

u25\_palomar\_508cm\_2200nm\_predicted\_ring\_event\_times.txt produced Mon Apr 5 01:10:57 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\_u25\_palomar\_508cm

```

Event: u25
Planet: Uranus
Reference: Unpublished
Title: Unpublished
Computations from: 1985-05-24T07:12:00.1249Z to 1985-05-24T09:10:23.0179Z
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: 22734194
Star number: 87
Star name: U25
Star source catalog: UCAC2
Star RA (deg): 255.590005300
Star Dec (deg): -22.807145900
Star epoch: 2000-01-01T00:00:00.0000Z
Star parallax (mas): 0.000000000
Star pm RA (mas/yr): 5.500000000
Star pm Dec (mas/yr): -23.500000000
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): 64.047842329 -291.804001671
Time offset for this obstr./event (sec): 0.000000000
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

```

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	1985-05-24T07:50:06.07Z	1985-05-24T05:19:38.27Z	50749.85	-18.021	349.868	-0.99073	329.387	32.538 -35.850
lambda	I	1985-05-24T07:50:46.38Z	1985-05-24T05:20:18.58Z	50026.01	-17.886	114.214	-0.99073	328.799	32.572 -35.846
delta	I	1985-05-24T07:52:23.75Z	1985-05-24T05:21:55.94Z	48300.62	-17.546	126.052	-0.99073	327.307	32.653 -35.833
gamma	I	1985-05-24T07:53:02.61Z	1985-05-24T05:22:34.81Z	47621.46	-17.395	340.574	-0.99073	326.681	32.684 -35.827
eta	I	1985-05-24T07:53:28.28Z	1985-05-24T05:23:00.48Z	47176.09	-17.294	329.405	-0.99073	326.257	32.704 -35.823
beta	I	1985-05-24T07:54:55.96Z	1985-05-24T05:24:28.16Z	45675.41	-16.931	134.688	-0.99072	324.750	32.773 -35.807
alpha	I	1985-05-24T07:55:53.38Z	1985-05-24T05:25:25.58Z	44711.24	-16.667	282.567	-0.99070	323.707	32.817 -35.796
four	I	1985-05-24T07:58:06.49Z	1985-05-24T05:27:38.70Z	42532.26	-15.999	329.486	-0.99078	321.116	32.915 -35.766
five	I	1985-05-24T07:58:27.09Z	1985-05-24T05:27:59.30Z	42202.08	-15.882	65.795	-0.99085	320.693	32.930 -35.761
six	I	1985-05-24T07:58:51.07Z	1985-05-24T05:28:23.28Z	41831.49	-15.745	82.164	-0.99060	320.180	32.947 -35.755
six	E	1985-05-24T08:43:50.59Z	1985-05-24T06:13:22.86Z	41795.28	15.753	351.101	-0.99060	229.206	33.855 -34.026
five	E	1985-05-24T08:44:13.96Z	1985-05-24T06:13:46.24Z	42163.07	15.885	333.735	-0.99085	228.711	33.854 -34.002
four	E	1985-05-24T08:44:41.05Z	1985-05-24T06:14:13.32Z	42596.31	16.033	236.434	-0.99078	228.154	33.853 -33.975
alpha	E	1985-05-24T08:46:52.75Z	1985-05-24T06:16:25.02Z	44752.54	16.698	184.379	-0.99070	225.592	33.843 -33.837
beta	E	1985-05-24T08:47:45.82Z	1985-05-24T06:17:18.09Z	45644.64	16.937	34.490	-0.99072	224.628	33.838 -33.781
eta	E	1985-05-24T08:49:15.26Z	1985-05-24T06:18:47.54Z	47176.34	17.313	226.179	-0.99073	223.087	33.827 -33.684
gamma	E	1985-05-24T08:49:41.36Z	1985-05-24T06:19:13.64Z	47629.43	17.419	236.482	-0.99073	222.657	33.823 -33.655
delta	E	1985-05-24T08:50:19.71Z	1985-05-24T06:19:51.99Z	48300.18	17.565	20.701	-0.99073	222.039	33.818 -33.613
lambda	E	1985-05-24T08:51:57.02Z	1985-05-24T06:21:29.30Z	50026.01	17.906	5.906	-0.99073	220.546	33.801 -33.503
epsilon	E	1985-05-24T08:53:10.51Z	1985-05-24T06:22:42.79Z	51350.52	18.144	239.897	-0.99073	219.486	33.787 -33.419

Event geometry at 1985-05-24T08:21:19.0000Z

```

Ring opening angle B (deg): -82.19387
Position angle of pole P (deg): 12.32333
Observer-planet distance (km): 2706.430874 x 10^6
Light travel time (sec): 9027.681658

```