Total Lunar Eclipse of 2025 Mar 14

Ecliptic Conjunction = 06:55:48.0 TD (= 06:54:33.5 UT)
Greatest Eclipse = 06:59:56.2 TD (= 06:58:41.7 UT)

Penumbral Magnitude = 2.2595 P. Radius = 1.1899° Gamma = 0.3484
Umbral Magnitude = 1.1784 U. Radius = 0.6537° Axis = 0.3171°

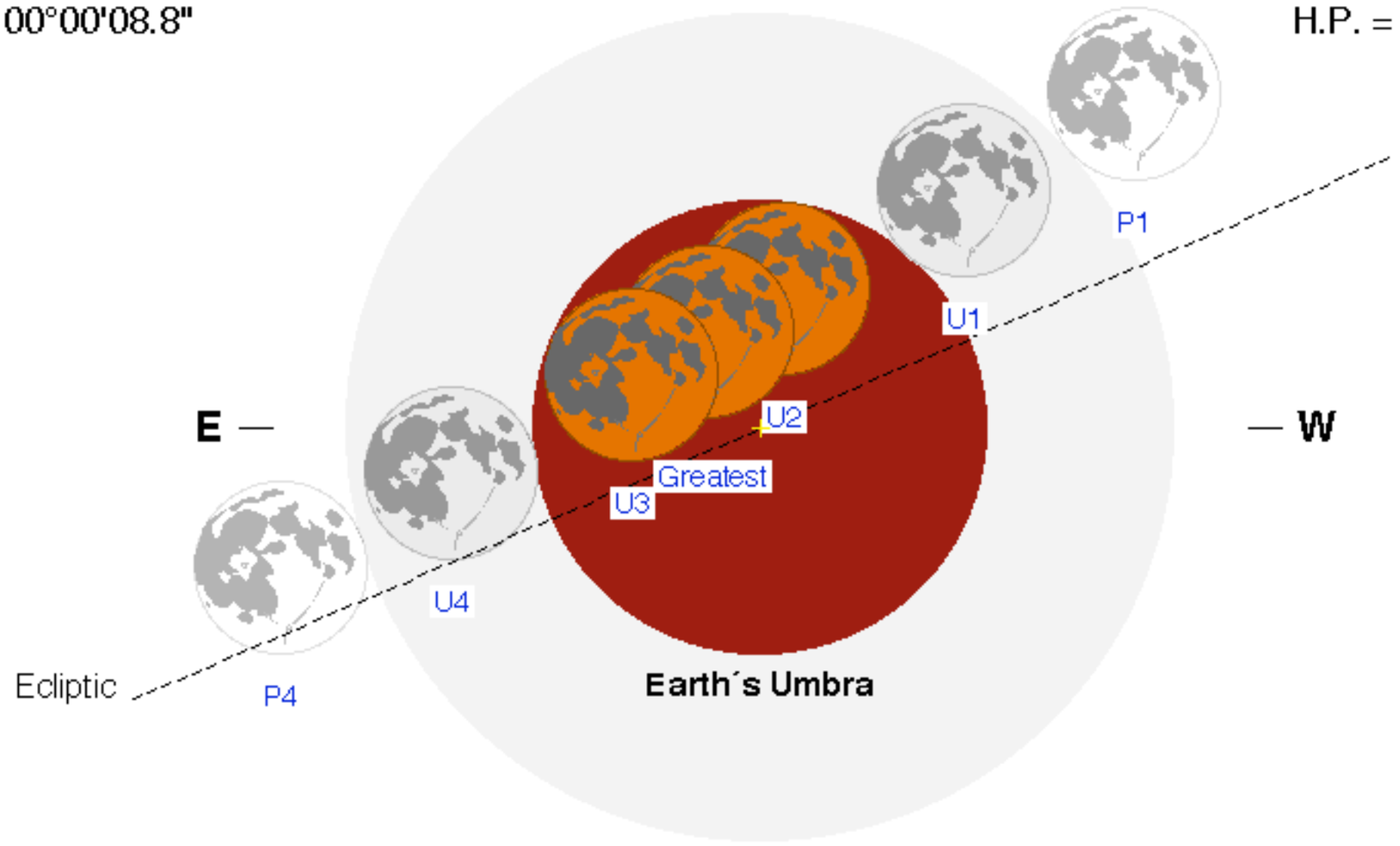
Saros Series = 123 Member = 53 of 73

<u>Sun at Greatest Eclipse</u>
(Geocentric Coordinates)

