

Total Solar Eclipse of 1963 Jul 20

Ecliptic Conjunction = 20:43:16.8 TD (= 20:42:41.9 UT)

Greatest Eclipse = 20:36:13.2 TD (= 20:35:38.4 UT)

Eclipse Magnitude = 1.0224 Gamma = 0.6571

Saros Series = 145 Member = 19 of 77

Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 07h57m51.3s

Dec. = +20°41'02.2"

S.D. = 00°15'44.3"

H.P. = 00°00'08.7"

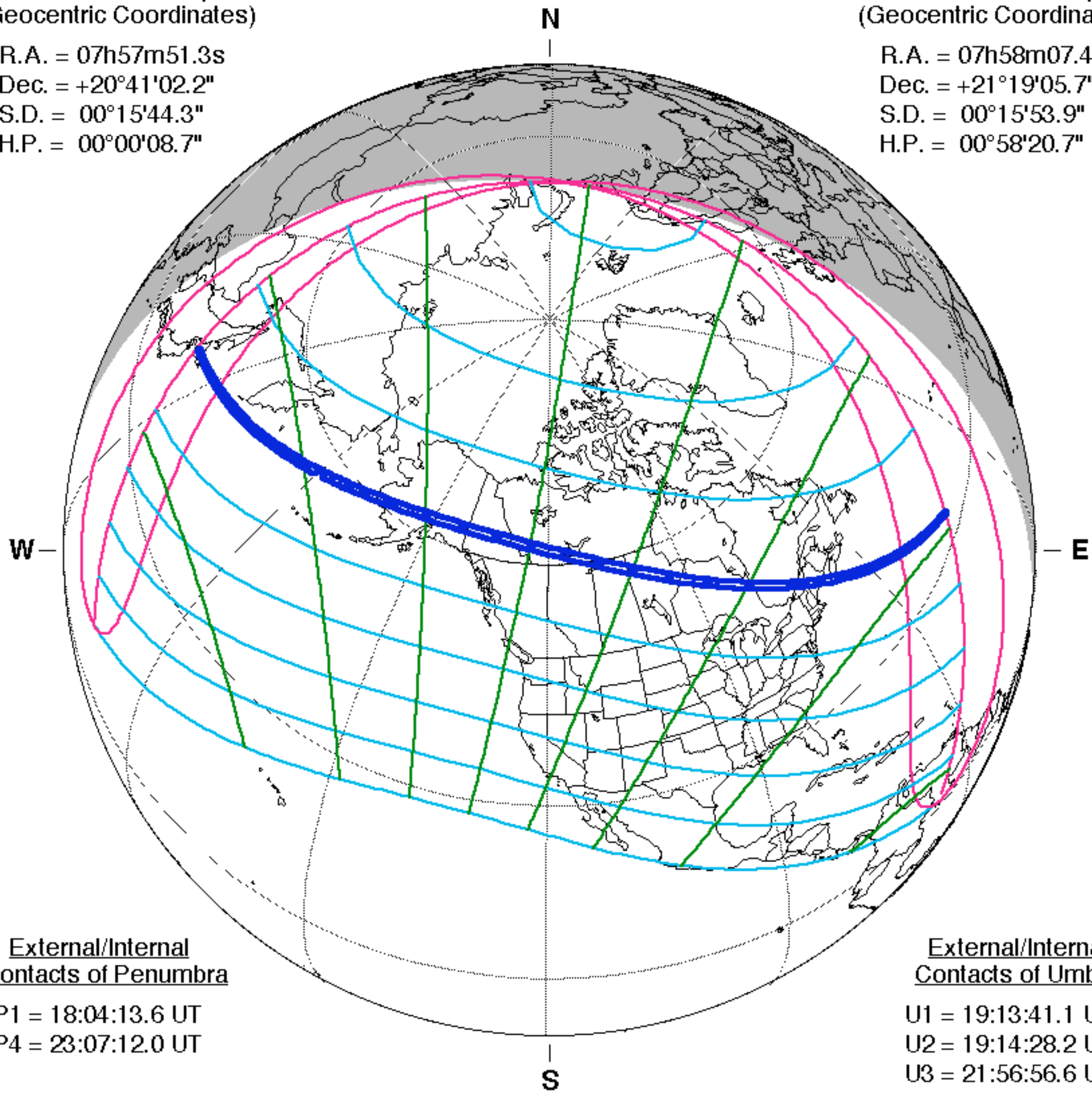
Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 07h58m07.4s

Dec. = +21°19'05.7"

S.D. = 00°15'53.9"

H.P. = 00°58'20.7"



External/Internal Contacts of Penumbra

P1 = 18:04:13.6 UT

P4 = 23:07:12.0 UT

External/Internal Contacts of Umbra

U1 = 19:13:41.1 UT

U2 = 19:14:28.2 UT

U3 = 21:56:56.6 UT

U4 = 21:57:38.2 UT

Local Circumstances at Greatest Eclipse

Lat. = 61°41.6'N

Sun Alt. = 48.6°

Long. = 119°33.3'W

Sun Azm. = 191.1°

Path Width = 101.5 km Duration = 01m39.7s

Constants & Ephemeris

$\Delta T = 34.8$ s

$k_1 = 0.2724880$

$k_2 = 0.2722810$

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

Eph. = VSOP87/ELP2000-82

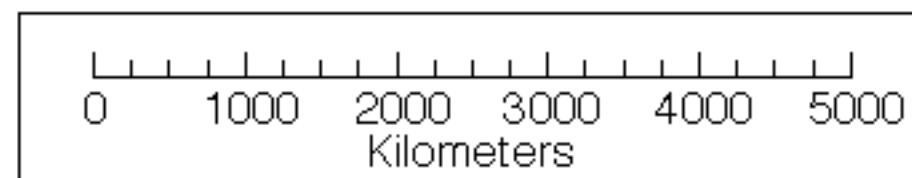
Geocentric Libration (Optical + Physical)

$l = 4.82^\circ$

$b = -0.84^\circ$

$c = 12.83^\circ$

Brown Lun. No. = 502



F. Espenak, NASA's GSFC

eclipse.gsfc.nasa.gov/eclipse.html