

Astronomical calendar 2020

di Nicola Taibi

Rif.:

Astronomical Algorithms, 2nd edition, by Jean Meeus

AA+ v2.30 A class framework for Computational Astronomy

<http://www.naughtner.com/aa.html>



Solar and Lunar Eclipse

2019-12-26 05:19:24 (UTC), Gamma:0.413244, TimeOfMaximumEclipse:2458843.721807, F:176.324937, u:0.012707, GreatestMagnitude:0.000000, Solar eclipse, Annular, Central
2020-06-21 06:41:9 (UTC), Gamma:0.121926, TimeOfMaximumEclipse:2459021.778582, F:0.347951, u:0.006093, GreatestMagnitude:0.000000, Solar eclipse, Annular, Central
2020-12-14 16:15:12 (UTC), Gamma:-0.294518, TimeOfMaximumEclipse:2459198.177230, F:184.370965, u:-0.002381, GreatestMagnitude:0.000000, Solar eclipse, Total, Central
2020-01-10 19:10:59 (UTC), Gamma:1.077486, TimeOfMaximumEclipse:2458859.299295, F:11.660188, u:0.003348, PenumbraRadii:1.288148, UmbralRadii:0.736952, PenumbraMagnitude:0.886537, UmbralMagnitude:-0.124833, PartialPhaseSemiDuration:0.000000min, TotalPhaseSemiDuration:0.000000min, PartialPhasePenumbraSemiDuration:120.899505min, Lunar eclipse, Partial Penumbra, North
2020-06-05 19:25:46 (UTC), Gamma:1.245788, TimeOfMaximumEclipse:2459006.309564, F:165.012700, u:-0.006933, PenumbraRadii:1.277867, UmbralRadii:0.747233, PenumbraMagnitude:0.558861, UmbralMagnitude:-0.414781, PartialPhaseSemiDuration:0.000000min, TotalPhaseSemiDuration:0.000000min, PartialPhasePenumbraSemiDuration:97.898867min, Lunar eclipse, Partial Penumbra, North
2020-07-05 04:30:58 (UTC), Gamma:-1.366176, TimeOfMaximumEclipse:2459035.688175, F:195.683202, u:-0.000286, PenumbraRadii:1.284514, UmbralRadii:0.740586, PenumbraMagnitude:0.350161, UmbralMagnitude:-0.647871, PartialPhaseSemiDuration:0.000000min, TotalPhaseSemiDuration:0.000000min, PartialPhasePenumbraSemiDuration:81.705375min, Lunar eclipse, Partial Penumbra, South
2020-11-30 09:44:36 (UTC), Gamma:-1.133798, TimeOfMaximumEclipse:2459183.905983, F:349.035714, u:0.025222, PenumbraRadii:1.310022, UmbralRadii:0.715078, PenumbraMagnitude:0.823346, UmbralMagnitude:-0.268294, PartialPhaseSemiDuration:0.000000min, TotalPhaseSemiDuration:0.000000min, PartialPhasePenumbraSemiDuration:129.093024min, Lunar eclipse, Partial Penumbra, South

Ephemeris for the physical sun

2458849.500000, 2020-1-1, -2.939240, 70.895650, 2.319927
2458850.500000, 2020-1-2, -3.056478, 57.725281, 1.835120
2458851.500000, 2020-1-3, -3.172756, 44.555086, 1.350292
2458852.500000, 2020-1-4, -3.288035, 31.385058, 0.865642
2458853.500000, 2020-1-5, -3.402277, 18.215194, 0.381369
2458854.500000, 2020-1-6, -3.515446, 5.045490, -0.102337
2458855.500000, 2020-1-7, -3.627506, 351.875947, -0.585286
2458856.500000, 2020-1-8, -3.738421, 338.706566, -1.067293
2458857.500000, 2020-1-9, -3.848156, 325.537352, -1.548179
2458858.500000, 2020-1-10, -3.956678, 312.368315, -2.027769
2458859.500000, 2020-1-11, -4.063952, 299.199464, -2.505890
2458860.500000, 2020-1-12, -4.169947, 286.030812, -2.982375
2458861.500000, 2020-1-13, -4.274629, 272.862373, -3.457059
2458862.500000, 2020-1-14, -4.377967, 259.694158, -3.929780
2458863.500000, 2020-1-15, -4.479928, 246.526178, -4.400377
2458864.500000, 2020-1-16, -4.580480, 233.358440, -4.868693
2458865.500000, 2020-1-17, -4.679593, 220.190947, -5.334571
2458866.500000, 2020-1-18, -4.777233, 207.023694, -5.797857
2458867.500000, 2020-1-19, -4.873370, 193.856675, -6.258401
2458868.500000, 2020-1-20, -4.967970, 180.689873, -6.716053
2458869.500000, 2020-1-21, -5.061002, 167.523271, -7.170664
2458870.500000, 2020-1-22, -5.152435, 154.356844, -7.622090
2458871.500000, 2020-1-23, -5.242238, 141.190568, -8.070187
2458872.500000, 2020-1-24, -5.330380, 128.024415, -8.514815
2458873.500000, 2020-1-25, -5.416831, 114.858359, -8.955838
2458874.500000, 2020-1-26, -5.501563, 101.692371, -9.393122
2458875.500000, 2020-1-27, -5.584548, 88.526426, -9.826539
2458876.500000, 2020-1-28, -5.665757, 75.360500, -10.255965
2458877.500000, 2020-1-29, -5.745166, 62.194570, -10.681281
2458878.500000, 2020-1-30, -5.822747, 49.028613, -11.102373
2458879.500000, 2020-1-31, -5.898477, 35.862610, -11.519132
2458880.500000, 2020-2-1, -5.972332, 22.696540, -11.931453
2458881.500000, 2020-2-2, -6.044289, 9.530386, -12.339236
2458882.500000, 2020-2-3, -6.114326, 356.364132, -12.742385
2458883.500000, 2020-2-4, -6.182421, 343.197763, -13.140811
2458884.500000, 2020-2-5, -6.248554, 330.031269, -13.534428
2458885.500000, 2020-2-6, -6.312706, 316.864642, -13.923153
2458886.500000, 2020-2-7, -6.374859, 303.697877, -14.306911
2458887.500000, 2020-2-8, -6.434995, 290.530975, -14.685628
2458888.500000, 2020-2-9, -6.493098, 277.363938, -15.059231
2458889.500000, 2020-2-10, -6.549150, 264.196772, -15.427651
2458890.500000, 2020-2-11, -6.603138, 251.029483, -15.790820
2458891.500000, 2020-2-12, -6.655047, 237.862077, -16.148672
2458892.500000, 2020-2-13, -6.704861, 224.694557, -16.501144
2458893.500000, 2020-2-14, -6.752568, 211.526924, -16.848176
2458894.500000, 2020-2-15, -6.798154, 198.359176, -17.189710
2458895.500000, 2020-2-16, -6.841606, 185.191302, -17.525690
2458896.500000, 2020-2-17, -6.882912, 172.023288, -17.856057
2458897.500000, 2020-2-18, -6.922061, 158.855116, -18.180756
2458898.500000, 2020-2-19, -6.959040, 145.686762, -18.499728
2458899.500000, 2020-2-20, -6.993840, 132.518199, -18.812916
2458900.500000, 2020-2-21, -7.026451, 119.349397, -19.120262
2458901.500000, 2020-2-22, -7.056865, 106.180327, -19.421711
2458902.500000, 2020-2-23, -7.085073, 93.010958, -19.717206
2458903.500000, 2020-2-24, -7.111069, 79.841258, -20.006696
2458904.500000, 2020-2-25, -7.134846, 66.671199, -20.290128
2458905.500000, 2020-2-26, -7.156401, 53.500752, -20.567455

