Solar eclipses at Sunrise/Sunset, special effects
Jörg Schoppmeyer

Goa Silhouettes, APOD 2007 March 22

SEC 2014 Sacramento Peak, NM, USA

Topics

- Brief eclipse overview concerning my person

- A firework of colours (PSE 13.10.2004)
- „A total annular eclipse“ (ASE 10.05.2013)
- Dark moments after totality (TSE 11.07.2010)

- TSE 21.08.2017 „The real ultimate eclipse chasing“

My experiences

- It started on the 29.04.1976 (PSE in Germany, school break)
- First „Eclipse-Expedition“ on 20.07.1982
- First real Eclipse-Expedition on 30.05.1984 (8.000 km drive to Morocco and back)
- 13 totals (90,91,98,99,01,02,03,06,08,09,10,12,13)
- 13 annulars (84,92,94,01,02,03,05,05,06,09,10,12,13)
- 15 partial (76,82,82,(83),93,96,04,04,07,07,(08),11,11,11,14)
- 4 transits (03,04,06,12)
- 10 partial and 28 total lunar eclipses

Joerg Schoppmeyer

41 eclipses logged

Total: 13 (Time: **37m 22.2s**)
Annular: 13 (Time: **51m 34.7s**)
Partial: 15

Partial Solar Eclipse of 2004 Oct 14

Geocentric Conjunction = 02:00:29.0 UT J.D. = 2453292.583669
Greatest Eclipse = 02:59:19.8 UT J.D. = 2453292.624534

Eclipse Magnitude = 0.9273 Gamma = 1.0346

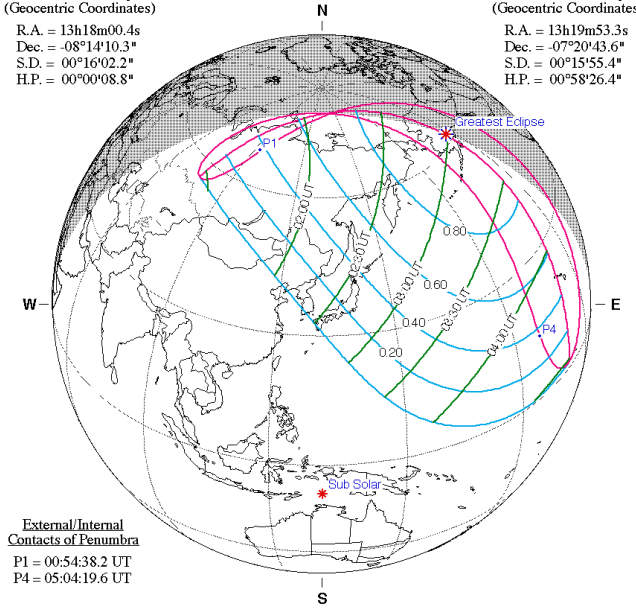
Saros Series = 124 Member = 54 of 73

Sun at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 13h18m00.4s
Dec. = -08°14'10.3"
S.D. = 00°16'02.2"
H.P. = 00°00'08.8"

Moon at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 13h19m53.3s
Dec. = -07°20'43.6"
S.D. = 00°15'55.4"
H.P. = 00°58'26.4"



External/Internal Contacts of Penumbra

P1 = 00:54:38.2 UT
P4 = 05:04:19.6 UT

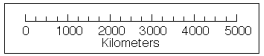
Ephemeris & Constants

Eph. = Newcomb/ILE
ΔT = 64.6 s
k1 = 0.2724880
k2 = 0.2722810
Δb = 0.0" Δl = 0.0"

