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LIGHTCURVES FOR 890 WALTRAUT, 3162 NOSTALGIA, AND 6867 KUWANO

Larry E. Owings
Barnes Ridge Observatory
23220 Barnes Lane
Colfax, CA 95713 USA
lowings@foothill.net

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Lightcurve observations have yielded period determinations for the followings asteroids: 890 Waltraut, 12.581 ± 0.001 h; 3162 Nostalgia, 6.413 ± 0.002 h; and 6867 Kuwano, 7.37 ± 0.01 h.

Photometric data on three asteroids were collected at Barnes Ridge Observatory, located in northern California at an altitude of 762 meters, during early to mid-2009. A 0.36-m Meade Schmidt-Cassegrain (SCT) operating with a focal reducer at f/6.06 and Apogee U9 camera were used to acquire the images. The camera was binned 1x1 with a resulting image scale of 0.86 arc-seconds per pixel. The images were taken through a clear filter. All exposures were 120 seconds at -25°C . Nightly data runs were split into two sets with camera orientation being 0 and 180 degrees to allow adjustment of the zero offset between the two sets. All photometric data were obtained with *MaxIm DL V5* driven by *ACP V5* and then analyzed using *MPO Canopus v9.5* (Warner, 2008). All comparison stars and asteroid targets had $\text{SNR} \geq 100$.

890 Waltraut. Data were collected from 2009 July 21 through September 9 resulting in 17 data sets and 792 data points. A period of 12.581 ± 0.001 h was determined. A previous lightcurve with a period of 12.58 ± 0.01 hr and amplitude of 0.35 mag was reported by Brinsfield (2009).

3162 Nostalgia. Data were collected from 2008 February 1-3 resulting in 6 data sets and 421 data points. A period of 6.413 ± 0.002 h was determined. This agrees well with the period found by Carbo et al. (2009).

6867 Kuwano. Data were collected from 2009 June 23-27 resulting in 8 data sets and 365 data points. A period of 7.37 ± 0.01 h was determined. A previous lightcurve with a period of 7.367 ± 0.001 h and amplitude of 0.52 mag was reported by Brinsfield (2009). Vander Haagen (2009) reported the same period but with an amplitude of 0.55 mag.

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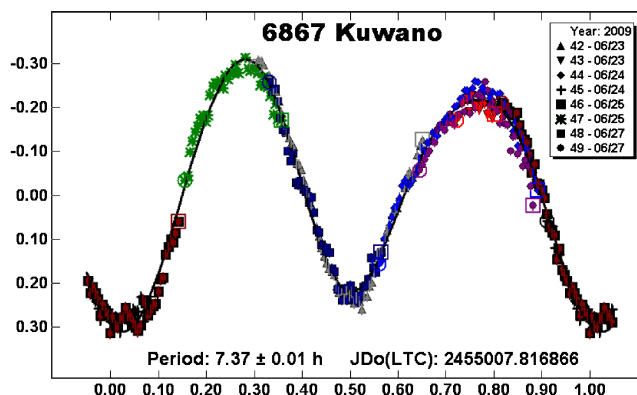
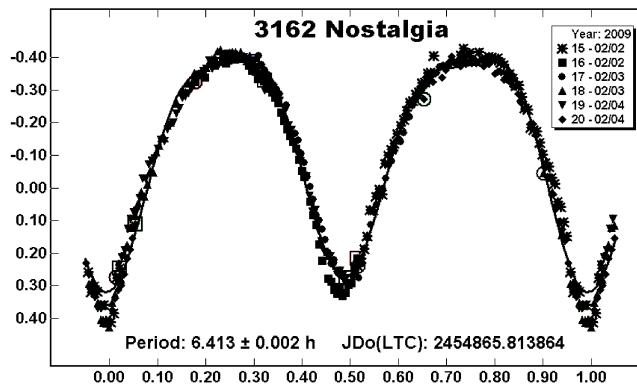
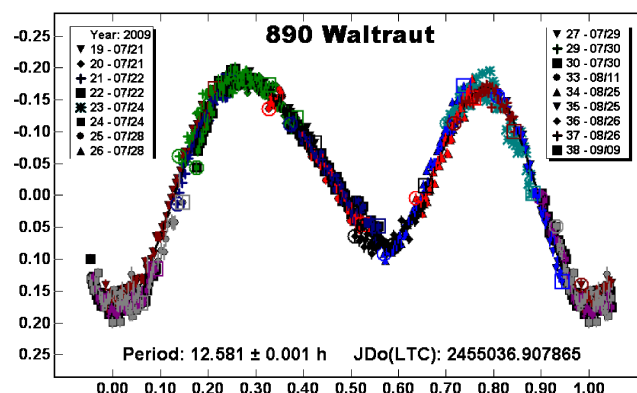
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LIGHTCURVE ANALYSIS OF 932 HOOVERIA

