

Penumbral Lunar Eclipse of 2002 Nov 20

Ecliptic Conjunction = 01:34:44.0 TD (= 01:33:39.6 UT)

Greatest Eclipse = 01:47:39.9 TD (= 01:46:35.5 UT)

Penumbral Magnitude = 0.8600

P. Radius = 1.1927°

Gamma = -1.1126

Umbral Magnitude = -0.2264

U. Radius = 0.6532°

Axis = 1.0139°

Saros Series = 116 Member = 57 of 73

Sun at Greatest Eclipse (Geocentric Coordinates)

R.A. = 15h41m07.8s

Dec. = -19°36'53.3"

S.D. = 00°16'11.2"

H.P. = 00°00'08.9"

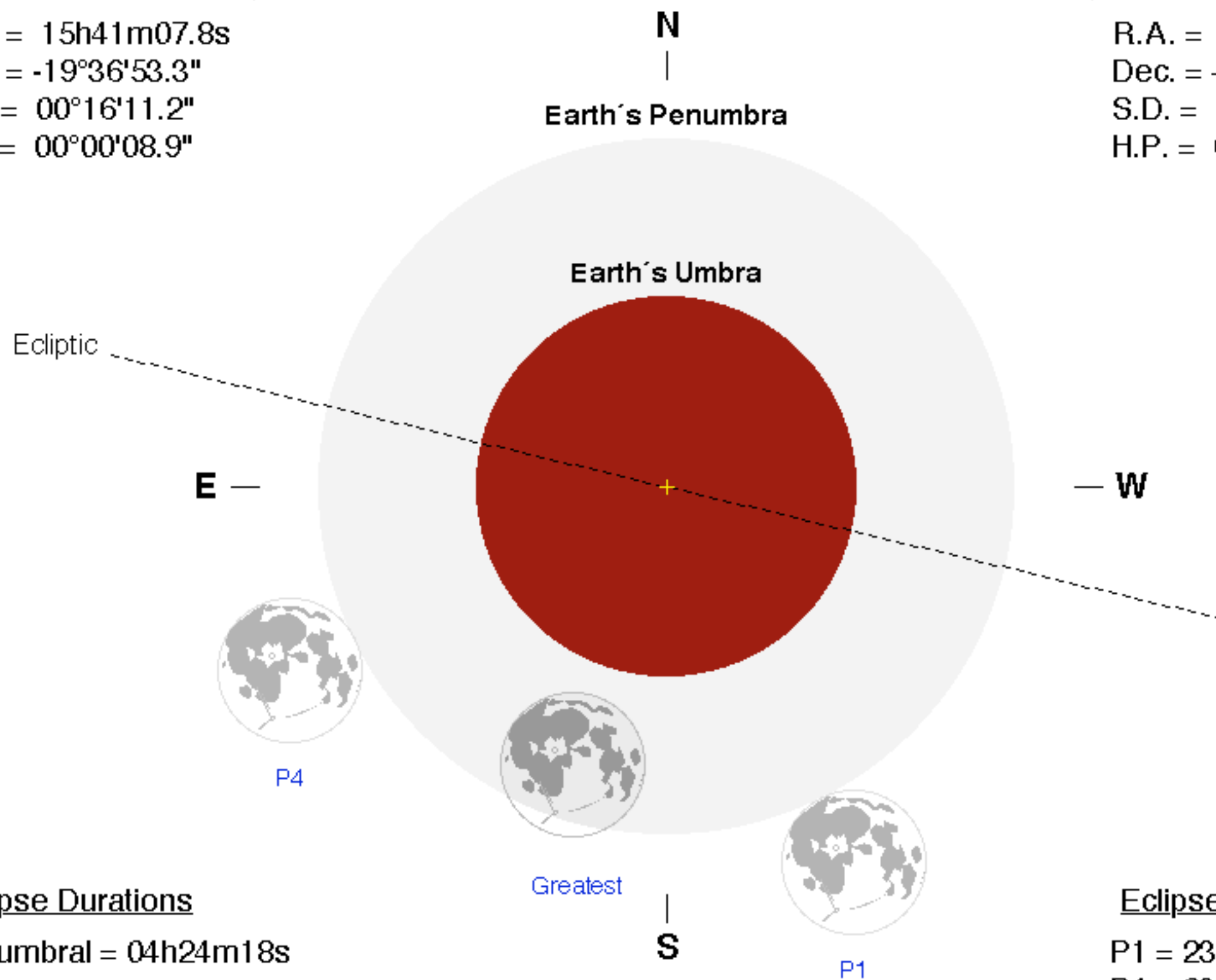
Moon at Greatest Eclipse (Geocentric Coordinates)

R.A. = 03h42m30.3s

Dec. = +18°39'15.3"

S.D. = 00°14'54.0"

H.P. = 00°54'40.9"



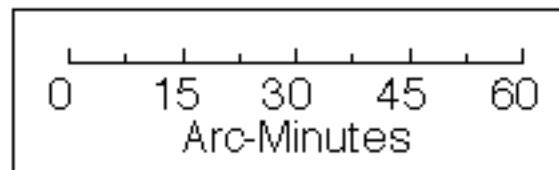
Eclipse Durations

Penumbral = 04h24m18s

Eclipse Contacts

P1 = 23:34:28 UT

P4 = 03:58:46 UT



$\Delta T = 64$ s

Rule = CdT (Danjon)

Eph. = VSOP87/ELP2000-85

F. Espenak, NASA's GSFC

eclipse.gsfc.nasa.gov/eclipse.html