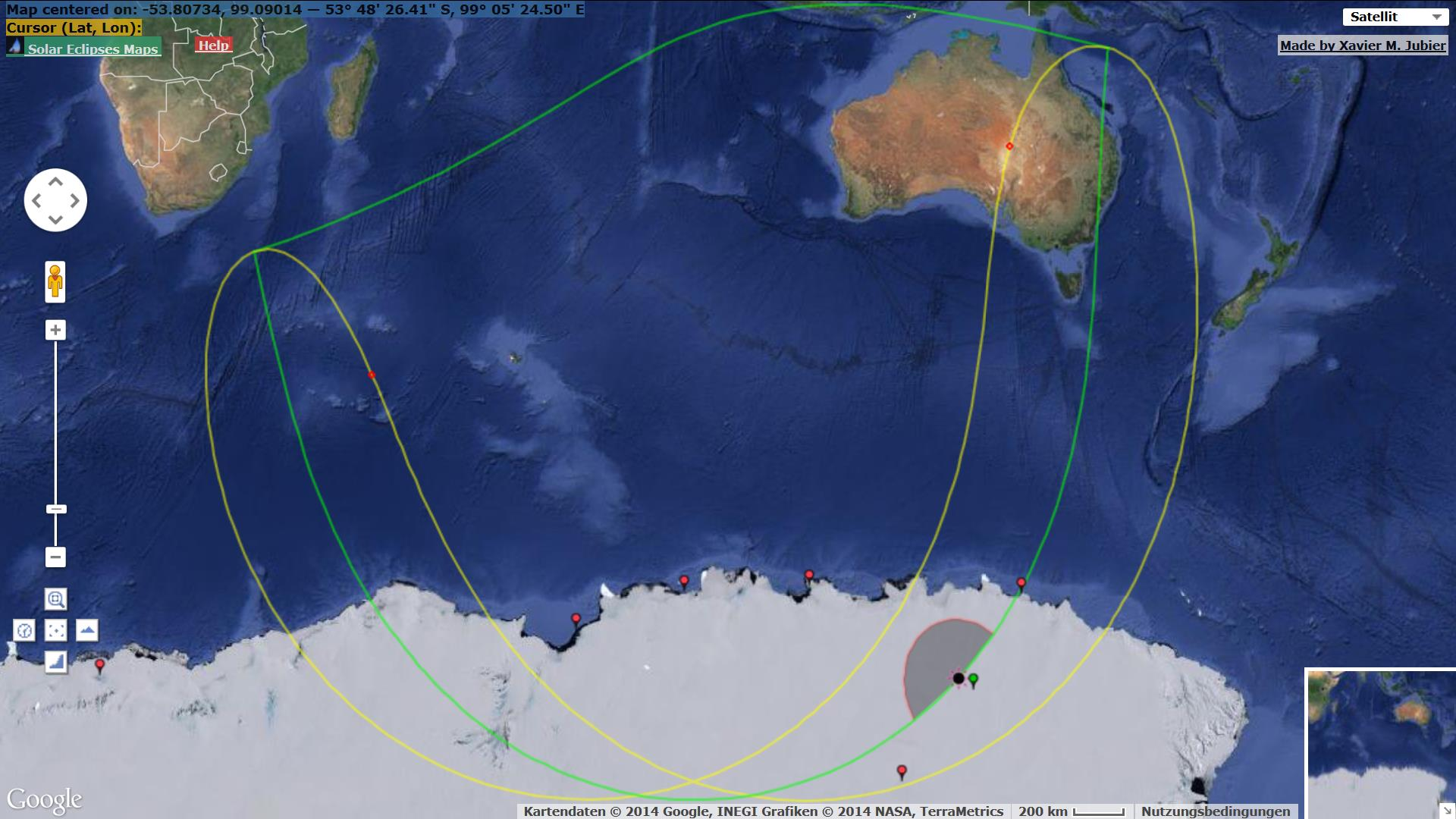
Geocentric Libration
(Optical + Physical)

l = -4.48°
b = -1.34°
c = 20.46°

Brown Lun. No. = 1012



F. Espenak, NASA's GSFC - Fri, Jul 2,
sunearth.gsfc.nasa.gov/eclipse/eclipse.html


Map centered on: -53.80734, 99.09014 — 53° 48' 26.41" S, 99° 05' 24.50" E
Cursor (Lat, Lon):
Solar Eclipses Maps
Help
Satellit
Made by Xavier M. Jubier
Google
Kartendaten © 2014 Google, INEGI Grafiken © 2014 NASA, TerraMetrics
200 km
Nutzungsbedingungen

Joerg Schoppmeyer

41 eclipses logged

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Annular: 13 (Time: **51m 34.7s**)
Partial: 15