Equinoxes and Solstices

Northward Equinox (UTC) 2020-3-20, 3:49:40

Northern Solstice (UTC) at declination 23.4365, 2020-6-20, 21:50:36

Southward Equinox (UTC) 2020-9-22, 13:30:25

Southern Solstice (UTC) at declination -23.4371, 2020-12-21, 10:3:27

Max declinations for the Moon using CAAMoonMaxDeclinations

Max southern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination -23.2001, 2019-11-29-10:35:54

Max northern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination 23.2258, 2019-12-13-20:56:50

Max southern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination -23.227, 2019-12-26-20:11:22

Max northern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination 23.2229, 2020-1-10-6:2:37

Max southern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination -23.2255, 2020-1-23-3:36:53

Max northern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination 23.2682, 2020-2-6-16:10:5

Max southern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination -23.3192, 2020-2-19-8:58:20

Max northern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination 23.4414, 2020-3-5-1:33:46

Max southern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination -23.54, 2020-3-17-14:7:23

Max northern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination 23.7023, 2020-4-1-9:11:39

Max southern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination -23.8049, 2020-4-13-21:2:57

Max northern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination 23.9355, 2020-4-28-15:22:42

Max southern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination -23.9982, 2020-5-11-6:13:5

Max northern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination 24.0552, 2020-5-25-21:15:41

Max southern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination -24.0692, 2020-6-7-16:22:15

Max northern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination 24.0704, 2020-6-22-3:55:52

Max southern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination -24.0644, 2020-7-5-1:37:24

Max northern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination 24.0695, 2020-7-19-11:50:48

Max southern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination -24.0868, 2020-8-1-8:47:13

Max northern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination 24.1516, 2020-8-15-20:39:55

Max southern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination -24.219, 2020-8-28-14:6:25

Max northern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination 24.3531, 2020-9-12-5:25:5

Max southern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination -24.458, 2020-9-24-19:10:52

Max northern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination 24.6128, 2020-10-9-13:6:34

Max southern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination -24.708, 2020-10-22-2:0:10

Max northern declination of the Moon (using CAAMoonMaxDeclinations) (UTC) at declination 24.8132, 2020-11-5-19:29:53

Max northern declination of the Moon (using CAAMoonMaxDeclinations2 algorithm: MeeusTruncated) (UTC) at RA: 6.88895, declinatio: 23.2212, 2020-1-10, 6:2:49

Max southern declination of the Moon (using CAAMoonMaxDeclinations2 algorithm: MeeusTruncated) (UTC) at RA: 18.8827, declinatio: -23.2251, 2020-1-23, 3:34:10

Max northern declination of the Moon (using CAAMoonMaxDeclinations2 algorithm: MeeusTruncated)