Brian D. Warner
Palmer Divide Observatory/Space Science Institute
17995 Bakers Farm Rd., Colorado Springs, CO 80908 USA
brian@MinorPlanetObserver.com

Pedro V. Sada
Departamento de Física y Matemáticas
Universidad de Monterrey
Av. I. Morones Prieto 4500 Pte.
Garza García, N.L., 66238 MÉXICO

Joseph Pollock
Physics and Astronomy Dept., Appalachian State Univ.
Boone, NC USA

Daniel Reichart, Kevin Ivarsen, Josh Haislip, Aaron LaCluyze,
Melissa Nysewander
PROMPT, UNC-Chapel Hill, NC USA

(Received: 26 March)

CCD observations of the main-belt asteroid 932 Hooveria in 2010 February and March led to a lightcurve with a synodic period of $P = 39.15 \pm 0.05$ h. This contradicted a period of 30 h (Sada, 2004). Re-analysis of the Sada data set gives $P = 39.23 \pm 0.02$ h, putting the two periods in fairly close agreement.

Initial observations of 932 Hooveria were made at the Palmer Divide Observatory in early 2010 February. See Warner (2010) for a general description of PDO equipment and analysis methods. See Warner (2007) and Stephens (2008) for details on data set calibration and linking using 2MASS (Skrutskie et al., 2006) to BVRI conversions. In order to obtain more data as quickly as possible and from a slightly different longitude, assistance was requested from Pollock et al. using the PROMPT 0.45-m telescope in Chile. The final data set of 900 data points spanned 30 days. Analysis of the lightcurve determined a synodic period of $P = 39.15 \pm 0.05$ h and amplitude of $A = 0.20 \pm 0.01$ mag (Fig. 1).

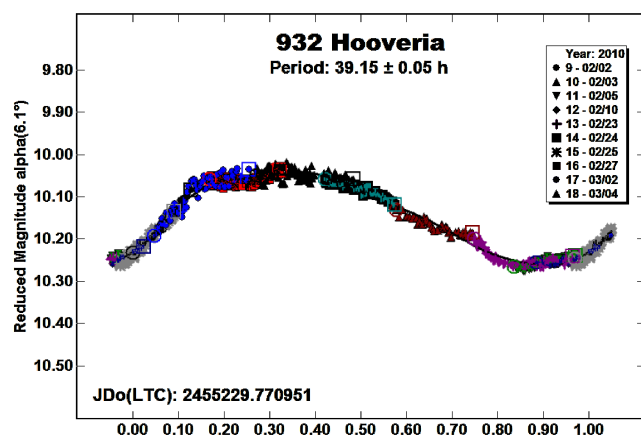


Figure 1. Lightcurve of 932 Hooveria from 2010 data set.

This period did not agree with the $P = 30$ h found by Sada (2004), who observed the asteroid in 2001 October and 2002 January. As a result of the PDO campaign, Sada remeasured his images, linking the sessions to one another by using the same comparisons whenever possible and calibrating to a nearby LONEOS (Skiff,

2010) field. The revised data set was sent to Warner for analysis, who found a revised period of $P = 39.23 \pm 0.02$ h. This did require, however, shifting one of the calibrated sessions (Oct 20) by 0.16 mag in order to match it with the others.

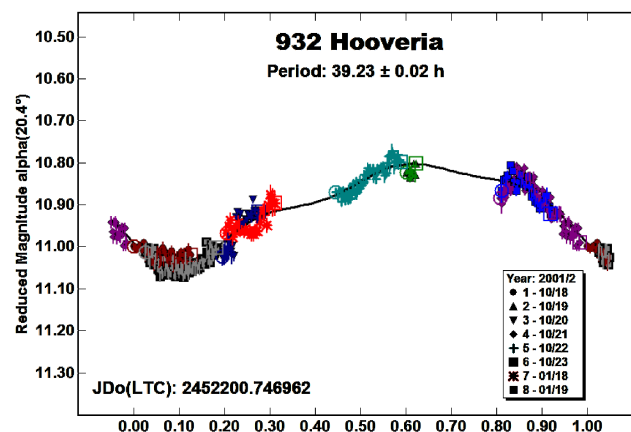


Figure 2. Lightcurve of 932 Hooveria from revised 2001/2 data.

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