R.A. = 23h37m46.0s
Dec. = -02°24'16.8"
S.D. = 00°16'05.2"
H.P. = 00°00'08.8"

<u>Moon at Greatest Eclipse</u>
(Geocentric Coordinates)

R.A. = 11h38m23.0s
Dec. = +02°40'54.6"
S.D. = 00°14'52.8"
H.P. = 00°54'36.8"



<u>Eclipse Durations</u>

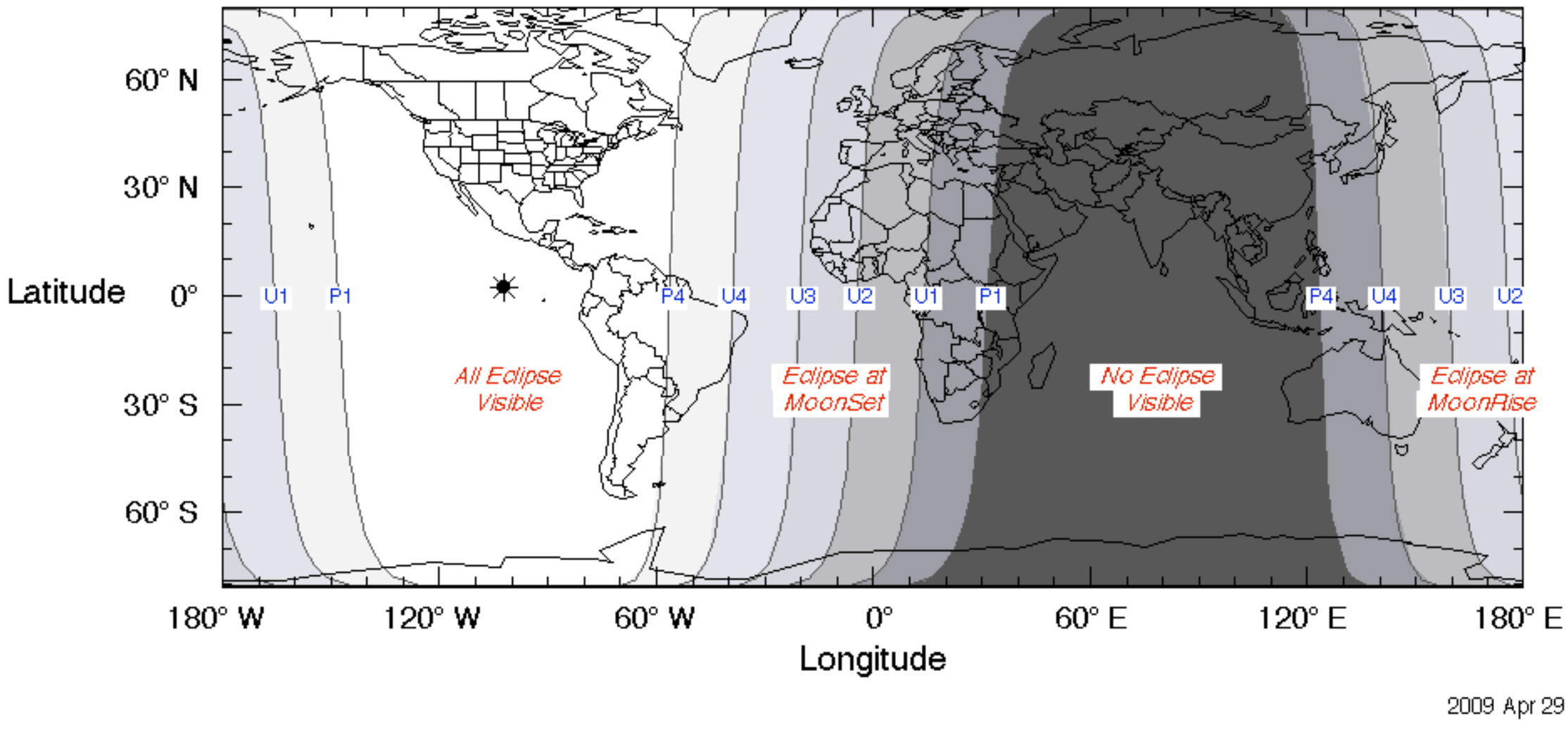
Penumbral = 06h02m37s
Umbral = 03h38m15s
Total = 01h05m24s

