

u36_ctio_400cm_2200nm_predicted_ring_event_times.txt produced Tue Apr 13 21:32:34 2021 using
 rfrench@Achilles.local:/Volumes/PromisePegasus28TB_backup/dione RAID2/Research/uranus/PDART2014/programs/pro_occinfo2geom_plots_pds4_v7.pro

Bundle ID: uranus_occ_u36_ctio_400cm

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Event: u36
Planet: Uranus
Reference: J. L. Elliot and 13 colleagues. BAAS 19, 884 (1987)
Title: A four-day occultation by Uranus and its rings
Computations from: 1987-04-02T04:28:04.1100Z to 1987-04-02T12:03:00.5900Z
Observatory name: Cerro Tololo Inter-American Observatory
Observatory code file directory: /Volumes/dione RAID2/Research/kernels/
Observatory code file: ObsCodes_pck00010_20200709_Elon+ocobs_v9BJ. obs
Observatory code: 807
Observatory abbreviation: ctio
Entry from observatory code file:
    807 G +289 11 38.80 -30 10 08.9
Telescope: 2380 CTIO 4m - tweaked 2020 Apr 01 to match JPL Horizons pck00010.tpc
Instrument: 400cm
Mean wavelength (nm): Generic InSb High Speed Photometer
Observatory latitude (deg): 2200nm
Observatory E longitude (deg): -30.169138889
Observatory altitude (km): 289.194111111
Ellipsoid source: 2.380000000
Observatory reference frame: /Volumes/dione RAID2/Research/kernels/pck00010.tpc
Earth equatorial radius (km): ITRF93
Earth 1/flattening: 6378.136600000
Topocentric position vector: 298.257006177
Leapsecond kernel file: 1815.108950819 -5214.008358653 -3187.793456948
Star catalog directory: /Volumes/dione RAID2/Research/RINGFIT/stars/data/
Star catalog file: ustarsALLd.v3.merged.sortedA.csv
Star catalog ID: 333-124092
Star number: 114
Star name: U36
Star source catalog: UCAC4
Star RA (deg): 266.624681200
Star Dec (deg): -23.538897000
Star epoch: 2000-01-01T00:00:00.0000Z
Star parallax (mas): 0.000000000
Star pm RA (mas/yr): -3.200000000
Star pm Dec (mas/yr): -8.100000000
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): 17.783060768 75.423918081
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

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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)
Atmosphere	E		1987-04-02T05:08:50.36Z							28.145	-64.041
six	E		1987-04-02T09:40:26.37Z	1987-04-02T07:03:09.98Z	41873.84	1.065	210.847	-0.97747	161.630	83.151	-16.788
five	E		1987-04-02T09:46:23.05Z	1987-04-02T07:09:06.69Z	42255.24	1.066	255.362	-0.97775	161.768	83.357	-15.507
four	E		1987-04-02T09:51:57.58Z	1987-04-02T07:14:41.26Z	42611.05	1.067	208.659	-0.97759	161.890	83.313	-14.304
alpha	E		1987-04-02T10:24:46.93Z	1987-04-02T07:47:30.78Z	44712.48	1.068	79.550	-0.97764	162.617	79.459	-7.215
beta	E		1987-04-02T10:39:21.12Z	1987-04-02T08:02:05.06Z	45644.89	1.066	35.718	-0.97770	162.937	76.772	-4.070
eta	E		1987-04-02T11:03:20.19Z	1987-04-02T08:26:04.26Z	47176.08	1.060	18.723	-0.97769	163.461	71.944	1.094
gamma	E		1987-04-02T11:10:23.55Z	1987-04-02T08:33:07.66Z	47624.53	1.058	68.477	-0.97769	163.613	70.474	2.608
delta	E		1987-04-02T11:21:03.75Z	1987-04-02T08:43:47.92Z	48300.58	1.054	242.524	-0.97769	163.841	68.225	4.892
lambda	E		1987-04-02T11:48:31.64Z	1987-04-02T09:11:15.96Z	50026.01	1.040	30.490	-0.97769	164.418	62.351	10.730
epsilon	E		1987-04-02T12:00:26.26Z	1987-04-02T09:23:10.66Z	50766.26	1.032	340.623	-0.97769	164.663	59.782	13.238

Event geometry at 1987-04-02T04:28:04.0000Z

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Ring opening angle B (deg): -77.87531
Position angle of pole P (deg): 311.95670
Observer-planet distance (km): 2828.714855 x 10^6
Light travel time (sec): 9435.577112

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