Moon Apogee and Perigee's using CAAMoonPerigeeApogee

Perigee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 370258, 2019-12-18, 20:30:5
Apogee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 404410, 2020-1-2, 1:30:13
Perigee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 365963, 2020-1-13, 20:20:29
Apogee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 404845, 2020-1-29, 21:27:41
Perigee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 360463, 2020-2-10, 20:30:35
Apogee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 405713, 2020-2-26, 11:34:58
Perigee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 357122, 2020-3-10, 6:33:19
Apogee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 406358, 2020-3-24, 15:22:55
Perigee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 356908, 2020-4-7, 18:8:21
Apogee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 406457, 2020-4-20, 19:1:9
Perigee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 359655, 2020-5-6, 3:3:26
Apogee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 405907, 2020-5-18, 7:44:54
Perigee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 364365, 2020-6-3, 3:36:25
Apogee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 404937, 2020-6-15, 0:56:29
Perigee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 368957, 2020-6-30, 2:8:37
Apogee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 404256, 2020-7-12, 19:27:1
Perigee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 368366, 2020-7-25, 4:53:51
Apogee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 404380, 2020-8-9, 13:51:19
Perigee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 363512, 2020-8-21, 10:58:37
Apogee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 405237, 2020-9-6, 6:30:57
Perigee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 359080, 2020-9-18, 13:43:51
Apogee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 406215, 2020-10-3, 17:22:20
Perigee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 356912, 2020-10-16, 23:46:22
Apogee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 406636, 2020-10-30, 18:46:9
Perigee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 357838, 2020-11-14, 11:48:9
Apogee of the Moon (using CAAMoonPerigeeApogee) (UTC) at distance 406396, 2020-11-27, 0:28:42
Apogee of the Moon (using CAAMoonPerigeeApogee2 algorithm MeeusTruncated) (UTC) at distance 404576, 2020-1-2-1:31:51
Perigee of the Moon (using CAAMoonPerigeeApogee2 algorithm MeeusTruncated) (UTC) at distance 365962, 2020-1-13, 20:21:54
Apogee of the Moon (using CAAMoonPerigeeApogee2 algorithm MeeusTruncated) (UTC) at distance 405390, 2020-1-29-21:27:42
Perigee of the Moon (using CAAMoonPerigeeApogee2 algorithm MeeusTruncated) (UTC) at distance 360467, 2020-2-10, 20:26:35
Apogee of the Moon (using CAAMoonPerigeeApogee2 algorithm MeeusTruncated) (UTC) at distance 406277, 2020-2-26-11:34:48
Perigee of the Moon (using CAAMoonPerigeeApogee2 algorithm MeeusTruncated) (UTC) at distance 357128, 2020-3-10, 6:27:50
Apogee of the Moon (using CAAMoonPerigeeApogee2 algorithm MeeusTruncated) (UTC) at distance 406691, 2020-3-24-15:24:1
Perigee of the Moon (using CAAMoonPerigeeApogee2 algorithm MeeusTruncated) (UTC) at distance 356910, 2020-4-7, 18:6:44
Apogee of the Moon (using CAAMoonPerigeeApogee2 algorithm MeeusTruncated) (UTC) at distance 406460, 2020-4-20-19:1:45
Perigee of the Moon (using CAAMoonPerigeeApogee2 algorithm MeeusTruncated) (UTC) at distance 359655, 2020-5-6, 3:1:51
Apogee of the Moon (using CAAMoonPerigeeApogee2 algorithm MeeusTruncated) (UTC) at distance 405580, 2020-5-18-7:43:55
Perigee of the Moon (using CAAMoonPerigeeApogee2 algorithm MeeusTruncated) (UTC) at distance 364366, 2020-6-3, 3:39:23
Apogee of the Moon (using CAAMoonPerigeeApogee2 algorithm MeeusTruncated) (UTC) at distance 404595, 2020-6-15-0:55:25
Perigee of the Moon (using CAAMoonPerigeeApogee2 algorithm MeeusTruncated) (UTC) at distance 368960, 2020-6-30, 2:9:57
Apogee of the Moon (using CAAMoonPerigeeApogee2 algorithm MeeusTruncated) (UTC) at distance 404201, 2020-7-12-19:26:59
Perigee of the Moon (using CAAMoonPerigeeApogee2 algorithm MeeusTruncated) (UTC) at distance

Moon's phases

New Moon (using CAAMoonPhases) (UTC) 2019-12-26, 5:13:15
First Quarter Moon (using CAAMoonPhases) (UTC) 2020-1-3, 4:45:25
Full Moon (using CAAMoonPhases) (UTC) 2020-1-10, 19:21:13
Last Quarter Moon (using CAAMoonPhases) (UTC) 2020-1-17, 12:58:24
New Moon (using CAAMoonPhases) (UTC) 2020-1-24, 21:42:2
First Quarter Moon (using CAAMoonPhases) (UTC) 2020-2-2, 1:41:33
Full Moon (using CAAMoonPhases) (UTC) 2020-2-9, 7:33:9
Last Quarter Moon (using CAAMoonPhases) (UTC) 2020-2-15, 22:17:16
New Moon (using CAAMoonPhases) (UTC) 2020-2-23, 15:31:58
First Quarter Moon (using CAAMoonPhases) (UTC) 2020-3-2, 19:57:17
Full Moon (using CAAMoonPhases) (UTC) 2020-3-9, 17:47:37
Last Quarter Moon (using CAAMoonPhases) (UTC) 2020-3-16, 9:34:12
New Moon (using CAAMoonPhases) (UTC) 2020-3-24, 9:28:6
First Quarter Moon (using CAAMoonPhases) (UTC) 2020-4-1, 10:21:7
Full Moon (using CAAMoonPhases) (UTC) 2020-4-8, 2:34:57
Last Quarter Moon (using CAAMoonPhases) (UTC) 2020-4-14, 22:56:4
New Moon (using CAAMoonPhases) (UTC) 2020-4-23, 2:25:42
First Quarter Moon (using CAAMoonPhases) (UTC) 2020-4-30, 20:38:11
Full Moon (using CAAMoonPhases) (UTC) 2020-5-7, 10:45:8
Last Quarter Moon (using CAAMoonPhases) (UTC) 2020-5-14, 14:2:38
New Moon (using CAAMoonPhases) (UTC) 2020-5-22, 17:38:45
First Quarter Moon (using CAAMoonPhases) (UTC) 2020-5-30, 3:29:49
Full Moon (using CAAMoonPhases) (UTC) 2020-6-5, 19:12:18
Last Quarter Moon (using CAAMoonPhases) (UTC) 2020-6-13, 6:23:38
New Moon (using CAAMoonPhases) (UTC) 2020-6-21, 6:41:20
First Quarter Moon (using CAAMoonPhases) (UTC) 2020-6-28, 8:15:36
Full Moon (using CAAMoonPhases) (UTC) 2020-7-5, 4:44:17
Last Quarter Moon (using CAAMoonPhases) (UTC) 2020-7-12, 23:28:56
New Moon (using CAAMoonPhases) (UTC) 2020-7-20, 17:32:48
First Quarter Moon (using CAAMoonPhases) (UTC) 2020-7-27, 12:32:27
Full Moon (using CAAMoonPhases) (UTC) 2020-8-3, 15:58:42
Last Quarter Moon (using CAAMoonPhases) (UTC) 2020-8-11, 16:44:43
New Moon (using CAAMoonPhases) (UTC) 2020-8-19, 2:41:31
First Quarter Moon (using CAAMoonPhases) (UTC) 2020-8-25, 17:57:36
Full Moon (using CAAMoonPhases) (UTC) 2020-9-2, 5:22:4
Last Quarter Moon (using CAAMoonPhases) (UTC) 2020-9-10, 9:25:41
New Moon (using CAAMoonPhases) (UTC) 2020-9-17, 11:0:1
First Quarter Moon (using CAAMoonPhases) (UTC) 2020-9-24, 1:54:53
Full Moon (using CAAMoonPhases) (UTC) 2020-10-1, 21:5:16
Last Quarter Moon (using CAAMoonPhases) (UTC) 2020-10-10, 0:39:30
New Moon (using CAAMoonPhases) (UTC) 2020-10-16, 19:30:54
First Quarter Moon (using CAAMoonPhases) (UTC) 2020-10-23, 13:22:56
Full Moon (using CAAMoonPhases) (UTC) 2020-10-31, 14:49:17
Last Quarter Moon (using CAAMoonPhases) (UTC) 2020-11-8, 13:46:3
New Moon (using CAAMoonPhases) (UTC) 2020-11-15, 5:7:12
First Quarter Moon (using CAAMoonPhases) (UTC) 2020-11-22, 4:45:3
Full Moon (using CAAMoonPhases) (UTC) 2020-11-30, 9:29:47
Last Quarter Moon (using CAAMoonPhases) (UTC) 2020-12-8, 0:36:33
New Moon (using CAAMoonPhases) (UTC) 2020-12-14, 16:16:36
First Quarter Moon (using CAAMoonPhases) (UTC) 2020-12-21, 23:41:17
Full Moon (using CAAMoonPhases) (UTC) 2020-12-30, 3:28:10
Last Quarter Moon (using CAAMoonPhases) (UTC) 2021-1-6, 9:37:14

