        | 18:50    | 15h 07m                    | 11h 13m    |    |            |    | Fr, 24. Jan |
| Sa, 25. Jan |          | 18:51–06:02*               | 11h 10m    | AN <sub>+</sub> bis AN <sub>-</sub> |      | 05:13      | 12:09      | 06:03                      | 38m        | 06:42 | 39m        | 07:21 | 38m        | 08:00      | 8h 54m     | 16:54                   | 38m        | 17:33 | 39m        | 18:12 | 38m        | 18:51    | 15h 04m                    | 11h 10m    |    |            |    | Sa, 25. Jan |
| So, 26. Jan |          | 18:52–06:01*               | 11h 08m    | AN <sub>+</sub> bis AN <sub>-</sub> |      | 06:19      | 12:56      | 06:02                      | 38m        | 06:40 | 39m        | 07:20 | 38m        | 07:59      | 8h 57m     | 16:56                   | 38m        | 17:34 | 39m        | 18:14 | 38m        | 18:52    | 15h 01m                    | 11h 08m    |    |            |    | So, 26. Jan |
| Mo, 27. Jan |          | 18:54–06:00*               | 11h 05m    | AN <sub>+</sub> bis AN <sub>-</sub> |      |            |            |                            |            |       |            |       |            |            |            |                         |            |       |            |       |            |          |                            |            |    |            |    |             |