ΔT = 75 s
Rule = CdT (Danjon)
Eph. = VSOP87/ELP2000-85

F. Espenak, NASA's GSFC
eclipse.gsfc.nasa.gov/eclipse.html

<u>Eclipse Contacts</u>

P1 = 03:57:24 UT
U1 = 05:09:33 UT
U2 = 06:25:59 UT
U3 = 07:31:23 UT
U4 = 08:47:48 UT
P4 = 10:00:01 UT



2009 Apr 29

Total Lunar Eclipse of 2025 Sep 07

Ecliptic Conjunction = 18:10:03.1 TD (= 18:08:48.3 UT)
Greatest Eclipse = 18:12:57.9 TD (= 18:11:43.1 UT)

Penumbral Magnitude = 2.3440 P. Radius = 1.2655° Gamma = -0.2752
Umbral Magnitude = 1.3619 U. Radius = 0.7364° Axis = 0.2720°

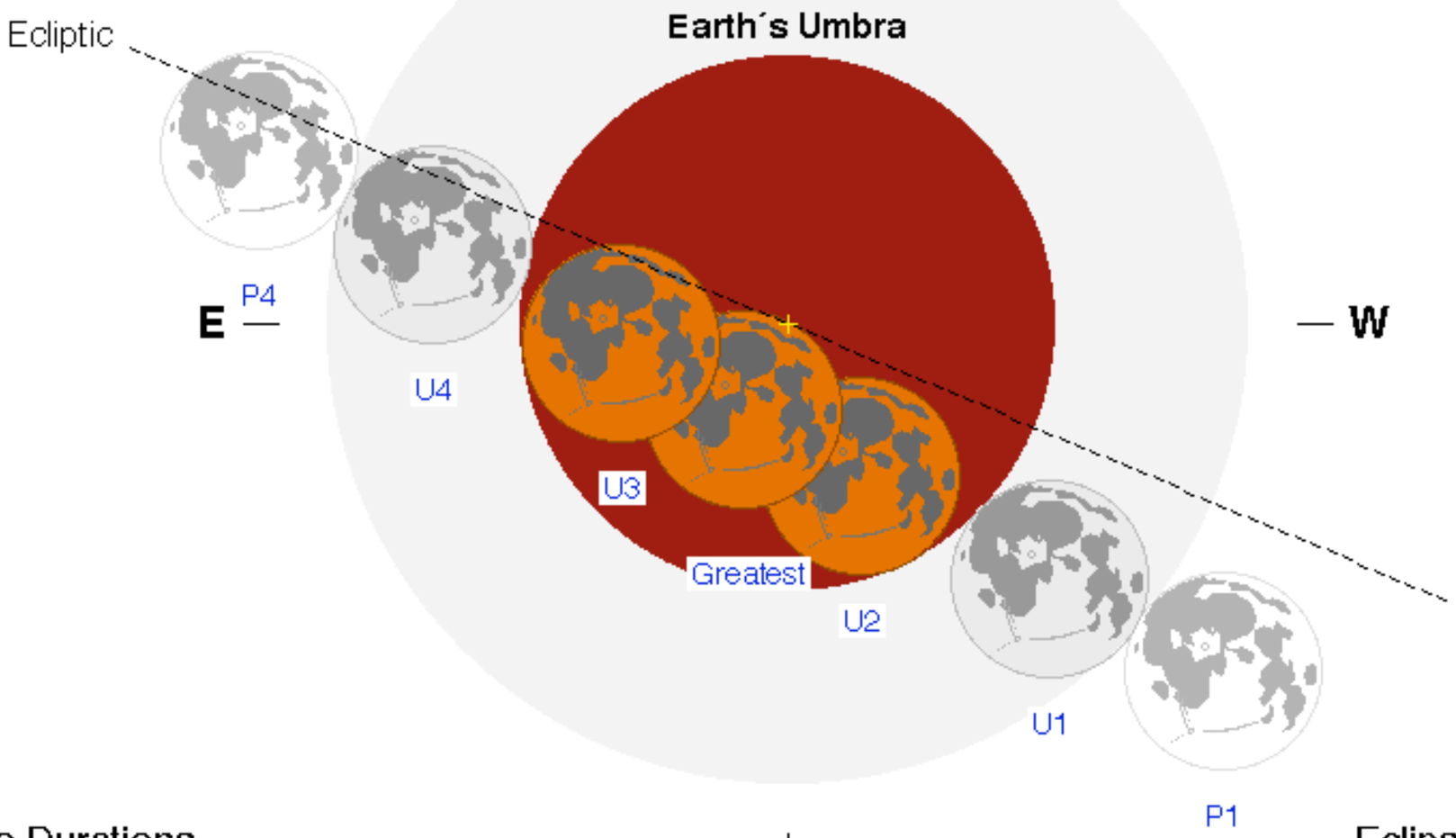
Saros Series = 128 Member = 41 of 71

<u>Sun at Greatest Eclipse</u>
(Geocentric Coordinates)