Moon's phases II

First Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-1-3, 4:45:22
Full Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-1-10, 19:21:19
Last Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-1-17, 12:58:38
New Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-1-24, 21:41:58
First Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-2-2, 1:41:34
Full Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-2-9, 7:33:10
Last Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-2-15, 22:17:19
New Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-2-23, 15:32:4
First Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-3-2, 19:57:11
Full Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-3-9, 17:47:30
Last Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-3-16, 9:34:15
New Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-3-24, 9:28:12
First Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-4-1, 10:21:14
Full Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-4-8, 2:34:56
Last Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-4-14, 22:56:11
New Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-4-23, 2:25:40
First Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-4-30, 20:38:26
Full Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-5-7, 10:45:15
Last Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-5-14, 14:2:34
New Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-5-22, 17:38:45
First Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-5-30, 3:29:53
Full Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-6-5, 19:12:26
Last Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-6-13, 6:23:31
New Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-6-21, 6:41:31
First Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-6-28, 8:15:40
Full Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-7-5, 4:44:23
Last Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-7-12, 23:28:59
New Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-7-20, 17:33:2
First Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-7-27, 12:32:37
Full Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-8-3, 15:58:41
Last Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-8-11, 16:44:49
New Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-8-19, 2:41:43
First Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-8-25, 17:57:40
Full Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-9-2, 5:22:3
Last Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-9-10, 9:25:39
New Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-9-17, 11:0:22
First Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-9-24, 1:54:57
Full Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-10-1, 21:5:10
Last Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-10-10, 0:39:28
New Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-10-16, 19:31:17
First Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-10-23, 13:23:4
Full Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-10-31, 14:48:59
Last Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-11-8, 13:46:6
New Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-11-15, 5:7:18
First Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-11-22, 4:44:59
Full Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-11-30, 9:29:42
Last Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-12-8, 0:36:32
New Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-12-14, 16:16:37
First Quarter Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-12-21, 23:41:4
Full Moon (using CAAMoonPhases2 algorithm MeeusTruncated) (UTC) 2020-12-30, 3:28:15
First Quarter Moon (using CAAMoonPhases2 algorithm ELP2000) (UTC) 2020-1-3, 4:44:43
Full Moon (using CAAMoonPhases2 algorithm ELP2000) (UTC) 2020-1-10, 19:20:46
Last Quarter Moon (using CAAMoonPhases2 algorithm ELP2000) (UTC) 2020-1-17, 12:57:51
New Moon (using CAAMoonPhases2 algorithm ELP2000) (UTC) 2020-1-24, 21:41:24
First Quarter Moon (using CAAMoonPhases2 algorithm ELP2000) (UTC) 2020-2-2, 1:41:2
Full Moon (using CAAMoonPhases2 algorithm ELP2000) (UTC) 2020-2-9, 7:32:47
Last Quarter Moon (using CAAMoonPhases2 algorithm ELP2000) (UTC) 2020-2-15, 22:16:39

