Lunar Eclipse Figures

Key to Lunar Eclipse Figures

Total Lunar Eclipse
2029 Jun 26

Greatest Eclipse = 03:22:08.8 UT1
Penumbral Eclipse Magnitude = 2.8333
Umbra
eclipse Magnitude = 1.8503
Gamma = 0.0124
Axis = 0.0121°
Saros = 130 [35 of 71]
Ascending Node

Geocentric Coordinates at Greatest Eclipse

Sun
R.A. = 06h21m03.1s
Dec. = +23°20'50.2"
S.D. = 00°15'44.1"
H.P. = 00°09'08.7"

Moon
R.A. = 18h21m02.6s
Dec. = -23°20'06.9"
S.D. = 00°16'00.4"
H.P. = 00°58'44.7"

Eclipse Durations
Penumbral = 05h36m02s
Umbra = 03h40m21s
Total = 01h42m41s

Contact Times
P1 - Penumbral Begins
U1 - Total Begins
U2 - Total Ends
P4 - Penumbral Ends

Eclipse Contacts
P1 = 00:34:11 UT1
U1 = 01:31:57 UT1
U2 = 02:30:48 UT1
U3 = 04:13:29 UT1
U4 = 05:12:16 UT1
P4 = 06:10:13 UT1

Parameters
Eph. = JPL DE430
Rule = Herald-Sinnott
ΔT = 74 s


Layout of Lunar Eclipse Figure
Upper Left: Moon’s Path Thru Earth’s Shadows
Lower Left: Map of Eclipse Visibility
Right Side: Parameters for Lunar Eclipse

Explanation of Parameters Used in Lunar Eclipse Figures

Greatest Eclipse – The instant when the Moon passes closest to the axis of Earth’s shadow cone (Universal Time9)
Penumbral Eclipse Magnitude – Fraction of the Moon’s diameter immersed in the penumbra at greatest eclipse.
Umbra
eclipse Magnitude – The fraction of the Moon’s diameter immersed in the umbra at greatest eclipse.
Gamma – Minimum distance from the Moon’s center to Earth’s shadow axis (units of Earth’s equatorial radius).
Axis – Minimum distance from the Moon’s center to Earth’s shadow axis (units of degrees).
Saros Series – The Saros series that the eclipse belongs to. The numbers in “[ ]” are the eclipse’s sequential position and the number of eclipses in the Saros series.
Node – The orbital node near which the eclipse takes place (Ascending Node or Descending Node).

Geocentric Coordinates of the Sun and the Moon at Greatest Eclipse

R.A. – Right Ascension
Dec. – Declination
S.D. – Semi-Diameter (i.e., radius)
H.P. – Horizontal Parallax

Eclipse Durations – Durations of Penumbral, Partial, and Total Eclipse.

Eclipse Contacts – Contact Times (Universal Time or UT1) of the Moon with the Penumbral and the Umbra

P1, P4 – Start and End of the Penumbral Eclipse
U1, U4 – Start and End of the Partial Eclipse
U2, U3 – Start and End of the Total Eclipse

9 Universal Time or UT1 is the modern replacement for Greenwich Mean Time