10.05.2013 „A total annular eclipse“

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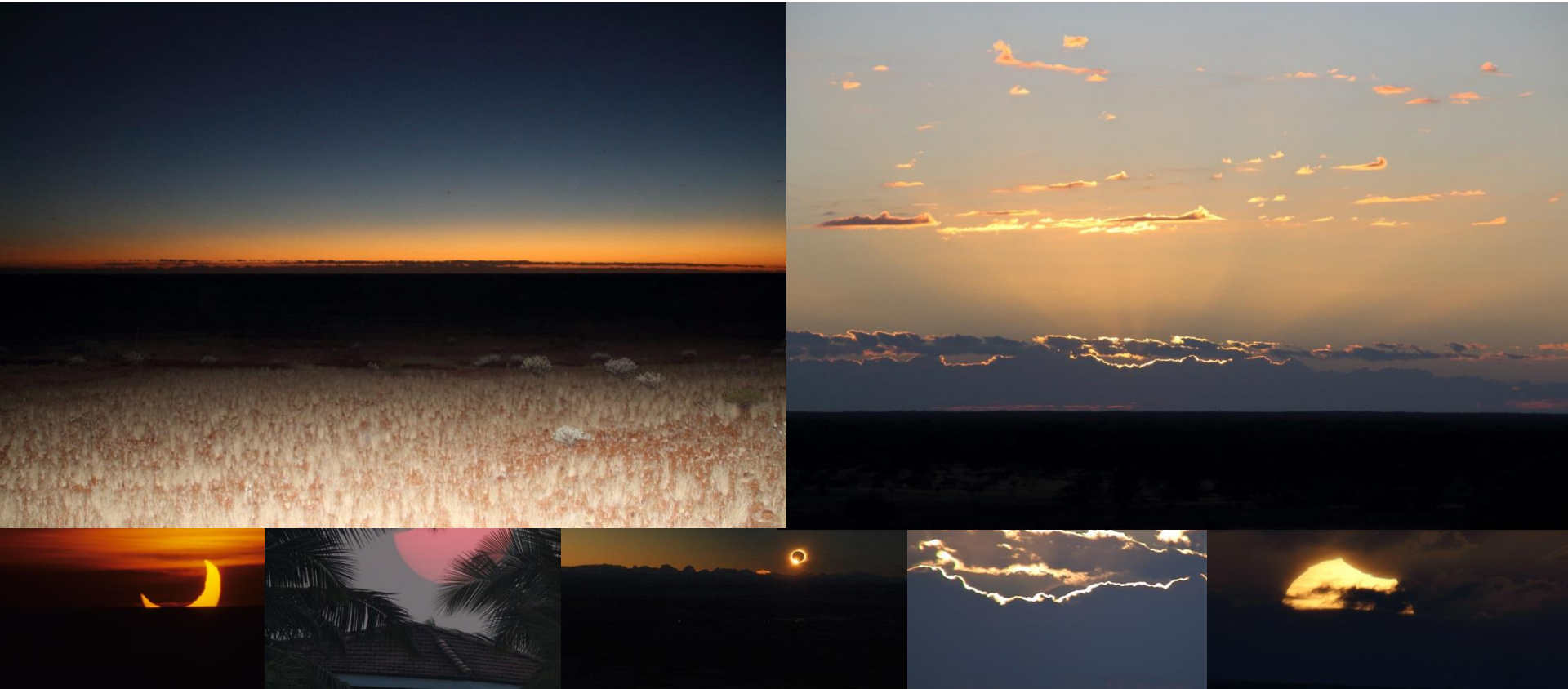

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41 eclipses logged

Total: 13 (Time: **37m 22.2s**)
Annular: 13 (Time: **51m 34.7s**)
Partial: 15

Total Solar Eclipse of 2010 Jul 11

Geocentric Conjunction = 19:50:57.5 UT J.D. = 2455389.327055
Greatest Eclipse = 19:33:33.6 UT J.D. = 2455389.314973