Passage Through The Nodes Of The Moon

Passage through the ascending node of the Moon (using CAAMoonNodes) (UTC) 2019-12-13, 14:14:45
Passage through the descending node of the Moon (using CAAMoonNodes) (UTC) 2019-12-26, 13:1:27
Passage through the ascending node of the Moon (using CAAMoonNodes) (UTC) 2020-1-9, 23:28:40
Passage through the descending node of the Moon (using CAAMoonNodes) (UTC) 2020-1-22, 20:31:29
Passage through the ascending node of the Moon (using CAAMoonNodes) (UTC) 2020-2-6, 8:59:7
Passage through the descending node of the Moon (using CAAMoonNodes) (UTC) 2020-2-19, 0:12:4
Passage through the ascending node of the Moon (using CAAMoonNodes) (UTC) 2020-3-4, 14:58:16
Passage through the descending node of the Moon (using CAAMoonNodes) (UTC) 2020-3-17, 0:59:45
Passage through the ascending node of the Moon (using CAAMoonNodes) (UTC) 2020-3-31, 16:51:1
Passage through the descending node of the Moon (using CAAMoonNodes) (UTC) 2020-4-13, 2:58:1
Passage through the ascending node of the Moon (using CAAMoonNodes) (UTC) 2020-4-27, 17:54:11
Passage through the descending node of the Moon (using CAAMoonNodes) (UTC) 2020-5-10, 9:1:14
Passage through the ascending node of the Moon (using CAAMoonNodes) (UTC) 2020-5-24, 21:33:35
Passage through the descending node of the Moon (using CAAMoonNodes) (UTC) 2020-6-6, 18:10:14
Passage through the ascending node of the Moon (using CAAMoonNodes) (UTC) 2020-6-21, 4:24:0
Passage through the descending node of the Moon (using CAAMoonNodes) (UTC) 2020-7-4, 3:18:8
Passage through the ascending node of the Moon (using CAAMoonNodes) (UTC) 2020-7-18, 12:33:13
Passage through the descending node of the Moon (using CAAMoonNodes) (UTC) 2020-7-31, 9:32:13
Passage through the ascending node of the Moon (using CAAMoonNodes) (UTC) 2020-8-14, 19:22:16
Passage through the descending node of the Moon (using CAAMoonNodes) (UTC) 2020-8-27, 11:52:13
Passage through the ascending node of the Moon (using CAAMoonNodes) (UTC) 2020-9-10, 23:5:6
Passage through the descending node of the Moon (using CAAMoonNodes) (UTC) 2020-9-23, 12:32:48
Passage through the ascending node of the Moon (using CAAMoonNodes) (UTC) 2020-10-8, 0:29:18
Passage through the descending node of the Moon (using CAAMoonNodes) (UTC) 2020-10-20, 15:53:23
Passage through the ascending node of the Moon (using CAAMoonNodes) (UTC) 2020-11-4, 2:39:27
Passage through the descending node of the Moon (using CAAMoonNodes) (UTC) 2020-11-17, 0:7:10
Passage through the ascending node of the Moon (using CAAMoonNodes2 algorithm MeeusTruncated) (UTC) 2020-1-9, 23:29:37
Passage through the descending node of the Moon (using CAAMoonNodes2 algorithm MeeusTruncated) (UTC) 2020-1-22, 20:31:47
Passage through the ascending node of the Moon (using CAAMoonNodes2 algorithm MeeusTruncated) (UTC) 2020-2-6, 8:59:13
Passage through the descending node of the Moon (using CAAMoonNodes2 algorithm MeeusTruncated) (UTC) 2020-2-19, 0:11:59
Passage through the ascending node of the Moon (using CAAMoonNodes2 algorithm MeeusTruncated) (UTC) 2020-3-4, 14:59:26
Passage through the descending node of the Moon (using CAAMoonNodes2 algorithm MeeusTruncated) (UTC) 2020-3-17, 0:59:57
Passage through the ascending node of the Moon (using CAAMoonNodes2 algorithm MeeusTruncated) (UTC) 2020-3-31, 16:52:0
Passage through the descending node of the Moon (using CAAMoonNodes2 algorithm MeeusTruncated) (UTC) 2020-4-13, 2:59:34
Passage through the ascending node of the Moon (using CAAMoonNodes2 algorithm MeeusTruncated) (UTC) 2020-4-27, 17:54:42
Passage through the descending node of the Moon (using CAAMoonNodes2 algorithm MeeusTruncated) (UTC) 2020-5-10, 9:2:22
Passage through the ascending node of the Moon (using CAAMoonNodes2 algorithm MeeusTruncated) (UTC) 2020-5-24, 21:34:24
Passage through the descending node of the Moon (using CAAMoonNodes2 algorithm MeeusTruncated) (UTC) 2020-6-6, 18:10:11
Passage through the ascending node of the Moon (using CAAMoonNodes2 algorithm MeeusTruncated) (UTC) 2020-6-21, 4:23:53
Passage through the descending node of the Moon (using CAAMoonNodes2 algorithm MeeusTruncated) (UTC) 2020-7-4, 3:17:49
Passage through the ascending node of the Moon (using CAAMoonNodes2 algorithm MeeusTruncated) (UTC) 2020-7-18, 12:32:58
Passage through the descending node of the Moon (using CAAMoonNodes2 algorithm

Rise, Transit and Set times for the Moon for Palermo, Italy, using the new CAARiseTransitSet2 class

Rise of Moon (UTC) at bearing 281.111, 2020-1-1, 10:30:28
Southern Transit of Moon (UTC), 2020-1-1, 16:9:2
Set of Moon (UTC) at bearing 81.6083, 2020-1-1, 21:54:35
Rise of Moon (UTC) at bearing 275.222, 2020-1-2, 10:56:25
Southern Transit of Moon (UTC), 2020-1-2, 16:49:59
Set of Moon (UTC) at bearing 87.7108, 2020-1-2, 22:51:0
Rise of Moon (UTC) at bearing 269.189, 2020-1-3, 11:21:50
Southern Transit of Moon (UTC), 2020-1-3, 17:30:48
Set of Moon (UTC) at bearing 93.8889, 2020-1-3, 23:47:38
Rise of Moon (UTC) at bearing 263.162, 2020-1-4, 11:47:52
Southern Transit of Moon (UTC), 2020-1-4, 18:12:30
Set of Moon (UTC) at bearing 99.9723, 2020-1-5, 0:45:19
Rise of Moon (UTC) at bearing 257.309, 2020-1-5, 12:15:43
Southern Transit of Moon (UTC), 2020-1-5, 18:56:5
Set of Moon (UTC) at bearing 105.759, 2020-1-6, 1:44:45
Rise of Moon (UTC) at bearing 251.853, 2020-1-6, 12:46:48
Southern Transit of Moon (UTC), 2020-1-6, 19:42:31
Set of Moon (UTC) at bearing 110.966, 2020-1-7, 2:46:14
Rise of Moon (UTC) at bearing 247.092, 2020-1-7, 13:22:40
Southern Transit of Moon (UTC), 2020-1-7, 20:32:34
Set of Moon (UTC) at bearing 115.222, 2020-1-8, 3:49:22
Rise of Moon (UTC) at bearing 243.413, 2020-1-8, 14:4:57
Southern Transit of Moon (UTC), 2020-1-8, 21:26:29
Set of Moon (UTC) at bearing 118.079, 2020-1-9, 4:52:42
Rise of Moon (UTC) at bearing 241.266, 2020-1-9, 14:55:5
Southern Transit of Moon (UTC), 2020-1-9, 22:23:51
Set of Moon (UTC) at bearing 119.108, 2020-1-10, 5:53:53
Rise of Moon (UTC) at bearing 241.06, 2020-1-10, 15:53:29
Southern Transit of Moon (UTC), 2020-1-10, 23:23:16
Set of Moon (UTC) at bearing 118.044, 2020-1-11, 6:50:22
Rise of Moon (UTC) at bearing 242.995, 2020-1-11, 16:59:3
Southern Transit of Moon (UTC), 2020-1-12, 0:22:54
Set of Moon (UTC) at bearing 114.917, 2020-1-12, 7:40:31
Rise of Moon (UTC) at bearing 246.953, 2020-1-12, 18:9:11
Southern Transit of Moon (UTC), 2020-1-13, 1:21:0
Set of Moon (UTC) at bearing 110.051, 2020-1-13, 8:24:13
Rise of Moon (UTC) at bearing 252.547, 2020-1-13, 19:21:2
Southern Transit of Moon (UTC), 2020-1-14, 2:16:36
Set of Moon (UTC) at bearing 103.908, 2020-1-14, 9:2:27
Rise of Moon (UTC) at bearing 259.258, 2020-1-14, 20:32:32
Southern Transit of Moon (UTC), 2020-1-15, 3:9:35
Set of Moon (UTC) at bearing 96.9901, 2020-1-15, 9:36:46
Rise of Moon (UTC) at bearing 266.571, 2020-1-15, 21:42:50
Southern Transit of Moon (UTC), 2020-1-16, 4:0:34
Set of Moon (UTC) at bearing 89.7356, 2020-1-16, 10:8:48
Rise of Moon (UTC) at bearing 274.029, 2020-1-16, 22:51:58
Southern Transit of Moon (UTC), 2020-1-17, 4:50:28
Set of Moon (UTC) at bearing 82.5338, 2020-1-17, 10:40:7
Rise of Moon (UTC) at bearing 281.236, 2020-1-18, 0:0:20
Southern Transit of Moon (UTC), 2020-1-18, 5:40:17
Set of Moon (UTC) at bearing 75.7325, 2020-1-18, 11:12:16
Rise of Moon (UTC) at bearing 287.819, 2020-1-19, 1:8:14
Southern Transit of Moon (UTC), 2020-1-19, 6:30:53
Set of Moon (UTC) at bearing 69.6667, 2020-1-19, 11:46:43
Rise of Moon (UTC) at bearing 293.418, 2020-1-20, 2:15:25
Southern Transit of Moon (UTC), 2020-1-20, 7:22:51

