

Divide Observatory, a 0.35-m Schmidt-Cassegrain and SBIG ST-9E were used for 60-second exposures. The camera was run at 1x1 binning (20 μ m pixels). Hunters Hill also employed a 0.35-m SCT but with an SBIG ST-8E at 1x1 binning (9 μ m pixels) and 60-second exposures. All images were processed with dark frames and flat fields. We used MPO Canopus for aperture photometry of the images. Period analysis was also done in Canopus, which includes an implementation of the Fourier analysis algorithm by Alan Harris (1989).

A period search in the range of 10-120 hours, found a monomodal curve with a reasonable fit at 32.0 ± 0.1 hrs, in agreement with Schorber's finding. Previous radar data was reviewed with this period in mind and found good agreement between the two (Howell, private communications). During the analysis, we did find another solution, assuming a bimodal curve, of about 64 hrs. However, this value is ruled out by the radar data.

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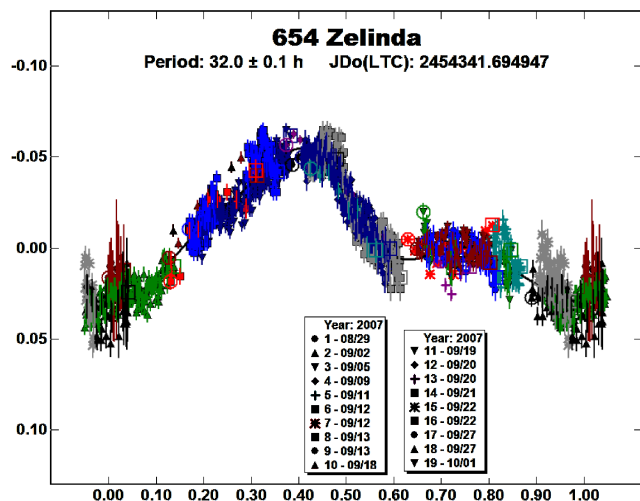
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LIGHTCURVE ANALYSIS OF 287 NEPHTHYS

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Lightcurves for 287 Nephthys were obtained over five nights in April and May 2007. Clear-filter photometric exposures were used to calculate the synodic period (7.604802 ± 0.000001 h) and 0.36 mag. amplitude.

287 Nephthys (~68 km) is a main-belt asteroid first detected by C.H.F. Peters in 1889. Since the first photoelectric observations by Scaltriti and Zappala (1979), less than six lightcurves from this minor planet are described in the literature. The most recent, corresponding to the 2004 apparition, was published by Fauerbach and Bennett (2005).

Equipment included a focal reduced (f/6.3) 0.2-m NexStar 8 GPS SCT with a thermoelectrically cooled (-10°C from ambient) SBIG ST 402ME CCD camera mounted at the Cassegrain focus. Clear filter imaging (unbinned for 15 sec) was carried out on a total of five nights. Sessions lasted from 2 to 5 hours with exposures automatically taken at least every 60 seconds. Image acquisition (raw lights, darks and flats) was performed using CCDSOFT 5 (SBIG) while calibration and registration were accomplished with AIP4WIN (Berry and Burnell 2005). Further image reduction with MPO Canopus (Warner 2006) was achieved using at least three non-varying comparison stars to generate light curves by differential aperture photometry. Data were light-time corrected but not reduced to standard magnitudes.

A total of 972 photometric readings were collected over 33,098 days. Relevant aspect parameters for 287 Nephthys taken at the mid-point from each session are tabulated below. MPO Canopus provided a period solution for the folded data sets using Fourier analysis (Harris 1989). The synodic period, determined to be 7.604802 ± 0.000001 h was in good agreement with rotational periods for 287 Nephthys published by Fauerbach and Bennett (2005) and that found by the "Small-Body Database Browser" at the JPL Solar System Dynamics website. Periodograms produced using "Peranso" (Vannmunster 2006) by applying periodic orthogonals to fit observations and analysis of variance (ANOVA) to evaluate fit quality, also corroborated this period determination (7.60479 ± 0.0030 hr). The lightcurve amplitude (~0.36m) is consistent with findings from previous investigations.

