

u12_lco_250cm_2200nm_predicted_ring_event_times.txt produced Sun Apr 4 16:13:03 2021 using
rfrench@Achilles.fios-router.home:/Volumes/PromisePegasus28TB_backup/dione_raid2/Research/uranus/PDART2014/programs/pro_occinfo2geom_plots_pds4_v7
.pro

Bundle ID: uranus_occ_u12_lco_250cm

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Event: u12
Planet: Uranus
Reference: French et al. 1986 Icarus 67, 134-163
Title: Structure of the Uranian rings II. Ring orbits and widths.
Computations from: 1980-08-15T21:52:50.6650Z to 1980-08-16T01:04:51.9800Z
Observatory name: Las Campanas Observatory
Observatory code file directory: /Volumes/dione_raid2/Research/kernels/
Observatory code file: ObsCodes_pck00010_20200709_Elon+ocobs_v9BJ.obs
Observatory code: LAS
Observatory abbreviation: lco
Entry from observatory code file:
LAS G +289 17 52.80 -29 00 12.8      2270 Las Campanas Observatory
Telescope: 250cm
Instrument: Generic InSb High Speed Photometer
Mean wavelength (nm): 2200nm
Observatory latitude (deg): -29.003555556
Observatory E longitude (deg): 289.298000000
Observatory altitude (km): 2.270000000
Ellipsoid source: /Volumes/dione_raid2/Research/kernels/pck00010.tpc
Observatory reference frame: ITRF93
Earth equatorial radius (km): 6378.136600000
Earth 1/flattening: 298.257006177
Topocentric position vector: 1845.617303240 -5270.845524126 -3075.346302194
Leapsecond kernel file: /Volumes/dione_raid2/Research/kernels/naif0012.tls
Star catalog directory: /Volumes/dione_raid2/Research/RINGFIT/stars/data/
Star catalog file: ustarsALLd.v3.merged.sortedA.csv
Star catalog ID: 25096598
Star number: 39
Star name: U12
Star source catalog: UCAC2
Star RA (deg): 229.541725300
Star Dec (deg): -17.994799500
Star epoch: 2000-01-01T00:00:00.0000Z
Star parallax (mas): 0.000000000
Star pm RA (mas/yr): -12.700000000
Star pm Dec (mas/yr): 10.000000000
Star catalog positions in frame: J2000
Star frame for calculations: J2000
Heliocentric frame for calculations: J2000
Ringfit savefile directory: /Volumes/dione_raid2/Research/RINGFIT/tests/Uranus/Ur017L/savefiles/
Ringfit savefile for star/time offsets: ringfit_v1.8.Ur017L-RF-V0204.sav
Ringfit output file directory: /Volumes/dione_raid2/Research/RINGFIT/tests/Uranus/Ur017L/outfiles/
Ringfit output file: ringfit_v1.8.Ur017L-RF-V0204.out
Star offsets dRA,dDec (mas): -197.025441657 125.568807336
Time offset for this obstr./event (sec): 0.130658016
Kernel directory: /Volumes/dione_raid2/Research/kernels/
../../../../kernels/urall1.bsp
../../../../kernels/vgr2.urall1.bsp
../../../../kernels/earthstns_itrf93_040916.bsp
../../../../kernels/earth_720101_031229.bpc
../../../../kernels/pg3f0000r.bsp
../../../../kernels/pg490000r.bsp
../../../../kernels/naif0012.tls
/Volumes/dione_raid2/Research/RINGFIT/tests/Uranus/Ur017L/savefiles/../../../../kernels/RAJobs_U111+rgf9.spk
/Volumes/dione_raid2/Research/RINGFIT/tests/Uranus/Ur017L/savefiles/../../../../kernels/URKALLv1.spk
/Volumes/dione_raid2/Research/kernels/uranus_ringframes_rfrench20201201_v1.tf
/Volumes/dione_raid2/Research/kernels/pck00010.tpc

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Predicted Ring/Atmosphere Occultation Events