R.A. = 11h06m09.1s
Dec. = +05°45'47.5"
S.D. = 00°15'52.4"
H.P. = 00°00'08.7"

<u>Moon at Greatest Eclipse</u>
(Geocentric Coordinates)

R.A. = 23h06m40.4s
Dec. = -06°00'08.9"
S.D. = 00°16'09.8"
H.P. = 00°59'19.1"



<u>Eclipse Durations</u>

Penumbral = 05h26m40s
Umbral = 03h29m24s
Total = 01h22m06s

ΔT = 75 s
Rule = CdT (Danjon)
Eph. = VSOP87/ELP2000-85

0 15 30 45 60
Arc-Minutes

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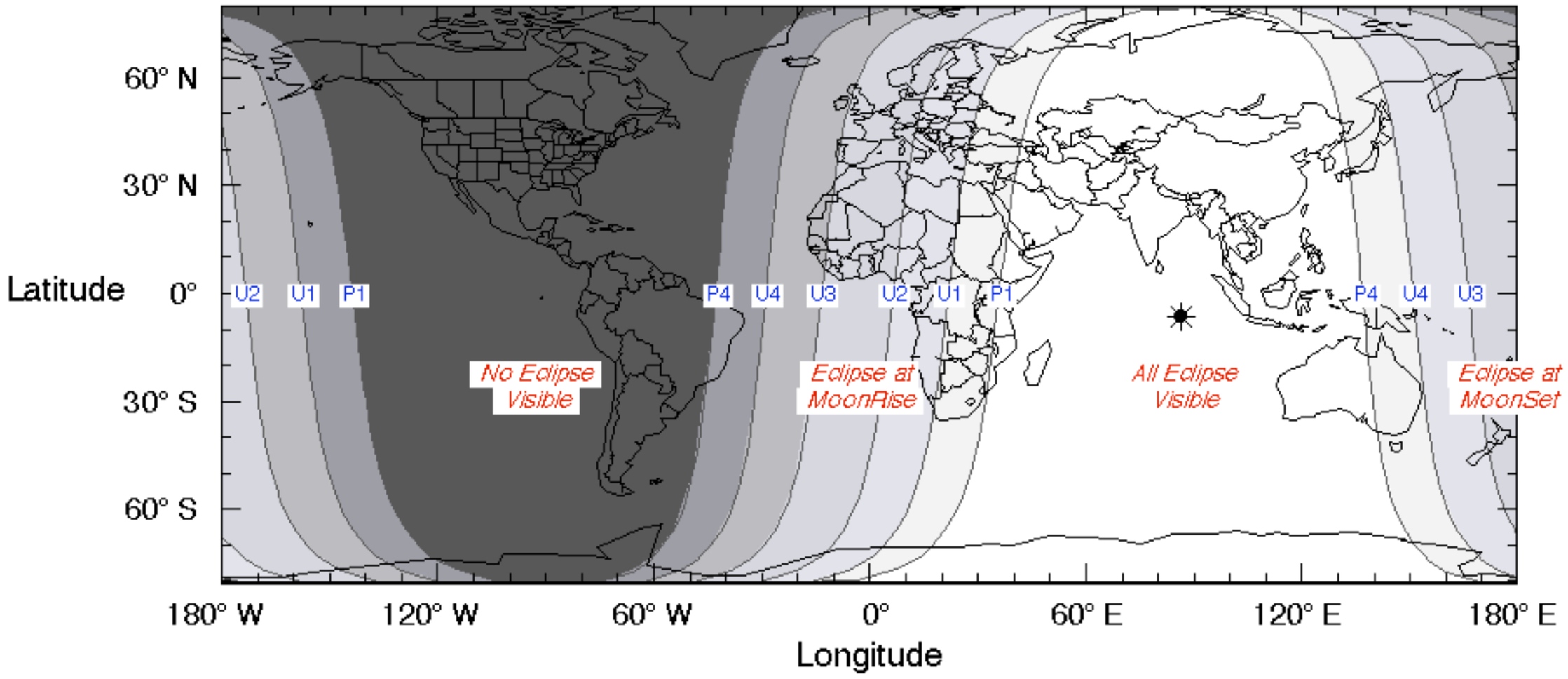
eclipse.gsfc.nasa.gov/eclipse.html

