

# Annular Solar Eclipse of -2136 Oct 22

Ecliptic Conjunction = 17:20:07.7 TD (= 03:29:44.8 UT)

Greatest Eclipse = 17:15:52.1 TD (= 03:25:29.2 UT)

Eclipse Magnitude = 0.9736      Gamma = 0.3842

Saros Series = 9      Member = 25 of 74

## Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 12h44m42.1s

Dec. = -04°55'04.3"

S.D. = 00°16'16.3"

H.P. = 00°00'08.9"

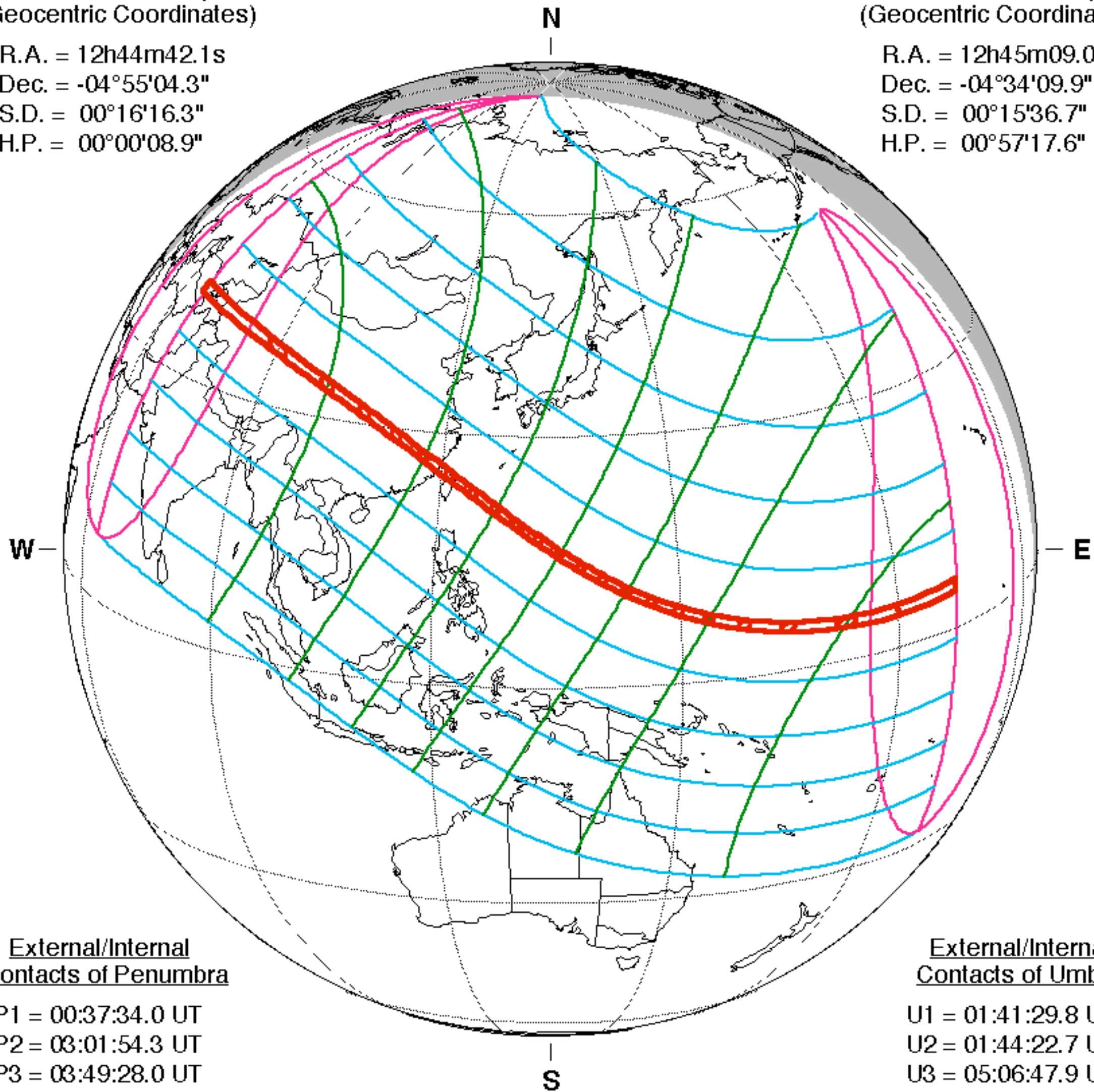
## Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 12h45m09.0s

Dec. = -04°34'09.9"

S.D. = 00°15'36.7"

H.P. = 00°57'17.6"



## External/Internal Contacts of Penumbra

P1 = 00:37:34.0 UT

P2 = 03:01:54.3 UT

P3 = 03:49:28.0 UT

P4 = 06:13:24.2 UT

## External/Internal Contacts of Umbra

U1 = 01:41:29.8 UT

U2 = 01:44:22.7 UT

U3 = 05:06:47.9 UT

U4 = 05:09:34.6 UT

## Constants & Ephemeris

$\Delta T = 49822.9$  s

$k_1 = 0.2724880$

$k_2 = 0.2722810$

$\Delta b = 0.0''$      $\Delta l = 0.0''$

Eph. = VSOP87/ELP2000-82

## Local Circumstances at Greatest Eclipse

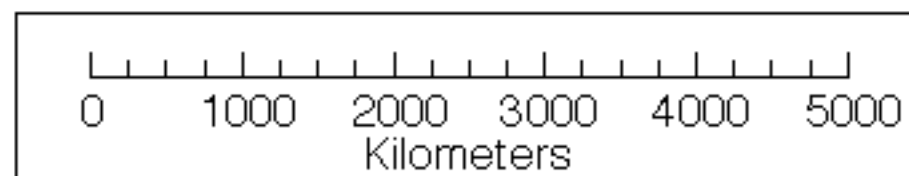
Lat. = 16°41.5'N

Sun Alt. = 67.3°

Long. = 134°19.7'E

Sun Azm. = 198.4°

Path Width = 101.7 km    Duration = 02m51.6s



## Geocentric Libration (Optical + Physical)

$l = -4.91^\circ$

$b = -0.46^\circ$

$c = 24.98^\circ$

Brown Lun. No. = -50193

F. Espenak, NASA's GSFC

[eclipse.gsfc.nasa.gov/eclipse.html](http://eclipse.gsfc.nasa.gov/eclipse.html)