Ring	I/E	UTC (Earth)	UTC (@ring)	R(model)	R-dot	Anomaly	Sin B	Ulon Alt (deg)	Sun (deg)
epsilon	I	1980-08-15T21:52:54.91Z	1980-08-15T19:16:51.03Z	50881.05	-8.287	48.937	-0.89307	173.074 77.069	4.788
lambda	I	1980-08-15T21:54:38.16Z	1980-08-15T19:18:34.27Z	50026.01	-8.277	5.936	-0.89307	172.823 77.268	4.431
delta	I	1980-08-15T21:58:06.89Z	1980-08-15T19:22:02.97Z	48300.36	-8.257	71.725	-0.89307	172.288 77.641	3.709
gamma	I	1980-08-15T21:59:29.17Z	1980-08-15T19:23:25.25Z	47621.16	-8.249	1.166	-0.89307	172.067 77.777	3.424
eta	I	1980-08-15T22:00:23.11Z	1980-08-15T19:24:19.18Z	47176.23	-8.243	90.131	-0.89307	171.918 77.863	3.236
beta	I	1980-08-15T22:03:27.40Z	1980-08-15T19:27:23.45Z	45657.75	-8.221	279.966	-0.89310	171.389 78.133	2.596
alpha	I	1980-08-15T22:05:25.31Z	1980-08-15T19:29:21.34Z	44687.20	-8.207	337.854	-0.89314	171.032 78.287	2.186
four	I	1980-08-15T22:09:50.59Z	1980-08-15T19:33:46.59Z	42530.31	-8.173	25.234	-0.89282	170.169 78.575	1.261
five	I	1980-08-15T22:10:21.40Z	1980-08-15T19:34:17.40Z	42262.17	-8.167	250.187	-0.89316	170.063 78.603	1.153
six	I	1980-08-15T22:11:16.98Z	1980-08-15T19:35:12.98Z	41818.86	-8.160	64.330	-0.89294	169.869 78.651	0.959
six	E	1980-08-16T00:45:57.55Z	1980-08-15T22:09:52.52Z	41831.04	8.277	278.422	-0.89294	24.251 55.249	-32.436
five	E	1980-08-16T00:46:49.60Z	1980-08-15T22:10:44.57Z	42254.24	8.284	103.902	-0.89316	24.073 55.062	-32.625
four	E	1980-08-16T00:47:30.50Z	1980-08-15T22:11:25.47Z	42594.80	8.293	238.706	-0.89282	23.929 54.914	-32.774
alpha	E	1980-08-16T00:51:51.05Z	1980-08-15T22:15:45.98Z	44752.16	8.334	189.645	-0.89314	23.077 53.976	-33.723
beta	E	1980-08-16T00:53:41.75Z	1980-08-15T22:17:36.67Z	45674.48	8.350	131.073	-0.89310	22.737 53.577	-34.126
eta	E	1980-08-16T00:56:41.14Z	1980-08-15T22:20:36.04Z	47176.15	8.376	300.200	-0.89307	22.212 52.930	-34.778
gamma	E	1980-08-16T00:57:35.41Z	1980-08-15T22:21:30.30Z	47631.06	8.383	210.940	-0.89307	22.059 52.734	-34.976
delta	E	1980-08-16T00:58:55.21Z	1980-08-15T22:22:50.09Z	48300.39	8.394	281.062	-0.89307	21.840 52.445	-35.266
lambda	E	1980-08-16T01:02:20.46Z	1980-08-15T22:26:15.32Z	50026.01	8.420	214.222	-0.89307	21.304 51.702	-36.012
epsilon	E	1980-08-16T01:04:44.54Z	1980-08-15T22:28:39.39Z	51240.26	8.436	256.629	-0.89307	20.948 51.180	-36.536

Event geometry at 1980-08-15T23:27:12.0000Z

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Ring opening angle B (deg): -63.26138
Position angle of pole P (deg): 88.10158
Observer-planet distance (km): 2807.621905 x 10^6
Light travel time (sec): 9365.218605

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