<u>Eclipse Contacts</u>

P1 = 15:28:21 UT
U1 = 16:27:02 UT
U2 = 17:30:41 UT
U3 = 18:52:47 UT
U4 = 19:56:26 UT
P4 = 20:55:00 UT



2009 Apr 29

Partial Solar Eclipse of 2025 Mar 29

Geocentric Conjunction = 11:46:09.2 UT J.D. = 2460763.990384
Greatest Eclipse = 10:47:18.4 UT J.D. = 2460763.949519

Eclipse Magnitude = 0.9361 Gamma = 1.0405

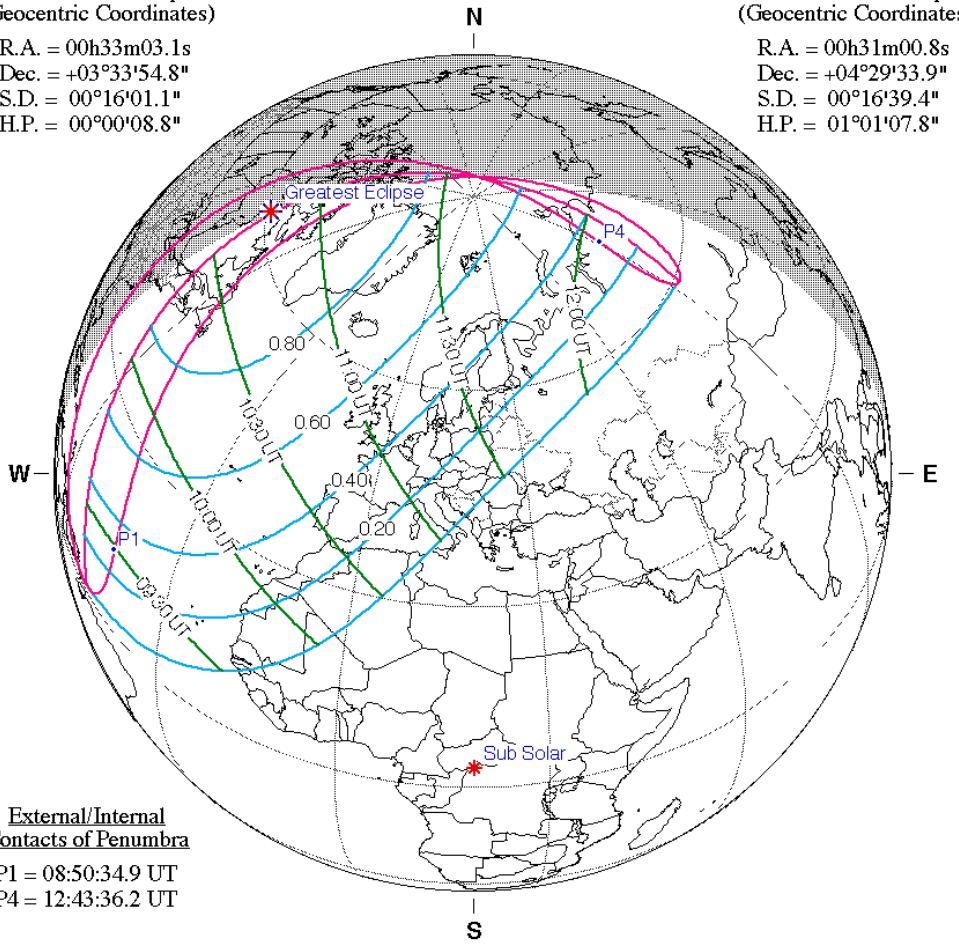
Saros Series = 149 Member = 21 of 71

Sun at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 00h33m03.1s
Dec. = +03°33'54.8"
S.D. = 00°16'01.1"
H.P. = 00°00'08.8"

Moon at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 00h31m00.8s
Dec. = +04°29'33.9"
S.D. = 00°16'39.4"
H.P. = 01°01'07.8"



External/Internal Contacts of Penumbra

P1 = 08:50:34.9 UT
P4 = 12:43:36.2 UT

Ephemeris & Constants

Eph. = Newcomb/ILE
ΔT = 82.3 s
k1 = 0.2724880
k2 = 0.2722810
Δb = 0.0" Δl = 0.0"