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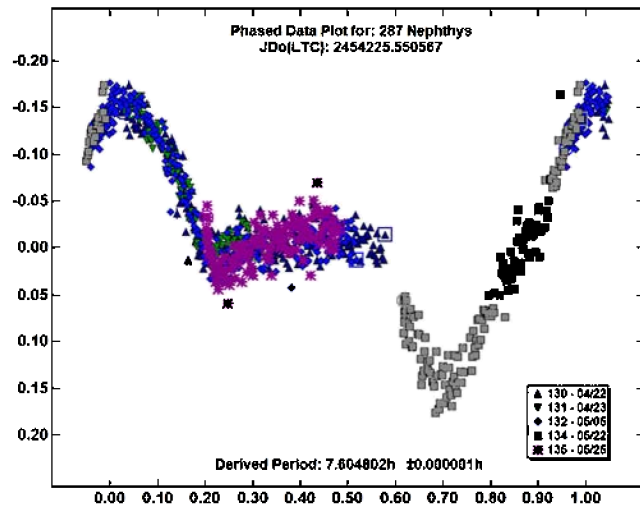
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UT Date (2007)	No. Obs	Phase Angle	LPAB	BPAB	%Phase Coverage
Apr 22	227	19.3	171.4	7.9	64.2
Apr 23	123	19.6	171.5	8.0	26.3
May 5	313	22.5	173.3	8.2	56.3
May 22	171	24.9	176.7	8.4	37.5
May 25	138	25.2	177.4	8.5	26.3

LIGHTCURVE ANALYSIS OF FOURTEEN ASTEROIDS

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Lightcurve period and amplitude are reported for the following asteroids observed at Carbuncle Hill Observatory and other sites between December 2006 and March 2007: 1806 Derice, 2472 Bradman, 2480 Popanov, 2768 Gorky, 2874 Jim Young, 3314 Beals, 4936 Butakov, 5676 Voltaire, 6709 Hiromiyuki, 6737 Okabayashi, 9368 Eshashi, 13497 Ronstone, (14142) 1998 SG10 and (46598) 1993 FT2.

Carbuncle Hill Observatory (CHO) is located about twenty miles west of Providence, RI. Of the asteroids reported here, eleven were observed exclusively at CHO while the remaining three involved collaborations with three observatories. Targets in Table I are noted to show contributors and their affiliation. Observations at CHO were made with a 0.51m f/4 reflector with a SBIG ST-10XME CCD camera at the prime focus. This system produced an image dimension of 28x17 arcmin (2.1 arcsec per pixel, binned 3x3). All observations were taken through the "clear" filter. Leura Observatory used a 0.35m SCT at f/11 and a SBIG ST9XE CCD at the prime focus. The camera was operated binned 1x1 resulting in an image dimension of 9.1 x 9.1 arcmin (1.07 arcsec per pixel). Modra Observatory used a 0.6m, f/5.5

Table I

#	Name	Dates	Period (h)	P.E. (h)	Amp (m)	Phase	LPAB*	BPAB*
1806	Derice (2,4)	12/17-20/2006	3.2240	0.0005	0.19	18.3-17.0	115.3	-1.3
2472	Bradman (4)	02/10-24/2007	5.894	0.001	0.11	5.5-13.0	132.7	3.3
2480	Popanov (4)	12/21-28/2006	3.095	0.001	0.13	10.9-7.0	106.2	3.8
2768	Gorky (4)	02/06-09/2007	4.507	0.001	0.51	5.1-5.9	132.8	8.5
2874	Jim Young (4)	12/17/06-01/21/07	131.3	?	~0.75	17.3-3.3	115.1	3.0
3314	Beals (4)	01/10-17/2007	5.4616	0.0005	0.70	9.4-6.5	123.4	8.9
4936	Butakov (3,4)	02/23-03/19/2007	13.828	0.001	0.14	12.8-22.0	132.1	-2.4
5676	Voltaire (4)	12/09-21/2006	10.081?	0.001	0.06	10.8-15.3	59.9	-11.5
6709	Hiromiyuki (4)	02/19-24/2007	6.828	0.001	1.00	7.2-9.8	138.0	1.7
6737	Okabayashi (4)	02/13-17/2007	2.5515	0.0005	0.12	0.7-2.2	144.2	1.1
9368	Eshashi (4)	01/18-02/05/2007	2.9183	0.0002	0.20	7.5-3.0	129.3	-1.7
13497	Ronstone (1,4)	02/09-22/2007	11.847	0.001	0.90	17.9-15.9	146.7	24.8
(14142)	1998 SG10 (4)	02/05-11/2007	50-64	na	~1.2	8.0-10.8	125.8	8.8
(46598)	1993 FT2 (4)	01/18-26/2007	4.8620	0.0005	0.33	24.0-21.0	140.0	25.8

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* As of date of first session.