

u149_lowell_180cm_890nm_predicted_ring_event_times.txt produced Mon Apr 5 19:12:10 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_u149_lowell_180cm

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Event: u149
Planet: Uranus
Reference: Icarus 153, 236a\200\223247 (2001)
Title: Uranus after Solstice: Results from the 1998 November 6 Occultation
Computations from: 1998-11-06T03:30:01.0000Z to 1998-11-06T05:47:00.2500Z
Observatory name: Lowell Observatory
Observatory code file directory: /Volumes/dione RAID2/Research/kernels/
Observatory code file: ObsCodes_pck00010_20200709_Elon+ocobs_v9BJ. obs
Observatory code: 688
Observatory abbreviation: lowell
Entry from observatory code file:
  688 G +248 27 52.20 +35 05 45.4          2204 Lowell Observatory, Anderson Mesa Station          pck00010.tpc
Telescope: 180cm
Instrument: Generic CCD Camera
Mean wavelength (nm): 890nm
Observatory latitude (deg): 35.095944444
Observatory E longitude (deg): 248.464500000
Observatory altitude (km): 2.204000000
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: -1918.390759141 -4861.283605684 3647.847965194
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: 20462044-1838345
Star number: 62
Star name: U149
Star source catalog: 2MASS
Star RA (deg): 311.585179000
Star Dec (deg): -18.642933000
Star epoch: 2000-01-01T00:00:00.0000Z
Star parallax (mas): 0.000000000
Star pm RA (mas/yr): 0.000000000
Star pm Dec (mas/yr): 0.000000000
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): 27.522308438 -45.037005610
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

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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	1998-11-06T03:39:13.82Z	1998-11-06T00:53:26.33Z	50812.81	-13.678	325.787	-0.61765	164.145	25.875 -39.422
lambda	I	1998-11-06T03:40:11.39Z	1998-11-06T00:54:23.90Z	50026.01	-13.652	268.088	-0.61765	163.822	25.750 -39.616
delta	I	1998-11-06T03:42:18.06Z	1998-11-06T00:56:30.57Z	48300.72	-13.590	195.928	-0.61765	163.075	25.474 -40.043
gamma	I	1998-11-06T03:43:07.31Z	1998-11-06T00:57:19.81Z	47631.47	-13.564	200.697	-0.61765	162.769	25.366 -40.209
eta	I	1998-11-06T03:43:40.88Z	1998-11-06T00:57:53.37Z	47176.24	-13.546	268.113	-0.61766	162.556	25.292 -40.322
beta	I	1998-11-06T03:45:33.22Z	1998-11-06T00:59:45.71Z	45655.14	-13.480	72.367	-0.61771	161.810	25.044 -40.700
alpha	I	1998-11-06T03:46:39.61Z	1998-11-06T01:00:52.10Z	44752.63	-13.433	181.344	-0.61785	161.340	24.896 -40.924
four	I	1998-11-06T03:49:25.19Z	1998-11-06T01:03:37.67Z	42526.04	-13.309	2.606	-0.61809	160.089	24.524 -41.480
five	I	1998-11-06T03:49:44.69Z	1998-11-06T01:03:57.17Z	42245.20	-13.288	97.342	-0.61833	159.916	24.479 -41.546
six	I	1998-11-06T03:50:21.95Z	1998-11-06T01:04:34.42Z	41800.43	-13.272	29.909	-0.61800	159.657	24.395 -41.671
Atmosphere	E	1998-11-06T04:01:41.67Z							22.819 -43.941
Atmosphere	E	1998-11-06T05:14:18.74Z							11.277 -57.859
six	E	1998-11-06T05:17:01.90Z	1998-11-06T02:31:14.05Z	41846.08	13.487	258.043	-0.61800	27.962	10.807 -58.341
five	E	1998-11-06T05:17:25.91Z	1998-11-06T02:31:38.06Z	42169.26	13.497	325.028	-0.61833	27.765	10.738 -58.412
four	E	1998-11-06T05:17:57.12Z	1998-11-06T02:32:09.26Z	42600.47	13.531	229.877	-0.61809	27.510	10.647 -58.504
alpha	E	1998-11-06T05:20:29.99Z	1998-11-06T02:34:42.13Z	44695.15	13.663	46.207	-0.61785	26.340	10.203 -58.952
beta	E	1998-11-06T05:21:39.27Z	1998-11-06T02:35:51.41Z	45652.33	13.718	296.265	-0.61771	25.844	10.001 -59.154
eta	E	1998-11-06T05:23:29.76Z	1998-11-06T02:37:41.89Z	47176.33	13.796	130.524	-0.61766	25.098	9.678 -59.474
gamma	E	1998-11-06T05:24:02.17Z	1998-11-06T02:38:14.29Z	47624.04	13.817	62.700	-0.61765	24.889	9.583 -59.568
delta	E	1998-11-06T05:24:51.04Z	1998-11-06T02:39:03.15Z	48300.29	13.848	57.314	-0.61765	24.580	9.440 -59.708
lambda	E	1998-11-06T05:26:55.33Z	1998-11-06T02:41:07.44Z	50026.01	13.922	127.989	-0.61765	23.833	9.075 -60.064
epsilon	E	1998-11-06T05:28:44.85Z	1998-11-06T02:42:56.96Z	51553.89	13.980	184.760	-0.61765	23.217	8.752 -60.376

Event geometry at 1998-11-06T04:38:07.0000Z

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Ring opening angle B (deg): -38.14472
Position angle of pole P (deg): 265.05175
Observer-planet distance (km): 2982.376607 x 10^6
Light travel time (sec): 9948.137546

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