Rise, Transit and Set times for the Moon for Palermo, Italy, using the new CAARiseTransitSet2 class and its higher accuracy CalculateMoon method

Rise of Moon (Higher accuracy) (UTC) at bearing 281.084, 2020-1-1, 10:30:17
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-1, 16:9:2
Set of Moon (Higher accuracy) (UTC) at bearing 81.6365, 2020-1-1, 21:54:46
Rise of Moon (Higher accuracy) (UTC) at bearing 275.195, 2020-1-2, 10:56:14
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-2, 16:49:59
Set of Moon (Higher accuracy) (UTC) at bearing 87.7381, 2020-1-2, 22:51:11
Rise of Moon (Higher accuracy) (UTC) at bearing 269.164, 2020-1-3, 11:21:40
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-3, 17:30:48
Set of Moon (Higher accuracy) (UTC) at bearing 93.9135, 2020-1-3, 23:47:48
Rise of Moon (Higher accuracy) (UTC) at bearing 263.14, 2020-1-4, 11:47:43
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-4, 18:12:30
Set of Moon (Higher accuracy) (UTC) at bearing 99.9927, 2020-1-5, 0:45:27
Rise of Moon (Higher accuracy) (UTC) at bearing 257.292, 2020-1-5, 12:15:36
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-5, 18:56:5
Set of Moon (Higher accuracy) (UTC) at bearing 105.773, 2020-1-6, 1:44:51
Rise of Moon (Higher accuracy) (UTC) at bearing 251.842, 2020-1-6, 12:46:44
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-6, 19:42:31
Set of Moon (Higher accuracy) (UTC) at bearing 110.973, 2020-1-7, 2:46:17
Rise of Moon (Higher accuracy) (UTC) at bearing 247.088, 2020-1-7, 13:22:38
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-7, 20:32:34
Set of Moon (Higher accuracy) (UTC) at bearing 115.221, 2020-1-8, 3:49:22
Rise of Moon (Higher accuracy) (UTC) at bearing 243.417, 2020-1-8, 14:4:59
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-8, 21:26:29
Set of Moon (Higher accuracy) (UTC) at bearing 118.069, 2020-1-9, 4:52:39
Rise of Moon (Higher accuracy) (UTC) at bearing 241.278, 2020-1-9, 14:55:10
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-9, 22:23:51
Set of Moon (Higher accuracy) (UTC) at bearing 119.091, 2020-1-10, 5:53:46
Rise of Moon (Higher accuracy) (UTC) at bearing 241.081, 2020-1-10, 15:53:38
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-10, 23:23:16
Set of Moon (Higher accuracy) (UTC) at bearing 118.02, 2020-1-11, 6:50:12
Rise of Moon (Higher accuracy) (UTC) at bearing 243.021, 2020-1-11, 16:59:13
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-12, 0:22:54
Set of Moon (Higher accuracy) (UTC) at bearing 114.889, 2020-1-12, 7:40:20
Rise of Moon (Higher accuracy) (UTC) at bearing 246.982, 2020-1-12, 18:9:23
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-13, 1:21:0
Set of Moon (Higher accuracy) (UTC) at bearing 110.023, 2020-1-13, 8:24:2
Rise of Moon (Higher accuracy) (UTC) at bearing 252.577, 2020-1-13, 19:21:14
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-14, 2:16:36
Set of Moon (Higher accuracy) (UTC) at bearing 103.882, 2020-1-14, 9:2:16
Rise of Moon (Higher accuracy) (UTC) at bearing 259.286, 2020-1-14, 20:32:43
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-15, 3:9:35
Set of Moon (Higher accuracy) (UTC) at bearing 96.9653, 2020-1-15, 9:36:36
Rise of Moon (Higher accuracy) (UTC) at bearing 266.596, 2020-1-15, 21:43:0
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-16, 4:0:34
Set of Moon (Higher accuracy) (UTC) at bearing 89.7138, 2020-1-16, 10:8:39
Rise of Moon (Higher accuracy) (UTC) at bearing 274.05, 2020-1-16, 22:52:6
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-17, 4:50:28
Set of Moon (Higher accuracy) (UTC) at bearing 82.5156, 2020-1-17, 10:40:0
Rise of Moon (Higher accuracy) (UTC) at bearing 281.253, 2020-1-18, 0:0:27
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-18, 5:40:17
Set of Moon (Higher accuracy) (UTC) at bearing 75.7181, 2020-1-18, 11:12:10
Rise of Moon (Higher accuracy) (UTC) at bearing 287.832, 2020-1-19, 1:8:19
Southern Transit of Moon (Higher accuracy) (UTC), 2020-1-19, 6:30:53
Set of Moon (Higher accuracy) (UTC) at bearing 69.6564, 2020-1-19, 11:46:39
Rise of Moon (Higher accuracy) (UTC) at bearing 293.426, 2020-1-20, 2:15:28

