u138_palomar_508cm_2200nm_predicted_ring_event_times.txt produced Mon Apr 5 18:08:59 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_u138_palomar_508cm

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Event:                                  u138
Planet:                                 Uranus
Reference:                              Unpublished
Title:                                  Unpublished
Computations from:                      1996-04-10T11:47:35.8797Z to 1996-04-10T12:25:20.9139Z
Observatory name:                       Palomar Observatory
Observatory code file directory:        /Volumes/dione_raid2/Research/kernels/
Observatory code file:                  ObsCodes_pck00010_20200709_Elon+ocobs_v9BJ.obs
Observatory code:                       675
Observatory abbreviation:               palomar
Entry from observatory code file:
    675 G +243 08 14.86  +33 21 14.8        1696 Palomar Mountain                                   pck00010.tpc
Telescope:                              508cm
Instrument:                             Generic InSb High Speed Photometer
Mean wavelength (nm)                    2200nm
Observatory latitude (deg):                33.354111111
Observatory E longitude (deg):             243.137461111
Observatory altitude (km):                   1.696000000
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:             -2410.356622789   -4758.781262269    3487.762207224
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:                        24243463
Star number:                               52
Star name:                              U138
Star source catalog:                    UCAC2
Star RA (deg):                              306.777945600
Star Dec (deg):                             -19.730232800
Star epoch:                             2000-01-01T00:00:00.0000Z
Star parallax (mas):                         0.000000000
Star pm RA (mas/yr):                         8.200000000
Star pm Dec (mas/yr):                        0.200000000
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):               45.982061485       0.219639037
Time offset for this obstr./event (sec):     0.000000000
Kernel directory:                       /Volumes/dione_raid2/Research/kernels/
   ../../../../kernels/ura111.bsp
   ../../../../kernels/vgr2.ura111.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
```

Predicted Ring/Atmosphere Occultation Events

Ring	I/E	UTC(Earth)	UTC(@ring)	R(model)	R-dot	Anomaly	Sin B	Ulon	Alt(deg)	Sun(deg)
Atmosphere	E	1996-04-10T12:04:29.91Z							22.640	-16.566
six	E	1996-04-10T12:09:14.15Z	1996-04-10T09:23:10.19Z	41815.75	19.554	300.412	-0.67823	354.871	23.330	-15.645
five	E	1996-04-10T12:09:38.72Z	1996-04-10T09:23:34.77Z	42217.22	19.527	282.764	-0.67929	354.970	23.389	-15.565
four	E	1996-04-10T12:09:56.39Z	1996-04-10T09:23:52.45Z	42593.08	19.549	118.778	-0.67877	355.079	23.431	-15.507
alpha	E	1996-04-10T12:11:44.47Z	1996-04-10T09:25:40.53Z	44719.12	19.588	269.196	-0.67866	355.631	23.690	-15.156
beta	E	1996-04-10T12:12:31.60Z	1996-04-10T09:26:27.68Z	45641.76	19.600	14.728	-0.67875	355.854	23.802	-15.002
eta	E	1996-04-10T12:13:49.97Z	1996-04-10T09:27:46.06Z	47176.07	19.619	3.214	-0.67877	356.204	23.988	-14.746
gamma	E	1996-04-10T12:14:13.04Z	1996-04-10T09:28:09.13Z	47629.00	19.625	241.831	-0.67876	356.303	24.042	-14.671
delta	E	1996-04-10T12:14:47.26Z	1996-04-10T09:28:43.35Z	48300.72	19.633	196.724	-0.67876	356.447	24.123	-14.559
lambda	E	1996-04-10T12:16:15.11Z	1996-04-10T09:30:11.22Z	50026.01	19.652	45.758	-0.67877	356.797	24.329	-14.272
epsilon	E	1996-04-10T12:16:51.62Z	1996-04-10T09:30:47.73Z	50743.63	19.659	359.565	-0.67877	356.936	24.415	-14.152

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Event geometry at 1996-04-10T11:47:36.0000Z
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    Ring opening angle B (deg):  -42.74738
Position angle of pole P (deg):  267.29897
 Observer-planet distance (km):    2987.120146 x 10^6
       Light travel time (sec):    9963.960289
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