

THE LIGHTCURVE OF MINOR PLANET 3014 HUANGSUSHU

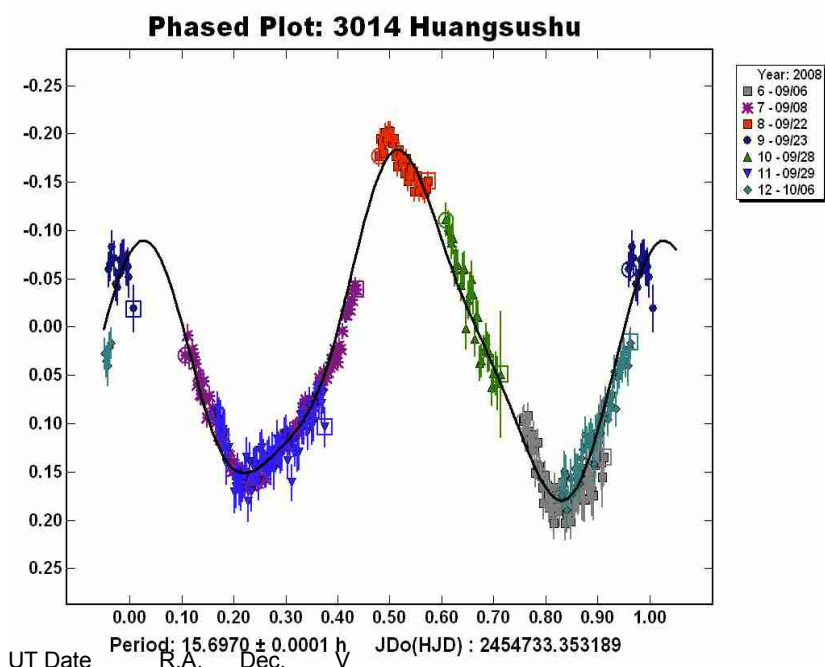
Stefano Moretti, Salvatore Tomaselli, and Alessandro Maitan
Bastia Obs. (MPC 197) – ARAR – Ravenna
Via dell'Osso, Bastia (Ravenna), ITALY
Stefanomoretti_001@fastwebnet.it

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Lightcurves of 3014 Huangsushu obtained in 2008
September reveal a rotation period of 15.6970
 ± 0.0001 h and amplitude of about 0.35 mag.

Our lightcurve of 3014 Huangsushu is the second attempt of asteroid photometry observations from Osservatorio (ARAR) Don Molesì, Bastia, Ravenna, Italy (MPC 197). The target was selected from the list of asteroid photometry opportunities published by Warner *et al.* (2008). This list didn't show any available information about 3014 Huangsushu. In addition, no information was found on the Minor Planet Center "Minor Planet Lightcurve Parameters" web page, which is based on Harris and Warner (2006).

The observations were obtained with a Newton telescope $D = 0.42$ m and $F = 2.250$ m. The CCD camera was an Apogee Alta U260e with 60 s exposure times ($S/N > 100$) and Schuler Clear filter. The observations were performed on the nights of 2008 Sept. 6, 8, 22, 23, 28, 29, and Oct. 6. All the measurements are compatible with a bimodal modulation. A total of 1015 measurements were made with the mean error for any single measurement varying from about 0.01 to 0.03 mag. The data were binned 3x3 before analysis and plotting in the lightcurve. Analysis of the combined data sets was made using *MPO Canopus*. The derived synodic rotation period is 15.697 ± 0.0001 h; the measured amplitude is about 0.35 mag.



UT Date	R.A.	Dec.	V	Mag
2008 Sept 06	23 26 12.6	-04 40 01	+14.4	
2008 Sept 08	23 24 38.8	-04 51 53	+14.3	
2008 Sept 22	23 13 59.7	-06 10 04	+14.6	
2008 Sept 23	23 13 19.1	-06 14 55	+14.6	
2008 Sept 28	23 10 14.2	-06 36 46	+14.8	
2008 Sept 29	23 09 41.4	-06 40 36	+14.9	
2008 Oct 06	23 06 37.6	-07 02 00	+15.1	

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References

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<http://cfa-www.harvard.edu/iau/lists/LightcurveDat.html>
- Warner, B.D. (2006). MPO Software, *Canopus* version 9.3.1.0. Bdw Publishing, <http://minorplanetobserver.com/>
- Warner, B.D., Harris A.W., Pravec, P., Benner, L.A.M, and Durech, J. (2008). "Lightcurve Photometry Opportunities: September-October 2008". <http://minorplanetobserver.com/>

PERIOD DETERMINATIONS FOR 634 UTE AND 805 HORMUTHIA

Frederick Pilcher
4438 Organ Mesa Loop
Las Cruces, NM 88011
Pilcher@ic.edu

Vladimir Benishek
Belgrade Astronomical Observatory
Volgina 7, 11060 Belgrade 38, Serbia

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Synodic rotation periods and amplitudes have been found for 634 Ute 11.7554 ± 0.0003 h, 0.17 ± 0.02 mag; and for 805 Hormuthia 9.510 ± 0.001 h, 0.05 ± 0.02 mag.

634 Ute. The only previous lightcurve is by Rene Roy and presented by Behrend (2008), which shows a period of 11.8 h and amplitude 0.13 ± 0.01 mag but with only 75% phase coverage. New observations on 22 nights by Pilcher were made from 2008 Apr. 17 through July 1 at the Organ Mesa Observatory. The equipment consisted of a Meade 35-cm LX200 GPS S-C, SBIG STL 1001-E CCD, and clear filter. Exposures were 60-s unguided. Image measurement using differential photometry and lightcurve analysis were done with *MPO Canopus*. Additional observations by Benishek on five nights, 2008 May 27 through June 2, were made at the Belgrade Observatory, about 127 degrees east in longitude from Organ Mesa, with a Meade 16" LX200 GPS f/10 S-C and Apogee AP47p CCD.

The first observations made by Pilcher on 2008 Apr. 17-19, a month before opposition, showed corresponding phases about 23.5 h apart, slightly less than an Earth commensurability. Subsequent observations were made at intervals of 3 to 7 days, each showing a phase slightly farther to the right on the lightcurve. The shape of any lightcurve changes slowly with phase angle, and can be appreciable during the interval of three weeks between sampling of the same portion of the lightcurve for a hypothetical 11.75 h period. This can make the 11.75 h period masquerade as a quadrimodal lightcurve with a 23.5 h period. Although Pilcher continued to obtain frequent lightcurves, the ambiguity between periods of 11.7554 h and 23.5111 h could not be resolved.

With a presumed 11.75 hour period, Benishek's five lightcurves show the same phase (position in the lightcurve) as Pilcher's on June 2-9 and overlapping in time should look identical. With a

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