

not enough high SNR data to begin with. It was decided to not arbitrarily remove the data points for those two periods without having a valid reason.

Acknowledgements

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References

Warner, B. D. (2003). *A Practical Guide to Lightcurve Photometry and Analysis*. Bdw Publishing, Colorado Springs, CO.

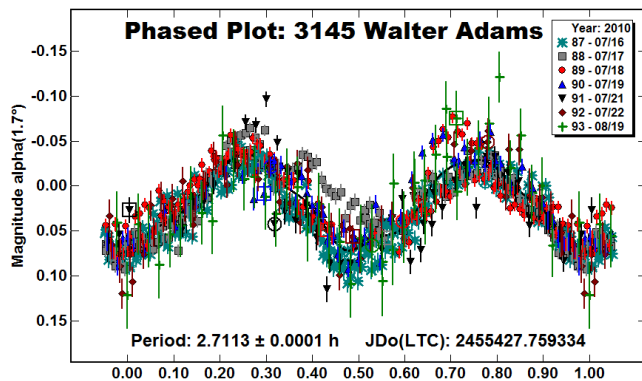


Figure 1. Primary Period with Secondary Period removed.

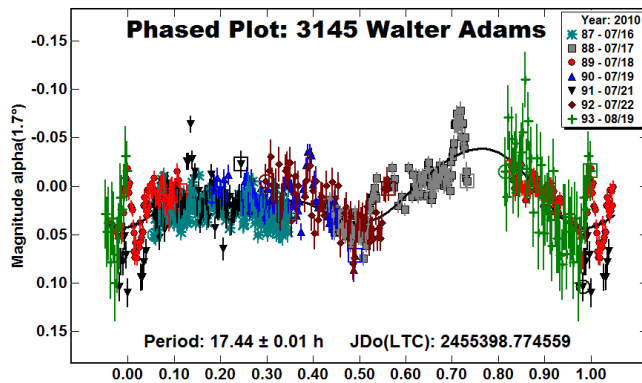


Figure 2. Secondary Period with Primary Period removed.

LIGHTCURVE ANALYSIS OF 996 HILARITAS

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The main-belt minor planet 996 Hilaritas was observed in 2010 March and April in order to study its lightcurve. We found a synodic rotation period and amplitude of $P = 10.052 \pm 0.001$ h and $A = 0.65 \pm 0.03$ mag.

The minor planet 996 Hilaritas was observed in 2010 March and April at Bassano Bresciano Observatory using the 0.32-m f/3.1 Schmidt telescope and HX-516 CCD camera. Exposures were 120 sec unguided with a Johnson V filter and binned 2x2. Flat fields and dark frames were taken each night and applied to the raw images. We selected the asteroid from the list in “Lightcurve Photometry Opportunities: 2010 January-March.” (Warner *et al.*, 2010) based on the requirement that the target asteroid have an altitude of at least 30° for several hours. We also chose the asteroid because its period of 7.2 h was listed with $U = 2$, indicating that the period had some uncertainty and so we had hopes of obtaining a higher quality result.

996 Hilaritas The observations covered a span of 34 days, 2010 March 6 - April 9, with 8 individual sessions. *MPO Canopus* (Bdw Publishing, 2010) was used to perform differential photometry on the reduced images with a minimum of three comparison stars on each image. Comparison stars were selected with a colour index of $V-R \approx 0.45$ (approximately solar colour) in order to minimize colour errors between the target and comparisons. Because of too low of signal-to-noise ratio, we excluded three sessions. The table below gives the observing circumstances for the remaining five sessions used for period analysis.

