u23_teide_155cm_2200nm_predicted_ring_event_times.txt produced Mon Apr 12 20:05:26 2021 using
rfrench@Achilles.local:/Volumes/PromisePegasus28TB_backup/dione_raid2/Research/uranus/PDART2014/programs/pro_occinfo2geom_plots_pds4_v7.pro

Bundle ID: uranus_occ_u23_teide_155cm

```
Event:                                  u23
Planet:                                 Uranus
Reference:                              French et al. 1988 Icarus 73, 349-378
Title:                                  Uranian ring orbits from earth-based and Voyager occultation observations.
Computations from:                      1985-05-04T04:45:00.0000Z to 1985-05-04T04:58:00.0000Z
Observatory name:                       Observatorio del Teide
Observatory code file directory:        /Volumes/dione_raid2/Research/kernels/
Observatory code file:                  ObsCodes_pck00010_20200709_Elon+ocobs_v9BJ.obs
Observatory code:                       TEN
Observatory abbreviation:               teide
Entry from observatory code file:
    TEN G -016 29 45.00  +28 17 32.0        2380 Tenerife Cabezon Observatory 1.55m Carlos Sanches   pck00010.tpc
Telescope:                              155cm
Instrument:                             Generic InSb High Speed Photometer
Mean wavelength (nm)                    2200nm
Observatory latitude (deg):              28.292222222
Observatory E longitude (deg):          -16.495833333
Observatory altitude (km):                2.380000000
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:            5391.117218988   -1596.495229570    3006.188127254
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:                        22735323
Star number:                            83
Star name:                              U23
Star source catalog:                    UCAC2
Star RA (deg):                          256.378486200
Star Dec (deg):                         -22.873890300
Star epoch:                             2000-01-01T00:00:00.0000Z
Star parallax (mas):                     0.000000000
Star pm RA (mas/yr):                    -2.500000000
Star pm Dec (mas/yr):                   -11.700000000
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):             97.893847636      33.583458821
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)
epsilon	I	1985-05-04T04:47:14.09Z	1985-05-04T02:15:39.09Z	50767.47	-15.041	19.894	-0.99086	331.972	34.926	-19.993
lambda	I	1985-05-04T04:48:03.53Z	1985-05-04T02:16:28.54Z	50026.01	-14.946	146.513	-0.99086	331.422	34.852	-19.839
delta	I	1985-05-04T04:49:59.88Z	1985-05-04T02:18:24.89Z	48300.72	-14.707	163.244	-0.99086	330.062	34.675	-19.475
gamma	I	1985-05-04T04:50:46.23Z	1985-05-04T02:19:11.24Z	47621.44	-14.604	18.698	-0.99086	329.492	34.604	-19.329
eta	I	1985-05-04T04:51:16.80Z	1985-05-04T02:19:41.81Z	47176.07	-14.534	8.721	-0.99086	329.108	34.556	-19.233
beta	I	1985-05-04T04:53:00.55Z	1985-05-04T02:21:25.57Z	45681.39	-14.280	178.564	-0.99085	327.747	34.394	-18.907
alpha	I	1985-05-04T04:54:10.52Z	1985-05-04T02:22:35.54Z	44689.35	-14.094	329.642	-0.99084	326.778	34.283	-18.687
four	I	1985-05-04T04:56:46.02Z	1985-05-04T02:25:11.05Z	42530.27	-13.635	25.128	-0.99084	324.469	34.031	-18.195
five	I	1985-05-04T04:57:04.36Z	1985-05-04T02:25:29.40Z	42278.79	-13.576	123.070	-0.99088	324.183	34.001	-18.137
six	I	1985-05-04T04:57:35.03Z	1985-05-04T02:26:00.06Z	41870.50	-13.477	141.277	-0.99084	323.684	33.951	-18.040

```
Event geometry at 1985-05-04T04:58:00.0000Z
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    Ring opening angle B (deg):  -82.24815
Position angle of pole P (deg):    6.68814
 Observer-planet distance (km):    2726.598191 x 10^6
       Light travel time (sec):    9094.952585
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