shoot the target field in both V and B or R to establish which stars are solar colored and should be used to set the relationship. Afterwards, if necessary or desired, observations can be made without filters to improve the signal-to-noise ratio of the data. Once the proper filters have been acquired, this method will be used for future observations at the Palmer Divide Observatory.

The observations for the accompanying lightcurve were obtained with a 0.5m f/8.1 Richey-Chretien telescope. A common focal reducer used on commercial Schmidt-Cassegrain telescopes was used to bring the f-ratio down to f/4.6. The lenses from the reducer were placed in a custom-built mount that allowed the separation between the optics and CCD chip to be nearer the 105mm required for maximum reduction With the SBIG ST-8 used for imaging, this provided a field of approximately 19x13 arcminutes. The CCD was operated at 2x2 binning, or 18um pixels, yielding a resolution of 1.5 arcseconds per pixel. The temperature was set to –10°C. The camera could have been run colder but this setting can be obtained year around, and so is chosen to keep some consistency in the program images. Dark frames and flat fields were applied before the images were measured to reduce the effects of noise, pixel-to-pixel variations and, as a result of the reducer, significant vignetting. Exposures were unguided, forty seconds in duration, and taken at regular three minute intervals.

1582 Martir

Martir is an asteroid of approximately 37km size whose spectral classification has not been determined. The asteroid was discovered by M. Itzigsohn at La Plata on 1950 June 15. It is a main-belt asteroid, favoring the outer reaches with a semi-major axis of 3.16 AU, eccentricity of 0.12, and inclination of 11.6°. Approximately 200 observations were acquired over three nights, 2000 May 5, 10, and 21. The period was found to be 15.757h ± 0.005h with an amplitude of 0.40m ± 0.03m. The 16-day period between the first and last sessions represents approximately 24 revolutions, thus allowing a slightly better than usual precision to be reported.

Acknowledgements

Thanks go to Dr. Alan Harris of the Jet Propulsion Laboratory for making available the source code to his Fourier analysis program.

References

Harris, A.W., Young, J.W., Bowell, E., Martin, L.J., Millis, R.L., Poutanen, M., Scaltriti, F., Zappala, V., Schober, H.J., Debehogne, H., and Zeigler, K.W., (1989). "Photoelectric Observations of Asteroids 3, 24, 60, 261, and 863." Icarus **77**, 171-186.

Harris, Alan W. (1999). "Minor Planet Lightcurve Parameters", On Collaborative Asteroid Lightcurve Link site: http://www.MinorPlanetObserver.com/astlc/default.htm

Skiff, Brian A. (2000). "LONEOS Catalog", Lowell Observatory FTP site, anonymous login:

```
ftp://ftp.lowell.edu
Login Name: anonymous
Password: <your e-mail address>
cd pub/bas/starcats
get loneos.phot.gz
```

Be sure to set the mode to Binary.

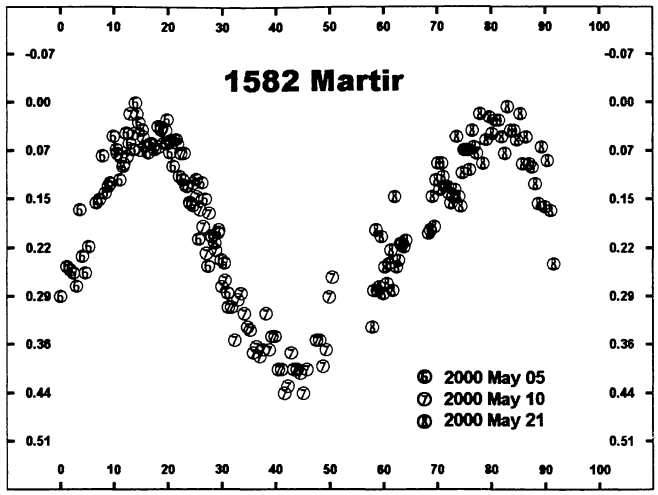

Figure 1. The phased lightcurve for 1582 Martir. The magnitudes are against a reduced common "zero point". The period was found to be 15.757h ± 0.005h with an amplitude of 0.40m ± 0.03m

ROTATIONAL PERIODS AND LIGHTCURVES OF 891 GUNHILD AND 1017 JACQUELINE

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As part of a lightcurve photometry program, the lightcurves of two main belt asteroids were measured at Santana Observatory. 891 Gunhild was determined to have a rotational period of 7.93 ± 0.01 hours and an amplitude of 0.18 magnitude. 1017 Jacqueline was determined to have a rotational period of 7.87 ± 0.01 hours and an amplitude of 0.7 magnitude.

Observations of 891 Gunhild and 1017 Jacqueline were made at Santana Observatory in Rancho Cucamonga, California. The observatory has a 28cm (11 inch) Schmidt-Cassegrain telescope combined with a focal reducer providing a F/7 focal length. The instrument attached is a SBIG ST-9E CCD camera.

Telescope and camera control was done using BDW Publishing's Connections 2000 program. This program controls the GOTO functions, tracking, synchronizing on nearby SAO stars, and automatic focusing necessary for the system to run unattended.