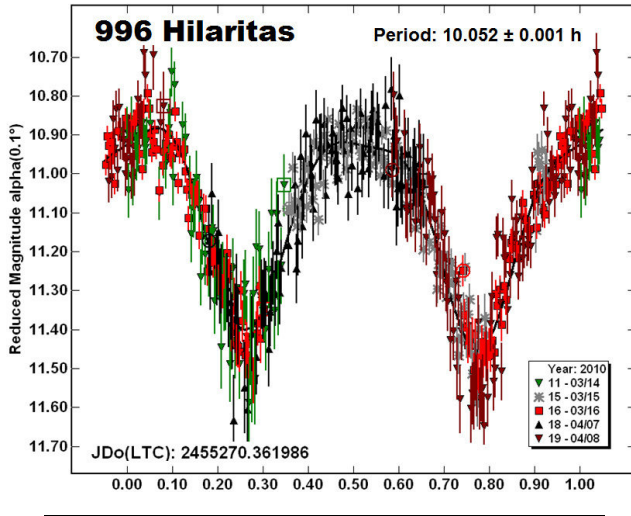
#	Date	Phase Angle	Time hours	Num. Obs	Filter
1	2010 March 14	0.1	3.5	73	V
2	2010 March 15	0.5	6.0	121	V
3	2010 March 16	0.9	5.7	134	V
4	2010 April 07	9.9	4.8	100	V
5	2010 April 08	10.3	5.5	118	V

The period analysis was performed using *MPO Canopus*, which uses the FALC algorithm developed by Harris (Harris *et al.*, 1989). We obtained an unambiguous bimodal lightcurve result of $P = 10.052 \pm 0.001$ h and $A = 0.65 \pm 0.03$ mag.

References

- Bdw Publishing (2010). *MPO Canopus* Software, version 10.0.0.6. <http://www.minorplanetobserver.com>
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ROTATION PERIOD DETERMINATIONS FOR 266 ALINE AND 850 ALTONA

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Synodic rotation periods and amplitudes are found for:
266 Aline 13.011 ± 0.001 hours or 26.023 ± 0.002 hours,
0.07 ± 0.01 mag; 850 Altona 11.197 ± 0.002 hours with
a complex lightcurve, 0.12 ± 0.02 mag.

Here we present results of collaborative photometric observations from our two observatories separated by about 120 degrees longitude – enabling the sampling of different parts of asteroid lightcurves within an interval of one to two days. Pilcher at Organ Mesa Observatory used a 0.35 m f/10 Meade LX200 GPS S-C, SBIG STL-1001E CCD, unguided, clear filter, instrumental magnitudes only. Benishek at Belgrade Observatory used a 0.4 m SCT operating at f/10, SBIG ST-10 XME CCD, unfiltered and unguided, instrumental magnitudes only. Photometric measurement, lightcurve analysis, and data sharing were enabled by *MPO Canopus* software. The large number of data points obtained for both objects have been binned in sets of three with time difference not exceeding five minutes to draw the lightcurves.

266 Aline. Denchev et al. (1998) obtained a sparse lightcurve from which they interpreted a 12.3 hour period. New observations on 20 nights 2010 July 18 – Aug. 25 indicate an amplitude of only 0.07 ± 0.01 magnitudes. Lightcurves phased to 13.011 ± 0.001 hours with one maximum and minimum per rotational cycle, or to 26.023 ± 0.002 hours with two unusually symmetric maxima and minima per cycle, provide comparably good fits. A monomodal

lightcurve of low amplitude is commonly observed for asteroids at near polar aspect. We consider this interpretation and a 13.011 hour period more likely than a shape highly symmetric over a 180 degree rotation required to produce the bimodal lightcurve. But future observations at a very different aspect will be required to provide a completely secure period determination. Lightcurves phased to both 13.011 hours and 26.023 hours are published here to assist the reader in making an independent evaluation.

850 Altona. Behrend (2010) suggested a period of 4 hours based on a single lightcurve of slightly more than two hours. New observations on 10 nights 2010 June 7 – July 9 show a period of 11.197 ± 0.002 hours, amplitude 0.12 ± 0.02 mag, and an irregular lightcurve.

Acknowledgment

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