Eclipse Magnitude = 1.0580 Gamma = -0.6789

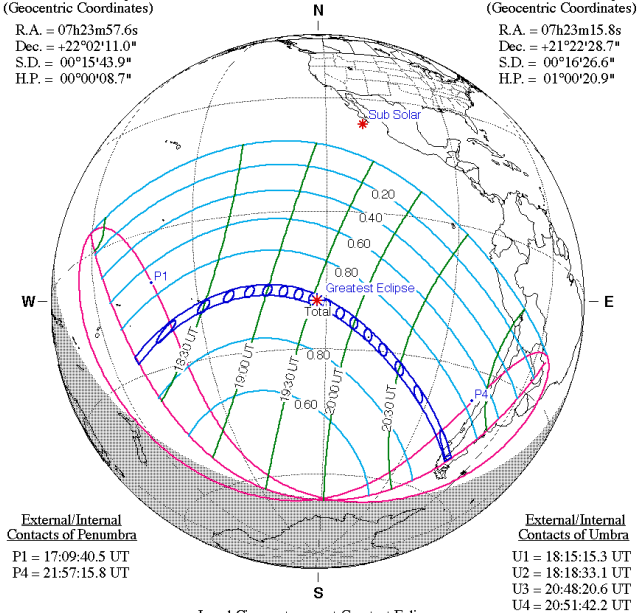
Saros Series = 146 Member = 27 of 76

Sun at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 07h23m57.6s
Dec. = +22°02'11.0"
S.D. = 00°15'43.9"
H.P. = 00°00'08.7"

Moon at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 07h23m15.8s
Dec. = +21°22'28.7"
S.D. = 00°16'26.6"
H.P. = 01°00'20.9"



External/Internal Contacts of Penumbra

P1 = 17:09:40.5 UT
P4 = 21:57:15.8 UT

External/Internal Contacts of Umbra

U1 = 18:15:15.3 UT
U2 = 18:18:33.1 UT
U3 = 20:48:20.6 UT
U4 = 20:51:42.2 UT

Local Circumstances at Greatest Eclipse

Lat. = 19°45.7'S Sun Alt. = 47.1°
Long. = 121°52.9'W Sun Azm. = 13.5°
Path Width = 258.7 km Duration = 05m20.2s

Ephemeris & Constants

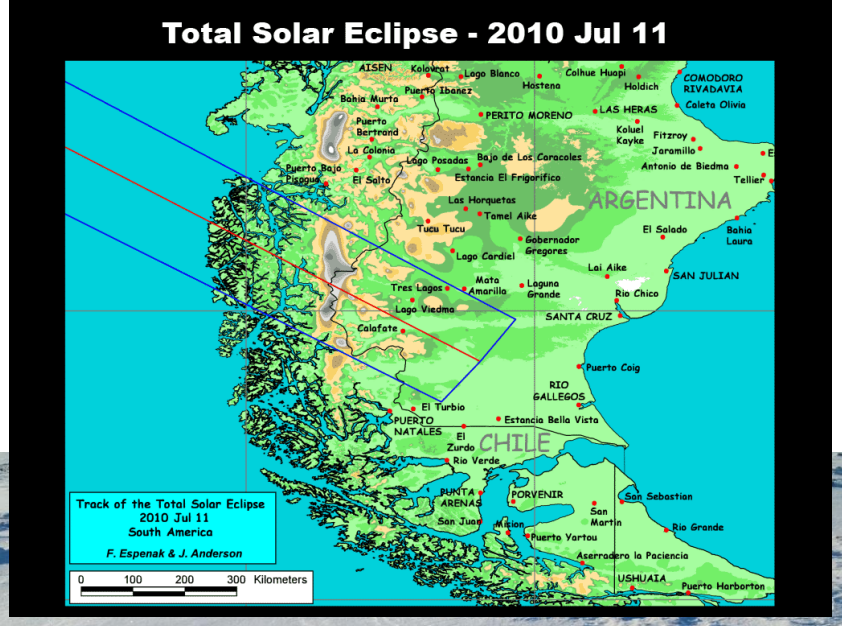
Eph. = Newcomb/ILE
ΔT = 67.1 s
k1 = 0.2724880
k2 = 0.2722810
Δb = 0.0" Δl = 0.0"

Geocentric Libration
(Optical + Physical)

l = -3.24°
b = 0.86°
c = 6.62°
Brown Lun. No. = 1083

0 1000 2000 3000 4000 5000 Kilometers

F. Espenak, NASA's GSFC - Fri, Jul 2,
sunearth.gsfc.nasa.gov/eclipse/eclipse.html



The Earth always remains just above the eastern lunar horizon as seen from Riccioli crater. For the residents of the base, Earth-watching will probably be a favored pastime, especially during exciting events. City lights, weather patterns, and even bright bolides entering the Earth's atmosphere can be viewed from the Moon. Here astronauts, as perhaps the ultimate eclipse chasers, watch the shadow of the Moon cross the United States on August 21, 2017.

Many thanks for your attention !