Minor Planets are sometimes selected for observation by referring to "Asteroid Photometry Opportunities" published each quarter in the Minor Planet Bulletin. Targets are selected within the limiting magnitude of the system, considering asteroids for which lightcurves have already been determined according to the list maintained by Dr. Alan Harris.

Data reductions and lightcurves were prepared using BDW Publishing's Canopus program, which was developed from Dr. Alan Harris' Fourier Analysis program (Harris et al, 1989).

891 Gunhild

Gunhild was discovered May 17, 1918 by M. F. Wolf. It is a main-belt asteroid with a semi-major axis of 2.86 AU, eccentricity of 0.026 and inclination of 13.54 degrees.

Gunhild was observed on four nights from April 27 to May 2, 2000. Images were taken unfiltered for 180 seconds and were flat fielded and dark subtracted. A total of 219 images were taken, of which 190 were usable. Unusable images typically resulted from excess trailing or the asteroid being too close to a star to measure. Because the rotational period is almost evenly divisible into 24 hours, the same portion of the lightcurve was being observed each night. Still, observations covering about 75 percent of the lightcurve were obtained revealing a classically shaped double maximum/minimum light curve. The derived period displayed in Figure 1 is 7.93 ± 0.01 hours and an amplitude of 0.18 magnitude.

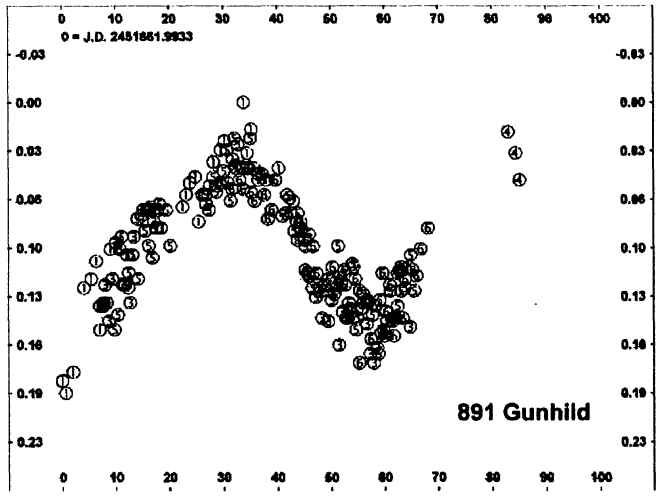

Figure 1. Lightcurve of 891 Gunhild based on a period of 7.93 ± 0.01 hours.

1017 Jacqueline

Jacqueline was discovered February 4, 1924 by B. Jekhovsky. It is a main-belt asteroid with a semi-major axis of 2.60 AU, eccentricity of 0.077 and inclination of 7.94 degrees.

Jacqueline was observed on five nights from May 4 to 10, 2000. Images were taken unfiltered for 120 seconds and were flat fielded and dark subtracted. A total of 158 images were taken, all of which were usable. Because the rotational period is almost evenly divisible into 24 hours, the same portion of the lightcurve was being observed each night. Still, observations covering about 95 percent of the light curve were obtained revealing a classically shaped double maximum/ minimum light curve. The derived period displayed in Figure 2 is 7.87 ± 0.01 hours and an amplitude of 0.70 magnitude.

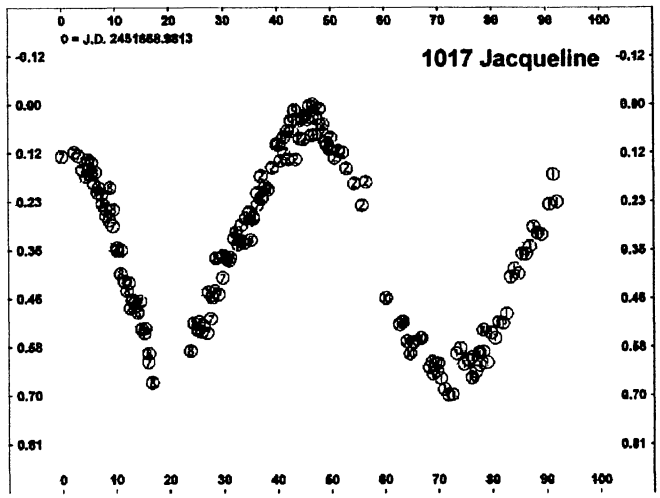

Figure 2. Lightcurve of 1017 Jacqueline based on a period of 7.87 ± 0.01 hours.

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References

Harris, Alan W. (1997), "Minor Planet Lightcurve Parameters", On the Minor Planet Center website: http://cfa-www.harvard .edu/iau/lists/LightcurveDat.html, or on the CALL website: http://www.MinorPlanetObserver.com/astlc/default.htm (updated September 1999)

Pravec, Petr and Harris, Alan W. (2000), "Asteroid Photometry Opportunities March-June 2000", The Minor Planet Bulletin 27(2) p. 24. On the CALL website: http://www.MinorPlanetObserver .com/astlc/apriljunetargets.htm.

Pravec, Petr and Harris, Alan W. (2000), "Asteroid Photometry Opportunities July-September 2000", The Minor Planet Bulletin 27(3) p. 44. On the CALL website: http://www.MinorPlanet Observer.com/astlc/julysepttargets.htm.