Twilight on earth (Palermo, Italy)

End of Astronomical Twilight (UTC) at bearing 285.557, 2020-1-1, 4:47:23
End of Nautical Twilight (UTC) at bearing 289.995, 2020-1-1, 5:19:27
End of Civil Twilight (UTC) at bearing 294.702, 2020-1-1, 5:52:27
Rise of Sun (UTC) at bearing 299.1, 2020-1-1, 6:21:56
Southern Transit of Sun (UTC)2020-1-1, 11:8:49
Set of Sun (UTC) at bearing 60.9413, 2020-1-1, 15:55:49
Start of Civil Twilight (UTC) at bearing 65.3407, 2020-1-1, 16:25:18
Start of Nautical Twilight (UTC) at bearing 70.0568, 2020-1-1, 16:58:19
Start of Astronomical Twilight (UTC) at bearing 74.498, 2020-1-1, 17:30:22
End of Astronomical Twilight (UTC) at bearing 285.452, 2020-1-2, 4:47:37
End of Nautical Twilight (UTC) at bearing 289.891, 2020-1-2, 5:19:39
End of Civil Twilight (UTC) at bearing 294.597, 2020-1-2, 5:52:38
Rise of Sun (UTC) at bearing 298.992, 2020-1-2, 6:22:5
Southern Transit of Sun (UTC)2020-1-2, 11:9:17
Set of Sun (UTC) at bearing 61.0548, 2020-1-2, 15:56:37
Start of Civil Twilight (UTC) at bearing 65.4511, 2020-1-2, 16:26:4
Start of Nautical Twilight (UTC) at bearing 70.1658, 2020-1-2, 16:59:3
Start of Astronomical Twilight (UTC) at bearing 74.6082, 2020-1-2, 17:31:6
End of Astronomical Twilight (UTC) at bearing 285.337, 2020-1-3, 4:47:49
End of Nautical Twilight (UTC) at bearing 289.777, 2020-1-3, 5:19:50
End of Civil Twilight (UTC) at bearing 294.482, 2020-1-3, 5:52:47
Rise of Sun (UTC) at bearing 298.873, 2020-1-3, 6:22:13
Southern Transit of Sun (UTC)2020-1-3, 11:9:45
Set of Sun (UTC) at bearing 61.1788, 2020-1-3, 15:57:26
Start of Civil Twilight (UTC) at bearing 65.5716, 2020-1-3, 16:26:51
Start of Nautical Twilight (UTC) at bearing 70.284, 2020-1-3, 16:59:49
Start of Astronomical Twilight (UTC) at bearing 74.7282, 2020-1-3, 17:31:51
End of Astronomical Twilight (UTC) at bearing 285.213, 2020-1-4, 4:47:59
End of Nautical Twilight (UTC) at bearing 289.653, 2020-1-4, 5:19:59
End of Civil Twilight (UTC) at bearing 294.357, 2020-1-4, 5:52:55
Rise of Sun (UTC) at bearing 298.742, 2020-1-4, 6:22:18
Southern Transit of Sun (UTC)2020-1-4, 11:10:13
Set of Sun (UTC) at bearing 61.3131, 2020-1-4, 15:58:17
Start of Civil Twilight (UTC) at bearing 65.702, 2020-1-4, 16:27:40
Start of Nautical Twilight (UTC) at bearing 70.4121, 2020-1-4, 17:0:36
Start of Astronomical Twilight (UTC) at bearing 74.8579, 2020-1-4, 17:32:36
End of Astronomical Twilight (UTC) at bearing 285.078, 2020-1-5, 4:48:7
End of Nautical Twilight (UTC) at bearing 289.518, 2020-1-5, 5:20:6
End of Civil Twilight (UTC) at bearing 294.221, 2020-1-5, 5:53:0
Rise of Sun (UTC) at bearing 298.601, 2020-1-5, 6:22:21
Southern Transit of Sun (UTC)2020-1-5, 11:10:40
Set of Sun (UTC) at bearing 61.4575, 2020-1-5, 15:59:9
Start of Civil Twilight (UTC) at bearing 65.8422, 2020-1-5, 16:28:30
Start of Nautical Twilight (UTC) at bearing 70.5498, 2020-1-5, 17:1:24
Start of Astronomical Twilight (UTC) at bearing 74.9964, 2020-1-5, 17:33:23
End of Astronomical Twilight (UTC) at bearing 284.935, 2020-1-6, 4:48:14
End of Nautical Twilight (UTC) at bearing 289.374, 2020-1-6, 5:20:11
End of Civil Twilight (UTC) at bearing 294.075, 2020-1-6, 5:53:3
Rise of Sun (UTC) at bearing 298.449, 2020-1-6, 6:22:21
Southern Transit of Sun (UTC)2020-1-6, 11:11:6
Set of Sun (UTC) at bearing 61.612, 2020-1-6, 16:0:2
Start of Civil Twilight (UTC) at bearing 65.9922, 2020-1-6, 16:29:21
Start of Nautical Twilight (UTC) at bearing 70.6972, 2020-1-6, 17:2:13
Start of Astronomical Twilight (UTC) at bearing 75.1446, 2020-1-6, 17:34:10
End of Astronomical Twilight (UTC) at bearing 284.783, 2020-1-7, 4:48:19
End of Nautical Twilight (UTC) at bearing 289.222, 2020-1-7, 5:20:14
End of Civil Twilight (UTC) at bearing 293.918, 2020-1-7, 5:53:4

Planetary Phenomena

Planet Phenomena for Mercury

Superior Conjunction in RA of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:0,2020-1-10, 4:35:55

Superior Conjunction in Angular Distance of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:1.92096,2020-1-10, 9:37:59

Superior Conjunction in Ecliptic Longitude of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:0,2020-1-10, 15:19:42

Greatest Eastern Elongation in RA of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:1.14609,2020-2-9, 5:1:45

Greatest Eastern Elongation in Ecliptic Longitude of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:18.183,2020-2-10, 11:58:18

Greatest Eastern Elongation in Angular Distance of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:18.1968,2020-2-10, 13:56:17

Station 1 in RA of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:22.8881,2020-2-16, 10:14:56

Station 1 in Ecliptic Longitude of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:342.89,2020-2-17, 0:53:51

Inferior Conjunction in RA of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:0,2020-2-25, 8:40:51