Geocentric Libration
(Optical + Physical)

l = -2.00°
b = -1.35°
c = -21.73°

Brown Lun. No. = 1265

0 1000 2000 3000 4000 5000
Kilometers

F. Espenak, NASA's GSFC - Fri, Jul 2,
sunearth.gsfc.nasa.gov/eclipse/eclipse.html

Partial Solar Eclipse of 2025 Sep 21

Geocentric Conjunction = 20:50:18.4 UT J.D. = 2460940.368269
Greatest Eclipse = 19:41:43.6 UT J.D. = 2460940.320643

Eclipse Magnitude = 0.8535 Gamma = -1.0652

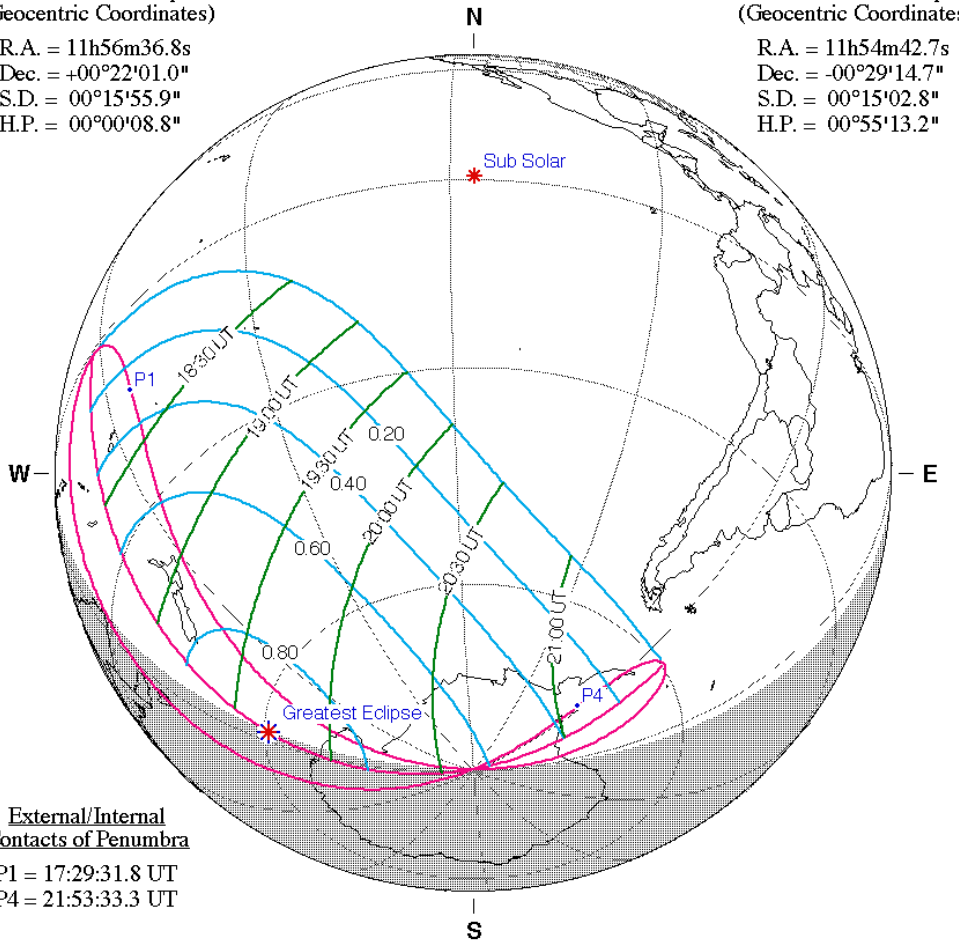
Saros Series = 154 Member = 7 of 71

Sun at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 11h56m36.8s
Dec. = +00°22'01.0"
S.D. = 00°15'55.9"
H.P. = 00°00'08.8"

Moon at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 11h54m42.7s
Dec. = -00°29'14.7"
S.D. = 00°15'02.8"
H.P. = 00°55'13.2"



External/Internal Contacts of Penumbra

P1 = 17:29:31.8 UT
P4 = 21:53:33.3 UT

Ephemeris & Constants

Eph. = Newcomb/ILE
ΔT = 82.8 s
k1 = 0.2724880
k2 = 0.2722810
Δb = 0.0" Δl = 0.0"

Geocentric Libration
(Optical + Physical)

l = 4.15°
b = 1.31°
c = 21.92°
Brown Lun. No. = 1271

0 1000 2000 3000 4000 5000
Kilometers

F. Espenak, NASA's GSFC - Fri, Jul 2,
sunearth.gsfc.nasa.gov/eclipse/eclipse.html