

# Total Solar Eclipse of 1133 Aug 02

Ecliptic Conjunction = 12:18:55.3 TD (= 12:03:07.3 UT)

Greatest Eclipse = 12:24:26.1 TD (= 12:08:38.2 UT)

Eclipse Magnitude = 1.0652      Gamma = 0.5423

Saros Series = 102      Member = 43 of 71

## Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 09h13m24.5s

Dec. = +16°09'22.2"

S.D. = 00°15'48.9"

H.P. = 00°00'08.7"

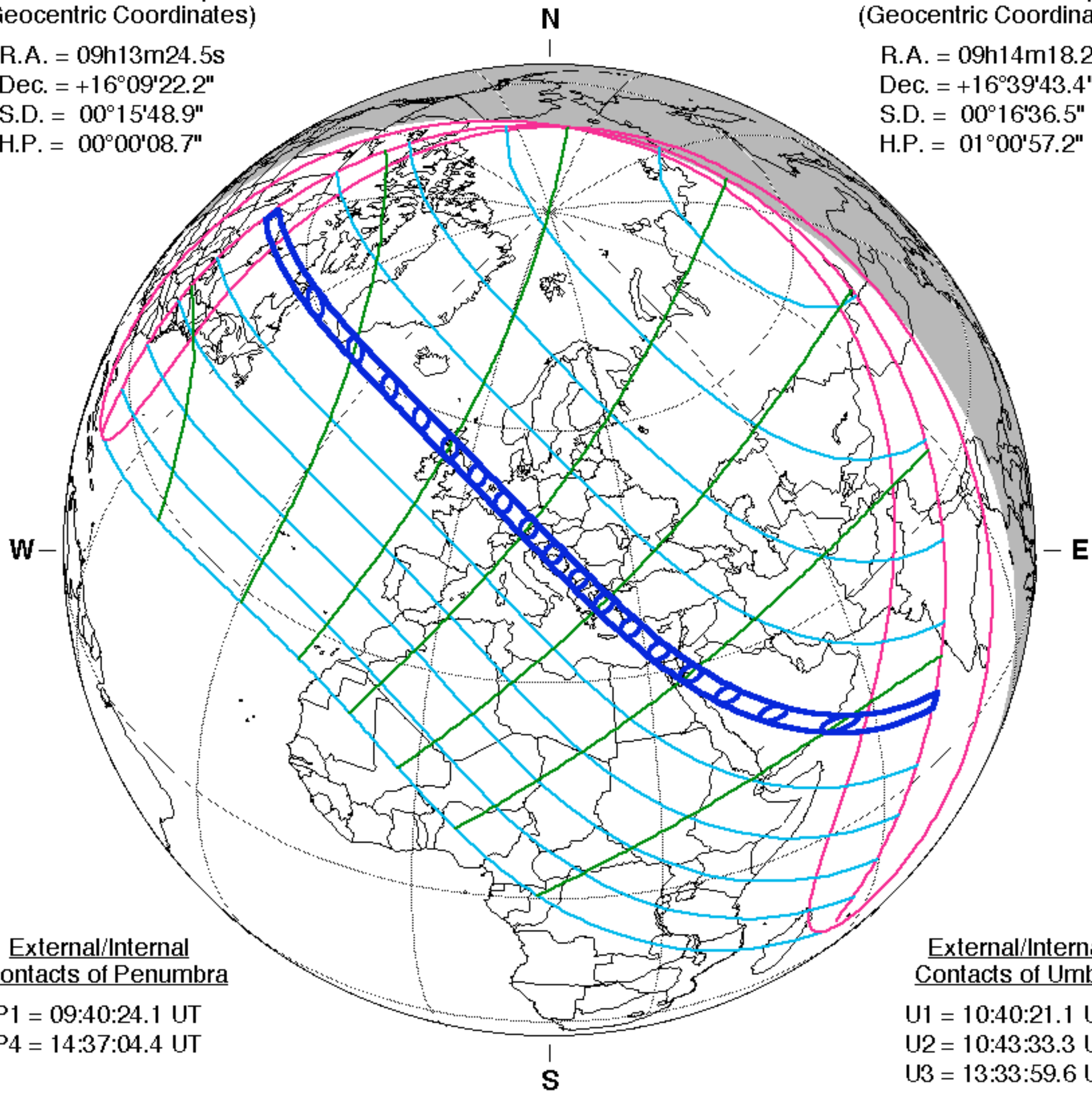
## Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 09h14m18.2s

Dec. = +16°39'43.4"

S.D. = 00°16'36.5"

H.P. = 01°00'57.2"



## External/Internal Contacts of Penumbra

P1 = 09:40:24.1 UT

P4 = 14:37:04.4 UT

## External/Internal Contacts of Umbra

U1 = 10:40:21.1 UT

U2 = 10:43:33.3 UT

U3 = 13:33:59.6 UT

U4 = 13:37:09.0 UT

## Local Circumstances at Greatest Eclipse

Lat. = 45°45.2'N

Sun Alt. = 56.9°

Long. = 016°30.6'E

Sun Azm. = 212.2°

Path Width = 252.5 km      Duration = 04m37.8s

## Constants & Ephemeris

$\Delta T = 947.9$  s

$k_1 = 0.2724880$

$k_2 = 0.2722810$

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

Eph. = VSOP87/ELP2000-82

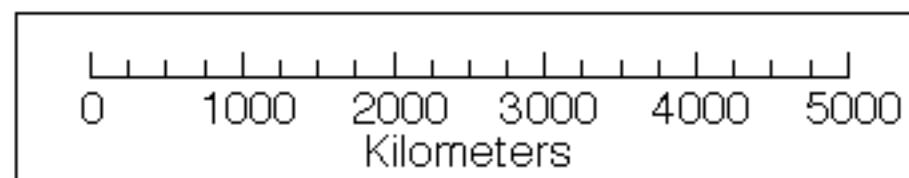
## Geocentric Libration (Optical + Physical)

$l = 2.31^\circ$

$b = -0.67^\circ$

$c = 15.93^\circ$

Brown Lun. No. = -9763



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