Inferior Conjunction in Ecliptic Longitude of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:0,2020-2-26, 1:44:1

Inferior Conjunction in Angular Distance of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:3.7204,2020-2-26, 1:55:54

Station 2 in RA of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:21.9879,2020-3-9, 8:4:28

Station 2 in Ecliptic Longitude of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:328.212,2020-3-10, 3:48:27

Greatest Eastern Elongation in RA of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:1.68544,2020-3-22, 0:13:24

Greatest Eastern Elongation in Ecliptic Longitude of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:27.7562,2020-3-23, 22:57:29

Greatest Eastern Elongation in Angular Distance of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:27.7823,2020-3-24, 2:6:53

Superior Conjunction in RA of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:0,2020-5-4, 20:58:35

Superior Conjunction in Ecliptic Longitude of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:0,2020-5-4, 21:40:49

Superior Conjunction in Angular Distance of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:0.10703,2020-5-4, 22:0:19

Greatest Eastern Elongation in Angular Distance of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:23.6047,2020-6-4, 13:6:20

Greatest Eastern Elongation in Ecliptic Longitude of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:23.5566,2020-6-4, 16:27:51

Greatest Eastern Elongation in RA of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:1.71281,2020-6-4, 20:33:43

Station 1 in RA of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:7.05786,2020-6-17, 19:31:11

Station 1 in Ecliptic Longitude of Mercury (using CAAPlanetaryPhenomena2) (UTC) Value:104.764,2020-6-18, 4:59:9

Planet Perihelion Aphelion using CAAPlanetPerihelionAphelion2

Perihelion of Mercury (using CAAPlanetPerihelionAphelion2) (UTC) at distance 0.307492, 2020-2-12 5:5:6
Aphelion of Mercury (using CAAPlanetPerihelionAphelion2) (UTC) at distance 0.466705, 2020-3-27 4:42:41
Perihelion of Mercury (using CAAPlanetPerihelionAphelion2) (UTC) at distance 0.307495, 2020-5-10 4:20:40
Aphelion of Mercury (using CAAPlanetPerihelionAphelion2) (UTC) at distance 0.466701, 2020-6-23 3:58:28
Perihelion of Mercury (using CAAPlanetPerihelionAphelion2) (UTC) at distance 0.307499, 2020-8-6 3:36:45
Aphelion of Mercury (using CAAPlanetPerihelionAphelion2) (UTC) at distance 0.466698, 2020-9-19 3:15:4
Perihelion of Mercury (using CAAPlanetPerihelionAphelion2) (UTC) at distance 0.307499, 2020-11-2 2:52:51
Aphelion of Mercury (using CAAPlanetPerihelionAphelion2) (UTC) at distance 0.4667, 2020-12-16 2:30:53
Perihelion of Mercury (using CAAPlanetPerihelionAphelion2 high precision) (UTC) at distance 0.30749, 2020-2-12 5:5:11
Aphelion of Mercury (using CAAPlanetPerihelionAphelion2 high precision) (UTC) at distance 0.466704, 2020-3-27 4:42:31
Perihelion of Mercury (using CAAPlanetPerihelionAphelion2 high precision) (UTC) at distance 0.307492, 2020-5-10 4:20:17
Aphelion of Mercury (using CAAPlanetPerihelionAphelion2 high precision) (UTC) at distance 0.466703, 2020-6-23 3:58:2
Perihelion of Mercury (using CAAPlanetPerihelionAphelion2 high precision) (UTC) at distance 0.307498, 2020-8-6 3:37:6
Aphelion of Mercury (using CAAPlanetPerihelionAphelion2 high precision) (UTC) at distance 0.4667, 2020-9-19 3:15:1
Perihelion of Mercury (using CAAPlanetPerihelionAphelion2 high precision) (UTC) at distance 0.307498, 2020-11-2 2:53:14
Aphelion of Mercury (using CAAPlanetPerihelionAphelion2 high precision) (UTC) at distance 0.4667, 2020-12-16 2:30:50
Perihelion of Venus (using CAAPlanetPerihelionAphelion2) (UTC) at distance 0.30749, 2020-2-12 5:5:11
Aphelion of Venus (using CAAPlanetPerihelionAphelion2) (UTC) at distance 0.466704, 2020-3-27 4:42:31
Perihelion of Venus (using CAAPlanetPerihelionAphelion2) (UTC) at distance 0.307492, 2020-5-10 4:20:17
Aphelion of Venus (using CAAPlanetPerihelionAphelion2) (UTC) at distance 0.466703, 2020-6-23 3:58:2
Perihelion of Venus (using CAAPlanetPerihelionAphelion2) (UTC) at distance 0.307498, 2020-8-6 3:37:6
Aphelion of Venus (using CAAPlanetPerihelionAphelion2) (UTC) at distance 0.4667, 2020-9-19 3:15:1
Perihelion of Venus (using CAAPlanetPerihelionAphelion2) (UTC) at distance 0.307498, 2020-11-2 2:53:14
Aphelion of Venus (using CAAPlanetPerihelionAphelion2) (UTC) at distance 0.4667, 2020-12-16 2:30:50
Perihelion of Venus (using CAAPlanetPerihelionAphelion2 high precision) (UTC) at distance 0.718448, 2020-3-20 2:9:0
Aphelion of Venus (using CAAPlanetPerihelionAphelion2 high precision) (UTC) at distance 0.728234, 2020-7-10 14:43:47
Perihelion of Venus (using CAAPlanetPerihelionAphelion2 high precision) (UTC) at distance 0.718415, 2020-10-30 23:3:34
Perihelion of Mars (using CAAPlanetPerihelionAphelion2) (UTC) at distance 1.38138, 2020-8-3 9:11:4
Perihelion of Mars (using CAAPlanetPerihelionAphelion2 high precision) (UTC) at distance 1.38138, 2020-8-3 9:2:58
Perihelion of Earth (using CAAPlanetPerihelionAphelion2) (UTC) at distance 0.983246, 2020-1-5 7:26:20
Aphelion of Earth (using CAAPlanetPerihelionAphelion2) (UTC) at distance 1.01669, 2020-7-4 12:3:35
Perihelion of Earth (using CAAPlanetPerihelionAphelion2 high precision) (UTC) at distance 0.983244,

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